APPENDICES

List of Appendices for the City of Morro Bay Basis of Design Report for Indirect Potable Reuse Project

APPENDIX A

GSI Water Solutions, Inc.,
Groundwater Technical Memorandums

Appendix A GSI Water Solutions, Inc., Groundwater Technical Memorandums

Table of Contents

TECHNICAL MEMORANDUM

Lower Morro Valley Basin Groundwater Model Revision History

To: Damaris Hanson, City of Morro Bay
Dan Heimel, Confluence Engineering Solutions

From: Tim Thompson, GSI Water Solutions, Inc.
Dave O'Rourke, GSI Water Solutions, Inc.

Attachments: Figures 1 through 12

Date: August 18, 2023

Executive Summary

The Lower Morro Valley Basin Groundwater Model (LMVBGM, or Model) was developed by GSI in 2016-2017 as part of the initial feasibility study for the City of Morro Bay IPR Project. It has been updated and revised several times as additional data have been collected in the Project area. This Technical Memo summarizes the series of reports and TMs prepared by GSI since the model was developed.

Previous Model Documentation and Revision History

Lower Morro Valley Basin Screening-Level Groundwater Modeling for Injection Feasibility (GSI, 2017)

A summary of the groundwater model, development, applications, and revisions as they pertain to this project are presented herein.

The initial version of the model (referred to as the 2017 MODFLOW model) was developed using MODFLOW, and ultimately used in combination with the associated software packages MODPATH and MT3D to evaluate groundwater flow patterns, retention times, and chemical transport evaluations for various scenarios. The model was originally developed using a 47-year historical simulation period incorporating monthly stress periods (552 monthly stress periods). Climatic data representative of rainfall and streamflow during the historical period are incorporated in the model. Thus, the model simulates repeated hydrologic conditions of both dry and wet periods over the simulation period.

The Narrows, an area east of Highway 1 where the alluvium underlying Morro Creek is constrained by bedrock to a narrow corridor about 300 feet wide, is used as the upgradient boundary of the model. The proposed IPR project area is in the central portion of the model domain west of Highway 1, adjacent to and immediately south of Morro Creek.

The model is constructed of three layers:

- Layer 1 represents the ocean.
- Layer 2 represents finer materials such as silt and clay which are predominant at and near the land surface ("upper strata").

- Layer 3 represents coarser materials such as sand and gravel present at depths ranging from 20 to 80 feet below ground surface, and from which most groundwater production occurs ("lower aquifer").

The City's groundwater production is from a series of wells screened in the sand and gravel represented in model Layer 3. The modeled grid cells have a uniform size of 50 feet by 50 feet. Morro Creek is simulated at the surface in Layer 2, which provides a significant portion of the recharge to the aquifer system within the modeled area. Other model boundary conditions include subsurface inflow through the Narrows, subsurface inflow/outflow to or from the Pacific Ocean, precipitation-based recharge over the model area, and pumping from City wells.

For the initial development of the model, Layer 3 was assigned a uniform thickness of 20 feet, based on review of available boring logs (Appendix F) and well construction details. Based on a combined pumping test using multiple City wells simultaneously (as described in GSI, 2017, "Lower Morro Valley Basin Screening-Level Groundwater Modeling for Injection Feasibility", included in this Appendix A), a uniform transmissivity of 100,000 gallons per day per foot was assigned to the lower aquifer in the project area.

The screening-level model results indicate that:

- It is feasible for the aquifer to accept the recycled water available for injection (825 AFY).
- Five or six injection wells would likely be needed to achieve the desired recycled water injection capacity.
- Depending on the injection well locations, the model runs indicate that seawater intrusion would not occur for pumping amounts of up to 1,200 AFY.
- The model runs also indicate that the 4-month minimum subsurface recycled water retention time will be met as required under the GRRP permit requirements.

Morro Bay Water Reclamation Facility Water Quality Groundwater Modeling (GSI, 2019).

In 2019, a series of water quality scenarios were run using the 2017 MODFLOW model in conjunction with the chemical transport code MT3D to assist in the feasibility evaluation of potentially installing injection wells in the Lower Basin as part of the City's proposed IPR project. At that time, it had not yet been decided whether to site the proposed injection wells in the Narrows area or in the current Project Area (referred to as the "Southside" area in the 2019 technical memo). No revisions to the representation of the aquifer parameters in the project vicinity were made at the time of this 2019 study.

During this transport modeling, the simulation period was shortened to use a 38-year transient simulation period using 456 monthly stress periods due to (a) lack of calibration data during the first 10 years of the simulation period and (b) excessive computer run times using the MT3D transport model. Key results of the study this modeling effort are:

- Historical data and groundwater modeling indicates that the City's wells are at risk of seawater intrusion if the full permitted pumpage of 581 AFY is produced without contemporary IPR water injection.
- The model displayed adequate calibration for historically observed nitrate and TDS concentrations.
- Predictive scenarios indicate that all extraction wells have significantly lower nitrate concentrations over time under either injection well configuration. MB-3 experiences the greatest reduction in nitrates over time using the Narrows Injection Well configuration. The remaining Highway 1 wells experience a greater nitrate reduction over time from the Southside injection well configuration.
- Predictive scenarios indicate that both the Narrows and the Southside injection well layouts eliminate significant seawater intrusion events.

- The Southside well layout results in slightly lower TDS concentrations in the Highway 1 wells than the Narrows layout. The Southside well locations are located between the wellfield and the ocean, and so would likely provide a greater barrier to prevent or forestall seawater intrusion.

Characterization and Selection of Project Area for Injection Testing, City of Morro Bay (GSI, 2021).

Following implementation of a field exploration program in 2019 and 2020, which included cone penetrometer testing (CPT) in the vicinity of the Narrows, and constant rate aquifer tests at two existing wells (MB-13 and the Morro Bay MWC Well 3 [the latter of which was recently abandoned]), the model was updated to include newly collected data. Model scenarios were then simulated to support a decision on the recommended site for injection wells, selecting between the Narrows and the Vistra permanent easement area (referred to as the "Western" project area in the January 26, 2021 technical memo).

The most significant revisions to the model aquifer representation at this time was the changing of transmissivity around City Well MB-13 (east of Highway 1, on Errol Street) to values closer to the field-calculated value (based on a pumping test) of 23,000 gpd/ft, and revision of the transmissivity around Morro Bay MWC Well 3 to values closer to the field-calculated value of 80,000 gpd/ft. Also at this time, the thickness of model layer 3, representing the productive lower portion of the alluvial materials, was changed to reflect variable data, rather than the constant thickness value of 20 feet which had been applied previously during the model's initial development. The revised Model was used to run scenarios documented in the associated Technical Memo (GSI, 2021, included in this Appendix A).

Results of the field work and model applications documented at this time indicate that:

- hydrogeologic characterization was improved,
- the Vistra permanent easement area is preferable for the siting of injection wells over the Narrows area due to higher transmissivities and greater modeled retention times, and
- the Project remained feasible from a logistical and hydrogeologic standpoint under these assumptions.

Submission of Model files to RWQCB for Technical Review (GSI, 2021).

In 2021, the City provided the original groundwater modeling files and documentation of the three reports previously discussed to the California Regional Water Quality Control Board (RWQCB) for review. In November 2022, the RWQCB provided a written response documenting their review and comments regarding the City's modeling effort to that point. The response was generally positive, finding the "…modeling efforts conducted to date are thorough and well-executed." The letter then listed nine comments and questions regarding the model review. Many of the comments address concerns regarding travel time and location of injection wells that were already being addressed during continuing model revisions and additional scenarios that were ongoing during the time that the RWQCB performed its review. The RWQCB's letter and GSI's responses to the questions and comments raised in the letter, are included in Appendix E.

Groundwater Modeling of Alternative IPR Implementation Scenarios (GSI, 2022)

Subsequent to the injection well site selection evaluation and documentation technical memo, GSI utilized the Model to evaluate a series of newly proposed alternative scenarios for IPR implementation (GSI, 2022). The primary new consideration documented in this TM is the evaluation of potential injection wells located parallel to the coast along Atascadero Road north of Morro Creek (coastal alignment) to provide a barrier to potential seawater intrusion. Scenarios were run which considered injection wells located exclusively along the Vistra easement, exclusively along the coastal alignment, and a combination of the two. In addition, a scenario was run in which rising sea level was considered over the transient simulation period of the model. Other than the simulation of rising sea level, no other structural changes were made to the model at this time. The conclusions of these evaluations included:

- Modeling of project scenarios indicates that significantly higher groundwater elevations can be maintained under project conditions than under baseline conditions, even with the recovery pumping rate increased from 581 to 994 AFY.
- Evaluation of particle tracking results from Scenario 1 indicates that the Vistra permanent easement injection well alignment offers some protection from seawater intrusion for the Highway 1 wells, and a lesser degree of protection against seawater intrusion for the High School wells.
- Evaluation of particle tracking for the coastal injection well alignments indicates that this alignment offers more robust protection from seawater intrusion than the Vistra easement alignment.
- Model results associated with the Vistra easement alignment of injection wells (Scenario 1) indicate adequate retention time (greater than 4 months) for most of the particles modeled in the simulation. Injection well locations SS-1 and SS-2 routinely have the shortest retention times. This model result was anticipated to be revised following the collection (in 2023) of more complete hydrogeologic data during the pilot injection well installation and testing.
- Under the coastal alignment of injection wells (Scenario 2), the High School wells have the least amount of retention time; most particles indicate greater than 4 months retention time, but two of the particles from CP-4 reach well HS-2 in just under 4 months.
- Under the combined injection well alignment (Scenario 3), particle tracking indicates greater than 4 months retention time for all flow paths, and effective maintenance of a barrier against seawater intrusion along the coast under drought conditions.
- Simulation of a sea level rise of 1.8-foot over the simulation period resulted in 1.1-foot difference in groundwater elevations in the project area and did not significantly compromise either retention time or the effectiveness of the barrier against seawater intrusion.

LMVBGM Model Updates implemented during BOD Preparation

As previously documented in the BOD report, the City designed and installed a monitoring well and a pilot injection well (IW-1) in the Vistra easement during 2021 and 2022. These efforts included a traditional constant rate aquifer pumping test, and an extended long-term injection test in which conditions in the nearby monitoring well were continually monitored with a transducer to observe any change in conditions attributable to the movement of the injected water through the aquifer. Also, additional archived historical documentation from previous investigations became available to the Project team. These data were reviewed along with the injection test field study results to assess the hydrogeologic parameters in the model at that point. This evaluation resulted in the following changes to the Model.

The most significant findings of the field effort and historical report review involved revised estimates of transmissivity in the Model.

- The constant rate test associated with the pilot injection well construction and testing indicate that the aquifer transmissivity in model layer 3 is significantly lower than had previously been represented. After the previous model update associated with the site selection TM (GSI, 2021), the transmissivity in the area of the pilot injection well was estimated to be approximately 60,000 to 70,000 gpd/ft based on the data to that time. The constant rate pumping test performed at the pilot injection well indicated a transmissivity of less than 10,000 gpd/ft, so transmissivity estimates in this area were revised accordingly. (Lower transmissivity values result in slower travel times through the aquifer).

- Individual constant rate pumping tests performed on the High School wells were found in which the transmissivity was estimated at about 30,000 gpd/ft. Previously, the model had transmissivity of about 100,000 gpd/ft in this area. Modelled transmissivity values in this area were revised accordingly.
- Review of historical boring logs (Appendix G) parallel to the coast along Atascadero Road indicate that there is not a significant basal zone of sand and gravel in this area comparable to those found at the pilot injection well, the Highway 1 wells, and the High School wells. Although there are no pumping test data for this area, due to the relative lack of coarse-grained materials in the boring logs here, transmissivity estimates were reduced to less than 10,000 gpd/ft.
- The active area of the model was revised slightly in the area along the coast north of Morro Creek. The original model active grid resulted in a non-direct flow path from the coast to the High School wells, which was judged to be an artifact of the grid, and not based on the hydrogeologic conceptual model as it is presently understood. Therefore, the area indicated in purple was made active and assigned a thickness of 20 feet, and a transmissivity of less than 5,000 gpd/ft, similar to the other active cells in that vicinity.

LMVBGM Third Party Review

During the draft development of the Basis of Design Report LMVBGM model and model results were transmitted to project team member Cleath-Harris Geologists (CHG) for third party review. CHG submitted a letter dated May 24, 2023 with comments and suggestions for improvement of the model. GSI submitted an initial draft response dated June 6, 2023. Among several helpful suggestions for graphics, cross sections, and figures, GSI incorporated the following significant suggestions for improvement of the groundwater model:

- The transmissivity field in model layer 3 was revised to represent an area of relatively higher transmissivity between the pilot injection well and the City seawater intake wells, corresponding to the interpreted presence of a paleochannel in this area (Figure 1).
- A more accurate representation of the elevation of the dredged channel bottom in Morro Bay was incorporated into the top elevation of model layer 2.
- Land surface elevation values and streambed channel surface elevation values were revised using recently available LIDAR data which were not available at the time of the initial model development in 2016.
- The constant head boundary assigned to the ocean as model layer 1 was amended from an assumed value of zero to a value of 2.75 feet, which is consistent with current values used referencing the NAVD88 datum.
- Results of operational scenarios are assessed to maintain mounded water levels around the injection wells from rising above ground surface.

After the incorporation of these model changes and others detailed in CHG's review letter, the revised model was used to simulate the operational scenarios discussed in subsequent sections of this report.

Model Calibration and Sensitivity Analysis (GSI, 2023)

In response to comments from both the RWQCB and CHG, GSI revisited the LMVBGM model files and results from previous simulations to address questions regarding historical model calibration and sensitivity analysis.

Groundwater Model Calibration

Groundwater model calibration is achieved by adjusting parameters, boundary conditions, and model stresses so that modeled heads and fluxes match measured historical values within an acceptable range of error. The groundwater model is evaluated primarily on the statistical evaluation of residuals (field-observed groundwater elevations minus modeled groundwater elevations) in target wells across the model domain.

Previously, GSI qualitatively evaluated the Model from water year 1994 through 2016 to available water level measurement data of the City's wells. At the time of the initial model development, the model was adjusted primarily by varying the streambed conductance values (vertical hydraulic conductivity of the streambed) for wet and dry periods in the MODFLOW Stream Package under non-pumping conditions, and qualitatively evaluating the effect on the modeled water levels.

This historical evaluation was performed for static conditions (i.e., no significant pumping is included). This is because State Water Project deliveries began in 1997; the City's wells were used only periodically after this time. It is also noteworthy that streamflow gage data for Morro Creek are only available through 2003. Due to the lack of measured streamflow data after water year 2003, the Model required that stream inflow data at the Narrows had to be synthetized based on generalized wet and dry flow conditions between water years 2004 to 2016. Complicating things further is the fact that approximately 90 percent of the available measured groundwater elevations are between water years 2004 to 2016, which coincides with the time period for which surface water measurements had to be synthesized. Additionally, it is not clear if the reported water levels are influenced by the City occasionally pumping the wells during State Water delivery shutdowns, or for periodic maintenance of wells and the RO membranes.

During the BOD report and associated model revisions, GSI re-evaluated historical water level data and judged that the water level data prior to 1997 were not of sufficient quality to include in the updated calibration effort; therefore these data were eliminated from the statistical analysis. The calibration data discussed herein, therefore, ranges from water years 1997 through 2016. Considering the juxtaposed data gaps between measured surface water and groundwater elevation data, the synthesized inflows at the Narrows and the subsequent streambed percolation from water year 2004 through 2016 were adjusted. The calibration technique of manual trial-and-error was employed to achieve a better match as compared to the observed groundwater elevations in the City's wells. The final numerical mass balance error for the Model was less than one percent, which is within the industry standard for these types of models.

A total of 5 target wells with 385 monthly averaged ground water elevations located in the northeast of the Morro Bay groundwater basin were used for calibration. The calibration period is from water years 1998 through 2016. For context, note that the calibration statistics essentially reflect only the Highway 1 wellfield wells MB-15, MB-14, MB-4 and MB-3, which are very closely spaced, and are located in a linear array perpendicular to the primary direction of groundwater flow. Because the wells are spatially located in this fashion, and there is no significant pumping, there is a relatively small amount of variation in the observed groundwater elevations.

Figures 2 and 3 present the calibration residual scatter plot (modeled versus observed water levels), and the residual distribution plot. Figures 4through 8 present the hydrographs of the 5 target wells showing model-generated water levels compared to measured levels. Calibration statistics for the Model are presented in Table 1.

Table 1. Groundwater Model Statistics (Water Year)

Statistic	Results
Residual Mean	-2.28 ft
Residual Std. Deviation	2.84 ft
Absolute Residual Mean	3.02 ft
Residual Sum of Squares	5.1E+03 ft^2
RMS Error	3.64 ft
Minimum Residual	-9.1 ft
Maximum Residual	5.9 ft
Range of Observations	21 ft
Scaled Res. Std. Dev.	13.4 %
Scaled Abs. Mean	14.3 %
Scaled RMS	17.2 %
Number of Observations	385

Figure 2 presents a scatter plot of modeled heads versus observed heads. The modeled values plot close to the 1:1 line and are typically within one standard deviation of the mean of 2.84 ft, which is a common industry standard for calibration statistics. Figure 3 shows the temporal distribution of residuals over time. The results do not indicate any significant temporal biases.

The absolute error statistics (first 3 values of Table 1) show that the model residuals are within approximately 3 ft. The residual mean indicates that on average the modeled values are only -2.28 ft from the measured values. The scaled or relative error statistics is a measure of basin wide calibration where absolute statistics (residual standard deviation, RMS, absolute residual mean) are divided by the range of observed groundwater elevations to get a general sense basin wide model performance.

The rule of thumb calibration goal is to achieve a relative error of less than 10 percent (ESI, 2000-2020; Spitz and Moreno, 1996). The relative error for Morro Bay model is 13.4 percent, slightly more than the desired 10 percent rule of thumb.

Sources of Error

One potential reason for residual error is inadequate pumping data, which often does not become apparent until after the model is calibrated. It is likely that many of the larger residuals may be due to erroneous water level readings or reported groundwater levels being pumping levels and not true static levels. In addition, almost all the calibration data come from the City's Highway 1 wellfield, which are sited in a linear array, with little variability in water levels between wells.

As discussed previously, 90% of the observed groundwater elevations are during a period when there is no measured stream gage data available, or during the period of synthetically generated Morro Creek inflows into the model. These data gap issues complicate the calibration of the model. However, in general the model captures the seasonal variation exhibited in the water level data, and the effects of the extended droughts in the 1990s and after 2013.

Although not available at the time of this study, a potential improvement to the Model is to use the California Statewide Basin Characterization Model (BCM) to delineate the monthly inflow estimates at the Narrows. BCM is a surface water model that would likely improve the timing of the Morro Creek inflows at the Narrows and improve the statistics of the Model. Except for better representation of timing of the inflows, it is unlikely that BCM would significantly affect the conclusions of this study since the model created hydrographs do capture the seasonality and drought observed in the measured groundwater elevations.

Accepting the associated errors in the model calibration and its measurement, the calibration results indicate that the standard of the calibration achieved for this basin-wide scale model is suitable for the purposes of basin-wide groundwater management for which it was developed.

Sensitivity Analysis

Sensitivity analysis of a calibrated groundwater flow model is the process of assessing the impact of the uncertainty inherent in parameter estimation of aquifer characteristics on the pertinent results of the model. Knowledge of subsurface conditions is always incomplete, so some assessment of this uncertainty should be considered.

A traditional sensitivity analysis usually involves the systematic variation of model parameters such as transmissivity, storativity, and pumping above and below the estimates used in the calibrated model, and generating a graph showing the change in average model calculated heads in response to the parameter changes.

However, in GSI's professional judgement, model-wide changes in heads are not particularly instructive for the purposes of this particular model. It is recognized that the travel time between injection wells IW-1, IW -2, and IW-3 and the City's Highway 1 wellfield are very close to the regulatory requirement of a modeled travel time of 4 months. This is the most constraining factor that could impact the success of the project. Therefore, instead of proceeding with a traditional sensitivity analysis and evaluating average model-wide heads, it was decided to approach sensitivity analysis by varying the two model parameters that are most likely to affect travel time in this vicinity; hydraulic conductivity (and associated transmissivity) and porosity. Then the predictive flow model and particle tracking simulations are re-run to assess the difference in travel times in this area between the predictive simulation and these sensitivity analysis simulations. Thus, the model wide distributions of hydraulic conductivity (and transmissivity) are varied by increasing and decreasing the spatial distribution of the calibrated model by 20%, and the porosity value is changed from its initial model-wide estimate of 20% to values of 15% and 25%.

The base model simulation selected for consideration in the sensitivity analysis is the scenario in which the injection wells are simulated to inject at 887 AFY and City wells are simulated to produce 900 AFY (described further in the Basis of Design report and illustrated on Figure 27 of that report).

Figure 9 presents the groundwater elevations (stress period 118) and particle tracking results for the Sensitivity Analysis Simulation 1, in which hydraulic conductivity/transmissivity is increased to 120% of the original values. Figure 10 presents results for the simulation in which hydraulic conductivity/transmissivity are decreased to 80% of the original values. Inspection of these two figures reveals little discernible difference in the travel time results indicated by the particle tracks. These results might be explained consideration of the equation for groundwater velocity.

$V = Ki/n$, where

V = groundwater velocity (ft/day)

K = Hydraulic Conductivity (ft/day)

i = hydraulic gradient (unitless, or ft/ft)

n = effective porosity (unitless)

Both hydraulic conductivity and hydraulic gradient are in the numerator of this equation. As the hydraulic conductivity increases, pumping-associated drawdown correspondingly decreases. Thus, the cone of depression formed by the pumping will tend to “flatten out” and the associated hydraulic gradient also decreases. In summary, increases in hydraulic conductivity will be partially offset by decreases of hydraulic gradient, resulting in similar travel times under both simulations. The results presented in Figures 8 and 9 indicate that the travel time in this vicinity is not very sensitive to changes in hydraulic conductivity.

Figure 11 presents model results for a sensitivity analysis in which model-wide porosity is reduced from 20% to 15%, and Figure 12 presents results for a sensitivity analysis in which porosity is increased to 25%. Figure 11 indicates that with an assumed porosity of 15%, the travel time from injection wells IW-1, 2, and 3 is less than 4 months, no longer meeting the travel time requirements of modeled residence time of 4 months. Figure 12 indicates that with an assumed porosity of 25%, travel time is increased to greater than 5 months in this area. These results are intuitively correct when one inspects Equation 1 and observes that the porosity value is in the denominator of the equation, so smaller porosity values will result in faster groundwater velocities. The results presented in Figures 11 and 12 indicate that modeling results for travel time in this area are sensitive to the uncertainty associated with estimating porosity.

References:

Environmental Simulations, Inc . 2000-2020. Guide to Using Groundwater Vistas, version 8. Environmental Simulations, Inc.

Spitz, K. and J. Moreno. 1996. A Practical Guide to Groundwater and Solute Transport Modeling. John Wiley & Sons, Inc., New York.

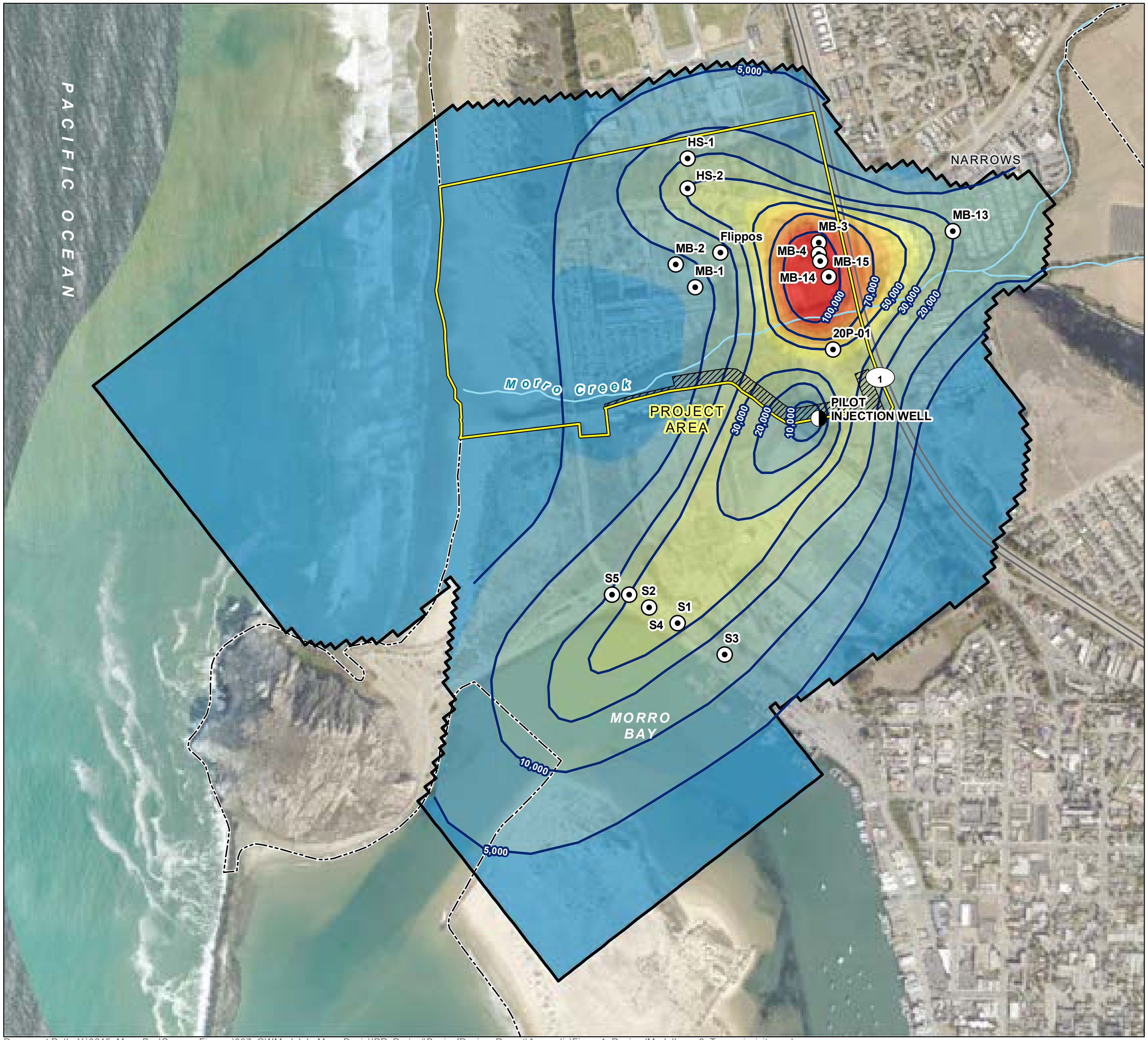

FIGURE 1

Revised Model Layer 3 Transmissivity

Morro Bay IPR Project
Basis of Design Report

LEGEND

- Well
- Injection Well
- Project Area
- Permanent Easement
- Model Active Area

Transmissivity (gpd/ft)

- 0 - 5,000
- 5,000 - 10,000
- 10,000 - 20,000
- 20,000 - 30,000
- 30,000 - 40,000
- 40,000 - 50,000
- 50,000 - 60,000
- 60,000 - 70,000
- 70,000 - 80,000
- 80,000 - 90,000
- 90,000 - 100,000
- > 100,000

All Other Features

- City Boundary
- Major Road
- Watercourse

NOTES

gpd/ft: gallons per day per foot

N

0 1,000
Feet

Date: August 18, 2023
Data Sources: USGS, ESRI, City of Morro Bay, Maxar Imagery (2021)

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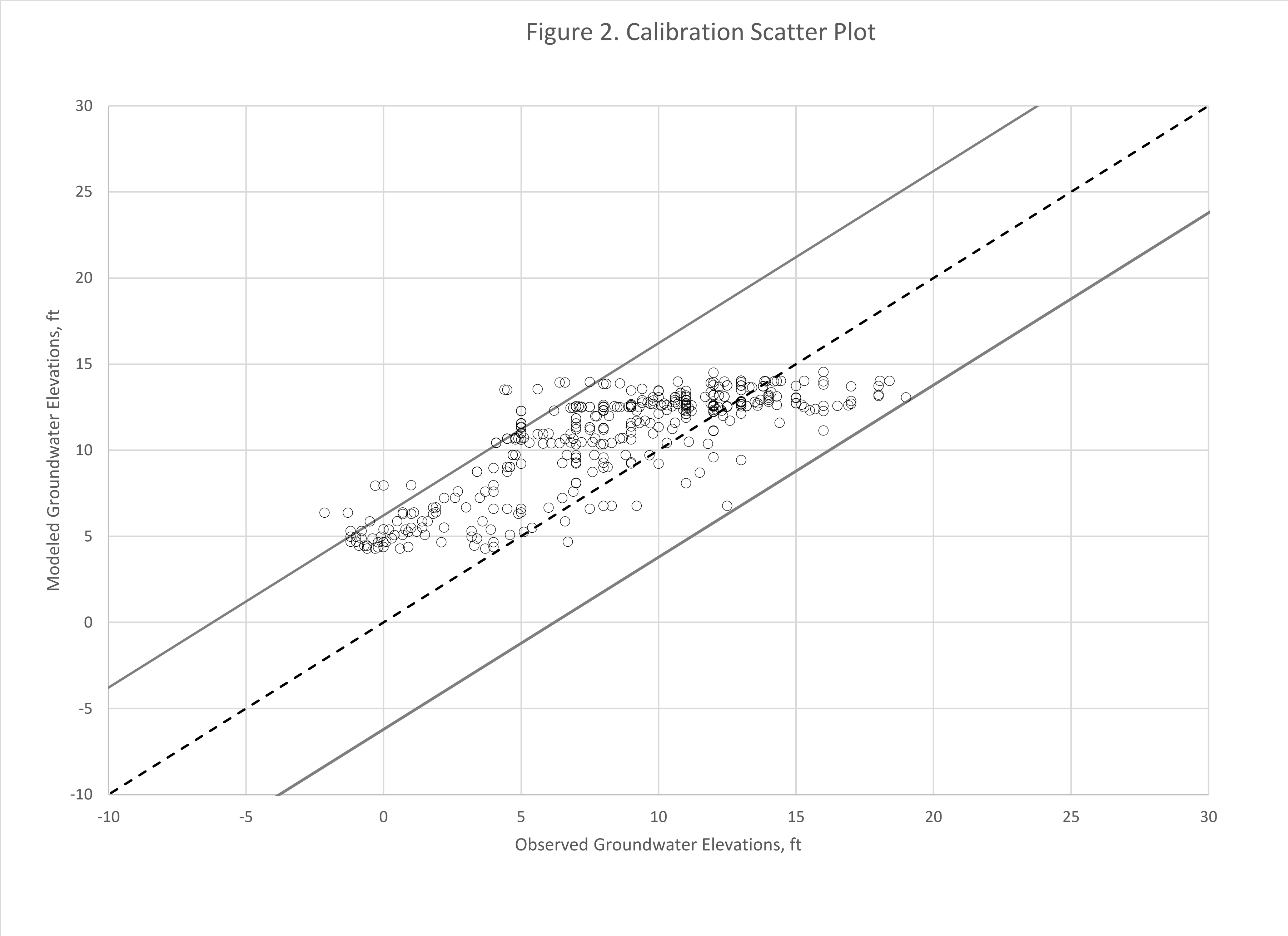


Figure 2. Calibration Scatter Plot
Modeled Groundwater Elevations, ft
Observed Groundwater Elevations, ft
30
25
20
15
10
5
0
-5
-10
-10
-5
0
5
10
15
20
25
30

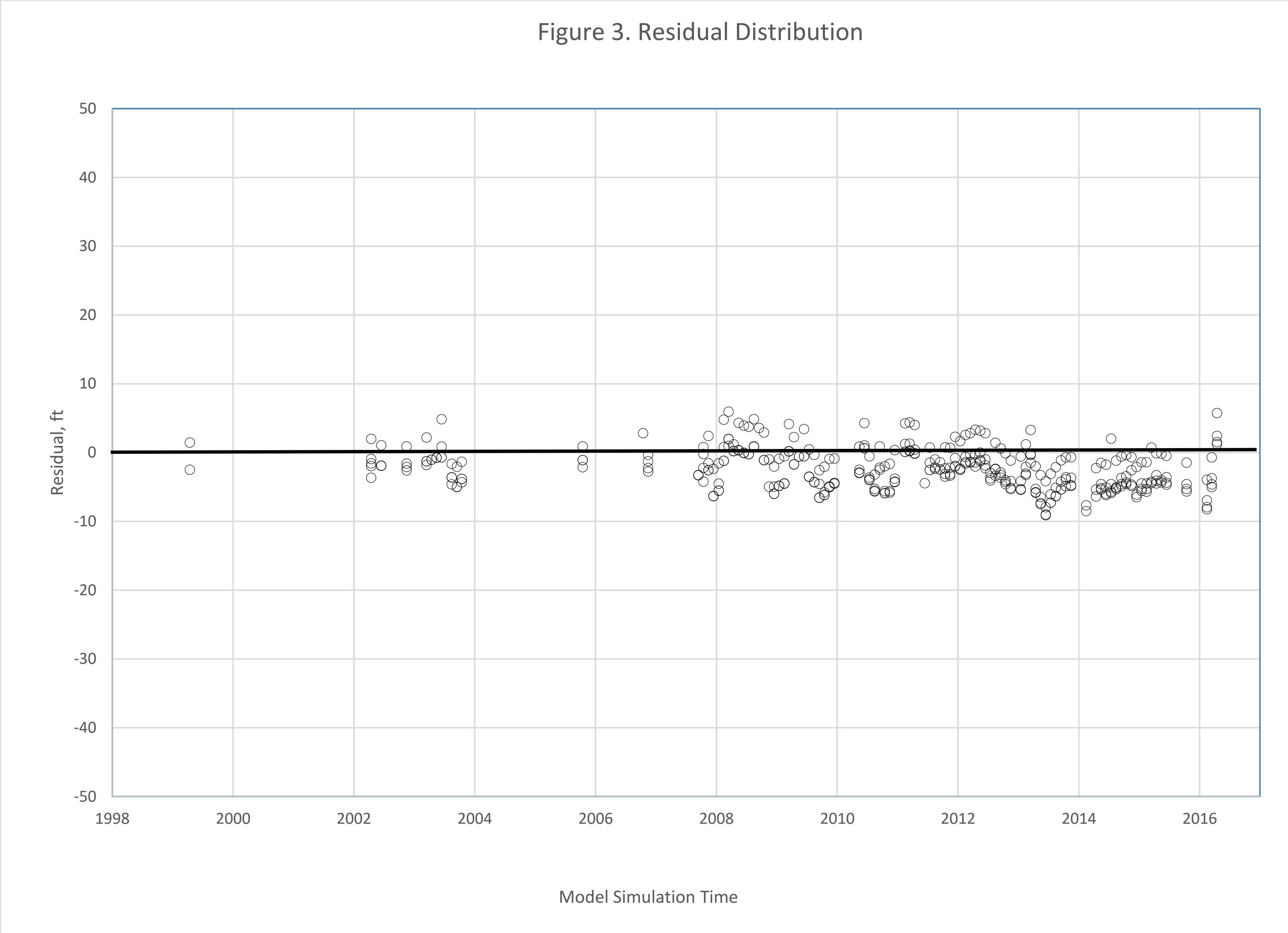
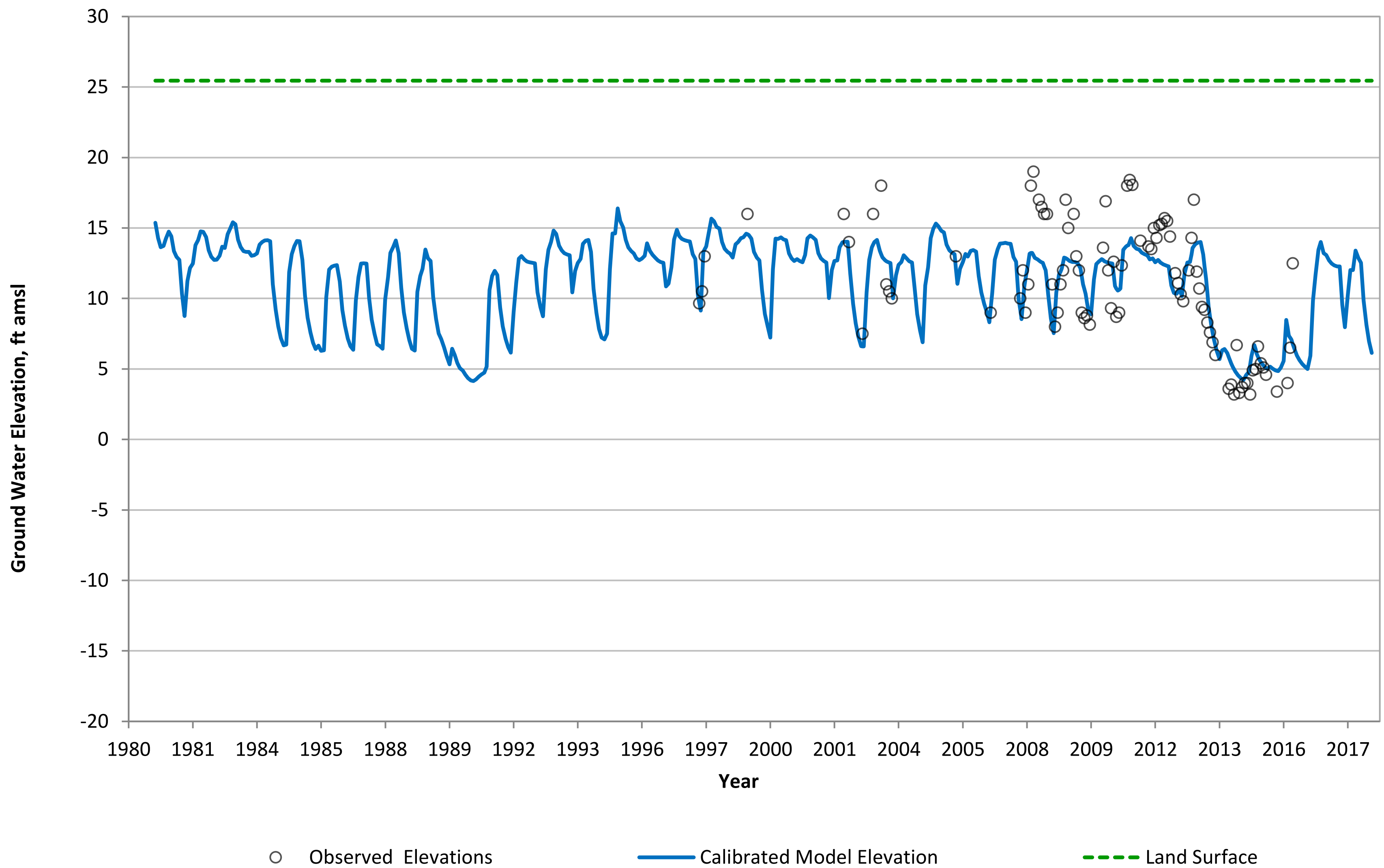


Figure 3. Residual Distribution
Residual, ft
50
40
30
20
10
0
-10
-20
-30
-40
-50
1998
2000
2002
2004
2006
2008
2010
2012
2014
2016
Model Simulation Time

Figure 4
Hydrograph Well MB-15
Model Layer 3



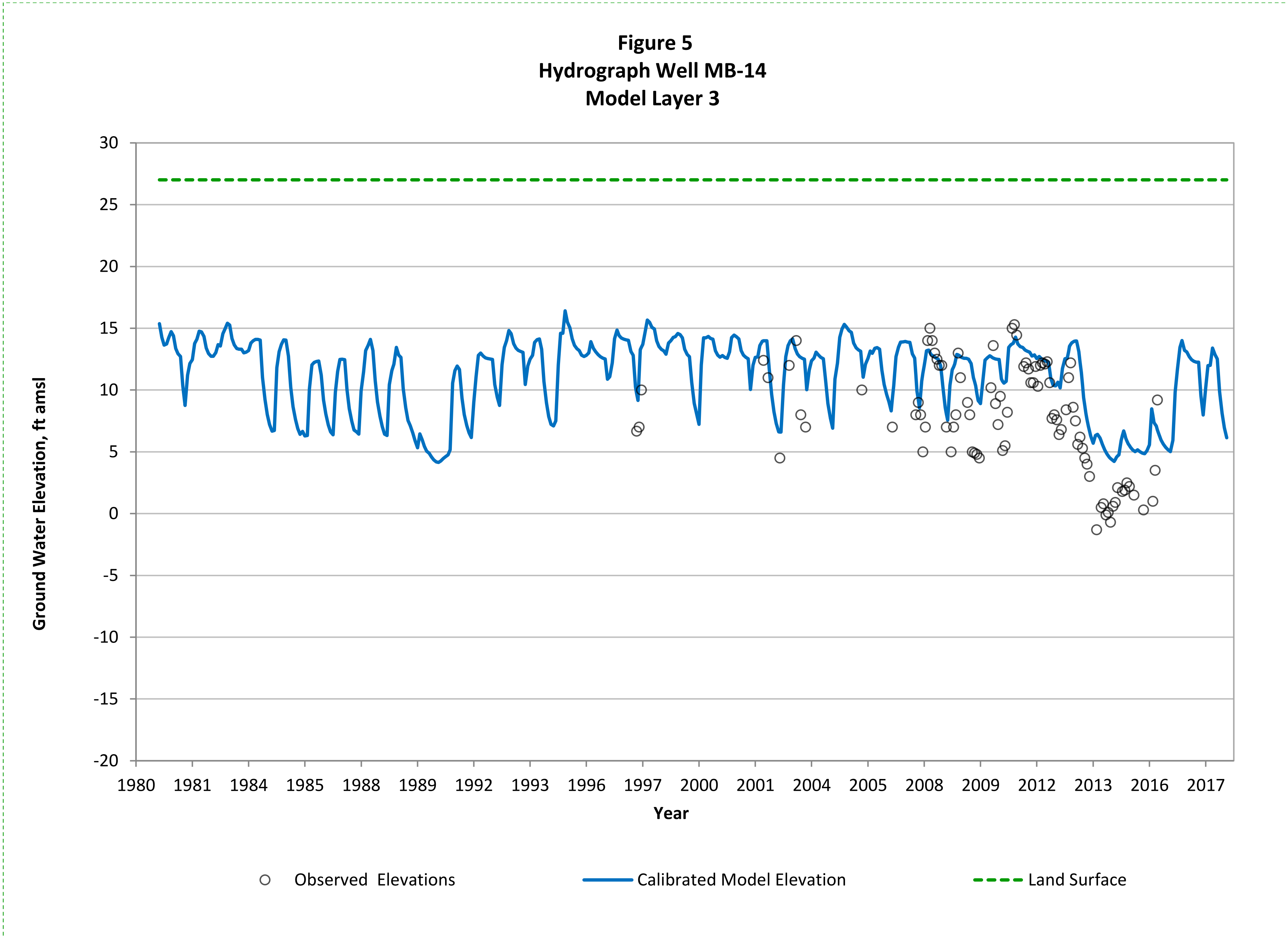


Figure 5
Hydrograph Well MB-14
Model Layer 3
Ground Water Elevation, ft amsl
30
25
20
15
10
5
0
-5
-10
-15
-20
1980
1981
1984
1985
1988
1989
1992
1993
1996
1997
2000
2001
2004
2005
2008
2009
2012
2013
2016
2017
Year
Observed Elevations
Calibrated Model Elevation
Land Surface

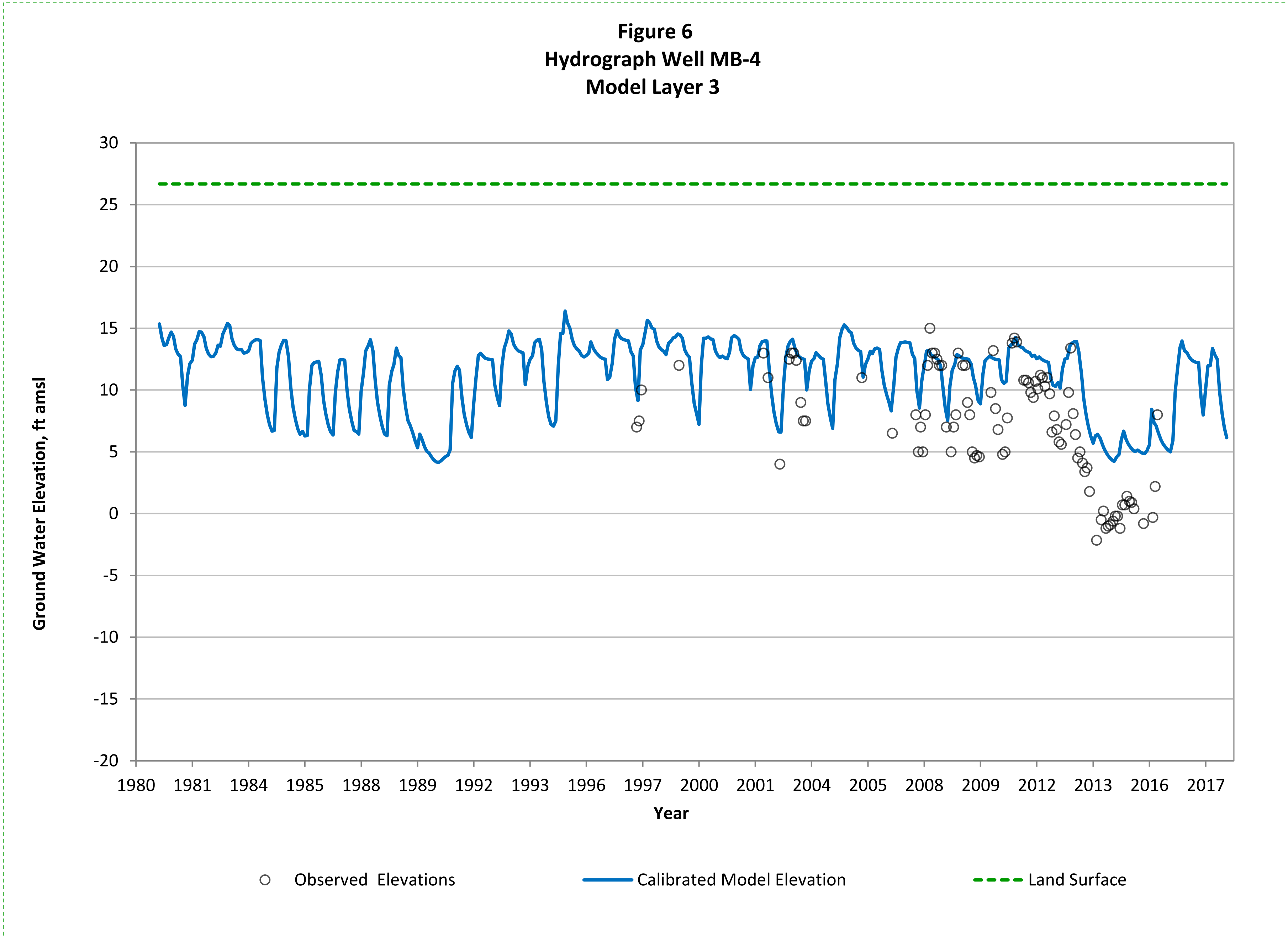


Figure 6
Hydrograph Well MB-4
Model Layer 3
30
25
20
15
10
5
0
-5
-10
-15
-20
Ground Water Elevation, ft amsl
1980
1981
1984
1985
1988
1989
1992
1993
1996
1997
2000
2001
2004
2005
2008
2009
2012
2013
2016
2017
Year
Observed Elevations
Calibrated Model Elevation
Land Surface

Figure 7
Hydrograph Well MB-3
Model Layer 3

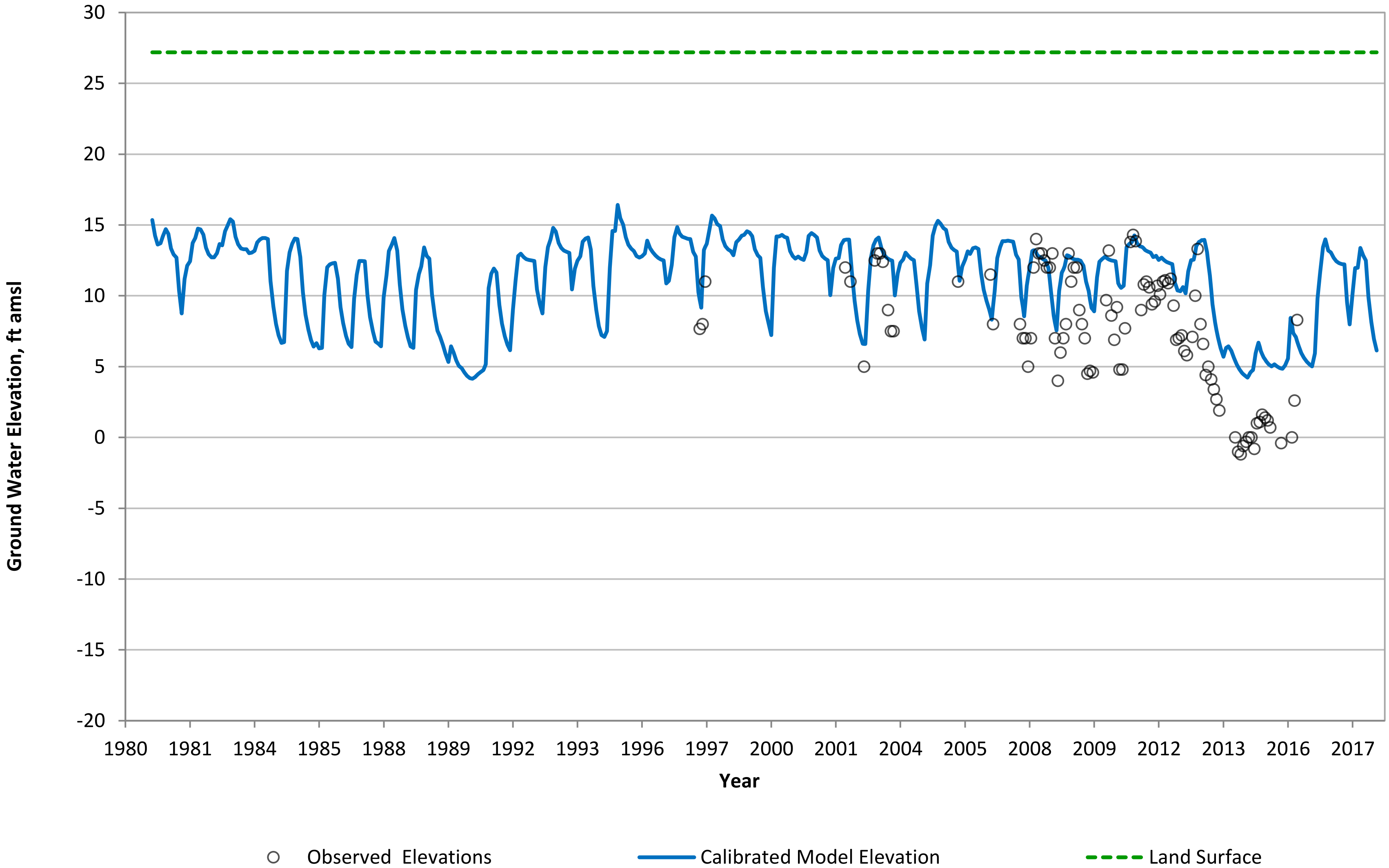
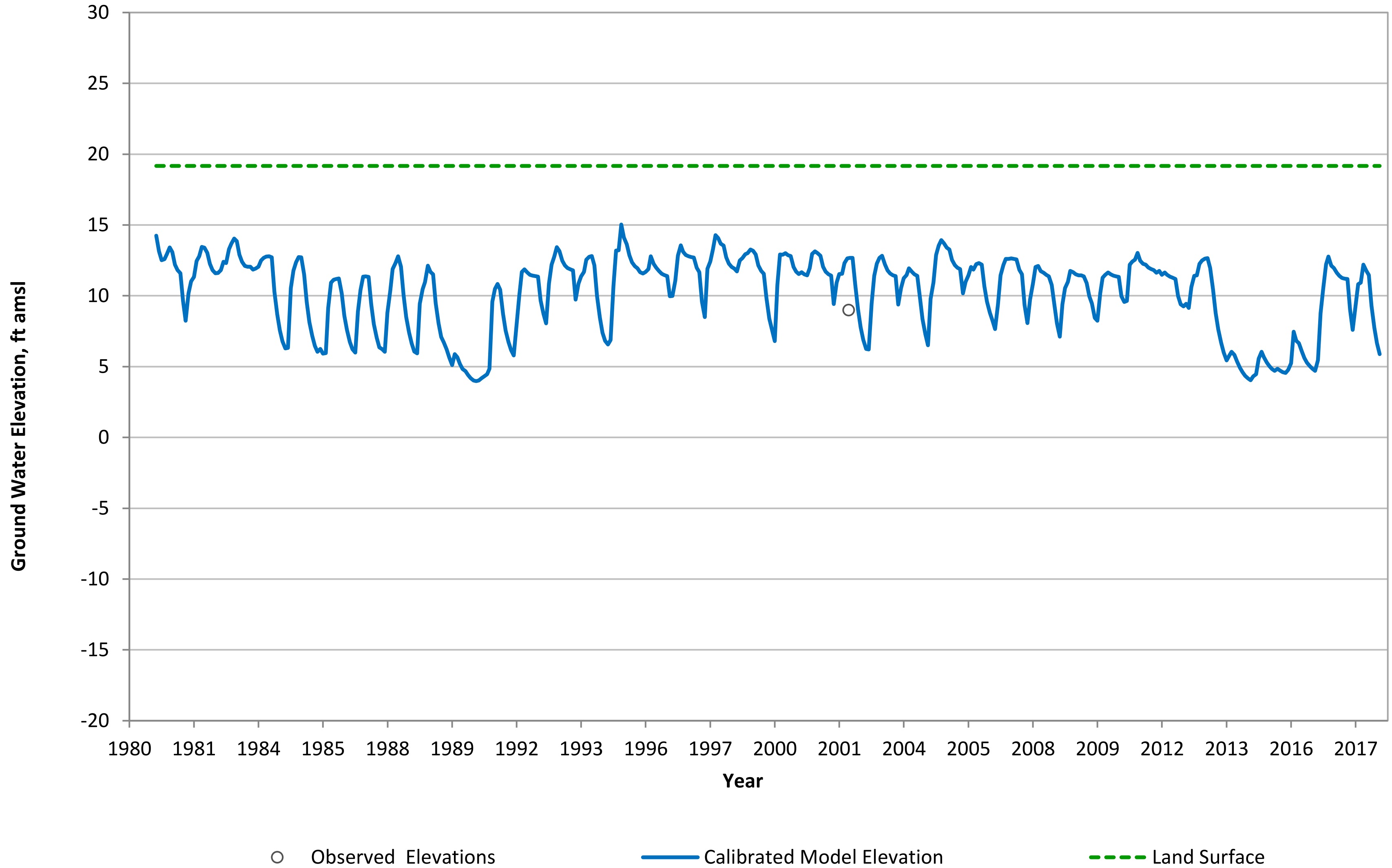


Figure 8
Hydrograph Well MB-1
Model Layer 3



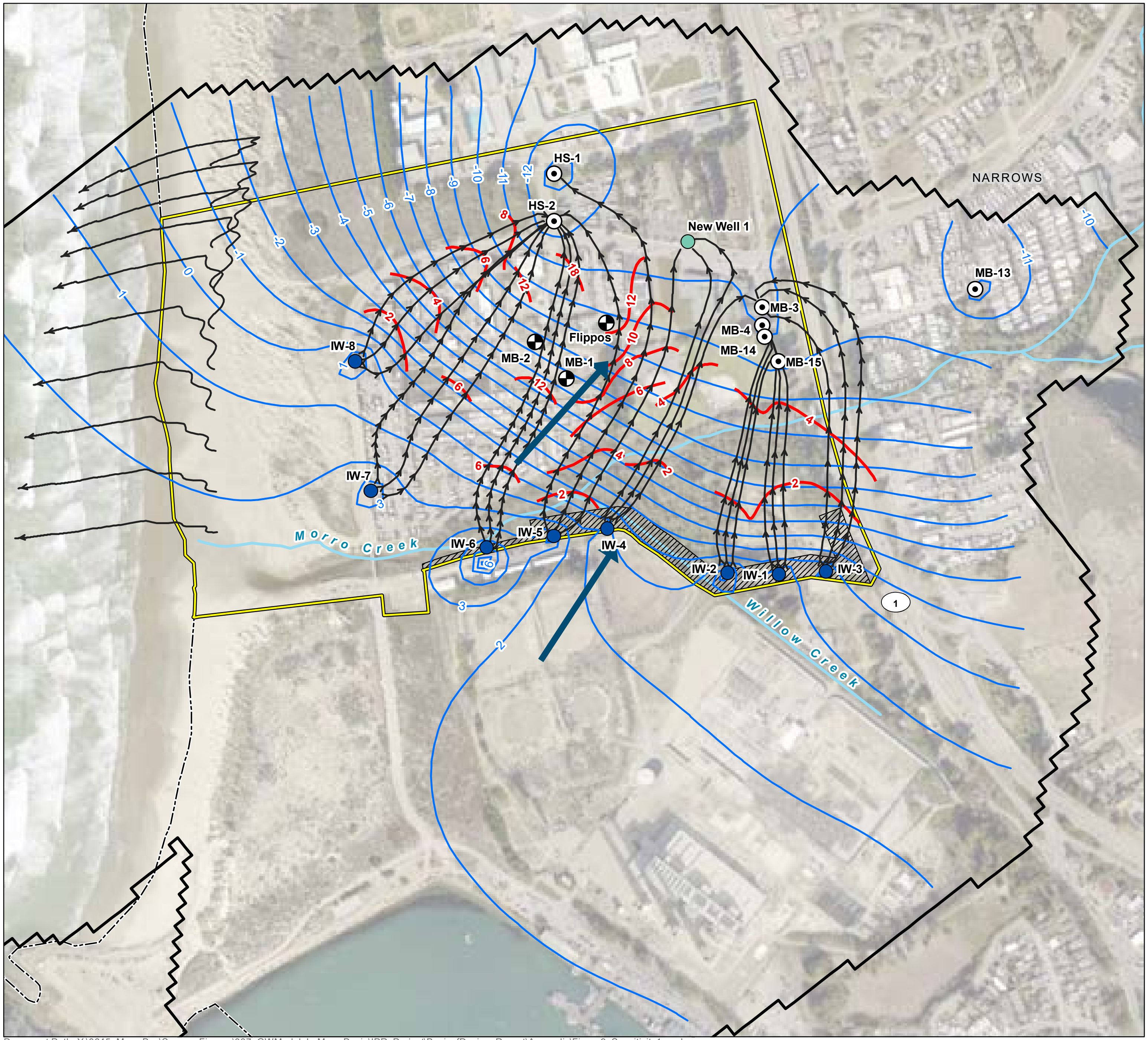


FIGURE 9

Model Results
Sensitivity Analysis 1
Hydraulic Conductivity = 120% Original

Morro Bay IPR Project
Basis of Design Report

LEGEND

- Injection Well
- New Well 1
- Morro Bay City Well
- City Well to be Repurposed to Monitoring well
- Time of Travel (in months)
- Paticle Track
- Groundwater Elevation Contour (feet amsl)
- Groundwater Flow Direction
- Project Area
- Permanent Easement
- Model Active Area

All Other Features

- City Boundary
- Major Road
- Watercourse

NOTES

1. Water levels are from stress period 118 of the transient simulation, which represents the lowest water levels modeled during the drought.

amsl: above mean sea level
AFY: acre feet per year

N

0 315 630
Feet

Date: August 18, 2023
Data Sources: USGS, ESRI, City of Morro Bay, Maxar Imagery (2021)

GSI Water Solutions, Inc.

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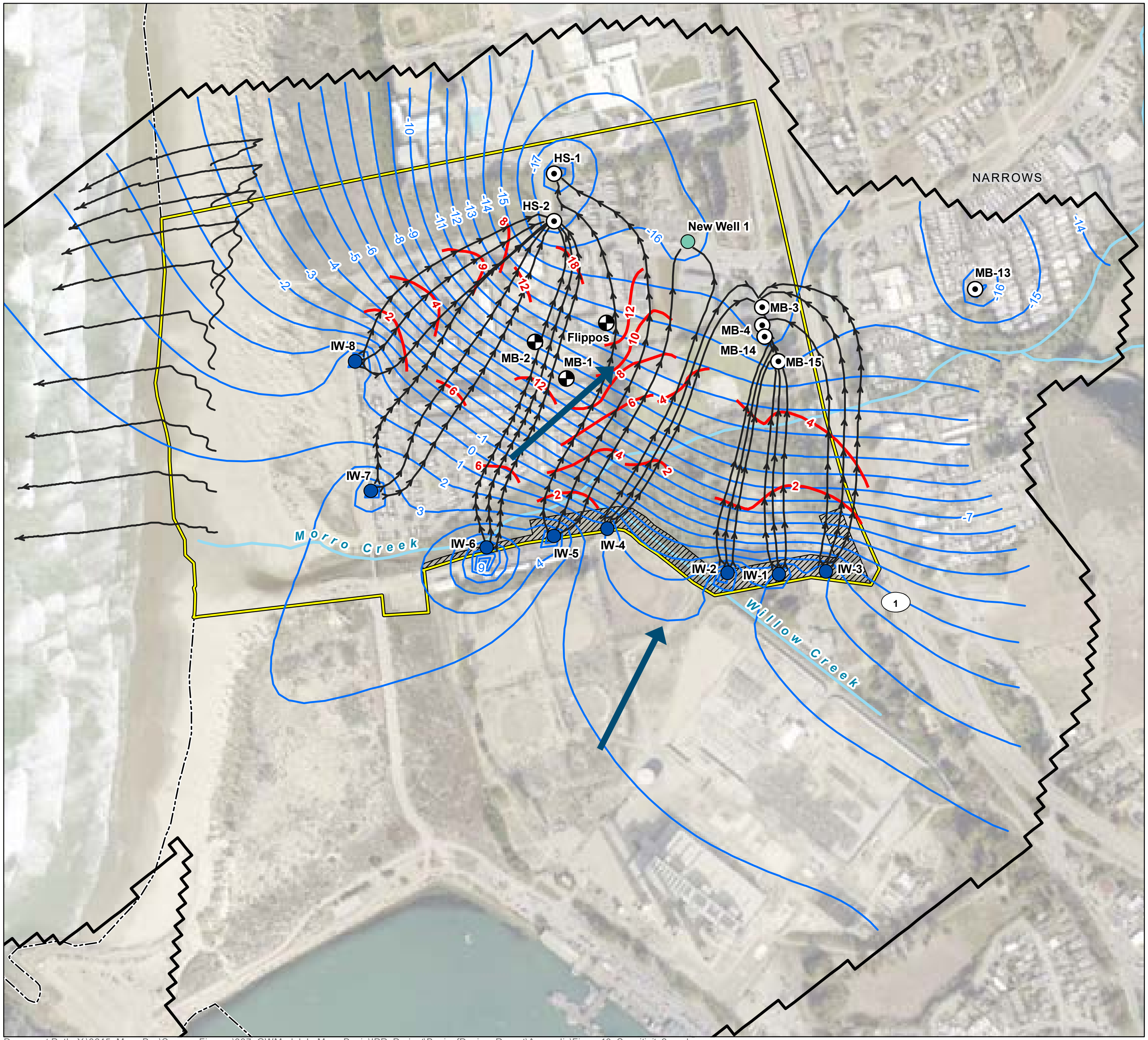

FIGURE 10

Model Results
Sensitivity Analysis 2
Hydraulic Conductivity =
80% Original

Morro Bay IPR Project
Basis of Design Report

LEGEND

- Injection Well
- New Well 1
- Morro Bay City Well
- City Well to be Repurposed to Monitoring well
- Time of Travel (in months)
- Paticle Track
- Groundwater Elevation Contour (feet amsl)
- Groundwater Flow Direction
- Project Area
- Permanent Easement
- Model Active Area

All Other Features

- City Boundary
- Major Road
- Watercourse

NOTES

1. Water levels are from stress period 118 of the transient simulation, which represents the lowest water levels modeled during the drought.

amsl: above mean sea level
AFY: acre feet per year

N

0 315 630
Feet

Date: August 18, 2023
Data Sources: USGS, ESRI,
City of Morro Bay, Maxar Imagery (2021)

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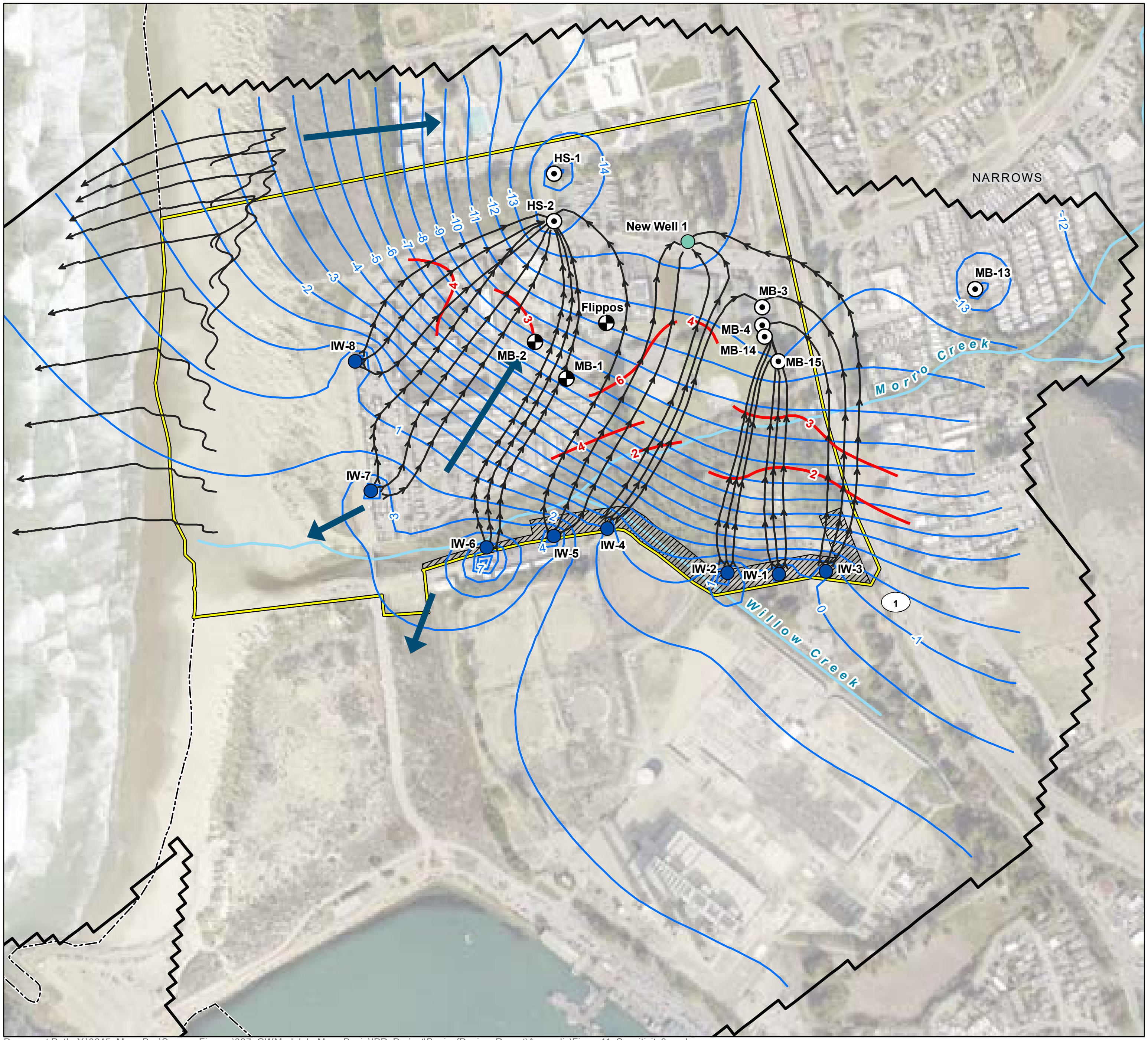

FIGURE 11

Model Results
Sensitivity Analysis 3
Porosity = 15%

Morro Bay IPR Project
Basis of Design Report

LEGEND

- Injection Well
- New Well 1
- Morro Bay City Well
- City Well to be Repurposed to Monitoring well
- Time of Travel (in months)
- Paticle Track
- Groundwater Elevation Contour (feet amsl)
- Groundwater Flow Direction
- Project Area
- Permanent Easement
- Model Active Area

All Other Features

- City Boundary
- Major Road
- Watercourse

NOTES

1. Water levels are from stress period 118 of the transient simulation, which represents the lowest water levels modeled during the drought.

amsl: above mean sea level
AFY: acre feet per year

N

0 315 630
Feet

Date: August 18, 2023
Data Sources: USGS, ESRI, City of Morro Bay, Maxar Imagery (2021)

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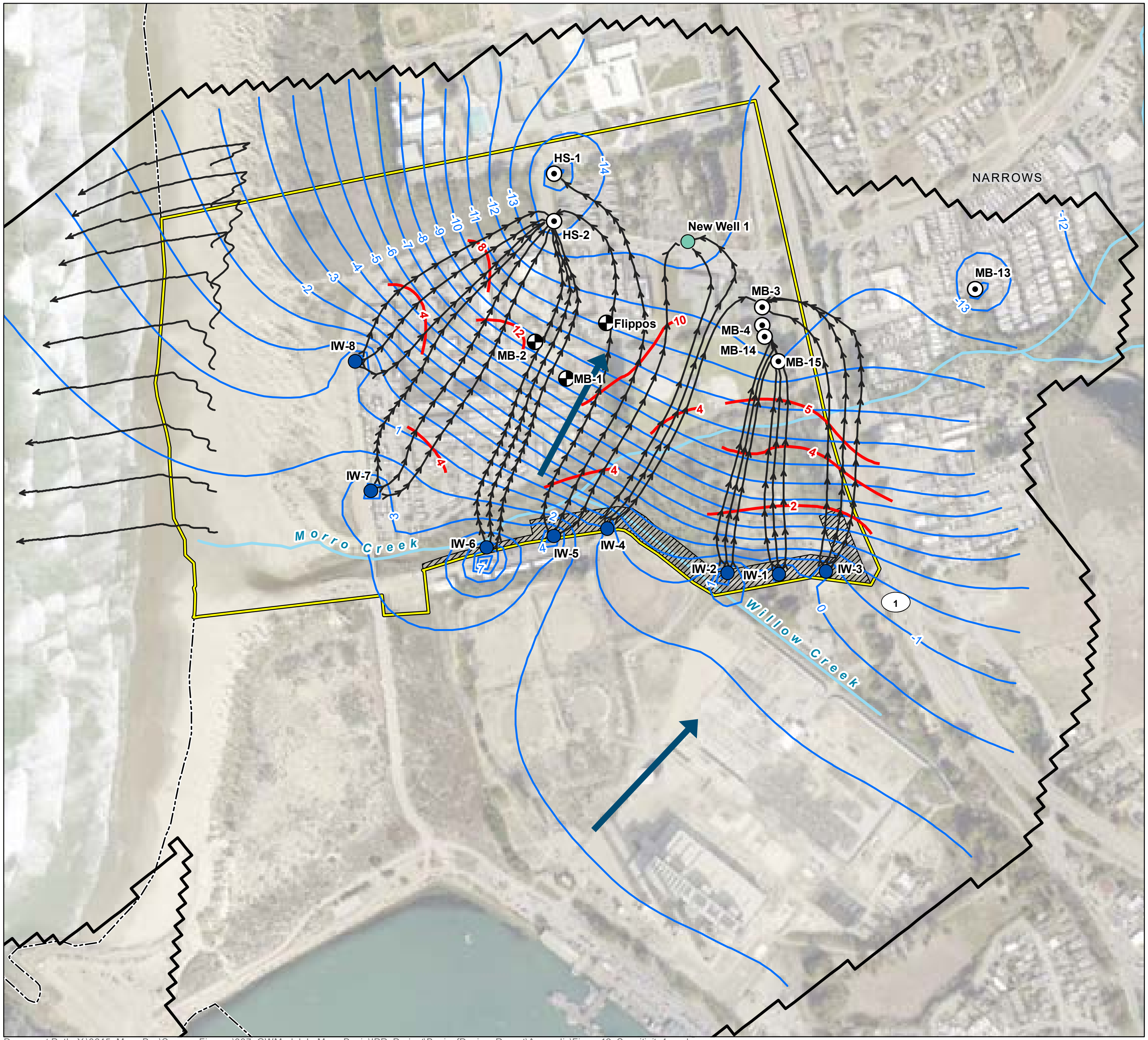

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FIGURE 12

Model Results
Sensitivity Analysis 4
Porosity = 25%

Morro Bay IPR Project
Basis of Design Report

LEGEND

- Injection Well
- New Well 1
- Morro Bay City Well
- City Well to be Repurposed to Monitoring well
- Time of Travel (in months)
- Paticle Track
- Groundwater Elevation Contour (feet amsl)
- Groundwater Flow Direction
- Project Area
- Permanent Easement
- Model Active Area

All Other Features

- City Boundary
- Major Road
- Watercourse

NOTES

1. Water levels are from stress period 118 of the transient simulation, which represents the lowest water levels modeled during the drought.

amsl: above mean sea level
AFY: acre feet per year

N

0 315 630
Feet

Date: August 18, 2023
Data Sources: USGS, ESRI, City of Morro Bay, Maxar Imagery (2021)

GSI Water Solutions, Inc.

Groundwater Modeling of Alternative IPR Implementation Scenarios

To:	Joe Mueller, City of Morro Bay
Cc:	Elaine Simmons, Paul Amico, Anthony Cemo, Lydia Holmes; Carollo Engineers
From:	GSI Water Solutions
Date:	February 16, 2022

Background

As part of the City of Morro Bay's (City) desire to utilize highly treated recycled water to augment their water supplies, the new Water Reclamation Facility (WRF) which is currently being constructed will include the advanced treatment of the recycled water to meet water quality standards that will allow for implementation of an indirect potable reuse (IPR) project utilizing a series of dedicated injection wells. The site being considered for groundwater operations is the area of the Morro Valley Groundwater Basin between Highway 1 and the Pacific coast (Figure 1)

To support this effort, groundwater modeling of various planning and operational scenarios has been conducted. Previous modeling analyses have concluded that the IPR concept is feasible (GSI, 2017), that it would likely improve water quality of groundwater recovered from the City's production wells (GSI, 2019), and that the proposed project site is feasible the purpose of siting injection wells (GSI, 2021).

Objectives

This Technical Memo (TM) expands upon previous groundwater modeling analysis and field exploration associated with the proposed IPR project. The objective of this task is to evaluate the hydrogeologic implications of four different modeling scenarios. Three of the scenarios incorporate alternative layouts of injection and recovery wells at the project site, and evaluate the effects of these alternative scenarios on the groundwater elevations and retention time of water injected at the project site. A fourth scenario evaluates the potential effect of future sea level rise on the project concept. The following scenarios are presented and discussed in this technical memo.

- Scenario 1 – Injection wells located solely in project area south of Morro Creek. (South Side)
- Scenario 2 – Injection wells located solely along the coast, west of the current extraction wells. (Coastal)
- Scenario 3 – Injection wells located in both the South Side project area and the Coastal area.
- Scenario 4 – A scenario to evaluate potential impact of rising sea level on project operations.

The area south of Morro Creek was referred to as the "West Side" project area in previous TMs, because it was west of the Narrows project area which is located east of Highway 1. This distinction is no longer applicable, so for the remainder of this TM and future communications, the area on the Vistra easement south of Morro Creek is referred to as the "South Side" of the project site.)

Groundwater Model Background

The model was developed by GSI and documented in the report *Lower Morro Valley Basin Screening-Level Groundwater Modeling for Injection Feasibility* (GSI, 2017). Updates to the model were incorporated following field investigations that were conducted from 2019 through 2021 and which are documented in the Site Selection TM (GSI, 2021). The model was developed using MODFLOW and used in combination with the associated software package MODPATH to evaluate groundwater flow patterns and retention times for the various scenarios. The model utilizes a 38-year transient simulation period using 456 monthly stress periods. Climatic data representative of rainfall and streamflow during the historical period from water years 1981 through 2018 are used in the model. Thus, the model simulates repeated hydrologic conditions of both dry and wet periods over the 38-year simulation period.

The primary aquifer used by the City for water supply production consists of the alluvial sediments of the Lower Morro Valley Basin. The groundwater model represents the entire area of the Lower Morro Valley Basin between the Narrows and the Pacific coast (Figure 1). The model is constructed of three layers: Layer 1 represents the Pacific Ocean, Layer 2 represents finer sediments observed immediately below the land surface, and Layer 3 represents the primary aquifer comprised of coarser materials such as sand and gravel present at depths ranging from 20 to 60 feet. The City's groundwater production is from wells screened in the sand and gravel represented by Layer 3 of the model. Morro Creek provides a significant portion of the recharge to the aquifer system within the modeled area, and is simulated at the surface in Layer 2. Other model boundary conditions include the constant head boundary of the Pacific Ocean, subsurface inflow through the Narrows, subsurface inflow/outflow to or from the Pacific Ocean, precipitation-based recharge over the model area, and groundwater pumping from City wells within the model area.

Model Scenarios

This memorandum presents the groundwater modeling results for four distinct scenarios:

1. Scenario 0 – Baseline Simulation. This simulation represents total permitted groundwater pumpage of 581 AFY from six City wells, with no injection wells simulated. This scenario was run to allow for comparison of project conditions to non-project conditions.
2. Scenario 1 –South Side Injection Wells. 825 acre-feet/year (AFY) of highly treated wastewater recharged to the aquifer using only South Side project area injection wells located south of Morro Creek (SS-1 through SS-4, CP-1), and 994 AFY recovered from existing City wells.
3. Scenario 2 –Coastal Injection Wells. 825 acre-feet/year (AFY) of highly treated wastewater recharged to the aquifer using only Coastal injection well locations (CP-1 through CP-5), and 994 AFY recovered from existing City wells.
4. Scenario 3 – Combined Injection Wells. 825 acre-feet/year (AFY) of highly treated wastewater recharged to the aquifer using both South Side project area and coastal injection wells and 994 AFY recovered from existing City well locations.
5. Scenario 4 – Sea Level Rise. This scenario duplicates Scenario 3 but adds simulation of a sea level elevation increase of 1.8 feet over the 38-year simulation period.

Modeled recovery wells are located at the four existing wells in the Highway 1 well field (MB-3, MB-4, MB-14, MB-15), and the two Morro Bay High School wells (HS-1 and HS-2).

The modeled injection well locations for all scenarios are displayed on Figure 1. Four potential modeled injection wells are located on the South Side project area (SS-1 through SS-4). Five potential injection well locations are on City-controlled property along the Coastal area (CP-1 through CP-5).

For each scenario, MODFLOW was used to simulate transient monthly model water levels under each of the scenarios. The water levels displayed in most of the following figures are from model stress period 125, representing hydrologic conditions of February 1991 (the worst period of the drought occurring at that time); this is the stress period with the lowest modeled water levels of the entire simulation period. Using this stress period provides a conservative determination of the effects of the injection on water levels and groundwater travel times.

MODPATH was used to evaluate the travel paths and retention times for water recharged at the injection wells and recovered at the City's wells. In order to assess the potential for seawater intrusion, MODPATH was also used to evaluate particle tracking for particles input along the Pacific coast. The transient version of MODPATH was used for these evaluations. Three particles were placed at each injection well for tracking. The particle release time is defined as 3,439 days after start of simulation, which is about 1 year prior to stress period 125; using this approach, stress periods evaluating the movement of recharged water from the injection wells during the transient MODPATH run are representative of dry conditions. The Z offset parameter of MODPATH is set at 0.5, indicating particle release from the vertical mid-point of the model layer.

Baseline Scenario

In the Baseline Scenario, non-project conditions are simulated to provide a comparison against the conditions created by the various project scenarios. Thus, injection wells are not simulated in the Baseline Scenario, and the current permitted groundwater extraction amount of 581 AFY is simulated as a constant pumping condition distributed equally among the 6 City wells currently used for groundwater pumping. This equates to an average annual pumping rate of 60 gpm/well in each of the six City wells.

Figure 2 presents modeled Baseline groundwater elevations for stress period 125. (In all the following figures, the blue lines represent groundwater elevation contours, the black lines indicate particle flow paths, the arrows on the lines indicate a defined retention time, and the red line indicates fronts of equal retention time (in months or years, as labelled) from either the injection well locations or from the coast. Groundwater elevations at the pumping wells are lower than 20 feet below sea level. Former production Well MB-1 (which has not been used for many years) is located in the approximate center of the project area, and as such was chosen as a location to display hydrographs developed for comparisons of the various scenarios.

Two lines of particles were input into the model; one along the coast north of Morro Rock, and one line south of the Rock along the Embarcadero. Figure 2 displays the particle tracks and retention times for the modeled particles. The particles along the coast north of Morro Rock reach the High School wells in just over 2 years under these drought conditions. The particles along the Embarcadero take over 12 years to reach the pumping center associated with the Highway 1 wellfield. This confirms that the coast north of the Rock is the area at greater risk from seawater intrusion. From now on in this TM, particle tracking to evaluate conditions at the coast will focus on this area, and not the Embarcadero.

Scenario 1

In Scenario 1, five wells are used to model the injection of recycled water into the primary aquifer in the project area: SS-1 (Pilot Well), SS-2. SS-3, SS-4, and CP-1. The six previously identified City wells are used to simulate pumping. Total annual volume of injection in this scenario is 825 AFY. This equates to 102 gpm/well in each of the five injection wells. Recovery is simulated at 994 AFY, which is equal to the current permitted amount (581 AFY) plus 50% of injected water volume (50% of 825 AFY, or 413 AFY).

Figure 3 presents the modeling results for Scenario 1 during a dry period (stress period 125). Groundwater elevations displayed in Figure 3 indicate groundwater elevations of lower than 9 feet below sea level around the pumping wells in the Highway 1 wellfield. The contours indicate radial flow from the injection wells, confirming the concept of creating a groundwater divide to mitigate against any onsite migration of poorer quality groundwater. The three westernmost injection wells (SS-3, SS-4, CP-1) have retention times of over 6 months based on recovery at the High School wells. The scenario results indicated that water injected at SS-1 and SS-2 will have retention times of 3.5 to 4.5 months until recovery at wells within the Highway 1 wellfield.

MODPATH results of the coastal particles on Figure 3 indicate that the South Side injection well alignment provides a degree of protection from seawater intrusion, especially for the Highway 1 wells. Under the conditions displayed, retention time from the coast to the High School wells is about 6 years. (The physical geometry of the model may affect this result; this will be addressed further in the Discussion section of this TM.)

Figure 4 presents modeled water levels for Scenario 1 during a relatively wet stress period (water levels from stress period 128 are displayed; this is four months after the previously displayed dry period conditions). During wet periods, the radial flow from the injection wells is clearly established. There is no significant component of groundwater flow direction toward the pumping wells from the coast. This figure is included to demonstrate the significant difference in groundwater conditions between wet and dry periods. Previous work (GSI, 2021) has demonstrated that retention times are greater under wet conditions, and that sea water intrusion is not a significant risk during wet conditions. Therefore, dry periods represent the constraining conditions for effectiveness of the project, and all future figures in this TM will focus on the representative dry period.

Figure 5 presents modeled hydrographs for City Well MB-1 under Baseline and Scenario 1 condition. MB-1 is not a pumping well, and is located in the approximate center of the project area, and thus is selected as a representative well to demonstrate water level conditions in the project area. This graph indicates that groundwater elevations are over 10 feet higher at this location under Scenario 1 project conditions than they are under Baseline conditions, even with pumping increased from 581 AFY to 994 AFY between the two scenarios. This demonstrates the positive impact on groundwater conditions in the project area, even with significantly increased pumping.

Scenario 2

In Scenario 2, injection well locations CP-1 through CP-5 are used to simulate injection of 825 AFY of recycled water into the primary aquifer in the Project area along the coast. (Well SS-1 in the South Side alignment represents the Pilot Injection well, and is also included in this scenario, as it is intended to be a permanent well.) The same six City wells previously discussed are used to recover 994 AFY of groundwater. Coastal injection wells were located on City-controlled property on the west side of Atascadero Road, parallel to the coast.

Figure 6 presents the modeling results for Scenario 2 during the representative dry period. Figure 6 indicates a minimum groundwater elevation of lower than 10 feet below mean sea level at the pumping center. However, water levels in the vicinity of the injection wells indicate the formation of a demonstrable barrier to seawater intrusion. An observable groundwater flow direction from the injection wells toward the coast is evident, indicating that groundwater flow from the wells would maintain a seaward gradient, and protect the Project area from seawater intrusion under drought conditions.

MODPATH results displayed in Figure 6 indicate travel times of injected water from the northern 3 coastal injection wells to the High School wells ranges from 3.5 to 5.5 months, and retention time to the Highway 1 wells ranges from 8 to 12 months. Retention time between SS-1 (the Pilot injection well) and the Highway 1 wellfield is over 4 months. Particle tracking of the coastal particles indicates flow paths toward the ocean, away from the injection wells; this indicates maintenance of a barrier to seawater intrusion, even under drought conditions.

One detail noted during preliminary model runs for this scenario that is not apparent on Figure 6 has to do with spacing of injection wells. During preliminary model runs, the coastal injection wells were located farther apart than the final locations displayed on Figure 6. And during these runs, sometimes one or two of the coastal particles input along the coast to represent seawater intrusion “slipped through” the water level barrier generated by the injection well layout and proceeded toward the City well pumping centers. When injection well sites were moved closer together, this occurrence was no longer observed. This demonstrates the conceptual design principle that the closer the injection wells are, the more robust barrier to sea water intrusion is created. It is not intended that the distance between wells displayed in Figure 6 is the final recommended spacing; that will depend on observed hydrogeologic conditions and physical site access at the proposed well sites.

Scenario 3

In Scenario 3, all the wells at both the South Side injection well locations and the Coastal well injection locations are simulated to inject water at a constant rate of 825 AFY. This is equivalent to 9 wells injecting at 57 gpm/well. The same six City wells previously discussed are used to recover 994 AFY for municipal supply.

Figure 7 displays the modeling results for Scenario 3 during the representative dry period. Groundwater elevation contours in Figure 7 indicate a minimum groundwater elevation of lower than 10 feet below MSL at the Highway 1 wellfield. Radial flow from the injection wells is evident from the water level contours, indicating the maintenance of elevated groundwater levels which constitute a seawater intrusion barrier.

MODPATH results displayed in Figure 7 indicate a retention time of 4.5 to 7 months from the Coastal injection wells to the High School wells, and a retention time of about 4-5 months between the South Side injection wells and the Highway 1 wellfield. (Injection Wells SS-1 and SS-2 have the shortest retention time.) Particle tracks for the coastal particles input into the model indicate that the flow paths for four of the five particles are away from the coastal injection wells and toward the coast, demonstrating an effective barrier to seawater intrusion. (The northernmost particle that tracks along the edge of the model boundary may be impacted by model geometry, and will be discussed at the end of this TM.)

Figure 8 displays the hydrographs for City well MB-1 for Scenarios 1, 2, and 3. This graph indicates that water levels at MB-1 are slightly lower for Scenario 2 (Coastal injection wells) than for Scenarios 1 and 3. This is likely due to the fact that the coastal injection wells are farther away from MB-1 than the South Side injection wells are. There is no significant difference in water levels evident between Scenarios 1 and 3, both of which incorporate the South Side injection wells.

Scenario 4

In Scenario 4, the effect of sea level rise on the project concept is considered. A brief survey of climate change literature reveals a range of predictions for future sea level rise. For the planning purposes of this evaluation, a 1.8-foot sea level rise is incorporated into the model over the 38-year transient simulation period (Moffat & Nichol, 2019). The climatic inputs remain the same as previous runs representing a repeat of hydrologic conditions from water year 1981-2018, but the boundary condition of the ocean elevation rises gradually from 0 feet to 1.8 foot over the 38-year simulation period. Sea level is originally represented in the model as a constant head elevation of 0 feet in Layer 1 (the ocean). This head was changed from a constant value of 0 in the original runs to a gradually increasing value from 0 to 1.8 over the simulation period.

The same injection and pumping locations and volumes used in Scenario 3 were used for this scenario.

Figure 9 displays the modeling results for Scenario 4 during the representative dry period. Groundwater elevation contours in Figure 9 indicate a minimum groundwater elevation of lower than 9 feet below MSL at the Highway 1 wellfield. Radial flow is evident from the water level contours around both the coastal and the South Side injection wells, indicating the maintenance of a seawater intrusion barrier. Retention times between the injection wells and the recovery wells exceed 4 months for all particle tracks. Most of the coastal particles indicate flow paths toward the ocean, demonstrating that the seawater intrusion barrier is maintained during dry conditions. (One of the coastal particles indicates a flow path along the northern edge of the active model area, ultimately reaching well HS-1 after about 9 years; this result may be affected by the geometry of the active area of the model and will be discussed in the following section.)

Figure 10 presents a hydrograph detail of modeled groundwater elevations at MB-1 under Scenarios 3 and 4. This graph demonstrates that the increase in sea level of 1 foot over the simulation period results in an increase of groundwater elevation of 0.7 feet at well MB-1. However, Figure 9 indicates that a sea level rise of this magnitude will not compromise the basic concept of the project, as conditions favoring adequate retention time and protection against seawater intrusion are maintained.

Conclusions

Four model scenarios were developed in which 825 AFY of water is injected into the lower aquifer in the project area, and 994 AFY of water is recovered for municipal use from existing City Wells. Scenarios incorporating three different injection well layouts were simulated, utilizing locations in the South Side project area and City-controlled property along the coast. A fourth scenario was also developed which evaluated the potential sea level rise effects on the project of a 1.8-foot rise in sea level over the 38-year simulation period. A summary of Model assumptions and results is presented in Table 1. Evaluation of model results indicate the following conclusions.

- Modeling of project scenarios indicates that significantly higher groundwater elevations can be maintained under project conditions than under baseline conditions, even with the recovery pumping rate increased from 581 AFY to 994 AFY.
- Evaluation of particle tracking results from Scenario 1 indicates that the South Side alignment offers some protection from seawater intrusion for the Highway 1 wells, and a lesser degree of protection against seawater intrusion for the High School wells.
- Evaluation of particle tracking for the coastal injection well alignments (Scenarios 2 and 3) indicates that this alignment offers more robust protection from seawater intrusion than the South Side alignment.
- The South Side alignment of injection wells (Scenario 1) indicates adequate retention time (greater than 4 months) for most of the particles modeled in the simulation. Injection well locations SS-1 and SS-2 routinely have the shortest retention times. This model result may change when more complete hydrogeologic data are collected during the pilot injection well installation and testing. If retention time is observed to be shorter at this well, it could be addressed through operational considerations, including possible lower injection rates at that well, re-location of the injection well location farther away from the Highway 1 wellfield, or potential construction of additional recovery wells that are located farther away from the injection wells.
- Under the coastal alignment of injection wells (Scenario 2), the High School wells have the least amount of retention time; most particles indicate greater than 4 months retention time, but two of the particles from CP-4 reach well HS-2 in just under 4 months. If these hydrogeologic conditions remain valid after collection of additional site-specific data, this could be addressed via operational considerations as previously discussed.
- Under the combined injection well alignment (Scenario 3), particle tracking indicates greater than 4 months retention time for all flow paths, and effective maintenance of a barrier against sea water intrusion along the coast under drought conditions.
- Simulation of a sea level rise of 1.8-foot over the simulation period resulted in 1.1 foot difference in groundwater elevations in the project area, and did not significantly compromise either retention time or the effectiveness of the barrier against seawater intrusion.

Recommendations for Future Model Scenarios

- All Scenarios presented in this TM assume a constant injection rate of 825 AFY, which is the design capacity for the WRF plant. It may be useful to develop future scenarios in which lower injection rates are simulated more in line with expected growth in the City. Lower injection rates will result in longer retention times between injection and recovery.
- All scenarios modeled for this TM assume long-term steady-state constant pumping rates for both injection and recovery. It is reasonable to assume that short-term pumping rates could be increased for shorter periods of time in response to planned outages or emergency interruptions of supply from the State Water Project. It may be useful to develop future scenarios in which shorter term operations are simulated, such as the recovery of 800 gpm from City wells during planned shutdowns of State Water delivery each fall.

- The Lower Morro Valley Groundwater Model was originally used to demonstrate project feasibility at the Narrows project area and the South Side project area. It has now been adapted to evaluate new injection well locations along the Coast. For future simulations, model updates should be conducted to activate the area between the High School wells and the coast that is currently simulated as an area where groundwater flow does not occur (the area shaded in purple on Figure 1). The original active extent of the model was based on public reports, geologic maps, boring logs, and other available data, and at that time it was judged that this area did not contain a significant thickness of aquifer that would contribute to flow from the City wells. However, it is not positively established that there is <u>no</u> aquifer material in this area; having this area as a no flow zone effectively cuts off the most direct flow path between the High School wells and the coast. If even a small thickness (1 to 3 feet) of coarse material is present here, it could provide a more direct pathway for seawater intrusion to affect the High School wells. The conclusions of the current model scenarios documented in this TM would not be significantly impacted by this change. The High School wells are still the closest wells to the ocean, and thus at greater risk to sea water intrusion. The High School wells are closest to the coastal injection wells, and so have the shortest retention times from those wells. However, the flow paths indicated along the northern edge of the active area in Figures 3, 7, and 9 may to some extent be an artifact of the geometry of the active area. This change should be considered for future model scenarios.

Table 1. Modeling Results Summary

Scenario	Description	Injection Rate	Extraction Rate	Injected Water Retention Time	Comments
0	Baseline	0	581 AFY (6 wells @ 60 gpm each)	N/A	Seawater intrusion observed in 1990s at pumping levels below 581 AFY.
1	South Side Injection	825 AFY (5 wells @ 102 gpm/well)	994 AFY (6 wells @ 103 gpm/well)	HS Wells: 6–14 mos. Highway 1 Wells: 3.5–4.5 mos.	SS-1 and SS-2 exhibit shortest retention times. Highway 1 wells get more protection from seawater intrusion than High School wells.
2	Coastal Injection	825 AFY (5 wells @ 102 gpm/well)	994 AFY (6 wells @ 103 gpm/well)	HS Wells: 3.5–4.5 mos. Highway 1 Wells: 8.5–11.5 mos. from Coastal Wells (4.5 mos from SS-1)	Good protection from seawater intrusion for all wells.
3	South Side and Coastal Injection	825 AFY (9 wells @ 57 gpm/well)	994 AFY (6 wells @ 103 gpm/well)	HS Wells: 3.5–4.5 mos. Highway 1 Wells:	Good protection from seawater intrusion for all wells.
4	South Side and Coastal Injection with Sea Level Rise	825 AFY (9 wells @ 57 gpm/well)	994 AFY (6 wells @ 103 gpm/well)	HS Wells: 4.5–5.5 mos. Highway 1 Wells: 5–10 mos. (SS-1 has shortest time)	Good protection from seawater intrusion for all wells.

References

Lower Morro Valley Basin Screening-Level Groundwater Modeling for Injection Feasibility (GSI, 2017)

Technical Memo: Morro Bay Water Reclamation Facility Groundwater Modeling (GSI, 2019)

Characterization and Selection of Project Area for Injection Testing, City of Morro Bay (GSI, 2021)

Plan Morro Bay Coastal Resources & Resiliency H++ Update (Moffat & Nichol, June 25, 2019)

List of Figures

Figures

FIGURE 1

Model Area

Morro Bay IPR Project
Groundwater Modeling
Scenarios 1-4

LEGEND

- City of Morro Bay Well
- Modeled Injection Well
- Model Active Area
- Inactive Model Area
- Model Area Outline
- Project Easement
- No Flow Zone

All Other Features

- Major Road
- Watercourse

N

0 550 1,100
Feet

Date: February 16, 2022
Data Sources: ESRI, USGS, NAIP Imagery (2018)

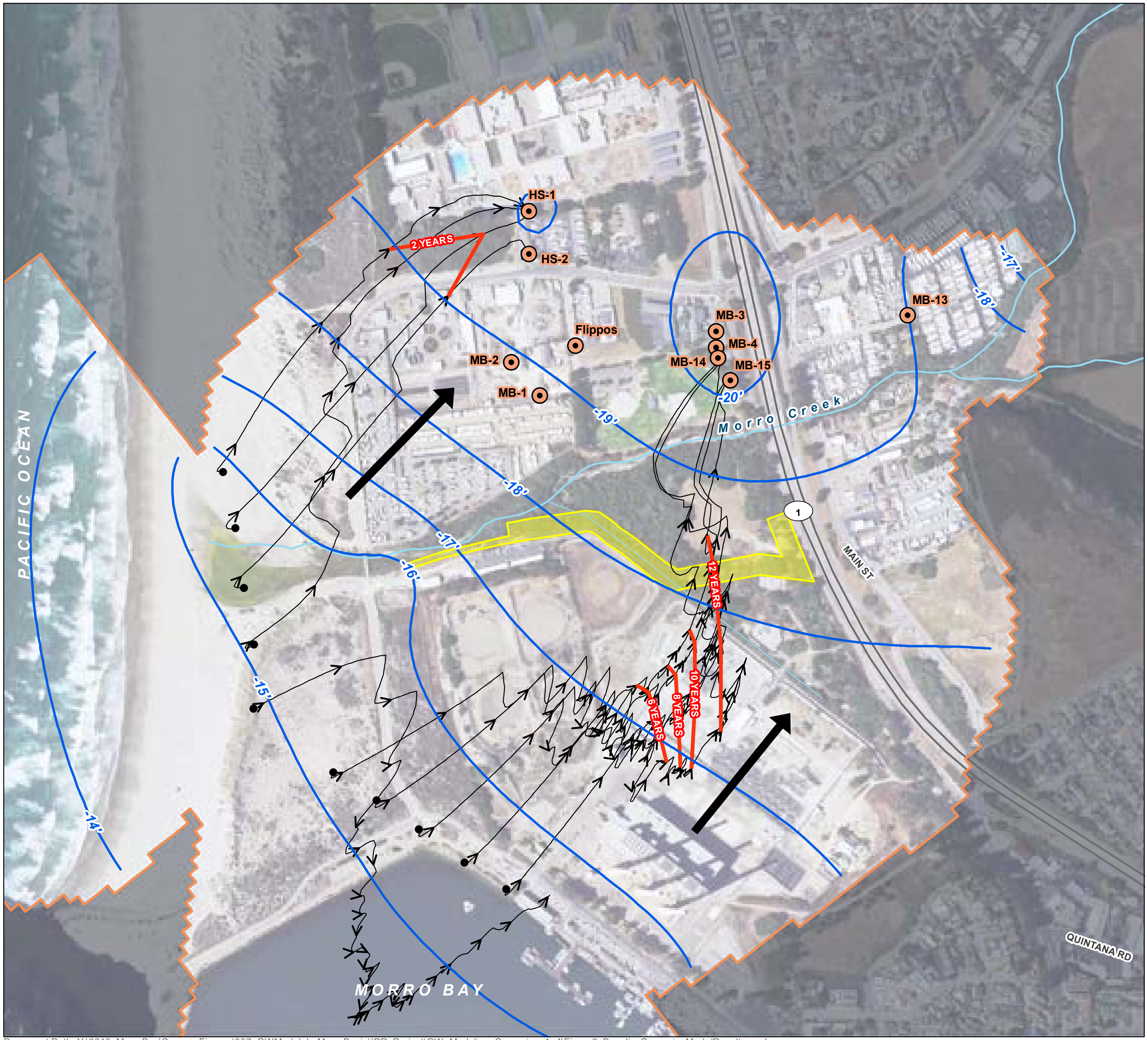

FIGURE 2

Baseline Scenario
Model Results – Dry Period

Morro Bay IPR Project
Groundwater Modeling
Scenarios 1-4

LEGEND

- City of Morro Bay Well
- Water Level Contour (feet)
- Groundwater Flow Direction
- Time Indicator
- Particle Track
- Particle Track Arrow
- Model Active Area
- Project Easement

All Other Features

- Major Road
- Watercourse

NOTE
Water levels from stress period 125 of transient simulation.

N

0 350 700
Feet

Date: February 16, 2022
Data Sources: ESRI, USGS, NAIP Imagery (2018)

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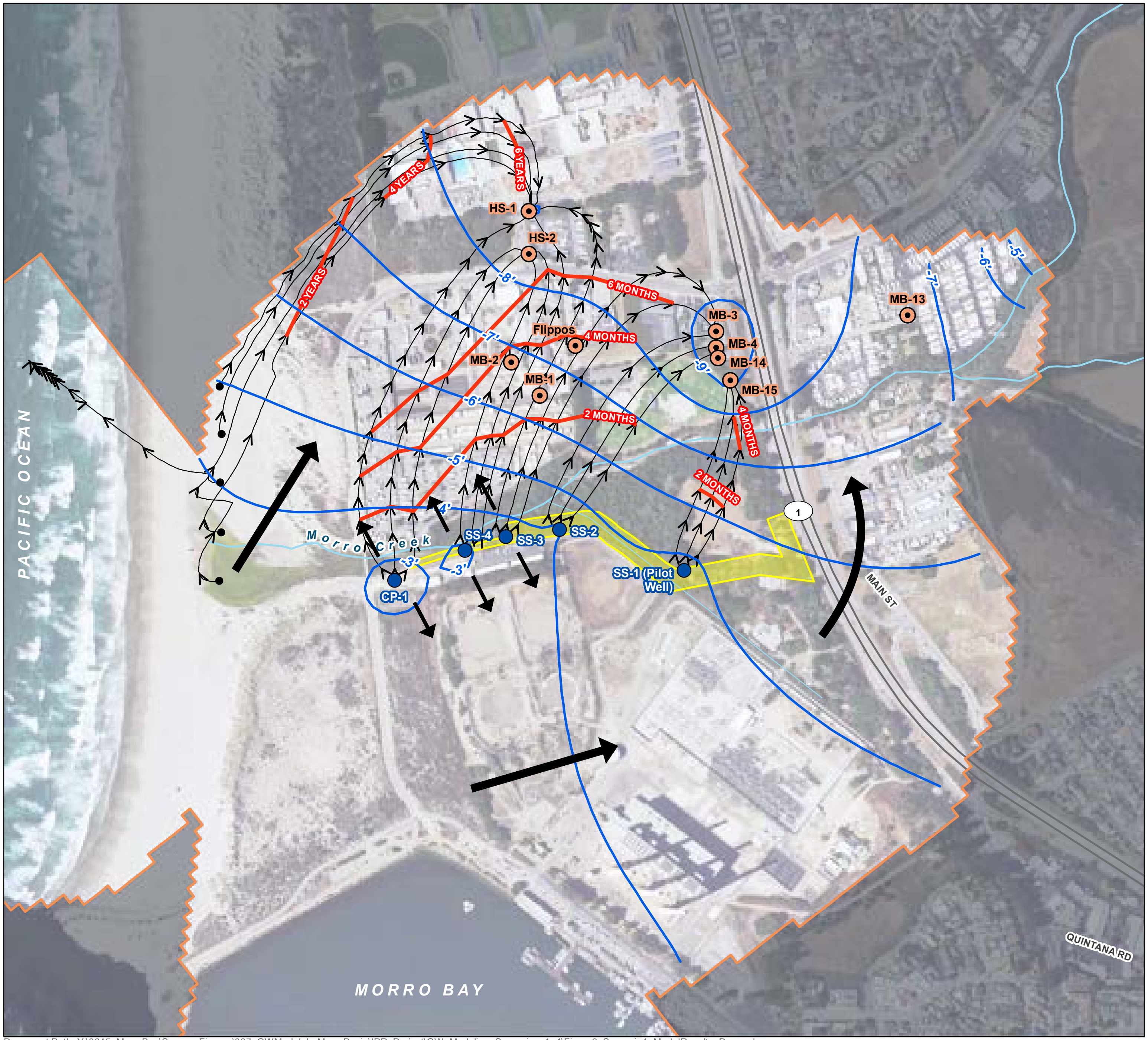


FIGURE 3

Scenario 1
Model Results – Dry Period

Morro Bay IPR Project
Groundwater Modeling
Scenarios 1-4

LEGEND

- City of Morro Bay Well
- Modeled Injection Well
- Water Level Contour (feet)
- Groundwater Flow Direction
- Time Indicator
- Particle Track
- Particle Track Arrow
- Model Active Area
- Project Easement

All Other Features

- Major Road
- Watercourse

NOTE
Water levels from stress period 125 of transient simulation.

N

0 350 700
Feet

Date: February 16, 2022
Data Sources: ESRI, USGS, NAIP Imagery (2018)

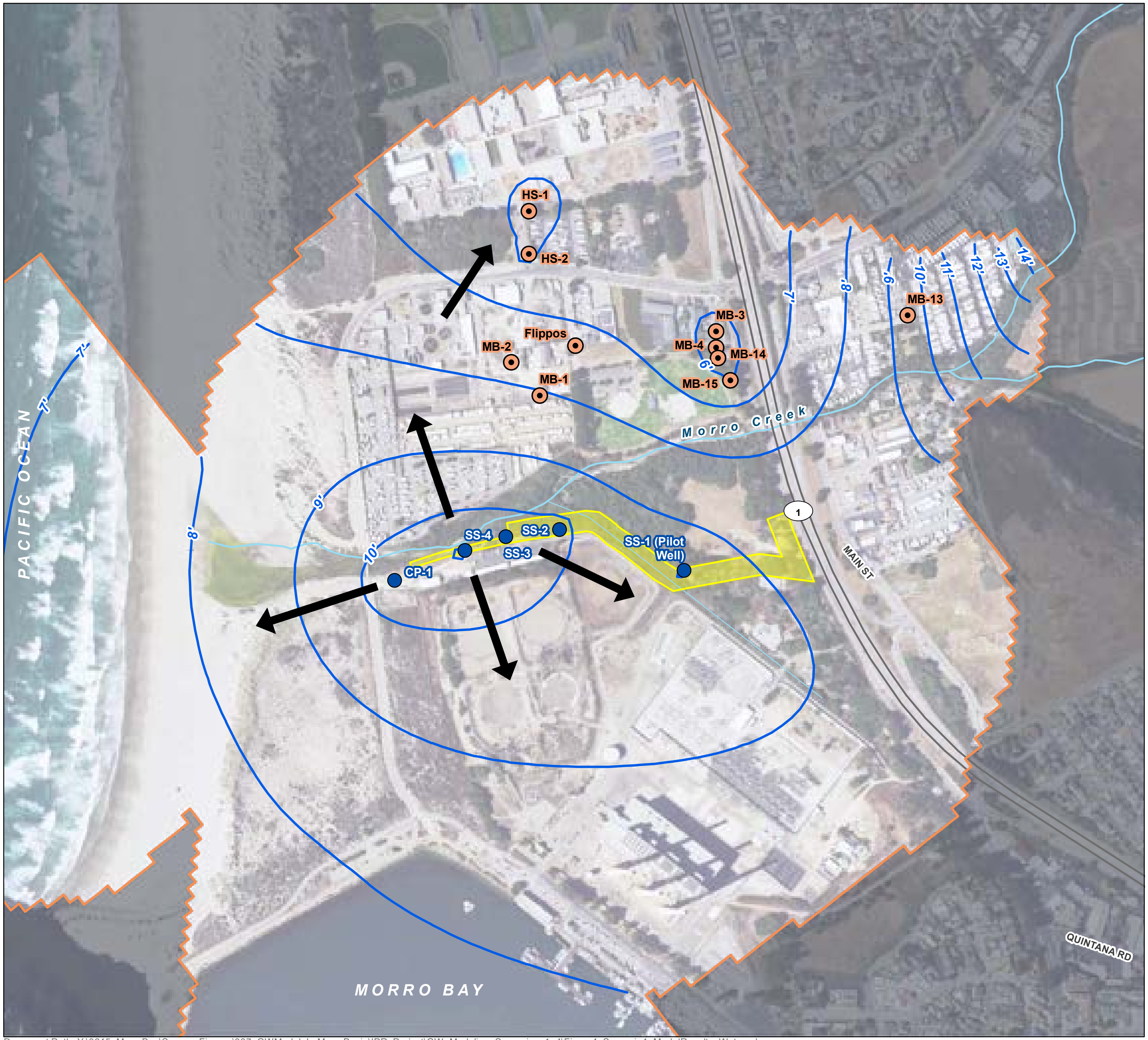


FIGURE 4

Scenario 1
Model Results – Wet Period

Morro Bay IPR Project
Groundwater Modeling
Scenarios 1-4

LEGEND

- City of Morro Bay Well
- Modeled Injection Well
- Groundwater Flow Direction
- Water Level Contour (feet)
- Model Active Area
- Project Easement

All Other Features

- Major Road
- Watercourse

NOTE
Water levels from stress period 128 of transient simulation.

N

0 350 700
Feet

Date: February 16, 2022
Data Sources: ESRI, USGS, NAIP Imagery (2018)

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\IPR_Project\GW_Modeling_Scenarios_1_4\Figure4_Scenario1_ModelResults_Wet.mxd

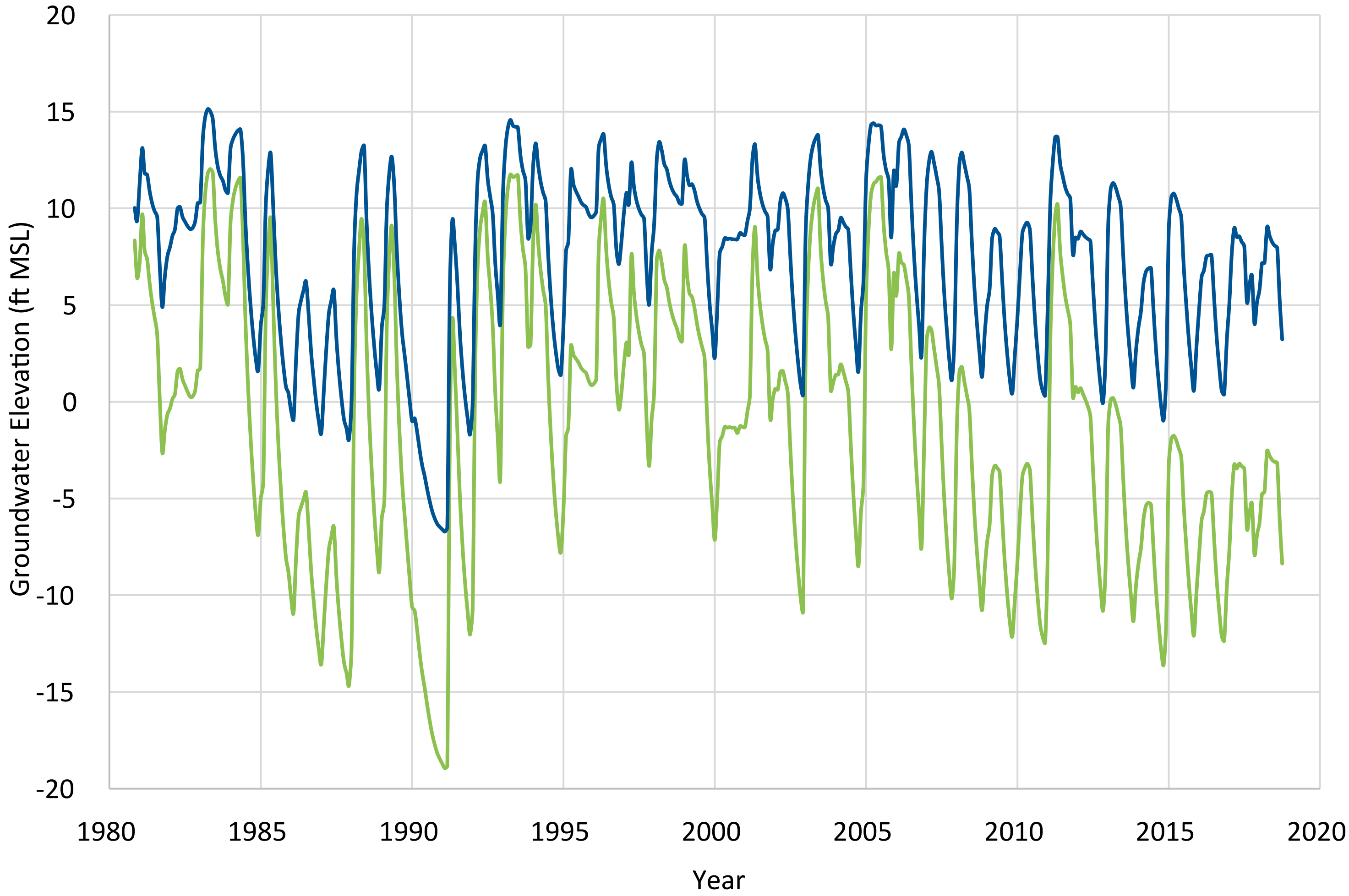


FIGURE 5

Well MB-1 Hydrograph – Baseline and Scenario 1

Morro Bay IPR Project
Groundwater Modeling
Scenarios 1-4

LEGEND

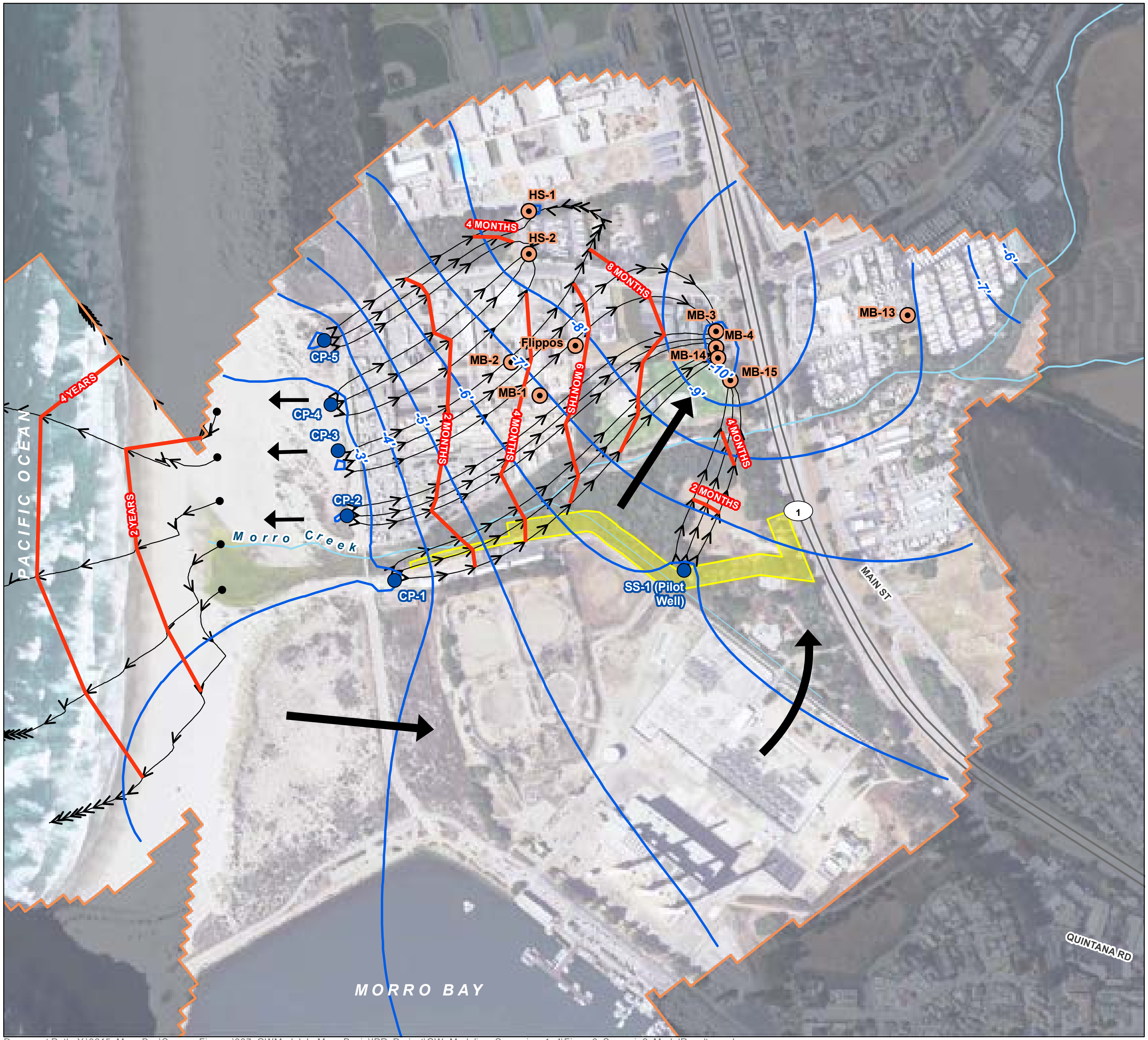
Baseline (581 AFY Pumping)
Scenario 1 (994 AFY Pumping)

NOTE
MSL: mean sea level

FIGURE 6

Scenario 2
Model Results – Dry Period

Morro Bay IPR Project
Groundwater Modeling
Scenarios 1-4



LEGEND

- City of Morro Bay Well
- Modeled Injection Well
- Water Level Contour (feet)
- Groundwater Flow Direction
- Particle Track
- Particle Track Arrow
- Model Active Area
- Project Easement

All Other Features

- Major Road
- Watercourse

NOTE

Water levels from stress period 125 of transient simulation.

N

0 350 700
Feet

Date: February 16, 2022
Data Sources: ESRI, USGS, NAIP Imagery (2018)

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\IPR_Project\GW_Modeling_Scenarios_1_4\Figure6_Scenario2_ModelResults.mxd

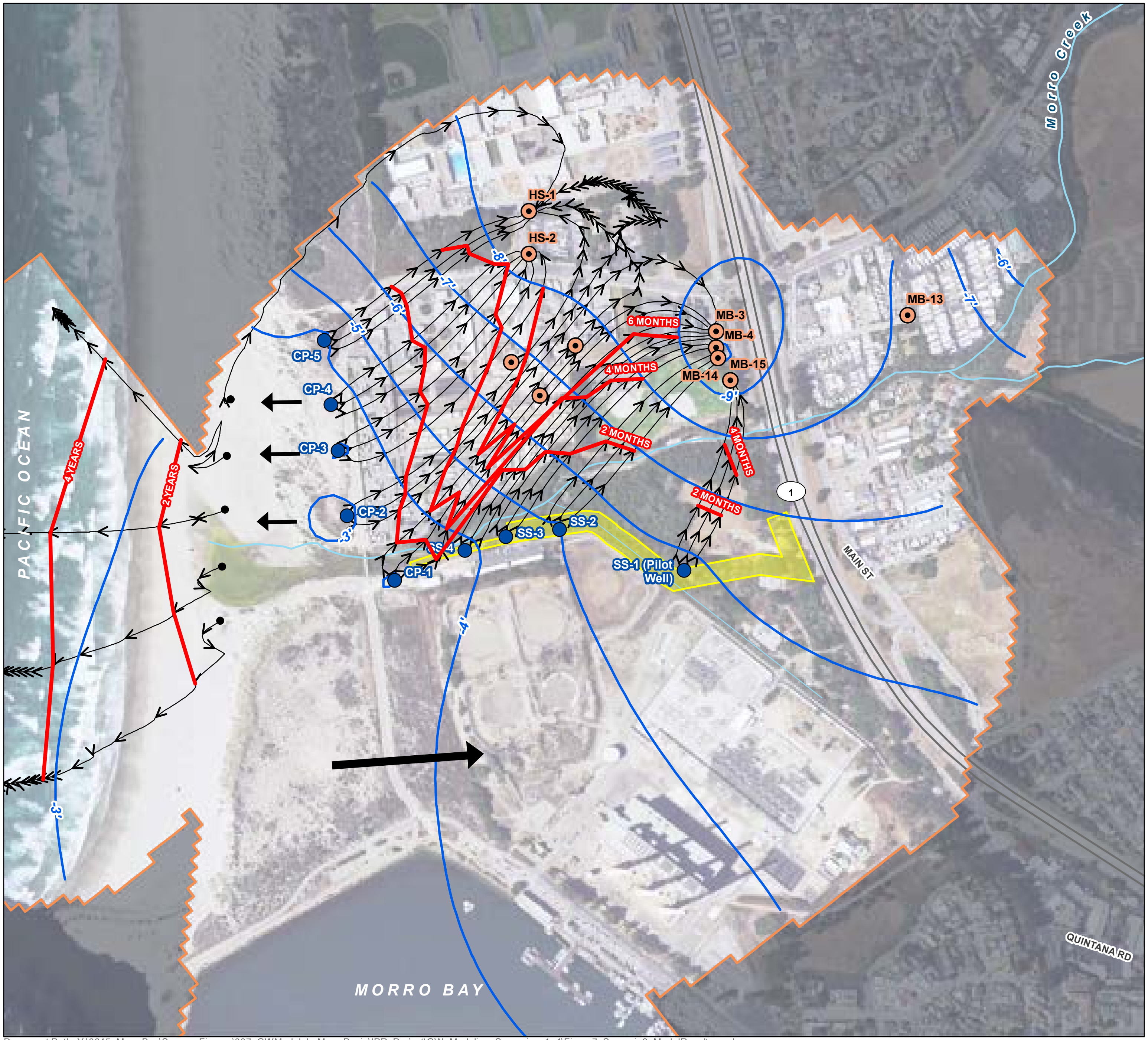


FIGURE 7

Scenario 3
Model Results – Dry Period

Morro Bay IPR Project
Groundwater Modeling
Scenarios 1-4

LEGEND

- City of Morro Bay Well
- Modeled Injection Well
- Water Level Contour (feet)
- Groundwater Flow Direction
- Time Indicator
- Particle Track
- Particle Track Arrow
- Model Active Area
- Project Easement

All Other Features

- Major Road
- Watercourse

NOTE
Water levels from stress period 125 of transient simulation.

N

0 350 700
Feet

Date: February 16, 2022
Data Sources: ESRI, USGS, NAIP Imagery (2018)

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\IPR_Project\GW_Modeling_Scenarios_1_4\Figure7_Scenario3_ModelResults.mxd

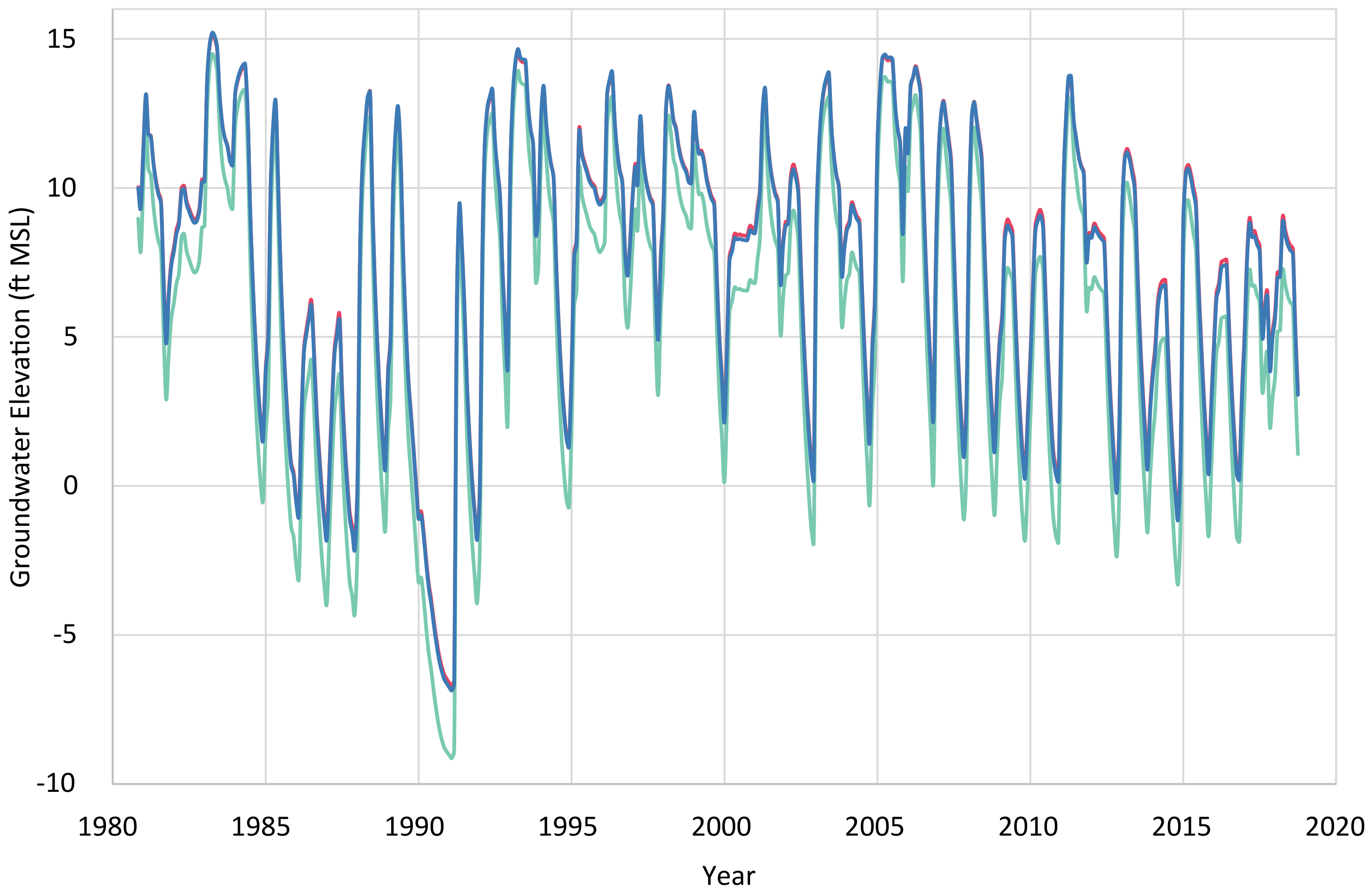


FIGURE 8

Well MB-1 Hydrograph – Scenarios 1, 2, 3

Morro Bay IPR Project
Groundwater Modeling
Scenarios 1-4

LEGEND

- Scenario 1
- Scenario 2
- Scenario 3

NOTE

MSL: mean sea level

Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\IPR_Project\GW_Modeling_Scenarios_1_4

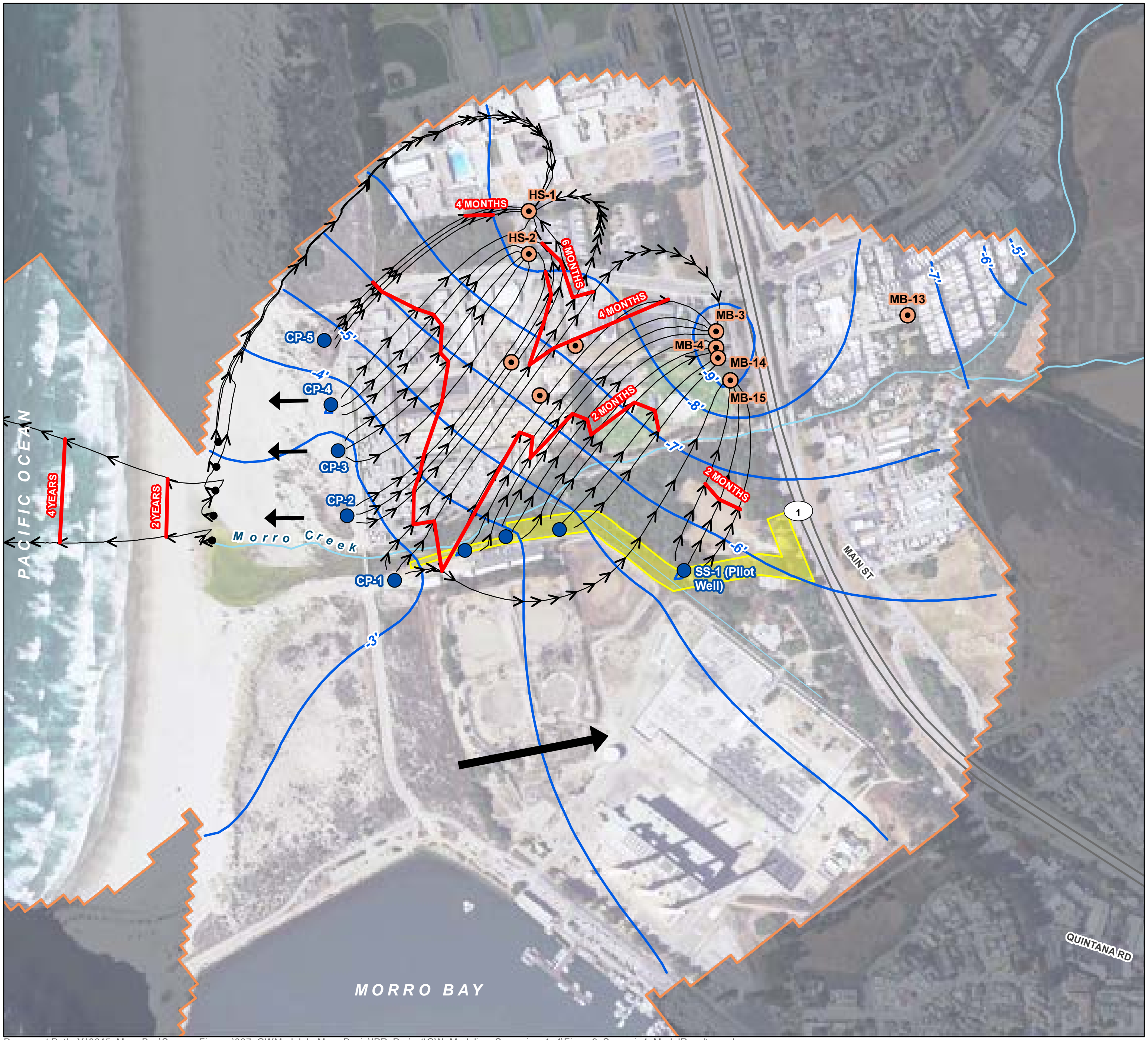


FIGURE 9

Scenario 4
Model Results – Dry Period

Morro Bay IPR Project
Groundwater Modeling
Scenarios 1-4

LEGEND

- City of Morro Bay Well
- Modeled Injection Well
- Water Level Contour (feet)
- Groundwater Flow Direction
- Time_Indicator
- Particle Track
- Particle Track Arrow
- Model Active Area
- Project Easement

All Other Features

- Major Road
- Watercourse

NOTE
Water levels from stress period 125 of transient simulation.

N

0 350 700
Feet

Date: February 16, 2022
Data Sources: ESRI, USGS, NAIP Imagery (2018)

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\IPR_Project\GW_Modeling_Scenarios_1_4\Figure9_Scenario4_ModelResults.mxd

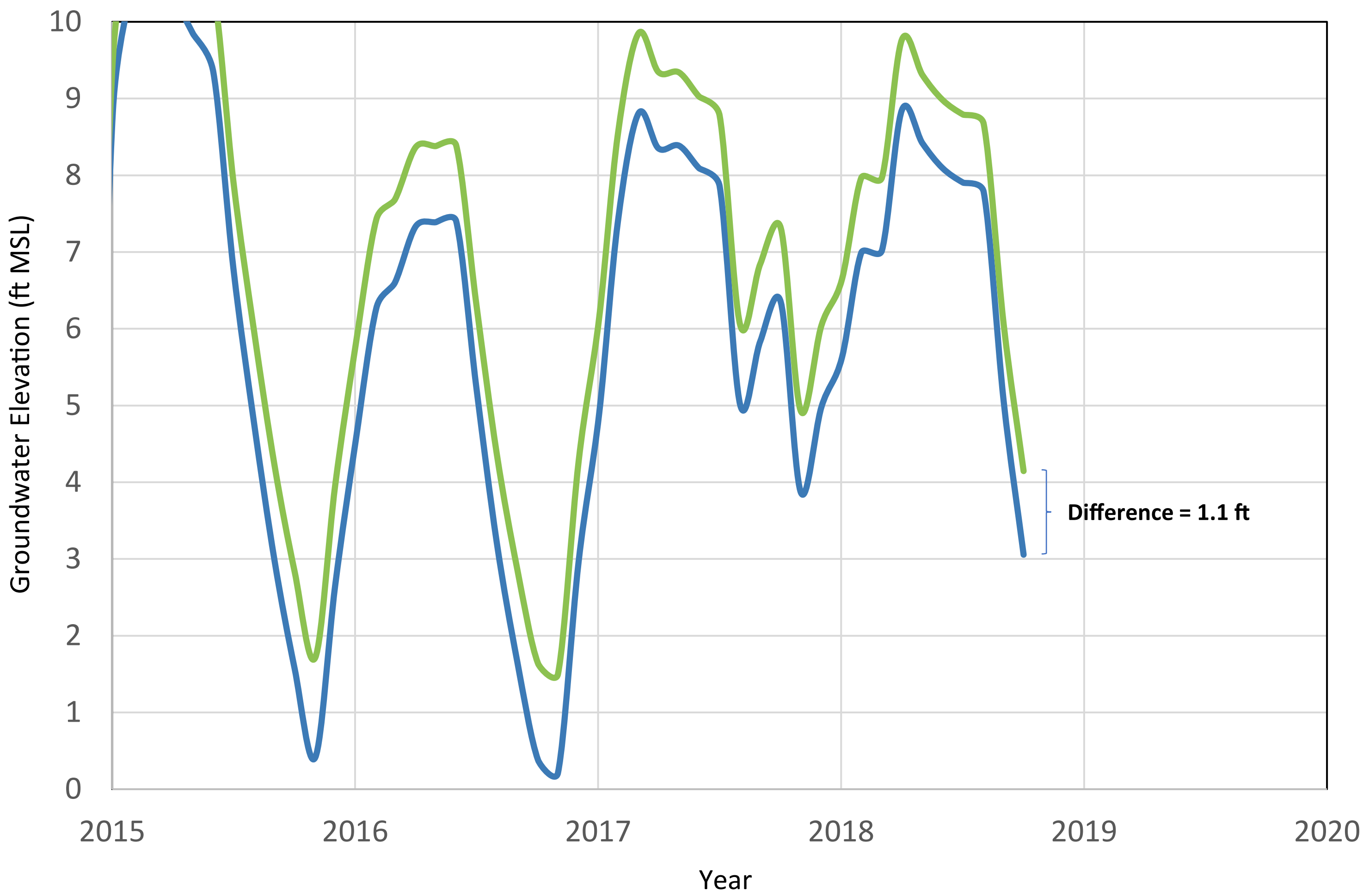


FIGURE 10

Well MB-1 Hydrograph – Scenarios 3 and 4 (Detail)

Morro Bay IPR Project
Groundwater Modeling
Scenarios 1-4

LEGEND

Scenario 3

Scenario 4

NOTE

MSL: mean sea level

Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\IPR_Project\GW_Modeling_Scenarios_1_4

GSI Water Solutions, Inc.

TECHNICAL MEMORANDUM

Results of Quarterly Groundwater Monitoring for Proposed Indirect Potable Reuse Project, City of Morro Bay, California

To:	Joe Mueller, City of Morro Bay
From:	Dave O'Rourke and Tim Thompson, GSI Water Solutions
CC:	Anthony Cemo and Lydia Holmes, Carollo Engineers
Attachments:	Figures, Tables, Groundwater Monitoring Plan (Appendix A), Field Sampling Logs (Appendix B), Analytical Laboratory Reports (Appendix C)
Date:	November 17, 2021

Introduction and Objectives

GSI Water Solutions (GSI) is supporting the City of Morro Bay with design, permitting and implementation of an indirect potable reuse (IPR) project, which will inject highly treated recycled water from the City's forthcoming Water reclamation Facility (WRF) into the Lower Morro Valley aquifer.

As per §60320.200(c) of Title 22:

> "Prior to operating a Groundwater Replenishment Reuse Project (GRRP), a project sponsor shall collect at least four samples, at least one sample each quarter, from each potentially affected aquifer. The samples shall be representative of water in each aquifer, taking into consideration seasonal variations, and be analyzed for the chemicals, contaminants, and characteristics pursuant to Sections 60320.210, 60320.212, 60320.218, and 60320.220."

In order to comply with this requirement, a series of four quarterly groundwater sampling events were conducted over the past year. This memo presents the results of that sampling along with other permit-required elements associated with the hydrogeology of the receiving aquifer. The sampling effort was presented in the Groundwater Monitoring Plan, dated November 24, 2020 and included in this memo as Attachment 1. Additionally, these water quality and hydrogeologic data will be incorporated into the Title 22 Engineering Report which is currently being prepared by Carollo Engineers with support from GSI.

The Groundwater Monitoring Plan presents a description of the IPR project, the permitting requirements for the operation of a GRRP, and the rationale of the wells included in groundwater monitoring. Briefly, the permits require collection of at least four samples from each potentially affected aquifer, which are to be analyzed for the chemicals, contaminants, and characteristics pursuant to sections 60320.210, 60320.212, 60320.218, and 60320.220. The IPR project is located within the City of Morro Bay, west of Highway 1 and south of Atascadero Road as shown on Figure 1.

Groundwater sampling was conducted at four wells to characterize the groundwater quality in the project area in the same aquifer as the City's production wells. The location of the wells included in the groundwater monitoring is presented on Figure 2 and listed below:

- 20-P01
- 19P-04
- MB-3 well
- High School (HS) wells 1 and 2

As presented in detail below, the laboratory results for samples collected during this monitoring effort indicate that neither primary nor secondary MCLs are exceeded for any of the analyzed constituents.

Schedule and Logistics

Groundwater sampling was conducted between September 2020 and July of 2021. The first groundwater monitoring samples were collected in September 2020 consisted of a composite sampling of a blend of water produced from two City production wells: MB-3 and High School Well 2. After the collection and analysis of this composite sample, the subsequent 3 quarterly sampling events collected discrete groundwater samples from each of the four individual wells (Well MB-3, High School Well 1 or 2[1], piezometer 19P-04, and the piezometer 20P-01) in December 2020, April 2021 and July 2021. (During the December event, field staff did not collect samples for PFAS analysis; when this oversight was discovered, staff re-mobilized to the field in January to address this data gap.)

During this period, groundwater levels were measured at the Morro Bay production wells, monitoring wells and the desalination[2] wells for use in producing groundwater contour maps which illustrate groundwater gradients and flow directions (Figures 3 through 6).

Samples were collected to assess the chemical concentrations of all the constituents identified in the constituent list as included in the November 2020 document "Groundwater Monitoring Plan for Groundwater Replenishment and Reuse", which was submitted to and approved by the RWQCB (see Appendix A). Field sampling logs for each sampled well during the sampling events are included in Appendix B. Laboratory Analytical Reports and Chains of Custody are included as Appendix C.

Results and Observations

Water quality results from the four sampling events are summarized below. These results are discussed in the following sections. As required by section 60323, this memorandum also addresses the following hydrogeological topics:

- Results of the four rounds of consecutive quarterly monitoring
- Geologic and hydrogeologic setting of the basin,
- Existing hydrogeology and hydrogeology anticipated as a result of the operation of the GRRP, and
- Maps showing the quarterly groundwater elevation contours, along with vector flow directions and calculated hydraulic gradients.

[1] During the December 2020 groundwater monitoring event, samples were collected from High School Well 2. During the third and fourth sampling events, samples were collected from adjacent High School Well 1 because the well pump at High School Well 2 had failed and was being repaired.

[2] The so-called desalination wells, shown on Figure 1, were originally installed to function as seawater intake wells for a proposed desalination plant. The plant was not built and the wells are now used for monitoring purposes to track both groundwater elevations and salinity concentration over time.

Results of Groundwater Quality Sampling

Tables 1 through 6 present the results of the water quality sampling for the composite sample (MB-3 and High School-2), piezometer 20P-01, piezometer 19P-04, and City wells MB-3, High School-1, and High School-2, respectively. A summary of the analytical results for several key constituents or classes of constituents is provided below.

Total Dissolved Solids

Total Dissolved Solids (TDS) has a secondary MCL of 1,000 mg/L. Groundwater Quality in well High School-2 has the highest TDS concentration of the well sampled. TDS concentrations in samples from piezometer 20-P01 ranged from 720 mg/L in December 2020 to 860 mg/L in July 2021. TDS concentrations in samples from piezometer 19-P04 ranged from 890 mg/L in December 2020 to 990 mg/L in July 2021.TDS concentrations in well MB-3 ranged from 990 mg/L in December 2020 to 1,100 mg/L in July 2021. The sole discrete sample from well High School-2 had a concentration of 990 mg/L in December 2020. The two discrete samples from well High School-1 had TDS concentrations of 2,200 mg/L in April 2021 and 2,700 mg/L in July 2021. The sole composite sample from wells MB-3 and High School-2 had a TDS concentration of 990 mg/L.

In general, TDS concentrations appear to increase from the south to the north, with the lowest concentrations observed in the samples from piezometer 20-P01, and the highest concentrations in the samples collected from the High School-1 well. It is also noteworthy that the High School-1 and High School-wells, though only about 200 feet apart, have significant differences in TDS concentrations.

Chloride

Chloride has a secondary MCL of 500 mg/L; the High School-1 well is the only well with sample concentrations exceeding this value. Chloride concentrations in groundwater appear to follow the same general pattern as observed in the TDS data, with the lowest concentrations in the south, and increasing to the north.

Chloride concentrations in samples from piezometer 20-P01 ranged from 120 mg/L in December 2020 to 140 mg/L in July 2021. Chloride concentrations in samples from 19-P04 ranged from 160 mg/L in December 2020 to 170 mg/L in July 2021. Chloride concentrations in samples from well MB-3 ranged from 160 mg/L in December 2020 to 170 mg/L in July 2021. The sole discrete sample from the High School-2 well had a chloride concentration of 230 mg/L in December 2020. The two discrete samples from the High School-1 well had chloride concentrations of 970 mg/L in April 2021 and 1,100 mg/L in July 2021. The sole composite sample from wells MB-3 and High School-2 had a chloride concentration of 190 mg/L.

Sulfate

Sulfate has a secondary MCL of 500 mg/L; none of the samples collected had sulfate concentrations exceeding this value. Sulfate concentrations in samples from piezometer 20-P01 ranged from 140 mg/L in December 2020 to 150 mg/L in July 2021. Sulfate concentrations in samples from 19-P04 ranged from 170 mg/L to 180 mg/L. Sulfate concentrations in samples from well MB-3 ranged from 160 to 170 mg/L. The sole discrete sample from the High School-2 well had a sulfate concentration of 120 mg/L in December 2020. The two discrete samples from well High School-1 had sulfate concentrations of 140 mg/L in April 2021 and 150 mg/L in July 2021. The sole composite sample from wells MB-3 and High School-2 had a sulfate concentration of 150 mg/L.

Nitrate

Nitrate is a contaminant often associated with agricultural fertilizer application that has a primary MCL for Nitrate (as N) of 10 mg/L. The existence of a primary MCL indicates that this chemical has a documented impact on human health. The City recognizes that nitrates have been found in water from their wells over the

past several years. The source is likely fertilizer applications on agricultural land upgradient from the Highway 1 well field. This phenomenon has been discussed and modeled in the 4/19/2019 Technical Memo “Morro Bay Water Reclamation Facility Water Quality Groundwater Modeling”, which was previously transmitted to the RWQCB.

Samples from wells MB-3 and High School-2 have nitrate concentrations that exceed the MCL. None of the other wells had samples with nitrate concentrations exceeding the MCL in discrete groundwater samples. Nitrate concentrations in samples from piezometer 20-P01 were 1.5 mg/L, 1.4 mg/L, and 1.7 mg/L in the three consecutive discrete sampling events. Nitrate concentrations in samples from piezometer 19-P04 were 1.8 mg/L, 2.0 mg/L, and 2.4 mg/L in the three consecutive discrete sampling events. Nitrate concentrations in samples from well MB-3 were 26 mg/L, 22 mg/L, and 24 mg/L in the three consecutive discrete sampling events. The sole discrete sample from the High School-2 well had a nitrate concentration of 17 mg/L in December 2020. The two discrete samples from well High School-1 had nitrate concentrations of 7.9 mg/L in April 2021 and 8.7 mg/L in July 2021. The sole composite sample collected from comingled groundwater from wells MB-3 and High School-2 had a nitrate concentration of 21 mg/L.

Arsenic

Arsenic has a Primary MCL of 0.010 mg/L. One of the discrete samples (the April 2021 sample) collected from well High School-1 had an arsenic concentration 0.012 mg/L. Other samples collected had arsenic concentrations ranging from Non-Detect to 0.0033 mg/L.

Boron

Boron does not have either a primary or secondary MCL established, although it may have a negative impact on some agricultural products, depending on quantity of use, crop type, and other factors. Boron concentrations in samples collected from the monitoring wells range from 0.092 mg/L to 0.17 mg/L. These boron concentrations are not anticipated to precipitate any water quality issues in the use of groundwater in the Basin.

Other Anthropogenic Contaminant Compounds

Other significant anthropogenic compounds analyzed for in the collected samples include metals, herbicides, pesticides, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), PCBs, Disinfection By-products, and others. The full reporting of all analytes on the constituent list is provided in Tables 1 through 6, and Appendix C.

The laboratory results for samples collected during this monitoring effort indicate that neither primary nor secondary MCLs are exceeded for any of the analyzed constituents.

Seasonal Impacts

Groundwater quality results were compared to drinking water standards. As previously discussed, there were five exceedances of Nitrate (as N) in the samples from wells MB-3, High School-2, and the composite sample taken from comingled waters from MB-3 and High School-2. There was a single exceedance of Arsenic from one sample collected from the High School-1 well. Groundwater quality results are presented in table format in Tables 1 through 6. Groundwater quality was generally consistent throughout the season. However, the concentrations of some constituents were slightly greater during the dry seasonal conditions of fourth monitoring event than the previous three monitoring events. Some of the constituents that show higher concentrations during lower groundwater levels include TDS, Barium, Chloride, Chromium, Fluoride, Cobalt, EC, Molybdenum, Nickle, Sulfate, and Vanadium. However, the reported concentrations of these constituents remained below drinking water standards.

Geologic and Hydrogeologic Setting

The Morro Bay GRRP site is located within the Western, or lower, region of the Morro Valley Groundwater Basin (Basin). The aquifer in the Basin is comprised of unconsolidated alluvial gravel, sand, silt, and clay deposited by alluvial processes of Morro Creek. The Basin is bounded on the west by the Pacific Ocean and on the north and south by the relatively impermeable rocks of the Franciscan Formation. To the east of the project area, the lateral extent of the sediments thins to a small width about 200-300 feet wide, constrained by bedrock outcrops on both sides, referred to locally as the “Narrows”. Precipitation in the area averages from 15 to 17 inches per year. The primary sources of recharge to the Basin in the project area are percolation of streamflow in Morro Creek, and infiltration of precipitation.

The City’s interpretation of the aquifer characteristics is presented in greater detail in a series of technical memos (GSI 2017, GSI 2019, GSI 2021) documenting the development and refinement of a groundwater model of the aquifer below the Narrows. These documents have been previously transmitted to the RWQCB.

Stratigraphy

Boring logs and well completion reports for all known wells and piezometers in and around the project area were reviewed to gain an understanding of the stratigraphy in the area. In general, the aquifer is comprised of numerous non-contiguous lenses of alternating coarse-grained and fine-grained alluvial sediments. Most subsurface logs indicate that coarser materials are found near the bottom of the aquifer which reaches up to 80 feet deep in some areas of the Basin, while finer sediments are more commonly found near land surface and in the shallow portions of the aquifer. The deeper sands and gravels are the zones which are screened in the City’s production wells in the project area.

Groundwater Elevation Maps

Groundwater contour maps displaying groundwater elevation contours and flow direction for four quarters between October 2020 and July 2021 are presented in Figures 3 through 6. The maps depict the direction and gradient of shallow groundwater movement beneath and immediately surrounding the GRRP during each quarter based on groundwater elevation data gathered from pressure transducers installed in wells owned and operated by the City of Morro Bay. The groundwater movement beneath the site was towards the west and southwest at a gradient of approximately 0.004 to 0.006 feet/foot during all of the year, which occurred during a relatively dry period. The groundwater elevation at the most upgradient well (MB-3), varied from 14.01 feet to 11.50 feet above mean sea level. The groundwater elevation at the most downgradient well (S-5) varied from 0.92 to 1.57 feet above mean sea level.

Existing and Anticipated Project Hydrogeology

Under current conditions documented during the prior year, groundwater flows approximately west to southwestward toward the Pacific Ocean, as displayed in the groundwater elevation maps included as Figures 3 through 6. The groundwater flow direction below the GRRP under these background conditions were determined based on measured groundwater elevations.

Under anticipated project conditions, the operation of the GRRP will cause localized mounding of groundwater under the injection site(s) and alter groundwater flow to a more generally more northerly flow direction, from the injection wells to the extraction points at the City’s existing production wells. This will be described in more detail in the Basis of Design Memorandum pending completion of the pilot injection testing and associated groundwater modeling.

References

GSI Water Solutions 2017. Lower Morro Valley Basin Screening-Level Groundwater Modeling for Injection Feasibility.

GSI Water Solutions 2019. Morro Bay Water Reclamation Facility Water Quality Groundwater Modeling,

GSI Water Solutions 2021. Characterization and Selection of Project Area for Injection Testing City of Morro Bay.

FIGURE 1

Site Vicinity Map

Groundwater Replenishment
Reuse Project
Morro Bay, California

LEGEND

- Morro Bay City Well
- MBMWC Well
- Desalination Well
- Piezometer
- Model Active Area

All Other Features

- City Boundary
- Major Road
- Watercourse

NOTES:
MBMWC: Morro Bay Mutual Water Company.
Well MBMWC is inactive.

N

0 500 1,000
Feet

Date: November 15, 2021
Data Sources: USGS, ESRI,
City of Morro Bay

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\GW_Replenishment\Figure1_SiteVicinity.mxd

FIGURE 2

Sampled Groundwater Monitoring Wells

Groundwater Replenishment Reuse Project
Morro Bay, California

LEGEND

- Sampled Groundwater Well (existing)
- Bike Path
- Project Area
- Tentative Initial Injection Well Location Area
- Major Road
- Watercourse

Date: November 15, 2021
Data Sources: USGS, ESRI

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\GW_Replenishment\Figure2_Proposed_GW_Monitoring_Wells.mxd

FIGURE 3
October 2020, Groundwater Elevation Contour

Morro Bay
Background Groundwater
Quality Monitoring

LEGEND

- Monitoring Well
  Groundwater Elevation, feet
- Groundwater Elevation Contour, feet
- Groundwater Flow Direction
- Major Road
- Watercourse

N

0 250 500
Feet

Date: November 15, 2021
Data Sources: ESRI, USGS, NAIP 2018

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Quarterly_WQ_TM\Figure3_OCT_GW_Elevation_Contours.mxd, npalmer

FIGURE 4
January 2021, Groundwater Elevation Contour

Morro Bay
Background Groundwater
Quality Monitoring

LEGEND

- Monitoring Well
  Groundwater Elevation, feet
- Groundwater Elevation Contour, feet
- Groundwater Flow Direction
- Major Road
- Watercourse

N

0 250 500
Feet

Date: November 15, 2021
Data Sources: ESRI, USGS, NAIP 2018

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Quarterly_WQ_TM\Figure4_JAN_GW_Elevation_Contours.mxd, npalmer

FIGURE 5

April 2021, Groundwater Elevation Contour

Morro Bay
Background Groundwater Quality Monitoring

LEGEND

Monitoring Well
Groundwater Elevation, feet

Groundwater Elevation Contour, feet

Groundwater Flow Direction

Major Road

Watercourse

N

0 250 500
Feet

Date: November 15, 2021
Data Sources: ESRI, USGS, NAIP 2018

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Quarterly_WQ_TM\Figure5_APR_GW_Elevation_Contours.mxd, npalmer

FIGURE 6
July 2021, Groundwater Elevation Contour

Morro Bay
Background Groundwater
Quality Monitoring

LEGEND

- Monitoring Well
  Groundwater Elevation, feet
- Groundwater Elevation Contour, feet
- Groundwater Flow Direction
- Major Road
- Watercourse

N

0 250 500
Feet

Date: November 15, 2021
Data Sources: ESRI, USGS, NAIP 2018

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Quarterly_WQ_TM\Figure6_JUL_GW_Elevation_Contours.mxd, npalmer

TABLE 1
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Composite Sample (MB-3 and High School-2)

Method	Analyte	9.10.2021 Results	Units	MCL	SMCL	NL
General Chemistry						
E100.2	Asbestos	ND	MFL	7	--	--
E317	Bromate	ND	ug/L	10	--	--
E300.0	Chlorate	25	ug/L	--	--	800
E300.0	Chloride	190	mg/L	--	500	--
E300.0	Chlorite	ND	mg/L	1	--	--
2120B	Color	ND	None	--	--	--
SW8015B	Ethylene Glycol	ND	mg/L	--	--	14
SM4500-F-C	Fluoride	0.22	mg/L	2	--	--
E556.1	Formaldehyde	ND	ug/L	--	--	100
5540C	MBAS	ND	mg/L	--	0.5	--
E300.0	Nitrate (as N)	**21**	mg/L	10	--	--
E300.0	Nitrate (as NO3)	92	mg/L	--	--	--
E300.0	Nitrate + Nitrite (As N)	**21**	mg/L	10	--	--
E300.0	Nitrite (as N)	ND	mg/L	1	--	--
2150B	Odor	ND	None	--	--	--
E314.0	Perchlorate	ND	ug/L	6	--	--
2510B	Specific Conductivity	1700	umhos/cm	--	1600	--
E300.0	Sulfate	150	mg/L	--	500	--
SM4500-CN-F	Total Cyanide	ND	ug/L	150	--	--
SM2540C	Total Dissolved Solids	990	mg/L	--	1000	--
E351.2	Total Kjeldahl Nitrogen	ND	mg/L	--	--	--
E351.1	Total Nitrogen	21	mg/L	--	--	--
SM5310C	Total Organic Carbon	1	mg/L	--	--	--
E180.1	Turbidity	2.5	NTU	--	--	--
Metals						
E200.8	Aluminum	ND	ug/L	1000	--	--
E200.8	Antimony	ND	ug/L	6	--	--
E200.8	Arsenic	ND	ug/L	10	--	--
E200.8	Barium	130	ug/L	1000	--	--
E200.8	Beryllium	ND	ug/L	4	--	--
E200.7	Boron	130	ug/L	--	--	1000
E200.8	Cadmium	ND	ug/L	5	--	--
E200.8	Chromium	3	ug/L	50	--	--
SM 3500CrB	Chromium, Hexavalent	ND	ug/L	--	--	--
E200.8	Cobalt	ND	ug/L	--	--	--
E200.8	Copper	ND	ug/L	--	--	--
E200.7	Iron	ND	ug/L	--	300	--
E200.8	Lead	ND	ug/L	--	--	--
E200.7	Lithium	6	ug/L	--	--	--
E200.8	Manganese	ND	ug/L	--	50	--
E200.8	Mercury	ND	ug/L	2	--	--
E200.8	Molybdenum	ND	ug/L	--	--	--
E200.8	Nickel	ND	ug/L	100	--	--
E200.8	Selenium	18	ug/L	50	--	--
E200.8	Silver	ND	ug/L	--	--	--
E200.8	Thallium	ND	ug/L	2	--	--
E200.8	Tin	ND	ug/L	--	--	--
E200.8	Titanium	80	ug/L	--	--	--
E200.8	Uranium	1.7	ug/L	20	--	--
E200.8	Vanadium	3	ug/L	--	--	50
E200.8	Zinc	ND	ug/L	--	5000	--
Herbicides/Pesticides						
E515.4	2,4,5-TP	ND	ug/L	50	--	--
E515.4	2,4-D	ND	ug/L	70	--	--
E531.2	3-Hydroxycarbofuran	ND	ug/L	--	--	--
E525.2	4,4'-DDD	ND	ug/L	--	--	--
E525.2	4,4'-DDE	ND	ug/L	--	--	--
E525.2	4,4'-DDT	ND	ug/L	--	--	--
E505	Alachlor	ND	ug/L	2	--	--
E525.2	Alachlor	ND	ug/L	2	--	--
E531.2	Aldicarb	ND	ug/L	--	--	--
E531.2	Aldicarb sulfone	ND	ug/L	--	--	--
E531.2	Aldicarb sulfoxide	ND	ug/L	--	--	--
E525.2	Alpha-BHC	ND	ug/L	--	--	--
E531.2	Baygon	ND	ug/L	--	--	--
E515.4	Bentazon	ND	ug/L	18	--	--
E525.2	Beta-BHC	ND	ug/L	--	--	--
E531.2	Carbaryl	ND	ug/L	--	--	--
E531.2	Carbofuran	ND	ug/L	18	--	--
E505	Chlordane	ND	ug/L	0.1	--	--
E515.4	Dalapon	ND	ug/L	200	--	--

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GSI Water Solutions, Inc.

TABLE 1
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Composite Sample (MB-3 and HS-2)

Method	Analyte	9.10.2021 Results	Units	MCL	SMCL	NL
E525.2	Delta-BHC	ND	ug/L	--	--	--
E525.2	Dieldrin	ND	ug/L	--	--	--
E515.4	Dinoseb	ND	ug/L	7	--	--
E549.2	Diquat	ND	ug/L	20	--	--
E525.2	Endosulfan I	ND	ug/L	--	--	--
E525.2	Endosulfan II	ND	ug/L	--	--	--
E525.2	Endosulfan Sulfate	ND	ug/L	--	--	--
E548.1	Endothal	ND	ug/L	--	--	--
E505	Endrin	ND	ug/L	2	--	--
E525.2	Endrin	ND	ug/L	2	--	--
E525.2	Endrin Aldehyde	ND	ug/L	--	--	--
E525.2	Gamma-BHC	ND	ug/L	0.2	--	--
E505	Gamma-BHC	ND	ug/L	0.2	--	--
E547	Glyphosate	ND	ug/L	700	--	--
E525.2	Heptachlor	ND	ug/L	0.01	--	--
E505	Heptachlor	ND	ug/L	0.01	--	--
E525.2	Heptachlor Epoxide	ND	ug/L	0.01	--	--
E505	Heptachlor Epoxide	ND	ug/L	0.01	--	--
E531.2	Methiocarb	ND	ug/L	--	--	--
E531.2	Methomyl	ND	ug/L	--	--	--
E505	Methoxychlor	ND	ug/L	30	--	--
E525.2	Methoxychlor	ND	ug/L	30	--	--
E531.2	Oxamyl	ND	ug/L	50	--	--
E549.2	Paraquat	ND	ug/L	--	--	--
SW8270C	Pentachlorophenol	ND	ug/L	1	--	--
E515.4	Pentachlorophenol	ND	ug/L	1	--	--
E515.4	Picloram	ND	ug/L	500	--	--
E505	Toxaphene	ND	ug/L	3	--	--
	VOCs					
E524.2	1,1,1,2-Tetrachloroethane	ND	ug/L	--	--	--
SW8260B	1,1,1,2-Tetrachloroethane	ND	ug/L	--	--	--
SW8260B	1,1,1-Trichloroethane	ND	ug/L	200	--	--
E524.2	1,1,1-Trichloroethane	ND	ug/L	200	--	--
E524.2	1,1,2,2-Tetrachloroethane	ND	ug/L	1	--	--
SW8260B	1,1,2,2-Tetrachloroethane	ND	ug/L	1	--	--
SW8260B	1,1,2-Trichlor-1,2,2-trifluoroethane	ND	ug/L	1200	--	--
E524.2	1,1,2-Trichloroethane	ND	ug/L	5	--	--
SW8260B	1,1,2-Trichloroethane	ND	ug/L	5	--	--
SW8260B	1,1-Dichloroethane	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethane	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethene	ND	ug/L	6	--	--
SW8260B	1,1-Dichloroethene	ND	ug/L	6	--	--
E524.2	1,1-Dichloropropene	ND	ug/L	--	--	--
SW8260B	1,1-Dichloropropene	ND	ug/L	--	--	--
E524.2	1,2,3-Trichlorobenzene	ND	ug/L	--	--	--
SW8260B	1,2,3-Trichlorobenzene	ND	ug/L	--	--	--
E524.2	1,2,3-Trichloropropane	ND	ug/L	0.005	--	--
SW8260B	1,2,3-Trichloropropane	ND	ug/L	0.005	--	--
E524.2Mod	1,2,3-Trichloropropane	ND	ug/L	0.005	--	--
E524.2	1,2,4-Trichlorobenzene	ND	ug/L	5	--	--
SW8260B	1,2,4-Trichlorobenzene	ND	ug/L	5	--	--
E524.2	1,2,4-Trimethylbenzene	ND	ug/L	--	--	330
SW8260B	1,2,4-Trimethylbenzene	ND	ug/L	--	--	330
504.1	1,2-Dibromo-3-chloropropane	ND	ug/L	0.2	--	--
SW8260B	1,2-Dibromo-3-chloropropane	ND	ug/L	0.2	--	--
E524.2	1,2-Dichlorobenzene	ND	ug/L	600	--	--
SW8260B	1,2-Dichlorobenzene	ND	ug/L	600	--	--
SW8260B	1,2-Dichloroethane	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloroethane	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloropropane	ND	ug/L	5	--	--
SW8260B	1,2-Dichloropropane	ND	ug/L	5	--	--
E524.2	1,3,5-Trimethylbenzene	ND	ug/L	--	--	330
SW8260B	1,3,5-Trimethylbenzene	ND	ug/L	--	--	330
SW8260B	1,3-butadiene	ND	ug/L	--	--	--
E524.2	1,3-Dichlorobenzene	ND	ug/L	--	--	--
SW8260B	1,3-Dichlorobenzene	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropane	ND	ug/L	--	--	--
SW8260B	1,3-Dichloropropane	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropene	ND	ug/L	0.5	--	--
SW8260B	1,4-Dichlorobenzene	ND	ug/L	5	--	--
E524.2	1,4-Dichlorobenzene	ND	ug/L	5	--	--
SW8260B	1,4-Dioxane	ND	ug/L	--	--	1

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Composite Sample (MB-3 and HS-2)

Method	Analyte	9.10.2021 Results	Units	MCL	SMCL	NL
SW8260B	2,2-Dichloropropane	ND	ug/L	--	--	--
E524.2	2,2-Dichloropropane	ND	ug/L	--	--	--
SW8260B	2-Chloroethyl vinyl ether	ND	ug/L	--	--	--
E524.2	2-Chlorotoluene	ND	ug/L	--	--	140
SW8260B	2-Chlorotoluene	ND	ug/L	--	--	140
SW8260B	2-Hexanone	ND	ug/L	--	--	--
E524.2	4-Chlorotoluene	ND	ug/L	--	--	140
SW8260B	4-Chlorotoluene	ND	ug/L	--	--	140
E524.2	4-Methyl-2-pentanone	ND	ug/L	--	--	--
SW8260B	4-Methyl-2-pentanone	ND	ug/L	--	--	--
SW8260B	Acetone	ND	ug/L	--	--	--
SW8260B	Acetonitrile	ND	ug/L	--	--	--
SW8260B	Acrolein	ND	ug/L	--	--	--
SW8260B	Acrylonitrile	ND	ug/L	--	--	--
SW8260B	Benzene	ND	ug/L	1	--	--
E524.2	Benzene	ND	ug/L	1	--	--
E524.2	Bromobenzene	ND	ug/L	--	--	--
SW8260B	Bromobenzene	ND	ug/L	--	--	--
E524.2	Bromochloromethane	ND	ug/L	--	--	--
SW8260B	Bromochloromethane	ND	ug/L	--	--	--
E524.2	Bromodichloromethane	ND	ug/L	80	--	--
SW8260B	Bromodichloromethane	ND	ug/L	80	--	--
E524.2	Bromoethane	ND	ug/L	--	--	--
E524.2	Bromoform	0.53	ug/L	80	--	--
SW8260B	Bromoform	ND	ug/L	80	--	--
E524.2	Bromomethane	ND	ug/L	--	--	--
SW8260B	Bromomethane	ND	ug/L	--	--	--
E524.2	Carbon disulfide	ND	ug/L	--	--	160
SW8260B	Carbon disulfide	ND	ug/L	--	--	160
E524.2	Carbon tetrachloride	ND	ug/L	0.5	--	--
SW8260B	Carbon tetrachloride	ND	ug/L	0.5	--	--
E524.2	Chlorobenzene	ND	ug/L	70	--	--
SW8260B	Chlorobenzene	ND	ug/L	70	--	--
SW8260B	Chloroethane	ND	ug/L	--	--	--
E524.2	Chloroethane	ND	ug/L	--	--	--
E524.2	Chloroform	ND	ug/L	80	--	--
SW8260B	Chloroform	ND	ug/L	80	--	--
E524.2	Chloromethane	ND	ug/L	--	--	--
SW8260B	Chloromethane	ND	ug/L	--	--	--
E524.2	cis-1,2-Dichloroethene	ND	ug/L	6	--	--
SW8260B	cis-1,2-Dichloroethene	ND	ug/L	6	--	--
SW8260B	cis-1,3-Dichloropropene	ND	ug/L	--	--	--
E524.2	cis-1,3-Dichloropropene	ND	ug/L	--	--	--
E524.2	Dibromochloromethane	ND	ug/L	80	--	--
SW8260B	Dibromochloromethane	ND	ug/L	80	--	--
SW8260B	Dibromomethane	ND	ug/L	--	--	--
E524.2	Dibromomethane	ND	ug/L	--	--	--
SW8260B	Dichlorodifluoromethane	ND	ug/L	--	--	1000
E524.2	Dichlorodifluoromethane	ND	ug/L	--	--	1000
SW8260B	Diethyl Ether	ND	ug/L	--	--	--
SW8260B	Diisopropyl ether	ND	ug/L	--	--	--
E524.2	Di-isopropyl ether	ND	ug/L	--	--	--
SW8260B	Ethanol	ND	ug/L	--	--	--
E524.2	Ethyl tert-butyl ether	ND	ug/L	--	--	--
E524.2	Ethylbenzene	ND	ug/L	300	--	--
SW8260B	Ethylbenzene	ND	ug/L	300	--	--
SW8260B	Ethylene dibromide	ND	ug/L	0.05	--	--
504.1	Ethylene dibromide	ND	ug/L	0.05	--	--
SW8260B	Hexachloro-1,3-Butadiene	ND	ug/L	--	--	--
E524.2	Hexachlorobutadiene	ND	ug/L	--	--	--
SW8260B	Hexane	ND	ug/L	--	--	--
SW8260B	Iodomethane	ND	ug/L	--	--	--
SW8260B	Isobutyl alcohol	ND	ug/L	--	--	--
SW8260B	Isopropanol	ND	ug/L	--	--	--
E524.2	Isopropylbenzene	ND	ug/L	--	--	770
SW8260B	Isopropylbenzene	ND	ug/L	--	--	770
SW8260B	m,p-Xylene	ND	ug/L	--	--	--
E524.2	m,p-Xylene	ND	ug/L	--	--	--
E524.2	Methyl ethyl ketone	ND	ug/L	--	--	--
SW8260B	Methyl ethyl ketone	ND	ug/L	--	--	--
SW8260B	Methyl t-butyl ether	ND	ug/L	--	--	--
E524.2	Methyl tert-butyl ether	ND	ug/L	13	--	--

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Method	Analyte	9.10.2021 Results	Units	MCL	SMCL	NL
SW8260B	Methylene chloride	ND	ug/L	5	--	--
E524.2	Methylene chloride	ND	ug/L	5	--	--
SW8260B	Naphthalene	ND	ug/L	--	--	17
E524.2	Naphthalene	ND	ug/L	--	--	17
E524.2	n-Butylbenzene	ND	ug/L	--	--	260
SW8260B	n-Butylbenzene	ND	ug/L	--	--	260
E524.2	n-Propylbenzene	ND	ug/L	--	--	260
SW8260B	n-Propylbenzene	ND	ug/L	--	--	260
E524.2	o-Xylene	ND	ug/L	--	--	--
SW8260B	o-Xylene	ND	ug/L	--	--	--
E524.2	p-Isopropyltoluene	ND	ug/L	--	--	--
SW8260B	p-Isopropyltoluene	ND	ug/L	--	--	--
SW8260B	sec-Butylbenzene	ND	ug/L	--	--	260
E524.2	sec-Butylbenzene	ND	ug/L	--	--	260
E524.2	Styrene	ND	ug/L	100	--	--
SW8260B	Styrene	ND	ug/L	100	--	--
E524.2	tert-Amyl Methyl ether	ND	ug/L	--	--	--
E524.2	tert-Butyl alcohol	ND	ug/L	--	--	12
SW8260B	tert-Butyl alcohol	ND	ug/L	--	--	12
SW8260B	tert-Butylbenzene	ND	ug/L	--	--	260
E524.2	tert-Butylbenzene	ND	ug/L	--	--	260
SW8260B	Tetrachloroethene	ND	ug/L	5	--	--
E524.2	Tetrachloroethene	ND	ug/L	5	--	--
SW8260B	Tetrahydrofuran	ND	ug/L	--	--	--
SW8260B	Thiophene	ND	ug/L	--	--	--
SW8260B	Toluene	ND	ug/L	150	--	--
E524.2	Toluene	ND	ug/L	150	--	--
SW8260B	trans-1,2-Dichloroethene	ND	ug/L	10	--	--
E524.2	trans-1,2-Dichloroethene	ND	ug/L	10	--	--
E524.2	trans-1,3-Dichloropropene	ND	ug/L	--	--	--
SW8260B	trans-1,3-Dichloropropene	ND	ug/L	--	--	--
SW8260B	trans-1,4-Dichloro-2-butene	ND	ug/L	--	--	--
E524.2	Trichloroethene	ND	ug/L	5	--	--
SW8260B	Trichloroethene	ND	ug/L	5	--	--
SW8260B	Trichlorofluoromethane	ND	ug/L	150	--	--
E524.2	Trichlorofluoromethane	ND	ug/L	150	--	--
E524.2	Trichlorotrifluoroethane	ND	ug/L	--	--	--
SW8260B	Vinyl acetate	ND	ug/L	--	--	--
E524.2	Vinyl chloride	ND	ug/L	0.5	--	--
SW8260B	Vinyl chloride	ND	ug/L	0.5	--	--
E524.2	Xylenes, Total	ND	ug/L	1750	--	--
SVOCs						
SW8270C	1,3-Dichlorobenzene	ND	ug/L	--	--	--
SW8270C	1,4-Dichlorobenzene	ND	ug/L	5	--	--
E522	1,4-Dioxane	ND	ug/L	--	--	1
SW8270C	1-Methylnaphthalene	ND	ug/L	--	--	--
SW8270C	2,4,5-Trichlorophenol	ND	ug/L	--	--	--
SW8270C	2,4,6-Trichlorophenol	ND	ug/L	--	--	--
E525.2	2,4-DDD	ND	ug/L	--	--	--
E525.2	2,4-DDE	ND	ug/L	--	--	--
E525.2	2,4-DDT	ND	ug/L	--	--	--
SW8270C	2,4-Dichlorophenol	ND	ug/L	--	--	--
SW8270C	2,4-Dimethylphenol	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrophenol	ND	ug/L	--	--	--
E525.2	2,4-Dinitrotoluene	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrotoluene	ND	ug/L	--	--	--
E525.2	2,6-Dinitrotoluene	ND	ug/L	--	--	--
SW8270C	2,6-Dinitrotoluene	ND	ug/L	--	--	--
SW8270C	2-Chloronaphthalene	ND	ug/L	--	--	--
SW8270C	2-Chlorophenol	ND	ug/L	--	--	--
SW8270C	2-Methylnaphthalene	ND	ug/L	--	--	--
SW8270C	2-Methylphenol	ND	ug/L	--	--	--
SW8270C	2-Nitroaniline	ND	ug/L	--	--	--
SW8270C	2-Nitrophenol	ND	ug/L	--	--	--
SW8270C	3,3-Dichlorobenzidine	ND	ug/L	--	--	--
SW8270C	3-4-Methylphenol	ND	ug/L	--	--	--
SW8270C	3-Nitroaniline	ND	ug/L	--	--	--
SW8270C	4,6-Dinitro-2-methylphenol	ND	ug/L	--	--	--
SW8270C	4-Bromophenyl phenyl ether	ND	ug/L	--	--	--
SW8270C	4-Chloroaniline	ND	ug/L	--	--	--
SW8270C	4-Chlorophenyl phenyl ether	ND	ug/L	--	--	--
SW8270C	4-Nitroaniline	ND	ug/L	--	--	--

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SW8270C	4-Nitrophenol	ND	ug/L	--	--	--
E525.2	Acenaphthene	ND	ug/L	--	--	--
SW8270C	Acenaphthene	ND	ug/L	--	--	--
SW8270C	Acenaphthylene	ND	ug/L	--	--	--
E525.2	Acenaphthylene	ND	ug/L	--	--	--
E525.2	Acetochlor	ND	ug/L	--	--	--
E525.2	alpha-Chlordane	ND	ug/L	--	--	--
SW8270C	Aniline	ND	ug/L	--	--	--
E525.2	Anthracene	ND	ug/L	--	--	--
SW8270C	Anthracene	ND	ug/L	--	--	--
E525.2	Atrazine	ND	ug/L	1	--	--
SW8270C	Azobenzene	ND	ug/L	--	--	--
E525.2	Benz(a)anthracene	ND	ug/L	--	--	--
SW8270C	Benz(a)anthracene	ND	ug/L	--	--	--
SW8270C	Benzidine	ND	ug/L	--	--	--
E525.2	Benzo(a)pyrene	ND	ug/L	0.2	--	--
SW8270C	Benzo(a)pyrene	ND	ug/L	0.2	--	--
E525.2	Benzo(b)fluoranthene	ND	ug/L	--	--	--
SW8270C	Benzo(b)fluoranthene	ND	ug/L	--	--	--
E525.2	Benzo(g,h,i)perylene	ND	ug/L	--	--	--
SW8270C	Benzo(g,h,i)perylene	ND	ug/L	--	--	--
E525.2	Benzo(k)fluoranthene	ND	ug/L	--	--	--
SW8270C	Benzo(k)fluoranthene	ND	ug/L	--	--	--
SW8270C	Benzoic acid	ND	ug/L	--	--	--
SW8270C	Benzyl alcohol	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethoxy)methane	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethyl)ether	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroisopropyl)ether	ND	ug/L	--	--	--
E525.2	bis(2-Ethylhexyl)phthalate	ND	ug/L	4	--	--
SW8270C	bis(2-Ethylhexyl)phthalate	ND	ug/L	4	--	--
E525.2	Bromacil	ND	ug/L	--	--	--
E525.2	Butachlor	ND	ug/L	--	--	--
SW8270C	Butyl benzyl phthalate	ND	ug/L	--	--	--
E525.2	Butylbenzylphthalate	ND	ug/L	--	--	--
E525.2	Caffeine	ND	ug/L	--	--	--
E525.2	Chlorobenzilate	ND	ug/L	--	--	--
E525.2	Chloroneb	ND	ug/L	--	--	--
E525.2	Chlorothalonil	ND	ug/L	--	--	--
E525.2	Chlorpyrifos	ND	ug/L	--	--	--
E525.2	Chrysene	ND	ug/L	--	--	--
SW8270C	Chrysene	ND	ug/L	--	--	--
E525.2	Di(2-ethylhexyl)adipate	ND	ug/L	400	--	--
E525.2	Diazinon	ND	ug/L	--	--	1.2
E525.2	Dibenz(a,h)anthracene	ND	ug/L	--	--	--
SW8270C	Dibenz(a,h)anthracene	ND	ug/L	--	--	--
SW8270C	Dibenzofuran	ND	ug/L	--	--	--
E525.2	Dichlorvos	ND	ug/L	--	--	--
SW8270C	Diethyl phthalate	ND	ug/L	--	--	--
E525.2	Diethylphthalate	ND	ug/L	--	--	--
E525.2	Dimethoate	ND	ug/L	--	--	--
SW8270C	Dimethyl phthalate	ND	ug/L	--	--	--
E525.2	Dimethylphthalate	ND	ug/L	--	--	--
SW8270C	Di-n-butyl phthalate	ND	ug/L	--	--	--
E525.2	Di-n-butylphthalate	ND	ug/L	--	--	--
SW8270C	Di-n-octyl phthalate	ND	ug/L	--	--	--
E525.2	Di-n-octylphthalate	ND	ug/L	--	--	--
E525.2	EPTC	ND	ug/L	--	--	--
E525.2	Fluoranthene	ND	ug/L	--	--	--
SW8270C	Fluoranthene	ND	ug/L	--	--	--
E525.2	Fluorene	ND	ug/L	--	--	--
SW8270C	Fluorene	ND	ug/L	--	--	--
E525.2	Gamma-Chlordane	ND	ug/L	--	--	--
SW8270C	Hexachloro-1,3-Butadiene	ND	ug/L	--	--	--
E525.2	Hexachlorobenzene	ND	ug/L	1	--	--
SW8270C	Hexachlorobenzene	ND	ug/L	1	--	--
E525.2	Hexachlorocyclopentadiene	ND	ug/L	50	--	--
SW8270C	Hexachlorocyclopentadiene	ND	ug/L	50	--	--
SW8270C	Hexachloroethane	ND	ug/L	--	--	--
E525.2	Indeno(1,2,3-cd)pyrene	ND	ug/L	--	--	--
SW8270C	Indeno(1,2,3-cd)pyrene	ND	ug/L	--	--	--
E525.2	Isophorone	ND	ug/L	--	--	--
SW8270C	Isophorone	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 1
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Composite Sample (MB-3 and HS-2)

Method	Analyte	9.10.2021 Results	Units	MCL	SMCL	NL
E525.2	Malathion	ND	ug/L	--	--	--
E525.2	Metolachlor	ND	ug/L	--	--	--
E525.2	Metribuzin	ND	ug/L	--	--	--
E525.2	Molinate	ND	ug/L	20	--	--
E525.2	Naphthalene	ND	ug/L	--	--	17
SW8270C	Naphthalene	ND	ug/L	--	--	17
SW8270C	Nitrobenzene	ND	ug/L	--	--	--
SW8270C	N-Nitrosodiphenylamine	ND	ug/L	--	--	--
E525.2	Parathion	ND	ug/L	--	--	--
SW8270C	p-Chloro-m-cresol	ND	ug/L	--	--	--
E525.2	Pendimethalin	ND	ug/L	--	--	--
E525.2	Permethrin (mixed isomers)	ND	ug/L	--	--	--
E525.2	Phenanthrene	ND	ug/L	--	--	--
SW8270C	Phenanthrene	ND	ug/L	--	--	--
SW8270C	Phenol	ND	ug/L	--	--	--
E525.2	Propachlor	ND	ug/L	--	--	90
E525.2	Pyrene	ND	ug/L	--	--	--
SW8270C	Pyrene	ND	ug/L	--	--	--
SW8270C	Pyridine	ND	ug/L	--	--	--
E525.2	Simazine	ND	ug/L	4	--	--
E525.2	Terbacil	ND	ug/L	--	--	--
E525.2	Terbuthylazine	ND	ug/L	--	--	--
E525.2	Thiobencarb	ND	ug/L	70	--	--
E525.2	trans-Nonachlor	ND	ug/L	--	--	--
E525.2	Trifluralin	ND	ug/L	--	--	--
		PCBs				
E505	PCB-1016	ND	ug/L	--	--	--
E505	PCB-1221	ND	ug/L	--	--	--
E505	PCB-1232	ND	ug/L	--	--	--
E505	PCB-1242	ND	ug/L	--	--	--
E505	PCB-1248	ND	ug/L	--	--	--
E505	PCB-1254	ND	ug/L	--	--	--
E505	PCB-1260	ND	ug/L	--	--	--
E505	Total PCBs	ND	ug/L	0.5	--	--
		THAAs				
SM 6251B	Bromochloroacetic acid	ND	ug/L	--	--	--
SM 6251B	Dibromoacetic acid	ND	ug/L	--	--	--
SM 6251B	Dichloroacetic acid	ND	ug/L	--	--	--
SM 6251B	Monobromoacetic acid	ND	ug/L	--	--	--
SM 6251B	Monochloroacetic acid	ND	ug/L	--	--	--
SM 6251B	Trichloroacetic acid	ND	ug/L	--	--	--
SM 6251B	Trihalomethanes	ND	ug/L	80	--	--
E524.2	Trihalomethanes	0.53	ug/L	80	--	--
		Radiochemistry				
SM 7110C	Gross Alpha	3.1	pCi/L	15	--	--
Ra-226 GA	Radium-226	ND	pCi/L	5	--	--
RA-228 GA	Radium-228	ND	pCi/L	5	--	--
Unk_RadChem	Uranium	1.2	pCi/L	20	--	--
906	Tritium	ND	pCi/L	20000	--	--
905	Strontium-90	ND	pCi/L	8	--	--
E900	Gross Beta	ND	pCi/L	50	--	--
		Nitroaromatics and Nitrosamines				
LC-MS-MS	HMX	ND	ug/L	--	--	0.35
LC-MS-MS	RDX	ND	ug/L	--	--	0.3
LC-MS-MS	2,4,6-Trinitrotoluene	ND	ug/L	--	--	0.001
SW8270C	N-Nitrosodiethylamine	ND	ug/L	--	--	0.01
E521	N-Nitrosodiethylamine	ND	ng/L	--	--	0.01
SW8270C	N-Nitrosodimethylamine	ND	ug/L	--	--	0.01
E521	N-Nitrosodimethylamine	ND	ng/L	--	--	0.01
E521	N-Nitrosomorpholine	ND	ng/L	--	--	--
E521	N-Nitrosopyrrolidine	ND	ng/L	--	--	--
E521	N-Nitrosodi-n-propylamine	ND	ng/L	--	--	0.01
E521	N-Nitroso-di-butylamine	ND	ng/L	--	--	--
SW8270C	N-Nitrosodi-n-propylamine	ND	ug/L	--	--	0.01
E521	N-Nitrosomethylethylamine	ND	ng/L	--	--	--
E521	N-Nitrosopiperidine	ND	ng/L	--	--	--
		PFAs				
E537.1	Perfluorooctanesulfonic acid (PFOS)	ND	ng/L	--	--	6.5
E537.1	Perfluorooctanoic acid (PFOA)	ND	ng/L	--	--	5.1
		Dioxins				
EPA 1613B	2,3,7,8-TCDD	ND	ug/L	0.00003	--	--

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GSI Water Solutions, Inc.

TABLE 2
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well 20P-01

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.21 Results	Units	MCL	SMCL	NL
Field Parameters								
YSI Probe	Temp	15.5	15.9	16.4	Degrees C			
YSI Probe	pH	7.5	7.4	7.3				
YSI Probe	ORP	198	91	57	mV			
YSI Probe	DO	0.19	0.13	0.1	mg/L			
General Chemistry								
EPA 600/R-94/134	Asbestos	ND	ND	ND	MFL	7	--	--
EPA 317	Bromate	ND	ND	ND	mg/L	10	--	
EPA 300.1	Chlorate	ND	ND	ND	mg/L	--	--	800
E300.0	Chloride	120	130	140	mg/L	--	500	--
EPA 300.1	Chlorite	ND	ND	ND	mg/L	1	--	--
2120B	Color	3	2	1	None	--	--	--
SW8015B	Ethylene glycol	ND	ND	ND	mg/L	--	--	14
2510B	Electrical Conductivity @ 25 C	1210	1220	1290	umhos/cm	--	--	--
E300.0	Fluoride	0.29	0.28	0.3	mg/L	2	--	--
E556.1	Formaldehyde	ND	ND	ND	ug/L	--	--	100
5540C	MBAS	ND	ND	ND	mg/L	--	0.5	--
E300.0	Nitrate (as N)	1.5	1.4	1.7	mg/L	10	--	--
CALC	Nitrate + Nitrite (As N)	1.6	1.5	1.8	mg/L	10	--	--
E353.2	Nitrite (as N)	0.12	0.11	0.12	mg/L	1	--	--
SM5310C	Non-Volatile Organic Carbon	1.2	1.2	1.2	mg/L	--	--	--
2150B	Odor	ND	ND	ND	None	--	--	--
E314.0	Perchlorate	ND	ND	ND	ug/L	6	--	--
E300.0	Sulfate	140	140	150	mg/L	--	500	--
E335.4	Total Cyanide	ND	ND	ND	ug/L	150	--	--
SM2540C	Total Dissolved Solids	720	760	860	mg/L	--	1000	--
E351.2	Total Kjeldahl Nitrogen	0.17 J	0.13 J	ND	mg/L	--	--	--
CALC	Total Nitrogen	1.8	1.7	1.9	mg/L	--	--	--
E180.1	Turbidity	0.21	0.18	0.32	NTU	--	--	--
Metals								
E200.7	Aluminum	ND	ND	ND	mg/L	1	--	--
E200.8	Antimony	ND	ND	ND	mg/L	0.006	--	--
E200.8	Arsenic	0.0014 J	0.0017 J	ND	mg/L	0.01	--	--
E200.8	Barium	0.17	0.17	0.19	mg/L	1	--	--
E200.8	Beryllium	ND	ND	ND	mg/L	0.004	--	--
E200.7	Boron	0.1	0.094 J	0.092	mg/L	--	--	1
E200.8	Cadmium	ND	ND	ND	mg/L	0.005	--	--
E200.8	Chromium	ND	ND	ND	mg/L	0.05	--	--
E218.6	Chromium, Hexavalent	ND	0.000073 J	ND	mg/L	--	--	--
E200.8	Cobalt	0.00055 J	0.00081 J	0.0013	mg/L	--	--	--
E200.8	Copper	ND	0.0011 J	0.0016	mg/L	--	--	--
E200.7	Iron (Ferric)	ND	ND	ND	mg/L	--	--	--
E200.8	Lead	ND	ND	ND	mg/L	--	--	--
E200.7	Lithium	ND	ND	ND	mg/L	--	--	--
E200.7	Manganese	**1.1**	**1**	**1.1**	mg/L	--	0.05	--
E245.1	Mercury	ND	0.000037 J	ND	mg/L	0.002	--	--
E200.8	Molybdenum	0.0019	0.0019	0.0025	mg/L	--	--	--
E200.8	Nickel	0.0035	0.0034	0.0046	mg/L	0.1	--	--
E200.8	Selenium	0.0012 J	0.0012 J	ND	mg/L	0.05	--	--
E200.8	Silver	ND	ND	ND	mg/L	--	--	--
E200.8	Thallium	ND	ND	ND	mg/L	0.002	--	--
CALC	Trivalent Chromium	ND	ND	ND	mg/L	--	--	--
E200.8	Uranium	0.0019	0.002	0.002	mg/L	20	--	--
E200.8	Vanadium	1.7 J	1.3 J	ND	ug/L	--	--	50
E200.8	Zinc	0.0025 J	ND	ND	--	5	--	
Herbicides/Pesticides								
E531.2	1-Naphthol		ND	ND	ug/L	--	--	--
E515.1	2,4,5-T	ND	ND	ND	ug/L	--	--	--
E515.1	2,4,5-TP	ND	ND	ND	ug/L	50	--	--
E515.1	2,4-D	ND	ND	ND	ug/L	70	--	--
E515.1	2,4-DB	ND	ND	ND	ug/L	--	--	--
E531.2	3-Hydroxycarbofuran		ND	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 2
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MORRO BAY WELLS
Well 20P-01

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.21 Results	Units	MCL	SMCL	NL
SW8270C	4,4'-DDD	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDD	ND	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDE	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDE	ND	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDT	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDT	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb		ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfone		ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfoxide		ND	ND	ug/L	--	--	--
SW8270C	Aldrin	ND	ND	ND	ug/L	--	--	--
E508	Aldrin	ND	ND	ND	ug/L	--	--	--
SW8270C	Alpha-BHC	ND	ND	ND	ug/L	--	--	--
E508	Alpha-BHC	ND	ND	ND	ug/L	--	--	--
E515.1	Bentazon	ND	ND	ND	ug/L	18	--	--
SW8270C	Beta-BHC	ND	ND	ND	ug/L	--	--	--
E508	Beta-BHC	ND	ND	ND	ug/L	--	--	--
E531.2	Carbaryl		ND	ND	ug/L	--	--	--
E531.2	Carbofuran		ND	ND	ug/L	18	--	--
E508	Chlordane	ND	ND	ND	ug/L	0.1	--	--
E515.1	Dalapon	ND	ND	ND	ug/L	200	--	--
SW8270C	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E525.2	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E508	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E515.1	Dicamba	ND	ND	ND	ug/L	--	--	--
E515.1	Dichlorprop	ND	ND	ND	ug/L	--	--	--
SW8270C	Dieldrin	ND	ND	ND	ug/L	--	--	--
E508	Dieldrin	ND	ND	ND	ug/L	--	--	--
E515.1	Dinoseb	ND	ND	ND	ug/L	7	--	--
E549.2	Diquat	ND	ND	ND	ug/L	20	--	--
SW8270C	Endosulfan I	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan I	ND	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan II	ND	ND	ND	ug/L	--	--	--
E548.1	Endosulfan II	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan II	ND	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan Sulfate	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan Sulfate	ND	ND	ND	ug/L	--	--	--
SW8270C	Endrin	ND	ND	ND	ug/L	2	--	--
E508	Endrin	ND	ND	ND	ug/L	2	--	--
SW8270C	Endrin Aldehyde	ND	ND	ND	ug/L	--	--	--
E508	Endrin Aldehyde	ND	ND	ND	ug/L	--	--	--
SW8270C	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E525.2	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E508	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E547	Glyphosate		ND	ND	ug/L	700	--	--
SW8270C	Heptachlor	ND	ND	ND	ug/L	0.01	--	--
E508	Heptachlor	ND	ND	ND	ug/L	0.01	--	--
SW8270C	Heptachlor Epoxide	ND	ND	ND	ug/L	0.01	--	--
E508	Heptachlor Epoxide	ND	ND	ND	ug/L	0.01	--	--
E515.1	MCPA	ND	ND	ND	ug/L	--	--	--
E515.1	MCPP	ND	ND	ND	ug/L	--	--	--
E531.2	Methiocarb		ND	ND	ug/L	--	--	--
E531.2	Methomyl		ND	ND	ug/L	--	--	--
E525.2	Methoxychlor	ND	ND	ND	ug/L	30	--	--
E508	Methoxychlor	ND	ND	ND	ug/L	30	--	--
E531.2	Oxamyl		ND	ND	ug/L	50	--	--
E531.2	Propoxur		ND	ND	ug/L	--	--	--
E508	Toxaphene	ND	ND	ND	ug/L	3	--	--
				VOCs				
E524.2	1,1,1,2-Tetrachloroethane	ND	ND	ND	ug/L	--	--	--
E524.2	1,1,1-Trichloroethane	ND	ND	ND	ug/L	200	--	--
E524.2	1,1,2,2-Tetrachloroethane	ND	ND	ND	ug/L	1	--	--
E524.2	1,1,2-Trichlor-1,2,2-trifluoroethane	ND	ND	ND	ug/L	1200	--	--

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Well 20P-01

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.21 Results	Units	MCL	SMCL	NL
E524.2	1,1,2-Trichloroethane	ND	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethane	ND	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethene	ND	ND	ND	ug/L	6	--	--
E524.2	1,1-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichlorobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichloropropane	ND	ND	ND	ug/L	0.005	--	--
E524	1,2,3-Trichloropropane	ND	ND	ND	ug/L	0.005	--	--
E524.2	1,2,4-Trimethylbenzene	ND	ND	ND	ug/L	--	--	330
E524.2	1,2-Dibromo-3-chloropropane	ND	ND	ND	ug/L	0.2	--	--
504.1	1,2-Dibromo-3-chloropropane	ND	ND	ND	ug/L	0.2	--	--
E524.2	1,2-Dichloroethane	ND	ND	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloropropane	ND	ND	ND	ug/L	5	--	--
E524.2	1,3,5-Trimethylbenzene	ND	ND	ND	ug/L	--	--	330
E524.2	1,3-Dichloropropane	ND	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropene	ND	ND	ND	ug/L	0.5	--	--
E524.2	2,2-Dichloropropane	ND	ND	ND	ug/L	--	--	--
SW8260B	2-Chloroethylvinylether	ND	ND	ND	ug/L	--	--	--
E524.2	2-Chlorotoluene	ND	ND	ND	ug/L	--	--	140
E524.2	4-Chlorotoluene	ND	ND	ND	ug/L	--	--	140
SW8260B	Acrolein	ND	ND	ND	ug/L	--	--	--
SW8260B	Acrylonitrile	ND	ND	ND	ug/L	--	--	--
E524.2	Benzene	ND	ND	ND	ug/L	1	--	--
E524.2	Bromobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	Bromochloromethane	ND	ND	ND	ug/L	--	--	--
E524.2	Bromodichloromethane	ND	ND	ND	ug/L	80	--	--
E524.2	Bromoform	ND	ND	ND	ug/L	80	--	--
E524.2	Bromomethane	ND	ND	ND	ug/L	--	--	--
E524.2	Carbon tetrachloride	ND	ND	ND	ug/L	0.5	--	--
E524.2	Chlorobenzene	ND	ND	ND	ug/L	70	--	--
E524.2	Chloroethane	ND	ND	ND	ug/L	--	--	--
E524.2	Chloroform	ND	ND	ND	ug/L	80	--	--
E524.2	Chloromethane	ND	ND	ND	ug/L	--	--	--
E524.2	cis-1,2-Dichloroethene	ND	ND	ND	ug/L	6	--	--
E524.2	cis-1,3-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	Dibromochloromethane	ND	ND	ND	ug/L	80	--	--
E524.2	Dibromomethane	ND	ND	ND	ug/L	--	--	--
E524.2	Dichlorodifluoromethane	ND	ND	ND	mg/L	--	--	1
E524.2	Di-isopropyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	Ethyl tert-butyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	Ethylbenzene	ND	ND	ND	ug/L	300	--	--
E524.2	Ethylene dibromide	ND	ND	ND	ug/L	--	--	--
504.1	Ethylene dibromide	ND	ND	ND	ug/L	--	--	--
8330	HMX	ND	ND	ND	ug/L	--	--	--
E524.2	Isopropylbenzene	ND	ND	ND	ug/L	--	--	770
E524.2	m,p-Xylene	ND	ND	ND	ug/L	--	--	--
E524.2	Methyl tert-butyl ether	ND	ND	ND	ug/L	13	--	--
E524.2	Methylene chloride	ND	ND	ND	ug/L	5	--	--
E524.2	n-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	n-Propylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	o-Xylene	ND	ND	ND	ug/L	--	--	--
E524.2	p-Isopropyltoluene	ND	ND	ND	ug/L	--	--	--
8330	RDX	ND	ND	ND	mg/L	--	--	0.3
E524.2	sec-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	Styrene	ND	ND	ND	ug/L	100	--	--
E524.2	tert-Amyl Methyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	tert-Butyl alcohol	ND	ND	ND	ug/L	--	--	12
E524.2	tert-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	Tetrachloroethene	ND	ND	ND	ug/L	5	--	--
E524.2	Toluene	ND	ND	ND	ug/L	150	--	--
E524.2	trans-1,2-Dichloroethene	ND	ND	ND	ug/L	10	--	--
E524.2	trans-1,3-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	Trichloroethene	ND	ND	ND	ug/L	5	--	--

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Well 20P-01

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.21 Results	Units	MCL	SMCL	NL
E524.2	Trichlorofluoromethane	ND	ND	ND	ug/L	150	--	--
E524.2	Vinyl chloride	ND	ND	ND	ug/L	0.5	--	--
E524.2	Xylenes, Total	ND	ND	ND	ug/L	1750	--	--
				SVOCs				
SW8270C	1,2,4-Trichlorobenzene	ND	ND	ND	ug/L	5	--	--
E524.2	1,2,4-Trichlorobenzene	ND	ND	ND	ug/L	5	--	--
SW8270C	1,2-Dichlorobenzene	ND	ND	ND	ug/L	600	--	--
E524.2	1,2-Dichlorobenzene	ND	ND	ND	ug/L	600	--	--
SW8270C	1,2-Diphenylhydrazine	ND	ND	ND	ug/L	--	--	--
SW8270C	1,3-Dichlorobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichlorobenzene	ND	ND	ND	ug/L	--	--	--
SW8270C	1,4-Dichlorobenzene	ND	ND	ND	ug/L	5	--	--
E524.2	1,4-Dichlorobenzene	ND	ND	ND	ug/L	5	--	--
SW8270C	2,4,5-Trichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4,6-Trichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dimethylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrotoluene	ND	ND	ND	ug/L	--	--	--
SW8270C	2,6-Dinitrotoluene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Chloronaphthalene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Chlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Methylnaphthalene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Methylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Naphthylamine	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Nitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	3&4-Methylphenol Coelution	ND	ND	ND	ug/L	--	--	--
SW8270C	3,3'-Dichlorobenzidine	ND	ND	ND	ug/L	--	--	--
SW8270C	3-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4,6-Dinitro-2-methylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Bromophenyl phenyl ether	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Chloroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Chlorophenyl phenyl ether	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Nitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthylene	ND	ND	ND	ug/L	--	--	--
E525.2	Acenaphthylene	ND	ND	ND	ug/L	--	--	--
E525.2	Alachlor	ND	ND	ND	ug/L	2	--	--
SW8270C	Aniline	ND	ND	ND	ug/L	--	--	--
SW8270C	Anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Atraton	ND	ND	ND	ug/L	--	--	--
E525.2	Atrazine	ND	ND	ND	ug/L	1	--	--
SW8270C	Benz(a)anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Benz(a)anthracene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzidine	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(a)pyrene	ND	ND	ND	ug/L	0.2	--	--
E525.2	Benzo(a)pyrene	ND	ND	ND	ug/L	0.2	--	--
SW8270C	Benzo(b)fluoranthene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(b)fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(g,h,i)perylene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(g,h,i)perylene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(k)fluoranthene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(k)fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzoic acid	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzyl alcohol	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethoxy)methane	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethyl)ether	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroisopropyl)ether	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Ethylhexyl)phthalate	ND	ND	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 2
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MORRO BAY WELLS
Well 20P-01

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.21 Results	Units	MCL	SMCL	NL
E525.2	bis(2-Ethylhexyl)phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Bromacil	ND	ND	ND	ug/L	--	--	--
SW8270C	Butyl benzyl phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Butyl benzyl phthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Chrysene	ND	ND	ND	ug/L	--	--	--
E525.2	Chrysene	ND	ND	ND	ug/L	--	--	--
E525.2	Di(2-ethylhexyl)adipate	ND	ND	ND	ug/L	400	--	--
E525.2	Diazinon	ND	ND	ND	ug/L	--	--	1.2
SW8270C	Dibenz(a,h)anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Dibenz(a,h)anthracene	ND	ND	ND	ug/L	--	--	--
SW8270C	Dibenzofuran	ND	ND	ND	ug/L	--	--	--
SW8270C	Diethylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Dimethoate	ND	ND	ND	ug/L	--	--	--
SW8270C	Dimethylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Dimethylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Di-n-butylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Di-n-butylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Di-n-octylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Fluorene	ND	ND	ND	ug/L	--	--	--
E525.2	Fluorene	ND	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorobenzene	ND	ND	ND	ug/L	1	--	--
E525.2	Hexachlorobenzene	ND	ND	ND	ug/L	1	--	--
SW8270C	Hexachlorobutadiene	ND	ND	ND	ug/L	--	--	--
E524.2	Hexachlorobutadiene	ND	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorocyclopentadiene	ND	ND	ND	ug/L	50	--	--
E525.2	Hexachlorocyclopentadiene	ND	ND	ND	ug/L	50	--	--
SW8270C	Hexachloroethane	ND	ND	ND	ug/L	--	--	--
SW8270C	Indeno(1,2,3-cd)pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Indeno(1,2,3-cd)pyrene	ND	ND	ND	ug/L	--	--	--
SW8270C	Isophorone	ND	ND	ND	ug/L	--	--	--
E525.2	Metolachlor	ND	ND	ND	ug/L	--	--	--
E525.2	Metribuzin	ND	ND	ND	ug/L	--	--	--
E525.2	Molinate	ND	ND	ND	ug/L	20	--	--
SW8270C	Naphthalene	ND	ND	ND	ug/L	--	--	17
E524.2	Naphthalene	ND	ND	ND	ug/L	--	--	17
SW8270C	Nitrobenzene	ND	ND	ND	ug/L	--	--	--
SW8270C	N-Nitrosodimethylamine	ND	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodi-n-propylamine	ND	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodiphenylamine	ND	ND	ND	ug/L	--	--	--
SW8270C	p-Chloro-m-cresol	ND	ND	ND	ug/L	--	--	--
SW8270C	Pentachlorophenol	ND	ND	ND	ug/L	1	--	--
SW8270C	Phenanthrene	ND	ND	ND	ug/L	--	--	--
E525.2	Phenanthrene	ND	ND	ND	ug/L	--	--	--
SW8270C	Phenol	ND	ND	ND	ug/L	--	--	--
E525.2	Prometon	ND	ND	ND	ug/L	--	--	--
E525.2	Prometryn	ND	ND	ND	ug/L	--	--	--
E525.2	Propachlor	ND	ND	ND	ug/L	--	--	90
SW8270C	Pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Secbumeton	ND	ND	ND	ug/L	--	--	--
E525.2	Simazine	ND	ND	ND	ug/L	4	--	--
E525.2	Terbutryn	ND	ND	ND	ug/L	--	--	--
E525.2	Thiobencarb	ND	ND	ND	ug/L	70	--	--
			PCBs					
E508	PCB-1016	ND	ND	ND	ug/L	--	--	--
E508	PCB-1221	ND	ND	ND	ug/L	--	--	--
E508	PCB-1232	ND	ND	ND	ug/L	--	--	--
E508	PCB-1242	ND	ND	ND	ug/L	--	--	--
E508	PCB-1248	ND	ND	ND	ug/L	--	--	--
E508	PCB-1254	ND	ND	ND	ug/L	--	--	--
E508	PCB-1260	ND	ND	ND	ug/L	--	--	--

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Well 20P-01

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.21 Results	Units	MCL	SMCL	NL
E508	Total PCBs	ND	ND	ND	ug/L	0.5	--	--
				THAA				
E552.3	Dibromoacetic Acid (DBAA)	ND	ND	ND	ug/L	--	--	--
E552.3	Dichloroacetic Acid (DCA)	ND	ND	ND	ug/L	--	--	--
E552.3	Monobromoacetic acid	ND	ND	ND	ug/L	--	--	--
E552.3	Monochloroacetic Acid (MCA)	ND	ND	ND	ug/L	--	--	--
E552.3	Trichloroacetic Acid (TCAA)	ND	ND	ND	ug/L	--	--	--
E552.3	Trihalomethanes	ND	ND	ND	ug/L	80	--	--
E524.2	Trihalomethanes	ND	ND	ND	ug/L	80	--	--
				Radiochemistry				
EPA 900	Gross Alpha	2.29	2.14	2.33	pCi/L	15	--	--
EPA900	Gross Beta	1.82	1.43	2.15	pCi/L	50	--	--
EPA 903.1	Radium-226	0.724	0.551	0.636	pCi/L	3	--	--
EPA 904.0	Radium-228	0.769	0.766	0.869	pCi/L	2	--	--
ASTM D5811-95	Strontium-90	1.26	0.994	3.32	pCi/L	8	--	--
EPA 906	Tritium	260	263	238	pCi/L	20000	--	--
				Nitroaromatics and Nitrosamines				
EPA 521/SPE	N-Nitrosodiethylamine	ND	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosodimethylamine	ND	ND	ND	ug/L			0.01
EPA 521/SPE	N-Nitrosodi-n-butylamine	ND	ND	ND	ug/L	--	--	
EPA 521/SPE	N-Nitrosodi-n-propylamine	ND	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosomethylethylamine	ND	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosomorpholine	ND	ND	ND	ug/L	--	--	--
EPA 521/SPE	N-Nitrosopiperidine	ND	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosopyrrolidine	ND	ND	ND	ng/L	--	--	--
				Dioxins				
EPA 1613B	2,3,7,8-TCDD	0.00000183	0.00000306	0.00000156	ug/L	0.00003	--	--
				PFAs				
B-15	11-CL-PF3OUDS	ND	ND	ND	ng/L	--	--	--
B-15	9-CL-PF3ONS	ND	ND	ND	ng/L	--	--	--
B-15	ADONA	ND	ND	ND	ng/L	--	--	--
B-15	FTS 4:2	ND		ND	ng/L	--	--	--
B-15	FTS 6:2	ND		ND	ng/L	--	--	--
B-15	FTS 8:2	ND		ND	ng/L	--	--	--
B-15	HFPO-DA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSAA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSE	ND		ND	ng/L	--	--	--
B-15	N-MEFOSA	ND		ND	ng/L	--	--	--
B-15	N-MEFOSAA	ND		ND	ng/L	--	--	--
B-15	N-MEFOSE	ND		ND	ng/L	--	--	--
B-15	PFBA	ND		1.7 J	ng/L	--	--	--
B-15	PFBS	0.9 J	1.6 J	0.47 J	ng/L	--	--	--
B-15	PFDA	ND	ND	ND	ng/L	--	--	--
B-15	PFDOA	ND	ND	ND	ng/L	--	--	--
B-15	PFDS	ND		ND	ng/L	--	--	--
B-15	PFHPA	ND	ND	ND	ng/L	--	--	--
B-15	PFHPS	ND		ND	ng/L	--	--	--
B-15	PFHXA	ND	ND	ND	ng/L	--	--	--
B-15	PFHXS	ND	ND	ND	ng/L	--	--	--
B-15	PFNA	ND	ND	ND	ng/L	--	--	--
B-15	PFNS	ND		ND	ng/L	--	--	--
B-15	PFOA	ND	ND	ND	ng/L	--	--	--
B-15	PFOS	ND	ND	ND	ng/L	--	--	--
B-15	PFOSA	ND		2.4 B J	ng/L	--	--	--
B-15	PFPEA	ND		ND	ng/L	--	--	--
B-15	PFPES	ND		ND	ng/L	--	--	--
B-15	PFTEDA	ND	ND	ND	ng/L	--	--	--
B-15	PFTRDA	ND	ND	ND	ng/L	--	--	--
B-15	PFUDA	ND	ND	ND	ng/L	--	--	--

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MORRO BAY WELLS
Well 19P-04

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
Field Parameters								
YSI Probe	Temp	15.3	15.8	15.7	Degrees C			
YSI Probe	pH	7.6	7.5	7.4				
YSI Probe	ORP	207	95	113	mV			
YSI Probe	DO	0.18	0.19	0.13	mg/L			
General Chemistry								
EPA 600/R-94/134	Asbestos	0.98	ND	ND	MFL	7	--	--
EPA 317	Bromate	ND	ND	ND	mg/L	10	--	
EPA 300.1	Chlorate	ND	ND	ND	mg/L	--	--	800
E300.0	Chloride	160	160	170	mg/L	--	500	--
EPA 300.1	Chlorite	ND	ND	ND	mg/L	1	--	--
2120B	Color	10	2	3	None	--	--	--
SW8015B	Ethylene glycol	ND	ND	ND	mg/L	--	--	14
2510B	Electrical Conductivity @ 25 C	1420	1400	1470	umhos/cm	--	--	--
E300.0	Fluoride	0.25	0.25	0.28	mg/L	2	--	--
E556.1	Formaldehyde	ND	ND	ND	ug/L	--	--	100
5540C	MBAS	ND	ND	ND	mg/L	--	0.5	--
E300.0	Nitrate (as N)	1.8	2	2.4	mg/L	10	--	--
CALC	Nitrate + Nitrite (As N)	1.9	2.1	2.5	mg/L	10	--	--
E353.2	Nitrite (as N)	0.1	0.12	0.1	mg/L	1	--	--
SM5310C	Non-Volatile Organic Carbon	1.2	1.2	1.2	mg/L	--	--	--
2150B	Odor	ND	ND	ND	None	--	--	--
E314.0	Perchlorate	ND	ND	ND	ug/L	6	--	--
E300.0	Sulfate	180	170	180	mg/L	--	500	--
E335.4	Total Cyanide	ND	ND	ND	ug/L	150	--	--
SM2540C	Total Dissolved Solids	890	910	990	mg/L	--	1000	--
E351.2	Total Kjeldahl Nitrogen	0.1 J	0.18	0.11 J	mg/L	--	--	--
CALC	Total Nitrogen	2	2.3	2.7	mg/L	--	--	--
E180.1	Turbidity	5.8	4.7	1.8	NTU	--	--	--
Metals								
E200.7	Aluminum	0.31	0.12	0.043 J	mg/L	1	--	--
E200.8	Antimony	ND	ND	ND	mg/L	0.006	--	--
E200.8	Arsenic	0.0011 J	0.0011 J	ND	mg/L	0.01	--	--
E200.8	Barium	0.21	0.2	0.23	mg/L	1	--	--
E200.8	Beryllium	ND	ND	ND	mg/L	0.004	--	--
E200.7	Boron	0.12	0.11	0.093 J	mg/L	--	--	1
E200.8	Cadmium	ND	ND	ND	mg/L	0.005	--	--
E200.8	Chromium	0.0012 J	0.00057 J	ND	mg/L	0.05	--	--
E218.6	Chromium, Hexavalent	ND	ND	ND	mg/L	--	--	--
E200.8	Cobalt	0.00051 J	0.00062 J	0.00097 J	mg/L	--	--	--
E200.8	Copper	0.0011 J	0.0012 J	0.0018 J	mg/L	--	--	--
E200.7	Iron (Ferric)	0.57	0.22	0.061	mg/L	--	--	--
E200.8	Lead	0.00017 J	ND	ND	mg/L	--	--	--
E200.7	Lithium	ND	ND	ND	mg/L	--	--	--
E200.7	Manganese	**1.3**	**1.3**	**1.3**	mg/L	--	0.05	--
E245.1	Mercury	ND	ND	ND	mg/L	0.002	--	--
E200.8	Molybdenum	0.0016	0.0017	0.0038 J	mg/L	--	--	--
E200.8	Nickel	0.0058	0.0047	0.0058	mg/L	0.1	--	--
E200.8	Selenium	0.0074	0.0081	0.0063	mg/L	0.05	--	--
E200.8	Silver	ND	ND	ND	mg/L	--	--	--
E200.8	Thallium	ND	ND	ND	mg/L	0.002	--	--
CALC	Trivalent Chromium	ND	ND	ND	mg/L	--	--	--
E200.8	Uranium	0.0021	0.0019	0.0022 J	mg/L	20	--	--
E200.8	Vanadium	1.7 J	1.1 J	ND	ug/L	--	--	50
E200.8	Zinc	0.021	0.0017 J	ND	mg/L	--	5	--
Herbicides/Pesticides								
E531.2	1-Naphthol		ND	ND	ug/L	--	--	--
E515.1	2,4,5-T	ND	ND	ND	ug/L	--	--	--
E515.1	2,4,5-TP	ND	ND	ND	ug/L	50	--	--
E515.1	2,4-D	ND	ND	ND	ug/L	70	--	--
E515.1	2,4-DB	ND	ND	ND	ug/L	--	--	--
E531.2	3-Hydroxycarbofuran	ND	ND	ND	ug/L	--	--	--

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SW8270C	4,4'-DDD	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDD	ND	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDE	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDE	ND	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDT	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDT	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfone	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfoxide	ND	ND	ND	ug/L	--	--	--
SW8270C	Aldrin	ND	ND	ND	ug/L	--	--	--
E508	Aldrin	ND	ND	ND	ug/L	--	--	--
SW8270C	Alpha-BHC	ND	ND	ND	ug/L	--	--	--
E508	Alpha-BHC	ND	ND	ND	ug/L	--	--	--
E515.1	Bentazon	ND	ND	ND	ug/L	18	--	--
SW8270C	Beta-BHC	ND	ND	ND	ug/L	--	--	--
E508	Beta-BHC	ND	ND	ND	ug/L	--	--	--
E531.2	Carbaryl	ND	ND	ND	ug/L	--	--	--
E531.2	Carbofuran	ND	ND	ND	ug/L	18	--	--
E508	Chlordane	ND	ND	ND	ug/L	0.1	--	--
E515.1	Dalapon	ND	ND	ND	ug/L	200	--	--
SW8270C	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E525.2	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E508	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E515.1	Dicamba	ND	ND	ND	ug/L	--	--	--
E515.1	Dichlorprop	ND	ND	ND	ug/L	--	--	--
SW8270C	Dieldrin	ND	ND	ND	ug/L	--	--	--
E508	Dieldrin	ND	ND	ND	ug/L	--	--	--
E515.1	Dinoseb	ND	ND	ND	ug/L	7	--	--
E549.2	Diquat	ND	ND	ND	ug/L	20	--	--
SW8270C	Endosulfan I	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan I	ND	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan II	ND	ND	ND	ug/L	--	--	--
E548.1	Endosulfan II	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan II	ND	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan Sulfate	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan Sulfate	ND	ND	ND	ug/L	--	--	--
SW8270C	Endrin	ND	ND	ND	ug/L	2	--	--
E508	Endrin	ND	ND	ND	ug/L	2	--	--
SW8270C	Endrin Aldehyde	ND	ND	ND	ug/L	--	--	--
E508	Endrin Aldehyde	ND	ND	ND	ug/L	--	--	--
SW8270C	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E525.2	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E508	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E547	Glyphosate	ND	ND	ND	ug/L	700	--	--
SW8270C	Heptachlor	ND	ND	ND	ug/L	0.01	--	--
E508	Heptachlor	ND	ND	ND	ug/L	0.01	--	--
SW8270C	Heptachlor Epoxide	ND	ND	ND	ug/L	0.01	--	--
E508	Heptachlor Epoxide	ND	ND	ND	ug/L	0.01	--	--
E515.1	MCPA	ND	ND	ND	ug/L	--	--	--
E515.1	MCPP	ND	ND	ND	ug/L	--	--	--
E531.2	Methiocarb		ND	ND	ug/L	--	--	--
E531.2	Methomyl	ND	ND	ND	ug/L	--	--	--
E525.2	Methoxychlor	ND	ND	ND	ug/L	30	--	--
E508	Methoxychlor	ND	ND	ND	ug/L	30	--	--
E531.2	Oxamyl	ND	ND	ND	ug/L	50	--	--
E531.2	Propoxur		ND	ND	ug/L	--	--	--
E508	Toxaphene	ND	ND	ND	ug/L	3	--	--
				VOCs				
E524.2	1,1,1,2-Tetrachloroethane	ND	ND	ND	ug/L	--	--	--
E524.2	1,1,1-Trichloroethane	ND	ND	ND	ug/L	200	--	--
E524.2	1,1,2,2-Tetrachloroethane	ND	ND	ND	ug/L	1	--	--
E524.2	1,1,2-Trichlor-1,2,2-trifluoroethane	ND	ND	ND	ug/L	1200	--	--

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GSI Water Solutions, Inc.

TABLE 3
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well 19P-04

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
E524.2	1,1,2-Trichloroethane	ND	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethane	ND	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethene	ND	ND	ND	ug/L	6	--	--
E524.2	1,1-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichlorobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichloropropane	ND	ND	ND	ug/L	0.005	--	--
E524	1,2,3-Trichloropropane	ND	ND	ND	ug/L	0.005	--	--
E524.2	1,2,4-Trimethylbenzene	ND	ND	ND	ug/L	--	--	330
E524.2	1,2-Dibromo-3-chloropropane	ND	ND	ND	ug/L	0.2	--	--
504.1	1,2-Dibromo-3-chloropropane	ND	ND	ND	ug/L	0.2	--	--
E524.2	1,2-Dichloroethane	ND	ND	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloropropane	ND	ND	ND	ug/L	5	--	--
E524.2	1,3,5-Trimethylbenzene	ND	ND	ND	ug/L	--	--	330
E524.2	1,3-Dichloropropane	ND	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropene	ND	ND	ND	ug/L	0.5	--	--
E524.2	2,2-Dichloropropane	ND	ND	ND	ug/L	--	--	--
SW8260B	2-Chloroethylvinylether	ND	ND	ND	ug/L	--	--	--
E524.2	2-Chlorotoluene	ND	ND	ND	ug/L	--	--	140
E524.2	4-Chlorotoluene	ND	ND	ND	ug/L	--	--	140
SW8260B	Acrolein	ND	ND	ND	ug/L	--	--	--
SW8260B	Acrylonitrile	ND	ND	ND	ug/L	--	--	--
E524.2	Benzene	ND	ND	ND	ug/L	1	--	--
E524.2	Bromobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	Bromochloromethane	ND	ND	ND	ug/L	--	--	--
E524.2	Bromodichloromethane	ND	ND	ND	ug/L	80	--	--
E524.2	Bromoform	ND	ND	ND	ug/L	80	--	--
E524.2	Bromomethane	ND	ND	ND	ug/L	--	--	--
E524.2	Carbon tetrachloride	ND	ND	ND	ug/L	0.5	--	--
E524.2	Chlorobenzene	ND	ND	ND	ug/L	70	--	--
E524.2	Chloroethane	ND	ND	ND	ug/L	--	--	--
E524.2	Chloroform	ND	ND	ND	ug/L	80	--	--
E524.2	Chloromethane	ND	ND	ND	ug/L	--	--	--
E524.2	cis-1,2-Dichloroethene	ND	ND	ND	ug/L	6	--	--
E524.2	cis-1,3-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	Dibromochloromethane	ND	ND	ND	ug/L	80	--	--
E524.2	Dibromomethane	ND	ND	ND	ug/L	--	--	--
E524.2	Dichlorodifluoromethane	ND	ND	ND	mg/L	--	--	1
E524.2	Di-isopropyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	Ethyl tert-butyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	Ethylbenzene	ND	ND	ND	ug/L	300	--	--
E524.2	Ethylene dibromide	ND	ND	ND	ug/L	--	--	--
504.1	Ethylene dibromide	ND	ND	ND	ug/L	--	--	--
8330	HMX	ND	ND	ND	ug/L	--	--	--
E524.2	Isopropylbenzene	ND	ND	ND	ug/L	--	--	770
E524.2	m,p-Xylene	ND	ND	ND	ug/L	--	--	--
E524.2	Methyl tert-butyl ether	ND	ND	ND	ug/L	13	--	--
E524.2	Methylene chloride	ND	ND	ND	ug/L	5	--	--
E524.2	n-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	n-Propylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	o-Xylene	ND	ND	ND	ug/L	--	--	--
E524.2	p-Isopropyltoluene	ND	ND	ND	ug/L	--	--	--
8330	RDX	ND	ND	ND	mg/L	--	--	0.3
E524.2	sec-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	Styrene	ND	ND	ND	ug/L	100	--	--
E524.2	tert-Amyl Methyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	tert-Butyl alcohol	ND	ND	ND	ug/L	--	--	12
E524.2	tert-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	Tetrachloroethene	ND	ND	ND	ug/L	5	--	--
E524.2	Toluene	ND	ND	ND	ug/L	150	--	--
E524.2	trans-1,2-Dichloroethene	ND	ND	ND	ug/L	10	--	--
E524.2	trans-1,3-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	Trichloroethene	ND	ND	ND	ug/L	5	--	--

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Well 19P-04

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E524.2	Trichlorofluoromethane	ND	ND	ND	ug/L	150	--	--
E524.2	Vinyl chloride	ND	ND	ND	ug/L	0.5	--	--
E524.2	Xylenes, Total	ND	ND	ND	ug/L	1750	--	--
			SVOCs					
SW8270C	1,2,4-Trichlorobenzene	ND	ND	ND	ug/L	5	--	--
E524.2	1,2,4-Trichlorobenzene	ND	ND	ND	ug/L	5	--	--
SW8270C	1,2-Dichlorobenzene	ND	ND	ND	ug/L	600	--	--
E524.2	1,2-Dichlorobenzene	ND	ND	ND	ug/L	600	--	--
SW8270C	1,2-Diphenylhydrazine	ND	ND	ND	ug/L	--	--	--
SW8270C	1,3-Dichlorobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichlorobenzene	ND	ND	ND	ug/L	--	--	--
SW8270C	1,4-Dichlorobenzene	ND	ND	ND	ug/L	5	--	--
E524.2	1,4-Dichlorobenzene	ND	ND	ND	ug/L	5	--	--
E522	1,4-Dioxane	ND	ND	ND	ug/L	1	--	--
SW8270C	2,4,5-Trichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4,6-Trichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dimethylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrotoluene	ND	ND	ND	ug/L	--	--	--
SW8270C	2,6-Dinitrotoluene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Chloronaphthalene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Chlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Methylnaphthalene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Methylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Naphthylamine	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Nitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	3&4-Methylphenol Coelution	ND	ND	ND	ug/L	--	--	--
SW8270C	3,3'-Dichlorobenzidine	ND	ND	ND	ug/L	--	--	--
SW8270C	3-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4,6-Dinitro-2-methylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Bromophenyl phenyl ether	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Chloroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Chlorophenyl phenyl ether	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Nitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthylene	ND	ND	ND	ug/L	--	--	--
E525.2	Acenaphthylene	ND	ND	ND	ug/L	--	--	--
E525.2	Alachlor	ND	ND	ND	ug/L	2	--	--
SW8270C	Aniline	ND	ND	ND	ug/L	--	--	--
SW8270C	Anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Atraton	ND	ND	ND	ug/L	--	--	--
E525.2	Atrazine	ND	ND	ND	ug/L	1	--	--
SW8270C	Benz(a)anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Benz(a)anthracene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzidine	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(a)pyrene	ND	ND	ND	ug/L	0.2	--	--
E525.2	Benzo(a)pyrene	ND	ND	ND	ug/L	0.2	--	--
SW8270C	Benzo(b)fluoranthene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(b)fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(g,h,i)perylene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(g,h,i)perylene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(k)fluoranthene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(k)fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzoic acid	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzyl alcohol	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethoxy)methane	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethyl)ether	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroisopropyl)ether	ND	ND	ND	ug/L	--	--	--

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Well 19P-04

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
SW8270C	bis(2-Ethylhexyl)phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	bis(2-Ethylhexyl)phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Bromacil	ND	ND	ND	ug/L	--	--	--
SW8270C	Butyl benzyl phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Butyl benzyl phthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Chrysene	ND	ND	ND	ug/L	--	--	--
E525.2	Chrysene	ND	ND	ND	ug/L	--	--	--
E525.2	Di(2-ethylhexyl)adipate	ND	ND	ND	ug/L	400	--	--
E525.2	Diazinon	ND	ND	ND	ug/L	--	--	1.2
SW8270C	Dibenz(a,h)anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Dibenz(a,h)anthracene	ND	ND	ND	ug/L	--	--	--
SW8270C	Dibenzofuran	ND	ND	ND	ug/L	--	--	--
SW8270C	Diethylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Dimethoate	ND	ND	ND	ug/L	--	--	--
SW8270C	Dimethylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Dimethylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Di-n-butylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Di-n-butylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Di-n-octylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Fluorene	ND	ND	ND	ug/L	--	--	--
E525.2	Fluorene	ND	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorobenzene	ND	ND	ND	ug/L	1	--	--
E525.2	Hexachlorobenzene	ND	ND	ND	ug/L	1	--	--
SW8270C	Hexachlorobutadiene	ND	ND	ND	ug/L	--	--	--
E524.2	Hexachlorobutadiene	ND	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorocyclopentadiene	ND	ND	ND	ug/L	50	--	--
E525.2	Hexachlorocyclopentadiene	ND	ND	ND	ug/L	50	--	--
SW8270C	Hexachloroethane	ND	ND	ND	ug/L	--	--	--
SW8270C	Indeno(1,2,3-cd)pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Indeno(1,2,3-cd)pyrene	ND	ND	ND	ug/L	--	--	--
SW8270C	Isophorone	ND	ND	ND	ug/L	--	--	--
E525.2	Metolachlor	ND	ND	ND	ug/L	--	--	--
E525.2	Metribuzin	ND	ND	ND	ug/L	--	--	--
E525.2	Molinate	ND	ND	ND	ug/L	20	--	--
SW8270C	Naphthalene	ND	ND	ND	ug/L	--	--	17
E524.2	Naphthalene	ND	ND	ND	ug/L	--	--	17
SW8270C	Nitrobenzene	ND	ND	ND	ug/L	--	--	--
SW8270C	N-Nitrosodimethylamine	ND	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodi-n-propylamine	ND	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodiphenylamine	ND	ND	ND	ug/L	--	--	--
SW8270C	p-Chloro-m-cresol	ND	ND	ND	ug/L	--	--	--
SW8270C	Pentachlorophenol	ND	ND	ND	ug/L	1	--	--
SW8270C	Phenanthrene	ND	ND	ND	ug/L	--	--	--
E525.2	Phenanthrene	ND	ND	ND	ug/L	--	--	--
SW8270C	Phenol	ND	ND	ND	ug/L	--	--	--
E525.2	Prometon	ND	ND	ND	ug/L	--	--	--
E525.2	Prometryn	ND	ND	ND	ug/L	--	--	--
E525.2	Propachlor	ND	ND	ND	ug/L	--	--	90
SW8270C	Pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Secbumeton	ND	ND	ND	ug/L	--	--	--
E525.2	Simazine	ND	ND	ND	ug/L	4	--	--
E525.2	Terbutryn	ND	ND	ND	ug/L	--	--	--
E525.2	Thiobencarb	ND	ND	ND	ug/L	70	--	--
				PCBs				
E508	PCB-1016	ND	ND	ND	ug/L	--	--	--
E508	PCB-1221	ND	ND	ND	ug/L	--	--	--
E508	PCB-1232	ND	ND	ND	ug/L	--	--	--
E508	PCB-1242	ND	ND	ND	ug/L	--	--	--
E508	PCB-1248	ND	ND	ND	ug/L	--	--	--
E508	PCB-1254	ND	ND	ND	ug/L	--	--	--

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E508	PCB-1260	ND	ND	ND	ug/L	--	--	--
E508	Total PCBs	ND	ND	ND	ug/L	0.5	--	--
				THAA				
E552.3	Dibromoacetic Acid (DBAA)	ND	ND	ND	ug/L	--	--	--
E552.3	Dichloroacetic Acid (DCA)	ND	ND	ND	ug/L	--	--	--
E552.3	Monobromoacetic acid	ND	ND	ND	ug/L	--	--	--
E552.3	Monochloroacetic Acid (MCA)	ND	ND	ND	ug/L	--	--	--
E552.3	Trichloroacetic Acid (TCAA)	ND	ND	ND	ug/L	--	--	--
E552.3	Trihalomethanes	ND	ND	ND	ug/L	80	--	--
E524.2	Trihalomethanes	ND	ND	ND	ug/L	80	--	--
				Radiochemistry				
EPA 900	Gross Alpha	2.54	2.66	3.72	pCi/L	15	--	--
EPA900	Gross Beta	2	1.86	2.29	pCi/L	50	--	--
EPA 903.1	Radium-226	0.402	0.401	0.498	pCi/L	3	--	--
EPA 904.0	Radium-228	0.818	0.807	0.668	pCi/L	2	--	--
ASTM D5811-95	Strontium-90	1.09	0.899	2.62	pCi/L	8	--	--
EPA 906	Tritium	261	263	264	pCi/L	20000	--	--
				Nitroaromatics and Nitrosamines				
EPA 521/SPE	N-Nitrosodiethylamine	ND	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosodimethylamine	ND	ND	ND	ug/L			0.01
EPA 521/SPE	N-Nitrosodi-n-butylamine	ND	ND	ND	ug/L	--	--	
EPA 521/SPE	N-Nitrosodi-n-propylamine	ND	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosomethylethylamine	ND	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosomorpholine	ND	ND	ND	ug/L	--	--	--
EPA 521/SPE	N-Nitrosopiperidine	ND	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosopyrrolidine	ND	ND	ND	ng/L	--	--	--
				Dioxins				
EPA 1613B	2,3,7,8-TCDD	0.00000154	0.00000264	0.00000336	ug/L	0.00003	--	--
				PFAs				
B-15	11-CL-PF3OUDS	ND	ND	ND	ng/L	--	--	--
B-15	9-CL-PF3ONS	ND	ND	ND	ng/L	--	--	--
B-15	ADONA	ND	ND	ND	ng/L	--	--	--
B-15	FTS 4:2	ND		ND	ng/L	--	--	--
B-15	FTS 6:2	ND		ND	ng/L	--	--	--
B-15	FTS 8:2	ND		ND	ng/L	--	--	--
B-15	HFPO-DA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSAA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSE	ND		ND	ng/L	--	--	--
B-15	N-MEFOSA	ND		ND	ng/L	--	--	--
B-15	N-MEFOSAA	ND		ND	ng/L	--	--	--
B-15	N-MEFOSE	ND		ND	ng/L	--	--	--
B-15	PFBA	ND		2.8 J	ng/L	--	--	--
B-15	PFBS	ND	1.4 J	0.59 J	ng/L	--	--	--
B-15	PFDA	ND	ND	ND	ng/L	--	--	--
B-15	PFDOA	ND	ND	ND	ng/L	--	--	--
B-15	PFDS	ND		ND	ng/L	--	--	--
B-15	PFHPA	ND	ND	ND	ng/L	--	--	--
B-15	PFHPS	ND		ND	ng/L	--	--	--
B-15	PFHXA	ND	ND	0.74 J	ng/L	--	--	--
B-15	PFHXS	ND	ND	ND	ng/L	--	--	--
B-15	PFNA	ND	ND	ND	ng/L	--	--	--
B-15	PFNS	ND		ND	ng/L	--	--	--
B-15	PFOA	ND	ND	ND	ng/L	--	--	--
B-15	PFOS	ND	ND	ND	ng/L	--	--	--
B-15	PFOSA	ND		2.2 B J	ng/L	--	--	--
B-15	PFPEA	ND		ND	ng/L	--	--	--
B-15	PFPES	ND		ND	ng/L	--	--	--
B-15	PFTEDA	ND	ND	ND	ng/L	--	--	--
B-15	PFTRDA	ND	ND	ND	ng/L	--	--	--
B-15	PFUDA	ND	ND	ND	ng/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 4
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well MB-3

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
Field Parameters								
YSI Probe	Temp	19	18.8	18	Degrees C			
YSI Probe	pH	7.2	7.2	7.2				
YSI Probe	ORP	199	108	103	mV			
YSI Probe	DO	0.97	0.28	0.34	mg/L			
General Chemistry								
EPA 600/R-94/134	Asbestos	ND	ND	1.3	MFL	7	--	--
EPA 317	Bromate	ND	ND	ND	mg/L	10	--	
EPA 300.1	Chlorate	ND	ND	ND	mg/L	--	--	800
E300.0	Chloride	160	160	170	mg/L	--	500	--
EPA 300.1	Chlorite	ND	ND	ND	mg/L	1	--	--
2120B	Color	4	2	1	None	--	--	--
SW8015B	Ethylene glycol	ND	ND	ND	mg/L	--	--	14
2510B	Electrical Conductivity @ 25 C	1600	1580	1650	umhos/cm	--	--	--
E300.0	Fluoride	0.26	0.21	0.25	mg/L	2	--	--
E556.1	Formaldehyde	ND	ND	ND	ug/L	--	--	100
5540C	MBAS	ND	ND	ND	mg/L	--	0.5	--
E300.0	Nitrate (as N)	**26**	**22**	**24**	mg/L	10	--	--
CALC	Nitrate + Nitrite (As N)	**26**	**22**	**24**	mg/L	10	--	--
E353.2	Nitrite (as N)	ND	ND	ND	mg/L	1	--	--
SM5310C	Non-Volatile Organic Carbon	0.92 J	1.1	1.1	mg/L	--	--	--
2150B	Odor	ND	ND	ND	None	--	--	--
E314.0	Perchlorate	ND	ND	ND	ug/L	6	--	--
E300.0	Sulfate	160	160	170	mg/L	--	500	--
E335.4	Total Cyanide	ND	2 J	ND	ug/L	150	--	--
SM2540C	Total Dissolved Solids	990	1000	**1100**	mg/L	--	1000	--
E351.2	Total Kjeldahl Nitrogen	ND	4.6	0.13 J	mg/L	--	--	--
CALC	Total Nitrogen	26	26	24	mg/L	--	--	--
E180.1	Turbidity	0.12	0.18	0.14	NTU	--	--	--
Metals								
E200.7	Aluminum	ND	0.028 J	ND	mg/L	1	--	--
E200.8	Antimony	0.00013 J	ND	ND	mg/L	0.006	--	--
E200.8	Arsenic	0.0027	0.0021	ND	mg/L	0.01	--	--
E200.8	Barium	0.12	0.13	0.13	mg/L	1	--	--
E200.8	Beryllium	ND	ND	ND	mg/L	0.004	--	--
E200.7	Boron	0.13	0.11	0.11	mg/L	--	--	1
E200.8	Cadmium	0.00015 J	0.00011 J	ND	mg/L	0.005	--	--
E200.8	Chromium	0.0012 J	0.00096 J	ND	mg/L	0.05	--	--
E218.6	Chromium, Hexavalent	0.0017	0.0013	0.0013	mg/L	--	--	--
E200.8	Cobalt	ND	0.0002 J	0.00043 J	mg/L	--	--	--
E200.8	Copper	0.00083 J	0.0041	0.0033	mg/L	--	--	--
E200.7	Iron (Ferric)	ND	ND	ND	mg/L	--	--	--
E200.8	Lead	ND	ND	ND	mg/L	--	--	--
E200.7	Lithium	ND	ND	ND	mg/L	--	--	--
E200.7	Manganese	ND	ND	ND	mg/L	--	0.05	--
E245.1	Mercury	ND	0.00013 J	0.000034 J	mg/L	0.002	--	--
E200.8	Molybdenum	0.002	0.0013	0.0013	mg/L	--	--	--
E200.8	Nickel	0.0038	0.0037 J	0.0044	mg/L	0.1	--	--
E200.8	Selenium	0.028	0.028 J	0.026	mg/L	0.05	--	--
E200.8	Silver	ND	ND	ND	mg/L	--	--	--
E200.8	Thallium	ND	ND	ND	mg/L	0.002	--	--
CALC	Trivalent Chromium	ND	ND	ND	mg/L	--	--	--
E200.8	Uranium	0.0019	0.002	0.0019	mg/L	20	--	--
E200.8	Vanadium	1.9	1.7 J	ND	ug/L	--	--	50
E200.8	Zinc	0.018 J	0.023	0.022	mg/L	--	5	--
Herbicides/Pesticides								
E531.2	1-Naphthol	0	ND	ND	ug/L	--	--	--
E515.1	2,4,5-T	ND	ND	ND	ug/L	--	--	--
E515.1	2,4,5-TP	ND	ND	ND	ug/L	50	--	--
E515.1	2,4-D	ND	ND	ND	ug/L	70	--	--
E515.1	2,4-DB	ND	ND	ND	ug/L	--	--	--
E531.2	3-Hydroxycarbofuran	ND	ND	ND	ug/L	--	--	--

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Well MB-3

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SW8270C	4,4'-DDD	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDD	ND	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDE	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDE	ND	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDT	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDT	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfone	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfoxide	ND	ND	ND	ug/L	--	--	--
SW8270C	Aldrin	ND	ND	ND	ug/L	--	--	--
E508	Aldrin	ND	ND	ND	ug/L	--	--	--
SW8270C	Alpha-BHC	ND	ND	ND	ug/L	--	--	--
E508	Alpha-BHC	ND	ND	ND	ug/L	--	--	--
E515.1	Bentazon	ND	ND	ND	ug/L	18	--	--
SW8270C	Beta-BHC	ND	ND	ND	ug/L	--	--	--
E508	Beta-BHC	ND	ND	ND	ug/L	--	--	--
E531.2	Carbaryl	ND	ND	ND	ug/L	--	--	--
E531.2	Carbofuran	ND	ND	ND	ug/L	18	--	--
E508	Chlordane	ND	ND	ND	ug/L	0.1	--	--
E515.1	Dalapon	ND	ND	ND	ug/L	200	--	--
SW8270C	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E525.2	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E508	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E515.1	Dicamba	ND	ND	ND	ug/L	--	--	--
E515.1	Dichlorprop	ND	ND	ND	ug/L	--	--	--
SW8270C	Dieldrin	ND	ND	ND	ug/L	--	--	--
E508	Dieldrin	ND	ND	ND	ug/L	--	--	--
E515.1	Dinoseb	ND	ND	ND	ug/L	7	--	--
E549.2	Diquat	ND	ND	ND	ug/L	20	--	--
SW8270C	Endosulfan I	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan I	ND	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan II	ND	ND	ND	ug/L	--	--	--
E548.1	Endosulfan II	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan II	ND	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan Sulfate	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan Sulfate	ND	ND	ND	ug/L	--	--	--
SW8270C	Endrin	ND	ND	ND	ug/L	2	--	--
E508	Endrin	ND	ND	ND	ug/L	2	--	--
SW8270C	Endrin Aldehyde	ND	ND	ND	ug/L	--	--	--
E508	Endrin Aldehyde	ND	ND	ND	ug/L	--	--	--
SW8270C	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E525.2	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E508	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E547	Glyphosate	ND	ND	ND	ug/L	700	--	--
SW8270C	Heptachlor	ND	ND	ND	ug/L	0.01	--	--
E508	Heptachlor	ND	ND	ND	ug/L	0.01	--	--
SW8270C	Heptachlor Epoxide	ND	ND	ND	ug/L	0.01	--	--
E508	Heptachlor Epoxide	ND	ND	ND	ug/L	0.01	--	--
E515.1	MCPA	ND	ND	ND	ug/L	--	--	--
E515.1	MCPP	ND	ND	ND	ug/L	--	--	--
E531.2	Methiocarb		ND	ND	ug/L	--	--	--
E531.2	Methomyl	ND	ND	ND	ug/L	--	--	--
E525.2	Methoxychlor	ND	ND	ND	ug/L	30	--	--
E508	Methoxychlor	ND	ND	ND	ug/L	30	--	--
E531.2	Oxamyl	ND	ND	ND	ug/L	50	--	--
E531.2	Propoxur		ND	ND	ug/L	--	--	--
E508	Toxaphene	ND	ND	ND	ug/L	3	--	--
				VOCs				
E524.2	1,1,1,2-Tetrachloroethane	ND	ND	ND	ug/L	--	--	--
E524.2	1,1,1-Trichloroethane	ND	ND	ND	ug/L	200	--	--
E524.2	1,1,2,2-Tetrachloroethane	ND	ND	ND	ug/L	1	--	--
E524.2	1,1,2-Trichlor-1,2,2-trifluoroethane	ND	ND	ND	ug/L	1200	--	--

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E524.2	1,1,2-Trichloroethane	ND	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethane	ND	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethene	ND	ND	ND	ug/L	6	--	--
E524.2	1,1-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichlorobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichloropropane	ND	ND	ND	ug/L	0.005	--	--
E524	1,2,3-Trichloropropane	ND	ND	ND	ug/L	0.005	--	--
E524.2	1,2,4-Trimethylbenzene	ND	ND	ND	ug/L	--	--	330
E524.2	1,2-Dibromo-3-chloropropane	ND	ND	ND	ug/L	0.2	--	--
504.1	1,2-Dibromo-3-chloropropane	ND	ND	ND	ug/L	0.2	--	--
E524.2	1,2-Dichloroethane	ND	ND	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloropropane	ND	ND	ND	ug/L	5	--	--
E524.2	1,3,5-Trimethylbenzene	ND	ND	ND	ug/L	--	--	330
E524.2	1,3-Dichloropropane	ND	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropene	ND	ND	ND	ug/L	0.5	--	--
E524.2	2,2-Dichloropropane	ND	ND	ND	ug/L	--	--	--
SW8260B	2-Chloroethylvinylether	ND	ND	ND	ug/L	--	--	--
E524.2	2-Chlorotoluene	ND	ND	ND	ug/L	--	--	140
E524.2	4-Chlorotoluene	ND	ND	ND	ug/L	--	--	140
SW8260B	Acrolein	ND	ND	ND	ug/L	--	--	--
SW8260B	Acrylonitrile	ND	ND	ND	ug/L	--	--	--
E524.2	Benzene	ND	ND	ND	ug/L	1	--	--
E524.2	Bromobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	Bromochloromethane	ND	ND	ND	ug/L	--	--	--
E524.2	Bromodichloromethane	ND	ND	ND	ug/L	80	--	--
E524.2	Bromoform	ND	ND	ND	ug/L	80	--	--
E524.2	Bromomethane	ND	ND	ND	ug/L	--	--	--
E524.2	Carbon tetrachloride	ND	ND	ND	ug/L	0.5	--	--
E524.2	Chlorobenzene	ND	ND	ND	ug/L	70	--	--
E524.2	Chloroethane	ND	ND	ND	ug/L	--	--	--
E524.2	Chloroform	ND	ND	ND	ug/L	80	--	--
E524.2	Chloromethane	ND	ND	ND	ug/L	--	--	--
E524.2	cis-1,2-Dichloroethene	ND	ND	ND	ug/L	6	--	--
E524.2	cis-1,3-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	Dibromochloromethane	ND	ND	ND	ug/L	80	--	--
E524.2	Dibromomethane	ND	ND	ND	ug/L	--	--	--
E524.2	Dichlorodifluoromethane	ND	ND	ND	mg/L	--	--	1
E524.2	Di-isopropyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	Ethyl tert-butyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	Ethylbenzene	ND	ND	ND	ug/L	300	--	--
E524.2	Ethylene dibromide	ND	ND	ND	ug/L	--	--	--
504.1	Ethylene dibromide	ND	ND	ND	ug/L	--	--	--
8330	HMX	ND	ND	ND	ug/L	--	--	--
E524.2	Isopropylbenzene	ND	ND	ND	ug/L	--	--	770
E524.2	m,p-Xylene	ND	ND	ND	ug/L	--	--	--
E524.2	Methyl tert-butyl ether	ND	ND	ND	ug/L	13	--	--
E524.2	Methylene chloride	ND	ND	ND	ug/L	5	--	--
E524.2	n-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	n-Propylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	o-Xylene	ND	ND	ND	ug/L	--	--	--
E524.2	p-Isopropyltoluene	ND	ND	ND	ug/L	--	--	--
8330	RDX	ND	ND	ND	mg/L	--	--	0.3
E524.2	sec-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	Styrene	ND	ND	ND	ug/L	100	--	--
E524.2	tert-Amyl Methyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	tert-Butyl alcohol	ND	ND	ND	ug/L	--	--	12
E524.2	tert-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	Tetrachloroethene	ND	ND	ND	ug/L	5	--	--
E524.2	Toluene	ND	ND	ND	ug/L	150	--	--
E524.2	trans-1,2-Dichloroethene	ND	ND	ND	ug/L	10	--	--
E524.2	trans-1,3-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	Trichloroethene	ND	ND	ND	ug/L	5	--	--

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E524.2	Trichlorofluoromethane	ND	ND	ND	ug/L	150	--	--
E524.2	Vinyl chloride	ND	ND	ND	ug/L	0.5	--	--
E524.2	Xylenes, Total	ND	ND	ND	ug/L	1750	--	--
				SVOCs				
SW8270C	1,2,4-Trichlorobenzene	ND	ND	ND	ug/L	5	--	--
E524.2	1,2,4-Trichlorobenzene	ND	ND	ND	ug/L	5	--	--
SW8270C	1,2-Dichlorobenzene	ND	ND	ND	ug/L	600	--	--
E524.2	1,2-Dichlorobenzene	ND	ND	ND	ug/L	600	--	--
E522	1,4-Dioxane	ND	ND	ND	ug/L	1	--	--
SW8270C	1,2-Diphenylhydrazine	ND	ND	ND	ug/L	--	--	--
SW8270C	1,3-Dichlorobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichlorobenzene	ND	ND	ND	ug/L	--	--	--
SW8270C	1,4-Dichlorobenzene	ND	ND	ND	ug/L	5	--	--
E524.2	1,4-Dichlorobenzene	ND	ND	ND	ug/L	5	--	--
SW8270C	2,4,5-Trichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4,6-Trichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dimethylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrotoluene	ND	ND	ND	ug/L	--	--	--
SW8270C	2,6-Dinitrotoluene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Chloronaphthalene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Chlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Methylnaphthalene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Methylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Naphthylamine	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Nitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	3&4-Methylphenol Coelution	ND	ND	ND	ug/L	--	--	--
SW8270C	3,3'-Dichlorobenzidine	ND	ND	ND	ug/L	--	--	--
SW8270C	3-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4,6-Dinitro-2-methylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Bromophenyl phenyl ether	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Chloroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Chlorophenyl phenyl ether	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Nitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthylene	ND	ND	ND	ug/L	--	--	--
E525.2	Acenaphthylene	ND	ND	ND	ug/L	--	--	--
E525.2	Alachlor	ND	ND	ND	ug/L	2	--	--
SW8270C	Aniline	ND	ND	ND	ug/L	--	--	--
SW8270C	Anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Atraton	ND	ND	ND	ug/L	--	--	--
E525.2	Atrazine	ND	ND	ND	ug/L	1	--	--
SW8270C	Benz(a)anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Benz(a)anthracene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzidine	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(a)pyrene	ND	ND	ND	ug/L	0.2	--	--
E525.2	Benzo(a)pyrene	ND	ND	ND	ug/L	0.2	--	--
SW8270C	Benzo(b)fluoranthene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(b)fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(g,h,i)perylene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(g,h,i)perylene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(k)fluoranthene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(k)fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzoic acid	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzyl alcohol	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethoxy)methane	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethyl)ether	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroisopropyl)ether	ND	ND	ND	ug/L	--	--	--

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MORRO BAY WELLS
Well MB-3

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
SW8270C	bis(2-Ethylhexyl)phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	bis(2-Ethylhexyl)phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Bromacil	ND	ND	ND	ug/L	--	--	--
SW8270C	Butyl benzyl phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Butyl benzyl phthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Chrysene	ND	ND	ND	ug/L	--	--	--
E525.2	Chrysene	ND	ND	ND	ug/L	--	--	--
E525.2	Di(2-ethylhexyl)adipate	ND	ND	ND	ug/L	400	--	--
E525.2	Diazinon	ND	ND	ND	ug/L	--	--	1.2
SW8270C	Dibenz(a,h)anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Dibenz(a,h)anthracene	ND	ND	ND	ug/L	--	--	--
SW8270C	Dibenzofuran	ND	ND	ND	ug/L	--	--	--
SW8270C	Diethylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Dimethoate	ND	ND	ND	ug/L	--	--	--
SW8270C	Dimethylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Dimethylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Di-n-butylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Di-n-butylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Di-n-octylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Fluorene	ND	ND	ND	ug/L	--	--	--
E525.2	Fluorene	ND	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorobenzene	ND	ND	ND	ug/L	1	--	--
E525.2	Hexachlorobenzene	ND	ND	ND	ug/L	1	--	--
SW8270C	Hexachlorobutadiene	ND	ND	ND	ug/L	--	--	--
E524.2	Hexachlorobutadiene	ND	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorocyclopentadiene	ND	ND	ND	ug/L	50	--	--
E525.2	Hexachlorocyclopentadiene	ND	ND	ND	ug/L	50	--	--
SW8270C	Hexachloroethane	ND	ND	ND	ug/L	--	--	--
SW8270C	Indeno(1,2,3-cd)pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Indeno(1,2,3-cd)pyrene	ND	ND	ND	ug/L	--	--	--
SW8270C	Isophorone	ND	ND	ND	ug/L	--	--	--
E525.2	Metolachlor	ND	ND	ND	ug/L	--	--	--
E525.2	Metribuzin	ND	ND	ND	ug/L	--	--	--
E525.2	Molinate	ND	ND	ND	ug/L	20	--	--
SW8270C	Naphthalene	ND	ND	ND	ug/L	--	--	17
E524.2	Naphthalene	ND	ND	ND	ug/L	--	--	17
SW8270C	Nitrobenzene	ND	ND	ND	ug/L	--	--	--
SW8270C	N-Nitrosodimethylamine	ND	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodi-n-propylamine	ND	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodiphenylamine	ND	ND	ND	ug/L	--	--	--
SW8270C	p-Chloro-m-cresol	ND	ND	ND	ug/L	--	--	--
SW8270C	Pentachlorophenol	ND	ND	ND	ug/L	1	--	--
SW8270C	Phenanthrene	ND	ND	ND	ug/L	--	--	--
E525.2	Phenanthrene	ND	ND	ND	ug/L	--	--	--
SW8270C	Phenol	ND	ND	ND	ug/L	--	--	--
E525.2	Prometon	ND	ND	ND	ug/L	--	--	--
E525.2	Prometryn	ND	ND	ND	ug/L	--	--	--
E525.2	Propachlor	ND	ND	ND	ug/L	--	--	90
SW8270C	Pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Secbumeton	ND	ND	ND	ug/L	--	--	--
E525.2	Simazine	ND	ND	ND	ug/L	4	--	--
E525.2	Terbutryn	ND	ND	ND	ug/L	--	--	--
E525.2	Thiobencarb	ND	ND	ND	ug/L	70	--	--
				PCBs				
E508	PCB-1016	ND	ND	ND	ug/L	--	--	--
E508	PCB-1221	ND	ND	ND	ug/L	--	--	--
E508	PCB-1232	ND	ND	ND	ug/L	--	--	--
E508	PCB-1242	ND	ND	ND	ug/L	--	--	--
E508	PCB-1248	ND	ND	ND	ug/L	--	--	--
E508	PCB-1254	ND	ND	ND	ug/L	--	--	--

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NL = Notification Limit
ND = Non-Detect
J = Estimated value.
B = The analyte was found in a method blank, as well as in the sample.

GSI Water Solutions, Inc.

TABLE 4
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well MB-3

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
E508	PCB-1260	ND	ND	ND	ug/L	--	--	--
E508	Total PCBs	ND	ND	ND	ug/L	0.5	--	--
				THAA				
E552.3	Dibromoacetic Acid (DBAA)	ND	ND	ND	ug/L	--	--	--
E552.3	Dichloroacetic Acid (DCA)	ND	ND	ND	ug/L	--	--	--
E552.3	Monobromoacetic acid	ND	ND	ND	ug/L	--	--	--
E552.3	Monochloroacetic Acid (MCA)	ND	ND	ND	ug/L	--	--	--
E552.3	Trichloroacetic Acid (TCAA)	ND	ND	ND	ug/L	--	--	--
E552.3	Trihalomethanes	ND	ND	ND	ug/L	80	--	--
E524.2	Trihalomethanes	ND	ND	ND	ug/L	80	--	--
				Radiochemistry				
EPA 900	Gross Alpha	4.8	2.94	3.54	pCi/L	15	--	--
EPA900	Gross Beta	2.42	2.17	3.3	pCi/L	50	--	--
EPA 903.1	Radium-226	0.818	0.523	0.75	pCi/L	3	--	--
EPA 904.0	Radium-228	0.702	1.3	0.753	pCi/L	2	--	--
ASTM D5811-95	Strontium-90	1.11	0.935	2.62	pCi/L	8	--	--
EPA 906	Tritium	259	262	265	pCi/L	20000	--	--
				Nitroaromatics and Nitrosamines				
EPA 521/SPE	N-Nitrosodiethylamine	ND	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosodimethylamine	ND	ND	ND	ug/L			0.01
EPA 521/SPE	N-Nitrosodi-n-butylamine	ND	ND	ND	ug/L	--	--	
EPA 521/SPE	N-Nitrosodi-n-propylamine	ND	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosomethylethylamine	ND	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosomorpholine	ND	ND	ND	ug/L	--	--	--
EPA 521/SPE	N-Nitrosopiperidine	ND	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosopyrrolidine	ND	ND	ND	ng/L	--	--	--
				Dioxins				
EPA 1613B	2,3,7,8-TCDD	0.00000172	0.00000178	0.00000229	ug/L	0.00003	--	--
				PFAs				
B-15	11-CL-PF3OUDS	ND	ND	ND	ng/L	--	--	--
B-15	9-CL-PF3ONS	ND	ND	ND	ng/L	--	--	--
B-15	ADONA	ND	ND	ND	ng/L	--	--	--
B-15	FTS 4:2	ND		ND	ng/L	--	--	--
B-15	FTS 6:2	ND		2.2 J	ng/L	--	--	--
B-15	FTS 8:2	ND		ND	ng/L	--	--	--
B-15	HFPO-DA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSAA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSE	ND		ND	ng/L	--	--	--
B-15	N-MEFOSA	ND		ND	ng/L	--	--	--
B-15	N-MEFOSAA	ND		ND	ng/L	--	--	--
B-15	N-MEFOSE	ND		ND	ng/L	--	--	--
B-15	PFBA	ND		1 J	ng/L	--	--	--
B-15	PFBS	3.3 J	1.6 J	1.9 J	ng/L	--	--	--
B-15	PFDA	ND	ND	ND	ng/L	--	--	--
B-15	PFDOA	ND	ND	ND	ng/L	--	--	--
B-15	PFDS	ND		ND	ng/L	--	--	--
B-15	PFHPA	ND	ND	ND	ng/L	--	--	--
B-15	PFHPS	ND		ND	ng/L	--	--	--
B-15	PFHXA	ND	ND	ND	ng/L	--	--	--
B-15	PFHXS	ND	ND	ND	ng/L	--	--	--
B-15	PFNA	ND	ND	ND	ng/L	--	--	--
B-15	PFNS	ND		ND	ng/L	--	--	--
B-15	PFOA	ND	ND	ND	ng/L	--	--	--
B-15	PFOS	ND	ND	ND	ng/L	--	--	--
B-15	PFOSA	ND		5.4 B J	ng/L	--	--	--
B-15	PFPEA	ND		ND	ng/L	--	--	--
B-15	PFPES	ND		ND	ng/L	--	--	--
B-15	PFTEDA	ND	ND	ND	ng/L	--	--	--
B-15	PFTRDA	ND	ND	ND	ng/L	--	--	--
B-15	PFUDA	ND	ND	ND	ng/L	--	--	--

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NL = Notification Limit
ND = Non-Detect
J = Estimated value.
B = The analyte was found in a method blank, as well as in the sample.

TABLE 6 GROUNDWATER
QUALITY MORRO BAY WELLS
High School-1 Well

Method	Analyte	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
			Field Parameters				
YSI Probe	Temp	19.5	19.5	Degrees C			
YSI Probe	pH	7	7				
YSI Probe	ORP	127	91	mV			
YSI Probe	DO	1.45	1.8	mg/L			
			General Chemistry				
EPA 600/R-94/134	Asbestos	ND	ND	MFL	7	--	--
EPA 317	Bromate	ND	ND	mg/L	10	--	
EPA 300.1	Chlorate	ND	ND	mg/L	--	--	800
E300.0	Chloride	**970**	**1100**	mg/L	--	500	--
EPA 300.1	Chlorite	ND	ND	mg/L	1	--	--
2120B	Color	1	1	None	--	--	--
SW8015B	Ethylene glycol	ND	ND	mg/L	--	--	14
2510B	Electrical Conductivity @ 25 C	3830	4040	umhos/cm	--	--	--
E300.0	Fluoride	0.28	ND	mg/L	2	--	--
E556.1	Formaldehyde	ND	ND	ug/L	--	--	100
5540C	MBAS	ND	ND	mg/L	--	0.5	--
E300.0	Nitrate (as N)	7.9	8.7	mg/L	10	--	--
CALC	Nitrate + Nitrite (As N)	7.9	8.7	mg/L	10	--	--
E353.2	Nitrite (as N)	ND	ND	mg/L	1	--	--
SM5310C	Non-Volatile Organic Carbon	1.2	1.1	mg/L	--	--	--
2150B	Odor	ND	ND	None	--	--	--
E314.0	Perchlorate	ND	ND	ug/L	6	--	--
E300.0	Sulfate	140	150	mg/L	--	500	--
E335.4	Total Cyanide	ND	ND	ug/L	150	--	--
SM2540C	Total Dissolved Solids	**2200**	**2700**	mg/L	--	1000	--
E351.2	Total Kjeldahl Nitrogen	0.21	0.25	mg/L	--	--	--
CALC	Total Nitrogen	8.1	8.9	mg/L	--	--	--
E180.1	Turbidity	0.2	0.34	NTU	--	--	--
			Metals				
E200.7	Aluminum	ND	ND	mg/L	1	--	--
E200.8	Antimony	ND	ND	mg/L	0.006	--	--
E200.8	Arsenic	**0.012**	0.0033 J	mg/L	0.01	--	--
E200.8	Barium	0.22	0.22	mg/L	1	--	--
E200.8	Beryllium	ND	ND	mg/L	0.004	--	--
E200.7	Boron	0.17	0.17	mg/L	--	--	1
E200.8	Cadmium	ND	ND	mg/L	0.005	--	--
E200.8	Chromium	ND	0.0022 J	mg/L	0.05	--	--
E218.6	Chromium, Hexavalent	0.002	0.0023	mg/L	--	--	--
E200.8	Cobalt	ND	0.00061 J	mg/L	--	--	--
E200.8	Copper	0.0072 J	0.0051	mg/L	--	--	--
E200.7	Iron (Ferric)	ND	ND	mg/L	--	--	--
E200.8	Lead	ND	ND	mg/L	--	--	--
E200.7	Lithium	0.0096 J	0.0083 J	mg/L	--	--	--
E200.7	Manganese	ND	ND	mg/L	--	0.05	--
E245.1	Mercury	ND	ND	mg/L	0.002	--	--
E200.8	Molybdenum	0.00062 J	0.001 J	mg/L	--	--	--
E200.8	Nickel	0.008 J	0.0098	mg/L	0.1	--	--
E200.8	Selenium	0.017	0.015	mg/L	0.05	--	--
E200.8	Silver	ND	ND	mg/L	--	--	--
E200.8	Thallium	ND	ND	mg/L	0.002	--	--
CALC	Trivalent Chromium	ND	ND	mg/L	--	--	--
E200.8	Uranium	0.0022 J	0.0023	mg/L	20	--	--
E200.8	Vanadium	ND	5.4 J	ug/L	--	--	50
E200.8	Zinc	0.013 J	0.11	mg/L	--	5	--
			Herbicides/Pesticides				
E531.2	1-Naphthol	ND	ND	ug/L	--	--	--
E515.1	2,4,5-T	ND	ND	ug/L	--	--	--
E515.1	2,4,5-TP	ND	ND	ug/L	50	--	--
E515.1	2,4-D	ND	ND	ug/L	70	--	--
E515.1	2,4-DB	ND	ND	ug/L	--	--	--
E531.2	3-Hydroxycarbofuran	ND	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 6
GROUNDWATER QUALITY
MORRO BAY WELLS
Well HS-1

Method	Analyte	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
SW8270C	4,4'-DDD	ND	ND	ug/L	--	--	--
E508	4,4'-DDD	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDE	ND	ND	ug/L	--	--	--
E508	4,4'-DDE	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDT	ND	ND	ug/L	--	--	--
E508	4,4'-DDT	ND	ND	ug/L	--	--	--
E531.2	Aldicarb	ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfone	ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfoxide	ND	ND	ug/L	--	--	--
SW8270C	Aldrin	ND	ND	ug/L	--	--	--
E508	Aldrin	ND	ND	ug/L	--	--	--
SW8270C	Alpha-BHC	ND	ND	ug/L	--	--	--
E508	Alpha-BHC	ND	ND	ug/L	--	--	--
E515.1	Bentazon	ND	ND	ug/L	18	--	--
SW8270C	Beta-BHC	ND	ND	ug/L	--	--	--
E508	Beta-BHC	ND	ND	ug/L	--	--	--
E531.2	Carbaryl	ND	ND	ug/L	--	--	--
E531.2	Carbofuran	ND	ND	ug/L	18	--	--
E508	Chlordane	ND	ND	ug/L	0.1	--	--
E515.1	Dalapon	ND	ND	ug/L	200	--	--
SW8270C	Delta-BHC	ND	ND	ug/L	--	--	--
E525.2	Delta-BHC	ND	ND	ug/L	--	--	--
E508	Delta-BHC	ND	ND	ug/L	--	--	--
E515.1	Dicamba	ND	ND	ug/L	--	--	--
E515.1	Dichlorprop	ND	ND	ug/L	--	--	--
SW8270C	Dieldrin	ND	ND	ug/L	--	--	--
E508	Dieldrin	ND	ND	ug/L	--	--	--
E515.1	Dinoseb	ND	ND	ug/L	7	--	--
E549.2	Diquat	ND	ND	ug/L	20	--	--
SW8270C	Endosulfan I	ND	ND	ug/L	--	--	--
E508	Endosulfan I	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan II	ND	ND	ug/L	--	--	--
E548.1	Endosulfan II	ND	ND	ug/L	--	--	--
E508	Endosulfan II	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan Sulfate	ND	ND	ug/L	--	--	--
E508	Endosulfan Sulfate	ND	ND	ug/L	--	--	--
SW8270C	Endrin	ND	ND	ug/L	2	--	--
E508	Endrin	ND	ND	ug/L	2	--	--
SW8270C	Endrin Aldehyde	ND	ND	ug/L	--	--	--
E508	Endrin Aldehyde	ND	ND	ug/L	--	--	--
SW8270C	Gamma-BHC	ND	ND	ug/L	--	--	--
E525.2	Gamma-BHC	ND	ND	ug/L	--	--	--
E508	Gamma-BHC	ND	ND	ug/L	--	--	--
E547	Glyphosate	ND	ND	ug/L	700	--	--
SW8270C	Heptachlor	ND	ND	ug/L	0.01	--	--
E508	Heptachlor	ND	ND	ug/L	0.01	--	--
SW8270C	Heptachlor Epoxide	ND	ND	ug/L	0.01	--	--
E508	Heptachlor Epoxide	ND	ND	ug/L	0.01	--	--
E515.1	MCPA	ND	ND	ug/L	--	--	--
E515.1	MCPP	ND	ND	ug/L	--	--	--
E531.2	Methiocarb	ND	ND	ug/L	--	--	--
E531.2	Methomyl	ND	ND	ug/L	--	--	--
E525.2	Methoxychlor	ND	ND	ug/L	30	--	--
E508	Methoxychlor	ND	ND	ug/L	30	--	--
E531.2	Oxamyl	ND	ND	ug/L	50	--	--
E531.2	Propoxur	ND	ND	ug/L	--	--	--
E508	Toxaphene	ND	ND	ug/L	3	--	--
VOCs							
E524.2	1,1,1,2-Tetrachloroethane	ND	ND	ug/L	--	--	--
E524.2	1,1,1-Trichloroethane	ND	ND	ug/L	200	--	--
E524.2	1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1	--	--
E524.2	1,1,2-Trichlor-1,2,2-trifluoroethane	ND	ND	ug/L	1200	--	--

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GSI Water Solutions, Inc.

TABLE 6
GROUNDWATER QUALITY
MORRO BAY WELLS
Well HS-1

Method	Analyte	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
E524.2	1,1,2-Trichloroethane	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethane	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethene	ND	ND	ug/L	6	--	--
E524.2	1,1-Dichloropropene	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichlorobenzene	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichloropropane	ND	ND	ug/L	0.005	--	--
E524	1,2,3-Trichloropropane	ND	ND	ug/L	0.005	--	--
E524.2	1,2,4-Trimethylbenzene	ND	ND	ug/L	--	--	330
E524.2	1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.2	--	--
504.1	1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.2	--	--
E524.2	1,2-Dichloroethane	ND	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloropropane	ND	ND	ug/L	5	--	--
E524.2	1,3,5-Trimethylbenzene	ND	ND	ug/L	--	--	330
E524.2	1,3-Dichloropropane	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropene	ND	ND	ug/L	0.5	--	--
E524.2	2,2-Dichloropropane	ND	ND	ug/L	--	--	--
SW8260B	2-Chloroethylvinylether	ND	ND	ug/L	--	--	--
E524.2	2-Chlorotoluene	ND	ND	ug/L	--	--	140
E524.2	4-Chlorotoluene	ND	ND	ug/L	--	--	140
SW8260B	Acrolein	ND	ND	ug/L	--	--	--
SW8260B	Acrylonitrile	ND	ND	ug/L	--	--	--
E524.2	Benzene	ND	ND	ug/L	1	--	--
E524.2	Bromobenzene	ND	ND	ug/L	--	--	--
E524.2	Bromochloromethane	ND	ND	ug/L	--	--	--
E524.2	Bromodichloromethane	ND	ND	ug/L	80	--	--
E524.2	Bromoform	ND	ND	ug/L	80	--	--
E524.2	Bromomethane	ND	ND	ug/L	--	--	--
E524.2	Carbon tetrachloride	ND	ND	ug/L	0.5	--	--
E524.2	Chlorobenzene	ND	ND	ug/L	70	--	--
E524.2	Chloroethane	ND	ND	ug/L	--	--	--
E524.2	Chloroform	ND	ND	ug/L	80	--	--
E524.2	Chloromethane	ND	ND	ug/L	--	--	--
E524.2	cis-1,2-Dichloroethene	ND	ND	ug/L	6	--	--
E524.2	cis-1,3-Dichloropropene	ND	ND	ug/L	--	--	--
E524.2	Dibromochloromethane	ND	ND	ug/L	80	--	--
E524.2	Dibromomethane	ND	ND	ug/L	--	--	--
E524.2	Dichlorodifluoromethane	ND	ND	mg/L	--	--	1
E524.2	Di-isopropyl ether	ND	ND	ug/L	--	--	--
E524.2	Ethyl tert-butyl ether	ND	ND	ug/L	--	--	--
E524.2	Ethylbenzene	ND	ND	ug/L	300	--	--
E524.2	Ethylene dibromide	ND	ND	ug/L	--	--	--
504.1	Ethylene dibromide	ND	ND	ug/L	--	--	--
8330	HMX	ND	ND	ug/L	--	--	--
E524.2	Isopropylbenzene	ND	ND	ug/L	--	--	770
E524.2	m,p-Xylene	ND	ND	ug/L	--	--	--
E524.2	Methyl tert-butyl ether	ND	ND	ug/L	13	--	--
E524.2	Methylene chloride	ND	ND	ug/L	5	--	--
E524.2	n-Butylbenzene	ND	ND	ug/L	--	--	260
E524.2	n-Propylbenzene	ND	ND	ug/L	--	--	260
E524.2	o-Xylene	ND	ND	ug/L	--	--	--
E524.2	p-Isopropyltoluene	ND	ND	ug/L	--	--	--
8330	RDX	ND	ND	mg/L	--	--	0.3
E524.2	sec-Butylbenzene	ND	ND	ug/L	--	--	260
E524.2	Styrene	ND	ND	ug/L	100	--	--
E524.2	tert-Amyl Methyl ether	ND	ND	ug/L	--	--	--
E524.2	tert-Butyl alcohol	ND	ND	ug/L	--	--	12
E524.2	tert-Butylbenzene	ND	ND	ug/L	--	--	260
E524.2	Tetrachloroethene	ND	ND	ug/L	5	--	--
E524.2	Toluene	ND	ND	ug/L	150	--	--
E524.2	trans-1,2-Dichloroethene	ND	ND	ug/L	10	--	--
E524.2	trans-1,3-Dichloropropene	ND	ND	ug/L	--	--	--
E524.2	Trichloroethene	ND	ND	ug/L	5	--	--

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GSI Water Solutions, Inc.

TABLE 6
GROUNDWATER QUALITY
MORRO BAY WELLS
Well HS-1

Method	Analyte	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
E524.2	Trichlorofluoromethane	ND	ND	ug/L	150	--	--
E524.2	Vinyl chloride	ND	ND	ug/L	0.5	--	--
E524.2	Xylenes, Total	ND	ND	ug/L	1750	--	--
		SVOCs					
SW8270C	1,2,4-Trichlorobenzene	ND	ND	ug/L	5	--	--
E524.2	1,2,4-Trichlorobenzene	ND	ND	ug/L	5	--	--
SW8270C	1,2-Dichlorobenzene	ND	ND	ug/L	600	--	--
E524.2	1,2-Dichlorobenzene	ND	ND	ug/L	600	--	--
E522	1,4-Dioxane	ND	ND	ug/L	1	--	--
SW8270C	1,2-Diphenylhydrazine	ND	ND	ug/L	--	--	--
SW8270C	1,3-Dichlorobenzene	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichlorobenzene	ND	ND	ug/L	--	--	--
SW8270C	1,4-Dichlorobenzene	ND	ND	ug/L	5	--	--
E524.2	1,4-Dichlorobenzene	ND	ND	ug/L	5	--	--
SW8270C	2,4,5-Trichlorophenol	ND	ND	ug/L	--	--	--
SW8270C	2,4,6-Trichlorophenol	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dichlorophenol	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dimethylphenol	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrophenol	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrotoluene	ND	ND	ug/L	--	--	--
SW8270C	2,6-Dinitrotoluene	ND	ND	ug/L	--	--	--
SW8270C	2-Chloronaphthalene	ND	ND	ug/L	--	--	--
SW8270C	2-Chlorophenol	ND	ND	ug/L	--	--	--
SW8270C	2-Methylnaphthalene	ND	ND	ug/L	--	--	--
SW8270C	2-Methylphenol	ND	ND	ug/L	--	--	--
SW8270C	2-Naphthylamine	ND	ND	ug/L	--	--	--
SW8270C	2-Nitroaniline	ND	ND	ug/L	--	--	--
SW8270C	2-Nitrophenol	ND	ND	ug/L	--	--	--
SW8270C	3&4-Methylphenol Coelution	ND	ND	ug/L	--	--	--
SW8270C	3,3'-Dichlorobenzidine	ND	ND	ug/L	--	--	--
SW8270C	3-Nitroaniline	ND	ND	ug/L	--	--	--
SW8270C	4,6-Dinitro-2-methylphenol	ND	ND	ug/L	--	--	--
SW8270C	4-Bromophenyl phenyl ether	ND	ND	ug/L	--	--	--
SW8270C	4-Chloroaniline	ND	ND	ug/L	--	--	--
SW8270C	4-Chlorophenyl phenyl ether	ND	ND	ug/L	--	--	--
SW8270C	4-Nitroaniline	ND	ND	ug/L	--	--	--
SW8270C	4-Nitrophenol	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthene	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthylene	ND	ND	ug/L	--	--	--
E525.2	Acenaphthylene	ND	ND	ug/L	--	--	--
E525.2	Alachlor	ND	ND	ug/L	2	--	--
SW8270C	Aniline	ND	ND	ug/L	--	--	--
SW8270C	Anthracene	ND	ND	ug/L	--	--	--
E525.2	Anthracene	ND	ND	ug/L	--	--	--
E525.2	Atraton	ND	ND	ug/L	--	--	--
E525.2	Atrazine	ND	ND	ug/L	1	--	--
SW8270C	Benz(a)anthracene	ND	ND	ug/L	--	--	--
E525.2	Benz(a)anthracene	ND	ND	ug/L	--	--	--
SW8270C	Benzidine	ND	ND	ug/L	--	--	--
SW8270C	Benzo(a)pyrene	ND	ND	ug/L	0.2	--	--
E525.2	Benzo(a)pyrene	ND	ND	ug/L	0.2	--	--
SW8270C	Benzo(b)fluoranthene	ND	ND	ug/L	--	--	--
E525.2	Benzo(b)fluoranthene	ND	ND	ug/L	--	--	--
SW8270C	Benzo(g,h,i)perylene	ND	ND	ug/L	--	--	--
E525.2	Benzo(g,h,i)perylene	ND	ND	ug/L	--	--	--
SW8270C	Benzo(k)fluoranthene	ND	ND	ug/L	--	--	--
E525.2	Benzo(k)fluoranthene	ND	ND	ug/L	--	--	--
SW8270C	Benzoic acid	ND	ND	ug/L	--	--	--
SW8270C	Benzyl alcohol	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethoxy)methane	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethyl)ether	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroisopropyl)ether	ND	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 6
GROUNDWATER QUALITY
MORRO BAY WELLS
Well HS-1

Method	Analyte	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
SW8270C	bis(2-Ethylhexyl)phthalate	ND	ND	ug/L	--	--	--
E525.2	bis(2-Ethylhexyl)phthalate	ND	ND	ug/L	--	--	--
E525.2	Bromacil	ND	ND	ug/L	--	--	--
SW8270C	Butyl benzyl phthalate	ND	ND	ug/L	--	--	--
E525.2	Butyl benzyl phthalate	ND	ND	ug/L	--	--	--
SW8270C	Chrysene	ND	ND	ug/L	--	--	--
E525.2	Chrysene	ND	ND	ug/L	--	--	--
E525.2	Di(2-ethylhexyl)adipate	ND	ND	ug/L	400	--	1.2
E525.2	Diazinon	ND	ND	ug/L	--	--	--
SW8270C	Dibenz(a,h)anthracene	ND	ND	ug/L	--	--	--
E525.2	Dibenz(a,h)anthracene	ND	ND	ug/L	--	--	--
SW8270C	Dibenzofuran	ND	ND	ug/L	--	--	--
SW8270C	Diethylphthalate	ND	ND	ug/L	--	--	--
E525.2	Dimethoate	ND	ND	ug/L	--	--	--
SW8270C	Dimethylphthalate	ND	ND	ug/L	--	--	--
E525.2	Dimethylphthalate	ND	ND	ug/L	--	--	--
SW8270C	Di-n-butylphthalate	ND	ND	ug/L	--	--	--
E525.2	Di-n-butylphthalate	ND	ND	ug/L	--	--	--
SW8270C	Di-n-octylphthalate	ND	ND	ug/L	--	--	--
SW8270C	Fluoranthene	ND	ND	ug/L	--	--	--
SW8270C	Fluorene	ND	ND	ug/L	--	--	--
E525.2	Fluorene	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorobenzene	ND	ND	ug/L	1	--	--
E525.2	Hexachlorobenzene	ND	ND	ug/L	1	--	--
SW8270C	Hexachlorobutadiene	ND	ND	ug/L	--	--	--
E524.2	Hexachlorobutadiene	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorocyclopentadiene	ND	ND	ug/L	50	--	--
E525.2	Hexachlorocyclopentadiene	ND	ND	ug/L	50	--	--
SW8270C	Hexachloroethane	ND	ND	ug/L	--	--	--
SW8270C	Indeno(1,2,3-cd)pyrene	ND	ND	ug/L	--	--	--
E525.2	Indeno(1,2,3-cd)pyrene	ND	ND	ug/L	--	--	--
SW8270C	Isophorone	ND	ND	ug/L	--	--	--
E525.2	Metolachlor	ND	ND	ug/L	--	--	--
E525.2	Metribuzin	ND	ND	ug/L	--	--	--
E525.2	Molinate	ND	ND	ug/L	20	--	17
SW8270C	Naphthalene	ND	ND	ug/L	--	--	17
E524.2	Naphthalene	ND	ND	ug/L	--	--	--
SW8270C	Nitrobenzene	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodimethylamine	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodi-n-propylamine	ND	ND	ug/L	--	--	--
SW8270C	N-Nitrosodiphenylamine	ND	ND	ug/L	--	--	--
SW8270C	p-Chloro-m-cresol	ND	ND	ug/L	--	--	--
SW8270C	Pentachlorophenol	ND	ND	ug/L	1	--	--
SW8270C	Phenanthrene	ND	ND	ug/L	--	--	--
E525.2	Phenanthrene	ND	ND	ug/L	--	--	--
SW8270C	Phenol	ND	ND	ug/L	--	--	--
E525.2	Prometon	ND	ND	ug/L	--	--	--
E525.2	Prometryn	ND	ND	ug/L	--	--	90
E525.2	Propachlor	ND	ND	ug/L	--	--	--
SW8270C	Pyrene	ND	ND	ug/L	--	--	--
E525.2	Pyrene	ND	ND	ug/L	--	--	--
E525.2	Secbumeton	ND	ND	ug/L	--	--	--
E525.2	Simazine	ND	ND	ug/L	4	--	--
E525.2	Terbutryn	ND	ND	ug/L	--	--	--
E525.2	Thiobencarb	ND	ND	ug/L	70		
PCBs						--	--
E508	PCB-1016	ND	ND	ug/L	--	--	--
E508	PCB-1221	ND	ND	ug/L	--	--	--
E508	PCB-1232	ND	ND	ug/L	--	--	--
E508	PCB-1242	ND	ND	ug/L	--	--	--
E508	PCB-1248	ND	ND	ug/L	--	--	--
E508	PCB-1254	ND	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 6
GROUNDWATER QUALITY
MORRO BAY WELLS
Well HS-1

Method	Analyte	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
E508	PCB-1260	ND	ND	ug/L	--	--	--
E508	Total PCBs	ND	ND	ug/L	0.5		
THAA						--	--
E552.3	Dibromoacetic Acid (DBAA)	ND	ND	ug/L	--	--	--
E552.3	Dichloroacetic Acid (DCA)	ND	ND	ug/L	--	--	--
E552.3	Monobromoacetic acid	ND	ND	ug/L	--	--	--
E552.3	Monochloroacetic Acid (MCA)	ND	ND	ug/L	--	--	--
E552.3	Trichloroacetic Acid (TCAA)	ND	ND	ug/L	--	--	--
E552.3	Trihalomethanes	ND	ND	ug/L	80	--	--
E524.2	Trihalomethanes	ND	ND	ug/L	80	--	--
Radiochemistry							
EPA 900	Gross Alpha	7.79	12.3	pCi/L	15	--	--
EPA900	Gross Beta	5.85	9.84	pCi/L	50	--	--
EPA 903.1	Radium-226	0.519	0.629	pCi/L	3	--	--
EPA 904.0	Radium-228	0.604	0.758	pCi/L	2	--	--
ASTM D5811-95	Strontium-90	0.875	2.01	pCi/L	8	--	--
EPA 906	Tritium	263	267	pCi/L	20000	--	--
Nitroaromatics and Nitrosamines							
EPA 521/SPE	N-Nitrosodiethylamine	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosodimethylamine	ND	ND	ug/L		--	0.01
EPA 521/SPE	N-Nitrosodi-n-butylamine	ND	ND	ug/L	--		
EPA 521/SPE	N-Nitrosodi-n-propylamine	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosomethylethylamine	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosomorpholine	ND	ND	ug/L	--	--	--
EPA 521/SPE	N-Nitrosopiperidine	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosopyrrolidine	ND	ND	ng/L	--	--	--
Dioxins							
EPA 1613B	2,3,7,8-TCDD	0.000003	0.00000217	ug/L	0.00003	--	--
PFAs							
B-15	11-CL-PF3OUDS	ND	ND	ng/L	--	--	--
B-15	9-CL-PF3ONS	ND	ND	ng/L	--	--	--
B-15	ADONA	ND	ND	ng/L	--	--	--
B-15	FTS 4;2		ND	ng/L	--	--	--
B-15	FTS 6:2		ND	ng/L	--	--	--
B-15	FTS 8:2		ND	ng/L	--	--	--
B-15	HFPO-DA	ND	ND	ng/L	--	--	--
B-15	N-ETFOSA	ND	ND	ng/L	--	--	--
B-15	N-ETFOSAA	ND	ND	ng/L	--	--	--
B-15	N-ETFOSE		ND	ng/L	--	--	--
B-15	N-MEFOSA		ND	ng/L	--	--	--
B-15	N-MEFOSAA		ND	ng/L	--	--	--
B-15	N-MEFOSE		ND	ng/L	--	--	--
B-15	PFBA		6.8 J	ng/L	--	--	--
B-15	PFBS	9.8	15	ng/L	--	--	--
B-15	PFDA	ND	ND	ng/L	--	--	--
B-15	PFDOA	ND	ND	ng/L	--	--	--
B-15	PFDS		ND	ng/L	--	--	--
B-15	PFHPA	2.9	ND	ng/L	--	--	--
B-15	PFHPS		ND	ng/L	--	--	--
B-15	PFHXA	3.3	5.4	ng/L	--	--	--
B-15	PFHXS	13	5.6	ng/L	--	--	--
B-15	PFNA	ND	ND	ng/L	--	--	--
B-15	PFNS		ND	ng/L	--	--	--
B-15	PFOA	4.5	5	ng/L	--	--	--
B-15	PFOS	ND	ND	ng/L	--	--	--
B-15	PFOSA		5.5 B J	ng/L	--	--	--
B-15	PFPEA		7.3	ng/L	--	--	--
B-15	PFPES		ND	ng/L	--	--	--
B-15	PFTEDA	ND	ND	ng/L	--	--	--
B-15	PFTRDA	ND	ND	ng/L	--	--	--
B-15	PFUDA	ND	ND	ng/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 5
SUMMARY OF GROUNDWATER QUALITY
CITY OF MORRO BAY
High School-2 Well

Method	Analyte	12.28.20 Results	Units	MCL	SMCL	NL
Field Parameters						
YSI Probe	Temp	18.5	Degrees C			
YSI Probe	pH	7.2				
YSI Probe	ORP	225	mV			
YSI Probe	DO	1.46	mg/L			
General Chemistry						
A 600/R-94/1	Asbestos	0.2	MFL	7	--	--
EPA 317	Bromate	ND	mg/L	10	--	
EPA 300.1	Chlorate	ND	mg/L	--	--	800
E300.0	Chloride	230	mg/L	--	500	--
EPA 300.1	Chlorite	ND	mg/L	1	--	--
2120B	Color	2	None	--	--	--
SW8015B	Ethylene glycol	ND	mg/L	--	--	14
2510B	Electrical Conductivity @ 25 C	1730	umhos/cm	--	--	--
E300.0	Fluoride	0.25	mg/L	2	--	--
E556.1	Formaldehyde	ND	ug/L	--	--	100
5540C	MBAS	ND	mg/L	--	0.5	--
E300.0	Nitrate (as N)	**17**	mg/L	10	--	--
CALC	Nitrate + Nitrite (As N)	**17**	mg/L	10	--	--
E353.2	Nitrite (as N)	ND	mg/L	1	--	--
SM5310C	Non-Volatile Organic Carbon	1	mg/L	--	--	--
2150B	Odor	ND	None	--	--	--
E314.0	Perchlorate	ND	ug/L	6	--	--
E300.0	Sulfate	120	mg/L	--	500	--
E335.4	Total Cyanide	ND	ug/L	150	--	--
SM2540C	Total Dissolved Solids	990	mg/L	--	1000	--
E351.2	Total Kjeldahl Nitrogen	0.089 J	mg/L	--	--	--
CALC	Total Nitrogen	17	mg/L	--	--	--
E180.1	Turbidity	0.12	NTU	--	--	--
Metals						
E200.7	Aluminum	ND	mg/L	1	--	--
E200.8	Antimony	ND	mg/L	0.006	--	--
E200.8	Arsenic	0.0016 J	mg/L	0.01	--	--
E200.8	Barium	0.13	mg/L	1	--	--
E200.8	Beryllium	ND	mg/L	0.004	--	--
E200.7	Boron	0.15	mg/L	--	--	1
E200.8	Cadmium	ND	mg/L	0.005	--	--
E200.8	Chromium	0.0022 J	mg/L	0.05	--	--
E218.6	Chromium, Hexavalent	0.0024	mg/L	--	--	--
E200.8	Cobalt	ND	mg/L	--	--	--
E200.8	Copper	0.0026	mg/L	--	--	--
E200.7	Iron (Ferric)	ND	mg/L	--	--	--
E200.8	Lead	ND	mg/L	--	--	--
E200.7	Lithium	0.0072 J	mg/L	--	--	--
E200.7	Manganese	ND	mg/L	--	0.05	--
E245.1	Mercury	ND	mg/L	0.002	--	--
E200.8	Molybdenum	0.0019	mg/L	--	--	--
E200.8	Nickel	0.0037	mg/L	0.1	--	--
E200.8	Selenium	0.018	mg/L	0.05	--	--
E200.8	Silver	ND	mg/L	--	--	--
E200.8	Thallium	ND	mg/L	0.002	--	--

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GSI Water Solutions, Inc.

TABLE 5
SUMMARY OF GROUNDWATER QUALITY
CITY OF MORRO BAY
Well HS-2

CALC	Trivalent Chromium	ND	mg/L	--	--	--
E200.8	Uranium	0.0015	mg/L	20	--	--
E200.8	Vanadium	2 J	ug/L	--	--	50
E200.8	Zinc	0.0061 J	mg/L	--	5	--
Herbicides/Pesticides						
E531.2	1-Naphthol		ug/L	--	--	--
E515.1	2,4,5-T	ND	ug/L	--	--	--
E515.1	2,4,5-TP	ND	ug/L	50	--	--
E515.1	2,4-D	ND	ug/L	70	--	--
E515.1	2,4-DB	ND	ug/L	--	--	--
E531.2	3-Hydroxycarbofuran	ND	ug/L	--	--	--
SW8270C	4,4'-DDD	ND	ug/L	--	--	--
E508	4,4'-DDD	ND	ug/L	--	--	--
SW8270C	4,4'-DDE	ND	ug/L	--	--	--
E508	4,4'-DDE	ND	ug/L	--	--	--
SW8270C	4,4'-DDT	ND	ug/L	--	--	--
E508	4,4'-DDT		ug/L	--	--	--
E531.2	Aldicarb	ND	ug/L	--	--	--
E531.2	Aldicarb sulfone	ND	ug/L	--	--	--
E531.2	Aldicarb sulfoxide	ND	ug/L	--	--	--
SW8270C	Aldrin	ND	ug/L	--	--	--
E508	Aldrin	ND	ug/L	--	--	--
SW8270C	Alpha-BHC	ND	ug/L	--	--	--
E508	Alpha-BHC	ND	ug/L	--	--	--
E515.1	Bentazon	ND	ug/L	18	--	--
SW8270C	Beta-BHC	ND	ug/L	--	--	--
E508	Beta-BHC	ND	ug/L	--	--	--
E531.2	Carbaryl	ND	ug/L	--	--	--
E531.2	Carbofuran	ND	ug/L	18	--	--
E508	Chlordane	ND	ug/L	0.1	--	--
E515.1	Dalapon	ND	ug/L	200	--	--
SW8270C	Delta-BHC	ND	ug/L	--	--	--
E525.2	Delta-BHC	ND	ug/L	--	--	--
E508	Delta-BHC	ND	ug/L	--	--	--
E515.1	Dicamba	ND	ug/L	--	--	--
E515.1	Dichlorprop	ND	ug/L	--	--	--
SW8270C	Dieldrin	ND	ug/L	--	--	--
E508	Dieldrin	ND	ug/L	--	--	--
E515.1	Dinoseb	ND	ug/L	7	--	--
E549.2	Diquat	ND	ug/L	20	--	--
SW8270C	Endosulfan I	ND	ug/L	--	--	--
E508	Endosulfan I	ND	ug/L	--	--	--
SW8270C	Endosulfan II	ND	ug/L	--	--	--
E548.1	Endosulfan II	ND	ug/L	--	--	--
E508	Endosulfan II	ND	ug/L	--	--	--
SW8270C	Endosulfan Sulfate	ND	ug/L	--	--	--
E508	Endosulfan Sulfate	ND	ug/L	--	--	--
SW8270C	Endrin	ND	ug/L	2	--	--
E508	Endrin	ND	ug/L	2	--	--
SW8270C	Endrin Aldehyde	ND	ug/L	--	--	--
E508	Endrin Aldehyde	ND	ug/L	--	--	--
SW8270C	Gamma-BHC	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 5
SUMMARY OF GROUNDWATER QUALITY
CITY OF MORRO BAY
Well HS-2

E525.2	Gamma-BHC	ND	ug/L	--	--	--
E508	Gamma-BHC	ND	ug/L	--	--	--
E547	Glyphosate	ND	ug/L	700	--	--
SW8270C	Heptachlor	ND	ug/L	0.01	--	--
E508	Heptachlor	ND	ug/L	0.01	--	--
SW8270C	Heptachlor Epoxide	ND	ug/L	0.01	--	--
E508	Heptachlor Epoxide	ND	ug/L	0.01	--	--
E515.1	MCPA	ND	ug/L	--	--	--
E515.1	MCPP	ND	ug/L	--	--	--
E531.2	Methiocarb		ug/L	--	--	--
E531.2	Methomyl	ND	ug/L	--	--	--
E525.2	Methoxychlor	ND	ug/L	30	--	--
E508	Methoxychlor	ND	ug/L	30	--	--
E531.2	Oxamyl	ND	ug/L	50	--	--
E531.2	Propoxur		ug/L	--	--	--
E508	Toxaphene	ND	ug/L	3	--	--
		VOCs				
E524.2	1,1,1,2-Tetrachloroethane	ND	ug/L	--	--	--
E524.2	1,1,1-Trichloroethane	ND	ug/L	200	--	--
E524.2	1,1,2,2-Tetrachloroethane	ND	ug/L	1	--	--
E524.2	1,1,2-Trichlor-1,2,2-trifluoroethane	ND	ug/L	1200	--	--
E524.2	1,1,2-Trichloroethane	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethane	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethene	ND	ug/L	6	--	--
E524.2	1,1-Dichloropropene	ND	ug/L	--	--	--
E524.2	1,2,3-Trichlorobenzene	ND	ug/L	--	--	--
E524.2	1,2,3-Trichloropropane	ND	ug/L	0.005	--	--
E524	1,2,3-Trichloropropane	ND	ug/L	0.005	--	--
E524.2	1,2,4-Trimethylbenzene	ND	ug/L	--	--	330
E524.2	1,2-Dibromo-3-chloropropane	ND	ug/L	0.2	--	--
504.1	1,2-Dibromo-3-chloropropane	ND	ug/L	0.2	--	--
E524.2	1,2-Dichloroethane	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloropropane	ND	ug/L	5	--	--
E524.2	1,3,5-Trimethylbenzene	ND	ug/L	--	--	330
E524.2	1,3-Dichloropropane	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropene	ND	ug/L	0.5	--	--
E524.2	2,2-Dichloropropane	ND	ug/L	--	--	--
SW8260B	2-Chloroethylvinylether	ND	ug/L	--	--	--
E524.2	2-Chlorotoluene	ND	ug/L	--	--	140
E524.2	4-Chlorotoluene	ND	ug/L	--	--	140
SW8260B	Acrolein	ND	ug/L	--	--	--
SW8260B	Acrylonitrile	ND	ug/L	--	--	--
E524.2	Benzene	ND	ug/L	1	--	--
E524.2	Bromobenzene	ND	ug/L	--	--	--
E524.2	Bromochloromethane	ND	ug/L	--	--	--
E524.2	Bromodichloromethane	ND	ug/L	80	--	--
E524.2	Bromoform	ND	ug/L	80	--	--
E524.2	Bromomethane	ND	ug/L	--	--	--
E524.2	Carbon tetrachloride	ND	ug/L	0.5	--	--
E524.2	Chlorobenzene	ND	ug/L	70	--	--
E524.2	Chloroethane	ND	ug/L	--	--	--
E524.2	Chloroform	ND	ug/L	80	--	--

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CITY OF MORRO BAY
Well HS-2

E524.2	Chloromethane	ND	ug/L	--	--	--
E524.2	cis-1,2-Dichloroethene	ND	ug/L	6	--	--
E524.2	cis-1,3-Dichloropropene	ND	ug/L	--	--	--
E524.2	Dibromochloromethane	ND	ug/L	80	--	--
E524.2	Dibromomethane	ND	ug/L	--	--	--
E524.2	Dichlorodifluoromethane	ND	mg/L	--	--	1
E524.2	Di-isopropyl ether	ND	ug/L	--	--	--
E524.2	Ethyl tert-butyl ether	ND	ug/L	--	--	--
E524.2	Ethylbenzene	ND	ug/L	300	--	--
E524.2	Ethylene dibromide	ND	ug/L	--	--	--
504.1	Ethylene dibromide	ND	ug/L	--	--	--
8330	HMX	ND	ug/L	--	--	--
E524.2	Isopropylbenzene	ND	ug/L	--	--	770
E524.2	m,p-Xylene	ND	ug/L	--	--	--
E524.2	Methyl tert-butyl ether	ND	ug/L	13	--	--
E524.2	Methylene chloride	ND	ug/L	5	--	--
E524.2	n-Butylbenzene	ND	ug/L	--	--	260
E524.2	n-Propylbenzene	ND	ug/L	--	--	260
E524.2	o-Xylene	ND	ug/L	--	--	--
E524.2	p-Isopropyltoluene	ND	ug/L	--	--	--
8330	RDX	ND	mg/L	--	--	0.3
E524.2	sec-Butylbenzene	ND	ug/L	--	--	260
E524.2	Styrene	ND	ug/L	100	--	--
E524.2	tert-Amyl Methyl ether	ND	ug/L	--	--	--
E524.2	tert-Butyl alcohol	ND	ug/L	--	--	12
E524.2	tert-Butylbenzene	ND	ug/L	--	--	260
E524.2	Tetrachloroethene	ND	ug/L	5	--	--
E524.2	Toluene	ND	ug/L	150	--	--
E524.2	trans-1,2-Dichloroethene	ND	ug/L	10	--	--
E524.2	trans-1,3-Dichloropropene	ND	ug/L	--	--	--
E524.2	Trichloroethene	ND	ug/L	5	--	--
E524.2	Trichlorofluoromethane	ND	ug/L	150	--	--
E524.2	Vinyl chloride	ND	ug/L	0.5	--	--
E524.2	Xylenes, Total	ND	ug/L	1750	--	--
SVOCs						
SW8270C	1,2,4-Trichlorobenzene	ND	ug/L	5	--	--
E524.2	1,2,4-Trichlorobenzene	ND	ug/L	5	--	--
SW8270C	1,2-Dichlorobenzene	ND	ug/L	600	--	--
E524.2	1,2-Dichlorobenzene	ND	ug/L	600	--	--
E522	1,4-Dioxane	ND	ug/L	1	--	--
SW8270C	1,2-Diphenylhydrazine	ND	ug/L	--	--	--
SW8270C	1,3-Dichlorobenzene	ND	ug/L	--	--	--
E524.2	1,3-Dichlorobenzene	ND	ug/L	--	--	--
SW8270C	1,4-Dichlorobenzene	ND	ug/L	5	--	--
E524.2	1,4-Dichlorobenzene	ND	ug/L	5	--	--
SW8270C	2,4,5-Trichlorophenol	ND	ug/L	--	--	--
SW8270C	2,4,6-Trichlorophenol	ND	ug/L	--	--	--
SW8270C	2,4-Dichlorophenol	ND	ug/L	--	--	--
SW8270C	2,4-Dimethylphenol	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrophenol	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrotoluene	ND	ug/L	--	--	--
SW8270C	2,6-Dinitrotoluene	ND	ug/L	--	--	--

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Well HS-2

SW8270C	2-Chloronaphthalene	ND	ug/L	--	--	--
SW8270C	2-Chlorophenol	ND	ug/L	--	--	--
SW8270C	2-Methylnaphthalene	ND	ug/L	--	--	--
SW8270C	2-Methylphenol	ND	ug/L	--	--	--
SW8270C	2-Naphthylamine	ND	ug/L	--	--	--
SW8270C	2-Nitroaniline	ND	ug/L	--	--	--
SW8270C	2-Nitrophenol	ND	ug/L	--	--	--
SW8270C	3&4-Methylphenol Coelution	ND	ug/L	--	--	--
SW8270C	3,3'-Dichlorobenzidine	ND	ug/L	--	--	--
SW8270C	3-Nitroaniline	ND	ug/L	--	--	--
SW8270C	4,6-Dinitro-2-methylphenol	ND	ug/L	--	--	--
SW8270C	4-Bromophenyl phenyl ether	ND	ug/L	--	--	--
SW8270C	4-Chloroaniline	ND	ug/L	--	--	--
SW8270C	4-Chlorophenyl phenyl ether	ND	ug/L	--	--	--
SW8270C	4-Nitroaniline	ND	ug/L	--	--	--
SW8270C	4-Nitrophenol	ND	ug/L	--	--	--
SW8270C	Acenaphthene	ND	ug/L	--	--	--
SW8270C	Acenaphthylene	ND	ug/L	--	--	--
E525.2	Acenaphthylene	ND	ug/L	--	--	--
E525.2	Alachlor	ND	ug/L	2	--	--
SW8270C	Aniline	ND	ug/L	--	--	--
SW8270C	Anthracene	ND	ug/L	--	--	--
E525.2	Anthracene	ND	ug/L	--	--	--
E525.2	Atraton	ND	ug/L	--	--	--
E525.2	Atrazine	ND	ug/L	1	--	--
SW8270C	Benz(a)anthracene	ND	ug/L	--	--	--
E525.2	Benz(a)anthracene	ND	ug/L	--	--	--
SW8270C	Benzidine	ND	ug/L	--	--	--
SW8270C	Benzo(a)pyrene	ND	ug/L	0.2	--	--
E525.2	Benzo(a)pyrene	ND	ug/L	0.2	--	--
SW8270C	Benzo(b)fluoranthene	ND	ug/L	--	--	--
E525.2	Benzo(b)fluoranthene	ND	ug/L	--	--	--
SW8270C	Benzo(g,h,i)perylene	ND	ug/L	--	--	--
E525.2	Benzo(g,h,i)perylene	ND	ug/L	--	--	--
SW8270C	Benzo(k)fluoranthene	ND	ug/L	--	--	--
E525.2	Benzo(k)fluoranthene	ND	ug/L	--	--	--
SW8270C	Benzoic acid	ND	ug/L	--	--	--
SW8270C	Benzyl alcohol	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethoxy)methane	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethyl)ether	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroisopropyl)ether	ND	ug/L	--	--	--
SW8270C	bis(2-Ethylhexyl)phthalate	ND	ug/L	--	--	--
E525.2	bis(2-Ethylhexyl)phthalate	ND	ug/L	--	--	--
E525.2	Bromacil	ND	ug/L	--	--	--
SW8270C	Butyl benzyl phthalate	ND	ug/L	--	--	--
THAA						
E552.3	Monobromoacetic acid	ND	ug/L	--	--	--
E552.3	Monochloroacetic Acid (MCA)	ND	ug/L	--	--	--
E552.3	Trichloroacetic Acid (TCAA)	ND	ug/L	--	--	--
E552.3	Trihalomethanes	ND	ug/L	80	--	--
E524.2	Trihalomethanes	ND	ug/L	80	--	--
Radiochemistry						

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TABLE 5
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CITY OF MORRO BAY
Well HS-2

EPA 900	Gross Alpha	4.15	pCi/L	15	--	--
EPA900	Gross Beta	3.43	pCi/L	50	--	--
EPA 903.1	Radium-226	0.634	pCi/L	3	--	--
EPA 904.0	Radium-228	0.992	pCi/L	2	--	--
STM D5811-	Strontium-90	0.578	pCi/L	8	--	--
EPA 906	Tritium	260	pCi/L	20000	--	--
Nitroaromatics and Nitrosamines						
EPA 521/SPE	N-Nitrosodiethylamine	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosodimethylamine	ND	ug/L		--	0.01
EPA 521/SPE	N-Nitrosodi-n-butylamine	ND	ug/L	--		
EPA 521/SPE	N-Nitrosodi-n-propylamine	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosomethylethylamine	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosomorpholine	ND	ug/L	--	--	--
EPA 521/SPE	N-Nitrosopiperidine	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosopyrrolidine	ND	ng/L	--	--	--
Dioxins						
EPA 1613B	2,3,7,8-TCDD	0.0000017	ug/L	0.00003	--	--
PFAs						
B-15	11-CL-PF3OUDS	ND	ng/L	--	--	--
B-15	9-CL-PF3ONS	ND	ng/L	--	--	--
B-15	ADONA	ND	ng/L	--	--	--
B-15	FTS 4;2	ND	ng/L	--	--	--
B-15	FTS 6:2	ND	ng/L	--	--	--
B-15	FTS 8:2	ND	ng/L	--	--	--
B-15	HFPO-DA	ND	ng/L	--	--	--
B-15	N-ETFOSA	ND	ng/L	--	--	--
B-15	N-ETFOSAA	ND	ng/L	--	--	--
B-15	N-ETFOSE	ND	ng/L	--	--	--
B-15	N-MEFOSA	ND	ng/L	--	--	--
B-15	N-MEFOSAA	ND	ng/L	--	--	--
B-15	N-MEFOSE	ND	ng/L	--	--	--
B-15	PFBA	ND	ng/L	--	--	--
B-15	PFBS	7	ng/L	--	--	--
B-15	PFDA	ND	ng/L	--	--	--
B-15	PFDOA	ND	ng/L	--	--	--
B-15	PFDS	ND	ng/L	--	--	--
B-15	PFHPA	ND	ng/L	--	--	--
B-15	PFHPS	ND	ng/L	--	--	--
B-15	PFHXA	2.8 J	ng/L	--	--	--
B-15	PFHXS	ND	ng/L	--	--	--
B-15	PFNA	ND	ng/L	--	--	--
B-15	PFNS	ND	ng/L	--	--	--
B-15	PFOA	2.5 J	ng/L	--	--	--
B-15	PFOS	ND	ng/L	--	--	--
B-15	PFOSA	ND	ng/L	--	--	--
B-15	PFPEA	3.0 J	ng/L	--	--	--
B-15	PFPES	ND	ng/L	--	--	--
B-15	PFTEDA	ND	ng/L	--	--	--
B-15	PFTRDA	ND	ng/L	--	--	--
B-15	PFUDA	ND	ng/L	--	--	--

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GSI Water Solutions, Inc.

TECHNICAL MEMORANDUM

Characterization and Selection of Project Area for Injection Testing, City of Morro Bay

To: Eric Casares, Carollo Engineers

From: Tim Nicely, Dave O'Rourke and Tim Thompson

Date: March 4, 2021

EXECUTIVE SUMMARY

This Technical Memorandum presents the field work conducted between mid-2019 and early-2020 and the associated results from subsequent hydrogeologic analyses of the data collected. The characterization included a combination of methods at two prospective project areas, including Cone Penetration Testing (CPT) borings, installation of piezometers, and aquifer testing. Based on the results of the characterization, the existing groundwater model for the area was refined and used to conduct a series of numerical groundwater model scenarios to assess the feasibility of implementing the IPR program.

GSI Water Solutions (GSI) has previously conducted hydrogeologic evaluations associated with the proposed injection and subsequent recovery of recycled water in the Lower Morro Valley area of the City of Morro Bay. These evaluations were conducted to evaluate the feasibility of a proposed Indirect Potable Reuse (IPR) project utilizing advanced treated recycled water from the City's forthcoming Water Reclamation Facility (WRF), at one of two prospective project areas.

This new work follows upon two prior technical reports by GSI, which developed the fundamental analyses in support of this latest effort. These two prior hydrogeologic evaluations are briefly summarized below:

A. **May 2017 Report**: Lower Morro Valley Basin Screening-Level Groundwater Modeling for Injection Feasibility
   1. The aquifer will accept the recycled water available for injection (up to 825 acre-feet per year (AFY), which is ~0.75 mgd);
   2. A minimum number of 4 injection wells will be needed to achieve the desired recycled water injection capacity;
   3. Up to 1,200 AFY (~1.07 mgd) of groundwater could be pumped, assuming 825 AFY of recycled water injection is occurring concurrently with pumping at rates in excess of the injection rate, without resulting in seawater intrusion; and
   4. The 2-month minimum subsurface recycled water retention time (RT) required by the California Department of Drinking Water (DDW) permitting regulations for IPR projects can be achieved.

B. **April 2019 Report:** Morro Bay Water Reclamation Facility Groundwater Modeling
   1. With no corresponding injection to offset groundwater level declines, the existing City groundwater wells would be at risk for seawater intrusion if the full annual rate of permitted groundwater pumpage (581 acre-feet per year) is conducted;

2. Nitrate and TDS concentrations in the groundwater pumped from the City's wells will be significantly reduced as a result of an IPR groundwater recharge project (nitrate concentrations would be reduced by 25% to 75% and TDS concentrations would be reduced by 50% or more).

The hydrogeologic characterization conducted after these initial evaluations and documented in this Technical Memo (TM) includes: aquifer testing, piezometer installations, CPT borings, refinements to the groundwater model based on these data, and execution of additional modeling scenarios. The groundwater model refinements were based upon improved aquifer geometry and hydraulic property data gathered during the field characterization work. Numerous scenarios were modeled using potential injection well locations at both project areas (Narrows area and Western area) to determine the feasibility of implementing an IPR project in the Lower Morro Valley. Based on these evaluations, and as described in this technical memorandum, the following determinations can be made:

A. The Western project area is preferable to the Narrows project area for the following reasons:

1. Higher transmissivity in the Western project area indicates that injection wells located there would have capacity for higher injection rates in comparison with the Narrows project area.
2. Modeled retention times between the injection wells and the nearest recovery wells are greater in the Western project area scenarios than in the Narrows project area scenarios.
3. Evaluation of water level patterns along the coast indicate that the Western project area scenarios offer a greater degree of mitigation against potential seawater intrusion during dry periods than the Narrows project area scenarios.
4. Due to the dense residential occupancy of the Narrows project area, the level of planning, permitting, public notification, and logistical coordination for construction of permanent infrastructure will be significantly greater than in the Western project area.
5. The recycled water pipeline alignment is planned to pass through the Western project area, which is the preferred pipeline alignment due to constructability and cost considerations.

B. The numerical modeling results indicate that the project is hydrogeologically feasible and can be constructed and operated in compliance with regulatory requirements. The modeling results show that retention times at the Western project area will be approximately 2.5 to 5.5 months (depending on the specific scenarios and recovery wells considered) under the specified injection (825 AFY) and extraction (581 to 1,200 AFY) goals.

C. Refinements to the modeling approach are underway to further evaluate compliance with DDW regulatory requirements. These refinements, which will be published in a subsequent report, include:

1. Conducting modeling scenarios to evaluate groundwater basin conditions and retention time estimates assuming reduced injection rates (~400 to ~600 AFY) and extraction rates (~400 to 600 AFY), as well as scenarios to evaluate benefits of project operations where extraction rates exceed injection rates.
2. Some of the current groundwater extraction wells, located between the proposed injection and proposed extraction wells, will be considered for future use as groundwater monitoring wells only, thus extending the distance and therefore retention time between injection and extraction locations.
3. New extraction well locations may be considered to extend the retention time between injection and extraction. New extraction locations will be considered in the modeling scenarios.

D. Following execution and evaluation of these additional modeling scenarios, revisions to well site selection for the future injection wells and injection testing will be conducted.

In consideration of the above information, it is important to note that calibrated modelling results are anticipated to be accepted by DDW for retention time estimation at a 2-to-1 ratio such that a modeled determination of 4 months of retention time is needed to meet the 2-month minimum.

OBJECTIVES

As part of the City of Morro Bay's plans to augment their groundwater supply with recycled water, this evaluation was conducted to determine the preferred project location for injecting and subsequently recovering highly-treated recycled water within the Lower Morro Groundwater Basin in the vicinity of the City's existing production wells. This type of water supply project is commonly referred to as Indirect Potable Reuse (IPR). The project areas being considered roughly surround the intersection of Highway 1 and Atascadero Road, and are referred to as the Narrows project area and the Western project area (Figure 1).

This Technical memorandum (TM) documents the results of the field program and groundwater modeling analyses conducted in support of the project. The objectives of the work conducted were:

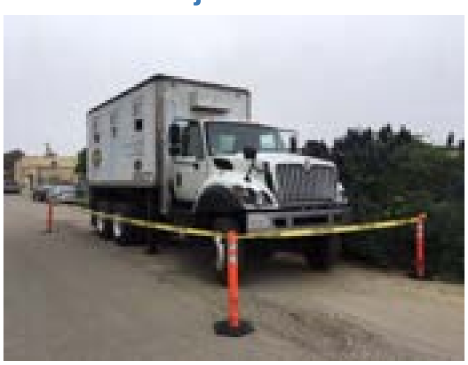
1. Implementation of a field program to improve the hydrogeologic characterization of the two project areas under consideration.
2. Incorporation of results of the characterization into the existing groundwater model.
3. Using the refined groundwater model to inform the decision of which project area was technically and logistically superior.
4. Using the refined and calibrated groundwater model to conduct scenarios to evaluate the feasibility of the IPR project.

WORK CONDUCTED

This TM presents the work conducted and results of a hydrogeologic characterization which occurred between mid-2019 and early-2020. The characterization included a combination of methods at both project areas, including Cone Penetration Testing (CPT) borings, installation of piezometers, and constant rate aquifer testing.

Based on the results of the characterization, the existing groundwater model was refined and used to conduct a series of numerical groundwater model scenarios to assess the feasibility of implementing the IPR program at the preferred project area.

Narrows Project Area Characterization



To characterize the hydrogeology in the Narrows area, a series of CPT borings were conducted in April 2019, the locations of which are presented on Figure 2. The Narrows area includes the Silver City RV Park and Mobile Home Resort and a small undeveloped area to the south, adjacent to Little Morro Creek. The results of the CPT borings provided information about the geometry of the aquifer in the area, depth to bedrock, as well as information about the general nature of the geologic materials that constitute the aquifer of interest for this project.

After the CPT investigation was completed, a constant rate aquifer test was conducted using an existing City of Morro Bay well (MB-13) as the pumping well. To track the drawdown associated with this test, a single, small-diameter monitoring well (piezometer) was installed approximately 100 feet away from of the pumping well as shown on Figure 2.

Before conducting the aquifer test, the condition of the well casing within MB-13 was assessed with a video logging tool to ensure that the well was in suitable condition to act as the pumping well. The video log results indicated that, after a long period of disuse, the well was in adequate condition. The existing well pump, however, was removed and inspected, and determined to be too unreliable for the aquifer testing. A temporary test pump was therefore installed (and subsequently removed following completion of the testing).

Installation of the monitoring well was conducted by hollow-stem auger methods, which resulted in a 2-inch diameter PVC casing installed in accordance with State of California and County of San Luis Obispo requirements. All soil cuttings and water produced during installation were disposed of off-site by City staff at a location designated by the City of Morro Bay. After installation, the monitoring well was developed by bailing and pumping operations. If the well is not needed for future monitoring, it can be abandoned per County well permit requirements.

In late June 2019, water level instrumentation was deployed in the pumping and monitoring wells to support the testing efforts and data collection. A pumping test within the production well (MB-13) was conducted for a period of 3.5 days. Water level drawdown data were collected during the test and used to calculate the hydraulic properties of the aquifer. The pumping test data were also used to assess well MB-13's maximum yield, drawdown characteristics (specific capacity), and native water quality.

Western Project Area Characterization

In January and February 2020, a field program of aquifer characterization was conducted at the Western project area, which is owned by the Vistra Energy Corporation (Vistra). The area consists of an undeveloped open area generally bounded on the north by Morro Creek, on the east by Highway 1, and on the south by the Morro Bay Power Plant site (Figure 3). The characterization of the Western area included installation of a piezometer and completion of a constant rate aquifer test. Similar to the Narrows area, an existing production well, the Morro Bay Mutual Water Company (MBMWC) South Well No. 3 (South Well No. 3), was used as the pumping well for the aquifer testing (Figure 3).

To support this this aquifer testing, a small-diameter piezometer was installed approximately 120 feet north of the pumping well (Figure 3). Also shown on Figure 3 are the additional wells used for water level monitoring during the aquifer testing and the proposed (tentative) alignment of the recycled water pipeline planned along the City's bike path easement along the eastern edge of the project area, adjacent to Highway 1.

Installation of the temporary piezometer was conducted by hollow-stem auger methods, which resulted in a 2-inch diameter PVC cased piezometer installed in accordance with State of California and County of San Luis Obispo requirements. The piezometer was constructed with the perforated interval principally in the lower aquifer zone, similar to the depth of the existing production well.

All soil cuttings produced during piezometer installation were disposed of off-site at a location designated by the City of Morro Bay. After installation, the temporary piezometer was developed by bailing and pumping operations. The piezometer was completed for potential future basin monitoring. If the piezometer is not needed for future monitoring, it will be abandoned per County well permit requirements.

Prior to conducting the aquifer testing, the condition of the well casing within the South Well No. 3 was assessed with a video logging tool. The video log results indicated that, after a long period of disuse, the well casing appeared to be in adequate condition to act as the pumping well. The pump within the well was removed and inspected prior to its use, the results of which indicated that it would be reliable for the planned aquifer testing. Based on these results, the pump was reinstalled within the well.

In late January 2020, a pair of aquifer pumping tests was conducted by pumping the South Well No. 3 and conveying the produced water off-site to a City-owned sewer manhole in coordination with City staff. During testing, water levels were measured and recorded in several wells using data-recording water level devices, known as pressure transducers. The locations of these wells are presented on Figure 3, which include:

- the pumping well (South Well No. 3)
- the newly installed piezometer
- two nearby Yeh piezometers (18-P02 and 19-P04)
- Morro Bay Mutual Water Company North Well No. 2
- several of the City of Morro Bay's Highway 1 wells to the north

The aquifer testing consisted of a 6-hour variable-rate step test and a longer-duration constant rate test. For the constant rate test, South Well No. 3 was anticipated to pump for a period of 1 or more days at a pumping rate of 175 gallons per minute. However, the testing was unexpectedly interrupted after about 8 hours of pumping because of excessive drawdown in the pumping well and an electrical issue at the pump. The results of the test, albeit abbreviated, were carefully evaluated and were determined to be sufficient. Following testing, the wellhead, electrical connections and discharge piping were returned to its pre-testing condition and secured.

Numerical Modeling

A screening-level groundwater flow model of the Lower Morro Basin (developed by GSI in 2017[1]) was utilized to conduct scenarios of project alternatives to examine the feasibility of injecting advanced treated recycled water into the aquifer. The modeled area includes the entire Lower Morro Valley groundwater basin from the Narrows to the ocean, which includes the City's water supply wells and desalination ("seawater") wells along with the two potential project areas (Figure 4). The model has been calibrated to aquifer responses observed during constant rate testing.

Objectives

Three specific objectives are identified for analysis using the existing Morro Bay groundwater model (the model), including:

1. Incorporating results of recent field characterization into the model.
2. Simulating the updated groundwater model to assess the continuing feasibility of the Project in consideration of new data.
3. Conduct scenarios using the updated groundwater model to evaluate recovery (pumping) alternatives.

Groundwater Model Background

The screening level model was developed and documented by GSI (GSI, 2017[1]). Details of the model development are included that report, a brief summary of which is provided here.

The primary aquifer used by the City for water supply production consists of the alluvial sediments of the Lower Morro Valley Basin. The Narrows is an area east of Highway 1 where the alluvium underlying Morro Creek is constrained by bedrock to a narrow corridor about 300 feet wide. The Western project area is in the central portion of the model domain west of Highway 1, adjacent to and immediately south of Morro Creek.

The model is constructed of three layers:

- Layer 1 represents the ocean.
- Layer 2 represents finer materials such as silt and clay which are predominant at and near the land surface.

[1] GSI, 2017. *Lower Morro Valley Basin Screening-Level Groundwater Model for Injection Feasibility*, submitted to City of Morro Bay.

- Layer 3 represents coarser materials such as sand and gravel present at depths ranging from 20 to 60 feet, and from which most of the groundwater production occurs.

The City's groundwater production is from wells screened in the sand and gravel represented in Layer 3. The modeled grid cells have a uniform size of 50 feet by 50 feet. Morro Creek is simulated at the surface in Layer 2, which provides a significant portion of the recharge to the aquifer system within the modeled area. Other model boundary conditions include subsurface inflow through the Narrows, subsurface inflow/outflow to or from the Pacific Ocean, precipitation-based recharge over the model area, and pumping from City wells within the model area. The model simulates the historical period from water years 1981 through 2018 using 456 monthly stress periods, with monthly transient (i.e., variable) boundary conditions based on observed hydrologic data including rainfall and stream flow.

Modeling Approach

The industry-standard groundwater modeling code MODFLOW was used in combination with the ancillary software package MODPATH to evaluate groundwater flow patterns and retention time for numerous scenarios. MODFLOW is a groundwater modeling code developed by the U.S. Geological Survey (USGS) to simulate groundwater flow and water levels. MODPATH is a USGS-developed particle-tracking code that functions in tandem with MODFLOW for the calculation of flow paths, groundwater velocity, and groundwater recycled water retention (travel) times.

Groundwater pumping was modeled using the current City wells (MB-1, MB-2, MB-3, MB-4, MB-14, MB-15, HS-1, HS-2, and Flippos well). Potential locations for injection wells were included in the model and moved around for evaluation of various hydrologic effects.

The initial locations for the modeled injection wells were selected from approximately 10 potential sites identified by GSI and City staff in 2016. The site selection at that time considered site ownership, access, current land use and avoidance of any known site constraints. The potential well sites were selected because of their distance from the City's main wells to comply with the regulatory retention time requirement.

The numerical modeling is being conducted to comply with regulatory retention time requirements for IPR projects, which will be followed with actual injection testing and (perhaps) tracer testing at the forthcoming direction of the DDW.

Modeling Scenarios

Using the model, a baseline scenario was simulated with the City's current full pumpage allotment of 581 acre-feet per year (AFY), with the total pumping volume equally apportioned between City wells relative to their documented pumping capacities (Figure 5). Subsequent scenarios were conducted to evaluate the effects of injecting recycled water while the City wells are pumped continually. The simulated pumping amounts were the baseline pumpage of 581 AFY, plus 25%, 50%, and 75% of the total projected available injected water volume of 825 AFY, resulting in overall simulated pumpage volumes of 787, 993, and 1,200 AFY under the various scenarios. Table 1 summarizes the pumping simulated in each modeled scenario. All pumping was simulated at a constant rate, with no variation of pumping volumes with time.

Table 1. Summary of Groundwater Modeling Scenarios

Injection Project Area	Model Run	Description	Total Pumping (AFY)	Total Injection (AFY)	MB-3	MB-4	MB-14	MB-15	MB-1	MB-2	HS-1	HS-2	Flippos	Notes
Western project area	Run0	Baseline	581	0	83	83	83	83			83	83	83	Active City Wells
	Run1	Baseline	581	825	104	186					81	128	81	Western Project Area Wells
	Run2	Base+25% Inj.	787	825	142	252					110	173	110	Western Project Area Wells
	Run3	Base+50% Inj.	995	825	180	318					139	219	139	Western Project Area Wells
	Run4	Base+75% Inj.	1200	825	216	384					168	264	168	Western Project Area Wells
Narrows project area	Run5	Baseline	581	825	104	186					81	128	81	Narrows Wells
	Run6	Baseline	581	825					87	87	116	174	116	Narrows Wells
	Run7	Base+25% Inj.	787	825					118	118	157	236	157	Narrows Wells
	Run8	Base+50% Inj.	995	825					149	149	199	298	199	Narrows Wells
	Run9	Base+75% Inj.	1200	825					180	180	240	360	240	Narrows Wells
	Run9b	Base+75% Inj.	1200	825	251	447	251	251						Highway 1 Wells

RESULTS

The field program provided improved hydrologic characterization in the two prospective project areas, which was used to inform the selection of the preferred area for the IPR project. This selection of the preferred project area guides the decision for the tentative alignment of the recycled water pipeline from the forthcoming WRF and also the location of injection wells. The selection considers many factors including the local aquifer geometry, aquifer hydraulic properties, as well as area and permitting constraints. The selection also considers ultimate area constructability for up to six injection wells, recycled water pipeline alignment requirements, and estimated injection rates (calculated both with and without concurrent recovery from the City's production wells).

Existing Land Use Considerations

The existing land uses at the two project areas are very different, which constitutes the most apparent area constraint. Whereas the Narrows project area is fully developed with a combination of residential (Silver City RV Park) and commercial land uses, the Western project area is undeveloped. Additionally, the total footprint of the two areas also differs; the Narrows area is significantly smaller at approximately 10 total acres, whereas the Western project area is larger, covering approximately 17 acres.

Furthermore, the Western project area is flatter, and more centrally located to the City's infrastructure. The larger area and undeveloped nature of the Western project area would more easily accommodate construction and maintenance activities associated with installation and maintenance of infrastructure, including wells, pumps and pipelines. The Western project area is also located adjacent to the currently planned alignment of the forthcoming recycled water pipeline.

A potential challenge with pursuing pilot injection testing at the Western project area is its location immediately adjacent to (north of) the former Morro Bay Power Plant site. The Western project area is on the same parcel as the adjacent Power Plant site, as is the Lila Keiser Park located across the Morro Creek and four of the City of Morro Bay's existing water supply wells. Portions of the former Power Plant site are going through land use covenant procedures associated with its closure by the California Department of Toxic Substances Control (DTSC). This proposed land use covenant procedure would restrict select areas of the Power Plant site outside of the area being considered for this project to future commercial/industrial uses and restricts the use of groundwater. While the Western project area under consideration is not located within any of the "Areas of Concern" on the Power Plant site, the effects of any restrictions associated with the forthcoming land use covenant are being reviewed to ensure that they do not limit the City's potential use of the area for development of this project.

A summary of the current land use and potential area constraints for the two areas are presented on Table 2.

Table 2. Summary of Project Area Constraints

Project Area	Current Land Use	Total Area (Acres)	Distance to Proposed Pipeline Alignment	Relative Constructability
Narrows area	Fully developed (Residential and light industrial)	10	Far (Expensive)	(Constrained)
Western area	Undeveloped (Vistra property)	17	Adjacent	Feasible

Aquifer Geometry

The CPT testing and aquifer testing of the project areas provide information about the geometry and properties of the target aquifer, particularly depth to bedrock and total thickness and permeability of the aquifer sediments. Data acquired during the field program was utilized to improve the understanding of the aquifer geometry. The aquifer within the Narrows project area is laterally constrained by bedrock to the south and north of the project area. Within the main portion of the basin, in the Western area, the aquifer is considerably broader and thicker.

Aquifer Hydraulic Properties

The aquifer hydraulic properties were calculated based on the results of the subsurface characterization work and aquifer tests at the two potential project areas[2]. The results of the aquifer testing indicate that the aquifer underlying the Narrows project area was less transmissive than the same aquifer where it underlies the Western project area.

[2] GSI, 2020. Summary of Subsurface Investigations and Pumping Tests completed in Narrows and Western Project Areas, Morro Bay, CA.

Table 3 presents the average aquifer hydraulic parameters calculated from several areas around the Lower Morro Valley based on aquifer tests conducted by GSI over the past 4 years. The updated aquifer hydraulic values are incorporated into the revised groundwater model (Figure 6).

Table 3. Summary of Aquifer Hydraulic Properties

Project Area	Date	Transmissivity[3] (gpd/foot)	Storativity
Narrows Area	2019	23,000	0.001
City Highway 1 Wells Western Area north of Morro Creek	2016	107,000	0.005
Western Area	2020	80,000	0.005
Desalination ("Seawater") Wells Western Area near Embarcadero	2017	50,000	0.008

The aquifer in the Western project area was more productive than the aquifer in the Narrows project area, associated with substantially more transmissive sediments within the primary aquifer. Within this area, the lower aquifer, which is the primary zone from which wells produce groundwater, consists of approximately 20 feet of highly transmissive sands and gravels, with transmissivity values of between approximately 80,000 and 100,000 gallons per day per foot (gpd/foot).

South of the Western project area toward the Embarcadero, where the City's so-called "seawater" wells are located, the same aquifer is somewhat less productive, with transmissivity values of approximately 50,000 gpd/foot.

Numerical Modeling Results

Model Updates

Aquifer Thickness. The original model assigned a uniform thickness of 20 feet to the lower aquifer (Layer 3) throughout the entire model domain. Results of the field investigation were evaluated along with available boring logs and well construction information for existing wells to generate a map of variable thickness in the model area. These data were incorporated into the model and are presented in Figure 6. The bottom elevation of Layer 2 was adjusted to honor the newly revised estimate for elevation of the Top of Layer 3; the top elevation of Layer 2 remains unchanged at land surface in the model area.

Transmissivity. The original model assigned a uniform transmissivity of 108,000 gpd/ft, based on aquifer testing performed in 2016 and included in the original model documentation. The groundwater model was revised to incorporate the aquifer parameter data (primarily transmissivity[3] and storativity[4]) to more accurately represent conditions documented during the hydrogeologic field work. With new estimates of aquifer transmissivity in the Narrows and Western project areas, and assuming that transmissivity tapers to lower values at the fringes of the basin as thickness decreases, GSI generated contours of transmissivity that honored these data and assumptions. Transmissivity is calculated as the product of hydraulic conductivity (ft/day) and aquifer thickness. The hydraulic conductivity in the model was adjusted such that the transmissivity distribution in the model reflects the contoured transmissivity contours just described. The results are presented in Figure 7. This distribution reflects variability in the model consistent with the variability of results identified during the field program.

[3] Transmissivity is the rate at which water passes through a width of the aquifer under a hydraulic gradient.
[4] Storativity is a dimensionless measure of the volume of water released from an aquifer per unit area of the aquifer and per unit reduction in hydraulic head.

Storativity for the entire model was previously assigned a uniform value of 0.005 across the entire model area. Recent aquifer test analysis indicates storativity values ranging from 0.001 to 0.005. Storativity was revised downwards in the model to constant value of 0.001. The MODFLOW code uses the parameter of specific storage (1/ft), which is multiplied by layer thickness, to define storativity. Therefore, specific storage was back-calculated using the layer thicknesses displayed in Figure 6, and the newly assigned storativity value of 0.001. The resulting storativity of 0.001 (dimensionless) was used throughout the model.

Calibration Scenarios

In order to demonstrate that the model accurately represents aquifer conditions during pumping stresses, two scenarios were conducted in which the pumping conditions applied during the constant rate aquifer tests were simulated. The modeled drawdown from these simulations was compared to the observed drawdown at the nearby piezometers..

Specifically, a scenario was conducted in which the Morro Bay MWC Well 3 (in the Western project area) was pumped at 175 gpm for 8 hours, and drawdown was monitored at the recently installed Vistra piezometer. The hydrograph comparing observed and modeled drawdown at the Vistra piezometer is included in Figure 8. Inspection of the figure shows that modeled water levels are nearly identical to the transducer-measured drawdown.

Another scenario was conducted in which the City well MB-13 (in the Narrows project area) was pumped at 150 gpm for 77 hours, and drawdown was evaluated at the recently installed Errol Street piezometer. The hydrograph comparing observed and modeled drawdown at the Errol Street piezometer is also included in Figure 8. Inspection of that hydrograph shows that modeled water levels are less than one foot different from the transducer-measured drawdown after 77 hours of pumping; additionally, the slope of the two curves is parallel, indicating no likely significant divergence between the two curves at elapsed times greater than that of the aquifer test.

These scenarios document that the model is adequately calibrated to perform reliable predictive scenarios for further project evaluations in the Western project area.

Transient Conditions

The model simulates variable monthly stress periods for 38 years. Even without pumping, there is significant temporal variability to the hydrologic inputs of the model, such as recharge from infiltration of both streamflow and rainfall. This variability results in water levels that change over time. Figure 9 presents hydrographs of modeled groundwater elevations from the model at the MB-3 well under conditions of: (a) no pumping at all and (b) baseline pumping (defined as the City's full groundwater allocation of 581 AFY). Even under conditions of no pumping (blue line on the graph), water levels typically vary over a 10-foot range during the course of a year. When pumping from the City's wells is added (orange line on the graph), the water levels decline further and span a wider range of up to 25 feet between wet and dry periods. In the following discussion of modeling scenarios, it will be specified if results represent wet, dry, or average climatic conditions.

Baseline Scenario

A baseline scenario was established to assess the conditions during which 581 AFY was continuously pumped from a total of 7 City wells with no injection occurring. A map of drawdown from the initial conditions is presented in Figure 10, for average hydrologic conditions (i.e., assuming that average rainfall and runoff is occurring, stress period 175 in the model). This figure indicates that depths to groundwater would decline about 17 feet in the vicinity of the City wells in response to this pumping scenario. Drawdown in the Western project area varied from about 3 to 4 feet during the wettest periods, to about 25 feet during the driest periods. If lower water levels in the Western project area are maintained during the project by continual City pumping, it would provide greater flexibility for operation of the injection wells.

Narrows Project Area Scenarios

Scenarios were modeled with baseline pumping of 581 AFY, plus 25%, 50%, and 75% of the maximum IPR water volume of 825 AFY (or total extraction pumping of 787, 993, and 1,200 AFY). For clarity, only the results from the "baseline plus 75% injected water" (1,200 AFY extraction) scenario for the Narrows scenarios are discussed to illustrate conditions under two pumping well layout options. Modeled retention time results for all scenario runs are summarized in Table 4.

The first Narrows project alternative assumes that all of the pumping occurred at the four wells of the Highway 1 well field (MB-3, MB-4, MB-14, and MB-15). These are the primary wells currently used by the City for supply. Figure 11 presents modeled water levels and particle tracking lines for a representative dry period. (The transient version of MODPATH was used. Three particles were placed downgradient of each injection well for tracking. The particle release time defined as 3,195 days after start of simulation, and the water levels displayed are from stress period 108, representing the fall of 1990, in the midst of the drought. The Z offset parameter was set at 0.5, indicating particle release from the vertical center of the model layer.) The purple arrowheads in the figure, distributed along the lavender particle track lines, each represent one month of retention time, and the red lines indicate uniform retention times as labelled along the particle tracks. Minimum retention times are about 1.5 to 3.5 months at the pumping wells (depending on the individual well). Permitting requirements for IPR projects require a minimum groundwater retention time of 2 months if tracer study data are used to document retention time, or a minimum retention time of 4 months if a calibrated model is used. These results indicate that the groundwater retention time is less than the 4-month minimum for the Narrows project area under this scenario.

Figure 11 also indicates that a clear hydraulic gradient exists from the ocean toward the land as a result of the modeled City pumping during the injection, a condition which would allow for seawater intrusion during dry periods. Because the Narrows injection wells are landward from the pumping center, they will not generate elevated groundwater levels near the coastline to produce an effective hydraulic gradient that could prevent seawater intrusion.

The second Narrows project alternative uses pumping wells more distant from the injection wells: HS-1, HS-2, Flippos, MB-1, and MB-2 (Figure 12). These are the wells used in model scenarios documented in the feasibility modeling report (GSI, 2017). MB-1 and MB-2 are not currently operational, but it is assumed they could be rehabilitated or replaced if required. Figure 12 presents modeled water levels and particle tracking results for the representative dry period. These particle tracking results indicate that the groundwater retention time ranges from about 4.5 months at the High School wells, to 8-9 months at MB-1 and MB-2. This indicates a longer groundwater retention time than is observed when pumping the closer Highway 1 wells.

Water levels along the coast still indicate a clear groundwater flow direction from the coast toward the land, indicating the potential for seawater intrusion under this scenario.

Western Project Area Scenarios

Scenarios were modeled during which the baseline pumping volume of 581 AFY was increased by 25%, 50%, and 75% of the total injected water volume of 825 AFY. For clarity, selected results are presented, evaluating both wet and dry conditions. Modeled retention time results for all scenarios presented are summarized in Table 4.

Modeled wells pumped were MB-3, MB-4, HS-1, HS-2, and Flippos at rates proportional to their respective reported capacities (or total extraction pumping of 787, 993, and 1,200 AFY). These wells were selected to be consistent with the scenarios conducted in the original modeling report (GSI 2017); wells MB-14 and MB-15 were not pumped in the original modeling investigation, to maximize pumping well distance from the injection wells. However, MB-14 and MB-15 may ultimately be operated as part of this project.

Figure 13 presents modeled heads and particle tracking results for the Pumping Scenario of Baseline + 25% of injection volume (787 AFY). Particle tracking indicates that water introduced through the injection wells would travel both towards the pumping wells and towards the coast. Particle tracking indicates that the minimum retention time for the injected water ranges from about 4.5 months at Flippo's, to over 12 months at HS-1. Results of this scenario also indicate that groundwater levels near the coast maintain a hydraulic gradient from the land toward the coast, which would tend to prevent seawater intrusion.

The modeled heads and particle tracking results for the pumping scenario of Baseline + 75% of Injection volume (1,200 AFY) during dry conditions are presented in Figure 14. Particle tracking indicates that water introduced through the Western project area injection wells in this layout would have retention times ranging from about 2.5 months for the Flippos well, to 4.5 months for MB-3 and MB-4, to over 5 months for the High School wells. Under this scenario, the hydraulic gradient indicates a groundwater flow direction from the coast toward the pumping wells. This indicates conditions that do not inhibit against sea water intrusion under extended dry conditions.

Figure 15 displays results for the same pumping scenario as Figure 14, but during wet conditions. Particle tracking indicates that water introduced through the Western project area injection wells in this layout would have retention times ranging 3 months for the Flippos well, to about 5 months at MB-3 and MB-4, to 6-9 months at the High School wells. The hydraulic gradient under these conditions indicates a flow direction from the land to the ocean, a condition that would mitigate against potential seawater intrusion.

Table 4. Summary of Groundwater Retention Times (Months)

Injection Project Area	Figure	Scenario	Total Pumping (AFY)	Total Injection (AFY)	MB-3	MB-4	MB-14	MB-15	MB-1	MB-2	HS-1	HS-2	Flippos
Narrows project area	Figure 11	Base+75% Inj.	1200	825	1.5	1.5	2.5	3.5					
	Figure 12	Base+75% Inj.	1200	825					9	8.5	4.5	4.5	6
Western project area	Figure 13	Base+25% Inj.	787	825	6.5	6.5					>12	9.5	4.5
	Figure 14	Base+75% Inj. (Dry)	995	825	4.5	4.5					5.5	5.5	2.5
	Figure 15	Base+75% Inj. (Wet)	1200	825	3.5	3.5					4	>4	2.5

DISCUSSION AND CONCLUSIONS

The primary objectives of the tasks described in this TM are to:

1. Improve the hydrogeologic characterization of the two alternative project areas,
2. Update the groundwater model with new data,
3. Conduct model scenarios to assess if one project area is preferable to the other, and
4. Assess if the project remains feasible when considering the updated hydrogeologic data
5. Identify next steps.

The following discussion addresses these objectives.

Objectives 1 and 2 – Improve Hydrogeologic Characterization

The hydrogeologic characterization field program was successfully implemented. One of the most significant findings of the field program is that the aquifer transmissivity in the Narrows area (23,000 gpd/foot) is significantly lower than in the Western area (80,000 gpd/foot). This finding indicates that well injection rates in the Narrows area are likely to be lower than injection rates for wells in the Western area, potentially requiring more wells to inject an equal amount of recycled water. Revised estimates of transmissivity were incorporated into the existing groundwater model, and project scenarios were run to further evaluate feasibility for the two alternative proposed project locations: the Narrows project area and the Western project area.

Objective 3 – Determine Which Proposed Project Area is Preferred

New hydrogeologic data from the field program were reviewed, and numerous model scenarios were simulated to assess the feasibility of the project, given the updated understanding of the hydrogeologic setting. Model scenarios for both project area alternatives were simulated. Based on results from this evaluation, the Western project area is preferable to the Narrows project area as a location of injection wells for the following reasons:

- Higher transmissivity in the Western project area indicates that injection wells located there would have capacity for higher injection rates in comparison with the Narrows project area.
- Modeled retention times between the injection wells and the nearest recovery wells are greater in the Western project area scenarios than in the Narrows project area scenarios.
- Evaluation of water level patterns along the coast indicate that the Western project area scenarios offer a greater degree of prevention against potential seawater intrusion during dry periods than the Narrows project scenarios.
- Due to the dense residential occupancy of the Narrows project area, the level of planning, permitting, public notification, and logistical coordination for construction of permanent infrastructure in this area will likely be significantly greater than in the Western project area.
- The recycled water pipeline alignment is planned to pass through the Western area, which is the preferred pipeline alignment due to constructability and cost considerations.

Objective 4 – Evaluate Project Feasibility

Results from the model scenarios indicate that the Western project area concept is feasible from a logistical and hydrogeologic standpoint. IPR permitting requirements state that modeling results need to indicate a retention time of four months or greater. Under all scenarios presented, the retention time for water recovered from the High School wells met or exceeded this metric. Water recovered from the Highway 1 wells (MB-3 and MB-4) was 3 to 3.5 months, depending on the scenario and wet/dry conditions. Estimated retention time from the injection wells to the Flippos was the shortest, ranging from 2.5 to 3.5 months. Accordingly, continued municipal pumping from the Flippos well in the project concept is likely not feasible and conversion of this well to a monitoring well has been considered. Communication with the permitting agency will be conducted to support further project planning in coordination with the planned site-specific injection testing and possibly tracer testing to support retention time calculations for the permit application.

Objective 5 – Next Steps

- **Well locations.** Pumping in the model scenarios was limited to existing City well locations. New pumping well locations along Atascadero Road or in the corporation yard could be modeled to assess the potential improvements to retention time under these additional alternative scenarios. The locations of the injection wells were selected based on the factors including being located in the deepest portion of the basin and at a distance far from the planned recovery locations. While other locations for injection wells were considered, the modeled locations are preferred for the hydrogeologic and logistical reasons discussed. In addition, potential well locations along the coast on the City's current WWTP property may be evaluated in the future to assess the potential of greater protection against seawater intrusion during drought periods.
- **Well pumping rates.** All modeled scenarios assumed a full buildout injection volume of 825 AFY. It may be instructive to model a phased approach to implementation in which interim target injection and recovery volumes are simulated.
- **Additional model scenarios.** In order to investigate questions regarding seasonally high demand during periods when State Water is unavailable, the model may be used to evaluate pumping schedules that vary by month, rather than assuming constant, annual pumping rates.

RECOMMENDATIONS

Based on the characterization work conducted, we recommend conducting these additional steps to further the development and permitting of IPR in the western project area:

1. Continue permitting activities for IPR injection at the Western project area. This will include site-specific investigations with respect to specific injection well locations injection testing, as well as development of the key sections of the Title 22 engineering report.
2. Run additional scenarios using the updated model to assess lower rate initial operational alternatives that could allow for longer retention times and more streamlined permitting.
3. Conduct geochemical analyses to assess potential water quality effects that could occur between the injected recycled water and the native sediments of the aquifer.
4. Continue with the quarterly water quality monitoring of key wells in the project area to characterize existing groundwater quality.

Figures

FIGURE 1

Morro Bay Hydrogeologic Characterization Project Areas

Characterization and Selection of Project Areas for Injection Testing

LEGEND

- City of Morro Bay Well
- Desalination ("Seawater") Well
- Potential Project Area
- Wastewater Treatment Plant
- Major Road
- Watercourse

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0 400 800
Feet

GSI Water Solutions, Inc.

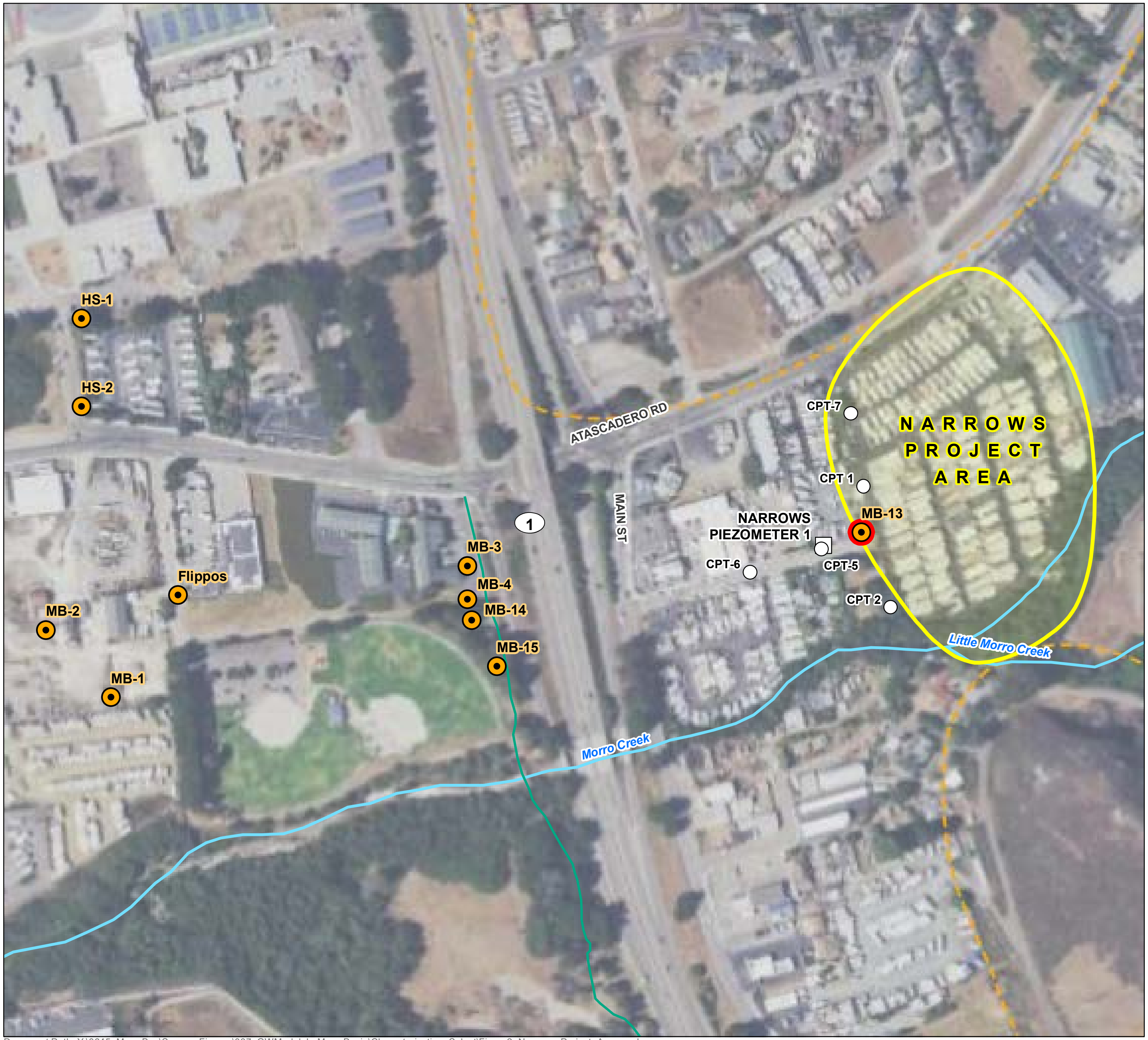
Date: June 18, 2020
Data Sources: NAIP Imagery, ESRI

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Characterization_Select\Figure1_Morro_Bay_Hydrogeologic_Characterization_Project_Areas.mxd

FIGURE 2

Narrows Project Area Map

Characterization and Selection of Project Areas for Injection Testing



LEGEND

- City of Morro Bay Well
- Pumping Test Well
- Piezometer
- CPT Location (2019)
- Bike Path
- Extent of Bedrock at
- Narrows Project Area, 10 Acres
- Watercourse

N

0 170 340
Feet

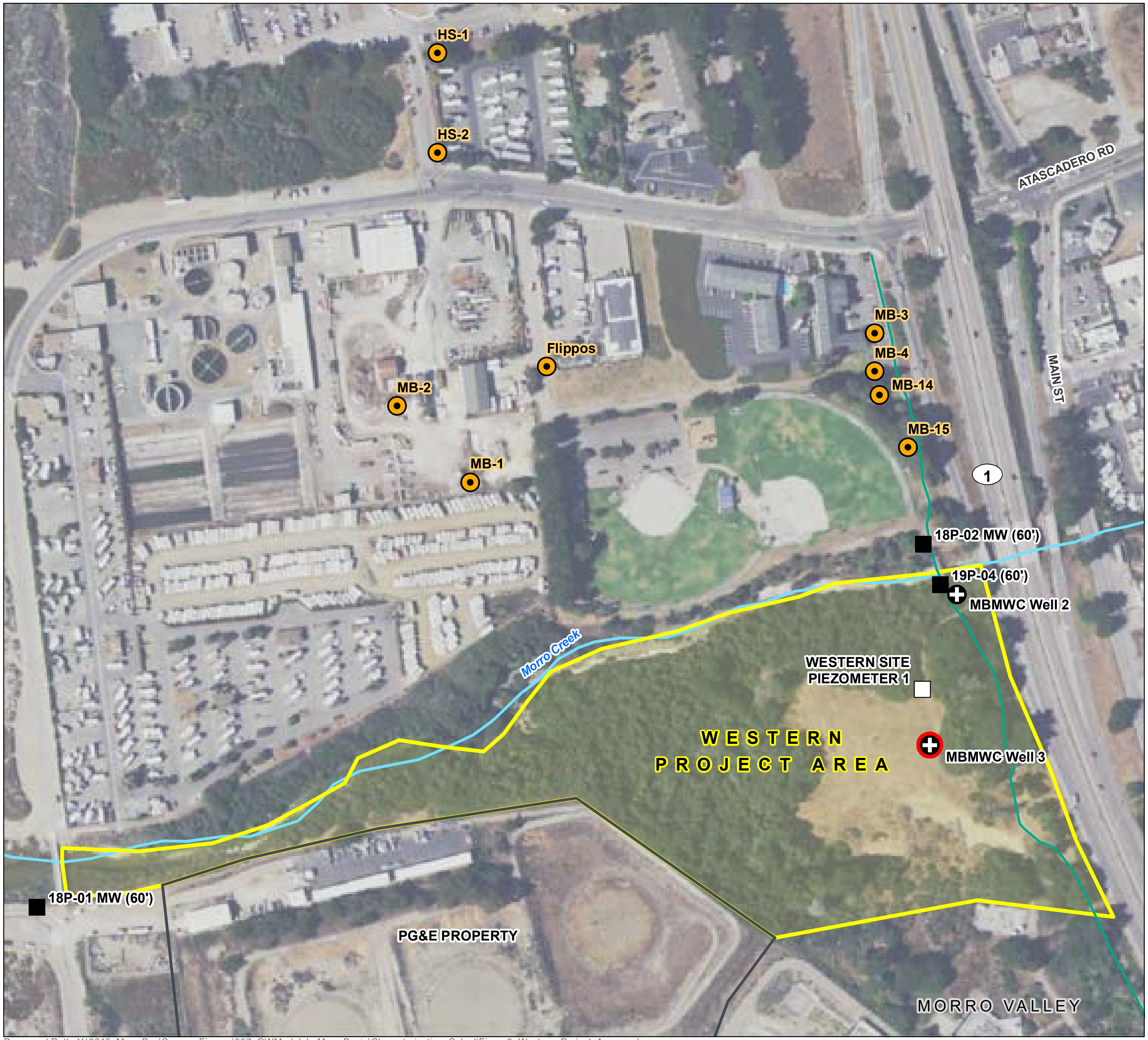
Date: June 19, 2020
Data Sources: NAIP Imagery, ESRI

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Characterization_Select\Figure2_Narrows_Project_Area.mxd

FIGURE 3

Western Project Area Map

Characterization and Selection of Project Areas for Injection Testing



LEGEND

- City of Morro Bay Well
- MBMWC Well
- Pumping Test Well
- Piezometer
- Yeh Piezometer
- Bike Path
- PG&E Property Boundary
- Western Project Area, 17 Acres
- Watercourse

NOTE

MBMWC: Morro Bay Mutual Water Company

N

0 150 300
Feet

GSI Water Solutions, Inc.

Date: June 18, 2020
Data Sources: NAIP Imagery, ESRI

FIGURE 4

Numerical Model Domain

Characterization and Selection of Project Areas for Injection Testing

LEGEND

- Potential Project Area
- Model Active Area
- Inactive Model Area
- Model Area Outline
- Major Road
- Watercourse

N

0 550 1,100
Feet

Date: June 18, 2020
Data Sources: NAIP Imagery, ESRI

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Characterization_Select\Figure4_Numerical_Model_Domain.mxd

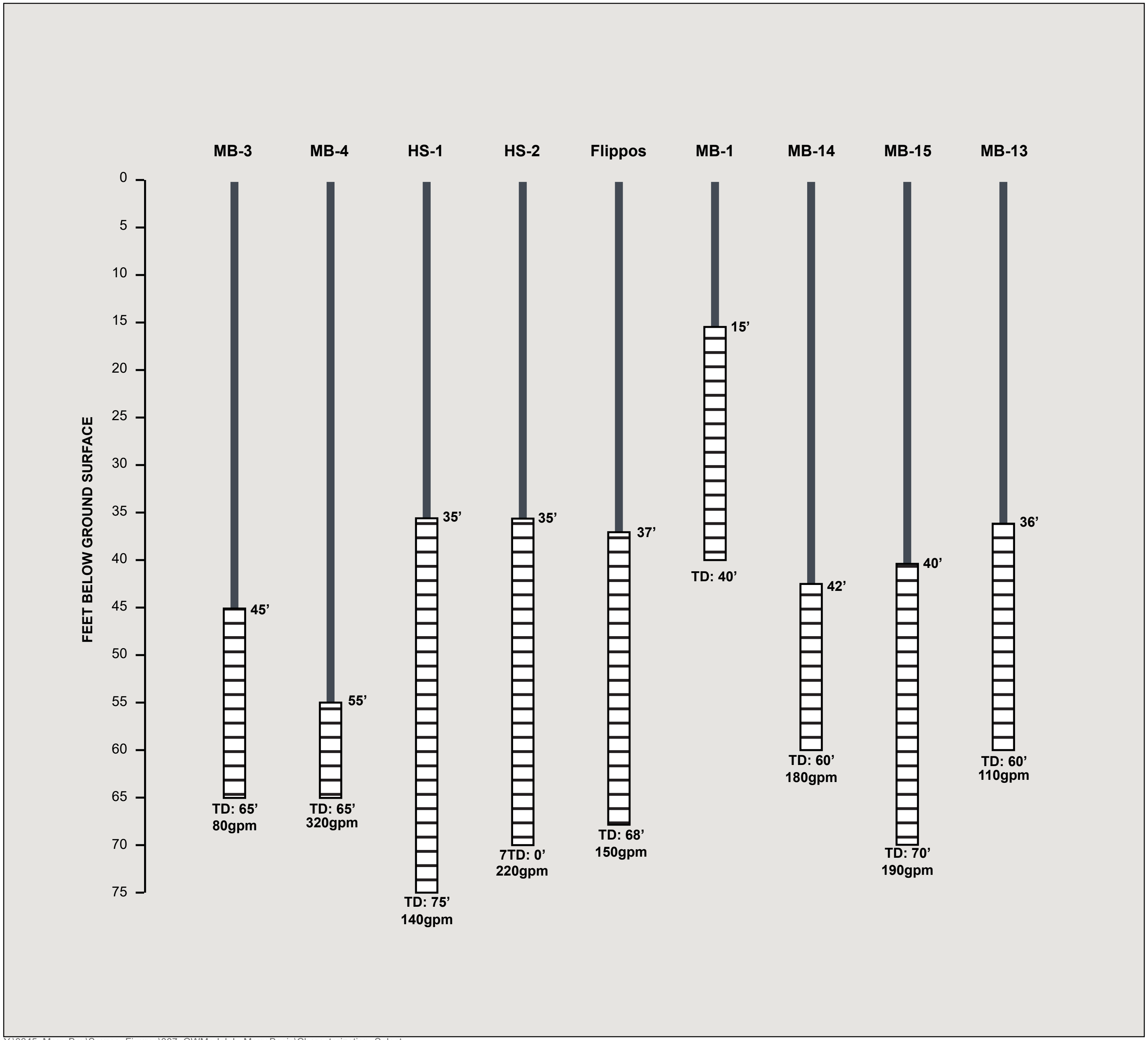


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FIGURE 5

City Well Construction Details

Characterization and Selection of Project Areas for Injection Testing

LEGEND

Well

Screened Interval

XX gpm Estimated Well Capacity

NOTES

Horizontal distance not to scale

gpm: gallons per minute

TD: total depth

Date: June 18, 2020

GSI Water Solutions, Inc.

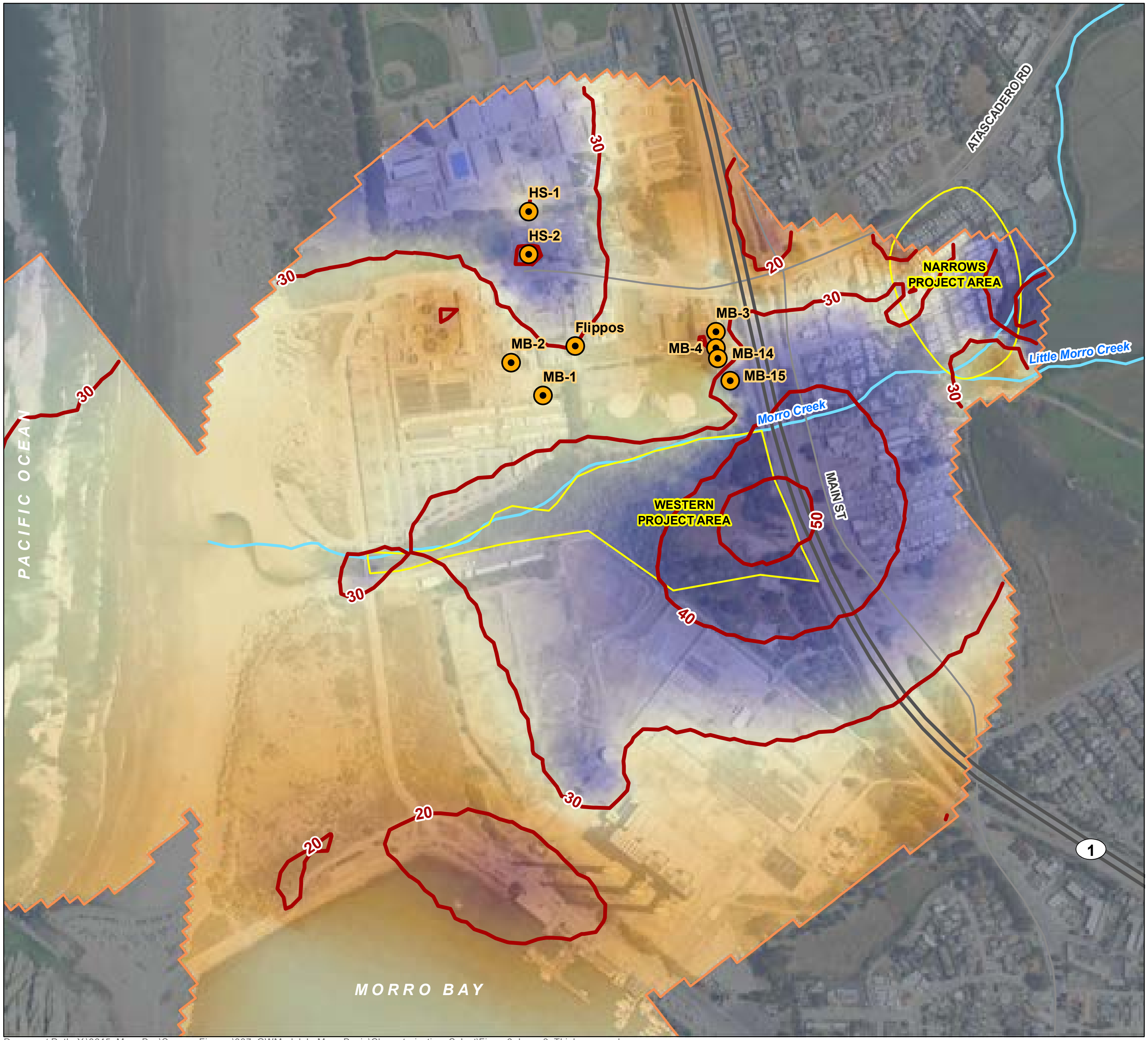


FIGURE 6

Model Thickness Contours

Characterization and Selection of Project Areas for Injection Testing

LEGEND

City of Morro Bay Well

Layer 3 Thickness Contour

Value

High : 56.56

Low : 13.9

Model Active Area

Potential Project Area

Major Road

Watercourse

NOTE

T: Transmissivity

gpd: gallons per day

N

0 350 700

Feet

Date: January 15, 2021

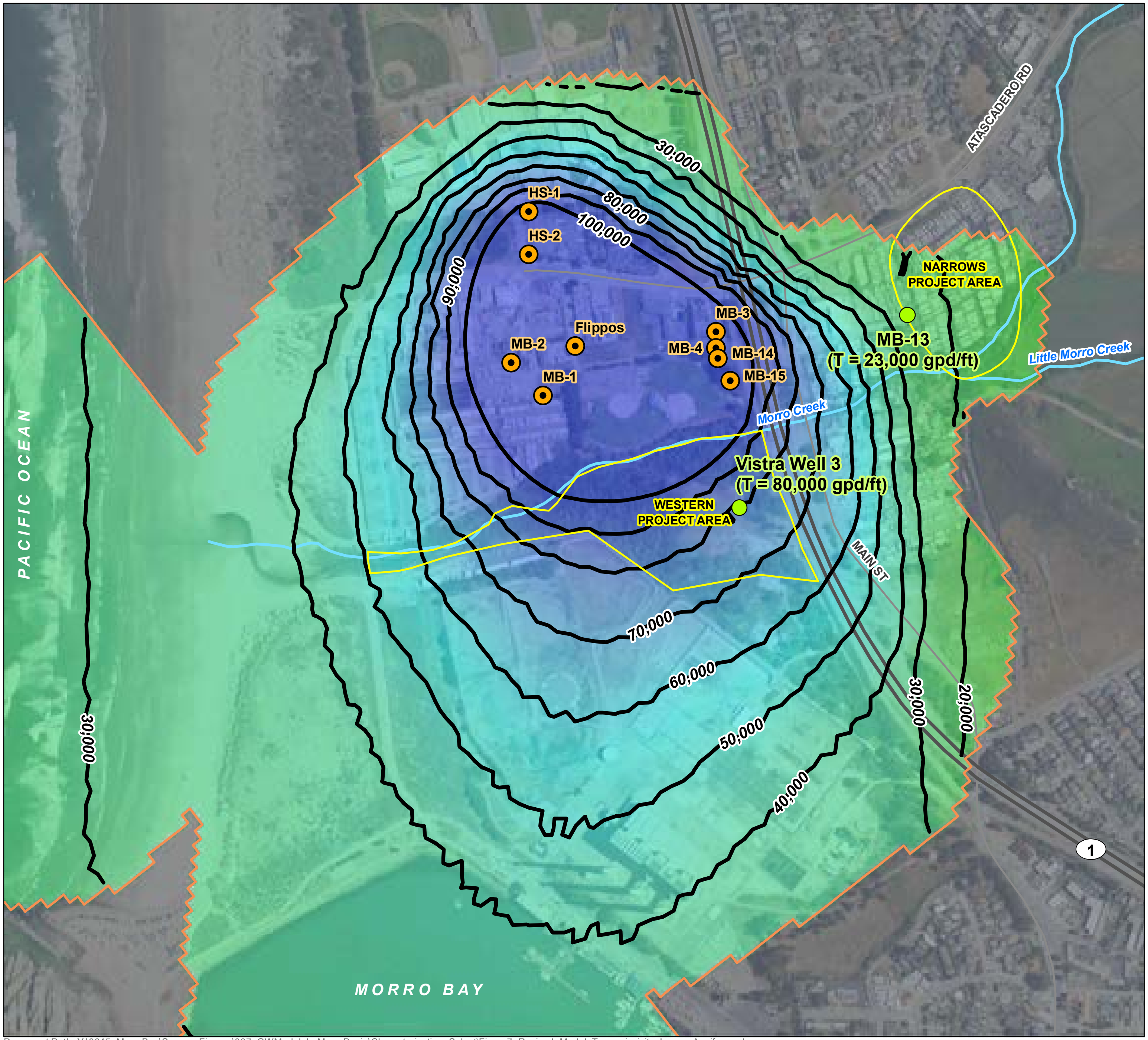
Data Sources: NAIP Imagery, ESRI

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Characterization_Select\Figure6_Layer3_Thickness.mxd

FIGURE 7

Revised Model Transmissivity for Lower Aquifer

Characterization and Selection of Project Areas for Injection Testing



LEGEND

- City of Morro Bay Well
- Aquifer Test Well
- Transmissivity (gpd/ft))

Transmissivity (gpd/ft)

High : 111550

Low : 10339

- Model Active Area
- Potential Project Area
- Major Road
- Watercourse

NOTE

T: Transmissivity

gpd: gallons per day

N

0 350 700

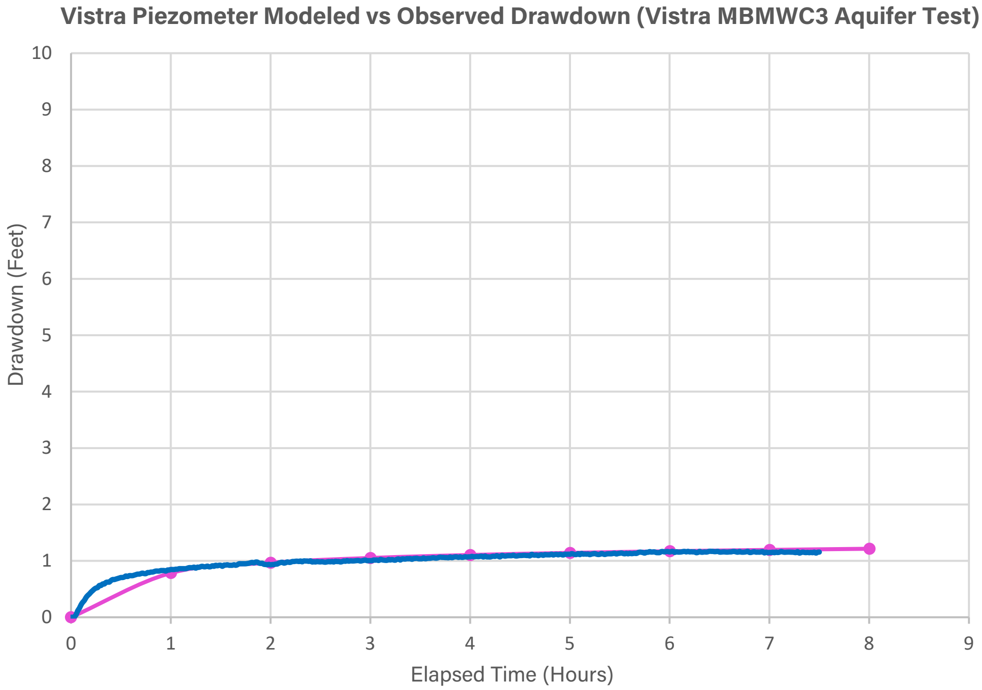
Feet

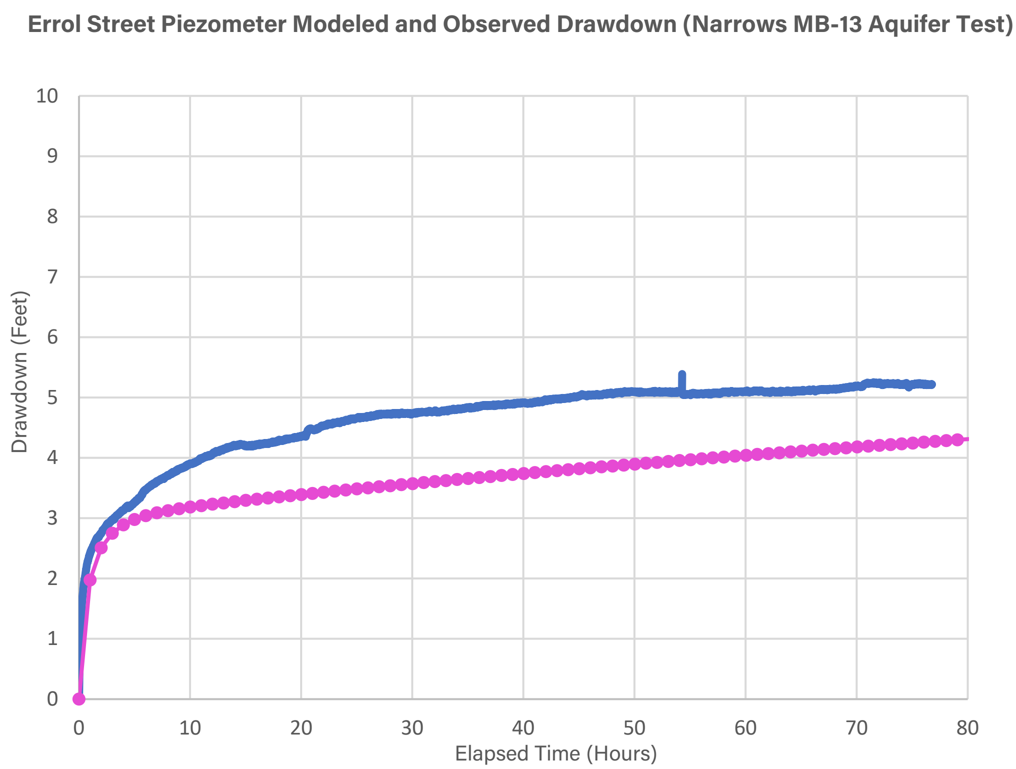
GSI Water Solutions, Inc.

Date: January 15, 2021

Data Sources: NAIP Imagery, ESRI

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Characterization_Select\Figure7_Revised_Model_Transmissivity_Lower_Aquifer.mxd





LEGEND

Observed Drawdown

Modeled Drawdown

FIGURE 8

Groundwater Model Calibration Runs – Aquifer Test Simulations

Characterization and Selection of Project Areas for Injection Testing

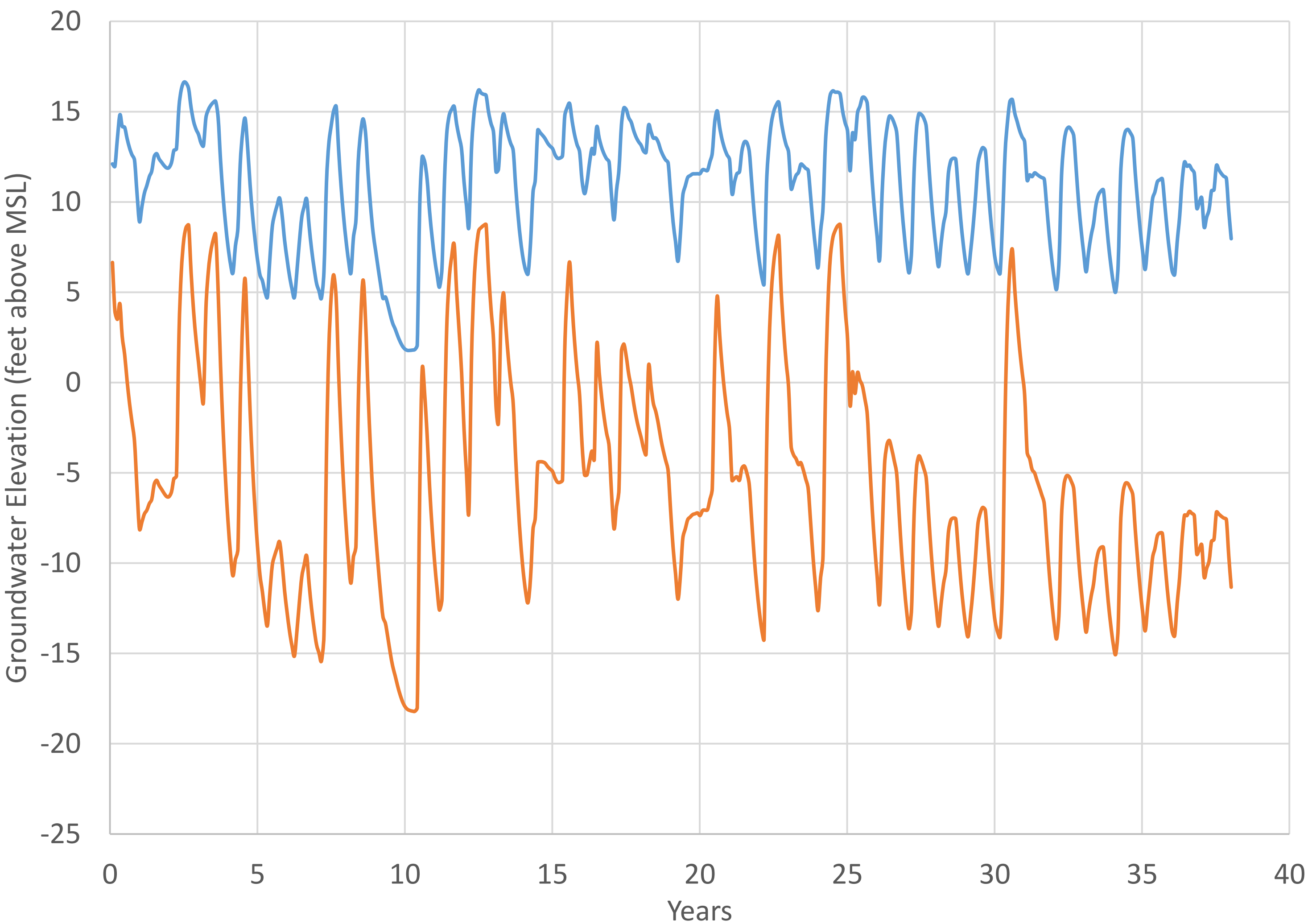


FIGURE 9

Well MB-3 Modeled Groundwater Elevations

Characterization and Selection of Project Areas for Injection Testing

LEGEND

No Pumping

Q = 581 AFY Constant

NOTES

Q: Pumping

AFY: Acre Feet per Year

MSL: Mean Sea Level

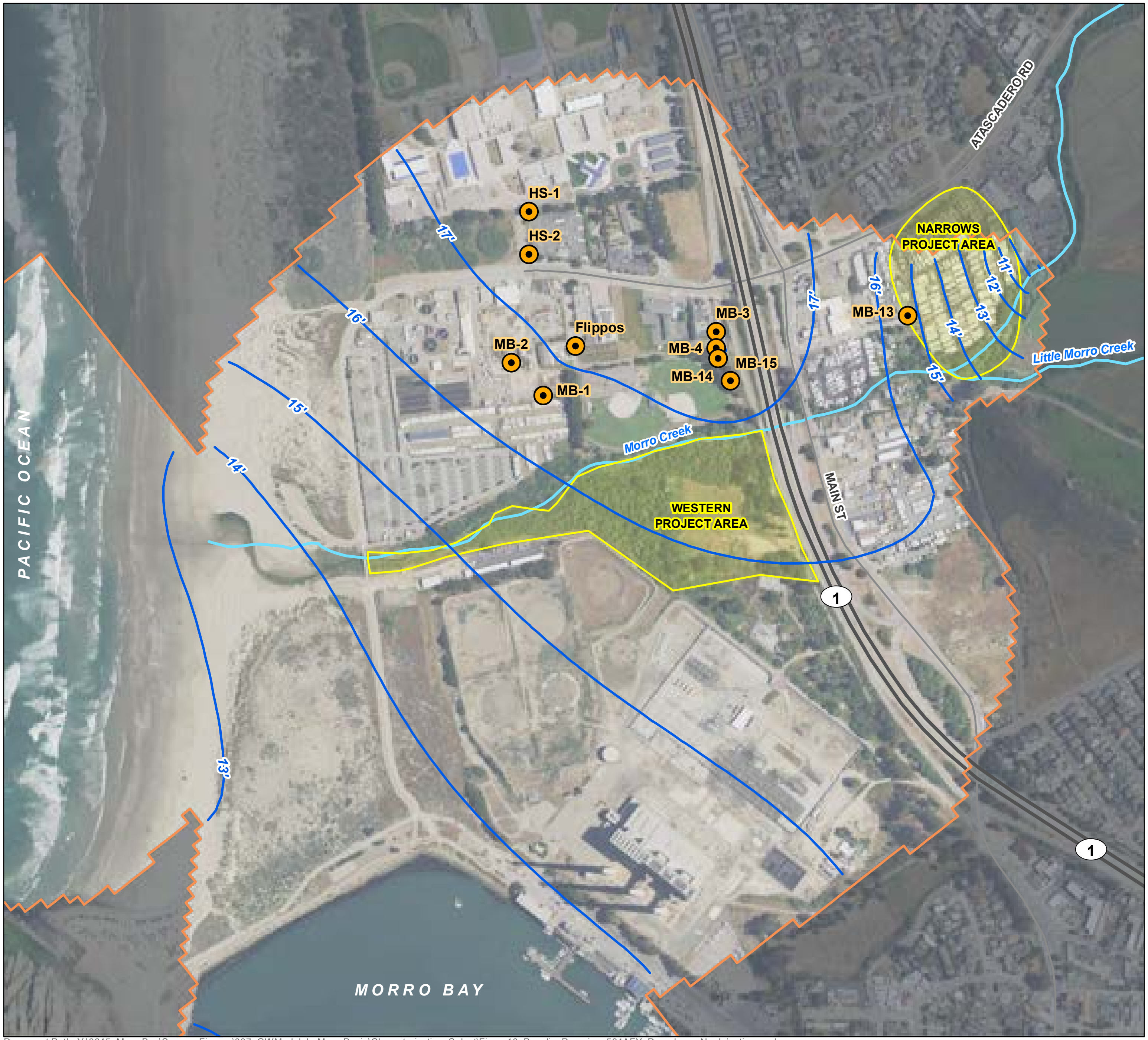
GSI Water Solutions, Inc.

Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Characterization_Select

FIGURE 10

Baseline Pumping (581 AFY)
Drawdown with No Injection
Average Conditions

Characterization and Selection of Project Areas for Injection Testing



LEGEND

- City of Morro Bay Well
- Drawdown (ft)
- Model Active Area
- Potential Project Area
- Major Road
- Watercourse

NOTE
AFY: Acre Feet per Year

N

0 350 700
Feet

Date: January 25, 2021
Data Sources: NAIP Imagery, ESRI

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Characterization_Select\Figure10_BaselinePumping_581AFY_Drawdown_No_Injection.mxd

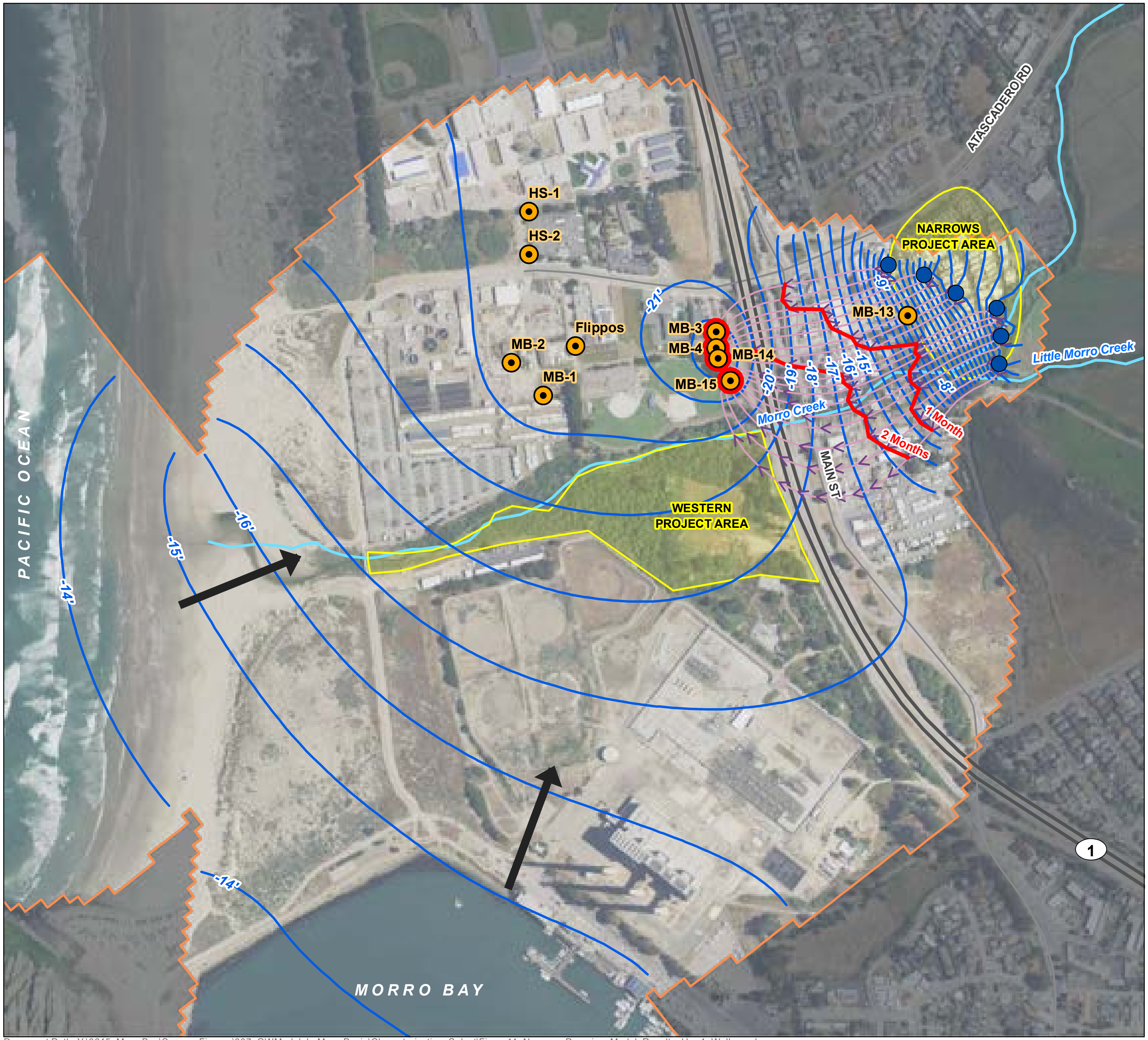


FIGURE 11

Narrows Project Area Model Results: Pumping = Baseline + 75% Injection (1,200 AFY), Highway 1 Wells Pumped Dry Conditions

Characterization and Selection of Project Areas for Injection Testing

LEGEND

- City of Morro Bay Well
- Pumping Well
- Injection Well
- Particle Track Arrow (1 mo.)
- Particle Track
- Month Indicator
- Groundwater Elevation Contour (ft)
- Groundwater Flow Direction
- Model Active Area
- Potential Project Area
- Major Road
- Watercourse

NOTE

AFY: Acre Feet per Year
Each travel time arrow along particle track represents 1 month.

N

0 350 700
Feet

Date: January 26, 2021
Data Sources: NAIP Imagery, ESRI

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Characterization_Select\Figure11_Narrows_Pumping_Model_Results_Hwy1_Wells.mxd

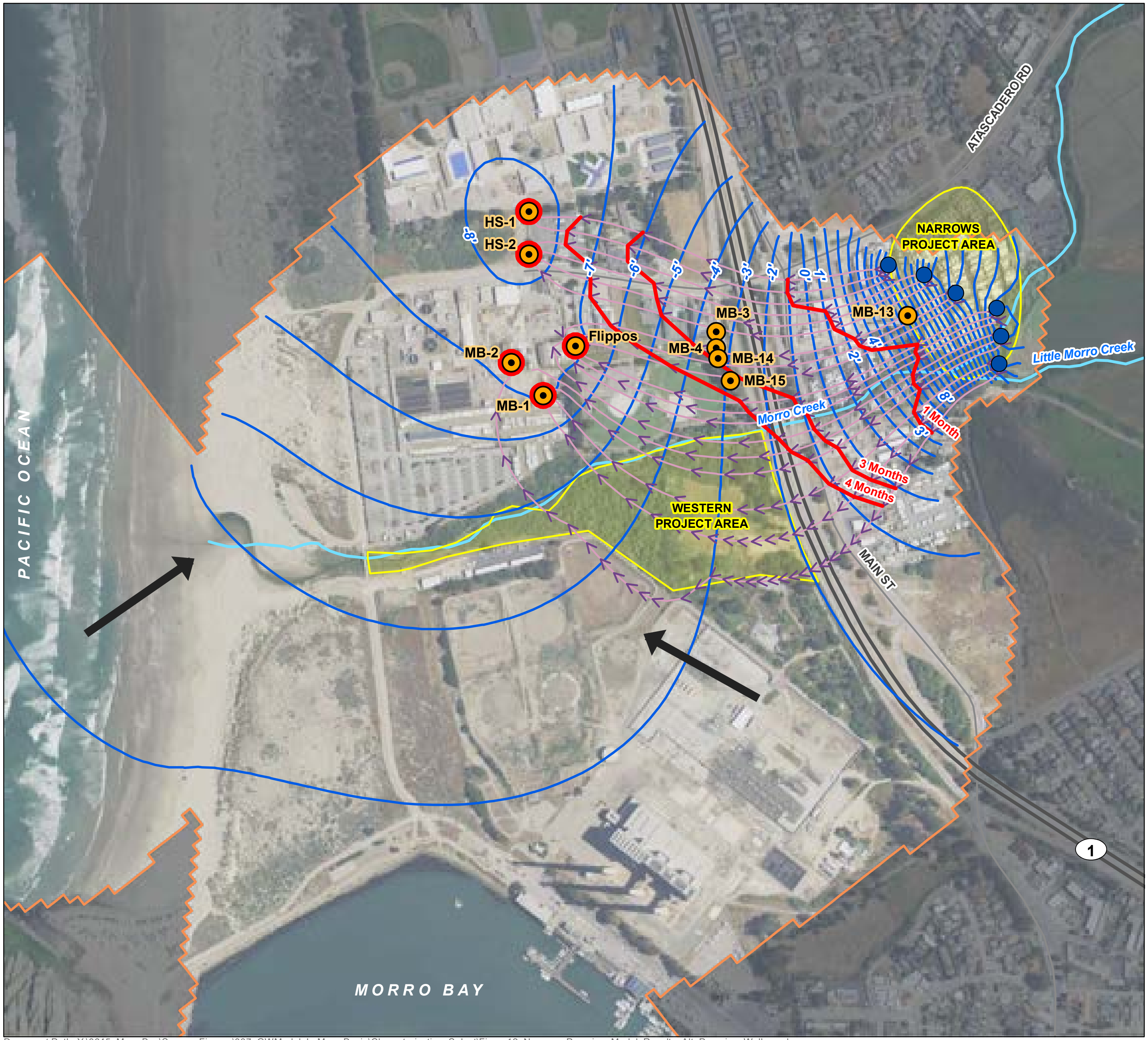


FIGURE 12

Narrows Project Area Model Results: Pumping = Baseline + 75% Injection (1,200 AFY), Alternative Pumping Wells Dry Conditions

Characterization and Selection of Project Areas for Injection Testing

LEGEND

- City of Morro Bay Well
- Pumping Well
- Injection Well
- Particle Track Arrow (1 mo.)
- Particle Track
- Month Indicator
- Groundwater Elevation Contour (ft)
- Groundwater Flow Direction
- Model Active Area
- Potential Project Area
- Major Road
- Watercourse

NOTE

AFY: Acre Feet per Year
Each travel time arrow along particle track represents 1 month.

N

0 350 700
Feet

GSI Water Solutions, Inc.

Date: January 26, 2021
Data Sources: NAIP Imagery, ESRI

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Characterization_Select\Figure12_Narrows_Pumping_Model_Results_Alt_Pumping_Wells.mxd

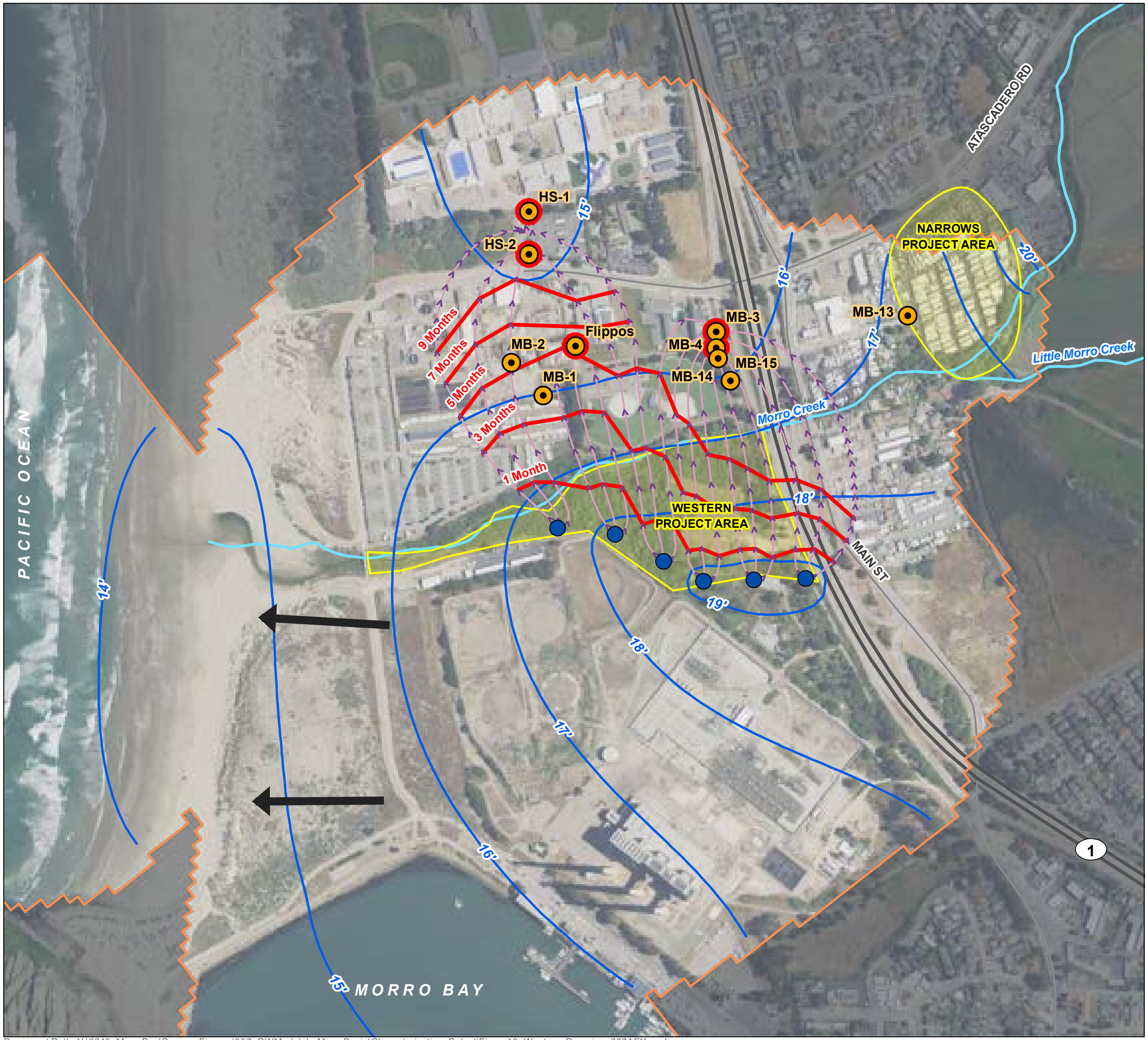


FIGURE 13

Western Project Area Model Results: Pumping = Baseline + 25% Injection (787 AFY) Dry Conditions

Characterization and Selection of Project Areas for Injection Testing

LEGEND

- City of Morro Bay Well
- Pumping Well
- Injection Well
- Particle Track Arrow (1 mo.)
- Particle Track
- Month Indicator
- Groundwater Elevation Contour (ft)
- Groundwater Flow Direction
- Model Active Area
- Potential Project Area
- Major Road
- Watercourse

NOTE

AFY: Acre Feet per Year
Each travel time arrow along particle track represents 1 month.

N

0 350 700
Feet

Date: January 26, 2021
Data Sources: NAIP Imagery, ESRI

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Characterization_Select\Figure13_Western_Pumping_787AFY.mxd

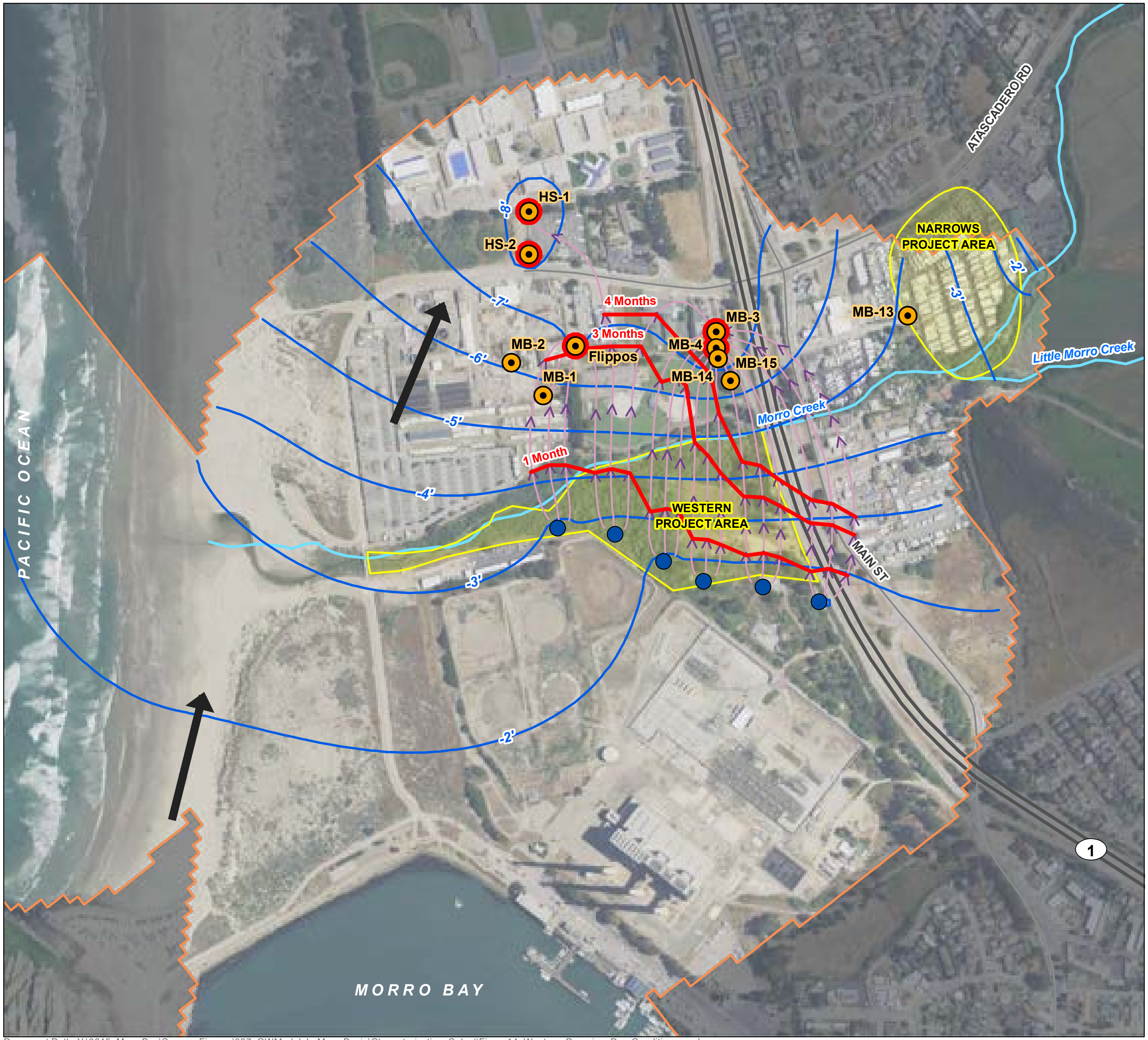


FIGURE 14

Western Project Area Model Results: Pumping = Baseline + 75% Injection (1,200 AFY) Dry Conditions

Characterization and Selection of Project Areas for Injection Testing

LEGEND

- City of Morro Bay Well
- Pumping Well
- Injection Well
- Particle Track Arrow (1 mo.)
- Particle Track
- Month Indicator
- Groundwater Elevation Contour (ft)
- Groundwater Flow Direction
- Model Active Area
- Potential Project Area
- Major Road
- Watercourse

NOTE

AFY: Acre Feet per Year
Each travel time arrow along particle track represents 1 month.

N

0 350 700
Feet

Date: January 25, 2021
Data Sources: NAIP Imagery, ESRI

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Characterization_Select\Figure14_Western_Pumping_Dry_Conditions.mxd

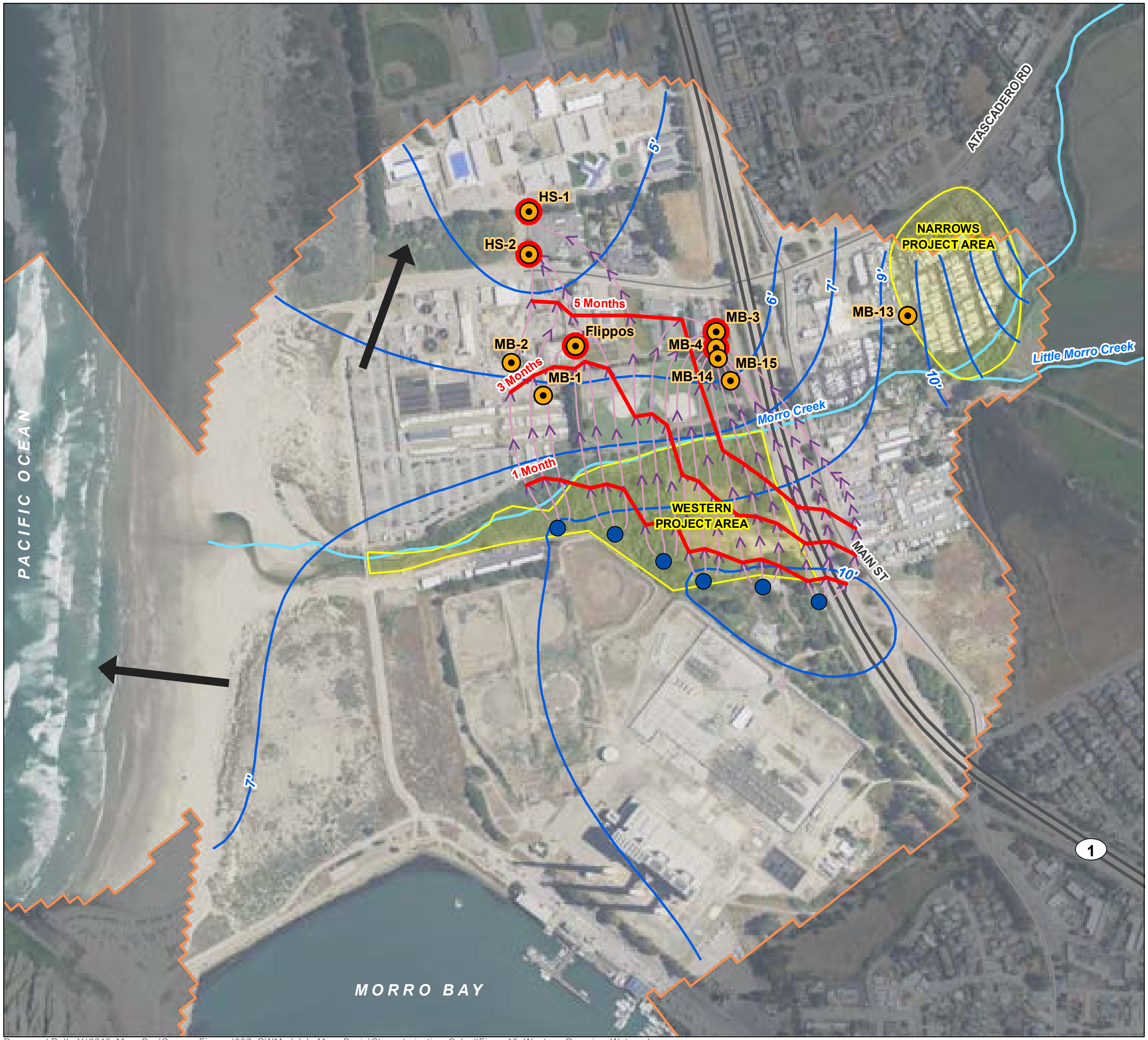


FIGURE 15

Western Project Area Model Results: Pumping = Baseline + 75% Injection (1,200 AFY) Wet Conditions

Characterization and Selection of Project Areas for Injection Testing

LEGEND

- City of Morro Bay Well
- Pumping Well
- Injection Well
- Particle Track Arrow (1 mo.)
- Particle Track
- Month Indicator
- Groundwater Elevation Contour (ft)
- Groundwater Flow Direction
- Model Active Area
- Potential Project Area
- Major Road
- Watercourse

NOTE

AFY: Acre Feet per Year
Each travel time arrow along particle track represents 1 month.

N

0 350 700
Feet

Date: January 25, 2021
Data Sources: NAIP Imagery, ESRI

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Characterization_Select\Figure15_Western_Pumping_Wet.mxd

Groundwater Modeling of IPR Phased Implementation Scenarios

To: Eric Casares, Paul Amico; Carollo Engineers

From: Dave O'Rourke, Tim Thompson, Tim Nicely; GSI Water Solutions, Inc.

Date: August 7, 2020

Background

As part of the City of Morro Bay's (City) desire to utilize highly treated recycled water to augment their water supplies, the construction of a new Water Reclamation Facility (WRF) is being planned to include the treatment of the recycled water to meet water quality standards that will allow for implementation of an indirect potable reuse (IPR) project utilizing dedicated injection wells. The site being considered for groundwater operations is the area of the Morro Valley Groundwater Basin between Highway 1 and the coast as shown on Figure 1.

To support this effort, groundwater modeling of various operational scenarios has been conducted. Previous modeling analyses have concluded that the IPR concept is feasible (GSI, 2017), that it would likely improve water quality of groundwater recovered from the City's production wells (GSI, 2019), and that the Western project site is preferable to the Narrows project site for the purpose of siting injection wells (GSI, 2020).

Objectives

This Technical Memo (TM) expands upon previous work and documents groundwater modeling results of two distinct efforts:

- Updating the groundwater model by incorporating recently gathered aquifer characteristics data from field investigations into the model;
- Performing groundwater modeling evaluations that simulate a phased approach to anticipated annual volumes of highly treated recycled water for injection and eventual recovery from the City's production wells. Three operational scenarios are modeled in which injection wells introduce treated water into the alluvial aquifer beneath Morro Bay groundwater basin at the Western project area, and groundwater is recovered from wells northwest of Atascadero Avenue. Injected water retention time, and effects on groundwater elevations as they relate to potential seawater intrusion, are discussed for each scenario.

Groundwater Model Background

The model was developed by GSI and documented in the report *Lower Morro Valley Basin Screening-Level Groundwater Modeling for Injection Feasibility* (GSI, 2017). The model was developed using MODFLOW, a publicly-available groundwater modeling code developed by the U.S. Geological Survey (USGS) that is considered an industry standard. Details of the model development are included that report. A brief summary is provided here.

The primary aquifer used by the City for water supply production consists of the alluvial sediments of the Lower Morro Valley Basin. The groundwater model represents the entire area of the Lower Morro Valley Basin between the Narrows and the coast (Figure 1).The Western project area is located in the central portion of the model domain, west of Highway 1 and immediately south of Morro Creek. The model is constructed of three layers:

- Layer 1 represents the ocean,
- Layer 2 represents finer materials such as silt and clay which are predominant at and near the land surface, and
- Layer 3 represents coarser materials such as sand and gravel present at depths ranging from 20 to 60 feet, and from which most of the production occurs.

Most of the City's groundwater production is from wells screened in the sand and gravel represented by Layer 3 of the model. The modeled grid cells have a uniform size of 50 feet by 50 feet. Morro Creek is simulated at the surface in Layer 2, which provides a significant portion of the recharge to the aquifer system within the modeled area. Other model boundary conditions include subsurface inflow through the Narrows, subsurface inflow/outflow to or from the Pacific Ocean, precipitation-based recharge over the model area, and recovery from City wells within the model area.

The model simulates the historical period from water years 1981 through 2018 using 456 monthly stress periods, with monthly transient (i.e., variable) boundary conditions based on observed hydrologic data including rainfall and stream flow. Thus, the model represents conditions of both climatic dry periods and wet periods. Water levels have been documented to differ significantly between wet and dry periods.

MODFLOW is used in combination with an associated software package MODPATH to evaluate groundwater flow patterns and retention times for the numerous scenarios. MODPATH is a USGS-developed particle-tracking code that functions in tandem with MODFLOW for the calculation of groundwater flow velocity and retention (i.e., travel) times.

Model Updates

The original model was developed using uniform values of thickness and transmissivity for Layer 3, the primary production zone. During the course of the hydrogeologic characterization investigation carried out over the past two years, significant additional data have been collected to better characterize the thickness of the productive zone at various locations and aquifer transmissivity at both the Narrows and the Western project sites being considered. The model has been updated using these new data to more accurately represent aquifer geometry and transmissivity in the model area.

The original model used a uniform value of 20 feet as the Layer 3 thickness. Figure 2 presents contours of thickness of Layer 3 incorporated into the current model. These thicknesses were derived from evaluation of boring logs and well construction data of previously existing and newly constructed (2019-2020) wells and piezometers, and data from cone penetrometer testing (CPT) collected in 2019.

The original model used a uniform value of about 100,000 gpd/ft as the Layer 3 transmissivity. Figure 3 presents contours of aquifer transmissivity for Layer 3, based on aquifer testing performed on the City's production wells (GS1, 2016) and wells installed at the Narrows and the Western project areas for the current project (GSI, 2020). Transmissivity values calculated from aquifer testing were honored at the locations of the tests, and transmissivity in the aquifer was contoured through the rest of the model using the results of the available aquifer tests. Therefore, the model update incorporates variability into the model's representation of the aquifer that is consistent with the variability observed in the newly developed field data.

Model Scenarios

This memorandum presents the groundwater modeling results for three distinct scenarios:

1. Scenario 1A - 400 acre-feet/year (AFY) of highly treated wastewater recharged to the aquifer using four injection wells (Inj-1 through Inj-4) at the Western project area, and 400 AFY recovered from wells HS-1 and HS-2 at Morro Bay High School (Figures 4 and 5).
2. Scenario 1B - 600 acre-feet/year (AFY) of highly treated wastewater recharged to the aquifer using four injection wells (Inj-1 through Inj-4) at the Western project area, and 600 AFY recovered from wells HS-1 and HS-2 at Morro Bay High School, as well as an additional new modeled recovery well (New Well-1) located along Atascadero Road in City easement fronting a vacant lot (Figures 6 and 7).
3. Scenario 1C - 400 acre-feet/year (AFY) of highly treated wastewater recharged to the aquifer using four injection wells (Inj-1 through Inj-4) at the Western project area, and 600 AFY recovered from wells at Morro Bay High School (Figures 8 and,9).

The location of the injection wells for all three scenarios is in the Western project area south of Morro Creek. Existing wells at Morro Bay High School (HS-1 and HS-2) are the well locations used to represent recovery wells; a hypothetical new well (New Well-1) was used for Scenarios 2 and 3, located on the easement fronting the vacant lot at the northwest corner of Highway 1 southbound exit ramp and Atascadero Avenue. Pumping details for each of the three modeled scenarios are summarized in Table 1.

For each scenario, MODFLOW was used to model water levels, and MODPATH was used to evaluate the travel paths and residence times for water recharged at the injection wells and recovered at the City's wells. For each scenario, conditions during both dry and wet periods were evaluated to better understandthe effects of variable water levels observed during different rainfall conditions (wet periods vs. dry periods) in the aquifer system.

Scenario 1A

In Scenario 1A, 4 wells are used to model the injection of recycled water into the lower aquifer in the Western Project area, and two wells (HS-1 and HS-2) are used to simulate groundwater pumping. Total annual volumes of both injection and recovery in this scenario are 400 AFY. This equates to 62 gpm/well in each of the four the injection wells, and 124 gpm/well in each of the two recovery wells.

Figure 4 presents the modeling results for Scenario 1A during a representative dry period (stress period 110 in the model time series, equivalent to Fall 1989). In all the following figures, the blue contours represent groundwater elevations (feet mean sea level) and the red lines indicate groundwater travel paths, with the distance between arrows representing the distance that the injected water travels through the aquifer in one month.

Figure 4 indicates a maximum groundwater elevation of over 9 feet near the injection wells, and less than 6 feet at the recovery wells. Groundwater flows from the injection wells radially toward the High School wells and toward the coast. Groundwater elevations and flow gradients near the coast do not indicate a clear barrier to potential seawater intrusion.

MODPATH results displayed in Figure 4 show the most direct flow path (shortest duration) from the injection wells to the recovery wells in this scenario indicates a retention time of over 10 months.

Figure 5 presents the modeling results for Scenario 1A during a representative wet period (stress period 212 in the model time series, equivalent to Spring 1998). Figure 5 indicates a maximum groundwater elevation of over 18 feet near the injection wells, and less than 15 feet at the recovery wells. (Land surface elevation in this area is about 20 feet MSL). Groundwater flows radially in two directions from the injection wells. One flow path is toward the High School wells, and the second direction is toward the coast. Groundwater elevations and flow gradients near the coast indicate a barrier to potential seawater intrusion.

MODPATH results displayed in Figure 5 show the most direct flow path from the injection wells to the recovery wells in this scenario indicates a residence time of over 14 months.

Scenario 1B

In Scenario 1B, the same 4 wells are used to inject recycled water into the lower aquifer in the Western Project area, and three wells (HS-1, HS-2, and New Well-1) are used to recover groundwater. Total annual volumes of both injection and recovery in this scenario are 600 AFY. This equates to 93 gpm/well in each of the four the injection wells, and 124 gpm/well in each of the three recovery wells.

Figure 6 presents the modeling results for Scenario 1B during the representative dry period. Figure 6 indicates a maximum groundwater elevation of 9-10 feet near the injection wells, and less than 6 feet at the recovery wells. Groundwater flow direction maintains a gradient toward the coast on the south side of Morro Creek, which would mitigate against possible seawater intrusion in this area. Flow directions north of Morro Creek indicate the possibility of flow from the coast toward the High School wells in this scenario, which could result in conditions favorable to seawater intrusion if maintained over a long enough period of time.

MODPATH results displayed in Figure 6 show the most direct flow path from the injection wells to the recovery wells in this scenario indicates a minimum retention time of over 7 months.

Figure 7 presents the modeling results for Scenario 1B during the representative wet period. Figure 7 indicates a maximum groundwater elevation of about 18 feet near the injection wells (land surface elevation in this area is about 20 feet), and less than 14 feet at the recovery wells. Groundwater flow direction maintains a gradient toward the coast on the south side of Morro Creek, which would mitigate against possible sea water intrusion in this area. Flow directions north of Morro Creek indicate the possibility of flow from the coast toward the High School wells in this scenario, which could result conditions favorable to seawater intrusion if maintained over a long enough period of time.

MODPATH results displayed in Figure 7 show the most direct flow path from the injection wells to the recovery wells in this scenario indicates a retention time of over 8 months.

Scenario 1C

In Scenario 1C, the same 4 wells are used to inject water into the lower aquifer in the Western Project area, and three wells (HS-1, HS-2, and New Well-1) are used to recover groundwater. In this scenario, total annual volumes of injection are 400 AFY, and total volume of recovery is 600 AFY. This equates to 62 gpm/well in each of the four the injection wells, and 124 gpm/well in each of the three recovery wells.

Figure 8 presents the modeling results for Scenario 1C during the representative dry period. Figure 8 indicates a maximum groundwater elevation of 1-2 feet above MSL near the injection wells, and 1-2 feet below MSL at the recovery wells. Figure 8 does not represent a clear groundwater flow direction toward the coast, which could allow potential seawater intrusion in this area if these conditions are maintained for an extended period of time.

MODPATH results displayed in Figure 8 show the most direct flow path from the injection wells to the recovery wells in this scenario indicates a retention time of over 7 months.

Figure 9 presents the modeling results for Scenario 1C during the representative wet period. Figure 9 indicates a maximum groundwater elevation of 14 above MSL feet near the injection wells, and 10-11 feet above MSL at the recovery wells. Groundwater flow direction maintains a gradient toward the coast on the south side of Morro Creek, which would mitigate against possible seawater intrusion in this area. Flow directions north of Morro Creek indicate the possibility of flow from the coast toward the High School wells in this scenario, which could result conditions favorable to seawater intrusion if maintained over an extended period of time.

MODPATH results displayed in Figure 9 show the most direct flow path from the injection wells to the recovery wells in this scenario indicates a retention time of over 9 months.

Summary of Results

Three model scenarios were simulated which represent phased volumes of injection and recovery (i.e., volumes less than the anticipated full buildout volumes) for the City's IPR project. Annual volumes of injection and recovery ranged from 400 to 600 AFY. Injection well locations were kept fixed for the three scenarios with four locations identified along the southern edge of the Western project site. The High School wells, and one proposed new well location were used for recovery wells. Results were evaluated for both wet and dry climatic conditions.

A summary of scenario pumping assignments and resulting minimum retention times for each scenario are presented in Table 1. Retention times were always longer during the wet period than the dry periods. Minimum retention times ranged from 7 months in the dry season evaluations of Scenarios 1B and 1C to 14 months for the wet season evaluation of Scenario 1A.

Table 1 – Model Scenario Pumping and Retention Time Summary

Model Run	Climatic Conditions	Minimum Retention Time (months)	Total Injection (AFY)	Total Pumping (AFY)	Pumping Wells		
					HS-1	HS-2	New Well #1*
Run1A	Dry	10	400	400	180	220	
	Wet	14	400	400	180	220	
Run1B	Dry	7	600	600	180	220	200
	Wet	8	600	600	180	220	200
Run1C	Dry	7	400	600	180	220	200
	Wet	9	400	600	180	220	200

References

Lower Morro Valley Basin Screening-Level Groundwater Modeling for Injection Feasibility (GSI, 2017)

Technical Memo: Morro Bay Water Reclamation Facility Groundwater Modeling (GSI, 2019)

Characterization and Selection of Project Area for Injection Testing, City of Morro Bay (GSI, 2020)

List of Figures

Figures

FIGURE 1

Site Vicinity

Western Project Area
Phased Implementation
Scenarios

LEGEND

- City of Morro Bay Well
- Desalination ("Seawater") Well
- Western Project Area
- Wastewater Treatment Plant
- Major Road
- Watercourse

N

0 400 800
Feet

Date: August 6, 2020
Data Sources: NAIP Imagery, ESRI

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\2020_TechMemo\Figure1_SiteVicinity.mxd

FIGURE 2

Updated Model Layer 3 Aquifer Thickness

Western Project Area
Phased Implementation Scenarios

LEGEND

- City of Morro Bay Well
- Model Thickness (ft)
- Western Project Area
- Wastewater Treatment Plant
- Model Active Area
- Major Road
- Watercourse

N

0 500 1,000
Feet

Date: August 6, 2020
Data Sources: NAIP Imagery, ESRI

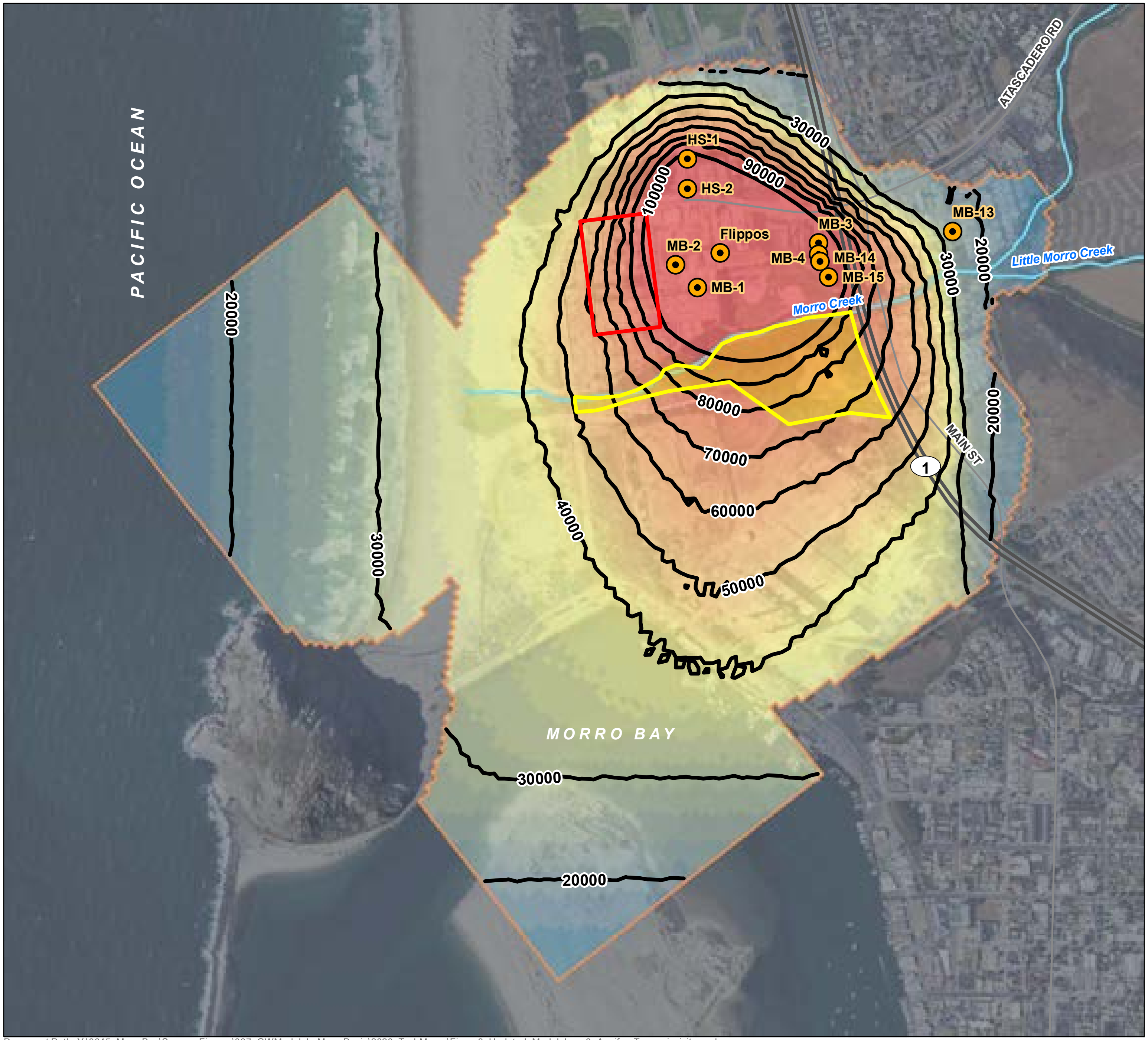
GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\2020_TechMemo\Figure2_Updated_Model_layer3_Aquifer_Thickness.mxd

FIGURE 3

Updated Model Layer 3 Aquifer Transmissivity

Western Project Area
Phased Implementation
Scenarios



LEGEND

- City of Morro Bay Well
- Transmissivity
- Western Project Area
- Model Active Area
- Wastewater Treatment Plant
- Major Road
- Watercourse

N

0 500 1,000
Feet

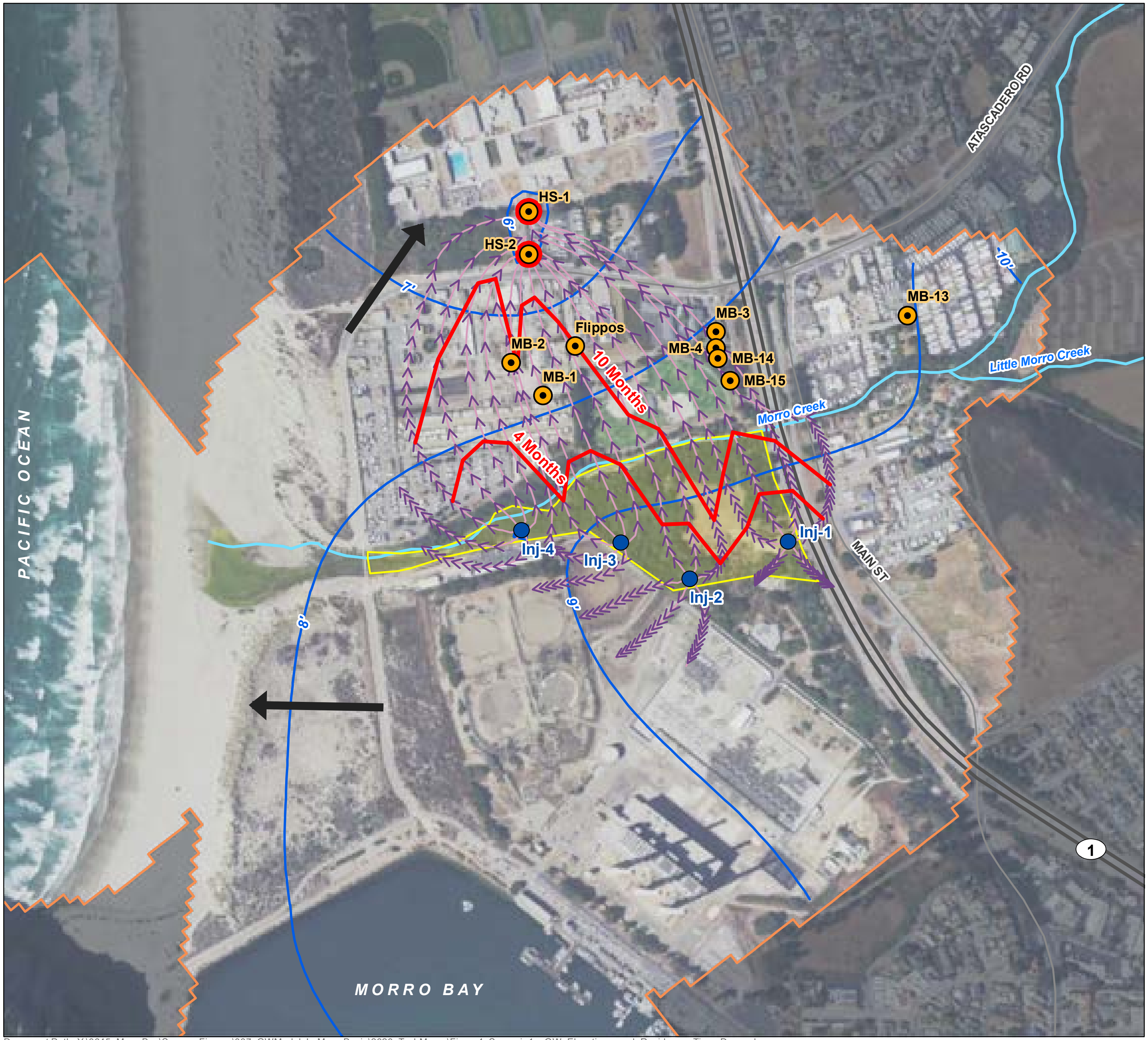
Date: August 6, 2020
Data Sources: NAIP Imagery, ESRI

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\2020_TechMemo\Figure3_Updated_Model_layer3_Aquifer_Transmissivity.mxd

FIGURE 4

Scenario 1A: Groundwater Elevations and Retention Time, Dry Conditions

Western Project Area
Phased Implementation
Scenarios



LEGEND

- City of Morro Bay Well
- Pumping Well
- Injection Well
- Particle Track Arrow (1 mo.)
- Particle Track
- Month Indicator
- Groundwater Elevation Contour (ft)
- Groundwater Flow Direction
- Western Project Area
- Model Active Area
- Major Road
- Watercourse

NOTE
AFY: Acre Feet per Year
Each travel time arrow along particle track represents 1 month.

N

0 350 700
Feet

GSI Water Solutions, Inc.

Date: August 6, 2020
Data Sources: NAIP Imagery, ESRI

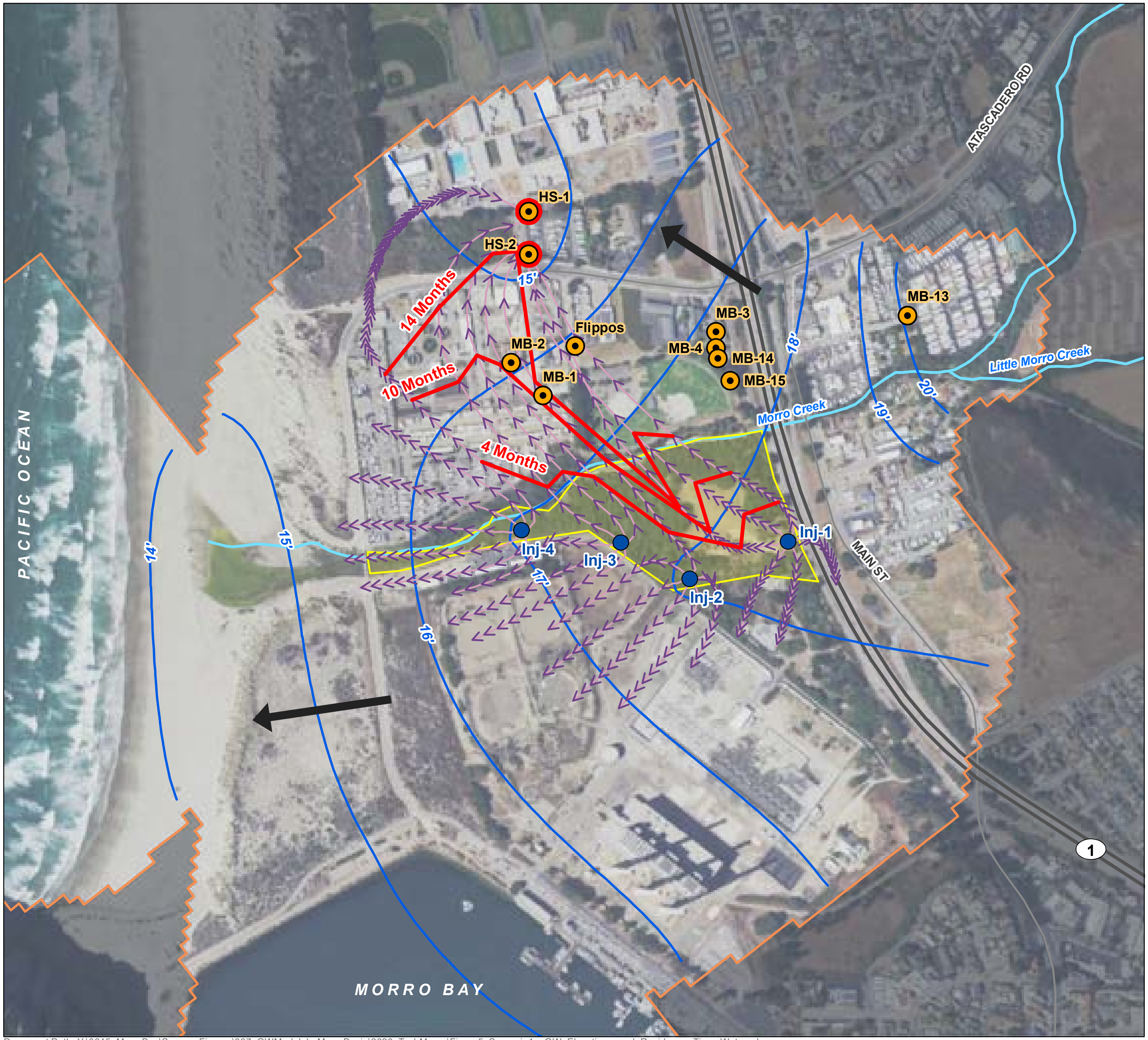


FIGURE 5

Scenario 1A: Groundwater Elevations and Retention Time, Wet Conditions

Western Project Area
Phased Implementation
Scenarios

LEGEND

- City of Morro Bay Well
- Pumping Well
- Injection Well
- Particle Track Arrow (1 mo.)
- Particle Track
- Month Indicator
- Groundwater Elevation Contour (ft)
- Groundwater Flow Direction
- Model Active Area
- Major Road
- Watercourse

NOTE

AFY: Acre Feet per Year
Each travel time arrow along particle track represents 1 month.

N

0 350 700
Feet

GSI Water Solutions, Inc.

Date: August 6, 2020
Data Sources: NAIP Imagery, ESRI

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\2020_TechMemo\Figure5_Scenario1a_GW_Elevations_and_Residence_Time_Wet.mxd

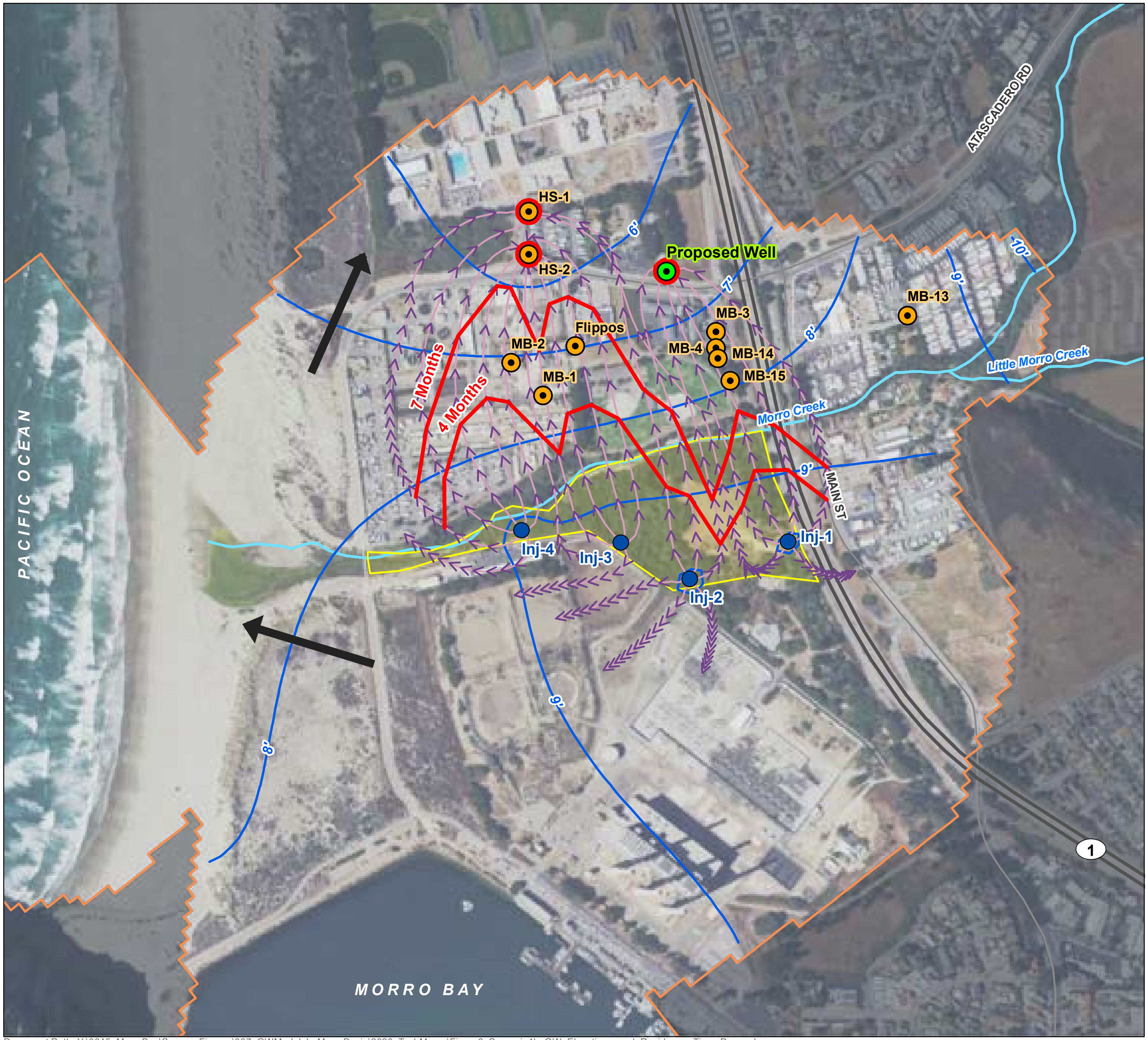


FIGURE 6

Scenario 1B: Groundwater Elevations and Retention Time, Dry Conditions

Western Project Area
Phased Implementation
Scenarios

LEGEND

- City of Morro Bay Well
- Proposed Well
- Pumping Well
- Injection Well
- Particle Track Arrow (1 mo.)
- Particle Track
- Month Indicator
- Groundwater Elevation Contour (ft)
- Groundwater Flow Direction
- Western Site Project Area
- Model Active Area
- Major Road
- Watercourse

NOTE

AFY: Acre Feet per Year
Each travel time arrow along particle track represents 1 month.

N

0 350 700
Feet

Date: August 6, 2020
Data Sources: NAIP Imagery, ESRI

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\2020_TechMemo\Figure6_Scenario1b_GW_Elevations_and_Residence_Time_Dry.mxd

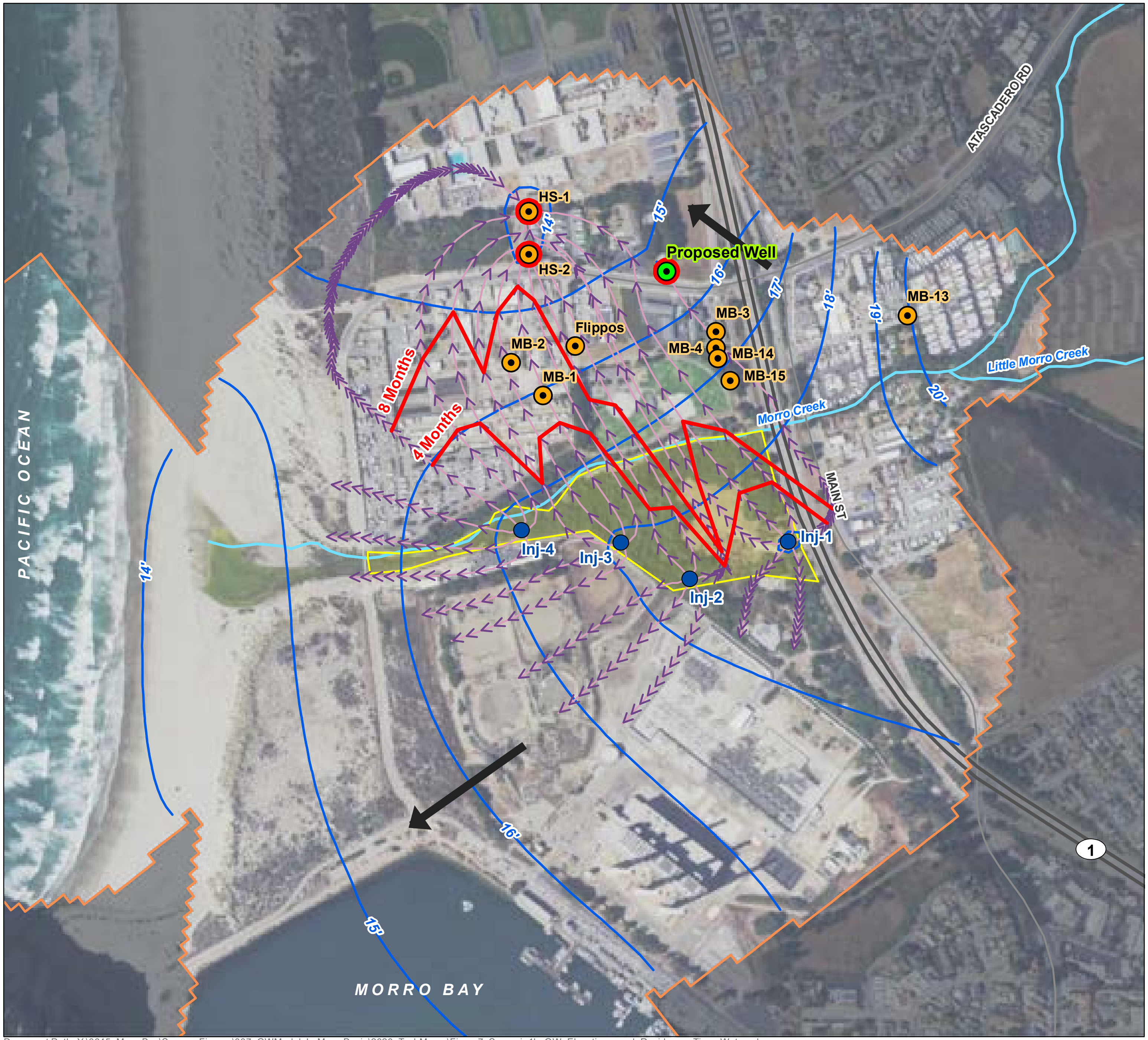


FIGURE 7

Scenario 1B:
Groundwater Elevations and Retention Time, Wet Conditions

Western Project Area
Phased Implementation
Scenarios

LEGEND

- City of Morro Bay Well
- Proposed Well
- Pumping Well
- Injection Well
- Particle Track Arrow (1 mo.)
- Particle Track
- Month Indicator
- Groundwater Elevation Contour (ft)
- Groundwater Flow Direction
- Western Project Area
- Model Active Area
- Major Road
- Watercourse

NOTE
AFY: Acre Feet per Year
Each travel time arrow along particle track represents 1 month.

N

0 350 700
Feet

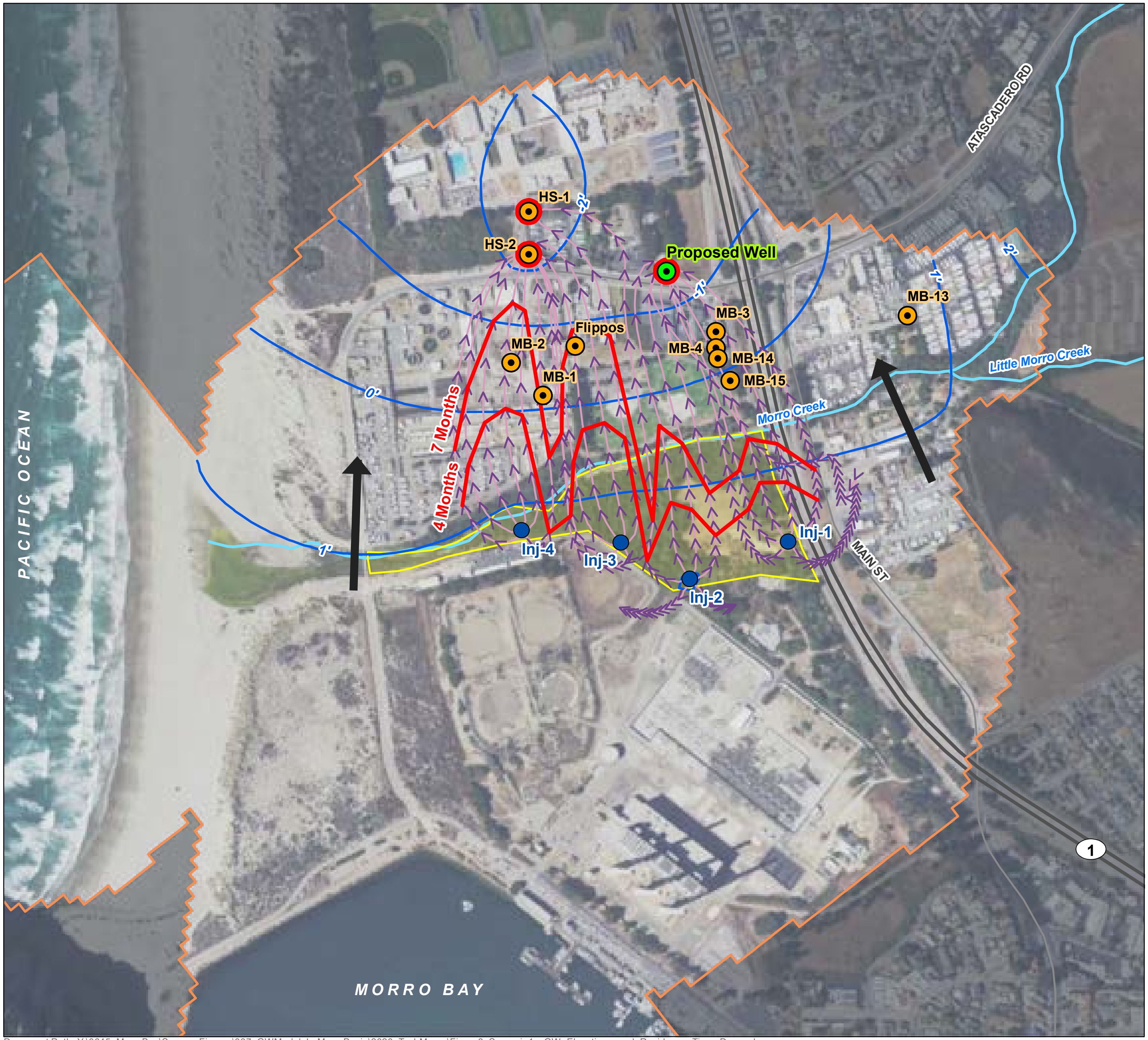
Date: August 6, 2020
Data Sources: NAIP Imagery, ESRI

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\2020_TechMemo\Figure7_Scenario1b_GW_Elevations_and_Residence_Time_Wet.mxd

FIGURE 8

Scenario 1C: Groundwater Elevations and Retention Time, Dry Conditions

Western Project Area
Phased Implementation
Scenarios



LEGEND

- City of Morro Bay Well
- Proposed Well
- Pumping Well
- Injection Well
- Particle Track Arrow (1 mo.)
- Particle Track
- Month Indicator
- Groundwater Elevation Contour (ft)
- Groundwater Flow Direction
- Western Project Area
- Model Active Area
- Major Road
- Watercourse

NOTE
AFY: Acre Feet per Year
Each travel time arrow along particle track represents 1 month.

N

0 350 700
Feet

Date: August 6, 2020
Data Sources: NAIP Imagery, ESRI

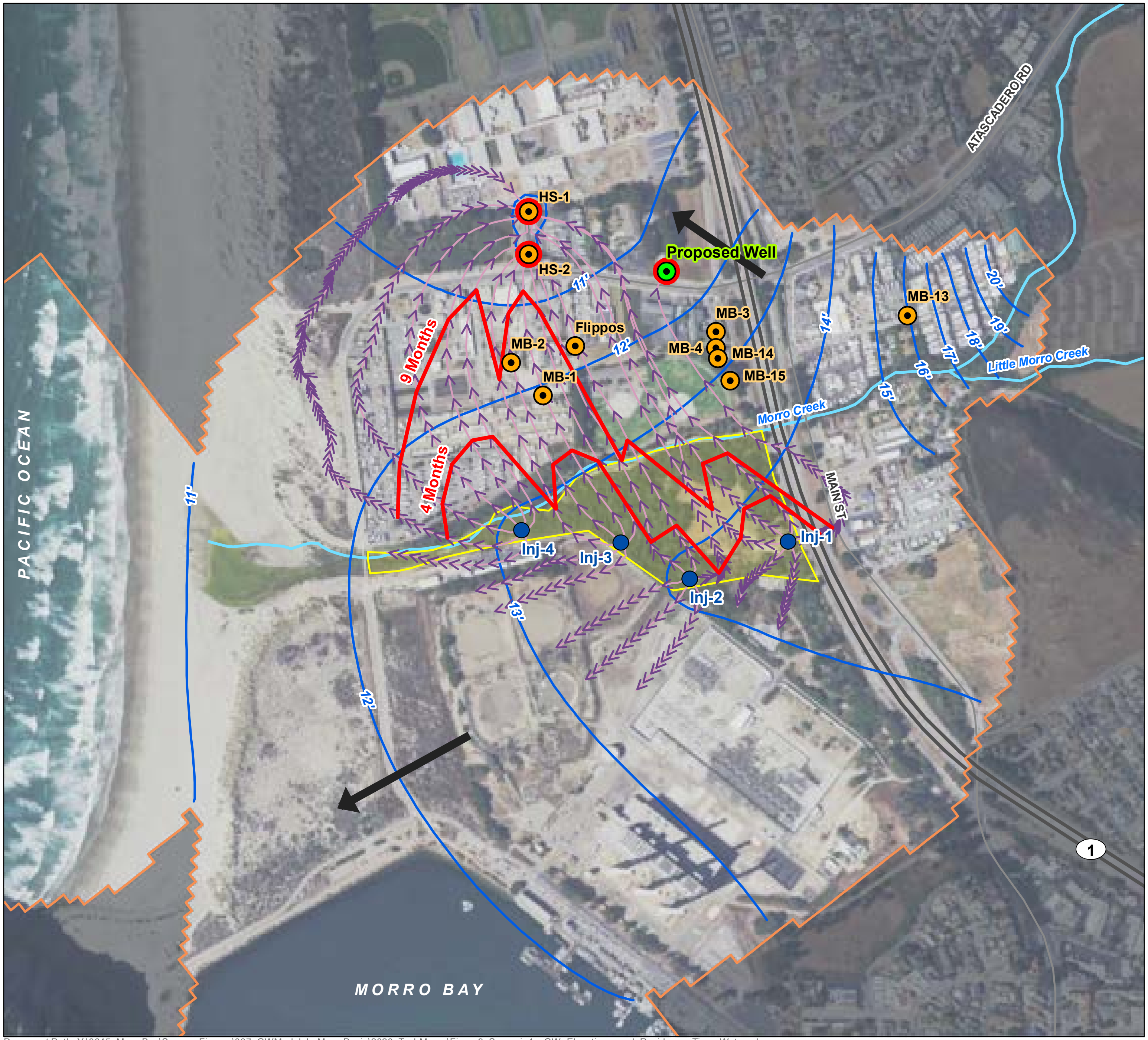
GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\2020_TechMemo\Figure8_Scenario1c_GW_Elevations_and_Residence_Time_Dry.mxd

FIGURE 9

Scenario 1C: Groundwater Elevations and Retention Time, Wet Conditions

Western Project Area
Phased Implementation
Scenarios



LEGEND

- City of Morro Bay Well
- Proposed Well
- Pumping Well
- Injection Well
- Particle Track Arrow (1 mo.)
- Particle Track
- Groundwater Elevation Contour (ft)
- Groundwater Flow Direction
- Potential Project Area
- Model Active Area
- Major Road
- Watercourse

NOTE
AFY: Acre Feet per Year
Each travel time arrow along particle track represents 1 month.

N

0 350 700
Feet

Date: August 6, 2020
Data Sources: NAIP Imagery, ESRI

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\2020_TechMemo\Figure9_Scenario1c_GW_Elevations_and_Residence_Time_Wet.mxd

GSI Water Solutions, Inc.

Technical Memorandum

To: **Eric Casares**

Cc: **Rob Livik**

From: **Dave O'Rourke, Tim Thompson**

Date: **April 19, 2019**

Re: **Morro Bay Water Reclamation Facility Water Quality Groundwater Modeling**

Executive Summary

A series of water quality scenarios were run using the 2017 groundwater model as prepared by GSI Water Solutions to assist in the evaluation of installing injection wells in the lower Morro groundwater basin as part of an Indirect Potable Reuse (IPR) project. Key results of the study are:

- Historical data and groundwater modeling indicate that the City's wells are at risk of seawater intrusion if the full permitted pumpage is produced with no injection.
- The bedrock "ridge" in the area of City wells MB-1 and MB-2 results in separate flow paths supplying the High School wells and the Highway 1 wells, and provides a degree of separation in the lower portion of the aquifer between the area of the high school wells and the Highway 1 well field.
- The model displayed adequate calibration for historically observed nitrate and TDS concentrations.
- Predictive nitrate scenarios indicate that all wells have significantly lower nitrate concentrations under either injection well configuration. MB-3 experiences the greatest reduction in nitrates using the Narrows Injection Well configuration. The remaining Highway 1 wells experience a greater nitrate reduction from the Southside injection well configuration.
- Predictive scenarios indicate that both the Narrows and the Southside injection well layouts eliminate significant sea water intrusion events in predictive scenarios.
- The Southside well layout results in slightly lower TDS concentrations in the Highway 1 wells than the Narrows layout. The Southside well locations lie between the well field and the ocean, and so may provide a greater barrier to intrusion events.

Introduction

As part of the Water Reclamation Facility (WRF) project being undertaken by the City of Morro Bay (City), a significant effort is being made to understand and model the aquifers in the lower Morro Valley Basin to evaluate which of the two areas is preferred for the injection wells needed to implement indirect potable reuse (IPR) as part of the WRF project. This Technical Memorandum (TM) documents the methods, assumptions, and results of groundwater modeling performed for the City by GSI Water Solutions, Inc. (GSI). This work was performed for the City under the scope of work authorized in November 2018, and discussed at a kickoff meeting on December 5, 2018.

Objectives

Three specific issues are identified for analysis using the existing Screening Level Morro Bay groundwater model (the model). These are the tasks:

1. An evaluation of the ability of the City to pump their full groundwater allotment of 581 acre-feet per year (AFY) without inducing sea water intrusion from the coast.
2. An evaluation of the impact of injection into the aquifer proposed as part of the IPR project on the concentrations of nitrates that migrate from upgradient to the groundwater in City wells.
3. An evaluation of the impact on the water quality in City wells from the injection into the aquifer proposed as part of the IPR project on the concentrations of total dissolved solids (TDS) that migrate from the coast.

Groundwater Model Background

The Screening Level Morro Bay Groundwater Model (the model) was developed by GSI and documented in the Report "Lower Morro Valley Basin Screening-Level Groundwater Model for Injection Feasibility (GSI, 2017a). Details of the model development may be found in that report, but a brief summary is provided here.

The primary aquifer used by the City for water supply production is the alluvium associated with Morro Creek. The model represents the area of Morro Valley between the Narrows, an area north of Highway 1 where the alluvium is pinched to a narrow corridor about 300 feet wide by bedrock constrictions on both sides, and the coast (Figure 1). The model is constructed with three layers, in which Layer 1 represents the ocean, Layer 2 represents finer materials such as silt and clay which are predominant at the land surface, and Layer 3 represents coarser materials such as sand and gravel that are present at depths ranging from 20 to 60 feet. Model grid cells have a uniform size of 50 feet by 50 feet. Morro Creek is simulated at the surface in layer 2, and provides a significant portion of the water budget inflow for the model area. The screening model was developed using 552 monthly stress periods simulating the historical period from water years 1971 through 2016.

Most or all of the city's groundwater production is from wells screened in the sand and gravel represented in Layer 3. Other significant boundary conditions include subsurface inflow through the

Narrows, subsurface inflow/outflow to or from the Pacific Ocean, precipitation-based recharge over the model area, and pumping from City wells in the model area.

Task 1. Sea Water Intrusion under Full City Pumpage Allotment

The first modeling task is an evaluation of the potential for sea water intrusion assuming the City fully exercises their permitted groundwater pumping allotment.

The City is currently granted a permitted amount of pumping of 581 acre-feet per year (AFY) from the alluvial aquifer downstream of the Narrows. In the past 20 to 30 years, pumpage has been significantly reduced from this permitted amount due in part to elevated nitrate concentrations observed in groundwater pumped from City wells. The City requested a groundwater modeling analysis using the existing model that would assess whether full pumping of the City's permitted amount could be sustained without resulting in the inducement of sea water intrusion from the coast.

Data Review

The City provided GSI with TDS and pumping data on seven wells located in the model area: the Highway 1 wells (MB-3, MB-4, MB-14, and MB-15), High School 1, High School 2, and the Flippo's well. TDS data on the Highway 1 wells extends back to the early 1980s. The other three wells' data only extends back to about 2010.

Figure 2 presents the City's historical municipal pumpage from 1965 through 2018. In the years leading up to the 1990s, the City routinely pumped more than 500 AFY. Prior to the 1980s, a significant portion of this pumpage was produced from wells MB-1 and MB-2. By 1990, wells MB-1 and MB-2 had been removed from service. A field visit revealed that pumps are still installed in the wells.

Figure 3 presents graphs displaying TDS concentrations in the City wells over the available period of record. Keeping in mind that annual City pumpage in the 1980's was greater than 500 AFY, it is evident from inspection of these graphs that a limited seawater intrusion event occurred in the early 1990s. TDS concentrations during this time increased from approximately 700-800 parts per million (ppm) to 3,000 ppm in well MB-3. The other Highway 1 wells experienced similar TDS spikes. (The High School wells and the Flippo's well do not have TDS data from that time.) Concentrations decreased to baseline levels by the mid-1990s, and have remained in this range since that time.

Modeling Approach

MODFLOW was used in combination with MODPATH to evaluate the full City pumpage scenario. MODFLOW is a publicly available groundwater modeling code developed by the U.S. Geological Survey (USGS) to model groundwater flow and water levels, and is considered an industry standard. MODPATH is a USGS-developed particle-tracking code that functions in tandem with MODFLOW. MODPATH calculates flow velocity and travel times using MODFLOW flow results, porosity, and hydraulic conductivity. Under this approach, full allotted City pumpage is simulated in the City wells, and particles originating along the coast are evaluated to determine the travel time and direction.

GSI revised the model simulation period previously developed (552 monthly stress periods representing water years 1971 through 2016) to a simulation period with 456 monthly stress periods representing the period from water years 1981 to 2018. Monthly transient boundary conditions based on observed hydrologic data (rainfall, stream flow, etc.) that were developed for the original model were maintained for the period 1981-2016; appropriate monthly boundary conditions were estimated for the 24 monthly stress periods of 2016-2018.

The modeling approach for this task is to simulate the City's full pumpage of 581 AFY for the 38-year simulation period using MODFLOW, and perform MODPATH particle tracking to evaluate the movement of particles input into the model.

<u>Modeling Results</u>

As discussed previously, the simulation period of the model was shortened from beginning in water year 1971 to beginning in water year 1981. This was done because water quality data were not available for the first 10 years, and because there was concern about excessive computer run times when using MT3D for transport modeling when completing Tasks 2 and 3. So the simulation used 456 monthly stress periods representing water years 1981-2018.

The 581 AFY of permitted City pumping was divided equally among seven wells (the Highway 1 wells, the High School wells, and the Flippo's well). This results in a year-round average pumping rate of 51 gpm for each of the seven wells. A quarterly pumping pattern was assigned with maximum pumping rate (1.25 times average) in the summer and minimum pumping rate (0.75 times the average) in the winter. Pumping was assigned during all stress periods in the simulation. Other monthly transient boundary conditions (i.e., rainfall-based recharge, stream flow, underflow from narrows) were maintained at values assigned during the model development.

Under pre-development (i.e., non-pumping) conditions, the natural hydraulic gradient of the groundwater surface is southward, from the Narrows to the coast, with groundwater ultimately discharging from the aquifer to the overlying ocean (GSI, 2017a). Initial heads for the Task 1 simulation range from about 14 ft above mean seal level (MSL) at the narrows to about 8-9 feet MSL at the coast. After simulation of 581 AFY of City pumping for the 38-year simulation period, model results were evaluated. Figure 4 presents modeled water levels from the final stress period of the Task 1 simulation. These water level contours display a cone of depression centered around the Highway 1 wells, with water levels lower than 10 feet below MSL. Water levels at the coast are lowered to about -6 feet MSL, indicating that the natural coastward gradient has been reversed. At the end of the simulation, groundwater flow direction is from the coast toward the Highway 1 well field pumping center.

For the MODPATH Task 1 simulation, two lines of ten particles were placed in the model; one line along the Embarcadero and another line along the coast north of Morro Rock. It is documented that water quality in the City's sea water intake wells along the Embarcadero is brackish, with TDS ranging from about 5,000 ppm to 17,000 ppm (GSI, 2017b). No groundwater quality data is available for the coast north of Morro Rock. If it is assumed that water quality there is similar to that along the Embarcadero, then particle tracks originating in the locations indicated on Figure 5 will represent the movement of brackish water along the coast.

Figure 5 presents the results of the MODPATH particle tracking simulation. Each particle track is separated by arrows into line segments indicating two years of travel time. This figure indicates that particles originating on the coast travel to the City's wells within about 5 to 12 years, depending on the location. These results indicate that under the full permitted pumping scenario, City wells are susceptible to degradation of water quality due to sea water intrusion.

There are two distinct flow fields apparent in Figure 5. The High School wells draw from a different set of particles than the Highway 1 wells. While some of this is likely due to physical proximity, there is another factor in play. Figure 6 presents the bottom elevation of the alluvial aquifer as represented in the model. A prominent "ridge" of the bottom elevation is apparent in the vicinity of wells MB-1 and MB-2. In this area the elevation of the Franciscan bedrock underlying the alluvium is higher than the surrounding areas. This creates a degree of hydraulic separation between the groundwater "bay" from which the high school wells pump, and the area from which Highway 1 well field draws. This aquifer geometry may be significant when considering the fate and transport of injected water being considered for the IPR project.

Task 2. Nitrate Contamination of Groundwater and Injection Wells

The second task in the Scope of Work for the City is the modeling evaluation of the impact that proposed IPR injection wells may have on nitrate concentrations in the City's wells.

Much of the land upstream of the narrows has been used for agriculture for decades. However, in the 1980s, a 120-acre plot of land immediately upgradient from the Narrows was planted in vegetables and row crops. Vegetables are generally fertilized at a much higher loading rate than hay or orchard, and often farmed for multiple crops per year. A few years after the establishment of the vegetable crop fields upgradient, significant concentrations of nitrates began to be detected in the City's Highway 1 well field (MB-3, MB-4, MB-14, and MB-15).The objective of the modeling effort documented in this section of the Technical Memo is to evaluate the potential effect that injection of highly-treated recycled water from the WRF may have on the observed concentrations of nitrates in the city wells.

Data Review

The City provided GSI with nitrate concentration data on the Highway 1 wells. No nitrate data was available for the High School wells or the Flippo's well. Nitrate data on the Highway 1 wells extends back to the early 1980s. Graphs displaying historical nitrate concentrations in the Highway 1 wells are presented in Figure 7.

Before a model can be made to simulate the transport of nitrates in the aquifer, the nature of the transport must be understood. To understand the transport of nitrates in the subsurface, GSI considered two alternative conceptual models. In the first conceptual model, the dominant transport process is that nitrate-laden surface water flow runs off from the fields, enters Morro Creek, and infiltrates into the subsurface during periods of stream flow. In the second conceptual model, the primary transport mechanism is vertical percolation of nitrates to the water table followed by entrainment with subsurface inflow from the Narrows.

Inspection of the observed nitrate concentrations for the four Highway 1 wells reveals some information that helps in understanding of the transport of nitrates in the subsurface.

- The first incidence of elevated nitrates was at MB-3. This is the most distant well from Morro Creek. Later elevated nitrate concentrations were observed sequentially in wells MB-4, MB-14, and MB-15, indicating that transport of nitrates occurred in a southeasterly direction.
- The highest nitrate concentrations are at MB-3, with declining concentrations occurring in the wells to the southeast. This indicates that the leading edge of the plume first intersects MB-3, then MB-4, MB-14, MB-15.
- The maximum nitrate concentration reported was 186 ppm in MB-3. Maximum nitrate concentrations in MB-4, MB-14, and MB-15 were 151 ppm, 118 ppm, and 69ppm, respectively. The MCL for nitrate in drinking water is 45 ppm.
- Wells MB-3 and MB-4 had peak nitrate concentrations in 2014, with declining values since. Wells MB-14 and MB-15 had peak nitrate concentrations in 2018.

The breakthrough patterns indicate that in timing and magnitude, MB-3, the northwestern most well, exhibited elevated nitrate concentrations first. This pattern then spread to the southeast. This indicates that the second conceptual model, in which subsurface flow through the Narrows is the dominant transport mechanism, is more valid than the first, in which transport would originate in Morro Creek. Additionally, the breakthrough patterns indicate transport of nitrates occurs along a preferential pathway that intersects with MB-3 earliest, and spreading to the wells to the southeast over time.

Modeling Approach

GSI used the 456 monthly stress period version of the model representing the 38 year time period representing water years 1981 to 2018. MODFLOW is run in combination with MT3DMS, a groundwater transport code that calculates the distribution and concentration of chemical components of groundwater. Under this approach, the model is calibrated to observed nitrate concentrations in the Highway 1 wells. After an acceptable calibration is achieved, the simulation period will be extended an additional 38 years, and three scenarios will be simulated.

- Baseline Scenario - Full City production of 581 AFY is simulated for a 38-year simulation period with no injection wells.
- Narrows Injection Scenario - Full City production of 581 AFY is simulated for a 38-year simulation period with four injection wells located in the Narrows injecting a total of 800 AFY.
- Southside Injection Scenario - Full City production of 581 AFY is simulated for a 38-year simulation period with four injection wells located in the Southside area injecting a total of 800 AFY.

In the first scenario, full permitted pumpage is simulated in the City wells, with no injection simulated. This provides a baseline scenario against which the injection scenarios can be compared. After completion of this baseline scenario, two different injection well configurations and locations will be simulated (Figure 8). In one scenario, four injection wells will be located near the Narrows, in locations that were utilized in the screening level model runs. In the other scenario, four injection wells will be located in the area south of Highway 1 and southeast of Morro Creek (referred to as the Southside locations for the purposes of this TM). Injection rates were set at 800 AFY combined, equally divided between the four injection wells (124 gpm/well). The nitrate concentration of the injected well water is assigned to be zero. For the predictive scenario stress periods, the transient monthly boundary conditions of stream flow and rainfall-based recharge were assigned to constant long-term average values; this is to eliminate any seasonal “noise” from the model results, and clarify that any observed results are attributable to the impact of the injection wells, and not any seasonal or climatological factors.

Modeling Results

Modeled hydrogeologic parameters such as transmissivity, recharge, etc., that were assigned during the development of the model were not adjusted during scenario model runs. Longitudinal dispersivity was set at 29.0 ft^2/day, and lateral dispersivity was set at 0.29 ft^2/day based on application of literature values. To generate the calibration to observed nitrate values at the Highway 1 wells, the primary model input that was adjusted is the inflow of nitrates along the upgradient boundary condition of the Narrows. Dispersivity was also adjusted during calibration, but the resulting modeled nitrate concentrations were relatively insensitive to variations in this parameter compared to the input concentrations.

The upgradient flow boundary condition across the Narrows is represented using the MODFLOW well package, with specified flux values based on estimates of Darcy underflow through the Narrows. In MT3DMS, the nitrate concentrations of the groundwater represented as underflow may be specified in addition to the flux. There are only six model cells across the Narrows upgradient boundary condition (in columns 56 through 62). The Highway 1 well locations are spread across six model columns as well. Inflow nitrate concentrations were not applied at uniform rates across the six cells of the upgradient boundary. To the extent that each City well has a unique nitrate concentration signature, the timing and magnitude of the incoming nitrate concentrations were adjusted for each Narrows cell, and observed at the corresponding Highway 1 wells. For example, the inflow concentrations for the three northernmost

Narrows cells were adjusted to achieve calibration in wells MB-3 and MB-4, while the three southernmost Narrows cells were adjusted after observing responses in wells MB-14 and MB-15. After numerous model runs in which these parameters were iteratively adjusted, an acceptable calibration of historical nitrate concentrations was achieved. Figure 7 presents modeled and observed nitrate concentrations at the four Highway 1 wells. GSI concludes that the model can reasonably replicate observed nitrate concentrations in the well field.

The model is not suited, however, to accurately predict future concentrations of nitrates that will be transported through the subsurface at the Narrows. Past agricultural practices that would affect nitrate transport, such as crop rotations and rates of fertilizer application, are not known. Therefore, for the predictive injection well scenarios, a constant upgradient nitrate inflow concentration of 400 ppm is applied to all six of the Narrows well cells. In these scenarios, the municipal wells and the injection wells were assigned pumping rates of zero for the first five years following the end of the historical calibration period, to allow any latent model effects stemming from the fluctuating nitrate values used to achieve calibration time to equilibrate. In addition, as previously mentioned, the monthly historical pattern of recharge and stream flow were replaced with long term average values to remove seasonal “noise” from the model results, so that any patterns observed in the model results may be attributed specifically to the incorporation of the injection wells to the model.

Figure 9 displays the results of the Baseline and alternative injection well scenario runs for each of the four Highway 1 wells. In all the scenario runs, the representation of the injection wells results in significant reductions in nitrate concentrations at the Highway 1 well field. For Well MB-3, under the Baseline Scenario (no injection), the average modeled nitrate concentration over the last twenty years of the simulation is about 125 ppm. Under the Narrows Injection Scenario, that concentration is reduced to about 30 ppm, a reduction of over 75%. Under the Southside Injection Scenario, the average concentration is about 90 ppm, a reduction of about 25%. In wells MB-4 and MB-14, the Southside Injection Scenario results in lower nitrate concentrations than the Narrows Injection Scenario. This result is somewhat counter-intuitive, but may be a result of the greater depth/thickness of the aquifer in the southern area of the Highway 1 well field (Figure 6).

<u>Task 3. Seawater Intrusion Contamination of Groundwater and Injection Wells</u>

The third task in this Scope of Work is the modeling evaluation of the impact that proposed IPR injection wells may have on seawater intrusion in the City’s wells.

The purpose of this task is to use the existing groundwater and transport model to demonstrate the model’s ability to reasonably simulate observed TDS concentrations from historical conditions, and to evaluate two separate injection well layouts to determine their potential impact on elevated TDS concentrations due to sea water intrusion.

Data Review

The City's wells are only about a half mile from the Pacific Ocean. As such, they are at risk of sea water intrusion in times of severe drought, or if the groundwater flow gradient is reversed from its natural direction for a significant period of time. The data review presented in the Task 1 Section of this TM showed that a sea water intrusion event occurred in the early 1990s (Figure 3), so it is clear that elevated TDS concentrations in City wells is not a theoretical risk; it has occurred in the past.

The ocean is represented in the model as Layer 1. The Layer 1 cells function as boundary conditions with specified heads and specified concentrations. The heads are assigned at an elevation of 0 feet MSL. Because of fresh water inflow to the Bay from two creeks, and after inspection of water quality data for the city's sea water intake wells, GSI assigned a TDS value of 25,000 ppm for the ocean water concentration boundary condition.

Water quality sampling documented in the Seawater Intake Evaluation Report (GSI, 2017b) indicates that TDS concentrations in the seawater intake wells along the embarcadero boundary range from about 5,000 ppm to 17,000 ppm. Evaluation of sampling records from the PGE/Dynergy site indicate that wells have a TDS concentration of about 1,000 ppm on the northern edge of the site. Baseline TDS concentrations in the Highway 1 wells are in the 600-800 ppm range. An initial concentration distribution was developed which used these values as guide, and interpolated the values in areas between these locations.

Modeling Approach

The first step in the modeling evaluation is the simulation of historical pumping, and the evaluation of the model's ability to replicate historical TDS conditions. Groundwater production data provided by the City was incorporated into the model, and a historical calibration simulation was performed for the period from water year 1981 to 2018. Dispersivity was not adjusted during these runs.

After this, three scenarios are run:

- Baseline Scenario - Full City production of 581 AFY is simulated for a 38-year simulation period with no injection wells.
- Narrows Injection Scenario - Full City production of 581 AFY is simulated for a 38-year simulation period with four injection wells located in the Narrows injecting a total of 800 AFY.
- Southside Injection Scenario - Full City production of 581 AFY is simulated for a 38-year simulation period with four injection wells located in the Southside area injecting a total of 800 AFY.

Modeling Results

Figure 10 presents results of the calibration simulation displaying the modeled and observed TDS in the Highway 1 wells. Inspection of these graphs indicates that the model succeeds in capturing the increase in TDS that occurred in the early 1990s. Wells 3, 4, and 14 all had observed TDS increases that were represented in the model results. Well 15 did not display a significant observed TDS increase, but the model results simulated an increase in TDS at the well. The reasons for this are not clear, but no attempt was made to fine tune the model inputs to match the specific results at Well 15. The fact that the general trend of the increased TDS concentrations in the vicinity of the Highway 1 wells was represented in the model results indicates that the model is suitable for use in further TDS analysis.

For the TDS Scenario simulations, GSI decided to maintain the historical monthly time series for transient boundary conditions of recharge and stream flow. This is because an actual sea water intrusion event is observed and simulated during this time period, so it makes sense to evaluate the effect that the injection wells would have on such an event during similar climatological conditions (at the end of a significant multi-year drought).

Figure 11 presents the results of the Baseline and Alternative Injection Well Scenarios for each of the four wells at the Highway 1 well field. It was established in the Task 1 particle tracking results that long term pumping of full permitted City pumpage without injection resulted in particles reaching the Highway 1 pumping center, but those model results did not give an indication of potential TDS concentrations at the wells. The graphs displayed in Figure 11 indicate that after about 30 years of full City pumpage, using model inputs (stream flow and recharge) reflective of climatological conditions during the recent drought, modeled TDS concentrations at the Highway 1 wells increased to brackish conditions, ranging from almost 4,000 ppm at MB-3 (farthest from the ocean) to nearly 13,000 ppm at well MB-15 (closest to the ocean). These MT3DMS results provide a quantitative estimate of the conditions previously indicated by the particle tracking analysis performed for Task 1.

Figure 11 indicates that for all four of the Highway 1 wells, both the Narrows Scenario and the Southside Scenario have the effect of reducing all of the instances of elevated TDS concentrations (greater than 1,000 ppm) evident in the Baseline Scenario results to concentrations that meet secondary drinking water standards (less than 500 ppm). Although it is not clearly visible at the scale of the graphs in Figure 11, the Southside injection Scenario resulted in lower TDS concentrations than the Narrows Scenario for most of the wells. Table 1 presents the average TDS for each of the Highway 1 wells (omitting the first 5 years, when the model was equilibrating to newly imposed stresses). Wells MB-4, MB-14, and MB-15 have lower resulting TDS concentrations under the Southside Scenario; MB-3 has slightly lower TDS in the Narrows Scenario. This makes sense because the Southside Injection Well configuration essentially functions a seawater intrusion barrier for the Highway 1 wells. The particle track results presented in Figure 5 indicate that the primary flow path to the Highway wells originates from the area near the Embarcadero. The Southside injection well layout largely intercepts this flow path of potentially brackish inflow with low-TDS injected water.

Table 1 – Highway 1 Well Predictive Scenario Results: Average TDS Concentrations[1]

Well	Narrows	Southside
MB-3	266	285
MB-4	246	196
MB-14	229	178
MB-15	206	180
1. All results in ppm. First 5 years results omitted. See text.		

Summary and Conclusions

- Historical data and groundwater modeling indicate that the City's wells are at risk of seawater intrusion if the full permitted pumpage is produced with no injection.
- The bedrock "ridge" in the area of City wells MB-1 and MB-2 results in separate flow paths supplying the High School wells and the Highway 1 wells, and provides a degree of separation in the lower portion of the aquifer between the area of the high school wells and the Highway 1 well field.
- The model displayed adequate calibration for historically observed nitrate and TDS concentrations.
- Predictive nitrate scenarios indicate that all wells have significantly lower nitrate concentrations under either injection well configuration. MB-3 experiences the greatest reduction in nitrates using the Narrows injection well configuration. The remaining Highway 1 wells experience a greater nitrate reduction from the Southside injection well configuration.
- Predictive scenarios indicate that both the Narrows and the Southside injection well layouts prevent sea water intrusion in predictive scenarios.
- The Southside injection well configuration results in slightly lower TDS concentrations in the Highway 1 wells than the Narrows configuration. The Southside well locations lie between the well field and the ocean, and so may provide a greater barrier to intrusion events.

LIST OF FIGURES

REFERENCES

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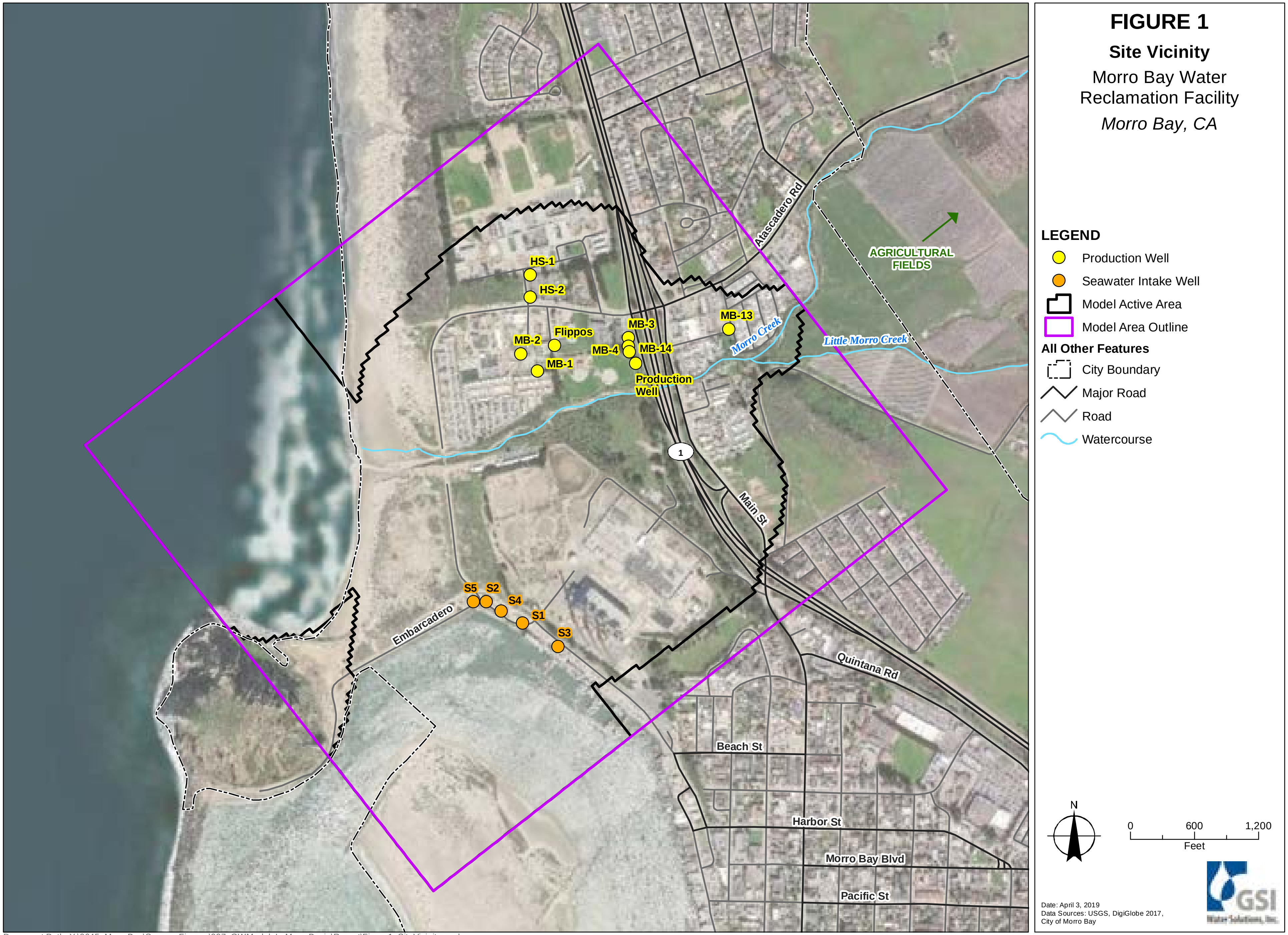
GSI, May 2017. Assessment of the Operational and Hydrogeologic Characteristics of the City of Morro Bay Desalination Intake Wells. Prepared for M.K. Nunley & Associates and the City of Morro Bay.

Cleath and Associates, March 1994. Analysis and Recommendations for a Water Management Plan, Appendix B, Groundwater Analysis.

FIGURES



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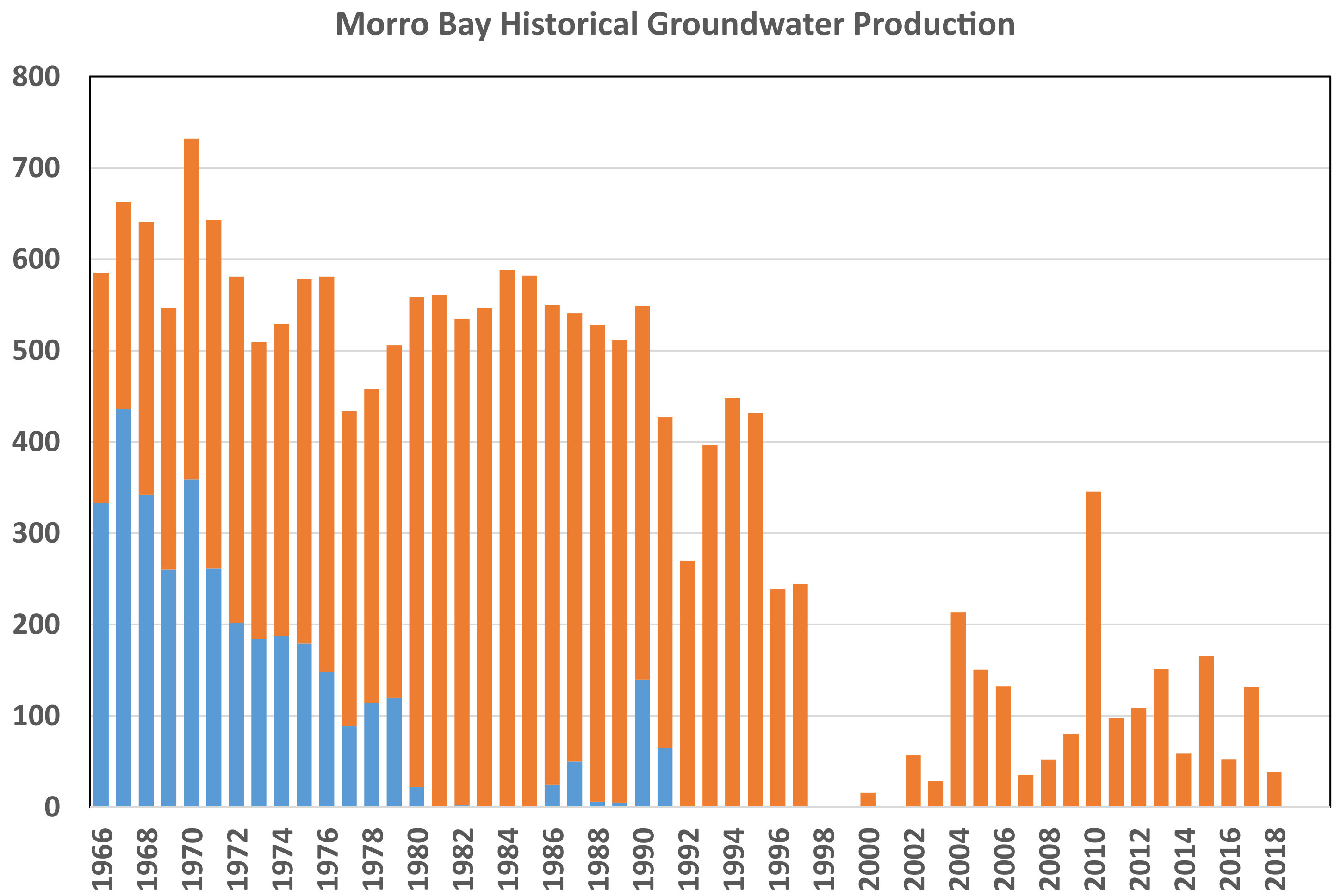

FIGURE 2

Morro Bay Historical Groundwater Pumpage

Morro Bay Water Reclamation Facility

Morro Bay, CA

LEGEND

Corp Yd Wells

Hwy 1 Wells

Date: March 21, 2019

Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Report

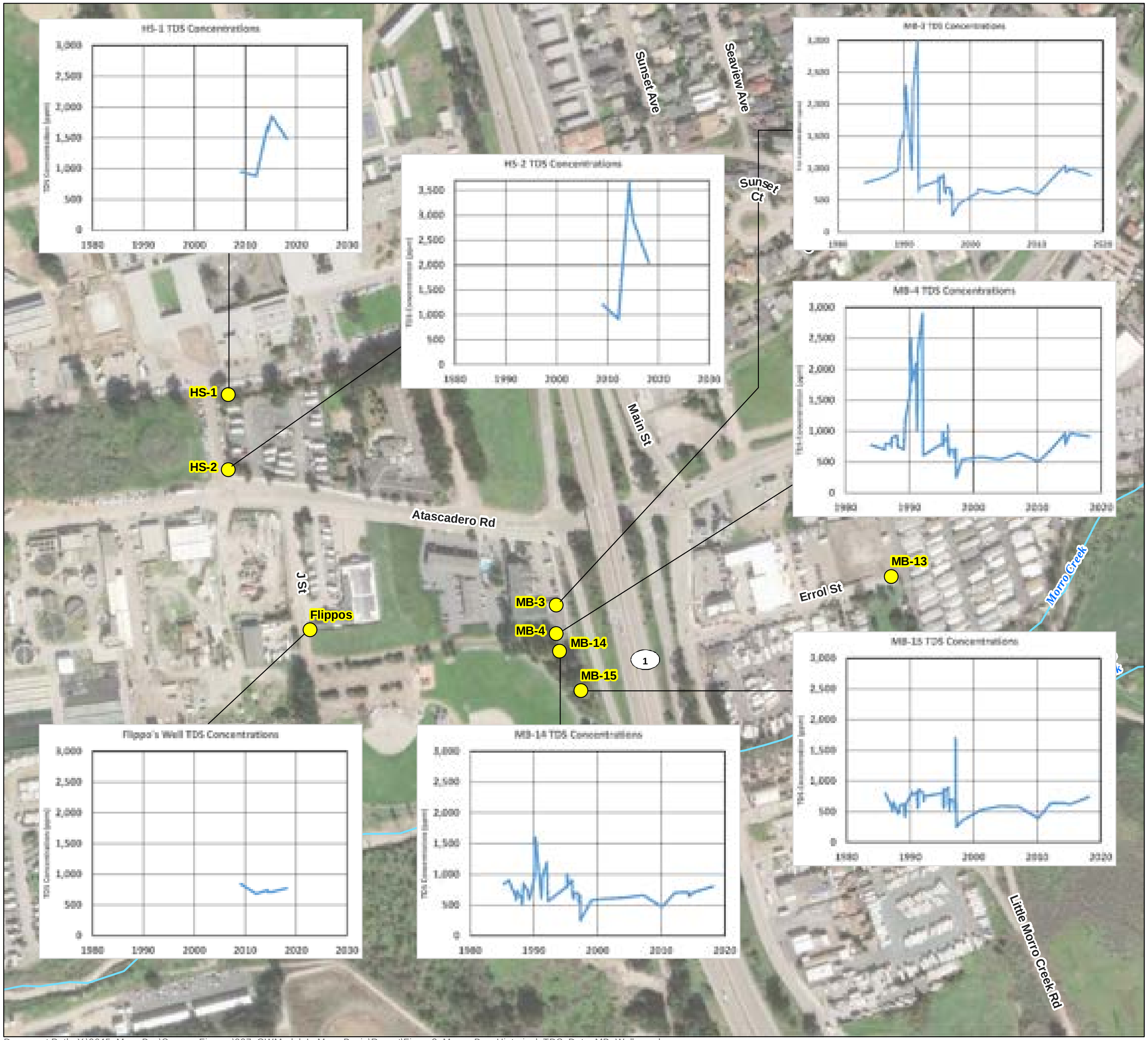

FIGURE 3

Morro Bay Well TDS Concentrations

Morro Bay Water Reclamation Facility

Morro Bay, CA

LEGEND

Production Well

Watercourse

N

0 200 400

Feet

Date: April 3, 2019
Data Sources: USGS, DigiGlobe 2017, City of Morro Bay

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Report\Figure3_Morro_Bay_Historical_TDS_Data_MB_Wells.mxd

FIGURE 4

Morro Bay Full Pumpage Final Groundwater Elevations

Morro Bay Water Reclamation Facility

Morro Bay, CA

LEGEND

- Production Well
- Seawater Intake Well
- Groundwater Elevation Contour (ft)
- Groundwater Flow Direction
- Model Active Area

All Other Features

- City Boundary
- Major Road
- Road
- Watercourse

N

0 500 1,000
Feet

Date: April 3, 2019
Data Sources: USGS, DigiGlobe 2017, City of Morro Bay

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Report\Figure4_Morro_Bay_Pumpage_Final_Water_Levels.mxd

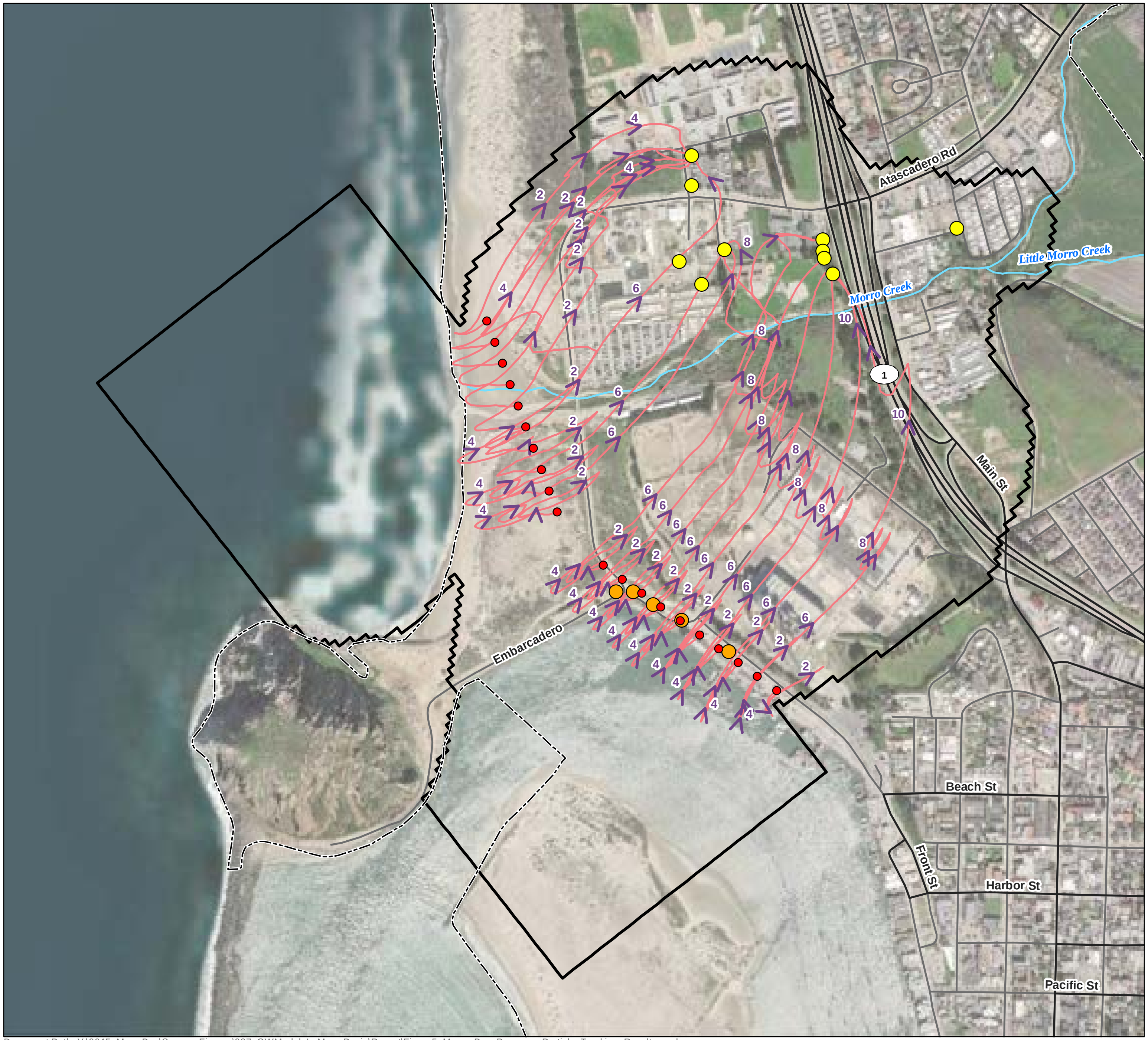

FIGURE 5

Morro Bay Full Pumpage Particle Tracking Results

Morro Bay Water Reclamation Facility

Morro Bay, CA

LEGEND

- Production Well
- Seawater Intake Well
- Particle Track Starting Point
- Pumpage Particle Track
- Time of Travel (years)
- Model Active Area

All Other Features

- City Boundary
- Major Road
- Road
- Watercourse

Date: April 3, 2019
Data Sources: USGS, DigiGlobe 2017, City of Morro Bay

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Report\Figure5_Morro_Bay_Pumpage Particle_Tracking_Results.mxd

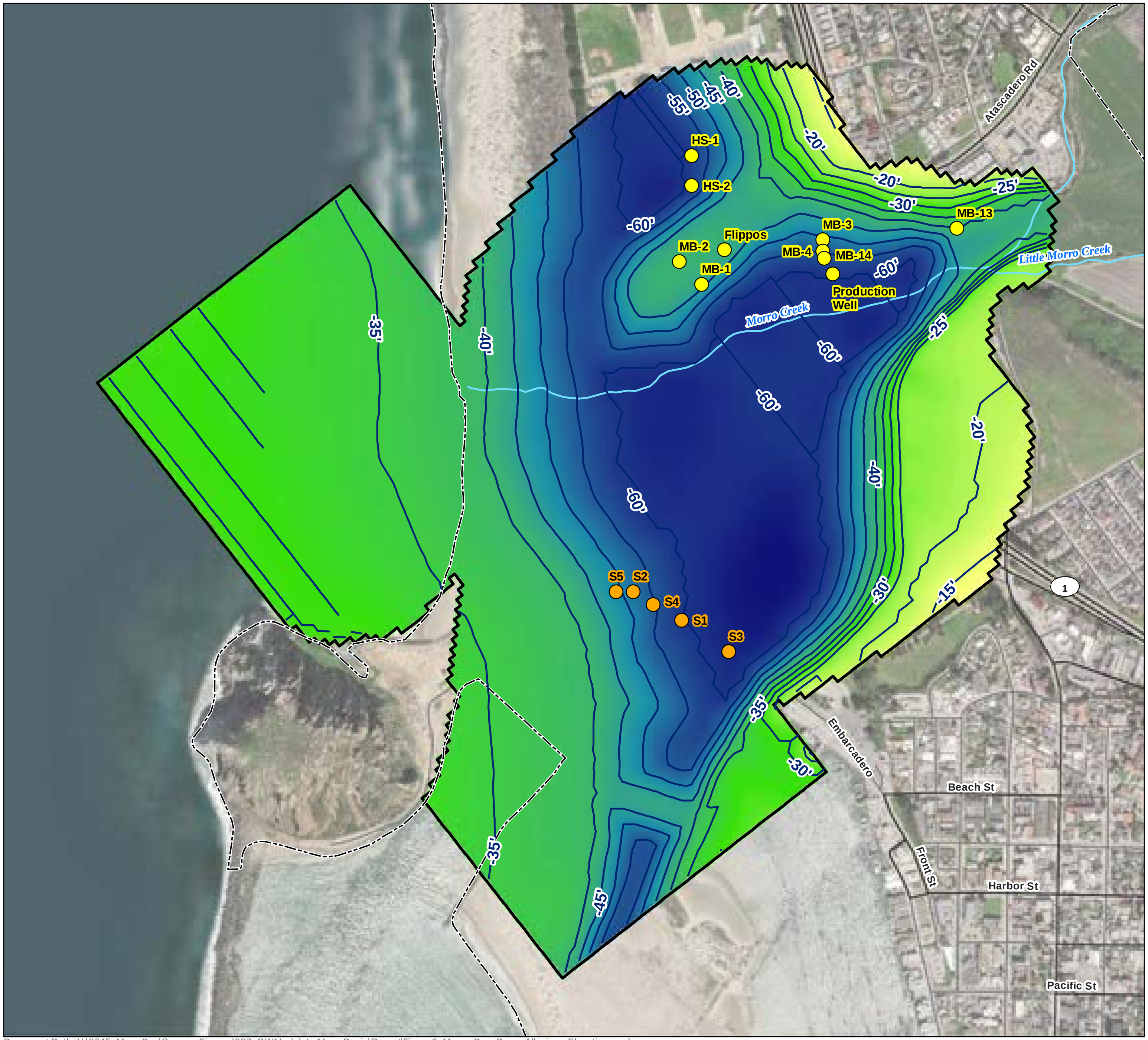

FIGURE 6

Morro Bay
Base of Alluvium Elevation

Morro Bay Water
Reclamation Facility

Morro Bay, CA

LEGEND

Type

- Production Well
- Seawater Intake Well
- Bottom Elevation Contour (ft)
- Model Active Area

Alluvium Elevation (ft)

-13

-65

All Other Features

- City Boundary
- Major Road
- Road
- Watercourse

N

0 500 1,000
Feet

Date: April 3, 2019
Data Sources: USGS, DigiGlobe 2017,
City of Morro Bay, GSI 2007, Cleath 1994

GSI Water Solutions, Inc.

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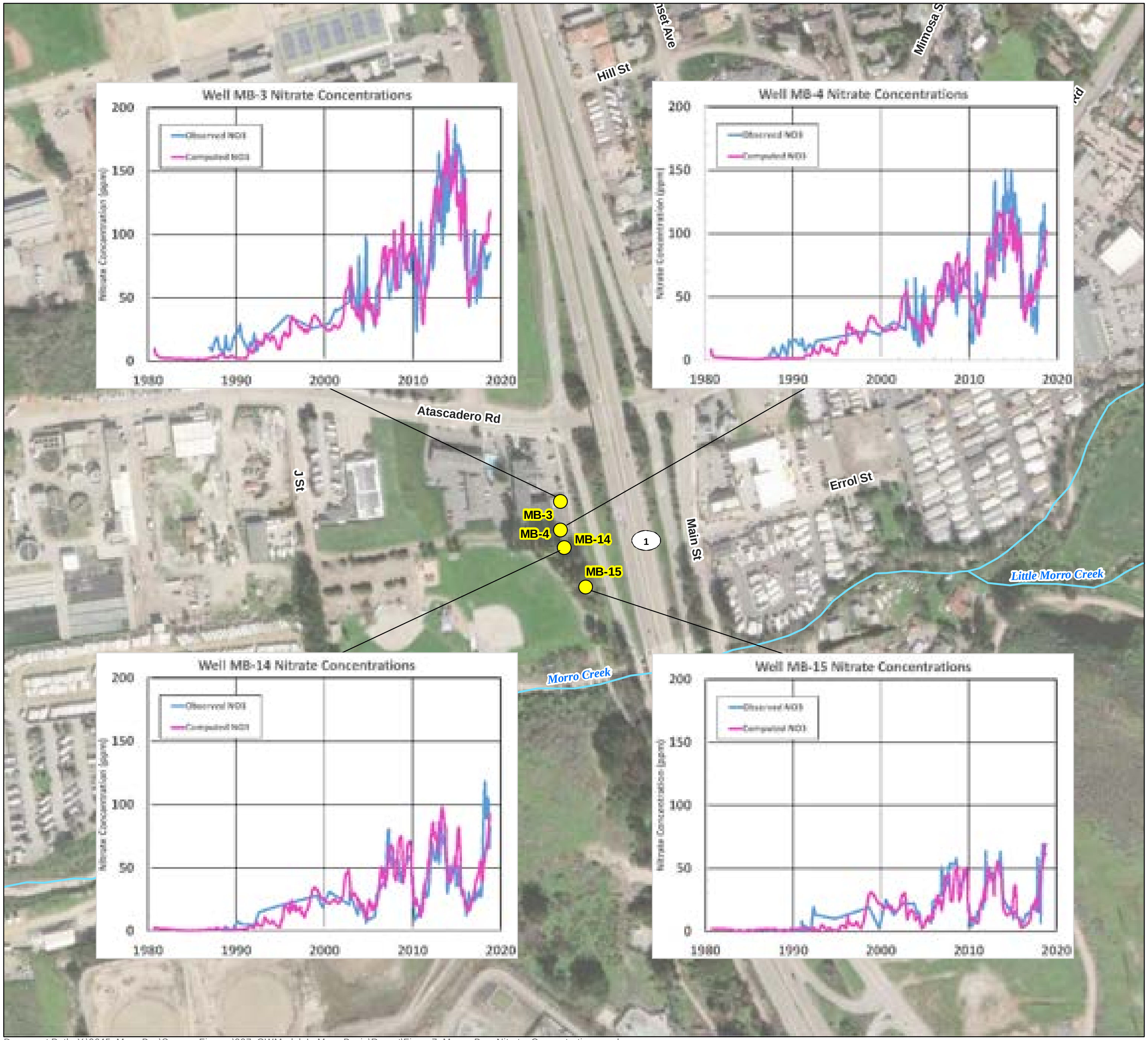


FIGURE 7

Morro Bay Well Nitrate Concentrations

Morro Bay Water Reclamation Facility

Morro Bay, CA

LEGEND

Production Well

Watercourse

N

0 200 400
Feet

Date: April 3, 2019
Data Sources: USGS, DigiGlobe 2017, City of Morro Bay

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Report\Figure7_Morro_Bay_Nitrate_Concentrations.mxd

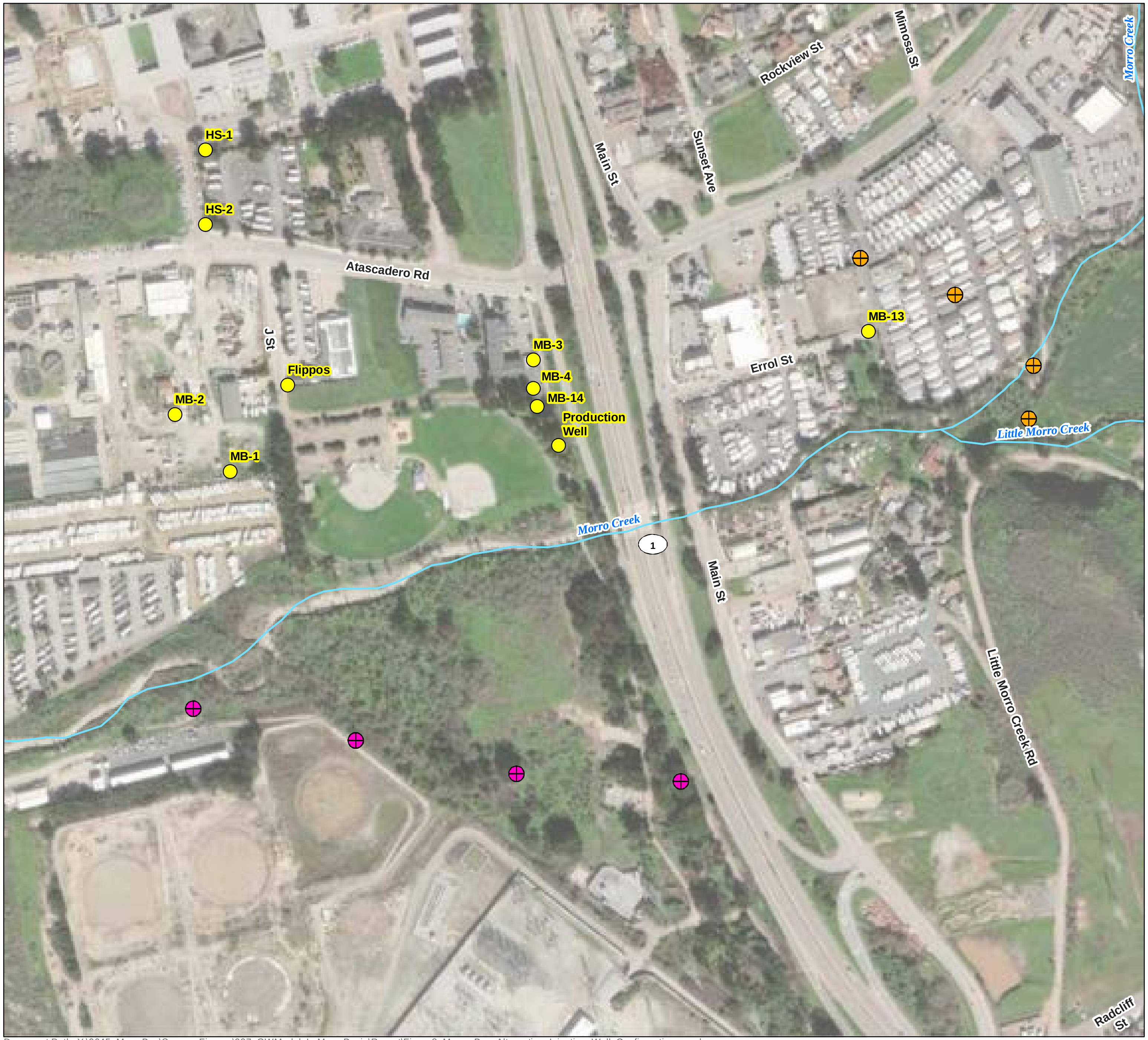


FIGURE 8

Morro Bay Alternative Injection Well Locations

Morro Bay Water Reclamation Facility

Morro Bay, CA

LEGEND

- Production Well
- Narrows Injection Well
- Southside Injection Well
- Watercourse

N

0 200 400
Feet

Date: April 3, 2019
Data Sources: USGS, DigiGlobe 2017, City of Morro Bay

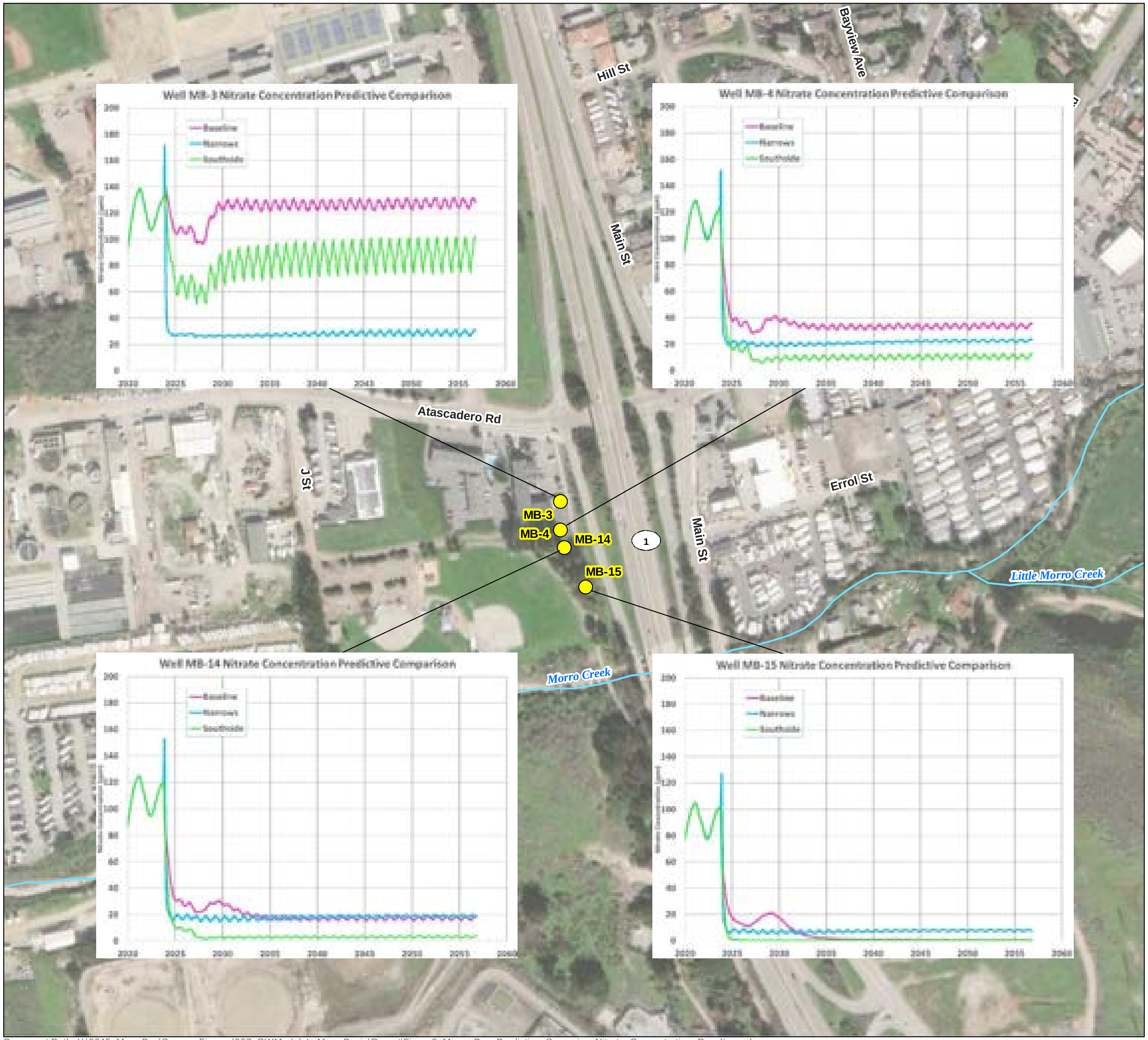
Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Report\Figure8_Morro_Bay_Alternative_Injection_Well_Configurations.mxd

FIGURE 9

Morro Bay Predictive Scenarios Nitrate Concentration Results

Morro Bay Water Reclamation Facility

Morro Bay, CA



LEGEND

- Production Well
- Watercourse

N

0 200 400

Feet

Date: April 3, 2019
Data Sources: USGS, DigiGlobe 2017, City of Morro Bay

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Report\Figure9_Morro_Bay_Predictive_Scenarios_Nitrate_Concentration_Results.mxd

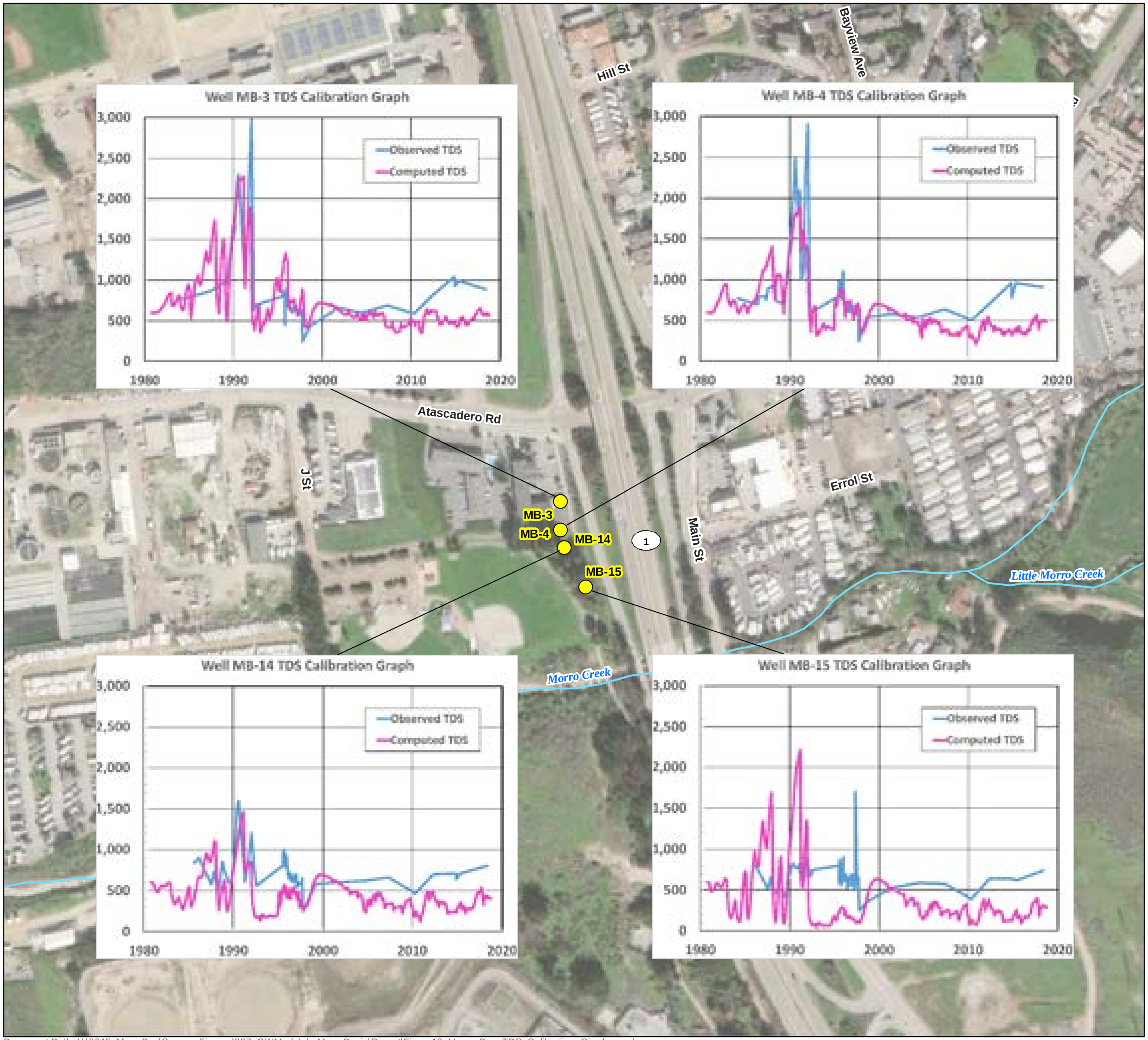


FIGURE 10

Morro Bay TDS Calibration Graphs

Morro Bay Water Reclamation Facility

Morro Bay, CA

LEGEND

Production Well

Watercourse

N

0 200 400

Feet

Date: April 3, 2019
Data Sources: USGS, DigiGlobe 2017, City of Morro Bay

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Report\Figure10_Morro_Bay_TDS_Calibration_Graphs.mxd

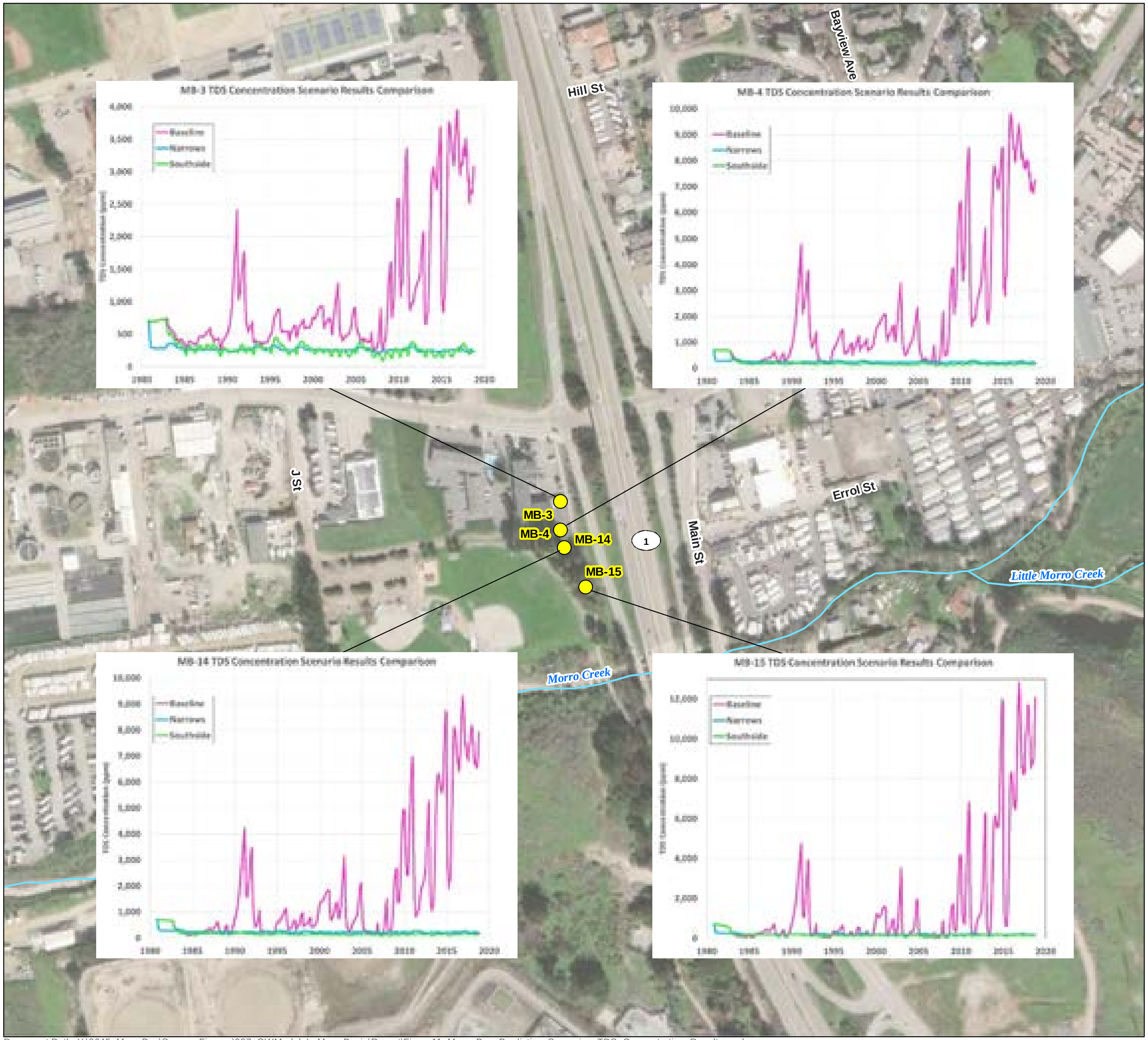


FIGURE 11

Morro Bay Predictive Scenarios TDS Concentration Results

Morro Bay Water Reclamation Facility

Morro Bay, CA

LEGEND

Production Well

Watercourse

N

0 200 400

Feet

Date: April 3, 2019
Data Sources: USGS, DigiGlobe 2017, City of Morro Bay

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Report\Figure11_Morro Bay_Predictive_Scenarios_TDS_Concentration_Results.mxd

Final Report

Lower Morro Valley Basin Screening-Level Groundwater Modeling for Injection Feasibility

Morro Bay, California

Prepared for

Michael K. Nunley & Associates and the City of Morro Bay

May 16, 2017

Prepared by

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Table of Contents

Tables

Figures (located at end of report)

Appendices

Executive Summary

GSI Water Solutions (GSI) developed a screening-level numerical groundwater flow model of the lower portion of the Morro Valley Groundwater Basin (referred to herein as the Lower Morro Valley Groundwater Basin) within the City of Morro Bay, California (Figure 1). The model serves as a screening-level tool for assessing the feasibility of using injection and subsequent recovery of recycled water (i.e., indirect potable reuse [IPR]) to cost-effectively enhance the City's water supply.

The feasibility of IPR in this study is evaluated based on the following goals:

1. Ability to inject 825 acre-feet per year (AFY) of recycled water;
2. Maximum annual production capacity of the City wells that can be sustained without the model results indicating seawater intrusion; and
3. Ability to satisfy Title 22 minimum response retention time requirements for the injected recycled water.

The model simulates groundwater flow in the Lower Morro Valley Groundwater basin below "the Narrows[1]," which extends from the Narrows, to the west and southwest to the ocean and south to the Embarcadero. The model simulates the major components of inflow and outflow to the basin for the 46-year period from 1970-71 through 2015-16 using monthly stress periods.

The model was "tuned" to groundwater level responses from a recent pumping event and historical seasonal groundwater level fluctuations. The tuning process provides a reasonable degree of confidence that the modeled aquifer parameters are within a reasonable range and that the results of the modeling are reasonably valid for the purposes of screening the IPR alternatives. Rigorous calibration of the model was not be completed because it is beyond the scope of this screening evaluation and is not currently possible anyway due to the limited data availability. Further refinement of the model would require additional field data collection (e.g. continuous groundwater level monitoring, stream gauging, pumping and injection testing, etc.).

Two possible IPR layouts were evaluated:

- Scenarios 1A (utilizing 5 extraction wells) and 1B (utilizing 6 extraction wells) evaluated recycled water injection upgradient (east) of the City's existing wells, near the Narrows.
- Scenarios 2A (utilizing 4 extraction wells) and 2B (utilizing 5 extraction wells) evaluated recycled water injection cross-/downgradient (south) of the City's existing wells.

The screening-level model results of the model indicate that:

1. It is likely feasible for the aquifer to accept the recycled water available for injection (825 acre-feet per year [AFY]);
2. A minimum of four injection wells would likely be needed to achieve the desired recycled water injection capacity;
3. Depending on the injection well locations, up to approximately 1,200 AFY of groundwater could potentially be produced for potable supply without the model indicating seawater intrusion would occur; and

[1] The Narrows is the constriction in the valley located approximately 1,000 feet east of Highway 1 that separates the upper and lower portions of the Morro Valley.

4. The 2-month minimum subsurface recycled water response retention time required under Title 22 will likely be met.

Based on the screening evaluation, the following tasks are recommended:

1. Conduct a preliminary consultation with DDW regarding permitting considerations.
2. Implement a pilot injection program. The pilot program would consist of constructing a pilot injection well and monitoring wells, baseline groundwater monitoring, and long-term injection pilot tests. The purpose of the pilot program would be to validate the screening modeling results and provide a design basis for the full scale project and permitting. The foregoing would significantly reduce the City's investment risk.

1. Introduction

Several recycled water reuse alternatives capable of cost-effectively enhancing the City's water supply have been identified and analyzed, one of which involves injection and subsequent recovery of recycled water (i.e., indirect potable reuse [IPR]). GSI Water Solutions, Inc. (GSI), was retained to develop a screening-level numerical groundwater flow model (the model) of the lower portion of the Morro Valley Groundwater Basin (referred to in this report as the "Lower Morro Valley Groundwater Basin" or "Basin") within the City of Morro Bay, California (Figure 1) to evaluate the feasibility of recycled water injection and estimate the associated benefit to the City's water supply.

1.1 Study Objectives

For this project, water that may potentially be used for IPR would consist of up to approximately 825 acre-feet per year (AFY) of recycled water from the proposed Morro Bay Water Reclamation Facility that would be injected into the Basin followed by subsequent recovery at City-owned wells after the requisite Title 22 subsurface response retention time has been satisfied. The feasibility of IPR in this study is evaluated based on the following criteria:

1. Ability to inject 825 AFY of recycled water;
2. Annual production capacity of the City wells that can be sustained without causing significant seawater intrusion[2]; and
3. Ability to satisfy Title 22 minimum response retention time requirements for the injected recycled water[3].

[2] 1,437 AFY of groundwater production was cited as a production target; however, the goal of the screening evaluation was to estimate the maximum yield of the Lower Morro Valley Basin when implementing IPR, which was ultimately determined to be less than the production target.

[3] The minimum allowable response retention time is 2 months. If groundwater modeling is utilized for permitting, a safety factor of two is required, hence, 4 months must be demonstrated.

2. Conceptual Model Overview

The study area encompasses the Lower Morro Valley Groundwater Basin below "the Narrows."[4] The model extends east from the Narrows west and southwest to the ocean and south to the Embarcadero. The lateral and vertical dimensions (domain) of the model represent our current understanding of the Lower Morro Valley Groundwater Basin based on existing available data including previous studies, a previous groundwater model, and well completion reports for wells in the basin. The model incorporates the physical characteristics of the alluvial aquifer based on hydraulic conductivity estimates for the aquifer developed from aquifer testing performed during this project (November 2016; Appendix A), available well logs, and pumping records for the City's wells. The locations of the City's wells relative to the model domain are presented in Figure 2.

The primary source of recharge to the Lower Morro Valley Basin is believed to be from Morro Creek streambed percolation based on GSI's interpretation of groundwater level responses as well as interpretations by Cleath (2007 and 2014). Based on modeling results, Morro Creek flow is mostly losing (losing water to the aquifer), but can become gaining (gaining water from the aquifer) in areas during wet periods. The volume of Morro Creek percolation is believed to be affected by City pumping.

The following summarizes the recharge components simulated in the model in decreasing order of magnitude:

- Recycled Water Injection,
- Streambed percolation,
- Narrow's underflow,
- Areal recharge from deep percolation of precipitation, and
- Subsurface inflow from the ocean.

The primary discharge components under non-pumping conditions is subsurface underflow to the ocean. Under IPR Project conditions, the primary discharge component would be groundwater pumping. The following summarizes the discharge components simulated in the model in decreasing order of magnitude:

- Municipal groundwater pumping,
- Subsurface outflow to ocean, and
- Rising water into Morro Creek.

[4] The "Narrows" refers to the constriction in the valley located approximately 1,000 feet east of Highway 1 that separates the upper and lower portions of the Morro Valley.

3. Groundwater Flow Model

3.1 Model Code and Stress Periods

The Lower Morro Valley Groundwater Basin model was constructed using MODFLOW-2000, a block-centered, modular finite-difference groundwater flow code developed by the United States Geologic Survey (USGS) (Harbaugh et al., 2000). MODFLOW-2000 is modular in that it contains separate, independent modules that can be selected based on the modeling needs. The modules, or packages, use a standard format to allow for interfacing between each module of the program, as well as the common variables accessible to all modules. The packages used in the Lower Morro Basin include:

- Basic (BAS),
- Discretization (DIS),
- Solver (PCG2),
- Streamflow Routing (STR),
- Recharge (RCH),
- Constant Head (CHD)
- Multi-Node Well (MNW) and
- Well (WEL).

The pre- and post-processor used to manipulate model input and output data was Groundwater Vistas Version 6, which is developed by Environmental Simulations, Inc. Groundwater Vistas is a Windows-based graphical user interface for 3-D groundwater flow and transport modeling.

The input data for the model is organized into monthly stress periods between water year (October 1 to September 30) 1971 and 2016. Monthly stress periods provide the ability to simulate the seasonal aspects of fluxes such as areal recharge, pumping, underflow and streambed percolation, as well as evaluate recharge volumes during above-normal, average, and below-normal rainfall years.

3.2 Model Grid and Layer Design

The model encompasses the Lower Morro Valley Groundwater Basin, extending from the Narrows west and southwest to the ocean and south to the Embarcadero. The model grid covers an area of approximately 742 acres with a grid consisting of 122 rows in the northeast to southwest direction and 106 columns in the northwest to southeast direction for a total of 38,796 cells. The active model area of 538 acres consists of 22,454 model cells. Each model cell of the model represents an area of 50 foot x 50 foot (see Figure 2). The model grid is divided into three layers as follows:

- Layer 1: Ocean (offshore only)
- Layer 2: Upper Portion of Aquifer
- Layer 3: Lower Portion of Aquifer (main groundwater production zone)

The use of two model layers (layer 2 and 3) for simulation of the aquifer was necessary to account for the large permeability contrast between the upper and lower aquifer zones. A single layer model of the aquifer utilizing the vertically averaged permeability would have overestimated the recycled water response retention time (overly optimistic), which is a key parameter for evaluating the feasibility of IPR.

3.3 Aquifer Parameters

A number of inputs are necessary to simulate groundwater flow. The inputs for the model are summarized inTable 1:

Table 1. Aquifer Parameters Used in the Lower Morro Basin Model

Parameters	Units
Land Surface	feet NAVD88
Base of Aquifer	feet NAVD88
Initial Water Elevation	feet NAVD88
Horizontal and Vertical Hydraulic Conductivity	feet/day
Storage Coefficient	unitless
Effective Porosity (for particle tracking)	unitless

3.3.1 Land Surface and Base of Aquifer Elevations

The elevation of the land surface was established using a Digital Elevation Model (DEM) (USGS, 2016). The base of the aquifer was taken from previously published data (Cleath and Associates, 1994; Cleath-Harris Geologists, 2014). The base of the aquifer was locally lowered in the area surrounding the High School wells and well ES-1 (Flippos) based on a more recent review and interpretation of a database of well logs and current well completion data (Fugro, 2016). Figure 3 shows bottom elevation of the model. The aquifer ranges in thickness between approximately 15 to 90 feet.

3.3.2 Horizontal and Vertical Hydraulic Conductivity

The horizontal hydraulic conductivity value (725 feet per day [ft/day]) of the main producing zone (lower portion of the aquifer [model layer 3]) is based on GSI's analysis of the water level responses during the November 2016 pumping event (Appendix A). The horizontal hydraulic conductivity of the upper aquifer zone (model layer 2) was estimated to be 10 ft/day during the model "tuning" process.

Vertical hydraulic conductivity values were estimated during the model "tuning" process by seeking to match both the November 2016 pumping event response and historical seasonal water level fluctuations. The vertical hydraulic conductivity values used in the model are 0.1 foot/day in model layer 2 and 72.5 foot/day in model layer 3.

3.3.3 Aquifer Storage Properties

The storage properties of the aquifer were guided by the aquifer test results and adjusted during the model "tuning" process by seeking to match both the November 2016 pumping event response and historical seasonal water level fluctuations. Storage values used in the model are a specific yield of 0.1 (unitless) in model layer 2 and a storage coefficient of 0.005 (unitless) in model layer 3.

3.3.4 Effective Porosity

Effective porosity values of 0.15 and 0.20 (unitless) were assigned to the layer representing the upper and lower portions of the aquifer, respectively. These values were estimated based on our understanding of the aquifer materials and are utilized in the particle tracking simulations to estimate response retention time.

3.4 Boundary Conditions

A boundary condition is a mathematical construct used in the model to represent the physical boundaries of the aquifer or an internal source or sink (e.g. recharge, injection, pumping, etc.). Boundary conditions included in the model are used to represent:

- Aquifer boundary,
- Stream recharge,
- Groundwater discharge to stream;
- Underflow at the Narrows from Upper Morro Valley Groundwater Basin;
- Areal Recharge (precipitation recharge);
- Pumping;
- Recycled water injection,
- Subsurface inflow from the Pacific Ocean; and
- Subsurface outflow to the Pacific Ocean;

The MODFLOW Packages used to simulate the boundary conditions are summarized inTable 2. Each boundary is further described in the following sections.

Table 2. MODFLOW Packages and Model Boundary Conditions

Flux	Flux Term	MODFLOW Package	Boundary Condition Type
Recharge	Streambed Percolation	Stream Package	Head-Dependent Flux
	Underflow at Narrows	Well Package	Specified Flux
	Areal Recharge from Precipitation	Recharge Package	Specified Flux
	Groundwater Injection	Multi Node Well Package	Specified Flux (head-limited)
	Underflow From Ocean	Constant Head Package	Specified Head
Discharge	Rising Water Discharge to Stream	Stream Package	Head-Dependent Flux
	Pumping of City Wells	Well Package	Specified Flux
	Underflow to Ocean	Constant Head Package	Specified Head

3.4.1 Aquifer Boundary

The physical boundaries of the aquifer are simulated using no flow cells that were assigned to the non-alluvial or bedrock portions of the model area (grey cells depicted on Figure 2). The extent of the physical boundaries of the aquifer is based on Cleath and Associates (1994).

3.4.2 Stream Recharge and Groundwater Discharge to Stream

The teal-colored cells in Figure 2 represent the Stream Package, which is a head-dependent flux boundary condition used to simulate Morro Creek percolation and groundwater discharge along the channel. Morro Creek is simulated in the model as mostly losing (losing water to the aquifer), and downstream portions being occasionally gaining (gaining water from the aquifer) during wet years.

Historical stream flow data was available on a daily basis between water years 1971 and 2003 (i.e., October 1, 1970 to September 30, 2003) as measured and recorded by a streamflow gauge operated by the County of San Luis Obispo near the Highway 1 bridge. The stream gauge is located inside the model domain and not at the inflow point at the Narrows at the upgradient edge of the model. To account for the gauge location being inside the model domain, a synthetic inflow rate was developed based on the gauge data and applied at the Narrows location in the model. This synthetic inflow was calibrated by matching the modeled streamflow to the historical observed flow at the gauge location. Based on these calibration adjustments, the observed and model-calculated streamflow were in a close agreement (within 0.5 percent) of the measured flow from 1971 to 2003. Lack of streamflow data after water year 2003 required that stream inflow at the Narrows for water years 2004 to 2016 be input based on historical flows during years with similar rainfall.

3.4.3 Underflow at the Narrows

Based on data availability and the screening-level intent of this model, a specified flux boundary was implemented at the Narrows to limit the extent of the model domain (i.e. so that it was not necessary to simulate the entire Morro Valley Basin). The red cells in Figure 2 at the eastern edge of the active model domain shows the location of the specified-flux boundary condition representing underflow at the Narrows. Conceptually, underflow from the larger Morro Creek Groundwater basin is thought to be limited because of shallow bedrock, the fine-grained nature of the aquifer in the Narrows, and the observation that groundwater levels in Lower Morro Valley are not sustained by underflow during periods of limited streamflow. Simulated underflow was approximately 43 AFY under average conditions.

Underflow was assigned to each of the monthly stress periods as a specified flux boundary condition using the WEL package[5]. The assignment of either a dry, average or wet hydrologic condition was based on precipitation recorded at the Morro Bay Fire Department. The average range of precipitation was determined by variation of one standard deviation above or below the average precipitation; dry conditions were assigned as less that one standard deviation below average and wet conditions as greater than one standard deviation above average. The underflow rates assigned to the generalized dry, average and wet periods were 20, 45 and 85 AFY, respectively. The estimated underflow was distributed in model layers 2 and 3 as 20% and 80%, respectively.

3.4.4 Areal Recharge from Precipitation

The active cells represent the area where areal recharge from precipitation was simulated. The areal recharge, or deep percolation of precipitation, was as assumed to be 15 percent of the monthly

[5] Despite the name, the WEL package can be used to simulate any type of specified flux.

recorded rainfall for each month of the 33-year period, which was simulated as a specified-flux boundary condition with the Recharge Package.

3.4.5 Underflow to/from the Pacific Ocean

The dark blue cells in Figure 2 represent a constant-head boundary controlled by the mean elevation of the Pacific Ocean. When the modeled groundwater elevations fall below sea level at the coast, water flows in the subsurface from the ocean into the aquifer and vice versa.

3.4.6 Groundwater Pumping

The red cells in Figure 2 in the interior of the model domain represent the locations of the existing City wells. The City wells are simulated to pump at various rates, depending on the IPR scenario using the WEL Package. Pumping is within the estimated capacity limits of the City's wells, as summarized in Table 3. The pumping capacity of all wells except MB-1 and MB-2 are based on observed pumping rates during the November 2016 pumping event (Appendix A). The long-term operational capacity of each well was assumed to be 80% of the observed instantaneous pumping rates. The long-term operational capacity of MB-1 and MB-2 were taken from Cleath-Harris Geologists (2014). The modeled annual pumping volumes for each well is distributed over monthly stress periods based on monthly reference evapotranspiration distribution as measured at a nearby CIMIS station to approximate seasonal variability of water demand throughout Morro Bay.

Table 3. Estimated Capacity of City Wells

Well	Observed Capacity November 2016, gpm	Assumed Operational Capacity, AFY
MB-1	Well Not Operated	145*
MB-2	Well Not Operated	145*
MB-3	186	240
MB-4	320	412
MB-14	180	232
MB-15	191	246
MB-13	Well Not Operated	Not Used IPR Scenarios
HS-1	141	182
HS-2	220	285
ES-1 (Flippos)	144	186
Total	N/A	2,073

* = Cleath-Harris Geologists (2014)

3.4.7 Recycled Water Injection

Recycled water injection was simulated using the Multi-Node Well Package. Injection rates were assumed to be 50% of the highest producing pumping well (206 AFY). The modeled volume of injected water is controlled by the head-dependent Multi-Node Well Package, which limits injection based on simulated groundwater levels. For this evaluation, injection water terminated if the groundwater level at that well rose to 3 feet below the land surface. Hence, the model calculates the injection volume in a manner that ensures that injection would not cause groundwater to discharge at the surface. The head-dependent injection is calculated on a daily time step within the model. Injection locations are discussed in the next section.

3.5 Model Tuning

The model was “tuned” to groundwater level responses from a recent pumping event and historical seasonal groundwater level fluctuations. The tuning process provides a reasonable degree of confidence that the modeled aquifer parameters are within a reasonable range and that the results of the modeling are reasonably valid for the purposes of screening the IPR alternatives. Rigorous calibration of the model was not justified for a screening level study and is not possible anyway due to limited data availability. Further refinement of the model would require additional field data collection (e.g. continuous groundwater level monitoring, stream gauging, pumping and injection testing, etc.).

The tuning process consisted principally of adjusting the hydraulic conductivity of the upper aquifer zone (model layer no. 2) and the vertical hydraulic conductivity of both aquifer zones (model layer nos. 2 and 3) and the hydraulic conductivity of the streambed, which controls the percolation rate. The inputs were evaluated for both wet and dry periods under non-pumping conditions without IPR injection. This non-pumping condition scenario was assumed to simplify the screening-level model especially because the City has largely ceased groundwater pumping due to the delivery of State Water Project water beginning in 1997. As a reality check for wet years, it was verified that simulated groundwater levels did not rise above land surface in cells near Morro Creek due to excessive modeled streambed recharge.

The resulting modeled groundwater elevations from the non-pumping tuning simulation were compared to observed data on hydrographs presented as Figure 4 (Well MB-4), Figure 5 (Well MB-14), and Figure 6 (Well MB-15). For this screening-level model, the results of the tuning are deemed reasonable in that the modeled groundwater elevations show similar elevations and seasonal variability as the limited observed water level data. The water budget calculated for the non-pumping flow conditions scenario is presented for water years 1971 through 2016 in Table 4.

Table 4 - Water Budget during Non-Pumping Conditions
Lower Morro Basin Valley
(acre-feet)

Water Year	Hydrologic Condition	Recharge						Discharge				Change in Storage	
		Subsurface Inflow from Ocean	Narrows Underflow	Injection of Recycled Water	Deep Percolation of Precipitation	Streambed Infiltration	Total Recharge	Subsurface Outflow to Ocean	Municipal Groundwater Production	Rising Groundwater into Stream	Total Discharge	Annual	Cumulative
1970/71	Dry	0.0	43	0	35	327	405	367.9	0	8	376	29	29
1971/72	Dry	0.0	21	0	19	95	135	187.1	0	3	190	-55	-26
1972/73	Wet	0.0	86	0	67	433	585	435.9	0	13	449	136	110
1973/74	Wet	0.0	43	0	55	470	568	557.3	0	19	576	-8	102
1974/75	Wet	0.0	43	0	35	358	436	487.5	0	11	499	-63	39
1975/76	Dry	0.0	43	0	28	151	221	265.6	0	4	270	-49	-9
1976/77	Dry	0.0	21	0	21	70	112	149.2	0	2	152	-39	-49
1977/78	Wet	0.0	86	0	72	466	624	458.6	0	17	475	149	100
1978/79	Wet	0.0	43	0	41	379	463	501.2	0	12	513	-50	50
1979/80	Wet	0.0	43	0	53	442	538	493.9	0	14	508	30	80
1980/81	Dry	0.0	43	0	29	339	411	458.8	0	10	469	-57	23
1981/82	Wet	0.0	43	0	51	465	559	485.6	0	14	500	60	82
1982/83	Wet	0.0	86	0	87	437	609	575.6	0	21	597	12	95
1983/84	Dry	0.0	43	0	21	272	336	446.6	0	10	456	-121	-26
1984/85	Dry	0.0	43	0	24	162	229	242.1	0	4	246	-17	-43
1985/86	Wet	0.0	43	0	42	284	370	326.5	0	8	334	35	-8
1986/87	Dry	0.0	43	0	28	200	271	294.4	0	6	300	-29	-37
1987/88	Dry	0.0	43	0	38	233	314	313.8	0	6	320	-6	-42
1988/89	Dry	0.0	43	0	30	247	320	327.5	0	6	333	-13	-56
1989/90	Dry	0.0	21	0	19	7	47	112.0	0	2	114	-67	-122
1990/91	Wet	0.0	43	0	39	216	298	252.4	0	6	258	40	-83
1991/92	Wet	0.0	43	0	46	345	434	380.2	0	9	389	44	-38
1992/93	Wet	0.0	86	0	59	421	565	507.6	0	16	524	41	3
1993/94	Dry	0.0	43	0	29	203	275	361.7	0	6	368	-93	-90
1994/95	Wet	0.0	86	0	96	437	620	492.8	0	20	512	107	17
1995/96	Wet	0.0	43	0	37	440	521	551.3	0	17	569	-48	-31
1996/97	Wet	0.0	43	0	46	449	539	538.1	0	18	556	-18	-49
1997/98	Wet	0.0	86	0	84	433	602	542.9	0	20	563	39	-9
1998/99	Wet	0.0	43	0	33	403	479	511.8	0	13	525	-46	-55
1999/00	Wet	0.0	43	0	46	379	469	432.3	0	11	444	25	-30
2000/01	Wet	0.0	43	0	36	426	506	508.6	0	13	522	-16	-46
2001/02	Dry	0.0	43	0	24	206	273	355.1	0	6	361	-89	-134
2002/03	Wet	0.0	43	0	37	479	558	444.1	0	14	458	100	-34
2003/04	Dry	0.0	43	0	23	206	272	363.1	0	6	369	-97	-131
2004/05	Wet	0.0	86	0	74	479	639	514.1	0	18	533	107	-24
2005/06	Dry	0.0	43	0	46	202	291	388.9	0	6	395	-104	-129
2006/07	Dry	0.0	21	0	18	212	252	258.0	0	4	262	-10	-139
2007/08	Dry	0.0	43	0	34	212	289	271.0	0	5	276	13	-126
2008/09	Dry	0.0	43	0	24	212	279	271.2	0	4	276	3	-123
2009/10	Dry	0.0	43	0	46	210	299	286.3	0	5	291	8	-115
2010/11	Wet	0.0	86	0	68	389	542	420.8	0	11	432	110	-5
2011/12	Dry	0.0	21	0	17	207	246	355.1	0	6	361	-115	-120
2012/13	Dry	0.0	43	0	21	212	276	265.1	0	4	269	7	-113
2013/14	Dry	0.0	21	0	17	212	251	249.9	0	4	254	-3	-116
2014/15	Dry	0.0	43	0	23	212	278	262.2	0	4	266	12	-105
2015/16	Dry	0.0	43	0	31	212	286	279.3	0	5	284	2	-102
Average		0	47	0	40	301	389	405	0	11	416	-1	
Median		0	43	0	36	278	353	444	0	11	456	-13	
Minimum		0	21	0	17	7	47	112	0	2	114	-121	
Maximum		0	86	0	96	479	639	576	0	21	597	149	
Total		0	2,184	0	1,854	13,852	17,889	17,551	0	441	17,992	-102	

4. Modeling Scenarios and Results

4.1 Description of the IPR Project Model Scenarios

Available data were reviewed to identify potential locations for injection wells[6]. Based on the required response retention time for recovery of injected recycled water and a desire to maximize the use of existing City wells for pumping, injection wells must be located far enough from the City wells such that the recycled water is not captured in less than two months[7]. An additional constraint is the boundary with the Pacific Ocean. Recycled water will be lost to the ocean if wells are located too close to the ocean. Given these constraints, it was determined that injection wells could possibly be located either upgradient (east) of the City's existing wells near the Narrows or cross-/downgradient (south) of the City's existing wells. A series of simulations were performed for each of these possible injection areas in an attempt to maximize recycled water injection and recovery pumping and achieve 4 months of response retention time. The two best model runs for each injection area are presented in this report:

- Scenarios 1A (utilizing 5 extraction wells) and 1B (utilizing 6 extraction wells) evaluated recycled water injection upgradient (east) of the City's existing wells, near the Narrows.

Scenarios 2A (utilizing 4 extraction wells) and 2B (utilizing 5 extraction wells) evaluated recycled water injection cross-/downgradient (south) of the City's existing wells.Table **5** below summarizes the four scenarios. Injection well locations and active pumping well locations for each scenario are shown in Figure 7 through 14.

Table 5. IPR Model Scenario Pumping

Well	Scenario 1A, AFY	Scenario 1B, AFY	Scenario 2A, AFY	Scenario 2B, AFY
MB-3	0	0	240	240
MB-4	0	0	412	412
MB-14	0	0	0	0
MB-15	0	0	0	0
MB-1	145	145	0	0
MB-2	145	145	0	0
ES-1	186	186	0	186
HS-1	182	182	182	182
HS-2	285	285	285	285
New Well	0	250	0	0
Total Pumping	943	1,193	1,119	1,305
Total Injection	825	825	804	815

Each scenario was simulated using the recharge and discharge water balance from the tuning simulation combined with the injection and recovery pumping indicated in Table 5. Each model run included a predictive period of nearly 43 years using 512 monthly stress periods.

[6] Locations were selected based on hydrogeologic and regulatory considerations. Land use, ownership, etc. were not considered in this evaluation.

[7] The minimum allowable response retention time is 2 months. If groundwater modeling is utilized for permitting, a safety factor of two is required, hence, 4 months must be demonstrated.

4.2 Results

The feasibility of IPR in this study was evaluated based on the following criteria:

1. Ability to inject 825 AFY of recycled water;
2. Annual production capacity of the City wells that can be sustained without causing significant seawater intrusion[8]; and
3. Ability to satisfy Title 22 minimum response retention time requirements for the injected recycled water[9].

4.2.1 Injection Volumes

For each scenario, the model attempted to inject as much as 825 AFY distributed evenly over four injection wells. As described in Section 3, injection was curtailed if groundwater levels at the injection well location rose above three feet below grade. The simulated injection volumes for selected representative wet and dry periods are summarized in Table 6.

Table 6. Summary of Model-Determined Injection Volumes (AFY)

Scenario	Model Injection Goal	Injection Wet Period (1978 - 1983)	Injection Dry Period (1984 -1990)	Injection Wet Period (1991 - 2001)	Injection Total Period (1971 - 2016)
Scenario 1A	825	825	825	825	825
Scenario 1B	825	825	825	825	825
Scenario 2A	825	782	820	786	804
Scenario 2B	825	806	824	805	815

The model-determined injection volumes are also summarized in terms of percentage of the total available injection water in Table 7.

8 1,437 AFY of groundwater production was cited as a production target; however, the goal of the screening evaluation was to estimate the maximum yield of the Lower Morro Valley Basin when implementing IPR, which was ultimately determined to be less than the production target.

9 The minimum allowable response retention time is 2 months. If groundwater modeling is utilized for permitting, a safety factor of two is required, hence, 4 months must be demonstrated.

Table 7. Summary of Model-Determined Injection Volumes (Percentage of Available)

Scenario	Model Injection Goal	Injection Wet Period (1978 - 1983)	Injection Dry Period (1984 - 1990)	Injection Wet Period (1991 - 2001)	Injection Total Period (1971 - 2016)
Scenario 1A	825	100	100	100	100
Scenario 1B	825	100	100	100	100
Scenario 2A	825	94.7	99.3	95.2	97.3
Scenario 2B	825	97.6	99.7	97.4	98.7

For Scenarios 1A and 1B, the model indicates that it may be possible to achieve the 825 AFY injection goal using the injection well and pumping wells simulated.

For Scenarios 2A and 2B, the model indicates that there may be times when injection would need to be curtailed by an estimated 2 to 5 percent due to high groundwater levels. This occurs during wet periods, such as occurred between water years 1978 and 1983 and again between 1991 and 2001. During the dry periods the model indicates that it may be possible to nearly achieve the 825 AFY goal using the injection well and pumping wells simulated in Scenarios 2A and 2B. The average simulated injection for Scenarios 2A and 2B over the entire simulation period is 801 AFY (or 97.1 percent) and 814 AFY (or 98.7 percent), respectively. A summary of the estimated water budget terms during IPR are presented in Table 8.

Table 8. Average Annual Water Budget for IPR Simulations

Water Budget Component		Scenario, AFY			
		1A	1B	2A	2B
Recharge	Subsurface Inflow from Ocean	1	39	15	86
	Narrows Underflow	47	47	47	47
	Injection of Recycled Water	825	825	804	815
	Deep Percolation of Precipitation	40	40	40	40
	Streambed Infiltration	294	343	360	387
	Total Recharge	**1,207**	**1,295**	**1,267**	**1,375**
Discharge	Subsurface Outflow to Ocean	279	128	177	95
	Municipal Groundwater Production	943	1,193	1,119	1,305
	Rising Water into Stream	8	6	6	5
	Total Discharge	**1,231**	**1,327**	**1,303**	**1,405**

A more detailed (1971 to 2016) summary of the estimated water budget terms during IPR are presented in Tables 9 through 12.

4.2.2 Extraction Volumes

The City's existing wells were simulated as the recovery wells for the IPR project. The simulated pumping rates were 943, 1,193, 1,119 and 1,305 AFY for Scenarios 1A, 1B, 2A and 2B, respectively. It is noted that the wells extract a combination of both native and IPR water.

Table 9 - Water Budget during Scenario 1A
Lower Morro Basin Valley

(acre-feet)

Water Year	Hydrologic Condition	Recharge						Discharge				Change in Storage	
		Subsurface Inflow from Ocean	Narrows Underflow	Injection of Recycled Water	Deep Percolation of Precipitation	Streambed Infiltration	Total Recharge	Subsurface Outflow to Ocean	Municipal Groundwater Production	Rising Groundwater into Stream	Total Discharge	Annual	Cumulative
1970/71	Dry	0.0	43	825	35	284	1,187	299.1	943	7	1,249	-62	-62
1971/72	Dry	0.0	21	826	19	94	960	68.3	945	2	1,015	-55	-117
1972/73	Wet	0.0	86	825	67	426	1,404	299.0	943	10	1,252	151	34
1973/74	Wet	0.0	43	825	55	475	1,398	435.9	943	15	1,394	5	39
1974/75	Wet	0.0	43	825	35	339	1,242	364.6	943	9	1,316	-75	-36
1975/76	Dry	0.0	43	826	28	150	1,046	146.9	945	3	1,095	-48	-85
1976/77	Dry	0.0	21	825	21	70	937	27.7	943	2	973	-36	-120
1977/78	Wet	0.0	86	825	72	470	1,453	326.8	943	13	1,283	170	50
1978/79	Wet	0.0	43	825	41	361	1,271	383.3	943	9	1,335	-65	-15
1979/80	Wet	0.0	43	826	53	430	1,352	361.3	945	11	1,317	35	20
1980/81	Dry	0.0	43	825	29	323	1,220	335.2	943	7	1,286	-66	-46
1981/82	Wet	0.0	43	825	51	454	1,373	351.6	943	11	1,305	68	22
1982/83	Wet	0.0	86	825	87	443	1,440	454.2	943	17	1,414	26	48
1983/84	Dry	0.0	43	826	21	252	1,143	326.0	945	8	1,279	-136	-88
1984/85	Dry	0.0	43	825	24	160	1,052	119.8	943	3	1,066	-13	-102
1985/86	Wet	0.0	43	825	42	262	1,172	182.9	943	6	1,132	40	-62
1986/87	Dry	0.0	43	825	28	183	1,079	158.2	943	4	1,105	-26	-88
1987/88	Dry	0.0	43	826	38	219	1,126	178.3	945	4	1,127	-1	-89
1988/89	Dry	0.0	43	825	30	244	1,142	193.6	943	4	1,141	1	-87
1989/90	Dry	24.0	21	825	19	7	896	0.0	943	2	945	-49	-136
1990/91	Wet	0.0	43	825	39	199	1,105	98.4	943	4	1,045	60	-76
1991/92	Wet	0.0	43	826	46	323	1,238	238.9	945	7	1,190	48	-28
1992/93	Wet	0.0	86	825	59	412	1,381	370.7	943	13	1,327	54	26
1993/94	Dry	0.0	43	825	29	197	1,094	262.0	943	4	1,209	-115	-89
1994/95	Wet	0.0	86	825	96	441	1,448	362.2	943	15	1,320	129	39
1995/96	Wet	0.0	43	826	37	433	1,339	431.1	945	14	1,390	-51	-11
1996/97	Wet	0.0	43	825	46	443	1,357	405.4	943	15	1,363	-7	-18
1997/98	Wet	0.0	86	825	84	436	1,430	418.3	943	16	1,377	53	35
1998/99	Wet	0.0	43	825	33	393	1,294	395.3	943	10	1,348	-54	-19
1999/00	Wet	0.0	43	826	46	367	1,283	307.3	945	8	1,260	22	3
2000/01	Wet	0.0	43	825	36	412	1,317	371.7	943	10	1,325	-8	-5
2001/02	Dry	0.0	43	825	24	202	1,094	242.3	943	4	1,190	-96	-101
2002/03	Wet	0.0	43	825	37	460	1,365	307.5	943	11	1,261	104	3
2003/04	Dry	0.0	43	826	23	201	1,093	251.2	945	4	1,200	-107	-104
2004/05	Wet	0.0	86	825	74	487	1,472	384.1	943	14	1,341	130	26
2005/06	Dry	0.0	43	825	46	196	1,110	287.5	943	5	1,235	-125	-99
2006/07	Dry	0.0	21	825	18	210	1,074	144.3	943	3	1,090	-16	-115
2007/08	Dry	0.0	43	826	34	209	1,111	157.7	945	3	1,106	5	-110
2008/09	Dry	0.0	43	825	24	209	1,101	154.8	943	3	1,101	0	-110
2009/10	Dry	0.0	43	825	46	206	1,120	172.4	943	3	1,119	1	-108
2010/11	Wet	0.0	86	825	68	380	1,358	291.9	943	9	1,244	115	6
2011/12	Dry	0.0	21	826	17	203	1,068	243.8	945	4	1,193	-125	-118
2012/13	Dry	0.0	43	825	21	210	1,098	149.8	943	3	1,096	3	-116
2013/14	Dry	0.0	21	825	17	210	1,074	135.0	943	3	1,081	-7	-123
2014/15	Dry	0.0	43	825	23	210	1,101	147.7	943	3	1,094	7	-116
2015/16	Dry	0.0	43	826	31	209	1,109	163.3	945	3	1,111	-2	-118
Average		1	47	825	40	294	1,207	280	943	8	1,231	0	
Median		0	43	825	36	257	1,157	307	943	8	1,261	-7	
Minimum		0	21	825	17	7	896	0	943	2	945	-136	
Maximum		24	86	826	96	487	1,472	454	945	17	1,414	170	
Total		24	2,184	37,962	1,854	13,505	55,529	11,907	43,400	340	55,647	-118	

Table 10 - Water Budget during Scenario 1B
Lower Morro Basin Valley
(acre-feet)

Water Year	Hydrologic Condition	Recharge						Discharge				Change in Storage	
		Subsurface Inflow from Ocean	Narrows Underflow	Injection of Recycled Water	Deep Percolation of Precipitation	Streambed Infiltration	Total Recharge	Subsurface Outflow to Ocean	Municipal Groundwater Production	Rising Groundwater into Stream	Total Discharge	Annual	Cumulative
1970/71	Dry	0.0	43	825	35	314	1,217	171.4	1,193	5	1,370	-153	-153
1971/72	Dry	171.1	21	826	19	96	1,133	0.0	1,194	1	1,195	-62	-215
1972/73	Wet	0.0	86	825	67	515	1,492	123.3	1,193	7	1,323	169	-46
1973/74	Wet	0.0	43	825	55	587	1,510	295.7	1,193	11	1,499	11	-35
1974/75	Wet	0.0	43	825	35	400	1,303	190.9	1,193	6	1,390	-87	-122
1975/76	Dry	86.3	43	826	28	151	1,134	0.0	1,194	1	1,195	-61	-183
1976/77	Dry	219.1	21	825	21	70	1,157	0.0	1,193	1	1,194	-37	-220
1977/78	Wet	0.0	86	825	72	585	1,568	169.3	1,193	9	1,372	196	-24
1978/79	Wet	0.0	43	825	41	423	1,332	210.3	1,193	6	1,409	-77	-101
1979/80	Wet	0.0	43	826	53	516	1,438	195.0	1,194	8	1,397	42	-60
1980/81	Dry	0.0	43	825	29	375	1,272	145.9	1,193	5	1,344	-72	-131
1981/82	Wet	0.0	43	825	51	541	1,460	184.6	1,193	7	1,385	75	-57
1982/83	Wet	0.0	86	825	87	553	1,550	314.4	1,193	12	1,519	31	-26
1983/84	Dry	0.0	43	826	21	305	1,195	149.4	1,194	5	1,349	-154	-179
1984/85	Dry	117.1	43	825	24	164	1,173	0.0	1,193	1	1,194	-21	-200
1985/86	Wet	17.0	43	825	42	321	1,248	0.0	1,193	4	1,197	51	-149
1986/87	Dry	53.0	43	825	28	213	1,162	0.0	1,193	2	1,195	-33	-182
1987/88	Dry	33.4	43	826	38	254	1,194	0.0	1,194	2	1,196	-2	-184
1988/89	Dry	16.1	43	825	30	282	1,196	0.0	1,193	2	1,195	0	-183
1989/90	Dry	268.4	21	825	19	7	1,140	0.0	1,193	1	1,194	-53	-236
1990/91	Wet	113.2	43	825	39	244	1,264	0.0	1,193	2	1,195	69	-168
1991/92	Wet	0.0	43	826	46	382	1,297	48.8	1,194	4	1,247	50	-117
1992/93	Wet	0.0	86	825	59	508	1,477	214.1	1,193	9	1,416	61	-57
1993/94	Dry	0.0	43	825	29	212	1,109	44.9	1,193	2	1,240	-131	-188
1994/95	Wet	0.0	86	825	96	555	1,562	208.1	1,193	10	1,411	151	-37
1995/96	Wet	0.0	43	826	37	532	1,438	291.8	1,194	10	1,496	-58	-95
1996/97	Wet	0.0	43	825	46	547	1,461	265.5	1,193	11	1,469	-9	-103
1997/98	Wet	0.0	86	825	84	545	1,540	277.5	1,193	11	1,482	58	-45
1998/99	Wet	0.0	43	825	33	470	1,372	231.4	1,193	7	1,431	-60	-105
1999/00	Wet	0.0	43	826	46	441	1,356	133.7	1,194	6	1,333	23	-82
2000/01	Wet	0.0	43	825	36	483	1,387	200.1	1,193	7	1,400	-13	-94
2001/02	Dry	0.0	43	825	24	213	1,104	19.2	1,193	2	1,214	-110	-204
2002/03	Wet	0.0	43	825	37	557	1,462	142.2	1,193	8	1,343	119	-85
2003/04	Dry	0.0	43	826	23	213	1,105	30.3	1,194	2	1,226	-121	-206
2004/05	Wet	0.0	86	825	74	603	1,588	231.7	1,193	10	1,435	153	-53
2005/06	Dry	0.0	43	825	46	211	1,125	78.8	1,193	3	1,274	-149	-202
2006/07	Dry	96.4	21	825	18	214	1,175	0.0	1,193	1	1,194	-19	-221
2007/08	Dry	84.1	43	826	34	215	1,202	0.0	1,194	1	1,195	6	-215
2008/09	Dry	87.3	43	825	24	214	1,193	0.0	1,193	1	1,194	-1	-216
2009/10	Dry	68.3	43	825	46	214	1,196	0.0	1,193	1	1,194	1	-214
2010/11	Wet	0.0	86	825	68	458	1,436	106.2	1,193	6	1,305	131	-83
2011/12	Dry	0.0	21	826	17	214	1,079	21.2	1,194	2	1,217	-139	-222
2012/13	Dry	92.1	43	825	21	214	1,195	0.0	1,193	1	1,194	1	-221
2013/14	Dry	109.1	21	825	17	214	1,187	0.0	1,193	1	1,194	-7	-228
2014/15	Dry	95.8	43	825	23	214	1,201	0.0	1,193	1	1,194	7	-221
2015/16	Dry	80.0	43	826	31	215	1,195	0.0	1,194	1	1,195	0	-221
Average		39	47	825	40	343	1,295	128	1,193	6	1,327	-3	
Median		0	43	825	36	309	1,232	146	1,193	6	1,344	-9	
Minimum		0	21	825	17	7	1,079	0	1,193	1	1,194	-154	
Maximum		268	86	826	96	603	1,588	314	1,194	12	1,519	196	
Total		1,808	2,184	37,962	1,854	15,773	59,580	4,696	54,890	216	59,801	-221	

Table 11 - Water Budget during Scenario 2A
Lower Morro Basin Valley
(acre-feet)

Water Year	Hydrologic Condition	Recharge						Discharge				Change in Storage	
		Subsurface Inflow from Ocean	Narrows Underflow	Injection of Recycled Water	Deep Percolation of Precipitation	Streambed Infiltration	Total Recharge	Subsurface Outflow to Ocean	Municipal Groundwater Production	Rising Groundwater into Stream	Total Discharge	Annual	Cumulative
1970/71	Dry	0.0	43	790	35	328	1,196	213.5	1,119	6	1,338	-142	-142
1971/72	Dry	100.5	21	825	19	96	1,062	0.0	1,120	1	1,121	-59	-201
1972/73	Wet	0.0	86	789	67	548	1,490	189.6	1,119	8	1,317	173	-29
1973/74	Wet	0.0	43	762	55	640	1,499	352.5	1,119	12	1,484	16	-13
1974/75	Wet	0.0	43	801	35	419	1,298	259.1	1,119	7	1,385	-87	-100
1975/76	Dry	13.3	43	825	28	152	1,061	0.0	1,120	2	1,122	-61	-161
1976/77	Dry	145.6	21	823	21	71	1,081	0.0	1,119	1	1,120	-39	-200
1977/78	Wet	0.0	86	774	72	630	1,562	231.5	1,119	11	1,361	201	1
1978/79	Wet	0.0	43	797	41	444	1,326	276.4	1,119	7	1,402	-77	-75
1979/80	Wet	0.0	43	788	53	551	1,436	259.5	1,120	9	1,388	47	-28
1980/81	Dry	0.0	43	819	29	384	1,275	220.0	1,119	6	1,345	-70	-98
1981/82	Wet	0.0	43	789	51	573	1,456	251.5	1,119	9	1,379	77	-21
1982/83	Wet	0.0	86	749	87	613	1,534	366.1	1,119	13	1,498	37	15
1983/84	Dry	0.0	43	791	21	317	1,171	200.8	1,120	6	1,327	-155	-140
1984/85	Dry	46.8	43	823	24	165	1,101	0.0	1,119	1	1,120	-19	-159
1985/86	Wet	0.0	43	822	42	330	1,237	62.2	1,119	5	1,186	51	-108
1986/87	Dry	0.0	43	823	28	217	1,111	24.5	1,119	3	1,146	-35	-143
1987/88	Dry	0.0	43	825	38	256	1,161	40.6	1,120	3	1,163	-2	-145
1988/89	Dry	0.0	43	823	30	281	1,177	55.6	1,119	3	1,178	-1	-146
1989/90	Dry	195.2	21	823	19	7	1,065	0.0	1,119	1	1,120	-55	-201
1990/91	Wet	35.5	43	823	39	252	1,191	0.0	1,119	3	1,122	69	-131
1991/92	Wet	0.0	43	819	46	395	1,303	125.3	1,120	5	1,251	52	-80
1992/93	Wet	0.0	86	769	59	553	1,466	273.4	1,119	10	1,403	64	-16
1993/94	Dry	0.0	43	823	29	211	1,105	115.2	1,119	3	1,237	-132	-148
1994/95	Wet	0.0	86	765	96	605	1,553	266.3	1,119	11	1,397	156	8
1995/96	Wet	0.0	43	764	37	581	1,425	348.1	1,120	11	1,479	-54	-46
1996/97	Wet	0.0	43	754	46	604	1,447	319.3	1,119	12	1,450	-3	-49
1997/98	Wet	0.0	86	758	84	601	1,528	332.5	1,119	12	1,464	64	15
1998/99	Wet	0.0	43	800	33	494	1,370	301.6	1,119	8	1,429	-59	-43
1999/00	Wet	0.0	43	816	46	458	1,363	209.3	1,120	7	1,336	27	-17
2000/01	Wet	0.0	43	784	36	514	1,377	262.4	1,119	8	1,389	-12	-29
2001/02	Dry	0.0	43	823	24	212	1,102	89.4	1,119	3	1,211	-109	-138
2002/03	Wet	0.0	43	788	37	593	1,460	208.7	1,119	9	1,337	124	-15
2003/04	Dry	0.0	43	825	23	213	1,103	102.2	1,120	3	1,225	-122	-136
2004/05	Wet	0.0	86	766	74	654	1,580	290.4	1,119	11	1,421	159	22
2005/06	Dry	0.0	43	823	46	209	1,121	149.6	1,119	3	1,272	-151	-129
2006/07	Dry	23.7	21	823	18	215	1,101	0.0	1,119	2	1,121	-20	-148
2007/08	Dry	11.4	43	825	34	216	1,129	0.0	1,120	2	1,122	7	-141
2008/09	Dry	14.4	43	823	24	215	1,119	0.0	1,119	2	1,121	-2	-143
2009/10	Dry	0.0	43	823	46	214	1,126	4.7	1,119	2	1,126	0	-143
2010/11	Wet	0.0	86	809	68	477	1,440	179.4	1,119	7	1,305	134	-9
2011/12	Dry	0.0	21	825	17	213	1,077	93.9	1,120	3	1,217	-139	-148
2012/13	Dry	19.1	43	823	21	215	1,121	0.0	1,119	2	1,121	0	-148
2013/14	Dry	35.7	21	823	17	215	1,112	0.0	1,119	1	1,120	-8	-156
2014/15	Dry	22.7	43	823	23	215	1,126	0.0	1,120	2	1,122	5	-151
2015/16	Dry	6.8	43	825	31	216	1,122	0.0	1,121	2	1,123	-1	-153
Average		15	47	804	40	360	1,267	177	1,119	6	1,303	0	
Median		0	43	821	36	323	1,194	209	1,119	7	1,337	-3	
Minimum		0	21	749	17	7	1,061	0	1,119	1	1,120	-155	
Maximum		195	86	825	96	654	1,580	366	1,121	13	1,498	201	
Total		671	2,184	36,974	1,854	16,581	58,264	6,675	51,488	253	58,416	-153	

Table 12 - Water Budget during Scenario 2B
Lower Morro Basin Valley
(acre-feet)

Water Year	Hydrologic Condition	Recharge						Discharge				Change in Storage	
		Subsurface Inflow from Ocean	Narrows Underflow	Injection of Recycled Water	Deep Percolation of Precipitation	Streambed Infiltration	Total Recharge	Subsurface Outflow to Ocean	Municipal Groundwater Production	Rising Groundwater into Stream	Total Discharge	Annual	Cumulative
1970/71	Dry	0.0	43	804	35	342	1,224	124.3	1,305	5	1,434	-210	-210
1971/72	Dry	279.2	21	826	19	96	1,241	0.0	1,306	0	1,306	-65	-276
1972/73	Wet	0.0	86	813	67	596	1,562	66.8	1,305	7	1,378	184	-92
1973/74	Wet	0.0	43	790	55	701	1,590	257.4	1,305	10	1,572	17	-75
1974/75	Wet	0.0	43	822	35	449	1,349	138.7	1,305	5	1,449	-100	-175
1975/76	Dry	188.4	43	826	28	152	1,236	0.0	1,306	1	1,307	-70	-245
1976/77	Dry	330.8	21	823	21	70	1,267	0.0	1,305	0	1,305	-39	-284
1977/78	Wet	0.0	86	801	72	695	1,654	122.2	1,305	9	1,436	218	-66
1978/79	Wet	0.0	43	820	41	474	1,378	156.8	1,305	5	1,467	-89	-155
1979/80	Wet	0.0	43	813	53	597	1,506	145.7	1,306	7	1,459	47	-108
1980/81	Dry	0.0	43	823	29	415	1,310	80.0	1,305	4	1,389	-79	-186
1981/82	Wet	0.0	43	814	51	619	1,527	136.9	1,305	7	1,449	78	-108
1982/83	Wet	0.0	86	779	87	674	1,626	271.7	1,305	10	1,587	38	-70
1983/84	Dry	0.0	43	810	21	344	1,218	79.1	1,306	4	1,390	-171	-241
1984/85	Dry	224.1	43	823	24	165	1,279	0.0	1,305	1	1,306	-26	-267
1985/86	Wet	88.1	43	823	42	370	1,367	0.0	1,305	3	1,308	59	-209
1986/87	Dry	136.3	43	823	28	235	1,266	0.0	1,305	1	1,306	-41	-249
1987/88	Dry	121.2	43	826	38	275	1,303	0.0	1,306	2	1,308	-5	-254
1988/89	Dry	107.6	43	823	30	300	1,304	0.0	1,305	2	1,307	-3	-256
1989/90	Dry	378.1	21	823	19	7	1,248	0.0	1,305	0	1,305	-57	-313
1990/91	Wet	196.0	43	823	39	282	1,383	0.0	1,305	2	1,307	76	-237
1991/92	Wet	14.4	43	826	46	432	1,362	0.0	1,306	4	1,310	52	-185
1992/93	Wet	0.0	86	794	59	605	1,544	166.3	1,305	8	1,480	64	-121
1993/94	Dry	50.6	43	823	29	213	1,159	0.0	1,305	1	1,306	-147	-268
1994/95	Wet	0.0	86	791	96	671	1,644	158.5	1,305	9	1,473	171	-97
1995/96	Wet	0.0	43	792	37	633	1,506	253.8	1,306	9	1,569	-63	-160
1996/97	Wet	0.0	43	781	46	660	1,531	223.7	1,305	10	1,538	-8	-168
1997/98	Wet	0.0	86	786	84	662	1,618	236.5	1,305	10	1,551	66	-102
1998/99	Wet	0.0	43	822	33	533	1,431	187.9	1,305	6	1,499	-68	-170
1999/00	Wet	0.0	43	826	46	504	1,419	84.3	1,306	5	1,395	24	-146
2000/01	Wet	0.0	43	809	36	550	1,438	145.2	1,305	6	1,456	-18	-165
2001/02	Dry	82.2	43	823	24	214	1,186	0.0	1,305	1	1,306	-120	-285
2002/03	Wet	0.0	43	812	37	647	1,538	92.9	1,305	7	1,405	133	-152
2003/04	Dry	65.3	43	826	23	215	1,171	0.0	1,306	1	1,307	-136	-288
2004/05	Wet	0.0	86	793	74	720	1,672	184.6	1,305	9	1,499	173	-114
2005/06	Dry	10.3	43	823	46	213	1,136	0.0	1,305	2	1,307	-171	-285
2006/07	Dry	206.1	21	823	18	215	1,284	0.0	1,305	1	1,306	-22	-307
2007/08	Dry	195.2	43	826	34	216	1,313	0.0	1,306	1	1,307	7	-300
2008/09	Dry	198.2	43	823	24	215	1,303	0.0	1,305	1	1,306	-2	-303
2009/10	Dry	178.6	43	823	46	215	1,305	0.0	1,305	1	1,306	0	-303
2010/11	Wet	0.0	86	823	68	524	1,500	44.8	1,305	5	1,355	145	-158
2011/12	Dry	74.4	21	826	17	215	1,154	0.0	1,306	1	1,307	-153	-311
2012/13	Dry	202.0	43	823	21	215	1,304	0.0	1,305	1	1,306	-2	-313
2013/14	Dry	219.8	21	823	17	215	1,297	0.0	1,305	1	1,306	-9	-322
2014/15	Dry	206.4	43	823	23	215	1,311	0.0	1,305	1	1,306	5	-317
2015/16	Dry	190.8	43	826	31	216	1,306	0.0	1,306	1	1,307	0	-317
Average		86	47	815	40	387	1,375	95	1,305	5	1,405	-5	
Median		12	43	823	36	343	1,312	84	1,305	5	1,395	-8	
Minimum		0	21	779	17	7	1,136	0	1,305	0	1,305	-210	
Maximum		378	86	826	96	720	1,672	272	1,306	10	1,587	218	
Total		3,944	2,184	37,499	1,854	17,790	63,271	3,358	60,042	188	63,588	-317	

4.2.3 Groundwater Elevations

The simulated groundwater elevations for the IPR project scenarios under wet and dry conditions are presented in map view on Figure 7 through Figure 14. As expected, the groundwater gradients indicate mounding and flow away from the simulated injection wells and cones of depression and flow toward the simulated pumping wells. In general, the groundwater gradients during dry periods indicate onshore flow and groundwater gradients during wet periods indicate offshore flow. As discussed later, particle tracking was implemented to evaluate whether there is net onshore flow.

Time-series plots of groundwater levels (hydrographs) at ES-1 (Flippos), HS-2, MB-3, and MB-4 are presented in Figure 15 through Figure 18. The hydrographs during the IPR project show greater variability of groundwater elevations due to injection and extraction, as compared to the simulated non-pumping conditions. The model results indicate that groundwater levels would likely drop below the top of the well screens during dry periods[10].

4.2.4 Particle Tracking Results

The response retention time, i.e. the travel time of the recycled water injected into the aquifer system prior to extraction by the City's wells was estimated via particle tracking methods using the USGS code MODPATH[11]. Particle tracking simulates advective transport of the injected recycled water and is, therefore, representative of the mean transport time. Particle tracking was also used to evaluate potential for seawater intrusion by including a number of particle release points along the coast.

IPR Travel Time Evaluation

The particle traces representing recycled water movement through the aquifer are depicted on Figures 7 through 14, where each color change represents a single month of travel time. The estimated recycled water response residence times are summarized in Table 13.

The minimum allowable response residence time is 2 months. If groundwater modeling is utilized for permitting, a safety factor of two is required, hence, 4 months must be demonstrated. The estimated minimum response residence times for the scenarios are less than 4 months but always greater than 2 months. Thus, the modeling results suggest that it may be possible to meet the minimum required response retention time. However, because the travel times are less than 4 months, groundwater modeling alone may not be sufficient for permitting.

Table 13. Minimum Recycled Water Residence Time Results

Scenario	Injection **AFY)**	Pumping (AFY)	Minimum Residence Time (months)	
			Wet	Dry
1A	825	943	3-4	>4
1B	825	1,193	2-3	3-4
2A	801	1,119	2-3	3-4
2B	814	1,305	2-3	3-4

[10] The model groundwater levels at pumping/injection wells were not corrected. The model-calculated groundwater levels are the average for the each model cell. Thus, the actual groundwater level in a pumping well would be lower than the model indicates.

[11] MODPATH is a post-processing package developed to compute three-dimensional flow paths (i.e., particle tracking) using the cell-by-cell flows from the MODFLOW groundwater flow model.

Seawater Intrusion Evaluation

The particle traces representing seawater movement through the aquifer are depicted on Figures 7 through 14 in yellow. In general, seawater intrusion is only indicated in Scenario 2B. Thus, the “safe” pumping volume for the well layouts tested in Scenario 2A/2B is somewhere between 1,119 and 1,305 acre-feet per year, say approximately 1,200 acre-feet per year. For Scenario 1A/1B, it is noted that seawater intrusion was indicated in non-reported Scenario 1B runs tested with higher pumping rates. Thus, it may not be feasible to increase pumping beyond approximately 1,200 acre-feet per year using the well layouts tested in Scenario 1B. Overall the modeling simulations suggest that no more than approximately 1,200 acre-feet per year of pumping can be achieved with IPR.

5. Conclusions and Recommendations

5.1 Conclusions

The key results of the IPR scenarios are summarized in Table 14 below.

Table 14. Key Results of IPR Scenarios

Scenario	Description	Injection	Pumping	Min. Residence Time (months)		Seawater Intrusion Potential
		AFY		Wet	Dry	
1A	Upgradient Injection with pumping at MB-1, MB-2, ES-1, HS-1, HS-2	825	943	3-4	>4	Limited
1B	Scenario 1A plus new pumping well at bike path	825	1,193	2-3	3-4	Moderate*
2A	Downgradient Injection with pumping @ MB-3, MB-4, HS-1, HS-2	801	1,119	2-3	3-4	Limited
2B	Scenario 2A plus pumping at ES-1	814	1,305	3-4	>4	High
*Seawater intrusion was indicated in non-reported runs with slightly higher pumping rates.						

The following conclusions can be made based on the results of the model simulations:

- Recycled Water Injection – The aquifer can likely accept 800-825 AFY of recycled water with the various 4-well configurations simulated. A minimum of 4 injection wells are based on the estimated injection rates. Additional wells may be needed depending on the rate of injection well clogging. An injection pilot testing is highly recommended to verify injection well capacities and clogging rates.
- Groundwater Pumping Volumes – The City's existing wells may be capable of producing up to 1,200 AFY with concurrent recycled water injection at the simulated rates and well locations without inducing a significant amount of seawater intrusion. The model results indicate that seawater intrusion risk increases significantly with higher pumping rates. The well configuration tested in Scenario 1B would require one new pumping well.
- Recycled Water Residence Time – The modeling results suggest that it may be possible to meet the minimum required response retention time of two months. However, because the travel times are less than 4 months, groundwater modeling alone may not be sufficient for permitting.

5.2 Recommendations

Based on the conclusions presented above, the following recommendations are offered:

- Preliminary Consultation with Division of Drinking Water (DDW) and Regional Water Quality Control Board (RWQCB) – GSI recommends meeting with DDW and RWQCB for a preliminary consultation concerning permitting considerations. Potential consultation topics for DDW would include a discussion of preliminary response residence time results and potential next steps for demonstrating the response residence time. Potential consultation topics for RWQCB would include receiving water quality considerations.

- Pilot Injection Program – GSI recommends implementing a pilot injection program consisting of one or more pilot injection wells and associated monitoring wells. Injection pilot testing would be performed to confirm modeling results and provide a basis for full scale project design and permitting. Of particular interest is confirming injection rates and evaluating injection well clogging rates. A tracer test could be performed during the injection testing to refine the response residence time estimates. The City should work closely with DDW and RWQCB when designing the pilot injection program to ensure that that it supports the permitting process.
- Seawater Intrusion Monitoring – GSI recommends implementing a seawater intrusion monitoring program. The existing seawater intake wells may possibly be suited for this purpose, but would require evaluation that is beyond the scope of this feasibility study. Otherwise, monitoring wells could be installed. In either case, GSI recommends instrumenting the wells with continuous monitoring devices to collect pre-project, baseline data. The continuous monitoring data can be used to assess the degree of connection between the aquifer and the ocean and can be used to estimate aquifer properties.
- Groundwater Level Monitoring – GSI recommends installing continuous monitoring devices in selected City wells to collect pre-project, baseline groundwater level data. These data will help improve our understanding of the aquifer dynamics and aquifer properties. Additionally, these data may also be utilized to update the groundwater model and estimates of IPR yields.
- Synoptic Streamflow Measurements – GSI recommends performing a series of synoptic streamflow measurements to estimate stream recharge volumes and associated percolation rates. These data will help improve our understanding of the aquifer water budget because stream percolation is believed to be the largest source of natural recharge to the basin. The results of these manual gauging events could be utilized to update the groundwater model and estimates of IPR yields.

6. Model Limitations

The groundwater model presented in this technical memorandum was developed using the limited data readily available concerning the basin. The model is tuned qualitatively with respect to observed groundwater elevation data, but not rigorously calibrated. It is noted that a rigorous calibration of the model would require data not currently available.

The key data limitations include, but are not limited, to the following:

- Groundwater Levels - There is very limited record of groundwater levels available for model calibration.
- Aquifer Properties - There is limited data concerning the aquifer properties.
- Streambed Percolations Rates - Streambed permeability has not been measured and there is insufficient surface water gauging to otherwise estimate percolation rates.
- Nature of the Aquifer Geometry and Ocean Interface – The offshore aquifer geometry and connection to the ocean is not known. If short-circuit pathways for seawater exist, seawater intrusion could occur much more quickly and severely than predicted by the model.
- Aquifer Geometry - The northwesterly extent of the aquifer is not well understood and was based on work by prior investigators (Cleath and Associates, 1994). It is likely that the aquifer extends further to the northwest, but the thickness and properties are not know. As such the aquifer is truncated in the model at the same approximate location that prior investigators show the aquifer limits to be. If the aquifer indeed extends further northwest, the model results may not be impacted. The degree of potential impact could assessed by completing a series of sensitivity runs, however, this was beyond the scope of the screening evaluation.
- Underflow - Underflow through the Narrows is not well constrained and was assumed based on conceptual understanding of the hydrogeology and water level responses. Groundwater level monitoring and aquifer testing in the Narrows could constrain the rate of underflow.

In addition to the model limitations, it is noted that the modeling analysis presented in this report does not address potential operation of the seawater desalination intake wells. If the desalination plant is activated and the intake wells are utilized, the flow dynamics of the aquifer could be considerably different than presented in this report.

7. References

Cleath and Associates, 1994. *Analysis and Recommendations for a Water Management Plan*, consultant report prepared for the city of Morro bay, March.

Cleath and Associates, 2007. *Morro Basin Nitrate Study*, consultant report prepared for the City of Morro Bay, December.

Cleath-Harris Geologists, 2014. *Hydrologic evaluation of the potential benefits to the City water supply from reclaimed water use in the Morro Valley, San Luis Obispo County*, consultant report prepared for the City of Morro Bay, November 7.

Fugro, 2016. *Morro Valley Groundwater Reconnaissance Study*, consultant report prepared for the City of Morro Bay, January.

Harbaugh et al., 2000. *MODFLOW-2000, the U.S. Geological Survey modular ground-water model—User guide to modularization concepts and the Ground-Water Flow Process*. USGS Open-File Report 00-92. Reston, Virginia: U.S. Geological Survey.

USGS, July 2016, *Digital Elevation Model*: U.S. Geological Survey.

FIGURES

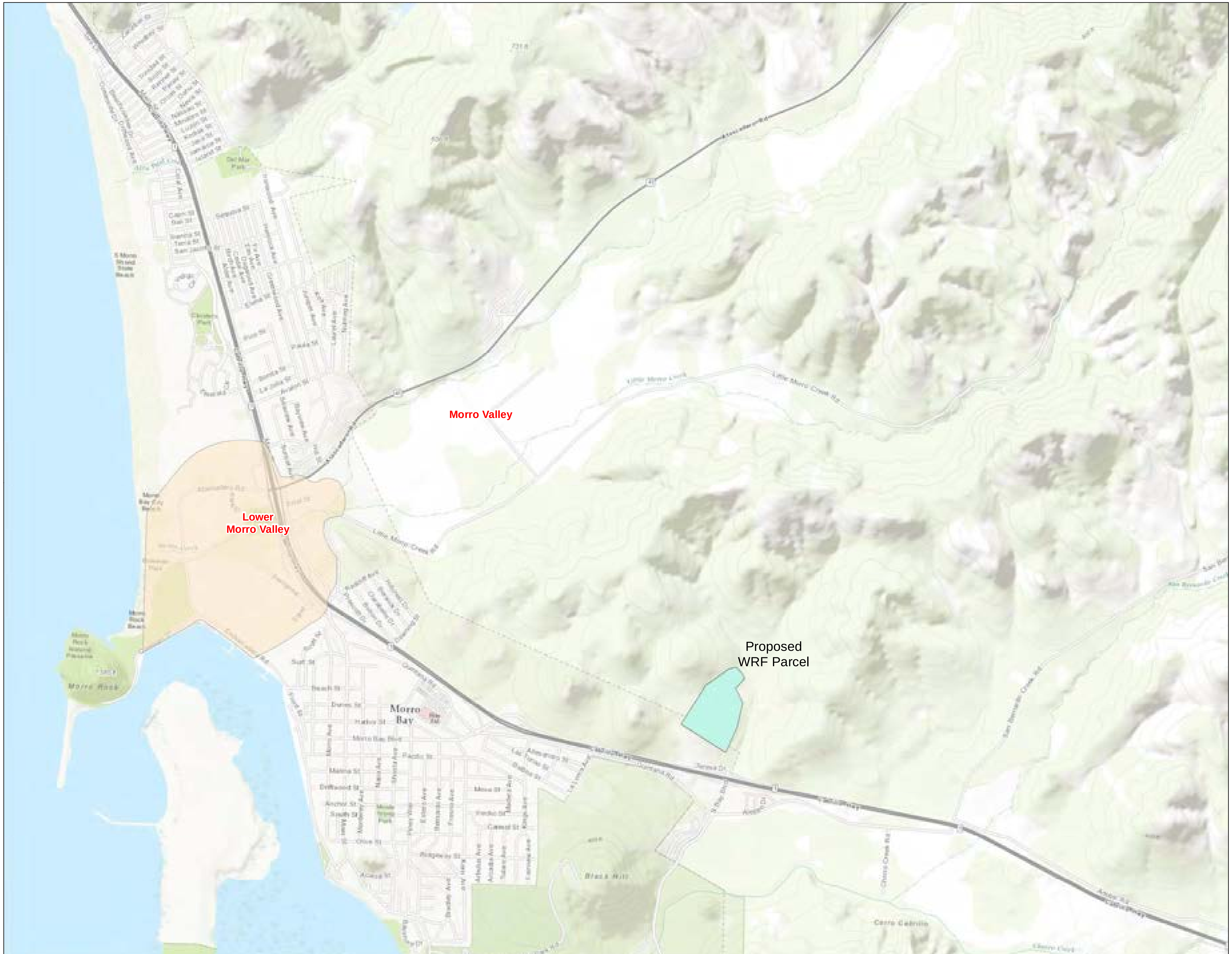


FIGURE 1

Lower Morro Valley Model Study Area

Morro Bay, California

LEGEND

Model Domain

Proposed Water Reclamation Facility (WRF)

N

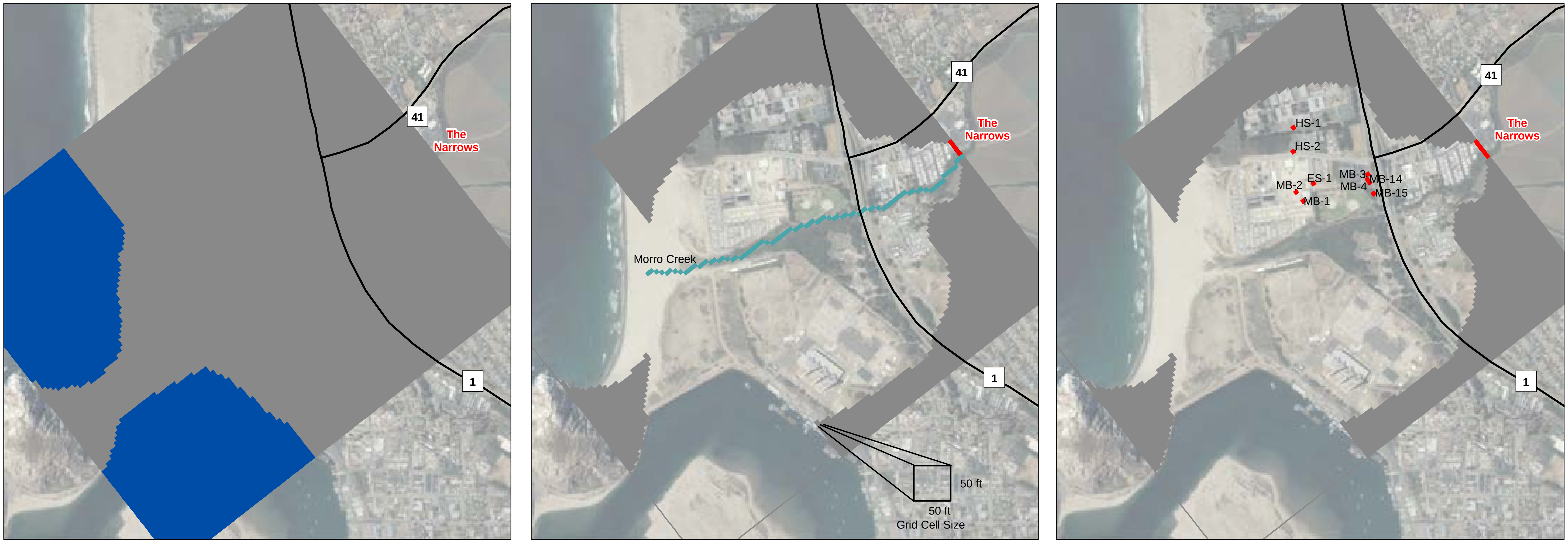
0 2,000

Feet

Date: July 15, 2016
Data Sources: USGS

GSI Water Solutions, Inc.

Document Path: P:\Portland\645-Morro Bay\006-Revised L. Morro Valley Modeling\Project_GIS\Project_mxd\Figure_1_Morro_Valley_Study_Area.mxd



Model Layer 1 | Model Layer 2 | Model Layer 3

LEGEND

- Active Cells
- Constant Head
- No-Flow
- Stream
- Specified Flux for Well Pumping and/or Narrows Underflow
- 1 Highway

N

0 500
Feet

GSI Water Solutions, Inc.

Date: July 15, 2016
Data Sources: USGS

FIGURE 2

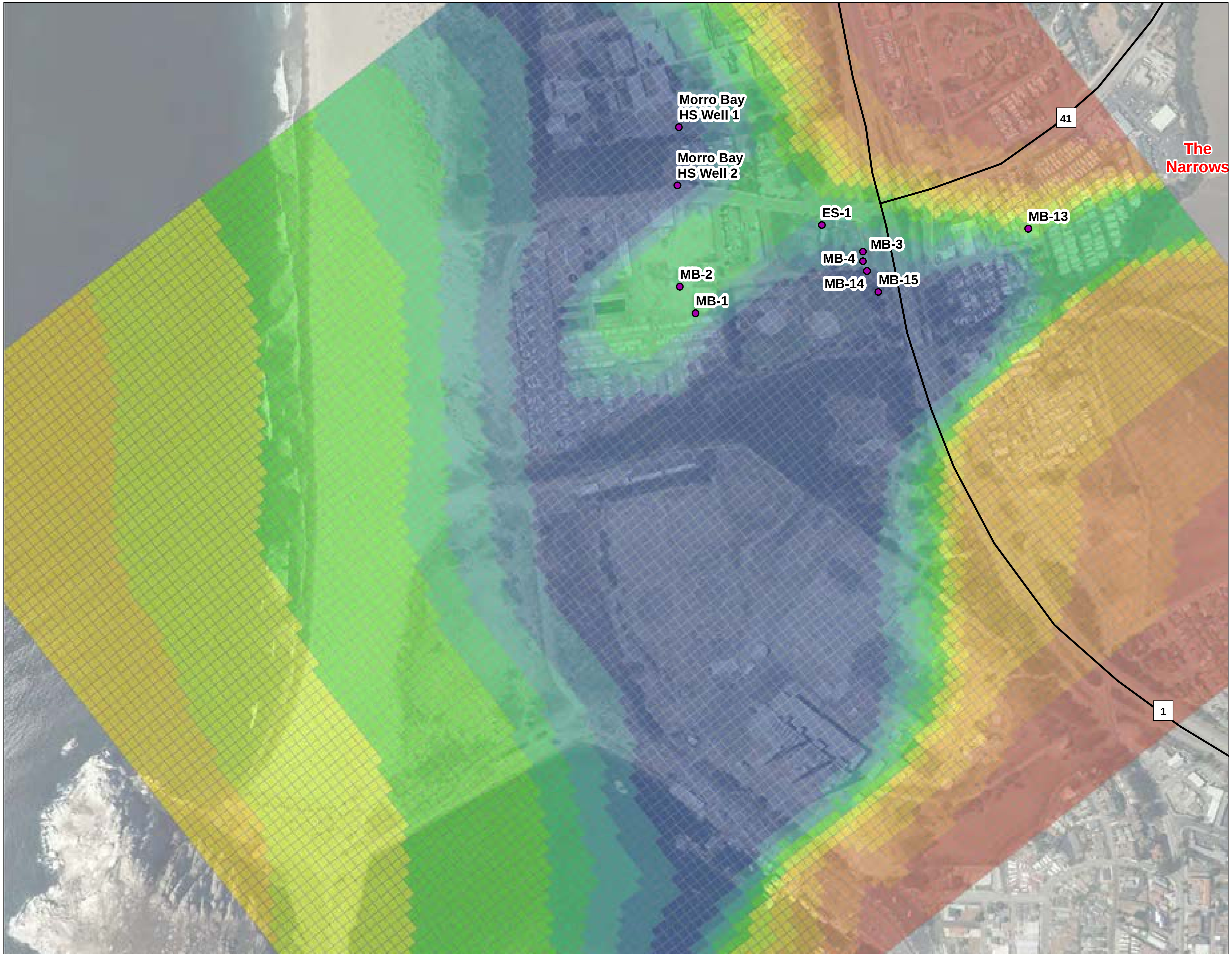
Model Grid and Boundary Conditions

Morro Bay, California

FIGURE 3

Lower Morro Valley Model
Aquifer Bottom Elevation

Morro Bay, California



LEGEND

- City of Morro Bay Wells

Modeled Aquifer Elevation, feet

- -14 - -10
- -19 - -15
- -24 - -20
- -29 - -25
- -34 - -30
- -39 - -35
- -44 - -40
- -49 - -45
- -54 - -50
- -60 - -55

1 Highway

N

0 500
Feet

Date: July 15, 2016
Data Sources: USGS

GSI Water Solutions, Inc.

Document Path: P:\Portland\645-Morro Bay\006-Revised L. Morro Valley Modeling\Project_GIS\Project_mxd\Figure-3_Morro_Valley_Aquifer_Bottom_Elevation.mxd

Modeled Ground Water Elevations
Non-Pumping Conditions
Well MB-4 (Model Layer 3)

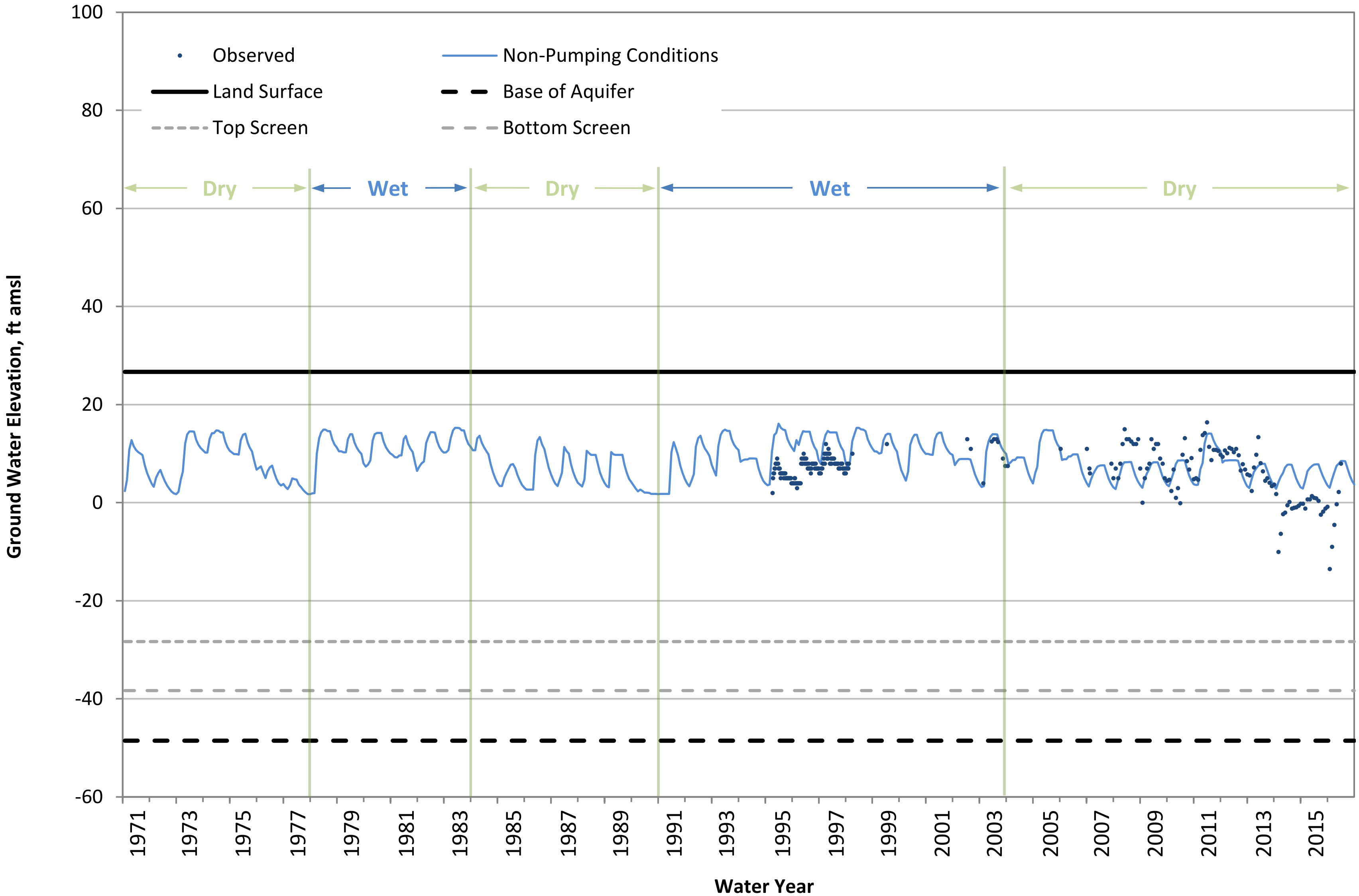
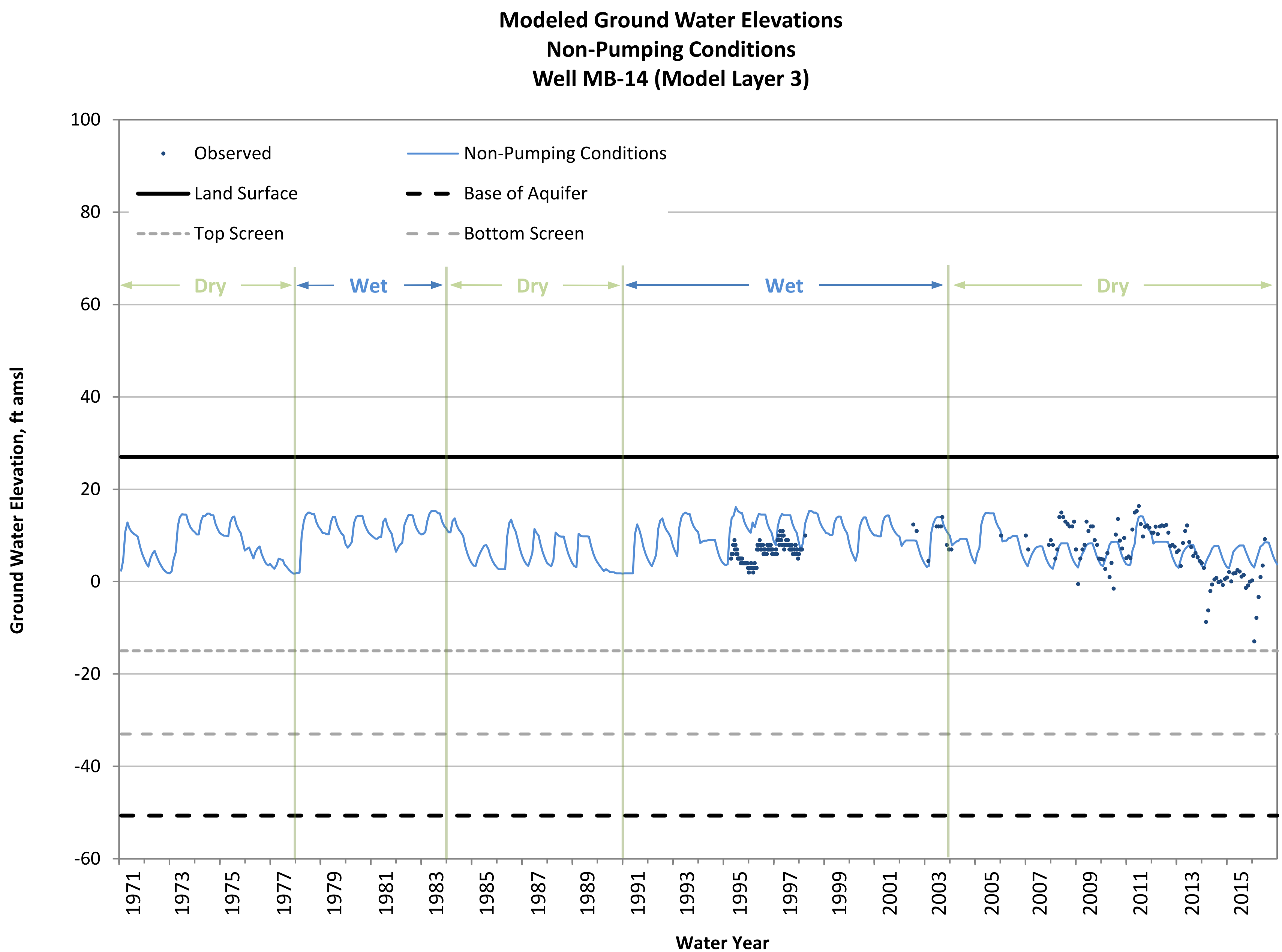


Figure 4



Modeled Ground Water Elevations
Non-Pumping Conditions
Well MB-14 (Model Layer 3)
Observed
Non-Pumping Conditions
Land Surface
Base of Aquifer
Top Screen
Bottom Screen
Dry
Wet
Dry
Wet
Dry
Ground Water Elevation, ft amsl
Water Year
100
80
60
40
20
0
-20
-40
-60
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015

Figure 5

Modeled Ground Water Elevations
Non-Pumping Conditions
Well MB-15 (Model Layer 3)

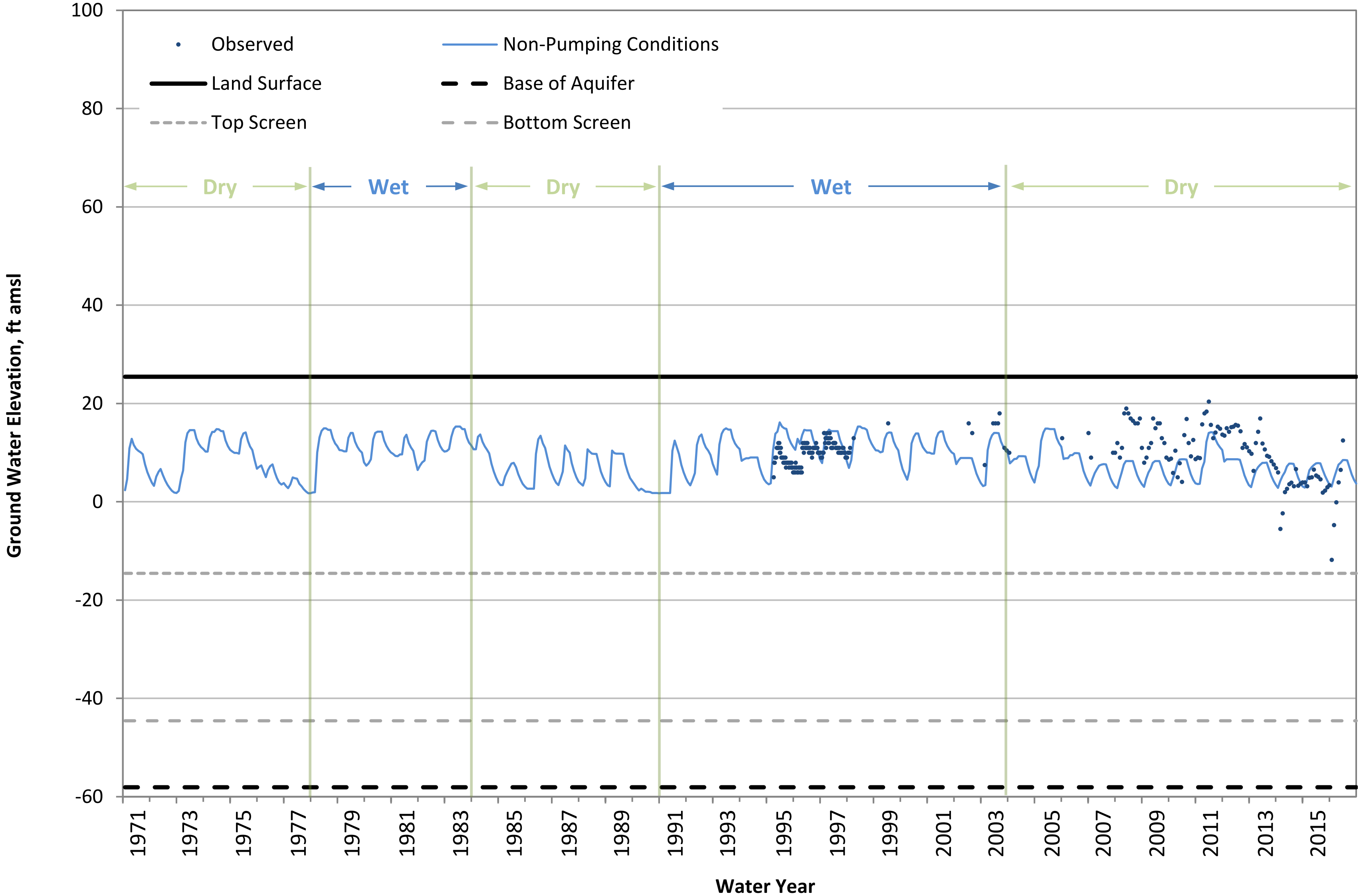


Figure 6

FIGURE 7

Recycled Water Response Retention Time Scenario 1A During Dry Periods

Morro Bay, California

LEGEND

City of Morro Bay Existing Wells

Recyled Water Injection Well

Near Shore Particle Track Releases Points

Seawater Particle Track
(note: travel time from January 1971 through September 2016)

Modeled Groundwater Elevation- Sep 2016

Recycled Water Particle Track
(note: each color change represents one month travel time starting at January 2016)

1 Highway

N

0 500
Feet

Date: July 15, 2016
Data Sources: USGS

GSI Water Solutions, Inc.

Document Path: P:\Portland\645-Morro Bay\006-Revised L. Morro Valley Modeling\Project_GIS\Project_mxd\Figure-7_RW_Residence_Scn1A Dry.mxd

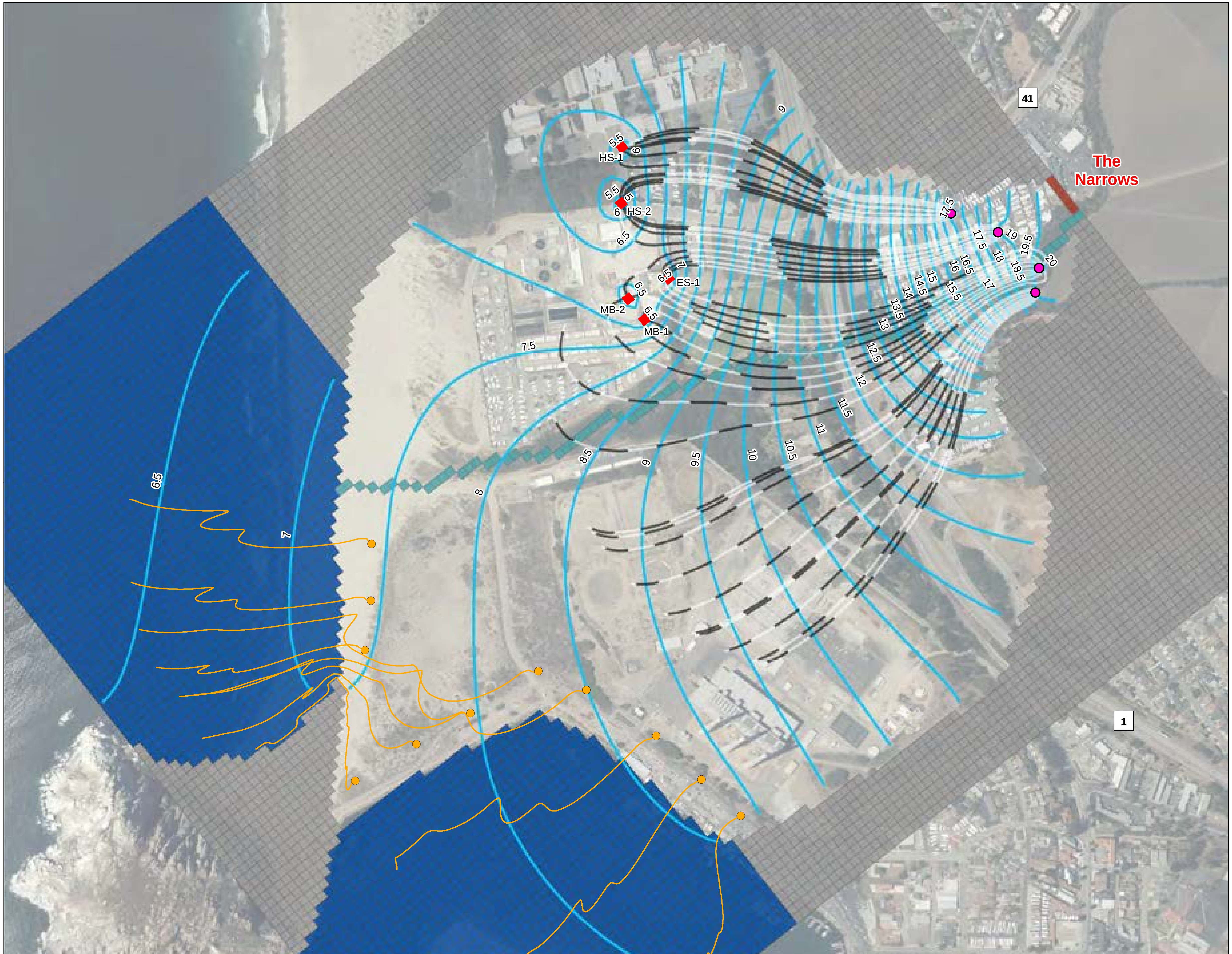


FIGURE 8

Recycled Water Response Retention Time Scenario 1A During Wet Periods

Morro Bay, California

LEGEND

- City of Morro Bay Existing Wells
- Recyled Water Injection Well
- Near Shore Particle Track Releases Points
- Seawater Particle Track (note: travel time from January 1971 through September 2016)
- Modeled Groundwater Elevation- Sep 2016
- Recycled Water Particle Track (note: each color change represents one month travel time starting at January 2016)
- Highway

N

0 500

Feet

Date: July 15, 2016
Data Sources: USGS

GSI Water Solutions, Inc.

FIGURE 9

Recycled Water Response Retention Time Scenario 1B During Dry Periods

Morro Bay, California

LEGEND

- City of Morro Bay Existing Wells
- Recyled Water Injection Well
- Near Shore Particle Track Releases Points
- Seawater Particle Track (note: travel time from January 1971 through September 2016)
- Modeled Groundwater Elevation- Sep 2016
- Recycled Water Particle Track (note: each color change represents one month travel time starting at January 2016)
- 1 Highway

N

0 500

Feet

Date: July 15, 2016
Data Sources: USGS

GSI Water Solutions, Inc.

Document Path: P:\Portland\645-Morro Bay\006-Revised L. Morro Valley Modeling\Project_GIS\Project_mxd\Figure-9_RW_Residence_Scn1B Dry.mxd

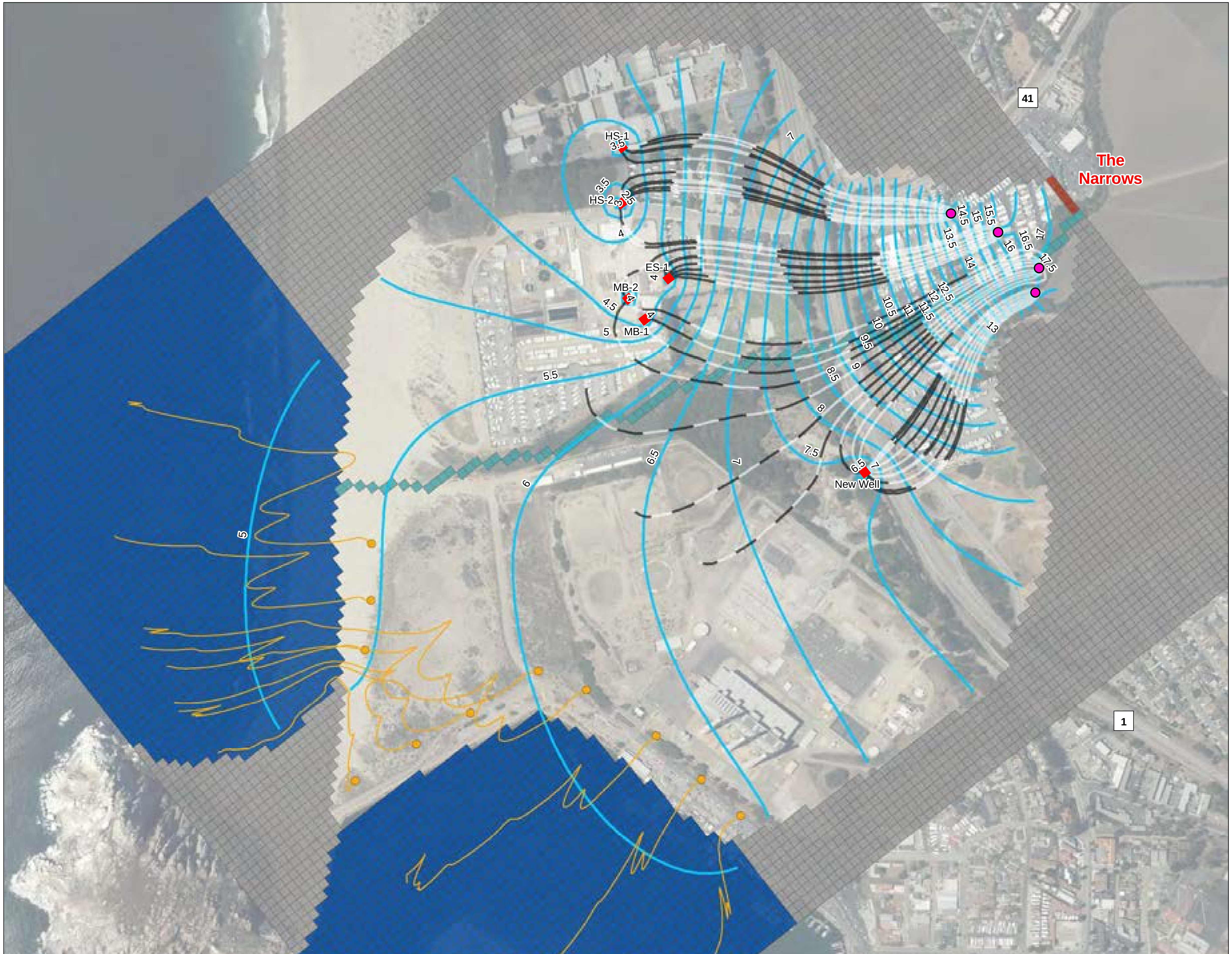


FIGURE 10

Recycled Water Response Retention Time Scenario 1B During Wet Periods

Morro Bay, California

LEGEND

City of Morro Bay Existing Wells

Recyled Water Injection Well

Near Shore Particle Track Releases Points

Seawater Particle Track (note: travel time from January 1971 through September 2016)

Modeled Groundwater Elevation- Sep 2016

Recycled Water Particle Track (note: each color change represents one month travel time starting at January 2016)

1 Highway

N

0 500 Feet

Date: July 15, 2016
Data Sources: USGS

Document Path: P:\Portland\645-Morro Bay\006-Revised L. Morro Valley Modeling\Project_GIS\Project_mxd\Figure-10_RW_Residence_Scn1B Wet.mxd

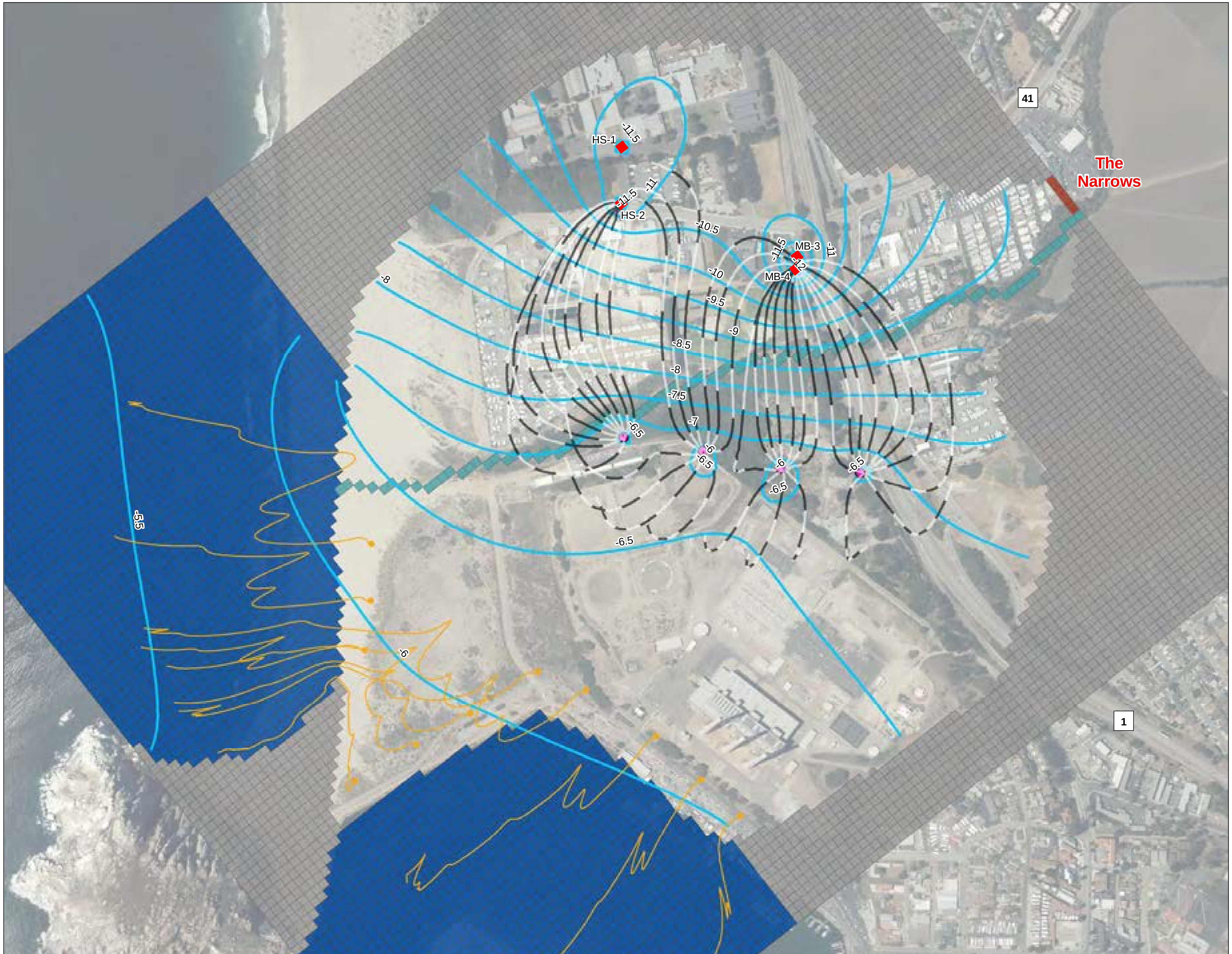


FIGURE 11

Recycled Water Response Retention Time Scenario 2A During Dry Periods

Morro Bay, California

LEGEND

- City of Morro Bay Existing Wells
- Recyled Water Injection Well
- Near Shore Particle Track Releases Points
- Seawater Particle Track (note: travel time from January 1971 through September 2016)
- Modeled Groundwater Elevation- Sep 2016
- Recycled Water Particle Track (note: each color change represents one month travel time starting at January 2016)
- 1 Highway

N

0 500

Feet

Date: July 15, 2016
Data Sources: USGS

GSI Water Solutions, Inc.

Document Path: P:\Portland\645-Morro Bay\006-Revised L. Morro Valley Modeling\Project_GIS\Project_mxd\Figure-11_RW_Residence_Scn2A Dry.mxd

FIGURE 12

Recycled Water Response Retention Time Scenario 2A During Wet Periods

Morro Bay, California

LEGEND

- City of Morro Bay Existing Wells
- Recyled Water Injection Well
- Near Shore Particle Track Releases Points
- Seawater Particle Track (note: travel time from January 1971 through September 2016)
- Modeled Groundwater Elevation- Sep 2016
- Recycled Water Particle Track (note: each color change represents one month travel time starting at January 2016)
- 1 Highway

N

0 500 Feet

GSI Water Solutions, Inc.

Date: July 15, 2016
Data Sources: USGS

Document Path: P:\Portland\645-Morro Bay\006-Revised L. Morro Valley Modeling\Project_GIS\Project_mxd\Figure-12_RW_Residence_Scn2A Wet.mxd

FIGURE 13

Recycled Water Response Retention Time Scenario 2B During Dry Periods

Morro Bay, California

LEGEND

City of Morro Bay Existing Wells

Recyled Water Injection Well

Near Shore Particle Track Releases Points

Seawater Particle Track
(note: travel time from January 1971 through September 2016)

Modeled Groundwater Elevation- Sep 2016

Recycled Water Particle Track
(note: each color change represents one month travel time starting at January 2016)

1 Highway

N

0 500
Feet

Date: July 15, 2016
Data Sources: USGS

GSI Water Solutions, Inc.

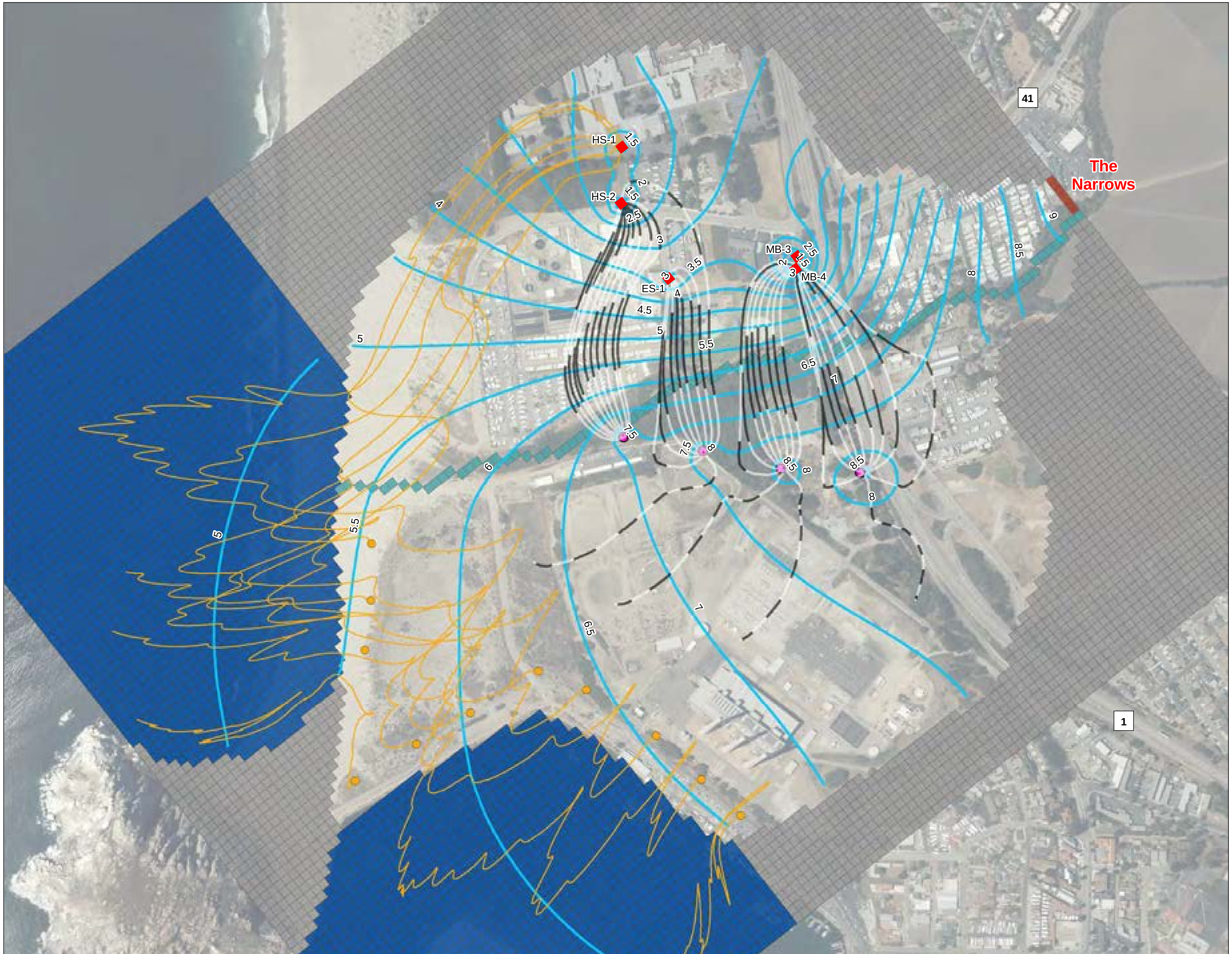


FIGURE 14

Recycled Water Response Retention Time Scenario 2B During Wet Periods

Morro Bay, California

LEGEND

City of Morro Bay Existing Wells

Recyled Water Injection Well

Near Shore Particle Track Releases Points

Seawater Particle Track
(note: travel time from January 1971 through September 2016)

Modeled Groundwater Elevation- Sep 2016

Recycled Water Particle Track
(note: each color change represents one month travel time starting at January 2016)

1 Highway

N

0 500
Feet

Date: July 15, 2016
Data Sources: USGS

GSI Water Solutions, Inc.

Document Path: P:\Portland\645-Morro Bay\006-Revised L. Morro Valley Modeling\Project_GIS\Project_mxd\Figure-14_RW_Residence_Scn2B Wet.mxd

Modeled Ground Water Elevation
IPR Scenarios 1A and 1B
Well ES-1

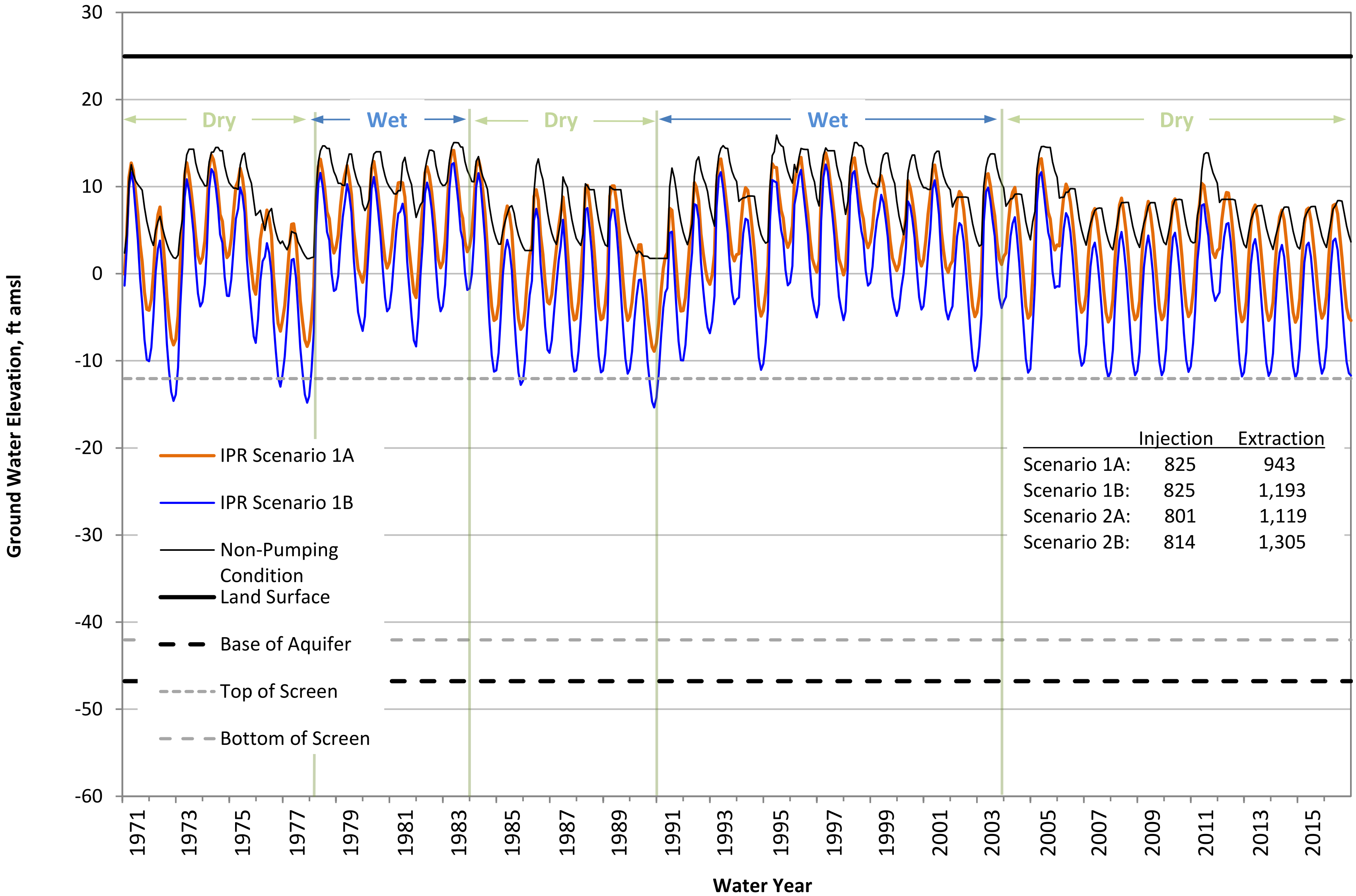
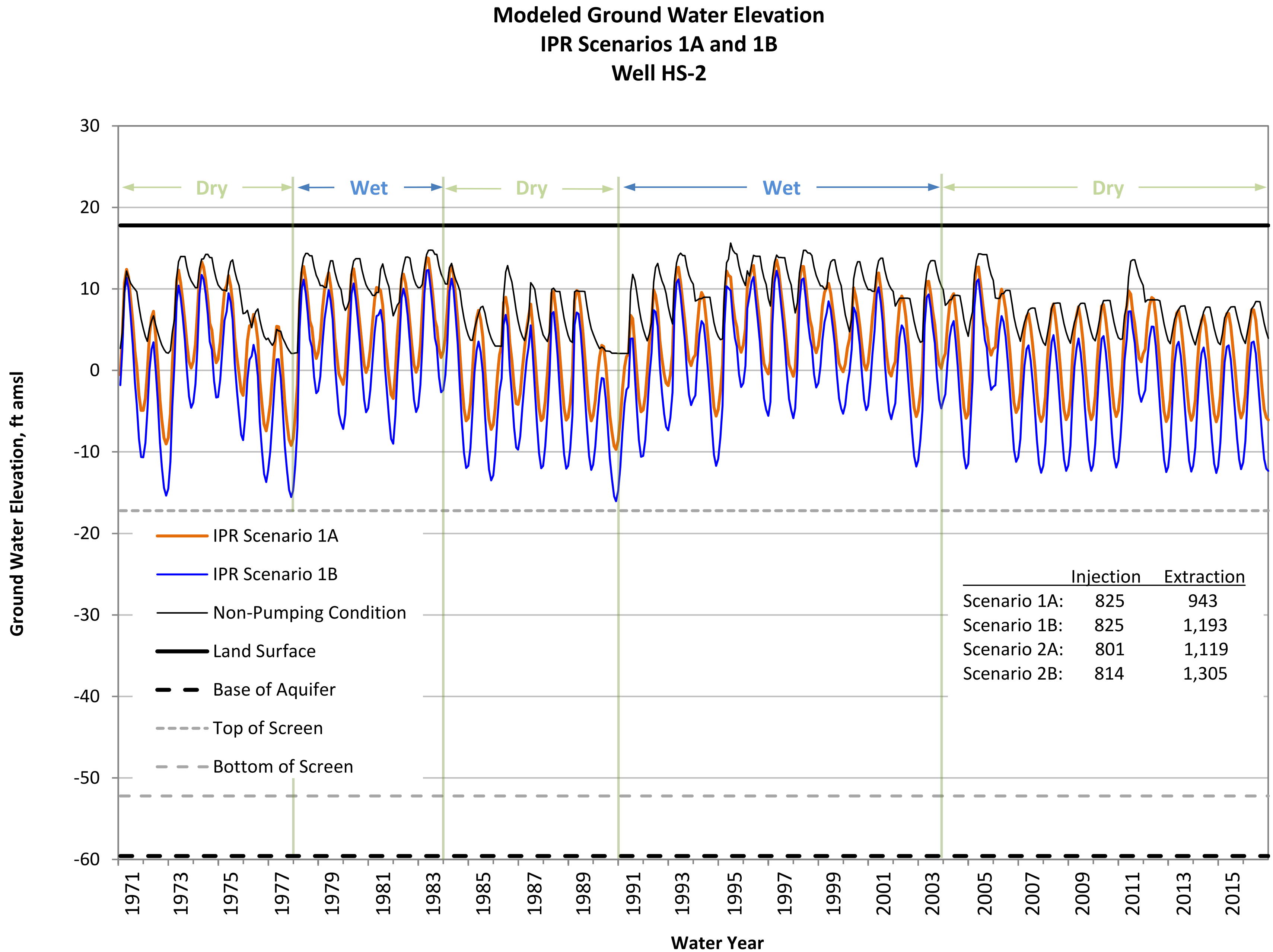
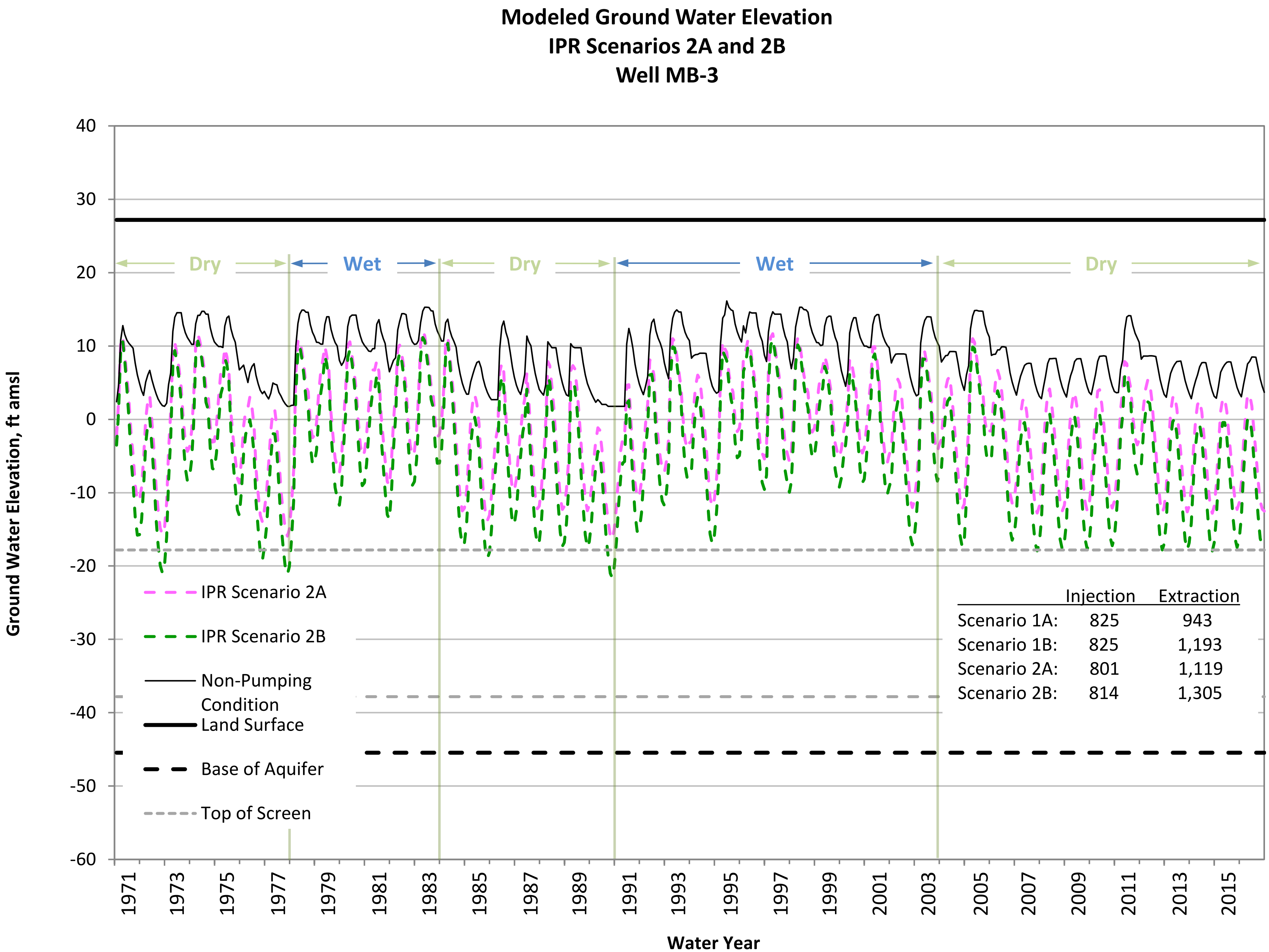


Figure 15



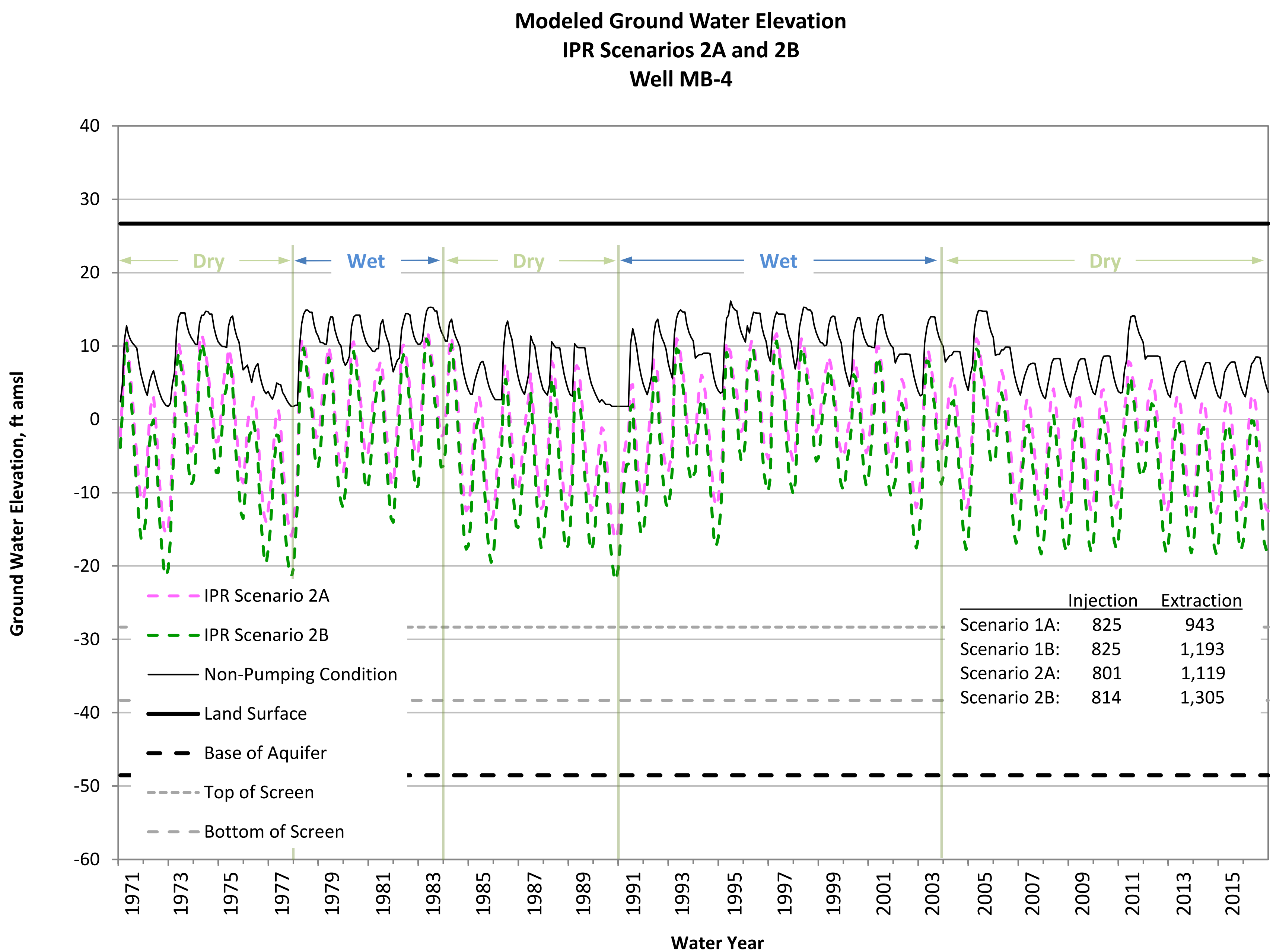
	Injection	Extraction
Scenario 1A:	825	943
Scenario 1B:	825	1,193
Scenario 2A:	801	1,119
Scenario 2B:	814	1,305

Figure 16



Modeled Ground Water Elevation
IPR Scenarios 2A and 2B
Well MB-3
Ground Water Elevation, ft amsl
Water Year
Dry
Wet
Dry
Wet
Dry
IPR Scenario 2A
IPR Scenario 2B
Non-Pumping Condition
Land Surface
Base of Aquifer
Top of Screen
Injection Extraction
Scenario 1A: 825 943
Scenario 1B: 825 1,193
Scenario 2A: 801 1,119
Scenario 2B: 814 1,305

Figure 17


Modeled Ground Water Elevation
IPR Scenarios 2A and 2B
Well MB-4
Ground Water Elevation, ft amsl
Water Year
Dry
Wet
Dry
Wet
Dry
IPR Scenario 2A
IPR Scenario 2B
Non-Pumping Condition
Land Surface
Base of Aquifer
Top of Screen
Bottom of Screen
Injection Extraction
Scenario 1A: 825 943
Scenario 1B: 825 1,193
Scenario 2A: 801 1,119
Scenario 2B: 814 1,305
40
30
20
10
0
-10
-20
-30
-40
-50
-60
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
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2013
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Figure 18

APPENDIX A

Aquifer Test Analysis

Appendix A - Aquifer Test Analysis

Overview

This appendix summarizes the aquifer testing conducted November 7 through 17, 2016.

Background

GSI's draft Lower Morro Valley Screening-Level Groundwater Modeling for Injection report dated October 19, 2016 recommended aquifer testing to reduce uncertainty in the hydraulic conductivity of the aquifer, thereby increasing the reliability of the modeling results. In early November 2016, the City of Morro Bay informed GSI that a subset of the City's wells would be operated beginning November 8 due to provide water supply during a temporary State Water Project maintenance shutdown. On November 7, 2016, GSI staff installed pressure transducers equipped with dataloggers in wells MB-1, MB-3, MB-4, HS-1, HS-2, and Flippos to record the hydraulic response to pumping during November 7 through 17, 2016. The pressure transducers were removed on November 18. City staff provided "well field run logs" indicating the well run times and totalizer readings during the test period.

Data Review

The well field run logs and transducer data were plotted and reviewed to identify specific pumping events for potential analysis to estimate aquifer properties. Four pumping events were identified during the ten days of water level logging. The pumping events are described in **Table A-1** and indicated on **Figure A-1**.

As shown in **Table A-1** and **Figure A-1**, multiple wells were operated during each pumping event. For an ideal aquifer test, pumping would be limited to a single well because of the interference effects that occur when more than one well is pumped. Theoretically, aquifer tests involving multiple pumping wells can be analyzed by applying the principle of superposition[1]. The approach is to independently calculate the theoretical drawdown response for each pumping well at each observation well. The sum of the theoretical drawdown responses is compared to the measured drawdown. The aquifer properties are varied in the theoretical calculations until a reasonable match with the measured drawdown is obtained.

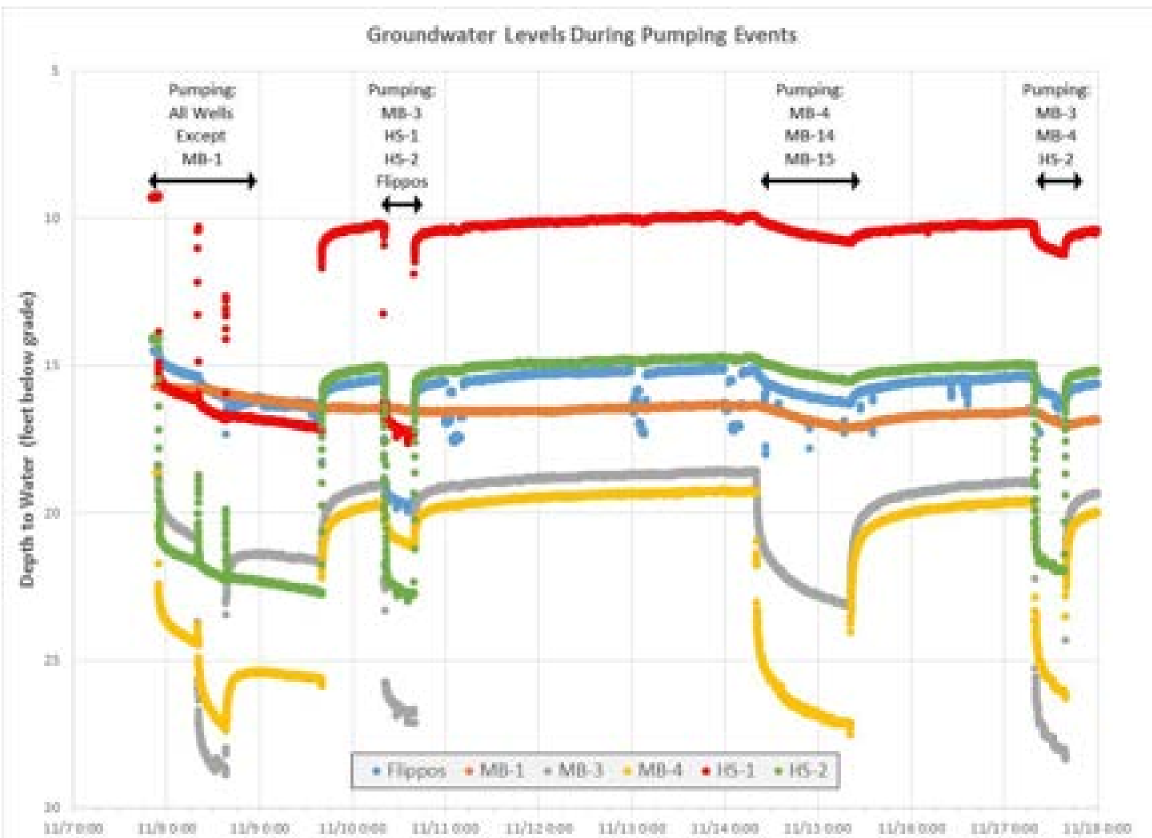
The pumping events were reviewed to assess the potential analysis. The first pumping event (11/7-9) was ruled out because seven wells were operated and the period of operations were variable, resulting in a very complicated water level response. The latter three pumping events (11/10, 11/14-15, and 11/17) involved fewer wells that were operated on similar schedules. These pumping events were analyzed to estimate aquifer properties, where possible.

[1] The total drawdown at an observation well is the sum of the drawdown caused by multiple pumping wells.

Table A-1. Summary of Well Operations

Dates	Wells Operated	Comments
11/7 – 11/9	MB-3, MB-4, MB-14, MB-15, HS-1, HS-2, Flippos	Wells operated on different days/times.
11/10	MB-3, HS-1, HS-2, Flippos	MB-3 started at 08:12. HS-1, HS-2, and Flippos started 20 minutes later at 08:32.
11/14-11/15	MB-4, MB-14, MB-15	Wells operated simultaneously.
11/17	MB-3, MB-4, HS-2	HS-2 started at 07:48 and turned off at 07:55 when MB-3 and MB-4 started. HS-2 restarted at 08:09.

Figure 1. Groundwater Levels During Pumping Events



Test 1 – November 10 Pumping Event

MB-3, HS-1, HS-2, and Flippos were operated for approximately 7 hours on November 10. The latter three wells started approximately 20 minutes after MB-3, complicating the analysis.

The following is a summary of the data analysis for the November 10 pumping event:

- With the exception of MB-3, the pumping wells did not yield drawdown curves that could be analyzed because of the very fast rate of drawdown stabilization and lack of early data (<1 minute)[2].

- During the November 10 test, less than 0.1-foot of drawdown was observed in Well MB-1. The water level response was random, not following a typical drawdown curve. The MB-1 drawdown data could not be analyzed.

- Aquifer properties were calculated using the drawdown data obtained from MB-3 and MB-4. The results are presented in Table A-2. Analysis plots are included at the end of this appendix.

Test 2 – November 14-15 Pumping Event

MB-4, MB-14, and MB-15 were operated for approximately 24 hours on November 14-15. All three wells started at approximately the same time.

Aquifer properties were calculated using the drawdown data obtained from wells equipped with pressure transducers. The results are presented in Table A-2.

Test 3 – November 17 Pumping Event

MB-3, MB-4, and HS-2 were operated for approximately 8 hours on November 17. The wells did not start simultaneously. HS-2 started at 07:48 and turned off at 07:55 when MB-3 and MB-4 started. HS-2 then restarted at 08:09.

Aquifer properties were calculated using the drawdown data obtained from wells equipped with pressure transducers, except HS-2. The results are presented in Table A-2. HS-2, a pumping well, did not yield a drawdown curve that could be analyzed because of the very fast rate of drawdown stabilization and lack of early data (<1 minute).

Table A-2. Summary of Aquifer Test Results - Transmissivity (ft^2/day) and Storage Coefficient

Observation Well	Test 1 (Nov. 10) Pumping Wells: MB-3, HS-1, HS-2, Flippos	Test 2 (Nov. 14-15) Pumping Wells: MB-4, MB-14, MB-15	Test 3 (Nov. 17) Pumping Wells: MB-3, MB-4, HS-2
Flippos	Pumping Well – No Result	40,000 / 0.0035	55,000 / 0.0025
MB-1	No Result – measured drawdown <0.1-ft	20,000 / 0.015	30,000 / 0.01
MB-3	10,000 / 0.001	14,250 / 0.005	11,000 / 0.0001
MB-4	28,000 / 0.005	14,250 / 0.005	18,000 / 0.005
HS-1	Pumping Well – No Result	37,500 / 0.0025	30,000 / 0.0008
HS-2	Pumping Well – No Result	35,000 / 0.005	Pumping Well – No Result

[2] For practical reasons, it was not possible to collect data more frequently than every minute during the testing.

Discussion

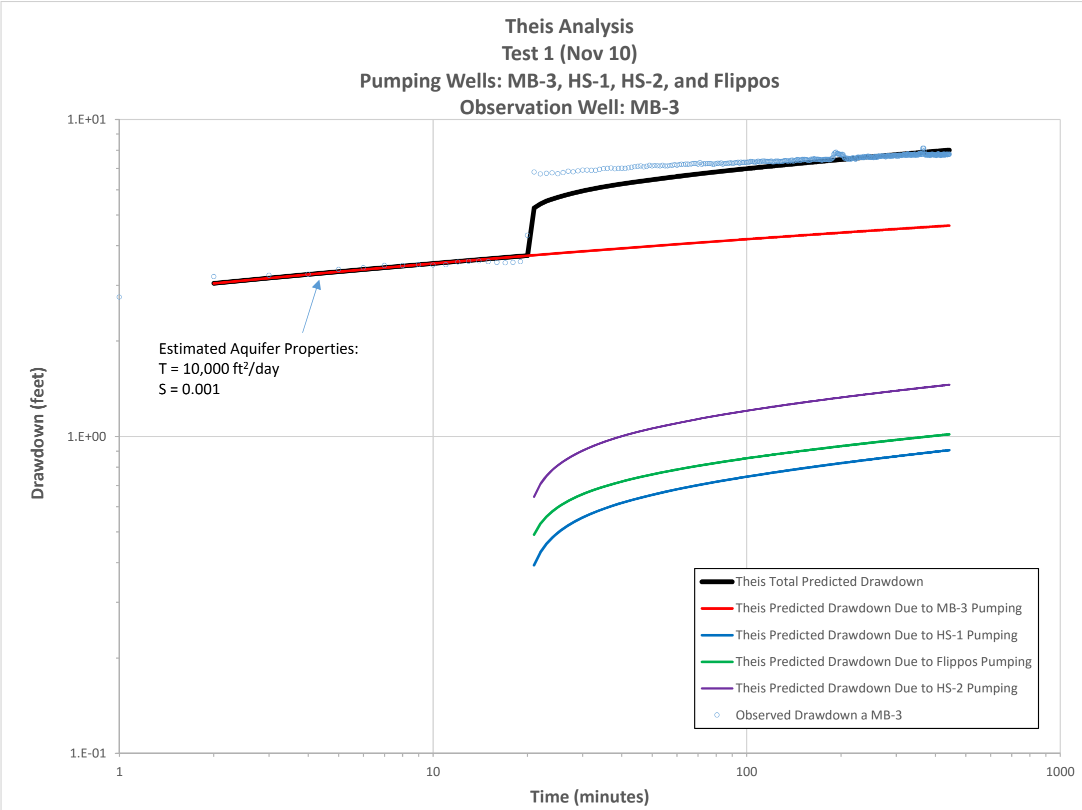
The transmissivity results fell into two groups: approximately 10,000 – 20,000 square feet per day (ft^2/day) and 28,000-55,000 ft^2/day. The lower range corresponds to results from the MB-3, -4, -14, and -15 well field. The higher range corresponds to the Flippos and HS-1 and HS-2 wells. The results from MB-1 are intermediate. Wells logs were provided for wells MB-14, MB-15, HS-1, and HS-2. These logs indicate that the bottom approximately 20 feet of the aquifer consists of coarse sand, coarse sand with gravel, or "small" gravel. The materials above this basal coarse-grained zone of the aquifer is typically clay interbedded with fine-grained sand. Thus, the lower portion of the aquifer is the principal water production zone and accounts for the vast majority of the aquifer transmissivity. The hydraulic conductivity of the coarse-grained materials described above is on the order of approximately 500-1,500 feet per day (ft/day). Thus, the practical upper limit on the transmissivity of the basal coarse-grained deposits is approximately 20,000 ft^2/day (i.e. 20 feet times 1,000 ft/day). Higher transmissivity results are not consistent with the material descriptions and maybe the result of aquifer boundary conditions.

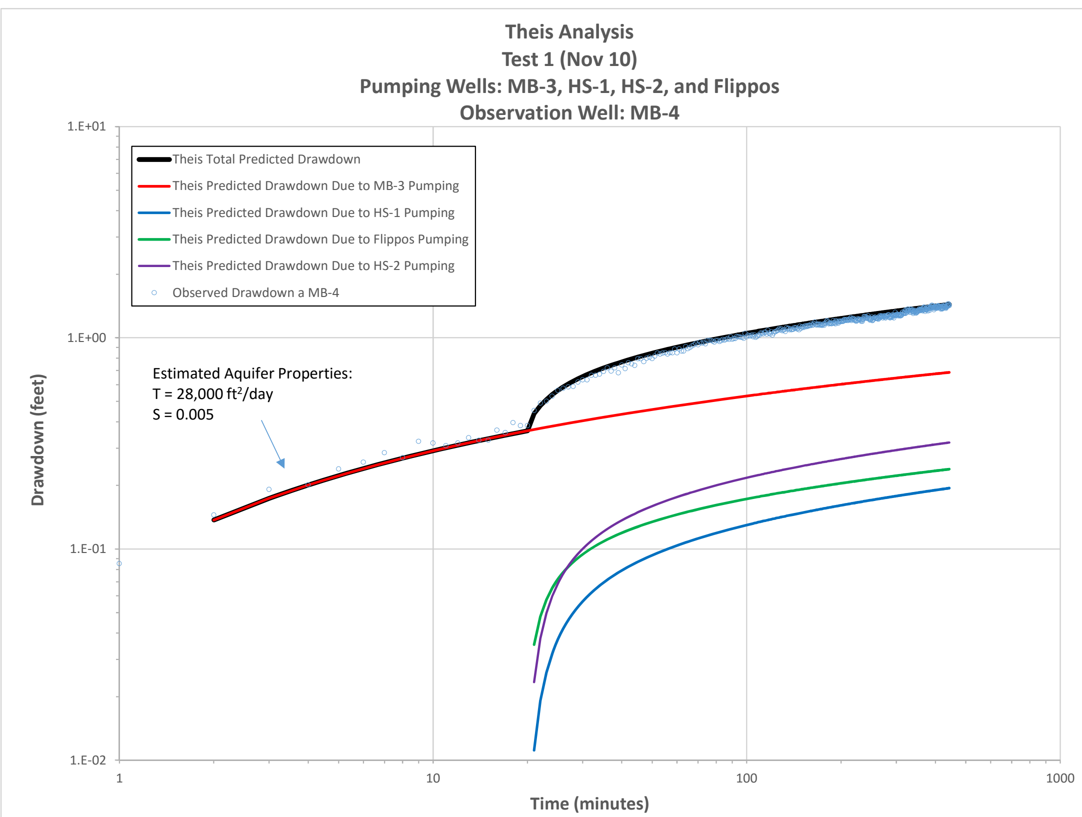
Based on the available information, the recommended value of transmissivity is 14,250 ft^2/day, based on the following observations:

- Test Nos. 1 and 3 were complicated as a result of pumping at multiple well group locations.
- Test No. 2 (November 14-15) provided the cleanest response because all three pumping wells were located in proximity to each other and, therefore, provides the best data for analysis.
- A high quality curve fit was obtained from the Test No. 2 MB-3 data.
- Analysis of the Test No. 2 MB-4 data provided an identical result.

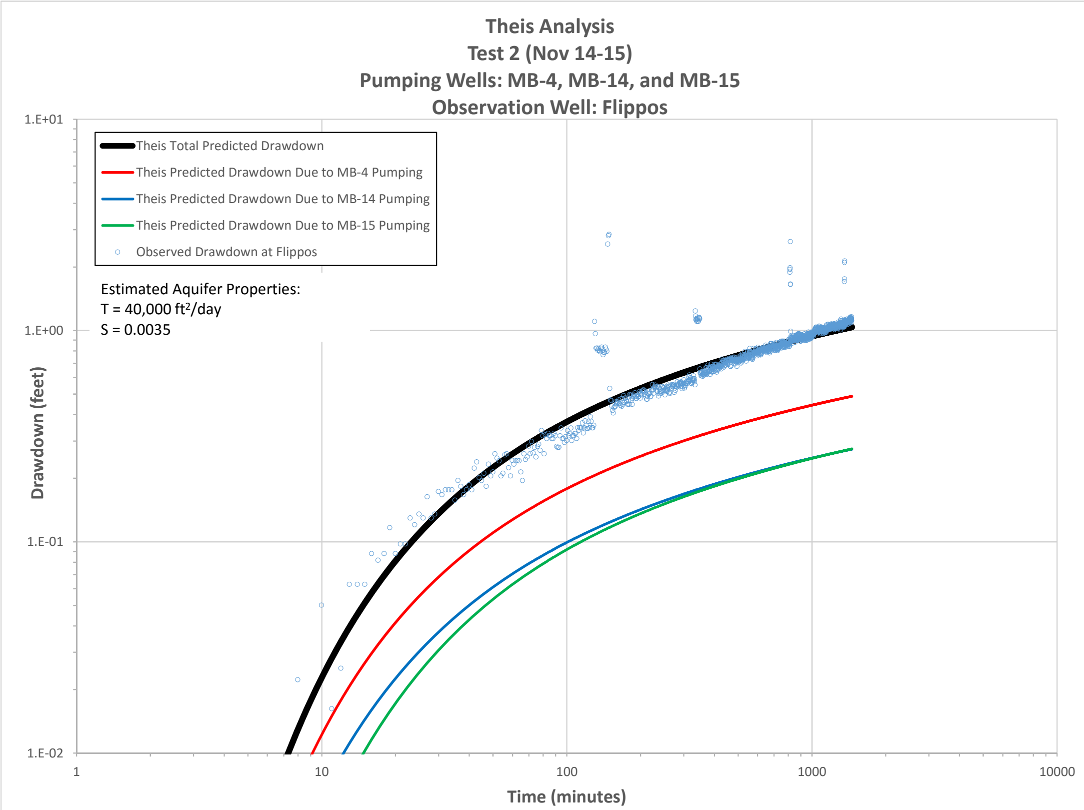
In general, estimated aquifer storage coefficient ranged from 0.001 to 0.005. Higher results (0.01-0.015 were obtained from MB-1 and lower results were obtained from a few other data sets. The most frequent result was 0.005, which is also the storage coefficient obtained from analysis of the Test No. 2 MB-3 and MB-4 datasets, described above. For these reasons, the recommended storage coefficient is 0.005. This value applies to the basal coarse-grained deposits, which are confined by the overlying fine-grained deposits. The overlying sediments would be expected to have a higher, unconfined, storage coefficient.

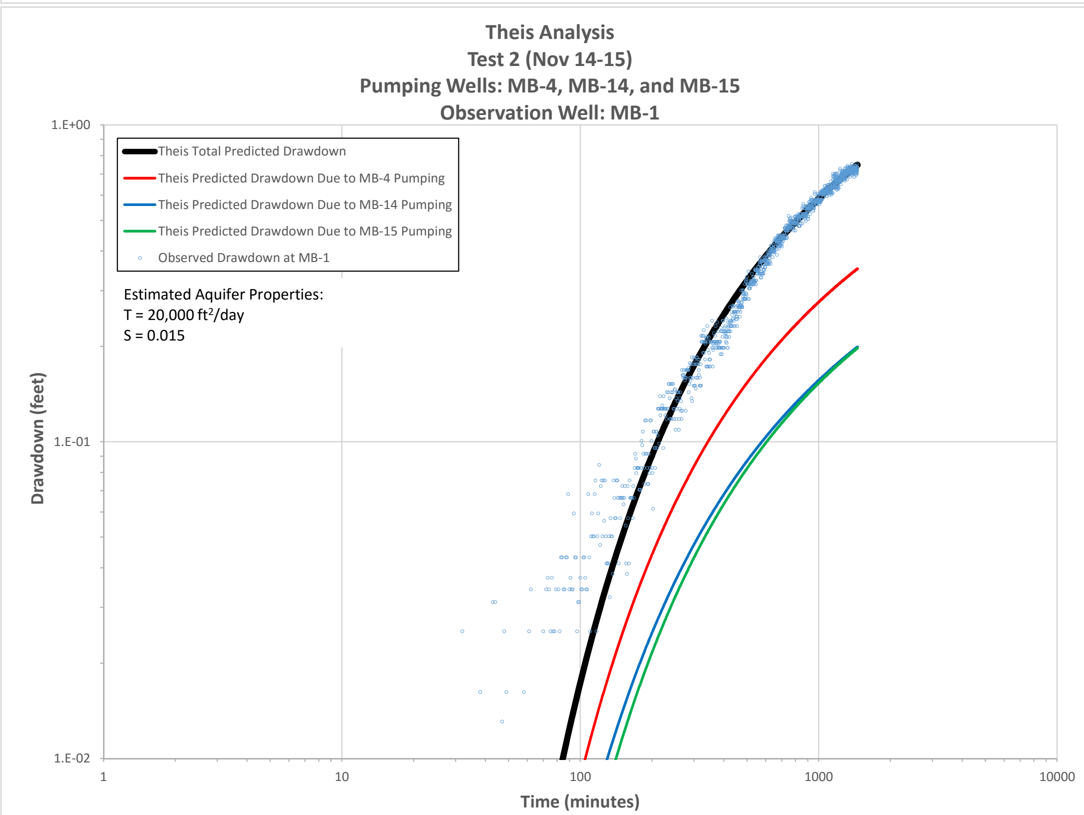
Test 1 Analysis Plots



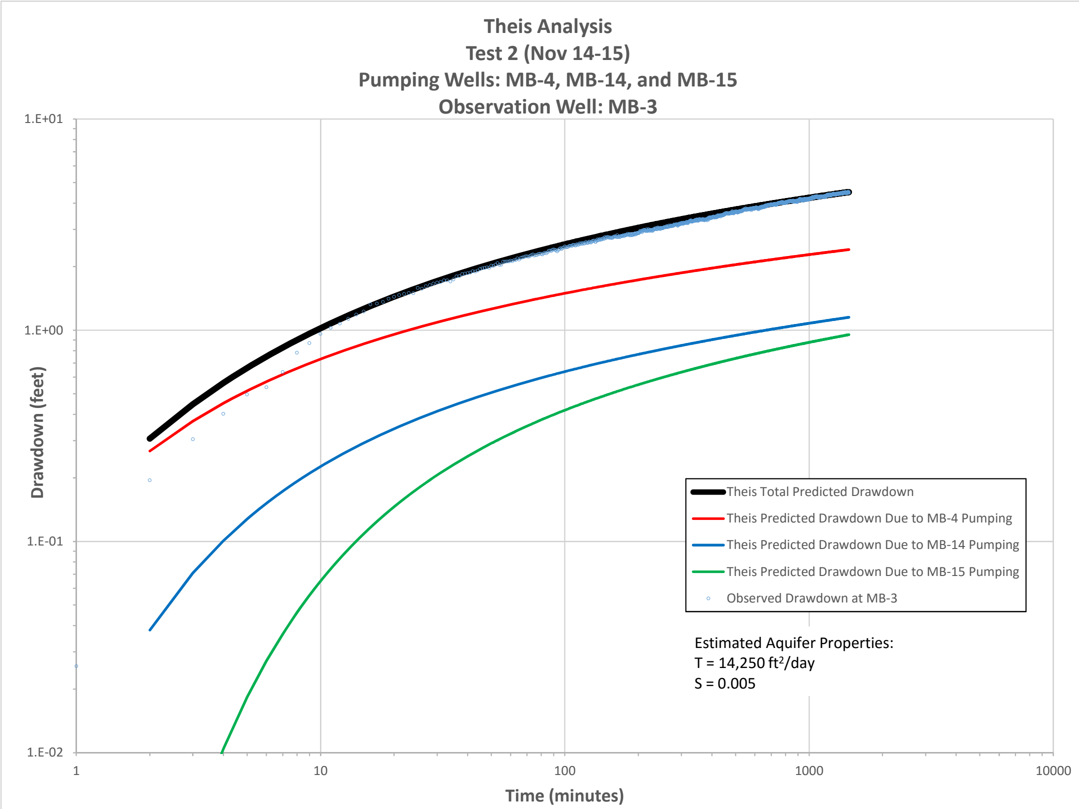


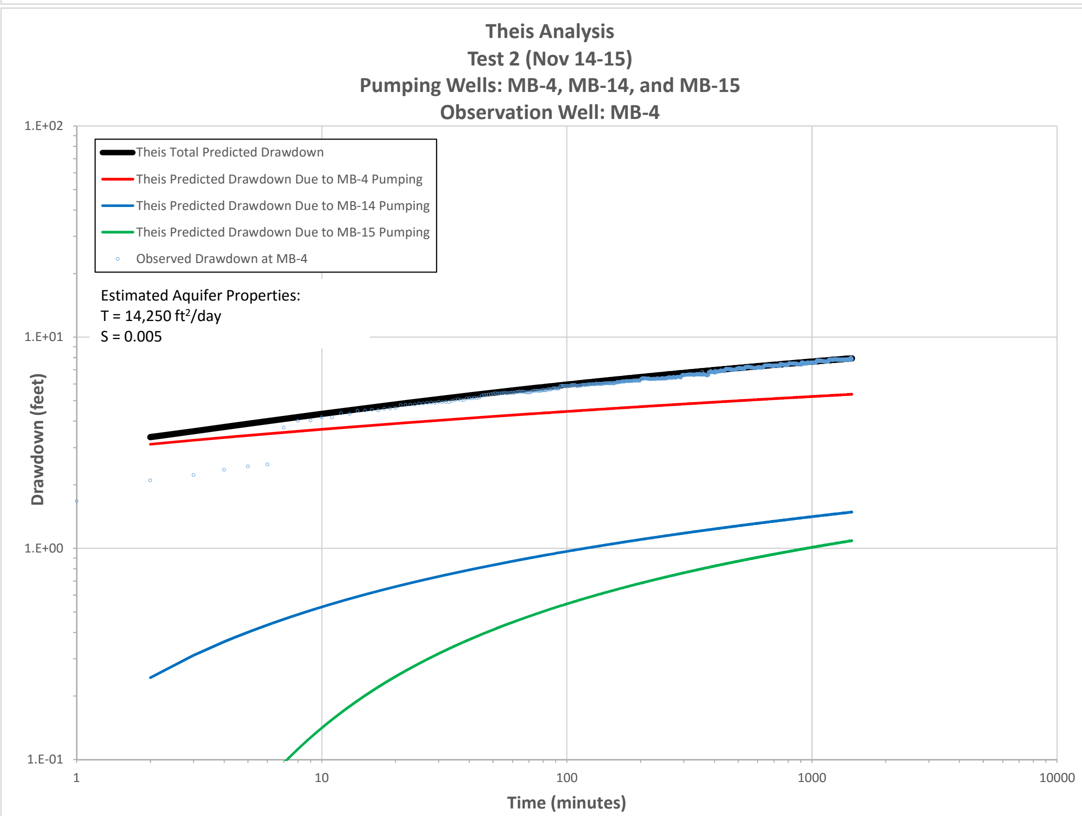
Test 2 Analysis Plots



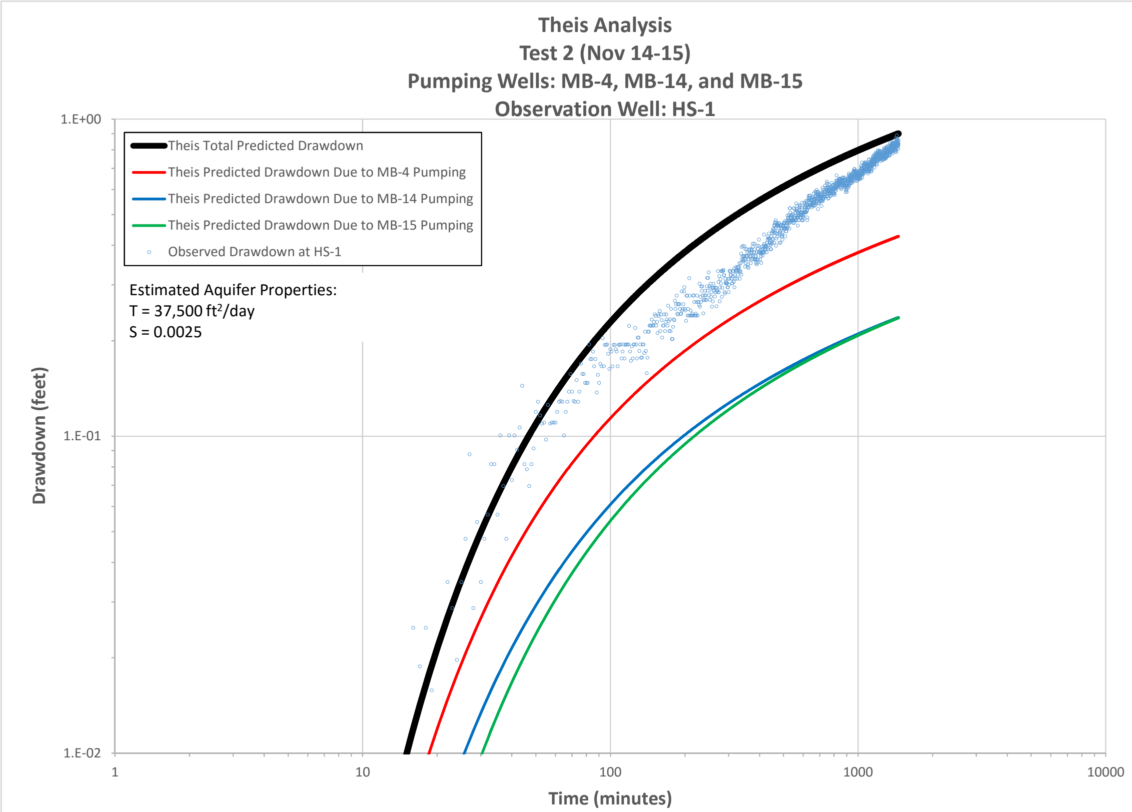


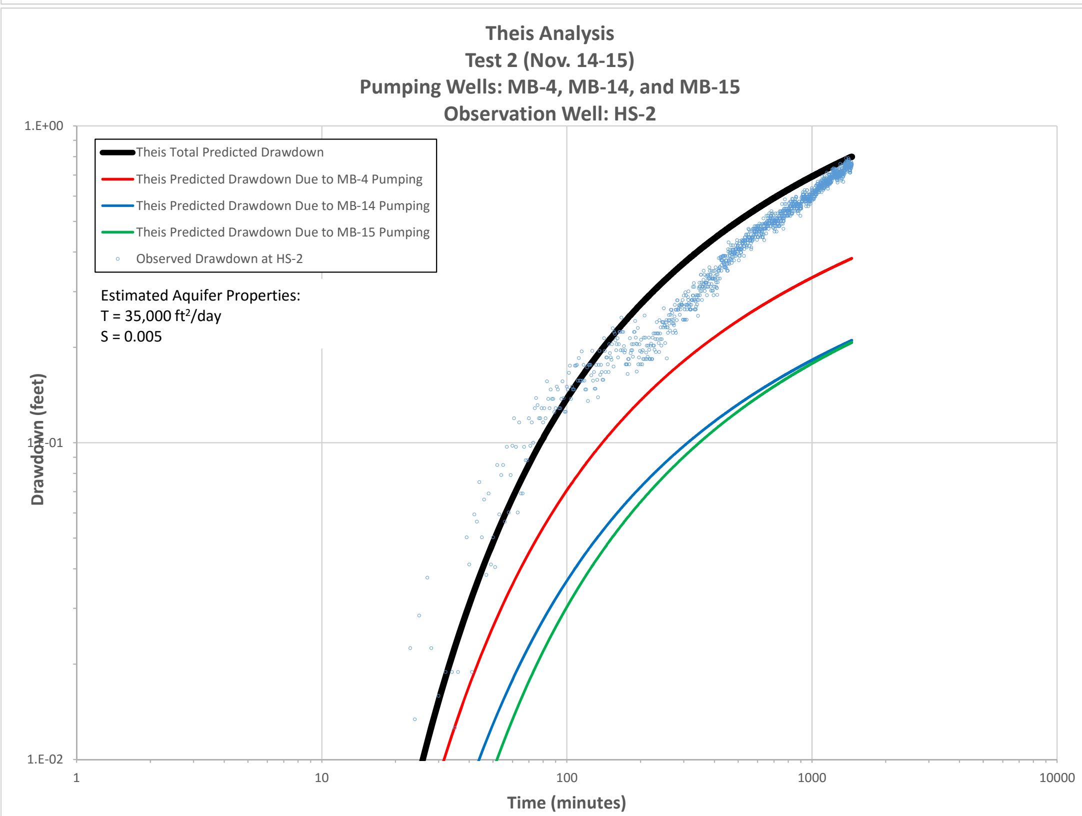
Test 2 Analysis Plots (continued)



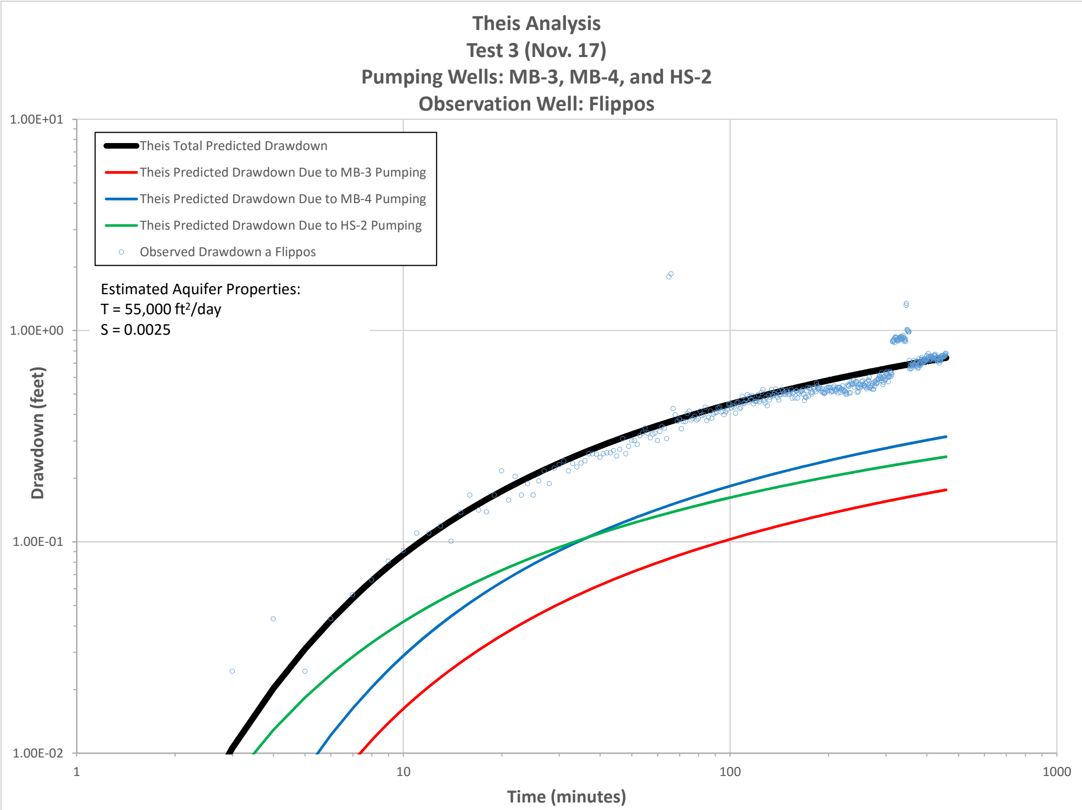


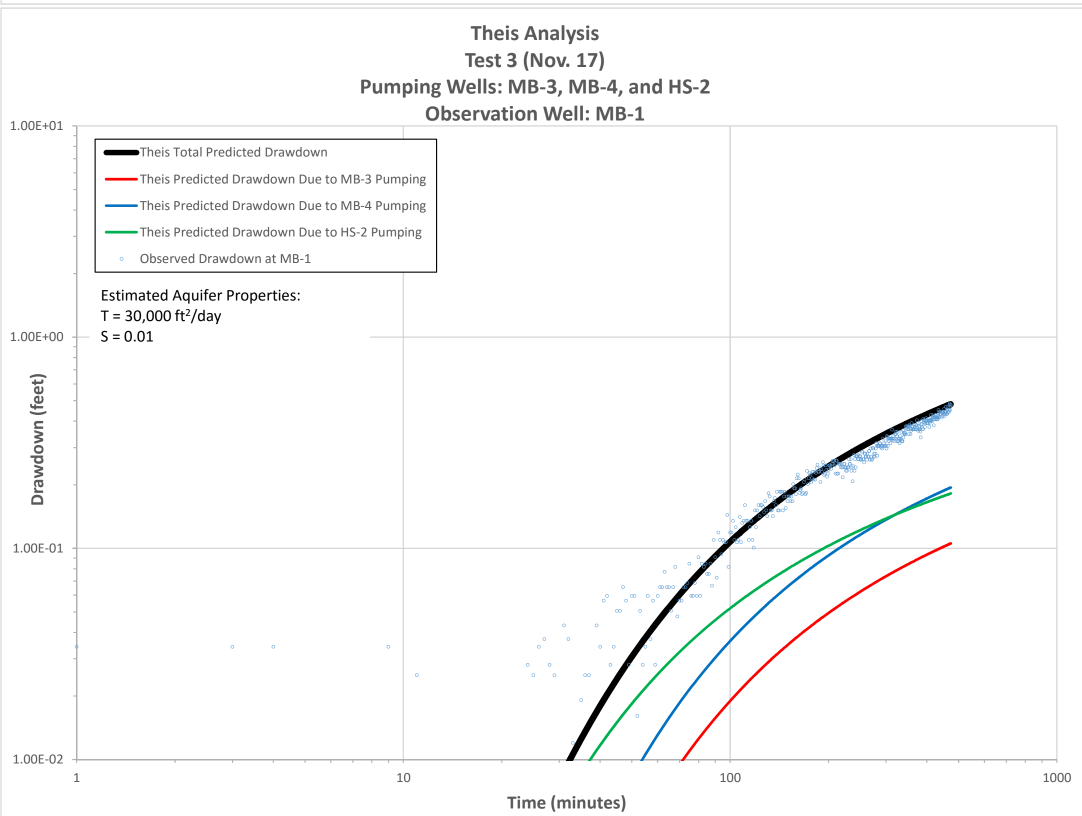
Test 2 Analysis Plots (continued)



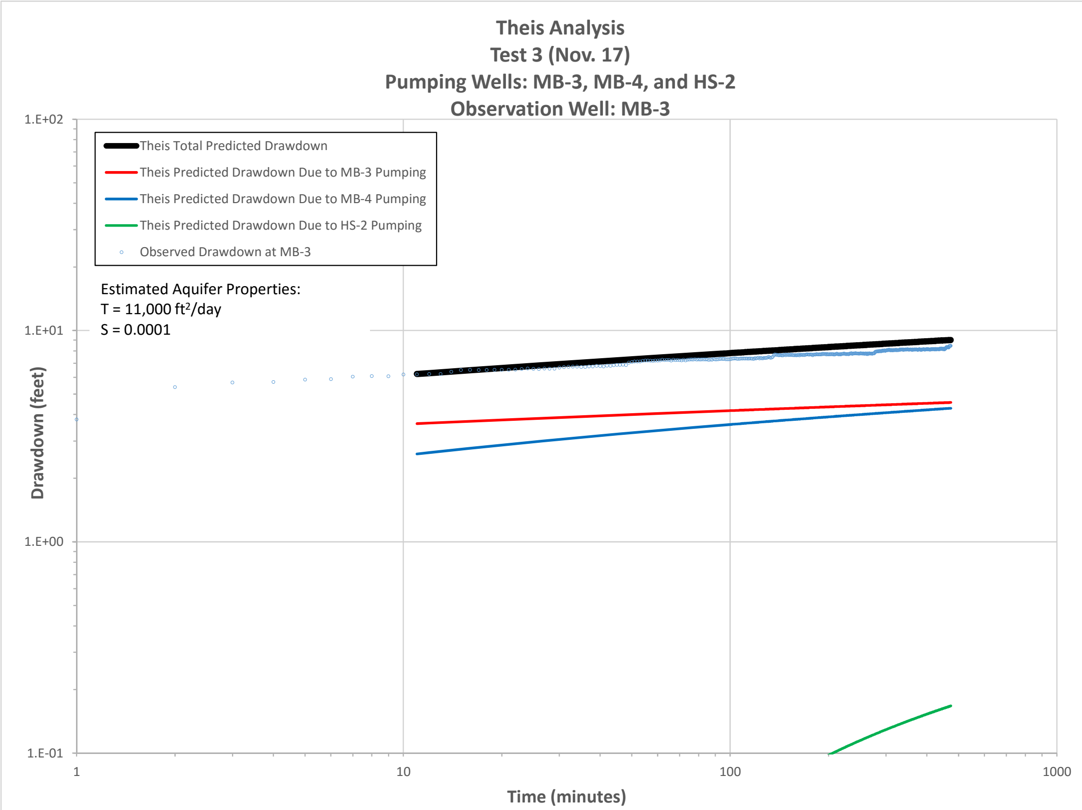


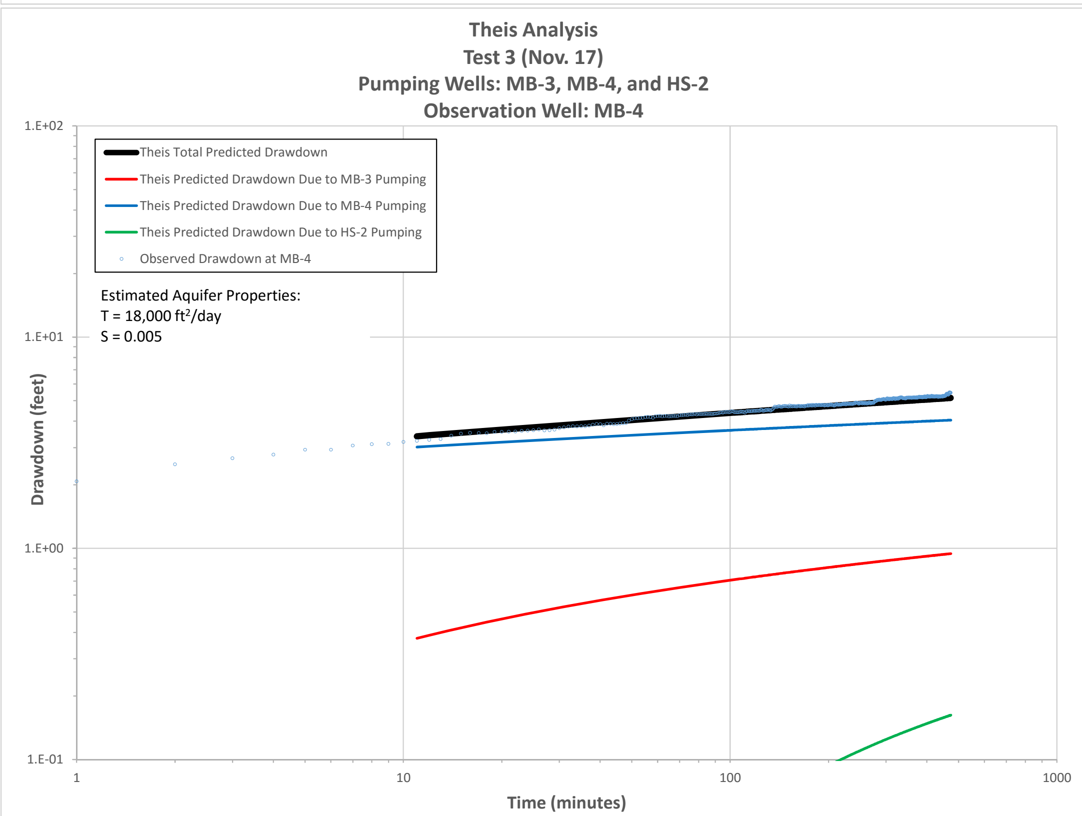
Test 3 Analysis Plots



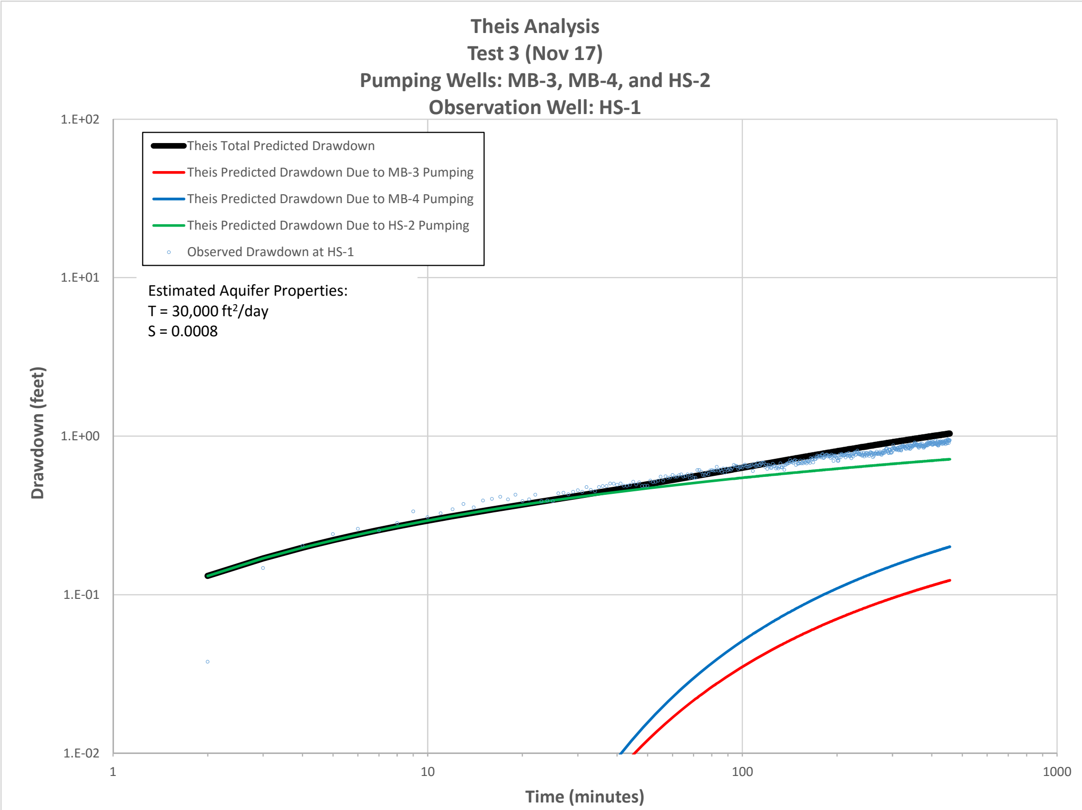


Test 3 Analysis Plots (continued)





Test 3 Analysis Plots (continued)



APPENDIX B

Quarterly Monitoring Report and Work Plan

Appendix B Quarterly Monitoring Report and Work Plan

Table of Contents

Water Solutions, Inc.

TECHNICAL MEMORANDUM

Results of Quarterly Groundwater Monitoring for Proposed Indirect Potable Reuse Project, City of Morro Bay, California

To: Joe Mueller, City of Morro Bay

From: Dave O'Rourke and Tim Thompson, GSI Water Solutions

CC: Anthony Cemo and Lydia Holmes, Carollo Engineers

Attachments: Figures, Tables, Groundwater Monitoring Plan (Appendix A), Field Sampling Logs (Appendix B), Analytical Laboratory Reports (Appendix C)

Date: November 17, 2021

Introduction and Objectives

GSI Water Solutions (GSI) is supporting the City of Morro Bay with design, permitting and implementation of an indirect potable reuse (IPR) project, which will inject highly treated recycled water from the City's forthcoming Water reclamation Facility (WRF) into the Lower Morro Valley aquifer.

As per §60320.200(c) of Title 22:

> "Prior to operating a Groundwater Replenishment Reuse Project (GRRP), a project sponsor shall collect at least four samples, at least one sample each quarter, from each potentially affected aquifer. The samples shall be representative of water in each aquifer, taking into consideration seasonal variations, and be analyzed for the chemicals, contaminants, and characteristics pursuant to Sections 60320.210, 60320.212, 60320.218, and 60320.220."

In order to comply with this requirement, a series of four quarterly groundwater sampling events were conducted over the past year. This memo presents the results of that sampling along with other permit-required elements associated with the hydrogeology of the receiving aquifer. The sampling effort was presented in the Groundwater Monitoring Plan, dated November 24, 2020 and included in this memo as Appendix A. Additionally, these water quality and hydrogeologic data will be incorporated into the Title 22 Engineering Report which is currently being prepared by Carollo Engineers with support from GSI.

The Groundwater Monitoring Plan presents a description of the IPR project, the permitting requirements for the operation of a GRRP, and the rationale of the wells included in groundwater monitoring. Briefly, the permits require collection of at least four samples from each potentially affected aquifer, which are to be analyzed for the chemicals, contaminants, and characteristics pursuant to sections 60320.210, 60320.212, 60320.218, and 60320.220. The IPR project is located within the City of Morro Bay, west of Highway 1 and south of Atascadero Road as shown on Figure 1.

Groundwater sampling was conducted at four wells to characterize the groundwater quality in the project area in the same aquifer as the City's production wells. The location of the wells included in the groundwater monitoring is presented on Figure 2 and listed below:

- 20-P01
- 19P-04
- MB-3 well
- High School (HS) wells 1 and 2

As presented in detail below, the laboratory results for samples collected during this monitoring effort indicate that neither primary nor secondary MCLs are exceeded for any of the analyzed constituents.

Schedule and Logistics

Groundwater sampling was conducted between September 2020 and July of 2021. The first groundwater monitoring samples were collected in September 2020 consisted of a composite sampling of a blend of water produced from two City production wells: MB-3 and High School Well 2. After the collection and analysis of this composite sample, the subsequent 3 quarterly sampling events collected discrete groundwater samples from each of the four individual wells (Well MB-3, High School Well 1 or 2[1], piezometer 19P-04, and the piezometer 20P-01) in December 2020, April 2021 and July 2021. (During the December event, field staff did not collect samples for PFAS analysis; when this oversight was discovered, staff re-mobilized to the field in January to address this data gap.)

During this period, groundwater levels were measured at the Morro Bay production wells, monitoring wells and the desalination[2] wells for use in producing groundwater contour maps which illustrate groundwater gradients and flow directions (Figures 3 through 6).

Samples were collected to assess the chemical concentrations of all the constituents identified in the constituent list as included in the November 2020 document “Groundwater Monitoring Plan for Groundwater Replenishment and Reuse”, which was submitted to and approved by the RWQCB (see Appendix A). Field sampling logs for each sampled well during the sampling events are included in Appendix B. Laboratory Analytical Reports and Chains of Custody are included as Appendix C.

Results and Observations

Water quality results from the four sampling events are summarized below. These results are discussed in the following sections. As required by section 60323, this memorandum also addresses the following hydrogeological topics:

- Results of the four rounds of consecutive quarterly monitoring
- Geologic and hydrogeologic setting of the basin,
- Existing hydrogeology and hydrogeology anticipated as a result of the operation of the GRRP, and
- Maps showing the quarterly groundwater elevation contours, along with vector flow directions and calculated hydraulic gradients.

[1] During the December 2020 groundwater monitoring event, samples were collected from High School Well 2. During the third and fourth sampling events, samples were collected from adjacent High School Well 1 because the well pump at High School Well 2 had failed and was being repaired.

[2] The so-called desalination wells, shown on Figure 1, were originally installed to function as seawater intake wells for a proposed desalination plant. The plant was not built and the wells are now used for monitoring purposes to track both groundwater elevations and salinity concentration over time.

Results of Groundwater Quality Sampling

Tables 1 through 6 present the results of the water quality sampling for the composite sample (MB-3 and High School-2), piezometer 20P-01, piezometer 19P-04, and City wells MB-3, High School-1, and High School-2, respectively. A summary of the analytical results for several key constituents or classes of constituents is provided below.

Total Dissolved Solids

Total Dissolved Solids (TDS) has a secondary MCL of 1,000 mg/L. Groundwater Quality in well High School-2 has the highest TDS concentration of the well sampled. TDS concentrations in samples from piezometer 20-P01 ranged from 720 mg/L in December 2020 to 860 mg/L in July 2021. TDS concentrations in samples from piezometer 19-P04 ranged from 890 mg/L in December 2020 to 990 mg/L in July 2021.TDS concentrations in well MB-3 ranged from 990 mg/L in December 2020 to 1,100 mg/L in July 2021. The sole discrete sample from well High School-2 had a concentration of 990 mg/L in December 2020. The two discrete samples from well High School-1 had TDS concentrations of 2,200 mg/L in April 2021 and 2,700 mg/L in July 2021. The sole composite sample from wells MB-3 and High School-2 had a TDS concentration of 990 mg/L.

In general, TDS concentrations appear to increase from the south to the north, with the lowest concentrations observed in the samples from piezometer 20-P01, and the highest concentrations in the samples collected from the High School-1 well. It is also noteworthy that the High School-1 and High School-wells, though only about 200 feet apart, have significant differences in TDS concentrations.

Chloride

Chloride has a secondary MCL of 500 mg/L; the High School-1 well is the only well with sample concentrations exceeding this value. Chloride concentrations in groundwater appear to follow the same general pattern as observed in the TDS data, with the lowest concentrations in the south, and increasing to the north.

Chloride concentrations in samples from piezometer 20-P01 ranged from 120 mg/L in December 2020 to 140 mg/L in July 2021. Chloride concentrations in samples from 19-P04 ranged from 160 mg/L in December 2020 to 170 mg/L in July 2021. Chloride concentrations in samples from well MB-3 ranged from 160 mg/L in December 2020 to 170 mg/L in July 2021. The sole discrete sample from the High School-2 well had a chloride concentration of 230 mg/L in December 2020. The two discrete samples from the High School-1 well had chloride concentrations of 970 mg/L in April 2021 and 1,100 mg/L in July 2021. The sole composite sample from wells MB-3 and High School-2 had a chloride concentration of 190 mg/L.

Sulfate

Sulfate has a secondary MCL of 500 mg/L; none of the samples collected had sulfate concentrations exceeding this value. Sulfate concentrations in samples from piezometer 20-P01 ranged from 140 mg/L in December 2020 to 150 mg/L in July 2021. Sulfate concentrations in samples from 19-P04 ranged from 170 mg/L to 180 mg/L. Sulfate concentrations in samples from well MB-3 ranged from 160 to 170 mg/L. The sole discrete sample from the High School-2 well had a sulfate concentration of 120 mg/L in December 2020. The two discrete samples from well High School-1 had sulfate concentrations of 140 mg/L in April 2021 and 150 mg/L in July 2021. The sole composite sample from wells MB-3 and High School-2 had a sulfate concentration of 150 mg/L.

Nitrate

Nitrate is a contaminant often associated with agricultural fertilizer application that has a primary MCL for Nitrate (as N) of 10 mg/L. The existence of a primary MCL indicates that this chemical has a documented impact on human health. The City recognizes that nitrates have been found in water from their wells over the

past several years. The source is likely fertilizer applications on agricultural land upgradient from the Highway 1 well field. This phenomenon has been discussed and modeled in the 4/19/2019 Technical Memo “Morro Bay Water Reclamation Facility Water Quality Groundwater Modeling”, which was previously transmitted to the RWQCB.

Samples from wells MB-3 and High School-2 have nitrate concentrations that exceed the MCL. None of the other wells had samples with nitrate concentrations exceeding the MCL in discrete groundwater samples. Nitrate concentrations in samples from piezometer 20-P01 were 1.5 mg/L, 1.4 mg/L, and 1.7 mg/L in the three consecutive discrete sampling events. Nitrate concentrations in samples from piezometer 19-P04 were 1.8 mg/L, 2.0 mg/L, and 2.4 mg/L in the three consecutive discrete sampling events. Nitrate concentrations in samples from well MB-3 were 26 mg/L, 22 mg/L, and 24 mg/L in the three consecutive discrete sampling events. The sole discrete sample from the High School-2 well had a nitrate concentration of 17 mg/L in December 2020. The two discrete samples from well High School-1 had nitrate concentrations of 7.9 mg/L in April 2021 and 8.7 mg/L in July 2021. The sole composite sample collected from comingled groundwater from wells MB-3 and High School-2 had a nitrate concentration of 21 mg/L.

Arsenic

Arsenic has a Primary MCL of 0.010 mg/L. One of the discrete samples (the April 2021 sample) collected from well High School-1 had an arsenic concentration 0.012 mg/L. Other samples collected had arsenic concentrations ranging from Non-Detect to 0.0033 mg/L.

Boron

Boron does not have either a primary or secondary MCL established, although it may have a negative impact on some agricultural products, depending on quantity of use, crop type, and other factors. Boron concentrations in samples collected from the monitoring wells range from 0.092 mg/L to 0.17 mg/L. These boron concentrations are not anticipated to precipitate any water quality issues in the use of groundwater in the Basin.

Other Anthropogenic Contaminant Compounds

Other significant anthropogenic compounds analyzed in the collected samples include metals, herbicides, pesticides, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), PCBs, Disinfection By-products, and others. The full reporting of all analytes on the constituent list is provided in Tables 1 through 6, and Appendix C.

The laboratory results for samples collected during this monitoring effort indicate that, except for the constituents identified above, neither primary nor secondary MCLs are exceeded for any of the analyzed constituents.

Seasonal Impacts

Groundwater quality results were compared to drinking water standards. As previously discussed, there were five exceedances of Nitrate (as N) in the samples from wells MB-3, High School-2, and the composite sample taken from comingled waters from MB-3 and High School-2. There was a single exceedance of Arsenic from one sample collected from the High School-1 well. Groundwater quality results are presented in table format in Tables 1 through 6. Groundwater quality was generally consistent throughout the season. However, the concentrations of some constituents were slightly greater during the dry seasonal conditions of fourth monitoring event than the previous three monitoring events. Some of the constituents that show higher concentrations during lower groundwater levels include TDS, Barium, Chloride, Chromium, Fluoride, Cobalt, EC, Molybdenum, Nickle, Sulfate, and Vanadium. However, the reported concentrations of these constituents remained below drinking water standards.

Geologic and Hydrogeologic Setting

The Morro Bay GRRP site is located within the Western, or lower, region of the Morro Valley Groundwater Basin (Basin). The aquifer in the Basin is comprised of unconsolidated alluvial gravel, sand, silt, and clay deposited by alluvial processes of Morro Creek. The Basin is bounded on the west by the Pacific Ocean and on the north and south by the relatively impermeable rocks of the Franciscan Formation. To the east of the project area, the lateral extent of the sediments thins to a small width about 200-300 feet wide, constrained by bedrock outcrops on both sides, referred to locally as the "Narrows". Precipitation in the area averages from 15 to 17 inches per year. The primary sources of recharge to the Basin in the project area are percolation of streamflow in Morro Creek, and infiltration of precipitation.

The City's interpretation of the aquifer characteristics is presented in greater detail in a series of technical memos (GSI 2017, GSI 2019, GSI 2021) documenting the development and refinement of a groundwater model of the aquifer below the Narrows. These documents have been previously transmitted to the RWQCB.

Stratigraphy

Boring logs and well completion reports for all known wells and piezometers in and around the project area were reviewed to gain an understanding of the stratigraphy in the area. In general, the aquifer is comprised of numerous non-contiguous lenses of alternating coarse-grained and fine-grained alluvial sediments. Most subsurface logs indicate that coarser materials are found near the bottom of the aquifer which reaches up to 80 feet deep in some areas of the Basin, while finer sediments are more commonly found near land surface and in the shallow portions of the aquifer. The deeper sands and gravels are the zones which are screened in the City's production wells in the project area.

Groundwater Elevation Maps

Groundwater contour maps displaying groundwater elevation contours and flow direction for four quarters between October 2020 and July 2021 are presented in Figures 3 through 6. The maps depict the direction and gradient of shallow groundwater movement beneath and immediately surrounding the GRRP during each quarter based on groundwater elevation data gathered from pressure transducers installed in wells owned and operated by the City of Morro Bay. The groundwater movement beneath the site was towards the west and southwest at a gradient of approximately 0.004 to 0.006 feet/foot during all of the year, which occurred during a relatively dry period. The groundwater elevation at the most upgradient well (MB-3), varied from 14.01 feet to 11.50 feet above mean sea level. The groundwater elevation at the most downgradient well (S-5) varied from 0.92 to 1.57 feet above mean sea level.

Existing and Anticipated Project Hydrogeology

Under current conditions documented during the prior year, groundwater flows approximately west to southwestward toward the Pacific Ocean, as displayed in the groundwater elevation maps included as Figures 3 through 6. The groundwater flow direction below the GRRP under these background conditions were determined based on measured groundwater elevations.

Under anticipated project conditions, the operation of the GRRP will cause localized mounding of groundwater under the injection site(s) and alter groundwater flow to a more generally more northerly flow direction, from the injection wells to the extraction points at the City's existing production wells. This will be described in more detail in the Basis of Design Memorandum pending completion of the pilot injection testing and associated groundwater modeling.

References

GSI Water Solutions 2017. Lower Morro Valley Basin Screening-Level Groundwater Modeling for Injection Feasibility.

GSI Water Solutions 2019. Morro Bay Water Reclamation Facility Water Quality Groundwater Modeling,

GSI Water Solutions 2021. Characterization and Selection of Project Area for Injection Testing City of Morro Bay.

FIGURE 1

Site Vicinity Map

Groundwater Replenishment
Reuse Project
Morro Bay, California

LEGEND

- Morro Bay City Well
- MBMWC Well
- Desalination Well
- Piezometer
- Model Active Area

All Other Features

- City Boundary
- Major Road
- Watercourse

NOTES:
MBMWC: Morro Bay Mutual Water Company.
Well MBMWC is inactive.

N

0 500 1,000
Feet

Date: November 15, 2021
Data Sources: USGS, ESRI,
City of Morro Bay

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\GW_Replenishment\Figure1_SiteVicinity.mxd

FIGURE 2

Sampled Groundwater Monitoring Wells

Groundwater Replenishment Reuse Project
Morro Bay, California

LEGEND

- Sampled Groundwater Well (existing)
- Bike Path
- Project Area
- Tentative Initial Injection Well Location Area
- Major Road
- Watercourse

N

0 200 400
Feet

Date: November 15, 2021
Data Sources: USGS, ESRI

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\GW_Replenishment\Figure2_Proposed_GW_Monitoring_Wells.mxd

FIGURE 3

October 2020, Groundwater Elevation Contour

Morro Bay
Background Groundwater
Quality Monitoring

LEGEND

- Monitoring Well
  Groundwater Elevation, feet
- Groundwater Elevation Contour, feet
- Groundwater Flow Direction
- Major Road
- Watercourse

N

0 250 500
Feet

Date: November 15, 2021
Data Sources: ESRI, USGS, NAIP 2018

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Quarterly_WQ_TM\Figure3_OCT_GW_Elevation_Contours.mxd, npalmer

FIGURE 4
January 2021, Groundwater Elevation Contour

Morro Bay
Background Groundwater Quality Monitoring

LEGEND

- Monitoring Well
  Groundwater Elevation, feet
- Groundwater Elevation Contour, feet
- Groundwater Flow Direction
- Major Road
- Watercourse

N

0 250 500
Feet

Date: November 15, 2021
Data Sources: ESRI, USGS, NAIP 2018

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Quarterly_WQ_TM\Figure4_JAN_GW_Elevation_Contours.mxd, npalmer

FIGURE 5
April 2021, Groundwater Elevation Contour

Morro Bay
Background Groundwater
Quality Monitoring

LEGEND

- Monitoring Well
  Groundwater Elevation, feet
- Groundwater Elevation Contour, feet
- Groundwater Flow Direction
- Major Road
- Watercourse

N

0 250 500
Feet

Date: November 15, 2021
Data Sources: ESRI, USGS, NAIP 2018

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Quarterly_WQ_TM\Figure5_APR_GW_Elevation_Contours.mxd, npalmer

FIGURE 6

July 2021, Groundwater Elevation Contour

Morro Bay
Background Groundwater
Quality Monitoring

LEGEND

- Monitoring Well
  Groundwater Elevation, feet
- Groundwater Elevation Contour, feet
- Groundwater Flow Direction
- Major Road
- Watercourse

N

0 250 500
Feet

Date: November 15, 2021
Data Sources: ESRI, USGS, NAIP 2018

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Quarterly_WQ_TM\Figure6_JUL_GW_Elevation_Contours.mxd, npalmer

TABLE 1
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Composite Sample (MB-3 and High School-2)

Method	Analyte	9.10.2020 Results	Units	MCL	SMCL	NL
General Chemistry						
E100.2	Asbestos	ND	MFL	7	--	--
E317	Bromate	ND	ug/L	10	--	--
E300.0	Chlorate	25	ug/L	--	--	800
E300.0	Chloride	190	mg/L	--	500	--
E300.0	Chlorite	ND	mg/L	1	--	--
2120B	Color	ND	None	--	--	--
SW8015B	Ethylene Glycol	ND	mg/L	--	--	14
SM4500-F-C	Fluoride	0.22	mg/L	2	--	--
E556.1	Formaldehyde	ND	ug/L	--	--	100
5540C	MBAS	ND	mg/L	--	0.5	--
E300.0	Nitrate (as N)	**21**	mg/L	10	--	--
E300.0	Nitrate (as NO3)	92	mg/L	--	--	--
E300.0	Nitrate + Nitrite (As N)	**21**	mg/L	10	--	--
E300.0	Nitrite (as N)	ND	mg/L	1	--	--
2150B	Odor	ND	None	--	--	--
E314.0	Perchlorate	ND	ug/L	6	--	--
2510B	Specific Conductivity	1700	umhos/cm	--	1600	--
E300.0	Sulfate	150	mg/L	--	500	--
SM4500-CN-F	Total Cyanide	ND	ug/L	150	--	--
SM2540C	Total Dissolved Solids	990	mg/L	--	1000	--
E351.2	Total Kjeldahl Nitrogen	ND	mg/L	--	--	--
E351.1	Total Nitrogen	21	mg/L	--	--	--
SM5310C	Total Organic Carbon	1	mg/L	--	--	--
E180.1	Turbidity	2.5	NTU	--	--	--
Metals						
E200.8	Aluminum	ND	ug/L	1000	--	--
E200.8	Antimony	ND	ug/L	6	--	--
E200.8	Arsenic	ND	ug/L	10	--	--
E200.8	Barium	130	ug/L	1000	--	--
E200.8	Beryllium	ND	ug/L	4	--	--
E200.7	Boron	130	ug/L	--	--	1000
E200.8	Cadmium	ND	ug/L	5	--	--
E200.8	Chromium	3	ug/L	50	--	--
SM 3500CrB	Chromium, Hexavalent	ND	ug/L	--	--	--
E200.8	Cobalt	ND	ug/L	--	--	--
E200.8	Copper	ND	ug/L	--	--	--
E200.7	Iron	ND	ug/L	--	300	--
E200.8	Lead	ND	ug/L	--	--	--
E200.7	Lithium	6	ug/L	--	--	--
E200.8	Manganese	ND	ug/L	--	50	--
E200.8	Mercury	ND	ug/L	2	--	--
E200.8	Molybdenum	ND	ug/L	--	--	--
E200.8	Nickel	ND	ug/L	100	--	--
E200.8	Selenium	18	ug/L	50	--	--
E200.8	Silver	ND	ug/L	--	--	--
E200.8	Thallium	ND	ug/L	2	--	--
E200.8	Tin	ND	ug/L	--	--	--
E200.8	Titanium	80	ug/L	--	--	--
E200.8	Uranium	1.7	ug/L	20	--	--
E200.8	Vanadium	3	ug/L	--	--	50
E200.8	Zinc	ND	ug/L	--	5000	--
Herbicides/Pesticides						
E515.4	2,4,5-TP	ND	ug/L	50	--	--
E515.4	2,4-D	ND	ug/L	70	--	--
E531.2	3-Hydroxycarbofuran	ND	ug/L	--	--	--
E525.2	4,4'-DDD	ND	ug/L	--	--	--
E525.2	4,4'-DDE	ND	ug/L	--	--	--
E525.2	4,4'-DDT	ND	ug/L	--	--	--
E505	Alachlor	ND	ug/L	2	--	--
E525.2	Alachlor	ND	ug/L	2	--	--
E531.2	Aldicarb	ND	ug/L	--	--	--
E531.2	Aldicarb sulfone	ND	ug/L	--	--	--
E531.2	Aldicarb sulfoxide	ND	ug/L	--	--	--
E525.2	Alpha-BHC	ND	ug/L	--	--	--
E531.2	Baygon	ND	ug/L	--	--	--
E515.4	Bentazon	ND	ug/L	18	--	--
E525.2	Beta-BHC	ND	ug/L	--	--	--
E531.2	Carbaryl	ND	ug/L	--	--	--
E531.2	Carbofuran	ND	ug/L	18	--	--
E505	Chlordane	ND	ug/L	0.1	--	--
E515.4	Dalapon	ND	ug/L	200	--	--

MCL = Maximum Contaminant Level (Bold = exceedance)
SMCL = Secondary Maximum Contaminant Level (Bold = exceedance)
NL = Notification Limit
ND = Non-Detect
J = Estimated value.
B = The analyte was found in a method blank, as well as in the sample.

GSI Water Solutions, Inc.

TABLE 1
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Composite Sample (MB-3 and HS-2)

Method	Analyte	9.10.2020 Results	Units	MCL	SMCL	NL
E525.2	Delta-BHC	ND	ug/L	--	--	--
E525.2	Dieldrin	ND	ug/L	--	--	--
E515.4	Dinoseb	ND	ug/L	7	--	--
E549.2	Diquat	ND	ug/L	20	--	--
E525.2	Endosulfan I	ND	ug/L	--	--	--
E525.2	Endosulfan II	ND	ug/L	--	--	--
E525.2	Endosulfan Sulfate	ND	ug/L	--	--	--
E548.1	Endothal	ND	ug/L	--	--	--
E505	Endrin	ND	ug/L	2	--	--
E525.2	Endrin	ND	ug/L	2	--	--
E525.2	Endrin Aldehyde	ND	ug/L	--	--	--
E525.2	Gamma-BHC	ND	ug/L	0.2	--	--
E505	Gamma-BHC	ND	ug/L	0.2	--	--
E547	Glyphosate	ND	ug/L	700	--	--
E525.2	Heptachlor	ND	ug/L	0.01	--	--
E505	Heptachlor	ND	ug/L	0.01	--	--
E525.2	Heptachlor Epoxide	ND	ug/L	0.01	--	--
E505	Heptachlor Epoxide	ND	ug/L	0.01	--	--
E531.2	Methiocarb	ND	ug/L	--	--	--
E531.2	Methomyl	ND	ug/L	--	--	--
E505	Methoxychlor	ND	ug/L	30	--	--
E525.2	Methoxychlor	ND	ug/L	30	--	--
E531.2	Oxamyl	ND	ug/L	50	--	--
E549.2	Paraquat	ND	ug/L	--	--	--
SW8270C	Pentachlorophenol	ND	ug/L	1	--	--
E515.4	Pentachlorophenol	ND	ug/L	1	--	--
E515.4	Picloram	ND	ug/L	500	--	--
E505	Toxaphene	ND	ug/L	3	--	--
	VOCs					
E524.2	1,1,1,2-Tetrachloroethane	ND	ug/L	--	--	--
SW8260B	1,1,1,2-Tetrachloroethane	ND	ug/L	--	--	--
SW8260B	1,1,1-Trichloroethane	ND	ug/L	200	--	--
E524.2	1,1,1-Trichloroethane	ND	ug/L	200	--	--
E524.2	1,1,2,2-Tetrachloroethane	ND	ug/L	1	--	--
SW8260B	1,1,2,2-Tetrachloroethane	ND	ug/L	1	--	--
SW8260B	1,1,2-Trichlor-1,2,2-trifluoroethane	ND	ug/L	1200	--	--
E524.2	1,1,2-Trichloroethane	ND	ug/L	5	--	--
SW8260B	1,1,2-Trichloroethane	ND	ug/L	5	--	--
SW8260B	1,1-Dichloroethane	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethane	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethene	ND	ug/L	6	--	--
SW8260B	1,1-Dichloroethene	ND	ug/L	6	--	--
E524.2	1,1-Dichloropropene	ND	ug/L	--	--	--
SW8260B	1,1-Dichloropropene	ND	ug/L	--	--	--
E524.2	1,2,3-Trichlorobenzene	ND	ug/L	--	--	--
SW8260B	1,2,3-Trichlorobenzene	ND	ug/L	--	--	--
E524.2	1,2,3-Trichloropropane	ND	ug/L	0.005	--	--
SW8260B	1,2,3-Trichloropropane	ND	ug/L	0.005	--	--
E524.2Mod	1,2,3-Trichloropropane	ND	ug/L	0.005	--	--
E524.2	1,2,4-Trichlorobenzene	ND	ug/L	5	--	--
SW8260B	1,2,4-Trichlorobenzene	ND	ug/L	5	--	--
E524.2	1,2,4-Trimethylbenzene	ND	ug/L	--	--	330
SW8260B	1,2,4-Trimethylbenzene	ND	ug/L	--	--	330
504.1	1,2-Dibromo-3-chloropropane	ND	ug/L	0.2	--	--
SW8260B	1,2-Dibromo-3-chloropropane	ND	ug/L	0.2	--	--
E524.2	1,2-Dichlorobenzene	ND	ug/L	600	--	--
SW8260B	1,2-Dichlorobenzene	ND	ug/L	600	--	--
SW8260B	1,2-Dichloroethane	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloroethane	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloropropane	ND	ug/L	5	--	--
SW8260B	1,2-Dichloropropane	ND	ug/L	5	--	--
E524.2	1,3,5-Trimethylbenzene	ND	ug/L	--	--	330
SW8260B	1,3,5-Trimethylbenzene	ND	ug/L	--	--	330
SW8260B	1,3-butadiene	ND	ug/L	--	--	--
E524.2	1,3-Dichlorobenzene	ND	ug/L	--	--	--
SW8260B	1,3-Dichlorobenzene	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropane	ND	ug/L	--	--	--
SW8260B	1,3-Dichloropropane	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropene	ND	ug/L	0.5	--	--
SW8260B	1,4-Dichlorobenzene	ND	ug/L	5	--	--
E524.2	1,4-Dichlorobenzene	ND	ug/L	5	--	--
SW8260B	1,4-Dioxane	ND	ug/L	--	--	1

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GSI Water Solutions, Inc.

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MORRO BAY WELLS
Composite Sample (MB-3 and HS-2)

Method	Analyte	9.10.2020 Results	Units	MCL	SMCL	NL
SW8260B	2,2-Dichloropropane	ND	ug/L	--	--	--
E524.2	2,2-Dichloropropane	ND	ug/L	--	--	--
SW8260B	2-Chloroethyl vinyl ether	ND	ug/L	--	--	--
E524.2	2-Chlorotoluene	ND	ug/L	--	--	140
SW8260B	2-Chlorotoluene	ND	ug/L	--	--	140
SW8260B	2-Hexanone	ND	ug/L	--	--	--
E524.2	4-Chlorotoluene	ND	ug/L	--	--	140
SW8260B	4-Chlorotoluene	ND	ug/L	--	--	140
E524.2	4-Methyl-2-pentanone	ND	ug/L	--	--	--
SW8260B	4-Methyl-2-pentanone	ND	ug/L	--	--	--
SW8260B	Acetone	ND	ug/L	--	--	--
SW8260B	Acetonitrile	ND	ug/L	--	--	--
SW8260B	Acrolein	ND	ug/L	--	--	--
SW8260B	Acrylonitrile	ND	ug/L	--	--	--
SW8260B	Benzene	ND	ug/L	1	--	--
E524.2	Benzene	ND	ug/L	1	--	--
E524.2	Bromobenzene	ND	ug/L	--	--	--
SW8260B	Bromobenzene	ND	ug/L	--	--	--
E524.2	Bromochloromethane	ND	ug/L	--	--	--
SW8260B	Bromochloromethane	ND	ug/L	--	--	--
E524.2	Bromodichloromethane	ND	ug/L	80	--	--
SW8260B	Bromodichloromethane	ND	ug/L	80	--	--
E524.2	Bromoethane	ND	ug/L	--	--	--
E524.2	Bromoform	0.53	ug/L	80	--	--
SW8260B	Bromoform	ND	ug/L	80	--	--
E524.2	Bromomethane	ND	ug/L	--	--	--
SW8260B	Bromomethane	ND	ug/L	--	--	--
E524.2	Carbon disulfide	ND	ug/L	--	--	160
SW8260B	Carbon disulfide	ND	ug/L	--	--	160
E524.2	Carbon tetrachloride	ND	ug/L	0.5	--	--
SW8260B	Carbon tetrachloride	ND	ug/L	0.5	--	--
E524.2	Chlorobenzene	ND	ug/L	70	--	--
SW8260B	Chlorobenzene	ND	ug/L	70	--	--
SW8260B	Chloroethane	ND	ug/L	--	--	--
E524.2	Chloroethane	ND	ug/L	--	--	--
E524.2	Chloroform	ND	ug/L	80	--	--
SW8260B	Chloroform	ND	ug/L	80	--	--
E524.2	Chloromethane	ND	ug/L	--	--	--
SW8260B	Chloromethane	ND	ug/L	--	--	--
E524.2	cis-1,2-Dichloroethene	ND	ug/L	6	--	--
SW8260B	cis-1,2-Dichloroethene	ND	ug/L	6	--	--
SW8260B	cis-1,3-Dichloropropene	ND	ug/L	--	--	--
E524.2	cis-1,3-Dichloropropene	ND	ug/L	--	--	--
E524.2	Dibromochloromethane	ND	ug/L	80	--	--
SW8260B	Dibromochloromethane	ND	ug/L	80	--	--
SW8260B	Dibromomethane	ND	ug/L	--	--	--
E524.2	Dibromomethane	ND	ug/L	--	--	--
SW8260B	Dichlorodifluoromethane	ND	ug/L	--	--	1000
E524.2	Dichlorodifluoromethane	ND	ug/L	--	--	1000
SW8260B	Diethyl Ether	ND	ug/L	--	--	--
SW8260B	Diisopropyl ether	ND	ug/L	--	--	--
E524.2	Di-isopropyl ether	ND	ug/L	--	--	--
SW8260B	Ethanol	ND	ug/L	--	--	--
E524.2	Ethyl tert-butyl ether	ND	ug/L	--	--	--
E524.2	Ethylbenzene	ND	ug/L	300	--	--
SW8260B	Ethylbenzene	ND	ug/L	300	--	--
SW8260B	Ethylene dibromide	ND	ug/L	0.05	--	--
504.1	Ethylene dibromide	ND	ug/L	0.05	--	--
SW8260B	Hexachloro-1,3-Butadiene	ND	ug/L	--	--	--
E524.2	Hexachlorobutadiene	ND	ug/L	--	--	--
SW8260B	Hexane	ND	ug/L	--	--	--
SW8260B	Iodomethane	ND	ug/L	--	--	--
SW8260B	Isobutyl alcohol	ND	ug/L	--	--	--
SW8260B	Isopropanol	ND	ug/L	--	--	--
E524.2	Isopropylbenzene	ND	ug/L	--	--	770
SW8260B	Isopropylbenzene	ND	ug/L	--	--	770
SW8260B	m,p-Xylene	ND	ug/L	--	--	--
E524.2	m,p-Xylene	ND	ug/L	--	--	--
E524.2	Methyl ethyl ketone	ND	ug/L	--	--	--
SW8260B	Methyl ethyl ketone	ND	ug/L	--	--	--
SW8260B	Methyl t-butyl ether	ND	ug/L	--	--	--
E524.2	Methyl tert-butyl ether	ND	ug/L	13	--	--

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GSI Water Solutions, Inc.

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Composite Sample (MB-3 and HS-2)

Method	Analyte	9.10.2020 Results	Units	MCL	SMCL	NL
SW8260B	Methylene chloride	ND	ug/L	5	--	--
E524.2	Methylene chloride	ND	ug/L	5	--	--
SW8260B	Naphthalene	ND	ug/L	--	--	17
E524.2	Naphthalene	ND	ug/L	--	--	17
E524.2	n-Butylbenzene	ND	ug/L	--	--	260
SW8260B	n-Butylbenzene	ND	ug/L	--	--	260
E524.2	n-Propylbenzene	ND	ug/L	--	--	260
SW8260B	n-Propylbenzene	ND	ug/L	--	--	260
E524.2	o-Xylene	ND	ug/L	--	--	--
SW8260B	o-Xylene	ND	ug/L	--	--	--
E524.2	p-Isopropyltoluene	ND	ug/L	--	--	--
SW8260B	p-Isopropyltoluene	ND	ug/L	--	--	--
SW8260B	sec-Butylbenzene	ND	ug/L	--	--	260
E524.2	sec-Butylbenzene	ND	ug/L	--	--	260
E524.2	Styrene	ND	ug/L	100	--	--
SW8260B	Styrene	ND	ug/L	100	--	--
E524.2	tert-Amyl Methyl ether	ND	ug/L	--	--	--
E524.2	tert-Butyl alcohol	ND	ug/L	--	--	12
SW8260B	tert-Butyl alcohol	ND	ug/L	--	--	12
SW8260B	tert-Butylbenzene	ND	ug/L	--	--	260
E524.2	tert-Butylbenzene	ND	ug/L	--	--	260
SW8260B	Tetrachloroethene	ND	ug/L	5	--	--
E524.2	Tetrachloroethene	ND	ug/L	5	--	--
SW8260B	Tetrahydrofuran	ND	ug/L	--	--	--
SW8260B	Thiophene	ND	ug/L	--	--	--
SW8260B	Toluene	ND	ug/L	150	--	--
E524.2	Toluene	ND	ug/L	150	--	--
SW8260B	trans-1,2-Dichloroethene	ND	ug/L	10	--	--
E524.2	trans-1,2-Dichloroethene	ND	ug/L	10	--	--
E524.2	trans-1,3-Dichloropropene	ND	ug/L	--	--	--
SW8260B	trans-1,3-Dichloropropene	ND	ug/L	--	--	--
SW8260B	trans-1,4-Dichloro-2-butene	ND	ug/L	--	--	--
E524.2	Trichloroethene	ND	ug/L	5	--	--
SW8260B	Trichloroethene	ND	ug/L	5	--	--
SW8260B	Trichlorofluoromethane	ND	ug/L	150	--	--
E524.2	Trichlorofluoromethane	ND	ug/L	150	--	--
E524.2	Trichlorotrifluoroethane	ND	ug/L	--	--	--
SW8260B	Vinyl acetate	ND	ug/L	--	--	--
E524.2	Vinyl chloride	ND	ug/L	0.5	--	--
SW8260B	Vinyl chloride	ND	ug/L	0.5	--	--
E524.2	Xylenes, Total	ND	ug/L	1750	--	--
SVOCs						
SW8270C	1,3-Dichlorobenzene	ND	ug/L	--	--	--
SW8270C	1,4-Dichlorobenzene	ND	ug/L	5	--	--
E522	1,4-Dioxane	ND	ug/L	--	--	1
SW8270C	1-Methylnaphthalene	ND	ug/L	--	--	--
SW8270C	2,4,5-Trichlorophenol	ND	ug/L	--	--	--
SW8270C	2,4,6-Trichlorophenol	ND	ug/L	--	--	--
E525.2	2,4-DDD	ND	ug/L	--	--	--
E525.2	2,4-DDE	ND	ug/L	--	--	--
E525.2	2,4-DDT	ND	ug/L	--	--	--
SW8270C	2,4-Dichlorophenol	ND	ug/L	--	--	--
SW8270C	2,4-Dimethylphenol	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrophenol	ND	ug/L	--	--	--
E525.2	2,4-Dinitrotoluene	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrotoluene	ND	ug/L	--	--	--
E525.2	2,6-Dinitrotoluene	ND	ug/L	--	--	--
SW8270C	2,6-Dinitrotoluene	ND	ug/L	--	--	--
SW8270C	2-Chloronaphthalene	ND	ug/L	--	--	--
SW8270C	2-Chlorophenol	ND	ug/L	--	--	--
SW8270C	2-Methylnaphthalene	ND	ug/L	--	--	--
SW8270C	2-Methylphenol	ND	ug/L	--	--	--
SW8270C	2-Nitroaniline	ND	ug/L	--	--	--
SW8270C	2-Nitrophenol	ND	ug/L	--	--	--
SW8270C	3,3-Dichlorobenzidine	ND	ug/L	--	--	--
SW8270C	3-4-Methylphenol	ND	ug/L	--	--	--
SW8270C	3-Nitroaniline	ND	ug/L	--	--	--
SW8270C	4,6-Dinitro-2-methylphenol	ND	ug/L	--	--	--
SW8270C	4-Bromophenyl phenyl ether	ND	ug/L	--	--	--
SW8270C	4-Chloroaniline	ND	ug/L	--	--	--
SW8270C	4-Chlorophenyl phenyl ether	ND	ug/L	--	--	--
SW8270C	4-Nitroaniline	ND	ug/L	--	--	--

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Method	Analyte	9.10.2020 Results	Units	MCL	SMCL	NL
SW8270C	4-Nitrophenol	ND	ug/L	--	--	--
E525.2	Acenaphthene	ND	ug/L	--	--	--
SW8270C	Acenaphthene	ND	ug/L	--	--	--
SW8270C	Acenaphthylene	ND	ug/L	--	--	--
E525.2	Acenaphthylene	ND	ug/L	--	--	--
E525.2	Acetochlor	ND	ug/L	--	--	--
E525.2	alpha-Chlordane	ND	ug/L	--	--	--
SW8270C	Aniline	ND	ug/L	--	--	--
E525.2	Anthracene	ND	ug/L	--	--	--
SW8270C	Anthracene	ND	ug/L	--	--	--
E525.2	Atrazine	ND	ug/L	1	--	--
SW8270C	Azobenzene	ND	ug/L	--	--	--
E525.2	Benz(a)anthracene	ND	ug/L	--	--	--
SW8270C	Benz(a)anthracene	ND	ug/L	--	--	--
SW8270C	Benzidine	ND	ug/L	--	--	--
E525.2	Benzo(a)pyrene	ND	ug/L	0.2	--	--
SW8270C	Benzo(a)pyrene	ND	ug/L	0.2	--	--
E525.2	Benzo(b)fluoranthene	ND	ug/L	--	--	--
SW8270C	Benzo(b)fluoranthene	ND	ug/L	--	--	--
E525.2	Benzo(g,h,i)perylene	ND	ug/L	--	--	--
SW8270C	Benzo(g,h,i)perylene	ND	ug/L	--	--	--
E525.2	Benzo(k)fluoranthene	ND	ug/L	--	--	--
SW8270C	Benzo(k)fluoranthene	ND	ug/L	--	--	--
SW8270C	Benzoic acid	ND	ug/L	--	--	--
SW8270C	Benzyl alcohol	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethoxy)methane	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethyl)ether	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroisopropyl)ether	ND	ug/L	--	--	--
E525.2	bis(2-Ethylhexyl)phthalate	ND	ug/L	4	--	--
SW8270C	bis(2-Ethylhexyl)phthalate	ND	ug/L	4	--	--
E525.2	Bromacil	ND	ug/L	--	--	--
E525.2	Butachlor	ND	ug/L	--	--	--
SW8270C	Butyl benzyl phthalate	ND	ug/L	--	--	--
E525.2	Butylbenzylphthalate	ND	ug/L	--	--	--
E525.2	Caffeine	ND	ug/L	--	--	--
E525.2	Chlorobenzilate	ND	ug/L	--	--	--
E525.2	Chloroneb	ND	ug/L	--	--	--
E525.2	Chlorothalonil	ND	ug/L	--	--	--
E525.2	Chlorpyrifos	ND	ug/L	--	--	--
E525.2	Chrysene	ND	ug/L	--	--	--
SW8270C	Chrysene	ND	ug/L	--	--	--
E525.2	Di(2-ethylhexyl)adipate	ND	ug/L	400	--	--
E525.2	Diazinon	ND	ug/L	--	--	1.2
E525.2	Dibenz(a,h)anthracene	ND	ug/L	--	--	--
SW8270C	Dibenz(a,h)anthracene	ND	ug/L	--	--	--
SW8270C	Dibenzofuran	ND	ug/L	--	--	--
E525.2	Dichlorvos	ND	ug/L	--	--	--
SW8270C	Diethyl phthalate	ND	ug/L	--	--	--
E525.2	Diethylphthalate	ND	ug/L	--	--	--
E525.2	Dimethoate	ND	ug/L	--	--	--
SW8270C	Dimethyl phthalate	ND	ug/L	--	--	--
E525.2	Dimethylphthalate	ND	ug/L	--	--	--
SW8270C	Di-n-butyl phthalate	ND	ug/L	--	--	--
E525.2	Di-n-butylphthalate	ND	ug/L	--	--	--
SW8270C	Di-n-octyl phthalate	ND	ug/L	--	--	--
E525.2	Di-n-octylphthalate	ND	ug/L	--	--	--
E525.2	EPTC	ND	ug/L	--	--	--
E525.2	Fluoranthene	ND	ug/L	--	--	--
SW8270C	Fluoranthene	ND	ug/L	--	--	--
E525.2	Fluorene	ND	ug/L	--	--	--
SW8270C	Fluorene	ND	ug/L	--	--	--
E525.2	Gamma-Chlordane	ND	ug/L	--	--	--
SW8270C	Hexachloro-1,3-Butadiene	ND	ug/L	--	--	--
E525.2	Hexachlorobenzene	ND	ug/L	1	--	--
SW8270C	Hexachlorobenzene	ND	ug/L	1	--	--
E525.2	Hexachlorocyclopentadiene	ND	ug/L	50	--	--
SW8270C	Hexachlorocyclopentadiene	ND	ug/L	50	--	--
SW8270C	Hexachloroethane	ND	ug/L	--	--	--
E525.2	Indeno(1,2,3-cd)pyrene	ND	ug/L	--	--	--
SW8270C	Indeno(1,2,3-cd)pyrene	ND	ug/L	--	--	--
E525.2	Isophorone	ND	ug/L	--	--	--
SW8270C	Isophorone	ND	ug/L	--	--	--

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E525.2	Malathion	ND	ug/L	--	--	--
E525.2	Metolachlor	ND	ug/L	--	--	--
E525.2	Metribuzin	ND	ug/L	--	--	--
E525.2	Molinate	ND	ug/L	20	--	--
E525.2	Naphthalene	ND	ug/L	--	--	17
SW8270C	Naphthalene	ND	ug/L	--	--	17
SW8270C	Nitrobenzene	ND	ug/L	--	--	--
SW8270C	N-Nitrosodiphenylamine	ND	ug/L	--	--	--
E525.2	Parathion	ND	ug/L	--	--	--
SW8270C	p-Chloro-m-cresol	ND	ug/L	--	--	--
E525.2	Pendimethalin	ND	ug/L	--	--	--
E525.2	Permethrin (mixed isomers)	ND	ug/L	--	--	--
E525.2	Phenanthrene	ND	ug/L	--	--	--
SW8270C	Phenanthrene	ND	ug/L	--	--	--
SW8270C	Phenol	ND	ug/L	--	--	--
E525.2	Propachlor	ND	ug/L	--	--	90
E525.2	Pyrene	ND	ug/L	--	--	--
SW8270C	Pyrene	ND	ug/L	--	--	--
SW8270C	Pyridine	ND	ug/L	--	--	--
E525.2	Simazine	ND	ug/L	4	--	--
E525.2	Terbacil	ND	ug/L	--	--	--
E525.2	Terbuthylazine	ND	ug/L	--	--	--
E525.2	Thiobencarb	ND	ug/L	70	--	--
E525.2	trans-Nonachlor	ND	ug/L	--	--	--
E525.2	Trifluralin	ND	ug/L	--	--	--
		PCBs				
E505	PCB-1016	ND	ug/L	--	--	--
E505	PCB-1221	ND	ug/L	--	--	--
E505	PCB-1232	ND	ug/L	--	--	--
E505	PCB-1242	ND	ug/L	--	--	--
E505	PCB-1248	ND	ug/L	--	--	--
E505	PCB-1254	ND	ug/L	--	--	--
E505	PCB-1260	ND	ug/L	--	--	--
E505	Total PCBs	ND	ug/L	0.5	--	--
		THAAs				
SM 6251B	Bromochloroacetic acid	ND	ug/L	--	--	--
SM 6251B	Dibromoacetic acid	ND	ug/L	--	--	--
SM 6251B	Dichloroacetic acid	ND	ug/L	--	--	--
SM 6251B	Monobromoacetic acid	ND	ug/L	--	--	--
SM 6251B	Monochloroacetic acid	ND	ug/L	--	--	--
SM 6251B	Trichloroacetic acid	ND	ug/L	--	--	--
SM 6251B	Trihalomethanes	ND	ug/L	80	--	--
E524.2	Trihalomethanes	0.53	ug/L	80	--	--
		Radiochemistry				
SM 7110C	Gross Alpha	3.1	pCi/L	15	--	--
Ra-226 GA	Radium-226	ND	pCi/L	5	--	--
RA-228 GA	Radium-228	ND	pCi/L	5	--	--
Unk_RadChem	Uranium	1.2	pCi/L	20	--	--
906	Tritium	ND	pCi/L	20000	--	--
905	Strontium-90	ND	pCi/L	8	--	--
E900	Gross Beta	ND	pCi/L	50	--	--
		Nitroaromatics and Nitrosamines				
LC-MS-MS	HMX	ND	ug/L	--	--	0.35
LC-MS-MS	RDX	ND	ug/L	--	--	0.3
LC-MS-MS	2,4,6-Trinitrotoluene	ND	ug/L	--	--	0.001
SW8270C	N-Nitrosodiethylamine	ND	ug/L	--	--	0.01
E521	N-Nitrosodiethylamine	ND	ng/L	--	--	0.01
SW8270C	N-Nitrosodimethylamine	ND	ug/L	--	--	0.01
E521	N-Nitrosodimethylamine	ND	ng/L	--	--	0.01
E521	N-Nitrosomorpholine	ND	ng/L	--	--	--
E521	N-Nitrosopyrrolidine	ND	ng/L	--	--	--
E521	N-Nitrosodi-n-propylamine	ND	ng/L	--	--	0.01
E521	N-Nitroso-di-butylamine	ND	ng/L	--	--	--
SW8270C	N-Nitrosodi-n-propylamine	ND	ug/L	--	--	0.01
E521	N-Nitrosomethylethylamine	ND	ng/L	--	--	--
E521	N-Nitrosopiperidine	ND	ng/L	--	--	--
		PFAs				
E537.1	Perfluorooctanesulfonic acid (PFOS)	ND	ng/L	--	--	6.5
E537.1	Perfluorooctanoic acid (PFOA)	ND	ng/L	--	--	5.1
		Dioxins				
EPA 1613B	2,3,7,8-TCDD	ND	ug/L	0.00003	--	--

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GSI Water Solutions, Inc.

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Well 20P-01

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.21 Results	Units	MCL	SMCL	NL
Field Parameters								
YSI Probe	Temp	15.5	15.9	16.4	Degrees C			
YSI Probe	pH	7.5	7.4	7.3				
YSI Probe	ORP	198	91	57	mV			
YSI Probe	DO	0.19	0.13	0.1	mg/L			
General Chemistry								
EPA 600/R-94/134	Asbestos	ND	ND	ND	MFL	7	--	--
EPA 317	Bromate	ND	ND	ND	mg/L	10	--	
EPA 300.1	Chlorate	ND	ND	ND	mg/L	--	--	800
E300.0	Chloride	120	130	140	mg/L	--	500	--
EPA 300.1	Chlorite	ND	ND	ND	mg/L	1	--	--
2120B	Color	3	2	1	None	--	--	--
SW8015B	Ethylene glycol	ND	ND	ND	mg/L	--	--	14
2510B	Electrical Conductivity @ 25 C	1210	1220	1290	umhos/cm	--	--	--
E300.0	Fluoride	0.29	0.28	0.3	mg/L	2	--	--
E556.1	Formaldehyde	ND	ND	ND	ug/L	--	--	100
5540C	MBAS	ND	ND	ND	mg/L	--	0.5	--
E300.0	Nitrate (as N)	1.5	1.4	1.7	mg/L	10	--	--
CALC	Nitrate + Nitrite (As N)	1.6	1.5	1.8	mg/L	10	--	--
E353.2	Nitrite (as N)	0.12	0.11	0.12	mg/L	1	--	--
SM5310C	Non-Volatile Organic Carbon	1.2	1.2	1.2	mg/L	--	--	--
2150B	Odor	ND	ND	ND	None	--	--	--
E314.0	Perchlorate	ND	ND	ND	ug/L	6	--	--
E300.0	Sulfate	140	140	150	mg/L	--	500	--
E335.4	Total Cyanide	ND	ND	ND	ug/L	150	--	--
SM2540C	Total Dissolved Solids	720	760	860	mg/L	--	1000	--
E351.2	Total Kjeldahl Nitrogen	0.17 J	0.13 J	ND	mg/L	--	--	--
CALC	Total Nitrogen	1.8	1.7	1.9	mg/L	--	--	--
E180.1	Turbidity	0.21	0.18	0.32	NTU	--	--	--
Metals								
E200.7	Aluminum	ND	ND	ND	mg/L	1	--	--
E200.8	Antimony	ND	ND	ND	mg/L	0.006	--	--
E200.8	Arsenic	0.0014 J	0.0017 J	ND	mg/L	0.01	--	--
E200.8	Barium	0.17	0.17	0.19	mg/L	1	--	--
E200.8	Beryllium	ND	ND	ND	mg/L	0.004	--	--
E200.7	Boron	0.1	0.094 J	0.092	mg/L	--	--	1
E200.8	Cadmium	ND	ND	ND	mg/L	0.005	--	--
E200.8	Chromium	ND	ND	ND	mg/L	0.05	--	--
E218.6	Chromium, Hexavalent	ND	0.000073 J	ND	mg/L	--	--	--
E200.8	Cobalt	0.00055 J	0.00081 J	0.0013	mg/L	--	--	--
E200.8	Copper	ND	0.0011 J	0.0016	mg/L	--	--	--
E200.7	Iron (Ferric)	ND	ND	ND	mg/L	--	--	--
E200.8	Lead	ND	ND	ND	mg/L	--	--	--
E200.7	Lithium	ND	ND	ND	mg/L	--	--	--
E200.7	Manganese	**1.1**	**1**	**1.1**	mg/L	--	0.05	--
E245.1	Mercury	ND	0.000037 J	ND	mg/L	0.002	--	--
E200.8	Molybdenum	0.0019	0.0019	0.0025	mg/L	--	--	--
E200.8	Nickel	0.0035	0.0034	0.0046	mg/L	0.1	--	--
E200.8	Selenium	0.0012 J	0.0012 J	ND	mg/L	0.05	--	--
E200.8	Silver	ND	ND	ND	mg/L	--	--	--
E200.8	Thallium	ND	ND	ND	mg/L	0.002	--	--
CALC	Trivalent Chromium	ND	ND	ND	mg/L	--	--	--
E200.8	Uranium	0.0019	0.002	0.002	mg/L	20	--	--
E200.8	Vanadium	1.7 J	1.3 J	ND	ug/L	--	--	50
E200.8	Zinc	0.0025 J	ND	ND	--	5	--	
Herbicides/Pesticides								
E531.2	1-Naphthol		ND	ND	ug/L	--	--	--
E515.1	2,4,5-T	ND	ND	ND	ug/L	--	--	--
E515.1	2,4,5-TP	ND	ND	ND	ug/L	50	--	--
E515.1	2,4-D	ND	ND	ND	ug/L	70	--	--
E515.1	2,4-DB	ND	ND	ND	ug/L	--	--	--
E531.2	3-Hydroxycarbofuran		ND	ND	ug/L	--	--	--

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SW8270C	4,4'-DDD	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDD	ND	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDE	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDE	ND	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDT	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDT	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb		ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfone		ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfoxide		ND	ND	ug/L	--	--	--
SW8270C	Aldrin	ND	ND	ND	ug/L	--	--	--
E508	Aldrin	ND	ND	ND	ug/L	--	--	--
SW8270C	Alpha-BHC	ND	ND	ND	ug/L	--	--	--
E508	Alpha-BHC	ND	ND	ND	ug/L	--	--	--
E515.1	Bentazon	ND	ND	ND	ug/L	18	--	--
SW8270C	Beta-BHC	ND	ND	ND	ug/L	--	--	--
E508	Beta-BHC	ND	ND	ND	ug/L	--	--	--
E531.2	Carbaryl		ND	ND	ug/L	--	--	--
E531.2	Carbofuran		ND	ND	ug/L	18	--	--
E508	Chlordane	ND	ND	ND	ug/L	0.1	--	--
E515.1	Dalapon	ND	ND	ND	ug/L	200	--	--
SW8270C	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E525.2	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E508	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E515.1	Dicamba	ND	ND	ND	ug/L	--	--	--
E515.1	Dichlorprop	ND	ND	ND	ug/L	--	--	--
SW8270C	Dieldrin	ND	ND	ND	ug/L	--	--	--
E508	Dieldrin	ND	ND	ND	ug/L	--	--	--
E515.1	Dinoseb	ND	ND	ND	ug/L	7	--	--
E549.2	Diquat	ND	ND	ND	ug/L	20	--	--
SW8270C	Endosulfan I	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan I	ND	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan II	ND	ND	ND	ug/L	--	--	--
E548.1	Endosulfan II	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan II	ND	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan Sulfate	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan Sulfate	ND	ND	ND	ug/L	--	--	--
SW8270C	Endrin	ND	ND	ND	ug/L	2	--	--
E508	Endrin	ND	ND	ND	ug/L	2	--	--
SW8270C	Endrin Aldehyde	ND	ND	ND	ug/L	--	--	--
E508	Endrin Aldehyde	ND	ND	ND	ug/L	--	--	--
SW8270C	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E525.2	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E508	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E547	Glyphosate		ND	ND	ug/L	700	--	--
SW8270C	Heptachlor	ND	ND	ND	ug/L	0.01	--	--
E508	Heptachlor	ND	ND	ND	ug/L	0.01	--	--
SW8270C	Heptachlor Epoxide	ND	ND	ND	ug/L	0.01	--	--
E508	Heptachlor Epoxide	ND	ND	ND	ug/L	0.01	--	--
E515.1	MCPA	ND	ND	ND	ug/L	--	--	--
E515.1	MCPP	ND	ND	ND	ug/L	--	--	--
E531.2	Methiocarb		ND	ND	ug/L	--	--	--
E531.2	Methomyl		ND	ND	ug/L	--	--	--
E525.2	Methoxychlor	ND	ND	ND	ug/L	30	--	--
E508	Methoxychlor	ND	ND	ND	ug/L	30	--	--
E531.2	Oxamyl		ND	ND	ug/L	50	--	--
E531.2	Propoxur		ND	ND	ug/L	--	--	--
E508	Toxaphene	ND	ND	ND	ug/L	3	--	--
				VOCs				
E524.2	1,1,1,2-Tetrachloroethane	ND	ND	ND	ug/L	--	--	--
E524.2	1,1,1-Trichloroethane	ND	ND	ND	ug/L	200	--	--
E524.2	1,1,2,2-Tetrachloroethane	ND	ND	ND	ug/L	1	--	--
E524.2	1,1,2-Trichlor-1,2,2-trifluoroethane	ND	ND	ND	ug/L	1200	--	--

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E524.2	1,1,2-Trichloroethane	ND	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethane	ND	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethene	ND	ND	ND	ug/L	6	--	--
E524.2	1,1-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichlorobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichloropropane	ND	ND	ND	ug/L	0.005	--	--
E524	1,2,3-Trichloropropane	ND	ND	ND	ug/L	0.005	--	--
E524.2	1,2,4-Trimethylbenzene	ND	ND	ND	ug/L	--	--	330
E524.2	1,2-Dibromo-3-chloropropane	ND	ND	ND	ug/L	0.2	--	--
504.1	1,2-Dibromo-3-chloropropane	ND	ND	ND	ug/L	0.2	--	--
E524.2	1,2-Dichloroethane	ND	ND	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloropropane	ND	ND	ND	ug/L	5	--	--
E524.2	1,3,5-Trimethylbenzene	ND	ND	ND	ug/L	--	--	330
E524.2	1,3-Dichloropropane	ND	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropene	ND	ND	ND	ug/L	0.5	--	--
E524.2	2,2-Dichloropropane	ND	ND	ND	ug/L	--	--	--
SW8260B	2-Chloroethylvinylether	ND	ND	ND	ug/L	--	--	--
E524.2	2-Chlorotoluene	ND	ND	ND	ug/L	--	--	140
E524.2	4-Chlorotoluene	ND	ND	ND	ug/L	--	--	140
SW8260B	Acrolein	ND	ND	ND	ug/L	--	--	--
SW8260B	Acrylonitrile	ND	ND	ND	ug/L	--	--	--
E524.2	Benzene	ND	ND	ND	ug/L	1	--	--
E524.2	Bromobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	Bromochloromethane	ND	ND	ND	ug/L	--	--	--
E524.2	Bromodichloromethane	ND	ND	ND	ug/L	80	--	--
E524.2	Bromoform	ND	ND	ND	ug/L	80	--	--
E524.2	Bromomethane	ND	ND	ND	ug/L	--	--	--
E524.2	Carbon tetrachloride	ND	ND	ND	ug/L	0.5	--	--
E524.2	Chlorobenzene	ND	ND	ND	ug/L	70	--	--
E524.2	Chloroethane	ND	ND	ND	ug/L	--	--	--
E524.2	Chloroform	ND	ND	ND	ug/L	80	--	--
E524.2	Chloromethane	ND	ND	ND	ug/L	--	--	--
E524.2	cis-1,2-Dichloroethene	ND	ND	ND	ug/L	6	--	--
E524.2	cis-1,3-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	Dibromochloromethane	ND	ND	ND	ug/L	80	--	--
E524.2	Dibromomethane	ND	ND	ND	ug/L	--	--	--
E524.2	Dichlorodifluoromethane	ND	ND	ND	mg/L	--	--	1
E524.2	Di-isopropyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	Ethyl tert-butyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	Ethylbenzene	ND	ND	ND	ug/L	300	--	--
E524.2	Ethylene dibromide	ND	ND	ND	ug/L	--	--	--
504.1	Ethylene dibromide	ND	ND	ND	ug/L	--	--	--
8330	HMX	ND	ND	ND	ug/L	--	--	--
E524.2	Isopropylbenzene	ND	ND	ND	ug/L	--	--	770
E524.2	m,p-Xylene	ND	ND	ND	ug/L	--	--	--
E524.2	Methyl tert-butyl ether	ND	ND	ND	ug/L	13	--	--
E524.2	Methylene chloride	ND	ND	ND	ug/L	5	--	--
E524.2	n-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	n-Propylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	o-Xylene	ND	ND	ND	ug/L	--	--	--
E524.2	p-Isopropyltoluene	ND	ND	ND	ug/L	--	--	--
8330	RDX	ND	ND	ND	mg/L	--	--	0.3
E524.2	sec-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	Styrene	ND	ND	ND	ug/L	100	--	--
E524.2	tert-Amyl Methyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	tert-Butyl alcohol	ND	ND	ND	ug/L	--	--	12
E524.2	tert-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	Tetrachloroethene	ND	ND	ND	ug/L	5	--	--
E524.2	Toluene	ND	ND	ND	ug/L	150	--	--
E524.2	trans-1,2-Dichloroethene	ND	ND	ND	ug/L	10	--	--
E524.2	trans-1,3-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	Trichloroethene	ND	ND	ND	ug/L	5	--	--

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E524.2	Trichlorofluoromethane	ND	ND	ND	ug/L	150	--	--
E524.2	Vinyl chloride	ND	ND	ND	ug/L	0.5	--	--
E524.2	Xylenes, Total	ND	ND	ND	ug/L	1750	--	--
				SVOCs				
SW8270C	1,2,4-Trichlorobenzene	ND	ND	ND	ug/L	5	--	--
E524.2	1,2,4-Trichlorobenzene	ND	ND	ND	ug/L	5	--	--
SW8270C	1,2-Dichlorobenzene	ND	ND	ND	ug/L	600	--	--
E524.2	1,2-Dichlorobenzene	ND	ND	ND	ug/L	600	--	--
SW8270C	1,2-Diphenylhydrazine	ND	ND	ND	ug/L	--	--	--
SW8270C	1,3-Dichlorobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichlorobenzene	ND	ND	ND	ug/L	--	--	--
SW8270C	1,4-Dichlorobenzene	ND	ND	ND	ug/L	5	--	--
E524.2	1,4-Dichlorobenzene	ND	ND	ND	ug/L	5	--	--
SW8270C	2,4,5-Trichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4,6-Trichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dimethylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrotoluene	ND	ND	ND	ug/L	--	--	--
SW8270C	2,6-Dinitrotoluene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Chloronaphthalene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Chlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Methylnaphthalene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Methylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Naphthylamine	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Nitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	3&4-Methylphenol Coelution	ND	ND	ND	ug/L	--	--	--
SW8270C	3,3'-Dichlorobenzidine	ND	ND	ND	ug/L	--	--	--
SW8270C	3-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4,6-Dinitro-2-methylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Bromophenyl phenyl ether	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Chloroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Chlorophenyl phenyl ether	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Nitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthylene	ND	ND	ND	ug/L	--	--	--
E525.2	Acenaphthylene	ND	ND	ND	ug/L	--	--	--
E525.2	Alachlor	ND	ND	ND	ug/L	2	--	--
SW8270C	Aniline	ND	ND	ND	ug/L	--	--	--
SW8270C	Anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Atraton	ND	ND	ND	ug/L	--	--	--
E525.2	Atrazine	ND	ND	ND	ug/L	1	--	--
SW8270C	Benz(a)anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Benz(a)anthracene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzidine	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(a)pyrene	ND	ND	ND	ug/L	0.2	--	--
E525.2	Benzo(a)pyrene	ND	ND	ND	ug/L	0.2	--	--
SW8270C	Benzo(b)fluoranthene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(b)fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(g,h,i)perylene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(g,h,i)perylene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(k)fluoranthene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(k)fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzoic acid	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzyl alcohol	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethoxy)methane	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethyl)ether	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroisopropyl)ether	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Ethylhexyl)phthalate	ND	ND	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 2
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well 20P-01

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.21 Results	Units	MCL	SMCL	NL
E525.2	bis(2-Ethylhexyl)phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Bromacil	ND	ND	ND	ug/L	--	--	--
SW8270C	Butyl benzyl phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Butyl benzyl phthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Chrysene	ND	ND	ND	ug/L	--	--	--
E525.2	Chrysene	ND	ND	ND	ug/L	--	--	--
E525.2	Di(2-ethylhexyl)adipate	ND	ND	ND	ug/L	400	--	--
E525.2	Diazinon	ND	ND	ND	ug/L	--	--	1.2
SW8270C	Dibenz(a,h)anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Dibenz(a,h)anthracene	ND	ND	ND	ug/L	--	--	--
SW8270C	Dibenzofuran	ND	ND	ND	ug/L	--	--	--
SW8270C	Diethylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Dimethoate	ND	ND	ND	ug/L	--	--	--
SW8270C	Dimethylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Dimethylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Di-n-butylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Di-n-butylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Di-n-octylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Fluorene	ND	ND	ND	ug/L	--	--	--
E525.2	Fluorene	ND	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorobenzene	ND	ND	ND	ug/L	1	--	--
E525.2	Hexachlorobenzene	ND	ND	ND	ug/L	1	--	--
SW8270C	Hexachlorobutadiene	ND	ND	ND	ug/L	--	--	--
E524.2	Hexachlorobutadiene	ND	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorocyclopentadiene	ND	ND	ND	ug/L	50	--	--
E525.2	Hexachlorocyclopentadiene	ND	ND	ND	ug/L	50	--	--
SW8270C	Hexachloroethane	ND	ND	ND	ug/L	--	--	--
SW8270C	Indeno(1,2,3-cd)pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Indeno(1,2,3-cd)pyrene	ND	ND	ND	ug/L	--	--	--
SW8270C	Isophorone	ND	ND	ND	ug/L	--	--	--
E525.2	Metolachlor	ND	ND	ND	ug/L	--	--	--
E525.2	Metribuzin	ND	ND	ND	ug/L	--	--	--
E525.2	Molinate	ND	ND	ND	ug/L	20	--	--
SW8270C	Naphthalene	ND	ND	ND	ug/L	--	--	17
E524.2	Naphthalene	ND	ND	ND	ug/L	--	--	17
SW8270C	Nitrobenzene	ND	ND	ND	ug/L	--	--	--
SW8270C	N-Nitrosodimethylamine	ND	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodi-n-propylamine	ND	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodiphenylamine	ND	ND	ND	ug/L	--	--	--
SW8270C	p-Chloro-m-cresol	ND	ND	ND	ug/L	--	--	--
SW8270C	Pentachlorophenol	ND	ND	ND	ug/L	1	--	--
SW8270C	Phenanthrene	ND	ND	ND	ug/L	--	--	--
E525.2	Phenanthrene	ND	ND	ND	ug/L	--	--	--
SW8270C	Phenol	ND	ND	ND	ug/L	--	--	--
E525.2	Prometon	ND	ND	ND	ug/L	--	--	--
E525.2	Prometryn	ND	ND	ND	ug/L	--	--	--
E525.2	Propachlor	ND	ND	ND	ug/L	--	--	90
SW8270C	Pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Secbumeton	ND	ND	ND	ug/L	--	--	--
E525.2	Simazine	ND	ND	ND	ug/L	4	--	--
E525.2	Terbutryn	ND	ND	ND	ug/L	--	--	--
E525.2	Thiobencarb	ND	ND	ND	ug/L	70	--	--
			PCBs					
E508	PCB-1016	ND	ND	ND	ug/L	--	--	--
E508	PCB-1221	ND	ND	ND	ug/L	--	--	--
E508	PCB-1232	ND	ND	ND	ug/L	--	--	--
E508	PCB-1242	ND	ND	ND	ug/L	--	--	--
E508	PCB-1248	ND	ND	ND	ug/L	--	--	--
E508	PCB-1254	ND	ND	ND	ug/L	--	--	--
E508	PCB-1260	ND	ND	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

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MORRO BAY WELLS
Well 20P-01

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.21 Results	Units	MCL	SMCL	NL
E508	Total PCBs	ND	ND	ND	ug/L	0.5	--	--
				THAA				
E552.3	Dibromoacetic Acid (DBAA)	ND	ND	ND	ug/L	--	--	--
E552.3	Dichloroacetic Acid (DCA)	ND	ND	ND	ug/L	--	--	--
E552.3	Monobromoacetic acid	ND	ND	ND	ug/L	--	--	--
E552.3	Monochloroacetic Acid (MCA)	ND	ND	ND	ug/L	--	--	--
E552.3	Trichloroacetic Acid (TCAA)	ND	ND	ND	ug/L	--	--	--
E552.3	Trihalomethanes	ND	ND	ND	ug/L	80	--	--
E524.2	Trihalomethanes	ND	ND	ND	ug/L	80	--	--
				Radiochemistry				
EPA 900	Gross Alpha	2.29	2.14	2.33	pCi/L	15	--	--
EPA900	Gross Beta	1.82	1.43	2.15	pCi/L	50	--	--
EPA 903.1	Radium-226	0.724	0.551	0.636	pCi/L	3	--	--
EPA 904.0	Radium-228	0.769	0.766	0.869	pCi/L	2	--	--
ASTM D5811-95	Strontium-90	1.26	0.994	3.32	pCi/L	8	--	--
EPA 906	Tritium	260	263	238	pCi/L	20000	--	--
				Nitroaromatics and Nitrosamines				
EPA 521/SPE	N-Nitrosodiethylamine	ND	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosodimethylamine	ND	ND	ND	ug/L			0.01
EPA 521/SPE	N-Nitrosodi-n-butylamine	ND	ND	ND	ug/L	--	--	
EPA 521/SPE	N-Nitrosodi-n-propylamine	ND	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosomethylethylamine	ND	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosomorpholine	ND	ND	ND	ug/L	--	--	--
EPA 521/SPE	N-Nitrosopiperidine	ND	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosopyrrolidine	ND	ND	ND	ng/L	--	--	--
				Dioxins				
EPA 1613B	2,3,7,8-TCDD	0.00000183	0.00000306	0.00000156	ug/L	0.00003	--	--
				PFAs				
B-15	11-CL-PF3OUDS	ND	ND	ND	ng/L	--	--	--
B-15	9-CL-PF3ONS	ND	ND	ND	ng/L	--	--	--
B-15	ADONA	ND	ND	ND	ng/L	--	--	--
B-15	FTS 4:2	ND		ND	ng/L	--	--	--
B-15	FTS 6:2	ND		ND	ng/L	--	--	--
B-15	FTS 8:2	ND		ND	ng/L	--	--	--
B-15	HFPO-DA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSAA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSE	ND		ND	ng/L	--	--	--
B-15	N-MEFOSA	ND		ND	ng/L	--	--	--
B-15	N-MEFOSAA	ND		ND	ng/L	--	--	--
B-15	N-MEFOSE	ND		ND	ng/L	--	--	--
B-15	PFBA	ND		1.7 J	ng/L	--	--	--
B-15	PFBS	0.9 J	1.6 J	0.47 J	ng/L	--	--	--
B-15	PFDA	ND	ND	ND	ng/L	--	--	--
B-15	PFDOA	ND	ND	ND	ng/L	--	--	--
B-15	PFDS	ND		ND	ng/L	--	--	--
B-15	PFHPA	ND	ND	ND	ng/L	--	--	--
B-15	PFHPS	ND		ND	ng/L	--	--	--
B-15	PFHXA	ND	ND	ND	ng/L	--	--	--
B-15	PFHXS	ND	ND	ND	ng/L	--	--	--
B-15	PFNA	ND	ND	ND	ng/L	--	--	--
B-15	PFNS	ND		ND	ng/L	--	--	--
B-15	PFOA	ND	ND	ND	ng/L	--	--	--
B-15	PFOS	ND	ND	ND	ng/L	--	--	--
B-15	PFOSA	ND		2.4 B J	ng/L	--	--	--
B-15	PFPEA	ND		ND	ng/L	--	--	--
B-15	PFPES	ND		ND	ng/L	--	--	--
B-15	PFTEDA	ND	ND	ND	ng/L	--	--	--
B-15	PFTRDA	ND	ND	ND	ng/L	--	--	--
B-15	PFUDA	ND	ND	ND	ng/L	--	--	--

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TABLE 3
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well 19P-04

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
Field Parameters								
YSI Probe	Temp	15.3	15.8	15.7	Degrees C			
YSI Probe	pH	7.6	7.5	7.4				
YSI Probe	ORP	207	95	113	mV			
YSI Probe	DO	0.18	0.19	0.13	mg/L			
General Chemistry								
EPA 600/R-94/134	Asbestos	0.98	ND	ND	MFL	7	--	--
EPA 317	Bromate	ND	ND	ND	mg/L	10	--	
EPA 300.1	Chlorate	ND	ND	ND	mg/L	--	--	800
E300.0	Chloride	160	160	170	mg/L	--	500	--
EPA 300.1	Chlorite	ND	ND	ND	mg/L	1	--	--
2120B	Color	10	2	3	None	--	--	--
SW8015B	Ethylene glycol	ND	ND	ND	mg/L	--	--	14
2510B	Electrical Conductivity @ 25 C	1420	1400	1470	umhos/cm	--	--	--
E300.0	Fluoride	0.25	0.25	0.28	mg/L	2	--	--
E556.1	Formaldehyde	ND	ND	ND	ug/L	--	--	100
5540C	MBAS	ND	ND	ND	mg/L	--	0.5	--
E300.0	Nitrate (as N)	1.8	2	2.4	mg/L	10	--	--
CALC	Nitrate + Nitrite (As N)	1.9	2.1	2.5	mg/L	10	--	--
E353.2	Nitrite (as N)	0.1	0.12	0.1	mg/L	1	--	--
SM5310C	Non-Volatile Organic Carbon	1.2	1.2	1.2	mg/L	--	--	--
2150B	Odor	ND	ND	ND	None	--	--	--
E314.0	Perchlorate	ND	ND	ND	ug/L	6	--	--
E300.0	Sulfate	180	170	180	mg/L	--	500	--
E335.4	Total Cyanide	ND	ND	ND	ug/L	150	--	--
SM2540C	Total Dissolved Solids	890	910	990	mg/L	--	1000	--
E351.2	Total Kjeldahl Nitrogen	0.1 J	0.18	0.11 J	mg/L	--	--	--
CALC	Total Nitrogen	2	2.3	2.7	mg/L	--	--	--
E180.1	Turbidity	5.8	4.7	1.8	NTU	--	--	--
Metals								
E200.7	Aluminum	0.31	0.12	0.043 J	mg/L	1	--	--
E200.8	Antimony	ND	ND	ND	mg/L	0.006	--	--
E200.8	Arsenic	0.0011 J	0.0011 J	ND	mg/L	0.01	--	--
E200.8	Barium	0.21	0.2	0.23	mg/L	1	--	--
E200.8	Beryllium	ND	ND	ND	mg/L	0.004	--	--
E200.7	Boron	0.12	0.11	0.093 J	mg/L	--	--	1
E200.8	Cadmium	ND	ND	ND	mg/L	0.005	--	--
E200.8	Chromium	0.0012 J	0.00057 J	ND	mg/L	0.05	--	--
E218.6	Chromium, Hexavalent	ND	ND	ND	mg/L	--	--	--
E200.8	Cobalt	0.00051 J	0.00062 J	0.00097 J	mg/L	--	--	--
E200.8	Copper	0.0011 J	0.0012 J	0.0018 J	mg/L	--	--	--
E200.7	Iron (Ferric)	0.57	0.22	0.061	mg/L	--	--	--
E200.8	Lead	0.00017 J	ND	ND	mg/L	--	--	--
E200.7	Lithium	ND	ND	ND	mg/L	--	--	--
E200.7	Manganese	**1.3**	**1.3**	**1.3**	mg/L	--	0.05	--
E245.1	Mercury	ND	ND	ND	mg/L	0.002	--	--
E200.8	Molybdenum	0.0016	0.0017	0.0038 J	mg/L	--	--	--
E200.8	Nickel	0.0058	0.0047	0.0058	mg/L	0.1	--	--
E200.8	Selenium	0.0074	0.0081	0.0063	mg/L	0.05	--	--
E200.8	Silver	ND	ND	ND	mg/L	--	--	--
E200.8	Thallium	ND	ND	ND	mg/L	0.002	--	--
CALC	Trivalent Chromium	ND	ND	ND	mg/L	--	--	--
E200.8	Uranium	0.0021	0.0019	0.0022 J	mg/L	20	--	--
E200.8	Vanadium	1.7 J	1.1 J	ND	ug/L	--	--	50
E200.8	Zinc	0.021	0.0017 J	ND	mg/L	--	5	--
Herbicides/Pesticides								
E531.2	1-Naphthol		ND	ND	ug/L	--	--	--
E515.1	2,4,5-T	ND	ND	ND	ug/L	--	--	--
E515.1	2,4,5-TP	ND	ND	ND	ug/L	50	--	--
E515.1	2,4-D	ND	ND	ND	ug/L	70	--	--
E515.1	2,4-DB	ND	ND	ND	ug/L	--	--	--
E531.2	3-Hydroxycarbofuran	ND	ND	ND	ug/L	--	--	--

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Well 19P-04

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
SW8270C	4,4'-DDD	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDD	ND	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDE	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDE	ND	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDT	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDT	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfone	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfoxide	ND	ND	ND	ug/L	--	--	--
SW8270C	Aldrin	ND	ND	ND	ug/L	--	--	--
E508	Aldrin	ND	ND	ND	ug/L	--	--	--
SW8270C	Alpha-BHC	ND	ND	ND	ug/L	--	--	--
E508	Alpha-BHC	ND	ND	ND	ug/L	--	--	--
E515.1	Bentazon	ND	ND	ND	ug/L	18	--	--
SW8270C	Beta-BHC	ND	ND	ND	ug/L	--	--	--
E508	Beta-BHC	ND	ND	ND	ug/L	--	--	--
E531.2	Carbaryl	ND	ND	ND	ug/L	--	--	--
E531.2	Carbofuran	ND	ND	ND	ug/L	18	--	--
E508	Chlordane	ND	ND	ND	ug/L	0.1	--	--
E515.1	Dalapon	ND	ND	ND	ug/L	200	--	--
SW8270C	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E525.2	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E508	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E515.1	Dicamba	ND	ND	ND	ug/L	--	--	--
E515.1	Dichlorprop	ND	ND	ND	ug/L	--	--	--
SW8270C	Dieldrin	ND	ND	ND	ug/L	--	--	--
E508	Dieldrin	ND	ND	ND	ug/L	--	--	--
E515.1	Dinoseb	ND	ND	ND	ug/L	7	--	--
E549.2	Diquat	ND	ND	ND	ug/L	20	--	--
SW8270C	Endosulfan I	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan I	ND	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan II	ND	ND	ND	ug/L	--	--	--
E548.1	Endosulfan II	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan II	ND	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan Sulfate	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan Sulfate	ND	ND	ND	ug/L	--	--	--
SW8270C	Endrin	ND	ND	ND	ug/L	2	--	--
E508	Endrin	ND	ND	ND	ug/L	2	--	--
SW8270C	Endrin Aldehyde	ND	ND	ND	ug/L	--	--	--
E508	Endrin Aldehyde	ND	ND	ND	ug/L	--	--	--
SW8270C	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E525.2	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E508	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E547	Glyphosate	ND	ND	ND	ug/L	700	--	--
SW8270C	Heptachlor	ND	ND	ND	ug/L	0.01	--	--
E508	Heptachlor	ND	ND	ND	ug/L	0.01	--	--
SW8270C	Heptachlor Epoxide	ND	ND	ND	ug/L	0.01	--	--
E508	Heptachlor Epoxide	ND	ND	ND	ug/L	0.01	--	--
E515.1	MCPA	ND	ND	ND	ug/L	--	--	--
E515.1	MCPP	ND	ND	ND	ug/L	--	--	--
E531.2	Methiocarb		ND	ND	ug/L	--	--	--
E531.2	Methomyl	ND	ND	ND	ug/L	--	--	--
E525.2	Methoxychlor	ND	ND	ND	ug/L	30	--	--
E508	Methoxychlor	ND	ND	ND	ug/L	30	--	--
E531.2	Oxamyl	ND	ND	ND	ug/L	50	--	--
E531.2	Propoxur		ND	ND	ug/L	--	--	--
E508	Toxaphene	ND	ND	ND	ug/L	3	--	--
VOCs								
E524.2	1,1,1,2-Tetrachloroethane	ND	ND	ND	ug/L	--	--	--
E524.2	1,1,1-Trichloroethane	ND	ND	ND	ug/L	200	--	--
E524.2	1,1,2,2-Tetrachloroethane	ND	ND	ND	ug/L	1	--	--
E524.2	1,1,2-Trichlor-1,2,2-trifluoroethane	ND	ND	ND	ug/L	1200	--	--

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Well 19P-04

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E524.2	1,1,2-Trichloroethane	ND	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethane	ND	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethene	ND	ND	ND	ug/L	6	--	--
E524.2	1,1-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichlorobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichloropropane	ND	ND	ND	ug/L	0.005	--	--
E524	1,2,3-Trichloropropane	ND	ND	ND	ug/L	0.005	--	--
E524.2	1,2,4-Trimethylbenzene	ND	ND	ND	ug/L	--	--	330
E524.2	1,2-Dibromo-3-chloropropane	ND	ND	ND	ug/L	0.2	--	--
504.1	1,2-Dibromo-3-chloropropane	ND	ND	ND	ug/L	0.2	--	--
E524.2	1,2-Dichloroethane	ND	ND	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloropropane	ND	ND	ND	ug/L	5	--	--
E524.2	1,3,5-Trimethylbenzene	ND	ND	ND	ug/L	--	--	330
E524.2	1,3-Dichloropropane	ND	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropene	ND	ND	ND	ug/L	0.5	--	--
E524.2	2,2-Dichloropropane	ND	ND	ND	ug/L	--	--	--
SW8260B	2-Chloroethylvinylether	ND	ND	ND	ug/L	--	--	--
E524.2	2-Chlorotoluene	ND	ND	ND	ug/L	--	--	140
E524.2	4-Chlorotoluene	ND	ND	ND	ug/L	--	--	140
SW8260B	Acrolein	ND	ND	ND	ug/L	--	--	--
SW8260B	Acrylonitrile	ND	ND	ND	ug/L	--	--	--
E524.2	Benzene	ND	ND	ND	ug/L	1	--	--
E524.2	Bromobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	Bromochloromethane	ND	ND	ND	ug/L	--	--	--
E524.2	Bromodichloromethane	ND	ND	ND	ug/L	80	--	--
E524.2	Bromoform	ND	ND	ND	ug/L	80	--	--
E524.2	Bromomethane	ND	ND	ND	ug/L	--	--	--
E524.2	Carbon tetrachloride	ND	ND	ND	ug/L	0.5	--	--
E524.2	Chlorobenzene	ND	ND	ND	ug/L	70	--	--
E524.2	Chloroethane	ND	ND	ND	ug/L	--	--	--
E524.2	Chloroform	ND	ND	ND	ug/L	80	--	--
E524.2	Chloromethane	ND	ND	ND	ug/L	--	--	--
E524.2	cis-1,2-Dichloroethene	ND	ND	ND	ug/L	6	--	--
E524.2	cis-1,3-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	Dibromochloromethane	ND	ND	ND	ug/L	80	--	--
E524.2	Dibromomethane	ND	ND	ND	ug/L	--	--	--
E524.2	Dichlorodifluoromethane	ND	ND	ND	mg/L	--	--	1
E524.2	Di-isopropyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	Ethyl tert-butyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	Ethylbenzene	ND	ND	ND	ug/L	300	--	--
E524.2	Ethylene dibromide	ND	ND	ND	ug/L	--	--	--
504.1	Ethylene dibromide	ND	ND	ND	ug/L	--	--	--
8330	HMX	ND	ND	ND	ug/L	--	--	--
E524.2	Isopropylbenzene	ND	ND	ND	ug/L	--	--	770
E524.2	m,p-Xylene	ND	ND	ND	ug/L	--	--	--
E524.2	Methyl tert-butyl ether	ND	ND	ND	ug/L	13	--	--
E524.2	Methylene chloride	ND	ND	ND	ug/L	5	--	--
E524.2	n-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	n-Propylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	o-Xylene	ND	ND	ND	ug/L	--	--	--
E524.2	p-Isopropyltoluene	ND	ND	ND	ug/L	--	--	--
8330	RDX	ND	ND	ND	mg/L	--	--	0.3
E524.2	sec-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	Styrene	ND	ND	ND	ug/L	100	--	--
E524.2	tert-Amyl Methyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	tert-Butyl alcohol	ND	ND	ND	ug/L	--	--	12
E524.2	tert-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	Tetrachloroethene	ND	ND	ND	ug/L	5	--	--
E524.2	Toluene	ND	ND	ND	ug/L	150	--	--
E524.2	trans-1,2-Dichloroethene	ND	ND	ND	ug/L	10	--	--
E524.2	trans-1,3-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	Trichloroethene	ND	ND	ND	ug/L	5	--	--

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GSI Water Solutions, Inc.

TABLE 3
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well 19P-04

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
E524.2	Trichlorofluoromethane	ND	ND	ND	ug/L	150	--	--
E524.2	Vinyl chloride	ND	ND	ND	ug/L	0.5	--	--
E524.2	Xylenes, Total	ND	ND	ND	ug/L	1750	--	--
				SVOCs				
SW8270C	1,2,4-Trichlorobenzene	ND	ND	ND	ug/L	5	--	--
E524.2	1,2,4-Trichlorobenzene	ND	ND	ND	ug/L	5	--	--
SW8270C	1,2-Dichlorobenzene	ND	ND	ND	ug/L	600	--	--
E524.2	1,2-Dichlorobenzene	ND	ND	ND	ug/L	600	--	--
SW8270C	1,2-Diphenylhydrazine	ND	ND	ND	ug/L	--	--	--
SW8270C	1,3-Dichlorobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichlorobenzene	ND	ND	ND	ug/L	--	--	--
SW8270C	1,4-Dichlorobenzene	ND	ND	ND	ug/L	5	--	--
E524.2	1,4-Dichlorobenzene	ND	ND	ND	ug/L	5	--	--
E522	1,4-Dioxane	ND	ND	ND	ug/L	1	--	--
SW8270C	2,4,5-Trichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4,6-Trichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dimethylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrotoluene	ND	ND	ND	ug/L	--	--	--
SW8270C	2,6-Dinitrotoluene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Chloronaphthalene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Chlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Methylnaphthalene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Methylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Naphthylamine	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Nitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	3&4-Methylphenol Coelution	ND	ND	ND	ug/L	--	--	--
SW8270C	3,3'-Dichlorobenzidine	ND	ND	ND	ug/L	--	--	--
SW8270C	3-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4,6-Dinitro-2-methylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Bromophenyl phenyl ether	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Chloroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Chlorophenyl phenyl ether	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Nitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthylene	ND	ND	ND	ug/L	--	--	--
E525.2	Acenaphthylene	ND	ND	ND	ug/L	--	--	--
E525.2	Alachlor	ND	ND	ND	ug/L	2	--	--
SW8270C	Aniline	ND	ND	ND	ug/L	--	--	--
SW8270C	Anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Atraton	ND	ND	ND	ug/L	--	--	--
E525.2	Atrazine	ND	ND	ND	ug/L	1	--	--
SW8270C	Benz(a)anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Benz(a)anthracene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzidine	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(a)pyrene	ND	ND	ND	ug/L	0.2	--	--
E525.2	Benzo(a)pyrene	ND	ND	ND	ug/L	0.2	--	--
SW8270C	Benzo(b)fluoranthene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(b)fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(g,h,i)perylene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(g,h,i)perylene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(k)fluoranthene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(k)fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzoic acid	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzyl alcohol	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethoxy)methane	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethyl)ether	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroisopropyl)ether	ND	ND	ND	ug/L	--	--	--

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TABLE 3
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well 19P-04

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
SW8270C	bis(2-Ethylhexyl)phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	bis(2-Ethylhexyl)phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Bromacil	ND	ND	ND	ug/L	--	--	--
SW8270C	Butyl benzyl phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Butyl benzyl phthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Chrysene	ND	ND	ND	ug/L	--	--	--
E525.2	Chrysene	ND	ND	ND	ug/L	--	--	--
E525.2	Di(2-ethylhexyl)adipate	ND	ND	ND	ug/L	400	--	--
E525.2	Diazinon	ND	ND	ND	ug/L	--	--	1.2
SW8270C	Dibenz(a,h)anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Dibenz(a,h)anthracene	ND	ND	ND	ug/L	--	--	--
SW8270C	Dibenzofuran	ND	ND	ND	ug/L	--	--	--
SW8270C	Diethylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Dimethoate	ND	ND	ND	ug/L	--	--	--
SW8270C	Dimethylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Dimethylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Di-n-butylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Di-n-butylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Di-n-octylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Fluorene	ND	ND	ND	ug/L	--	--	--
E525.2	Fluorene	ND	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorobenzene	ND	ND	ND	ug/L	1	--	--
E525.2	Hexachlorobenzene	ND	ND	ND	ug/L	1	--	--
SW8270C	Hexachlorobutadiene	ND	ND	ND	ug/L	--	--	--
E524.2	Hexachlorobutadiene	ND	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorocyclopentadiene	ND	ND	ND	ug/L	50	--	--
E525.2	Hexachlorocyclopentadiene	ND	ND	ND	ug/L	50	--	--
SW8270C	Hexachloroethane	ND	ND	ND	ug/L	--	--	--
SW8270C	Indeno(1,2,3-cd)pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Indeno(1,2,3-cd)pyrene	ND	ND	ND	ug/L	--	--	--
SW8270C	Isophorone	ND	ND	ND	ug/L	--	--	--
E525.2	Metolachlor	ND	ND	ND	ug/L	--	--	--
E525.2	Metribuzin	ND	ND	ND	ug/L	--	--	--
E525.2	Molinate	ND	ND	ND	ug/L	20	--	--
SW8270C	Naphthalene	ND	ND	ND	ug/L	--	--	17
E524.2	Naphthalene	ND	ND	ND	ug/L	--	--	17
SW8270C	Nitrobenzene	ND	ND	ND	ug/L	--	--	--
SW8270C	N-Nitrosodimethylamine	ND	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodi-n-propylamine	ND	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodiphenylamine	ND	ND	ND	ug/L	--	--	--
SW8270C	p-Chloro-m-cresol	ND	ND	ND	ug/L	--	--	--
SW8270C	Pentachlorophenol	ND	ND	ND	ug/L	1	--	--
SW8270C	Phenanthrene	ND	ND	ND	ug/L	--	--	--
E525.2	Phenanthrene	ND	ND	ND	ug/L	--	--	--
SW8270C	Phenol	ND	ND	ND	ug/L	--	--	--
E525.2	Prometon	ND	ND	ND	ug/L	--	--	--
E525.2	Prometryn	ND	ND	ND	ug/L	--	--	--
E525.2	Propachlor	ND	ND	ND	ug/L	--	--	90
SW8270C	Pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Secbumeton	ND	ND	ND	ug/L	--	--	--
E525.2	Simazine	ND	ND	ND	ug/L	4	--	--
E525.2	Terbutryn	ND	ND	ND	ug/L	--	--	--
E525.2	Thiobencarb	ND	ND	ND	ug/L	70	--	--
PCBs								
E508	PCB-1016	ND	ND	ND	ug/L	--	--	--
E508	PCB-1221	ND	ND	ND	ug/L	--	--	--
E508	PCB-1232	ND	ND	ND	ug/L	--	--	--
E508	PCB-1242	ND	ND	ND	ug/L	--	--	--
E508	PCB-1248	ND	ND	ND	ug/L	--	--	--
E508	PCB-1254	ND	ND	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 3
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well 19P-04

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
E508	PCB-1260	ND	ND	ND	ug/L	--	--	--
E508	Total PCBs	ND	ND	ND	ug/L	0.5	--	--
			THAA					
E552.3	Dibromoacetic Acid (DBAA)	ND	ND	ND	ug/L	--	--	--
E552.3	Dichloroacetic Acid (DCA)	ND	ND	ND	ug/L	--	--	--
E552.3	Monobromoacetic acid	ND	ND	ND	ug/L	--	--	--
E552.3	Monochloroacetic Acid (MCA)	ND	ND	ND	ug/L	--	--	--
E552.3	Trichloroacetic Acid (TCAA)	ND	ND	ND	ug/L	--	--	--
E552.3	Trihalomethanes	ND	ND	ND	ug/L	80	--	--
E524.2	Trihalomethanes	ND	ND	ND	ug/L	80	--	--
			Radiochemistry					
EPA 900	Gross Alpha	2.54	2.66	3.72	pCi/L	15	--	--
EPA900	Gross Beta	2	1.86	2.29	pCi/L	50	--	--
EPA 903.1	Radium-226	0.402	0.401	0.498	pCi/L	3	--	--
EPA 904.0	Radium-228	0.818	0.807	0.668	pCi/L	2	--	--
ASTM D5811-95	Strontium-90	1.09	0.899	2.62	pCi/L	8	--	--
EPA 906	Tritium	261	263	264	pCi/L	20000	--	--
			Nitroaromatics and Nitrosamines					
EPA 521/SPE	N-Nitrosodiethylamine	ND	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosodimethylamine	ND	ND	ND	ug/L			0.01
EPA 521/SPE	N-Nitrosodi-n-butylamine	ND	ND	ND	ug/L	--	--	
EPA 521/SPE	N-Nitrosodi-n-propylamine	ND	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosomethylethylamine	ND	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosomorpholine	ND	ND	ND	ug/L	--	--	--
EPA 521/SPE	N-Nitrosopiperidine	ND	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosopyrrolidine	ND	ND	ND	ng/L	--	--	--
			Dioxins					
EPA 1613B	2,3,7,8-TCDD	0.00000154	0.00000264	0.00000336	ug/L	0.00003	--	--
			PFAs					
B-15	11-CL-PF3OUDS	ND	ND	ND	ng/L	--	--	--
B-15	9-CL-PF3ONS	ND	ND	ND	ng/L	--	--	--
B-15	ADONA	ND	ND	ND	ng/L	--	--	--
B-15	FTS 4:2	ND		ND	ng/L	--	--	--
B-15	FTS 6:2	ND		ND	ng/L	--	--	--
B-15	FTS 8:2	ND		ND	ng/L	--	--	--
B-15	HFPO-DA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSAA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSE	ND		ND	ng/L	--	--	--
B-15	N-MEFOSA	ND		ND	ng/L	--	--	--
B-15	N-MEFOSAA	ND		ND	ng/L	--	--	--
B-15	N-MEFOSE	ND		ND	ng/L	--	--	--
B-15	PFBA	ND		2.8 J	ng/L	--	--	--
B-15	PFBS	ND	1.4 J	0.59 J	ng/L	--	--	--
B-15	PFDA	ND	ND	ND	ng/L	--	--	--
B-15	PFDOA	ND	ND	ND	ng/L	--	--	--
B-15	PFDS	ND		ND	ng/L	--	--	--
B-15	PFHPA	ND	ND	ND	ng/L	--	--	--
B-15	PFHPS	ND		ND	ng/L	--	--	--
B-15	PFHXA	ND	ND	0.74 J	ng/L	--	--	--
B-15	PFHXS	ND	ND	ND	ng/L	--	--	--
B-15	PFNA	ND	ND	ND	ng/L	--	--	--
B-15	PFNS	ND		ND	ng/L	--	--	--
B-15	PFOA	ND	ND	ND	ng/L	--	--	--
B-15	PFOS	ND	ND	ND	ng/L	--	--	--
B-15	PFOSA	ND		2.2 B J	ng/L	--	--	--
B-15	PFPEA	ND		ND	ng/L	--	--	--
B-15	PFPES	ND		ND	ng/L	--	--	--
B-15	PFTEDA	ND	ND	ND	ng/L	--	--	--
B-15	PFTRDA	ND	ND	ND	ng/L	--	--	--
B-15	PFUDA	ND	ND	ND	ng/L	--	--	--

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MORRO BAY WELLS
Well MB-3

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
Field Parameters								
YSI Probe	Temp	19	18.8	18	Degrees C			
YSI Probe	pH	7.2	7.2	7.2				
YSI Probe	ORP	199	108	103	mV			
YSI Probe	DO	0.97	0.28	0.34	mg/L			
General Chemistry								
EPA 600/R-94/134	Asbestos	ND	ND	1.3	MFL	7	--	--
EPA 317	Bromate	ND	ND	ND	mg/L	10	--	
EPA 300.1	Chlorate	ND	ND	ND	mg/L	--	--	800
E300.0	Chloride	160	160	170	mg/L	--	500	--
EPA 300.1	Chlorite	ND	ND	ND	mg/L	1	--	--
2120B	Color	4	2	1	None	--	--	--
SW8015B	Ethylene glycol	ND	ND	ND	mg/L	--	--	14
2510B	Electrical Conductivity @ 25 C	1600	1580	1650	umhos/cm	--	--	--
E300.0	Fluoride	0.26	0.21	0.25	mg/L	2	--	--
E556.1	Formaldehyde	ND	ND	ND	ug/L	--	--	100
5540C	MBAS	ND	ND	ND	mg/L	--	0.5	--
E300.0	Nitrate (as N)	**26**	**22**	**24**	mg/L	10	--	--
CALC	Nitrate + Nitrite (As N)	**26**	**22**	**24**	mg/L	10	--	--
E353.2	Nitrite (as N)	ND	ND	ND	mg/L	1	--	--
SM5310C	Non-Volatile Organic Carbon	0.92 J	1.1	1.1	mg/L	--	--	--
2150B	Odor	ND	ND	ND	None	--	--	--
E314.0	Perchlorate	ND	ND	ND	ug/L	6	--	--
E300.0	Sulfate	160	160	170	mg/L	--	500	--
E335.4	Total Cyanide	ND	2 J	ND	ug/L	150	--	--
SM2540C	Total Dissolved Solids	990	1000	**1100**	mg/L	--	1000	--
E351.2	Total Kjeldahl Nitrogen	ND	4.6	0.13 J	mg/L	--	--	--
CALC	Total Nitrogen	26	26	24	mg/L	--	--	--
E180.1	Turbidity	0.12	0.18	0.14	NTU	--	--	--
Metals								
E200.7	Aluminum	ND	0.028 J	ND	mg/L	1	--	--
E200.8	Antimony	0.00013 J	ND	ND	mg/L	0.006	--	--
E200.8	Arsenic	0.0027	0.0021	ND	mg/L	0.01	--	--
E200.8	Barium	0.12	0.13	0.13	mg/L	1	--	--
E200.8	Beryllium	ND	ND	ND	mg/L	0.004	--	--
E200.7	Boron	0.13	0.11	0.11	mg/L	--	--	1
E200.8	Cadmium	0.00015 J	0.00011 J	ND	mg/L	0.005	--	--
E200.8	Chromium	0.0012 J	0.00096 J	ND	mg/L	0.05	--	--
E218.6	Chromium, Hexavalent	0.0017	0.0013	0.0013	mg/L	--	--	--
E200.8	Cobalt	ND	0.0002 J	0.00043 J	mg/L	--	--	--
E200.8	Copper	0.00083 J	0.0041	0.0033	mg/L	--	--	--
E200.7	Iron (Ferric)	ND	ND	ND	mg/L	--	--	--
E200.8	Lead	ND	ND	ND	mg/L	--	--	--
E200.7	Lithium	ND	ND	ND	mg/L	--	--	--
E200.7	Manganese	ND	ND	ND	mg/L	--	0.05	--
E245.1	Mercury	ND	0.00013 J	0.000034 J	mg/L	0.002	--	--
E200.8	Molybdenum	0.002	0.0013	0.0013	mg/L	--	--	--
E200.8	Nickel	0.0038	0.0037 J	0.0044	mg/L	0.1	--	--
E200.8	Selenium	0.028	0.028 J	0.026	mg/L	0.05	--	--
E200.8	Silver	ND	ND	ND	mg/L	--	--	--
E200.8	Thallium	ND	ND	ND	mg/L	0.002	--	--
CALC	Trivalent Chromium	ND	ND	ND	mg/L	--	--	--
E200.8	Uranium	0.0019	0.002	0.0019	mg/L	20	--	--
E200.8	Vanadium	1.9	1.7 J	ND	ug/L	--	--	50
E200.8	Zinc	0.018 J	0.023	0.022	mg/L	--	5	--
Herbicides/Pesticides								
E531.2	1-Naphthol	0	ND	ND	ug/L	--	--	--
E515.1	2,4,5-T	ND	ND	ND	ug/L	--	--	--
E515.1	2,4,5-TP	ND	ND	ND	ug/L	50	--	--
E515.1	2,4-D	ND	ND	ND	ug/L	70	--	--
E515.1	2,4-DB	ND	ND	ND	ug/L	--	--	--
E531.2	3-Hydroxycarbofuran	ND	ND	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

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MORRO BAY WELLS
Well MB-3

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
SW8270C	4,4'-DDD	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDD	ND	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDE	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDE	ND	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDT	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDT	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfone	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfoxide	ND	ND	ND	ug/L	--	--	--
SW8270C	Aldrin	ND	ND	ND	ug/L	--	--	--
E508	Aldrin	ND	ND	ND	ug/L	--	--	--
SW8270C	Alpha-BHC	ND	ND	ND	ug/L	--	--	--
E508	Alpha-BHC	ND	ND	ND	ug/L	--	--	--
E515.1	Bentazon	ND	ND	ND	ug/L	18	--	--
SW8270C	Beta-BHC	ND	ND	ND	ug/L	--	--	--
E508	Beta-BHC	ND	ND	ND	ug/L	--	--	--
E531.2	Carbaryl	ND	ND	ND	ug/L	--	--	--
E531.2	Carbofuran	ND	ND	ND	ug/L	18	--	--
E508	Chlordane	ND	ND	ND	ug/L	0.1	--	--
E515.1	Dalapon	ND	ND	ND	ug/L	200	--	--
SW8270C	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E525.2	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E508	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E515.1	Dicamba	ND	ND	ND	ug/L	--	--	--
E515.1	Dichlorprop	ND	ND	ND	ug/L	--	--	--
SW8270C	Dieldrin	ND	ND	ND	ug/L	--	--	--
E508	Dieldrin	ND	ND	ND	ug/L	--	--	--
E515.1	Dinoseb	ND	ND	ND	ug/L	7	--	--
E549.2	Diquat	ND	ND	ND	ug/L	20	--	--
SW8270C	Endosulfan I	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan I	ND	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan II	ND	ND	ND	ug/L	--	--	--
E548.1	Endosulfan II	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan II	ND	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan Sulfate	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan Sulfate	ND	ND	ND	ug/L	--	--	--
SW8270C	Endrin	ND	ND	ND	ug/L	2	--	--
E508	Endrin	ND	ND	ND	ug/L	2	--	--
SW8270C	Endrin Aldehyde	ND	ND	ND	ug/L	--	--	--
E508	Endrin Aldehyde	ND	ND	ND	ug/L	--	--	--
SW8270C	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E525.2	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E508	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E547	Glyphosate	ND	ND	ND	ug/L	700	--	--
SW8270C	Heptachlor	ND	ND	ND	ug/L	0.01	--	--
E508	Heptachlor	ND	ND	ND	ug/L	0.01	--	--
SW8270C	Heptachlor Epoxide	ND	ND	ND	ug/L	0.01	--	--
E508	Heptachlor Epoxide	ND	ND	ND	ug/L	0.01	--	--
E515.1	MCPA	ND	ND	ND	ug/L	--	--	--
E515.1	MCPP	ND	ND	ND	ug/L	--	--	--
E531.2	Methiocarb		ND	ND	ug/L	--	--	--
E531.2	Methomyl	ND	ND	ND	ug/L	--	--	--
E525.2	Methoxychlor	ND	ND	ND	ug/L	30	--	--
E508	Methoxychlor	ND	ND	ND	ug/L	30	--	--
E531.2	Oxamyl	ND	ND	ND	ug/L	50	--	--
E531.2	Propoxur		ND	ND	ug/L	--	--	--
E508	Toxaphene	ND	ND	ND	ug/L	3	--	--
				VOCs				
E524.2	1,1,1,2-Tetrachloroethane	ND	ND	ND	ug/L	--	--	--
E524.2	1,1,1-Trichloroethane	ND	ND	ND	ug/L	200	--	--
E524.2	1,1,2,2-Tetrachloroethane	ND	ND	ND	ug/L	1	--	--
E524.2	1,1,2-Trichlor-1,2,2-trifluoroethane	ND	ND	ND	ug/L	1200	--	--

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E524.2	1,1,2-Trichloroethane	ND	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethane	ND	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethene	ND	ND	ND	ug/L	6	--	--
E524.2	1,1-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichlorobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichloropropane	ND	ND	ND	ug/L	0.005	--	--
E524	1,2,3-Trichloropropane	ND	ND	ND	ug/L	0.005	--	--
E524.2	1,2,4-Trimethylbenzene	ND	ND	ND	ug/L	--	--	330
E524.2	1,2-Dibromo-3-chloropropane	ND	ND	ND	ug/L	0.2	--	--
504.1	1,2-Dibromo-3-chloropropane	ND	ND	ND	ug/L	0.2	--	--
E524.2	1,2-Dichloroethane	ND	ND	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloropropane	ND	ND	ND	ug/L	5	--	--
E524.2	1,3,5-Trimethylbenzene	ND	ND	ND	ug/L	--	--	330
E524.2	1,3-Dichloropropane	ND	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropene	ND	ND	ND	ug/L	0.5	--	--
E524.2	2,2-Dichloropropane	ND	ND	ND	ug/L	--	--	--
SW8260B	2-Chloroethylvinylether	ND	ND	ND	ug/L	--	--	--
E524.2	2-Chlorotoluene	ND	ND	ND	ug/L	--	--	140
E524.2	4-Chlorotoluene	ND	ND	ND	ug/L	--	--	140
SW8260B	Acrolein	ND	ND	ND	ug/L	--	--	--
SW8260B	Acrylonitrile	ND	ND	ND	ug/L	--	--	--
E524.2	Benzene	ND	ND	ND	ug/L	1	--	--
E524.2	Bromobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	Bromochloromethane	ND	ND	ND	ug/L	--	--	--
E524.2	Bromodichloromethane	ND	ND	ND	ug/L	80	--	--
E524.2	Bromoform	ND	ND	ND	ug/L	80	--	--
E524.2	Bromomethane	ND	ND	ND	ug/L	--	--	--
E524.2	Carbon tetrachloride	ND	ND	ND	ug/L	0.5	--	--
E524.2	Chlorobenzene	ND	ND	ND	ug/L	70	--	--
E524.2	Chloroethane	ND	ND	ND	ug/L	--	--	--
E524.2	Chloroform	ND	ND	ND	ug/L	80	--	--
E524.2	Chloromethane	ND	ND	ND	ug/L	--	--	--
E524.2	cis-1,2-Dichloroethene	ND	ND	ND	ug/L	6	--	--
E524.2	cis-1,3-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	Dibromochloromethane	ND	ND	ND	ug/L	80	--	--
E524.2	Dibromomethane	ND	ND	ND	ug/L	--	--	--
E524.2	Dichlorodifluoromethane	ND	ND	ND	mg/L	--	--	1
E524.2	Di-isopropyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	Ethyl tert-butyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	Ethylbenzene	ND	ND	ND	ug/L	300	--	--
E524.2	Ethylene dibromide	ND	ND	ND	ug/L	--	--	--
504.1	Ethylene dibromide	ND	ND	ND	ug/L	--	--	--
8330	HMX	ND	ND	ND	ug/L	--	--	--
E524.2	Isopropylbenzene	ND	ND	ND	ug/L	--	--	770
E524.2	m,p-Xylene	ND	ND	ND	ug/L	--	--	--
E524.2	Methyl tert-butyl ether	ND	ND	ND	ug/L	13	--	--
E524.2	Methylene chloride	ND	ND	ND	ug/L	5	--	--
E524.2	n-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	n-Propylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	o-Xylene	ND	ND	ND	ug/L	--	--	--
E524.2	p-Isopropyltoluene	ND	ND	ND	ug/L	--	--	--
8330	RDX	ND	ND	ND	mg/L	--	--	0.3
E524.2	sec-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	Styrene	ND	ND	ND	ug/L	100	--	--
E524.2	tert-Amyl Methyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	tert-Butyl alcohol	ND	ND	ND	ug/L	--	--	12
E524.2	tert-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	Tetrachloroethene	ND	ND	ND	ug/L	5	--	--
E524.2	Toluene	ND	ND	ND	ug/L	150	--	--
E524.2	trans-1,2-Dichloroethene	ND	ND	ND	ug/L	10	--	--
E524.2	trans-1,3-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	Trichloroethene	ND	ND	ND	ug/L	5	--	--

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E524.2	Trichlorofluoromethane	ND	ND	ND	ug/L	150	--	--
E524.2	Vinyl chloride	ND	ND	ND	ug/L	0.5	--	--
E524.2	Xylenes, Total	ND	ND	ND	ug/L	1750	--	--
SVOCs								
SW8270C	1,2,4-Trichlorobenzene	ND	ND	ND	ug/L	5	--	--
E524.2	1,2,4-Trichlorobenzene	ND	ND	ND	ug/L	5	--	--
SW8270C	1,2-Dichlorobenzene	ND	ND	ND	ug/L	600	--	--
E524.2	1,2-Dichlorobenzene	ND	ND	ND	ug/L	600	--	--
E522	1,4-Dioxane	ND	ND	ND	ug/L	1	--	--
SW8270C	1,2-Diphenylhydrazine	ND	ND	ND	ug/L	--	--	--
SW8270C	1,3-Dichlorobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichlorobenzene	ND	ND	ND	ug/L	--	--	--
SW8270C	1,4-Dichlorobenzene	ND	ND	ND	ug/L	5	--	--
E524.2	1,4-Dichlorobenzene	ND	ND	ND	ug/L	5	--	--
SW8270C	2,4,5-Trichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4,6-Trichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dimethylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrotoluene	ND	ND	ND	ug/L	--	--	--
SW8270C	2,6-Dinitrotoluene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Chloronaphthalene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Chlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Methylnaphthalene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Methylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Naphthylamine	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Nitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	3&4-Methylphenol Coelution	ND	ND	ND	ug/L	--	--	--
SW8270C	3,3'-Dichlorobenzidine	ND	ND	ND	ug/L	--	--	--
SW8270C	3-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4,6-Dinitro-2-methylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Bromophenyl phenyl ether	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Chloroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Chlorophenyl phenyl ether	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Nitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthylene	ND	ND	ND	ug/L	--	--	--
E525.2	Acenaphthylene	ND	ND	ND	ug/L	--	--	--
E525.2	Alachlor	ND	ND	ND	ug/L	2	--	--
SW8270C	Aniline	ND	ND	ND	ug/L	--	--	--
SW8270C	Anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Atraton	ND	ND	ND	ug/L	--	--	--
E525.2	Atrazine	ND	ND	ND	ug/L	1	--	--
SW8270C	Benz(a)anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Benz(a)anthracene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzidine	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(a)pyrene	ND	ND	ND	ug/L	0.2	--	--
E525.2	Benzo(a)pyrene	ND	ND	ND	ug/L	0.2	--	--
SW8270C	Benzo(b)fluoranthene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(b)fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(g,h,i)perylene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(g,h,i)perylene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(k)fluoranthene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(k)fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzoic acid	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzyl alcohol	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethoxy)methane	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethyl)ether	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroisopropyl)ether	ND	ND	ND	ug/L	--	--	--

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SW8270C	bis(2-Ethylhexyl)phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	bis(2-Ethylhexyl)phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Bromacil	ND	ND	ND	ug/L	--	--	--
SW8270C	Butyl benzyl phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Butyl benzyl phthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Chrysene	ND	ND	ND	ug/L	--	--	--
E525.2	Chrysene	ND	ND	ND	ug/L	--	--	--
E525.2	Di(2-ethylhexyl)adipate	ND	ND	ND	ug/L	400	--	--
E525.2	Diazinon	ND	ND	ND	ug/L	--	--	1.2
SW8270C	Dibenz(a,h)anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Dibenz(a,h)anthracene	ND	ND	ND	ug/L	--	--	--
SW8270C	Dibenzofuran	ND	ND	ND	ug/L	--	--	--
SW8270C	Diethylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Dimethoate	ND	ND	ND	ug/L	--	--	--
SW8270C	Dimethylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Dimethylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Di-n-butylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Di-n-butylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Di-n-octylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Fluorene	ND	ND	ND	ug/L	--	--	--
E525.2	Fluorene	ND	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorobenzene	ND	ND	ND	ug/L	1	--	--
E525.2	Hexachlorobenzene	ND	ND	ND	ug/L	1	--	--
SW8270C	Hexachlorobutadiene	ND	ND	ND	ug/L	--	--	--
E524.2	Hexachlorobutadiene	ND	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorocyclopentadiene	ND	ND	ND	ug/L	50	--	--
E525.2	Hexachlorocyclopentadiene	ND	ND	ND	ug/L	50	--	--
SW8270C	Hexachloroethane	ND	ND	ND	ug/L	--	--	--
SW8270C	Indeno(1,2,3-cd)pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Indeno(1,2,3-cd)pyrene	ND	ND	ND	ug/L	--	--	--
SW8270C	Isophorone	ND	ND	ND	ug/L	--	--	--
E525.2	Metolachlor	ND	ND	ND	ug/L	--	--	--
E525.2	Metribuzin	ND	ND	ND	ug/L	--	--	--
E525.2	Molinate	ND	ND	ND	ug/L	20	--	--
SW8270C	Naphthalene	ND	ND	ND	ug/L	--	--	17
E524.2	Naphthalene	ND	ND	ND	ug/L	--	--	17
SW8270C	Nitrobenzene	ND	ND	ND	ug/L	--	--	--
SW8270C	N-Nitrosodimethylamine	ND	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodi-n-propylamine	ND	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodiphenylamine	ND	ND	ND	ug/L	--	--	--
SW8270C	p-Chloro-m-cresol	ND	ND	ND	ug/L	--	--	--
SW8270C	Pentachlorophenol	ND	ND	ND	ug/L	1	--	--
SW8270C	Phenanthrene	ND	ND	ND	ug/L	--	--	--
E525.2	Phenanthrene	ND	ND	ND	ug/L	--	--	--
SW8270C	Phenol	ND	ND	ND	ug/L	--	--	--
E525.2	Prometon	ND	ND	ND	ug/L	--	--	--
E525.2	Prometryn	ND	ND	ND	ug/L	--	--	--
E525.2	Propachlor	ND	ND	ND	ug/L	--	--	90
SW8270C	Pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Secbumeton	ND	ND	ND	ug/L	--	--	--
E525.2	Simazine	ND	ND	ND	ug/L	4	--	--
E525.2	Terbutryn	ND	ND	ND	ug/L	--	--	--
E525.2	Thiobencarb	ND	ND	ND	ug/L	70	--	--
	PCBs							
E508	PCB-1016	ND	ND	ND	ug/L	--	--	--
E508	PCB-1221	ND	ND	ND	ug/L	--	--	--
E508	PCB-1232	ND	ND	ND	ug/L	--	--	--
E508	PCB-1242	ND	ND	ND	ug/L	--	--	--
E508	PCB-1248	ND	ND	ND	ug/L	--	--	--
E508	PCB-1254	ND	ND	ND	ug/L	--	--	--

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SMCL = Secondary Maximum Contaminant Level (Bold = exceedance)
NL = Notification Limit
ND = Non-Detect
J = Estimated value.
B = The analyte was found in a method blank, as well as in the sample.

GSI Water Solutions, Inc.

TABLE 4
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well MB-3

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
E508	PCB-1260	ND	ND	ND	ug/L	--	--	--
E508	Total PCBs	ND	ND	ND	ug/L	0.5	--	--
THAA								
E552.3	Dibromoacetic Acid (DBAA)	ND	ND	ND	ug/L	--	--	--
E552.3	Dichloroacetic Acid (DCA)	ND	ND	ND	ug/L	--	--	--
E552.3	Monobromoacetic acid	ND	ND	ND	ug/L	--	--	--
E552.3	Monochloroacetic Acid (MCA)	ND	ND	ND	ug/L	--	--	--
E552.3	Trichloroacetic Acid (TCAA)	ND	ND	ND	ug/L	--	--	--
E552.3	Trihalomethanes	ND	ND	ND	ug/L	80	--	--
E524.2	Trihalomethanes	ND	ND	ND	ug/L	80	--	--
Radiochemistry								
EPA 900	Gross Alpha	4.8	2.94	3.54	pCi/L	15	--	--
EPA900	Gross Beta	2.42	2.17	3.3	pCi/L	50	--	--
EPA 903.1	Radium-226	0.818	0.523	0.75	pCi/L	3	--	--
EPA 904.0	Radium-228	0.702	1.3	0.753	pCi/L	2	--	--
ASTM D5811-95	Strontium-90	1.11	0.935	2.62	pCi/L	8	--	--
EPA 906	Tritium	259	262	265	pCi/L	20000	--	--
Nitroaromatics and Nitrosamines								
EPA 521/SPE	N-Nitrosodiethylamine	ND	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosodimethylamine	ND	ND	ND	ug/L			0.01
EPA 521/SPE	N-Nitrosodi-n-butylamine	ND	ND	ND	ug/L	--	--	
EPA 521/SPE	N-Nitrosodi-n-propylamine	ND	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosomethylethylamine	ND	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosomorpholine	ND	ND	ND	ug/L	--	--	--
EPA 521/SPE	N-Nitrosopiperidine	ND	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosopyrrolidine	ND	ND	ND	ng/L	--	--	--
Dioxins								
EPA 1613B	2,3,7,8-TCDD	0.00000172	0.00000178	0.00000229	ug/L	0.00003	--	--
PFAs								
B-15	11-CL-PF3OUDS	ND	ND	ND	ng/L	--	--	--
B-15	9-CL-PF3ONS	ND	ND	ND	ng/L	--	--	--
B-15	ADONA	ND	ND	ND	ng/L	--	--	--
B-15	FTS 4:2	ND		ND	ng/L	--	--	--
B-15	FTS 6:2	ND		2.2 J	ng/L	--	--	--
B-15	FTS 8:2	ND		ND	ng/L	--	--	--
B-15	HFPO-DA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSAA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSE	ND		ND	ng/L	--	--	--
B-15	N-MEFOSA	ND		ND	ng/L	--	--	--
B-15	N-MEFOSAA	ND		ND	ng/L	--	--	--
B-15	N-MEFOSE	ND		ND	ng/L	--	--	--
B-15	PFBA	ND		1 J	ng/L	--	--	--
B-15	PFBS	3.3 J	1.6 J	1.9 J	ng/L	--	--	--
B-15	PFDA	ND	ND	ND	ng/L	--	--	--
B-15	PFDOA	ND	ND	ND	ng/L	--	--	--
B-15	PFDS	ND		ND	ng/L	--	--	--
B-15	PFHPA	ND	ND	ND	ng/L	--	--	--
B-15	PFHPS	ND		ND	ng/L	--	--	--
B-15	PFHXA	ND	ND	ND	ng/L	--	--	--
B-15	PFHXS	ND	ND	ND	ng/L	--	--	--
B-15	PFNA	ND	ND	ND	ng/L	--	--	--
B-15	PFNS	ND		ND	ng/L	--	--	--
B-15	PFOA	ND	ND	ND	ng/L	--	--	--
B-15	PFOS	ND	ND	ND	ng/L	--	--	--
B-15	PFOSA	ND		5.4 B J	ng/L	--	--	--
B-15	PFPEA	ND		ND	ng/L	--	--	--
B-15	PFPES	ND		ND	ng/L	--	--	--
B-15	PFTEDA	ND	ND	ND	ng/L	--	--	--
B-15	PFTRDA	ND	ND	ND	ng/L	--	--	--
B-15	PFUDA	ND	ND	ND	ng/L	--	--	--

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NL = Notification Limit
ND = Non-Detect
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GSI Water Solutions, Inc.

TABLE 5
SUMMARY OF GROUNDWATER QUALITY
CITY OF MORRO BAY
High School-2 Well

Method	Analyte	12.28.20 Results	Units	MCL	SMCL	NL
	Field Parameters					
YSI Probe	Temp	18.5	Degrees C			
YSI Probe	pH	7.2				
YSI Probe	ORP	225	mV			
YSI Probe	DO	1.46	mg/L			
	General Chemistry					
A 600/R-94/	Asbestos	0.2	MFL	7	--	--
EPA 317	Bromate	ND	mg/L	10	--	
EPA 300.1	Chlorate	ND	mg/L	--	--	800
E300.0	Chloride	230	mg/L	--	500	--
EPA 300.1	Chlorite	ND	mg/L	1	--	--
2120B	Color	2	None	--	--	--
SW8015B	Ethylene glycol	ND	mg/L	--	--	14
2510B	Electrical Conductivity @ 25 C	1730	umhos/cm	--	--	--
E300.0	Fluoride	0.25	mg/L	2	--	--
E556.1	Formaldehyde	ND	ug/L	--	--	100
5540C	MBAS	ND	mg/L	--	0.5	--
E300.0	Nitrate (as N)	**17**	mg/L	10	--	--
CALC	Nitrate + Nitrite (As N)	**17**	mg/L	10	--	--
E353.2	Nitrite (as N)	ND	mg/L	1	--	--
SM5310C	Non-Volatile Organic Carbon	1	mg/L	--	--	--
2150B	Odor	ND	None	--	--	--
E314.0	Perchlorate	ND	ug/L	6	--	--
E300.0	Sulfate	120	mg/L	--	500	--
E335.4	Total Cyanide	ND	ug/L	150	--	--
SM2540C	Total Dissolved Solids	990	mg/L	--	1000	--
E351.2	Total Kjeldahl Nitrogen	0.089 J	mg/L	--	--	--
CALC	Total Nitrogen	17	mg/L	--	--	--
E180.1	Turbidity	0.12	NTU	--	--	--
	Metals					
E200.7	Aluminum	ND	mg/L	1	--	--
E200.8	Antimony	ND	mg/L	0.006	--	--
E200.8	Arsenic	0.0016 J	mg/L	0.01	--	--
E200.8	Barium	0.13	mg/L	1	--	--
E200.8	Beryllium	ND	mg/L	0.004	--	--
E200.7	Boron	0.15	mg/L	--	--	1
E200.8	Cadmium	ND	mg/L	0.005	--	--
E200.8	Chromium	0.0022 J	mg/L	0.05	--	--
E218.6	Chromium, Hexavalent	0.0024	mg/L	--	--	--
E200.8	Cobalt	ND	mg/L	--	--	--
E200.8	Copper	0.0026	mg/L	--	--	--
E200.7	Iron (Ferric)	ND	mg/L	--	--	--
E200.8	Lead	ND	mg/L	--	--	--
E200.7	Lithium	0.0072 J	mg/L	--	--	--
E200.7	Manganese	ND	mg/L	--	0.05	--
E245.1	Mercury	ND	mg/L	0.002	--	--
E200.8	Molybdenum	0.0019	mg/L	--	--	--
E200.8	Nickel	0.0037	mg/L	0.1	--	--
E200.8	Selenium	0.018	mg/L	0.05	--	--
E200.8	Silver	ND	mg/L	--	--	--
E200.8	Thallium	ND	mg/L	0.002	--	--

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GSI Water Solutions, Inc.

TABLE 5
SUMMARY OF GROUNDWATER QUALITY
CITY OF MORRO BAY
Well HS-2

CALC	Trivalent Chromium	ND	mg/L	--	--	--
E200.8	Uranium	0.0015	mg/L	20	--	--
E200.8	Vanadium	2 J	ug/L	--	--	50
E200.8	Zinc	0.0061 J	mg/L	--	5	--
		Herbicides/Pesticides				
E531.2	1-Naphthol		ug/L	--	--	--
E515.1	2,4,5-T	ND	ug/L	--	--	--
E515.1	2,4,5-TP	ND	ug/L	50	--	--
E515.1	2,4-D	ND	ug/L	70	--	--
E515.1	2,4-DB	ND	ug/L	--	--	--
E531.2	3-Hydroxycarbofuran	ND	ug/L	--	--	--
SW8270C	4,4'-DDD	ND	ug/L	--	--	--
E508	4,4'-DDD	ND	ug/L	--	--	--
SW8270C	4,4'-DDE	ND	ug/L	--	--	--
E508	4,4'-DDE	ND	ug/L	--	--	--
SW8270C	4,4'-DDT	ND	ug/L	--	--	--
E508	4,4'-DDT		ug/L	--	--	--
E531.2	Aldicarb	ND	ug/L	--	--	--
E531.2	Aldicarb sulfone	ND	ug/L	--	--	--
E531.2	Aldicarb sulfoxide	ND	ug/L	--	--	--
SW8270C	Aldrin	ND	ug/L	--	--	--
E508	Aldrin	ND	ug/L	--	--	--
SW8270C	Alpha-BHC	ND	ug/L	--	--	--
E508	Alpha-BHC	ND	ug/L	--	--	--
E515.1	Bentazon	ND	ug/L	18	--	--
SW8270C	Beta-BHC	ND	ug/L	--	--	--
E508	Beta-BHC	ND	ug/L	--	--	--
E531.2	Carbaryl	ND	ug/L	--	--	--
E531.2	Carbofuran	ND	ug/L	18	--	--
E508	Chlordane	ND	ug/L	0.1	--	--
E515.1	Dalapon	ND	ug/L	200	--	--
SW8270C	Delta-BHC	ND	ug/L	--	--	--
E525.2	Delta-BHC	ND	ug/L	--	--	--
E508	Delta-BHC	ND	ug/L	--	--	--
E515.1	Dicamba	ND	ug/L	--	--	--
E515.1	Dichlorprop	ND	ug/L	--	--	--
SW8270C	Dieldrin	ND	ug/L	--	--	--
E508	Dieldrin	ND	ug/L	--	--	--
E515.1	Dinoseb	ND	ug/L	7	--	--
E549.2	Diquat	ND	ug/L	20	--	--
SW8270C	Endosulfan I	ND	ug/L	--	--	--
E508	Endosulfan I	ND	ug/L	--	--	--
SW8270C	Endosulfan II	ND	ug/L	--	--	--
E548.1	Endosulfan II	ND	ug/L	--	--	--
E508	Endosulfan II	ND	ug/L	--	--	--
SW8270C	Endosulfan Sulfate	ND	ug/L	--	--	--
E508	Endosulfan Sulfate	ND	ug/L	--	--	--
SW8270C	Endrin	ND	ug/L	2	--	--
E508	Endrin	ND	ug/L	2	--	--
SW8270C	Endrin Aldehyde	ND	ug/L	--	--	--
E508	Endrin Aldehyde	ND	ug/L	--	--	--
SW8270C	Gamma-BHC	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 5
SUMMARY OF GROUNDWATER QUALITY
CITY OF MORRO BAY
Well HS-2

E525.2	Gamma-BHC	ND	ug/L	--	--	--
E508	Gamma-BHC	ND	ug/L	--	--	--
E547	Glyphosate	ND	ug/L	700	--	--
SW8270C	Heptachlor	ND	ug/L	0.01	--	--
E508	Heptachlor	ND	ug/L	0.01	--	--
SW8270C	Heptachlor Epoxide	ND	ug/L	0.01	--	--
E508	Heptachlor Epoxide	ND	ug/L	0.01	--	--
E515.1	MCPA	ND	ug/L	--	--	--
E515.1	MCPP	ND	ug/L	--	--	--
E531.2	Methiocarb		ug/L	--	--	--
E531.2	Methomyl	ND	ug/L	--	--	--
E525.2	Methoxychlor	ND	ug/L	30	--	--
E508	Methoxychlor	ND	ug/L	30	--	--
E531.2	Oxamyl	ND	ug/L	50	--	--
E531.2	Propoxur		ug/L	--	--	--
E508	Toxaphene	ND	ug/L	3	--	--
VOCs						
E524.2	1,1,1,2-Tetrachloroethane	ND	ug/L	--	--	--
E524.2	1,1,1-Trichloroethane	ND	ug/L	200	--	--
E524.2	1,1,2,2-Tetrachloroethane	ND	ug/L	1	--	--
E524.2	1,1,2-Trichlor-1,2,2-trifluoroethane	ND	ug/L	1200	--	--
E524.2	1,1,2-Trichloroethane	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethane	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethene	ND	ug/L	6	--	--
E524.2	1,1-Dichloropropene	ND	ug/L	--	--	--
E524.2	1,2,3-Trichlorobenzene	ND	ug/L	--	--	--
E524.2	1,2,3-Trichloropropane	ND	ug/L	0.005	--	--
E524	1,2,3-Trichloropropane	ND	ug/L	0.005	--	--
E524.2	1,2,4-Trimethylbenzene	ND	ug/L	--	--	330
E524.2	1,2-Dibromo-3-chloropropane	ND	ug/L	0.2	--	--
504.1	1,2-Dibromo-3-chloropropane	ND	ug/L	0.2	--	--
E524.2	1,2-Dichloroethane	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloropropane	ND	ug/L	5	--	--
E524.2	1,3,5-Trimethylbenzene	ND	ug/L	--	--	330
E524.2	1,3-Dichloropropane	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropene	ND	ug/L	0.5	--	--
E524.2	2,2-Dichloropropane	ND	ug/L	--	--	--
SW8260B	2-Chloroethylvinylether	ND	ug/L	--	--	--
E524.2	2-Chlorotoluene	ND	ug/L	--	--	140
E524.2	4-Chlorotoluene	ND	ug/L	--	--	140
SW8260B	Acrolein	ND	ug/L	--	--	--
SW8260B	Acrylonitrile	ND	ug/L	--	--	--
E524.2	Benzene	ND	ug/L	1	--	--
E524.2	Bromobenzene	ND	ug/L	--	--	--
E524.2	Bromochloromethane	ND	ug/L	--	--	--
E524.2	Bromodichloromethane	ND	ug/L	80	--	--
E524.2	Bromoform	ND	ug/L	80	--	--
E524.2	Bromomethane	ND	ug/L	--	--	--
E524.2	Carbon tetrachloride	ND	ug/L	0.5	--	--
E524.2	Chlorobenzene	ND	ug/L	70	--	--
E524.2	Chloroethane	ND	ug/L	--	--	--
E524.2	Chloroform	ND	ug/L	80	--	--

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GSI Water Solutions, Inc.

TABLE 5
SUMMARY OF GROUNDWATER QUALITY
CITY OF MORRO BAY
Well HS-2

E524.2	Chloromethane	ND	ug/L	--	--	--
E524.2	cis-1,2-Dichloroethene	ND	ug/L	6	--	--
E524.2	cis-1,3-Dichloropropene	ND	ug/L	--	--	--
E524.2	Dibromochloromethane	ND	ug/L	80	--	--
E524.2	Dibromomethane	ND	ug/L	--	--	--
E524.2	Dichlorodifluoromethane	ND	mg/L	--	--	1
E524.2	Di-isopropyl ether	ND	ug/L	--	--	--
E524.2	Ethyl tert-butyl ether	ND	ug/L	--	--	--
E524.2	Ethylbenzene	ND	ug/L	300	--	--
E524.2	Ethylene dibromide	ND	ug/L	--	--	--
504.1	Ethylene dibromide	ND	ug/L	--	--	--
8330	HMX	ND	ug/L	--	--	--
E524.2	Isopropylbenzene	ND	ug/L	--	--	770
E524.2	m,p-Xylene	ND	ug/L	--	--	--
E524.2	Methyl tert-butyl ether	ND	ug/L	13	--	--
E524.2	Methylene chloride	ND	ug/L	5	--	--
E524.2	n-Butylbenzene	ND	ug/L	--	--	260
E524.2	n-Propylbenzene	ND	ug/L	--	--	260
E524.2	o-Xylene	ND	ug/L	--	--	--
E524.2	p-Isopropyltoluene	ND	ug/L	--	--	--
8330	RDX	ND	mg/L	--	--	0.3
E524.2	sec-Butylbenzene	ND	ug/L	--	--	260
E524.2	Styrene	ND	ug/L	100	--	--
E524.2	tert-Amyl Methyl ether	ND	ug/L	--	--	--
E524.2	tert-Butyl alcohol	ND	ug/L	--	--	12
E524.2	tert-Butylbenzene	ND	ug/L	--	--	260
E524.2	Tetrachloroethene	ND	ug/L	5	--	--
E524.2	Toluene	ND	ug/L	150	--	--
E524.2	trans-1,2-Dichloroethene	ND	ug/L	10	--	--
E524.2	trans-1,3-Dichloropropene	ND	ug/L	--	--	--
E524.2	Trichloroethene	ND	ug/L	5	--	--
E524.2	Trichlorofluoromethane	ND	ug/L	150	--	--
E524.2	Vinyl chloride	ND	ug/L	0.5	--	--
E524.2	Xylenes, Total	ND	ug/L	1750	--	--
		SVOCs				
SW8270C	1,2,4-Trichlorobenzene	ND	ug/L	5	--	--
E524.2	1,2,4-Trichlorobenzene	ND	ug/L	5	--	--
SW8270C	1,2-Dichlorobenzene	ND	ug/L	600	--	--
E524.2	1,2-Dichlorobenzene	ND	ug/L	600	--	--
E522	1,4-Dioxane	ND	ug/L	1	--	--
SW8270C	1,2-Diphenylhydrazine	ND	ug/L	--	--	--
SW8270C	1,3-Dichlorobenzene	ND	ug/L	--	--	--
E524.2	1,3-Dichlorobenzene	ND	ug/L	--	--	--
SW8270C	1,4-Dichlorobenzene	ND	ug/L	5	--	--
E524.2	1,4-Dichlorobenzene	ND	ug/L	5	--	--
SW8270C	2,4,5-Trichlorophenol	ND	ug/L	--	--	--
SW8270C	2,4,6-Trichlorophenol	ND	ug/L	--	--	--
SW8270C	2,4-Dichlorophenol	ND	ug/L	--	--	--
SW8270C	2,4-Dimethylphenol	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrophenol	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrotoluene	ND	ug/L	--	--	--
SW8270C	2,6-Dinitrotoluene	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 5
SUMMARY OF GROUNDWATER QUALITY
CITY OF MORRO BAY
Well HS-2

SW8270C	2-Chloronaphthalene	ND	ug/L	--	--	--
SW8270C	2-Chlorophenol	ND	ug/L	--	--	--
SW8270C	2-Methylnaphthalene	ND	ug/L	--	--	--
SW8270C	2-Methylphenol	ND	ug/L	--	--	--
SW8270C	2-Naphthylamine	ND	ug/L	--	--	--
SW8270C	2-Nitroaniline	ND	ug/L	--	--	--
SW8270C	2-Nitrophenol	ND	ug/L	--	--	--
SW8270C	3&4-Methylphenol Coelution	ND	ug/L	--	--	--
SW8270C	3,3'-Dichlorobenzidine	ND	ug/L	--	--	--
SW8270C	3-Nitroaniline	ND	ug/L	--	--	--
SW8270C	4,6-Dinitro-2-methylphenol	ND	ug/L	--	--	--
SW8270C	4-Bromophenyl phenyl ether	ND	ug/L	--	--	--
SW8270C	4-Chloroaniline	ND	ug/L	--	--	--
SW8270C	4-Chlorophenyl phenyl ether	ND	ug/L	--	--	--
SW8270C	4-Nitroaniline	ND	ug/L	--	--	--
SW8270C	4-Nitrophenol	ND	ug/L	--	--	--
SW8270C	Acenaphthene	ND	ug/L	--	--	--
SW8270C	Acenaphthylene	ND	ug/L	--	--	--
E525.2	Acenaphthylene	ND	ug/L	--	--	--
E525.2	Alachlor	ND	ug/L	2	--	--
SW8270C	Aniline	ND	ug/L	--	--	--
SW8270C	Anthracene	ND	ug/L	--	--	--
E525.2	Anthracene	ND	ug/L	--	--	--
E525.2	Atraton	ND	ug/L	--	--	--
E525.2	Atrazine	ND	ug/L	1	--	--
SW8270C	Benz(a)anthracene	ND	ug/L	--	--	--
E525.2	Benz(a)anthracene	ND	ug/L	--	--	--
SW8270C	Benzidine	ND	ug/L	--	--	--
SW8270C	Benzo(a)pyrene	ND	ug/L	0.2	--	--
E525.2	Benzo(a)pyrene	ND	ug/L	0.2	--	--
SW8270C	Benzo(b)fluoranthene	ND	ug/L	--	--	--
E525.2	Benzo(b)fluoranthene	ND	ug/L	--	--	--
SW8270C	Benzo(g,h,i)perylene	ND	ug/L	--	--	--
E525.2	Benzo(g,h,i)perylene	ND	ug/L	--	--	--
SW8270C	Benzo(k)fluoranthene	ND	ug/L	--	--	--
E525.2	Benzo(k)fluoranthene	ND	ug/L	--	--	--
SW8270C	Benzoic acid	ND	ug/L	--	--	--
SW8270C	Benzyl alcohol	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethoxy)methane	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethyl)ether	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroisopropyl)ether	ND	ug/L	--	--	--
SW8270C	bis(2-Ethylhexyl)phthalate	ND	ug/L	--	--	--
E525.2	bis(2-Ethylhexyl)phthalate	ND	ug/L	--	--	--
E525.2	Bromacil	ND	ug/L	--	--	--
SW8270C	Butyl benzyl phthalate	ND	ug/L	--	--	--
THAA						
E552.3	Monobromoacetic acid	ND	ug/L	--	--	--
E552.3	Monochloroacetic Acid (MCA)	ND	ug/L	--	--	--
E552.3	Trichloroacetic Acid (TCAA)	ND	ug/L	--	--	--
E552.3	Trihalomethanes	ND	ug/L	80	--	--
E524.2	Trihalomethanes	ND	ug/L	80	--	--
Radiochemistry						

MCL = Maximum Contaminant Level (Bold = exceedance)
SMCL = Secondary Maximum Contaminant Level (Bold = exceedance)
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ND = Non-Detect

GSI Water Solutions, Inc.

TABLE 5
SUMMARY OF GROUNDWATER QUALITY
CITY OF MORRO BAY
Well HS-2

EPA 900	Gross Alpha	4.15	pCi/L	15	--	--
EPA900	Gross Beta	3.43	pCi/L	50	--	--
EPA 903.1	Radium-226	0.634	pCi/L	3	--	--
EPA 904.0	Radium-228	0.992	pCi/L	2	--	--
STM D5811-	Strontium-90	0.578	pCi/L	8	--	--
EPA 906	Tritium	260	pCi/L	20000	--	--
		Nitroaromatics and Nitrosamines				
EPA 521/SPE	N-Nitrosodiethylamine	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosodimethylamine	ND	ug/L		--	0.01
EPA 521/SPE	N-Nitrosodi-n-butylamine	ND	ug/L	--		
EPA 521/SPE	N-Nitrosodi-n-propylamine	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosomethylethylamine	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosomorpholine	ND	ug/L	--	--	--
EPA 521/SPE	N-Nitrosopiperidine	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosopyrrolidine	ND	ng/L	--	--	--
		Dioxins				
EPA 1613B	2,3,7,8-TCDD	0.0000017	ug/L	0.00003	--	--
		PFAs				
B-15	11-CL-PF3OUDS	ND	ng/L	--	--	--
B-15	9-CL-PF3ONS	ND	ng/L	--	--	--
B-15	ADONA	ND	ng/L	--	--	--
B-15	FTS 4;2	ND	ng/L	--	--	--
B-15	FTS 6:2	ND	ng/L	--	--	--
B-15	FTS 8:2	ND	ng/L	--	--	--
B-15	HFPO-DA	ND	ng/L	--	--	--
B-15	N-ETFOSA	ND	ng/L	--	--	--
B-15	N-ETFOSAA	ND	ng/L	--	--	--
B-15	N-ETFOSE	ND	ng/L	--	--	--
B-15	N-MEFOSA	ND	ng/L	--	--	--
B-15	N-MEFOSAA	ND	ng/L	--	--	--
B-15	N-MEFOSE	ND	ng/L	--	--	--
B-15	PFBA	ND	ng/L	--	--	--
B-15	PFBS	7	ng/L	--	--	--
B-15	PFDA	ND	ng/L	--	--	--
B-15	PFDOA	ND	ng/L	--	--	--
B-15	PFDS	ND	ng/L	--	--	--
B-15	PFHPA	ND	ng/L	--	--	--
B-15	PFHPS	ND	ng/L	--	--	--
B-15	PFHXA	2.8 J	ng/L	--	--	--
B-15	PFHXS	ND	ng/L	--	--	--
B-15	PFNA	ND	ng/L	--	--	--
B-15	PFNS	ND	ng/L	--	--	--
B-15	PFOA	2.5 J	ng/L	--	--	--
B-15	PFOS	ND	ng/L	--	--	--
B-15	PFOSA	ND	ng/L	--	--	--
B-15	PFPEA	3.0 J	ng/L	--	--	--
B-15	PFPES	ND	ng/L	--	--	--
B-15	PFTEDA	ND	ng/L	--	--	--
B-15	PFTRDA	ND	ng/L	--	--	--
B-15	PFUDA	ND	ng/L	--	--	--

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ND = Non-Detect

GSI Water Solutions, Inc.

TABLE 6 GROUNDWATER
QUALITY MORRO BAY WELLS
High School-1 Well

Method	Analyte	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
Field Parameters							
YSI Probe	Temp	19.5	19.5	Degrees C			
YSI Probe	pH	7	7				
YSI Probe	ORP	127	91	mV			
YSI Probe	DO	1.45	1.8	mg/L			
General Chemistry							
EPA 600/R-94/134	Asbestos	ND	ND	MFL	7	--	--
EPA 317	Bromate	ND	ND	mg/L	10	--	
EPA 300.1	Chlorate	ND	ND	mg/L	--	--	800
E300.0	Chloride	**970**	**1100**	mg/L	--	500	--
EPA 300.1	Chlorite	ND	ND	mg/L	1	--	--
2120B	Color	1	1	None	--	--	--
SW8015B	Ethylene glycol	ND	ND	mg/L	--	--	14
2510B	Electrical Conductivity @ 25 C	3830	4040	umhos/cm	--	--	--
E300.0	Fluoride	0.28	ND	mg/L	2	--	--
E556.1	Formaldehyde	ND	ND	ug/L	--	--	100
5540C	MBAS	ND	ND	mg/L	--	0.5	--
E300.0	Nitrate (as N)	7.9	8.7	mg/L	10	--	--
CALC	Nitrate + Nitrite (As N)	7.9	8.7	mg/L	10	--	--
E353.2	Nitrite (as N)	ND	ND	mg/L	1	--	--
SM5310C	Non-Volatile Organic Carbon	1.2	1.1	mg/L	--	--	--
2150B	Odor	ND	ND	None	--	--	--
E314.0	Perchlorate	ND	ND	ug/L	6	--	--
E300.0	Sulfate	140	150	mg/L	--	500	--
E335.4	Total Cyanide	ND	ND	ug/L	150	--	--
SM2540C	Total Dissolved Solids	**2200**	**2700**	mg/L	--	1000	--
E351.2	Total Kjeldahl Nitrogen	0.21	0.25	mg/L	--	--	--
CALC	Total Nitrogen	8.1	8.9	mg/L	--	--	--
E180.1	Turbidity	0.2	0.34	NTU	--	--	--
Metals							
E200.7	Aluminum	ND	ND	mg/L	1	--	--
E200.8	Antimony	ND	ND	mg/L	0.006	--	--
E200.8	Arsenic	**0.012**	0.0033 J	mg/L	0.01	--	--
E200.8	Barium	0.22	0.22	mg/L	1	--	--
E200.8	Beryllium	ND	ND	mg/L	0.004	--	--
E200.7	Boron	0.17	0.17	mg/L	--	--	1
E200.8	Cadmium	ND	ND	mg/L	0.005	--	--
E200.8	Chromium	ND	0.0022 J	mg/L	0.05	--	--
E218.6	Chromium, Hexavalent	0.002	0.0023	mg/L	--	--	--
E200.8	Cobalt	ND	0.00061 J	mg/L	--	--	--
E200.8	Copper	0.0072 J	0.0051	mg/L	--	--	--
E200.7	Iron (Ferric)	ND	ND	mg/L	--	--	--
E200.8	Lead	ND	ND	mg/L	--	--	--
E200.7	Lithium	0.0096 J	0.0083 J	mg/L	--	--	--
E200.7	Manganese	ND	ND	mg/L	--	0.05	--
E245.1	Mercury	ND	ND	mg/L	0.002	--	--
E200.8	Molybdenum	0.00062 J	0.001 J	mg/L	--	--	--
E200.8	Nickel	0.008 J	0.0098	mg/L	0.1	--	--
E200.8	Selenium	0.017	0.015	mg/L	0.05	--	--
E200.8	Silver	ND	ND	mg/L	--	--	--
E200.8	Thallium	ND	ND	mg/L	0.002	--	--
CALC	Trivalent Chromium	ND	ND	mg/L	--	--	--
E200.8	Uranium	0.0022 J	0.0023	mg/L	20	--	--
E200.8	Vanadium	ND	5.4 J	ug/L	--	--	50
E200.8	Zinc	0.013 J	0.11	mg/L	--	5	--
Herbicides/Pesticides							
E531.2	1-Naphthol	ND	ND	ug/L	--	--	--
E515.1	2,4,5-T	ND	ND	ug/L	--	--	--
E515.1	2,4,5-TP	ND	ND	ug/L	50	--	--
E515.1	2,4-D	ND	ND	ug/L	70	--	--
E515.1	2,4-DB	ND	ND	ug/L	--	--	--
E531.2	3-Hydroxycarbofuran	ND	ND	ug/L	--	--	--

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NL = Notification Limit
ND = Non-Detect
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B = The analyte was found in a method blank, as well as in the sample.

GSI Water Solutions, Inc.

TABLE 6
GROUNDWATER QUALITY
MORRO BAY WELLS
Well HS-1

Method	Analyte	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
SW8270C	4,4'-DDD	ND	ND	ug/L	--	--	--
E508	4,4'-DDD	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDE	ND	ND	ug/L	--	--	--
E508	4,4'-DDE	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDT	ND	ND	ug/L	--	--	--
E508	4,4'-DDT	ND	ND	ug/L	--	--	--
E531.2	Aldicarb	ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfone	ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfoxide	ND	ND	ug/L	--	--	--
SW8270C	Aldrin	ND	ND	ug/L	--	--	--
E508	Aldrin	ND	ND	ug/L	--	--	--
SW8270C	Alpha-BHC	ND	ND	ug/L	--	--	--
E508	Alpha-BHC	ND	ND	ug/L	--	--	--
E515.1	Bentazon	ND	ND	ug/L	18	--	--
SW8270C	Beta-BHC	ND	ND	ug/L	--	--	--
E508	Beta-BHC	ND	ND	ug/L	--	--	--
E531.2	Carbaryl	ND	ND	ug/L	--	--	--
E531.2	Carbofuran	ND	ND	ug/L	18	--	--
E508	Chlordane	ND	ND	ug/L	0.1	--	--
E515.1	Dalapon	ND	ND	ug/L	200	--	--
SW8270C	Delta-BHC	ND	ND	ug/L	--	--	--
E525.2	Delta-BHC	ND	ND	ug/L	--	--	--
E508	Delta-BHC	ND	ND	ug/L	--	--	--
E515.1	Dicamba	ND	ND	ug/L	--	--	--
E515.1	Dichlorprop	ND	ND	ug/L	--	--	--
SW8270C	Dieldrin	ND	ND	ug/L	--	--	--
E508	Dieldrin	ND	ND	ug/L	--	--	--
E515.1	Dinoseb	ND	ND	ug/L	7	--	--
E549.2	Diquat	ND	ND	ug/L	20	--	--
SW8270C	Endosulfan I	ND	ND	ug/L	--	--	--
E508	Endosulfan I	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan II	ND	ND	ug/L	--	--	--
E548.1	Endosulfan II	ND	ND	ug/L	--	--	--
E508	Endosulfan II	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan Sulfate	ND	ND	ug/L	--	--	--
E508	Endosulfan Sulfate	ND	ND	ug/L	--	--	--
SW8270C	Endrin	ND	ND	ug/L	2	--	--
E508	Endrin	ND	ND	ug/L	2	--	--
SW8270C	Endrin Aldehyde	ND	ND	ug/L	--	--	--
E508	Endrin Aldehyde	ND	ND	ug/L	--	--	--
SW8270C	Gamma-BHC	ND	ND	ug/L	--	--	--
E525.2	Gamma-BHC	ND	ND	ug/L	--	--	--
E508	Gamma-BHC	ND	ND	ug/L	--	--	--
E547	Glyphosate	ND	ND	ug/L	700	--	--
SW8270C	Heptachlor	ND	ND	ug/L	0.01	--	--
E508	Heptachlor	ND	ND	ug/L	0.01	--	--
SW8270C	Heptachlor Epoxide	ND	ND	ug/L	0.01	--	--
E508	Heptachlor Epoxide	ND	ND	ug/L	0.01	--	--
E515.1	MCPA	ND	ND	ug/L	--	--	--
E515.1	MCPP	ND	ND	ug/L	--	--	--
E531.2	Methiocarb	ND	ND	ug/L	--	--	--
E531.2	Methomyl	ND	ND	ug/L	--	--	--
E525.2	Methoxychlor	ND	ND	ug/L	30	--	--
E508	Methoxychlor	ND	ND	ug/L	30	--	--
E531.2	Oxamyl	ND	ND	ug/L	50	--	--
E531.2	Propoxur	ND	ND	ug/L	--	--	--
E508	Toxaphene	ND	ND	ug/L	3	--	--
VOCs							
E524.2	1,1,1,2-Tetrachloroethane	ND	ND	ug/L	--	--	--
E524.2	1,1,1-Trichloroethane	ND	ND	ug/L	200	--	--
E524.2	1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1	--	--
E524.2	1,1,2-Trichlor-1,2,2-trifluoroethane	ND	ND	ug/L	1200	--	--

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GSI Water Solutions, Inc.

TABLE 6
GROUNDWATER QUALITY
MORRO BAY WELLS
Well HS-1

Method	Analyte	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
E524.2	1,1,2-Trichloroethane	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethane	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethene	ND	ND	ug/L	6	--	--
E524.2	1,1-Dichloropropene	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichlorobenzene	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichloropropane	ND	ND	ug/L	0.005	--	--
E524	1,2,3-Trichloropropane	ND	ND	ug/L	0.005	--	--
E524.2	1,2,4-Trimethylbenzene	ND	ND	ug/L	--	--	330
E524.2	1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.2	--	--
504.1	1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.2	--	--
E524.2	1,2-Dichloroethane	ND	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloropropane	ND	ND	ug/L	5	--	--
E524.2	1,3,5-Trimethylbenzene	ND	ND	ug/L	--	--	330
E524.2	1,3-Dichloropropane	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropene	ND	ND	ug/L	0.5	--	--
E524.2	2,2-Dichloropropane	ND	ND	ug/L	--	--	--
SW8260B	2-Chloroethylvinylether	ND	ND	ug/L	--	--	--
E524.2	2-Chlorotoluene	ND	ND	ug/L	--	--	140
E524.2	4-Chlorotoluene	ND	ND	ug/L	--	--	140
SW8260B	Acrolein	ND	ND	ug/L	--	--	--
SW8260B	Acrylonitrile	ND	ND	ug/L	--	--	--
E524.2	Benzene	ND	ND	ug/L	1	--	--
E524.2	Bromobenzene	ND	ND	ug/L	--	--	--
E524.2	Bromochloromethane	ND	ND	ug/L	--	--	--
E524.2	Bromodichloromethane	ND	ND	ug/L	80	--	--
E524.2	Bromoform	ND	ND	ug/L	80	--	--
E524.2	Bromomethane	ND	ND	ug/L	--	--	--
E524.2	Carbon tetrachloride	ND	ND	ug/L	0.5	--	--
E524.2	Chlorobenzene	ND	ND	ug/L	70	--	--
E524.2	Chloroethane	ND	ND	ug/L	--	--	--
E524.2	Chloroform	ND	ND	ug/L	80	--	--
E524.2	Chloromethane	ND	ND	ug/L	--	--	--
E524.2	cis-1,2-Dichloroethene	ND	ND	ug/L	6	--	--
E524.2	cis-1,3-Dichloropropene	ND	ND	ug/L	--	--	--
E524.2	Dibromochloromethane	ND	ND	ug/L	80	--	--
E524.2	Dibromomethane	ND	ND	ug/L	--	--	--
E524.2	Dichlorodifluoromethane	ND	ND	mg/L	--	--	1
E524.2	Di-isopropyl ether	ND	ND	ug/L	--	--	--
E524.2	Ethyl tert-butyl ether	ND	ND	ug/L	--	--	--
E524.2	Ethylbenzene	ND	ND	ug/L	300	--	--
E524.2	Ethylene dibromide	ND	ND	ug/L	--	--	--
504.1	Ethylene dibromide	ND	ND	ug/L	--	--	--
8330	HMX	ND	ND	ug/L	--	--	--
E524.2	Isopropylbenzene	ND	ND	ug/L	--	--	770
E524.2	m,p-Xylene	ND	ND	ug/L	--	--	--
E524.2	Methyl tert-butyl ether	ND	ND	ug/L	13	--	--
E524.2	Methylene chloride	ND	ND	ug/L	5	--	--
E524.2	n-Butylbenzene	ND	ND	ug/L	--	--	260
E524.2	n-Propylbenzene	ND	ND	ug/L	--	--	260
E524.2	o-Xylene	ND	ND	ug/L	--	--	--
E524.2	p-Isopropyltoluene	ND	ND	ug/L	--	--	--
8330	RDX	ND	ND	mg/L	--	--	0.3
E524.2	sec-Butylbenzene	ND	ND	ug/L	--	--	260
E524.2	Styrene	ND	ND	ug/L	100	--	--
E524.2	tert-Amyl Methyl ether	ND	ND	ug/L	--	--	--
E524.2	tert-Butyl alcohol	ND	ND	ug/L	--	--	12
E524.2	tert-Butylbenzene	ND	ND	ug/L	--	--	260
E524.2	Tetrachloroethene	ND	ND	ug/L	5	--	--
E524.2	Toluene	ND	ND	ug/L	150	--	--
E524.2	trans-1,2-Dichloroethene	ND	ND	ug/L	10	--	--
E524.2	trans-1,3-Dichloropropene	ND	ND	ug/L	--	--	--
E524.2	Trichloroethene	ND	ND	ug/L	5	--	--

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GSI Water Solutions, Inc.

TABLE 6
GROUNDWATER QUALITY
MORRO BAY WELLS
Well HS-1

Method	Analyte	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
E524.2	Trichlorofluoromethane	ND	ND	ug/L	150	--	--
E524.2	Vinyl chloride	ND	ND	ug/L	0.5	--	--
E524.2	Xylenes, Total	ND	ND	ug/L	1750	--	--
			SVOCs				
SW8270C	1,2,4-Trichlorobenzene	ND	ND	ug/L	5	--	--
E524.2	1,2,4-Trichlorobenzene	ND	ND	ug/L	5	--	--
SW8270C	1,2-Dichlorobenzene	ND	ND	ug/L	600	--	--
E524.2	1,2-Dichlorobenzene	ND	ND	ug/L	600	--	--
E522	1,4-Dioxane	ND	ND	ug/L	1	--	--
SW8270C	1,2-Diphenylhydrazine	ND	ND	ug/L	--	--	--
SW8270C	1,3-Dichlorobenzene	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichlorobenzene	ND	ND	ug/L	--	--	--
SW8270C	1,4-Dichlorobenzene	ND	ND	ug/L	5	--	--
E524.2	1,4-Dichlorobenzene	ND	ND	ug/L	5	--	--
SW8270C	2,4,5-Trichlorophenol	ND	ND	ug/L	--	--	--
SW8270C	2,4,6-Trichlorophenol	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dichlorophenol	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dimethylphenol	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrophenol	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrotoluene	ND	ND	ug/L	--	--	--
SW8270C	2,6-Dinitrotoluene	ND	ND	ug/L	--	--	--
SW8270C	2-Chloronaphthalene	ND	ND	ug/L	--	--	--
SW8270C	2-Chlorophenol	ND	ND	ug/L	--	--	--
SW8270C	2-Methylnaphthalene	ND	ND	ug/L	--	--	--
SW8270C	2-Methylphenol	ND	ND	ug/L	--	--	--
SW8270C	2-Naphthylamine	ND	ND	ug/L	--	--	--
SW8270C	2-Nitroaniline	ND	ND	ug/L	--	--	--
SW8270C	2-Nitrophenol	ND	ND	ug/L	--	--	--
SW8270C	3&4-Methylphenol Coelution	ND	ND	ug/L	--	--	--
SW8270C	3,3'-Dichlorobenzidine	ND	ND	ug/L	--	--	--
SW8270C	3-Nitroaniline	ND	ND	ug/L	--	--	--
SW8270C	4,6-Dinitro-2-methylphenol	ND	ND	ug/L	--	--	--
SW8270C	4-Bromophenyl phenyl ether	ND	ND	ug/L	--	--	--
SW8270C	4-Chloroaniline	ND	ND	ug/L	--	--	--
SW8270C	4-Chlorophenyl phenyl ether	ND	ND	ug/L	--	--	--
SW8270C	4-Nitroaniline	ND	ND	ug/L	--	--	--
SW8270C	4-Nitrophenol	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthene	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthylene	ND	ND	ug/L	--	--	--
E525.2	Acenaphthylene	ND	ND	ug/L	--	--	--
E525.2	Alachlor	ND	ND	ug/L	2	--	--
SW8270C	Aniline	ND	ND	ug/L	--	--	--
SW8270C	Anthracene	ND	ND	ug/L	--	--	--
E525.2	Anthracene	ND	ND	ug/L	--	--	--
E525.2	Atraton	ND	ND	ug/L	--	--	--
E525.2	Atrazine	ND	ND	ug/L	1	--	--
SW8270C	Benz(a)anthracene	ND	ND	ug/L	--	--	--
E525.2	Benz(a)anthracene	ND	ND	ug/L	--	--	--
SW8270C	Benzidine	ND	ND	ug/L	--	--	--
SW8270C	Benzo(a)pyrene	ND	ND	ug/L	0.2	--	--
E525.2	Benzo(a)pyrene	ND	ND	ug/L	0.2	--	--
SW8270C	Benzo(b)fluoranthene	ND	ND	ug/L	--	--	--
E525.2	Benzo(b)fluoranthene	ND	ND	ug/L	--	--	--
SW8270C	Benzo(g,h,i)perylene	ND	ND	ug/L	--	--	--
E525.2	Benzo(g,h,i)perylene	ND	ND	ug/L	--	--	--
SW8270C	Benzo(k)fluoranthene	ND	ND	ug/L	--	--	--
E525.2	Benzo(k)fluoranthene	ND	ND	ug/L	--	--	--
SW8270C	Benzoic acid	ND	ND	ug/L	--	--	--
SW8270C	Benzyl alcohol	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethoxy)methane	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethyl)ether	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroisopropyl)ether	ND	ND	ug/L	--	--	--

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NL = Notification Limit
ND = Non-Detect
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GSI Water Solutions, Inc.

TABLE 6
GROUNDWATER QUALITY
MORRO BAY WELLS
Well HS-1

Method	Analyte	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
SW8270C	bis(2-Ethylhexyl)phthalate	ND	ND	ug/L	--	--	--
E525.2	bis(2-Ethylhexyl)phthalate	ND	ND	ug/L	--	--	--
E525.2	Bromacil	ND	ND	ug/L	--	--	--
SW8270C	Butyl benzyl phthalate	ND	ND	ug/L	--	--	--
E525.2	Butyl benzyl phthalate	ND	ND	ug/L	--	--	--
SW8270C	Chrysene	ND	ND	ug/L	--	--	--
E525.2	Chrysene	ND	ND	ug/L	--	--	--
E525.2	Di(2-ethylhexyl)adipate	ND	ND	ug/L	400	--	1.2
E525.2	Diazinon	ND	ND	ug/L	--	--	--
SW8270C	Dibenz(a,h)anthracene	ND	ND	ug/L	--	--	--
E525.2	Dibenz(a,h)anthracene	ND	ND	ug/L	--	--	--
SW8270C	Dibenzofuran	ND	ND	ug/L	--	--	--
SW8270C	Diethylphthalate	ND	ND	ug/L	--	--	--
E525.2	Dimethoate	ND	ND	ug/L	--	--	--
SW8270C	Dimethylphthalate	ND	ND	ug/L	--	--	--
E525.2	Dimethylphthalate	ND	ND	ug/L	--	--	--
SW8270C	Di-n-butylphthalate	ND	ND	ug/L	--	--	--
E525.2	Di-n-butylphthalate	ND	ND	ug/L	--	--	--
SW8270C	Di-n-octylphthalate	ND	ND	ug/L	--	--	--
SW8270C	Fluoranthene	ND	ND	ug/L	--	--	--
SW8270C	Fluorene	ND	ND	ug/L	--	--	--
E525.2	Fluorene	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorobenzene	ND	ND	ug/L	1	--	--
E525.2	Hexachlorobenzene	ND	ND	ug/L	1	--	--
SW8270C	Hexachlorobutadiene	ND	ND	ug/L	--	--	--
E524.2	Hexachlorobutadiene	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorocyclopentadiene	ND	ND	ug/L	50	--	--
E525.2	Hexachlorocyclopentadiene	ND	ND	ug/L	50	--	--
SW8270C	Hexachloroethane	ND	ND	ug/L	--	--	--
SW8270C	Indeno(1,2,3-cd)pyrene	ND	ND	ug/L	--	--	--
E525.2	Indeno(1,2,3-cd)pyrene	ND	ND	ug/L	--	--	--
SW8270C	Isophorone	ND	ND	ug/L	--	--	--
E525.2	Metolachlor	ND	ND	ug/L	--	--	--
E525.2	Metribuzin	ND	ND	ug/L	--	--	--
E525.2	Molinate	ND	ND	ug/L	20	--	17
SW8270C	Naphthalene	ND	ND	ug/L	--	--	17
E524.2	Naphthalene	ND	ND	ug/L	--	--	--
SW8270C	Nitrobenzene	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodimethylamine	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodi-n-propylamine	ND	ND	ug/L	--	--	--
SW8270C	N-Nitrosodiphenylamine	ND	ND	ug/L	--	--	--
SW8270C	p-Chloro-m-cresol	ND	ND	ug/L	--	--	--
SW8270C	Pentachlorophenol	ND	ND	ug/L	1	--	--
SW8270C	Phenanthrene	ND	ND	ug/L	--	--	--
E525.2	Phenanthrene	ND	ND	ug/L	--	--	--
SW8270C	Phenol	ND	ND	ug/L	--	--	--
E525.2	Prometon	ND	ND	ug/L	--	--	--
E525.2	Prometryn	ND	ND	ug/L	--	--	90
E525.2	Propachlor	ND	ND	ug/L	--	--	--
SW8270C	Pyrene	ND	ND	ug/L	--	--	--
E525.2	Pyrene	ND	ND	ug/L	--	--	--
E525.2	Secbumeton	ND	ND	ug/L	--	--	--
E525.2	Simazine	ND	ND	ug/L	4	--	--
E525.2	Terbutryn	ND	ND	ug/L	--	--	--
E525.2	Thiobencarb	ND	ND	ug/L	70		
PCBs						--	--
E508	PCB-1016	ND	ND	ug/L	--	--	--
E508	PCB-1221	ND	ND	ug/L	--	--	--
E508	PCB-1232	ND	ND	ug/L	--	--	--
E508	PCB-1242	ND	ND	ug/L	--	--	--
E508	PCB-1248	ND	ND	ug/L	--	--	--
E508	PCB-1254	ND	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 6
GROUNDWATER QUALITY
MORRO BAY WELLS
Well HS-1

Method	Analyte	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
E508	PCB-1260	ND	ND	ug/L	--	--	--
E508	Total PCBs	ND	ND	ug/L	0.5		
THAA						--	--
E552.3	Dibromoacetic Acid (DBAA)	ND	ND	ug/L	--	--	--
E552.3	Dichloroacetic Acid (DCA)	ND	ND	ug/L	--	--	--
E552.3	Monobromoacetic acid	ND	ND	ug/L	--	--	--
E552.3	Monochloroacetic Acid (MCA)	ND	ND	ug/L	--	--	--
E552.3	Trichloroacetic Acid (TCAA)	ND	ND	ug/L	--	--	--
E552.3	Trihalomethanes	ND	ND	ug/L	80	--	--
E524.2	Trihalomethanes	ND	ND	ug/L	80	--	--
Radiochemistry							
EPA 900	Gross Alpha	7.79	12.3	pCi/L	15	--	--
EPA900	Gross Beta	5.85	9.84	pCi/L	50	--	--
EPA 903.1	Radium-226	0.519	0.629	pCi/L	3	--	--
EPA 904.0	Radium-228	0.604	0.758	pCi/L	2	--	--
ASTM D5811-95	Strontium-90	0.875	2.01	pCi/L	8	--	--
EPA 906	Tritium	263	267	pCi/L	20000	--	--
Nitroaromatics and Nitrosamines							
EPA 521/SPE	N-Nitrosodiethylamine	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosodimethylamine	ND	ND	ug/L		--	0.01
EPA 521/SPE	N-Nitrosodi-n-butylamine	ND	ND	ug/L	--		
EPA 521/SPE	N-Nitrosodi-n-propylamine	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosomethylethylamine	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosomorpholine	ND	ND	ug/L	--	--	--
EPA 521/SPE	N-Nitrosopiperidine	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosopyrrolidine	ND	ND	ng/L	--	--	--
Dioxins							
EPA 1613B	2,3,7,8-TCDD	0.000003	0.00000217	ug/L	0.00003	--	--
PFAs							
B-15	11-CL-PF3OUDS	ND	ND	ng/L	--	--	--
B-15	9-CL-PF3ONS	ND	ND	ng/L	--	--	--
B-15	ADONA	ND	ND	ng/L	--	--	--
B-15	FTS 4;2		ND	ng/L	--	--	--
B-15	FTS 6:2		ND	ng/L	--	--	--
B-15	FTS 8:2		ND	ng/L	--	--	--
B-15	HFPO-DA	ND	ND	ng/L	--	--	--
B-15	N-ETFOSA	ND	ND	ng/L	--	--	--
B-15	N-ETFOSAA	ND	ND	ng/L	--	--	--
B-15	N-ETFOSE		ND	ng/L	--	--	--
B-15	N-MEFOSA		ND	ng/L	--	--	--
B-15	N-MEFOSAA		ND	ng/L	--	--	--
B-15	N-MEFOSE		ND	ng/L	--	--	--
B-15	PFBA		6.8 J	ng/L	--	--	--
B-15	PFBS	9.8	15	ng/L	--	--	--
B-15	PFDA	ND	ND	ng/L	--	--	--
B-15	PFDOA	ND	ND	ng/L	--	--	--
B-15	PFDS		ND	ng/L	--	--	--
B-15	PFHPA	2.9	ND	ng/L	--	--	--
B-15	PFHPS		ND	ng/L	--	--	--
B-15	PFHXA	3.3	5.4	ng/L	--	--	--
B-15	PFHXS	13	5.6	ng/L	--	--	--
B-15	PFNA	ND	ND	ng/L	--	--	--
B-15	PFNS		ND	ng/L	--	--	--
B-15	PFOA	4.5	5	ng/L	--	--	--
B-15	PFOS	ND	ND	ng/L	--	--	--
B-15	PFOSA		5.5 B J	ng/L	--	--	--
B-15	PFPEA		7.3	ng/L	--	--	--
B-15	PFPES		ND	ng/L	--	--	--
B-15	PFTEDA	ND	ND	ng/L	--	--	--
B-15	PFTRDA	ND	ND	ng/L	--	--	--
B-15	PFUDA	ND	ND	ng/L	--	--	--

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GSI Water Solutions, Inc.

Appendix A

Groundwater Monitoring Plan for Groundwater Replenishment and Reuse Project, Morro Bay, California

GSI Water Solutions, Inc.

TECHNICAL MEMORANDUM

Groundwater Monitoring Plan for Groundwater Replenishment and Reuse Project, Morro Bay, California

To:	Eric Casares, Project Manager
From:	Tim Nicely and Tim Thompson, GSI Water Solutions
CC:	Lydia Holmes, Brynne Weeks, Andrew Salveson
Attachments:	Figures Water Quality Sampling Constituents
Date:	November 24, 2020

Introduction and Purpose

GSI Water Solutions (GSI) is supporting the City of Morro Bay with permitting and installation of a planned indirect potable reuse (IPR) project, which will use highly treated recycled water from the City's forthcoming Water Reclamation Facility (WRF). The installation and operation of a Groundwater Replenishment Reuse Project (GRRP) using IPR (subsurface application) is central to the overall project. As a part of this project, this memo presents our groundwater monitoring plan for the project in accordance with these requirements.

Permitting Requirements for GRRPs

In support of this project, we have prepared this water quality sampling plan based on the requirements of the California Division of Drinking Water for the issuance of a GRRP permit. The Title 22 Code of Regulations provides requirements with regard to characterization of the target aquifer affected by this GRRP project. Specifically, Title 22, Section 60320.200(c) requires the project sponsor conduct the following:

Prior to operating a GRRP, a project sponsor shall collect at least four samples, at least one sample each quarter, from each potentially affected aquifer. The samples shall be representative of water in each aquifer, taking into consideration seasonal variations, and be analyzed for the chemicals, contaminants, and characteristics pursuant to sections 60320.210, 60320.212, 60320.218, and 60320.220.

Background

To date, GSI has conducted a series of studies in support of the City of Morro Bay's goal of establishing an IPR program. Upon consideration of a series of cost-effective alternative uses of the highly treated recycled water to enhance the City's water supply from the new Water Recycling Facility, the planned IPR project in the Lower Morro Valley was selected as the most promising location. Subsequent hydrogeologic assessments, including extensive field characterization and groundwater modeling, supported the selection of the proposed project area, which is located within the City of Morro Bay west of Highway 1 and south of Atascadero Road (Figure 1).

Planned IPR Project

The planned IPR project will involve the injection of highly treated recycled water into several injection wells. Preliminary modeling has indicated that adequate retention time, in compliance with the GRRP requirements can be met prior to extraction at the City's production wells. The location of the first of several injection wells is presented on Figure 2.

Rationale of Monitored Wells

The regulations require quarterly water quality sampling be conducted at "each potentially affected aquifer" for a period of at least four quarters. The proposed IPR program will inject into the so-called lower aquifer of the Lower Morro Valley groundwater basin. Because of variability in the water quality within this aquifer, , sampling will be conducted at four wells to adequately characterize the water quality. .

The wells we propose sampling are presented on Figure 2 and listed below:

- Vistra piezometer,
- 19P-04,
- MB-3 and
- High School Well 2.

These wells are located downgradient of the tentative location of the first injection well and the City's production wells at distances ranging from 500 feet to 1,800 feet away.

The distribution of these wells were selected to characterize the spatial variability of the groundwater quality in the project area. These wells are completed in the same aquifer as the City's production wells and draw groundwater from the planned aquifer in which the IPR project will be conducted.

Sampling Constituents

The groundwater monitoring will be conducted to assess the following DDW-specified constituents from the target aquifer within the Lower Morro Valley pursuant to sections 60320.210, 60320.212, 60320.218, and 60320.220:

- Nitrogen compounds,
- Inorganic chemicals as specified in Table 64431-A
- Radionuclide (Tables 64442 and 64443)
- Organic chemicals (Table 64444-A)
- Disinfection byproducts (Table 64533-A)
- Lead and copper
- Total Organic Carbon
- Priority Toxic Pollutants
- Secondary MCLs (Tables 94449-A and 94449-B)
- Notification Levels
- Additional constituents specified by DDW

The list of specific constituents to be analyzed for each of these quarterly reports is presented in as an attachment. Additionally, field constituents will be measured when each sample is collected from each well including

- Temperature,
- pH,
- dissolved oxygen, and
- oxidation-reduction potential.

Schedule

The first groundwater monitoring sample was collected in September 2020 from a composite sampling location, which represented a blend of water produced from two City production wells (MB-3 and HS-1). Subsequent samples will be conducted starting in December 2020 and continuing through June 2021.

During this period, water level measurements will also be collected at the four wells for future use in establishing quarterly groundwater contour maps. The groundwater level data will be used to determine groundwater gradients and flow directions.

Results

After receiving the water quality results from all four quarters of sampling, we will prepare a memorandum to present the results. The report will include the water quality results from each quarter and well and will provide a comparison for constituent to basin water quality objectives and drinking water standards. The report will address the requirements of Section 60323 for a hydrogeological assessment of the proposed GRRP's setting pursuant to 60320.200 General Requirements (h)), including

- (h)(2) geologic and hydrogeological setting of the basin,
- (h)(3) stratigraphy below the GRRP,
- (h)(4) the results of the four rounds of consecutive quarterly monitoring to capture seasonal impacts
- (h)(4)(A) the existing hydrogeology and hydrogeology anticipated as a results result of the operation of the GRRP, and
- (h)(4)(B) maps showing the quarterly groundwater elevation contours, along with vector flow directions and calculated hydraulic gradients.

The data and report will be incorporated into the Title 22 engineering report submitted pursuant to section 60323.

Figures

FIGURE 1

Site Vicinity Map

Groundwater Replenishment Reuse Project

Morro Bay, California

LEGEND

- City Production Well
- Seawater Intake Well
- Model Active Area

All Other Features

- City Boundary
- Major Road
- Road
- Watercourse

N

0 500 1,000
Feet

Date: October 26, 2020
Data Sources: USGS, ESRI, City of Morro Bay

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\GW_Replenishment_Reuse_Project\Figure1_SiteVicinity.mxd

FIGURE 2

Proposed Groundwater Monitoring Wells

Groundwater Replenishment Reuse Project

Morro Bay, California

LEGEND

- Proposed Groundwater Monitoring Well (existing)
- Bike Path
- Project Area
- Tentative Initial Injection Well Location Area
- Major Road
- Watercourse

N

0 200 400
Feet

Date: October 26, 2020
Data Sources: USGS, ESRI

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\GW_Replenishment_Reuse_Project\Figure2_Proposed_GW_Monitoring_Wells.mxd

Water Quality Sampling Constituents

General Notes: For Priortity Toxic Pollutants, from 40 CFR Section 131.38, the Criterion Maximum Concentration for Freshwater was listed for each compound, if given. Otherwise, this column was left blank.

[Blank spaces indicate the absence of national section 304(a) criteria guidance.]

Some constituents found in 40 CFR Section 131.38 were already referenced in previous sections, and were omitted from the table below to avoid redundant inclusion.

Constituent	Laboratory Analytical Method	Required per Code	Reference Table/Section	Footnotes, if Applicable	Maximum Contaminant Level (MCL)	Units	BC Lab Method	BC Lab MDL	BC Lab PQL	BC Lab Units	Round 1 Sampling		Round 2 Sampling		Round 3 Sampling		Round 4 Sampling	
											Date	Results	Date	Results	Date	Results	Date	Results
Cyanide	4500-CN	60320.212	64431-A		0.15	mg/L	335.4	0.0017	0.005	mg/L								
Chromium (III)	calculation	60320.220	40 CFR - Section 131.38	e, i, m, o	550	µg/L	calculation	5	10	µg/L								
Nitrate + Nitrite (sum as Nitrogen)	calculation	60320.212	64431-A		10	mg/L	calculation	0.018	0.1	mg/L								
Total Nitrogen	calculation (300.0 + 351.2)	60320.210			10	mg/L	calculation	0.1	0.3	mg/L								
Asbestos	EPA 100.2	60320.212	64431-A		7 MFL	MFL (million fibers per liter)	SUB											
2,3,7,8-TCDD (Dioxin)	EPA 1613	60320.212	64444-A		3.00E-08	pg/L												
Aluminum	EPA 200.7	60320.212	64431-A		1	mg/L	200.7	0.026	0.05	mg/L								
Barium	EPA 200.7	60320.212	64431-A		1	mg/L	200.7	0.0035	0.01	mg/L								
Boron	EPA 200.7	DDW NL			1	mg/L	200.7	0.01	0.1	mg/L								
Iron	EPA 200.7	60320.212	64449-A		0.3	mg/L	200.7	0.03	0.05	mg/L								
Manganese	EPA 200.7	60320.212	64449-A		0.05	mg/L	200.7	0.004	0.01	mg/L								
Antimony	EPA 200.8	60320.212	64431-A		0.006	mg/L	200.8	0.11	2	ug/L								
Antimony	EPA 200.8	60320.220	40 CFR - Section 131.38			ug/L	200.8	0.11	2	ug/L								
Aresenic	EPA 200.8	60320.212	64431-A		0.01	mg/L	200.8	0.7	2	ug/L								
Arsenic	EPA 200.8	60320.220	40 CFR - Section 131.38		340	mg/L	200.8	0.7	2	ug/L								
Beryllium	EPA 200.8	60320.212	64431-A		0.004	mg/L	200.8	0.14	1	ug/L								
Cadmium	EPA 200.8	60320.212	64431-A		0.005	mg/L	200.8	0.11	1	ug/L								
Chromium	EPA 200.8	60320.212	64431-A		0.05	mg/L	200.8	0.5	3	ug/L								
Copper	EPA 200.8	60320.212	64449-A		1	mg/L	200.8	0.22	2	ug/L								
Lead	EPA 200.8	60320.212				ug/L	200.8	0.1	1	ug/L								
Mercury	EPA 200.8	60320.212	64431-A		0.002	mg/L	200.8	0.066	0.2	ug/L								
Nickle	EPA 200.8	60320.212	64431-A		0.1	mg/L	200.8	0.19	2	ug/L								
Selenium	EPA 200.8	60320.220	40 CFR - Section 131.38	p	Reserved	ug/L	200.8	0.19	2	ug/L								
Silver	EPA 200.8	60320.212	64449-A		0.1	mg/L	200.8	0.1	1	ug/L								
Thallium	EPA 200.8	60320.220	40 CFR - Section 131.38			ug/L	200.8	0.1	1	ug/L								
Uranium	EPA 200.8	60320.212	64442		20	pCi/L	200.8	0.067	0.67	pCi/L								
Vanadium	EPA 200.8	DDW NL			0.05	mg/L	200.8	0.78	3	mg/L								
Zinc	EPA 200.8	60320.212	64449-A		5	mg/L	200.8	1.7	10	ug/L								
Hexavalent Chromium	EPA 218.7	60320.212	64431-A		0.01	mg/L	218.6	0.02	0.2	ug/L								
Chloride	EPA 300	60320.212	64449-B		250 (recommended)	mg/L	300	0.13	0.5	mg/L								
Chlorite	EPA 300	60320.212	64533-A		1	mg/L	SUB			mg/L								
Fluoride	EPA 300	60320.212	64431-A		2	mg/L	300	0.025	0.05	mg/L								
Nitrate (as Nitrogen)	EPA 300	60320.212	64431-A		10	mg/L	300	0.024	0.1	mg/L								
Nitrite (as Nitrogen)	EPA 300	60320.212	64431-A		1	mg/L	353.2	0.01	0.05	mg/L								
Sulfate	EPA 300	60320.212	64449-B		250 (recommended)	mg/L	300	0.14	1	mg/L								
Chlorate	EPA 300.1	DDW NL			0.8	mg/L	SUB			mg/L								
Perchlorate	EPA 314	60320.212	64431-A		0.006	mg/L	314	0.00081	0.004	mg/L								
Bromate	EPA 317	60320.212	64533-A		0.01	mg/L	SUB											
Dibromochloropropane	EPA 504	60320.212	64444-A		0.0002	mg/L	504	0.0022	0.01	ug/L								
Ethylene dibromide	EPA 504	60320.212	64444-A		0.00005	mg/L	504	0.0042	0.01	ug/L								
Aldrin	EPA 505	60320.220	40 CFR - Section 131.38	g	3	µg/L	508	0.00095	0.005	ug/L								
Polychlorinated biphenyls	EPA 505	60320.212	64444-A		0.0005	mg/L	508	0.1	0.2	ug/L								
2,4,5-TP (Silvex)	EPA 515	60320.212	64444-A		0.05	mg/L	515	0.032	0.07	ug/L								
2,4-D	EPA 515	60320.212	64444-A		0.07	mg/L	515	0.18	0.4	ug/L								
Bentazon	EPA 515	60320.212	64444-A		0.018	mg/L	515	0.22	0.8	ug/L								
Dalapon	EPA 515	60320.212	64444-A		0.2	mg/L	515	0.31	5	ug/L								
Dinoseb	EPA 515	60320.212	64444-A		0.007	mg/L	515	0.057	0.2	ug/L								
Picloram	EPA 515	60320.212	64444-A		0.5	mg/L	515	0.059	0.1	ug/L								
N-Nitrosodiethylamine (NDEA)	EPA 521	DDW NL			0.00001	mg/L	SUB											
N-Nitrosodimethylamine	EPA 521	60320.220	40 CFR - Section 131.38			µg/L	SUB											
N-Nitrosodimethylamine (NDMA)	EPA 521	DDW NL			0.00001	mg/L	SUB											
N-Nitrosodi-n-Propylamine	EPA 521	60320.220	40 CFR - Section 131.38			µg/L	SUB											
N-Nitrosodi-n-propylamine (NDPA)	EPA 521	DDW NL			0.00001	mg/L	SUB											
N-nitrosodiphenylamine	EPA 521	60320.220	40 CFR - Section 131.38			µg/L	SUB											
1,4-Dioxane	EPA 522	DDW NL			0.001	mg/L	SUB											
1,1,1-Trichloroethane	EPA 524	60320.212	64444-A		0.2	mg/L	524	0.21	0.5	ug/L								
1,1,2,2-Tetrachloroethane	EPA 524	60320.212	64444-A		0.001	mg/L	524	0.17	0.5	ug/L								
1,1,2-Trichloro- 1,2,2-Trifluoroethane	EPA 524	60320.212	64444-A		1.2	mg/L	524	0.19	0.5	ug/L								
1,1,2-Trichloroethane	EPA 524	60320.212	64444-A		0.005	mg/L	524	0.21	0.5	ug/L								
1,1-Dichloroethane	EPA 524	60320.212	64444-A		0.005	mg/L	524	0.15	0.5	ug/L								
1,1-Dichloroethylene	EPA 524	60320.212	64444-A		0.006	mg/L	524	0.27	0.5	ug/L								
1,2 dichlorobenzene	EPA 524	60320.220	40 CFR - Section 131.38			ug/L	524	0.21	0.5	ug/L								
1,2,4-Trichlorobenzene	EPA 524	60320.212	64444-A		0.005	mg/L	524	0.15	0.5	ug/L								
1,2,4-Trimethylbenzene	EPA 524	DDW NL			0.33	mg/L	524	0.17	0.5	ug/L								
1,2-Dichlorobenzene	EPA 524	60320.212	64444-A		0.6	mg/L	524	0.21	0.5	ug/L								
1,2-Dichloroethane	EPA 524	60320.212	64444-A		0.0005	mg/L	524	0.17	0.5	ug/L								
1,2-Dichloropropane	EPA 524	60320.212	64444-A		0.005	mg/L	524	0.15	0.5	ug/L								
1,2-trans-dichloroethylene	EPA 524	60320.220	40 CFR - Section 131.38			ug/L	524	0.17	0.5	ug/L								
1,3 dichlororbenzene	EPA 524	60320.220	40 CFR - Section 131.38			ug/L	524	0.16	0.5	ug/L								
1,3,5-Trimethylbenzene	EPA 524	DDW NL			0.33	mg/L	524	0.14	0.5	ug/L								
1,3-Dichloropropene	EPA 524	60320.212	64444-A		0.0005	mg/L	524	0.27	0.5	µg/L								
1,3-Dichloropropylene	EPA 524	60320.220	40 CFR - Section 131.38			ug/L	524	0.14	0.5	µg/L								
1,4 dichlorobenzene	EPA 524	60320.220	40 CFR - Section 131.38			ug/L	524	0.15	0.5	ug/L								
1,4-Dichlorobenzene	EPA 524	60320.212	64444-A		0.005	mg/L	524	0.15	0.5	ug/L								
2,4,6-trichlorophenol	EPA 524	60320.220	40 CFR - Section 131.38			ug/L	8270	0.2	5	ug/L								
2-Chlorotoluene	EPA 524	DDW NL			0.14	mg/L	524	0.14	0.5	ug/L								
4-Chlorotoluene	EPA 524	DDW NL			0.14	mg/L	524	0.093	0.5	ug/L								
Benzene	EPA 524	60320.212	64444-A		0.001	mg/L	524	0.11	0.5	ug/L								

General Notes:

For Priortity Toxic Pollutants, from 40 CFR Section 131.38, the Criterion Maximum Concentration for Freshwater was listed for each compound, if given. Otherwise, this column was left blank.
Blank spaces indicate the absence of national section 304(a) criteria guidance.
Some constituents found in 40 CFR Section 131.38 were already referenced in previous sections, and were omitted from the table below to avoid redundant inclusion.

Constituent	Laboratory Analytical Method	Required per Code	Reference Table/Section	Footnotes, if Applicable	Maximum Contaminant Level (MCL)	Units	BC Lab Method	BC Lab MDL	BC Lab PQL	BC Lab Units	Round 1 Sampling		Round 2 Sampling		Round 3 Sampling		Round 4 Sampling	
											Date	Results	Date	Results	Date	Results	Date	Results
Benzo(a)pyrene	EPA 524	60320.212	64444-A		0.0002	ug/L	525	0.05	0.1	µg/L								
Bromodichloromethane	EPA 524	60320.212	64533-A		0.001 (Limit for reporting)	ug/L	524	0.2	0.5	ug/L								
Bromoform	EPA 524	60320.212	64533-A		0.001 (Limit for reporting)	ug/L	524	0.46	0.5	ug/L								
Carbon disulfide	EPA 524	DDW NL			0.16	mg/L	524	0.48	0.5	ug/L								
Carbon Tertrachloride	EPA 524	60320.212	64444-A		0.0005	ug/L	524	0.17	0.5	ug/L								
Chlorobenzene	EPA 524	60320.220	40 CFR - Section 131.38			ug/L	524	0.14	0.5	ug/L								
Chlorodibromomethane	EPA 524	60320.220	40 CFR - Section 131.38			ug/L	524	0.22	0.5	µg/L								
Chloroethane	EPA 524	60320.220	40 CFR - Section 131.38			ug/L	524	0.17	0.5	ug/L								
Chloroform	EPA 524	60320.212	64533-A		0.001 (Limit for reporting)	ug/L	524	0.14	0.5	ug/L								
cis-1,2-Dichloroethylene	EPA 524	60320.212	64444-A		0.006	ug/L	524	0.27	0.5	ug/L								
Dibromochloromethane	EPA 524	60320.212	64533-A		0.001 (Limit for reporting)	ug/L	524	0.22	0.5	ug/L								
Dichlorobromomethane	EPA 524	60320.220	40 CFR - Section 131.38			ug/L	524	0.2	0.5	µg/L								
Dichlorodifluoromethane (Freon 12)	EPA 524	DDW NL			1	mg/L	524	0.15	0.5	ug/L								
Dichloromethane	EPA 524	60320.212	64444-A		0.005	mg/L	524	0.21	0.5	µg/L								
Ethylbenzene	EPA 524	60320.212	64444-A		0.3	mg/L	524	0.15	0.5	ug/L								
Isopropylbenzene	EPA 524	DDW NL			0.77	mg/L	524	0.14	0.5	ug/L								
methyl bromide	EPA 524	60320.220	40 CFR - Section 131.38			ug/L	524	0.2	0.5	µg/L								
methyl chloride	EPA 524	60320.220	40 CFR - Section 131.38			ug/L	524	0.21	0.5	ug/L								
Methyl isobutyl ketone (MIBK)	EPA 524	DDW NL			0.12	mg/L	524	2.4	5	ug/L								
methylene chloride	EPA 524	60320.220	40 CFR - Section 131.38			ug/L	524	0.21	0.5	ug/L								
Methyl-tert-butyl ether	EPA 524	60320.212	64444-A		0.013	mg/L	524	0.14	0.5	ug/L								
Methyl-tet-butyl ether (MTBE)	EPA 524	60320.212	64449-A		0.005	ug/L	524	0.14	0.5	ug/L								
Monochlorobenzene	EPA 524	60320.212	64444-A		0.07	mg/L	524	0.14	0.5	µg/L								
Naphthalene	EPA 524	DDW NL			0.017	mg/L	524	0.16	0.5	ug/L								
n-Butylbenzene	EPA 524	DDW NL			0.26	mg/L	524	0.15	0.5	ug/L								
n-Propylbenzene	EPA 524	DDW NL			0.26	mg/L	524	0.12	0.5	ug/L								
sec-Butylbenzene	EPA 524	DDW NL			0.26	mg/L	524	0.5	0.13	ug/L								
Styrene	EPA 524	60320.212	64444-A		0.1	mg/L	524	0.12	0.5	ug/L								
tert-Butylbenzene	EPA 524	DDW NL			0.26	mg/L	524	0.18	0.5	ug/L								
Tertiary butyl alcohol (TBA)	EPA 524	DDW NL			0.012	mg/L	524	2	2	ug/L								
Tetrachloroethylene	EPA 524	60320.212	64444-A		0.005	ug/L	524	0.23	0.5	µg/L								
Toluene	EPA 524	60320.212	64444-A		0.15	mg/L	524	0.17	0.5	ug/L								
Total trihalomethanes (TTHM)	EPA 524	60320.212	64533-A		0.08	mg/L	524	0.97	2	ug/L								
trans-1,2-Dichloroethylene	EPA 524	60320.212	64444-A		0.01	mg/L	524	0.17	0.5	ug/L								
Trichloroethylene	EPA 524	60320.212	64444-A		0.005	mg/L	524	0.19	0.5	ug/L								
Trichlorofluoromethane	EPA 524	60320.212	64444-A		0.15	mg/L	524	0.14	0.5	ug/L								
Vinyl Chloride	EPA 524	60320.212	64444-A		0.0005	mg/L	524	0.18	0.5	ug/L								
Xylenes	EPA 524	60320.212	64444-A		1.75	mg/L	524	0.47	0.5	ug/L								
Alachlor	EPA 525	60320.212	64444-A		0.002	mg/L	525	0.09	0.2	ug/L								
Atrazine	EPA 525	60320.212	64444-A		0.001	mg/L	525	0.14	0.3	ug/L								
Diazinon	EPA 525	DDW NL			0.0012	mg/L	525	0.08	0.2	ug/L								
Molinate	EPA 525	60320.212	64444-A		0.02	mg/L	525	0.036	0.5	ug/L								
Propachlor	EPA 525	DDW NL			0.09	mg/L	525	0.077	0.5	ug/L								
Simazine	EPA 525	60320.212	64444-A		0.004	ug/L	525	0.066	0.3	ug/L								
Thiobencarb	EPA 525	60320.212	64444-A	**MCL=70 ppb, DLR=1ppb**	0.07	ug/L	525	0.044	0.5	ug/L								
Thiobencarb	EPA 525	60320.212	64449-A	**MCL=70 ppb, DLR=1ppb**	0.001	ug/L	525	0.044	0.5	ug/L								
Carbofuran	EPA 531	60320.212	64444-A		0.018	ug/L	531	0.67	5	ug/L								
Oxamyl	EPA 531	60320.212	64444-A		0.05	ug/L	531	0.79	5	ug/L								
Perfluorooctanesulfonic acid (PFOS)	EPA 537	DDW NL			0.000013	mg/L	SUB											
Perfluorooctanoic acid (PFOA)	EPA 537	DDW NL			0.000014	mg/L	SUB											
Glyphosate	EPA 547	60320.212	64444-A		0.7	mg/L	SUB											
Endothall	EPA 548	60320.212	64444-A		0.1	mg/L	548	0.53	2	µg/L								
Diquat	EPA 549	60320.212	64444-A		0.02	mg/L	549	1.3	4	µg/L								
Dibromoacetic acid	EPA 552	60320.212	64533-A		0.001 (Limit for reporting)	mg/L	552	0.32	1	µg/L								
Dichloroacetic acid	EPA 552	60320.212	64533-A		0.001 (Limit for reporting)	mg/L	552	0.29	1	µg/L								
Haloacetic acids (five) (HAA5)	EPA 552	60320.212	64533-A		0.06	mg/L	552	1	1	µg/L								
Monobromoacetic acid	EPA 552	60320.212	64533-A		0.001 (Limit for reporting)	mg/L	552	0.25	1	µg/L								
Monochloroacetic acid	EPA 552	60320.212	64533-A		0.002 (Limit for reporting)	mg/L	552	0.61	1	µg/L								
Trichloroacetic acid	EPA 552	60320.212	64533-A		0.001 (Limit for reporting)	mg/L	552	0.36	1	µg/L								
Formaldehyde	EPA 556	DDW NL			0.1	mg/L	556	0.7	5	µg/L								
Lithium	EPA 6020 or EPA 200.8.	Basin Plan WQO		**EPA 200.7**		µg/L	200.7	6.2	20	µg/L								
Ethylene glycol	EPA 8015-EG	DDW NL			14	mg/L	SUB											
4,4'-DDD	EPA 8081	60320.220	40 CFR - Section 131.38	**EPA 525**		µg/L	508	0.00086	0.005	µg/L								
4,4'-DDE	EPA 8081	60320.220	40 CFR - Section 131.38	**EPA 525**		µg/L	508	0.0013	0.005	µg/L								
4,4'-DDT	EPA 8081	60320.220	40 CFR - Section 131.38	**EPA 525**	1.1	µg/L	508	0.00096	0.005	µg/L								
aplha-BHC	EPA 8081	60320.220	40 CFR - Section 131.38	**EPA 525**		µg/L	508	0.0005	0.005	µg/L								
aplha-endosulfan	EPA 8081	60320.220	40 CFR - Section 131.38	g, **EPA 525**	0.22	µg/L	508	0.00068	0.005	µg/L								
beta-BHC	EPA 8081	60320.220	40 CFR - Section 131.38	**EPA 525**		µg/L	508	0.00064	0.005	µg/L								
beta-endosulfan	EPA 8081	60320.220	40 CFR - Section 131.38	g, **EPA 525**	0.22	µg/L	508	0.00098	0.005	µg/L								
Chlordane	EPA 8081	60320.212	64444-A	**EPA 505**	0.0001	mg/L	508	0.045	0.01	µg/L								
chlorodane	EPA 8081	60320.220	40 CFR - Section 131.38	g, **EPA 505**	2.4	µg/L	508	0.045	0.01	µg/L								
delta-BHC	EPA 8081	60320.220	40 CFR - Section 131.38	**EPA 525**		µg/L	508	0.0015	0.005	µg/L								
Dieldrin	EPA 8081	60320.220	40 CFR - Section 131.38	w, **EPA 505**	0.24	µg/L	508	0.0011	0.005	µg/L								
endosulfan sulfate	EPA 8081	60320.220	40 CFR - Section 131.38	**EPA 525**		µg/L	508	0.00055	0.005	µg/L								
Endrin	EPA 8081	60320.212	64444-A	**EPA 505**	0.002	µg/L	508	0.00069	0.005	µg/L								
endrin aldehyde	EPA 8081	60320.220	40 CFR - Section 131.38	**EPA 525**		µg/L	508	0.00054	0.01	µg/L								
gamma-BHC	EPA 8081	60320.220	40 CFR - Section 131.38	w, **EPA 505**	0.95	µg/L	508	0.00067	0.005	µg/L								
Heptachlor	EPA 8081	60320.220	40 CFR - Section 131.38	g, **EPA 505**	0.52	µg/L	508	0.00094	0.005	µg/L								
Heptachlor epoxide	EPA 8081	60320.212	64444-A	**EPA 505**	0.00001	µg/L	508	0.00064	0.005	µg/L								
Lindane	EPA 8081	60320.212	64444-A	w, **EPA 505**	0.0002	µg/L	508	0.00067	0.005	µg/L								
Methoxychlor	EPA 8081	60320.212	64444-A	**EPA 505**	0.03	µg/L	508	0.0037	0.005	µg/L								
Toxaphene	EPA 8081	60320.212	64444-A	**EPA 505**	0.003	mg/L	508	0.2	1	µg/L								

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Some constituents found in 40 CFR Section 131.38 were already referenced in previous sections, and were omitted from the table below to avoid redundant inclusion.

Constituent	Laboratory Analytical Method	Required per Code	Reference Table/Section	Footnotes, if Applicable	Maximum Contaminant Level (MCL)	Units	BC Lab Method	BC Lab MDL	BC Lab PQL	BC Lab Units	Round 1 Sampling		Round 2 Sampling		Round 3 Sampling		Round 4 Sampling	
											Date	Results	Date	Results	Date	Results	Date	Results
2-Chloroethylvinyl ether	EPA 8260	60320.220	40 CFR - Section 131.38			µg/L	8260	2.4	10	µg/L								
Acrolein	EPA 8260	60320.220	40 CFR - Section 131.38			µg/L	8260	7.9	10	µg/L								
Acrylonitrile	EPA 8260	60320.220	40 CFR - Section 131.38			µg/L	8260	1.2	5	µg/L								
1,2-dephenylhydrazine	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
2,4-dichlorophenol	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.23	2	µg/L								
2,4-dinitrophenol	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	10	µg/L								
2,4-Dinitrotoluene	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.4	2	µg/L								
2,6-Dinitrotoluene	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
2-Chloronaphthalene	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
2-chlorophenol	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
2-methyl-4,6-dinitrolphenol	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.24	10	µg/L								
2-nitrophenol	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
3,3'-dichlorobenzidine	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.53	10	µg/L								
3-methyl-4-chlorophenol	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.4	2	µg/L								
4-bromophenyl Phenyl Ether	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
4-chlorophenyl phenyl ether	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
4-nitrophenol	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.3	2	µg/L								
acenaphthene	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
acenaphthylene	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
anthracene	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
Benzidine	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	1.6	20	µg/L								
Benzo(a)Anthracene	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.21	2	µg/L								
benzo(a)fluoranthene	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.24	2	µg/L								
benzo(ghi)Perylene	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.33	2	µg/L								
Benzo(k)Fluoranthene	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.3	2	µg/L								
Bis(2-chloroethethyl)ether	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.31	2	µg/L								
Bis(2-chloroethoxy)methane	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
Bis(2-chloroisopropyl)ether	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
Bis(2-ethylhexyl)Phthalate	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	4	µg/L								
Butlbenzyl phthalate	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
Chrysene	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
Di(2-ethylhexyl)adipate	EPA 8270	60320.212	64444-A		0.4	mg/L	525	0.025	1	µg/L								
Di(2-ethylhexyl)phthalate	EPA 8270	60320.212	64444-A		0.004	mg/L	8270	0.2	4	µg/L								
Dibenzo(a,h)Anthracene	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.34	3	µg/L								
Diethyl phthalate	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
Dimethyl Phthalate	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
Di-n-butyl phthalate	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
Di-n-octyl phthalate	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.21	2	µg/L								
Fluoranthene	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.28	2	µg/L								
Fluorene	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
Hexachlorobenzene	EPA 8270	60320.212	64444-A		0.001	mg/L	8270	0.25	2	µg/L								
Hexachlorobutadiene	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
Hexachlorocyclopentadiene	EPA 8270	60320.212	64444-A		0.05	mg/L	8270	0.31	2	µg/L								
Hexachloroethane	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
Indeno(1,2,3-cd) Pyrene	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.29	2	µg/L								
Isophorone	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
Naphthalene	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
Nitrobenzene	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
Pentachlorophenol	EPA 8270	60320.212	64444-A		0.001	mg/L	8270	0.4	10	µg/L								
Phenanthrene	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.2	2	µg/L								
phenol	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.21	2	µg/L								
Pyrene	EPA 8270	60320.220	40 CFR - Section 131.38			µg/L	8270	0.22	2	µg/L								
2,4,6-Trinitrotoluene (TNT)	EPA 8330B	DDW NL			0.001	mg/L	8330B	0.2	2	µg/L								
HMX	EPA 8330B	DDW NL			0.35	mg/L	8330B	0.2	1	µg/L								
RDX	EPA 8330B	DDW NL			0.0003	mg/L	8330B	0.42	1	µg/L								
Beta/photon emitters	EPA 900	60320.212	64443		4	millirem/year annual dose equivalent to the total body or any internal organ	SUB											
Gross alpha particle activity (excluding radon and uranium)	EPA 900	60320.212	64442		15	pCi/L	SUB											
Radium-226	EPA 903	60320.212	64442	GA Method	5 (combined Radium-226 & -228)	pCi/L	SUB											
Strontium-90	EPA 905	60320.212	64443		8	pCi/L	SUB											
Tritium	EPA 906	60320.212	64443		20,000	pCi/L	SUB											
Radium-228	EPA Ra-05	60320.212	64442	GA Method	5 (combined Radium-226 & -228)	pCi/L	SUB											
Color	SM 2120 B	60320.212	64449-A		15	CU	SM 2120 B	1	1	CU								
Turbidity	SM 2130 B	60320.212	64449-A		5	NTU	SM 2130 B	0.1	0.1	NTU								
Odor - threshold	SM 2150 B	60320.212	64449-A		3	T.O.N.	SM 2150 B	1	1	T.O.N.								
Specific Conductance	SM 2510 B	60320.212	64449-B		900 (recommended)	µS/cm	SM 2510 B	1	1	µS/cm								
Total Dissolved Solids	SM 2540C	60320.212	64449-B		500 (recommended)	mg/L	SM 2540C	5	10	mg/L								
Total Organic Carbon	SM 5310 C	60320.218			0.5	mg/L	SM 5310 C	0.3	1	mg/L								
Foaming Agents (MBAS)	SM 5540C	60320.212	64449-A		0.5	mg/L	SM 5540C	0.024	0.1	mg/L								
1,2,3-Trichloropropane (1,2,3-TCP)	SRL 524M-TCP	DDW NL		or low level?	5.00	ng/L	SRL 524M-TCP	0.0006	0.0007	µg/L								
Cobalt		Basin Plan WQO					200.8	0.1	1	µg/L								
Molybdenum		Basin Plan WQO					200.8	0.11	1	µg/L								

Appendix B

Morro Bay Quarterly Sampling Events

Field Sampling Logs

High Scho[redacted]

REPORT OF GROUND WATER PURGING/SAMPLING DATA

Job No:	Well ID No: [redacted]	4/27/21	M (T) W T F S S
Client: Morro Bay WWTP		Project: GW Replenishment and Reuse Project – Morro Bay	
Location: Morro Bay, CA		Weather: Sunny	
Observer: John G.		Observation Period:	

PURGING DATA

A	Total depth of well (feet)	40		
B	Static water level (feet, date time)	0		
C	Depth of water column (feet) (A - B=C)	40	VOLUME MULTIPLIER	
D	Volume multiplier (gal/ft)	4	Casing diameter, 1-inch	0.0408 gal/ft
E	Casing volume, one (gal) (C x D=E)	163	Casing diameter, 2-inch	0.16 gal/ft
F	Casing volume, three (gal) (3 x E=F)	490	Casing diameter, 3-inch	0.367 gal/ft
G	Flow meter start / stop (gallons)		Casing diameter, 4-inch	0.65 gal/ft
H	Purge, time start	0807	Casing diameter, 6-inch	1.46 gal/ft
I	Purge rate (gallons / minute)	120	CONVERSION EQUIVALENTS	
J	Purge, time stop	0840	1 Gallon	231 inches^3
K	Total time of purge	33	1 Foot^3	1728 inches^3 = 7.5 gallons
L	Actual purge volume (gallons)	3000	Area of circle	πr^2
M	Type of purge pump	Submersible		
N	Comments:			
	~~No sample to be collected in July and January. This and shallow wells to be sampled April and October.~~			

INDICATOR DATA

Parameter	Before Purge	0820 ~~0807~~	0825	0830	0835	0840	At Sampling
Temperature (C)		19.5	19.5	19.5	19.5	19.5	
~~Conductivity (uS/cm)~~ ORP		182	137	135	127	127	
pH		7.1	7.0	7.0	7.0	7.0	
~~Turbidity~~ DO *		1.47	1.45	1.37	1.43	1.45	

SAMPLING DATA

Sample No.	Date	Time (military)	Sampling Device	Type of Container	Number of Containers	Preservative	Laboratory Tests A	B	C	D	E	F

Depth of water at sampling

Comments: * Cloudy air during purge and sampling. Air from well.

Test Method
A
B
C
D
E
F

REPORT OF GROUND WATER PURGING/SAMPLING DATA

GSI Water Solutions, Inc.

Job No:	Well ID No.: MB-3	4/27/21	M	(T)	W	T	F	S	S

Client: Morro Bay WWTP	Project: GW Replenishment and Reuse Project – Morro Bay
Location: Morro Bay, CA	Weather: Sunny
Observer: John G.	Observation Period:

PURGING DATA

A	Total depth of well (feet)	65		
B	Static water level (feet, date time)	0		
C	Depth of water column (feet) (A - B=C)	65	VOLUME MULTIPLIER	
D	Volume multiplier (gal/ft)	5.88	Casing diameter, 1-inch	0.0408 gal/ft
E	Casing volume, one (gal) (C x D=E)	382	Casing diameter, 2-inch	0.16 gal/ft
F	Casing volume, three (gal) (3 x E=F)	1147	Casing diameter, 3-inch	0.367 gal/ft
G	Flow meter start / stop (gallons)		Casing diameter, 4-inch	0.65 gal/ft
H	Purge, time start	1010	Casing diameter, 6-inch	1.46 gal/ft
I	Purge rate (gallons / minute)	200	CONVERSION EQUIVALENTS	
J	Purge, time stop	1028	1 Gallon	231 inches^3
K	Total time of purge	18	1 Foot^3	1728 inches^3 = 7.5 gallons
L	Actual purge volume (gallons)	3800	Area of circle	πr^2
M	Type of purge pump	Submersible		
N	Comments:			
	~~No sample to be collected in July and January. This and shallow wells to be sampled April and October.~~			

INDICATOR DATA

Parameter	Before Purge	1013	1018	1023	1028	~~1033~~	At Sampling
Temperature (C)		18.6	18.8	18.8	18.8		
~~Conductivity (uS/cm)~~ ORP		97	107	108	108		
pH		7.3	7.2	7.2	7.2		
~~Turbidity~~ DO		.55	0.34	0.30	0.28		

SAMPLING DATA

Sample No.	Date	Time (military)	Sampling Device	Type of Container	Number of Containers	Preservative	Laboratory Tests A	B	C	D	E	F

Depth of water at sampling	Test Method	A
Comments:		B
		C
		D
		E
		F

REPORT OF GROUND WATER PURGING/SAMPLING DATA

GSI Water Solutions, Inc.

Job No:	Well ID No.: 19P-04	4/27/21	M	(T)	W	T	F	S	S
Client: Morro Bay WWTP		Project: GW Replenishment and Reuse Project – Morro Bay							
Location: Morro Bay, CA		Weather: Sunny							
Observer: John G.		Observation Period:							

PURGING DATA

A	Total depth of well (feet)	58		
B	Static water level (feet, date time)	15.5		
C	Depth of water column (feet) (A - B=C)	54.5	VOLUME MULTIPLIER	
D	Volume multiplier (gal/ft)	0.16	Casing diameter, 1-inch	0.0408 gal/ft
E	Casing volume, one (gal) (C x D=E)	8.72	Casing diameter, 2-inch	0.16 gal/ft
F	Casing volume, three (gal) (3 x E=F)	26.16	Casing diameter, 3-inch	0.367 gal/ft
G	Flow meter start / stop (gallons)		Casing diameter, 4-inch	0.65 gal/ft
H	Purge, time start	1128	Casing diameter, 6-inch	1.46 gal/ft
I	Purge rate (gallons / minute)	1.6	CONVERSION EQUIVALENTS	
J	Purge, time stop	1150 ~~115~~	1 Gallon	231 inches³
K	Total time of purge	12	1 Foot³	1728 inches³ = 7.5 gallons
L	Actual purge volume (gallons)	48	Area of circle	πr²
M	Type of purge pump	monsoon		
N	Comments:			
	~~No sample to be collected in July and January. This and shallow wells to be sampled April and October.~~			

INDICATOR DATA

Parameter	Before Purge	1135	1140	1145	1150		At Sampling
Temperature (C)		15.9	15.9	15.8	15.8		
~~Conductivity (uS/cm)~~ ORP		101	97	96	95		
pH		7.6	7.5	7.5	7.5		
~~Turbidity~~ DO		0.33	0.24	0.21	0.19		

SAMPLING DATA

Sample No.	Date	Time (military)	Sampling Device	Type of Container	Number of Containers	Preservative	Laboratory Tests A	B	C	D	E	F

Depth of water at sampling	Test Method	A
Comments:		B
		C
		D
		E
		F

REPORT OF GROUND WATER PURGING/SAMPLING DATA

GSI Water Solutions, Inc.

Job No:	Well ID No.: Vistra	4/27/21	M	(T)	W	T	F	S	S

Client: Morro Bay WWTP	Project: GW Replenishment and Reuse Project – Morro Bay
Location: Morro Bay, CA	Weather: Sunny
Observer: John G.	Observation Period:

PURGING DATA

A	Total depth of well (feet)	60		
B	Static water level (feet, date time)	15		
C	Depth of water column (feet) (A - B=C)	45	VOLUME MULTIPLIER	
D	Volume multiplier (gal/ft)	.16	Casing diameter, 1-inch	0.0408 gal/ft
E	Casing volume, one (gal) (C x D=E)	7.2	Casing diameter, 2-inch	0.16 gal/ft
F	Casing volume, three (gal) (3 x E=F)	21.6	Casing diameter, 3-inch	0.367 gal/ft
G	Flow meter start / stop (gallons)		Casing diameter, 4-inch	0.65 gal/ft
H	Purge, time start	1300	Casing diameter, 6-inch	1.46 gal/ft
I	Purge rate (gallons / minute)	1.6	CONVERSION EQUIVALENTS	
J	Purge, time stop	1321	1 Gallon	231 inches^3
K	Total time of purge	21	1 Foot^3	1728 inches^3 = 7.5 gallons
L	Actual purge volume (gallons)	32	Area of circle	πr^2
M	Type of purge pump	monsoon		
N	Comments:			
	~~No sample to be collected in July and January. This and shallow wells to be sampled April and October.~~			

INDICATOR DATA

Parameter	Before Purge	1306	1311	1316	1321		At Sampling
Temperature (C)		16.0	15.9	15.9	15.9		
~~Conductivity (uS/cm)~~ ORP		97	92	91	91		
pH		7.5	7.5	7.4	7.4		
~~Turbidity~~ DO		0.34	0.18	0.15	0.13		

SAMPLING DATA

Sample No.	Date	Time (military)	Sampling Device	Type of Container	Number of Containers	Preservative	Laboratory Tests A	B	C	D	E	F

Depth of water at sampling	Test Method	A
Comments:		B
		C
		D
		E
		F

REPORT OF GROUND WATER PURGING/SAMPLING DATA

GSI Water Solutions, Inc.

Job No:	Well ID No.: High School well 1		M	T	W	T	F	S	S

Client: Morro Bay WWTP	Project: GW Replenishment and Reuse Project – Morro Bay
Location: Morro Bay, CA	Weather: Rainy
Observer: John G	Observation Period:

PURGING DATA

A	Total depth of well (feet)	40		
B	Static water level (feet, date time)	0		
C	Depth of water column (feet) (A - B=C)	40	VOLUME MULTIPLIER	
D	Volume multiplier (gal/ft)	4	Casing diameter, 1-inch	0.0408 gal/ft
E	Casing volume, one (gal) (C x D=E)	163	Casing diameter, 2-inch	0.16 gal/ft
F	Casing volume, three (gal) (3 x E=F)	490	Casing diameter, 3-inch	0.367 gal/ft
G	Flow meter start / stop (gallons)		Casing diameter, 4-inch	0.65 gal/ft
H	Purge, time start	1110	Casing diameter, 6-inch	1.46 gal/ft
I	Purge rate (gallons / minute)	120	CONVERSION EQUIVALENTS	
J	Purge, time stop	~~[illegible]~~ 1135	1 Gallon	231 inches^3
K	Total time of purge	25	1 Foot^3	1728 inches^3 = 7.5 gallons
L	Actual purge volume (gallons)	3000	Area of circle	πr^3
M	Type of purge pump	submersible		
N	Comments: Sampled @ 1135			
	~~No sample to be collected in July and January. This and shallow wells to be sampled April and October.~~			

INDICATOR DATA

Parameter	Before Purge	1110	1120	1125	1130	1135	At Sampling
Temperature (C)		19	19	19	18.4	18.3	
~~Conductivity (uS/cm)~~ ORP		145	212	215	220	225	
pH		7.55	7.35	7.25	7.21	7.2	
~~Turbidity~~ DO		2.44	1[illegible].5	1.5	1.47	1.46	

SAMPLING DATA

Sample No.	Date	Time (military)	Sampling Device	Type of Container	Number of Containers	Preservative	Laboratory Tests A	B	C	D	E	F

Depth of water at sampling	Test Method	A
Comments:		B
		C
		D
		E
		F

REPORT OF GROUND WATER PURGING/SAMPLING DATA

GSI Water Solutions, Inc.

Job No:	Well ID No.: MB-3	M	T	W	T	F	S	S

Client: Morro Bay WWTP	Project: GW Replenishment and Reuse Project – Morro Bay
Location: Morro Bay, CA	Weather: Sunny / clouds
Observer: Lee Knudtson	Observation Period:

PURGING DATA

A	Total depth of well (feet)	65		
B	Static water level (feet, date time)	0		
C	Depth of water column (feet) (A - B=C)	65	VOLUME MULTIPLIER	
D	Volume multiplier (gal/ft)	5.88	Casing diameter, 1-inch	0.0408 gal/ft
E	Casing volume, one (gal) (C x D=E)	382	Casing diameter, 2-inch	0.16 gal/ft
F	Casing volume, three (gal) (3 x E=F)	1147	Casing diameter, 3-inch	0.367 gal/ft
G	Flow meter start / stop (gallons)		Casing diameter, 4-inch	0.65 gal/ft
H	Purge, time start	1200	Casing diameter, 6-inch	1.46 gal/ft
I	Purge rate (gallons / minute)	200	CONVERSION EQUIVALENTS	
J	Purge, time stop	1218	1 Gallon	231 inches^3
K	Total time of purge	18	1 Foot^3	1728 inches^3 = 7.5 gallons
L	Actual purge volume (gallons)	3800	Area of circle	πr^2
M	Type of purge pump	submersible		
N	Comments: Sampled @ 12:18			
	~~No sample to be collected in July and January. This and shallow wells to be sampled April and October.~~			

INDICATOR DATA

Parameter	Before Purge	1200	12:05	12:10	12:15	12:18	At Sampling
Temperature (C)		19	19	19	19	19	
~~Conductivity (uS/cm)~~ ORP		190	194	197	199	199	
pH		7.2	7.2	7.2	7.2	7.2	
~~Turbidity~~ DO		1.17	1.03	1.01	1.00	0.97	

SAMPLING DATA

Sample No.	Date	Time (military)	Sampling Device	Type of Container	Number of Containers	Preservative	Laboratory Tests A	B	C	D	E	F

Depth of water at sampling	Test Method	A
Comments:		B
		C
		D
		E
		F

REPORT OF GROUND WATER PURGING/SAMPLING DATA

GSI Water Solutions, Inc.

Job No:	Well ID No.: 19P-04		M	T	W	T	F	S	S
Client: Morro Bay WWTP		Project: GW Replenishment and Reuse Project – Morro Bay							
Location: Morro Bay, CA		Weather: Sunny/clouds							
Observer: Lee Knudtson		Observation Period:							

PURGING DATA

A	Total depth of well (feet)	58		
B	Static water level (feet, date time)	15.5		
C	Depth of water column (feet) (A - B=C)	54.5	VOLUME MULTIPLIER	
D	Volume multiplier (gal/ft)	0.16	Casing diameter, 1-inch	0.0408 gal/ft
E	Casing volume, one (gal) (C x D=E)	8.72	Casing diameter, 2-inch	0.16 gal/ft
F	Casing volume, three (gal) (3 x E=F)	26.16	Casing diameter, 3-inch	0.367 gal/ft
G	Flow meter start / stop (gallons)		Casing diameter, 4-inch	0.65 gal/ft
H	Purge, time start	1400	Casing diameter, 6-inch	1.46 gal/ft
I	Purge rate (gallons / minute)	1.6	CONVERSION EQUIVALENTS	
J	Purge, time stop	1430	1 Gallon	231 inches^3
K	Total time of purge	30	1 Foot^3	1728 inches^3 = 7.5 gallons
L	Actual purge volume (gallons)	48	Area of circle	πr^3
M	Type of purge pump	monsoon		
N	Comments: Sampled at 1430			
	~~No sample to be collected in July and January. This and shallow wells to be sampled April and October.~~			

INDICATOR DATA

Parameter	Before Purge	1405	1415	1420	1425	1430	At Sampling
Temperature (C)		15.3	15.3	15.3	15.3		
~~Conductivity (uS/cm)~~ ORP		2.42	2.26	2.14	2.10	2.07	
pH		7.6	7.6	7.6	7.6		
~~Turbidity~~ DO		0.34	0.27	0.23	0.20	0.18	

SAMPLING DATA

Sample No.	Date	Time (military)	Sampling Device	Type of Container	Number of Containers	Preservative	A	B	C	D	E	F

Laboratory Tests: A–F

Depth of water at sampling

Comments:

Test Method
A
B
C
D
E
F

REPORT OF GROUND WATER PURGING/SAMPLING DATA

GSI Water Solutions, Inc.

Job No:	Well ID No.: Vistra		M	T	W	T	F	S	S

Client: Morro Bay WWTP	Project: GW Replenishment and Reuse Project – Morro Bay
Location: Morro Bay, CA	Weather: Sunny/clouds
Observer:	Observation Period:

PURGING DATA

A	Total depth of well (feet)	60		
B	Static water level (feet, date time)	15		
C	Depth of water column (feet) (A - B=C)	45	VOLUME MULTIPLIER	
D	Volume multiplier (gal/ft)	.16	Casing diameter, 1-inch	0.0408 gal/ft
E	Casing volume, one (gal) (C x D=E)	7.2	Casing diameter, 2-inch	0.16 gal/ft
F	Casing volume, three (gal) (3 x E=F)	21.6	Casing diameter, 3-inch	0.367 gal/ft
G	Flow meter start / stop (gallons)		Casing diameter, 4-inch	0.65 gal/ft
H	Purge, time start	1510	Casing diameter, 6-inch	1.46 gal/ft
I	Purge rate (gallons / minute)	1.6	CONVERSION EQUIVALENTS	
J	Purge, time stop	1530	1 Gallon	231 inches³
K	Total time of purge	20	1 Foot³	1728 inches³ = 7.5 gallons
L	Actual purge volume (gallons)	32	Area of circle	πr^3
M	Type of purge pump	Monsoon		
N	Comments:			
	~~No sample to be collected in July and January. This and shallow wells to be sampled April and October.~~			

INDICATOR DATA

Parameter	Before Purge	1510	1515	1520	1525	1530	At Sampling
Temperature (C)		15.4	15.6	15.6	15.6	15.5	
~~Conductivity (uS/cm)~~ ORP		2.13	2.04	2.00	1.98	1.98	
pH		7.6	7.5	7.5	7.5	7.5	
~~Turbidity~~ DO		0.46	0.33	0.29	0.17	0.19	

SAMPLING DATA

Sample No.	Date	Time (military)	Sampling Device	Type of Container	Number of Containers	Preservative	Laboratory Tests A	B	C	D	E	F

Depth of water at sampling	Test Method	A
Comments:		B
		C
		D
		E
		F

BC LABORATORIES

4100 Atlas Court Bakersfield, Ca. 93308
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Chain of Custody

* Required Fields

TEMP: ________

Client/Company Name *: City of Morro Bay	Report Attention *: John Gudebeck	Phone *: 805 772-6272 FAX * #: Email: jgudebeck@morrobayca.gov
Address *: 855 Shasta Ave City *: Morro Bay State *: CA Zip *: 93442		Carbon Copies: CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co ☐ Other:
Project Information: Morro Bay Wells	PO #: BCL Quote #:	
How would you like your completed results sent? ☑ E-Mail ☐ Fax ☑ EDD ☐ Mail Only		Regulatory Compliance Electronic Data Transfer: Y☐ N☐ System No. *
Sampler Name Printed / Signature: John Gudebeck	QC Request: ☑ STD ☐ Level II	Result Request ** Surcharge: ☑ STD ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**

Matrix Types: RSW = Raw Surface Water, CFW = Clorinated Finished Water, CWW = Chorinated Waste Water, BW = Bottled Water, RGW = Raw Ground Water, FW = Finished Water, WW = Waste Water, SW = Storm Water, DW = Drinking Water, SO = Solid

ANALYSIS REQUESTED

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	8260 VOCs see list	524 Full List	335.4 Cyanide	300 See below list	218.6 Cr-6	353.2 Nitrite as N	314 Perchlorate	515 Chlorinated Herbicides	504 EDB/DBCP
1	44	12/28	1135	High School well #1	GW	EPA 300: Chloride, Fluoride, Sulfate,	X	X	X	X	X	X	X	X	X
2	44	12/28	1245	MB-3	GW	Nitrate									
3	44	12/28	1430	19P-07	GW	EPA 8260: Acrolein, Acrylonitrile,									
4	44	12/28	1530	Vistra	GW	2-Chloroethylvinyl ether									

Relinquished by: (Signature and Printed Name) John Gudebeck	Company: City MB	Date: 12/28/20	Time: 1625	Received by (Signature and Print Name) [signature] Joey Mascia	Company: BC
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Date: Amount: Check/Cash/Card PIA # Init.	

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER

Cooling Method: WET BLUE NONE

Packing Material:

BC LABORATORIES

4100 Atlas Court Bakersfield, Ca. 93308
(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

Chain of Custody

* Required Fields

TEMP: ________

Client/Company Name *: City of Morro Bay	Report Attention *: John Gunderlock	Phone *: 805.772.62[illegible] E-mail: jgunderlock@morrobayca.gov
Address *: 955 Shasta Ave. City *: Morro Bay State *: CA Zip *: 93442		Carbon Copies: CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co ☐ Other:
Project Information: Morro Bay Wells	PO # BCL Quote #	
How would you like your completed results sent? ☑ E-Mail ☐ Fax ☑ EDD ☐ Mail Only		Regulatory Compliance Electronic Data Transfer: Y ☐ N ☐ System No. *
Sampler Name Printed / Signature: John Gunderlock [signature]	QC Request ☑ STD ☐ Level II	Result Request ** Surcharge ☑ STD ☐ 3 Day** ☐ 2 Day** ☐ 1 Day**

Matrix Types: RSW = Raw Surface Water CFW = Clorinated Finished Water CWW = Chorinated Waste Water BW = Bottled Water RGW = Raw Ground Water FW = Finished Water WW = Waste Water SW = Storm Water DW = Drinking Water SO = Solid

ANALYSIS REQUESTED

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	900 Gross Alpha/Beta (SUB)	903 Radium 226 (SUB)	905 Strontium (SUB)	906 Tritium (SUB)	Ra-05 Radium 228 (SUB)	537 PFOS/PFOA (SUB)	547 Glyphosate	8015-Ethylene Glycol (SUB)	100.2 Asbestos (SUB)
1	44	12/28	1135	High School well #1	GW		X	X	X	X	X	X	X	X	X
2	44	12/28	1218	MB-3	GW										
3	44	12/28	1430	19P-04	GW										
4	44	12/28	1530	Vistra	GW										

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
John Gunderlock [signature]	City MB	12/28/[illegible]	1625	[signature]	BC
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Date: Amount: Check/Cash/Card PIA # Init.	

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER

Cooling Method: WET BLUE NONE

Packing Material:

BC LABORATORIES

4100 Atlas Court Bakersfield, Ca. 93308
(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

Chain of Custody

* Required Fields

TEMP: ______

Client/Company Name *: City of Morro Bay

Report Attention *: John Gunderlock

Phone *: 805 772-6272 FAX *:

E-mail: jgunderlock@morrobayca.gov

Address *: 955 Shasta Ave. City *: Morro Bay State *: CA Zip *: 93442

Project Information: Morro Bay Wells

PO #:

BCL Quote #:

How would you like your completed results sent? ☑ E-Mail ☐ Fax ☑ EDD ☐ Mail Only

Carbon Copies: CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co ☐

Other:

Regulatory Compliance
Electronic Data Transfer: Y ☐ N ☐
System No. *

Sampler Name Printed / Signature: John Gunderlock

QC Request: ☑ STD ☐ Level II

Result Request ** Surcharge: ☑ STD ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**

Matrix Types: RSW = Raw Surface Water, RGW = Raw Ground Water, CFW = Clorinated Finished Water, FW = Finished Water, CWW = Chorinated Waste Water, WW = Waste Water, SW = Storm Water, BW = Bottled Water, DW = Drinking Water, SO = Solid

ANALYSIS REQUESTED

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	300.1 Chlorate, Chlorite (SUB)	317 Bromate (SUB)	521 Nitrosamines (SUB)	522 1,4-Dioxane (SUB)	1613 2,3,7,8-TCDD(Dioxin) SUB		Chromium III (Calculation)	Nitrate + Nitrite as N (Calculation)	Total N itrogen as N (Calculation)
1	44	12/28	1135	High School well #1	GW		X	X	X	X	X	X	X	X	X
2	44	12/28	1218	MB-3	GW										
3	44	12/28	1430	19P-04	GW										
4	44	12/28	1530	Vistra	GW										

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
John Gunderlock	City MB	12/28/20	1625		BC
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company

Received for Lab by: (Signature and Printed Name) Date Time

Payment Received at Delivery:
Date: Amount: Check/Cash/Card PIA # Init.

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER

Cooling Method: WET BLUE NONE

Packing Material:

BC LABORATORIES

4100 Atlas Court Bakersfield, Ca. 93308
(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

Chain of Custody

* Required Fields

TEMP: ______

Client/Company Name *: City of Morro Bay	Report Attention *: John Gunderlock	Phone: 805 772-6272 FAX * #: E-mail: jgunderlock@morrobayca.gov
Address *: 955 Shasta Ave. City *: Morro Bay State *: CA Zip *: 93442		Carbon Copies: CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co ☐ Other:
Project Information: Morro Bay Wells	PO #: BCL Quote #:	
How would you like your completed results sent? ☑ E-Mail ☐ Fax ☑ EDD ☐ Mail Only		Regulatory Compliance Electronic Data Transfer: Y ☐ N ☐ System No. *:
Sampler Name Printed / Signature: John Gunderlock	QC Request ☑ STD ☐ Level II	Result Request ** Surcharge ☑ STD ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**

Matrix Types: RSW = Raw Surface Water CFW = Clorinated Finished Water CWW = Chlorinated Waste Water BW = Bottled Water RGW = Raw Ground Water FW = Finished Water WW = Waste Water SW = Storm Water DW = Drinking Water SO = Solid

ANALYSIS REQUESTED

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	SM 5540C - MBAS	SRL 524M - TCP	200.7 / 200.8 (See List)*	531 Carbamates	548 Endothall	549 Diquat	552 HAA5	556 Formaldehyde	508 Pesticides & PCBs
1	44	12/28	1135	High School well #1	GW	* Al, Ba, B, Fe, Mn, Sb, As, Be, Cd, Cr, Li	X	X	X	X	X	X	X	X	X
2	44	12/28	1218	MB-3	GW	Cu, Co, Pb, Hg, Mo, Ni, Se, Ag, Tl, U, V, Zn	↓	↓	↓	↓	↓	↓	↓	↓	↓
3	44	12/28	1430	14P-04	GW										
4	44	12/28	1530	Vistra	GW										

Relinquished by: (Signature and Printed Name) John Gunderlock	Company: City MB	Date: 12/28/20	Time: 1625	Received by (Signature and Print Name)	Company: BC
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Date: Amount: Check/Cash/Card PIA # Init.	

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER

Cooling Method: WET BLUE NONE

Packing Material:

BC LABORATORIES

4100 Atlas Court Bakersfield, Ca. 93308
(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

Chain of Custody

* Required Fields

TEMP: ______

Client/Company Name *: City of Morro Bay

Report Attention *: John Gunderlock

Phone *: 805 772.6272 FAX *#:

E-mail: jgunderlock@morrobayca.gov

Address *: 955 Shasta Ave. City *: Morro Bay State *: CA Zip *: 93442

Project Information: Morro Bay Wells

PO #

BCL Quote #

How would you like your completed results sent? ☑ E-Mail ☐ Fax ☑ EDD ☐ Mail Only

Sampler Name Printed / Signature: John Gunderlock

QC Request: ☑ STD ☐ Level II

Result Request ** Surcharge: ☑ STD ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**

Carbon Copies: CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co ☐

Other:

Regulatory Compliance
Electronic Data Transfer: Y ☐ N ☐
System No. *

Matrix Types: RSW = Raw Surface Water CFW = Chlorinated Finished Water CWW = Chlorinated Waste Water BW = Bottled Water RGW = Raw Ground Water FW = Finished Water WW = Waste Water SW = Storm Water DW = Drinking Water SO = Solid

ANALYSIS REQUESTED

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	8270-SVOCs	525-SOCs	8330B-Explosives	SM 2120 B - Color	SM 2130 B - Turbidity	SM 2150 B - Odor	SM 2510 - S.C.	SM 2540 C - TDS	SM 5310 C - TOC
1	44	12/26	1135	High School well #1	GW		X	X	X	X	X	X	X	X	X
2	44	12/28	1215	MB-3	GW										
3	44	12/28	1430	19P-04	GW										
4	44	12/28	1530	Vistra	GW										

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
John Gunderlock	City MB	12/28/22	1625	[signature]	BC
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Date: Amount: Check/Cash/Card PIA # Init.	

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER

Cooling Method: WET BLUE NONE

Packing Material:

High Sc[redacted]

REPORT OF GROUND WATER PURGING/SAMPLING DATA

GSI Water Solutions, Inc.

Job No:	Well ID No: [redacted]	7/13/2021	M	(T)	W	T	F	S	S

Client: Morro Bay WWTP	Project: GW Replenishment and Reuse Project – Morro Bay
Location: Morro Bay, CA	Weather: Overcast / Gloom
Observer: John G.	Observation Period:

PURGING DATA

A	Total depth of well (feet)	40		
B	Static water level (feet, date time)	0		
C	Depth of water column (feet) (A - B=C)	40	VOLUME MULTIPLIER	
D	Volume multiplier (gal/ft)	4	Casing diameter, 1-inch	0.0408 gal/ft
E	Casing volume, one (gal) (C x D=E)	163	Casing diameter, 2-inch	0.16 gal/ft
F	Casing volume, three (gal) (3 x E=F)	490	Casing diameter, 3-inch	0.367 gal/ft
G	Flow meter start / stop (gallons)		Casing diameter, 4-inch	0.65 gal/ft
H	Purge, time start	0756	Casing diameter, 6-inch	1.46 gal/ft
I	Purge rate (gallons / minute)	120	CONVERSION EQUIVALENTS	
J	Purge, time stop	0900	1 Gallon	231 inches^3
K	Total time of purge		1 Foot^3	1728 inches^3 = 7.5 gallons
L	Actual purge volume (gallons)	3000	Area of circle	πr^3
M	Type of purge pump	Submersible		
N	Comments:			

~~No sample to be collected in July and January. This and shallow wells to be sampled April and October.~~

INDICATOR DATA

Parameter	Before Purge	0807	0812	0817	0822	0824	At Sampling
Temperature (C)		19.5	19.5	19.5	19.5	19.5	
~~Conductivity (uS/cm)~~ ORP		130	84	86	89	91	
pH		7.1	7.0	7.0	7.0	7.0	
~~Turbidity~~ DO *		1.90	1.85	1.83	1.82	1.80	

SAMPLING DATA

Sample No.	Date	Time (military)	Sampling Device	Type of Container	Number of Containers	Preservative	Laboratory Tests A	B	C	D	E	F

Depth of water at sampling

Comments: Sample start 08:25

* Cloudy air during purge and sampling. Air from well.

Test Method

A	
B	
C	
D	
E	
F	

REPORT OF GROUND WATER PURGING/SAMPLING DATA

GSI Water Solutions, Inc.

Job No:	Well ID No.: MB-3	07/13/21	M	T	W	T	F	S	S
Client: Morro Bay WWTP		Project: GW Replenishment and Reuse Project – Morro Bay							
Location: Morro Bay, CA		Weather: Overcast/Floom							
Observer: John G.		Observation Period:							

PURGING DATA

A	Total depth of well (feet)	65		
B	Static water level (feet, date time)	0		
C	Depth of water column (feet) (A - B=C)	65	VOLUME MULTIPLIER	
D	Volume multiplier (gal/ft)	5.88	Casing diameter, 1-inch	0.0408 gal/ft
E	Casing volume, one (gal) (C x D=E)	382	Casing diameter, 2-inch	0.16 gal/ft
F	Casing volume, three (gal) (3 x E=F)	1147	Casing diameter, 3-inch	0.367 gal/ft
G	Flow meter start / stop (gallons)		Casing diameter, 4-inch	0.65 gal/ft
H	Purge, time start	0940	Casing diameter, 6-inch	1.46 gal/ft
I	Purge rate (gallons / minute)	200	CONVERSION EQUIVALENTS	
J	Purge, time stop	10:31	1 Gallon	231 inches^3
K	Total time of purge		1 Foot^3	1728 inches^3 = 7.5 gallons
L	Actual purge volume (gallons)	3800	Area of circle	πr^3
M	Type of purge pump	Submersible		
N	Comments:			
	~~No sample to be collected in July and January. This and shallow wells to be sampled April and October.~~			

INDICATOR DATA

Parameter	Before Purge	0950	0955	1001	1006	1010	At Sampling
Temperature (C)		18.0	18.0	18.0	18.0	18.0	
~~Conductivity (uS/cm)~~ ORP		105	103	103	103	103	
pH		7.2	7.2	7.2	7.2	7.2	
~~Turbidity~~ DO		0.44	0.42	0.41	0.37	0.34	

SAMPLING DATA

Sample No.	Date	Time (military)	Sampling Device	Type of Container	Number of Containers	Preservative	Laboratory Tests A	B	C	D	E	F

Depth of water at sampling	Test Method	A
Comments:		B
		C
		D
		E
		F

REPORT OF GROUND WATER PURGING/SAMPLING DATA

GSI Water Solutions, Inc.

Job No:	Well ID No.: 19P-04	7/13/21	M	T	W	T	F	S	S
Client: Morro Bay WWTP		Project: GW Replenishment and Reuse Project – Morro Bay							
Location: Morro Bay, CA		Weather: Overcast/gloom							
Observer: John G.		Observation Period:							

PURGING DATA

A	Total depth of well (feet)	58		
B	Static water level (feet, date time)	15.5		
C	Depth of water column (feet) (A - B=C)	54.5	VOLUME MULTIPLIER	
D	Volume multiplier (gal/ft)	0.16	Casing diameter, 1-inch	0.0408 gal/ft
E	Casing volume, one (gal) (C x D=E)	8.72	Casing diameter, 2-inch	0.16 gal/ft
F	Casing volume, three (gal) (3 x E=F)	26.16	Casing diameter, 3-inch	0.367 gal/ft
G	Flow meter start / stop (gallons)		Casing diameter, 4-inch	0.65 gal/ft
H	Purge, time start	1110	Casing diameter, 6-inch	1.46 gal/ft
I	Purge rate (gallons / minute)	1.6	CONVERSION EQUIVALENTS	
J	Purge, time stop		1 Gallon	231 inches^3
K	Total time of purge		1 Foot^3	1728 inches^3 = 7.5 gallons
L	Actual purge volume (gallons)	48	Area of circle	πr^3
M	Type of purge pump	monsoon		
N	Comments:			

~~No sample to be collected in July and January. This and shallow wells to be sampled April and October.~~

INDICATOR DATA

Parameter	Before Purge	1122	1128	1133	1138	1143	At Sampling
Temperature (C)		15.7	15.7	15.7	15.7	15.7	
~~Conductivity (uS/cm)~~ ORP		124	120	117	114	113	
pH		7.5	7.5	7.5	7.4	7.4	
~~Turbidity~~ DO		0.19	0.16	0.15	0.13	0.13	

SAMPLING DATA

Sample No.	Date	Time (military)	Sampling Device	Type of Container	Number of Containers	Preservative	Laboratory Tests A	B	C	D	E	F

Depth of water at sampling

Comments:

Test Method	
	A
	B
	C
	D
	E
	F

REPORT OF GROUND WATER PURGING/SAMPLING DATA

GSI Water Solutions, Inc.

Job No:	Well ID No.: Vista	7/13/21	M	T	W	T	F	S	S

Client: Morro Bay WWTP	Project: GW Replenishment and Reuse Project – Morro Bay
Location: Morro Bay, CA	Weather:
Observer: John G.	Observation Period:

PURGING DATA

A	Total depth of well (feet)	60		
B	Static water level (feet, date time)	15		
C	Depth of water column (feet) (A - B=C)	45	VOLUME MULTIPLIER	
D	Volume multiplier (gal/ft)	.16	Casing diameter, 1-inch	0.0408 gal/ft
E	Casing volume, one (gal) (C x D=E)	7.2	Casing diameter, 2-inch	0.16 gal/ft
F	Casing volume, three (gal) (3 x E=F)	21.6	Casing diameter, 3-inch	0.367 gal/ft
G	Flow meter start / stop (gallons)		Casing diameter, 4-inch	0.65 gal/ft
H	Purge, time start	1320	Casing diameter, 6-inch	1.46 gal/ft
I	Purge rate (gallons / minute)	1.6	CONVERSION EQUIVALENTS	
J	Purge, time stop		1 Gallon	231 inches^3
K	Total time of purge		1 Foot^3	1728 inches^3 = 7.5 gallons
L	Actual purge volume (gallons)	32	Area of circle	πr^3
M	Type of purge pump	monsoon		
N	Comments:			
	~~No sample to be collected in July and January. This and shallow wells to be sampled April and October.~~			

INDICATOR DATA

Parameter	Before Purge	1340	1345	1350	1356	1401	At Sampling
Temperature (C)		16.3	16.4	16.2	16.2	16.4	
~~Conductivity (uS/cm)~~ ORP		69	60	58	57	57	
pH		7.5	7.4	7.3	7.3	7.3	
~~Turbidity~~ DO		0.13	0.12	0.11	0.11	0.10	

SAMPLING DATA

Sample No.	Date	Time (military)	Sampling Device	Type of Container	Number of Containers	Preservative	Laboratory Tests A	B	C	D	E	F

Depth of water at sampling	Test Method	A
Comments:		B
		C
		D
		E
		F

Appendix C

Laboratory Analytical Reports and Chains of Custody

Appendix C

Morro Bay September 2020 Sampling Event

Analytical Reports

750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

ACCREDITED
CERTIFICATE #'s 3890.01 & 3890.02

Laboratory Report

for

Morro Bay Waterwater Treatment Plant
160 Atascadero Road
Morro Bay, CA 93442
Attention: John Gunderlock - Shipping

NELAP ACCREDITED TNI LABORATORY
Utah ELCP CA00006

Date of Issue
10/12/2020
Vanessa Berry
EUROFINS EATON ANALYTICAL, LLC

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

ZIA8: Vanessa Berry

Project Manager

* Accredited in accordance with TNI 2016 and ISO/IEC 17025:2017.
* Laboratory certifies that the test results meet all **TNI 2016 and ISO/IEC 17025:2017** requirements unless noted under the individual analysis.
* Following the cover page are State Certification List, ISO 17025 Accredited Method List, Acknowledgement of Samples Received, Comments, Hits Report, Data Report, QC Summary, QC Report and Regulatory Forms, as applicable.
* Test results relate only to the sample(s) tested.
* Test results apply to the sample(s) as received, unless otherwise noted in the comments report (ISO/IEC 17025:2017).
* This report shall not be reproduced except in full, without the written approval of the laboratory.
* This report includes ISO/IEC 17025 and non-ISO 17025 accredited methods.

eurofins | Eaton Analytical

STATE CERTIFICATION LIST

State	Certification Number	State	Certification Number
Alabama	41060	**Montana**	Cert 0035
Arizona	AZ0778	**Nebraska**	Certified
Arkansas	Certified	**Nevada**	CA000062018
California	2813	**New Hampshire ***	2959
Colorado	Certified	**New Jersey ***	CA 008
Connecticut	PH-0107	**New Mexico**	Certified
Delaware	CA 006	**New York ***	11320
Florida *	E871024	**North Carolina**	06701
Georgia	947	**North Dakota**	R-009
Guam	18-005R	**Oregon ***	CA200003-005
Hawaii	Certified	**Pennsylvania ***	68-565
Idaho	Certified	**Puerto Rico**	Certified
Illinois *	200033	**Rhode Island**	LAO00326
Indiana	C-CA-01	**South Carolina**	87016
Iowa - Asbestos	413	**South Dakota**	Certified
Kansas *	E-10268	**Tennessee**	TN02839
Kentucky	90107	**Texas ***	T104704230-18-15
Louisiana *	LA180000	**Utah (Primary AB) ***	CA00006
Maine	CA0006	**Vermont**	VT0114
Maryland	224	**Virginia ***	460260
Commonwealth of Northern Marianas Is.	MP0004	**Washington**	C838
Massachusetts	M-CA006	**EPA Region 5**	Certified
Michigan	9906	**Los Angeles County Sanitation Districts**	10264
Mississippi	Certified		

* NELAP/TNI Recognized Accreditation Bodies

Eurofins Eaton Analytical, LLC
750 Royal Oaks Drive, Suite 100
Monrovia, CA 91016-3629
T | 626-386-1100
F | 866-988-3757
www.EurofinsUS.com/Eaton

The tests listed below are accredited and meet the requirements of ISO/IEC 17025 as verified by the ANSI-ASQ National Accreditation Board/A2LA.
Refer to Certificate and scope of accreditation (5890) found at: https://www.eurofinsus.com/Eaton

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
1,2,3-TCP (5 PPT & 0.5 PPT)	CA SRL 524M-TCP	x		x
1,4-Dioxane	EPA 522	x		x
2,3,7,8-TCDD	Modified EPA 1613B	x		x
Acrylamide	In House Method (2440)	x		x
Algal Toxins/Microcystin	In House Method (3570)			
Alkalinity	SM 2320B	x	x	x
Ammonia	EPA 350.1		x	x
Ammonia	SM 4500-NH3 H		x	x
Anions and DBPs by IC	EPA 300.0	x	x	x
Anions and DBPs by IC	EPA 300.1	x		x
Asbestos	EPA 100.2	x	x	
BOD / CBOD	SM 5210B		x	x
Bromate	In House Method (2447)	x		x
Carbamates	EPA 531.2	x		x
Carbonate as CO3	SM 2330B	x	x	x
Carbonyls	EPA 556	x		x
COD	EPA 410.4 / SM 5220D		x	
Chloramines	SM 4500-CL G	x	x	x
Chlorinated Acids	EPA 515.4	x		x
Chlorinated Acids	EPA 555	x		x
Chlorine Dioxide	SM 4500-CLO2 D Palin Test	x		x
Chlorine -Total/Free/ Combined Residual	SM 4500-Cl G	x	x	x
Conductivity	EPA 120.1		x	
Conductivity	SM 2510B	x	x	x
Corrosivity (Langelier Index)	SM 2330B	x		x
Cyanide, Amenable	SM 4500-CN G	x	x	
Cyanide, Free	SM 4500CN F	x	x	x
Cyanide, Total	EPA 335.4	x	x	x
Cyanogen Chloride (screen)	In House Method (2470)	x		x
Diquat and Paraquat	EPA 549.2	x		x
DBP/HAA	SM 6251B	x		x
Dissolved Oxygen	SM 4500-O G		x	x
DOC	SM 5310C	x		x
E. Coli	(MTF/EC+MUG)	x		x
E. Coli	CFR 141.21(f)(6)(i)	x		x
E. Coli	SM 9223		x	
E. Coli (Enumeration)	SM 9221B.1/ SM 9221F	x		x
E. Coli (Enumeration)	SM 9223B	x		x
EDB/DCBP	EPA 504.1	x		
EDB/DBCP and DBP	EPA 551.1	x		x
EDTA and NTA	In House Method (2454)	x		x
Endothall	EPA 548.1	x		x
Endothall	In-house Method (2445)	x		x
Enterococci	SM 9230B	x	x	
Fecal Coliform	SM 9221 E (MTF/EC)	x		
Fecal Coliform	SM 9221C, E (MTF/EC)		x	
Fecal Coliform (Enumeration)	SM 9221E (MTF/EC)	x		x
Fecal Coliform with Chlorine Present	SM 9221E		x	
Fecal Streptococci	SM 9230B	x	x	
Fluoride	SM 4500-F C	x	x	x
Glyphosate	EPA 547	x		x
Glyphosate + AMPA	In House Method (3618)	x		x
Gross Alpha/Beta	EPA 900.0	x	x	x
Gross Alpha Coprecipitation	SM 7110 C	x	x	x
Hardness	SM 2340B	x	x	x
Heterotrophic Bacteria	In House Method (2439)	x		x
Heterotrophic Bacteria	SM 9215 B	x		x
Hexavalent Chromium	EPA 218.6	x	x	x

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
Hexavalent Chromium	EPA 218.7	x		x
Hexavalent Chromium	SM 3500-Cr B		x	
Hormones	EPA 539	x		x
Hydroxide as OH Calc.	SM 2330B	x		x
Kjeldahl Nitrogen	EPA 351.2		x	
Legionella	Legiolert	x		x
Mercury	EPA 200.8	x		x
Metals	EPA 200.7 / 200.8	x	x	x
Microcystin LR	ELISA (2360)	x		x
Microcystin, Total	EPA 546	x		x
NDMA	EEA/Agilent 521.1 In house method (2425)	x		x
Nitrate/Nitrite Nitrogen	EPA 353.2	x	x	x
OCL, Pesticides/PCB	EPA 505	x		x
Ortho Phosphate	EPA 365.1	x	x	x
Ortho Phosphorous	SM 4500P E	x		x
Oxyhalides Disinfection Byproducts	EPA 317.0	x		x
Perchlorate	EPA 331.0	x		x
Perchlorate (low and high)	EPA 314.0	x		x
Perfluorinated Alkyl Acids	EPA 537	x		x
Perfluorinated Polutant	In house Method (2434)	x		x
pH	EPA 150.1	x		
pH	SM 4500-H+B	x	x	x
Phenylurea Pesticides/ Herbicides	In House Method, based on EPA 532 (2448)	x		x
Pseudomonas	IDEXX Pseudalert (2461)	x		x
Radium-226	GA Institute of Tech	x		x
Radium-228	GA Institute of Tech	x		x
Radon-222	SM 7500RN	x		x
Residue, Filterable	SM 2540C	x	x	x
Residue, Non-filterable	SM 2540D		x	
Residue, Total	SM 2540B		x	x
Residue, Volatile	EPA 160.4		x	
Semi-VOC	EPA 525.2	x		x
Silica	SM 4500-Si D	x	x	
Silica	SM 4500-SiO2 C	x	x	
Sulfide	SM 4500-$S^{=}$ D		x	
Sulfite	SM 4500-SO^{3}B	x	x	x
Surfactants	SM 5540C	x	x	x
Taste and Odor Analytes	SM 6040E	x		x
Total Coliform (P/A)	SM 9221 A, B	x		x
Total Coliform (Enumeration)	SM 9221 A, B, C	x		x
Total Coliform / E. coli	Colisure SM 9223	x		x
Total Coliform	SM 9221B		x	
Total Coliform with Chlorine Present	SM 9221B		x	
Total Coliform / E.coli (P/A and Enumeration)	SM 9223	x		x
TOC	SM 5310C	x	x	x
TOX	SM 5320B		x	
Total Phenols	EPA 420.1		x	
Total Phenols	EPA 420.4	x	x	x
Total Phosphorous	SM 4500 P E		x	
Triazine Pesticides & Degradates	In House (3617)	x		x
Turbidity	EPA 180.1	x	x	x
Turbidity	SM 2130B	x	x	
Uranium by ICP/MS	EPA 200.8	x		x
UV 254	SM 5910B	x		
VOC	EPA 524.2	x		x
VOC	In House Method (2411)	x		x
Yeast and Mold	SM 9610	x		x
Field Sampling	N/A			

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Acknowledgement of Samples Received

Addr: **Morro Bay Waterwater Treatment Plant**
160 Atascadero Road
Morro Bay, CA 93442

Attn: John Gunderlock - Shipping
Phone: 805.772.6272

Client ID: MORROBAY-CA
Folder #: 892211
Project: GROUNDWATER
Sample Group: GW-Quarterly

Project Manager: Vanessa Berry
Phone: 503-310-3905

The following samples were received from you on **September 11, 2020** at **1227**. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact your service representative. Thank you for using Eurofins Eaton Analytical, LLC.

Sample #	Sample ID	Sample Date
202009110519	E1	09/10/2020 0830

@ICPMS	@505-REG	@515_4-REG
@521 TQ	@537.1-PFOS-PFOA	@8260B_Super_Calscience
@8270EDD Super Calscience_4871	@ANIONS28	@ANIONS48
@BETA	@DIQUAT	@EDB-DBC
@FORMAL556	@H3EDD	@HAA6
@ML531.2	@RA226 GA	@RA228 GA
@SR90EDD	@TCP-524	@VOASDWA
@VOA-TBA	Apparent Color	Asbestos by TEM - >10 microns
Boron Total ICAP	Bromate by UV/VIS	Chlorate by IC
Chlorite	Chromium III (Calculated)	Cyanide
Endothall	Ethylene Glycol_TA-IRV	Explosives by LCMS
Fluoride	Glyphosate	Gross Alpha by Co-precipitation
Hexavalent Chromium Total	Iron Total ICAP	Lithium Total ICP
Mercury ICPMS	Total Nitrate Nitrite as N	Odor at 60 C (TON)
Perchlorate	Specific Conductance	Surfactants
Total Dissolved Solid (TDS)	Total Kjeldahl Nitrogen	Total Nitrogen-Calc
Turbidity	Uranium by ICPMS as pCi/L	Uranium ICAP/MS

Sample #	Sample ID	Sample Date
202009110520	TRAVEL BLANK	09/10/2020 0830

@EDB-DBC TB	@VOASDWA TB	@VOA-TBA

Sample #	Sample ID	Sample Date
202009110521	FIELD BLANK (PFAS)-HOLD	09/10/2020 0830

@537.1 FB

Test Description

@ICPMS -- ICPMS Metals
@505-REG -- Organochlorine Pesticides/PCBs
@515_4-REG -- Chlorophenoxy Herbicides
@521 TQ -- 521 by Triple Quad
@537.1 FB -- EPA Method 537.1
@537.1-PFOS-PFOA -- EPA Method 537.1
@8260B_Super_Calscience -- 4848_8260 VOC W Super List
@8270EDD Super Calscience_4871 -- 4871 Super 8270 List
@ANIONS28 -- Chloride, Sulfate by EPA 300.0

Acknowledgement of Samples Received

Addr: **Morro Bay Waterwater Treatment Plant**
160 Atascadero Road
Morro Bay, CA 93442

Attn: John Gunderlock - Shipping
Phone: 805.772.6272

Client ID: MORROBAY-CA
Folder #: 892211
Project: GROUNDWATER
Sample Group: GW-Quarterly

Project Manager: Vanessa Berry
Phone: 503-310-3905

The following samples were received from you on **September 11, 2020** at **1227**. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact your service representative. Thank you for using Eurofins Eaton Analytical, LLC.

Sample #	Sample ID	Sample Date
	@ANIONS48 -- Nitrate, Nitrite by EPA 300.0	
	@BETA -- Gross Alpha/Beta Radiation	
	@DIQUAT -- Diquat and Paraquat	
	@EDB-DBC -- EPA Method 504.1	
	@EDB-DBC TB -- EPA Method 504.1	
	@FORMAL556 -- EPA Method 556	
	@H3EDD -- Total Tritium (Sub)	
	@HAA6 -- Haloacetic Acids	
	@ML531.2 -- Aldicarbs	
	@RA226 GA -- Radium 226	
	@RA228 GA -- Radium 228	
	@SR90EDD -- Strontium-90 (sub)	
	@TCP-524 -- 1,2,3-Trichloropropane (SIM)	
	@VOASDWA -- Volatile Organics by GCMS	
	@VOASDWA TB -- Volatile Organics by GCMS	
	@VOA-TBA -- TBA by EPA 524.2 Modified	

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892211

Kit Order for City of Morro Bay

Vanessa Berry is your Eurofins Eaton Analytical, LLC Service Manager

750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
(626) 386-1100 FAX (866) 988-3757

Created Date & Time: 9/1/2020 3:00:52PM

Note: Sampler Please return this paper with your samples

Kit #: 271845

Created By: Monica Van Natta - [UMVN]
Deliver By: 09/03/2020
STG: Bottle Orders
Ice Type: W

Client ID: MORROBAY-CA
Project Code: GROUNDWATER Bottle Orders
Group Name: GW-Quarterly
PO#/JOB#:
Description: No Schedule

No COC

El 9/10/20 0830

Ship Sample Kits to	Send Report to	Billing Address
Morro Bay Waterwater Treatment Plant 160 Atascadero Road Morro Bay, CA 93442 Attn: John Gunderlock - Shipping Phone: 805.772.6272	Morro Bay Waterwater Treatment Plant 160 Atascadero Road Morro Bay, CA 93442 Attn: John Gunderlock - Shipping Phone: 805.772.6272	Morro Bay Waterwater Treatment Plant 160 Atascadero Road Morro Bay, CA 93442 Attn: John Gunderlock - Shipping Phone: 805.772.6272

# of Sample	Tests	Bottle Qty - Type [preservative information]	Total	UN DOT #	
1	Hexavalent Chromium Total	1 - 125 ml poly + syringe [125 ml poly+1ml NH4SO4/NH4OH]	1		
1	Total Organic Carbon	1 - 125ml amber glass [0.5 ml H2SO4 (50%)]		UN1830	sample not recvd
1	@DIOXANE	3 - 125ml amber glass [6.88 Sulfite +138 mg Bisulfate]			
1	Glyphosate	1 - 125ml amber glass [no preservative]	1		
1	@ANIONS28, @ANIONS48, Nitrate+Nitrite as N	1 - 125ml poly [no preservative]	1		
1	Perchlorate	1 - 125ml poly [no preservative]	1		
1	Turbidity	1 - 125ml poly [no preservative]	1		
1	@2378-TCDD_Dioxin	2 - 1L amber glass [1 ml Thio 8%]	2		samples not recvd.
1	@ML525	2 - 1L amber glass [2ml of 6N HCl]	2	UN1789	
1	@8081 Pesticides	2 - 1L amber glass [no preservative]	2		Recvd. 1 bottle return empty
1	Apparent Color, Odor at 60 C (TON)	1 - 1L amber glass [no preservative]	1		
1	@DIQUAT	1 - 1L amber poly [no preservative]	1		
1	@SR90EDD	2 - 1L poly [4ml 18%HNO3+125ml poly/no pres]		UN2031	1L Not Recd
1	@RA226 GA, @RA228 GA	4 - 1L poly [4ml HNO3 (18%)]		UN2031	samples not recvd.
1	Asbestos by TEM - >10 microns	1 - 1L poly sonicated [no preservative]	1		
1	Cyanide	1 - 250 ml poly [2 ml NaOH (30%)+6 scoops AA]	1		
1	Fluoride	1 - 250 ml poly [no preservative]	1		
1	Endothall	1 - 250ml amber glass [no preservative]	1		
1	Total Kjeldahl Nitrogen	1 - 250ml poly [0.5 ml H2SO4 (50%)]	1	UN1830	
1	Specific Conductance	1 - 250ml poly [no preservative]	1		
1	@537.1	2 - 275 ml polypro w polypro cap [1.4 g Trisma]	2		
1	@537.1 TB	1 - 275 ml polypro w polypro cap [1.4g Trisma + H2O]	1		
1	@537.1 FB	1 - 275 ml polypro w polypro cap [no preservative]	1		
1	Ethylene Glycol_TA-IRV	4 - 40 ml VOA vial [EG_no pres]	4		
1	Explosives by LCMS	2 - 40ml amber glass vial [0.25 ml Thio (8%)]	2		
1	@ML531.2	2 - 40ml amber glass vial [0.37g KH2Citrate+6mg ThioSO4]	2		

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Kit Order for City of Morro Bay

Vanessa Berry is your Eurofins Eaton Analytical, LLC Service Manager

750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
(626) 386-1100 FAX (866) 988-3757

Created Date & Time: 9/1/2020 3:00:52PM

Note: Sampler Please return this paper with your samples

Kit #: 271845

Created By: Monica Van Natta - [UMVN]
Deliver By: 09/03/2020
STG: Bottle Orders
Ice Type: W

Client ID: MORROBAY-CA
Project Code: GROUNDWATER Bottle Orders
Group Name: GW-Quarterly
PO#/JOB#:
Description: No Schedule

Ship Sample Kits to	Send Report to	Billing Address
Morro Bay Waterwater Treatment Plant 160 Atascadero Road Morro Bay, CA 93442 Attn: John Gunderlock - Shipping Phone: 805.772.6272	Morro Bay Waterwater Treatment Plant 160 Atascadero Road Morro Bay, CA 93442 Attn: John Gunderlock - Shipping Phone: 805.772.6272	Morro Bay Waterwater Treatment Plant 160 Atascadero Road Morro Bay, CA 93442 Attn: John Gunderlock - Shipping Phone: 805.772.6272

# of Sample	Tests	Bottle Qty - Type [preservative information]	Total	UN DOT #
1	@505-REG	4 - 40ml amber glass vial [1 drop Thio (8%)]	4	
1	@FORMAL556	3 - 40ml amber glass vial [20mg NH4Cl + 20 mg CuSO4]	3	
1	@TBA-524.3(SIM) TB	2 - 40ml amber glass vial [25 mg AA + Maleic Acid + H20]	2	UN2215
1	@TCP-524	4 - 40ml amber glass vial [4 drops of 1:1 HCL]	4	UN1789
1	@8260B_Super_Calscience, @VOASDWA	4 - 40ml amber glass vial [4drops 6N HCL (36%)]	4	UN1789
1	@VOASDWA TB	2 - 40ml amber glass vial [4drops of 1:1 HCL + H2O] — 1 of 2 Recd		UN1789 1 of 2 [illegible]
1	@HAA6	3 - 40ml amber glass vial [65 mg NH4Cl]	3	
1	@EDB-DBC	3 - 40ml amber glass vial [no preservative]	3	
1	@EDB-DBC TB	2 - 40ml amber glass vial [no preservative + H20]	2	
1	@ICP, @ICPMS, Cobalt Total ICAP/MS, Lithium Total ICP, Mercury by ICAP/MS, Molybdenum by ICPMS, Uranium by ICPMS as pCi/L, Uranium ICAP/MS	1 - 500ml acid poly [2ml HNO3 (18%)] Not Recd Will pour. from RAD	1	UN2031
1	@ML521_SPE8	3 - 500ml amber glass [40-50 mg Na Thiosulfate]	3	
1	@H3EDD	1 - 500ml amber glass [no preservative]	1	
1	@RAD	2 - 500ml poly [2ml 18%HNO3+125ml poly/no pres]	2	UN2031
1	Surfactants [illegible]	1 - 500ml poly [no preservative]	1	
1	Total Dissolved Solid (TDS)	1 - 500ml poly [no preservative]	1	
1	@515_4-REG	4 - 60ml amber glass [3 mg NaSulfite]	4	
1	Bromate by UV/VIS, Chlorate by IC	1 - 60mL poly [0.3 mL 1% EDA solution]	1	

Sum Tests: 43 **Sum Bottles:** 82

Comments

CLIENT:
1. PLEASE SAMPLE AFTER 1 PM DUE TO 24 HOUR HOLD TIME FOR ODOR TEST.
2. PLEASE FOLLOW SAMPLING INSTRUCTIONS FOR EPA 537.1 PFAS.

SHIPPING: PLEASE INCLUDE SAMPLING INSTRUCTIONS FOR PFAS BY 537.1

eurofins Eaton Analytical

750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
(626) 386-1100 FAX (866) 988-3757

Kit Order for City of Morro Bay

Vanessa Berry is your Eurofins Eaton Analytical, LLC Service Manager

Created Date & Time: 9/4/2020 1:47:16PM

Note: Sampler Please return this paper with your samples

Kit #: 272053

Created By: Vanessa Berry - [ZIA8]
Deliver By: 09/08/2020
STG: Bottle Orders
Ice Type: W

Client ID: MORROBAY-CA
Project Code: GROUNDWATER Bottle Orders
Group Name: GW-Quarterly
PO#/JOB#:
Description: No Schedule

Ship Sample Kits to	Send Report to	Billing Address
Morro Bay Waterwater Treatment Plant 160 Atascadero Road Morro Bay, CA 93442 Attn: John Gunderlock - Shipping Phone: 805.772.6272	Morro Bay Waterwater Treatment Plant 160 Atascadero Road Morro Bay, CA 93442 Attn: John Gunderlock - Shipping Phone: 805.772.6272	Morro Bay Waterwater Treatment Plant 160 Atascadero Road Morro Bay, CA 93442 Attn: John Gunderlock - Shipping Phone: 805.772.6272

# of Sample	Tests	Bottle Qty - Type [preservative information]	Total	UN DOT #
1	@8270EDD Super Calscience_4871 ✓	3 - 1L amber glass [no preservative]	3	
1	@TBA-524.3(SIM)	4 - 40 ml amb glass+AA+Maleic Acid [25 mg AA + Maleic Acid]	4	UN2215

Sum Tests: 2

Sum Bottles: 7

Comments

Code	Status	Date Shipped	Via	Tracking #	# of Coolers	Prepared By

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INTERNAL CHAIN OF CUSTODY RECORD

1 (6P) pw - 1E SH

EEA Folder Number: 892211

SAMPLE TEMP RECEIVED:

Note: If samples are out of temperature range, let the ASMs know. ASMs will determine whether to proceed with analysis or not.

SAMPLES REC'D DAY OF COLLECTION? Yes / No

VOG TB - 1 of 2 broken

IR Gun ID = 649A (Observation= 4.6 °C) (Corr.Factor -0.2 °C) (Final = 4.4 °C)

TYPE OF ICE: Real ___ Synthetic ✓ No Ice ___ **CONDITION OF ICE:** Frozen ✓ Partially Frozen ___ Thawed ___ N/A ___

METHOD OF SHIPMENT: Pick-Up / Walk-In / FedEx / UPS / DHL / Area Fast / Top Line / Other: ___________

@ 8081 pesticides return empty

Compliance Acceptance Criteria:

TRK# 0201 3967 0162 9120

TRK# 7714 5873 3124

1) **Chemistry:** >0, ≤6°C, not frozen (NELAP) (if received after 24 hrs of sample collection)

2) **Microbiology, Distribution:** < 10°C, not frozen (can be ≥10°C if received on ice the same day as sample collection, within 6 hr)

3) **Microbiology, Surface Water:** < 10°C (if received after 2 hours of sample collection)

If out of temperature range for both Chemistry and Microbiology samples and temperature does not confirm, then measure the temperature of each quadrant and record each temperature of the quadrants

1 = (Observation= ___ °C) (Corr.Factor ___ °C) (Final = ___ °C)	2 = (Observation= ___ °C) (Corr.Factor ___ °C) (Final = ___ °C)
3 = (Observation= ___ °C) (Corr.Factor ___ °C) (Final = ___ °C)	4 = (Observation= ___ °C) (Corr.Factor ___ °C) (Final = ___ °C)

4 **Dioxin (1613 or 2,3,7,8 TCDD):** must be between 0-4 °C, not frozen (if received after 24 hrs of sample collection)

5) **pH Check.** Manufacturer: ___________ Lot Number: ________ pH strip type: 0 - 14 or ________ Expiration Date ________ Results: _____

6) **Chlorine check.** Manufacturer: Sansafe. Lot No.: ________ Expiration Date: ________ Results ______________

7) **VOA and Radon Headspace:** **No Samples with Headspace:** ☐ **Samples with Headspace (see below):** ☐

Headspace Documentation (use additional VOC and Radon Internal COFC for additional bottles)

Exempt from headspace concerns: Methods 515.4, HAA(6251,552), 505, SPME, @CH, 532LCMS, 556, 536, Anatoxin, LCMS methods using 40 ml vials, International clients:

Samp ID	Bottle #	None/<6 mm	>6mm	Samp ID	Bottle #	None/<6 mm	>6mm	Samp ID	Bottle #	None/<6 mm	>6mm	Samp ID	Bottle #	None/<6 mm	>6mm
0520															

Note Sample IDs which have dissimilar headspace (i.e. potential sampling errors): ______________________

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
RECEIVED BY:	[signature]	Paul Reids	Eurofins Eaton Analytical	9-11-20	1227

QA FO 0083.8 (QA FO-FRM0504) (8/25/20) Ver 8

Page ___ of ___

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INTERNAL CHAIN OF CUSTODY RECORD

EEA Folder Number:

SAMPLE TEMP RECEIVED:

Note: if samples are out of temperature range, let the ASMs know. ASMs will determine whether to proceed with analysis or not.

SAMPLES REC'D DAY OF COLLECTION? Yes / No

IR Gun ID = 649A (Observation= 3.5 °C) (Corr.Factor -0.2 °C) (Final = 3.3 °C)

TYPE OF ICE: Real ✓ Synthetic ____ No Ice ____ **CONDITION OF ICE:** Frozen ✓ Partially Frozen ____ Thawed ____ N/A ____

METHOD OF SHIPMENT: Pick-Up / Walk-In / FedEx / UPS / DHL / Area Fast / Top Line / Other ________

TRK# 0201 3967 0157 6101

Compliance Acceptance Criteria:

1) **Chemistry:** >0, ≤6°C, not frozen (NELAP) (if received after 24 hrs of sample collection)

2) **Microbiology, Distribution:** < 10°C, not frozen (can be ≥10°C if received on ice the same day as sample collection, within 8 hours)

3) **Microbiology, Surface Water:** < 10°C (if received after 2 hours of sample collection)

If out of temperature range for both Chemistry and Microbiology samples and temperature does not confirm, then measure the temperature of each quadrant and record each temperature of the quadrants

1 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)	2 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)
3 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)	4 = (Observation= ____ °C) (Corr.Factor ____ °C) (Final = ____ °C)

4 **Dioxin (1613 or 2,3,7,8 TCDD):** must be between 0-4 °C, not frozen (if received after 24 hrs of sample collection)

5) **pH Check.** Manufacturer: ________ Lot Number: ________ pH strip type: 0 - 14 or ________ Expiration Date ________ Results: ____

6) **Chlorine check.** Manufacturer: Sansafe. Lot No.: ________ Expiration Date: ________ Results ________

7) **VOA and Radon Headspace:** **No Samples with Headspace:** ☐ **Samples with Headspace (see below):** ☐

Headspace Documentation (use additional VOC and Radon Internal COFC for additional bottles)

Exempt from headspace concerns: Methods 515.4, HAA(6251,552), 505, SPME, @CH, 532LCMS, 556, 536, Anatoxin, LCMS methods using 40 ml vials, International clients:

Samp ID	Bottle #	None/<6 mm	>6mm	Samp ID	Bottle #	None/<6 mm	>6mm	Samp ID	Bottle #	None/<6 mm	>6mm	Samp ID	Bottle #	None/<6 mm	>6mm

Note Sample IDs which have dissimilar headspace (i.e. potential sampling errors): ____________

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
RECEIVED BY:	[signature]	Paul Mei'lls	Eurofins Eaton Analytical	9-11-20	1219

QA FO 0083.8 (QA FO-FRM0504) (8/15/20) Ver 8

Page ___ of ___

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Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Laboratory Comments

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant
John Gunderlock - Shipping
160 Atascadero Road
Morro Bay, CA 93442

Folder Comments

Analtyical results for Ethylene Glycol are submitted by Eurofins TestAmerica in Savannah Georgia CA ELAP 2939 exp 6-30-2021
Analytical results for 8260B and 8270C are submitted by Eurofins Calscience in Garden Grove, CAELAP 2944 exp 9-30-2020
Analytical results for Tritium are submitted by Eurofins Eaton Analytical in South Bend IN CAELAP 2920 exp 9-16-20
Analytical results for Strontium are submitted by Eurofins TestAmerica, Earth City, MO CA ELAP# 2886 exp 6-30-2021

Flags Legend:

H3 - Sample was received and/ or analysis requested past holding time.

LM - MRL Check recovery was above laboratory acceptance limits. This target analyte was not detected in the sample.

U- (FL only) Indicates that the compound was analyzed for but not detected.

Result Comments

Odor at 60 C (TON)

202009110519: SAMPLE RECEIVED 09/11/2020 @ 1600; none

The Comments Report may be blank if there are no comments for this report.

eurofins Eaton Analytical

Laboratory Hits

Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant
John Gunderlock - Shipping
160 Atascadero Road
Morro Bay, CA 93442

Samples Received on:
09/11/2020 1227

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL
	202009110519	**E1**				
09/16/2020 14:59	Barium Total ICAP/MS		130	2000	ug/L	2.0
09/15/2020 12:49	Boron Total ICAP		0.13		mg/L	0.050
09/19/2020 15:22	Bromoform		0.53		ug/L	0.50
09/16/2020 03:42	Chlorate by IC		25		ug/L	10
09/11/2020 23:48	Chloride		190	250	mg/L	2.5
09/16/2020 14:59	Chromium Total ICAP/MS		3.0	100	ug/L	1.0
09/16/2020 15:30	Fluoride		0.22	4	mg/L	0.050
09/17/2020 13:49	Gross Alpha + adjusted error		3.4		pCi/L	3.0
09/17/2020 13:49	Gross Alpha by Coprecipitation		3.1	15	pCi/L	3.0
09/15/2020 15:37	Lithium Total ICP		0.0060		mg/L	0.0050
09/11/2020 23:48	Nitrate as Nitrogen by IC		21	10	mg/L	0.50
09/11/2020 23:48	Nitrate as NO3 (calc)		92	45	mg/L	2.2
09/16/2020 14:59	Selenium Total ICAP/MS		18	50	ug/L	5.0
09/16/2020 20:09	Specific Conductance, 25 C		1700		umho/cm	2.0
09/11/2020 23:48	Sulfate		150	250	mg/L	2.5
09/16/2020 14:59	Titanium Total ICAP/MS		80	2	ug/L	1.0
09/15/2020 23:05	Total Dissolved Solids (TDS)		990	500	mg/L	10
09/14/2020 14:00	Total Nitrate Nitrite as N		21		mg/L	
09/11/2020 23:48	Total Nitrate, Nitrite-N, CALC		21		mg/L	0.10
09/17/2020 16:05	Total Nitrogen-Calc		21		mg/L	0.20
09/19/2020 15:22	Total THM		0.53	80	ug/L	0.50
09/11/2020 16:41	Turbidity		2.5	5	NTU	0.10
09/16/2020 16:14	Uranium by ICPMS as pCi/L		1.2		pCi/L	0.70
09/16/2020 14:59	Uranium ICAP/MS		1.7	30	ug/L	1.0
09/16/2020 14:59	Vanadium Total ICAP/MS		3.0		ug/L	3.0

SUMMARY OF POSITIVE DATA ONLY

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Laboratory Data

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant
John Gunderlock - Shipping
160 Atascadero Road
Morro Bay, CA 93442

Samples Received on:
09/11/2020 1227

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
E1 (202009110519)						**Sampled on 09/10/2020 0830**			
		EPA 200.8 - ICPMS Metals							
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Aluminum Total ICAP/MS	ND	ug/L	20	1
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Antimony Total ICAP/MS	ND	ug/L	1.0	1
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Arsenic Total ICAP/MS	ND	ug/L	1.0	1
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Barium Total ICAP/MS	130	ug/L	2.0	1
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Beryllium Total ICAP/MS	ND	ug/L	1.0	1
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Cadmium Total ICAP/MS	ND	ug/L	0.50	1
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Chromium Total ICAP/MS	3.0	ug/L	1.0	1
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Cobalt Total ICAP/MS	ND	ug/L	2.0	1
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Copper Total ICAP/MS	ND	ug/L	2.0	1
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Lead Total ICAP/MS	ND	ug/L	0.50	1
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Manganese Total ICAP/MS	ND	ug/L	2.0	1
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Molybdenum Total ICAP/MS	ND	ug/L	2.0	1
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Nickel Total ICAP/MS	ND	ug/L	5.0	1
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Selenium Total ICAP/MS	18	ug/L	5.0	1
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Silver Total ICAP/MS	ND	ug/L	0.50	1
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Thallium Total ICAP/MS	ND	ug/L	1.0	1
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Tin by ICP-MS	ND	ug/L	1.0	1
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Titanium Total ICAP/MS	80	ug/L	1.0	1
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Uranium ICAP/MS	1.7	ug/L	1.0	1
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Vanadium Total ICAP/MS	3.0	ug/L	3.0	1
09/14/20	09/16/20 14:59	1274278	1274657	(EPA 200.8)	Zinc Total ICAP/MS	ND	ug/L	20	1
		EPA 200.7 - ICP Metals							
09/14/20	09/15/20 12:49	1274278	1274526	(EPA 200.7)	Boron Total ICAP	0.13	mg/L	0.050	1
09/14/20	09/15/20 12:49	1274278	1274526	(EPA 200.7)	Iron Total ICAP	ND	mg/L	0.020	1
09/14/20	09/15/20 15:37	1274278	1274702	(EPA 200.7)	Lithium Total ICP	0.0060	mg/L	0.0050	1
		EPA 200.8 - Mercury ICPMS							
09/14/20	09/16/20 14:59	1274278	1274659	(EPA 200.8)	Mercury ICPMS	ND	ug/L	0.20	1
		EPA 100.2 - Asbestos by TEM - >10 microns							
09/11/20	09/20/20 00:00	1274323	1275905	(EPA 100.2)	Asbestos by TEM - >10 microns	ND	MFL	0.20	1
		EPA 200.8 - Uranium by ICPMS as pCi/L							
	09/16/20 16:14			(EPA 200.8)	Uranium by ICPMS as pCi/L	1.2 (c)	pCi/L	0.70	1
		EPA 353-351 - Total Nitrogen-Calc							
	09/17/20 16:05			(EPA 353-351)	Total Nitrogen-Calc	21 (c)	mg/L	0.20	1
		EPA 200.8 - Chromium III (Calculated)							
	:			(EPA 200.8)	Chromium III (Calculated)	NA (c)	ug/L	1.0	1

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		EPA 300.0 - Total Nitrate Nitrite as N							
	09/14/20 14:00			(EPA 300.0)	Total Nitrate Nitrite as N	21 (c)	mg/L		1
		EPA 505 - Organochlorine Pesticides/PCBs							
09/15/20	09/16/20 04:27	1274745	1275287	(EPA 505)	Alachlor (Alanex)	ND	ug/L	0.10	1
09/15/20	09/16/20 04:27	1274745	1275287	(EPA 505)	Chlordane	ND	ug/L	0.10	1
09/15/20	09/16/20 04:27	1274745	1275287	(EPA 505)	Endrin	ND	ug/L	0.010	1
09/15/20	09/16/20 04:27	1274745	1275287	(EPA 505)	Heptachlor	ND	ug/L	0.010	1
09/15/20	09/16/20 04:27	1274745	1275287	(EPA 505)	Heptachlor Epoxide	ND	ug/L	0.010	1
09/15/20	09/16/20 04:27	1274745	1275287	(EPA 505)	Lindane (gamma-BHC)	ND	ug/L	0.010	1
09/15/20	09/16/20 04:27	1274745	1275287	(EPA 505)	Methoxychlor	ND	ug/L	0.050	1
09/15/20	09/16/20 04:27	1274745	1275287	(EPA 505)	PCB 1016 Aroclor	ND	ug/L	0.080	1
09/15/20	09/16/20 04:27	1274745	1275287	(EPA 505)	PCB 1221 Aroclor	ND	ug/L	0.10	1
09/15/20	09/16/20 04:27	1274745	1275287	(EPA 505)	PCB 1232 Aroclor	ND	ug/L	0.10	1
09/15/20	09/16/20 04:27	1274745	1275287	(EPA 505)	PCB 1242 Aroclor	ND	ug/L	0.10	1
09/15/20	09/16/20 04:27	1274745	1275287	(EPA 505)	PCB 1248 Aroclor	ND	ug/L	0.10	1
09/15/20	09/16/20 04:27	1274745	1275287	(EPA 505)	PCB 1254 Aroclor	ND	ug/L	0.10	1
09/15/20	09/16/20 04:27	1274745	1275287	(EPA 505)	PCB 1260 Aroclor	ND	ug/L	0.10	1
09/15/20	09/16/20 04:27	1274745	1275287	(EPA 505)	Total PCBs	ND	ug/L	0.10	1
09/15/20	09/16/20 04:27	1274745	1275287	(EPA 505)	Toxaphene	ND	ug/L	0.50	1
09/15/20	09/16/20 04:27	1274745	1275287	(EPA 505)	Tetrachlorometaxylene	96	%		1
		EPA 515.4 - Chlorophenoxy Herbicides							
09/17/20	09/18/20 07:26	1274932	1275375	(EPA 515.4)	2,4,5-TP (Silvex)	ND	ug/L	0.20	1
09/17/20	09/18/20 07:26	1274932	1275375	(EPA 515.4)	2,4-D	ND	ug/L	0.10	1
09/17/20	09/18/20 07:26	1274932	1275375	(EPA 515.4)	Bentazon	ND	ug/L	0.50	1
09/17/20	09/18/20 07:26	1274932	1275375	(EPA 515.4)	Dalapon	ND	ug/L	1.0	1
09/17/20	09/18/20 07:26	1274932	1275375	(EPA 515.4)	Dinoseb	ND	ug/L	0.20	1
09/17/20	09/18/20 07:26	1274932	1275375	(EPA 515.4)	Pentachlorophenol	ND (*)	ug/L	9.5	1
09/17/20	09/18/20 07:26	1274932	1275375	(EPA 515.4)	Picloram	ND	ug/L	0.10	1
09/17/20	09/18/20 07:26	1274932	1275375	(EPA 515.4)	2,4-Dichlorophenyl acetic acid	98	%		1
09/17/20	09/18/20 07:26	1274932	1275375	(EPA 515.4)	4,4-Dibromooctafluorobiphenyl	101	%		1
		SM 6251B - Haloacetic Acids							
09/18/20	09/20/20 21:52	1275513	1275654	(SM 6251B)	Bromochloroacetic acid	ND	ug/L	1.0	1
09/18/20	09/20/20 21:52	1275513	1275654	(SM 6251B)	Dibromoacetic acid	ND	ug/L	1.0	1
09/18/20	09/20/20 21:52	1275513	1275654	(SM 6251B)	Dichloroacetic acid	ND	ug/L	1.0	1
09/18/20	09/20/20 21:52	1275513	1275654	(SM 6251B)	Monobromoacetic acid	ND	ug/L	1.0	1
09/18/20	09/20/20 21:52	1275513	1275654	(SM 6251B)	Monochloroacetic acid	ND	ug/L	2.0	1
09/18/20	09/20/20 21:52	1275513	1275654	(SM 6251B)	Total Haloacetic Acids (HAA5)	ND	ug/L	2.0	1

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09/18/20	09/20/20 21:52	1275513	1275654	(SM 6251B)	Trichloroacetic acid	ND	ug/L	1.0	1
09/18/20	09/20/20 21:52	1275513	1275654	(SM 6251B)	1,2,3-Trichloropropane	104	%		1
09/18/20	09/20/20 21:52	1275513	1275654	(SM 6251B)	2,3-Dibromopropionic acid	100	%		1
	EPA 504.1 - EPA Method 504.1								
09/14/20	09/15/20 09:11	1274443	1274689	(EPA 504.1)	Dibromochloropropane (DBCP)	ND	ug/L	0.010	1
09/14/20	09/15/20 09:11	1274443	1274689	(EPA 504.1)	Ethylene Dibromide (EDB)	ND	ug/L	0.010	1
09/14/20	09/15/20 09:11	1274443	1274689	(EPA 504.1)	1,2-Dibromopropane	100	%		1
	EPA 556 - EPA Method 556								
09/15/20	09/16/20 11:13	1274721	1275074	(EPA 556)	Acetaldehyde	ND	ug/L	1.0	1
09/15/20	09/16/20 11:13	1274721	1275074	(EPA 556)	Formaldehyde	ND	ug/L	5.0	1
09/15/20	09/16/20 11:13	1274721	1275074	(EPA 556)	1,2-Dibromopropane	109	%		1
09/15/20	09/16/20 11:13	1274721	1275074	(EPA 556)	2,3,5,6-Tetrafluorobenzaldehyde	96	%		1
	EPA 548.1 - Endothall								
09/14/20	09/16/20 9:39	1274438	1274790	(EPA 548.1)	Endothall	ND	ug/L	40	8
	EPA 521 - 521 by Triple Quad								
09/21/20	09/29/20 16:50	1276045	1277578	(EPA 521)	N-Nitroso dimethylamine (NDMA)	ND	ng/L	2.0	1
09/21/20	09/29/20 16:50	1276045	1277578	(EPA 521)	N-Nitrosodibutylamine (NDBA)	ND	ng/L	2.0	1
09/21/20	09/29/20 16:50	1276045	1277578	(EPA 521)	N-Nitrosodiethylamine (NDEA)	ND	ng/L	2.0	1
09/21/20	09/29/20 16:50	1276045	1277578	(EPA 521)	N-Nitrosodi-n-propylamine (NDPA)	ND	ng/L	2.0	1
09/21/20	09/29/20 16:50	1276045	1277578	(EPA 521)	N-Nitrosomethylethylamine (NMEA)	ND	ng/L	2.0	1
09/21/20	09/29/20 16:50	1276045	1277578	(EPA 521)	N-Nitrosomorpholine	ND	ng/L	2.0	1
09/21/20	09/29/20 16:50	1276045	1277578	(EPA 521)	N-Nitrosopiperidine (NPIP)	ND	ng/L	2.0	1
09/21/20	09/29/20 16:50	1276045	1277578	(EPA 521)	N-Nitrosopyrollidine (NPYR)	ND	ng/L	2.0	1
09/21/20	09/29/20 16:50	1276045	1277578	(EPA 521)	NDMA-D6	79	%		1
09/21/20	09/29/20 16:50	1276045	1277578	(EPA 521)	NDPA-D14	126	%		1
	EPA 547 - Glyphosate								
	09/17/20 1:28		1275039	(EPA 547)	Glyphosate	ND	ug/L	6.0	1
	EPA 531.2 - Aldicarbs								
	09/27/20 22:29		1277471	(EPA 531.2)	3-Hydroxycarbofuran	ND	ug/L	0.50	1
	09/27/20 22:29		1277471	(EPA 531.2)	Aldicarb (Temik)	ND	ug/L	0.50	1
	09/27/20 22:29		1277471	(EPA 531.2)	Aldicarb sulfone	ND	ug/L	0.50	1
	09/27/20 22:29		1277471	(EPA 531.2)	Aldicarb sulfoxide	ND	ug/L	0.50	1
	09/27/20 22:29		1277471	(EPA 531.2)	Baygon	ND	ug/L	0.50	1
	09/27/20 22:29		1277471	(EPA 531.2)	Carbaryl	ND	ug/L	0.50	1
	09/27/20 22:29		1277471	(EPA 531.2)	Carbofuran (Furadan)	ND	ug/L	0.50	1
	09/27/20 22:29		1277471	(EPA 531.2)	Methiocarb	ND	ug/L	0.50	1
	09/27/20 22:29		1277471	(EPA 531.2)	Methomyl	ND	ug/L	0.50	1
	09/27/20 22:29		1277471	(EPA 531.2)	Oxamyl (Vydate)	ND	ug/L	0.50	1

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	09/27/20 22:29		1277471	(EPA 531.2)	4-Bromo-3,5-dimethylphenyl-N-methylc arbamate	100	%		1
		EPA 549.2 - Diquat and Paraquat							
09/15/20	09/18/20 15:22	1274504	1275804	(EPA 549.2)	Diquat	ND	ug/L	0.40	1
09/15/20	09/18/20 15:22	1274504	1275804	(EPA 549.2)	Paraquat	ND	ug/L	2.0	1
		EPA 317 - Bromate by UV/VIS 317							
	10/02/20 10:36		1278519	(EPA 317)	Bromate by UV/VIS	ND	ug/L	1.0	1
		EPA 300.0 - Nitrate, Nitrite by EPA 300.0							
	09/11/20 23:48		1274156	(EPA 300.0)	Nitrate as Nitrogen by IC	21	mg/L	0.50	5
	09/11/20 23:48		1274156	(EPA 300.0)	Nitrate as NO3 (calc)	92	mg/L	2.2	5
	09/11/20 23:48		1274156	(EPA 300.0)	Nitrite Nitrogen by IC	ND	mg/L	0.25	5
	09/11/20 23:48		1274156	(EPA 300.0)	Total Nitrate, Nitrite-N, CALC	21	mg/L	0.10	1
		EPA 300.0 - Chlorite by 300.0							
	09/16/20 03:42		1274899	(EPA 300.0)	Chlorite by IC	ND	mg/L	0.010	1
		EPA 300.0 - Disinfection ByProducts by 300.0							
	09/16/20 03:42		1274902	(EPA 300.0)	Chlorate by IC	25	ug/L	10	1
		EPA 300.0 - Chloride, Sulfate by EPA 300.0							
	09/11/20 23:48		1274160	(EPA 300.0)	Chloride	190	mg/L	2.5	5
	09/11/20 23:48		1274160	(EPA 300.0)	Sulfate	150	mg/L	2.5	5
		EPA 314.0 - Perchlorate							
	09/22/20 21:57	(1)	1275914	(EPA 314.0)	Perchlorate	ND	ug/L	4.0	1
		LC-MS-MS - Explosives by LCMS							
	09/14/20 20:44		1274277	(LC-MS-MS)	2,4,6-Trinitrotoluene (TNT)	ND	ug/L	0.10	1
	09/21/20 15:23		1275993	(LC-MS-MS)	HMX	ND	ug/L	0.10	1
	09/21/20 15:23		1275993	(LC-MS-MS)	RDX	ND	ug/L	0.10	1
		EPA 537.1 - EPA Method 537.1							
09/16/20	09/16/20 22:54	1274781	1275156	(EPA 537.1)	Perfluorooctanesulfonic acid (PFOS)	ND	ug/L	0.0020	1
09/16/20	09/16/20 22:54	1274781	1275156	(EPA 537.1)	Perfluorooctanoic acid (PFOA)	ND	ug/L	0.0020	1
09/16/20	09/16/20 22:54	1274781	1275156	(EPA 537.1)	13C2-PFDA	89	%		1
09/16/20	09/16/20 22:54	1274781	1275156	(EPA 537.1)	13C2-PFHxA	102	%		1
09/16/20	09/16/20 22:54	1274781	1275156	(EPA 537.1)	13C2-PFOA– IS#1	112	%		1
09/16/20	09/16/20 22:54	1274781	1275156	(EPA 537.1)	13C4-PFOS– IS#2	101	%		1
		EPA 900.0 - Gross Alpha/Beta Radiation							
09/21/20	09/23/20 12:17	1276022	1276528	(EPA 900.0)	Beta, Gross	ND	pCi/L	3.0	1
09/21/20	09/23/20 12:17	1276022	1276528	(EPA 900.0)	Beta, Min Detectable Activity	2	pCi/L		1
09/21/20	09/23/20 12:17	1276022	1276528	(EPA 900.0)	Beta, Two Sigma Error	0.59	pCi/L		1
		Ra-226 GA - Radium 226							
09/17/20	10/01/20 18:29	1274794	1278348	(Ra-226 GA)	Radium 226	ND	pCi/L	1.0	1

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09/17/20	10/01/20 18:29	1274794	1278348	(Ra-226 GA)	Radium 226 Min Detect Activity	0.4	pCi/L		1
09/17/20	10/01/20 18:29	1274794	1278348	(Ra-226 GA)	Radium 226 Two Sigma Error	ND	pCi/L	1.0	1
		RA-228 GA - Radium 228							
09/17/20	10/01/20 18:29	1274795	1278349	(RA-228 GA)	Radium 228	ND	pCi/L	1.0	1
09/17/20	10/01/20 18:29	1274795	1278349	(RA-228 GA)	Radium 228 Min Detect Activity	0.9	pCi/L		1
09/17/20	10/01/20 18:29	1274795	1278349	(RA-228 GA)	Radium 228 Two Sigma Error	ND	pCi/L	1.0	1
		SM 7110C - Gross Alpha by Co-precipitation							
09/15/20	09/17/20 13:49	1274396	1275364	(SM 7110C)	Alpha, Min Detectable Activity	0.2	pCi/L		1
09/15/20	09/17/20 13:49	1274396	1275364	(SM 7110C)	Alpha, Two Sigma Error	0.38	pCi/L		1
09/15/20	09/17/20 13:49	1274396	1275364	(SM 7110C)	Gross Alpha + adjusted error	3.4	pCi/L	3.0	1
09/15/20	09/17/20 13:49	1274396	1275364	(SM 7110C)	Gross Alpha by Coprecipitation	3.1	pCi/L	3.0	1
		EPA 351.2 - Total Kjeldahl Nitrogen							
	09/17/20 15:40		1275169	(EPA 351.2)	Kjeldahl Nitrogen	ND	mg/L	0.20	1
		EPA 906.0 - Total Tritium (Sub)							
	09/24/20 00:14			(EPA 906.0)	Tritium	<355	pCi/L	355	1
	09/24/20 00:14			(EPA 906.0)	Tritium, MDA	355	pCi/L		1
	09/24/20 00:14			(EPA 906.0)	Tritium, Two Sigma Error	351	pCi/L		1
		EPA 905.0 - Strontium-90 (sub)							
	09/30/20 16:46			(EPA 905.0)	Strontium 90 (sub)	<3 (U)	pCi/L	3	1
	09/30/20 16:46			(EPA 905.0)	Strontium-90, MDA	0.695	pCi/L		1
	09/30/20 16:46			(EPA 905.0)	Strontium-90, Two Sigma Error	0.380	pCi/L		1
		EPA 8260B - 4848_8260 VOC W Super List							
	09/22/20 14:04			(EPA 8260B)	1,1,1,2-Tetrachloroethane	ND	ug/L	2	1
	09/22/20 14:04			(EPA 8260B)	1,1,1-Trichloroethane	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	1,1,2,2-Tetrachloroethane	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	10	1
	09/22/20 14:04			(EPA 8260B)	1,1,2-Trichloroethane	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	1,1-Dichloroethane	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	1,1-Dichloroethene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	1,1-Dichloropropene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	1,2,3-Trichlorobenzene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	1,2,3-Trichloropropane	ND	ug/L	5	1
	09/22/20 14:04			(EPA 8260B)	1,2,4-Trichlorobenzene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	1,2,4-Trimethylbenzene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	1,2-Dibromo-3-chloropropane	ND	ug/L	10	1
	09/22/20 14:04			(EPA 8260B)	1,2-Dibromoethane	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	1,2-Dichlorobenzene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	1,2-Dichloroethane	ND	ug/L	0.5	1

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Laboratory Data

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1 800 566 LABS (1 800 566 5227)

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant
John Gunderlock - Shipping
160 Atascadero Road
Morro Bay, CA 93442

Samples Received on:
09/11/2020 1227

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
	09/22/20 14:04			(EPA 8260B)	1,2-Dichloropropane	ND (*)	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	1,3,5-Trimethylbenzene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	1,3-butadiene	ND	ug/L	25	1
	09/22/20 14:04			(EPA 8260B)	1,3-Dichlorobenzene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	1,3-Dichloropropane	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	1,4-Dichlorobenzene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	1,4-Dioxane	ND	ug/L	100	1
	09/22/20 14:04			(EPA 8260B)	2,2-Dichloropropane	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	2-Butanone	ND	ug/L	20	1
	09/22/20 14:04			(EPA 8260B)	2-Chloroethyl vinyl ether	ND (*1)	ug/L	50	1
	09/22/20 14:04			(EPA 8260B)	2-Chlorotoluene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	2-Hexanone	ND	ug/L	10	1
	09/22/20 14:04			(EPA 8260B)	4-chlorotoluene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	4-methyl-2-Pentanone	ND	ug/L	10	1
	09/22/20 14:04			(EPA 8260B)	Acetone	ND	ug/L	20	1
	09/22/20 14:04			(EPA 8260B)	Acetonitrile	ND	ug/L	20	1
	09/22/20 14:04			(EPA 8260B)	Acrolein	ND (*1)	ug/L	50	1
	09/22/20 14:04			(EPA 8260B)	Acrylonitrile	ND	ug/L	20	1
	09/22/20 14:04			(EPA 8260B)	Benzene	ND	ug/L	0.5	1
	09/22/20 14:04			(EPA 8260B)	Bromobenzene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	Bromochloromethane	ND	ug/L	2	1
	09/22/20 14:04			(EPA 8260B)	Bromodichloromethane	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	Bromoform	ND	ug/L	5	1
	09/22/20 14:04			(EPA 8260B)	Bromomethane	ND	ug/L	50	1
	09/22/20 14:04			(EPA 8260B)	c-1,2-Dichloroethene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	Carbon disulfide	ND	ug/L	10	1
	09/22/20 14:04			(EPA 8260B)	Carbon Tetrachloride	ND	ug/L	0.5	1
	09/22/20 14:04			(EPA 8260B)	Chlorobenzene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	Chloroethane	ND	ug/L	5	1
	09/22/20 14:04			(EPA 8260B)	Chloroform	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	Chloromethane	ND	ug/L	10	1
	09/22/20 14:04			(EPA 8260B)	cis-1,3-Dichloropropene	ND	ug/L	0.5	1
	09/22/20 14:04			(EPA 8260B)	Dibromochloromethane	ND	ug/L	2	1
	09/22/20 14:04			(EPA 8260B)	Dibromomethane	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	Dichlorodifluoromethane	ND	ug/L	5	1
	09/22/20 14:04			(EPA 8260B)	Diethyl Ether	ND	ug/L	10	1
	09/22/20 14:04			(EPA 8260B)	Diisopropyl Ether (DIPE)	ND	ug/L	2	1

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Laboratory Data

Report: 892211
Project: GROUNDWATER
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Morro Bay Waterwater Treatment Plant
John Gunderlock - Shipping
160 Atascadero Road
Morro Bay, CA 93442

Samples Received on:
09/11/2020 1227

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
	09/22/20 14:04			(EPA 8260B)	Ethanol	ND	ug/L	100	1
	09/22/20 14:04			(EPA 8260B)	Ethylbenzene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	Hexachloro-1,3-Butadiene	ND	ug/L	20	1
	09/22/20 14:04			(EPA 8260B)	Hexane	ND	ug/L	5	1
	09/22/20 14:04			(EPA 8260B)	Iodomethane	ND	ug/L	50	1
	09/22/20 14:04			(EPA 8260B)	Isobutyl Alcohol	ND (*)	ug/L	50	1
	09/22/20 14:04			(EPA 8260B)	Isopropanol	ND	ug/L	200	1
	09/22/20 14:04			(EPA 8260B)	Isopropylbenzene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	m,p-Xylene	ND	ug/L	2	1
	09/22/20 14:04			(EPA 8260B)	Methylene chloride	ND	ug/L	10	1
	09/22/20 14:04			(EPA 8260B)	Methyl-t-Butyl Ether (MTBE)	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	naphthalene	ND	ug/L	10	1
	09/22/20 14:04			(EPA 8260B)	n-Butylbenzene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	n-Propyl benzene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	o-Xylene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	p-Isopropyltoluene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	sec-Butylbenzene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	Styrene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	t-1,2-Dichloroethene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	t-1,3-Dichloropropene	ND	ug/L	0.5	1
	09/22/20 14:04			(EPA 8260B)	t-1,4-Dichloro-2-Butene	ND	ug/L	20	1
	09/22/20 14:04			(EPA 8260B)	Tert-Butyl Alcohol (TBA)	ND	ug/L	10	1
	09/22/20 14:04			(EPA 8260B)	tert-Butylbenzene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	Tetrachloroethene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	Tetrahydrofuran	ND	ug/L	20	1
	09/22/20 14:04			(EPA 8260B)	Thiophene	ND	ug/L	10	1
	09/22/20 14:04			(EPA 8260B)	Toluene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	Trichloroethene	ND	ug/L	1	1
	09/22/20 14:04			(EPA 8260B)	Trichlorofluoromethane	ND	ug/L	10	1
	09/22/20 14:04			(EPA 8260B)	Vinyl Acetate	ND	ug/L	10	1
	09/22/20 14:04			(EPA 8260B)	Vinyl chloride	ND	ug/L	0.5	1
	09/22/20 14:04			(EPA 8260B)	1,2-Dichloroethane-d4	102	%		1
	09/22/20 14:04			(EPA 8260B)	1,4-Bromofluorobenzene	101	%		1
	09/22/20 14:04			(EPA 8260B)	Dibromofluoromethane	99	%		1
	09/22/20 14:04			(EPA 8260B)	Toluene-d8	100	%		1
		EPA 8270C - 4871 Super 8270 List							
09/22/20	09/18/20 21:20			(EPA 8270C)	1,2-Dichlorobenzene	ND	ug/L	9.5	1

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Morro Bay Waterwater Treatment Plant
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160 Atascadero Road
Morro Bay, CA 93442

Samples Received on:
09/11/2020 1227

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
09/22/20	09/18/20 21:20			(EPA 8270C)	1,2-Diphenylhydrazine	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	1,3-Dichlorobenzene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	1,4-Dichlorobenzene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	1-Methylnaphthalene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	2,4,5-Trichlorophenol	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	2,4,6-Trichlorophenol	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	2,4-Dichlorophenol	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	2,4-Dimethylphenol	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	2,4-Dinitrophenol	ND	ug/L	48	1
09/22/20	09/18/20 21:20			(EPA 8270C)	2,4-Dinitrotoluene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	2,6-Dinitrotoluene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	2-chloronaphthalene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	2-chlorophenol	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	2-methylnaphthalene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	2-Methylphenol	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	2-Nitroaniline	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	2-Nitrophenol	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	3,3-Dichlorobenzidine	ND	ug/L	24	1
09/22/20	09/18/20 21:20			(EPA 8270C)	3-4-Methylphenol	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	3-nitroaniline	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	4,6-Dinitro-2-methylphenol	ND	ug/L	48	1
09/22/20	09/18/20 21:20			(EPA 8270C)	4-Bromophenyl phenyl ether	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	4-chloro-3-methyl phenol	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	4-chloroaniline	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	4-Chlorophenyl phenyl ether	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	4-Nitroaniline	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	4-Nitrophenol	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	acenaphthene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Acenaphthylene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	aniline	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Anthracene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	azobenzene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Benzidine	ND	ug/L	48	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Benzo(a)anthracene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Benzo(a)pyrene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Benzo(b)fluoranthene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Benzo(g,h,i)perylene	ND	ug/L	9.5	1

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09/22/20	09/18/20 21:20			(EPA 8270C)	Benzo(k)fluoranthene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Benzoic Acid	ND	ug/L	48	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Benzyl Alcohol	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Benzyl Butyl Phthalate	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Bis(2-chloroethoxy)methane	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	bis(2-chloroethyl)ether	ND	ug/L	24	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Bis(2-chloroisopropyl)ether	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Bis(2-ethylhexyl)phthalate	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Chrysene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Dibenz(a,h)anthracene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Dibenzofuran	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Diethyl phthalate	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Dimethyl phthalate	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	di-n-butyl phthalate	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Di-n-octyl phthalate	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Fluoranthene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Fluorene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Hexachloro-1,3-Butadiene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Hexachlorobenzene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	hexachlorocyclopentadiene	ND	ug/L	24	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Hexachloroethane	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Indeno(1,2,3-cd)pyrene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Isophorone	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	naphthalene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Nitrobenzene	ND	ug/L	24	1
09/22/20	09/18/20 21:20			(EPA 8270C)	N-Nitrosodiethylamine	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	N-nitrosodimethylamine	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	N-Nitrosodi-n-propylamine	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	N-Nitrosodiphenylamine	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Pentachlorophenol	ND (*)	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Phenanthrene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	phenol	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Pyrene	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Pyridine	ND	ug/L	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	2,4,6-Tribromophenol	74	%	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	2-Fluorobiphenyl	54	%	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	2-Fluorophenol	42	%	9.5	1

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Laboratory Data

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant
John Gunderlock - Shipping
160 Atascadero Road
Morro Bay, CA 93442

Samples Received on:
09/11/2020 1227

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
09/22/20	09/18/20 21:20			(EPA 8270C)	Nitrobenzene-d5	59	%	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	Phenol-d6	27	%	9.5	1
09/22/20	09/18/20 21:20			(EPA 8270C)	p-Terphenyl-d14	79	%		1
		EPA 8015B - Ethylene Glycol							
	09/21/20 18:49			(EPA 8015B)	Ethylene Glycol	ND (U)	mg/L	5	1
		EPA 524.2 - Volatile Organics by GCMS							
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	1,1,1-Trichloroethane	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	1,1,2-Trichloroethane	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	1,1-Dichloroethane	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	1,1-Dichloroethylene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	1,1-Dichloropropene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	1,2,3-Trichlorobenzene	ND (LM)	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	1,2,3-Trichloropropane	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	1,2,4-Trichlorobenzene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	1,2,4-Trimethylbenzene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	1,2-Dichloroethane	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	1,2-Dichloropropane	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	1,3,5-Trimethylbenzene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	1,3-Dichloropropane	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	2,2-Dichloropropane	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	2-Butanone (MEK)	ND	ug/L	5.0	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Benzene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Bromobenzene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Bromochloromethane	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Bromodichloromethane	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Bromoethane	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Bromoform	0.53	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Bromomethane (Methyl Bromide)	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Carbon disulfide	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Carbon Tetrachloride	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Chlorobenzene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Chlorodibromomethane	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Chloroethane	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Chloroform (Trichloromethane)	ND	ug/L	0.50	1

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Samples Received on:
09/11/2020 1227

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Chloromethane(Methyl Chloride)	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	cis-1,2-Dichloroethylene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	cis-1,3-Dichloropropene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Dibromomethane	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Dichlorodifluoromethane	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Dichloromethane	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Di-isopropyl ether	ND	ug/L	3.0	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Ethyl benzene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Hexachlorobutadiene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Isopropylbenzene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	m,p-Xylenes	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	m-Dichlorobenzene (1,3-DCB)	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Methyl Tert-butyl ether (MTBE)	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Naphthalene	ND (LM)	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	n-Butylbenzene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	n-Propylbenzene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	o-Chlorotoluene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	o-Dichlorobenzene (1,2-DCB)	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	o-Xylene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	p-Chlorotoluene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	p-Dichlorobenzene (1,4-DCB)	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	p-Isopropyltoluene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	sec-Butylbenzene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Styrene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	tert-amyl Methyl Ether	ND	ug/L	3.0	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	tert-Butyl Ethyl Ether	ND	ug/L	3.0	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	tert-Butylbenzene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Tetrachloroethylene (PCE)	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Toluene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Total 1,3-Dichloropropene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Total THM	0.53	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Total xylenes	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	trans-1,2-Dichloroethylene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	trans-1,3-Dichloropropene	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Trichloroethylene (TCE)	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Trichlorofluoromethane	ND	ug/L	0.50	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Trichlorotrifluoroethane(Freon 113)	ND	ug/L	0.50	1

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09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Vinyl chloride (VC)	ND	ug/L	0.30	1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	1,2-Dichloroethane-d4	95	%		1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	4-Bromofluorobenzene	117	%		1
09/19/20	09/19/20 15:22	1275852	1275854	(EPA 524.2)	Toluene-d8	101	%		1
		CASRL 524M-TCP - 1,2,3-Trichloropropane (SIM)							
09/14/20	09/14/20 21:38	1274497	1274524	(CASRL 524M-TCP)	1,2,3-Trichloropropane	ND	ug/L	0.00500	1
09/14/20	09/14/20 21:38	1274497	1274524	(CASRL 524M-TCP)	Toluene-d8	101	%		1
		EPA 524.2 SIM - TBA by EPA 524.2 Modified							
09/16/20	09/16/20 20:05	1275066	1275114	(EPA 524.2 SIM)	t-Butyl Alcohol	ND	ug/L	2.0	1
09/16/20	09/16/20 20:05	1275066	1275114	(EPA 524.2 SIM)	1,2-Dichloroethane-d4	104	%		1
09/16/20	09/16/20 20:05	1275066	1275114	(EPA 524.2 SIM)	4-Bromofluorobenzene	98	%		1
09/16/20	09/16/20 20:05	1275066	1275114	(EPA 524.2 SIM)	Toluene-d8	100	%		1
		SM4500CN-F - Cyanide							
	09/14/20 13:12		1274357	(SM4500CN-F)	Cyanide	ND	mg/L	0.025	1
		SM 2150B - Odor at 60 C (TON)							
	09/11/20 16:43		1274999	(SM 2150B)	Odor at 60 C (TON)	ND (H3)	TON	1.0	1
		SM 4500F-C - Fluoride							
	09/16/20 15:30		1275200	(SM 4500F-C)	Fluoride	0.22	mg/L	0.050	1
		E160.1/SM2540C - Total Dissolved Solids (TDS)							
09/15/20	09/15/20 23:05	1274766	1274768	(E160.1/SM2540C)	Total Dissolved Solids (TDS)	990	mg/L	10	1
		SM 5540C/EPA 425.1 - Surfactants							
	09/11/20 14:20		1274087	(SM 5540C/EPA 425.1)	Surfactants	ND	mg/L	0.10	1
		EPA 180.1 - Turbidity							
	09/11/20 16:41		1274339	(EPA 180.1)	Turbidity	2.5	NTU	0.10	1
		SM2510B - Specific Conductance							
	09/16/20 20:09		1275211	(SM2510B)	Specific Conductance, 25 C	1700	umho/cm	2.0	1
		SM 2120B - Apparent Color							
	09/11/20 18:15		1274432	(SM 2120B)	Apparent Color	ND	ACU	3.0	1
		SM 3500CrB - Hexavalent Chromium Total							
	09/19/20 13:21		1275749	(SM 3500CrB)	Hexavalent Chromium Total	ND	mg/L	0.0050	1

TRAVEL BLANK (202009110520) **Sampled on 09/10/2020 0830**

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
		EPA 504.1 - EPA Method 504.1							
09/14/20	09/15/20 09:47	1274443	1274689	(EPA 504.1)	Dibromochloropropane (DBCP)	ND	ug/L	0.010	1
09/14/20	09/15/20 09:47	1274443	1274689	(EPA 504.1)	Ethylene Dibromide (EDB)	ND	ug/L	0.010	1
09/14/20	09/15/20 09:47	1274443	1274689	(EPA 504.1)	1,2-Dibromopropane	111	%		1
		EPA 524.2 - Volatile Organics by GCMS							

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Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	1,1,1-Trichloroethane	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	1,1,2-Trichloroethane	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	1,1-Dichloroethane	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	1,1-Dichloroethylene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	1,1-Dichloropropene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	1,2,3-Trichlorobenzene	ND (LM)	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	1,2,3-Trichloropropane	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	1,2,4-Trichlorobenzene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	1,2,4-Trimethylbenzene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	1,2-Dichloroethane	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	1,2-Dichloropropane	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	1,3,5-Trimethylbenzene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	1,3-Dichloropropane	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	2,2-Dichloropropane	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	2-Butanone (MEK)	ND	ug/L	5.0	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Benzene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Bromobenzene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Bromochloromethane	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Bromodichloromethane	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Bromoethane	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Bromoform	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Bromomethane (Methyl Bromide)	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Carbon disulfide	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Carbon Tetrachloride	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Chlorobenzene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Chlorodibromomethane	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Chloroethane	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Chloroform (Trichloromethane)	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Chloromethane(Methyl Chloride)	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	cis-1,2-Dichloroethylene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	cis-1,3-Dichloropropene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Dibromomethane	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Dichlorodifluoromethane	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Dichloromethane	ND	ug/L	0.50	1

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Laboratory Data

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant
John Gunderlock - Shipping
160 Atascadero Road
Morro Bay, CA 93442

Samples Received on:
09/11/2020 1227

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Di-isopropyl ether	ND	ug/L	3.0	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Ethyl benzene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Hexachlorobutadiene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Isopropylbenzene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	m,p-Xylenes	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	m-Dichlorobenzene (1,3-DCB)	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Methyl Tert-butyl ether (MTBE)	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Naphthalene	ND (LM)	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	n-Butylbenzene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	n-Propylbenzene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	o-Chlorotoluene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	o-Dichlorobenzene (1,2-DCB)	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	o-Xylene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	p-Chlorotoluene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	p-Dichlorobenzene (1,4-DCB)	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	p-Isopropyltoluene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	sec-Butylbenzene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Styrene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	tert-amyl Methyl Ether	ND	ug/L	3.0	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	tert-Butyl Ethyl Ether	ND	ug/L	3.0	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	tert-Butylbenzene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Tetrachloroethylene (PCE)	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Toluene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Total 1,3-Dichloropropene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Total THM	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Total xylenes	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	trans-1,2-Dichloroethylene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	trans-1,3-Dichloropropene	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Trichloroethylene (TCE)	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Trichlorofluoromethane	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Trichlorotrifluoroethane(Freon 113)	ND	ug/L	0.50	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Vinyl chloride (VC)	ND	ug/L	0.30	1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	1,2-Dichloroethane-d4	98	%		1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	4-Bromofluorobenzene	100	%		1
09/19/20	09/19/20 13:54	1275852	1275854	(EPA 524.2)	Toluene-d8	98	%		1
		EPA 524.2 SIM - TBA by EPA 524.2 Modified							
09/16/20	09/16/20 19:43	1275066	1275114	(EPA 524.2 SIM)	t-Butyl Alcohol	ND	ug/L	2.0	1

Rounding on totals after summation.
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Laboratory Data

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Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant
John Gunderlock - Shipping
160 Atascadero Road
Morro Bay, CA 93442

Samples Received on:
09/11/2020 1227

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
09/16/20	09/16/20 19:43	1275066	1275114	(EPA 524.2 SIM)	1,2-Dichloroethane-d4	102	%		1
09/16/20	09/16/20 19:43	1275066	1275114	(EPA 524.2 SIM)	4-Bromofluorobenzene	100	%		1
09/16/20	09/16/20 19:43	1275066	1275114	(EPA 524.2 SIM)	Toluene-d8	100	%		1

FIELD BLANK (PFAS)-HOLD (202009110521) **Sampled on 09/10/2020 0830**

EPA 537.1 - EPA Method 537.1

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	11-chloroeicosafluoro-3-oxaundecane-sulfonic acid	NA	ug/L	0.0020	1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	NA	ug/L	0.0020	1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	9-chlorohexadecafluoro-3-oxanone-sulfonic acid	NA	ug/L	0.0020	1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	Hexafluoropropylene oxide dimer acid (HFPO-DA)	NA	ug/L	0.0050	1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	N-ethyl Perfluorooctanesulfonamidoacetic acid	NA	ug/L	0.0020	1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	N-methyl Perfluorooctanesulfonamidoacetic acid	NA	ug/L	0.0020	1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	Perfluorobutanesulfonic acid (PFBS)	NA	ug/L	0.0020	1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	Perfluorodecanoic acid (PFDA)	NA	ug/L	0.0020	1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	Perfluorododecanoic acid (PFDoA)	NA	ug/L	0.0020	1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	Perfluoroheptanoic acid (PFHpA)	NA	ug/L	0.0020	1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	Perfluorohexanesulfonic acid (PFHxS)	NA	ug/L	0.0020	1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	Perfluorohexanoic acid (PFHxA)	NA	ug/L	0.0020	1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	Perfluorononanoic acid (PFNA)	NA	ug/L	0.0020	1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	Perfluorooctanesulfonic acid (PFOS)	NA	ug/L	0.0020	1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	Perfluorooctanoic acid (PFOA)	NA	ug/L	0.0020	1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	Perfluorotetradecanoic acid (PFTA)	NA	ug/L	0.0020	1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	Perfluorotridecanoic acid (PFTrDA)	NA	ug/L	0.0020	1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	Perfluoroundecanoic acid (PFUnA)	NA	ug/L	0.0020	1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	13C2-PFDA	NA	%		1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	13C2-PFHxA	NA	%		1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	13C2-PFOA– IS#1	NA	%		1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	13C3-HFPO-DA	NA	%		1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	13C4-PFOS– IS#2	NA	%		1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	d3-NMeFOSAA	NA	%		1
09/17/20	09/17/20 10:00	1275240	1275241	(EPA 537.1)	d5-NEtFOSAA	NA	%		1

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Laboratory QC Summary

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

Surfactants		
Analytical Batch: 1274087		**Analysis Date: 09/11/2020**
202009110519	E1	Analyzed by: YHP7
Nitrate, Nitrite by EPA 300.0		
Analytical Batch: 1274156		**Analysis Date: 09/11/2020**
202009110519	E1	Analyzed by: HL7J
Chloride, Sulfate by EPA 300.0		
Analytical Batch: 1274160		**Analysis Date: 09/11/2020**
202009110519	E1	Analyzed by: HL7J
Explosives by LCMS		
Analytical Batch: 1274277		**Analysis Date: 09/14/2020**
202009110519	E1	Analyzed by: GG8Y
Turbidity		
Analytical Batch: 1274339		**Analysis Date: 09/11/2020**
202009110519	E1	Analyzed by: NVN6
Cyanide		
Analytical Batch: 1274357		**Analysis Date: 09/14/2020**
202009110519	E1	Analyzed by: LQ3M
Apparent Color		
Analytical Batch: 1274432		**Analysis Date: 09/11/2020**
202009110519	E1	Analyzed by: NVN6
1,2,3-Trichloropropane (SIM)		
Prep Batch: 1274497	**Analytical Batch: 1274524**	**Analysis Date: 09/14/2020**
202009110519	E1	Analyzed by: TR7W
ICP Metals		
Prep Batch: 1274278	**Analytical Batch: 1274526**	**Analysis Date: 09/15/2020**
202009110519	E1	Analyzed by: NINA
ICPMS Metals		
Prep Batch: 1274278	**Analytical Batch: 1274657**	**Analysis Date: 09/16/2020**
202009110519	E1	Analyzed by: DHX7
Mercury ICPMS		
Prep Batch: 1274278	**Analytical Batch: 1274659**	**Analysis Date: 09/16/2020**
202009110519	E1	Analyzed by: DHX7
EPA Method 504.1		
Prep Batch: 1274443	**Analytical Batch: 1274689**	**Analysis Date: 09/15/2020**
202009110519	E1	Analyzed by: DYM
202009110520	TRAVEL BLANK	Analyzed by: DYM
ICP Metals		
Prep Batch: 1274278	**Analytical Batch: 1274702**	**Analysis Date: 09/15/2020**

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Laboratory QC Summary

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

202009110519	E1	Analyzed by: NINA

Total Dissolved Solids (TDS)

Prep Batch: 1274766 Analytical Batch: 1274768 — **Analysis Date: 09/15/2020**

202009110519	E1	Analyzed by: TJ52

Endothall

Prep Batch: 1274438 Analytical Batch: 1274790 — **Analysis Date: 09/16/2020**

202009110519	E1	Analyzed by: X8AA

Chlorite by 300.0

Analytical Batch: 1274899 — **Analysis Date: 09/16/2020**

202009110519	E1	Analyzed by: NJR

Disinfection ByProducts by 300.0

Analytical Batch: 1274902 — **Analysis Date: 09/16/2020**

202009110519	E1	Analyzed by: NJR

Odor at 60 C (TON)

Analytical Batch: 1274999 — **Analysis Date: 09/11/2020**

202009110519	E1	Analyzed by: YJB3

Glyphosate

Analytical Batch: 1275039 — **Analysis Date: 09/17/2020**

202009110519	E1	Analyzed by: DYM

EPA Method 556

Prep Batch: 1274721 Analytical Batch: 1275074 — **Analysis Date: 09/16/2020**

202009110519	E1	Analyzed by: DYM

TBA by EPA 524.2 Modified

Prep Batch: 1275066 Analytical Batch: 1275114 — **Analysis Date: 09/16/2020**

202009110519	E1	Analyzed by: PZ2J
202009110520	TRAVEL BLANK	Analyzed by: PZ2J

EPA Method 537.1

Prep Batch: 1274781 Analytical Batch: 1275156 — **Analysis Date: 09/16/2020**

202009110519	E1	Analyzed by: SZZ

Total Kjeldahl Nitrogen

Analytical Batch: 1275169 — **Analysis Date: 09/17/2020**

202009110519	E1	Analyzed by: MIA8

Fluoride

Analytical Batch: 1275200 — **Analysis Date: 09/16/2020**

202009110519	E1	Analyzed by: ZS6I

Specific Conductance

Analytical Batch: 1275211 — **Analysis Date: 09/16/2020**

202009110519	E1	Analyzed by: ZS6I

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Laboratory QC Summary

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

EPA Method 537.1

Prep Batch: 1275240 Analytical Batch: 1275241 — **Analysis Date: 09/17/2020**

202009110521	FIELD BLANK (PFAS)-HOLD	Analyzed by: MXV

Organochlorine Pesticides/PCBs

Prep Batch: 1274745 Analytical Batch: 1275287 — **Analysis Date: 09/16/2020**

202009110519	E1	Analyzed by: LRL

Gross Alpha by Co-precipitation

Prep Batch: 1274396 Analytical Batch: 1275364 — **Analysis Date: 09/17/2020**

202009110519	E1	Analyzed by: Y7TT

Chlorophenoxy Herbicides

Prep Batch: 1274932 Analytical Batch: 1275375 — **Analysis Date: 09/18/2020**

202009110519	E1	Analyzed by: O2TX

Haloacetic Acids

Prep Batch: 1275513 Analytical Batch: 1275654 — **Analysis Date: 09/20/2020**

202009110519	E1	Analyzed by: B9PD

Hexavalent Chromium Total

Analytical Batch: 1275749 — **Analysis Date: 09/19/2020**

202009110519	E1	Analyzed by: LMR

Diquat and Paraquat

Prep Batch: 1274504 Analytical Batch: 1275804 — **Analysis Date: 09/18/2020**

202009110519	E1	Analyzed by: XWO

Volatile Organics by GCMS

Prep Batch: 1275852 Analytical Batch: 1275854 — **Analysis Date: 09/19/2020**

202009110519	E1	Analyzed by: TR7W
202009110520	TRAVEL BLANK	Analyzed by: TR7W

Asbestos by TEM - >10 microns

Prep Batch: 1274323 Analytical Batch: 1275905 — **Analysis Date: 09/20/2020**

202009110519	E1	Analyzed by: KZQ7

Perchlorate

Analytical Batch: 1275914 — **Analysis Date: 09/22/2020**

202009110519	E1	Analyzed by: H5VG

Explosives by LCMS

Analytical Batch: 1275993 — **Analysis Date: 09/21/2020**

202009110519	E1	Analyzed by: GG8Y

Gross Alpha/Beta Radiation

Prep Batch: 1276022 Analytical Batch: 1276528 — **Analysis Date: 09/23/2020**

202009110519	E1	Analyzed by: Y7TT

Aldicarbs

Analytical Batch: 1277471 — **Analysis Date: 09/27/2020**

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202009110519	E1	Analyzed by: XWO

521 by Triple Quad

Prep Batch: 1276045	**Analytical Batch: 1277578**	**Analysis Date: 09/29/2020**
202009110519	E1	Analyzed by: KDT

Radium 226

Prep Batch: 1274794	**Analytical Batch: 1278348**	**Analysis Date: 10/01/2020**
202009110519	E1	Analyzed by: Y7TT

Radium 228

Prep Batch: 1274795	**Analytical Batch: 1278349**	**Analysis Date: 10/01/2020**
202009110519	E1	Analyzed by: Y7TT

Bromate by UV/VIS 317

Analytical Batch: 1278519		**Analysis Date: 10/02/2020**
202009110519	E1	Analyzed by: TLH

Laboratory QC

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Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
Surfactants by SM 5540C/EPA 425.1									
Analytical Batch: 1274087						**Analysis Date: 09/11/2020**			
LCS1	Surfactants		0.2	0.189	mg/L	95	(90-110)		
LCS2	Surfactants		0.2	0.198	mg/L	99	(90-110)	20	4.7
MBLK	Surfactants			<0.05	mg/L				
MRL_CHK	Surfactants		0.1	0.0841	mg/L	84	(75-125)		
MS_202009110097	Surfactants	ND	0.2	0.204	mg/L	95	(80-120)		
MSD_202009110097	Surfactants	ND	0.2	0.224	mg/L	105	(80-120)	20	9.5
Nitrate, Nitrite by EPA 300.0 by EPA 300.0									
Analytical Batch: 1274156						**Analysis Date: 09/11/2020**			
LCS1	Nitrate as Nitrogen by IC		2.5	2.52	mg/L	101	(90-110)		
LCS2	Nitrate as Nitrogen by IC		2.5	2.52	mg/L	101	(90-110)	20	0.0
MBLK	Nitrate as Nitrogen by IC			<0.05	mg/L				
MRL_CHK	Nitrate as Nitrogen by IC		0.05	0.0480	mg/L	96	(50-150)		
MS_202009110168	Nitrate as Nitrogen by IC	1.8	1.3	3.20	mg/L	108	(80-120)		
MS_202009110651	Nitrate as Nitrogen by IC	27	6.5	32.9	mg/L	98	(80-120)		
MSD_202009110168	Nitrate as Nitrogen by IC	1.8	1.3	3.21	mg/L	109	(80-120)	20	0.35
MSD_202009110651	Nitrate as Nitrogen by IC	27	6.5	33.0	mg/L	99	(80-120)	20	0.24
LCS1	Nitrite Nitrogen by IC		1	1.02	mg/L	103	(90-110)		
LCS2	Nitrite Nitrogen by IC		1	1.02	mg/L	102	(90-110)	20	0.98
MBLK	Nitrite Nitrogen by IC			<0.025	mg/L				
MRL_CHK	Nitrite Nitrogen by IC		0.05	0.0464	mg/L	93	(50-150)		
MS_202009110168	Nitrite Nitrogen by IC	ND	0.5	0.540	mg/L	108	(80-120)		
MS_202009110651	Nitrite Nitrogen by IC	ND	2.5	2.53	mg/L	101	(80-120)		
MSD_202009110168	Nitrite Nitrogen by IC	ND	0.5	0.546	mg/L	109	(80-120)	20	1.1
MSD_202009110651	Nitrite Nitrogen by IC	ND	2.5	2.56	mg/L	102	(80-120)	20	1.3
Chloride, Sulfate by EPA 300.0 by EPA 300.0									
Analytical Batch: 1274160						**Analysis Date: 09/11/2020**			
LCS1	Chloride		25	26.2	mg/L	105	(90-110)		
LCS2	Chloride		25	26.1	mg/L	105	(90-110)	20	0.38
MBLK	Chloride			<0.25	mg/L				
MRL_CHK	Chloride		0.5	0.442	mg/L	88	(50-150)		
MS_202009140453	Chloride	140	65	205	mg/L	102	(80-120)		
MSD_202009140453	Chloride	140	65	206	mg/L	104	(80-120)	20	0.30
LCS1	Sulfate		50	51.7	mg/L	103	(90-110)		
LCS2	Sulfate		50	51.6	mg/L	103	(90-110)	20	0.19

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
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Laboratory QC

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MBLK	Sulfate			<0.125	mg/L				
MRL_CHK	Sulfate		1	0.968	mg/L	97	(50-150)		
MRLLW	Sulfate		0.25	0.229	mg/L	92	(50-150)		
MS_202009140453	Sulfate	220	125	348	mg/L	106	(80-120)		
MSD_202009140453	Sulfate	220	125	349	mg/L	107	(80-120)	20	0.39

Explosives by LCMS by LC-MS-MS

Analytical Batch: 1274277 **Analysis Date: 09/14/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	2,4,6-Trinitrotoluene (TNT)		1	1.05	ug/L	105	(70-130)		
LCS2	2,4,6-Trinitrotoluene (TNT)		1	1.05	ug/L	105	(70-130)	30	0.0
MBLK	2,4,6-Trinitrotoluene (TNT)			<0.05	ug/L				
MRL_CHK	2,4,6-Trinitrotoluene (TNT)		0.1	0.104	ug/L	105	(50-150)		
MS_202009020445	2,4,6-Trinitrotoluene (TNT)	ND	1	0.558	ug/L	**56**	(70-130)		
MSD_202009020445	2,4,6-Trinitrotoluene (TNT)	ND	1	0.615	ug/L	**62**	(70-130)	30	9.6
LCS1	HMX		1	1.02	ug/L	102	(70-130)		
LCS2	HMX		1	1.04	ug/L	104	(70-130)	30	1.9
MBLK	HMX			<0.05	ug/L				
MRL_CHK	HMX		0.1	0.114	ug/L	114	(50-150)		
MS_202009020445	HMX	ND	1	0.376	ug/L	**38**	(70-130)		
MSD_202009020445	HMX	ND	1	0.383	ug/L	**38**	(70-130)	30	1.7
LCS1	RDX		1	0.882	ug/L	88	(70-130)		
LCS2	RDX		1	1.03	ug/L	103	(70-130)	30	16
MBLK	RDX			<0.05	ug/L				
MRL_CHK	RDX		0.1	0.104	ug/L	104	(50-150)		
MS_202009020445	RDX	ND	1	0.139	ug/L	**14**	(70-130)		
MSD_202009020445	RDX	ND	1	0.152	ug/L	**15**	(70-130)	30	8.8

Turbidity by EPA 180.1

Analytical Batch: 1274339 **Analysis Date: 09/11/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
DUP1_202009110589	Turbidity	0.92		0.908	NTU		(0-20)	20	1.1
LCS1	Turbidity		20	20.7	NTU	103	(90-110)		
LCS2	Turbidity		20	20.9	NTU	105	(90-110)	20	0.96
MBLK	Turbidity			<0.10	NTU				
MRLHI	Turbidity		0.1	0.0960	NTU	96	(50-150)		

Cyanide by SM4500CN-F

Analytical Batch: 1274357 **Analysis Date: 09/14/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	Cyanide		0.1	0.102	mg/L	102	(90-110)		
LCS2	Cyanide		0.1	0.105	mg/L	105	(90-110)	20	2.9

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MBLK	Cyanide			<0.025	mg/L				
MRL_CHK	Cyanide		0.025	0.0215	mg/L	86	(50-150)		
MS_202009100338	Cyanide	ND	0.1	0.126	mg/L	113	(80-120)		
MSD_202009100338	Cyanide	ND	0.1	0.126	mg/L	113	(80-120)	20	0.0

Apparent Color by SM 2120B

Analytical Batch: 1274432 **Analysis Date: 09/11/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
DUP1_202009110519	Apparent Color	ND		0	ACU		(0-20)		
MBLK	Apparent Color			<0.5	ACU				

1,2,3-Trichloropropane (SIM) by CASRL 524M-TCP

Analytical Batch: 1274524 **Analysis Date: 09/14/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
DUP_202009100339	1,2,3-Trichloropropane	ND		ND	ug/L		(0-20)		
DUP_202009110519	1,2,3-Trichloropropane	ND		ND	ug/L		(0-20)		
LCS1	1,2,3-Trichloropropane		0.01	0.0104	ug/L	104	(80-120)		
LCS2	1,2,3-Trichloropropane		0.01	0.00963	ug/L	96	(80-120)	20	7.7
MBLK	1,2,3-Trichloropropane			<0.0017	ug/L				
MBLK	1,2,3-Trichloropropane			<0.0017	ug/L				
MRL_CHK	1,2,3-Trichloropropane		0.005	0.00444	ug/L	89	(80-120)		
DUP_202009100339	Toluene-d8 (S)		2000	100	%	100	(70-130)		
DUP_202009110519	Toluene-d8 (S)		2000	102	%	103	(70-130)		
LCS1	Toluene-d8 (S)		2000	103	%	103	(70-130)		
LCS2	Toluene-d8 (S)		2000	105	%	105	(70-130)		
MBLK	Toluene-d8 (S)			111	%	111	(70-130)		
MBLK	Toluene-d8 (S)			105	%	105	(70-130)		
MRL_CHK	Toluene-d8 (S)		2000	105	%	105	(70-130)		

ICP Metals by EPA 200.7

Analytical Batch: 1274526 **Analysis Date: 09/15/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	Boron Total ICAP		0.5	0.483	mg/L	97	(85-115)		
LCS2	Boron Total ICAP		0.5	0.485	mg/L	97	(85-115)	20	0.41
MBLK	Boron Total ICAP			<0.025	mg/L				
MRL_CHK	Boron Total ICAP		0.05	0.0435	mg/L	87	(50-150)		
MS_202009110140	Boron Total ICAP	ND	0.5	0.484	mg/L	97	(70-130)		
MS2_202009110051	Boron Total ICAP	0.17	0.5	0.680	mg/L	101	(70-130)		
MSD_202009110140	Boron Total ICAP	ND	0.5	0.486	mg/L	97	(70-130)	20	0.33
MSD2_202009110051	Boron Total ICAP	0.17	0.5	0.682	mg/L	101	(70-130)	20	0.24
LCS1	Iron Total ICAP		5	4.91	mg/L	98	(85-115)		
LCS2	Iron Total ICAP		5	4.90	mg/L	98	(85-115)	20	0.20

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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MBLK	Iron Total ICAP			<0.01	mg/L				
MRL_CHK	Iron Total ICAP		0.02	0.0198	mg/L	99	(50-150)		
MS_202009110140	Iron Total ICAP	ND	5	4.95	mg/L	99	(70-130)		
MS2_202009110051	Iron Total ICAP	ND	5	5.03	mg/L	100	(70-130)		
MSD_202009110140	Iron Total ICAP	ND	5	4.96	mg/L	99	(70-130)	20	0.15
MSD2_202009110051	Iron Total ICAP	ND	5	5.06	mg/L	101	(70-130)	20	0.61

ICPMS Metals by EPA 200.8

Analytical Batch: 1274657 **Analysis Date: 09/16/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	Aluminum Total ICAP/MS		100	100	ug/L	100	(85-115)		
LCS2	Aluminum Total ICAP/MS		100	101	ug/L	101	(85-115)	20	1
MBLK	Aluminum Total ICAP/MS			<10	ug/L				
MRL_CHK	Aluminum Total ICAP/MS		20	22.4	ug/L	112	(50-150)		
MS_202009110099	Aluminum Total ICAP/MS	ND	100	101	ug/L	98	(70-130)		
MS2_202009110098	Aluminum Total ICAP/MS	ND	100	115	ug/L	97	(70-130)		
MSD_202009110099	Aluminum Total ICAP/MS	ND	100	99.1	ug/L	96	(70-130)	20	2.4
MSD2_202009110098	Aluminum Total ICAP/MS	ND	100	112	ug/L	94	(70-130)	20	2.4
LCS1	Antimony Total ICAP/MS		50	51.5	ug/L	103	(85-115)		
LCS2	Antimony Total ICAP/MS		50	49.6	ug/L	99	(85-115)	20	3.8
MBLK	Antimony Total ICAP/MS			<0.5	ug/L				
MRL_CHK	Antimony Total ICAP/MS		1	1.09	ug/L	109	(50-150)		
MS_202009110099	Antimony Total ICAP/MS	ND	50	53.2	ug/L	106	(70-130)		
MS2_202009110098	Antimony Total ICAP/MS	ND	50	51.1	ug/L	102	(70-130)		
MSD_202009110099	Antimony Total ICAP/MS	ND	50	50.8	ug/L	101	(70-130)	20	4.6
MSD2_202009110098	Antimony Total ICAP/MS	ND	50	50.8	ug/L	101	(70-130)	20	0.56
LCS1	Arsenic Total ICAP/MS		50	50.6	ug/L	101	(85-115)		
LCS2	Arsenic Total ICAP/MS		50	51.1	ug/L	102	(85-115)	20	0.98
MBLK	Arsenic Total ICAP/MS			<0.5	ug/L				
MRL_CHK	Arsenic Total ICAP/MS		1	1.06	ug/L	106	(50-150)		
MS_202009110099	Arsenic Total ICAP/MS	3.6	50	54.5	ug/L	102	(70-130)		
MS2_202009110098	Arsenic Total ICAP/MS	ND	50	50.3	ug/L	101	(70-130)		
MSD_202009110099	Arsenic Total ICAP/MS	3.6	50	53.6	ug/L	100	(70-130)	20	1.5
MSD2_202009110098	Arsenic Total ICAP/MS	ND	50	50.5	ug/L	101	(70-130)	20	0.34
LCS1	Barium Total ICAP/MS		50	50.5	ug/L	101	(85-115)		
LCS2	Barium Total ICAP/MS		50	48.1	ug/L	96	(85-115)	20	4.9
MBLK	Barium Total ICAP/MS			<1	ug/L				
MRL_CHK	Barium Total ICAP/MS		2	2.06	ug/L	103	(50-150)		
MS_202009110099	Barium Total ICAP/MS	64	50	115	ug/L	102	(70-130)		

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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MS2_202009110098	Barium Total ICAP/MS	7.8	50	57.7	ug/L	100	(70-130)		
MSD_202009110099	Barium Total ICAP/MS	64	50	109	ug/L	90	(70-130)	20	5.2
MSD2_202009110098	Barium Total ICAP/MS	7.8	50	57.5	ug/L	100	(70-130)	20	0.36
LCS1	Beryllium Total ICAP/MS		25	24.5	ug/L	98	(85-115)		
LCS2	Beryllium Total ICAP/MS		25	25.5	ug/L	102	(85-115)	20	4.0
MBLK	Beryllium Total ICAP/MS			<0.5	ug/L				
MRL_CHK	Beryllium Total ICAP/MS		1	1.05	ug/L	105	(50-150)		
MS_202009110099	Beryllium Total ICAP/MS	ND	25	26.3	ug/L	105	(70-130)		
MS2_202009110098	Beryllium Total ICAP/MS	ND	25	26.0	ug/L	104	(70-130)		
MSD_202009110099	Beryllium Total ICAP/MS	ND	25	26.3	ug/L	105	(70-130)	20	0.0076
MSD2_202009110098	Beryllium Total ICAP/MS	ND	25	26.4	ug/L	106	(70-130)	20	1.5
LCS1	Cadmium Total ICAP/MS		25	25.1	ug/L	100	(85-115)		
LCS2	Cadmium Total ICAP/MS		25	24.1	ug/L	96	(85-115)	20	4.1
MBLK	Cadmium Total ICAP/MS			<0.25	ug/L				
MRL_CHK	Cadmium Total ICAP/MS		0.5	0.530	ug/L	106	(50-150)		
MS_202009110099	Cadmium Total ICAP/MS	ND	25	24.7	ug/L	99	(70-130)		
MS2_202009110098	Cadmium Total ICAP/MS	ND	25	24.5	ug/L	98	(70-130)		
MSD_202009110099	Cadmium Total ICAP/MS	ND	25	23.7	ug/L	95	(70-130)	20	4.2
MSD2_202009110098	Cadmium Total ICAP/MS	ND	25	24.4	ug/L	98	(70-130)	20	0.48
LCS1	Chromium Total ICAP/MS		50	50.1	ug/L	100	(85-115)		
LCS2	Chromium Total ICAP/MS		50	50.1	ug/L	100	(85-115)	20	0.0
MBLK	Chromium Total ICAP/MS			<0.5	ug/L				
MRL_CHK	Chromium Total ICAP/MS		1	0.788	ug/L	79	(50-150)		
MS_202009110099	Chromium Total ICAP/MS	3.6	50	53.2	ug/L	99	(70-130)		
MS2_202009110098	Chromium Total ICAP/MS	ND	50	49.7	ug/L	99	(70-130)		
MSD_202009110099	Chromium Total ICAP/MS	3.6	50	52.7	ug/L	98	(70-130)	20	0.99
MSD2_202009110098	Chromium Total ICAP/MS	ND	50	49.1	ug/L	98	(70-130)	20	1.3
LCS1	Cobalt Total ICAP/MS		50	50.3	ug/L	101	(85-115)		
LCS2	Cobalt Total ICAP/MS		50	50.4	ug/L	101	(85-115)	20	0.20
MBLK	Cobalt Total ICAP/MS			<1	ug/L				
MRL_CHK	Cobalt Total ICAP/MS		2	2.09	ug/L	104	(50-150)		
MS_202009110099	Cobalt Total ICAP/MS	ND	50	47.5	ug/L	95	(70-130)		
MS2_202009110098	Cobalt Total ICAP/MS	ND	50	49.1	ug/L	98	(70-130)		
MSD_202009110099	Cobalt Total ICAP/MS	ND	50	47.2	ug/L	94	(70-130)	20	0.69
MSD2_202009110098	Cobalt Total ICAP/MS	ND	50	49.3	ug/L	99	(70-130)	20	0.36
LCS1	Copper Total ICAP/MS		50	50.4	ug/L	101	(85-115)		
LCS2	Copper Total ICAP/MS		50	50.5	ug/L	101	(85-115)	20	0.20

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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MBLK	Copper Total ICAP/MS			<1	ug/L				
MRL_CHK	Copper Total ICAP/MS		2	2.17	ug/L	109	(50-150)		
MS_202009110099	Copper Total ICAP/MS	ND	50	47.4	ug/L	92	(70-130)		
MS2_202009110098	Copper Total ICAP/MS	ND	50	49.8	ug/L	98	(70-130)		
MSD_202009110099	Copper Total ICAP/MS	ND	50	47.0	ug/L	92	(70-130)	20	0.87
MSD2_202009110098	Copper Total ICAP/MS	ND	50	50.0	ug/L	99	(70-130)	20	0.46
LCS1	Lead Total ICAP/MS		50	50.0	ug/L	100	(85-115)		
LCS2	Lead Total ICAP/MS		50	51.1	ug/L	102	(85-115)	20	2.2
MBLK	Lead Total ICAP/MS			<0.25	ug/L				
MRL_CHK	Lead Total ICAP/MS		0.5	0.548	ug/L	110	(50-150)		
MS_202009110099	Lead Total ICAP/MS	ND	50	47.7	ug/L	95	(70-130)		
MS2_202009110098	Lead Total ICAP/MS	0.54	50	51.6	ug/L	102	(70-130)		
MSD_202009110099	Lead Total ICAP/MS	ND	50	47.9	ug/L	95	(70-130)	20	0.42
MSD2_202009110098	Lead Total ICAP/MS	0.54	50	50.5	ug/L	100	(70-130)	20	2.1
LCS1	Manganese Total ICAP/MS		100	99.2	ug/L	99	(85-115)		
LCS2	Manganese Total ICAP/MS		100	101	ug/L	101	(85-115)	20	1.8
MBLK	Manganese Total ICAP/MS			<1	ug/L				
MRL_CHK	Manganese Total ICAP/MS		2	2.13	ug/L	107	(50-150)		
MS_202009110099	Manganese Total ICAP/MS	ND	100	95.6	ug/L	96	(70-130)		
MS2_202009110098	Manganese Total ICAP/MS	4.0	100	102	ug/L	98	(70-130)		
MSD_202009110099	Manganese Total ICAP/MS	ND	100	96.2	ug/L	96	(70-130)	20	0.59
MSD2_202009110098	Manganese Total ICAP/MS	4.0	100	101	ug/L	97	(70-130)	20	0.93
LCS1	Molybdenum Total ICAP/MS		50	51.3	ug/L	103	(85-115)		
LCS2	Molybdenum Total ICAP/MS		50	49.2	ug/L	99	(85-115)	20	4.2
MBLK	Molybdenum Total ICAP/MS			<1	ug/L				
MRL_CHK	Molybdenum Total ICAP/MS		2	1.99	ug/L	99	(50-150)		
MS_202009110099	Molybdenum Total ICAP/MS	4.9	50	58.2	ug/L	107	(70-130)		
MS2_202009110098	Molybdenum Total ICAP/MS	ND	50	51.0	ug/L	102	(70-130)		
MSD_202009110099	Molybdenum Total ICAP/MS	4.9	50	57.3	ug/L	105	(70-130)	20	1.5
MSD2_202009110098	Molybdenum Total ICAP/MS	ND	50	51.2	ug/L	102	(70-130)	20	0.47
LCS1	Nickel Total ICAP/MS		50	48.9	ug/L	98	(85-115)		
LCS2	Nickel Total ICAP/MS		50	49.3	ug/L	99	(85-115)	20	0.82
MBLK	Nickel Total ICAP/MS			<2.5	ug/L				
MRL_CHK	Nickel Total ICAP/MS		5	5.15	ug/L	103	(50-150)		
MS_202009110099	Nickel Total ICAP/MS	ND	50	47.7	ug/L	93	(70-130)		
MS2_202009110098	Nickel Total ICAP/MS	ND	50	48.8	ug/L	97	(70-130)		
MSD_202009110099	Nickel Total ICAP/MS	ND	50	47.3	ug/L	92	(70-130)	20	0.84
MSD2_202009110098	Nickel Total ICAP/MS	ND	50	48.8	ug/L	97	(70-130)	20	0.28

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RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	Selenium Total ICAP/MS		50	51.9	ug/L	104	(85-115)		
LCS2	Selenium Total ICAP/MS		50	52.5	ug/L	105	(85-115)	20	1.1
MBLK	Selenium Total ICAP/MS			<2.5	ug/L				
MRL_CHK	Selenium Total ICAP/MS		5	5.31	ug/L	106	(50-150)		
MS_202009110099	Selenium Total ICAP/MS	ND	50	52.1	ug/L	100	(70-130)		
MS2_202009110098	Selenium Total ICAP/MS	ND	50	50.7	ug/L	101	(70-130)		
MSD_202009110099	Selenium Total ICAP/MS	ND	50	51.8	ug/L	100	(70-130)	20	0.65
MSD2_202009110098	Selenium Total ICAP/MS	ND	50	50.4	ug/L	101	(70-130)	20	0.57
LCS1	Silver Total ICAP/MS		25	25.8	ug/L	103	(85-115)		
LCS2	Silver Total ICAP/MS		25	25.0	ug/L	100	(85-115)	20	3.1
MBLK	Silver Total ICAP/MS			<0.25	ug/L				
MRL_CHK	Silver Total ICAP/MS		0.5	0.530	ug/L	106	(50-150)		
MS_202009110099	Silver Total ICAP/MS	ND	25	24.7	ug/L	98	(70-130)		
MS2_202009110098	Silver Total ICAP/MS	ND	25	25.0	ug/L	100	(70-130)		
MSD_202009110099	Silver Total ICAP/MS	ND	25	23.7	ug/L	94	(70-130)	20	4.0
MSD2_202009110098	Silver Total ICAP/MS	ND	25	25.2	ug/L	100	(70-130)	20	0.97
LCS1	Thallium Total ICAP/MS		50	49.1	ug/L	98	(85-115)		
LCS2	Thallium Total ICAP/MS		50	50.2	ug/L	100	(85-115)	20	2.2
MBLK	Thallium Total ICAP/MS			<0.5	ug/L				
MRL_CHK	Thallium Total ICAP/MS		1	1.07	ug/L	107	(50-150)		
MS_202009110099	Thallium Total ICAP/MS	ND	50	47.4	ug/L	95	(70-130)		
MS2_202009110098	Thallium Total ICAP/MS	ND	50	50.2	ug/L	100	(70-130)		
MSD_202009110099	Thallium Total ICAP/MS	ND	50	47.1	ug/L	94	(70-130)	20	0.71
MSD2_202009110098	Thallium Total ICAP/MS	ND	50	49.6	ug/L	99	(70-130)	20	1.2
LCS1	Tin by ICP-MS		50	50.2	ug/L	100	(85-115)		
LCS2	Tin by ICP-MS		50	47.9	ug/L	96	(85-115)	20	4.7
MBLK	Tin by ICP-MS			<0.5	ug/L				
MRL_CHK	Tin by ICP-MS		1	0.996	ug/L	100	(50-150)		
MS_202009110099	Tin by ICP-MS	ND	50	51.0	ug/L	102	(70-130)		
MS2_202009110098	Tin by ICP-MS	ND	50	49.0	ug/L	98	(70-130)		
MSD_202009110099	Tin by ICP-MS	ND	50	49.1	ug/L	98	(70-130)	20	3.8
MSD2_202009110098	Tin by ICP-MS	ND	50	48.9	ug/L	98	(70-130)	20	0.25
LCS1	Titanium Total ICAP/MS		50	49.7	ug/L	99	(85-115)		
LCS2	Titanium Total ICAP/MS		50	50.1	ug/L	100	(85-115)	20	0.80
MBLK	Titanium Total ICAP/MS			<0.5	ug/L				
MRL_CHK	Titanium Total ICAP/MS		1	1.03	ug/L	103	(50-150)		
MS_202009110099	Titanium Total ICAP/MS	35	50	84.7	ug/L	99	(70-130)		
MS2_202009110098	Titanium Total ICAP/MS	2.3	50	52.0	ug/L	100	(70-130)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Laboratory QC

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MSD_202009110099	Titanium Total ICAP/MS	35	50	85.6	ug/L	101	(70-130)	20	1.1
MSD2_202009110098	Titanium Total ICAP/MS	2.3	50	51.6	ug/L	99	(70-130)	20	0.83
LCS1	Uranium ICAP/MS		50	49.3	ug/L	99	(85-115)		
LCS2	Uranium ICAP/MS		50	49.4	ug/L	99	(85-115)	20	0.20
MBLK	Uranium ICAP/MS			<0.5	ug/L				
MRL_CHK	Uranium ICAP/MS		1	1.02	ug/L	102	(50-150)		
MS_202009110099	Uranium ICAP/MS	3.4	50	56.2	ug/L	106	(70-130)		
MS2_202009110098	Uranium ICAP/MS	ND	50	50.2	ug/L	100	(70-130)		
MSD_202009110099	Uranium ICAP/MS	3.4	50	55.9	ug/L	105	(70-130)	20	0.55
MSD2_202009110098	Uranium ICAP/MS	ND	50	49.3	ug/L	99	(70-130)	20	1.9
LCS1	Vanadium Total ICAP/MS		50	49.5	ug/L	99	(85-115)		
LCS2	Vanadium Total ICAP/MS		50	49.6	ug/L	99	(85-115)	20	0.20
MBLK	Vanadium Total ICAP/MS			<1.5	ug/L				
MRL_CHK	Vanadium Total ICAP/MS		3	3.65	ug/L	122	(50-150)		
MS_202009110099	Vanadium Total ICAP/MS	9	50	57.9	ug/L	98	(70-130)		
MS2_202009110098	Vanadium Total ICAP/MS	ND	50	49.6	ug/L	98	(70-130)		
MSD_202009110099	Vanadium Total ICAP/MS	9	50	55.3	ug/L	93	(70-130)	20	4.6
MSD2_202009110098	Vanadium Total ICAP/MS	ND	50	49.1	ug/L	97	(70-130)	20	1.0
LCS1	Zinc Total ICAP/MS		50	51.0	ug/L	102	(85-115)		
LCS2	Zinc Total ICAP/MS		50	51.4	ug/L	103	(85-115)	20	0.78
MBLK	Zinc Total ICAP/MS			<10	ug/L				
MRL_CHK	Zinc Total ICAP/MS		20	22.2	ug/L	111	(50-150)		
MS_202009110099	Zinc Total ICAP/MS	ND	50	51.3	ug/L	94	(70-130)		
MS2_202009110098	Zinc Total ICAP/MS	56	50	106	ug/L	101	(70-130)		
MSD_202009110099	Zinc Total ICAP/MS	ND	50	50.8	ug/L	93	(70-130)	20	1.0
MSD2_202009110098	Zinc Total ICAP/MS	56	50	107	ug/L	102	(70-130)	20	0.44

Mercury ICPMS by EPA 200.8

Analytical Batch: 1274659 **Analysis Date: 09/16/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	Mercury ICPMS		0.75	0.744	ug/L	99	(85-115)		
LCS2	Mercury ICPMS		0.75	0.762	ug/L	102	(85-115)	20	2.4
MBLK	Mercury ICPMS			<0.1	ug/L				
MRL_CHK	Mercury ICPMS		0.2	0.207	ug/L	103	(50-150)		
MS_202009110099	Mercury ICPMS	ND	0.75	0.780	ug/L	103	(70-130)		
MS2_202009110098	Mercury ICPMS	ND	0.75	0.763	ug/L	101	(70-130)		
MSD_202009110099	Mercury ICPMS	ND	0.75	0.764	ug/L	101	(70-130)	20	2.1
MSD2_202009110098	Mercury ICPMS	ND	0.75	0.776	ug/L	102	(70-130)	20	1.7

Spike recovery is already corrected for native results.
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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
EPA Method 504.1 by EPA 504.1									
Analytical Batch: 1274689						**Analysis Date: 09/14/2020**			
CCCH	1,2-Dibromo-3-chloropropane		0.25	0.270	ug/L	108	(70-130)		
CCCM2	1,2-Dibromo-3-chloropropane		0.05	0.0545	ug/L	109	(70-130)		
DUP_202009090518	1,2-Dibromo-3-chloropropane	0.010		0.0101	ug/L		(0-20)		
LCS2	1,2-Dibromo-3-chloropropane		0.2	0.216	ug/L	108	(70-130)		
MBLK	1,2-Dibromo-3-chloropropane			<0.003	ug/L				
MRL_CHK	1,2-Dibromo-3-chloropropane		0.01	0.0102	ug/L	102	(60-140)		
MS_202009090517	1,2-Dibromo-3-chloropropane	ND	0.25	0.250	ug/L	100	(65-135)		
CCCH	1,2-Dibromoethane		0.25	0.254	ug/L	101	(70-130)		
CCCM2	1,2-Dibromoethane		0.05	0.0518	ug/L	104	(70-130)		
DUP_202009090518	1,2-Dibromoethane	ND		ND	ug/L		(0-20)		
LCS2	1,2-Dibromoethane		0.2	0.210	ug/L	105	(70-130)		
MBLK	1,2-Dibromoethane			<0.003	ug/L				
MRL_CHK	1,2-Dibromoethane		0.01	0.00980	ug/L	98	(60-140)		
MS_202009090517	1,2-Dibromoethane	ND	0.25	0.253	ug/L	101	(65-135)		
CCCH	1,2-Dibromopropane (S)		100	101	%	101	(60-140)		
CCCM2	1,2-Dibromopropane (S)		100	97.2	%	97	(60-140)		
DUP_202009090518	1,2-Dibromopropane (S)		100	104	%	104	(60-140)		
LCS2	1,2-Dibromopropane (S)		100	101	%	101	(60-140)		
MBLK	1,2-Dibromopropane (S)			96.5	%	96	(60-140)		
MRL_CHK	1,2-Dibromopropane (S)		100	102	%	102	(60-140)		
MRLLW	1,2-Dibromopropane (S)		100	102	%	102	(60-140)		
MS_202009090517	1,2-Dibromopropane (S)		100	100	%	100	(60-140)		
ICP Metals by EPA 200.7									
Analytical Batch: 1274702						**Analysis Date: 09/15/2020**			
LCS1	Lithium Total ICP		0.02	0.0197	mg/L	98	(80-115)		
LCS2	Lithium Total ICP		0.02	0.0197	mg/L	98	(85-115)	20	0.0
MBLK	Lithium Total ICP			<0.0025	mg/L				
MRL_CHK	Lithium Total ICP		0.005	0.00472	mg/L	94	(50-150)		
MS_202009160185	Lithium Total ICP	ND	0.02	0.0248	mg/L	106	(70-130)		
MSD_202009160185	Lithium Total ICP	ND	0.02	0.0250	mg/L	106	(70-130)	20	0.72
Total Dissolved Solids (TDS) by E160.1/SM2540C									
Analytical Batch: 1274768						**Analysis Date: 09/15/2020**			
DUP_202009110519	Total Dissolved Solid (TDS)	990		998	mg/L		(0-10)	10	0.40
DUP_202009150322	Total Dissolved Solid (TDS)	230		232	mg/L		(0-10)	10	0.87

Spike recovery is already corrected for native results.
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Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	Total Dissolved Solid (TDS)		175	158	mg/L	90	(80-114)		
LCS2	Total Dissolved Solid (TDS)		700	694	mg/L	99	(80-114)		
MBLK	Total Dissolved Solid (TDS)			<5	mg/L				
MRL_CHK	Total Dissolved Solid (TDS)		10	8.00	mg/L	80	(50-150)		

Endothall by EPA 548.1

Prep Batch: 1274438 Analytical Batch: 1274790 **Analysis Date: 09/16/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	Endothall		25	19.6	ug/L	78	(66-117)		
LCS2	Endothall		25	22.5	ug/L	90	(66-117)	30	14
MBLK	Endothall			<5	ug/L				
MRL_CHK	Endothall		5	4.41	ug/L	88	(50-150)		
MS_202009120029	Endothall	ND	37.5	3.68	ug/L	**9.8**	(66-117)		
MS_2ND_20200911015{	Endothall	ND	25	21.4	ug/L	86	(66-117)		
MSD_202009120029	Endothall	ND	37.5	2.92	ug/L	**7.8**	(66-117)	30	23

Chlorite by 300.0 by EPA 300.0

Analytical Batch: 1274899 **Analysis Date: 09/15/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	Chlorite by IC		0.2	0.201	mg/L	101	(90-110)		
LCS2	Chlorite by IC		0.2	0.201	mg/L	101	(90-110)	10	0.0
MBLK	Chlorite by IC			<0.005	mg/L				
MRL_CHK	Chlorite by IC		0.01	0.0107	mg/L	107	(75-125)		
MS_202009140801	Chlorite by IC	ND	0.1	0.0998	mg/L	100	(80-120)		
MSD_202009140801	Chlorite by IC	ND	0.1	0.102	mg/L	102	(80-120)	15	2.2

Disinfection ByProducts by 300.0 by EPA 300.0

Analytical Batch: 1274902 **Analysis Date: 09/15/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	Chlorate by IC		200	201	ug/L	101	(90-110)		
LCS2	Chlorate by IC		200	200	ug/L	100	(90-110)	10	0.50
MBLK	Chlorate by IC			<5	ug/L				
MRL_CHK	Chlorate by IC		10	9.48	ug/L	95	(75-125)		
MS_202009110148	Chlorate by IC	180	100	277	ug/L	98	(80-120)		
MS_202009140801	Chlorate by IC	ND	100	100	ug/L	100	(80-120)		
MSD_202009110148	Chlorate by IC	180	100	276	ug/L	96	(80-120)	15	0.36
MSD_202009140801	Chlorate by IC	ND	100	101	ug/L	101	(80-120)	15	0.71

Odor at 60 C (TON) by SM 2150B

Analytical Batch: 1274999 **Analysis Date: 09/11/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
DUP1_202009110519	Odor at 60 C (TON)	ND		0	TON		(0-20)		
MBLK	Odor at 60 C (TON)			<1	TON				

Spike recovery is already corrected for native results.
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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
Glyphosate by EPA 547									
Analytical Batch: 1275039						**Analysis Date: 09/16/2020**			
CCCH	Glyphosate		25	21.1	ug/L	85	(80-120)		
CCCM	Glyphosate		10	9.71	ug/L	97	(80-120)		
LCS1	Glyphosate		10	9.32	ug/L	93	(80-120)		
MBLK	Glyphosate			<3	ug/L				
MRL_CHK	Glyphosate		6	5.75	ug/L	96	(50-150)		
MS_202009100476	Glyphosate	ND	10	9.56	ug/L	96	(80-120)		
MS2_202009140005	Glyphosate	ND	10	9.97	ug/L	100	(80-120)		
MSD_202009100476	Glyphosate	ND	10	9.29	ug/L	93	(80-120)	20	2.8
EPA Method 556 by EPA 556									
Analytical Batch: 1275074						**Analysis Date: 09/15/2020**			
CCCM	1,2-Dibromopropane (I)			108	%	108	(70-130)		
CCCM	1,2-Dibromopropane (I)			110	%	110	(70-130)		
DUP1_202009110519	1,2-Dibromopropane (I)			108	%	108	(70-130)		
MBLK	1,2-Dibromopropane (I)			109	%	109	(70-130)		
MRL_CHK	1,2-Dibromopropane (I)			108	%	108	(70-130)		
MS1_202009110265	1,2-Dibromopropane (I)			109	%	109	(70-130)		
CCCM	2,3,5,6-Tetrafluorobenzaldehyde (S)			92.1	%	92	(70-130)		
CCCM	2,3,5,6-Tetrafluorobenzaldehyde (S)			91.8	%	92	(70-130)		
DUP1_202009110519	2,3,5,6-Tetrafluorobenzaldehyde (S)			94.3	%	94	(70-130)		
MBLK	2,3,5,6-Tetrafluorobenzaldehyde (S)			91.0	%	91	(70-130)		
MRL_CHK	2,3,5,6-Tetrafluorobenzaldehyde (S)			95.8	%	96	(70-130)		
MS1_202009110265	2,3,5,6-Tetrafluorobenzaldehyde (S)			107	%	107	(70-130)		
CCCM	Acetaldehyde		5	4.47	ug/L	90	(70-130)		
CCCM	Acetaldehyde		5	4.54	ug/L	91	(70-130)		
DUP1_202009110519	Acetaldehyde	ND		ND	ug/L		(0-30)		
MBLK	Acetaldehyde			<0.50	ug/L				
MRL_CHK	Acetaldehyde		1	1.16	ug/L	117	(50-150)		
MS1_202009110265	Acetaldehyde	3.4	5	19.6	ug/L	**<u>323</u>**	(70-130)		
CCCM	Formaldehyde		25	22.2	ug/L	89	(70-130)		
CCCM	Formaldehyde		25	22.6	ug/L	90	(70-130)		
DUP1_202009110519	Formaldehyde	ND		ND	ug/L		(0-30)		
MBLK	Formaldehyde			<2.5	ug/L				
MRL_CHK	Formaldehyde		5	4.78	ug/L	96	(50-150)		
MS1_202009110265	Formaldehyde	ND	25	26.4	ug/L	91	(70-130)		

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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
TBA by EPA 524.2 Modified by EPA 524.2 SIM									
Analytical Batch: 1275114						**Analysis Date: 09/16/2020**			
LCS1	1,2-Dichloroethane-d4 (S)			100	%	100	(70-130)		
LCS2	1,2-Dichloroethane-d4 (S)			102	%	102	(70-130)		
MBLK	1,2-Dichloroethane-d4 (S)			104	%	104	(70-130)		
MRL_CHK	1,2-Dichloroethane-d4 (S)			100	%	100	(70-130)		
LCS1	4-Bromofluorobenzene (S)			102	%	102	(70-130)		
LCS2	4-Bromofluorobenzene (S)			98.0	%	98	(70-130)		
MBLK	4-Bromofluorobenzene (S)			100	%	100	(70-130)		
MRL_CHK	4-Bromofluorobenzene (S)			104	%	104	(70-130)		
LCS1	t-Butyl Alcohol		5	4.95	ug/L	99	(70-130)		
LCS2	t-Butyl Alcohol		5	5.39	ug/L	108	(70-130)	20	8.5
MBLK	t-Butyl Alcohol			<2	ug/L				
MRL_CHK	t-Butyl Alcohol		2	2.21	ug/L	111	(50-150)		
LCS1	Toluene-d8 (S)			100	%	100	(70-130)		
LCS2	Toluene-d8 (S)			102	%	102	(70-130)		
MBLK	Toluene-d8 (S)			100	%	100	(70-130)		
MRL_CHK	Toluene-d8 (S)			98.0	%	98	(70-130)		
EPA Method 537.1 by EPA 537.1									
Prep Batch: 1274781 Analytical Batch: 1275156						**Analysis Date: 09/16/2020**			
DUP_202009150507	11-chloroeicosafluoro-3-oxaundecane-sulfonic acid	ND		ND	ug/L		(0-30)		
LCS1	11-chloroeicosafluoro-3-oxaundecane-sulfonic acid		0.024	0.0213	ug/L	90	(70-130)		
LCS2	11-chloroeicosafluoro-3-oxaundecane-sulfonic acid		0.024	0.0220	ug/L	93	(70-130)	30	3.2
MBLK	11-chloroeicosafluoro-3-oxaundecane-sulfonic acid			<0.000667	ug/L				
MRL_CHK	11-chloroeicosafluoro-3-oxaundecane-sulfonic acid		0.0019	0.00176	ug/L	94	(50-150)		
MS2_202009150505	11-chloroeicosafluoro-3-oxaundecane-sulfonic acid	ND	0.047	0.0450	ug/L	95	(70-130)		
DUP_202009150507	13C2-PFDA (S)			87.9	%	88	(70-130)		
LCS1	13C2-PFDA (S)		100	88.4	%	88	(70-130)		
LCS2	13C2-PFDA (S)		100	93.1	%	93	(70-130)		
MBLK	13C2-PFDA (S)			87.5	%	87	(70-130)		
MRL_CHK	13C2-PFDA (S)		100	90.5	%	91	(70-130)		
MS2_202009150505	13C2-PFDA (S)		100	92.6	%	93	(70-130)		
DUP_202009150507	13C2-PFHxA (S)			98.7	%	99	(70-130)		
LCS1	13C2-PFHxA (S)		100	101	%	101	(70-130)		
LCS2	13C2-PFHxA (S)		100	107	%	107	(70-130)		
MBLK	13C2-PFHxA (S)			100	%	100	(70-130)		
MRL_CHK	13C2-PFHxA (S)		100	100	%	100	(70-130)		

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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

Laboratory QC

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Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MS2_202009150505	13C2-PFHxA (S)		100	102	%	103	(70-130)		
DUP_202009150507	13C2-PFOA– IS#1 (I)			116	%	116	(50-150)		
LCS1	13C2-PFOA– IS#1 (I)		100	112	%	112	(50-150)		
LCS2	13C2-PFOA– IS#1 (I)		100	110	%	110	(50-150)		
MBLK	13C2-PFOA– IS#1 (I)			117	%	117	(50-150)		
MRL_CHK	13C2-PFOA– IS#1 (I)		100	115	%	115	(50-150)		
MS2_202009150505	13C2-PFOA– IS#1 (I)		100	110	%	110	(50-150)		
DUP_202009150507	13C3-HFPO-DA (S)			86.9	%	87	(70-130)		
LCS1	13C3-HFPO-DA (S)		100	90.0	%	90	(70-130)		
LCS2	13C3-HFPO-DA (S)		100	95.6	%	96	(70-130)		
MBLK	13C3-HFPO-DA (S)			85.1	%	85	(70-130)		
MRL_CHK	13C3-HFPO-DA (S)		100	92.0	%	92	(70-130)		
MS2_202009150505	13C3-HFPO-DA (S)		100	95.2	%	95	(70-130)		
DUP_202009150507	13C4-PFOS– IS#2 (I)			103	%	103	(50-150)		
LCS1	13C4-PFOS– IS#2 (I)		100	102	%	102	(50-150)		
LCS2	13C4-PFOS– IS#2 (I)		100	101	%	101	(50-150)		
MBLK	13C4-PFOS– IS#2 (I)			102	%	102	(50-150)		
MRL_CHK	13C4-PFOS– IS#2 (I)		100	103	%	103	(50-150)		
MS2_202009150505	13C4-PFOS– IS#2 (I)		100	101	%	101	(50-150)		
DUP_202009150507	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND		ND	ug/L		(0-30)		
LCS1	4,8-dioxa-3H-perfluorononanoic acid (ADONA)		0.024	0.0242	ug/L	103	(70-130)		
LCS2	4,8-dioxa-3H-perfluorononanoic acid (ADONA)		0.024	0.0249	ug/L	105	(70-130)	30	2.9
MBLK	4,8-dioxa-3H-perfluorononanoic acid (ADONA)			<0.000667	ug/L				
MRL_CHK	4,8-dioxa-3H-perfluorononanoic acid (ADONA)		0.0019	0.00210	ug/L	111	(50-150)		
MS2_202009150505	4,8-dioxa-3H-perfluorononanoic acid (ADONA)	ND	0.049	0.0494	ug/L	102	(70-130)		
DUP_202009150507	9-chlorohexadecafluoro-3-oxanone-sulfonic acid	ND		ND	ug/L		(0-30)		
LCS1	9-chlorohexadecafluoro-3-oxanone-sulfonic acid		0.023	0.0233	ug/L	100	(70-130)		
LCS2	9-chlorohexadecafluoro-3-oxanone-sulfonic acid		0.023	0.0240	ug/L	103	(70-130)	30	3.0
MBLK	9-chlorohexadecafluoro-3-oxanone-sulfonic acid			<0.000667	ug/L				
MRL_CHK	9-chlorohexadecafluoro-3-oxanone-sulfonic acid		0.0019	0.00202	ug/L	109	(50-150)		
MS2_202009150505	9-chlorohexadecafluoro-3-oxanone-sulfonic acid	ND	0.047	0.0485	ug/L	104	(70-130)		
DUP_202009150507	d3-NMeFOSAA (I)			118	%	118	(50-150)		
LCS1	d3-NMeFOSAA (I)		100	116	%	116	(50-150)		
LCS2	d3-NMeFOSAA (I)		100	116	%	116	(50-150)		
MBLK	d3-NMeFOSAA (I)			122	%	122	(50-150)		
MRL_CHK	d3-NMeFOSAA (I)		100	119	%	119	(50-150)		
MS2_202009150505	d3-NMeFOSAA (I)		100	117	%	117	(50-150)		
DUP_202009150507	d5-NEtFOSAA (S)			97.2	%	97	(70-130)		

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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Laboratory QC

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Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	d5-NEtFOSAA (S)		100	91.8	%	92	(70-130)		
LCS2	d5-NEtFOSAA (S)		100	103	%	103	(70-130)		
MBLK	d5-NEtFOSAA (S)			94.3	%	94	(70-130)		
MRL_CHK	d5-NEtFOSAA (S)		100	95.4	%	95	(70-130)		
MS2_202009150505	d5-NEtFOSAA (S)		100	94.2	%	94	(70-130)		
DUP_202009150507	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		ND	ug/L		(0-30)		
LCS1	Hexafluoropropylene oxide dimer acid (HFPO-DA)		0.025	0.0236	ug/L	95	(70-130)		
LCS2	Hexafluoropropylene oxide dimer acid (HFPO-DA)		0.025	0.0237	ug/L	95	(70-130)	30	0.42
MBLK	Hexafluoropropylene oxide dimer acid (HFPO-DA)			<0.001667	ug/L				
MRL_CHK	Hexafluoropropylene oxide dimer acid (HFPO-DA)		0.002	0.00201	ug/L	101	(50-150)		
MS2_202009150505	Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	0.05	0.0483	ug/L	97	(70-130)		
DUP_202009150507	N-ethyl Perfluorooctanesulfonamidoacetic acid	ND		ND	ug/L		(0-30)		
LCS1	N-ethyl Perfluorooctanesulfonamidoacetic acid		0.025	0.0248	ug/L	99	(70-130)		
LCS2	N-ethyl Perfluorooctanesulfonamidoacetic acid		0.025	0.0262	ug/L	105	(70-130)	30	5.5
MBLK	N-ethyl Perfluorooctanesulfonamidoacetic acid			<0.000667	ug/L				
MRL_CHK	N-ethyl Perfluorooctanesulfonamidoacetic acid		0.002	0.00213	ug/L	106	(50-150)		
MS2_202009150505	N-ethyl Perfluorooctanesulfonamidoacetic acid	ND	0.05	0.0501	ug/L	100	(70-130)		
DUP_202009150507	N-methyl Perfluorooctanesulfonamidoacetic acid	ND		ND	ug/L		(0-30)		
LCS1	N-methyl Perfluorooctanesulfonamidoacetic acid		0.025	0.0245	ug/L	98	(70-130)		
LCS2	N-methyl Perfluorooctanesulfonamidoacetic acid		0.025	0.0255	ug/L	102	(70-130)	30	4.0
MBLK	N-methyl Perfluorooctanesulfonamidoacetic acid			<0.000667	ug/L				
MRL_CHK	N-methyl Perfluorooctanesulfonamidoacetic acid		0.002	0.00211	ug/L	105	(50-150)		
MS2_202009150505	N-methyl Perfluorooctanesulfonamidoacetic acid	ND	0.05	0.0507	ug/L	101	(70-130)		
DUP_202009150507	Perfluorobutanesulfonic acid (PFBS)	ND		ND	ug/L		(0-30)		
LCS1	Perfluorobutanesulfonic acid (PFBS)		0.022	0.0244	ug/L	110	(70-130)		
LCS2	Perfluorobutanesulfonic acid (PFBS)		0.022	0.0230	ug/L	104	(70-130)	30	5.9
MBLK	Perfluorobutanesulfonic acid (PFBS)			<0.000667	ug/L				
MRL_CHK	Perfluorobutanesulfonic acid (PFBS)		0.0018	0.00206	ug/L	117	(50-150)		
MS2_202009150505	Perfluorobutanesulfonic acid (PFBS)	ND	0.044	0.0474	ug/L	107	(70-130)		
DUP_202009150507	Perfluorodecanoic acid (PFDA)	ND		ND	ug/L		(0-30)		
LCS1	Perfluorodecanoic acid (PFDA)		0.025	0.0229	ug/L	92	(70-130)		
LCS2	Perfluorodecanoic acid (PFDA)		0.025	0.0238	ug/L	95	(70-130)	30	3.9
MBLK	Perfluorodecanoic acid (PFDA)			<0.000667	ug/L				
MRL_CHK	Perfluorodecanoic acid (PFDA)		0.002	0.00201	ug/L	100	(50-150)		
MS2_202009150505	Perfluorodecanoic acid (PFDA)	ND	0.05	0.0480	ug/L	96	(70-130)		
DUP_202009150507	Perfluorododecanoic acid (PFDoA)	ND		ND	ug/L		(0-30)		
LCS1	Perfluorododecanoic acid (PFDoA)		0.025	0.0229	ug/L	92	(70-130)		
LCS2	Perfluorododecanoic acid (PFDoA)		0.025	0.0231	ug/L	92	(70-130)	30	0.87

Spike recovery is already corrected for native results.
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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Laboratory QC

Report: 892211
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Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MBLK	Perfluorododecanoic acid (PFDoA)			<0.000667	ug/L				
MRL_CHK	Perfluorododecanoic acid (PFDoA)		0.002	0.00188	ug/L	94	(50-150)		
MS2_202009150505	Perfluorododecanoic acid (PFDoA)	ND	0.05	0.0478	ug/L	96	(70-130)		
DUP_202009150507	Perfluoroheptanoic acid (PFHpA)	ND		ND	ug/L		(0-30)		
LCS1	Perfluoroheptanoic acid (PFHpA)		0.025	0.0271	ug/L	108	(70-130)		
LCS2	Perfluoroheptanoic acid (PFHpA)		0.025	0.0271	ug/L	108	(70-130)	30	0.0
MBLK	Perfluoroheptanoic acid (PFHpA)			<0.000667	ug/L				
MRL_CHK	Perfluoroheptanoic acid (PFHpA)		0.002	0.00232	ug/L	116	(50-150)		
MS2_202009150505	Perfluoroheptanoic acid (PFHpA)	ND	0.05	0.0539	ug/L	108	(70-130)		
DUP_202009150507	Perfluorohexanesulfonic acid (PFHxS)	ND		ND	ug/L		(0-30)		
LCS1	Perfluorohexanesulfonic acid (PFHxS)		0.023	0.0251	ug/L	110	(70-130)		
LCS2	Perfluorohexanesulfonic acid (PFHxS)		0.023	0.0243	ug/L	107	(70-130)	30	3.2
MBLK	Perfluorohexanesulfonic acid (PFHxS)			<0.000667	ug/L				
MRL_CHK	Perfluorohexanesulfonic acid (PFHxS)		0.0018	0.00214	ug/L	117	(50-150)		
MS2_202009150505	Perfluorohexanesulfonic acid (PFHxS)	ND	0.046	0.0487	ug/L	107	(70-130)		
DUP_202009150507	Perfluorohexanoic acid (PFHxA)	ND		ND	ug/L		(0-30)		
LCS1	Perfluorohexanoic acid (PFHxA)		0.025	0.0272	ug/L	109	(70-130)		
LCS2	Perfluorohexanoic acid (PFHxA)		0.025	0.0276	ug/L	110	(70-130)	30	1.1
MBLK	Perfluorohexanoic acid (PFHxA)			<0.000667	ug/L				
MRL_CHK	Perfluorohexanoic acid (PFHxA)		0.002	0.00229	ug/L	115	(50-150)		
MS2_202009150505	Perfluorohexanoic acid (PFHxA)	ND	0.05	0.0539	ug/L	108	(70-130)		
DUP_202009150507	Perfluorononanoic acid (PFNA)	ND		ND	ug/L		(0-30)		
LCS1	Perfluorononanoic acid (PFNA)		0.025	0.0253	ug/L	101	(70-130)		
LCS2	Perfluorononanoic acid (PFNA)		0.025	0.0256	ug/L	102	(70-130)	30	1.2
MBLK	Perfluorononanoic acid (PFNA)			<0.000667	ug/L				
MRL_CHK	Perfluorononanoic acid (PFNA)		0.002	0.00218	ug/L	109	(50-150)		
MS2_202009150505	Perfluorononanoic acid (PFNA)	ND	0.05	0.0511	ug/L	102	(70-130)		
DUP_202009150507	Perfluorooctanesulfonic acid (PFOS)	ND		ND	ug/L		(0-30)		
LCS1	Perfluorooctanesulfonic acid (PFOS)		0.023	0.0238	ug/L	103	(70-130)		
LCS2	Perfluorooctanesulfonic acid (PFOS)		0.023	0.0234	ug/L	101	(70-130)	30	1.7
MBLK	Perfluorooctanesulfonic acid (PFOS)			<0.000667	ug/L				
MRL_CHK	Perfluorooctanesulfonic acid (PFOS)		0.0019	0.00214	ug/L	116	(50-150)		
MS2_202009150505	Perfluorooctanesulfonic acid (PFOS)	ND	0.046	0.0478	ug/L	103	(70-130)		
DUP_202009150507	Perfluorooctanoic acid (PFOA)	ND		ND	ug/L		(0-30)		
LCS1	Perfluorooctanoic acid (PFOA)		0.025	0.0267	ug/L	107	(70-130)		
LCS2	Perfluorooctanoic acid (PFOA)		0.025	0.0271	ug/L	108	(70-130)	30	1.5
MBLK	Perfluorooctanoic acid (PFOA)			<0.000667	ug/L				
MRL_CHK	Perfluorooctanoic acid (PFOA)		0.002	0.00242	ug/L	121	(50-150)		

Spike recovery is already corrected for native results.
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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
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Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MS2_202009150505	Perfluorooctanoic acid (PFOA)	ND	0.05	0.0523	ug/L	104	(70-130)		
DUP_202009150507	Perfluorotetradecanoic acid (PFTA)	ND		ND	ug/L		(0-30)		
LCS1	Perfluorotetradecanoic acid (PFTA)		0.025	0.0230	ug/L	92	(70-130)		
LCS2	Perfluorotetradecanoic acid (PFTA)		0.025	0.0236	ug/L	94	(70-130)	30	2.6
MBLK	Perfluorotetradecanoic acid (PFTA)			<0.000667	ug/L				
MRL_CHK	Perfluorotetradecanoic acid (PFTA)		0.002	0.00195	ug/L	97	(50-150)		
MS2_202009150505	Perfluorotetradecanoic acid (PFTA)	ND	0.05	0.0477	ug/L	95	(70-130)		
DUP_202009150507	Perfluorotridecanoic acid (PFTrDA)	ND		ND	ug/L		(0-30)		
LCS1	Perfluorotridecanoic acid (PFTrDA)		0.025	0.0228	ug/L	91	(70-130)		
LCS2	Perfluorotridecanoic acid (PFTrDA)		0.025	0.0231	ug/L	93	(70-130)	30	1.3
MBLK	Perfluorotridecanoic acid (PFTrDA)			<0.000667	ug/L				
MRL_CHK	Perfluorotridecanoic acid (PFTrDA)		0.002	0.00190	ug/L	95	(50-150)		
MS2_202009150505	Perfluorotridecanoic acid (PFTrDA)	ND	0.05	0.0477	ug/L	95	(70-130)		
DUP_202009150507	Perfluoroundecanoic acid (PFUnA)	ND		ND	ug/L		(0-30)		
LCS1	Perfluoroundecanoic acid (PFUnA)		0.025	0.0239	ug/L	95	(70-130)		
LCS2	Perfluoroundecanoic acid (PFUnA)		0.025	0.0244	ug/L	98	(70-130)	30	2.1
MBLK	Perfluoroundecanoic acid (PFUnA)			<0.000667	ug/L				
MRL_CHK	Perfluoroundecanoic acid (PFUnA)		0.002	0.00198	ug/L	99	(50-150)		
MS2_202009150505	Perfluoroundecanoic acid (PFUnA)	ND	0.05	0.0500	ug/L	100	(70-130)		

Total Kjeldahl Nitrogen by EPA 351.2

Analytical Batch: 1275169 **Analysis Date: 09/17/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	Kjeldahl Nitrogen		4	4.14	mg/L	103	(90-110)		
LCS2	Kjeldahl Nitrogen		4	4.14	mg/L	103	(90-110)	20	0.0
MBLK	Kjeldahl Nitrogen			<0.1	mg/L				
MRL_CHK	Kjeldahl Nitrogen		0.2	0.180	mg/L	90	(50-150)		
MS_202009140290	Kjeldahl Nitrogen	ND	4	4.13	mg/L	101	(90-110)		
MSD_202009140290	Kjeldahl Nitrogen	ND	4	4.14	mg/L	101	(90-110)	10	0.27

Fluoride by SM 4500F-C

Analytical Batch: 1275200 **Analysis Date: 09/16/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	Fluoride		1	0.980	mg/L	98	(90-110)		
LCS2	Fluoride		1	0.988	mg/L	99	(90-110)	20	0.81
MBLK	Fluoride			<0.025	mg/L				
MRL_CHK	Fluoride		0.05	0.0461	mg/L	92	(50-150)		
MS_202009110519	Fluoride	0.22	1	1.21	mg/L	99	(80-120)		
MS_202009140429	Fluoride	0.68	1	1.71	mg/L	104	(80-120)		
MSD_202009110519	Fluoride	0.22	1	1.23	mg/L	100	(80-120)	20	1.2
MSD_202009140429	Fluoride	0.68	1	1.70	mg/L	103	(80-120)	20	0.13

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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
Specific Conductance by SM2510B									
Analytical Batch: 1275211						**Analysis Date: 09/16/2020**			
DUP1_202009110096	Specific Conductance	910		915	umho/cm		(0-20)	20	0.42
DUP1_202009150222	Specific Conductance	3.2		2.90	umho/cm		(0-20)	20	9.8
LCS1	Specific Conductance		1000	985	umho/cm	99	(90-110)		
LCS2	Specific Conductance		1000	980	umho/cm	98	(90-110)	20	0.51
MBLK	Specific Conductance			<1	umho/cm				
MRL_CHK	Specific Conductance		1.8	2.10	umho/cm	117	(50-150)		
Organochlorine Pesticides/PCBs by EPA 505									
Prep Batch: 1274745 Analytical Batch: 1275287						**Analysis Date: 09/15/2020**			
CCCH	Alachlor (Alanex)		1	1.01	ug/L	101	(70-130)		
CCCH	Alachlor (Alanex)		1	0.995	ug/L	100	(70-130)		
MBLK	Alachlor (Alanex)			<0.1	ug/L				
MRL_CHK	Alachlor (Alanex)		0.1	0.0891	ug/L	89	(50-150)		
MS1_202009100476	Alachlor (Alanex)	ND	0.2	0.191	ug/L	96	(65-135)		
MS2_202009110158	Alachlor (Alanex)	ND	1	0.968	ug/L	97	(65-135)		
CCCH	Chlordane		0.5	0.505	ug/L	101	(70-130)		
MBLK	Chlordane			<0.1	ug/L				
MRL_CHK	Chlordane		0.1	0.112	ug/L	112	(50-150)		
MS1_202009100476	Chlordane	ND	0.5	0.456	ug/L	91	(65-135)		
MS2_202009110158	Chlordane	ND	0.5	0.478	ug/L	96	(65-135)		
CCCH	Endrin		0.1	0.0970	ug/L	97	(70-130)		
CCCH	Endrin		0.1	0.0950	ug/L	95	(70-130)		
MBLK	Endrin			<0.01	ug/L				
MRL_CHK	Endrin		0.01	0.00960	ug/L	96	(50-150)		
MS1_202009100476	Endrin	ND	0.02	0.0172	ug/L	86	(65-135)		
MS2_202009110158	Endrin	ND	0.1	0.0927	ug/L	93	(65-135)		
CCCH	Heptachlor		0.1	0.0932	ug/L	93	(70-130)		
CCCH	Heptachlor		0.1	0.0916	ug/L	92	(70-130)		
MBLK	Heptachlor			<0.01	ug/L				
MRL_CHK	Heptachlor		0.01	0.00990	ug/L	99	(50-150)		
MS1_202009100476	Heptachlor	ND	0.02	0.0186	ug/L	90	(65-135)		
MS2_202009110158	Heptachlor	ND	0.1	0.0873	ug/L	87	(65-135)		
CCCH	Heptachlor Epoxide		0.1	0.0999	ug/L	100	(70-130)		
CCCH	Heptachlor Epoxide		0.1	0.0987	ug/L	99	(70-130)		
MBLK	Heptachlor Epoxide			<0.01	ug/L				
MRL_CHK	Heptachlor Epoxide		0.01	0.00970	ug/L	97	(50-150)		

Spike recovery is already corrected for native results.
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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
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Laboratory QC

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MS1_202009100476	Heptachlor Epoxide	ND	0.02	0.0196	ug/L	98	(65-135)		
MS2_202009110158	Heptachlor Epoxide	ND	0.1	0.0960	ug/L	96	(65-135)		
CCCH	Lindane (gamma-BHC)		0.1	0.0947	ug/L	95	(70-130)		
CCCH	Lindane (gamma-BHC)		0.1	0.0948	ug/L	95	(70-130)		
MBLK	Lindane (gamma-BHC)			<0.01	ug/L				
MRL_CHK	Lindane (gamma-BHC)		0.01	0.0110	ug/L	110	(50-150)		
MS1_202009100476	Lindane (gamma-BHC)	ND	0.02	0.0182	ug/L	91	(65-135)		
MS2_202009110158	Lindane (gamma-BHC)	ND	0.1	0.0900	ug/L	90	(65-135)		
CCCH	Methoxychlor		0.5	0.463	ug/L	93	(70-130)		
CCCH	Methoxychlor		0.5	0.442	ug/L	88	(70-130)		
MBLK	Methoxychlor			<0.05	ug/L				
MRL_CHK	Methoxychlor		0.05	0.0422	ug/L	84	(50-150)		
MS1_202009100476	Methoxychlor	ND	0.1	0.0876	ug/L	88	(65-135)		
MS2_202009110158	Methoxychlor	ND	0.5	0.445	ug/L	89	(65-135)		
MBLK	PCB 1016 Aroclor			<0.08	ug/L				
MBLK	PCB 1221 Aroclor			<0.1	ug/L				
MBLK	PCB 1232 Aroclor			<0.1	ug/L				
MBLK	PCB 1242 Aroclor			<0.1	ug/L				
MBLK	PCB 1248 Aroclor			<0.1	ug/L				
MBLK	PCB 1254 Aroclor			<0.1	ug/L				
MBLK	PCB 1260 Aroclor			<0.1	ug/L				
CCCH	Tetrachlorometaxylene (S)			105	%	105	(70-130)		
CCCH	Tetrachlorometaxylene (S)			108	%	108	(70-130)		
MBLK	Tetrachlorometaxylene (S)			99.9	%	100	(70-130)		
MRL_CHK	Tetrachlorometaxylene (S)			106	%	106	(70-130)		
MS1_202009100476	Tetrachlorometaxylene (S)			98.6	%	99	(70-130)		
MS2_202009110158	Tetrachlorometaxylene (S)			104	%	104	(70-130)		
MBLK	Toxaphene			<0.5	ug/L				

Gross Alpha by Co-precipitation by SM 7110C

Analytical Batch: 1275364 **Analysis Date: 09/17/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	Gross Alpha by Coprecipitation		32	33.9	pCi/L	105	(80-120)		
LCS2	Gross Alpha by Coprecipitation		32	33.7	pCi/L	105	(80-120)	20	0.59
MBLK	Gross Alpha by Coprecipitation			<3	pCi/L				
MS_202009080034	Gross Alpha by Coprecipitation	ND	32	60.5	pCi/L	92	(70-130)		

Chlorophenoxy Herbicides by EPA 515.4

Prep Batch: 1274932 Analytical Batch: 1275375 **Analysis Date: 09/17/2020**

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Laboratory QC

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
CCC3	2,4,5-TP (Silvex)		4	3.92	ug/L	98	(70-130)		
CCCH	2,4,5-TP (Silvex)		4	3.78	ug/L	95	(70-130)		
CCCM	2,4,5-TP (Silvex)		1	1.12	ug/L	112	(70-130)		
MBLK	2,4,5-TP (Silvex)			<0.066	ug/L				
MRL_CHK	2,4,5-TP (Silvex)		0.2	0.218	ug/L	109	(50-150)		
MS1_202009140080	2,4,5-TP (Silvex)	ND	3	2.93	ug/L	97	(70-130)		
MSD1_202009140080	2,4,5-TP (Silvex)	ND	3	3.14	ug/L	104	(70-130)	30	7.0
CCC3	2,4-D		2	1.91	ug/L	95	(70-130)		
CCCH	2,4-D		2	1.84	ug/L	92	(70-130)		
CCCM	2,4-D		0.5	0.513	ug/L	103	(70-130)		
MBLK	2,4-D			<0.033	ug/L				
MRL_CHK	2,4-D		0.1	0.0982	ug/L	98	(50-150)		
MS1_202009140080	2,4-D	ND	1.5	1.48	ug/L	98	(70-130)		
MSD1_202009140080	2,4-D	ND	1.5	1.59	ug/L	106	(70-130)	30	7.5
CCC3	2,4-Dichlorophenyl acetic acid (S)		100	97.9	%	98	(70-130)		
CCCH	2,4-Dichlorophenyl acetic acid (S)		10	94.4	%	94	(70-130)		
CCCM	2,4-Dichlorophenyl acetic acid (S)		2.5	105	%	105	(70-130)		
MBLK	2,4-Dichlorophenyl acetic acid (S)			105	%	105	(70-130)		
MRL_CHK	2,4-Dichlorophenyl acetic acid (S)			103	%	103	(70-130)		
MRLLW	2,4-Dichlorophenyl acetic acid (S)		0.1	101	%	101	(70-130)		
MS1_202009140080	2,4-Dichlorophenyl acetic acid (S)			96.2	%	96	(70-130)		
MSD1_202009140080	2,4-Dichlorophenyl acetic acid (S)			103	%	103	(70-130)		
CCC3	4,4-Dibromooctafluorobiphenyl (I)		100	104	%	104	(50-150)		
CCCH	4,4-Dibromooctafluorobiphenyl (I)			102	%	102	(50-150)		
CCCM	4,4-Dibromooctafluorobiphenyl (I)			108	%	108	(50-150)		
MBLK	4,4-Dibromooctafluorobiphenyl (I)			100	%	100	(50-150)		
MRL_CHK	4,4-Dibromooctafluorobiphenyl (I)		100	104	%	104	(50-150)		
MRLLW	4,4-Dibromooctafluorobiphenyl (I)			103	%	103	(50-150)		
MS1_202009140080	4,4-Dibromooctafluorobiphenyl (I)		100	100	%	100	(50-150)		
MSD1_202009140080	4,4-Dibromooctafluorobiphenyl (I)			97.5	%	98	(50-150)		
CCC3	Bentazon		10	9.43	ug/L	94	(70-130)		
CCCH	Bentazon		10	9.02	ug/L	90	(70-130)		
CCCM	Bentazon		2.5	3.01	ug/L	121	(70-130)		
MBLK	Bentazon			<0.166	ug/L				
MRL_CHK	Bentazon		0.5	0.663	ug/L	133	(50-150)		
MS1_202009140080	Bentazon	ND	7.5	7.41	ug/L	99	(70-130)		
MSD1_202009140080	Bentazon	ND	7.5	7.90	ug/L	105	(70-130)	30	6.4
CCC3	Dalapon		20	19.3	ug/L	97	(70-130)		

Spike recovery is already corrected for native results.
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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Report: 892211
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Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
CCCH	Dalapon		20	19.4	ug/L	97	(70-130)		
CCCM	Dalapon		5	5.96	ug/L	119	(70-130)		
MBLK	Dalapon			<0.333	ug/L				
MRL_CHK	Dalapon		1	1.14	ug/L	114	(50-150)		
MS1_202009140080	Dalapon	ND	15	14.3	ug/L	95	(70-130)		
MSD1_202009140080	Dalapon	ND	15	15.2	ug/L	101	(70-130)	30	6.3
CCC3	Dinoseb		4	4.17	ug/L	104	(70-130)		
CCCH	Dinoseb		4	4.11	ug/L	103	(70-130)		
CCCM	Dinoseb		1	1.25	ug/L	125	(70-130)		
MBLK	Dinoseb			<0.066	ug/L				
MRL_CHK	Dinoseb		0.2	0.213	ug/L	107	(50-150)		
MS1_202009140080	Dinoseb	ND	3	3.10	ug/L	103	(70-130)		
MSD1_202009140080	Dinoseb	ND	3	3.29	ug/L	110	(70-130)	30	6.0
CCC3	Pentachlorophenol		0.8	0.852	ug/L	107	(70-130)		
CCCH	Pentachlorophenol		0.8	0.829	ug/L	104	(70-130)		
CCCM	Pentachlorophenol		0.2	0.253	ug/L	126	(70-130)		
MBLK	Pentachlorophenol			<0.013	ug/L				
MRL_CHK	Pentachlorophenol		0.04	0.0538	ug/L	135	(50-150)		
MS1_202009140080	Pentachlorophenol	ND	0.6	0.665	ug/L	109	(70-130)		
MSD1_202009140080	Pentachlorophenol	ND	0.6	0.721	ug/L	119	(70-130)	30	8.1
CCC3	Picloram		2	2.14	ug/L	107	(70-130)		
CCCH	Picloram		2	2.05	ug/L	103	(70-130)		
CCCM	Picloram		0.5	0.621	ug/L	124	(70-130)		
MBLK	Picloram			<0.033	ug/L				
MRL_CHK	Picloram		0.1	0.126	ug/L	126	(50-150)		
MS1_202009140080	Picloram	ND	1.5	1.65	ug/L	109	(70-130)		
MSD1_202009140080	Picloram	ND	1.5	1.72	ug/L	114	(70-130)	30	4.1

Haloacetic Acids by SM 6251B

Analytical Batch: 1275654 **Analysis Date: 09/20/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
CCCH	1,2,3-Trichloropropane (I)		100	107	%	107	(80-120)		
CCCM	1,2,3-Trichloropropane (I)		100	104	%	104	(80-130)		
DUP1_202009140537	1,2,3-Trichloropropane (I)			102	%	102	(80-120)		
DUP2_202009110101	1,2,3-Trichloropropane (I)			108	%	108	(80-120)		
LCS3	1,2,3-Trichloropropane (I)		100	101	%	101	(80-120)		
MBLK	1,2,3-Trichloropropane (I)			104	%	104	(80-120)		
MRL_CHK	1,2,3-Trichloropropane (I)		100	102	%	102	(80-120)		
MS1_202009140536	1,2,3-Trichloropropane (I)		100	96.6	%	97	(80-120)		

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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MS2_202009110097	1,2,3-Trichloropropane (I)			102	%	102	(80-120)		
CCCH	2,3-Dibromopropionic acid (S)		100	102	%	102	(70-130)		
CCCM	2,3-Dibromopropionic acid (S)		100	106	%	106	(70-130)		
DUP1_202009140537	2,3-Dibromopropionic acid (S)			106	%	106	(70-130)		
DUP2_202009110101	2,3-Dibromopropionic acid (S)			105	%	105	(70-130)		
LCS3	2,3-Dibromopropionic acid (S)		100	96.6	%	97	(70-130)		
MBLK	2,3-Dibromopropionic acid (S)			94.2	%	94	(70-130)		
MRL_CHK	2,3-Dibromopropionic acid (S)		100	101	%	101	(70-130)		
MS1_202009140536	2,3-Dibromopropionic acid (S)		100	107	%	107	(70-130)		
MS2_202009110097	2,3-Dibromopropionic acid (S)			104	%	104	(70-130)		
CCCH	Bromochloroacetic acid		32	35.2	ug/L	110	(85-115)		
CCCM	Bromochloroacetic acid		20	22.3	ug/L	112	(85-115)		
DUP1_202009140537	Bromochloroacetic acid			ND	ug/L		(0-20)		
DUP2_202009110101	Bromochloroacetic acid	1.2		1.28	ug/L		(0-20)		
LCS3	Bromochloroacetic acid		8	7.37	ug/L	92	(80-120)		
MBLK	Bromochloroacetic acid			<0.5	ug/L				
MRL_CHK	Bromochloroacetic acid		1	1.10	ug/L	110	(50-150)		
MS1_202009140536	Bromochloroacetic acid		20	22.4	ug/L	107	(84-123)		
MS2_202009110097	Bromochloroacetic acid	1.1	32	34.8	ug/L	105	(84-123)		
CCCH	Dibromoacetic acid		32	34.8	ug/L	109	(85-115)		
CCCM	Dibromoacetic acid		20	22.5	ug/L	112	(85-115)		
DUP1_202009140537	Dibromoacetic acid	ND		ND	ug/L		(0-20)		
DUP2_202009110101	Dibromoacetic acid	ND		ND	ug/L		(0-20)		
LCS3	Dibromoacetic acid		8	7.79	ug/L	97	(80-120)		
MBLK	Dibromoacetic acid			<0.5	ug/L				
MRL_CHK	Dibromoacetic acid		1	1.18	ug/L	118	(50-150)		
MS1_202009140536	Dibromoacetic acid	ND	20	23.7	ug/L	118	(84-122)		
MS2_202009110097	Dibromoacetic acid	ND	32	35.2	ug/L	110	(84-122)		
CCCH	Dichloroacetic acid		32	35.2	ug/L	110	(85-115)		
CCCM	Dichloroacetic acid		20	22.1	ug/L	110	(85-115)		
DUP1_202009140537	Dichloroacetic acid	1.4		1.44	ug/L		(0-20)		
DUP2_202009110101	Dichloroacetic acid	1.8		1.90	ug/L		(0-20)		
LCS3	Dichloroacetic acid		8	7.27	ug/L	91	(80-120)		
MBLK	Dichloroacetic acid			<0.5	ug/L				
MRL_CHK	Dichloroacetic acid		1	1.05	ug/L	105	(50-150)		
MS1_202009140536	Dichloroacetic acid	1.5	20	23.2	ug/L	109	(79-123)		
MS2_202009110097	Dichloroacetic acid	1.7	32	35.6	ug/L	106	(79-123)		
CCCH	Monobromoacetic acid		32	34.3	ug/L	107	(85-115)		

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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
CCCM	Monobromoacetic acid		20	21.4	ug/L	107	(85-115)		
DUP1_202009140537	Monobromoacetic acid	ND		ND	ug/L		(0-20)		
DUP2_202009110101	Monobromoacetic acid	ND		ND	ug/L		(0-20)		
LCS3	Monobromoacetic acid		8	7.85	ug/L	98	(80-120)		
MBLK	Monobromoacetic acid			<0.5	ug/L				
MRL_CHK	Monobromoacetic acid		1	0.873	ug/L	87	(50-150)		
MS1_202009140536	Monobromoacetic acid	ND	20	20.7	ug/L	104	(81-122)		
MS2_202009110097	Monobromoacetic acid	ND	32	32.6	ug/L	102	(81-122)		
CCCH	Monochloroacetic acid		32	32.5	ug/L	102	(85-115)		
CCCM	Monochloroacetic acid		20	20.6	ug/L	103	(85-115)		
DUP1_202009140537	Monochloroacetic acid	ND		ND	ug/L		(0-20)		
DUP2_202009110101	Monochloroacetic acid	ND		ND	ug/L		(0-20)		
LCS3	Monochloroacetic acid		8	8.00	ug/L	100	(80-120)		
MBLK	Monochloroacetic acid			<1	ug/L				
MRL_CHK	Monochloroacetic acid		2	2.08	ug/L	104	(50-150)		
MS1_202009140536	Monochloroacetic acid	ND	20	21.2	ug/L	105	(72-126)		
MS2_202009110097	Monochloroacetic acid	ND	32	32.4	ug/L	100	(72-126)		
CCCH	Trichloroacetic acid		32	36.1	ug/L	113	(85-115)		
CCCM	Trichloroacetic acid		20	23.0	ug/L	115	(85-115)		
DUP1_202009140537	Trichloroacetic acid	1.6		1.72	ug/L		(0-20)		
DUP2_202009110101	Trichloroacetic acid	1.3		1.22	ug/L		(0-20)		
LCS3	Trichloroacetic acid		8	6.43	ug/L	80	(80-120)		
MBLK	Trichloroacetic acid			<0.5	ug/L				
MRL_CHK	Trichloroacetic acid		1	1.28	ug/L	129	(50-150)		
MS1_202009140536	Trichloroacetic acid	1.5	20	22.5	ug/L	105	(82-124)		
MS2_202009110097	Trichloroacetic acid	1.4	32	36.0	ug/L	108	(82-124)		

Hexavalent Chromium Total by SM 3500CrB

Analytical Batch: 1275749 **Analysis Date: 09/19/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	Hexavalent Chromium Total		0.05	0.0470	mg/L	94	(85-115)		
LCS2	Hexavalent Chromium Total		0.05	0.0486	mg/L	97	(85-115)		
MBLK	Hexavalent Chromium Total			<0.005	mg/L				
MRL_CHK	Hexavalent Chromium Total		0.005	0.00310	mg/L	62	(50-150)		
MS_202009110519	Hexavalent Chromium Total	ND	0.05	0.0536	mg/L	107	(70-130)		
MSD_202009110519	Hexavalent Chromium Total	ND	0.05	0.0464	mg/L	93	(70-130)	20	14

Diquat and Paraquat by EPA 549.2

Analytical Batch: 1275804 **Analysis Date: 09/18/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
CCCL	Diquat		0.4	0.388	ug/L	97	(50-150)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

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Laboratory QC

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
CCCM	Diquat		4	4.00	ug/L	100	(80-120)		
LCS1	Diquat		5	3.95	ug/L	79	(70-99)		
MBLK	Diquat			<0.4	ug/L				
MRLLW	Diquat		0.4	0.283	ug/L	71	(50-150)		
MS_202009150079	Diquat	ND	5	4.14	ug/L	83	(70-130)		
MSD_202009150079	Diquat	ND	5	4.26	ug/L	85	(70-130)	20	2.8
CCCL	Paraquat		2	2.15	ug/L	108	(50-150)		
CCCM	Paraquat		4	3.75	ug/L	94	(80-120)		
LCS1	Paraquat		5	4.05	ug/L	81	(70-105)		
MBLK	Paraquat			<2	ug/L				
MRL_CHK	Paraquat		2	1.77	ug/L	89	(50-150)		
MS_202009150079	Paraquat	ND	5	4.12	ug/L	82	(70-130)		
MSD_202009150079	Paraquat	ND	5	4.30	ug/L	86	(70-130)	20	4.4

Volatile Organics by GCMS by EPA 524.2

Analytical Batch: 1275854 **Analysis Date: 09/19/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	1,1,1,2-Tetrachloroethane		5	4.67	ug/L	93	(70-130)		
LCS2	1,1,1,2-Tetrachloroethane		5	4.54	ug/L	91	(70-130)	20	2.8
MBLK	1,1,1,2-Tetrachloroethane			<0.5	ug/L				
MRL_CHK	1,1,1,2-Tetrachloroethane		0.5	0.400	ug/L	80	(50-150)		
LCS1	1,1,1-Trichloroethane		5	4.61	ug/L	92	(70-130)		
LCS2	1,1,1-Trichloroethane		5	4.45	ug/L	89	(70-130)	20	3.5
MBLK	1,1,1-Trichloroethane			<0.5	ug/L				
MRL_CHK	1,1,1-Trichloroethane		0.5	0.420	ug/L	84	(50-150)		
LCS1	1,1,2,2-Tetrachloroethane		5	5.12	ug/L	102	(70-130)		
LCS2	1,1,2,2-Tetrachloroethane		5	4.93	ug/L	99	(70-130)	20	3.8
MBLK	1,1,2,2-Tetrachloroethane			<0.5	ug/L				
MRL_CHK	1,1,2,2-Tetrachloroethane		0.5	0.460	ug/L	92	(50-150)		
LCS1	1,1,2-Trichloroethane		5	4.72	ug/L	94	(70-130)		
LCS2	1,1,2-Trichloroethane		5	4.75	ug/L	95	(70-130)	20	0.63
MBLK	1,1,2-Trichloroethane			<0.5	ug/L				
MRL_CHK	1,1,2-Trichloroethane		0.5	0.480	ug/L	96	(50-150)		
LCS1	1,1-Dichloroethane		5	4.93	ug/L	99	(70-130)		
LCS2	1,1-Dichloroethane		5	4.47	ug/L	89	(70-130)	20	9.8
MBLK	1,1-Dichloroethane			<0.5	ug/L				
MRL_CHK	1,1-Dichloroethane		0.5	0.450	ug/L	90	(50-150)		
LCS1	1,1-Dichloroethylene		5	4.95	ug/L	99	(70-130)		
LCS2	1,1-Dichloroethylene		5	4.50	ug/L	90	(70-130)	20	9.5

Spike recovery is already corrected for native results.
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Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
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Laboratory QC

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MBLK	1,1-Dichloroethylene			<0.5	ug/L				
MRL_CHK	1,1-Dichloroethylene		0.5	0.470	ug/L	94	(50-150)		
LCS1	1,1-Dichloropropene		5	4.63	ug/L	93	(70-130)		
LCS2	1,1-Dichloropropene		5	4.44	ug/L	89	(70-130)	20	4.2
MBLK	1,1-Dichloropropene			<0.5	ug/L				
MRL_CHK	1,1-Dichloropropene		0.5	0.470	ug/L	94	(50-150)		
LCS1	1,2,3-Trichlorobenzene		5	6.18	ug/L	124	(70-130)		
LCS2	1,2,3-Trichlorobenzene		5	5.53	ug/L	111	(70-130)	20	11
MBLK	1,2,3-Trichlorobenzene			<0.5	ug/L				
MRL_CHK	1,2,3-Trichlorobenzene		0.5	1.22	ug/L	**244**	(50-150)		
LCS1	1,2,3-Trichloropropane		5	5.19	ug/L	104	(70-130)		
LCS2	1,2,3-Trichloropropane		5	4.91	ug/L	98	(70-130)	20	5.5
MBLK	1,2,3-Trichloropropane			<0.5	ug/L				
MRL_CHK	1,2,3-Trichloropropane		0.5	0.510	ug/L	102	(50-150)		
LCS1	1,2,4-Trichlorobenzene		5	5.66	ug/L	113	(70-130)		
LCS2	1,2,4-Trichlorobenzene		5	5.00	ug/L	100	(70-130)	20	12
MBLK	1,2,4-Trichlorobenzene			<0.5	ug/L				
MRL_CHK	1,2,4-Trichlorobenzene		0.5	0.730	ug/L	146	(50-150)		
LCS1	1,2,4-Trimethylbenzene		5	5.48	ug/L	110	(70-130)		
LCS2	1,2,4-Trimethylbenzene		5	5.06	ug/L	101	(70-130)	20	8.0
MBLK	1,2,4-Trimethylbenzene			<0.5	ug/L				
MRL_CHK	1,2,4-Trimethylbenzene		0.5	0.490	ug/L	98	(50-150)		
LCS1	1,2-Dichloroethane		5	4.82	ug/L	96	(70-130)		
LCS2	1,2-Dichloroethane		5	4.71	ug/L	94	(70-130)	20	2.3
MBLK	1,2-Dichloroethane			<0.5	ug/L				
MRL_CHK	1,2-Dichloroethane		0.5	0.480	ug/L	96	(50-150)		
LCS1	1,2-Dichloroethane-d4 (S)		5	98.0	%	98	(70-130)		
LCS2	1,2-Dichloroethane-d4 (S)		5	98.0	%	98	(70-130)		
MBLK	1,2-Dichloroethane-d4 (S)			102	%	102	(70-130)		
MRL_CHK	1,2-Dichloroethane-d4 (S)		5	98.6	%	99	(70-130)		
MRLLW	1,2-Dichloroethane-d4 (S)		5	97.0	%	97	(70-130)		
LCS1	1,2-Dichloropropane		5	4.89	ug/L	98	(70-130)		
LCS2	1,2-Dichloropropane		5	4.83	ug/L	97	(70-130)	20	1.2
MBLK	1,2-Dichloropropane			<0.5	ug/L				
MRL_CHK	1,2-Dichloropropane		0.5	0.480	ug/L	96	(50-150)		
LCS1	1,3,5-Trimethylbenzene		5	5.34	ug/L	107	(70-130)		
LCS2	1,3,5-Trimethylbenzene		5	4.94	ug/L	99	(70-130)	20	7.8
MBLK	1,3,5-Trimethylbenzene			<0.5	ug/L				

Spike recovery is already corrected for native results.
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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Laboratory QC

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MRL_CHK	1,3,5-Trimethylbenzene		0.5	0.490	ug/L	98	(50-150)		
LCS1	1,3-Dichloropropane		5	4.87	ug/L	97	(70-130)		
LCS2	1,3-Dichloropropane		5	4.73	ug/L	95	(70-130)	20	2.9
MBLK	1,3-Dichloropropane			<0.5	ug/L				
MRL_CHK	1,3-Dichloropropane		0.5	0.510	ug/L	102	(50-150)		
LCS1	2,2-Dichloropropane		5	4.92	ug/L	98	(70-130)		
LCS2	2,2-Dichloropropane		5	4.47	ug/L	89	(70-130)	20	9.6
MBLK	2,2-Dichloropropane			<0.5	ug/L				
MRL_CHK	2,2-Dichloropropane		0.5	0.480	ug/L	96	(50-150)		
LCS1	2-Butanone (MEK)		50	45.0	ug/L	90	(70-130)		
LCS2	2-Butanone (MEK)		50	46.8	ug/L	94	(70-130)	20	3.9
MBLK	2-Butanone (MEK)			<5.0	ug/L				
MRL_CHK	2-Butanone (MEK)		5	5.52	ug/L	110	(50-150)		
LCS1	4-Bromofluorobenzene (S)		5	101	%	101	(70-130)		
LCS2	4-Bromofluorobenzene (S)		5	101	%	101	(70-130)		
MBLK	4-Bromofluorobenzene (S)			102	%	102	(70-130)		
MRL_CHK	4-Bromofluorobenzene (S)		5	100	%	100	(70-130)		
MRLLW	4-Bromofluorobenzene (S)		5	95.6	%	96	(70-130)		
LCS1	4-Methyl-2-Pentanone (MIBK)		50	49.4	ug/L	99	(70-130)		
LCS2	4-Methyl-2-Pentanone (MIBK)		50	48.8	ug/L	98	(70-130)	20	1.2
MBLK	4-Methyl-2-Pentanone (MIBK)			<5.0	ug/L				
MRL_CHK	4-Methyl-2-Pentanone (MIBK)		5	5.25	ug/L	105	(50-150)		
LCS1	Benzene		5	4.95	ug/L	99	(70-130)		
LCS2	Benzene		5	4.72	ug/L	94	(70-130)	20	4.8
MBLK	Benzene			<0.5	ug/L				
MRL_CHK	Benzene		0.5	0.490	ug/L	98	(50-150)		
LCS1	Bromobenzene		5	5.23	ug/L	105	(70-130)		
LCS2	Bromobenzene		5	4.84	ug/L	97	(70-130)	20	7.8
MBLK	Bromobenzene			<0.5	ug/L				
MRL_CHK	Bromobenzene		0.5	0.460	ug/L	92	(50-150)		
LCS1	Bromochloromethane		5	4.68	ug/L	94	(70-130)		
LCS2	Bromochloromethane		5	4.32	ug/L	86	(70-130)	20	8.0
MBLK	Bromochloromethane			<0.5	ug/L				
MRL_CHK	Bromochloromethane		0.5	0.420	ug/L	84	(50-150)		
LCS1	Bromodichloromethane		5	4.29	ug/L	86	(70-130)		
LCS2	Bromodichloromethane		5	4.24	ug/L	85	(70-130)	20	1.2
MBLK	Bromodichloromethane			<0.5	ug/L				
MRL_CHK	Bromodichloromethane		0.5	0.380	ug/L	76	(50-150)		

Spike recovery is already corrected for native results.
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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
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Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	Bromoethane		5	4.85	ug/L	97	(70-130)		
LCS2	Bromoethane		5	4.46	ug/L	89	(70-130)	20	8.4
MBLK	Bromoethane			<0.5	ug/L				
MRL_CHK	Bromoethane		0.5	0.490	ug/L	98	(50-150)		
LCS1	Bromoform		5	4.31	ug/L	86	(70-130)		
LCS2	Bromoform		5	4.04	ug/L	81	(70-130)	20	6.5
MBLK	Bromoform			<0.5	ug/L				
MRL_CHK	Bromoform		0.5	0.520	ug/L	104	(50-150)		
LCS1	Bromomethane (Methyl Bromide)		5	4.91	ug/L	98	(70-130)		
LCS2	Bromomethane (Methyl Bromide)		5	4.54	ug/L	91	(70-130)	20	7.8
MBLK	Bromomethane (Methyl Bromide)			<0.5	ug/L				
MRL_CHK	Bromomethane (Methyl Bromide)		0.5	0.510	ug/L	102	(50-150)		
LCS1	Carbon disulfide		5	4.87	ug/L	97	(70-130)		
LCS2	Carbon disulfide		5	4.45	ug/L	89	(70-130)	20	9.0
MBLK	Carbon disulfide			<0.5	ug/L				
MRL_CHK	Carbon disulfide		0.5	0.430	ug/L	86	(50-150)		
LCS1	Carbon Tetrachloride		5	4.39	ug/L	88	(70-130)		
LCS2	Carbon Tetrachloride		5	3.97	ug/L	79	(70-130)	20	10
MBLK	Carbon Tetrachloride			<0.5	ug/L				
MRL_CHK	Carbon Tetrachloride		0.5	0.400	ug/L	80	(50-150)		
LCS1	Chlorobenzene		5	5.02	ug/L	100	(70-130)		
LCS2	Chlorobenzene		5	4.76	ug/L	95	(70-130)	20	5.3
MBLK	Chlorobenzene			<0.5	ug/L				
MRL_CHK	Chlorobenzene		0.5	0.500	ug/L	100	(50-150)		
LCS1	Chlorodibromomethane		5	4.15	ug/L	83	(70-130)		
LCS2	Chlorodibromomethane		5	3.88	ug/L	78	(70-130)	20	6.7
MBLK	Chlorodibromomethane			<0.5	ug/L				
MRL_CHK	Chlorodibromomethane		0.5	0.350	ug/L	70	(50-150)		
LCS1	Chloroethane		5	4.60	ug/L	92	(70-130)		
LCS2	Chloroethane		5	4.46	ug/L	89	(70-130)	20	3.1
MBLK	Chloroethane			<0.5	ug/L				
MRL_CHK	Chloroethane		0.5	0.510	ug/L	102	(50-150)		
LCS1	Chloroform (Trichloromethane)		5	4.64	ug/L	93	(70-130)		
LCS2	Chloroform (Trichloromethane)		5	4.33	ug/L	87	(70-130)	20	6.9
MBLK	Chloroform (Trichloromethane)			<0.5	ug/L				
MRL_CHK	Chloroform (Trichloromethane)		0.5	0.480	ug/L	96	(50-150)		
LCS1	Chloromethane(Methyl Chloride)		5	4.67	ug/L	93	(70-130)		
LCS2	Chloromethane(Methyl Chloride)		5	4.40	ug/L	88	(70-130)	20	6.0

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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MBLK	Chloromethane(Methyl Chloride)			<0.5	ug/L				
MRL_CHK	Chloromethane(Methyl Chloride)		0.5	0.520	ug/L	104	(50-150)		
LCS1	cis-1,2-Dichloroethylene		5	4.90	ug/L	98	(70-130)		
LCS2	cis-1,2-Dichloroethylene		5	4.56	ug/L	91	(70-130)	20	7.2
MBLK	cis-1,2-Dichloroethylene			<0.5	ug/L				
MRL_CHK	cis-1,2-Dichloroethylene		0.5	0.470	ug/L	94	(50-150)		
LCS1	cis-1,3-Dichloropropene		5	4.47	ug/L	89	(70-130)		
LCS2	cis-1,3-Dichloropropene		5	4.48	ug/L	90	(70-130)	20	0.22
MBLK	cis-1,3-Dichloropropene			<0.5	ug/L				
MRL_CHK	cis-1,3-Dichloropropene		0.5	0.400	ug/L	80	(50-150)		
LCS1	Dibromomethane		5	4.47	ug/L	89	(70-130)		
LCS2	Dibromomethane		5	4.32	ug/L	86	(70-130)	20	3.4
MBLK	Dibromomethane			<0.5	ug/L				
MRL_CHK	Dibromomethane		0.5	0.450	ug/L	90	(50-150)		
LCS1	Dichlorodifluoromethane		5	4.35	ug/L	87	(70-130)		
LCS2	Dichlorodifluoromethane		5	4.25	ug/L	85	(70-130)	20	2.3
MBLK	Dichlorodifluoromethane			<0.5	ug/L				
MRL_CHK	Dichlorodifluoromethane		0.5	0.400	ug/L	80	(50-150)		
LCS1	Dichloromethane		5	4.75	ug/L	95	(70-130)		
LCS2	Dichloromethane		5	4.39	ug/L	88	(70-130)	20	7.9
MBLK	Dichloromethane			<0.5	ug/L				
MRL_CHK	Dichloromethane		0.5	0.570	ug/L	114	(50-150)		
LCS1	Di-isopropyl ether		5	4.95	ug/L	99	(70-130)		
LCS2	Di-isopropyl ether		5	4.65	ug/L	93	(70-130)	20	6.3
MBLK	Di-isopropyl ether			<3.0	ug/L				
MRL_CHK	Di-isopropyl ether		0.5	0.480	ug/L	96	(50-150)		
LCS1	Ethyl benzene		5	5.20	ug/L	104	(70-130)		
LCS2	Ethyl benzene		5	4.91	ug/L	98	(70-130)	20	5.7
MBLK	Ethyl benzene			<0.5	ug/L				
MRL_CHK	Ethyl benzene		0.5	0.500	ug/L	100	(50-150)		
LCS1	Hexachlorobutadiene		5	5.76	ug/L	115	(70-130)		
LCS2	Hexachlorobutadiene		5	5.05	ug/L	101	(70-130)	20	13
MBLK	Hexachlorobutadiene			<0.5	ug/L				
MRL_CHK	Hexachlorobutadiene		0.5	0.630	ug/L	126	(50-150)		
LCS1	Isopropylbenzene		5	5.45	ug/L	109	(70-130)		
LCS2	Isopropylbenzene		5	5.05	ug/L	101	(70-130)	20	7.6
MBLK	Isopropylbenzene			<0.5	ug/L				
MRL_CHK	Isopropylbenzene		0.5	0.480	ug/L	96	(50-150)		

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1 800 566 LABS (1 800 566 5227)

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	m,p-Xylenes		10	10.0	ug/L	101	(70-130)		
LCS2	m,p-Xylenes		10	9.43	ug/L	94	(70-130)	20	6.9
MBLK	m,p-Xylenes			<0.5	ug/L				
MRL_CHK	m,p-Xylenes		1	0.970	ug/L	97	(50-150)		
MRLLW	m,p-Xylenes		0.5	0.500	ug/L	100	(50-150)		
LCS1	m-Dichlorobenzene (1,3-DCB)		5	5.25	ug/L	105	(70-130)		
LCS2	m-Dichlorobenzene (1,3-DCB)		5	4.91	ug/L	98	(70-130)	20	6.7
MBLK	m-Dichlorobenzene (1,3-DCB)			<0.5	ug/L				
MRL_CHK	m-Dichlorobenzene (1,3-DCB)		0.5	0.500	ug/L	100	(50-150)		
LCS1	Methyl Tert-butyl ether (MTBE)		5	5.05	ug/L	101	(70-130)		
LCS2	Methyl Tert-butyl ether (MTBE)		5	4.71	ug/L	94	(70-130)	20	7.0
MBLK	Methyl Tert-butyl ether (MTBE)			<0.5	ug/L				
MRL_CHK	Methyl Tert-butyl ether (MTBE)		0.5	0.500	ug/L	100	(50-150)		
LCS1	Naphthalene		5	5.87	ug/L	117	(70-130)		
LCS2	Naphthalene		5	5.37	ug/L	107	(70-130)	20	8.9
MBLK	Naphthalene			<0.5	ug/L				
MRL_CHK	Naphthalene		0.5	1.18	ug/L	**236**	(50-150)		
LCS1	n-Butylbenzene		5	5.41	ug/L	108	(70-130)		
LCS2	n-Butylbenzene		5	4.86	ug/L	97	(70-130)	20	11
MBLK	n-Butylbenzene			<0.5	ug/L				
MRL_CHK	n-Butylbenzene		0.5	0.560	ug/L	112	(50-150)		
LCS1	n-Propylbenzene		5	5.18	ug/L	104	(70-130)		
LCS2	n-Propylbenzene		5	4.72	ug/L	94	(70-130)	20	9.3
MBLK	n-Propylbenzene			<0.5	ug/L				
MRL_CHK	n-Propylbenzene		0.5	0.460	ug/L	92	(50-150)		
LCS1	o-Chlorotoluene		5	5.17	ug/L	103	(70-130)		
LCS2	o-Chlorotoluene		5	4.73	ug/L	95	(70-130)	20	8.9
MBLK	o-Chlorotoluene			<0.5	ug/L				
MRL_CHK	o-Chlorotoluene		0.5	0.480	ug/L	96	(50-150)		
LCS1	o-Dichlorobenzene (1,2-DCB)		5	5.29	ug/L	106	(70-130)		
LCS2	o-Dichlorobenzene (1,2-DCB)		5	4.85	ug/L	97	(70-130)	20	8.7
MBLK	o-Dichlorobenzene (1,2-DCB)			<0.5	ug/L				
MRL_CHK	o-Dichlorobenzene (1,2-DCB)		0.5	0.520	ug/L	104	(50-150)		
LCS1	o-Xylene		5	4.97	ug/L	99	(70-130)		
LCS2	o-Xylene		5	4.71	ug/L	94	(70-130)	20	5.4
MBLK	o-Xylene			<0.5	ug/L				
MRL_CHK	o-Xylene		0.5	0.490	ug/L	98	(50-150)		
LCS1	p-Chlorotoluene		5	5.07	ug/L	101	(70-130)		

Spike recovery is already corrected for native results.
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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Laboratory QC

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS2	p-Chlorotoluene		5	4.76	ug/L	95	(70-130)	20	6.3
MBLK	p-Chlorotoluene			<0.5	ug/L				
MRL_CHK	p-Chlorotoluene		0.5	0.490	ug/L	98	(50-150)		
LCS1	p-Dichlorobenzene (1,4-DCB)		5	5.24	ug/L	105	(70-130)		
LCS2	p-Dichlorobenzene (1,4-DCB)		5	4.88	ug/L	98	(70-130)	20	7.1
MBLK	p-Dichlorobenzene (1,4-DCB)			<0.5	ug/L				
MRL_CHK	p-Dichlorobenzene (1,4-DCB)		0.5	0.510	ug/L	102	(50-150)		
LCS1	p-Isopropyltoluene		5	5.53	ug/L	111	(70-130)		
LCS2	p-Isopropyltoluene		5	5.11	ug/L	102	(70-130)	20	7.9
MBLK	p-Isopropyltoluene			<0.5	ug/L				
MRL_CHK	p-Isopropyltoluene		0.5	0.490	ug/L	98	(50-150)		
LCS1	sec-Butylbenzene		5	6.08	ug/L	122	(70-130)		
LCS2	sec-Butylbenzene		5	5.58	ug/L	112	(70-130)	20	8.6
MBLK	sec-Butylbenzene			<0.5	ug/L				
MRL_CHK	sec-Butylbenzene		0.5	0.500	ug/L	100	(50-150)		
LCS1	Styrene		5	5.11	ug/L	102	(70-130)		
LCS2	Styrene		5	4.76	ug/L	95	(70-130)	20	7.1
MBLK	Styrene			<0.5	ug/L				
MRL_CHK	Styrene		0.5	0.490	ug/L	98	(50-150)		
LCS1	tert-amyl Methyl Ether		5	4.93	ug/L	99	(70-130)		
LCS2	tert-amyl Methyl Ether		5	4.82	ug/L	96	(70-130)	20	2.3
MBLK	tert-amyl Methyl Ether			<3.0	ug/L				
MRL_CHK	tert-amyl Methyl Ether		0.5	0.480	ug/L	96	(50-150)		
LCS1	tert-Butyl Ethyl Ether		5	5.08	ug/L	102	(70-130)		
LCS2	tert-Butyl Ethyl Ether		5	4.70	ug/L	94	(70-130)	20	7.8
MBLK	tert-Butyl Ethyl Ether			<3.0	ug/L				
MRL_CHK	tert-Butyl Ethyl Ether		0.5	0.480	ug/L	96	(50-150)		
LCS1	tert-Butylbenzene		5	5.21	ug/L	104	(70-130)		
LCS2	tert-Butylbenzene		5	4.96	ug/L	99	(70-130)	20	4.9
MBLK	tert-Butylbenzene			<0.5	ug/L				
MRL_CHK	tert-Butylbenzene		0.5	0.490	ug/L	98	(50-150)		
LCS1	Tetrachloroethylene (PCE)		5	4.73	ug/L	95	(70-130)		
LCS2	Tetrachloroethylene (PCE)		5	4.58	ug/L	92	(70-130)	20	3.2
MBLK	Tetrachloroethylene (PCE)			<0.5	ug/L				
MRL_CHK	Tetrachloroethylene (PCE)		0.5	0.460	ug/L	92	(50-150)		
LCS1	Toluene		5	4.79	ug/L	96	(70-130)		
LCS2	Toluene		5	4.67	ug/L	93	(70-130)	20	2.5
MBLK	Toluene			<0.5	ug/L				

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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MRL_CHK	Toluene		0.5	0.470	ug/L	94	(50-150)		
LCS1	Toluene-d8 (S)		5	98.2	%	98	(70-130)		
LCS2	Toluene-d8 (S)		5	100	%	100	(70-130)		
MBLK	Toluene-d8 (S)			99.2	%	99	(70-130)		
MRL_CHK	Toluene-d8 (S)		5	100	%	100	(70-130)		
MRLLW	Toluene-d8 (S)		5	95.2	%	95	(70-130)		
LCS1	trans-1,2-Dichloroethylene		5	4.89	ug/L	98	(70-130)		
LCS2	trans-1,2-Dichloroethylene		5	4.42	ug/L	88	(70-130)	20	10
MBLK	trans-1,2-Dichloroethylene			<0.5	ug/L				
MRL_CHK	trans-1,2-Dichloroethylene		0.5	0.490	ug/L	98	(50-150)		
LCS1	trans-1,3-Dichloropropene		5	4.30	ug/L	86	(70-130)		
LCS2	trans-1,3-Dichloropropene		5	4.20	ug/L	84	(70-130)	20	2.4
MBLK	trans-1,3-Dichloropropene			<0.5	ug/L				
MRL_CHK	trans-1,3-Dichloropropene		0.5	0.390	ug/L	78	(50-150)		
LCS1	Trichloroethylene (TCE)		5	4.84	ug/L	97	(70-130)		
LCS2	Trichloroethylene (TCE)		5	4.70	ug/L	94	(70-130)	20	2.9
MBLK	Trichloroethylene (TCE)			<0.5	ug/L				
MRL_CHK	Trichloroethylene (TCE)		0.5	0.460	ug/L	92	(50-150)		
LCS1	Trichlorofluoromethane		5	4.87	ug/L	97	(70-130)		
LCS2	Trichlorofluoromethane		5	4.53	ug/L	91	(70-130)	20	7.2
MBLK	Trichlorofluoromethane			<0.5	ug/L				
MRL_CHK	Trichlorofluoromethane		0.5	0.440	ug/L	88	(50-150)		
LCS1	Trichlorotrifluoroethane(Freon		5	4.66	ug/L	93	(70-130)		
LCS2	Trichlorotrifluoroethane(Freon		5	4.36	ug/L	87	(70-130)	20	6.7
MBLK	Trichlorotrifluoroethane(Freon			<0.5	ug/L				
MRL_CHK	Trichlorotrifluoroethane(Freon		0.5	0.450	ug/L	90	(50-150)		
LCS1	Vinyl chloride (VC)		5	4.67	ug/L	93	(70-130)		
LCS2	Vinyl chloride (VC)		5	4.45	ug/L	89	(70-130)	20	4.8
MBLK	Vinyl chloride (VC)			<0.3	ug/L				
MRL_CHK	Vinyl chloride (VC)		0.5	0.420	ug/L	84	(50-150)		
MRLLW	Vinyl chloride (VC)		0.25	0.220	ug/L	88	(50-150)		

Perchlorate by EPA 314.0

Analytical Batch: 1275914 **Analysis Date: 09/22/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	Perchlorate		25	28.1	ug/L	112	(85-115)		
LCS2	Perchlorate		25	27.9	ug/L	112	(85-115)	15	0.71
MBLK	Perchlorate			<2	ug/L				
MRL_CHK	Perchlorate		4	4.87	ug/L	122	(75-125)		

Spike recovery is already corrected for native results.
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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MS_202009170651	Perchlorate	ND	25	22.9	ug/L	92	(80-120)		
MSD_202009170651	Perchlorate	ND	25	23.6	ug/L	94	(80-120)	15	3.0

Explosives by LCMS by LC-MS-MS

Analytical Batch: 1275993 **Analysis Date: 09/21/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	2,4,6-Trinitrotoluene (TNT)		1	0.970	ug/L	97	(70-130)		
LCS2	2,4,6-Trinitrotoluene (TNT)		1	0.953	ug/L	95	(70-130)	30	1.8
MBLK	2,4,6-Trinitrotoluene (TNT)			<0.05	ug/L				
MRL_CHK	2,4,6-Trinitrotoluene (TNT)		0.1	0.0888	ug/L	89	(50-150)		
MS_202009020445	2,4,6-Trinitrotoluene (TNT)	ND	1	0.986	ug/L	99	(70-130)		
MSD_202009020445	2,4,6-Trinitrotoluene (TNT)	ND	1	0.986	ug/L	99	(70-130)	30	0.052
LCS1	HMX		1	1.03	ug/L	103	(70-130)		
LCS2	HMX		1	1.00	ug/L	100	(70-130)	30	3.0
MBLK	HMX			<0.05	ug/L				
MRL_CHK	HMX		0.1	0.113	ug/L	113	(50-150)		
MS_202009020445	HMX	ND	1	1.01	ug/L	101	(70-130)		
MSD_202009020445	HMX	ND	1	1.03	ug/L	103	(70-130)	30	2.0
LCS1	RDX		1	0.954	ug/L	95	(70-130)		
LCS2	RDX		1	0.936	ug/L	94	(70-130)	30	1.8
MBLK	RDX			<0.05	ug/L				
MRL_CHK	RDX		0.1	0.106	ug/L	106	(50-150)		
MS_202009020445	RDX	ND	1	0.961	ug/L	96	(70-130)		
MSD_202009020445	RDX	ND	1	0.981	ug/L	98	(70-130)	30	2.1

Gross Alpha/Beta Radiation by EPA 900.0

Analytical Batch: 1276528 **Analysis Date: 09/23/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
DUP1_202009090440	Beta, Gross	6.1		6.80	pCi/L		(0-20)		
DUP2_202009090638	Beta, Gross	3.6		3.16	pCi/L		(0-20)		
LCS1	Beta, Gross		31	28.2	pCi/L	93	(80-120)		
LCS2	Beta, Gross		31	32.2	pCi/L	106	(80-120)	20	13
MBLK	Beta, Gross			<3	pCi/L				
MS_202009170013	Beta, Gross	ND	31	27.5	pCi/L	89	(70-130)		

Aldicarbs by EPA 531.2

Analytical Batch: 1277471 **Analysis Date: 09/27/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
CCCH	3-Hydroxycarbofuran		25	24.8	ug/L	99	(70-130)		
CCCM	3-Hydroxycarbofuran		10	10.2	ug/L	102	(70-130)		
LCS	3-Hydroxycarbofuran		5	5.04	ug/L	101	(70-130)		
MBLK	3-Hydroxycarbofuran			<0.167	ug/L				

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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MRL_CHK	3-Hydroxycarbofuran		0.5	0.489	ug/L	98	(50-150)		
MS1_202009240085	3-Hydroxycarbofuran	ND	5	5.12	ug/L	103	(70-130)		
MSD1_202009240085	3-Hydroxycarbofuran	ND	5	5.15	ug/L	103	(70-130)	20	0.48
CCCH	4-Bromo-3,5-dimethylphenyl-N-methylcarbamate (S)			95.0	%	95	(70-130)		
CCCM	4-Bromo-3,5-dimethylphenyl-N-methylcarbamate (S)			95.0	%	95	(70-130)		
LCS	4-Bromo-3,5-dimethylphenyl-N-methylcarbamate (S)			99.3	%	99	(70-130)		
MBLK	4-Bromo-3,5-dimethylphenyl-N-methylcarbamate (S)			103	%	103	(70-130)		
MRL_CHK	4-Bromo-3,5-dimethylphenyl-N-methylcarbamate (S)		100	97.1	%	97	(70-130)		
MS1_202009240085	4-Bromo-3,5-dimethylphenyl-N-methylcarbamate (S)			98.9	%	99	(70-130)		
MSD1_202009240085	4-Bromo-3,5-dimethylphenyl-N-methylcarbamate (S)			104	%	104	(70-130)		
CCCH	Aldicarb (Temik)		25	20.7	ug/L	83	(70-130)		
CCCM	Aldicarb (Temik)		10	8.54	ug/L	85	(70-130)		
LCS	Aldicarb (Temik)		5	4.43	ug/L	89	(70-130)		
MBLK	Aldicarb (Temik)			<0.167	ug/L				
MRL_CHK	Aldicarb (Temik)		0.5	0.435	ug/L	87	(50-150)		
MS1_202009240085	Aldicarb (Temik)	ND	5	5.16	ug/L	103	(70-130)		
MSD1_202009240085	Aldicarb (Temik)	ND	5	5.15	ug/L	103	(70-130)	20	0.21
CCCH	Aldicarb sulfone		25	24.7	ug/L	99	(70-130)		
CCCM	Aldicarb sulfone		10	10.1	ug/L	101	(70-130)		
LCS	Aldicarb sulfone		5	5.38	ug/L	108	(70-130)		
MBLK	Aldicarb sulfone			<0.167	ug/L				
MRL_CHK	Aldicarb sulfone		0.5	0.485	ug/L	97	(50-150)		
MS1_202009240085	Aldicarb sulfone	ND	5	5.05	ug/L	101	(70-130)		
MSD1_202009240085	Aldicarb sulfone	ND	5	5.29	ug/L	106	(70-130)	20	4.7
CCCH	Aldicarb sulfoxide		25	22.8	ug/L	91	(70-130)		
CCCM	Aldicarb sulfoxide		10	9.18	ug/L	92	(70-130)		
LCS	Aldicarb sulfoxide		5	4.60	ug/L	92	(70-130)		
MBLK	Aldicarb sulfoxide			<0.167	ug/L				
MRL_CHK	Aldicarb sulfoxide		0.5	0.464	ug/L	93	(50-150)		
MS1_202009240085	Aldicarb sulfoxide	ND	5	5.04	ug/L	101	(70-130)		
MSD1_202009240085	Aldicarb sulfoxide	ND	5	5.10	ug/L	102	(70-130)	20	1.1
CCCH	Baygon		25	24.8	ug/L	99	(70-130)		
CCCM	Baygon		10	10.1	ug/L	101	(70-130)		
LCS	Baygon		5	5.25	ug/L	105	(70-130)		
MBLK	Baygon			<0.167	ug/L				
MRL_CHK	Baygon		0.5	0.568	ug/L	114	(50-150)		
MS1_202009240085	Baygon	ND	5	5.20	ug/L	104	(70-130)		
MSD1_202009240085	Baygon	ND	5	5.44	ug/L	109	(70-130)	20	4.5

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QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
CCCH	Carbaryl		25	25.0	ug/L	100	(70-130)		
CCCM	Carbaryl		10	10.0	ug/L	100	(70-130)		
LCS	Carbaryl		5	5.25	ug/L	105	(70-130)		
MBLK	Carbaryl			<0.167	ug/L				
MRL_CHK	Carbaryl		0.5	0.483	ug/L	97	(50-150)		
MS1_202009240085	Carbaryl	ND	5	5.11	ug/L	102	(70-130)		
MSD1_202009240085	Carbaryl	ND	5	5.19	ug/L	104	(70-130)	20	1.5
CCCH	Carbofuran (Furadan)		25	24.6	ug/L	98	(70-130)		
CCCM	Carbofuran (Furadan)		10	10.2	ug/L	102	(70-130)		
LCS	Carbofuran (Furadan)		5	5.03	ug/L	101	(70-130)		
MBLK	Carbofuran (Furadan)			<0.167	ug/L				
MRL_CHK	Carbofuran (Furadan)		0.5	0.506	ug/L	101	(50-150)		
MS1_202009240085	Carbofuran (Furadan)	ND	5	5.34	ug/L	107	(70-130)		
MSD1_202009240085	Carbofuran (Furadan)	ND	5	5.14	ug/L	103	(70-130)	20	3.8
CCCH	Methiocarb		25	23.9	ug/L	96	(70-130)		
CCCM	Methiocarb		10	9.46	ug/L	95	(70-130)		
LCS	Methiocarb		5	4.68	ug/L	94	(70-130)		
MBLK	Methiocarb			<0.167	ug/L				
MRL_CHK	Methiocarb		0.5	0.490	ug/L	98	(50-150)		
MS1_202009240085	Methiocarb	ND	5	4.98	ug/L	100	(70-130)		
MSD1_202009240085	Methiocarb	ND	5	5.18	ug/L	104	(70-130)	20	4.0
CCCH	Methomyl		25	23.5	ug/L	94	(70-130)		
CCCM	Methomyl		10	9.49	ug/L	95	(70-130)		
LCS	Methomyl		5	4.69	ug/L	94	(70-130)		
MBLK	Methomyl			<0.167	ug/L				
MRL_CHK	Methomyl		0.5	0.400	ug/L	80	(50-150)		
MS1_202009240085	Methomyl	ND	5	5.13	ug/L	103	(70-130)		
MSD1_202009240085	Methomyl	ND	5	5.08	ug/L	102	(70-130)	20	0.95
CCCH	Oxamyl (Vydate)		25	24.8	ug/L	99	(70-130)		
CCCM	Oxamyl (Vydate)		10	10.2	ug/L	102	(70-130)		
LCS	Oxamyl (Vydate)		5	5.00	ug/L	100	(70-130)		
MBLK	Oxamyl (Vydate)			<0.167	ug/L				
MRL_CHK	Oxamyl (Vydate)		0.5	0.612	ug/L	122	(50-150)		
MS1_202009240085	Oxamyl (Vydate)	ND	5	5.26	ug/L	105	(70-130)		
MSD1_202009240085	Oxamyl (Vydate)	ND	5	5.16	ug/L	103	(70-130)	20	1.9

521 by Triple Quad by EPA 521

Prep Batch: 1276045 Analytical Batch: 1277510 **Analysis Date: 09/28/2020**

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

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Laboratory QC

Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS3	NDMA-D6 (S)		20	83.2	%	83	(70-130)		
MBLK	NDMA-D6 (S)			82.9	%	83	(70-130)		
MRL_CHK	NDMA-D6 (S)		20	85.8	%	86	(70-130)		
MS2_202009170025	NDMA-D6 (S)		20	86.4	%	86	(70-130)		
MSD2_202009170025	NDMA-D6 (S)		20	79.6	%	80	(70-130)		
LCS3	NDPA-D14 (I)			116	%	116	(50-150)		
MBLK	NDPA-D14 (I)			106	%	106	(50-150)		
MRL_CHK	NDPA-D14 (I)			120	%	120	(50-150)		
MS2_202009170025	NDPA-D14 (I)		20	108	%	108	(50-150)		
MSD2_202009170025	NDPA-D14 (I)		20	132	%	132	(50-150)		
LCS3	N-Nitroso dimethylamine (NDMA)		80	63.1	ng/L	79	(70-130)		
MBLK	N-Nitroso dimethylamine (NDMA)			<0.67	ng/L				
MRL_CHK	N-Nitroso dimethylamine (NDMA)		2	1.86	ng/L	93	(50-150)		
MS2_202009170025	N-Nitroso dimethylamine (NDMA)	ND	40	36.3	ng/L	90	(70-130)		
MSD2_202009170025	N-Nitroso dimethylamine (NDMA)	ND	40	33.0	ng/L	82	(70-130)	20	9.6
LCS3	N-Nitrosodibutylamine (NDBA)		80	80.2	ng/L	100	(70-130)		
MBLK	N-Nitrosodibutylamine (NDBA)			<0.67	ng/L				
MRL_CHK	N-Nitrosodibutylamine (NDBA)		2	2.59	ng/L	130	(50-150)		
MS2_202009170025	N-Nitrosodibutylamine (NDBA)	ND	40	38.9	ng/L	96	(70-130)		
MSD2_202009170025	N-Nitrosodibutylamine (NDBA)	ND	40	40.2	ng/L	99	(70-130)	20	3.2
LCS3	N-Nitrosodiethylamine (NDEA)		80	69.9	ng/L	87	(70-130)		
MBLK	N-Nitrosodiethylamine (NDEA)			<0.67	ng/L				
MRL_CHK	N-Nitrosodiethylamine (NDEA)		2	1.81	ng/L	91	(50-150)		
MS2_202009170025	N-Nitrosodiethylamine (NDEA)	ND	40	38.6	ng/L	96	(70-130)		
MSD2_202009170025	N-Nitrosodiethylamine (NDEA)	ND	40	35.6	ng/L	88	(70-130)	20	8.0
LCS3	N-Nitrosodi-n-propylamine (NDPA)		80	76.0	ng/L	95	(70-130)		
MBLK	N-Nitrosodi-n-propylamine (NDPA)			<0.67	ng/L				
MRL_CHK	N-Nitrosodi-n-propylamine (NDPA)		2	1.81	ng/L	90	(50-150)		
MS2_202009170025	N-Nitrosodi-n-propylamine (NDPA)	ND	40	39.6	ng/L	97	(70-130)		
MSD2_202009170025	N-Nitrosodi-n-propylamine (NDPA)	ND	40	38.4	ng/L	94	(70-130)	20	3.1
LCS3	N-Nitrosomethylethylamine (NMEA)		80	66.8	ng/L	84	(70-130)		
MBLK	N-Nitrosomethylethylamine (NMEA)			<0.67	ng/L				
MRL_CHK	N-Nitrosomethylethylamine (NMEA)		2	1.65	ng/L	82	(50-150)		
MS2_202009170025	N-Nitrosomethylethylamine (NMEA)	ND	40	37.7	ng/L	94	(70-130)		
MSD2_202009170025	N-Nitrosomethylethylamine (NMEA)	ND	40	34.3	ng/L	86	(70-130)	20	9.4
LCS3	N-Nitrosomorpholine		80	76.7	ng/L	96	(70-130)		
MBLK	N-Nitrosomorpholine			<0.67	ng/L				
MRL_CHK	N-Nitrosomorpholine		2	2.00	ng/L	100	(50-150)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

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Laboratory QC

Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Report: 892211
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MS2_202009170025	N-Nitrosomorpholine	ND	40	41.0	ng/L	102	(70-130)		
MSD2_202009170025	N-Nitrosomorpholine	ND	40	38.0	ng/L	95	(70-130)	20	7.7
LCS3	N-Nitrosopiperidine (NPIP)		80	74.7	ng/L	93	(70-130)		
MBLK	N-Nitrosopiperidine (NPIP)			<0.67	ng/L				
MRL_CHK	N-Nitrosopiperidine (NPIP)		2	2.02	ng/L	101	(50-150)		
MS2_202009170025	N-Nitrosopiperidine (NPIP)	ND	40	41.4	ng/L	103	(70-130)		
MSD2_202009170025	N-Nitrosopiperidine (NPIP)	ND	40	38.1	ng/L	94	(70-130)	20	8.4
LCS3	N-Nitrosopyrollidine (NPYR)		80	77.4	ng/L	97	(70-130)		
MBLK	N-Nitrosopyrollidine (NPYR)			<0.67	ng/L				
MRL_CHK	N-Nitrosopyrollidine (NPYR)		2	2.13	ng/L	106	(50-150)		
MS2_202009170025	N-Nitrosopyrollidine (NPYR)	ND	40	45.4	ng/L	114	(70-130)		
MSD2_202009170025	N-Nitrosopyrollidine (NPYR)	ND	40	42.4	ng/L	106	(70-130)	20	6.9

Radium 226 by Ra-226 GA

Analytical Batch: 1278348 **Analysis Date: 09/30/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	Radium 226		11	11.7	pCi/L	106	(80-120)		
LCS2	Radium 226		11	11.5	pCi/L	104	(80-120)	20	1.7
MBLK	Radium 226			<1	pCi/L				
MS_202009110168	Radium 226	1.7	11	12.4	pCi/L	96	(70-130)		

Radium 228 by RA-228 GA

Analytical Batch: 1278349 **Analysis Date: 09/30/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	Radium 228		10	10.4	pCi/L	100	(80-120)		
LCS2	Radium 228		10	10.8	pCi/L	104	(80-120)	20	3.8
MBLK	Radium 228			<1	pCi/L				
MS_202009110168	Radium 228	ND	10	13.7	pCi/L	<u>**132**</u>	(70-130)		

Bromate by UV/VIS 317 by EPA 317

Analytical Batch: 1278519 **Analysis Date: 10/02/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	Bromate by UV/VIS		10	10.5	ug/L	105	(90-110)		
LCS2	Bromate by UV/VIS		10	10.5	ug/L	105	(90-110)	20	0.0
MBLK	Bromate by UV/VIS			<0.5	ug/L				
MRL_CHK	Bromate by UV/VIS		1	0.947	ug/L	95	(75-125)		
MS_202009250223	Bromate by UV/VIS	ND	5	5.12	ug/L	102	(75-125)		
MS_202009250479	Bromate by UV/VIS	9.7	5	15.2	ug/L	112	(75-125)		
MSD_202009250223	Bromate by UV/VIS	ND	5	5.18	ug/L	104	(75-125)	15	1.2
MSD_202009250479	Bromate by UV/VIS	9.7	5	15.2	ug/L	111	(75-125)	15	0.36

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u>
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

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ANALYTICAL REPORT

Eurofins Calscience LLC
7440 Lincoln Way
Garden Grove, CA 92841
Tel: (714)895-5494

Laboratory Job ID: 570-38329-1
Client Project/Site: 892211

For:
Eurofins Eaton Analytical
750 Royal Oaks Drive
Monrovia, California 91016

Attn: Jaclyn Contreras

Authorized for release by:
9/24/2020 8:52:26 AM

Lori Thompson, Project Manager I
(714)895-5494
Lori.Thompson@eurofinset.com

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Definitions/Glossary

Client: Eurofins Eaton Analytical
Project/Site: 892211

Job ID: 570-38329-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
*1	LCS/LCSD RPD exceeds control limits.
me	LCS Recovery is within Marginal Exdeedance (ME) control limit range (± 4 SD from the mean).

GC/MS Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits
me	LCS Recovery is within Marginal Exdeedance (ME) control limit range (± 4 SD from the mean).

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

Job ID: 570-38329-1

Laboratory: Eurofins Calscience LLC

Narrative

Job Narrative
570-38329-1

Comments
No additional comments.

Receipt
The sample was received on 9/14/2020 10:47 AM; the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.5º C.

GC/MS VOA
Method 8260B: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for analytical batch 570-96220 recovered outside control limits for the following analyte: 1,2-Dichloropropane. This analyte was biased high in the LCS and was not detected in the associated samples; therefore, the data have been reported.

Method 8260B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 570-96220.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
Method 8270C: The following analyte recovered outside control limits for the LCS/LCSD associated with preparation batch 570-94993 and analytical batch 570-95256: Pentachlorophenol. This is not indicative of a systematic control problem because this was a random marginal exceedance. Qualified results have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample ID: 202009110519 **Lab Sample ID: 570-38329-1**

No Detections.

This Detection Summary does not include radiochemical test results.

Client: Eurofins Eaton Analytical
Project/Site: 892211

Job ID: 570-38329-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: 202009110519
Date Collected: 09/10/20 08:30
Date Received: 09/14/20 10:47

Lab Sample ID: 570-38329-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		20	10	ug/L			09/22/20 14:04	1
Acetonitrile	ND		50	1.5	ug/L			09/22/20 14:04	1
Acrolein	ND	*1	50	2.4	ug/L			09/22/20 14:04	1
Acrylonitrile	ND		20	3.1	ug/L			09/22/20 14:04	1
Benzene	ND		0.50	0.14	ug/L			09/22/20 14:04	1
Bromobenzene	ND		1.0	0.19	ug/L			09/22/20 14:04	1
Bromochloromethane	ND		2.0	0.46	ug/L			09/22/20 14:04	1
Bromodichloromethane	ND		1.0	0.23	ug/L			09/22/20 14:04	1
Bromoform	ND		5.0	1.8	ug/L			09/22/20 14:04	1
Bromomethane	ND		50	19	ug/L			09/22/20 14:04	1
1,3-Butadiene	ND		25	0.95	ug/L			09/22/20 14:04	1
2-Butanone	ND		20	3.6	ug/L			09/22/20 14:04	1
Carbon disulfide	ND		10	0.70	ug/L			09/22/20 14:04	1
Carbon tetrachloride	ND		0.50	0.23	ug/L			09/22/20 14:04	1
Chlorobenzene	ND		1.0	0.16	ug/L			09/22/20 14:04	1
Chloroethane	ND		5.0	0.76	ug/L			09/22/20 14:04	1
2-Chloroethyl vinyl ether	ND	*1	50	9.0	ug/L			09/22/20 14:04	1
Chloroform	ND		1.0	0.18	ug/L			09/22/20 14:04	1
Chloromethane	ND		10	0.50	ug/L			09/22/20 14:04	1
2-Chlorotoluene	ND		1.0	0.16	ug/L			09/22/20 14:04	1
4-Chlorotoluene	ND		1.0	0.18	ug/L			09/22/20 14:04	1
c-1,2-Dichloroethene	ND		1.0	0.27	ug/L			09/22/20 14:04	1
c-1,3-Dichloropropene	ND		0.50	0.20	ug/L			09/22/20 14:04	1
Dibromochloromethane	ND		2.0	0.46	ug/L			09/22/20 14:04	1
1,2-Dibromo-3-Chloropropane	ND		10	2.1	ug/L			09/22/20 14:04	1
1,2-Dibromoethane	ND		1.0	0.27	ug/L			09/22/20 14:04	1
Dibromomethane	ND		1.0	0.30	ug/L			09/22/20 14:04	1
1,2-Dichlorobenzene	ND		1.0	0.14	ug/L			09/22/20 14:04	1
1,3-Dichlorobenzene	ND		1.0	0.19	ug/L			09/22/20 14:04	1
1,4-Dichlorobenzene	ND		1.0	0.24	ug/L			09/22/20 14:04	1
Dichlorodifluoromethane	ND		5.0	0.28	ug/L			09/22/20 14:04	1
1,1-Dichloroethane	ND		1.0	0.28	ug/L			09/22/20 14:04	1
1,2-Dichloroethane	ND		0.50	0.19	ug/L			09/22/20 14:04	1
1,1-Dichloroethene	ND		1.0	0.22	ug/L			09/22/20 14:04	1
1,2-Dichloropropane	ND	*	1.0	0.20	ug/L			09/22/20 14:04	1
1,3-Dichloropropane	ND		1.0	0.14	ug/L			09/22/20 14:04	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			09/22/20 14:04	1
1,1-Dichloropropene	ND		1.0	0.17	ug/L			09/22/20 14:04	1
Diethyl ether	ND		10	0.31	ug/L			09/22/20 14:04	1
Di-isopropyl ether (DIPE)	ND		2.0	0.16	ug/L			09/22/20 14:04	1
1,4-Dioxane	ND		100	26	ug/L			09/22/20 14:04	1
Ethanol	ND		100	53	ug/L			09/22/20 14:04	1
Ethylbenzene	ND		1.0	0.14	ug/L			09/22/20 14:04	1
Ethyl-t-butyl ether (ETBE)	ND		2.0	0.12	ug/L			09/22/20 14:04	1
Hexachloro-1,3-butadiene	ND		20	0.42	ug/L			09/22/20 14:04	1
Hexane	ND		5.0	0.95	ug/L			09/22/20 14:04	1
2-Hexanone	ND		10	5.3	ug/L			09/22/20 14:04	1
Iodomethane	ND		50	19	ug/L			09/22/20 14:04	1
Isobutyl alcohol	ND	*	50	20	ug/L			09/22/20 14:04	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: 202009110519
Date Collected: 09/10/20 08:30
Date Received: 09/14/20 10:47

Lab Sample ID: 570-38329-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isopropanol	ND		200	100	ug/L			09/22/20 14:04	1
Isopropylbenzene	ND		1.0	0.16	ug/L			09/22/20 14:04	1
Methylene Chloride	ND		10	4.0	ug/L			09/22/20 14:04	1
4-Methyl-2-pentanone	ND		10	0.46	ug/L			09/22/20 14:04	1
Methyl-t-Butyl Ether (MTBE)	ND		1.0	0.16	ug/L			09/22/20 14:04	1
m,p-Xylene	ND		2.0	0.31	ug/L			09/22/20 14:04	1
Naphthalene	ND		10	5.1	ug/L			09/22/20 14:04	1
n-Butylbenzene	ND		1.0	0.30	ug/L			09/22/20 14:04	1
N-Propylbenzene	ND		1.0	0.18	ug/L			09/22/20 14:04	1
o-Xylene	ND		1.0	0.15	ug/L			09/22/20 14:04	1
p-Isopropyltoluene	ND		1.0	0.22	ug/L			09/22/20 14:04	1
sec-Butylbenzene	ND		1.0	0.19	ug/L			09/22/20 14:04	1
Styrene	ND		1.0	0.15	ug/L			09/22/20 14:04	1
Tert-amyl-methyl ether (TAME)	ND		2.0	0.13	ug/L			09/22/20 14:04	1
tert-Butyl alcohol (TBA)	ND		10	3.1	ug/L			09/22/20 14:04	1
tert-Butylbenzene	ND		1.0	0.25	ug/L			09/22/20 14:04	1
1,1,1,2-Tetrachloroethane	ND		2.0	0.43	ug/L			09/22/20 14:04	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.17	ug/L			09/22/20 14:04	1
Tetrachloroethene	ND		1.0	0.24	ug/L			09/22/20 14:04	1
Tetrahydrofuran	ND		20	3.3	ug/L			09/22/20 14:04	1
Thiophene	ND		10	0.16	ug/L			09/22/20 14:04	1
Toluene	ND		1.0	0.13	ug/L			09/22/20 14:04	1
t-1,4-Dichloro-2-butene	ND		20	2.6	ug/L			09/22/20 14:04	1
t-1,2-Dichloroethene	ND		1.0	0.40	ug/L			09/22/20 14:04	1
t-1,3-Dichloropropene	ND		0.50	0.23	ug/L			09/22/20 14:04	1
1,2,3-Trichlorobenzene	ND		1.0	0.28	ug/L			09/22/20 14:04	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			09/22/20 14:04	1
1,1,1-Trichloroethane	ND		1.0	0.31	ug/L			09/22/20 14:04	1
1,1,2-Trichloroethane	ND		1.0	0.22	ug/L			09/22/20 14:04	1
Trichloroethene	ND		1.0	0.24	ug/L			09/22/20 14:04	1
Trichlorofluoromethane	ND		10	0.28	ug/L			09/22/20 14:04	1
1,2,3-Trichloropropane	ND		5.0	0.22	ug/L			09/22/20 14:04	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		10	0.62	ug/L			09/22/20 14:04	1
1,2,4-Trimethylbenzene	ND		1.0	0.21	ug/L			09/22/20 14:04	1
1,3,5-Trimethylbenzene	ND		1.0	0.17	ug/L			09/22/20 14:04	1
2,2,4-Trimethylpentane	ND	*	10	0.82	ug/L			09/22/20 14:04	1
Vinyl acetate	ND		10	2.9	ug/L			09/22/20 14:04	1
Vinyl chloride	ND		0.50	0.16	ug/L			09/22/20 14:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*77 - 120*		*09/22/20 14:04*	*1*
Dibromofluoromethane (Surr)	*99*		*80 - 128*		*09/22/20 14:04*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*80 - 129*		*09/22/20 14:04*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*09/22/20 14:04*	*1*

Client Sample Results

Client: Eurofins Eaton Analytical
Project/Site: 892211

Job ID: 570-38329-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Client Sample ID: 202009110519
Date Collected: 09/10/20 08:30
Date Received: 09/14/20 10:47

Lab Sample ID: 570-38329-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		9.5	2.7	ug/L		09/16/20 15:38	09/18/20 21:20	1
1,2-Dichlorobenzene	ND		9.5	2.9	ug/L		09/16/20 15:38	09/18/20 21:20	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		9.5	0.81	ug/L		09/16/20 15:38	09/18/20 21:20	1
1,3-Dichlorobenzene	ND		9.5	3.0	ug/L		09/16/20 15:38	09/18/20 21:20	1
1,4-Dichlorobenzene	ND		9.5	2.7	ug/L		09/16/20 15:38	09/18/20 21:20	1
1-Methylnaphthalene	ND		9.5	2.7	ug/L		09/16/20 15:38	09/18/20 21:20	1
2,4,5-Trichlorophenol	ND		9.5	2.4	ug/L		09/16/20 15:38	09/18/20 21:20	1
2,4,6-Trichlorophenol	ND		9.5	2.4	ug/L		09/16/20 15:38	09/18/20 21:20	1
2,4-Dichlorophenol	ND		9.5	2.4	ug/L		09/16/20 15:38	09/18/20 21:20	1
2,4-Dimethylphenol	ND		9.5	2.3	ug/L		09/16/20 15:38	09/18/20 21:20	1
2,4-Dinitrophenol	ND		48	13	ug/L		09/16/20 15:38	09/18/20 21:20	1
2,4-Dinitrotoluene	ND		9.5	2.2	ug/L		09/16/20 15:38	09/18/20 21:20	1
2,6-Dichlorophenol	ND		9.5	1.4	ug/L		09/16/20 15:38	09/18/20 21:20	1
2,6-Dinitrotoluene	ND		9.5	2.2	ug/L		09/16/20 15:38	09/18/20 21:20	1
2-Chloronaphthalene	ND		9.5	2.6	ug/L		09/16/20 15:38	09/18/20 21:20	1
2-Chlorophenol	ND		9.5	2.2	ug/L		09/16/20 15:38	09/18/20 21:20	1
2-Methylnaphthalene	ND		9.5	2.7	ug/L		09/16/20 15:38	09/18/20 21:20	1
2-Methylphenol	ND		9.5	2.0	ug/L		09/16/20 15:38	09/18/20 21:20	1
2-Nitroaniline	ND		9.5	2.1	ug/L		09/16/20 15:38	09/18/20 21:20	1
2-Nitrophenol	ND		9.5	2.5	ug/L		09/16/20 15:38	09/18/20 21:20	1
3 & 4 Methylphenol	ND		9.5	2.1	ug/L		09/16/20 15:38	09/18/20 21:20	1
3,3'-Dichlorobenzidine	ND		24	2.5	ug/L		09/16/20 15:38	09/18/20 21:20	1
3-Nitroaniline	ND		9.5	2.2	ug/L		09/16/20 15:38	09/18/20 21:20	1
4,6-Dinitro-2-methylphenol	ND		48	14	ug/L		09/16/20 15:38	09/18/20 21:20	1
4-Bromophenyl phenyl ether	ND		9.5	2.6	ug/L		09/16/20 15:38	09/18/20 21:20	1
4-Chloro-3-methylphenol	ND		9.5	2.3	ug/L		09/16/20 15:38	09/18/20 21:20	1
4-Chloroaniline	ND		9.5	1.9	ug/L		09/16/20 15:38	09/18/20 21:20	1
4-Chlorophenyl phenyl ether	ND		9.5	2.5	ug/L		09/16/20 15:38	09/18/20 21:20	1
4-Nitroaniline	ND		9.5	2.0	ug/L		09/16/20 15:38	09/18/20 21:20	1
4-Nitrophenol	ND		9.5	1.5	ug/L		09/16/20 15:38	09/18/20 21:20	1
Acenaphthene	ND		9.5	2.7	ug/L		09/16/20 15:38	09/18/20 21:20	1
Acenaphthylene	ND		9.5	2.8	ug/L		09/16/20 15:38	09/18/20 21:20	1
Aniline	ND		9.5	1.4	ug/L		09/16/20 15:38	09/18/20 21:20	1
Anthracene	ND		9.5	2.9	ug/L		09/16/20 15:38	09/18/20 21:20	1
Azobenzene	ND		9.5	2.5	ug/L		09/16/20 15:38	09/18/20 21:20	1
Benzidine	ND		48	6.2	ug/L		09/16/20 15:38	09/18/20 21:20	1
Benzo[a]anthracene	ND		9.5	4.4	ug/L		09/16/20 15:38	09/18/20 21:20	1
Benzo[a]pyrene	ND		9.5	2.3	ug/L		09/16/20 15:38	09/18/20 21:20	1
Benzo[b]fluoranthene	ND		9.5	2.2	ug/L		09/16/20 15:38	09/18/20 21:20	1
Benzo[g,h,i]perylene	ND		9.5	2.4	ug/L		09/16/20 15:38	09/18/20 21:20	1
Benzo[k]fluoranthene	ND		9.5	3.1	ug/L		09/16/20 15:38	09/18/20 21:20	1
Benzoic acid	ND		48	12	ug/L		09/16/20 15:38	09/18/20 21:20	1
Benzyl alcohol	ND		9.5	2.1	ug/L		09/16/20 15:38	09/18/20 21:20	1
bis (2-Chloroisopropyl) ether	ND		9.5	3.1	ug/L		09/16/20 15:38	09/18/20 21:20	1
Bis(2-chloroethoxy)methane	ND		9.5	2.4	ug/L		09/16/20 15:38	09/18/20 21:20	1
Bis(2-chloroethyl)ether	ND		24	2.3	ug/L		09/16/20 15:38	09/18/20 21:20	1
Bis(2-ethylhexyl) phthalate	ND		9.5	3.0	ug/L		09/16/20 15:38	09/18/20 21:20	1
Butyl benzyl phthalate	ND		9.5	2.4	ug/L		09/16/20 15:38	09/18/20 21:20	1
Chrysene	ND		9.5	2.7	ug/L		09/16/20 15:38	09/18/20 21:20	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: 202009110519
Date Collected: 09/10/20 08:30
Date Received: 09/14/20 10:47

Lab Sample ID: 570-38329-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibenz(a,h)anthracene	ND		9.5	2.4	ug/L		09/16/20 15:38	09/18/20 21:20	1
Dibenzofuran	ND		9.5	2.7	ug/L		09/16/20 15:38	09/18/20 21:20	1
Diethyl phthalate	ND		9.5	2.6	ug/L		09/16/20 15:38	09/18/20 21:20	1
Dimethyl phthalate	ND		9.5	2.5	ug/L		09/16/20 15:38	09/18/20 21:20	1
Di-n-butyl phthalate	ND		9.5	2.8	ug/L		09/16/20 15:38	09/18/20 21:20	1
Di-n-octyl phthalate	ND		9.5	2.4	ug/L		09/16/20 15:38	09/18/20 21:20	1
Fluoranthene	ND		9.5	3.0	ug/L		09/16/20 15:38	09/18/20 21:20	1
Fluorene	ND		9.5	2.6	ug/L		09/16/20 15:38	09/18/20 21:20	1
Hexachloro-1,3-butadiene	ND		9.5	2.8	ug/L		09/16/20 15:38	09/18/20 21:20	1
Hexachlorobenzene	ND		9.5	2.9	ug/L		09/16/20 15:38	09/18/20 21:20	1
Hexachlorocyclopentadiene	ND		24	6.6	ug/L		09/16/20 15:38	09/18/20 21:20	1
Hexachloroethane	ND		9.5	2.9	ug/L		09/16/20 15:38	09/18/20 21:20	1
Indeno[1,2,3-cd]pyrene	ND		9.5	2.0	ug/L		09/16/20 15:38	09/18/20 21:20	1
Isophorone	ND		9.5	2.4	ug/L		09/16/20 15:38	09/18/20 21:20	1
Naphthalene	ND		9.5	2.7	ug/L		09/16/20 15:38	09/18/20 21:20	1
Nitrobenzene	ND		24	2.9	ug/L		09/16/20 15:38	09/18/20 21:20	1
N-Nitrosodiethylamine	ND		9.5	0.96	ug/L		09/16/20 15:38	09/18/20 21:20	1
N-Nitrosodimethylamine	ND		9.5	3.0	ug/L		09/16/20 15:38	09/18/20 21:20	1
N-Nitrosodi-n-propylamine	ND		9.5	2.2	ug/L		09/16/20 15:38	09/18/20 21:20	1
N-Nitrosodiphenylamine	ND		9.5	2.6	ug/L		09/16/20 15:38	09/18/20 21:20	1
Pentachlorophenol	ND	*	9.5	4.4	ug/L		09/16/20 15:38	09/18/20 21:20	1
Phenanthrene	ND		9.5	2.8	ug/L		09/16/20 15:38	09/18/20 21:20	1
Phenol	ND		9.5	2.0	ug/L		09/16/20 15:38	09/18/20 21:20	1
Pyrene	ND		9.5	2.8	ug/L		09/16/20 15:38	09/18/20 21:20	1
Pyridine	ND		9.5	2.9	ug/L		09/16/20 15:38	09/18/20 21:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*74*		*32 - 143*	*09/16/20 15:38*	*09/18/20 21:20*	*1*
2-Fluorobiphenyl (Surr)	*54*		*45 - 120*	*09/16/20 15:38*	*09/18/20 21:20*	*1*
2-Fluorophenol (Surr)	*42*		*15 - 138*	*09/16/20 15:38*	*09/18/20 21:20*	*1*
Nitrobenzene-d5 (Surr)	*59*		*56 - 123*	*09/16/20 15:38*	*09/18/20 21:20*	*1*
Phenol-d6 (Surr)	*27*		*17 - 141*	*09/16/20 15:38*	*09/18/20 21:20*	*1*
p-Terphenyl-d14 (Surr)	*79*		*46 - 133*	*09/16/20 15:38*	*09/18/20 21:20*	*1*

Client: Eurofins Eaton Analytical
Project/Site: 892211

Job ID: 570-38329-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		BFB	DBFM	DCA	TOL
Lab Sample ID	Client Sample ID	(77-120)	(80-128)	(80-129)	(80-120)
570-38329-1	202009110519	101	99	102	100
LCS 570-96220/4	Lab Control Sample	98	105	113	99
LCSD 570-96220/5	Lab Control Sample Dup	98	102	109	99
MB 570-96220/10	Method Blank	101	99	103	100

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	FBP	2FP	NBZ	PHL6	TPHd14
Lab Sample ID	Client Sample ID	(32-143)	(45-120)	(15-138)	(56-123)	(17-141)	(46-133)
570-38329-1	202009110519	74	54	42	59	27	79
570-38371-H-1-A MS	Matrix Spike	93	64	56	67	36	82
570-38371-H-1-B MSD	Matrix Spike Duplicate	90	65	52	65	35	76
LCS 570-94993/2-A	Lab Control Sample	96	68	63	74	42	88
LCSD 570-94993/3-A	Lab Control Sample Dup	91	62	56	70	39	85
MB 570-94993/1-A	Method Blank	83	54	45	57	30	76

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
FBP = 2-Fluorobiphenyl (Surr)
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL6 = Phenol-d6 (Surr)
TPHd14 = p-Terphenyl-d14 (Surr)

Client: Eurofins Eaton Analytical
Project/Site: 892211

Job ID: 570-38329-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-96220/10
Matrix: Water
Analysis Batch: 96220

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	ND		20	10	ug/L			09/22/20 12:43	1
Acetonitrile	ND		50	1.5	ug/L			09/22/20 12:43	1
Acrolein	ND		50	2.4	ug/L			09/22/20 12:43	1
Acrylonitrile	ND		20	3.1	ug/L			09/22/20 12:43	1
Benzene	ND		0.50	0.14	ug/L			09/22/20 12:43	1
Bromobenzene	ND		1.0	0.19	ug/L			09/22/20 12:43	1
Bromochloromethane	ND		2.0	0.46	ug/L			09/22/20 12:43	1
Bromodichloromethane	ND		1.0	0.23	ug/L			09/22/20 12:43	1
Bromoform	ND		5.0	1.8	ug/L			09/22/20 12:43	1
Bromomethane	ND		50	19	ug/L			09/22/20 12:43	1
1,3-Butadiene	ND		25	0.95	ug/L			09/22/20 12:43	1
2-Butanone	ND		20	3.6	ug/L			09/22/20 12:43	1
Carbon disulfide	ND		10	0.70	ug/L			09/22/20 12:43	1
Carbon tetrachloride	ND		0.50	0.23	ug/L			09/22/20 12:43	1
Chlorobenzene	ND		1.0	0.16	ug/L			09/22/20 12:43	1
Chloroethane	ND		5.0	0.76	ug/L			09/22/20 12:43	1
2-Chloroethyl vinyl ether	ND		50	9.0	ug/L			09/22/20 12:43	1
Chloroform	ND		1.0	0.18	ug/L			09/22/20 12:43	1
Chloromethane	ND		10	0.50	ug/L			09/22/20 12:43	1
2-Chlorotoluene	ND		1.0	0.16	ug/L			09/22/20 12:43	1
4-Chlorotoluene	ND		1.0	0.18	ug/L			09/22/20 12:43	1
c-1,2-Dichloroethene	ND		1.0	0.27	ug/L			09/22/20 12:43	1
c-1,3-Dichloropropene	ND		0.50	0.20	ug/L			09/22/20 12:43	1
Dibromochloromethane	ND		2.0	0.46	ug/L			09/22/20 12:43	1
1,2-Dibromo-3-Chloropropane	ND		10	2.1	ug/L			09/22/20 12:43	1
1,2-Dibromoethane	ND		1.0	0.27	ug/L			09/22/20 12:43	1
Dibromomethane	ND		1.0	0.30	ug/L			09/22/20 12:43	1
1,2-Dichlorobenzene	ND		1.0	0.14	ug/L			09/22/20 12:43	1
1,3-Dichlorobenzene	ND		1.0	0.19	ug/L			09/22/20 12:43	1
1,4-Dichlorobenzene	ND		1.0	0.24	ug/L			09/22/20 12:43	1
Dichlorodifluoromethane	ND		5.0	0.28	ug/L			09/22/20 12:43	1
1,1-Dichloroethane	ND		1.0	0.28	ug/L			09/22/20 12:43	1
1,2-Dichloroethane	ND		0.50	0.19	ug/L			09/22/20 12:43	1
1,1-Dichloroethene	ND		1.0	0.22	ug/L			09/22/20 12:43	1
1,2-Dichloropropane	ND		1.0	0.20	ug/L			09/22/20 12:43	1
1,3-Dichloropropane	ND		1.0	0.14	ug/L			09/22/20 12:43	1
2,2-Dichloropropane	ND		1.0	0.44	ug/L			09/22/20 12:43	1
1,1-Dichloropropene	ND		1.0	0.17	ug/L			09/22/20 12:43	1
Diethyl ether	ND		10	0.31	ug/L			09/22/20 12:43	1
Di-isopropyl ether (DIPE)	ND		2.0	0.16	ug/L			09/22/20 12:43	1
1,4-Dioxane	ND		100	26	ug/L			09/22/20 12:43	1
Ethanol	ND		100	53	ug/L			09/22/20 12:43	1
Ethylbenzene	ND		1.0	0.14	ug/L			09/22/20 12:43	1
Ethyl-t-butyl ether (ETBE)	ND		2.0	0.12	ug/L			09/22/20 12:43	1
Hexachloro-1,3-butadiene	ND		20	0.42	ug/L			09/22/20 12:43	1
Hexane	ND		5.0	0.95	ug/L			09/22/20 12:43	1
2-Hexanone	ND		10	5.3	ug/L			09/22/20 12:43	1
Iodomethane	ND		50	19	ug/L			09/22/20 12:43	1

Client: Eurofins Eaton Analytical
Project/Site: 892211

Job ID: 570-38329-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 570-96220/10
Matrix: Water
Analysis Batch: 96220

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Isobutyl alcohol	ND		50	20	ug/L			09/22/20 12:43	1
Isopropanol	ND		200	100	ug/L			09/22/20 12:43	1
Isopropylbenzene	ND		1.0	0.16	ug/L			09/22/20 12:43	1
Methylene Chloride	ND		10	4.0	ug/L			09/22/20 12:43	1
4-Methyl-2-pentanone	ND		10	0.46	ug/L			09/22/20 12:43	1
Methyl-t-Butyl Ether (MTBE)	ND		1.0	0.16	ug/L			09/22/20 12:43	1
m,p-Xylene	ND		2.0	0.31	ug/L			09/22/20 12:43	1
Naphthalene	ND		10	5.1	ug/L			09/22/20 12:43	1
n-Butylbenzene	ND		1.0	0.30	ug/L			09/22/20 12:43	1
N-Propylbenzene	ND		1.0	0.18	ug/L			09/22/20 12:43	1
o-Xylene	ND		1.0	0.15	ug/L			09/22/20 12:43	1
p-Isopropyltoluene	ND		1.0	0.22	ug/L			09/22/20 12:43	1
sec-Butylbenzene	ND		1.0	0.19	ug/L			09/22/20 12:43	1
Styrene	ND		1.0	0.15	ug/L			09/22/20 12:43	1
Tert-amyl-methyl ether (TAME)	ND		2.0	0.13	ug/L			09/22/20 12:43	1
tert-Butyl alcohol (TBA)	ND		10	3.1	ug/L			09/22/20 12:43	1
tert-Butylbenzene	ND		1.0	0.25	ug/L			09/22/20 12:43	1
1,1,1,2-Tetrachloroethane	ND		2.0	0.43	ug/L			09/22/20 12:43	1
1,1,2,2-Tetrachloroethane	ND		1.0	0.17	ug/L			09/22/20 12:43	1
Tetrachloroethene	ND		1.0	0.24	ug/L			09/22/20 12:43	1
Tetrahydrofuran	ND		20	3.3	ug/L			09/22/20 12:43	1
Thiophene	ND		10	0.16	ug/L			09/22/20 12:43	1
Toluene	ND		1.0	0.13	ug/L			09/22/20 12:43	1
t-1,4-Dichloro-2-butene	ND		20	2.6	ug/L			09/22/20 12:43	1
t-1,2-Dichloroethene	ND		1.0	0.40	ug/L			09/22/20 12:43	1
t-1,3-Dichloropropene	ND		0.50	0.23	ug/L			09/22/20 12:43	1
1,2,3-Trichlorobenzene	ND		1.0	0.28	ug/L			09/22/20 12:43	1
1,2,4-Trichlorobenzene	ND		1.0	0.34	ug/L			09/22/20 12:43	1
1,1,1-Trichloroethane	ND		1.0	0.31	ug/L			09/22/20 12:43	1
1,1,2-Trichloroethane	ND		1.0	0.22	ug/L			09/22/20 12:43	1
Trichloroethene	ND		1.0	0.24	ug/L			09/22/20 12:43	1
Trichlorofluoromethane	ND		10	0.28	ug/L			09/22/20 12:43	1
1,2,3-Trichloropropane	ND		5.0	0.22	ug/L			09/22/20 12:43	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		10	0.62	ug/L			09/22/20 12:43	1
1,2,4-Trimethylbenzene	ND		1.0	0.21	ug/L			09/22/20 12:43	1
1,3,5-Trimethylbenzene	ND		1.0	0.17	ug/L			09/22/20 12:43	1
2,2,4-Trimethylpentane	ND		10	0.82	ug/L			09/22/20 12:43	1
Vinyl acetate	ND		10	2.9	ug/L			09/22/20 12:43	1
Vinyl chloride	ND		0.50	0.16	ug/L			09/22/20 12:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*77 - 120*		*09/22/20 12:43*	*1*
Dibromofluoromethane (Surr)	*99*		*80 - 128*		*09/22/20 12:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*80 - 129*		*09/22/20 12:43*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*09/22/20 12:43*	*1*

Client: Eurofins Eaton Analytical
Project/Site: 892211

Job ID: 570-38329-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-96220/4
Matrix: Water
Analysis Batch: 96220

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	50.0	58.81		ug/L		118	50 - 150
Benzene	50.0	53.62		ug/L		107	78 - 120
Bromobenzene	50.0	55.17		ug/L		110	80 - 120
Bromochloromethane	50.0	56.71		ug/L		113	77 - 125
Bromodichloromethane	50.0	56.39		ug/L		113	80 - 125
Bromoform	50.0	57.71		ug/L		115	68 - 128
Bromomethane	50.0	58.68		ug/L		117	50 - 150
2-Butanone	50.0	53.22		ug/L		106	53 - 137
Carbon disulfide	50.0	56.27		ug/L		113	50 - 150
Carbon tetrachloride	50.0	55.87		ug/L		112	67 - 139
Chlorobenzene	50.0	53.65		ug/L		107	80 - 120
Chloroethane	50.0	56.87		ug/L		114	64 - 130
Chloroform	50.0	56.65		ug/L		113	77 - 120
Chloromethane	50.0	62.10		ug/L		124	56 - 128
2-Chlorotoluene	50.0	51.61		ug/L		103	80 - 121
4-Chlorotoluene	50.0	54.63		ug/L		109	80 - 120
c-1,2-Dichloroethene	50.0	57.09		ug/L		114	78 - 120
c-1,3-Dichloropropene	50.0	59.90		ug/L		120	80 - 129
Dibromochloromethane	50.0	53.80		ug/L		108	77 - 125
1,2-Dibromo-3-Chloropropane	50.0	47.77		ug/L		96	68 - 128
1,2-Dibromoethane	50.0	52.77		ug/L		106	80 - 120
Dibromomethane	50.0	56.85		ug/L		114	80 - 120
1,2-Dichlorobenzene	50.0	59.12		ug/L		118	80 - 120
1,3-Dichlorobenzene	50.0	56.10		ug/L		112	80 - 120
1,4-Dichlorobenzene	50.0	56.79		ug/L		114	80 - 120
Dichlorodifluoromethane	50.0	49.77		ug/L		100	50 - 150
1,1-Dichloroethane	50.0	59.92		ug/L		120	73 - 127
1,2-Dichloroethane	50.0	58.21		ug/L		116	75 - 123
1,1-Dichloroethene	50.0	63.40		ug/L		127	64 - 136
1,2-Dichloropropane	50.0	63.62	* me	ug/L		127	80 - 120
1,3-Dichloropropane	50.0	53.23		ug/L		106	80 - 120
2,2-Dichloropropane	50.0	58.70		ug/L		117	53 - 155
1,1-Dichloropropene	50.0	61.40		ug/L		123	73 - 127
Diethyl ether	50.0	62.66		ug/L		125	70 - 130
Di-isopropyl ether (DIPE)	50.0	55.55		ug/L		111	72 - 132
1,4-Dioxane	500	510.5		ug/L		102	64 - 130
Ethanol	500	555.5		ug/L		111	56 - 150
Ethylbenzene	50.0	51.55		ug/L		103	80 - 120
Ethyl-t-butyl ether (ETBE)	50.0	56.85		ug/L		114	74 - 122
2-Hexanone	50.0	51.59		ug/L		103	59 - 131
Isopropylbenzene	50.0	55.22		ug/L		110	80 - 126
Methylene Chloride	50.0	57.15		ug/L		114	73 - 127
4-Methyl-2-pentanone	50.0	55.01		ug/L		110	68 - 122
Methyl-t-Butyl Ether (MTBE)	50.0	48.66		ug/L		97	77 - 120
m,p-Xylene	100	102.7		ug/L		103	80 - 125
Naphthalene	50.0	43.67		ug/L		87	64 - 136
n-Butylbenzene	50.0	57.72		ug/L		115	78 - 132
N-Propylbenzene	50.0	53.33		ug/L		107	80 - 125

Client: Eurofins Eaton Analytical Job ID: 570-38329-1
Project/Site: 892211

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-96220/4 **Client Sample ID: Lab Control Sample**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 96220

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
o-Xylene	50.0	53.48		ug/L		107	80 - 125
p-Isopropyltoluene	50.0	58.31		ug/L		117	80 - 129
sec-Butylbenzene	50.0	62.69		ug/L		125	80 - 125
Styrene	50.0	52.78		ug/L		106	80 - 122
Tert-amyl-methyl ether (TAME)	50.0	54.43		ug/L		109	74 - 122
tert-Butyl alcohol (TBA)	250	282.0		ug/L		113	80 - 126
tert-Butylbenzene	50.0	58.80		ug/L		118	80 - 125
1,1,1,2-Tetrachloroethane	50.0	57.16		ug/L		114	80 - 126
1,1,2,2-Tetrachloroethane	50.0	55.66		ug/L		111	76 - 120
Tetrachloroethene	50.0	56.97		ug/L		114	54 - 144
Toluene	50.0	54.30		ug/L		109	80 - 122
t-1,2-Dichloroethene	50.0	57.58		ug/L		115	70 - 130
t-1,3-Dichloropropene	50.0	59.85		ug/L		120	78 - 132
1,2,3-Trichlorobenzene	50.0	49.49		ug/L		99	76 - 130
1,2,4-Trichlorobenzene	50.0	52.23		ug/L		104	74 - 134
1,1,1-Trichloroethane	50.0	53.36		ug/L		107	73 - 127
1,1,2-Trichloroethane	50.0	53.47		ug/L		107	80 - 120
Trichloroethene	50.0	59.25		ug/L		119	77 - 125
Trichlorofluoromethane	50.0	64.27		ug/L		129	69 - 141
1,2,3-Trichloropropane	50.0	51.71		ug/L		103	77 - 125
1,1,2-Trichloro-1,2,2-trifluoroethane	50.0	53.12		ug/L		106	53 - 155
1,2,4-Trimethylbenzene	50.0	56.48		ug/L		113	80 - 123
1,3,5-Trimethylbenzene	50.0	53.49		ug/L		107	80 - 126
Vinyl acetate	50.0	60.57		ug/L		121	50 - 150
Vinyl chloride	50.0	56.46		ug/L		113	63 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*77 - 120*
Dibromofluoromethane (Surr)	*105*		*80 - 128*
1,2-Dichloroethane-d4 (Surr)	*113*		*80 - 129*
Toluene-d8 (Surr)	*99*		*80 - 120*

Lab Sample ID: LCSD 570-96220/5 **Client Sample ID: Lab Control Sample Dup**
Matrix: Water **Prep Type: Total/NA**
Analysis Batch: 96220

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	50.0	55.92		ug/L		112	50 - 150	5	30
Benzene	50.0	50.73		ug/L		101	78 - 120	6	21
Bromobenzene	50.0	52.67		ug/L		105	80 - 120	5	20
Bromochloromethane	50.0	54.84		ug/L		110	77 - 125	3	22
Bromodichloromethane	50.0	54.17		ug/L		108	80 - 125	4	20
Bromoform	50.0	56.39		ug/L		113	68 - 128	2	30
Bromomethane	50.0	51.35		ug/L		103	50 - 150	13	30
2-Butanone	50.0	52.09		ug/L		104	53 - 137	2	30
Carbon disulfide	50.0	50.85		ug/L		102	50 - 150	10	30
Carbon tetrachloride	50.0	52.65		ug/L		105	67 - 139	6	30
Chlorobenzene	50.0	51.44		ug/L		103	80 - 120	4	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-96220/5
Matrix: Water
Analysis Batch: 96220

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloroethane	50.0	50.65		ug/L		101	64 - 130	12	30
Chloroform	50.0	53.95		ug/L		108	77 - 120	5	23
Chloromethane	50.0	50.04		ug/L		100	56 - 128	22	30
2-Chlorotoluene	50.0	48.99		ug/L		98	80 - 121	5	20
4-Chlorotoluene	50.0	52.08		ug/L		104	80 - 120	5	20
c-1,2-Dichloroethene	50.0	52.50		ug/L		105	78 - 120	8	23
c-1,3-Dichloropropene	50.0	57.65		ug/L		115	80 - 129	4	21
Dibromochloromethane	50.0	52.22		ug/L		104	77 - 125	3	21
1,2-Dibromo-3-Chloropropane	50.0	51.72		ug/L		103	68 - 128	8	30
1,2-Dibromoethane	50.0	52.41		ug/L		105	80 - 120	1	30
Dibromomethane	50.0	55.65		ug/L		111	80 - 120	2	20
1,2-Dichlorobenzene	50.0	57.19		ug/L		114	80 - 120	3	20
1,3-Dichlorobenzene	50.0	54.31		ug/L		109	80 - 120	3	20
1,4-Dichlorobenzene	50.0	54.38		ug/L		109	80 - 120	4	20
Dichlorodifluoromethane	50.0	40.17		ug/L		80	50 - 150	21	30
1,1-Dichloroethane	50.0	57.05		ug/L		114	73 - 127	5	30
1,2-Dichloroethane	50.0	56.42		ug/L		113	75 - 123	3	24
1,1-Dichloroethene	50.0	57.40		ug/L		115	64 - 136	10	30
1,2-Dichloropropane	50.0	60.73	* me	ug/L		121	80 - 120	5	20
1,3-Dichloropropane	50.0	52.61		ug/L		105	80 - 120	1	20
2,2-Dichloropropane	50.0	53.26		ug/L		107	53 - 155	10	30
1,1-Dichloropropene	50.0	57.80		ug/L		116	73 - 127	6	30
Diethyl ether	50.0	59.54		ug/L		119	70 - 130	5	29
Di-isopropyl ether (DIPE)	50.0	52.34		ug/L		105	72 - 132	6	29
1,4-Dioxane	500	486.0		ug/L		97	64 - 130	5	30
Ethanol	500	630.6		ug/L		126	56 - 150	13	30
Ethylbenzene	50.0	49.43		ug/L		99	80 - 120	4	20
Ethyl-t-butyl ether (ETBE)	50.0	51.97		ug/L		104	74 - 122	9	27
2-Hexanone	50.0	54.20		ug/L		108	59 - 131	5	30
Isopropylbenzene	50.0	52.19		ug/L		104	80 - 126	6	20
Methylene Chloride	50.0	53.20		ug/L		106	73 - 127	7	25
4-Methyl-2-pentanone	50.0	55.97		ug/L		112	68 - 122	2	30
Methyl-t-Butyl Ether (MTBE)	50.0	44.52		ug/L		89	77 - 120	9	24
m,p-Xylene	100	98.31		ug/L		98	80 - 125	4	30
Naphthalene	50.0	47.29		ug/L		95	64 - 136	8	30
n-Butylbenzene	50.0	55.86		ug/L		112	78 - 132	3	23
N-Propylbenzene	50.0	50.27		ug/L		101	80 - 125	6	20
o-Xylene	50.0	50.67		ug/L		101	80 - 125	5	20
p-Isopropyltoluene	50.0	56.11		ug/L		112	80 - 129	4	20
sec-Butylbenzene	50.0	59.39		ug/L		119	80 - 125	5	20
Styrene	50.0	50.64		ug/L		101	80 - 122	4	20
Tert-amyl-methyl ether (TAME)	50.0	52.47		ug/L		105	74 - 122	4	28
tert-Butyl alcohol (TBA)	250	284.2		ug/L		114	80 - 126	1	30
tert-Butylbenzene	50.0	56.39		ug/L		113	80 - 125	4	20
1,1,1,2-Tetrachloroethane	50.0	55.85		ug/L		112	80 - 126	2	30
1,1,2,2-Tetrachloroethane	50.0	56.56		ug/L		113	76 - 120	2	28
Tetrachloroethene	50.0	53.54		ug/L		107	54 - 144	6	30
Toluene	50.0	51.36		ug/L		103	80 - 122	6	20
t-1,2-Dichloroethene	50.0	53.04		ug/L		106	70 - 130	8	30

Client: Eurofins Eaton Analytical
Project/Site: 892211

Job ID: 570-38329-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-96220/5
Matrix: Water
Analysis Batch: 96220

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
t-1,3-Dichloropropene	50.0	59.46		ug/L		119	78 - 132	1	22
1,2,3-Trichlorobenzene	50.0	52.86		ug/L		106	76 - 130	7	30
1,2,4-Trichlorobenzene	50.0	53.87		ug/L		108	74 - 134	3	30
1,1,1-Trichloroethane	50.0	48.49		ug/L		97	73 - 127	10	30
1,1,2-Trichloroethane	50.0	52.02		ug/L		104	80 - 120	3	30
Trichloroethene	50.0	55.60		ug/L		111	77 - 125	6	22
Trichlorofluoromethane	50.0	51.70		ug/L		103	69 - 141	22	30
1,2,3-Trichloropropane	50.0	51.47		ug/L		103	77 - 125	0	30
1,1,2-Trichloro-1,2,2-trifluoroethane	50.0	45.72		ug/L		91	53 - 155	15	30
1,2,4-Trimethylbenzene	50.0	54.06		ug/L		108	80 - 123	4	30
1,3,5-Trimethylbenzene	50.0	50.79		ug/L		102	80 - 126	5	20
Vinyl acetate	50.0	60.62		ug/L		121	50 - 150	0	30
Vinyl chloride	50.0	47.51		ug/L		95	63 - 135	17	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*77 - 120*
Dibromofluoromethane (Surr)	*102*		*80 - 128*
1,2-Dichloroethane-d4 (Surr)	*109*		*80 - 129*
Toluene-d8 (Surr)	*99*		*80 - 120*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 570-94993/1-A
Matrix: Water
Analysis Batch: 95256

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 94993

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	ND		10	2.8	ug/L		09/16/20 15:38	09/17/20 17:24	1
1,2-Dichlorobenzene	ND		10	3.0	ug/L		09/16/20 15:38	09/17/20 17:24	1
1,2-Diphenylhydrazine(as Azobenzene)	ND		10	0.85	ug/L		09/16/20 15:38	09/17/20 17:24	1
1,3-Dichlorobenzene	ND		10	3.1	ug/L		09/16/20 15:38	09/17/20 17:24	1
1,4-Dichlorobenzene	ND		10	2.9	ug/L		09/16/20 15:38	09/17/20 17:24	1
1-Methylnaphthalene	ND		10	2.8	ug/L		09/16/20 15:38	09/17/20 17:24	1
2,4,5-Trichlorophenol	ND		10	2.5	ug/L		09/16/20 15:38	09/17/20 17:24	1
2,4,6-Trichlorophenol	ND		10	2.5	ug/L		09/16/20 15:38	09/17/20 17:24	1
2,4-Dichlorophenol	ND		10	2.5	ug/L		09/16/20 15:38	09/17/20 17:24	1
2,4-Dimethylphenol	ND		10	2.4	ug/L		09/16/20 15:38	09/17/20 17:24	1
2,4-Dinitrophenol	ND		50	13	ug/L		09/16/20 15:38	09/17/20 17:24	1
2,4-Dinitrotoluene	ND		10	2.3	ug/L		09/16/20 15:38	09/17/20 17:24	1
2,6-Dichlorophenol	ND		10	1.5	ug/L		09/16/20 15:38	09/17/20 17:24	1
2,6-Dinitrotoluene	ND		10	2.4	ug/L		09/16/20 15:38	09/17/20 17:24	1
2-Chloronaphthalene	ND		10	2.8	ug/L		09/16/20 15:38	09/17/20 17:24	1
2-Chlorophenol	ND		10	2.3	ug/L		09/16/20 15:38	09/17/20 17:24	1
2-Methylnaphthalene	ND		10	2.8	ug/L		09/16/20 15:38	09/17/20 17:24	1
2-Methylphenol	ND		10	2.1	ug/L		09/16/20 15:38	09/17/20 17:24	1
2-Nitroaniline	ND		10	2.2	ug/L		09/16/20 15:38	09/17/20 17:24	1
2-Nitrophenol	ND		10	2.6	ug/L		09/16/20 15:38	09/17/20 17:24	1

QC Sample Results

Client: Eurofins Eaton Analytical
Project/Site: 892211

Job ID: 570-38329-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 570-94993/1-A
Matrix: Water
Analysis Batch: 95256

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 94993

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
3 & 4 Methylphenol	ND		10	2.2	ug/L		09/16/20 15:38	09/17/20 17:24	1
3,3'-Dichlorobenzidine	ND		25	2.6	ug/L		09/16/20 15:38	09/17/20 17:24	1
3-Nitroaniline	ND		10	2.3	ug/L		09/16/20 15:38	09/17/20 17:24	1
4,6-Dinitro-2-methylphenol	ND		50	14	ug/L		09/16/20 15:38	09/17/20 17:24	1
4-Bromophenyl phenyl ether	ND		10	2.7	ug/L		09/16/20 15:38	09/17/20 17:24	1
4-Chloro-3-methylphenol	ND		10	2.4	ug/L		09/16/20 15:38	09/17/20 17:24	1
4-Chloroaniline	ND		10	2.0	ug/L		09/16/20 15:38	09/17/20 17:24	1
4-Chlorophenyl phenyl ether	ND		10	2.7	ug/L		09/16/20 15:38	09/17/20 17:24	1
4-Nitroaniline	ND		10	2.1	ug/L		09/16/20 15:38	09/17/20 17:24	1
4-Nitrophenol	ND		10	1.6	ug/L		09/16/20 15:38	09/17/20 17:24	1
Acenaphthene	ND		10	2.8	ug/L		09/16/20 15:38	09/17/20 17:24	1
Acenaphthylene	ND		10	2.9	ug/L		09/16/20 15:38	09/17/20 17:24	1
Aniline	ND		10	1.5	ug/L		09/16/20 15:38	09/17/20 17:24	1
Anthracene	ND		10	3.0	ug/L		09/16/20 15:38	09/17/20 17:24	1
Azobenzene	ND		10	2.6	ug/L		09/16/20 15:38	09/17/20 17:24	1
Benzidine	ND		50	6.5	ug/L		09/16/20 15:38	09/17/20 17:24	1
Benzo[a]anthracene	ND		10	4.7	ug/L		09/16/20 15:38	09/17/20 17:24	1
Benzo[a]pyrene	ND		10	2.4	ug/L		09/16/20 15:38	09/17/20 17:24	1
Benzo[b]fluoranthene	ND		10	2.3	ug/L		09/16/20 15:38	09/17/20 17:24	1
Benzo[g,h,i]perylene	ND		10	2.5	ug/L		09/16/20 15:38	09/17/20 17:24	1
Benzo[k]fluoranthene	ND		10	3.2	ug/L		09/16/20 15:38	09/17/20 17:24	1
Benzoic acid	ND		50	12	ug/L		09/16/20 15:38	09/17/20 17:24	1
Benzyl alcohol	ND		10	2.2	ug/L		09/16/20 15:38	09/17/20 17:24	1
bis (2-Chloroisopropyl) ether	ND		10	3.2	ug/L		09/16/20 15:38	09/17/20 17:24	1
Bis(2-chloroethoxy)methane	ND		10	2.5	ug/L		09/16/20 15:38	09/17/20 17:24	1
Bis(2-chloroethyl)ether	ND		25	2.5	ug/L		09/16/20 15:38	09/17/20 17:24	1
Bis(2-ethylhexyl) phthalate	ND		10	3.2	ug/L		09/16/20 15:38	09/17/20 17:24	1
Butyl benzyl phthalate	ND		10	2.5	ug/L		09/16/20 15:38	09/17/20 17:24	1
Chrysene	ND		10	2.8	ug/L		09/16/20 15:38	09/17/20 17:24	1
Dibenz(a,h)anthracene	ND		10	2.5	ug/L		09/16/20 15:38	09/17/20 17:24	1
Dibenzofuran	ND		10	2.8	ug/L		09/16/20 15:38	09/17/20 17:24	1
Diethyl phthalate	ND		10	2.8	ug/L		09/16/20 15:38	09/17/20 17:24	1
Dimethyl phthalate	ND		10	2.6	ug/L		09/16/20 15:38	09/17/20 17:24	1
Di-n-butyl phthalate	ND		10	2.9	ug/L		09/16/20 15:38	09/17/20 17:24	1
Di-n-octyl phthalate	ND		10	2.5	ug/L		09/16/20 15:38	09/17/20 17:24	1
Fluoranthene	ND		10	3.1	ug/L		09/16/20 15:38	09/17/20 17:24	1
Fluorene	ND		10	2.7	ug/L		09/16/20 15:38	09/17/20 17:24	1
Hexachloro-1,3-butadiene	ND		10	2.9	ug/L		09/16/20 15:38	09/17/20 17:24	1
Hexachlorobenzene	ND		10	3.1	ug/L		09/16/20 15:38	09/17/20 17:24	1
Hexachlorocyclopentadiene	ND		25	6.9	ug/L		09/16/20 15:38	09/17/20 17:24	1
Hexachloroethane	ND		10	3.0	ug/L		09/16/20 15:38	09/17/20 17:24	1
Indeno[1,2,3-cd]pyrene	ND		10	2.1	ug/L		09/16/20 15:38	09/17/20 17:24	1
Isophorone	ND		10	2.5	ug/L		09/16/20 15:38	09/17/20 17:24	1
Naphthalene	ND		10	2.9	ug/L		09/16/20 15:38	09/17/20 17:24	1
Nitrobenzene	ND		25	3.0	ug/L		09/16/20 15:38	09/17/20 17:24	1
N-Nitrosodiethylamine	ND		10	1.0	ug/L		09/16/20 15:38	09/17/20 17:24	1
N-Nitrosodimethylamine	ND		10	3.2	ug/L		09/16/20 15:38	09/17/20 17:24	1
N-Nitrosodi-n-propylamine	ND		10	2.4	ug/L		09/16/20 15:38	09/17/20 17:24	1
N-Nitrosodiphenylamine	ND		10	2.8	ug/L		09/16/20 15:38	09/17/20 17:24	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 570-94993/1-A
Matrix: Water
Analysis Batch: 95256

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 94993

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	ND		10	4.6	ug/L		09/16/20 15:38	09/17/20 17:24	1
Phenanthrene	ND		10	2.9	ug/L		09/16/20 15:38	09/17/20 17:24	1
Phenol	ND		10	2.1	ug/L		09/16/20 15:38	09/17/20 17:24	1
Pyrene	ND		10	3.0	ug/L		09/16/20 15:38	09/17/20 17:24	1
Pyridine	ND		10	3.0	ug/L		09/16/20 15:38	09/17/20 17:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*83*		*32 - 143*	*09/16/20 15:38*	*09/17/20 17:24*	*1*
2-Fluorobiphenyl (Surr)	*54*		*45 - 120*	*09/16/20 15:38*	*09/17/20 17:24*	*1*
2-Fluorophenol (Surr)	*45*		*15 - 138*	*09/16/20 15:38*	*09/17/20 17:24*	*1*
Nitrobenzene-d5 (Surr)	*57*		*56 - 123*	*09/16/20 15:38*	*09/17/20 17:24*	*1*
Phenol-d6 (Surr)	*30*		*17 - 141*	*09/16/20 15:38*	*09/17/20 17:24*	*1*
p-Terphenyl-d14 (Surr)	*76*		*46 - 133*	*09/16/20 15:38*	*09/17/20 17:24*	*1*

Lab Sample ID: LCS 570-94993/2-A
Matrix: Water
Analysis Batch: 95256

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 94993

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trichlorobenzene	100	72.10		ug/L		72	49 - 120
1,4-Dichlorobenzene	100	58.93		ug/L		59	30 - 100
2,4-Dinitrotoluene	100	92.46		ug/L		92	50 - 120
2-Chlorophenol	100	83.90		ug/L		84	35 - 105
4-Chloro-3-methylphenol	100	88.98		ug/L		89	45 - 110
4-Nitrophenol	100	27.08		ug/L		27	20 - 150
Acenaphthene	100	96.61		ug/L		97	45 - 110
Acenaphthylene	100	105.1		ug/L		105	50 - 105
Butyl benzyl phthalate	100	89.52		ug/L		90	45 - 115
Dimethyl phthalate	100	92.42		ug/L		92	25 - 125
Fluorene	100	98.00		ug/L		98	50 - 110
Naphthalene	100	76.26		ug/L		76	40 - 100
N-Nitrosodi-n-propylamine	100	87.86		ug/L		88	35 - 130
Pentachlorophenol	100	38.27	* me	ug/L		38	40 - 115
Phenol	100	51.16		ug/L		51	10 - 115
Pyrene	100	92.29		ug/L		92	50 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*96*		*32 - 143*
2-Fluorobiphenyl (Surr)	*68*		*45 - 120*
2-Fluorophenol (Surr)	*63*		*15 - 138*
Nitrobenzene-d5 (Surr)	*74*		*56 - 123*
Phenol-d6 (Surr)	*42*		*17 - 141*
p-Terphenyl-d14 (Surr)	*88*		*46 - 133*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-94993/3-A
Matrix: Water
Analysis Batch: 95256

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 94993

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trichlorobenzene			100	67.61		ug/L		68	49 - 120	6	20
1,4-Dichlorobenzene			100	52.82		ug/L		53	30 - 100	11	26
2,4-Dinitrotoluene			100	91.19		ug/L		91	50 - 120	1	36
2-Chlorophenol			100	77.21		ug/L		77	35 - 105	8	18
4-Chloro-3-methylphenol			100	84.47		ug/L		84	45 - 110	5	40
4-Nitrophenol			100	27.17		ug/L		27	20 - 150	0	40
Acenaphthene			100	91.52		ug/L		92	45 - 110	5	20
Acenaphthylene			100	99.72		ug/L		100	50 - 105	5	20
Butyl benzyl phthalate			100	83.01		ug/L		83	45 - 115	8	20
Dimethyl phthalate			100	88.02		ug/L		88	25 - 125	5	20
Fluorene			100	93.10		ug/L		93	50 - 110	5	20
Naphthalene			100	74.14		ug/L		74	40 - 100	3	20
N-Nitrosodi-n-propylamine			100	82.72		ug/L		83	35 - 130	6	20
Pentachlorophenol			100	37.66	* me	ug/L		38	40 - 115	2	40
Phenol			100	46.05		ug/L		46	10 - 115	11	23
Pyrene			100	91.24		ug/L		91	50 - 130	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*91*		*32 - 143*
2-Fluorobiphenyl (Surr)	*62*		*45 - 120*
2-Fluorophenol (Surr)	*56*		*15 - 138*
Nitrobenzene-d5 (Surr)	*70*		*56 - 123*
Phenol-d6 (Surr)	*39*		*17 - 141*
p-Terphenyl-d14 (Surr)	*85*		*46 - 133*

Lab Sample ID: 570-38371-H-1-A MS
Matrix: Water
Analysis Batch: 95256

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 94993

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trichlorobenzene	ND		98.8	71.98		ug/L		73	18 - 126
1,4-Dichlorobenzene	ND		98.8	61.12		ug/L		62	36 - 118
2,4-Dinitrotoluene	ND		98.8	81.67		ug/L		83	25 - 143
2-Chlorophenol	ND		98.8	75.63		ug/L		77	45 - 135
4-Chloro-3-methylphenol	ND		98.8	77.95		ug/L		79	20 - 150
4-Nitrophenol	ND	F2	98.8	21.13		ug/L		21	20 - 150
Acenaphthene	ND		98.8	84.54		ug/L		86	51 - 137
Acenaphthylene	ND		98.8	91.72		ug/L		93	50 - 150
Butyl benzyl phthalate	ND		98.8	78.27		ug/L		79	50 - 150
Dimethyl phthalate	ND		98.8	79.20		ug/L		80	50 - 150
Fluorene	ND		98.8	85.36		ug/L		86	50 - 150
Naphthalene	ND		98.8	74.48		ug/L		75	50 - 150
N-Nitrosodi-n-propylamine	ND		98.8	78.21		ug/L		79	52 - 128
Pentachlorophenol	ND	*	98.8	42.70		ug/L		43	20 - 150
Phenol	ND		98.8	35.84		ug/L		36	10 - 115
Pyrene	ND		98.8	83.87		ug/L		85	45 - 135

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 570-38371-H-1-A MS
Matrix: Water
Analysis Batch: 95256

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 94993

Surrogate	MS %Recovery	MS Qualifier	Limits
2,4,6-Tribromophenol (Surr)	*93*		*32 - 143*
2-Fluorobiphenyl (Surr)	*64*		*45 - 120*
2-Fluorophenol (Surr)	*56*		*15 - 138*
Nitrobenzene-d5 (Surr)	*67*		*56 - 123*
Phenol-d6 (Surr)	*36*		*17 - 141*
p-Terphenyl-d14 (Surr)	*82*		*46 - 133*

Lab Sample ID: 570-38371-H-1-B MSD
Matrix: Water
Analysis Batch: 95256

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 94993

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trichlorobenzene	ND		96.4	68.77		ug/L		71	18 - 126	5	30
1,4-Dichlorobenzene	ND		96.4	58.00		ug/L		60	36 - 118	5	26
2,4-Dinitrotoluene	ND		96.4	77.63		ug/L		80	25 - 143	5	36
2-Chlorophenol	ND		96.4	71.00		ug/L		74	45 - 135	6	18
4-Chloro-3-methylphenol	ND		96.4	74.25		ug/L		77	20 - 150	5	40
4-Nitrophenol	ND	F2	96.4	33.96	F2	ug/L		35	20 - 150	47	40
Acenaphthene	ND		96.4	81.23		ug/L		84	51 - 137	4	20
Acenaphthylene	ND		96.4	88.53		ug/L		92	50 - 150	4	20
Butyl benzyl phthalate	ND		96.4	72.29		ug/L		75	50 - 150	8	20
Dimethyl phthalate	ND		96.4	76.04		ug/L		79	50 - 150	4	20
Fluorene	ND		96.4	80.81		ug/L		84	50 - 150	5	20
Naphthalene	ND		96.4	70.81		ug/L		73	50 - 150	5	20
N-Nitrosodi-n-propylamine	ND		96.4	72.03		ug/L		75	52 - 128	8	20
Pentachlorophenol	ND	*	96.4	46.45		ug/L		48	20 - 150	8	40
Phenol	ND		96.4	40.03		ug/L		42	10 - 115	11	23
Pyrene	ND		96.4	78.57		ug/L		81	45 - 135	7	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2,4,6-Tribromophenol (Surr)	*90*		*32 - 143*
2-Fluorobiphenyl (Surr)	*65*		*45 - 120*
2-Fluorophenol (Surr)	*52*		*15 - 138*
Nitrobenzene-d5 (Surr)	*65*		*56 - 123*
Phenol-d6 (Surr)	*35*		*17 - 141*
p-Terphenyl-d14 (Surr)	*76*		*46 - 133*

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: LCS 570-96220/4
Matrix: Water

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
Acetone	50.0	58.81		ug/L	118	50 - 150	33 - 167	
Benzene	50.0	53.62		ug/L	107	78 - 120	71 - 127	
Bromobenzene	50.0	55.17		ug/L	110	80 - 120	73 - 127	
Bromochloromethane	50.0	56.71		ug/L	113	77 - 125	69 - 133	
Bromodichloromethane	50.0	56.39		ug/L	113	80 - 125	73 - 133	
Bromoform	50.0	57.71		ug/L	115	68 - 128	58 - 138	
Bromomethane	50.0	58.68		ug/L	117	50 - 150	33 - 167	
2-Butanone	50.0	53.22		ug/L	106	53 - 137	39 - 151	
Carbon disulfide	50.0	56.27		ug/L	113	50 - 150	33 - 167	
Carbon tetrachloride	50.0	55.87		ug/L	112	67 - 139	55 - 151	
Chlorobenzene	50.0	53.65		ug/L	107	80 - 120	73 - 127	
Chloroethane	50.0	56.87		ug/L	114	64 - 130	53 - 141	
Chloroform	50.0	56.65		ug/L	113	77 - 120	70 - 127	
Chloromethane	50.0	62.10		ug/L	124	56 - 128	44 - 140	
2-Chlorotoluene	50.0	51.61		ug/L	103	80 - 121	73 - 128	
4-Chlorotoluene	50.0	54.63		ug/L	109	80 - 120	73 - 127	
c-1,2-Dichloroethene	50.0	57.09		ug/L	114	78 - 120	71 - 127	
c-1,3-Dichloropropene	50.0	59.90		ug/L	120	80 - 129	72 - 137	
Dibromochloromethane	50.0	53.80		ug/L	108	77 - 125	69 - 133	
1,2-Dibromo-3-Chloropropane	50.0	47.77		ug/L	96	68 - 128	58 - 138	
1,2-Dibromoethane	50.0	52.77		ug/L	106	80 - 120	73 - 127	
Dibromomethane	50.0	56.85		ug/L	114	80 - 120	73 - 127	
1,2-Dichlorobenzene	50.0	59.12		ug/L	118	80 - 120	73 - 127	
1,3-Dichlorobenzene	50.0	56.10		ug/L	112	80 - 120	73 - 127	
1,4-Dichlorobenzene	50.0	56.79		ug/L	114	80 - 120	73 - 127	
Dichlorodifluoromethane	50.0	49.77		ug/L	100	50 - 150	33 - 167	
1,1-Dichloroethane	50.0	59.92		ug/L	120	73 - 127	64 - 136	
1,2-Dichloroethane	50.0	58.21		ug/L	116	75 - 123	67 - 131	
1,1-Dichloroethene	50.0	63.40		ug/L	127	64 - 136	52 - 148	
1,2-Dichloropropane	50.0	63.62	* me	ug/L	127	80 - 120	73 - 127	ME
1,3-Dichloropropane	50.0	53.23		ug/L	106	80 - 120	73 - 127	
2,2-Dichloropropane	50.0	58.70		ug/L	117	53 - 155	36 - 172	
1,1-Dichloropropene	50.0	61.40		ug/L	123	73 - 127	64 - 136	
Diethyl ether	50.0	62.66		ug/L	125	70 - 130	60 - 140	
Di-isopropyl ether (DIPE)	50.0	55.55		ug/L	111	72 - 132	62 - 142	
1,4-Dioxane	500	510.5		ug/L	102	64 - 130	53 - 141	
Ethanol	500	555.5		ug/L	111	56 - 150	40 - 166	
Ethylbenzene	50.0	51.55		ug/L	103	80 - 120	73 - 127	
Ethyl-t-butyl ether (ETBE)	50.0	56.85		ug/L	114	74 - 122	66 - 130	
2-Hexanone	50.0	51.59		ug/L	103	59 - 131	47 - 143	
Isopropylbenzene	50.0	55.22		ug/L	110	80 - 126	72 - 134	
Methylene Chloride	50.0	57.15		ug/L	114	73 - 127	64 - 136	
4-Methyl-2-pentanone	50.0	55.01		ug/L	110	68 - 122	59 - 131	
Methyl-t-Butyl Ether (MTBE)	50.0	48.66		ug/L	97	77 - 120	70 - 127	
m,p-Xylene	100	102.7		ug/L	103	80 - 125	73 - 133	
Naphthalene	50.0	43.67		ug/L	87	64 - 136	52 - 148	
n-Butylbenzene	50.0	57.72		ug/L	115	78 - 132	69 - 141	
N-Propylbenzene	50.0	53.33		ug/L	107	80 - 125	73 - 133	
o-Xylene	50.0	53.48		ug/L	107	80 - 125	73 - 133	

Marginal Exceedance (ME) Summary

Client: Eurofins Eaton Analytical
Project/Site: 892211

Job ID: 570-38329-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 570-96220/4
Matrix: Water

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
p-Isopropyltoluene	50.0	58.31		ug/L	117	80 - 129	72 - 137	
sec-Butylbenzene	50.0	62.69		ug/L	125	80 - 125	73 - 133	
Styrene	50.0	52.78		ug/L	106	80 - 122	73 - 129	
Tert-amyl-methyl ether (TAME)	50.0	54.43		ug/L	109	74 - 122	66 - 130	
tert-Butyl alcohol (TBA)	250	282.0		ug/L	113	80 - 126	72 - 134	
tert-Butylbenzene	50.0	58.80		ug/L	118	80 - 125	73 - 133	
1,1,1,2-Tetrachloroethane	50.0	57.16		ug/L	114	80 - 126	72 - 134	
1,1,2,2-Tetrachloroethane	50.0	55.66		ug/L	111	76 - 120	69 - 127	
Tetrachloroethene	50.0	56.97		ug/L	114	54 - 144	39 - 159	
Toluene	50.0	54.30		ug/L	109	80 - 122	73 - 129	
t-1,2-Dichloroethene	50.0	57.58		ug/L	115	70 - 130	60 - 140	
t-1,3-Dichloropropene	50.0	59.85		ug/L	120	78 - 132	69 - 141	
1,2,3-Trichlorobenzene	50.0	49.49		ug/L	99	76 - 130	67 - 139	
1,2,4-Trichlorobenzene	50.0	52.23		ug/L	104	74 - 134	64 - 144	
1,1,1-Trichloroethane	50.0	53.36		ug/L	107	73 - 127	64 - 136	
1,1,2-Trichloroethane	50.0	53.47		ug/L	107	80 - 120	73 - 127	
Trichloroethene	50.0	59.25		ug/L	119	77 - 125	69 - 133	
Trichlorofluoromethane	50.0	64.27		ug/L	129	69 - 141	57 - 153	
1,2,3-Trichloropropane	50.0	51.71		ug/L	103	77 - 125	69 - 133	
1,1,2-Trichloro-1,2,2-trifluoroethane	50.0	53.12		ug/L	106	53 - 155	36 - 172	
1,2,4-Trimethylbenzene	50.0	56.48		ug/L	113	80 - 123	73 - 130	
1,3,5-Trimethylbenzene	50.0	53.49		ug/L	107	80 - 126	72 - 134	
Vinyl acetate	50.0	60.57		ug/L	121	50 - 150	33 - 167	
Vinyl chloride	50.0	56.46		ug/L	113	63 - 135	51 - 147	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
73	4	1

ME = Marginal Exceedance

Lab Sample ID: LCSD 570-96220/5
Matrix: Water

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
Acetone	50.0	55.92		ug/L	112	50 - 150	33 - 167	
Benzene	50.0	50.73		ug/L	101	78 - 120	71 - 127	
Bromobenzene	50.0	52.67		ug/L	105	80 - 120	73 - 127	
Bromochloromethane	50.0	54.84		ug/L	110	77 - 125	69 - 133	
Bromodichloromethane	50.0	54.17		ug/L	108	80 - 125	73 - 133	
Bromoform	50.0	56.39		ug/L	113	68 - 128	58 - 138	
Bromomethane	50.0	51.35		ug/L	103	50 - 150	33 - 167	
2-Butanone	50.0	52.09		ug/L	104	53 - 137	39 - 151	
Carbon disulfide	50.0	50.85		ug/L	102	50 - 150	33 - 167	
Carbon tetrachloride	50.0	52.65		ug/L	105	67 - 139	55 - 151	
Chlorobenzene	50.0	51.44		ug/L	103	80 - 120	73 - 127	
Chloroethane	50.0	50.65		ug/L	101	64 - 130	53 - 141	
Chloroform	50.0	53.95		ug/L	108	77 - 120	70 - 127	
Chloromethane	50.0	50.04		ug/L	100	56 - 128	44 - 140	

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-96220/5
Matrix: Water

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
2-Chlorotoluene	50.0	48.99		ug/L	98	80 - 121	73 - 128	
4-Chlorotoluene	50.0	52.08		ug/L	104	80 - 120	73 - 127	
c-1,2-Dichloroethene	50.0	52.50		ug/L	105	78 - 120	71 - 127	
c-1,3-Dichloropropene	50.0	57.65		ug/L	115	80 - 129	72 - 137	
Dibromochloromethane	50.0	52.22		ug/L	104	77 - 125	69 - 133	
1,2-Dibromo-3-Chloropropane	50.0	51.72		ug/L	103	68 - 128	58 - 138	
1,2-Dibromoethane	50.0	52.41		ug/L	105	80 - 120	73 - 127	
Dibromomethane	50.0	55.65		ug/L	111	80 - 120	73 - 127	
1,2-Dichlorobenzene	50.0	57.19		ug/L	114	80 - 120	73 - 127	
1,3-Dichlorobenzene	50.0	54.31		ug/L	109	80 - 120	73 - 127	
1,4-Dichlorobenzene	50.0	54.38		ug/L	109	80 - 120	73 - 127	
Dichlorodifluoromethane	50.0	40.17		ug/L	80	50 - 150	33 - 167	
1,1-Dichloroethane	50.0	57.05		ug/L	114	73 - 127	64 - 136	
1,2-Dichloroethane	50.0	56.42		ug/L	113	75 - 123	67 - 131	
1,1-Dichloroethene	50.0	57.40		ug/L	115	64 - 136	52 - 148	
1,2-Dichloropropane	50.0	60.73	* me	ug/L	121	80 - 120	73 - 127	ME
1,3-Dichloropropane	50.0	52.61		ug/L	105	80 - 120	73 - 127	
2,2-Dichloropropane	50.0	53.26		ug/L	107	53 - 155	36 - 172	
1,1-Dichloropropene	50.0	57.80		ug/L	116	73 - 127	64 - 136	
Diethyl ether	50.0	59.54		ug/L	119	70 - 130	60 - 140	
Di-isopropyl ether (DIPE)	50.0	52.34		ug/L	105	72 - 132	62 - 142	
1,4-Dioxane	500	486.0		ug/L	97	64 - 130	53 - 141	
Ethanol	500	630.6		ug/L	126	56 - 150	40 - 166	
Ethylbenzene	50.0	49.43		ug/L	99	80 - 120	73 - 127	
Ethyl-t-butyl ether (ETBE)	50.0	51.97		ug/L	104	74 - 122	66 - 130	
2-Hexanone	50.0	54.20		ug/L	108	59 - 131	47 - 143	
Isopropylbenzene	50.0	52.19		ug/L	104	80 - 126	72 - 134	
Methylene Chloride	50.0	53.20		ug/L	106	73 - 127	64 - 136	
4-Methyl-2-pentanone	50.0	55.97		ug/L	112	68 - 122	59 - 131	
Methyl-t-Butyl Ether (MTBE)	50.0	44.52		ug/L	89	77 - 120	70 - 127	
m,p-Xylene	100	98.31		ug/L	98	80 - 125	73 - 133	
Naphthalene	50.0	47.29		ug/L	95	64 - 136	52 - 148	
n-Butylbenzene	50.0	55.86		ug/L	112	78 - 132	69 - 141	
N-Propylbenzene	50.0	50.27		ug/L	101	80 - 125	73 - 133	
o-Xylene	50.0	50.67		ug/L	101	80 - 125	73 - 133	
p-Isopropyltoluene	50.0	56.11		ug/L	112	80 - 129	72 - 137	
sec-Butylbenzene	50.0	59.39		ug/L	119	80 - 125	73 - 133	
Styrene	50.0	50.64		ug/L	101	80 - 122	73 - 129	
Tert-amyl-methyl ether (TAME)	50.0	52.47		ug/L	105	74 - 122	66 - 130	
tert-Butyl alcohol (TBA)	250	284.2		ug/L	114	80 - 126	72 - 134	
tert-Butylbenzene	50.0	56.39		ug/L	113	80 - 125	73 - 133	
1,1,1,2-Tetrachloroethane	50.0	55.85		ug/L	112	80 - 126	72 - 134	
1,1,2,2-Tetrachloroethane	50.0	56.56		ug/L	113	76 - 120	69 - 127	
Tetrachloroethene	50.0	53.54		ug/L	107	54 - 144	39 - 159	
Toluene	50.0	51.36		ug/L	103	80 - 122	73 - 129	
t-1,2-Dichloroethene	50.0	53.04		ug/L	106	70 - 130	60 - 140	
t-1,3-Dichloropropene	50.0	59.46		ug/L	119	78 - 132	69 - 141	
1,2,3-Trichlorobenzene	50.0	52.86		ug/L	106	76 - 130	67 - 139	
1,2,4-Trichlorobenzene	50.0	53.87		ug/L	108	74 - 134	64 - 144	
1,1,1-Trichloroethane	50.0	48.49		ug/L	97	73 - 127	64 - 136	

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-96220/5
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
1,1,2-Trichloroethane	50.0	52.02		ug/L	104	80 - 120	73 - 127	
Trichloroethene	50.0	55.60		ug/L	111	77 - 125	69 - 133	
Trichlorofluoromethane	50.0	51.70		ug/L	103	69 - 141	57 - 153	
1,2,3-Trichloropropane	50.0	51.47		ug/L	103	77 - 125	69 - 133	
1,1,2-Trichloro-1,2,2-trifluoroethane	50.0	45.72		ug/L	91	53 - 155	36 - 172	
1,2,4-Trimethylbenzene	50.0	54.06		ug/L	108	80 - 123	73 - 130	
1,3,5-Trimethylbenzene	50.0	50.79		ug/L	102	80 - 126	72 - 134	
Vinyl acetate	50.0	60.62		ug/L	121	50 - 150	33 - 167	
Vinyl chloride	50.0	47.51		ug/L	95	63 - 135	51 - 147	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
73	4	1

ME = Marginal Exceedance

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: LCS 570-94993/2-A
Client Sample ID: Lab Control Sample
Matrix: Water
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
1,2,4-Trichlorobenzene	100	72.10		ug/L	72	49 - 120	37 - 132	
1,4-Dichlorobenzene	100	58.93		ug/L	59	30 - 100	18 - 112	
2,4-Dinitrotoluene	100	92.46		ug/L	92	50 - 120	38 - 132	
2-Chlorophenol	100	83.90		ug/L	84	35 - 105	23 - 117	
4-Chloro-3-methylphenol	100	88.98		ug/L	89	45 - 110	34 - 121	
4-Nitrophenol	100	27.08		ug/L	27	20 - 150	1 - 172	
Acenaphthene	100	96.61		ug/L	97	45 - 110	34 - 121	
Acenaphthylene	100	105.1		ug/L	105	50 - 105	41 - 114	
Butyl benzyl phthalate	100	89.52		ug/L	90	45 - 115	33 - 127	
Dimethyl phthalate	100	92.42		ug/L	92	25 - 125	8 - 142	
Fluorene	100	98.00		ug/L	98	50 - 110	40 - 120	
Naphthalene	100	76.26		ug/L	76	40 - 100	30 - 110	
N-Nitrosodi-n-propylamine	100	87.86		ug/L	88	35 - 130	19 - 146	
Pentachlorophenol	100	38.27	* me	ug/L	38	40 - 115	28 - 128	ME
Phenol	100	51.16		ug/L	51	10 - 115	1 - 132	
Pyrene	100	92.29		ug/L	92	50 - 130	37 - 143	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
16	1	1

ME = Marginal Exceedance

Lab Sample ID: LCSD 570-94993/3-A
Client Sample ID: Lab Control Sample Dup
Matrix: Water
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
1,2,4-Trichlorobenzene	100	67.61		ug/L	68	49 - 120	37 - 132	

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 570-94993/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	%Rec	%Rec. Limits	ME %Rec. Limits	Marginal Exceedance Status
1,4-Dichlorobenzene	100	52.82		ug/L	53	30 - 100	18 - 112	
2,4-Dinitrotoluene	100	91.19		ug/L	91	50 - 120	38 - 132	
2-Chlorophenol	100	77.21		ug/L	77	35 - 105	23 - 117	
4-Chloro-3-methylphenol	100	84.47		ug/L	84	45 - 110	34 - 121	
4-Nitrophenol	100	27.17		ug/L	27	20 - 150	1 - 172	
Acenaphthene	100	91.52		ug/L	92	45 - 110	34 - 121	
Acenaphthylene	100	99.72		ug/L	100	50 - 105	41 - 114	
Butyl benzyl phthalate	100	83.01		ug/L	83	45 - 115	33 - 127	
Dimethyl phthalate	100	88.02		ug/L	88	25 - 125	8 - 142	
Fluorene	100	93.10		ug/L	93	50 - 110	40 - 120	
Naphthalene	100	74.14		ug/L	74	40 - 100	30 - 110	
N-Nitrosodi-n-propylamine	100	82.72		ug/L	83	35 - 130	19 - 146	
Pentachlorophenol	100	37.66	* me	ug/L	38	40 - 115	28 - 128	ME
Phenol	100	46.05		ug/L	46	10 - 115	1 - 132	
Pyrene	100	91.24		ug/L	91	50 - 130	37 - 143	

Summary

Number of Analytes Reported	Number of Marginal Exceedances Allowed	Number of Marginal Exceedances Found
16	1	1

ME = Marginal Exceedance

GC/MS VOA

Analysis Batch: 96220

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-38329-1	202009110519	Total/NA	Water	8260B	
MB 570-96220/10	Method Blank	Total/NA	Water	8260B	
LCS 570-96220/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 570-96220/5	Lab Control Sample Dup	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 94993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-38329-1	202009110519	Total/NA	Water	3510C	
MB 570-94993/1-A	Method Blank	Total/NA	Water	3510C	
LCS 570-94993/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 570-94993/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	
570-38371-H-1-A MS	Matrix Spike	Total/NA	Water	3510C	
570-38371-H-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	3510C	

Analysis Batch: 95256

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 570-94993/1-A	Method Blank	Total/NA	Water	8270C	94993
LCS 570-94993/2-A	Lab Control Sample	Total/NA	Water	8270C	94993
LCSD 570-94993/3-A	Lab Control Sample Dup	Total/NA	Water	8270C	94993
570-38371-H-1-A MS	Matrix Spike	Total/NA	Water	8270C	94993
570-38371-H-1-B MSD	Matrix Spike Duplicate	Total/NA	Water	8270C	94993

Analysis Batch: 95580

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-38329-1	202009110519	Total/NA	Water	8270C	94993

Lab Chronicle

Client: Eurofins Eaton Analytical
Project/Site: 892211

Job ID: 570-38329-1

Client Sample ID: 202009110519

Date Collected: 09/10/20 08:30
Date Received: 09/14/20 10:47

Lab Sample ID: 570-38329-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	5 mL	5 mL	96220	09/22/20 14:04	NET3	ECL 2
	Instrument ID: GCMSW									
Total/NA	Prep	3510C			1050.1 mL	2 mL	94993	09/16/20 15:38	SAL	ECL 1
Total/NA	Analysis	8270C		1			95580	09/18/20 21:20	N8CZ	ECL 1
	Instrument ID: GCMSSS									

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

ECL 2 = Eurofins Calscience LLC Lampson, 7445 Lampson Ave, Garden Grove, CA 92841, TEL (714)895-5494

Accreditation/Certification Summary

Client: Eurofins Eaton Analytical
Project/Site: 892211

Job ID: 570-38329-1

Laboratory: Eurofins Calscience LLC

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	Los Angeles County Sanitation Districts	10109	09-29-20
California	SCAQMD LAP	17LA0919	11-30-20
California	State	2944	09-29-20
Guam	State	20-003R	10-31-20
Nevada	State	CA00111	07-31-21
Oregon	NELAP	CA300001	01-29-21
USDA	US Federal Programs	P330-20-00034	02-10-23
Washington	State	C916-18	10-11-20

Method Summary

Client: Eurofins Eaton Analytical
Project/Site: 892211

Job ID: 570-38329-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	ECL 2
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	ECL 1
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	ECL 1
5030C	Purge and Trap	SW846	ECL 2

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

ECL 1 = Eurofins Calscience LLC Lincoln, 7440 Lincoln Way, Garden Grove, CA 92841, TEL (714)895-5494

ECL 2 = Eurofins Calscience LLC Lampson, 7445 Lampson Ave, Garden Grove, CA 92841, TEL (714)895-5494

Sample Summary

Client: Eurofins Eaton Analytical
Project/Site: 892211

Job ID: 570-38329-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
570-38329-1	202009110519	Water	09/10/20 08:30	09/14/20 10:47	

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Submittal Form

Date: 9/14/2020

38329

*REPORTING REQUIRMENTS: *Do Not Combine Reports with any other samples submitted under different Folder Numbers!*
Report & Invoice must have the Folder # 892211 Job # 1000014

Report all quality control data according to Method. Include dates analyzed. Date extracted (if extracted) and Method reference on the report.
Results must have Complete data & QC with Approval Signature.

Ship To:
`Eurofins CalScience
7440 Lincoln Way

Garden Grove, CA 92641-1432

Phone: 714-895-5494 Fax: 714-894-7501

Reports: Jackie Contreras Sub-Contracting Administrator
EMAIL TO: us20_subcontract@eurofinsus.com
Eurofins Eaton Analytical, LLC 750 Royal Oaks Drive, Suite 100, Monrovia, CA 91016
Phone (626) 386-1165 Fax (626) 386-1122
Invoices to: Eurofins Eaton Analytical, LLC
Accounts Payable 2425 New Holland Pike, Lancaster, PA 17605

Provide in each Report the Specified StateCertification # and Exp Date for requested tests + matrix.

Samples from: CALIFORNIA

Folder #: 892211 **Report Due:** 10/09/2020

Sample ID	*Client Sample ID for reference onl*	Sample Date & Time	Matrix	PWS Systemcode	PWSID	
202009110519	E1	09/10/20 0830	DW			JLS

Sample type: Sample Event: Facility ID: Sample Point ID: Static ID:

Method	Prep Method	Analysis Requested
EPA 8260B		4848_8260 VOC W Super List
EPA 8270C	EPA 3510C	4871 Super 8270 List

570-38329 Chain of Custody

Relinquished by:	Sample Control	Date 9/14/20	Time 1047	NOTIFICATION REQUIRED IF RECEIVED OUTSIDE OF 0-6 CELSIUS
Received by:		Date 9/14/20	Time 1047	An Acknowledgement of Receipt is requested to attn: Jackie Contreras
Relinquished by:	Sample Control	Date	Time	
Received by:		Date	Time	

1-9/1.5 526

750 Royal Oaks Drive, Suite 100, Monrovia, CA 91016 Tel (626) 386-1100 Fax (866) 988-3757 www.EurofinsUS.com/Eaton

Login Sample Receipt Checklist

Client: Eurofins Eaton Analytical

Job Number: 570-38329-1

Login Number: 38329
List Number: 1
Creator: Soriano, Precy

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

LABORATORY REPORT

If you have any questions concerning this report, please do not hesitate to call us at (800) 332-4345 or (574) 233-4777.

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STATE CERTIFICATION LIST

State	Certification	State	Certification
Alabama	40700	Missouri	880
Alaska	IN00035	Montana	CERT0026
Arizona	AZ0432	Nebraska	NE-OS-05-04
Arkansas	IN00035	Nevada	IN00035
California	2920	New Hampshire*	2124
Colorado	IN00035	New Jersey*	IN598
Colorado Radiochemistry	IN00035	New Mexico	IN00035
Connecticut	PH-0132	New York*	11398
Delaware	IN035	North Carolina	18700
Florida*	E87775	North Dakota	R-035
Georgia	929	Ohio	87775
Hawaii	IN035	Oklahoma	D9508
Idaho	IN00035	Oregon (Primary AB)*	4074
Illinois*	200001	Pennsylvania*	68-00466
Illinois Microbiology	17767	Puerto Rico	IN00035
Illinois Radiochemistry	IN00035	Rhode Island	LAO00343
Indiana Chemistry	C-71-01	South Carolina	95005
Indiana Microbiology	M-76-07	South Dakota	IN00035
Iowa	098	Tennessee	TN02973
Kansas*	E-10233	Texas*	T104704187-18-12
Kentucky	90056	Texas/TCEQ	TX207
Louisiana*	LA014	Utah*	IN00035
Maine	IN00035	Vermont	VT-8775
Maryland	209	Virginia*	460275
Massachusetts	M-IN035	Washington	C837
Michigan	9926	West Virginia	9927 C
Minnesota*	018-999-338	Wisconsin	999766900
Mississippi	IN035	Wyoming	IN035
EPA	IN00035		

*NELAP/TNI Recognized Accreditation Bodies

Revision date: 03/14/2019

NELAC NARRATIVE PAGE

Client: Eurofins Eaton Analytical Report #: 498271NP

Eurofins Eaton Analytical, LLC is a NELAP accredited laboratory. All reported results meet the requirements of the NELAC standards, unless otherwise noted.

EEA contact person: Karen Fullmer

NELAP requires complete reporting of deviations from method requirements, regardless of the suspected impact on the data. Quality control failures not reported within the report summary are noted here.

There were no quality control failures.

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Karen Fullmer ASM 09/24/2020

Authorized Signature Title Date

110 South Hill Street
South Bend, IN 46617
Tel: (574) 233-4777
Fax: (574) 233-8207
1 800 332 4345

Laboratory Report

Client:	Eurofins Eaton Analytical	Report:	498271
Attn:	Jackie Contreras 750 Royal Oaks Drive Suite 100 Monrovia, CA 91016	Priority:	Standard Written
		Status:	Final
		PWS ID:	Not Supplied

Sample Information

EEA ID #	Client ID	Method	Collected Date / Time	Collected By:	Received Date / Time
4726424	202009110519	906.0	09/10/20 08:30	Client	09/15/20 09:45

Report Summary

Note: Sample container was provided by the client.

Detailed quantitative results are presented on the following pages. The results presented relate only to the samples provided for analysis.

We appreciate the opportunity to provide you with this analysis. If you have any questions concerning this report, please do not hesitate to call Karen Fullmer at (574) 233-4777.

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Karen Fullmer ASM

09/24/2020

Authorized Signature Title Date

Client Name: Eurofins Eaton Analytical
Report #: 498271

Client Name: Eurofins Eaton Analytical | Report #: 498271

Sampling Point: 202009110519 | PWS ID: Not Supplied

Radionuclides

Analyte ID #	Analyte	Method	Reg Limit	MDA 95**	MRL	Result	Units	Preparation Date	Analyzed	EEA ID #
10028-17-8	Tritium	906.0	20000 *	355	1000	179 ± 351	pCi/L	09/22/20 16:30	09/24/20 00:14	4726424

** Minimum Detectable Activity (MDA95) shall be that concentration which can be counted with a precision of plus or minus 100% at the 95 % confidence level.

† EEA has demonstrated it can achieve these report limits in reagent water, but can not document them in all sample matrices.

Reg Limit Type:	MCL	SMCL	AL
Symbol:	*	^	!

Lab Definitions

Continuing Calibration Check Standard (CCC) / Continuing Calibration Verification (CCV) / Initial Calibration Verification Standard (ICV) / Initial Performance Check (IPC) - is a standard containing one or more of the target analytes that is prepared from the same standards used to calibrate the instrument. This standard is used to verify the calibration curve at the beginning of each analytical sequence, and may also be analyzed throughout and at the end of the sequence. The concentration of continuing standards may be varied, when prescribed by the reference method, so that the range of the calibration curve is verified on a regular basis. CCL, CCM, and CCH are the CCC standards at low, mid, and high concentration levels, respectively.

Internal Standards (IS) - are pure compounds with properties similar to the analytes of interest, which are added to field samples or extracts, calibration standards, and quality control standards at a known concentration. They are used to measure the relative responses of the analytes of interest and surrogates in the sample, calibration standard or quality control standard.

Laboratory Duplicate (LD) - is a field sample aliquot taken from the same sample container in the laboratory and analyzed separately using identical procedures. Analysis of laboratory duplicates provides a measure of the precision of the laboratory procedures.

Laboratory Fortified Blank (LFB) / Laboratory Control Sample (LCS) - is an aliquot of reagent water to which known concentrations of the analytes of interest are added. The LFB is analyzed exactly the same as the field samples. LFBs are used to determine whether the method is in control. FBL, FBM, and FBH are the LFB samples at low, mid, and high concentration levels, respectively.

Laboratory Method Blank (LMB) / Laboratory Reagent Blank (LRB) - is a sample of reagent water included in the sample batch analyzed in the same way as the associated field samples. The LMB is used to determine if method analytes or other background contamination have been introduced during the preparation or analytical procedure. The LMB is analyzed exactly the same as the field samples.

Laboratory Trip Blank (LTB) / Field Reagent Blank (FRB) - is a sample of laboratory reagent water placed in a sample container in the laboratory and treated as a field sample, including storage, preservation, and all analytical procedures. The FRB/LTB container follows the collection bottles to and from the collection site, but the FRB/LTB is not opened at any time during the trip. The FRB/LTB is primarily a travel blank used to verify that the samples were not contaminated during shipment.

If applicable, the calculation of the matrix spike (MS) or matrix spike duplicate (MSD) percent recovery is as follows: (MS or MSD value - Sample value) * 100 / spike target / dilution factor = **Recovery %**

Matrix Spike Duplicate Sample (MSD) / Laboratory Fortified Sample Matrix Duplicate (LFSMD) - is a sample aliquot taken from the same field sample source as the Matrix Spike Sample to which known quantities of the analytes of interest are added in the laboratory. The MSD is analyzed exactly the same as the field samples. Analysis of the MSD provides a measure of the precision of the laboratory procedures in a specific matrix. SDL, SDM, and SDH / LFSMDL, LFSMDM, and LFSMDH are the MSD or LFSMD at low, mid, and high concentration levels, respectively.

Matrix Spike Sample (MS) / Laboratory Fortified Sample Matrix (LFSM) - is a sample aliquot taken from field sample source to which known quantities of the analytes of interest are added in the laboratory. The MS is analyzed exactly the same as the field samples. The purpose is to demonstrate recovery of the analytes from a sample matrix to determine if the specific matrix contributes bias to the analytical results. MSL, MSM, and MSH / LFSML, LFSMM, and LFSMH are the MS or LFSM at low, mid, and high concentration levels, respectively.

Quality Control Standard (QCS) / Second Source Calibration Verification (SSCV) - is a solution containing known concentrations of the analytes of interest prepared from a source different from the source of the calibration standards. The solution is obtained from a second manufacturer or lot if the lot can be demonstrated by the manufacturer as prepared independently from other lots. The QCS sample is analyzed using the same procedures as field samples. The QCS is used as a check on the calibration standards used in the method on a routine basis.

Reporting Limit Check (RLC) / Initial Calibration Check Standard (ICCS) - is a procedural standard that is analyzed each day to evaluate instrument performance at or below the minimum reporting limit (MRL).

Surrogate Standard (SS) / Surrogate Analyte (SUR) - is a pure compound with properties similar to the analytes of interest, which is highly unlikely to be found in any field sample, that is added to the field samples, calibration standards, blanks and quality control standards before sample preparation. The SS is used to evaluate the efficiency of the sample preparation process.

358653

eurofins | Eaton Analytical

Submittal Form

Date: 9/14/2020

Ship To:
`Eurofins Eaton Analytical
110 South Hill Street

South Bend, IN 46617-2702

Phone: 800-332-4345 Fax: 574-233-8207

Folder #: 892211

Report Due: 10/09/2020

REPORTING REQUIRMENTS:** ***Do Not Combine Reports with any other samples submitted under different Folder Numbers!
Report & Invoice must have the Folder # **892211** Job # **1000014**

498271

Report all quality control data according to Method. Include dates analyzed. Date extracted (if extracted) and Method reference on the report.
Results must have Complete data & QC with Approval Signature.

Reports: Jackie Contreras Sub-Contracting Administrator
EMAIL TO: us20_subcontract@eurofinsus.com
Eurofins Eaton Analytical, LLC 750 Royal Oaks Drive, Suite 100, Monrovia, CA 91016
Phone (626) 386-1165 Fax (626) 386-1122
Invoices to: Eurofins Eaton Analytical, LLC
Accounts Payable 2425 New Holland Pike, Lancaster, PA 17605

Provide in each Report the Specified StateCertification # and Exp Date for requested tests + matrix.

Samples from: CALIFORNIA

Sample ID	Client Sample ID for reference onl	Sample Date & Time	Matrix	PWS Systemcode	PWSID
202009110519	E1	09/10/20 0830	DW		JLS

Sample type:	Sample Event:	Facility ID:	Sample Point ID:	Static ID:

Method	Prep Method	Analysis Requested
EPA 906.0		Total Tritium (Sub)

4726424

Client Provided Sample Container

1

Ambient

Relinquished by: Sample Control	Fidel Chavez	Date 9-14-20	Time 843	NOTIFICATION REQUIRED IF RECEIVED OUTSIDE OF 0-6 CELSIUS
Received by:		Date	Time	An Acknowledgement of Receipt is requested to attn: Jackie Contreras
Relinquished by: Sample Control		Date	Time	
Received by:	KRW	Date 9-15-2020	Time 0945	

Page 1 of 1

750 Royal Oaks Drive, Suite 100, Monrovia, CA 91016 Tel (626) 386-1100 Fax (866) 988-3757 www.EurofinsUS.com/Eaton

Eurofins Eaton Analytical
Run Log

Run ID: **280026** Method: **906.0**

Type	Sample Id	Sample Site	Matrix	Instrument ID	Analysis Date	Calibration File
LRB	4733169		RW	HA	09/23/2020 08:01	
LFB	4733170		RW	HA	09/23/2020 10:23	
FS	4726424	202009110519	DW	HA	09/24/2020 00:14	

QC Summary Report

Sample Type	Analyte	Method	MRL	Client ID	Result Flag	Amount	Target	Units	% Recovery	Recovery Limits	RPD	RPD Limit	Dil Factor	Extracted	Analyzed	EEA ID #
LRB	Tritium	906.0	363	---		-328		pCi/L	---	---	---	---	1.0	09/22/2020 16:30	09/23/2020 08:01	4733169
LFB	Tritium	906.0	392	---		9206.0000	9431.4	pCi/L	98	90 - 110	---	---	1.0	09/22/2020 16:30	09/23/2020 10:23	4733170
FS	Tritium	906.0	355	202009110519		179		pCi/L	---	---	---	---	1.0	09/22/2020 16:30	09/24/2020 00:14	4726424

Sample Type Key

Type (Abbr.)	Sample Type	Type (Abbr.)	Sample Type
FS	Field Sample		
LFB	Laboratory Fortified Blank		
LRB	Laboratory Reagent Blank		

END OF REPORT

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

Laboratory Job ID: 160-39477-1
Laboratory Sample Delivery Group: 892211
Client Project/Site: Radiologicals in Drinking Water

For:
Eurofins Eaton Analytical
750 Royal Oaks Drive
Suite 100
Monrovia, California 91016

Attn: Subcontract Data (old email - do not

Rhonda Ridenhower

Authorized for release by:
10/12/2020 7:12:12 AM

Rhonda Ridenhower, Client Service Manager
(314)298-8566
Rhonda.Ridenhower@Eurofinset.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Job ID: 160-39477-1

Laboratory: Eurofins TestAmerica, St. Louis

Narrative

CASE NARRATIVE

Client: Eurofins Eaton Analytical

Project: Radiologicals in Drinking Water

Report Number: 160-39477-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, St. Louis attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client.

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT
The samples were received on 09/16/2020; the samples arrived in good condition, properly preserved. The temperature of the coolers at receipt was 28.1 C.

STRONTIUM-90 (GFPC)

Job ID: 160-39477-1 (Continued)

Laboratory: Eurofins TestAmerica, St. Louis (Continued)

Sample 202009110519 (160-39477-1) was analyzed for Strontium-90 (GFPC) in accordance with EPA 905.0. The samples were prepared on 09/18/2020 and analyzed on 09/30/2020.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

eurofins | Eaton Analytical

Submittal Form

Date: 9/14/2020

*REPORTING REQUIRMENTS: *Do Not Combine Reports with any other samples submitted under different Folder Numbers!*
Report & Invoice must have the Folder # 892211 Job # 1000014

Report all quality control data according to Method. Include dates analyzed. Date extracted (if extracted) and Method reference on the report.
Results must have Complete data & QC with Approval Signature.

Ship To:
TestAmerica St Louis
13715 Rider Trail North

Earth City, MO 63045

Phone: 314-298-8566 Fax: 314-298-8757

Reports: Jackie Contreras Sub-Contracting Administrator
EMAIL TO: us20_subcontract@eurofinsus.com
Eurofins Eaton Analytical, LLC 750 Royal Oaks Drive, Suite 100, Monrovia, CA 91016
Phone (626) 386-1165 Fax (626) 386-1122
Invoices to: Eurofins Eaton Analytical, LLC
Accounts Payable 2425 New Holland Pike, Lancaster, PA 17605

Provide in each Report the Specified State Certification # and Exp Date for requested tests + matrix

Samples from: CALIFORNIA

Folder #: 892211

Report Due: 10/09/2020

Sample ID	*Client Sample ID for reference onl*	Sample Date & Time	Matrix	PWS Systemcode	PWSID	
202009110519	E1	09/10/20 0830	DW			JLS

Sample type: | Sample Event: | Facility ID: | Sample Point ID: | Static ID:

Method	Prep Method	Analysis Requested
EPA 905.0		Strontium-90 (sub)

160-39477 Chain of Custody

Relinquished by: Sample Control	Date 9-14-20	Time	NOTIFICATION REQUIRED IF RECEIVED OUTSIDE OF 0-6 CELSIUS
Received by: FED EX	Date	Time	An Acknowledgement of Receipt is requested to attn: Jackie Contreras
Relinquished by: FED EX Sample Control	Date	Time	
Received by:	Date 9/16/2020	Time 0923	

Page 1 of 1

750 Royal Oaks Drive, Suite 100, Monrovia, CA 91016 Tel (626) 386-1100 Fax (866) 988-3757 www.EurofinsUS.com/Eaton

Login Sample Receipt Checklist

Client: Eurofins Eaton Analytical

Job Number: 160-39477-1
SDG Number: 892211

Login Number: 39477
List Number: 1
Creator: Mazariegos, Leonel A

List Source: Eurofins TestAmerica, St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Definitions/Glossary

Client: Eurofins Eaton Analytical | Job ID: 160-39477-1
Project/Site: Radiologicals in Drinking Water | SDG: 892211

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Method Summary

Method	Method Description	Protocol	Laboratory
905	Strontium-90 (GFPC)	EPA	TAL SL
PrecSep-7	Preparation, Precipitate Separation (7-Day In-Growth)	None	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

None = None

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Sample Summary

Client: Eurofins Eaton Analytical
Project/Site: Radiologicals in Drinking Water

Job ID: 160-39477-1
SDG: 892211

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
160-39477-1	202009110519	Water	09/10/20 08:30	09/16/20 09:23	

Client Sample ID: 202009110519
Date Collected: 09/10/20 08:30
Date Received: 09/16/20 09:23

Lab Sample ID: 160-39477-1
Matrix: Water

Method: 905 - Strontium-90 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	-0.0179	U	0.380	0.380	3.00	0.695	pCi/L	09/18/20 09:54	09/30/20 16:46	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*59.4*		*40 - 110*	*09/18/20 09:54*	*09/30/20 16:46*	*1*
Y Carrier	*90.8*		*40 - 110*	*09/18/20 09:54*	*09/30/20 16:46*	*1*

Method: 905 - Strontium-90 (GFPC)

Lab Sample ID: MB 160-482939/14-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 484375 — **Prep Batch: 482939**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Strontium-90	0.1166	U	0.277	0.278	3.00	0.480	pCi/L	09/18/20 09:54	09/30/20 16:46	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Sr Carrier	*85.5*		*40 - 110*	*09/18/20 09:54*	*09/30/20 16:46*	*1*
Y Carrier	*95.0*		*40 - 110*	*09/18/20 09:54*	*09/30/20 16:46*	*1*

Lab Sample ID: LCS 160-482939/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 484375 — **Prep Batch: 482939**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Strontium-90	15.6	16.68		1.77	3.00	0.612	pCi/L	107	75 - 125

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Sr Carrier	*78.7*		*40 - 110*
Y Carrier	*89.3*		*40 - 110*

Lab Sample ID: LCSD 160-482939/2-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 484375 — **Prep Batch: 482939**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Strontium-90	15.6	13.71		1.49	3.00	0.470	pCi/L	88	75 - 125	0.91	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Sr Carrier	*86.2*		*40 - 110*
Y Carrier	*89.0*		*40 - 110*

QC Association Summary

Client: Eurofins Eaton Analytical
Project/Site: Radiologicals in Drinking Water

Job ID: 160-39477-1
SDG: 892211

Rad

Prep Batch: 482939

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-39477-1	202009110519	Total/NA	Water	PrecSep-7	
MB 160-482939/14-A	Method Blank	Total/NA	Water	PrecSep-7	
LCS 160-482939/1-A	Lab Control Sample	Total/NA	Water	PrecSep-7	
LCSD 160-482939/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-7	

Method: 905 - Strontium-90 (GFPC)

Matrix: Water **Prep Type: Total/NA**

		Percent Yield (Acceptance Limits)	
		Sr	Y
Lab Sample ID	Client Sample ID	(40-110)	(40-110)
160-39477-1	202009110519	59.4	90.8
LCS 160-482939/1-A	Lab Control Sample	78.7	89.3
LCSD 160-482939/2-A	Lab Control Sample Dup	86.2	89.0
MB 160-482939/14-A	Method Blank	85.5	95.0

Tracer/Carrier Legend

Sr = Sr Carrier

Y = Y Carrier

eurofins

Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

Laboratory Job ID: 680-188695-3
Client Project/Site: 892211

For:
Eurofins Eaton Analytical
Accounts Payable
2425 New Holland Pike
Lancaster, Pennsylvania 17601

Attn: Jackie Contreras

Kathryn Smith

Authorized for release by:
9/22/2020 5:22:00 PM

Kathryn Smith, Client Service Manager
(912)250-0275
Kathy.Smith@Eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Eurofins Eaton Analytical
Project/Site: 892211

Job ID: 680-188695-3

Qualifiers

GC VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Sample Summary

Client: Eurofins Eaton Analytical
Project/Site: 892211

Job ID: 680-188695-3

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
680-188695-3	202009110519	Water	09/10/20 08:30	09/15/20 10:55	

Job ID: 680-188695-3

Laboratory: Eurofins TestAmerica, Savannah

Narrative

Receipt
The samples were received on 9/15/2020 10:55 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.9º C.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Client Sample ID: 202009110519
Date Collected: 09/10/20 08:30
Date Received: 09/15/20 10:55

Lab Sample ID: 680-188695-3
Matrix: Water

Method: 8015B - Nonhalogenated Organic Compounds - Direct Injection (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene glycol	1.2	U	5.0	1.2	mg/L			09/21/20 18:49	1

Client: Eurofins Eaton Analytical
Project/Site: 892211

Job ID: 680-188695-3

Method: 8015B - Nonhalogenated Organic Compounds - Direct Injection (GC)

Lab Sample ID: MB 680-635207/11
Matrix: Water
Analysis Batch: 635207

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethylene glycol	1.2	U	5.0	1.2	mg/L			09/21/20 16:22	1

Lab Sample ID: LCS 680-635207/7
Matrix: Water
Analysis Batch: 635207

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylene glycol	20.0	22.7		mg/L		114	61 - 148

Lab Sample ID: LCSD 680-635207/8
Matrix: Water
Analysis Batch: 635207

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethylene glycol	20.0	21.9		mg/L		110	61 - 148	4	50

GC VOA

Analysis Batch: 635207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-188695-3	202009110519	Total/NA	Water	8015B	
MB 680-635207/11	Method Blank	Total/NA	Water	8015B	
LCS 680-635207/7	Lab Control Sample	Total/NA	Water	8015B	
LCSD 680-635207/8	Lab Control Sample Dup	Total/NA	Water	8015B	

Client Sample ID: 202009110519

Date Collected: 09/10/20 08:30

Date Received: 09/15/20 10:55

Lab Sample ID: 680-188695-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015B		1			635207	09/21/20 18:49	DC	TAL SAV
	Instrument ID:	CVGG2								

Laboratory References:

TAL SAV = Eurofins TestAmerica, Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

1 2 3 4 5 6 7 8 9 10 11

Accreditation/Certification Summary

Client: Eurofins Eaton Analytical
Project/Site: 892211

Job ID: 680-188695-3

Laboratory: Eurofins TestAmerica, Savannah

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
	AFCEE	SAVLAB	
Alabama	State	41450	06-30-21
Alaska	State	GA00006	06-30-21
Alaska (UST)	State	17-016	09-30-20
ANAB	Dept. of Defense ELAP	L2463	09-22-22
ANAB	ISO/IEC 17025	L2463.01	09-22-22
Arizona	State	AZ0808	12-14-20
Arkansas DEQ	State	19-015-0	02-02-21
California	State	2939	06-30-21
Colorado	State	GA00006	12-31-20
Connecticut	State	PH-0161	03-31-21
Florida	NELAP	E87052	06-30-21
Georgia	State	E87052	06-30-21
Georgia (DW)	State	803	06-30-21
Guam	State	19-007R	04-17-21
Hawaii	State	<cert No.>	06-30-21
Illinois	NELAP	200022	11-30-20
Indiana	State	C-GA-02	06-30-21
Iowa	State	353	06-30-21
Kansas	NELAP	E-10322	10-15-20
Kentucky (DW)	State	KY90084	12-31-21
Kentucky (UST)	State	<cert No.>	06-30-21
Kentucky (WW)	State	KY90084	12-31-20
Louisiana	NELAP	02011	06-30-21
Louisiana (DW)	State	LA009	12-31-20
Maine	State	GA00006	09-26-20
Maryland	State	250	12-31-20
Massachusetts	State	M-GA006	06-30-21
Michigan	State	9925	06-30-21
Mississippi	State	<cert No.>	06-30-21
Nebraska	State	NE-OS-7-04	06-30-21
New Jersey	NELAP	GA769	06-30-21
New Mexico	State	GA00006	06-30-21
New York	NELAP	10842	04-01-21
North Carolina (DW)	State	13701	07-31-21
North Carolina (WW/SW)	State	269	12-31-20
Pennsylvania	NELAP	68-00474	06-30-21
Puerto Rico	State	GA00006	01-01-21
South Carolina	State	98001	06-30-21
Tennessee	State	02961	06-30-21
Texas	NELAP	T1047004185-19-14	11-30-20
Texas	TCEQ Water Supply	T104704185	06-30-21
US Fish & Wildlife	US Federal Programs	LE058448-0	08-01-21
USDA	US Federal Programs	P330-18-00313	10-29-21
Virginia	NELAP	10509	06-14-21
Washington	State	C805	06-10-21
West Virginia (DW)	State	9950C	12-31-20
West Virginia DEP	State	094	07-31-20 *
Wisconsin	State	999819810	08-31-21
Wyoming	State	8TMS-L	06-30-21

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Method Summary

Method	Method Description	Protocol	Laboratory
8015B	Nonhalogenated Organic Compounds - Direct Injection (GC)	SW846	TAL SAV

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAV = Eurofins TestAmerica, Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

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Eaton Analytical

Submittal Form

Date: 9/14/2020

*REPORTING REQUIRMENTS: *Do Not Combine Reports with any other samples submitted under different Folder Numbers!*
Report & Invoice must have the Folder # 892211 Job # 1000014

Report all quality control data according to Method. Include dates analyzed. Date extracted (if extracted) and Method reference on the report.
Results must have Complete data & QC with Approval Signature.

Ship To:
`Eurofins TestAmerica Savannah
5102 LaRoche Avenue

Savannah, GA 31404

Phone: 912-354-7858 Fax: 912-351-3673

Reports: Jackie Contreras Sub-Contracting Administrator
EMAIL TO: us20_subcontract@eurofinsus.com
Eurofins Eaton Analytical, LLC 750 Royal Oaks Drive, Suite 100, Monrovia, CA 91016
Phone (626) 386-1165 Fax (626) 386-1122
Invoices to: Eurofins Eaton Analytical, LLC
Accounts Payable 2425 New Holland Pike, Lancaster, PA 17605

Provide in each Report the Specified StateCertification # and Exp Date for requested tests + matrix

Samples from: CALIFORNIA

Folder #: 892211

Report Due: 10/09/2020

Sample ID	Client Sample ID for reference onl	Sample Date & Time	Matrix	PWS Systemcode	PWSID	
202009110519	E1	09/10/20 0830	DW			JLS

Sample type: Sample Event: Facility ID: Sample Point ID: Static ID:

Method	Prep Method	Analysis Requested
EPA 8015B		Ethylene Glycol

680-188695-03 Chain of Custody

Relinquished by: [signature]	Sample Control	Fidel Cuarez Date 9-14-20	Time 934
Received by:		Date	Time
Relinquished by:	Sample Control	Date	Time
Received by: [signature]		09-15-20	1055

NOTIFICATION REQUIRED IF RECEIVED OUTSIDE OF 0-6 CELSIUS

An Acknowledgement of Receipt is requested to attn: Jackie Contreras

1.5(cf)1.9°c

Page 1 of 1

750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Laboratory Report

for

Morro Bay Waterwater Treatment Plant
160 Atascadero Road
Morro Bay, CA 93442
Attention: John Gunderlock - Shipping

Utah ELCP CA00006

Date of Issue
10/13/2020
Vanessa Berry
EUROFINS EATON ANALYTICAL, LLC

Report: 893936
Project: GROUNDWATER
Group: GW-Quarterly

ZIA8: Vanessa Berry

Project Manager

* Accredited in accordance with TNI 2016 and ISO/IEC 17025:2017.
* Laboratory certifies that the test results meet all **TNI 2016 and ISO/IEC 17025:2017** requirements unless noted under the individual analysis.
* Following the cover page are State Certification List, ISO 17025 Accredited Method List, Acknowledgement of Samples Received, Comments, Hits Report, Data Report, QC Summary, QC Report and Regulatory Forms, as applicable.
* Test results relate only to the sample(s) tested.
* Test results apply to the sample(s) as received, unless otherwise noted in the comments report (ISO/IEC 17025:2017).
* This report shall not be reproduced except in full, without the written approval of the laboratory.
* This report includes ISO/IEC 17025 and non-ISO 17025 accredited methods.

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STATE CERTIFICATION LIST

State	Certification Number	State	Certification Number
Alabama	41060	**Montana**	Cert 0035
Arizona	AZ0778	**Nebraska**	Certified
Arkansas	Certified	**Nevada**	CA000062018
California	2813	**New Hampshire ***	2959
Colorado	Certified	**New Jersey ***	CA 008
Connecticut	PH-0107	**New Mexico**	Certified
Delaware	CA 006	**New York ***	11320
Florida *	E871024	**North Carolina**	06701
Georgia	947	**North Dakota**	R-009
Guam	18-005R	**Oregon ***	CA200003-005
Hawaii	Certified	**Pennsylvania ***	68-565
Idaho	Certified	**Puerto Rico**	Certified
Illinois *	200033	**Rhode Island**	LAO00326
Indiana	C-CA-01	**South Carolina**	87016
Iowa - Asbestos	413	**South Dakota**	Certified
Kansas *	E-10268	**Tennessee**	TN02839
Kentucky	90107	**Texas ***	T104704230-18-15
Louisiana *	LA180000	**Utah (Primary AB) ***	CA00006
Maine	CA0006	**Vermont**	VT0114
Maryland	224	**Virginia ***	460260
Commonwealth of Northern Marianas Is.	MP0004	**Washington**	C838
Massachusetts	M-CA006	**EPA Region 5**	Certified
Michigan	9906	**Los Angeles County Sanitation Districts**	10264
Mississippi	Certified		

* NELAP/TNI Recognized Accreditation Bodies

Eurofins Eaton Analytical, LLC
750 Royal Oaks Drive, Suite 100
Monrovia, CA 91016-3629
T | 626-386-1100
F | 866-988-3757
www.EurofinsUS.com/Eaton

ISO/IEC 17025 Accredited Method List

The tests listed below are accredited and meet the requirements of ISO/IEC 17025 as verified by the ANSI-ASQ National Accreditation Board/A2LA. Refer to Certificate and scope of accreditation (5890) found at: https://www.eurofinsus.com/Eaton

SPECIFIC TESTS	METHOD OR TECHNIQUE USED	Environ-mental (Drinking Water)	Environ-mental (Waste Water)	Water as a Component of Food and Bev/Bev/ Bottled Water
1,2,3-TCP (5 PPT & 0.5 PPT)	CA SRL 524M-TCP	x		x
1,4-Dioxane	EPA 522	x		x
2,3,7,8-TCDD	Modified EPA 1613B	x		x
Acrylamide	In House Method (2440)	x		x
Algal Toxins/Microcystin	In House Method (3570)			
Alkalinity	SM 2320B	x	x	x
Ammonia	EPA 350.1		x	x
Ammonia	SM 4500-NH3 H		x	x
Anions and DBPs by IC	EPA 300.0	x	x	x
Anions and DBPs by IC	EPA 300.1	x		x
Asbestos	EPA 100.2	x	x	
BOD / CBOD	SM 5210B		x	x
Bromate	In House Method (2447)	x		x
Carbamates	EPA 531.2	x		x
Carbonate as CO3	SM 2330B	x	x	x
Carbonyls	EPA 556	x		x
COD	EPA 410.4 / SM 5220D		x	
Chloramines	SM 4500-CL G	x	x	x
Chlorinated Acids	EPA 515.4	x		x
Chlorinated Acids	EPA 555	x		x
Chlorine Dioxide	SM 4500-CLO2 D Palin Test	x		x
Chlorine -Total/Free/ Combined Residual	SM 4500-Cl G	x	x	x
Conductivity	EPA 120.1		x	
Conductivity	SM 2510B	x	x	x
Corrosivity (Langelier Index)	SM 2330B	x		x
Cyanide, Amenable	SM 4500-CN G	x	x	
Cyanide, Free	SM 4500CN F	x	x	x
Cyanide, Total	EPA 335.4	x	x	x
Cyanogen Chloride (screen)	In House Method (2470)	x		x
Diquat and Paraquat	EPA 549.2	x		x
DBP/HAA	SM 6251B	x		x
Dissolved Oxygen	SM 4500-O G		x	x
DOC	SM 5310C	x		x
E. Coli	(MTF/EC+MUG)	x		x
E. Coli	CFR 141.21(f)(6)(i)	x		x
E. Coli	SM 9223		x	
E. Coli (Enumeration)	SM 9221B.1/ SM 9221F	x		x
E. Coli (Enumeration)	SM 9223B	x		x
EDB/DCBP	EPA 504.1	x		
EDB/DBCP and DBP	EPA 551.1	x		x
EDTA and NTA	In House Method (2454)	x		x
Endothall	EPA 548.1	x		x
Endothall	In-house Method (2445)	x		x
Enterococci	SM 9230B	x	x	
Fecal Coliform	SM 9221 E (MTF/EC)	x		
Fecal Coliform	SM 9221C, E (MTF/EC)		x	
Fecal Coliform (Enumeration)	SM 9221E (MTF/EC)	x		x
Fecal Coliform with Chlorine Present	SM 9221E		x	
Fecal Streptococci	SM 9230B	x	x	
Fluoride	SM 4500-F C	x	x	x
Glyphosate	EPA 547	x		x
Glyphosate + AMPA	In House Method (3618)	x		x
Gross Alpha/Beta	EPA 900.0	x	x	x
Gross Alpha Coprecipitation	SM 7110 C	x	x	x
Hardness	SM 2340B	x	x	x
Heterotrophic Bacteria	In House Method (2439)	x		x
Heterotrophic Bacteria	SM 9215 B	x		x
Hexavalent Chromium	EPA 218.6	x	x	x
Hexavalent Chromium	EPA 218.7	x		x
Hexavalent Chromium	SM 3500-Cr B		x	
Hormones	EPA 539	x		x
Hydroxide as OH Calc.	SM 2330B	x		x
Kjeldahl Nitrogen	EPA 351.2		x	
Legionella	Legiolert	x		x
Mercury	EPA 200.8	x		x
Metals	EPA 200.7 / 200.8	x	x	x
Microcystin LR	ELISA (2360)	x		x
Microcystin, Total	EPA 546	x		x
NDMA	EEA/Agilent 521.1 In house method (2425)	x		x
Nitrate/Nitrite Nitrogen	EPA 353.2	x	x	x
OCL, Pesticides/PCB	EPA 505	x		x
Ortho Phosphate	EPA 365.1	x	x	x
Ortho Phosphorous	SM 4500P E	x		x
Oxyhalides Disinfection Byproducts	EPA 317.0	x		x
Perchlorate	EPA 331.0	x		x
Perchlorate (low and high)	EPA 314.0	x		x
Perfluorinated Alkyl Acids	EPA 537	x		x
Perfluorinated Polutant	In house Method (2434)	x		x
pH	EPA 150.1	x		
pH	SM 4500-H+B	x	x	x
Phenylurea Pesticides/ Herbicides	In House Method, based on EPA 532 (2448)	x		x
Pseudomonas	IDEXX Pseudalert (2461)	x		x
Radium-226	GA Institute of Tech	x		x
Radium-228	GA Institute of Tech	x		x
Radon-222	SM 7500RN	x		x
Residue, Filterable	SM 2540C	x	x	x
Residue, Non-filterable	SM 2540D		x	
Residue, Total	SM 2540B		x	x
Residue, Volatile	EPA 160.4		x	
Semi-VOC	EPA 525.2	x		x
Silica	SM 4500-Si D	x	x	
Silica	SM 4500-SiO2 C	x	x	
Sulfide	SM 4500-$S^{=}$ D		x	
Sulfite	SM 4500-SO^{3}B	x	x	x
Surfactants	SM 5540C	x	x	x
Taste and Odor Analytes	SM 6040E	x		x
Total Coliform (P/A)	SM 9221 A, B	x		x
Total Coliform (Enumeration)	SM 9221 A, B, C	x		x
Total Coliform / E. coli	Colisure SM 9223	x		x
Total Coliform	SM 9221B		x	
Total Coliform with Chlorine Present	SM 9221B		x	
Total Coliform / E.coli (P/A and Enumeration)	SM 9223	x		x
TOC	SM 5310C	x	x	x
TOX	SM 5320B		x	
Total Phenols	EPA 420.1		x	
Total Phenols	EPA 420.4	x	x	x
Total Phosphorous	SM 4500 P E		x	
Triazine Pesticides & Degradates	In House (3617)	x		x
Turbidity	EPA 180.1	x	x	x
Turbidity	SM 2130B	x	x	
Uranium by ICP/MS	EPA 200.8	x		x
UV 254	SM 5910B	x		
VOC	EPA 524.2	x		x
VOC	In House Method (2411)	x		x
Yeast and Mold	SM 9610	x		x
Field Sampling	N/A			

Acknowledgement of Samples Received

Addr: **Morro Bay Waterwater Treatment Plant**
160 Atascadero Road
Morro Bay, CA 93442

Attn: John Gunderlock - Shipping
Phone: 805.772.6272

Client ID: MORROBAY-CA
Folder #: 893936
Project: GROUNDWATER
Sample Group: GW-Quarterly

Project Manager: Vanessa Berry
Phone: 503-310-3905

The following samples were received from you on **September 22, 2020** at **1136**. They have been scheduled for the tests listed below each sample. If this information is incorrect, please contact your service representative. Thank you for using Eurofins Eaton Analytical, LLC.

Sample #	Sample ID	Sample Date
202009220276	E1	09/21/2020 0930
	@2378-TCDD_Dioxin, @525PLUS, @DIOXANE, Total Organic Carbon	

Test Description

@2378-TCDD_Dioxin -- 2,3,7,8-TCDD_Dioxin

@525PLUS -- Semivolatiles by GCMS

@DIOXANE -- 1,4-Dioxane

750 Royal Oaks Drive, Suite 100, Monrovia, CA 91016 Tel (626) 386-1100 Fax (866) 988-3757 www.EurofinsUS.com/Eaton

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CHAIN OF CUSTODY RECORD

8939136

750 Royal Oaks Drive, Suite 100
Monrovia, CA 91016-3629

Phone: 626 386 1100
Fax: 626 386 1101

800 566 LABS (800 566 5227)

Website: www.EatonAnalytical.com

EUROFINS EATON ANALYTICAL USE ONLY:

LOGIN COMMENTS: ____________________

SAMPLES CHECKED AGAINST COC BY: CB

SAMPLES LOGGED IN BY: LD

SAMPLE TEMP RECEIVED AT:

SAMPLES REC'D DAY OF COLLECTION? ☐ (check for yes)

☐ ______ (Other) IR Gun ID = ______ (Observation= ______ °C) (Corr.Factor ______ °C) (Final = ______ °C)

☑ Monrovia IR Gun ID = 6319 (Observation= 3.5 °C) (Corr.Factor -0.1 °C) (Final = 3.4 °C)

Compliance Acceptance Criteria: (Chemistry: 4 ± 2 °C) (Microbiology: < 10°C)

TYPE OF ICE: Real ✓ Synthetic ___ No Ice ___ **CONDITION OF ICE:** Frozen ✓ Partially Frozen ___ Thawed ___ N/A ___

METHOD OF SHIPMENT: Pick-Up / Walk-In / FedEx / UPS / DHL / Area Fast / Top Line / Other: ______

397042838919

TO BE COMPLETED BY SAMPLER:

COMPANY/AGENCY NAME: City of Morro Bay

PROJECT CODE: GROUNDWATER

COMPLIANCE SAMPLES ☐ (check for yes)
- Requires state forms ☐

NON-COMPLIANCE SAMPLES ☒ (check for yes)

REGULATION INVOLVED: ______ (eg. SDWA, NPDES, etc.)

Type of samples (circle one): ROUTINE SPECIAL CONFIRMATION

EEA CLIENT CODE:

COC ID:

SAMPLE GROUP: SW - Quarterly

SEE ATTACHED KIT ORDER FOR ANALYSES ☒ (check for yes), **OR**

List ALL ANALYSES REQUIRED (enter number of bottles sent for each test for each sample)

TAT requested: rush by adv notice only STD ___ 1 wk ___ 3 day ___ 2 day ___ 1 day ___

SAMPLE DATE	SAMPLE TIME	SAMPLE ID	CLIENT LAB ID	MATRIX *	FIELD DATA	FIELD DATA	SAMPLER COMMENTS
9/21/20	0930	E1		RGB			

*** MATRIX TYPES:** **RSW** = Raw Surface Water **RGW** = Raw Ground Water **CFW** = Chlor(am)inated Finished Water **FW** = Other Finished Water **SEAW** = Sea Water **WW** = Waste Water **BW** = Bottled Water **SW** = Storm Water **SO** = Soil **SL** = Sludge **O** = Other - Please Identify

	SIGNATURE	PRINT NAME	COMPANY/TITLE	DATE	TIME
SAMPLED BY:	[illegible]	John Gunderlock	City of Morro Bay	9/21/20	0930
RELINQUISHED BY:	[illegible]	John Gunderlock	City of Morro Bay	9/21/20	1245
RECEIVED BY:	[illegible]	Joe Sanchez	EEA	9/22/20	1136
RELINQUISHED BY:					
RECEIVED BY:					

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Eaton Analytical

Kit Order for City of Morro Bay

Vanessa Berry is your Eurofins Eaton Analytical, LLC Service Manager

750 Royal Oaks Drive, Suite 100
Monrovia, California 91016-3629
(626) 386-1100 FAX (866) 988-3757

Created Date & Time: 9/14/2020 11:40:31AM

Note: Sampler Please return this paper with your samples

Kit #: 272648

Created By: Vanessa Berry - [ZIA8]
Deliver By: 09/16/2020
STG: Bottle Orders
Ice Type: W

Client ID: MORROBAY-CA
Project Code: GROUNDWATER Bottle Orders
Group Name: GW-Quarterly
PO#/JOB#:
Description: No Schedule

Ship Sample Kits to	**Send Report to**	**Billing Address**
Morro Bay Waterwater Treatment Plant 160 Atascadero Road Morro Bay, CA 93442 Attn: John Gunderlock - Shipping Phone: 805.772.6272	Morro Bay Waterwater Treatment Plant 160 Atascadero Road Morro Bay, CA 93442 Attn: John Gunderlock - Shipping Phone: 805.772.6272	Morro Bay Waterwater Treatment Plant 160 Atascadero Road Morro Bay, CA 93442 Attn: John Gunderlock - Shipping Phone: 805.772.6272

# of Sample	Tests	Bottle Qty - Type [preservative information]	Total	UN DOT #
1	Total Organic Carbon	1 - 125ml amber glass [0.5 ml H2SO4 (50%)]	1	UN1830
1	@DIOXANE	3 - 125ml amber glass [6.88 Sulfite +138 mg Bisulfate]	3	
1	@2378-TCDD_Dioxin	2 - 1L amber glass [1 ml Thio 8%]	2	
1	@525PLUS	2 - 1L amber glass [2 ml of 6N HCL]	2	

Sum Tests: 4

Sum Bottles: 8

Comments

Code	Status	Date Shipped	Via	Tracking #	# of Coolers	Prepared By

eurofins Eaton Analytical

Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Laboratory Comments

Report: 893936
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant
John Gunderlock - Shipping
160 Atascadero Road
Morro Bay, CA 93442

Flags Legend:

LE - MRL Check recovery was above laboratory acceptance limits.

LK - The associated blank spike recovery was above method acceptance limits. This target analyte was not detected in the sample.

The Comments Report may be blank if there are no comments for this report.

Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Laboratory Hits

Report: 893936
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant
John Gunderlock - Shipping
160 Atascadero Road
Morro Bay, CA 93442

Samples Received on:
09/22/2020 1136

Analyzed	Analyte	Sample ID	Result	Federal MCL	Units	MRL
	202009220276	**E1**				
10/09/2020 02:31	Total Organic Carbon		1.0		mg/L	0.20

SUMMARY OF POSITIVE DATA ONLY

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Laboratory Data

Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Report: 893936
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant
John Gunderlock - Shipping
160 Atascadero Road
Morro Bay, CA 93442

Samples Received on:
09/22/2020 1136

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
E1 (202009220276)						**Sampled on 09/21/2020 0930**			
		SM 5310C - Total Organic Carbon							
	10/09/20 02:31		1280176	(SM 5310C)	Total Organic Carbon	1.0	mg/L	0.20	1
		EPA 525.2 - Semivolatiles by GCMS							
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	2,4-DDD	ND (LE)	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	2,4-DDE	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	2,4-DDT	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	2,4-Dinitrotoluene	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	2,6-Dinitrotoluene	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	4,4-DDD	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	4,4-DDE	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	4,4-DDT	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Acenaphthene	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Acenaphthylene	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Acetochlor	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Alachlor	ND	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Alpha-BHC	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	alpha-Chlordane	ND	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Anthracene	ND	ug/L	0.020	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Atrazine	ND	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Benz(a)Anthracene	ND	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Benzo(a)pyrene	ND	ug/L	0.020	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Benzo(b)Fluoranthene	ND	ug/L	0.020	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Benzo(g,h,i)Perylene	ND (LK)	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Benzo(k)Fluoranthene	ND	ug/L	0.020	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Beta-BHC	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Bromacil	ND (LK)	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Butachlor	ND	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Butylbenzylphthalate	ND	ug/L	0.50	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Caffeine by method 525mod	ND	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Chlorobenzilate	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Chloroneb	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Chlorothalonil(Draconil,Bravo)	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Chlorpyrifos (Dursban)	ND	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Chrysene	ND	ug/L	0.020	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Delta-BHC	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Di-(2-Ethylhexyl)adipate	ND	ug/L	0.60	1

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Laboratory Data

Tel: (626) 386-1100
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1 800 566 LABS (1 800 566 5227)

Report: 893936
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant
John Gunderlock - Shipping
160 Atascadero Road
Morro Bay, CA 93442

Samples Received on:
09/22/2020 1136

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Di(2-Ethylhexyl)phthalate	ND	ug/L	0.60	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Diazinon (Qualitative)	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Dibenz(a,h)Anthracene	ND (LK)	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Dichlorvos (DDVP)	ND	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Dieldrin	ND	ug/L	0.20	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Diethylphthalate	ND	ug/L	0.50	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Dimethoate	ND (LE,LK)	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Dimethylphthalate	ND	ug/L	0.50	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Di-n-Butylphthalate	ND	ug/L	1.0	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Di-N-octylphthalate	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Endosulfan I (Alpha)	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Endosulfan II (Beta)	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Endosulfan Sulfate	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Endrin	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Endrin Aldehyde	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	EPTC	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Fluoranthene	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Fluorene	ND	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	gamma-Chlordane	ND	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Heptachlor	ND	ug/L	0.040	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Heptachlor Epoxide (isomer B)	ND	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Hexachlorobenzene	ND	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Hexachlorocyclopentadiene	ND	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Indeno(1,2,3,c,d)Pyrene	ND	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Isophorone	ND	ug/L	0.50	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Lindane	ND	ug/L	0.040	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Malathion	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Methoxychlor	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Metolachlor	ND	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Metribuzin	ND	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Molinate	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Naphthalene	ND	ug/L	0.30	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Parathion	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Pendimethalin	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Permethrin (mixed isomers)	ND	ug/L	0.20	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Phenanthrene	ND	ug/L	0.040	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Propachlor	ND	ug/L	0.050	1

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Laboratory Data

Report: 893936
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant
John Gunderlock - Shipping
160 Atascadero Road
Morro Bay, CA 93442

Samples Received on:
09/22/2020 1136

Prepped	Analyzed	Prep Batch	Analytical Batch	Method	Analyte	Result	Units	MRL	Dilution
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Pyrene	ND	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Simazine	ND	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Terbacil	ND (LK)	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Terbuthylazine	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Thiobencarb (ELAP)	ND	ug/L	0.20	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	trans-Nonachlor	ND	ug/L	0.050	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Trifluralin	ND	ug/L	0.10	1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	1,3-Dimethyl-2-nitrobenzene	98	%		1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Acenaphthene-d10	81	%		1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Chrysene-d12	96	%		1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Perylene-d12	92	%		1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Phenanthrene-d10	85	%		1
10/02/20	10/05/20 20:14	1278560	1279234	(EPA 525.2)	Triphenylphosphate	128	%		1
		EPA 522 - 1,4-Dioxane							
09/23/20	09/23/20 17:06	1276393	1276695	(EPA 522)	1,4-Dioxane	ND	ug/L	1.0	1
09/23/20	09/23/20 17:06	1276393	1276695	(EPA 522)	Dioxane-d8	88	%		1
		EPA 1613B - 2,3,7,8-TCDD_Dioxin							
09/24/20	09/28/20 20:35	1276691	1277692	(EPA 1613B)	2,3,7,8-TCDD	ND	pg/L	5.00	1
09/24/20	09/28/20 20:35	1276691	1277692	(EPA 1613B)	C12-2,3,7,8-TCDD	63	%		1

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Laboratory QC Summary

Report: 893936
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

1,4-Dioxane

Prep Batch: 1276393	**Analytical Batch: 1276695**	**Analysis Date: 09/23/2020**
202009220276	E1	Analyzed by: X8AA

2,3,7,8-TCDD_Dioxin

Prep Batch: 1276691	**Analytical Batch: 1277692**	**Analysis Date: 09/28/2020**
202009220276	E1	Analyzed by: JYH

Semivolatiles by GCMS

Prep Batch: 1278560	**Analytical Batch: 1279234**	**Analysis Date: 10/05/2020**
202009220276	E1	Analyzed by: JWC

Total Organic Carbon

Analytical Batch: 1280176		**Analysis Date: 10/09/2020**
202009220276	E1	Analyzed by: ZB2Z

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Laboratory QC

Report: 893936
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
1,4-Dioxane by EPA 522									
Prep Batch: 1276393 Analytical Batch: 1276695						**Analysis Date: 09/23/2020**			
LCS1	Dioxane		20	17.9	ug/L	90	(70-130)		
MBLK	Dioxane			<0.33	ug/L				
MRL_CHK	Dioxane		0.5	0.416	ug/L	83	(50-150)		
MS_202009210219	Dioxane	1.5	20	19.7	ug/L	91	(70-130)		
MSD_202009210219	Dioxane	1.5	20	20.6	ug/L	95	(70-130)	20	4.5
LCS1	Dioxane-d8 (S)		10	90.2	%	90	(70-130)		
MBLK	Dioxane-d8 (S)			95.0	%	95	(70-130)		
MRL_CHK	Dioxane-d8 (S)		10	84.0	%	84	(70-130)		
MS_202009210219	Dioxane-d8 (S)		10	93.0	%	93	(70-130)		
MSD_202009210219	Dioxane-d8 (S)		10	96.2	%	96	(70-130)		
2,3,7,8-TCDD_Dioxin by EPA 1613B									
Prep Batch: 1276691 Analytical Batch: 1277692						**Analysis Date: 09/28/2020**			
DUP_202009180115	2,3,7,8-TCDD	ND		ND	pg/L		(0-20)		
LCS1	2,3,7,8-TCDD		200	174	pg/L	87	(73-146)		
LCS2	2,3,7,8-TCDD		200	177	pg/L	89	(73-146)	20	1.7
MBLK	2,3,7,8-TCDD			<1.67	pg/L				
MRL_CHK	2,3,7,8-TCDD		5	4.07	pg/L	81	(50-150)		
MS_202009180116	2,3,7,8-TCDD	ND	200	180	pg/L	90	(73-146)		
DUP_202009180115	C12-2,3,7,8-TCDD (S)		2000	48.6	%	49	(31-137)		
LCS1	C12-2,3,7,8-TCDD (S)		2000	36.6	%	37	(25-141)		
LCS2	C12-2,3,7,8-TCDD (S)		2000	45.8	%	46	(25-141)		
MBLK	C12-2,3,7,8-TCDD (S)			71.2	%	71	(31-137)		
MRL_CHK	C12-2,3,7,8-TCDD (S)		2000	56.2	%	56	(25-141)		
MS_202009180116	C12-2,3,7,8-TCDD (S)		2000	70.9	%	71	(25-141)		
Semivolatiles by GCMS by EPA 525.2									
Prep Batch: 1278560 Analytical Batch: 1279234						**Analysis Date: 10/05/2020**			
DUP_202010010605	1,3-Dimethyl-2-nitrobenzene (S)			94.6	%	95	(70-130)		
LCS1	1,3-Dimethyl-2-nitrobenzene (S)		5	93.7	%	94	(70-130)		
LCS2	1,3-Dimethyl-2-nitrobenzene (S)		5	95.8	%	96	(70-130)		
MBLK	1,3-Dimethyl-2-nitrobenzene (S)			98.9	%	99	(70-130)		
MRL_CHK	1,3-Dimethyl-2-nitrobenzene (S)		5	96.2	%	96	(70-130)		
MS_202010010369	1,3-Dimethyl-2-nitrobenzene (S)		5	97.7	%	98	(70-130)		
DUP_202010010605	2,4-DDD			ND	ug/L		(0-20)		
LCS1	2,4-DDD		2	2.24	ug/L	112	(70-130)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

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Laboratory QC

Report: 893936
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS2	2,4-DDD		2	2.32	ug/L	116	(70-130)	20	3.1
MBLK	2,4-DDD			<0.1	ug/L				
MRL_CHK	2,4-DDD		0.1	0.160	ug/L	<u>**160**</u>	(50-150)		
MS_202010010369	2,4-DDD		2	2.29	ug/L	114	(70-130)		
DUP_202010010605	2,4-DDE			ND	ug/L		(0-20)		
LCS1	2,4-DDE		2	2.07	ug/L	103	(70-130)		
LCS2	2,4-DDE		2	2.10	ug/L	105	(70-130)	20	1.4
MBLK	2,4-DDE			<0.1	ug/L				
MRL_CHK	2,4-DDE		0.1	0.0960	ug/L	96	(50-150)		
MS_202010010369	2,4-DDE		2	2.13	ug/L	106	(70-130)		
DUP_202010010605	2,4-DDT			ND	ug/L		(0-20)		
LCS1	2,4-DDT		2	2.14	ug/L	107	(70-130)		
LCS2	2,4-DDT		2	2.15	ug/L	107	(70-130)	20	0.47
MBLK	2,4-DDT			<0.1	ug/L				
MRL_CHK	2,4-DDT		0.1	0.106	ug/L	106	(50-150)		
MS_202010010369	2,4-DDT		2	2.19	ug/L	110	(70-130)		
DUP_202010010605	2,4-Dinitrotoluene			ND	ug/L		(0-20)		
LCS1	2,4-Dinitrotoluene		2	2.16	ug/L	108	(70-130)		
LCS2	2,4-Dinitrotoluene		2	2.21	ug/L	110	(70-130)	20	1.8
MBLK	2,4-Dinitrotoluene			<0.1	ug/L				
MRL_CHK	2,4-Dinitrotoluene		0.1	0.0880	ug/L	88	(50-150)		
MS_202010010369	2,4-Dinitrotoluene		2	2.44	ug/L	122	(70-130)		
DUP_202010010605	2,6-Dinitrotoluene			ND	ug/L		(0-20)		
LCS1	2,6-Dinitrotoluene		2	2.10	ug/L	105	(70-130)		
LCS2	2,6-Dinitrotoluene		2	2.15	ug/L	108	(70-130)	20	2.4
MBLK	2,6-Dinitrotoluene			<0.1	ug/L				
MRL_CHK	2,6-Dinitrotoluene		0.1	0.102	ug/L	102	(50-150)		
MS_202010010369	2,6-Dinitrotoluene		2	2.35	ug/L	117	(70-130)		
DUP_202010010605	4,4-DDD			ND	ug/L		(0-20)		
LCS1	4,4-DDD		2	2.37	ug/L	119	(70-130)		
LCS2	4,4-DDD		2	2.42	ug/L	121	(70-130)	20	2.1
MBLK	4,4-DDD			<0.1	ug/L				
MRL_CHK	4,4-DDD		0.1	0.0950	ug/L	95	(50-150)		
MS_202010010369	4,4-DDD		2	2.46	ug/L	123	(70-130)		
DUP_202010010605	4,4-DDE			ND	ug/L		(0-20)		
LCS1	4,4-DDE		2	2.17	ug/L	108	(70-130)		
LCS2	4,4-DDE		2	2.14	ug/L	107	(70-130)	20	1.4
MBLK	4,4-DDE			<0.1	ug/L				

Spike recovery is already corrected for native results.
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Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
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Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MRL_CHK	4,4-DDE		0.1	0.113	ug/L	113	(50-150)		
MS_202010010369	4,4-DDE		2	2.10	ug/L	105	(70-130)		
DUP_202010010605	4,4-DDT			ND	ug/L		(0-20)		
LCS1	4,4-DDT		2	2.38	ug/L	119	(70-130)		
LCS2	4,4-DDT		2	2.41	ug/L	121	(70-130)	20	1.3
MBLK	4,4-DDT			<0.1	ug/L				
MRL_CHK	4,4-DDT		0.1	0.110	ug/L	110	(50-150)		
MS_202010010369	4,4-DDT		2	2.48	ug/L	124	(70-130)		
DUP_202010010605	Acenaphthene			ND	ug/L		(0-20)		
LCS1	Acenaphthene		2	2.01	ug/L	100	(70-130)		
LCS2	Acenaphthene		2	2.04	ug/L	102	(70-130)	20	1.5
MBLK	Acenaphthene			<0.1	ug/L				
MRL_CHK	Acenaphthene		0.1	0.0890	ug/L	89	(50-150)		
MS_202010010369	Acenaphthene		2	2.05	ug/L	103	(70-130)		
DUP_202010010605	Acenaphthene-d10 (I)			86.3	%	86	(50-150)		
LCS1	Acenaphthene-d10 (I)		5	79.5	%	80	(50-150)		
LCS2	Acenaphthene-d10 (I)		5	81.2	%	81	(50-150)		
MBLK	Acenaphthene-d10 (I)			83.2	%	83	(50-150)		
MRL_CHK	Acenaphthene-d10 (I)		5	87.5	%	88	(50-150)		
MS_202010010369	Acenaphthene-d10 (I)		5	87.1	%	87	(50-150)		
DUP_202010010605	Acenaphthylene			ND	ug/L		(0-20)		
LCS1	Acenaphthylene		2	1.74	ug/L	87	(70-130)		
LCS2	Acenaphthylene		2	1.64	ug/L	82	(70-130)	20	5.3
MBLK	Acenaphthylene			<0.1	ug/L				
MRL_CHK	Acenaphthylene		0.1	0.0660	ug/L	66	(50-150)		
MS_202010010369	Acenaphthylene		2	1.88	ug/L	94	(70-130)		
DUP_202010010605	Acetochlor			ND	ug/L		(0-20)		
LCS1	Acetochlor		2	2.02	ug/L	101	(70-130)		
LCS2	Acetochlor		2	2.05	ug/L	102	(70-130)	20	1.5
MBLK	Acetochlor			<0.1	ug/L				
MRL_CHK	Acetochlor		0.05	0.0540	ug/L	108	(50-150)		
MS_202010010369	Acetochlor		2	1.99	ug/L	100	(70-130)		
DUP_202010010605	Alachlor			ND	ug/L		(0-20)		
LCS1	Alachlor		2	1.94	ug/L	97	(70-130)		
LCS2	Alachlor		2	2.08	ug/L	104	(70-130)	20	7.0
MBLK	Alachlor			<0.05	ug/L				
MRL_CHK	Alachlor		0.05	0.0500	ug/L	100	(50-150)		
MS_202010010369	Alachlor		2	2.01	ug/L	101	(70-130)		

Spike recovery is already corrected for native results.
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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

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Laboratory QC

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Report: 893936
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
DUP_202010010605	Alpha-BHC			ND	ug/L		(0-20)		
LCS1	Alpha-BHC		2	2.19	ug/L	110	(70-130)		
LCS2	Alpha-BHC		2	2.17	ug/L	109	(70-130)	20	0.92
MBLK	Alpha-BHC			<0.1	ug/L				
MRL_CHK	Alpha-BHC		0.1	0.0990	ug/L	99	(50-150)		
MS_202010010369	Alpha-BHC		2	2.28	ug/L	114	(70-130)		
DUP_202010010605	alpha-Chlordane			ND	ug/L		(0-20)		
LCS1	alpha-Chlordane		2	2.14	ug/L	107	(70-130)		
LCS2	alpha-Chlordane		2	2.17	ug/L	108	(70-130)	20	1.4
MBLK	alpha-Chlordane			<0.05	ug/L				
MRL_CHK	alpha-Chlordane		0.05	0.0450	ug/L	90	(50-150)		
MS_202010010369	alpha-Chlordane		2	2.28	ug/L	114	(70-130)		
DUP_202010010605	Anthracene			ND	ug/L		(0-20)		
LCS1	Anthracene		2	2.00	ug/L	100	(70-130)		
LCS2	Anthracene		2	2.01	ug/L	100	(70-130)	20	0.50
MBLK	Anthracene			<0.02	ug/L				
MRL_CHK	Anthracene		0.02	0.0160	ug/L	80	(50-150)		
MS_202010010369	Anthracene		2	0.177	ug/L	**8.8**	(70-130)		
DUP_202010010605	Atrazine	ND		ND	ug/L		(0-20)		
LCS1	Atrazine		2	2.41	ug/L	121	(70-130)		
LCS2	Atrazine		2	2.40	ug/L	120	(70-130)	20	0.42
MBLK	Atrazine			<0.05	ug/L				
MRL_CHK	Atrazine		0.05	0.0590	ug/L	118	(50-150)		
MS_202010010369	Atrazine	ND	2	2.24	ug/L	112	(70-130)		
DUP_202010010605	Benz(a)Anthracene			ND	ug/L		(0-20)		
LCS1	Benz(a)Anthracene		2	2.36	ug/L	118	(70-130)		
LCS2	Benz(a)Anthracene		2	2.36	ug/L	118	(70-130)	20	0.0
MBLK	Benz(a)Anthracene			<0.05	ug/L				
MRL_CHK	Benz(a)Anthracene		0.05	0.0550	ug/L	110	(50-150)		
MS_202010010369	Benz(a)Anthracene		2	1.97	ug/L	99	(70-130)		
DUP_202010010605	Benzo(a)pyrene			ND	ug/L		(0-20)		
LCS1	Benzo(a)pyrene		2	2.21	ug/L	111	(70-130)		
LCS2	Benzo(a)pyrene		2	2.18	ug/L	109	(70-130)	20	1.4
MBLK	Benzo(a)pyrene			<0.02	ug/L				
MRL_CHK	Benzo(a)pyrene		0.02	0.0160	ug/L	80	(50-150)		
MS_202010010369	Benzo(a)pyrene		2	1.51	ug/L	75	(70-130)		
DUP_202010010605	Benzo(b)Fluoranthene			ND	ug/L		(0-20)		
LCS1	Benzo(b)Fluoranthene		2	2.39	ug/L	120	(70-130)		

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Laboratory QC

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Report: 893936
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS2	Benzo(b)Fluoranthene		2	2.43	ug/L	121	(70-130)	20	1.7
MBLK	Benzo(b)Fluoranthene			<0.02	ug/L				
MRL_CHK	Benzo(b)Fluoranthene		0.02	0.0210	ug/L	105	(50-150)		
MS_202010010369	Benzo(b)Fluoranthene		2	2.38	ug/L	119	(70-130)		
DUP_202010010605	Benzo(g,h,i)Perylene			ND	ug/L		(0-20)		
LCS1	Benzo(g,h,i)Perylene		2	2.63	ug/L	<u>**132**</u>	(70-130)		
LCS2	Benzo(g,h,i)Perylene		2	2.62	ug/L	<u>**131**</u>	(70-130)	20	0.38
MBLK	Benzo(g,h,i)Perylene			<0.05	ug/L				
MRL_CHK	Benzo(g,h,i)Perylene		0.05	0.0490	ug/L	98	(50-150)		
MS_202010010369	Benzo(g,h,i)Perylene		2	2.46	ug/L	123	(70-130)		
DUP_202010010605	Benzo(k)Fluoranthene			ND	ug/L		(0-20)		
LCS1	Benzo(k)Fluoranthene		2	2.40	ug/L	120	(70-130)		
LCS2	Benzo(k)Fluoranthene		2	2.41	ug/L	121	(70-130)	20	0.42
MBLK	Benzo(k)Fluoranthene			<0.02	ug/L				
MRL_CHK	Benzo(k)Fluoranthene		0.02	0.0180	ug/L	90	(50-150)		
MS_202010010369	Benzo(k)Fluoranthene		2	2.40	ug/L	120	(70-130)		
DUP_202010010605	Beta-BHC			ND	ug/L		(0-20)		
LCS1	Beta-BHC		2	2.34	ug/L	117	(70-130)		
LCS2	Beta-BHC		2	2.20	ug/L	110	(70-130)	20	6.2
MBLK	Beta-BHC			<0.1	ug/L				
MRL_CHK	Beta-BHC		0.1	0.115	ug/L	115	(50-150)		
MS_202010010369	Beta-BHC		2	2.34	ug/L	117	(70-130)		
DUP_202010010605	Bromacil			ND	ug/L		(0-20)		
LCS1	Bromacil		2	2.60	ug/L	130	(70-130)		
LCS2	Bromacil		2	2.68	ug/L	<u>**134**</u>	(70-130)	20	3.0
MBLK	Bromacil			<0.2	ug/L				
MRL_CHK	Bromacil		0.1	0.135	ug/L	135	(50-150)		
MS_202010010369	Bromacil		2	2.82	ug/L	<u>**141**</u>	(70-130)		
DUP_202010010605	Butachlor			ND	ug/L		(0-20)		
LCS1	Butachlor		2	2.40	ug/L	120	(70-130)		
LCS2	Butachlor		2	2.44	ug/L	122	(70-130)	20	1.6
MBLK	Butachlor			<0.05	ug/L				
MRL_CHK	Butachlor		0.05	0.0530	ug/L	106	(50-150)		
MS_202010010369	Butachlor		2	2.35	ug/L	117	(70-130)		
DUP_202010010605	Butylbenzylphthalate			ND	ug/L		(0-20)		
LCS1	Butylbenzylphthalate		2	2.36	ug/L	118	(70-130)		
LCS2	Butylbenzylphthalate		2	2.42	ug/L	121	(70-130)	20	2.5
MBLK	Butylbenzylphthalate			<0.5	ug/L				

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Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Laboratory QC

Report: 893936
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MRL_CHK	Butylbenzylphthalate		0.15	0.172	ug/L	115	(50-150)		
MS_202010010369	Butylbenzylphthalate		2	2.44	ug/L	122	(70-130)		
DUP_202010010605	Caffeine by method 525mod			ND	ug/L		(0-20)		
LCS1	Caffeine by method 525mod		2	2.04	ug/L	102	(45-137)		
LCS2	Caffeine by method 525mod		2	2.04	ug/L	102	(45-137)	20	0.49
MBLK	Caffeine by method 525mod			<0.05	ug/L				
MRL_CHK	Caffeine by method 525mod		0.05	0.0510	ug/L	102	(50-150)		
MS_202010010369	Caffeine by method 525mod		2	2.13	ug/L	106	(46-144)		
DUP_202010010605	Chlorobenzilate			ND	ug/L		(0-20)		
LCS1	Chlorobenzilate		2	2.54	ug/L	127	(70-130)		
LCS2	Chlorobenzilate		2	2.56	ug/L	128	(70-130)	20	0.78
MBLK	Chlorobenzilate			<0.1	ug/L				
MRL_CHK	Chlorobenzilate		0.1	0.0970	ug/L	97	(50-150)		
MS_202010010369	Chlorobenzilate		2	2.69	ug/L	<u>**134**</u>	(70-130)		
DUP_202010010605	Chloroneb			ND	ug/L		(0-20)		
LCS1	Chloroneb		2	2.05	ug/L	103	(70-130)		
LCS2	Chloroneb		2	2.06	ug/L	103	(70-130)	20	0.49
MBLK	Chloroneb			<0.1	ug/L				
MRL_CHK	Chloroneb		0.1	0.101	ug/L	101	(50-150)		
MS_202010010369	Chloroneb		2	2.15	ug/L	107	(70-130)		
DUP_202010010605	Chlorothalonil(Draconil,Bravo)			ND	ug/L		(0-20)		
LCS1	Chlorothalonil(Draconil,Bravo)		2	2.26	ug/L	113	(70-130)		
LCS2	Chlorothalonil(Draconil,Bravo)		2	2.32	ug/L	116	(70-130)	20	2.6
MBLK	Chlorothalonil(Draconil,Bravo)			<0.1	ug/L				
MRL_CHK	Chlorothalonil(Draconil,Bravo)		0.05	0.0470	ug/L	94	(50-150)		
MS_202010010369	Chlorothalonil(Draconil,Bravo)		2	2.37	ug/L	118	(70-130)		
DUP_202010010605	Chlorpyrifos (Dursban)			ND	ug/L		(0-20)		
LCS1	Chlorpyrifos (Dursban)		2	2.26	ug/L	113	(70-130)		
LCS2	Chlorpyrifos (Dursban)		2	2.25	ug/L	113	(70-130)	20	0.89
MBLK	Chlorpyrifos (Dursban)			<0.05	ug/L				
MRL_CHK	Chlorpyrifos (Dursban)		0.05	0.0510	ug/L	102	(50-150)		
MS_202010010369	Chlorpyrifos (Dursban)		2	2.38	ug/L	119	(70-130)		
DUP_202010010605	Chrysene			ND	ug/L		(0-20)		
LCS1	Chrysene		2	2.03	ug/L	101	(70-130)		
LCS2	Chrysene		2	2.05	ug/L	102	(70-130)	20	0.98
MBLK	Chrysene			<0.02	ug/L				
MRL_CHK	Chrysene		0.02	0.0190	ug/L	95	(50-150)		
MS_202010010369	Chrysene		2	2.03	ug/L	101	(70-130)		

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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Laboratory QC

Report: 893936
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Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
DUP_202010010605	Chrysene-d12 (I)			97.7	%	98	(50-150)		
LCS1	Chrysene-d12 (I)		5	97.9	%	98	(50-150)		
LCS2	Chrysene-d12 (I)		5	95.8	%	96	(50-150)		
MBLK	Chrysene-d12 (I)			101	%	101	(50-150)		
MRL_CHK	Chrysene-d12 (I)		5	92.5	%	93	(50-150)		
MS_202010010369	Chrysene-d12 (I)		5	108	%	108	(50-150)		
DUP_202010010605	Delta-BHC			ND	ug/L		(0-20)		
LCS1	Delta-BHC		2	2.03	ug/L	101	(70-130)		
LCS2	Delta-BHC		2	1.95	ug/L	97	(70-130)	20	4.0
MBLK	Delta-BHC			<0.1	ug/L				
MRL_CHK	Delta-BHC		0.1	0.125	ug/L	125	(50-150)		
MS_202010010369	Delta-BHC		2	2.06	ug/L	103	(70-130)		
DUP_202010010605	Di-(2-Ethylhexyl)adipate			ND	ug/L		(0-20)		
LCS1	Di-(2-Ethylhexyl)adipate		2	2.36	ug/L	118	(70-130)		
LCS2	Di-(2-Ethylhexyl)adipate		2	2.39	ug/L	120	(70-130)	20	1.3
MBLK	Di-(2-Ethylhexyl)adipate			<0.6	ug/L				
MRL_CHK	Di-(2-Ethylhexyl)adipate		0.3	0.298	ug/L	99	(50-150)		
MS_202010010369	Di-(2-Ethylhexyl)adipate		2	2.50	ug/L	125	(70-130)		
DUP_202010010605	Di(2-Ethylhexyl)phthalate			ND	ug/L		(0-20)		
LCS1	Di(2-Ethylhexyl)phthalate		2	2.05	ug/L	103	(70-130)		
LCS2	Di(2-Ethylhexyl)phthalate		2	2.02	ug/L	101	(70-130)	20	1.5
MBLK	Di(2-Ethylhexyl)phthalate			<0.6	ug/L				
MRL_CHK	Di(2-Ethylhexyl)phthalate		0.6	0.635	ug/L	106	(50-150)		
MS_202010010369	Di(2-Ethylhexyl)phthalate		2	2.12	ug/L	106	(70-130)		
DUP_202010010605	Diazinon (Qualitative)			ND	ug/L		(0-20)		
LCS1	Diazinon (Qualitative)		2	1.22	ug/L	61	(15-132)		
LCS2	Diazinon (Qualitative)		2	1.19	ug/L	60	(15-132)	20	2.5
MBLK	Diazinon (Qualitative)			<0.10	ug/L				
MRL_CHK	Diazinon (Qualitative)		0.1	0.0580	ug/L	58	(15-132)		
MS_202010010369	Diazinon (Qualitative)		2	1.62	ug/L	81	(15-132)		
DUP_202010010605	Dibenz(a,h)Anthracene			ND	ug/L		(0-20)		
LCS1	Dibenz(a,h)Anthracene		2	2.63	ug/L	**<u>132</u>**	(70-130)		
LCS2	Dibenz(a,h)Anthracene		2	2.64	ug/L	**<u>132</u>**	(70-130)	20	0.38
MBLK	Dibenz(a,h)Anthracene			<0.05	ug/L				
MRL_CHK	Dibenz(a,h)Anthracene		0.05	0.0710	ug/L	142	(50-150)		
MS_202010010369	Dibenz(a,h)Anthracene		2	2.54	ug/L	127	(70-130)		
DUP_202010010605	Dichlorvos (DDVP)			ND	ug/L		(0-20)		
LCS1	Dichlorvos (DDVP)		2	2.20	ug/L	110	(70-130)		

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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
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Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS2	Dichlorvos (DDVP)		2	2.21	ug/L	111	(70-130)	20	0.0
MBLK	Dichlorvos (DDVP)			<0.05	ug/L				
MRL_CHK	Dichlorvos (DDVP)		0.05	0.0530	ug/L	106	(50-150)		
MS_202010010369	Dichlorvos (DDVP)		2	2.43	ug/L	122	(70-130)		
DUP_202010010605	Dieldrin			ND	ug/L		(0-20)		
LCS1	Dieldrin		2	1.96	ug/L	98	(70-130)		
LCS2	Dieldrin		2	2.08	ug/L	104	(70-130)	20	5.9
MBLK	Dieldrin			<0.2	ug/L				
MRL_CHK	Dieldrin		0.1	0.104	ug/L	104	(50-150)		
MS_202010010369	Dieldrin		2	2.24	ug/L	112	(70-130)		
DUP_202010010605	Diethylphthalate			ND	ug/L		(0-20)		
LCS1	Diethylphthalate		2	2.17	ug/L	109	(70-130)		
LCS2	Diethylphthalate		2	2.14	ug/L	107	(70-130)	20	0.93
MBLK	Diethylphthalate			<0.5	ug/L				
MRL_CHK	Diethylphthalate		0.15	0.155	ug/L	103	(50-150)		
MS_202010010369	Diethylphthalate		2	2.32	ug/L	116	(70-130)		
DUP_202010010605	Dimethoate			ND	ug/L		(0-20)		
LCS1	Dimethoate		2	1.91	ug/L	96	(35-100)		
LCS2	Dimethoate		2	2.12	ug/L	**<u>106</u>**	(35-100)	20	10
MBLK	Dimethoate			<0.1	ug/L				
MRL_CHK	Dimethoate		0.1	0.107	ug/L	**<u>107</u>**	(35-100)		
MS_202010010369	Dimethoate		2	2.35	ug/L	**<u>118</u>**	(34-111)		
DUP_202010010605	Dimethylphthalate			ND	ug/L		(0-20)		
LCS1	Dimethylphthalate		2	2.19	ug/L	109	(70-130)		
LCS2	Dimethylphthalate		2	2.24	ug/L	112	(70-130)	20	2.3
MBLK	Dimethylphthalate			<0.5	ug/L				
MRL_CHK	Dimethylphthalate		0.3	0.302	ug/L	101	(50-150)		
MS_202010010369	Dimethylphthalate		2	2.33	ug/L	116	(70-130)		
DUP_202010010605	Di-n-Butylphthalate			ND	ug/L		(0-20)		
LCS1	Di-n-Butylphthalate		4	4.10	ug/L	103	(70-130)		
LCS2	Di-n-Butylphthalate		4	4.05	ug/L	101	(70-130)	20	1.5
MBLK	Di-n-Butylphthalate			<1	ug/L				
MRL_CHK	Di-n-Butylphthalate		0.3	0.319	ug/L	106	(50-150)		
MS_202010010369	Di-n-Butylphthalate		4	4.13	ug/L	103	(70-130)		
DUP_202010010605	Di-N-octylphthalate			ND	ug/L		(0-20)		
LCS1	Di-N-octylphthalate		2	2.11	ug/L	106	(70-130)		
LCS2	Di-N-octylphthalate		2	2.09	ug/L	104	(70-130)	20	0.95
MBLK	Di-N-octylphthalate			<0.1	ug/L				

Spike recovery is already corrected for native results.
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Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
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Laboratory QC

Report: 893936
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MRL_CHK	Di-N-octylphthalate		0.1	0.0890	ug/L	89	(50-150)		
MS_202010010369	Di-N-octylphthalate		2	2.14	ug/L	107	(70-130)		
DUP_202010010605	Endosulfan I (Alpha)			ND	ug/L		(0-20)		
LCS1	Endosulfan I (Alpha)		2	2.02	ug/L	101	(70-130)		
LCS2	Endosulfan I (Alpha)		2	2.08	ug/L	104	(70-130)	20	2.9
MBLK	Endosulfan I (Alpha)			<0.1	ug/L				
MRL_CHK	Endosulfan I (Alpha)		0.1	0.133	ug/L	133	(50-150)		
MS_202010010369	Endosulfan I (Alpha)		2	2.00	ug/L	100	(70-130)		
DUP_202010010605	Endosulfan II (Beta)			ND	ug/L		(0-20)		
LCS1	Endosulfan II (Beta)		2	2.32	ug/L	116	(70-130)		
LCS2	Endosulfan II (Beta)		2	2.24	ug/L	112	(70-130)	20	3.5
MBLK	Endosulfan II (Beta)			<0.1	ug/L				
MRL_CHK	Endosulfan II (Beta)		0.1	0.113	ug/L	113	(50-150)		
MS_202010010369	Endosulfan II (Beta)		2	2.33	ug/L	116	(70-130)		
DUP_202010010605	Endosulfan Sulfate			ND	ug/L		(0-20)		
LCS1	Endosulfan Sulfate		2	2.39	ug/L	119	(70-130)		
LCS2	Endosulfan Sulfate		2	2.49	ug/L	124	(70-130)	20	4.1
MBLK	Endosulfan Sulfate			<0.1	ug/L				
MRL_CHK	Endosulfan Sulfate		0.1	0.128	ug/L	128	(50-150)		
MS_202010010369	Endosulfan Sulfate		2	2.44	ug/L	122	(70-130)		
DUP_202010010605	Endrin			ND	ug/L		(0-20)		
LCS1	Endrin		2	2.32	ug/L	116	(70-130)		
LCS2	Endrin		2	2.32	ug/L	116	(70-130)	20	0.0
MBLK	Endrin			<0.1	ug/L				
MRL_CHK	Endrin		0.1	0.115	ug/L	115	(50-150)		
MS_202010010369	Endrin		2	1.94	ug/L	97	(70-130)		
DUP_202010010605	Endrin Aldehyde			ND	ug/L		(0-20)		
LCS1	Endrin Aldehyde		2	2.41	ug/L	121	(70-130)		
LCS2	Endrin Aldehyde		2	2.33	ug/L	116	(70-130)	20	3.4
MBLK	Endrin Aldehyde			<0.1	ug/L				
MRL_CHK	Endrin Aldehyde		0.1	0.0820	ug/L	82	(50-150)		
MS_202010010369	Endrin Aldehyde		2	1.60	ug/L	80	(70-130)		
DUP_202010010605	EPTC			ND	ug/L		(0-20)		
LCS1	EPTC		2	1.88	ug/L	94	(70-130)		
LCS2	EPTC		2	1.93	ug/L	97	(70-130)	20	2.6
MBLK	EPTC			<0.1	ug/L				
MRL_CHK	EPTC		0.1	0.0880	ug/L	88	(50-150)		
MS_202010010369	EPTC		2	2.07	ug/L	103	(70-130)		

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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Laboratory QC

Report: 893936
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
DUP_202010010605	Fluoranthene			ND	ug/L		(0-20)		
LCS1	Fluoranthene		2	2.16	ug/L	108	(70-130)		
LCS2	Fluoranthene		2	2.17	ug/L	109	(70-130)	20	0.46
MBLK	Fluoranthene			<0.1	ug/L				
MRL_CHK	Fluoranthene		0.05	0.0450	ug/L	90	(50-150)		
MS_202010010369	Fluoranthene		2	2.31	ug/L	115	(70-130)		
DUP_202010010605	Fluorene			ND	ug/L		(0-20)		
LCS1	Fluorene		2	2.13	ug/L	106	(70-130)		
LCS2	Fluorene		2	2.13	ug/L	107	(70-130)	20	0.0
MBLK	Fluorene			<0.05	ug/L				
MRL_CHK	Fluorene		0.05	0.0450	ug/L	90	(50-150)		
MS_202010010369	Fluorene		2	2.26	ug/L	113	(70-130)		
DUP_202010010605	gamma-Chlordane			ND	ug/L		(0-20)		
LCS1	gamma-Chlordane		2	2.11	ug/L	106	(70-130)		
LCS2	gamma-Chlordane		2	2.15	ug/L	108	(70-130)	20	1.9
MBLK	gamma-Chlordane			<0.05	ug/L				
MRL_CHK	gamma-Chlordane		0.05	0.0640	ug/L	128	(50-150)		
MS_202010010369	gamma-Chlordane		2	2.22	ug/L	111	(70-130)		
DUP_202010010605	Heptachlor			ND	ug/L		(0-20)		
LCS1	Heptachlor		2	1.76	ug/L	88	(70-130)		
LCS2	Heptachlor		2	1.76	ug/L	88	(70-130)	20	0.57
MBLK	Heptachlor			<0.04	ug/L				
MRL_CHK	Heptachlor		0.04	0.0420	ug/L	105	(50-150)		
MS_202010010369	Heptachlor		2	1.85	ug/L	93	(70-130)		
DUP_202010010605	Heptachlor Epoxide (isomer B)			ND	ug/L		(0-20)		
LCS1	Heptachlor Epoxide (isomer B)		2	2.22	ug/L	111	(70-130)		
LCS2	Heptachlor Epoxide (isomer B)		2	2.12	ug/L	106	(70-130)	20	5.1
MBLK	Heptachlor Epoxide (isomer B)			<0.05	ug/L				
MRL_CHK	Heptachlor Epoxide (isomer B)		0.05	0.0670	ug/L	134	(50-150)		
MS_202010010369	Heptachlor Epoxide (isomer B)		2	2.17	ug/L	108	(70-130)		
DUP_202010010605	Hexachlorobenzene			ND	ug/L		(0-20)		
LCS1	Hexachlorobenzene		2	2.08	ug/L	104	(70-130)		
LCS2	Hexachlorobenzene		2	2.04	ug/L	102	(70-130)	20	1.9
MBLK	Hexachlorobenzene			<0.05	ug/L				
MRL_CHK	Hexachlorobenzene		0.05	0.0470	ug/L	94	(50-150)		
MS_202010010369	Hexachlorobenzene		2	2.13	ug/L	107	(70-130)		
DUP_202010010605	Hexachlorocyclopentadiene			ND	ug/L		(0-20)		
LCS1	Hexachlorocyclopentadiene		2	2.01	ug/L	101	(70-130)		

Spike recovery is already corrected for native results.
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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
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Laboratory QC

Report: 893936
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS2	Hexachlorocyclopentadiene		2	2.02	ug/L	101	(70-130)	20	0.99
MBLK	Hexachlorocyclopentadiene			<0.05	ug/L				
MRL_CHK	Hexachlorocyclopentadiene		0.05	0.0360	ug/L	72	(50-150)		
MS_202010010369	Hexachlorocyclopentadiene		2	2.05	ug/L	103	(70-130)		
DUP_202010010605	Indeno(1,2,3,c,d)Pyrene			ND	ug/L		(0-20)		
LCS1	Indeno(1,2,3,c,d)Pyrene		2	2.58	ug/L	129	(70-130)		
LCS2	Indeno(1,2,3,c,d)Pyrene		2	2.60	ug/L	130	(70-130)	20	0.39
MBLK	Indeno(1,2,3,c,d)Pyrene			<0.05	ug/L				
MRL_CHK	Indeno(1,2,3,c,d)Pyrene		0.05	0.0630	ug/L	126	(50-150)		
MS_202010010369	Indeno(1,2,3,c,d)Pyrene		2	2.50	ug/L	125	(70-130)		
DUP_202010010605	Isophorone			ND	ug/L		(0-20)		
LCS1	Isophorone		2	1.99	ug/L	100	(70-130)		
LCS2	Isophorone		2	2.05	ug/L	102	(70-130)	20	3.0
MBLK	Isophorone			<0.5	ug/L				
MRL_CHK	Isophorone		0.1	0.0970	ug/L	97	(50-150)		
MS_202010010369	Isophorone		2	2.09	ug/L	104	(70-130)		
DUP_202010010605	Lindane			ND	ug/L		(0-20)		
LCS1	Lindane		2	2.15	ug/L	108	(70-130)		
LCS2	Lindane		2	2.14	ug/L	107	(70-130)	20	0.0
MBLK	Lindane			<0.04	ug/L				
MRL_CHK	Lindane		0.04	0.0330	ug/L	83	(50-150)		
MS_202010010369	Lindane		2	2.20	ug/L	110	(70-130)		
DUP_202010010605	Malathion			ND	ug/L		(0-20)		
LCS1	Malathion		2	2.08	ug/L	104	(70-130)		
LCS2	Malathion		2	2.10	ug/L	105	(70-130)	20	0.96
MBLK	Malathion			<0.1	ug/L				
MRL_CHK	Malathion		0.1	0.112	ug/L	112	(50-150)		
MS_202010010369	Malathion		2	2.23	ug/L	111	(70-130)		
DUP_202010010605	Methoxychlor			ND	ug/L		(0-20)		
LCS1	Methoxychlor		2	2.19	ug/L	109	(70-130)		
LCS2	Methoxychlor		2	2.26	ug/L	113	(70-130)	20	3.1
MBLK	Methoxychlor			<0.1	ug/L				
MRL_CHK	Methoxychlor		0.1	0.109	ug/L	109	(50-150)		
MS_202010010369	Methoxychlor		2	2.33	ug/L	116	(70-130)		
DUP_202010010605	Metolachlor			ND	ug/L		(0-20)		
LCS1	Metolachlor		2	2.30	ug/L	115	(70-130)		
LCS2	Metolachlor		2	2.32	ug/L	116	(70-130)	20	1.3
MBLK	Metolachlor			<0.05	ug/L				

Spike recovery is already corrected for native results.
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Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Laboratory QC

Report: 893936
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Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
MRL_CHK	Metolachlor		0.05	0.0570	ug/L	114	(50-150)		
MS_202010010369	Metolachlor		2	2.41	ug/L	121	(70-130)		
DUP_202010010605	Metribuzin			ND	ug/L		(0-20)		
LCS1	Metribuzin		2	1.98	ug/L	99	(70-130)		
LCS2	Metribuzin		2	2.03	ug/L	101	(70-130)	20	2.5
MBLK	Metribuzin			<0.05	ug/L				
MRL_CHK	Metribuzin		0.05	0.0410	ug/L	82	(50-150)		
MS_202010010369	Metribuzin		2	1.73	ug/L	87	(70-130)		
DUP_202010010605	Molinate			ND	ug/L		(0-20)		
LCS1	Molinate		2	2.09	ug/L	104	(70-130)		
LCS2	Molinate		2	2.08	ug/L	104	(70-130)	20	0.48
MBLK	Molinate			<0.1	ug/L				
MRL_CHK	Molinate		0.1	0.0980	ug/L	98	(50-150)		
MS_202010010369	Molinate		2	2.30	ug/L	115	(70-130)		
DUP_202010010605	Naphthalene			ND	ug/L		(0-20)		
LCS1	Naphthalene		2	2.01	ug/L	100	(70-130)		
LCS2	Naphthalene		2	1.99	ug/L	99	(70-130)	20	1.0
MBLK	Naphthalene			<0.3	ug/L				
MRL_CHK	Naphthalene		0.1	0.0920	ug/L	92	(50-150)		
MS_202010010369	Naphthalene		2	2.34	ug/L	117	(70-130)		
DUP_202010010605	Parathion			ND	ug/L		(0-20)		
LCS1	Parathion		2	2.27	ug/L	113	(70-130)		
LCS2	Parathion		2	2.28	ug/L	114	(70-130)	20	0.44
MBLK	Parathion			<0.1	ug/L				
MRL_CHK	Parathion		0.1	0.126	ug/L	126	(50-150)		
MS_202010010369	Parathion		2	2.41	ug/L	120	(70-130)		
DUP_202010010605	Pendimethalin			ND	ug/L		(0-20)		
LCS1	Pendimethalin		2	2.16	ug/L	108	(70-130)		
LCS2	Pendimethalin		2	2.19	ug/L	110	(70-130)	20	1.4
MBLK	Pendimethalin			<0.1	ug/L				
MRL_CHK	Pendimethalin		0.1	0.0900	ug/L	90	(50-150)		
MS_202010010369	Pendimethalin		2	2.33	ug/L	117	(70-130)		
DUP_202010010605	Permethrin (mixed isomers)			ND	ug/L		(0-20)		
LCS1	Permethrin (mixed isomers)		4	4.32	ug/L	108	(70-130)		
LCS2	Permethrin (mixed isomers)		4	4.38	ug/L	109	(70-130)	20	1.4
MBLK	Permethrin (mixed isomers)			<0.2	ug/L				
MRL_CHK	Permethrin (mixed isomers)		0.2	0.212	ug/L	106	(50-150)		
MS_202010010369	Permethrin (mixed isomers)		4	4.46	ug/L	111	(70-130)		

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RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
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Report: 893936
Project: GROUNDWATER
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Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
DUP_202010010605	Perylene-d12 (S)			87.8	%	88	(70-130)		
LCS1	Perylene-d12 (S)		5	105	%	105	(70-130)		
LCS2	Perylene-d12 (S)		5	105	%	105	(70-130)		
MBLK	Perylene-d12 (S)			90.1	%	90	(70-130)		
MRL_CHK	Perylene-d12 (S)		5	78.0	%	78	(70-130)		
MS_202010010369	Perylene-d12 (S)		5	94.5	%	95	(70-130)		
DUP_202010010605	Phenanthrene			ND	ug/L		(0-20)		
LCS1	Phenanthrene		2	2.08	ug/L	104	(70-130)		
LCS2	Phenanthrene		2	2.10	ug/L	105	(70-130)	20	0.96
MBLK	Phenanthrene			<0.04	ug/L				
MRL_CHK	Phenanthrene		0.02	0.0210	ug/L	105	(50-150)		
MS_202010010369	Phenanthrene		2	2.56	ug/L	128	(70-130)		
DUP_202010010605	Phenanthrene-d10 (I)			91.3	%	91	(50-150)		
LCS1	Phenanthrene-d10 (I)		5	85.3	%	85	(50-150)		
LCS2	Phenanthrene-d10 (I)		5	84.8	%	85	(50-150)		
MBLK	Phenanthrene-d10 (I)			89.4	%	89	(50-150)		
MRL_CHK	Phenanthrene-d10 (I)		5	91.4	%	91	(50-150)		
MS_202010010369	Phenanthrene-d10 (I)		5	93.9	%	94	(50-150)		
DUP_202010010605	Propachlor			ND	ug/L		(0-20)		
LCS1	Propachlor		2	2.17	ug/L	109	(70-130)		
LCS2	Propachlor		2	2.14	ug/L	107	(70-130)	20	1.4
MBLK	Propachlor			<0.05	ug/L				
MRL_CHK	Propachlor		0.05	0.0680	ug/L	136	(50-150)		
MS_202010010369	Propachlor		2	2.31	ug/L	115	(70-130)		
DUP_202010010605	Pyrene			ND	ug/L		(0-20)		
LCS1	Pyrene		2	2.19	ug/L	110	(70-130)		
LCS2	Pyrene		2	2.22	ug/L	111	(70-130)	20	1.4
MBLK	Pyrene			<0.05	ug/L				
MRL_CHK	Pyrene		0.05	0.0460	ug/L	92	(50-150)		
MS_202010010369	Pyrene		2	2.18	ug/L	109	(70-130)		
DUP_202010010605	Simazine	ND		ND	ug/L		(0-20)		
LCS1	Simazine		2	2.38	ug/L	119	(70-130)		
LCS2	Simazine		2	2.40	ug/L	120	(70-130)	20	0.84
MBLK	Simazine			<0.05	ug/L				
MRL_CHK	Simazine		0.05	0.0530	ug/L	106	(50-150)		
MS_202010010369	Simazine	ND	2	2.28	ug/L	114	(70-130)		
DUP_202010010605	Terbacil			ND	ug/L		(0-20)		
LCS1	Terbacil		2	2.26	ug/L	113	(70-130)		

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Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS2	Terbacil		2	2.61	ug/L	**131**	(70-130)	20	14
MBLK	Terbacil			<0.1	ug/L				
MRL_CHK	Terbacil		0.1	0.129	ug/L	129	(50-150)		
MS_202010010369	Terbacil		2	2.26	ug/L	113	(70-130)		
DUP_202010010605	Terbuthylazine			ND	ug/L		(0-20)		
LCS1	Terbuthylazine		2	2.36	ug/L	118	(70-130)		
LCS2	Terbuthylazine		2	2.45	ug/L	123	(70-130)	20	3.7
MBLK	Terbuthylazine			<0.1	ug/L				
MRL_CHK	Terbuthylazine		0.1	0.0890	ug/L	89	(50-150)		
MS_202010010369	Terbuthylazine		2	2.28	ug/L	114	(70-130)		
DUP_202010010605	Thiobencarb			ND	ug/L		(0-20)		
LCS1	Thiobencarb		2	2.08	ug/L	104	(70-130)		
LCS2	Thiobencarb		2	2.18	ug/L	109	(70-130)	20	5.2
MBLK	Thiobencarb			<0.2	ug/L				
MRL_CHK	Thiobencarb		0.1	0.0990	ug/L	99	(50-150)		
MS_202010010369	Thiobencarb		2	2.23	ug/L	112	(70-130)		
DUP_202010010605	trans-Nonachlor			ND	ug/L		(0-20)		
LCS1	trans-Nonachlor		2	2.06	ug/L	103	(70-130)		
LCS2	trans-Nonachlor		2	2.03	ug/L	102	(70-130)	20	1.5
MBLK	trans-Nonachlor			<0.05	ug/L				
MRL_CHK	trans-Nonachlor		0.05	0.0400	ug/L	80	(50-150)		
MS_202010010369	trans-Nonachlor		2	2.06	ug/L	103	(70-130)		
DUP_202010010605	Trifluralin			ND	ug/L		(0-20)		
LCS1	Trifluralin		2	2.23	ug/L	112	(70-130)		
LCS2	Trifluralin		2	2.28	ug/L	114	(70-130)	20	2.2
MBLK	Trifluralin			<0.1	ug/L				
MRL_CHK	Trifluralin		0.1	0.0870	ug/L	87	(50-150)		
MS_202010010369	Trifluralin		2	2.40	ug/L	120	(70-130)		
DUP_202010010605	Triphenylphosphate (S)			122	%	122	(70-130)		
LCS1	Triphenylphosphate (S)		5	118	%	118	(70-130)		
LCS2	Triphenylphosphate (S)		5	122	%	122	(70-130)		
MBLK	Triphenylphosphate (S)			124	%	124	(70-130)		
MRL_CHK	Triphenylphosphate (S)		5	115	%	115	(70-130)		
MS_202010010369	Triphenylphosphate (S)		5	122	%	123	(70-130)		

Total Organic Carbon by SM 5310C

Analytical Batch: 1280176 **Analysis Date: 10/08/2020**

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS1	Total Organic Carbon		5	5.48	mg/L	110	(90-110)		

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

Tel: (626) 386-1100
Fax: (866) 988-3757
1 800 566 LABS (1 800 566 5227)

Laboratory QC

Report: 893936
Project: GROUNDWATER
Group: GW-Quarterly

Morro Bay Waterwater Treatment Plant

QC Type	Analyte	Native	Spiked	Recovered	Units	Yield(%)	Limits (%)	RPD Limit(%)	RPD%
LCS2	Total Organic Carbon		5	5.44	mg/L	109	(90-110)	20	0.73
MBLK	Total Organic Carbon			<0.15	mg/L				
MRL_CHK	Total Organic Carbon		0.2	0.236	mg/L	118	(50-150)		
MS_202010020294	Total Organic Carbon	0.37	4	5.25	mg/L	**122**	(80-120)		
MS2_202010020296	Total Organic Carbon	3.1	2	5.72	mg/L	**129**	(80-120)		
MSD_202010020294	Total Organic Carbon	0.37	4	5.20	mg/L	**121**	(80-120)	20	0.77
MSD2_202010020296	Total Organic Carbon	3.1	2	5.68	mg/L	**127**	(80-120)	20	0.61

Spike recovery is already corrected for native results.
Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and Dup are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.
RPD not calculated for LCS2 when different a concentration than LCS1 is used.
RPD not calculated for Duplicates when the result is not five times the MRL (Minimum Reporting Level).
(S) - Indicates surrogate compound.
(I) - Indicates internal standard compound.

Appendix C

Morro Bay December 2020 Sampling

Event Analytical Laboratory Reports

Date of Report: 01/27/2021

John Gunderlock

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Client Project:	[none]
BCL Project:	Morro Bay Wells
BCL Work Order:	2037877
Invoice ID:	B405082

Enclosed are the results of analyses for samples received by the laboratory on 12/28/2020. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Tina Green
Client Services

Stuart Buttram
Technical Director

Certifications: CA ELAP #1186; NV #CA00014; OR ELAP #4032-001; AK UST101

Table of Contents

Table of Contents

Table of Contents

Chain of Custody and Cooler Receipt Form for 2037877 Page 1 of 13

BC LABORATORIES

4100 Atlas Court Bakersfield, Ca. 93308
(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

Chain of Custody

* Required Fields 20-37877 TEMP: ______

Client/Company Name *: City of Morro Bay
Report Attention *: John Gunderlock
Phone *: 805 772-6272 FAX * #:
E-mail: jgunderlock@morrobayca.gov
Address *: 955 Shasta Ave City *: Morro Bay State *: CA Zip *: 93442
Project Information: Morro Bay Wells
PO #:
BCL Quote #:
How would you like your completed results sent? ☑ E-Mail ☐ Fax ☑ EDD ☐ Mail Only
Carbon Copies: CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co ☐ Other:
Regulatory Compliance Electronic Data Transfer: Y ☐ N ☐ System No. *
Sampler Name Printed / Signature: John Gunderlock
QC Request: ☑ STD ☐ Level II
Result Request ** Surcharge: ☑ STD ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**

Matrix Types: RSW = Raw Surface Water, RGW = Raw Ground Water, CFW = Chlorinated Finished Water, FW = Finished Water, CWW = Chlorinated Waste Water, WW = Waste Water, SW = Storm Water, BW = Bottled Water, DW = Drinking Water, SO = Solid

ANALYSIS REQUESTED

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	8260 VOCs see list	524 Full List	335.4 Cyanide	300 See below list	218.6 Cr-6	353.2 Nitrite as N	314 Perchlorate	515 Chlorinated Herbicides	504 EDB/DBCP
1	44	12/28	1135	High School well #1	GW	EPA 300: Chloride, Fluoride, Sulfate, Nitrate	X	X	X	X	X	X	X	X	X
2	44	12/28	1258	MB-3	GW		↓	↓	↓	↓	↓	↓	↓	↓	↓
3	44	12/28	1430	19P-07	GW	EPA 8260: Acrolein, Acrylonitrile, 2-Chloroethylvinyl ether	↓	↓	↓	↓	↓	↓	↓	↓	↓
4	44	12/28	1530	Vistra	GW		↓	↓	↓	↓	↓	↓	↓	↓	↓

CHK BY: PRK
DISTRIBUTION: IEL MB Sumps
SUB OUT ☒

SHORT HOLDING TIME (DR 6)
Cr+6 NO2 NO3 OP SS
DO Cl2 BOD MBAS COT

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
John Gunderlock	City MB	12/28/20	1625	Jay Mason	BC
Relinquished by: (Signature and Printed Name) Jay Mason	Company BL	Date 12/28/20	Time 1830	Received by (Signature and Print Name)	Company
Received for Lab by: (Signature and Printed Name)		Date 12-28-20	Time 1930	Payment Received at Delivery: Date: Amount: Check/Cash/Card PIA # Init.	

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER
Cooling Method: WET BLUE NONE
Packing Material:

BC LABORATORIES

4100 Atlas Court Bakersfield, Ca. 93308
(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

Chain of Custody

* Required Fields 20-37877

TEMP: ______

Client/Company Name *:	City of Morro Bay
Report Attention *:	John Gunderlock
Phone *:	805 772-6272
FAX * #:	
E-mail:	jgunderlock@morrobayca.gov
Address *:	955 Shasta Ave.
City *:	Morro Bay
State *:	CA
Zip *:	93442
Project Information:	Morro Bay Wells
PO #:	
BCL Quote #:	
How would you like your completed results sent?	[x] E-Mail [ ] Fax [x] EDD [ ] Mail Only
Sampler Name Printed / Signature	John Gunderlock
QC Request	[x] STD [ ] Level II
Result Request ** Surcharge	[x] STD [ ] 5 Day** [ ] 2 Day** [ ] 1 Day**
Carbon Copies:	[ ] CDHS [ ] Fresno Co [ ] EPA [ ] Merced Co [ ] Tulare Co
Other:	
Regulatory Compliance — Electronic Data Transfer:	[ ] Y [ ] N
System No. *	

Matrix Types: RSW = Raw Surface Water, RGW = Raw Ground Water, CFW = Chlorinated Finished Water, FW = Finished Water, CWW = Chlorinated Waste Water, WW = Waste Water, SW = Storm Water, BW = Bottled Water, DW = Drinking Water, SO = Solid

ANALYSIS REQUESTED

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	SM 5540C - MBAS	SRL 524M - TCP	200.7 / 200.8 (See List)*	531 Carbamates	548 Endothall	549 Diquat	552 HAA5	556 Formaldehyde	508 Pesticides & PCBs
1	44	12/28	1135	High School well #1	GW	* Al, Ba, B, Fe, Mn, Sb, As, Be, Cd, Cr, Li	X	X	X	X	X	X	X	X	X
2	44	12/28	1218	MB-3	GW	Cu, Co, Pb, Hg, Mo, Ni, Se, Ag, Tl, U, V, Zn	↓	↓	↓	↓	↓	↓	↓	↓	↓
3	44	12/28	1430	14P-04	GW		↓	↓	↓	↓	↓	↓	↓	↓	↓
4	44	12/28	1530	Vistra	GW		↓	↓	↓	↓	↓	↓	↓	↓	↓

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
John Gunderlock	City MB	12/28/20	1625	[signature]	BC
[signature]	BC	12-28-20	1930		

Received for Lab by: (Signature and Printed Name)	Date	Time
[signature]	12-28-20	1930

Payment Received at Delivery: Date: Amount: Check/Cash/Card PIA # Init.

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER

Cooling Method: WET BLUE NONE

Packing Material:

SR-FL-0002-06

BC LABORATORIES

4100 Atlas Court Bakersfield, Ca. 93308
(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

Chain of Custody

* Required Fields 20-37877

TEMP: ______

Client/Company Name *: City of Morro Bay
Report Attention *: John Gunderlock
Phone *: 805 772-6272 FAX * #:
E-mail: jgunderlock@morrobayca.gov
Address *: 955 Shasta Ave. City *: Morro Bay State *: CA Zip *: 93442
Project Information: Morro Bay Wells
PO #:
BCL Quote #:
How would you like your completed results sent? ☑ E-Mail ☐ Fax ☑ EDD ☐ Mail Only
Sampler Name Printed / Signature: John Gunderlock
QC Request: ☑ STD ☐ Level II
Result Request ** Surcharge: ☑ STD ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**
Carbon Copies: CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co ☐ Other:
Regulatory Compliance Electronic Data Transfer: Y ☐ N ☐
System No. *

Matrix Types: RSW = Raw Surface Water CFW = Chlorinated Finished Water CWW = Chlorinated Waste Water BW = Bottled Water RGW = Raw Ground Water FW = Finished Water WW = Waste Water SW = Storm Water DW = Drinking Water SO = Solid

ANALYSIS REQUESTED

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	8270-SVOCs	525-SOCs	8330B-Explosives	SM 2120 B - Color	SM 2130 B - Turbidity	SM 2150 B - Odor	SM 2510 - S.C.	SM 2540 C - TDS	SM 5310 C - TOC
1	44	12/26	1135	High School well #1	GW		X	X	X	X	X	X	X	X	X
2	44	12/28	1218	MB-3	GW		↓	↓	↓	↓	↓	↓	↓	↓	↓
3	44	12/28	1430	19P-04	GW		↓	↓	↓	↓	↓	↓	↓	↓	↓
4	44	12/28	1530	Vista	GW		↓	↓	↓	↓	↓	↓	↓	↓	↓

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
John Gunderlock	City MB	12/28/20	1625	[signature]	BC
[signature] Terry Mosey	BL	12/28/20	1930		

Received for Lab by: (Signature and Printed Name) [signature] Date: 12-28-20 Time: 1930

Payment Received at Delivery: Date: Amount: Check/Cash/Card PIA # Init.

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER
Cooling Method: WET BLUE NONE
Packing Material:

BC LABORATORIES

4100 Atlas Court Bakersfield, Ca. 93308
(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

Chain of Custody

* Required Fields 20-37877

TEMP: ______

Client/Company Name *:	City of Morro Bay
Report Attention *:	John Gunderlock
Phone *:	805 772-6272
FAX *:	
E-mail:	jgunderlock@morrobayca.gov
Address *:	955 Shasta Ave.
City *:	Morro Bay
State *:	CA
Zip *:	93442
Project Information:	Morro Bay Wells
PO #:	
BCL Quote #:	
How would you like your completed results sent?	☑ E-Mail ☐ Fax ☑ EDD ☐ Mail Only
Sampler Name Printed / Signature	John Gunderlock
QC Request	☑ STD ☐ Level II
Result Request ** Surcharge	☑ STD ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**
Carbon Copies:	☐ CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co; Other:
Regulatory Compliance Electronic Data Transfer:	Y ☐ N ☐
System No. *	

Matrix Types: RSW = Raw Surface Water RGW = Raw Ground Water CFW = Chlorinated Finished Water FW = Finished Water CWW = Chlorinated Waste Water WW = Waste Water SW = Storm Water BW = Bottled Water DW = Drinking Water SO = Solid

ANALYSIS REQUESTED

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	300.1 Chlorate, Chlorite (SUB)	317 Bromate (SUB)	521 Nitrosamines (SUB)	522 1,4-Dioxane (SUB)	1613 2,3,7,8-TCDD(Dioxin) SUB		Chromium III (Calculation)	Nitrate + Nitrite as N (Calculation)	Total Nitrogen as N (Calculation)
1	44	12/26	1135	High School well #1	GW		X	X	X	X	X	X	X	X	X
2	44	12/26	1214	MB-3	GW										
3	44	12/28	1430	19P-04	GW										
4	44	12/28	1530	Vistra	GW										

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
John Gunderlock	City MB	12/28/20	1625	Jerry M.	BC
Relinquished by: (Signature and Printed Name) Jerry Mosh	BL	12/28/20	1930	Received by (Signature and Print Name)	Company
Received for Lab by: (Signature and Printed Name)		12-28-20	1930	Payment Received at Delivery: Date: Amount: Check/Cash/Card PIA # Init.	

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER

Cooling Method: WET BLUE NONE

Packing Material:

BC LABORATORIES

4100 Atlas Court Bakersfield, Ca. 93308
(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

Chain of Custody

* Required Fields 20-37877 TEMP: ______

Client/Company Name *: City of Morro Bay
Report Attention *: John Gunderlock
Phone *: 805.772.62[illegible]
E-mail: jgunderlock@morrobayca.gov

ANALYSIS REQUESTED

Address *: 955 Shasta Ave. City *: Morro Bay State *: CA Zip *: 93442

Project Information: Morro Bay Wells
PO #:
BCL Quote #:

How would you like your completed results sent? ☑ E-Mail ☐ Fax ☑ EDD ☐ Mail Only

Carbon Copies: CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co ☐ Other:

Regulatory Compliance Electronic Data Transfer: Y ☐ N ☐
System No. *

Sampler Name Printed / Signature: John Gunderlock [signature]

QC Request: ☑ STD ☐ Level II

Result Request ** Surcharge: ☑ STD ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**

Matrix Types: RSW = Raw Surface Water CFW = Chlorinated Finished Water CWW = Chlorinated Waste Water BW = Bottled Water
RGW = Raw Ground Water FW = Finished Water WW = Waste Water SW = Storm Water DW = Drinking Water SO = Solid

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	900 Gross Alpha/Beta (SUB)	903 Radium 226 (SUB)	905 Strontium (SUB)	906 Tritium (SUB)	Ra-05 Radium 228 (SUB)	537 PFOS/PFOA (SUB)	547 Glyphosate	8015-Ethylene Glycol (SUB)	100.2 Asbestos (SUB)
1	44	12/28	1135	High School well #1	GW		X	X	X	X	X	X	X	X	X
2	44	12/28	1218	MB-3	GW		↓	↓	↓	↓	↓	↓	↓	↓	↓
3	44	12/28	1430	19P-04	GW		↓	↓	↓	↓	↓	↓	↓	↓	↓
4	44	12/28	1530	Vistra	GW		↓	↓	↓	↓	↓	↓	↓	↓	↓

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
John Gunderlock [signature]	City MB	12/28/20	1625	[signature] Tony Mac[illegible]	BC
Relinquished by: [signature] Tony Ma[illegible]	BC	12-28-20	1930	Received by:	
Received for Lab by: [signature]		12-28-20	1930	Payment Received at Delivery: Date: Amount: Check/Cash/Card PIA # Init.	

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER
Cooling Method: WET BLUE NONE
Packing Material:

BC LABORATORIES INC. COOLER RECEIPT FORM Page 1 Of 8

Submission #: 20-37877

SHIPPING INFORMATION
Fed Ex ☐ UPS ☐ Ontrac ☐ Hand Delivery ☐
BC Lab Field Service ☒ Other ☐ (Specify)________

SHIPPING CONTAINER
Ice Chest ☒ None ☐ Box ☐
Other ☐ (Specify)________

FREE LIQUID
YES ☐ NO ☐
W / S

Refrigerant: Ice ☒ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☒ Comments:

All samples received? Yes ☐ No ☒ All samples containers intact? Yes ☒ No ☐ Description(s) match COC? Yes ☒ No ☐

COC Received ☒ YES ☐ NO

Emissivity: 0.98 Container: PE Thermometer ID: 208 Date/Time 12/28 1925

Temperature: (A) 0.2 °C / (C) 0.0 °C Analyst Init CN2

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES										
4oz / 8oz / 16oz PE UNPRES										
2oz Cr+6										
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz	U									
PT CYANIDE	V									
PT NITROGEN FORMS	W									
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON	X									
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL										
QT EPA 1664										
PT ODOR	Y									
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504	G									
QT EPA 508/608/8080	'AA'									
QT EPA 515.1/8150	'AB'									
QT EPA 525	'AC'									
QT EPA ~~525 TRAVEL BLANK~~ 625	'AD'									
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548	'AE'									
QT EPA 549										
QT EPA 8015M										
QT EPA 8270										
8oz / 16oz / 32oz AMBER 089	AG'									
8oz / 16oz / 32oz JAR x32	AH'-AJ									
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:________
Sample Numbering Completed By: GISP Date/Time: 12/28 2042
A = Actual / C = Corrected

Rev 21 05/23/2016
[S:\WPDocs\WordPerfect\LAB_DOCS\FORMS\SAMREC.rev 20]

BC LABORATORIES INC. COOLER RECEIPT FORM Page 2 Of 8

Submission #: 20-37877

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Fed Ex ☐ UPS ☐ Ontrac ☐ Hand Delivery ☐ BC Lab Field Service ☒ Other ☐ (Specify)____	Ice Chest ☒ None ☐ Box ☐ Other ☐ (Specify)____	YES ☐ NO ☐ W / S

Refrigerant: Ice ☒ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☒ Comments:

All samples received? Yes ☐ No ☐ ✓ All samples containers intact? Yes ☒ No ☐ Description(s) match COC? Yes ☒ No ☐

COC Received ☒ YES ☐ NO

Emissivity: 0.98 Container: PE Thermometer ID: 208 Date/Time 12/28 1925

Temperature: (A) 0.3 °C / (C) 0.1 °C Analyst Init CVL

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES	NO									
4oz / 8oz / 16oz PE UNPRES	PQ									
2oz Cr+6	KL									
QT INORGANIC CHEMICAL METALS	RST									
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT ~~CYANIDE~~ ~~8oz~~ 2oz Pe	m									
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	A–F									
QT EPA 1664										
PT ODOR	\									
~~RADIOLOGICAL~~ M20	Z									
BACTERIOLOGICAL										
40 ml VOA VIAL ~~504~~ 047	H									
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
40ml EPA 547	I									
40ml EPA 531.1	J									
8oz EPA 548										
QT EPA 549	AF									
QT EPA 8015M										
QT EPA 8270										
8oz / 16oz / 32oz AMBER	[illegible]									
8oz / 16oz / 32oz ~~JAR~~ Amber	AK–AM									
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:

Sample Numbering Completed By: GSP Date/Time: 12/28 2042

A = Actual / C = Corrected

Rev 21 05/23/2016

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BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

BC LABORATORIES INC. COOLER RECEIPT FORM Page 3 Of 8

Submission #: 20-37877

SHIPPING INFORMATION
Fed Ex ☐ UPS ☐ Ontrac ☐ Hand Delivery ☐
BC Lab Field Service ☒ Other ☐ (Specify)________

SHIPPING CONTAINER
Ice Chest ☒ None ☐ Box ☐
Other ☐ (Specify)________

FREE LIQUID
YES ☐ NO ☐
W / S

Refrigerant: Ice ☒ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☒ Comments:

All samples received? Yes ☐ No ☒ All samples containers intact? Yes ☒ No ☐ Description(s) match COC? Yes ☒ No ☐

COC Received ☒ YES ☐ NO

Emissivity: 0.98 Container: PE Thermometer ID: 208 Date/Time 12/28 1925

Temperature: (A) 0.8 °C / (C) 0.6 °C Analyst Init WL

SAMPLE CONTAINERS	SAMPLE NUMBERS 2	2	3	4	5	6	7	8	9	10
QT PE UNPRES	NO									
4oz / 8oz / 16oz PE UNPRES										
2oz Cr+6										
QT INORGANIC CHEMICAL METALS	RST									
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE	U									
PT NITROGEN FORMS	W									
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON	X									
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL										
QT EPA 1664										
PT ODOR	Y									
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 505/608/8080	AA									
QT EPA 515.1/8150	AB									
QT EPA 525	AC									
QT EPA ~~525 TRAVEL BLANK~~ 625	AD									
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548										
QT EPA 549	AF									
QT EPA 8015M										
QT EPA 8270										
8oz / 16oz / 32oz AMBER	AH AI									
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:________
Sample Numbering Completed By: GSP Date/Time: 12/28 2042
A = Actual / C = Corrected

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Chain of Custody and Cooler Receipt Form for 2037877 Page 9 of 13

BC LABORATORIES INC. COOLER RECEIPT FORM Page 9 Of 8

Submission #: 2037877

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Fed Ex ☐ UPS ☐ Ontrac ☐ Hand Delivery ☐ BC Lab Field Service ☒ Other ☐ (Specify)_____	Ice Chest ☒ None ☐ Box ☐ Other ☐ (Specify)_____	YES ☐ NO ☐ W / S

Refrigerant: Ice ☒ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☒ Comments:

All samples received? Yes ☐ No ☐ | All samples containers intact? Yes ☒ No ☐ | Description(s) match COC? Yes ☒ No ☐

COC Received ☒ YES ☐ NO

Emissivity: 0.98 Container: PE Thermometer ID: 208 Date/Time 12/28 1925

Temperature: (A) 1.1 °C / (C) 0.9 °C Analyst Init CV1

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES										
4oz / 8oz / 16oz PE UNPRES	PQ									
2oz Cr+6	KL									
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz	U									
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
~~2oz. NITRATE / NITRITE~~ 2oz PE	M									
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	A-F									
QT EPA 1664										
PT ODOR										
~~RADIOLOGICAL~~ M20	Z									
BACTERIOLOGICAL										
40 ml VOA VIAL- 504	G									
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA ~~525 TRAVEL BLANK~~ 047	H									
40ml EPA 547	I									
40ml EPA 531.1	J									
8oz EPA 548	AE'									
QT ~~EPA 549~~ 089	AG'									
QT EPA 8015M										
QT EPA 8270										
8oz / 16oz / 32oz AMBER	AJ'-AM'									
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:

Sample Numbering Completed By: GSP Date/Time: 12/28 2002

A = Actual / C = Corrected

Rev 21 05/23/2016

BC LABORATORIES INC. COOLER RECEIPT FORM Page 5 Of 8

Submission #: 20-37877

SHIPPING INFORMATION
Fed Ex ☐ UPS ☐ Ontrac ☐ Hand Delivery ☐
BC Lab Field Service ☒ Other ☐ (Specify) ____________

SHIPPING CONTAINER
Ice Chest ☒ None ☐ Box ☐
Other ☐ (Specify) ____________

FREE LIQUID
YES ☐ NO ☐
W / S

Refrigerant: Ice ☒ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☒ Comments:

All samples received? Yes ☐ No ☐ All samples containers intact? Yes ☒ No ☐ Description(s) match COC? Yes ☒ No ☐

COC Received ☒ YES ☐ NO

Emissivity: 0.98 Container: PE Thermometer ID: 208 Date/Time 12/28 1925
Temperature: (A) 0.6 °C / (C) 0.4 °C Analyst Init CN1

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES			M							
4oz / 8oz / 16oz PE UNPRES										
2oz Cr+6			~~KL~~ GS 1428							
QT INORGANIC CHEMICAL METALS			PQR							
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz			S							
PT CYANIDE			T							
PT NITROGEN FORMS			U							
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON			V							
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL										
QT EPA 1664										
PT ODOR			W							
~~RADIOLOGICAL~~ M20			X							
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080			Y							
QT EPA 515.1/8150			Z							
QT EPA 525			'AA'							
QT EPA ~~625 TRAVEL BLANK~~ 625			'AB'							
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548										
QT EPA 549			'AD'							
QT EPA 8015M										
QT EPA 8270										
8oz / 16oz / 32oz AMBER			'AF','AG'							
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments: No Cr6 buffered bottle received for -3
Sample Numbering Completed By: GSL Date/Time: 12/28 2042
A = Actual / C = Corrected

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BC LABORATORIES INC. COOLER RECEIPT FORM Page 6 Of 8

Submission #: 20-37877

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Fed Ex ☐ UPS ☐ Ontrac ☐ Hand Delivery ☐ BC Lab Field Service ☒ Other ☐ (Specify)_____	Ice Chest ☒ None ☐ Box ☐ Other ☐ (Specify)_____	YES ☐ NO ☐ W / S

Refrigerant: Ice ☒ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☒ Comments:

All samples received? Yes ☐ No ☒ All samples containers intact? Yes ☒ No ☐ Description(s) match COC? Yes ☒ No ☐

COC Received		
☒ YES ☐ NO	Emissivity: 0.98 Container: PE Thermometer ID: 208	Date/Time 12/28 1925
	Temperature: (A) 0.3 °C / (C) 0.1 °C	Analyst Init CV1

SAMPLE CONTAINERS	SAMPLE NUMBERS									
	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES			L							
4oz / 8oz / 16oz PE UNPRES			MO							
2oz Cr^{+6}										
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE			GS 'AB'							
2oz. ~~NITRATE / NITRITE~~ PE			~~M~~ K							
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL			A-F							
QT EPA 1664										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504			G							
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA ~~525 TRAVEL BLANK~~ 547			H							
40ml EPA 547			I							
40ml EPA 531.1			J							
8oz EPA 548			'AC'							
QT EPA 549										
QT EPA ~~8015M~~ 089			'AE'							
QT EPA 8270										
8oz / 16oz / 32oz AMBER			'AH'-'AK'							
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments: -3H received empty, No Cr+6 buffered bottle received for -3-
Sample Numbering Completed By: GS Date/Time: 12/28 2042
A = Actual / C = Corrected

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BC LABORATORIES INC. COOLER RECEIPT FORM Page 7 Of 8

Submission #: 20-37877

SHIPPING INFORMATION
Fed Ex ☐ UPS ☐ Ontrac ☐ Hand Delivery ☐
BC Lab Field Service ☒ Other ☐ (Specify)________

SHIPPING CONTAINER
Ice Chest ☒ None ☐ Box ☐
Other ☐ (Specify)________

FREE LIQUID
YES ☐ NO ☐
W / S

Refrigerant: Ice ☒ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☒ Comments:

All samples received? Yes ☐ No ☑ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☒ YES ☐ NO

Emissivity: 0.98 Container: PE Thermometer ID: 208 Date/Time 12/28 1925

Temperature: (A) 1.0 °C / (C) 0.8 °C Analyst Init CV2

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES										
4oz / 8oz / 16oz PE UNPRES										
2oz Cr+6										
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE				V						
PT NITROGEN FORMS				W						
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON				X						
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL										
QT EPA 1664										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080				'AA'						
QT EPA 515.1/8150				'AB'						
QT EPA 525				'AC'						
QT EPA ~~525 TRAVEL BLANK~~ 625				'AD'						
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548				'AE'						
QT EPA 549				'AF'						
QT EPA ~~8015M~~ 589				'AG'						
QT EPA 8270										
8oz / 16oz / 32oz AMBER				'AH AI'						
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments: -4W was received empty.
Sample Numbering Completed By: GSL Date/Time: 12/28 2042
A = Actual / C = Corrected

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Chain of Custody and Cooler Receipt Form for 2037877 Page 13 of 13

BC LABORATORIES INC. — COOLER RECEIPT FORM — Page 8 Of 8

Submission #: 20-37877

SHIPPING INFORMATION
Fed Ex ☐ UPS ☐ Ontrac ☐ Hand Delivery ☐
BC Lab Field Service ☒ Other ☐ (Specify)

SHIPPING CONTAINER
Ice Chest ☒ None ☐ Box ☐
Other ☐ (Specify)

FREE LIQUID
YES ☐ NO ☐
W / S

Refrigerant: Ice ☒ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☒ Comments:

All samples received? Yes ☐ No ☒ All samples containers intact? Yes ☒ No ☐ Description(s) match COC? Yes ☒ No ☐

COC Received ☒ YES ☐ NO

Emissivity: 0.98 Container: PE Thermometer ID: 208 Date/Time 12/28 1925

Temperature: (A) 0.4 °C / (C) 0.2 °C Analyst Init CVL

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES				MNO						
4oz / 8oz / 16oz PE UNPRES				PQ						
2oz Cr^{+6}				K						
QT INORGANIC CHEMICAL METALS				RST						
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz				U						
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. ~~NITRATE / NITRITE~~ Pe				L						
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL				A-F						
QT EPA 1664										
PT ODOR				V						
~~RADIOLOGICAL~~ M20			GRB 12/28	YZ						
BACTERIOLOGICAL										
40 ml VOA VIAL- 504				G						
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK, 047				H						
40ml EPA 547				I						
40ml EPA 531.1				J						
8oz EPA 548										
QT EPA 549										
QT EPA 8015M										
QT EPA 8270										
8oz / 16oz / 32oz AMBER				AJ-AM						
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:
Sample Numbering Completed By: GRB Date/Time: 12/28/2022
A = Actual / C = Corrected

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City of Morro Bay	**Reported:** 01/27/2021 16:11
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
2037877-01	**COC Number:**	---	**Receive Date:**	12/28/2020 19:30
	Project Number:	---	**Sampling Date:**	12/28/2020 11:35
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	High School Well #1	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Groundwater
2037877-02	**COC Number:**	---	**Receive Date:**	12/28/2020 19:30
	Project Number:	---	**Sampling Date:**	12/28/2020 12:18
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MB-3	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Groundwater
2037877-03	**COC Number:**	---	**Receive Date:**	12/28/2020 19:30
	Project Number:	---	**Sampling Date:**	12/28/2020 14:30
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	19P-04	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Groundwater
2037877-04	**COC Number:**	---	**Receive Date:**	12/28/2020 19:30
	Project Number:	---	**Sampling Date:**	12/28/2020 15:30
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	Vistra	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Groundwater

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

BCL Sample ID: 2037877-01 | **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2-Dibromo-3-chloropropane	ND	ug/L	0.010	0.0015	EPA-504.1	ND		1
Ethylene dibromide	ND	ug/L	0.010	0.0030	EPA-504.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-504.1	01/06/21 11:30	01/06/21 17:01	HKS	GC-15	0.938	B096738	EPA 504.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

BCL Sample ID: 2037877-01 | **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Aldrin	ND	ug/L	0.0050	0.00095	EPA-508	ND		1
alpha-BHC	ND	ug/L	0.0050	0.00050	EPA-508	ND		1
beta-BHC	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
delta-BHC	ND	ug/L	0.0050	0.0015	EPA-508	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.0050	0.00067	EPA-508	ND		1
Chlordane (Technical)	ND	ug/L	0.10	0.045	EPA-508	ND		1
4,4'-DDD	ND	ug/L	0.0050	0.00086	EPA-508	ND		1
4,4'-DDE	ND	ug/L	0.0050	0.0013	EPA-508	ND		1
4,4'-DDT	ND	ug/L	0.0050	0.00096	EPA-508	ND		1
Dieldrin	ND	ug/L	0.0050	0.0011	EPA-508	ND		1
Endosulfan I	ND	ug/L	0.0050	0.00068	EPA-508	ND		1
Endosulfan II	ND	ug/L	0.0050	0.00098	EPA-508	ND		1
Endosulfan sulfate	ND	ug/L	0.0050	0.00055	EPA-508	ND		1
Endrin	ND	ug/L	0.0050	0.00069	EPA-508	ND		1
Endrin aldehyde	ND	ug/L	0.010	0.00054	EPA-508	ND		1
Heptachlor	ND	ug/L	0.0050	0.00094	EPA-508	ND		1
Heptachlor epoxide	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
Methoxychlor	ND	ug/L	0.0050	0.0037	EPA-508	ND		1
Toxaphene	ND	ug/L	1.0	0.20	EPA-508	ND		1
PCB-1016	ND	ug/L	0.20	0.066	EPA-508	ND		1
PCB-1221	ND	ug/L	0.20	0.063	EPA-508	ND		1
PCB-1232	ND	ug/L	0.20	0.059	EPA-508	ND		1
PCB-1242	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1248	ND	ug/L	0.20	0.044	EPA-508	ND		1
PCB-1254	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1260	ND	ug/L	0.20	0.089	EPA-508	ND		1
Total PCB's (Summation)	ND	ug/L	0.20	0.10	EPA-508	ND		1
TCMX (Surrogate)	81.0	%	60 - 130 (LCL - UCL)		EPA-508			1
Decachlorobiphenyl (Surrogate)	99.6	%	60 - 130 (LCL - UCL)		EPA-508			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-508	12/30/20 20:30	12/31/20 10:01	HKS	GC-17	1	B096298	EPA 508

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis (EPA Method 515.1)

BCL Sample ID: 2037877-01 **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Bentazon	ND	ug/L	0.80	0.22	EPA-515.1	ND		1
2,4-D	ND	ug/L	0.40	0.18	EPA-515.1	ND		1
2,4-DB	ND	ug/L	3.0	0.37	EPA-515.1	ND		1
Dalapon	ND	ug/L	5.0	0.31	EPA-515.1	ND		1
Dicamba	ND	ug/L	0.080	0.040	EPA-515.1	ND		1
Dichloroprop	ND	ug/L	0.50	0.11	EPA-515.1	ND		1
Dinoseb	ND	ug/L	0.20	0.057	EPA-515.1	ND		1
MCPA	ND	ug/L	10	6.0	EPA-515.1	ND		1
MCPP	ND	ug/L	10	6.0	EPA-515.1	ND		1
2,4,5-T	ND	ug/L	0.090	0.012	EPA-515.1	ND		1
2,4,5-TP (Silvex)	ND	ug/L	0.070	0.032	EPA-515.1	ND		1
2,4-Dichlorophenylacetic acid (Surrogate)	108	%	40 - 120 (LCL - UCL)		EPA-515.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-515.1	12/30/20 18:00	01/05/21 17:58	OLH	GC-8	1	B096529	EPA 515.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2037877-01 **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
Bromobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Bromochloromethane	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Bromodichloromethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Bromoform	ND	ug/L	0.50	0.46	EPA-524.2	ND		1
Bromomethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
n-Butylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
sec-Butylbenzene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
tert-Butylbenzene	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Carbon tetrachloride	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chlorobenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chloroform	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloromethane	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
2-Chlorotoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
4-Chlorotoluene	ND	ug/L	0.50	0.093	EPA-524.2	ND		1
Dibromochloromethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0	0.89	EPA-524.2	ND		1
1,2-Dibromoethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
Dibromomethane	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
1,2-Dichlorobenzene	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,3-Dichlorobenzene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
1,4-Dichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Dichlorodifluoromethane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,1-Dichloroethane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,2-Dichloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,1-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
cis-1,2-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2-Dichloropropane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,3-Dichloropropane	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
2,2-Dichloropropane	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
1,1-Dichloropropene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2037877-01 | **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
Total 1,3-Dichloropropene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Ethylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Hexachlorobutadiene	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Isopropylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
p-Isopropyltoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Methylene chloride	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Methyl t-butyl ether	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Naphthalene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
n-Propylbenzene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
Styrene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Tetrachloroethene	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
Toluene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2,3-Trichlorobenzene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,1,1-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Trichloroethene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
Trichlorofluoromethane	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
1,2,3-Trichloropropane	ND	ug/L	1.0	0.78	EPA-524.2	ND		1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trimethylbenzene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,3,5-Trimethylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Vinyl chloride	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Total Xylenes	ND	ug/L	0.50	0.47	EPA-524.2	ND		1
Total Trihalomethanes	ND	ug/L	2.0	0.97	EPA-524.2	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
t-Butyl alcohol	ND	ug/L	10	9.4	EPA-524.2	ND		1
Diisopropyl ether	ND	ug/L	0.50	0.36	EPA-524.2	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50	0.32	EPA-524.2	ND		1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2037877-01 **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
p- & m-Xylenes	ND	ug/L	0.50	0.34	EPA-524.2	ND		1
o-Xylene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
1,2-Dichloroethane-d4 (Surrogate)	86.2	%	75 - 125 (LCL - UCL)		EPA-524.2			1
Toluene-d8 (Surrogate)	97.6	%	80 - 120 (LCL - UCL)		EPA-524.2			1
4-Bromofluorobenzene (Surrogate)	90.6	%	80 - 120 (LCL - UCL)		EPA-524.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-524.2	12/29/20 06:00	12/29/20 13:00	ADC	MS-V15	1	B096208	EPA 524.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

BCL Sample ID: 2037877-01 | **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2,3-Trichloropropane	ND	ug/L	0.0050	0.00060	SRL 524M	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	SRL 524M	12/30/20 08:30	12/30/20 11:44	ADC	MS-V16	1	B096202	EPA 524.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2037877-01 **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthylene	ND	ug/L	0.10	0.031	EPA-525.2	ND		1
Alachlor	ND	ug/L	0.20	0.090	EPA-525.2	ND		1
Anthracene	ND	ug/L	0.10	0.034	EPA-525.2	ND		1
Atraton	ND	ug/L	0.50	0.057	EPA-525.2	ND		1
Atrazine	ND	ug/L	0.30	0.14	EPA-525.2	ND		1
Benzo[a]anthracene	ND	ug/L	0.20	0.044	EPA-525.2	ND		1
Benzo[b]fluoranthene	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Benzo[k]fluoranthene	ND	ug/L	0.30	0.072	EPA-525.2	ND		1
Benzo[a]pyrene	ND	ug/L	0.10	0.050	EPA-525.2	ND		1
Benzo[g,h,i]perylene	ND	ug/L	0.30	0.065	EPA-525.2	ND		1
Benzyl butyl phthalate	ND	ug/L	4.0	0.047	EPA-525.2	ND		1
delta-BHC	ND	ug/L	0.20	0.048	EPA-525.2	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.20	0.063	EPA-525.2	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	3.0	0.030	EPA-525.2	ND		1
Bromacil	ND	ug/L	0.50	0.043	EPA-525.2	ND		1
Chrysene	ND	ug/L	0.30	0.060	EPA-525.2	ND		1
Diazinon	ND	ug/L	0.20	0.080	EPA-525.2	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	0.30	0.051	EPA-525.2	ND		1
Di(2-ethylhexyl)adipate	ND	ug/L	1.0	0.025	EPA-525.2	ND		1
Dimethoate	ND	ug/L	2.0	0.050	EPA-525.2	ND		1
Dimethyl phthalate	ND	ug/L	1.0	0.034	EPA-525.2	ND		1
Di-n-butyl phthalate	ND	ug/L	1.0	0.063	EPA-525.2	ND		1
Fluorene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorobenzene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorocyclopentadiene	ND	ug/L	1.0	0.12	EPA-525.2	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.30	0.032	EPA-525.2	ND		1
Methoxychlor	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Metolachlor	ND	ug/L	0.50	0.056	EPA-525.2	ND		1
Metribuzin	ND	ug/L	0.50	0.048	EPA-525.2	ND		1
Molinate	ND	ug/L	0.50	0.036	EPA-525.2	ND		1
Phenanthrene	ND	ug/L	0.10	0.020	EPA-525.2	ND		1
Prometon	ND	ug/L	0.50	0.11	EPA-525.2	ND		1
Prometryn	ND	ug/L	0.50	0.045	EPA-525.2	ND		1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2037877-01 | **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Propachlor	ND	ug/L	0.50	0.077	EPA-525.2	ND		1
Pyrene	ND	ug/L	0.10	0.040	EPA-525.2	ND		1
Secbumeton	ND	ug/L	0.50	0.079	EPA-525.2	ND		1
Simazine	ND	ug/L	0.30	0.066	EPA-525.2	ND		1
Terbutryn	ND	ug/L	0.50	0.050	EPA-525.2	ND		1
Thiobencarb	ND	ug/L	0.50	0.044	EPA-525.2	ND		1
Perylene-d12 (Surrogate)	118	%	60 - 140 (LCL - UCL)		EPA-525.2			1
1,3-Dimethyl-2-nitrobenzene (Surrogate)	97.8	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Triphenylphosphate (Surrogate)	93.8	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Pyrene-d10 (Surrogate)	105	%	70 - 130 (LCL - UCL)		EPA-525.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-525.2	01/06/21 07:40	01/06/21 23:41	MK1	MS-B6	1	B096739	EPA 525.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

BCL Sample ID: 2037877-01 | **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Endothal	ND	ug/L	20	5.3	EPA-548.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-548.1	01/04/21 08:00	01/04/21 21:03	MK1	MS-B1	10	B096526	EPA 548.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

BCL Sample ID: 2037877-01 | **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Diquat	ND	ug/L	4.0	1.3	EPA-549.2	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-549.2	01/04/21 10:00	01/08/21 12:07	SAW	HPLC16	1	B096520	EPA 549.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

BCL Sample ID: 2037877-01 | **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Dibromoacetic acid	ND	ug/L	1.0	0.32	EPA-552.3	ND		1
Dichloroacetic acid	ND	ug/L	1.0	0.29	EPA-552.3	ND		1
Monobromoacetic acid	ND	ug/L	1.0	0.25	EPA-552.3	ND		1
Monochloroacetic acid	ND	ug/L	1.0	0.61	EPA-552.3	ND		1
Trichloroacetic acid	ND	ug/L	1.0	0.36	EPA-552.3	ND		1
Total HAA's (Summation)	ND	ug/L	1.0	1.0	EPA-552.3	ND		1
2,3-Dibromopropionic acid (Surrogate)	104	%	70 - 130 (LCL - UCL)		EPA-552.3			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-552.3	01/05/21 16:45	01/06/21 12:31	OLH	GC-3	1	B096681	EPA 552.3

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

BCL Sample ID: 2037877-01 **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Formaldehyde	ND	ug/L	5.0	0.70	EPA-556.1	ND		1
2',4',5'-Trifluoroacetophenone (Surrogate)	100	%	30 - 150 (LCL - UCL)		EPA-556.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-556.1	12/30/20 16:45	12/31/20 13:11	OLH	GC-3	1	B096469	EPA 556.1

City of Morro Bay	**Reported:** 01/27/2021 16:11
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 2037877-01 **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acrolein	ND	ug/L	10	7.9	EPA-8260B	ND		1
Acrylonitrile	ND	ug/L	5.0	1.2	EPA-8260B	ND		1
2-Chloroethyl vinyl ether	ND	ug/L	10	2.4	EPA-8260B	ND		1
1,2-Dichloroethane-d4 (Surrogate)	86.2	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	97.6	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	90.6	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8260B	12/29/20 06:00	12/29/20 13:00	ADC	MS-V15	1	B096208	EPA 5030 Water MS

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2037877-01 **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Acenaphthylene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Aldrin	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
Aniline	ND	ug/L	5.0	0.28	EPA-8270C	ND		1
Anthracene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzidine	ND	ug/L	20	1.6	EPA-8270C	ND		1
Benzo[a]anthracene	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
Benzo[b]fluoranthene	ND	ug/L	2.0	0.24	EPA-8270C	ND		1
Benzo[k]fluoranthene	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Benzo[a]pyrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzo[g,h,i]perylene	ND	ug/L	2.0	0.33	EPA-8270C	ND		1
Benzoic acid	ND	ug/L	10	0.52	EPA-8270C	ND		1
Benzyl alcohol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzyl butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
alpha-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
beta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
delta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
gamma-BHC (Lindane)	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethoxy)methane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethyl) ether	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
bis(2-Chloroisopropyl)ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	4.0	0.20	EPA-8270C	ND		1
4-Bromophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloroaniline	ND	ug/L	2.0	1.1	EPA-8270C	ND		1
2-Chloronaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chlorophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Chrysene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,4'-DDD	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
4,4'-DDE	ND	ug/L	3.0	0.24	EPA-8270C	ND		1
4,4'-DDT	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	3.0	0.34	EPA-8270C	ND		1
Dibenzofuran	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,2-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2037877-01 **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,3-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,4-Dichlorobenzene	ND	ug/L	2.0	0.27	EPA-8270C	ND		1
3,3-Dichlorobenzidine	ND	ug/L	10	0.53	EPA-8270C	ND		1
Dieldrin	ND	ug/L	3.0	0.39	EPA-8270C	ND		1
Diethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Dimethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dinitrotoluene	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2,6-Dinitrotoluene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-octyl phthalate	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
1,2-Diphenylhydrazine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Endosulfan I	ND	ug/L	10	0.31	EPA-8270C	ND		1
Endosulfan II	ND	ug/L	10	0.30	EPA-8270C	ND		1
Endosulfan sulfate	ND	ug/L	3.0	0.23	EPA-8270C	ND		1
Endrin	ND	ug/L	2.0	0.38	EPA-8270C	ND		1
Endrin aldehyde	ND	ug/L	10	0.44	EPA-8270C	ND		1
Fluoranthene	ND	ug/L	2.0	0.28	EPA-8270C	ND		1
Fluorene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor epoxide	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
Hexachlorobenzene	ND	ug/L	2.0	0.25	EPA-8270C	ND		1
Hexachlorobutadiene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Hexachlorocyclopentadiene	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
Hexachloroethane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	2.0	0.29	EPA-8270C	ND		1
Isophorone	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Methylnaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Naphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Naphthylamine	ND	ug/L	20	1.3	EPA-8270C	ND		1
2-Nitroaniline	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3-Nitroaniline	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
4-Nitroaniline	ND	ug/L	5.0	0.38	EPA-8270C	ND		1
Nitrobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2037877-01 | **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
N-Nitrosodimethylamine	ND	ug/L	2.0	1.2	EPA-8270C	ND		1
N-Nitrosodi-N-propylamine	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
N-Nitrosodiphenylamine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Phenanthrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Pyrene	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloro-3-methylphenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Chlorophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dichlorophenol	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
2,4-Dimethylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,6-Dinitro-2-methylphenol	ND	ug/L	10	0.24	EPA-8270C	ND		1
2,4-Dinitrophenol	ND	ug/L	10	0.20	EPA-8270C	ND		1
2-Methylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3- & 4-Methylphenol	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2-Nitrophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Nitrophenol	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Pentachlorophenol	ND	ug/L	10	0.40	EPA-8270C	ND		1
Phenol	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
2,4,5-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2,4,6-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Fluorophenol (Surrogate)	55.1	%	30 - 120 (LCL - UCL)		EPA-8270C			1
Phenol-d5 (Surrogate)	46.1	%	12 - 110 (LCL - UCL)		EPA-8270C			1
Nitrobenzene-d5 (Surrogate)	82.7	%	50 - 130 (LCL - UCL)		EPA-8270C			1
2-Fluorobiphenyl (Surrogate)	72.4	%	55 - 125 (LCL - UCL)		EPA-8270C			1
2,4,6-Tribromophenol (Surrogate)	91.0	%	40 - 150 (LCL - UCL)		EPA-8270C			1
p-Terphenyl-d14 (Surrogate)	107	%	40 - 150 (LCL - UCL)		EPA-8270C			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8270C	12/30/20 17:30	01/05/21 23:38	MK1	MS-B8	1	B096524	EPA 3510C

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Explosive Residues (EPA Method 8330)

BCL Sample ID: 2037877-01 **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
HMX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
RDX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
1,2-Dinitrobenzene (Surrogate)	85.6	%	70 - 130 (LCL - UCL)		EPA-8330			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8330	01/04/21 07:30	01/04/21 22:14	SAW	HPLC16	1	B096517	EPA 8330

City of Morro Bay	**Reported:** 01/27/2021 16:11
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2037877-01 **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Trivalent Chromium	ND	ug/L	10	5.0	Calc	ND		1
Chloride	**230**	**mg/L**	**1.0**	**0.26**	**EPA-300.0**	0.50	**A07**	2
Fluoride	**0.25**	**mg/L**	**0.10**	**0.050**	**EPA-300.0**	ND	**A07**	2
Nitrate as N	**17**	**mg/L**	**0.20**	**0.048**	**EPA-300.0**	ND	**A07**	2
Sulfate	**120**	**mg/L**	**2.0**	**0.28**	**EPA-300.0**	ND	**A07**	2
Nitrate + Nitrite as N	**17**	**mg/L**	**0.10**	**0.018**	**Calc**	ND		3
Electrical Conductivity @ 25 C	**1730**	**umhos/cm**	**1.00**	**1.00**	**SM-2510B**			4
Total Dissolved Solids @ 180 C	**990**	**mg/L**	**50**	**25**	**SM-2540C**	ND	**A07**	5
Color	**2.0**	**Color Units**	**1.0**	**1.0**	**SM-2120B**			6
Odor	No Obs Odor	Odor Units	1.0	1.0	SM-2150B	ND		7
Turbidity	**0.12**	**NT Units**	**0.10**	**0.10**	**EPA-180.1**			8
MBAS	ND	mg/L	0.10	0.024	SM-5540C	ND		9
Total Cyanide	ND	mg/L	0.0050	0.0017	EPA-335.4	0.0018		10
Total Nitrogen	**17**	**mg/L**	**0.30**	**0.10**	**Calc**	ND		11
Total Kjeldahl Nitrogen	**0.089**	**mg/L**	**0.20**	**0.088**	**EPA-351.2**	ND	**J**	12
Nitrite as N	ND	ug/L	50	10	EPA-353.2	ND		13
Perchlorate	ND	mg/L	0.0040	0.00081	EPA-314.0	ND		14
Non-Volatile Organic Carbon	**1.0**	**mg/L**	**1.0**	**0.30**	**SM-5310C**	ND		15

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2037877-01 **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	
1	Calc	01/15/21 12:06	01/15/21 13:01	AMM	Calc	1	B^L0312	Calc
2	EPA-300.0	12/28/20 22:00	12/29/20 00:38	SAV	IC5	2	B096094	No Prep
3	Calc	12/30/20 12:01	01/05/21 16:01	AMM	Calc	1	B^L0312	Calc
4	SM-2510B	01/04/21 07:30	01/04/21 11:34	RML	MET-1	1	B095981	No Prep
5	SM-2540C	12/29/20 14:00	12/29/20 14:00	CAD	MANUAL	5	B096141	No Prep
6	SM-2120B	12/29/20 08:00	12/29/20 08:00	JTM	MANUAL	1	B096289	No Prep
7	SM-2150B	12/29/20 08:00	12/29/20 08:00	JTM	MANUAL	1	B096290	No Prep
8	EPA-180.1	12/29/20 08:00	12/29/20 08:00	JTM	MANUAL	1	B096291	No Prep
9	SM-5540C	12/29/20 08:30	12/29/20 08:30	JMN	SPEC06	1	B096153	No Prep
10	EPA-335.4	01/04/21 08:21	01/05/21 15:17	MC1	KONE-1	1	B096349	EPA 335.4 Total
11	Calc	12/30/20 12:01	01/05/21 15:01	AMM	Calc	1	B^L0312	Calc
12	EPA-351.2	01/04/21 09:15	01/05/21 13:42	JMH2	SC-1	1	B096375	EPA 351.2
13	EPA-353.2	12/29/20 09:09	12/29/20 12:03	JMH	KONE-1	1	B096507	No Prep
14	EPA-314.0	01/04/21 11:00	01/05/21 11:27	ANK	IC6	1	B096371	No Prep
15	SM-5310C	01/04/21 07:00	01/04/21 15:23	ALW	A537730907	1	B096342	No Prep

City of Morro Bay	**Reported:** 01/27/2021 16:11
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Metals Analysis

BCL Sample ID: 2037877-01 | **Client Sample Name:** High School Well #1, 12/28/2020 11:35:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Hexavalent Chromium	**2.4**	**ug/L**	**0.20**	**0.020**	**EPA-218.6**	ND		1
Total Recoverable Aluminum	ND	ug/L	50	26	EPA-200.7	ND		2
Total Recoverable Antimony	ND	ug/L	2.0	0.11	EPA-200.8	ND		3
Total Recoverable Arsenic	**1.6**	**ug/L**	**2.0**	**0.70**	**EPA-200.8**	ND	**J**	3
Total Recoverable Barium	**130**	**ug/L**	**1.0**	**0.21**	**EPA-200.8**	0.39		3
Total Recoverable Beryllium	ND	ug/L	1.0	0.14	EPA-200.8	ND		3
Total Recoverable Boron	**150**	**ug/L**	**100**	**10**	**EPA-200.7**	ND		2
Total Recoverable Cadmium	ND	ug/L	1.0	0.11	EPA-200.8	ND		3
Total Recoverable Chromium	**2.2**	**ug/L**	**3.0**	**0.50**	**EPA-200.8**	ND	**J**	3
Total Recoverable Cobalt	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Copper	**2.6**	**ug/L**	**2.0**	**0.22**	**EPA-200.8**	ND		3
Total Recoverable Iron	ND	ug/L	50	30	EPA-200.7	ND		2
Total Recoverable Lead	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Lithium	**7.2**	**ug/L**	**20**	**6.6**	**EPA-200.7**	ND	**J**	2
Total Recoverable Manganese	ND	ug/L	10	4.0	EPA-200.7	ND		2
Total Recoverable Mercury	ND	ug/L	0.20	0.022	EPA-245.1	ND		4
Total Recoverable Molybdenum	**1.9**	**ug/L**	**1.0**	**0.11**	**EPA-200.8**	0.52		3
Total Recoverable Nickel	**3.7**	**ug/L**	**2.0**	**0.19**	**EPA-200.8**	ND		3
Total Recoverable Selenium	**18**	**ug/L**	**2.0**	**0.19**	**EPA-200.8**	ND		3
Total Recoverable Silver	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Thallium	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Vanadium	**2.0**	**ug/L**	**3.0**	**0.78**	**EPA-200.8**	ND	**J**	3
Total Recoverable Zinc	**6.1**	**ug/L**	**10**	**1.7**	**EPA-200.8**	6.7	**J**	3
Total Recoverable Uranium	**1.5**	**ug/L**	**1.0**	**0.10**	**EPA-200.8**	ND		3

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-218.6	12/29/20 10:00	12/29/20 14:07	KB1	IC-4	1	B096136	No Prep
2	EPA-200.7	12/30/20 12:00	12/30/20 16:38	JRG	PE-OP4	1	B096231	EPA 200.2
3	EPA-200.8	12/31/20 07:00	01/07/21 11:09	ARD	PE-EL2	1	B096292	EPA 200.2
4	EPA-245.1	01/07/21 09:00	01/07/21 15:51	TMT	CETAC3	1	B096701	EPA 245.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

BCL Sample ID: 2037877-02 | **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2-Dibromo-3-chloropropane	ND	ug/L	0.010	0.0015	EPA-504.1	ND		1
Ethylene dibromide	ND	ug/L	0.010	0.0030	EPA-504.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-504.1	01/06/21 11:30	01/06/21 17:16	HKS	GC-15	0.936	B096738	EPA 504.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

BCL Sample ID: 2037877-02 | **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Aldrin	ND	ug/L	0.0050	0.00095	EPA-508	ND		1
alpha-BHC	ND	ug/L	0.0050	0.00050	EPA-508	ND		1
beta-BHC	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
delta-BHC	ND	ug/L	0.0050	0.0015	EPA-508	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.0050	0.00067	EPA-508	ND		1
Chlordane (Technical)	ND	ug/L	0.10	0.045	EPA-508	ND		1
4,4'-DDD	ND	ug/L	0.0050	0.00086	EPA-508	ND		1
4,4'-DDE	ND	ug/L	0.0050	0.0013	EPA-508	ND		1
4,4'-DDT	ND	ug/L	0.0050	0.00096	EPA-508	ND		1
Dieldrin	ND	ug/L	0.0050	0.0011	EPA-508	ND		1
Endosulfan I	ND	ug/L	0.0050	0.00068	EPA-508	ND		1
Endosulfan II	ND	ug/L	0.0050	0.00098	EPA-508	ND		1
Endosulfan sulfate	ND	ug/L	0.0050	0.00055	EPA-508	ND		1
Endrin	ND	ug/L	0.0050	0.00069	EPA-508	ND		1
Endrin aldehyde	ND	ug/L	0.010	0.00054	EPA-508	ND		1
Heptachlor	ND	ug/L	0.0050	0.00094	EPA-508	ND		1
Heptachlor epoxide	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
Methoxychlor	ND	ug/L	0.0050	0.0037	EPA-508	ND		1
Toxaphene	ND	ug/L	1.0	0.20	EPA-508	ND		1
PCB-1016	ND	ug/L	0.20	0.066	EPA-508	ND		1
PCB-1221	ND	ug/L	0.20	0.063	EPA-508	ND		1
PCB-1232	ND	ug/L	0.20	0.059	EPA-508	ND		1
PCB-1242	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1248	ND	ug/L	0.20	0.044	EPA-508	ND		1
PCB-1254	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1260	ND	ug/L	0.20	0.089	EPA-508	ND		1
Total PCB's (Summation)	ND	ug/L	0.20	0.10	EPA-508	ND		1
TCMX (Surrogate)	88.7	%	60 - 130 (LCL - UCL)		EPA-508			1
Decachlorobiphenyl (Surrogate)	130	%	60 - 130 (LCL - UCL)		EPA-508			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-508	12/30/20 20:30	12/31/20 10:17	HKS	GC-17	1	B096298	EPA 508

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis (EPA Method 515.1)

BCL Sample ID: 2037877-02 | **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Bentazon	ND	ug/L	0.80	0.22	EPA-515.1	ND		1
2,4-D	ND	ug/L	0.40	0.18	EPA-515.1	ND		1
2,4-DB	ND	ug/L	3.0	0.37	EPA-515.1	ND		1
Dalapon	ND	ug/L	5.0	0.31	EPA-515.1	ND		1
Dicamba	ND	ug/L	0.080	0.040	EPA-515.1	ND		1
Dichloroprop	ND	ug/L	0.50	0.11	EPA-515.1	ND		1
Dinoseb	ND	ug/L	0.20	0.057	EPA-515.1	ND		1
MCPA	ND	ug/L	10	6.0	EPA-515.1	ND		1
MCPP	ND	ug/L	10	6.0	EPA-515.1	ND		1
2,4,5-T	ND	ug/L	0.090	0.012	EPA-515.1	ND		1
2,4,5-TP (Silvex)	ND	ug/L	0.070	0.032	EPA-515.1	ND		1
2,4-Dichlorophenylacetic acid (Surrogate)	102	%	40 - 120 (LCL - UCL)		EPA-515.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-515.1	12/30/20 18:00	01/05/21 18:22	OLH	GC-8	1	B096529	EPA 515.1

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2037877-02 **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
Bromobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Bromochloromethane	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Bromodichloromethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Bromoform	ND	ug/L	0.50	0.46	EPA-524.2	ND		1
Bromomethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
n-Butylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
sec-Butylbenzene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
tert-Butylbenzene	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Carbon tetrachloride	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chlorobenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chloroform	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloromethane	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
2-Chlorotoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
4-Chlorotoluene	ND	ug/L	0.50	0.093	EPA-524.2	ND		1
Dibromochloromethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0	0.89	EPA-524.2	ND		1
1,2-Dibromoethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
Dibromomethane	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
1,2-Dichlorobenzene	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,3-Dichlorobenzene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
1,4-Dichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Dichlorodifluoromethane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,1-Dichloroethane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,2-Dichloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,1-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
cis-1,2-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2-Dichloropropane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,3-Dichloropropane	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
2,2-Dichloropropane	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
1,1-Dichloropropene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2037877-02 **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
Total 1,3-Dichloropropene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Ethylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Hexachlorobutadiene	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Isopropylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
p-Isopropyltoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Methylene chloride	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Methyl t-butyl ether	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Naphthalene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
n-Propylbenzene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
Styrene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Tetrachloroethene	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
Toluene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2,3-Trichlorobenzene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,1,1-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Trichloroethene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
Trichlorofluoromethane	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
1,2,3-Trichloropropane	ND	ug/L	1.0	0.78	EPA-524.2	ND		1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trimethylbenzene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,3,5-Trimethylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Vinyl chloride	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Total Xylenes	ND	ug/L	0.50	0.47	EPA-524.2	ND		1
Total Trihalomethanes	ND	ug/L	2.0	0.97	EPA-524.2	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
t-Butyl alcohol	ND	ug/L	10	9.4	EPA-524.2	ND		1
Diisopropyl ether	ND	ug/L	0.50	0.36	EPA-524.2	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50	0.32	EPA-524.2	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2037877-02 | **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
p- & m-Xylenes	ND	ug/L	0.50	0.34	EPA-524.2	ND		1
o-Xylene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
1,2-Dichloroethane-d4 (Surrogate)	91.1	%	75 - 125 (LCL - UCL)		EPA-524.2			1
Toluene-d8 (Surrogate)	98.7	%	80 - 120 (LCL - UCL)		EPA-524.2			1
4-Bromofluorobenzene (Surrogate)	91.2	%	80 - 120 (LCL - UCL)		EPA-524.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-524.2	12/29/20 06:00	12/29/20 13:24	ADC	MS-V15	1	B096208	EPA 524.2

City of Morro Bay		**Reported:**	01/27/2021 16:11
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

BCL Sample ID: 2037877-02 **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2,3-Trichloropropane	ND	ug/L	0.0050	0.00060	SRL 524M	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	SRL 524M	12/30/20 08:30	12/30/20 12:09	ADC	MS-V16	1	B096202	EPA 524.2

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2037877-02 **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthylene	ND	ug/L	0.10	0.031	EPA-525.2	ND		1
Alachlor	ND	ug/L	0.20	0.090	EPA-525.2	ND		1
Anthracene	ND	ug/L	0.10	0.034	EPA-525.2	ND		1
Atraton	ND	ug/L	0.50	0.057	EPA-525.2	ND		1
Atrazine	ND	ug/L	0.30	0.14	EPA-525.2	ND		1
Benzo[a]anthracene	ND	ug/L	0.20	0.044	EPA-525.2	ND		1
Benzo[b]fluoranthene	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Benzo[k]fluoranthene	ND	ug/L	0.30	0.072	EPA-525.2	ND		1
Benzo[a]pyrene	ND	ug/L	0.10	0.050	EPA-525.2	ND		1
Benzo[g,h,i]perylene	ND	ug/L	0.30	0.065	EPA-525.2	ND		1
Benzyl butyl phthalate	ND	ug/L	4.0	0.047	EPA-525.2	ND		1
delta-BHC	ND	ug/L	0.20	0.048	EPA-525.2	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.20	0.063	EPA-525.2	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	3.0	0.030	EPA-525.2	ND		1
Bromacil	ND	ug/L	0.50	0.043	EPA-525.2	ND		1
Chrysene	ND	ug/L	0.30	0.060	EPA-525.2	ND		1
Diazinon	ND	ug/L	0.20	0.080	EPA-525.2	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	0.30	0.051	EPA-525.2	ND		1
Di(2-ethylhexyl)adipate	ND	ug/L	1.0	0.025	EPA-525.2	ND		1
Dimethoate	ND	ug/L	2.0	0.050	EPA-525.2	ND		1
Dimethyl phthalate	ND	ug/L	1.0	0.034	EPA-525.2	ND		1
Di-n-butyl phthalate	ND	ug/L	1.0	0.063	EPA-525.2	ND		1
Fluorene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorobenzene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorocyclopentadiene	ND	ug/L	1.0	0.12	EPA-525.2	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.30	0.032	EPA-525.2	ND		1
Methoxychlor	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Metolachlor	ND	ug/L	0.50	0.056	EPA-525.2	ND		1
Metribuzin	ND	ug/L	0.50	0.048	EPA-525.2	ND		1
Molinate	ND	ug/L	0.50	0.036	EPA-525.2	ND		1
Phenanthrene	ND	ug/L	0.10	0.020	EPA-525.2	ND		1
Prometon	ND	ug/L	0.50	0.11	EPA-525.2	ND		1
Prometryn	ND	ug/L	0.50	0.045	EPA-525.2	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** Project: Project Number: Project Manager:	01/27/2021 16:11 Morro Bay Wells [none] John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2037877-02 **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Propachlor	ND	ug/L	0.50	0.077	EPA-525.2	ND		1
Pyrene	ND	ug/L	0.10	0.040	EPA-525.2	ND		1
Secbumeton	ND	ug/L	0.50	0.079	EPA-525.2	ND		1
Simazine	ND	ug/L	0.30	0.066	EPA-525.2	ND		1
Terbutryn	ND	ug/L	0.50	0.050	EPA-525.2	ND		1
Thiobencarb	ND	ug/L	0.50	0.044	EPA-525.2	ND		1
Perylene-d12 (Surrogate)	128	%	60 - 140 (LCL - UCL)		EPA-525.2			1
1,3-Dimethyl-2-nitrobenzene (Surrogate)	98.8	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Triphenylphosphate (Surrogate)	101	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Pyrene-d10 (Surrogate)	109	%	70 - 130 (LCL - UCL)		EPA-525.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-525.2	01/06/21 07:40	01/07/21 00:08	MK1	MS-B6	1	B096739	EPA 525.2

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

BCL Sample ID: 2037877-02 **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Endothal	ND	ug/L	20	5.3	EPA-548.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-548.1	01/04/21 08:00	01/04/21 21:28	MK1	MS-B1	10	B096526	EPA 548.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

BCL Sample ID: 2037877-02 **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Diquat	ND	ug/L	4.0	1.3	EPA-549.2	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-549.2	01/04/21 10:00	01/08/21 12:14	SAW	HPLC16	1	B096520	EPA 549.2

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

BCL Sample ID: 2037877-02 | **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Dibromoacetic acid	ND	ug/L	1.0	0.32	EPA-552.3	ND		1
Dichloroacetic acid	ND	ug/L	1.0	0.29	EPA-552.3	ND		1
Monobromoacetic acid	ND	ug/L	1.0	0.25	EPA-552.3	ND		1
Monochloroacetic acid	ND	ug/L	1.0	0.61	EPA-552.3	ND		1
Trichloroacetic acid	ND	ug/L	1.0	0.36	EPA-552.3	ND		1
Total HAA's (Summation)	ND	ug/L	1.0	1.0	EPA-552.3	ND		1
2,3-Dibromopropionic acid (Surrogate)	107	%	70 - 130 (LCL - UCL)		EPA-552.3			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-552.3	01/05/21 16:45	01/06/21 12:53	OLH	GC-3	1	B096681	EPA 552.3

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

BCL Sample ID: 2037877-02 | **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Formaldehyde	ND	ug/L	5.0	0.70	EPA-556.1	ND		1
2',4',5'-Trifluoroacetophenone (Surrogate)	97.5	%	30 - 150 (LCL - UCL)		EPA-556.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-556.1	12/30/20 16:45	12/31/20 13:28	OLH	GC-3	1	B096469	EPA 556.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 2037877-02 **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acrolein	ND	ug/L	10	7.9	EPA-8260B	ND		1
Acrylonitrile	ND	ug/L	5.0	1.2	EPA-8260B	ND		1
2-Chloroethyl vinyl ether	ND	ug/L	10	2.4	EPA-8260B	ND		1
1,2-Dichloroethane-d4 (Surrogate)	91.1	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	98.7	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	91.2	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8260B	12/29/20 06:00	12/29/20 13:24	ADC	MS-V15	1	B096208	EPA 5030 Water MS

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2037877-02 | **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Acenaphthylene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Aldrin	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
Aniline	ND	ug/L	5.0	0.28	EPA-8270C	ND		1
Anthracene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzidine	ND	ug/L	20	1.6	EPA-8270C	ND		1
Benzo[a]anthracene	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
Benzo[b]fluoranthene	ND	ug/L	2.0	0.24	EPA-8270C	ND		1
Benzo[k]fluoranthene	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Benzo[a]pyrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzo[g,h,i]perylene	ND	ug/L	2.0	0.33	EPA-8270C	ND		1
Benzoic acid	ND	ug/L	10	0.52	EPA-8270C	ND		1
Benzyl alcohol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzyl butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
alpha-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
beta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
delta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
gamma-BHC (Lindane)	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethoxy)methane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethyl) ether	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
bis(2-Chloroisopropyl)ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	4.0	0.20	EPA-8270C	ND		1
4-Bromophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloroaniline	ND	ug/L	2.0	1.1	EPA-8270C	ND		1
2-Chloronaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chlorophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Chrysene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,4'-DDD	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
4,4'-DDE	ND	ug/L	3.0	0.24	EPA-8270C	ND		1
4,4'-DDT	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	3.0	0.34	EPA-8270C	ND		1
Dibenzofuran	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,2-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay	**Reported:** 01/27/2021 16:11
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2037877-02 **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,3-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,4-Dichlorobenzene	ND	ug/L	2.0	0.27	EPA-8270C	ND		1
3,3-Dichlorobenzidine	ND	ug/L	10	0.53	EPA-8270C	ND		1
Dieldrin	ND	ug/L	3.0	0.39	EPA-8270C	ND		1
Diethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Dimethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dinitrotoluene	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2,6-Dinitrotoluene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-octyl phthalate	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
1,2-Diphenylhydrazine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Endosulfan I	ND	ug/L	10	0.31	EPA-8270C	ND		1
Endosulfan II	ND	ug/L	10	0.30	EPA-8270C	ND		1
Endosulfan sulfate	ND	ug/L	3.0	0.23	EPA-8270C	ND		1
Endrin	ND	ug/L	2.0	0.38	EPA-8270C	ND		1
Endrin aldehyde	ND	ug/L	10	0.44	EPA-8270C	ND		1
Fluoranthene	ND	ug/L	2.0	0.28	EPA-8270C	ND		1
Fluorene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor epoxide	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
Hexachlorobenzene	ND	ug/L	2.0	0.25	EPA-8270C	ND		1
Hexachlorobutadiene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Hexachlorocyclopentadiene	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
Hexachloroethane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	2.0	0.29	EPA-8270C	ND		1
Isophorone	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Methylnaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Naphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Naphthylamine	ND	ug/L	20	1.3	EPA-8270C	ND		1
2-Nitroaniline	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3-Nitroaniline	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
4-Nitroaniline	ND	ug/L	5.0	0.38	EPA-8270C	ND		1
Nitrobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay	**Reported:** 01/27/2021 16:11
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2037877-02 | **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
N-Nitrosodimethylamine	ND	ug/L	2.0	1.2	EPA-8270C	ND		1
N-Nitrosodi-N-propylamine	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
N-Nitrosodiphenylamine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Phenanthrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Pyrene	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloro-3-methylphenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Chlorophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dichlorophenol	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
2,4-Dimethylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,6-Dinitro-2-methylphenol	ND	ug/L	10	0.24	EPA-8270C	ND		1
2,4-Dinitrophenol	ND	ug/L	10	0.20	EPA-8270C	ND		1
2-Methylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3- & 4-Methylphenol	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2-Nitrophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Nitrophenol	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Pentachlorophenol	ND	ug/L	10	0.40	EPA-8270C	ND		1
Phenol	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
2,4,5-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2,4,6-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Fluorophenol (Surrogate)	35.7	%	30 - 120 (LCL - UCL)		EPA-8270C			1
Phenol-d5 (Surrogate)	30.4	%	12 - 110 (LCL - UCL)		EPA-8270C			1
Nitrobenzene-d5 (Surrogate)	45.1	%	50 - 130 (LCL - UCL)		EPA-8270C		S09	1
2-Fluorobiphenyl (Surrogate)	35.3	%	55 - 125 (LCL - UCL)		EPA-8270C		S09	1
2,4,6-Tribromophenol (Surrogate)	60.3	%	40 - 150 (LCL - UCL)		EPA-8270C			1
p-Terphenyl-d14 (Surrogate)	66.2	%	40 - 150 (LCL - UCL)		EPA-8270C			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8270C	12/30/20 17:30	01/06/21 00:05	MK1	MS-B8	0.950	B096524	EPA 3510C

City of Morro Bay		**Reported:**	01/27/2021 16:11
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Explosive Residues (EPA Method 8330)

BCL Sample ID: 2037877-02 | **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
HMX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
RDX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
1,2-Dinitrobenzene (Surrogate)	86.5	%	70 - 130 (LCL - UCL)		EPA-8330			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8330	01/04/21 07:30	01/04/21 22:46	SAW	HPLC16	1	B096517	EPA 8330

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2037877-02 **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Trivalent Chromium	ND	ug/L	10	5.0	Calc	ND		1
Chloride	**160**	**mg/L**	**1.0**	**0.26**	**EPA-300.0**	0.50	**A07**	2
Fluoride	**0.26**	**mg/L**	**0.10**	**0.050**	**EPA-300.0**	ND	**A07**	2
Nitrate as N	**26**	**mg/L**	**0.20**	**0.048**	**EPA-300.0**	ND	**A07**	2
Sulfate	**160**	**mg/L**	**2.0**	**0.28**	**EPA-300.0**	ND	**A07**	2
Nitrate + Nitrite as N	**26**	**mg/L**	**0.10**	**0.018**	**Calc**	ND		3
Electrical Conductivity @ 25 C	**1600**	**umhos/cm**	**1.00**	**1.00**	**SM-2510B**			4
Total Dissolved Solids @ 180 C	**990**	**mg/L**	**50**	**25**	**SM-2540C**	ND	**A07**	5
Color	**4.0**	**Color Units**	**1.0**	**1.0**	**SM-2120B**			6
Odor	No Obs Odor	Odor Units	1.0	1.0	SM-2150B	ND		7
Turbidity	**0.12**	**NT Units**	**0.10**	**0.10**	**EPA-180.1**			8
MBAS	ND	mg/L	0.10	0.024	SM-5540C	ND		9
Total Cyanide	ND	mg/L	0.0050	0.0017	EPA-335.4	0.0018		10
Total Nitrogen	**26**	**mg/L**	**0.30**	**0.10**	**Calc**	ND		11
Total Kjeldahl Nitrogen	ND	mg/L	0.20	0.088	EPA-351.2	ND		12
Nitrite as N	ND	ug/L	50	10	EPA-353.2	ND		13
Perchlorate	ND	mg/L	0.0040	0.00081	EPA-314.0	ND		14
Non-Volatile Organic Carbon	**0.92**	**mg/L**	**1.0**	**0.30**	**SM-5310C**	ND	**J**	15

City of Morro Bay	**Reported:**	01/27/2021 16:11
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2037877-02 **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	
1	Calc	01/15/21 12:06	01/15/21 13:01	AMM	Calc	1	B^L0312	Calc
2	EPA-300.0	12/28/20 22:00	12/29/20 01:50	SAV	IC5	2	B096094	No Prep
3	Calc	12/30/20 12:01	01/05/21 16:01	AMM	Calc	1	B^L0312	Calc
4	SM-2510B	01/04/21 07:30	01/04/21 12:01	RML	MET-1	1	B095981	No Prep
5	SM-2540C	12/29/20 14:00	12/29/20 14:00	CAD	MANUAL	5	B096141	No Prep
6	SM-2120B	12/29/20 08:00	12/29/20 08:00	JTM	MANUAL	1	B096289	No Prep
7	SM-2150B	12/29/20 08:00	12/29/20 08:00	JTM	MANUAL	1	B096290	No Prep
8	EPA-180.1	12/29/20 08:00	12/29/20 08:00	JTM	MANUAL	1	B096291	No Prep
9	SM-5540C	12/29/20 08:30	12/29/20 08:30	JMN	SPEC06	1	B096153	No Prep
10	EPA-335.4	01/04/21 08:21	01/05/21 15:17	MC1	KONE-1	1	B096349	EPA 335.4 Total
11	Calc	12/30/20 12:01	01/11/21 13:01	AMM	Calc	1	B^L0312	Calc
12	EPA-351.2	01/05/21 17:40	01/07/21 15:40	JMH2	SC-1	1	B096533	EPA 351.2
13	EPA-353.2	12/29/20 09:09	12/29/20 12:03	JMH	KONE-1	1	B096507	No Prep
14	EPA-314.0	01/04/21 11:00	01/05/21 11:44	ANK	IC6	1	B096371	No Prep
15	SM-5310C	01/04/21 07:00	01/04/21 17:01	ALW	A537730907	1	B096342	No Prep

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Metals Analysis

BCL Sample ID: 2037877-02 | **Client Sample Name:** MB-3, 12/28/2020 12:18:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Hexavalent Chromium	**1.7**	**ug/L**	**0.20**	**0.020**	**EPA-218.6**	ND		1
Total Recoverable Aluminum	ND	ug/L	50	26	EPA-200.7	ND		2
Total Recoverable Antimony	**0.13**	**ug/L**	**2.0**	**0.11**	**EPA-200.8**	ND	**J**	3
Total Recoverable Arsenic	**2.7**	**ug/L**	**2.0**	**0.70**	**EPA-200.8**	ND		4
Total Recoverable Barium	**120**	**ug/L**	**1.0**	**0.21**	**EPA-200.8**	0.41		3
Total Recoverable Beryllium	ND	ug/L	1.0	0.14	EPA-200.8	ND		5
Total Recoverable Boron	**130**	**ug/L**	**100**	**10**	**EPA-200.7**	ND		2
Total Recoverable Cadmium	**0.15**	**ug/L**	**1.0**	**0.11**	**EPA-200.8**	ND	**J**	3
Total Recoverable Chromium	**1.2**	**ug/L**	**3.0**	**0.50**	**EPA-200.8**	ND	**J**	4
Total Recoverable Cobalt	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Copper	**0.83**	**ug/L**	**2.0**	**0.22**	**EPA-200.8**	ND	**J**	3
Total Recoverable Iron	ND	ug/L	50	30	EPA-200.7	ND		2
Total Recoverable Lead	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Lithium	ND	ug/L	20	6.6	EPA-200.7	ND		2
Total Recoverable Manganese	ND	ug/L	10	4.0	EPA-200.7	ND		2
Total Recoverable Mercury	ND	ug/L	0.20	0.022	EPA-245.1	ND		6
Total Recoverable Molybdenum	**2.0**	**ug/L**	**1.0**	**0.11**	**EPA-200.8**	ND		4
Total Recoverable Nickel	**3.8**	**ug/L**	**2.0**	**0.19**	**EPA-200.8**	ND		3
Total Recoverable Selenium	**28**	**ug/L**	**2.0**	**0.19**	**EPA-200.8**	ND		5
Total Recoverable Silver	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Thallium	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Vanadium	**1.9**	**ug/L**	**3.0**	**0.78**	**EPA-200.8**	ND	**J**	3
Total Recoverable Zinc	**18**	**ug/L**	**10**	**1.7**	**EPA-200.8**	3.4		3
Total Recoverable Uranium	**1.9**	**ug/L**	**1.0**	**0.10**	**EPA-200.8**	ND		3

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-218.6	12/29/20 10:00	12/29/20 15:05	KB1	IC-4	1	B096136	No Prep
2	EPA-200.7	12/30/20 12:00	12/30/20 16:40	JRG	PE-OP4	1	B096231	EPA 200.2
3	EPA-200.8	12/31/20 07:00	01/04/21 23:26	EAR	PE-EL2	1	B096293	EPA 200.2
4	EPA-200.8	12/31/20 07:00	01/05/21 21:37	ARD	PE-EL2	1	B096293	EPA 200.2
5	EPA-200.8	12/31/20 07:00	01/08/21 16:36	ARD	PE-EL4	1	B096293	EPA 200.2
6	EPA-245.1	01/07/21 09:00	01/07/21 15:53	TMT	CETAC3	1	B096701	EPA 245.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

BCL Sample ID: 2037877-03 **Client Sample Name:** 19P-04, 12/28/2020 2:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2-Dibromo-3-chloropropane	ND	ug/L	0.010	0.0015	EPA-504.1	ND		1
Ethylene dibromide	ND	ug/L	0.010	0.0030	EPA-504.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-504.1	01/06/21 11:30	01/06/21 17:32	HKS	GC-15	0.947	B096738	EPA 504.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

BCL Sample ID: 2037877-03 **Client Sample Name:** 19P-04, 12/28/2020 2:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Aldrin	ND	ug/L	0.0050	0.00095	EPA-508	ND		1
alpha-BHC	ND	ug/L	0.0050	0.00050	EPA-508	ND		1
beta-BHC	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
delta-BHC	ND	ug/L	0.0050	0.0015	EPA-508	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.0050	0.00067	EPA-508	ND		1
Chlordane (Technical)	ND	ug/L	0.10	0.045	EPA-508	ND		1
4,4'-DDD	ND	ug/L	0.0050	0.00086	EPA-508	ND		1
4,4'-DDE	ND	ug/L	0.0050	0.0013	EPA-508	ND		1
4,4'-DDT	ND	ug/L	0.0050	0.00096	EPA-508	ND		1
Dieldrin	ND	ug/L	0.0050	0.0011	EPA-508	ND		1
Endosulfan I	ND	ug/L	0.0050	0.00068	EPA-508	ND		1
Endosulfan II	ND	ug/L	0.0050	0.00098	EPA-508	ND		1
Endosulfan sulfate	ND	ug/L	0.0050	0.00055	EPA-508	ND		1
Endrin	ND	ug/L	0.0050	0.00069	EPA-508	ND		1
Endrin aldehyde	ND	ug/L	0.010	0.00054	EPA-508	ND		1
Heptachlor	ND	ug/L	0.0050	0.00094	EPA-508	ND		1
Heptachlor epoxide	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
Methoxychlor	ND	ug/L	0.0050	0.0037	EPA-508	ND		1
Toxaphene	ND	ug/L	1.0	0.20	EPA-508	ND		1
PCB-1016	ND	ug/L	0.20	0.066	EPA-508	ND		1
PCB-1221	ND	ug/L	0.20	0.063	EPA-508	ND		1
PCB-1232	ND	ug/L	0.20	0.059	EPA-508	ND		1
PCB-1242	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1248	ND	ug/L	0.20	0.044	EPA-508	ND		1
PCB-1254	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1260	ND	ug/L	0.20	0.089	EPA-508	ND		1
Total PCB's (Summation)	ND	ug/L	0.20	0.10	EPA-508	ND		1
TCMX (Surrogate)	83.4	%	60 - 130 (LCL - UCL)		EPA-508			1
Decachlorobiphenyl (Surrogate)	122	%	60 - 130 (LCL - UCL)		EPA-508			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-508	12/30/20 20:30	12/31/20 10:34	HKS	GC-17	1	B096298	EPA 508

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis (EPA Method 515.1)

BCL Sample ID: 2037877-03 | **Client Sample Name:** 19P-04, 12/28/2020 2:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Bentazon	ND	ug/L	0.80	0.22	EPA-515.1	ND		1
2,4-D	ND	ug/L	0.40	0.18	EPA-515.1	ND		1
2,4-DB	ND	ug/L	3.0	0.37	EPA-515.1	ND		1
Dalapon	ND	ug/L	5.0	0.31	EPA-515.1	ND		1
Dicamba	ND	ug/L	0.080	0.040	EPA-515.1	ND		1
Dichloroprop	ND	ug/L	0.50	0.11	EPA-515.1	ND		1
Dinoseb	ND	ug/L	0.20	0.057	EPA-515.1	ND		1
MCPA	ND	ug/L	10	6.0	EPA-515.1	ND		1
MCPP	ND	ug/L	10	6.0	EPA-515.1	ND		1
2,4,5-T	ND	ug/L	0.090	0.012	EPA-515.1	ND		1
2,4,5-TP (Silvex)	ND	ug/L	0.070	0.032	EPA-515.1	ND		1
2,4-Dichlorophenylacetic acid (Surrogate)	104	%	40 - 120 (LCL - UCL)		EPA-515.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-515.1	12/30/20 18:00	01/05/21 18:45	OLH	GC-8	1	B096529	EPA 515.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2037877-03 **Client Sample Name:** 19P-04, 12/28/2020 2:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
Bromobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Bromochloromethane	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Bromodichloromethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Bromoform	ND	ug/L	0.50	0.46	EPA-524.2	ND		1
Bromomethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
n-Butylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
sec-Butylbenzene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
tert-Butylbenzene	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Carbon tetrachloride	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chlorobenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chloroform	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloromethane	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
2-Chlorotoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
4-Chlorotoluene	ND	ug/L	0.50	0.093	EPA-524.2	ND		1
Dibromochloromethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0	0.89	EPA-524.2	ND		1
1,2-Dibromoethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
Dibromomethane	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
1,2-Dichlorobenzene	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,3-Dichlorobenzene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
1,4-Dichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Dichlorodifluoromethane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,1-Dichloroethane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,2-Dichloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,1-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
cis-1,2-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2-Dichloropropane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,3-Dichloropropane	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
2,2-Dichloropropane	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
1,1-Dichloropropene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2037877-03 **Client Sample Name:** 19P-04, 12/28/2020 2:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
Total 1,3-Dichloropropene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Ethylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Hexachlorobutadiene	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Isopropylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
p-Isopropyltoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Methylene chloride	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Methyl t-butyl ether	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Naphthalene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
n-Propylbenzene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
Styrene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Tetrachloroethene	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
Toluene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2,3-Trichlorobenzene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,1,1-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Trichloroethene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
Trichlorofluoromethane	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
1,2,3-Trichloropropane	ND	ug/L	1.0	0.78	EPA-524.2	ND		1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trimethylbenzene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,3,5-Trimethylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Vinyl chloride	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Total Xylenes	ND	ug/L	0.50	0.47	EPA-524.2	ND		1
Total Trihalomethanes	ND	ug/L	2.0	0.97	EPA-524.2	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
t-Butyl alcohol	ND	ug/L	10	9.4	EPA-524.2	ND		1
Diisopropyl ether	ND	ug/L	0.50	0.36	EPA-524.2	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50	0.32	EPA-524.2	ND		1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID:	2037877-03	**Client Sample Name:**	19P-04, 12/28/2020 2:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
p- & m-Xylenes	ND	ug/L	0.50	0.34	EPA-524.2	ND		1
o-Xylene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
1,2-Dichloroethane-d4 (Surrogate)	94.8	%	75 - 125 (LCL - UCL)		EPA-524.2			1
Toluene-d8 (Surrogate)	97.8	%	80 - 120 (LCL - UCL)		EPA-524.2			1
4-Bromofluorobenzene (Surrogate)	93.0	%	80 - 120 (LCL - UCL)		EPA-524.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-524.2	12/29/20 06:00	12/29/20 13:47	ADC	MS-V15	1	B096208	EPA 524.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

BCL Sample ID: 2037877-03 **Client Sample Name:** 19P-04, 12/28/2020 2:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2,3-Trichloropropane	ND	ug/L	0.0050	0.00060	SRL 524M	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	SRL 524M	12/30/20 08:30	12/30/20 12:59	ADC	MS-V16	1	B096202	EPA 524.2

Laboratories, Inc.
Environmental Testing Laboratory Since 1949

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2037877-03 **Client Sample Name:** 19P-04, 12/28/2020 2:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthylene	ND	ug/L	0.10	0.031	EPA-525.2	ND		1
Alachlor	ND	ug/L	0.20	0.090	EPA-525.2	ND		1
Anthracene	ND	ug/L	0.10	0.034	EPA-525.2	ND		1
Atraton	ND	ug/L	0.50	0.057	EPA-525.2	ND		1
Atrazine	ND	ug/L	0.30	0.14	EPA-525.2	ND		1
Benzo[a]anthracene	ND	ug/L	0.20	0.044	EPA-525.2	ND		1
Benzo[b]fluoranthene	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Benzo[k]fluoranthene	ND	ug/L	0.30	0.072	EPA-525.2	ND		1
Benzo[a]pyrene	ND	ug/L	0.10	0.050	EPA-525.2	ND		1
Benzo[g,h,i]perylene	ND	ug/L	0.30	0.065	EPA-525.2	ND		1
Benzyl butyl phthalate	ND	ug/L	4.0	0.047	EPA-525.2	ND		1
delta-BHC	ND	ug/L	0.20	0.048	EPA-525.2	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.20	0.063	EPA-525.2	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	3.0	0.030	EPA-525.2	ND		1
Bromacil	ND	ug/L	0.50	0.043	EPA-525.2	ND		1
Chrysene	ND	ug/L	0.30	0.060	EPA-525.2	ND		1
Diazinon	ND	ug/L	0.20	0.080	EPA-525.2	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	0.30	0.051	EPA-525.2	ND		1
Di(2-ethylhexyl)adipate	ND	ug/L	1.0	0.025	EPA-525.2	ND		1
Dimethoate	ND	ug/L	2.0	0.050	EPA-525.2	ND		1
Dimethyl phthalate	ND	ug/L	1.0	0.034	EPA-525.2	ND		1
Di-n-butyl phthalate	ND	ug/L	1.0	0.063	EPA-525.2	ND		1
Fluorene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorobenzene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorocyclopentadiene	ND	ug/L	1.0	0.12	EPA-525.2	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.30	0.032	EPA-525.2	ND		1
Methoxychlor	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Metolachlor	ND	ug/L	0.50	0.056	EPA-525.2	ND		1
Metribuzin	ND	ug/L	0.50	0.048	EPA-525.2	ND		1
Molinate	ND	ug/L	0.50	0.036	EPA-525.2	ND		1
Phenanthrene	ND	ug/L	0.10	0.020	EPA-525.2	ND		1
Prometon	ND	ug/L	0.50	0.11	EPA-525.2	ND		1
Prometryn	ND	ug/L	0.50	0.045	EPA-525.2	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2037877-03 | **Client Sample Name:** 19P-04, 12/28/2020 2:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Propachlor	ND	ug/L	0.50	0.077	EPA-525.2	ND		1
Pyrene	ND	ug/L	0.10	0.040	EPA-525.2	ND		1
Secbumeton	ND	ug/L	0.50	0.079	EPA-525.2	ND		1
Simazine	ND	ug/L	0.30	0.066	EPA-525.2	ND		1
Terbutryn	ND	ug/L	0.50	0.050	EPA-525.2	ND		1
Thiobencarb	ND	ug/L	0.50	0.044	EPA-525.2	ND		1
Perylene-d12 (Surrogate)	131	%	60 - 140 (LCL - UCL)		EPA-525.2			1
1,3-Dimethyl-2-nitrobenzene (Surrogate)	93.2	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Triphenylphosphate (Surrogate)	97.0	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Pyrene-d10 (Surrogate)	98.8	%	70 - 130 (LCL - UCL)		EPA-525.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-525.2	01/06/21 07:40	01/07/21 00:35	MK1	MS-B6	1	B096739	EPA 525.2

City of Morro Bay	**Reported:**	01/27/2021 16:11
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

BCL Sample ID: 2037877-03 **Client Sample Name:** 19P-04, 12/28/2020 2:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Endothal	ND	ug/L	20	5.3	EPA-548.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-548.1	01/04/21 08:00	01/04/21 21:52	MK1	MS-B1	10	B096526	EPA 548.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

BCL Sample ID: 2037877-03 **Client Sample Name:** 19P-04, 12/28/2020 2:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Diquat	ND	ug/L	4.0	1.3	EPA-549.2	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-549.2	01/04/21 10:00	01/08/21 12:21	SAW	HPLC16	1	B096520	EPA 549.2

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

BCL Sample ID: 2037877-03 | **Client Sample Name:** 19P-04, 12/28/2020 2:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Dibromoacetic acid	ND	ug/L	1.0	0.32	EPA-552.3	ND		1
Dichloroacetic acid	ND	ug/L	1.0	0.29	EPA-552.3	ND		1
Monobromoacetic acid	ND	ug/L	1.0	0.25	EPA-552.3	ND		1
Monochloroacetic acid	ND	ug/L	1.0	0.61	EPA-552.3	ND		1
Trichloroacetic acid	ND	ug/L	1.0	0.36	EPA-552.3	ND		1
Total HAA's (Summation)	ND	ug/L	1.0	1.0	EPA-552.3	ND		1
2,3-Dibromopropionic acid (Surrogate)	119	%	70 - 130 (LCL - UCL)		EPA-552.3			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-552.3	01/05/21 16:45	01/06/21 13:14	OLH	GC-3	1	B096681	EPA 552.3

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

BCL Sample ID: 2037877-03 **Client Sample Name:** 19P-04, 12/28/2020 2:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Formaldehyde	ND	ug/L	5.0	0.70	EPA-556.1	ND		1
2',4',5'-Trifluoroacetophenone (Surrogate)	104	%	30 - 150 (LCL - UCL)		EPA-556.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-556.1	12/30/20 16:45	12/31/20 13:46	OLH	GC-3	1	B096469	EPA 556.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 2037877-03 | **Client Sample Name:** 19P-04, 12/28/2020 2:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acrolein	ND	ug/L	10	7.9	EPA-8260B	ND		1
Acrylonitrile	ND	ug/L	5.0	1.2	EPA-8260B	ND		1
2-Chloroethyl vinyl ether	ND	ug/L	10	2.4	EPA-8260B	ND		1
1,2-Dichloroethane-d4 (Surrogate)	94.8	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	97.8	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	93.0	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8260B	12/29/20 06:00	12/29/20 13:47	ADC	MS-V15	1	B096208	EPA 5030 Water MS

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2037877-03 **Client Sample Name:** 19P-04, 12/28/2020 2:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Acenaphthylene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Aldrin	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
Aniline	ND	ug/L	5.0	0.28	EPA-8270C	ND		1
Anthracene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzidine	ND	ug/L	20	1.6	EPA-8270C	ND		1
Benzo[a]anthracene	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
Benzo[b]fluoranthene	ND	ug/L	2.0	0.24	EPA-8270C	ND		1
Benzo[k]fluoranthene	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Benzo[a]pyrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzo[g,h,i]perylene	ND	ug/L	2.0	0.33	EPA-8270C	ND		1
Benzoic acid	ND	ug/L	10	0.52	EPA-8270C	ND		1
Benzyl alcohol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzyl butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
alpha-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
beta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
delta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
gamma-BHC (Lindane)	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethoxy)methane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethyl) ether	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
bis(2-Chloroisopropyl)ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	4.0	0.20	EPA-8270C	ND		1
4-Bromophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloroaniline	ND	ug/L	2.0	1.1	EPA-8270C	ND		1
2-Chloronaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chlorophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Chrysene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,4'-DDD	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
4,4'-DDE	ND	ug/L	3.0	0.24	EPA-8270C	ND		1
4,4'-DDT	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	3.0	0.34	EPA-8270C	ND		1
Dibenzofuran	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,2-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442		**Reported:**	01/27/2021 16:11
		Project:	Morro Bay Wells
		Project Number:	[none]
		Project Manager:	John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2037877-03 | **Client Sample Name:** 19P-04, 12/28/2020 2:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,3-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,4-Dichlorobenzene	ND	ug/L	2.0	0.27	EPA-8270C	ND		1
3,3-Dichlorobenzidine	ND	ug/L	10	0.53	EPA-8270C	ND		1
Dieldrin	ND	ug/L	3.0	0.39	EPA-8270C	ND		1
Diethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Dimethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dinitrotoluene	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2,6-Dinitrotoluene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-octyl phthalate	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
1,2-Diphenylhydrazine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Endosulfan I	ND	ug/L	10	0.31	EPA-8270C	ND		1
Endosulfan II	ND	ug/L	10	0.30	EPA-8270C	ND		1
Endosulfan sulfate	ND	ug/L	3.0	0.23	EPA-8270C	ND		1
Endrin	ND	ug/L	2.0	0.38	EPA-8270C	ND		1
Endrin aldehyde	ND	ug/L	10	0.44	EPA-8270C	ND		1
Fluoranthene	ND	ug/L	2.0	0.28	EPA-8270C	ND		1
Fluorene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor epoxide	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
Hexachlorobenzene	ND	ug/L	2.0	0.25	EPA-8270C	ND		1
Hexachlorobutadiene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Hexachlorocyclopentadiene	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
Hexachloroethane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	2.0	0.29	EPA-8270C	ND		1
Isophorone	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Methylnaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Naphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Naphthylamine	ND	ug/L	20	1.3	EPA-8270C	ND		1
2-Nitroaniline	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3-Nitroaniline	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
4-Nitroaniline	ND	ug/L	5.0	0.38	EPA-8270C	ND		1
Nitrobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** Project: Project Number: Project Manager:	01/27/2021 16:11 Morro Bay Wells [none] John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2037877-03 | **Client Sample Name:** 19P-04, 12/28/2020 2:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
N-Nitrosodimethylamine	ND	ug/L	2.0	1.2	EPA-8270C	ND		1
N-Nitrosodi-N-propylamine	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
N-Nitrosodiphenylamine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Phenanthrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Pyrene	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloro-3-methylphenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Chlorophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dichlorophenol	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
2,4-Dimethylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,6-Dinitro-2-methylphenol	ND	ug/L	10	0.24	EPA-8270C	ND		1
2,4-Dinitrophenol	ND	ug/L	10	0.20	EPA-8270C	ND		1
2-Methylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3- & 4-Methylphenol	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2-Nitrophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Nitrophenol	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Pentachlorophenol	ND	ug/L	10	0.40	EPA-8270C	ND		1
Phenol	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
2,4,5-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2,4,6-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Fluorophenol (Surrogate)	40.2	%	30 - 120 (LCL - UCL)		EPA-8270C			1
Phenol-d5 (Surrogate)	37.7	%	12 - 110 (LCL - UCL)		EPA-8270C			1
Nitrobenzene-d5 (Surrogate)	80.1	%	50 - 130 (LCL - UCL)		EPA-8270C			1
2-Fluorobiphenyl (Surrogate)	84.0	%	55 - 125 (LCL - UCL)		EPA-8270C			1
2,4,6-Tribromophenol (Surrogate)	77.6	%	40 - 150 (LCL - UCL)		EPA-8270C			1
p-Terphenyl-d14 (Surrogate)	113	%	40 - 150 (LCL - UCL)		EPA-8270C			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8270C	12/30/20 17:30	01/05/21 07:38	MK1	MS-B8	1.053	B096524	EPA 3510C

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Explosive Residues (EPA Method 8330)

BCL Sample ID: 2037877-03 | **Client Sample Name:** 19P-04, 12/28/2020 2:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
HMX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
RDX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
1,2-Dinitrobenzene (Surrogate)	93.2	%	70 - 130 (LCL - UCL)		EPA-8330			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8330	01/04/21 07:30	01/04/21 23:17	SAW	HPLC16	1	B096517	EPA 8330

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2037877-03 | **Client Sample Name:** 19P-04, 12/28/2020 2:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Trivalent Chromium	ND	ug/L	10	5.0	Calc	ND		1
Chloride	**160**	**mg/L**	**0.50**	**0.13**	**EPA-300.0**	0.25		2
Fluoride	**0.25**	**mg/L**	**0.10**	**0.050**	**EPA-300.0**	ND	**A07**	3
Nitrate as N	**1.8**	**mg/L**	**0.10**	**0.024**	**EPA-300.0**	ND		2
Sulfate	**180**	**mg/L**	**1.0**	**0.14**	**EPA-300.0**	ND		2
Nitrate + Nitrite as N	**1.9**	**mg/L**	**0.10**	**0.018**	**Calc**	ND		4
Electrical Conductivity @ 25 C	**1420**	**umhos/cm**	**1.00**	**1.00**	**SM-2510B**			5
Total Dissolved Solids @ 180 C	**890**	**mg/L**	**50**	**25**	**SM-2540C**	ND	**A07**	6
Color	**10**	**Color Units**	**1.0**	**1.0**	**SM-2120B**			7
Odor	No Obs Odor	Odor Units	1.0	1.0	SM-2150B	ND		8
Turbidity	**5.8**	**NT Units**	**0.10**	**0.10**	**EPA-180.1**			9
MBAS	ND	mg/L	0.10	0.024	SM-5540C	ND		10
Total Cyanide	ND	mg/L	0.0050	0.0017	EPA-335.4	0.0018		11
Total Nitrogen	**2.0**	**mg/L**	**0.30**	**0.10**	**Calc**	ND		12
Total Kjeldahl Nitrogen	**0.10**	**mg/L**	**0.20**	**0.088**	**EPA-351.2**	ND	**J**	13
Nitrite as N	**100**	**ug/L**	**50**	**10**	**EPA-353.2**	ND		14
Perchlorate	ND	mg/L	0.0040	0.00081	EPA-314.0	ND		15
Non-Volatile Organic Carbon	**1.2**	**mg/L**	**1.0**	**0.30**	**SM-5310C**	ND		16

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2037877-03 **Client Sample Name:** 19P-04, 12/28/2020 2:30:00PM

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	
1	Calc	01/15/21 12:06	01/15/21 13:01	AMM	Calc	1	B^L0312	Calc
2	EPA-300.0	12/28/20 22:00	12/29/20 08:37	SAV	IC5	1	B096094	No Prep
3	EPA-300.0	12/28/20 22:00	12/29/20 02:07	SAV	IC5	2	B096094	No Prep
4	Calc	12/30/20 12:01	01/05/21 16:01	AMM	Calc	1	B^L0312	Calc
5	SM-2510B	01/04/21 07:30	01/04/21 12:07	RML	MET-1	1	B095981	No Prep
6	SM-2540C	12/29/20 14:00	12/29/20 14:00	CAD	MANUAL	5	B096141	No Prep
7	SM-2120B	12/29/20 08:00	12/29/20 08:00	JTM	MANUAL	1	B096289	No Prep
8	SM-2150B	12/29/20 08:00	12/29/20 08:00	JTM	MANUAL	1	B096290	No Prep
9	EPA-180.1	12/29/20 08:00	12/29/20 08:00	JTM	MANUAL	1	B096291	No Prep
10	SM-5540C	12/29/20 08:30	12/29/20 08:30	JMN	SPEC06	1	B096153	No Prep
11	EPA-335.4	01/04/21 08:21	01/06/21 07:43	MC1	KONE-1	1	B096349	EPA 335.4 Total
12	Calc	12/30/20 12:01	01/11/21 13:01	AMM	Calc	1	B^L0312	Calc
13	EPA-351.2	01/05/21 17:40	01/07/21 15:52	JMH2	SC-1	1	B096533	EPA 351.2
14	EPA-353.2	12/29/20 09:09	12/29/20 12:03	JMH	KONE-1	1	B096507	No Prep
15	EPA-314.0	01/04/21 11:00	01/05/21 12:00	ANK	IC6	1	B096371	No Prep
16	SM-5310C	01/04/21 07:00	01/04/21 17:15	ALW	A537730907	1	B096342	No Prep

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Metals Analysis

BCL Sample ID: 2037877-03 **Client Sample Name:** 19P-04, 12/28/2020 2:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Hexavalent Chromium	ND	ug/L	0.20	0.020	EPA-218.6	ND		1
Total Recoverable Aluminum	**310**	**ug/L**	**50**	**26**	**EPA-200.7**	ND		2
Total Recoverable Antimony	ND	ug/L	2.0	0.11	EPA-200.8	ND		3
Total Recoverable Arsenic	**1.1**	**ug/L**	**2.0**	**0.70**	**EPA-200.8**	ND	**J**	3
Total Recoverable Barium	**210**	**ug/L**	**1.0**	**0.21**	**EPA-200.8**	0.39		3
Total Recoverable Beryllium	ND	ug/L	1.0	0.14	EPA-200.8	ND		3
Total Recoverable Boron	**120**	**ug/L**	**100**	**10**	**EPA-200.7**	ND		2
Total Recoverable Cadmium	ND	ug/L	1.0	0.11	EPA-200.8	ND		3
Total Recoverable Chromium	**1.2**	**ug/L**	**3.0**	**0.50**	**EPA-200.8**	ND	**J**	3
Total Recoverable Cobalt	**0.51**	**ug/L**	**1.0**	**0.10**	**EPA-200.8**	ND	**J**	3
Total Recoverable Copper	**1.1**	**ug/L**	**2.0**	**0.22**	**EPA-200.8**	ND	**J**	3
Total Recoverable Iron	**570**	**ug/L**	**50**	**30**	**EPA-200.7**	ND		2
Total Recoverable Lead	**0.17**	**ug/L**	**1.0**	**0.10**	**EPA-200.8**	ND	**J**	3
Total Recoverable Lithium	ND	ug/L	20	6.6	EPA-200.7	ND		2
Total Recoverable Manganese	**1300**	**ug/L**	**10**	**4.0**	**EPA-200.7**	ND		2
Total Recoverable Mercury	ND	ug/L	0.20	0.022	EPA-245.1	ND		4
Total Recoverable Molybdenum	**1.6**	**ug/L**	**1.0**	**0.11**	**EPA-200.8**	0.52		3
Total Recoverable Nickel	**5.8**	**ug/L**	**2.0**	**0.19**	**EPA-200.8**	ND		3
Total Recoverable Selenium	**7.4**	**ug/L**	**2.0**	**0.19**	**EPA-200.8**	ND		3
Total Recoverable Silver	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Thallium	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Vanadium	**1.7**	**ug/L**	**3.0**	**0.78**	**EPA-200.8**	ND	**J**	3
Total Recoverable Zinc	**21**	**ug/L**	**10**	**1.7**	**EPA-200.8**	6.7		3
Total Recoverable Uranium	**2.1**	**ug/L**	**1.0**	**0.10**	**EPA-200.8**	ND		3

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-218.6	12/28/20 19:00	12/28/20 22:13	KB1	IC-4	1	B096099	No Prep
2	EPA-200.7	01/05/21 17:30	01/06/21 15:30	JRG	PE-OP4	1	B096535	EPA 200.2
3	EPA-200.8	12/31/20 07:00	01/07/21 11:49	ARD	PE-EL2	1	B096292	EPA 200.2
4	EPA-245.1	01/07/21 09:00	01/07/21 16:06	TMT	CETAC3	1	B096702	EPA 245.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

BCL Sample ID: 2037877-04 | **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2-Dibromo-3-chloropropane	ND	ug/L	0.010	0.0015	EPA-504.1	ND		1
Ethylene dibromide	ND	ug/L	0.010	0.0030	EPA-504.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-504.1	01/06/21 11:30	01/06/21 17:47	HKS	GC-15	0.937	B096738	EPA 504.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

BCL Sample ID: 2037877-04 **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Aldrin	ND	ug/L	0.0050	0.00095	EPA-508	ND		1
alpha-BHC	ND	ug/L	0.0050	0.00050	EPA-508	ND		1
beta-BHC	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
delta-BHC	ND	ug/L	0.0050	0.0015	EPA-508	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.0050	0.00067	EPA-508	ND		1
Chlordane (Technical)	ND	ug/L	0.10	0.045	EPA-508	ND		1
4,4'-DDD	ND	ug/L	0.0050	0.00086	EPA-508	ND		1
4,4'-DDE	ND	ug/L	0.0050	0.0013	EPA-508	ND		1
4,4'-DDT	ND	ug/L	0.0050	0.00096	EPA-508	ND		1
Dieldrin	ND	ug/L	0.0050	0.0011	EPA-508	ND		1
Endosulfan I	ND	ug/L	0.0050	0.00068	EPA-508	ND		1
Endosulfan II	ND	ug/L	0.0050	0.00098	EPA-508	ND		1
Endosulfan sulfate	ND	ug/L	0.0050	0.00055	EPA-508	ND		1
Endrin	ND	ug/L	0.0050	0.00069	EPA-508	ND		1
Endrin aldehyde	ND	ug/L	0.010	0.00054	EPA-508	ND		1
Heptachlor	ND	ug/L	0.0050	0.00094	EPA-508	ND		1
Heptachlor epoxide	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
Methoxychlor	ND	ug/L	0.0050	0.0037	EPA-508	ND		1
Toxaphene	ND	ug/L	1.0	0.20	EPA-508	ND		1
PCB-1016	ND	ug/L	0.20	0.066	EPA-508	ND		1
PCB-1221	ND	ug/L	0.20	0.063	EPA-508	ND		1
PCB-1232	ND	ug/L	0.20	0.059	EPA-508	ND		1
PCB-1242	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1248	ND	ug/L	0.20	0.044	EPA-508	ND		1
PCB-1254	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1260	ND	ug/L	0.20	0.089	EPA-508	ND		1
Total PCB's (Summation)	ND	ug/L	0.20	0.10	EPA-508	ND		1
TCMX (Surrogate)	78.3	%	60 - 130 (LCL - UCL)		EPA-508			1
Decachlorobiphenyl (Surrogate)	109	%	60 - 130 (LCL - UCL)		EPA-508			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-508	12/30/20 20:30	12/31/20 10:50	HKS	GC-17	1	B096298	EPA 508

City of Morro Bay	**Reported:**	01/27/2021 16:11
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Organic Analysis (EPA Method 515.1)

BCL Sample ID: 2037877-04 | **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Bentazon	ND	ug/L	0.80	0.22	EPA-515.1	ND		1
2,4-D	ND	ug/L	0.40	0.18	EPA-515.1	ND		1
2,4-DB	ND	ug/L	3.0	0.37	EPA-515.1	ND		1
Dalapon	ND	ug/L	5.0	0.31	EPA-515.1	ND		1
Dicamba	ND	ug/L	0.080	0.040	EPA-515.1	ND		1
Dichloroprop	ND	ug/L	0.50	0.11	EPA-515.1	ND		1
Dinoseb	ND	ug/L	0.20	0.057	EPA-515.1	ND		1
MCPA	ND	ug/L	10	6.0	EPA-515.1	ND		1
MCPP	ND	ug/L	10	6.0	EPA-515.1	ND		1
2,4,5-T	ND	ug/L	0.090	0.012	EPA-515.1	ND		1
2,4,5-TP (Silvex)	ND	ug/L	0.070	0.032	EPA-515.1	ND		1
2,4-Dichlorophenylacetic acid (Surrogate)	106	%	40 - 120 (LCL - UCL)		EPA-515.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-515.1	12/30/20 18:00	01/05/21 19:08	OLH	GC-8	1	B096529	EPA 515.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2037877-04 **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
Bromobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Bromochloromethane	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Bromodichloromethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Bromoform	ND	ug/L	0.50	0.46	EPA-524.2	ND		1
Bromomethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
n-Butylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
sec-Butylbenzene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
tert-Butylbenzene	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Carbon tetrachloride	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chlorobenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chloroform	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloromethane	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
2-Chlorotoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
4-Chlorotoluene	ND	ug/L	0.50	0.093	EPA-524.2	ND		1
Dibromochloromethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0	0.89	EPA-524.2	ND		1
1,2-Dibromoethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
Dibromomethane	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
1,2-Dichlorobenzene	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,3-Dichlorobenzene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
1,4-Dichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Dichlorodifluoromethane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,1-Dichloroethane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,2-Dichloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,1-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
cis-1,2-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2-Dichloropropane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,3-Dichloropropane	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
2,2-Dichloropropane	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
1,1-Dichloropropene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2037877-04 | **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
Total 1,3-Dichloropropene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Ethylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Hexachlorobutadiene	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Isopropylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
p-Isopropyltoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Methylene chloride	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Methyl t-butyl ether	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Naphthalene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
n-Propylbenzene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
Styrene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Tetrachloroethene	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
Toluene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2,3-Trichlorobenzene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,1,1-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Trichloroethene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
Trichlorofluoromethane	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
1,2,3-Trichloropropane	ND	ug/L	1.0	0.78	EPA-524.2	ND		1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trimethylbenzene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,3,5-Trimethylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Vinyl chloride	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Total Xylenes	ND	ug/L	0.50	0.47	EPA-524.2	ND		1
Total Trihalomethanes	ND	ug/L	2.0	0.97	EPA-524.2	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
t-Butyl alcohol	ND	ug/L	10	9.4	EPA-524.2	ND		1
Diisopropyl ether	ND	ug/L	0.50	0.36	EPA-524.2	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50	0.32	EPA-524.2	ND		1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2037877-04 **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
p- & m-Xylenes	ND	ug/L	0.50	0.34	EPA-524.2	ND		1
o-Xylene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
1,2-Dichloroethane-d4 (Surrogate)	95.5	%	75 - 125 (LCL - UCL)		EPA-524.2			1
Toluene-d8 (Surrogate)	98.7	%	80 - 120 (LCL - UCL)		EPA-524.2			1
4-Bromofluorobenzene (Surrogate)	93.6	%	80 - 120 (LCL - UCL)		EPA-524.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-524.2	12/29/20 06:00	12/29/20 14:10	ADC	MS-V15	1	B096208	EPA 524.2

City of Morro Bay	**Reported:** 01/27/2021 16:11
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

BCL Sample ID: 2037877-04 | **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2,3-Trichloropropane	ND	ug/L	0.0050	0.00060	SRL 524M	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	SRL 524M	12/30/20 08:30	12/30/20 13:23	ADC	MS-V16	1	B096202	EPA 524.2

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2037877-04 | **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthylene	ND	ug/L	0.10	0.031	EPA-525.2	ND		1
Alachlor	ND	ug/L	0.20	0.090	EPA-525.2	ND		1
Anthracene	ND	ug/L	0.10	0.034	EPA-525.2	ND		1
Atraton	ND	ug/L	0.50	0.057	EPA-525.2	ND		1
Atrazine	ND	ug/L	0.30	0.14	EPA-525.2	ND		1
Benzo[a]anthracene	ND	ug/L	0.20	0.044	EPA-525.2	ND		1
Benzo[b]fluoranthene	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Benzo[k]fluoranthene	ND	ug/L	0.30	0.072	EPA-525.2	ND		1
Benzo[a]pyrene	ND	ug/L	0.10	0.050	EPA-525.2	ND		1
Benzo[g,h,i]perylene	ND	ug/L	0.30	0.065	EPA-525.2	ND		1
Benzyl butyl phthalate	ND	ug/L	4.0	0.047	EPA-525.2	ND		1
delta-BHC	ND	ug/L	0.20	0.048	EPA-525.2	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.20	0.063	EPA-525.2	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	3.0	0.030	EPA-525.2	ND		1
Bromacil	ND	ug/L	0.50	0.043	EPA-525.2	ND		1
Chrysene	ND	ug/L	0.30	0.060	EPA-525.2	ND		1
Diazinon	ND	ug/L	0.20	0.080	EPA-525.2	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	0.30	0.051	EPA-525.2	ND		1
Di(2-ethylhexyl)adipate	ND	ug/L	1.0	0.025	EPA-525.2	ND		1
Dimethoate	ND	ug/L	2.0	0.050	EPA-525.2	ND		1
Dimethyl phthalate	ND	ug/L	1.0	0.034	EPA-525.2	ND		1
Di-n-butyl phthalate	ND	ug/L	1.0	0.063	EPA-525.2	ND		1
Fluorene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorobenzene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorocyclopentadiene	ND	ug/L	1.0	0.12	EPA-525.2	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.30	0.032	EPA-525.2	ND		1
Methoxychlor	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Metolachlor	ND	ug/L	0.50	0.056	EPA-525.2	ND		1
Metribuzin	ND	ug/L	0.50	0.048	EPA-525.2	ND		1
Molinate	ND	ug/L	0.50	0.036	EPA-525.2	ND		1
Phenanthrene	ND	ug/L	0.10	0.020	EPA-525.2	ND		1
Prometon	ND	ug/L	0.50	0.11	EPA-525.2	ND		1
Prometryn	ND	ug/L	0.50	0.045	EPA-525.2	ND		1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2037877-04 | **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Propachlor	ND	ug/L	0.50	0.077	EPA-525.2	ND		1
Pyrene	ND	ug/L	0.10	0.040	EPA-525.2	ND		1
Secbumeton	ND	ug/L	0.50	0.079	EPA-525.2	ND		1
Simazine	ND	ug/L	0.30	0.066	EPA-525.2	ND		1
Terbutryn	ND	ug/L	0.50	0.050	EPA-525.2	ND		1
Thiobencarb	ND	ug/L	0.50	0.044	EPA-525.2	ND		1
Perylene-d12 (Surrogate)	123	%	60 - 140 (LCL - UCL)		EPA-525.2			1
1,3-Dimethyl-2-nitrobenzene (Surrogate)	99.0	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Triphenylphosphate (Surrogate)	88.6	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Pyrene-d10 (Surrogate)	94.8	%	70 - 130 (LCL - UCL)		EPA-525.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-525.2	01/06/21 07:40	01/07/21 01:02	MK1	MS-B6	1	B096739	EPA 525.2

City of Morro Bay	**Reported:** 01/27/2021 16:11
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

BCL Sample ID: 2037877-04 **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Endothal	ND	ug/L	20	5.3	EPA-548.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-548.1	01/04/21 08:00	01/04/21 22:17	MK1	MS-B1	10	B096526	EPA 548.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

BCL Sample ID: 2037877-04 | **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Diquat	ND	ug/L	4.0	1.3	EPA-549.2	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-549.2	01/04/21 10:00	01/08/21 12:29	SAW	HPLC16	1	B096520	EPA 549.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

BCL Sample ID: 2037877-04 **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Dibromoacetic acid	ND	ug/L	1.0	0.32	EPA-552.3	ND		1
Dichloroacetic acid	ND	ug/L	1.0	0.29	EPA-552.3	ND		1
Monobromoacetic acid	ND	ug/L	1.0	0.25	EPA-552.3	ND		1
Monochloroacetic acid	ND	ug/L	1.0	0.61	EPA-552.3	ND		1
Trichloroacetic acid	ND	ug/L	1.0	0.36	EPA-552.3	ND		1
Total HAA's (Summation)	ND	ug/L	1.0	1.0	EPA-552.3	ND		1
2,3-Dibromopropionic acid (Surrogate)	108	%	70 - 130 (LCL - UCL)		EPA-552.3			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-552.3	01/05/21 16:45	01/06/21 13:36	OLH	GC-3	1	B096681	EPA 552.3

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

BCL Sample ID: 2037877-04 **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Formaldehyde	ND	ug/L	5.0	0.70	EPA-556.1	ND		1
2',4',5'-Trifluoroacetophenone (Surrogate)	101	%	30 - 150 (LCL - UCL)		EPA-556.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-556.1	12/30/20 16:45	12/31/20 14:04	OLH	GC-3	1	B096469	EPA 556.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 2037877-04 **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acrolein	ND	ug/L	10	7.9	EPA-8260B	ND		1
Acrylonitrile	ND	ug/L	5.0	1.2	EPA-8260B	ND		1
2-Chloroethyl vinyl ether	ND	ug/L	10	2.4	EPA-8260B	ND		1
1,2-Dichloroethane-d4 (Surrogate)	95.5	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	98.7	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	93.6	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8260B	12/29/20 06:00	12/29/20 14:10	ADC	MS-V15	1	B096208	EPA 5030 Water MS

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2037877-04 **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Acenaphthylene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Aldrin	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
Aniline	ND	ug/L	5.0	0.28	EPA-8270C	ND		1
Anthracene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzidine	ND	ug/L	20	1.6	EPA-8270C	ND		1
Benzo[a]anthracene	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
Benzo[b]fluoranthene	ND	ug/L	2.0	0.24	EPA-8270C	ND		1
Benzo[k]fluoranthene	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Benzo[a]pyrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzo[g,h,i]perylene	ND	ug/L	2.0	0.33	EPA-8270C	ND		1
Benzoic acid	ND	ug/L	10	0.52	EPA-8270C	ND		1
Benzyl alcohol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzyl butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
alpha-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
beta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
delta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
gamma-BHC (Lindane)	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethoxy)methane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethyl) ether	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
bis(2-Chloroisopropyl)ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	4.0	0.20	EPA-8270C	ND		1
4-Bromophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloroaniline	ND	ug/L	2.0	1.1	EPA-8270C	ND		1
2-Chloronaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chlorophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Chrysene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,4'-DDD	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
4,4'-DDE	ND	ug/L	3.0	0.24	EPA-8270C	ND		1
4,4'-DDT	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	3.0	0.34	EPA-8270C	ND		1
Dibenzofuran	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,2-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2037877-04 **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,3-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,4-Dichlorobenzene	ND	ug/L	2.0	0.27	EPA-8270C	ND		1
3,3-Dichlorobenzidine	ND	ug/L	10	0.53	EPA-8270C	ND		1
Dieldrin	ND	ug/L	3.0	0.39	EPA-8270C	ND		1
Diethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Dimethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dinitrotoluene	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2,6-Dinitrotoluene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-octyl phthalate	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
1,2-Diphenylhydrazine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Endosulfan I	ND	ug/L	10	0.31	EPA-8270C	ND		1
Endosulfan II	ND	ug/L	10	0.30	EPA-8270C	ND		1
Endosulfan sulfate	ND	ug/L	3.0	0.23	EPA-8270C	ND		1
Endrin	ND	ug/L	2.0	0.38	EPA-8270C	ND		1
Endrin aldehyde	ND	ug/L	10	0.44	EPA-8270C	ND		1
Fluoranthene	ND	ug/L	2.0	0.28	EPA-8270C	ND		1
Fluorene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor epoxide	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
Hexachlorobenzene	ND	ug/L	2.0	0.25	EPA-8270C	ND		1
Hexachlorobutadiene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Hexachlorocyclopentadiene	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
Hexachloroethane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	2.0	0.29	EPA-8270C	ND		1
Isophorone	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Methylnaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Naphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Naphthylamine	ND	ug/L	20	1.3	EPA-8270C	ND		1
2-Nitroaniline	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3-Nitroaniline	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
4-Nitroaniline	ND	ug/L	5.0	0.38	EPA-8270C	ND		1
Nitrobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2037877-04 **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
N-Nitrosodimethylamine	ND	ug/L	2.0	1.2	EPA-8270C	ND		1
N-Nitrosodi-N-propylamine	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
N-Nitrosodiphenylamine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Phenanthrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Pyrene	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloro-3-methylphenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Chlorophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dichlorophenol	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
2,4-Dimethylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,6-Dinitro-2-methylphenol	ND	ug/L	10	0.24	EPA-8270C	ND		1
2,4-Dinitrophenol	ND	ug/L	10	0.20	EPA-8270C	ND		1
2-Methylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3- & 4-Methylphenol	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2-Nitrophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Nitrophenol	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Pentachlorophenol	ND	ug/L	10	0.40	EPA-8270C	ND		1
Phenol	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
2,4,5-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2,4,6-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Fluorophenol (Surrogate)	61.8	%	30 - 120 (LCL - UCL)		EPA-8270C			1
Phenol-d5 (Surrogate)	52.0	%	12 - 110 (LCL - UCL)		EPA-8270C			1
Nitrobenzene-d5 (Surrogate)	83.2	%	50 - 130 (LCL - UCL)		EPA-8270C			1
2-Fluorobiphenyl (Surrogate)	88.2	%	55 - 125 (LCL - UCL)		EPA-8270C			1
2,4,6-Tribromophenol (Surrogate)	103	%	40 - 150 (LCL - UCL)		EPA-8270C			1
p-Terphenyl-d14 (Surrogate)	109	%	40 - 150 (LCL - UCL)		EPA-8270C			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8270C	12/30/20 17:30	01/05/21 08:05	MK1	MS-B8	0.970	B096524	EPA 3510C

City of Morro Bay		**Reported:**	01/27/2021 16:11
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Explosive Residues (EPA Method 8330)

BCL Sample ID: 2037877-04 | **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
HMX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
RDX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
1,2-Dinitrobenzene (Surrogate)	90.3	%	70 - 130 (LCL - UCL)		EPA-8330			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8330	01/04/21 07:30	01/05/21 01:22	SAW	HPLC16	1	B096517	EPA 8330

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2037877-04 | **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Trivalent Chromium	ND	ug/L	10	5.0	Calc	ND		1
Chloride	**120**	**mg/L**	**0.50**	**0.13**	**EPA-300.0**	0.25		2
Fluoride	**0.29**	**mg/L**	**0.050**	**0.025**	**EPA-300.0**	ND		2
Nitrate as N	**1.5**	**mg/L**	**0.10**	**0.024**	**EPA-300.0**	ND		2
Sulfate	**140**	**mg/L**	**1.0**	**0.14**	**EPA-300.0**	ND		2
Nitrate + Nitrite as N	**1.6**	**mg/L**	**0.10**	**0.018**	**Calc**	ND		3
Electrical Conductivity @ 25 C	**1210**	**umhos/cm**	**1.00**	**1.00**	**SM-2510B**			4
Total Dissolved Solids @ 180 C	**720**	**mg/L**	**50**	**25**	**SM-2540C**	ND	**A07**	5
Color	**3.0**	**Color Units**	**1.0**	**1.0**	**SM-2120B**			6
Odor	No Obs Odor	Odor Units	1.0	1.0	SM-2150B	ND		7
Turbidity	**0.21**	**NT Units**	**0.10**	**0.10**	**EPA-180.1**			8
MBAS	ND	mg/L	0.10	0.024	SM-5540C	ND		9
Total Cyanide	ND	mg/L	0.0050	0.0017	EPA-335.4	0.0018		10
Total Nitrogen	**1.8**	**mg/L**	**0.30**	**0.10**	**Calc**	ND		11
Total Kjeldahl Nitrogen	**0.17**	**mg/L**	**0.20**	**0.088**	**EPA-351.2**	ND	**J**	12
Nitrite as N	**120**	**ug/L**	**50**	**10**	**EPA-353.2**	ND		13
Perchlorate	ND	mg/L	0.0040	0.00081	EPA-314.0	ND		14
Non-Volatile Organic Carbon	**1.2**	**mg/L**	**1.0**	**0.30**	**SM-5310C**	ND		15

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2037877-04 **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	
1	Calc	01/15/21 12:06	01/15/21 13:01	AMM	Calc	1	B^L0312	Calc
2	EPA-300.0	12/28/20 22:00	12/29/20 02:25	SAV	IC5	1	B096094	No Prep
3	Calc	12/30/20 12:01	01/05/21 16:01	AMM	Calc	1	B^L0312	Calc
4	SM-2510B	01/04/21 07:30	01/04/21 12:13	RML	MET-1	1	B095981	No Prep
5	SM-2540C	12/29/20 14:00	12/29/20 14:00	CAD	MANUAL	5	B096141	No Prep
6	SM-2120B	12/29/20 08:00	12/29/20 08:00	JTM	MANUAL	1	B096289	No Prep
7	SM-2150B	12/29/20 08:00	12/29/20 08:00	JTM	MANUAL	1	B096290	No Prep
8	EPA-180.1	12/29/20 08:00	12/29/20 08:00	JTM	MANUAL	1	B096291	No Prep
9	SM-5540C	12/29/20 08:30	12/29/20 08:30	JMN	SPEC06	1	B096153	No Prep
10	EPA-335.4	01/04/21 08:21	01/05/21 15:27	MC1	KONE-1	1	B096349	EPA 335.4 Total
11	Calc	12/30/20 12:01	01/11/21 13:01	AMM	Calc	1	B^L0312	Calc
12	EPA-351.2	01/05/21 17:40	01/07/21 15:53	JMH2	SC-1	1	B096533	EPA 351.2
13	EPA-353.2	12/29/20 09:09	12/29/20 12:03	JMH	KONE-1	1	B096507	No Prep
14	EPA-314.0	01/04/21 11:00	01/05/21 12:17	SAV	IC6	1	B096371	No Prep
15	SM-5310C	01/04/21 07:00	01/04/21 17:29	ALW	A537730907	1	B096342	No Prep

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Metals Analysis

BCL Sample ID: 2037877-04 | **Client Sample Name:** Vistra, 12/28/2020 3:30:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Hexavalent Chromium	ND	ug/L	0.20	0.020	EPA-218.6	ND		1
Total Recoverable Aluminum	ND	ug/L	50	26	EPA-200.7	ND		2
Total Recoverable Antimony	ND	ug/L	2.0	0.11	EPA-200.8	ND		3
Total Recoverable Arsenic	**1.4**	**ug/L**	**2.0**	**0.70**	**EPA-200.8**	ND	**J**	3
Total Recoverable Barium	**170**	**ug/L**	**1.0**	**0.21**	**EPA-200.8**	0.39		3
Total Recoverable Beryllium	ND	ug/L	1.0	0.14	EPA-200.8	ND		3
Total Recoverable Boron	**100**	**ug/L**	**100**	**10**	**EPA-200.7**	ND		2
Total Recoverable Cadmium	ND	ug/L	1.0	0.11	EPA-200.8	ND		3
Total Recoverable Chromium	ND	ug/L	3.0	0.50	EPA-200.8	ND		3
Total Recoverable Cobalt	**0.55**	**ug/L**	**1.0**	**0.10**	**EPA-200.8**	ND	**J**	3
Total Recoverable Copper	ND	ug/L	2.0	0.22	EPA-200.8	ND		3
Total Recoverable Iron	ND	ug/L	50	30	EPA-200.7	ND		2
Total Recoverable Lead	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Lithium	ND	ug/L	20	6.6	EPA-200.7	ND		2
Total Recoverable Manganese	**1100**	**ug/L**	**10**	**4.0**	**EPA-200.7**	ND		2
Total Recoverable Mercury	ND	ug/L	0.20	0.022	EPA-245.1	ND		4
Total Recoverable Molybdenum	**1.9**	**ug/L**	**1.0**	**0.11**	**EPA-200.8**	0.52		3
Total Recoverable Nickel	**3.5**	**ug/L**	**2.0**	**0.19**	**EPA-200.8**	ND		3
Total Recoverable Selenium	**1.2**	**ug/L**	**2.0**	**0.19**	**EPA-200.8**	ND	**J**	3
Total Recoverable Silver	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Thallium	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Vanadium	**1.7**	**ug/L**	**3.0**	**0.78**	**EPA-200.8**	ND	**J**	3
Total Recoverable Zinc	**2.5**	**ug/L**	**10**	**1.7**	**EPA-200.8**	6.7	**J**	3
Total Recoverable Uranium	**1.9**	**ug/L**	**1.0**	**0.10**	**EPA-200.8**	ND		3

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-218.6	12/29/20 10:00	12/29/20 15:14	KB1	IC-4	1	B096136	No Prep
2	EPA-200.7	12/30/20 12:00	12/30/20 16:27	JRG	PE-OP4	1	B096231	EPA 200.2
3	EPA-200.8	12/31/20 07:00	01/07/21 11:51	ARD	PE-EL2	1	B096292	EPA 200.2
4	EPA-245.1	01/07/21 09:00	01/07/21 16:17	TMT	CETAC3	1	B096702	EPA 245.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B096738						
1,2-Dibromo-3-chloropropane	B096738-BLK1	ND	ug/L	0.010	0.0015	
Ethylene dibromide	B096738-BLK1	ND	ug/L	0.010	0.0030	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B096738										
1,2-Dibromo-3-chloropropane	B096738-BS1	LCS	0.12565	0.14265	ug/L	88.1		70 - 130		
Ethylene dibromide	B096738-BS1	LCS	0.16177	0.14265	ug/L	113		70 - 130		

City of Morro Bay	**Reported:**	01/27/2021 16:11
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B096738	Used client sample: N										
1,2-Dibromo-3-chloropropane	MS	2037384-50	ND	0.13071	0.14282	ug/L		91.5		70 - 130	
	MSD	2037384-50	ND	0.13036	0.14282	ug/L	0.3	91.3	30	70 - 130	
Ethylene dibromide	MS	2037384-50	ND	0.16064	0.14282	ug/L		112		70 - 130	
	MSD	2037384-50	ND	0.16510	0.14282	ug/L	2.7	116	30	70 - 130	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B096298						
Aldrin	B096298-BLK1	ND	ug/L	0.0050	0.00095	
alpha-BHC	B096298-BLK1	ND	ug/L	0.0050	0.00050	
beta-BHC	B096298-BLK1	ND	ug/L	0.0050	0.00064	
delta-BHC	B096298-BLK1	ND	ug/L	0.0050	0.0015	
gamma-BHC (Lindane)	B096298-BLK1	ND	ug/L	0.0050	0.00067	
Chlordane (Technical)	B096298-BLK1	ND	ug/L	0.10	0.045	
4,4'-DDD	B096298-BLK1	ND	ug/L	0.0050	0.00086	
4,4'-DDE	B096298-BLK1	ND	ug/L	0.0050	0.0013	
4,4'-DDT	B096298-BLK1	ND	ug/L	0.0050	0.00096	
Dieldrin	B096298-BLK1	ND	ug/L	0.0050	0.0011	
Endosulfan I	B096298-BLK1	ND	ug/L	0.0050	0.00068	
Endosulfan II	B096298-BLK1	ND	ug/L	0.0050	0.00098	
Endosulfan sulfate	B096298-BLK1	ND	ug/L	0.0050	0.00055	
Endrin	B096298-BLK1	ND	ug/L	0.0050	0.00069	
Endrin aldehyde	B096298-BLK1	ND	ug/L	0.010	0.00054	
Heptachlor	B096298-BLK1	ND	ug/L	0.0050	0.00094	
Heptachlor epoxide	B096298-BLK1	ND	ug/L	0.0050	0.00064	
Methoxychlor	B096298-BLK1	ND	ug/L	0.0050	0.0037	
Toxaphene	B096298-BLK1	ND	ug/L	1.0	0.20	
PCB-1016	B096298-BLK1	ND	ug/L	0.20	0.066	
PCB-1221	B096298-BLK1	ND	ug/L	0.20	0.063	
PCB-1232	B096298-BLK1	ND	ug/L	0.20	0.059	
PCB-1242	B096298-BLK1	ND	ug/L	0.20	0.037	
PCB-1248	B096298-BLK1	ND	ug/L	0.20	0.044	
PCB-1254	B096298-BLK1	ND	ug/L	0.20	0.037	
PCB-1260	B096298-BLK1	ND	ug/L	0.20	0.089	
Total PCB's (Summation)	B096298-BLK1	ND	ug/L	0.20	0.10	
TCMX (Surrogate)	**B096298-BLK1**	**86.4**	%	**60 - 130 (LCL - UCL)**		
Decachlorobiphenyl (Surrogate)	**B096298-BLK1**	**84.1**	%	**60 - 130 (LCL - UCL)**		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B096298										
Aldrin	B096298-BS1	LCS	0.13598	0.15000	ug/L	90.7		60 - 130		
gamma-BHC (Lindane)	B096298-BS1	LCS	0.12828	0.15000	ug/L	85.5		60 - 130		
4,4'-DDT	B096298-BS1	LCS	0.16626	0.15000	ug/L	111		60 - 130		
Dieldrin	B096298-BS1	LCS	0.14045	0.15000	ug/L	93.6		60 - 130		
Endrin	B096298-BS1	LCS	0.16491	0.15000	ug/L	110		60 - 130		
Heptachlor	B096298-BS1	LCS	0.14410	0.15000	ug/L	96.1		60 - 130		
TCMX (Surrogate)	B096298-BS1	LCS	0.20122	0.30000	ug/L	67.1		60 - 130		
Decachlorobiphenyl (Surrogate)	B096298-BS1	LCS	0.55851	0.60000	ug/L	93.1		60 - 130		

City of Morro Bay		**Reported:**	01/27/2021 16:11
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

Quality Control Report - Precision & Accuracy

QC Batch ID: B096298 Used client sample: N

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
Aldrin	MS	2037384-57	ND	0.14256	0.15000	ug/L		95.0		60 - 130	
	MSD	2037384-57	ND	0.15490	0.15000	ug/L	8.3	103	30	60 - 130	
gamma-BHC (Lindane)	MS	2037384-57	ND	0.13514	0.15000	ug/L		90.1		60 - 130	
	MSD	2037384-57	ND	0.14418	0.15000	ug/L	6.5	96.1	30	60 - 130	
4,4'-DDT	MS	**2037384-57**	**ND**	**0.17865**	**0.15000**	**ug/L**		**119**		**60 - 130**	
	MSD	**2037384-57**	**ND**	**0.21777**	**0.15000**	**ug/L**	**19.7**	**145**	**30**	**60 - 130**	**Q03**
Dieldrin	MS	2037384-57	ND	0.14960	0.15000	ug/L		99.7		60 - 130	
	MSD	2037384-57	ND	0.16634	0.15000	ug/L	10.6	111	30	60 - 130	
Endrin	MS	**2037384-57**	**ND**	**0.18122**	**0.15000**	**ug/L**		**121**		**60 - 130**	
	MSD	**2037384-57**	**ND**	**0.20750**	**0.15000**	**ug/L**	**13.5**	**138**	**30**	**60 - 130**	**Q03**
Heptachlor	MS	2037384-57	ND	0.15248	0.15000	ug/L		102		60 - 130	
	MSD	2037384-57	ND	0.16700	0.15000	ug/L	9.1	111	30	60 - 130	
TCMX (Surrogate)	MS	2037384-57	ND	0.21012	0.30000	ug/L		70.0		60 - 130	
	MSD	2037384-57	ND	0.21924	0.30000	ug/L	4.2	73.1		60 - 130	
Decachlorobiphenyl (Surrogate)	MS	2037384-57	ND	0.61308	0.60000	ug/L		102		60 - 130	
	MSD	2037384-57	ND	0.71567	0.60000	ug/L	15.4	119		60 - 130	

City of Morro Bay	**Reported:**	01/27/2021 16:11
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Organic Analysis (EPA Method 515.1)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B096529						
Bentazon	B096529-BLK1	ND	ug/L	0.80	0.22	
2,4-D	B096529-BLK1	ND	ug/L	0.40	0.18	
2,4-DB	B096529-BLK1	ND	ug/L	3.0	0.37	
Dalapon	B096529-BLK1	ND	ug/L	5.0	0.31	
Dicamba	B096529-BLK1	ND	ug/L	0.080	0.040	
Dichloroprop	B096529-BLK1	ND	ug/L	0.50	0.11	
Dinoseb	B096529-BLK1	ND	ug/L	0.20	0.057	
MCPA	B096529-BLK1	ND	ug/L	10	6.0	
MCPP	B096529-BLK1	ND	ug/L	10	6.0	
2,4,5-T	B096529-BLK1	ND	ug/L	0.090	0.012	
2,4,5-TP (Silvex)	B096529-BLK1	ND	ug/L	0.070	0.032	
2,4-Dichlorophenylacetic acid (Surrogate)	**B096529-BLK1**	**115**	%	**40 - 120 (LCL - UCL)**		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis (EPA Method 515.1)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B096529										
2,4-D	B096529-BS1	LCS	2.8300	2.4000	ug/L	118		50 - 120		
2,4-DB	B096529-BS1	LCS	6.4100	5.4000	ug/L	119		50 - 120		
Dicamba	B096529-BS1	LCS	0.59000	0.60000	ug/L	98.3		50 - 120		
Dichloroprop	B096529-BS1	LCS	2.5700	2.4000	ug/L	107		50 - 120		
Dinoseb	B096529-BS1	LCS	1.0600	1.2000	ug/L	88.3		50 - 120		
2,4,5-T	B096529-BS1	LCS	0.72000	0.60000	ug/L	120		40 - 120		
2,4,5-TP (Silvex)	B096529-BS1	LCS	0.60000	0.60000	ug/L	100		50 - 120		
2,4-Dichlorophenylacetic acid (Surrogate)	B096529-BS1	LCS	4.1700	4.0000	ug/L	104		40 - 120		

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** Project: Project Number: Project Manager:	01/27/2021 16:11 Morro Bay Wells [none] John Gunderlock

Organic Analysis (EPA Method 515.1)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B096529	Used client sample: N										
2,4-D	MS	2037384-52	ND	2.8500	2.4000	ug/L		119		40 - 120	
	MSD	2037384-52	ND	2.7000	2.4000	ug/L	5.4	112	30	40 - 120	
2,4-DB	MS	**2037384-52**	**ND**	**6.7000**	**5.4000**	**ug/L**		**124**		**50 - 120**	**Q03**
	MSD	**2037384-52**	**ND**	**6.3000**	**5.4000**	**ug/L**	**6.2**	**117**	**30**	**50 - 120**	
Dicamba	MS	2037384-52	ND	0.59000	0.60000	ug/L		98.3		50 - 120	
	MSD	2037384-52	ND	0.57000	0.60000	ug/L	3.4	95.0	30	50 - 120	
Dichloroprop	MS	2037384-52	ND	2.5600	2.4000	ug/L		107		40 - 120	
	MSD	2037384-52	ND	2.4600	2.4000	ug/L	4.0	102	30	40 - 120	
Dinoseb	MS	2037384-52	ND	1.0400	1.2000	ug/L		86.7		40 - 130	
	MSD	2037384-52	ND	1.0400	1.2000	ug/L	0	86.7	30	40 - 130	
2,4,5-T	MS	**2037384-52**	**ND**	**0.80000**	**0.60000**	**ug/L**		**133**		**40 - 120**	**Q03**
	MSD	**2037384-52**	**ND**	**0.76000**	**0.60000**	**ug/L**	**5.1**	**127**	**30**	**40 - 120**	**Q03**
2,4,5-TP (Silvex)	MS	2037384-52	ND	0.62000	0.60000	ug/L		103		40 - 120	
	MSD	2037384-52	ND	0.59000	0.60000	ug/L	5.0	98.3	30	40 - 120	
2,4-Dichlorophenylacetic acid (Surrogate	MS	2037384-52	ND	4.0900	4.0000	ug/L		102		40 - 120	
	MSD	2037384-52	ND	4.1100	4.0000	ug/L	0.5	103		40 - 120	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Method Blank Analysis

QC Batch ID: B096208

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Benzene	B096208-BLK1	ND	ug/L	0.50	0.11	
Bromobenzene	B096208-BLK1	ND	ug/L	0.50	0.15	
Bromochloromethane	B096208-BLK1	ND	ug/L	0.50	0.27	
Bromodichloromethane	B096208-BLK1	ND	ug/L	0.50	0.20	
Bromoform	B096208-BLK1	ND	ug/L	0.50	0.46	
Bromomethane	B096208-BLK1	ND	ug/L	0.50	0.20	
n-Butylbenzene	B096208-BLK1	ND	ug/L	0.50	0.15	
sec-Butylbenzene	B096208-BLK1	ND	ug/L	0.50	0.13	
tert-Butylbenzene	B096208-BLK1	ND	ug/L	0.50	0.18	
Carbon tetrachloride	B096208-BLK1	ND	ug/L	0.50	0.17	
Chlorobenzene	B096208-BLK1	ND	ug/L	0.50	0.14	
Chloroethane	B096208-BLK1	ND	ug/L	0.50	0.17	
Chloroform	B096208-BLK1	ND	ug/L	0.50	0.14	
Chloromethane	B096208-BLK1	ND	ug/L	0.50	0.11	
2-Chlorotoluene	B096208-BLK1	ND	ug/L	0.50	0.14	
4-Chlorotoluene	B096208-BLK1	ND	ug/L	0.50	0.093	
Dibromochloromethane	B096208-BLK1	ND	ug/L	0.50	0.22	
1,2-Dibromo-3-chloropropane	B096208-BLK1	ND	ug/L	1.0	0.89	
1,2-Dibromoethane	B096208-BLK1	ND	ug/L	0.50	0.22	
Dibromomethane	B096208-BLK1	ND	ug/L	0.50	0.23	
1,2-Dichlorobenzene	B096208-BLK1	ND	ug/L	0.50	0.21	
1,3-Dichlorobenzene	B096208-BLK1	ND	ug/L	0.50	0.16	
1,4-Dichlorobenzene	B096208-BLK1	ND	ug/L	0.50	0.15	
Dichlorodifluoromethane	B096208-BLK1	ND	ug/L	0.50	0.15	
1,1-Dichloroethane	B096208-BLK1	ND	ug/L	0.50	0.15	
1,2-Dichloroethane	B096208-BLK1	ND	ug/L	0.50	0.17	
1,1-Dichloroethene	B096208-BLK1	ND	ug/L	0.50	0.27	
cis-1,2-Dichloroethene	B096208-BLK1	ND	ug/L	0.50	0.27	
trans-1,2-Dichloroethene	B096208-BLK1	ND	ug/L	0.50	0.17	
1,2-Dichloropropane	B096208-BLK1	ND	ug/L	0.50	0.15	
1,3-Dichloropropane	B096208-BLK1	ND	ug/L	0.50	0.13	
2,2-Dichloropropane	B096208-BLK1	ND	ug/L	0.50	0.18	
1,1-Dichloropropene	B096208-BLK1	ND	ug/L	0.50	0.19	
cis-1,3-Dichloropropene	B096208-BLK1	ND	ug/L	0.50	0.14	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** Project: Project Number: Project Manager:	01/27/2021 16:11 Morro Bay Wells [none] John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B096208						
trans-1,3-Dichloropropene	B096208-BLK1	ND	ug/L	0.50	0.13	
Total 1,3-Dichloropropene	B096208-BLK1	ND	ug/L	0.50	0.27	
Ethylbenzene	B096208-BLK1	ND	ug/L	0.50	0.15	
Hexachlorobutadiene	B096208-BLK1	ND	ug/L	0.50	0.20	
Isopropylbenzene	B096208-BLK1	ND	ug/L	0.50	0.14	
p-Isopropyltoluene	B096208-BLK1	ND	ug/L	0.50	0.14	
Methylene chloride	B096208-BLK1	ND	ug/L	0.50	0.21	
Methyl t-butyl ether	B096208-BLK1	ND	ug/L	0.50	0.14	
Naphthalene	B096208-BLK1	ND	ug/L	0.50	0.16	
n-Propylbenzene	B096208-BLK1	ND	ug/L	0.50	0.12	
Styrene	B096208-BLK1	ND	ug/L	0.50	0.12	
1,1,1,2-Tetrachloroethane	B096208-BLK1	ND	ug/L	0.50	0.21	
1,1,2,2-Tetrachloroethane	B096208-BLK1	ND	ug/L	0.50	0.17	
Tetrachloroethene	B096208-BLK1	ND	ug/L	0.50	0.23	
Toluene	B096208-BLK1	ND	ug/L	0.50	0.17	
1,2,3-Trichlorobenzene	B096208-BLK1	ND	ug/L	0.50	0.19	
1,2,4-Trichlorobenzene	B096208-BLK1	ND	ug/L	0.50	0.15	
1,1,1-Trichloroethane	B096208-BLK1	ND	ug/L	0.50	0.21	
1,1,2-Trichloroethane	B096208-BLK1	ND	ug/L	0.50	0.21	
Trichloroethene	B096208-BLK1	ND	ug/L	0.50	0.19	
Trichlorofluoromethane	B096208-BLK1	ND	ug/L	0.50	0.14	
1,2,3-Trichloropropane	B096208-BLK1	ND	ug/L	1.0	0.78	
1,1,2-Trichloro-1,2,2-trifluoroethane	B096208-BLK1	ND	ug/L	0.50	0.19	
1,2,4-Trimethylbenzene	B096208-BLK1	ND	ug/L	0.50	0.17	
1,3,5-Trimethylbenzene	B096208-BLK1	ND	ug/L	0.50	0.14	
Vinyl chloride	B096208-BLK1	ND	ug/L	0.50	0.18	
Total Xylenes	B096208-BLK1	ND	ug/L	0.50	0.47	
Total Trihalomethanes	B096208-BLK1	ND	ug/L	2.0	0.97	
t-Amyl Methyl ether	B096208-BLK1	ND	ug/L	0.50	0.19	
t-Butyl alcohol	B096208-BLK1	ND	ug/L	10	9.4	
Diisopropyl ether	B096208-BLK1	ND	ug/L	0.50	0.36	
Ethyl t-butyl ether	B096208-BLK1	ND	ug/L	0.50	0.32	
p- & m-Xylenes	B096208-BLK1	ND	ug/L	0.50	0.34	
o-Xylene	B096208-BLK1	ND	ug/L	0.50	0.13	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B096208						
1,2-Dichloroethane-d4 (Surrogate)	**B096208-BLK1**	**101**	%	**75 - 125 (LCL - UCL)**		
Toluene-d8 (Surrogate)	**B096208-BLK1**	**101**	%	**80 - 120 (LCL - UCL)**		
4-Bromofluorobenzene (Surrogate)	**B096208-BLK1**	**96.8**	%	**80 - 120 (LCL - UCL)**		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B096208										
Benzene	B096208-BS1	LCS	22.020	25.000	ug/L	88.1		70 - 130		
Bromodichloromethane	B096208-BS1	LCS	20.480	25.000	ug/L	81.9		70 - 130		
Chlorobenzene	B096208-BS1	LCS	22.290	25.000	ug/L	89.2		70 - 130		
Chloroethane	B096208-BS1	LCS	21.190	25.000	ug/L	84.8		70 - 130		
1,4-Dichlorobenzene	B096208-BS1	LCS	21.010	25.000	ug/L	84.0		70 - 130		
1,1-Dichloroethane	B096208-BS1	LCS	21.350	25.000	ug/L	85.4		70 - 130		
1,1-Dichloroethene	B096208-BS1	LCS	27.100	25.000	ug/L	108		70 - 130		
Toluene	B096208-BS1	LCS	22.560	25.000	ug/L	90.2		70 - 130		
Trichloroethene	B096208-BS1	LCS	23.120	25.000	ug/L	92.5		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	B096208-BS1	LCS	9.8400	10.000	ug/L	98.4		75 - 125		
Toluene-d8 (Surrogate)	B096208-BS1	LCS	9.9500	10.000	ug/L	99.5		80 - 120		
4-Bromofluorobenzene (Surrogate)	B096208-BS1	LCS	10.130	10.000	ug/L	101		80 - 120		

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B096208	Used client sample: N										
Benzene	MS	**2037384-43**	**ND**	**19.130**	**25.000**	**ug/L**		**76.5**		**70 - 130**	
	MSD	**2037384-43**	**ND**	**29.290**	**25.000**	**ug/L**	**42.0**	**117**	**20**	**70 - 130**	**Q02**
Bromodichloromethane	MS	2037384-43	ND	22.030	25.000	ug/L		88.1		70 - 130	
	MSD	2037384-43	ND	26.490	25.000	ug/L	18.4	106	20	70 - 130	
Chlorobenzene	MS	**2037384-43**	**ND**	**21.210**	**25.000**	**ug/L**		**84.8**		**70 - 130**	
	MSD	**2037384-43**	**ND**	**28.020**	**25.000**	**ug/L**	**27.7**	**112**	**20**	**70 - 130**	**Q02**
Chloroethane	MS	**2037384-43**	**ND**	**19.780**	**25.000**	**ug/L**		**79.1**		**70 - 130**	
	MSD	**2037384-43**	**ND**	**26.140**	**25.000**	**ug/L**	**27.7**	**105**	**20**	**70 - 130**	**Q02**
1,4-Dichlorobenzene	MS	2037384-43	ND	22.970	25.000	ug/L		91.9		70 - 130	
	MSD	2037384-43	ND	27.150	25.000	ug/L	16.7	109	20	70 - 130	
1,1-Dichloroethane	MS	**2037384-43**	**ND**	**21.380**	**25.000**	**ug/L**		**85.5**		**70 - 130**	
	MSD	**2037384-43**	**ND**	**26.280**	**25.000**	**ug/L**	**20.6**	**105**	**20**	**70 - 130**	**Q02**
1,1-Dichloroethene	MS	**2037384-43**	**ND**	**21.880**	**25.000**	**ug/L**		**87.5**		**70 - 130**	
	MSD	**2037384-43**	**ND**	**30.120**	**25.000**	**ug/L**	**31.7**	**120**	**20**	**70 - 130**	**Q02**
Toluene	MS	2037384-43	ND	20.180	25.000	ug/L		80.7		70 - 130	
	MSD	2037384-43	ND	24.590	25.000	ug/L	19.7	98.4	20	70 - 130	
Trichloroethene	MS	**2037384-43**	**ND**	**19.670**	**25.000**	**ug/L**		**78.7**		**70 - 130**	
	MSD	**2037384-43**	**ND**	**29.640**	**25.000**	**ug/L**	**40.4**	**119**	**20**	**70 - 130**	**Q02**
1,2-Dichloroethane-d4 (Surrogate)	MS	2037384-43	ND	11.360	10.000	ug/L		114		75 - 125	
	MSD	2037384-43	ND	11.110	10.000	ug/L	2.2	111		75 - 125	
Toluene-d8 (Surrogate)	MS	2037384-43	ND	8.8700	10.000	ug/L		88.7		80 - 120	
	MSD	2037384-43	ND	8.6000	10.000	ug/L	3.1	86.0		80 - 120	
4-Bromofluorobenzene (Surrogate)	MS	2037384-43	ND	10.040	10.000	ug/L		100		80 - 120	
	MSD	2037384-43	ND	10.100	10.000	ug/L	0.6	101		80 - 120	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B096202						
1,2,3-Trichloropropane	B096202-BLK1	ND	ug/L	0.0050	0.00060	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B096202										
1,2,3-Trichloropropane	B096202-BS1	LCS	0.058050	0.050000	ug/L	116		80 - 120		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B096202	Used client sample: N										
1,2,3-Trichloropropane	MS	2037384-11	ND	0.058840	0.050000	ug/L		118		70 - 130	
	MSD	2037384-11	ND	0.051270	0.050000	ug/L	13.7	103	30	70 - 130	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

Quality Control Report - Method Blank Analysis

QC Batch ID: B096739

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Acenaphthylene	B096739-BLK1	ND	ug/L	0.10	0.031	
Alachlor	B096739-BLK1	ND	ug/L	0.20	0.090	
Anthracene	B096739-BLK1	ND	ug/L	0.10	0.034	
Atraton	B096739-BLK1	ND	ug/L	0.50	0.057	
Atrazine	B096739-BLK1	ND	ug/L	0.30	0.14	
Benzo[a]anthracene	B096739-BLK1	ND	ug/L	0.20	0.044	
Benzo[b]fluoranthene	B096739-BLK1	ND	ug/L	0.30	0.034	
Benzo[k]fluoranthene	B096739-BLK1	ND	ug/L	0.30	0.072	
Benzo[a]pyrene	B096739-BLK1	ND	ug/L	0.10	0.050	
Benzo[g,h,i]perylene	B096739-BLK1	ND	ug/L	0.30	0.065	
Benzyl butyl phthalate	B096739-BLK1	ND	ug/L	4.0	0.047	
delta-BHC	B096739-BLK1	ND	ug/L	0.20	0.048	
gamma-BHC (Lindane)	B096739-BLK1	ND	ug/L	0.20	0.063	
bis(2-Ethylhexyl)phthalate	B096739-BLK1	ND	ug/L	3.0	0.030	
Bromacil	B096739-BLK1	ND	ug/L	0.50	0.043	
Chrysene	B096739-BLK1	ND	ug/L	0.30	0.060	
Diazinon	B096739-BLK1	ND	ug/L	0.20	0.080	
Dibenzo[a,h]anthracene	B096739-BLK1	ND	ug/L	0.30	0.051	
Di(2-ethylhexyl)adipate	B096739-BLK1	ND	ug/L	1.0	0.025	
Dimethoate	B096739-BLK1	ND	ug/L	2.0	0.050	
Dimethyl phthalate	B096739-BLK1	ND	ug/L	1.0	0.034	
Di-n-butyl phthalate	B096739-BLK1	ND	ug/L	1.0	0.063	
Fluorene	B096739-BLK1	ND	ug/L	0.20	0.029	
Hexachlorobenzene	B096739-BLK1	ND	ug/L	0.20	0.029	
Hexachlorocyclopentadiene	B096739-BLK1	ND	ug/L	1.0	0.12	
Indeno[1,2,3-cd]pyrene	B096739-BLK1	ND	ug/L	0.30	0.032	
Methoxychlor	B096739-BLK1	ND	ug/L	0.30	0.034	
Metolachlor	B096739-BLK1	ND	ug/L	0.50	0.056	
Metribuzin	B096739-BLK1	ND	ug/L	0.50	0.048	
Molinate	B096739-BLK1	ND	ug/L	0.50	0.036	
Phenanthrene	B096739-BLK1	ND	ug/L	0.10	0.020	
Prometon	B096739-BLK1	ND	ug/L	0.50	0.11	
Prometryn	B096739-BLK1	ND	ug/L	0.50	0.045	
Propachlor	B096739-BLK1	ND	ug/L	0.50	0.077	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

Quality Control Report - Method Blank Analysis

QC Batch ID: B096739

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Pyrene	B096739-BLK1	ND	ug/L	0.10	0.040	
Secbumeton	B096739-BLK1	ND	ug/L	0.50	0.079	
Simazine	B096739-BLK1	ND	ug/L	0.30	0.066	
Terbutryn	B096739-BLK1	ND	ug/L	0.50	0.050	
Thiobencarb	B096739-BLK1	ND	ug/L	0.50	0.044	
Perylene-d12 (Surrogate)	**B096739-BLK1**	**119**	%	**60 - 140 (LCL - UCL)**		
1,3-Dimethyl-2-nitrobenzene (Surrogate)	**B096739-BLK1**	**91.6**	%	**70 - 130 (LCL - UCL)**		
Triphenylphosphate (Surrogate)	**B096739-BLK1**	**81.2**	%	**70 - 130 (LCL - UCL)**		
Pyrene-d10 (Surrogate)	**B096739-BLK1**	**99.6**	%	**70 - 130 (LCL - UCL)**		

City of Morro Bay	**Reported:** 01/27/2021 16:11
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B096739										
Acenaphthylene	B096739-BS1	LCS	1.0000	2.0000	ug/L	50.0		60 - 120		L01
Alachlor	B096739-BS1	LCS	1.9400	2.0000	ug/L	97.0		60 - 120		
Atrazine	B096739-BS1	LCS	2.1600	2.0000	ug/L	108		60 - 120		
Benzo[a]pyrene	B096739-BS1	LCS	2.0300	2.0000	ug/L	102		60 - 120		
Chrysene	B096739-BS1	LCS	2.2000	2.0000	ug/L	110		60 - 120		
Pyrene	B096739-BS1	LCS	2.2200	2.0000	ug/L	111		60 - 120		
Simazine	B096739-BS1	LCS	1.2600	2.0000	ug/L	63.0		60 - 120		
Perylene-d12 (Surrogate)	B096739-BS1	LCS	6.1600	5.0000	ug/L	123		60 - 140		
1,3-Dimethyl-2-nitrobenzene (Surrogate)	B096739-BS1	LCS	4.5900	5.0000	ug/L	91.8		70 - 130		
Triphenylphosphate (Surrogate)	B096739-BS1	LCS	4.4000	5.0000	ug/L	88.0		70 - 130		
Pyrene-d10 (Surrogate)	B096739-BS1	LCS	5.1900	5.0000	ug/L	104		70 - 130		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B096739	Used client sample: N										
Acenaphthylene	MS	**2037384-53**	**ND**	**1.1300**	**2.0000**	**ug/L**		**56.5**		**50 - 120**	
	MSD	**2037384-53**	**ND**	**0.98000**	**2.0000**	**ug/L**	**14.2**	**49.0**	**30**	**50 - 120**	**Q03**
Alachlor	MS	2037384-53	ND	2.1300	2.0000	ug/L		106		50 - 120	
	MSD	2037384-53	ND	2.0200	2.0000	ug/L	5.3	101	30	50 - 120	
Atrazine	MS	2037384-53	ND	2.3300	2.0000	ug/L		116		50 - 120	
	MSD	2037384-53	ND	2.2400	2.0000	ug/L	3.9	112	30	50 - 120	
Benzo[a]pyrene	MS	**2037384-53**	**ND**	**2.5400**	**2.0000**	**ug/L**		**127**		**50 - 120**	**Q03**
	MSD	**2037384-53**	**ND**	**2.2800**	**2.0000**	**ug/L**	**10.8**	**114**	**30**	**50 - 120**	
Chrysene	MS	2037384-53	ND	2.3300	2.0000	ug/L		116		50 - 120	
	MSD	2037384-53	ND	2.2700	2.0000	ug/L	2.6	114	30	50 - 120	
Pyrene	MS	2037384-53	ND	2.3100	2.0000	ug/L		116		50 - 120	
	MSD	2037384-53	ND	2.3100	2.0000	ug/L	0	116	30	50 - 120	
Simazine	MS	**2037384-53**	**ND**	**0.91000**	**2.0000**	**ug/L**		**45.5**		**50 - 120**	**Q03**
	MSD	**2037384-53**	**ND**	**1.2400**	**2.0000**	**ug/L**	**30.7**	**62.0**	**30**	**50 - 120**	**Q02**
Perylene-d12 (Surrogate)	MS	2037384-53	ND	6.3900	5.0000	ug/L		128		60 - 140	
	MSD	2037384-53	ND	6.2000	5.0000	ug/L	3.0	124		60 - 140	
1,3-Dimethyl-2-nitrobenzene (Surrogate)	MS	2037384-53	ND	4.6200	5.0000	ug/L		92.4		70 - 130	
	MSD	2037384-53	ND	4.4000	5.0000	ug/L	4.9	88.0		70 - 130	
Triphenylphosphate (Surrogate)	MS	2037384-53	ND	5.1200	5.0000	ug/L		102		70 - 130	
	MSD	2037384-53	ND	4.7800	5.0000	ug/L	6.9	95.6		70 - 130	
Pyrene-d10 (Surrogate)	MS	2037384-53	ND	5.1500	5.0000	ug/L		103		70 - 130	
	MSD	2037384-53	ND	5.2700	5.0000	ug/L	2.3	105		70 - 130	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B096526						
Endothal	B096526-BLK1	ND	ug/L	2.0	0.53	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B096526										
Endothal	B096526-BS1	LCS	76.750	100.00	ug/L	76.8		70 - 130		

City of Morro Bay		**Reported:**	01/27/2021 16:11
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B096526	Used client sample: N										
Endothal	MS	2037384-53	ND	78.750	100.00	ug/L		78.8		70 - 130	
	MSD	2037384-53	ND	78.860	100.00	ug/L	0.1	78.9	30	70 - 130	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B096520						
Diquat	B096520-BLK1	ND	ug/L	4.0	1.3	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B096520										
Diquat	B096520-BS1	LCS	82.560	80.000	ug/L	103		70 - 130		

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B096520	Used client sample: N										
Diquat	MS	2037384-57	ND	82.640	80.000	ug/L		103		70 - 130	
	MSD	2037384-57	ND	78.840	80.000	ug/L	4.7	98.6	30	70 - 130	

City of Morro Bay	**Reported:** 01/27/2021 16:11
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Method Blank Analysis

QC Batch ID: B096681

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Dibromoacetic acid	B096681-BLK1	ND	ug/L	1.0	0.32	
Dichloroacetic acid	B096681-BLK1	ND	ug/L	1.0	0.29	
Monobromoacetic acid	B096681-BLK1	ND	ug/L	1.0	0.25	
Monochloroacetic acid	B096681-BLK1	ND	ug/L	1.0	0.61	
Trichloroacetic acid	B096681-BLK1	ND	ug/L	1.0	0.36	
Total HAA's (Summation)	B096681-BLK1	ND	ug/L	1.0	1.0	
2,3-Dibromopropionic acid (Surrogate)	**B096681-BLK1**	**99.8**	%	**70 - 130 (LCL - UCL)**		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B096681										
Dibromoacetic acid	B096681-BS1	LCS	14.090	15.000	ug/L	93.9		70 - 130		
Dichloroacetic acid	B096681-BS1	LCS	13.891	15.000	ug/L	92.6		70 - 130		
Monobromoacetic acid	B096681-BS1	LCS	15.502	15.000	ug/L	103		70 - 130		
Monochloroacetic acid	B096681-BS1	LCS	13.408	15.000	ug/L	89.4		70 - 130		
Trichloroacetic acid	B096681-BS1	LCS	16.072	15.000	ug/L	107		70 - 130		
2,3-Dibromopropionic acid (Surrogate)	B096681-BS1	LCS	14.7	15.0	ug/L	98.1		70 - 130		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B096681	Used client sample: N										
Dibromoacetic acid	MS	2037384-57	ND	13.630	15.000	ug/L		90.9		70 - 130	
	MSD	2037384-57	ND	14.688	15.000	ug/L	7.5	97.9	30	70 - 130	
Dichloroacetic acid	MS	2037384-57	ND	12.910	15.000	ug/L		86.1		70 - 130	
	MSD	2037384-57	ND	14.345	15.000	ug/L	10.5	95.6	30	70 - 130	
Monobromoacetic acid	MS	2037384-57	ND	13.769	15.000	ug/L		91.8		70 - 130	
	MSD	2037384-57	ND	15.720	15.000	ug/L	13.2	105	30	70 - 130	
Monochloroacetic acid	MS	2037384-57	ND	13.489	15.000	ug/L		89.9		70 - 130	
	MSD	2037384-57	ND	14.075	15.000	ug/L	4.3	93.8	30	70 - 130	
Trichloroacetic acid	MS	2037384-57	ND	15.932	15.000	ug/L		106		70 - 130	
	MSD	2037384-57	ND	16.771	15.000	ug/L	5.1	112	30	70 - 130	
2,3-Dibromopropionic acid (Surrogate)	MS	2037384-57	ND	13.5	15.0	ug/L		90.0		70 - 130	
	MSD	2037384-57	ND	15.3	15.0	ug/L	12.5	102		70 - 130	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B096469						
Formaldehyde	B096469-BLK1	ND	ug/L	5.0	0.70	
2',4',5'-Trifluoroacetophenone (Surrogate)	**B096469-BLK1**	**103**	%	**30 - 150 (LCL - UCL)**		

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B096469										
Formaldehyde	B096469-BS1	LCS	18.472	20.000	ug/L	92.4		60 - 150		
2',4',5'-Trifluoroacetophenone (Surrogate)	B096469-BS1	LCS	20.0	20.0	ug/L	99.9		30 - 150		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B096469	Used client sample: N										
Formaldehyde	MS	2037384-53	ND	20.378	20.000	ug/L		102		50 - 150	
	MSD	2037384-53	ND	18.852	20.000	ug/L	7.8	94.3	30	50 - 150	
2',4',5'-Trifluoroacetophenone (Surrogate	MS	2037384-53	ND	22.2	20.0	ug/L		111		30 - 150	
	MSD	2037384-53	ND	20.8	20.0	ug/L	6.6	104		30 - 150	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B096208						
Acrolein	B096208-BLK1	ND	ug/L	10	7.9	
Acrylonitrile	B096208-BLK1	ND	ug/L	5.0	1.2	
2-Chloroethyl vinyl ether	B096208-BLK1	ND	ug/L	10	2.4	
1,2-Dichloroethane-d4 (Surrogate)	**B096208-BLK1**	**101**	%	**75 - 125 (LCL - UCL)**		
Toluene-d8 (Surrogate)	**B096208-BLK1**	**101**	%	**80 - 120 (LCL - UCL)**		
4-Bromofluorobenzene (Surrogate)	**B096208-BLK1**	**96.8**	%	**80 - 120 (LCL - UCL)**		

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B096208										
1,2-Dichloroethane-d4 (Surrogate)	B096208-BS1	LCS	9.8400	10.000	ug/L	98.4		75 - 125		
Toluene-d8 (Surrogate)	B096208-BS1	LCS	9.9500	10.000	ug/L	99.5		80 - 120		
4-Bromofluorobenzene (Surrogate)	B096208-BS1	LCS	10.130	10.000	ug/L	101		80 - 120		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B096208	Used client sample: N										
1,2-Dichloroethane-d4 (Surrogate)	MS	2037384-43	ND	11.360	10.000	ug/L		114		75 - 125	
	MSD	2037384-43	ND	11.110	10.000	ug/L	2.2	111		75 - 125	
Toluene-d8 (Surrogate)	MS	2037384-43	ND	8.8700	10.000	ug/L		88.7		80 - 120	
	MSD	2037384-43	ND	8.6000	10.000	ug/L	3.1	86.0		80 - 120	
4-Bromofluorobenzene (Surrogate)	MS	2037384-43	ND	10.800	10.000	ug/L		108		80 - 120	
	MSD	2037384-43	ND	10.100	10.000	ug/L	6.7	101		80 - 120	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Method Blank Analysis

QC Batch ID: B096524

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Acenaphthene	B096524-BLK1	ND	ug/L	2.0	0.20	
Acenaphthylene	B096524-BLK1	ND	ug/L	2.0	0.20	
Aldrin	B096524-BLK1	ND	ug/L	2.0	0.23	
Aniline	B096524-BLK1	ND	ug/L	5.0	0.28	
Anthracene	B096524-BLK1	ND	ug/L	2.0	0.20	
Benzidine	B096524-BLK1	ND	ug/L	20	1.6	
Benzo[a]anthracene	B096524-BLK1	ND	ug/L	2.0	0.21	
Benzo[b]fluoranthene	B096524-BLK1	ND	ug/L	2.0	0.24	
Benzo[k]fluoranthene	B096524-BLK1	ND	ug/L	2.0	0.30	
Benzo[a]pyrene	B096524-BLK1	ND	ug/L	2.0	0.20	
Benzo[g,h,i]perylene	B096524-BLK1	ND	ug/L	2.0	0.33	
Benzoic acid	B096524-BLK1	ND	ug/L	10	0.52	
Benzyl alcohol	B096524-BLK1	ND	ug/L	2.0	0.20	
Benzyl butyl phthalate	B096524-BLK1	ND	ug/L	2.0	0.20	
alpha-BHC	B096524-BLK1	ND	ug/L	2.0	0.20	
beta-BHC	B096524-BLK1	ND	ug/L	2.0	0.20	
delta-BHC	B096524-BLK1	ND	ug/L	2.0	0.20	
gamma-BHC (Lindane)	B096524-BLK1	ND	ug/L	2.0	0.20	
bis(2-Chloroethoxy)methane	B096524-BLK1	ND	ug/L	2.0	0.20	
bis(2-Chloroethyl) ether	B096524-BLK1	ND	ug/L	2.0	0.31	
bis(2-Chloroisopropyl)ether	B096524-BLK1	ND	ug/L	2.0	0.20	
bis(2-Ethylhexyl)phthalate	B096524-BLK1	ND	ug/L	4.0	0.20	
4-Bromophenyl phenyl ether	B096524-BLK1	ND	ug/L	2.0	0.20	
4-Chloroaniline	B096524-BLK1	ND	ug/L	2.0	1.1	
2-Chloronaphthalene	B096524-BLK1	ND	ug/L	2.0	0.20	
4-Chlorophenyl phenyl ether	B096524-BLK1	ND	ug/L	2.0	0.20	
Chrysene	B096524-BLK1	ND	ug/L	2.0	0.20	
4,4'-DDD	B096524-BLK1	ND	ug/L	2.0	0.26	
4,4'-DDE	B096524-BLK1	ND	ug/L	3.0	0.24	
4,4'-DDT	B096524-BLK1	ND	ug/L	2.0	0.22	
Dibenzo[a,h]anthracene	B096524-BLK1	ND	ug/L	3.0	0.34	
Dibenzofuran	B096524-BLK1	ND	ug/L	2.0	0.20	
1,2-Dichlorobenzene	B096524-BLK1	ND	ug/L	2.0	0.20	
1,3-Dichlorobenzene	B096524-BLK1	ND	ug/L	2.0	0.20	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B096524						
1,4-Dichlorobenzene	B096524-BLK1	ND	ug/L	2.0	0.27	
3,3-Dichlorobenzidine	B096524-BLK1	ND	ug/L	10	0.53	
Dieldrin	B096524-BLK1	ND	ug/L	3.0	0.39	
Diethyl phthalate	B096524-BLK1	ND	ug/L	2.0	0.20	
Dimethyl phthalate	B096524-BLK1	ND	ug/L	2.0	0.20	
Di-n-butyl phthalate	B096524-BLK1	ND	ug/L	2.0	0.20	
2,4-Dinitrotoluene	B096524-BLK1	ND	ug/L	2.0	0.40	
2,6-Dinitrotoluene	B096524-BLK1	ND	ug/L	2.0	0.20	
Di-n-octyl phthalate	B096524-BLK1	ND	ug/L	2.0	0.21	
1,2-Diphenylhydrazine	B096524-BLK1	ND	ug/L	2.0	0.20	
Endosulfan I	B096524-BLK1	ND	ug/L	10	0.31	
Endosulfan II	B096524-BLK1	ND	ug/L	10	0.30	
Endosulfan sulfate	B096524-BLK1	ND	ug/L	3.0	0.23	
Endrin	B096524-BLK1	ND	ug/L	2.0	0.38	
Endrin aldehyde	B096524-BLK1	ND	ug/L	10	0.44	
Fluoranthene	B096524-BLK1	ND	ug/L	2.0	0.28	
Fluorene	B096524-BLK1	ND	ug/L	2.0	0.20	
Heptachlor	B096524-BLK1	ND	ug/L	2.0	0.20	
Heptachlor epoxide	B096524-BLK1	ND	ug/L	2.0	0.26	
Hexachlorobenzene	B096524-BLK1	ND	ug/L	2.0	0.25	
Hexachlorobutadiene	B096524-BLK1	ND	ug/L	2.0	0.20	
Hexachlorocyclopentadiene	B096524-BLK1	ND	ug/L	2.0	0.31	
Hexachloroethane	B096524-BLK1	ND	ug/L	2.0	0.20	
Indeno[1,2,3-cd]pyrene	B096524-BLK1	ND	ug/L	2.0	0.29	
Isophorone	B096524-BLK1	ND	ug/L	2.0	0.20	
2-Methylnaphthalene	B096524-BLK1	ND	ug/L	2.0	0.20	
Naphthalene	B096524-BLK1	ND	ug/L	2.0	0.20	
2-Naphthylamine	B096524-BLK1	ND	ug/L	20	1.3	
2-Nitroaniline	B096524-BLK1	ND	ug/L	2.0	0.20	
3-Nitroaniline	B096524-BLK1	ND	ug/L	2.0	0.22	
4-Nitroaniline	B096524-BLK1	ND	ug/L	5.0	0.38	
Nitrobenzene	B096524-BLK1	ND	ug/L	2.0	0.20	
N-Nitrosodimethylamine	B096524-BLK1	ND	ug/L	2.0	1.2	
N-Nitrosodi-N-propylamine	B096524-BLK1	ND	ug/L	2.0	0.21	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B096524						
N-Nitrosodiphenylamine	B096524-BLK1	ND	ug/L	2.0	0.20	
Phenanthrene	B096524-BLK1	ND	ug/L	2.0	0.20	
Pyrene	B096524-BLK1	ND	ug/L	2.0	0.22	
1,2,4-Trichlorobenzene	B096524-BLK1	ND	ug/L	2.0	0.20	
4-Chloro-3-methylphenol	B096524-BLK1	ND	ug/L	5.0	0.20	
2-Chlorophenol	B096524-BLK1	ND	ug/L	2.0	0.20	
2,4-Dichlorophenol	B096524-BLK1	ND	ug/L	2.0	0.23	
2,4-Dimethylphenol	B096524-BLK1	ND	ug/L	2.0	0.20	
4,6-Dinitro-2-methylphenol	B096524-BLK1	ND	ug/L	10	0.24	
2,4-Dinitrophenol	B096524-BLK1	ND	ug/L	10	0.20	
2-Methylphenol	B096524-BLK1	ND	ug/L	2.0	0.20	
3- & 4-Methylphenol	B096524-BLK1	ND	ug/L	2.0	0.40	
2-Nitrophenol	B096524-BLK1	ND	ug/L	2.0	0.20	
4-Nitrophenol	B096524-BLK1	ND	ug/L	2.0	0.30	
Pentachlorophenol	B096524-BLK1	ND	ug/L	10	0.40	
Phenol	B096524-BLK1	ND	ug/L	2.0	0.21	
2,4,5-Trichlorophenol	B096524-BLK1	ND	ug/L	5.0	0.20	
2,4,6-Trichlorophenol	B096524-BLK1	ND	ug/L	5.0	0.20	
2-Fluorophenol (Surrogate)	**B096524-BLK1**	**57.9**	%	**30 - 120 (LCL - UCL)**		
Phenol-d5 (Surrogate)	**B096524-BLK1**	**39.6**	%	**12 - 110 (LCL - UCL)**		
Nitrobenzene-d5 (Surrogate)	**B096524-BLK1**	**83.5**	%	**50 - 130 (LCL - UCL)**		
2-Fluorobiphenyl (Surrogate)	**B096524-BLK1**	**87.7**	%	**55 - 125 (LCL - UCL)**		
2,4,6-Tribromophenol (Surrogate)	**B096524-BLK1**	**97.0**	%	**40 - 150 (LCL - UCL)**		
p-Terphenyl-d14 (Surrogate)	**B096524-BLK1**	**124**	%	**40 - 150 (LCL - UCL)**		

City of Morro Bay		**Reported:**	01/27/2021 16:11
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B096524										
Acenaphthene	B096524-BS1	LCS	33.536	50.000	ug/L	67.1		50 - 120		
1,4-Dichlorobenzene	B096524-BS1	LCS	32.820	50.000	ug/L	65.6		50 - 120		
2,4-Dinitrotoluene	B096524-BS1	LCS	40.425	50.000	ug/L	80.8		50 - 120		
Hexachlorobenzene	B096524-BS1	LCS	42.189	50.000	ug/L	84.4		60 - 120		
Hexachlorobutadiene	B096524-BS1	LCS	21.972	50.000	ug/L	43.9		40 - 110		
Hexachloroethane	B096524-BS1	LCS	25.235	50.000	ug/L	50.5		40 - 120		
Nitrobenzene	B096524-BS1	LCS	38.240	50.000	ug/L	76.5		50 - 120		
N-Nitrosodi-N-propylamine	B096524-BS1	LCS	33.006	50.000	ug/L	66.0		50 - 120		
Pyrene	B096524-BS1	LCS	45.080	50.000	ug/L	90.2		40 - 140		
1,2,4-Trichlorobenzene	B096524-BS1	LCS	35.192	50.000	ug/L	70.4		45 - 120		
4-Chloro-3-methylphenol	B096524-BS1	LCS	28.391	50.000	ug/L	56.8		50 - 120		
2-Chlorophenol	B096524-BS1	LCS	30.400	50.000	ug/L	60.8		50 - 120		
2-Methylphenol	B096524-BS1	LCS	26.382	50.000	ug/L	52.8		40 - 110		
3- & 4-Methylphenol	B096524-BS1	LCS	52.234	100.00	ug/L	52.2		40 - 110		
4-Nitrophenol	B096524-BS1	LCS	12.936	50.000	ug/L	25.9		10 - 110		
Pentachlorophenol	B096524-BS1	LCS	27.812	50.000	ug/L	55.6		30 - 130		
Phenol	B096524-BS1	LCS	14.386	50.000	ug/L	28.8		20 - 110		
2,4,6-Trichlorophenol	B096524-BS1	LCS	34.565	50.000	ug/L	69.1		54 - 120		
2-Fluorophenol (Surrogate)	B096524-BS1	LCS	17.611	40.000	ug/L	44.0		30 - 120		
Phenol-d5 (Surrogate)	B096524-BS1	LCS	12.456	40.000	ug/L	31.1		12 - 110		
Nitrobenzene-d5 (Surrogate)	B096524-BS1	LCS	27.989	40.000	ug/L	70.0		50 - 130		
2-Fluorobiphenyl (Surrogate)	B096524-BS1	LCS	30.086	40.000	ug/L	75.2		55 - 125		
2,4,6-Tribromophenol (Surrogate)	B096524-BS1	LCS	32.467	40.000	ug/L	81.2		40 - 150		
p-Terphenyl-d14 (Surrogate)	B096524-BS1	LCS	18.101	20.000	ug/L	90.5		40 - 150		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Precision & Accuracy

QC Batch ID: B096524 Used client sample: N

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
Acenaphthene	MS	2037384-47	ND	42.659	50.000	ug/L		85.3		50 - 120	
	MSD	2037384-47	ND	34.906	50.000	ug/L	20.0	69.8	30	50 - 120	
1,4-Dichlorobenzene	MS	2037384-47	ND	40.451	50.000	ug/L		80.9		47 - 120	
	MSD	2037384-47	ND	33.235	50.000	ug/L	19.6	66.5	30	47 - 120	
2,4-Dinitrotoluene	MS	2037384-47	ND	54.262	50.000	ug/L		109		50 - 130	
	MSD	2037384-47	ND	53.117	50.000	ug/L	2.1	106	30	50 - 130	
Hexachlorobenzene	MS	2037384-47	ND	52.747	50.000	ug/L		105		50 - 120	
	MSD	2037384-47	ND	43.440	50.000	ug/L	19.4	86.9	30	50 - 120	
Hexachlorobutadiene	MS	2037384-47	ND	29.274	50.000	ug/L		58.5		40 - 110	
	MSD	2037384-47	ND	25.325	50.000	ug/L	14.5	50.6	30	40 - 110	
Hexachloroethane	MS	2037384-47	ND	33.056	50.000	ug/L		66.1		40 - 120	
	MSD	2037384-47	ND	27.418	50.000	ug/L	18.6	54.8	30	40 - 120	
Nitrobenzene	MS	2037384-47	ND	45.896	50.000	ug/L		91.8		50 - 120	
	MSD	2037384-47	ND	37.430	50.000	ug/L	20.3	74.9	30	50 - 120	
N-Nitrosodi-N-propylamine	MS	2037384-47	ND	38.105	50.000	ug/L		76.2		50 - 120	
	MSD	2037384-47	ND	29.117	50.000	ug/L	26.7	58.2	30	50 - 120	
Pyrene	MS	**2037384-47**	**ND**	**43.243**	**50.000**	**ug/L**		**86.5**		**40 - 140**	
	MSD	**2037384-47**	**ND**	**26.458**	**50.000**	**ug/L**	**48.2**	**52.9**	**30**	**40 - 140**	**Q02**
1,2,4-Trichlorobenzene	MS	2037384-47	ND	42.253	50.000	ug/L		84.5		43 - 120	
	MSD	2037384-47	ND	35.088	50.000	ug/L	18.5	70.2	30	43 - 120	
4-Chloro-3-methylphenol	MS	2037384-47	ND	37.056	50.000	ug/L		74.1		50 - 120	
	MSD	2037384-47	ND	28.618	50.000	ug/L	25.7	57.2	30	50 - 120	
2-Chlorophenol	MS	2037384-47	ND	40.194	50.000	ug/L		80.4		50 - 120	
	MSD	2037384-47	ND	32.102	50.000	ug/L	22.4	64.2	30	50 - 120	
2-Methylphenol	MS	2037384-47	ND	33.680	50.000	ug/L		67.4		40 - 110	
	MSD	2037384-47	ND	25.037	50.000	ug/L	29.4	50.1	30	40 - 110	
3- & 4-Methylphenol	MS	**2037384-47**	**ND**	**66.320**	**100.00**	**ug/L**		**66.3**		**40 - 110**	
	MSD	**2037384-47**	**ND**	**47.789**	**100.00**	**ug/L**	**32.5**	**47.8**	**30**	**40 - 110**	**Q02**
4-Nitrophenol	MS	2037384-47	ND	21.087	50.000	ug/L		42.2		10 - 110	
	MSD	2037384-47	ND	18.960	50.000	ug/L	10.6	37.9	30	10 - 110	
Pentachlorophenol	MS	2037384-47	ND	39.412	50.000	ug/L		78.8		30 - 120	
	MSD	2037384-47	ND	31.872	50.000	ug/L	21.2	63.7	30	30 - 120	
Phenol	MS	2037384-47	ND	17.186	50.000	ug/L		34.4		20 - 110	
	MSD	2037384-47	ND	12.998	50.000	ug/L	27.7	26.0	30	20 - 110	
2,4,6-Trichlorophenol	MS	2037384-47	ND	49.807	50.000	ug/L		99.6		50 - 150	
	MSD	2037384-47	ND	47.597	50.000	ug/L	4.5	95.2	30	50 - 150	

City of Morro Bay	**Reported:** 01/27/2021 16:11
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B096524	Used client sample: N										
2-Fluorophenol (Surrogate)	MS	2037384-47	ND	22.156	40.000	ug/L		55.4		30 - 120	
	MSD	2037384-47	ND	17.808	40.000	ug/L	21.8	44.5		30 - 120	
Phenol-d5 (Surrogate)	MS	2037384-47	ND	14.870	40.000	ug/L		37.2		12 - 110	
	MSD	2037384-47	ND	10.954	40.000	ug/L	30.3	27.4		12 - 110	
Nitrobenzene-d5 (Surrogate)	MS	2037384-47	ND	34.402	40.000	ug/L		86.0		50 - 130	
	MSD	2037384-47	ND	26.765	40.000	ug/L	25.0	66.9		50 - 130	
2-Fluorobiphenyl (Surrogate)	MS	2037384-47	ND	40.501	40.000	ug/L		101		55 - 125	
	MSD	2037384-47	ND	39.955	40.000	ug/L	1.4	99.9		55 - 125	
2,4,6-Tribromophenol (Surrogate)	MS	2037384-47	ND	41.560	40.000	ug/L		104		40 - 150	
	MSD	2037384-47	ND	32.304	40.000	ug/L	25.1	80.8		40 - 150	
p-Terphenyl-d14 (Surrogate)	MS	2037384-47	ND	25.067	20.000	ug/L		125		40 - 150	
	MSD	2037384-47	ND	24.058	20.000	ug/L	4.1	120		40 - 150	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Explosive Residues (EPA Method 8330)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B096517						
HMX	B096517-BLK1	ND	ug/L	2.0	0.24	
RDX	B096517-BLK1	ND	ug/L	2.0	0.24	
1,2-Dinitrobenzene (Surrogate)	**B096517-BLK1**	**84.5**	%	**70 - 130 (LCL - UCL)**		

City of Morro Bay	**Reported:** 01/27/2021 16:11
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Explosive Residues (EPA Method 8330)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B096517										
HMX	B096517-BS1	LCS	13.455	15.000	ug/L	89.7		60 - 120		
RDX	B096517-BS1	LCS	13.925	15.000	ug/L	92.8		50 - 120		
1,2-Dinitrobenzene (Surrogate)	B096517-BS1	LCS	84.800	100.00	ug/L	84.8		70 - 130		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Explosive Residues (EPA Method 8330)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B096517	Used client sample: N										
HMX	MS	2037384-56	ND	14.900	15.000	ug/L		99.3		50 - 120	
	MSD	2037384-56	ND	16.455	15.000	ug/L	9.9	110	30	50 - 120	
RDX	MS	2037384-56	ND	14.890	15.000	ug/L		99.3		50 - 120	
	MSD	2037384-56	ND	16.515	15.000	ug/L	10.3	110	30	50 - 120	
1,2-Dinitrobenzene (Surrogate)	MS	2037384-56	ND	85.975	100.00	ug/L		86.0		70 - 130	
	MSD	2037384-56	ND	91.695	100.00	ug/L	6.4	91.7		70 - 130	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B^L0312						
Trivalent Chromium	B^L0312-BLK1	ND	ug/L	10	5.0	
Nitrate + Nitrite as N	B^L0312-BLK1	ND	mg/L	0.10	0.018	
Total Nitrogen	B^L0312-BLK1	ND	mg/L	0.30	0.10	
QC Batch ID: B096094						
Chloride	**B096094-BLK1**	**0.25000**	**mg/L**	**0.50**	**0.13**	**J,M02**
Fluoride	B096094-BLK1	ND	mg/L	0.050	0.025	
Nitrate as N	B096094-BLK1	ND	mg/L	0.10	0.024	
Sulfate	B096094-BLK1	ND	mg/L	1.0	0.14	
QC Batch ID: B096141						
Total Dissolved Solids @ 180 C	B096141-BLK1	ND	mg/L	6.7	3.3	
QC Batch ID: B096153						
MBAS	B096153-BLK1	ND	mg/L	0.10	0.024	
QC Batch ID: B096290						
Odor	B096290-BLK1	ND	Odor Units	1.0	1.0	
QC Batch ID: B096342						
Non-Volatile Organic Carbon	B096342-BLK1	ND	mg/L	1.0	0.30	
QC Batch ID: B096349						
Total Cyanide	**B096349-BLK1**	**0.0018290**	**mg/L**	**0.0050**	**0.0017**	**J**
QC Batch ID: B096371						
Perchlorate	B096371-BLK1	ND	mg/L	0.0040	0.00081	
QC Batch ID: B096375						
Total Kjeldahl Nitrogen	B096375-BLK1	ND	mg/L	0.20	0.088	
QC Batch ID: B096507						
Nitrite as N	B096507-BLK1	ND	ug/L	50	10	
QC Batch ID: B096533						
Total Kjeldahl Nitrogen	B096533-BLK1	ND	mg/L	0.20	0.088	

City of Morro Bay	**Reported:** 01/27/2021 16:11
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B095981										
Electrical Conductivity @ 25 C	B095981-BS1	LCS	310.60	303.00	umhos/cm	103		90 - 110		
QC Batch ID: B096094										
Chloride	B096094-BS1	LCS	51.386	50.000	mg/L	103		90 - 110		
Fluoride	B096094-BS1	LCS	1.0390	1.0000	mg/L	104		90 - 110		
Nitrate as N	B096094-BS1	LCS	5.0800	5.0000	mg/L	102		90 - 110		
Sulfate	B096094-BS1	LCS	102.32	100.00	mg/L	102		90 - 110		
QC Batch ID: B096141										
Total Dissolved Solids @ 180 C	B096141-BS1	LCS	575.00	586.00	mg/L	98.1		90 - 110		
QC Batch ID: B096153										
MBAS	B096153-BS1	LCS	0.19640	0.20000	mg/L	98.2		85 - 115		
QC Batch ID: B096342										
Non-Volatile Organic Carbon	B096342-BS1	LCS	5.0290	5.0000	mg/L	101		85 - 115		
QC Batch ID: B096349										
Total Cyanide	B096349-BS1	LCS	0.15186	0.15000	mg/L	101		90 - 110		
QC Batch ID: B096371										
Perchlorate	B096371-BS1	LCS	0.010036	0.010000	mg/L	100		85 - 115		
QC Batch ID: B096375										
Total Kjeldahl Nitrogen	B096375-BS1	LCS	2.0140	2.0000	mg/L	101		90 - 110		
QC Batch ID: B096507										
Nitrite as N	B096507-BS1	LCS	487.50	500.00	ug/L	97.5		90 - 110		
QC Batch ID: B096533										
Total Kjeldahl Nitrogen	B096533-BS1	LCS	2.0427	2.0000	mg/L	102		90 - 110		

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B095981	Used client sample: N										
Electrical Conductivity @ 25 C	DUP	2037693-01	346.30	348.30		umhos/cm	0.6		10		
QC Batch ID: B096094	Used client sample: Y - Description: High School Well #1, 12/28/2020 11:35										
Chloride	DUP	2037877-01	229.35	236.71		mg/L	3.2		10		
	MS	2037877-01	229.35	339.49	101.01	mg/L		109		80 - 120	
	MSD	2037877-01	229.35	340.12	101.01	mg/L	0.2	110	10	80 - 120	
Fluoride	DUP	2037877-01	0.24600	0.25000		mg/L	1.6		10		
	MS	2037877-01	0.24600	2.4505	2.0202	mg/L		109		80 - 120	
	MSD	2037877-01	0.24600	2.5515	2.0202	mg/L	4.0	114	10	80 - 120	
Nitrate as N	DUP	2037877-01	16.922	17.434		mg/L	3.0		10		
	MS	2037877-01	16.922	28.038	10.101	mg/L		110		80 - 120	
	MSD	2037877-01	16.922	28.152	10.101	mg/L	0.4	111	10	80 - 120	
Sulfate	DUP	2037877-01	119.79	122.77		mg/L	2.5		10		
	MS	2037877-01	119.79	347.43	202.02	mg/L		113		80 - 120	
	MSD	2037877-01	119.79	348.71	202.02	mg/L	0.4	113	10	80 - 120	
QC Batch ID: B096141	Used client sample: N										
Total Dissolved Solids @ 180 C	DUP	2037851-01	24600	25000		mg/L	1.6		10		
QC Batch ID: B096153	Used client sample: N										
MBAS	DUP	2037453-02	ND	ND		mg/L			20		
	MS	2037453-02	ND	0.42800	0.40000	mg/L		107		80 - 120	
	MSD	2037453-02	ND	0.44560	0.40000	mg/L	4.0	111	20	80 - 120	
QC Batch ID: B096289	Used client sample: N										
Color	DUP	2037781-01	2.0000	2.0000		Color Units	0		20		
QC Batch ID: B096291	Used client sample: N										
Turbidity	DUP	2037781-01	0.49600	0.49600		NT Units	0		10		
QC Batch ID: B096342	Used client sample: Y - Description: High School Well #1, 12/28/2020 11:35										
Non-Volatile Organic Carbon	DUP	2037877-01	1.0040	1.0000		mg/L	0.4		10		
	MS	2037877-01	1.0040	5.7307	5.0251	mg/L		94.1		80 - 120	
	MSD	2037877-01	1.0040	5.7226	5.0251	mg/L	0.1	93.9	10	80 - 120	
QC Batch ID: B096349	Used client sample: N										
Total Cyanide	DUP	**2038092-04**	**ND**	**ND**		**mg/L**			**10**		
	MS	**2038092-04**	**ND**	**0.10295**	**0.10000**	**mg/L**		**103**		**90 - 110**	
	MSD	**2038092-04**	**ND**	**0.12180**	**0.10000**	**mg/L**	**16.8**	**122**	**10**	**90 - 110**	**Q02,Q03**
QC Batch ID: B096371	Used client sample: N										

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B096371	Used client sample: N										
Perchlorate	DUP	2037625-01	ND	ND		mg/L			15		
	MS	2037625-01	ND	0.0097688	0.010101	mg/L		96.7		80 - 120	
	MSD	2037625-01	ND	0.0095866	0.010101	mg/L	1.9	94.9	15	80 - 120	
QC Batch ID: B096375	Used client sample: N										
Total Kjeldahl Nitrogen	DUP	**2037114-01**	**1.3612**	**1.4148**		**mg/L**	**3.9**		**20**		
	MS	**2037114-01**	**1.3612**	**3.7440**	**2.0000**	**mg/L**		**119**		**90 - 110**	**Q03**
	MSD	**2037114-01**	**1.3612**	**3.5479**	**2.0000**	**mg/L**	**5.4**	**109**	**20**	**90 - 110**	
QC Batch ID: B096507	Used client sample: Y - Description: High School Well #1, 12/28/2020 11:35										
Nitrite as N	DUP	2037877-01	ND	ND		ug/L			10		
	MS	2037877-01	ND	512.60	526.32	ug/L		97.4		90 - 110	
	MSD	2037877-01	ND	516.83	526.32	ug/L	0.8	98.2	10	90 - 110	
QC Batch ID: B096533	Used client sample: Y - Description: MB-3, 12/28/2020 12:18										
Total Kjeldahl Nitrogen	DUP	**2037877-02**	**ND**	**ND**		**mg/L**			**20**		
	MS	**2037877-02**	**ND**	**1.9898**	**2.0000**	**mg/L**		**99.5**		**90 - 110**	
	MSD	**2037877-02**	**ND**	**1.7626**	**2.0000**	**mg/L**	**12.1**	**88.1**	**20**	**90 - 110**	**Q03**

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B096099						
Hexavalent Chromium	B096099-BLK1	ND	ug/L	0.20	0.020	
QC Batch ID: B096136						
Hexavalent Chromium	B096136-BLK1	ND	ug/L	0.20	0.020	
QC Batch ID: B096231						
Total Recoverable Aluminum	B096231-BLK1	ND	ug/L	50	26	
Total Recoverable Boron	B096231-BLK1	ND	ug/L	100	10	
Total Recoverable Iron	B096231-BLK1	ND	ug/L	50	30	
Total Recoverable Lithium	B096231-BLK1	ND	ug/L	20	6.6	
Total Recoverable Manganese	B096231-BLK1	ND	ug/L	10	4.0	
QC Batch ID: B096292						
Total Recoverable Antimony	B096292-BLK1	ND	ug/L	2.0	0.11	
Total Recoverable Arsenic	B096292-BLK1	ND	ug/L	2.0	0.70	
Total Recoverable Barium	**B096292-BLK1**	**0.38900**	**ug/L**	**1.0**	**0.21**	**J**
Total Recoverable Beryllium	B096292-BLK1	ND	ug/L	1.0	0.14	
Total Recoverable Cadmium	B096292-BLK1	ND	ug/L	1.0	0.11	
Total Recoverable Chromium	B096292-BLK1	ND	ug/L	3.0	0.50	
Total Recoverable Cobalt	B096292-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Copper	B096292-BLK1	ND	ug/L	2.0	0.22	
Total Recoverable Lead	B096292-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Molybdenum	**B096292-BLK1**	**0.51900**	**ug/L**	**1.0**	**0.11**	**J**
Total Recoverable Nickel	B096292-BLK1	ND	ug/L	2.0	0.19	
Total Recoverable Selenium	B096292-BLK1	ND	ug/L	2.0	0.19	
Total Recoverable Silver	B096292-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Thallium	B096292-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Vanadium	B096292-BLK1	ND	ug/L	3.0	0.78	
Total Recoverable Zinc	**B096292-BLK1**	**6.6630**	**ug/L**	**10**	**1.7**	**J**
Total Recoverable Uranium	B096292-BLK1	ND	ug/L	1.0	0.10	
QC Batch ID: B096293						
Total Recoverable Antimony	B096293-BLK1	ND	ug/L	2.0	0.11	
Total Recoverable Arsenic	B096293-BLK2	ND	ug/L	2.0	0.70	
Total Recoverable Barium	**B096293-BLK1**	**0.41000**	**ug/L**	**1.0**	**0.21**	**J**
Total Recoverable Beryllium	B096293-BLK3	ND	ug/L	1.0	0.14	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B096293						
Total Recoverable Cadmium	B096293-BLK1	ND	ug/L	1.0	0.11	
Total Recoverable Chromium	B096293-BLK2	ND	ug/L	3.0	0.50	
Total Recoverable Cobalt	B096293-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Copper	B096293-BLK1	ND	ug/L	2.0	0.22	
Total Recoverable Lead	B096293-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Molybdenum	B096293-BLK2	ND	ug/L	1.0	0.11	
Total Recoverable Nickel	B096293-BLK1	ND	ug/L	2.0	0.19	
Total Recoverable Selenium	B096293-BLK3	ND	ug/L	2.0	0.19	
Total Recoverable Silver	B096293-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Thallium	B096293-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Vanadium	B096293-BLK1	ND	ug/L	3.0	0.78	
Total Recoverable Zinc	**B096293-BLK1**	**3.3830**	**ug/L**	**10**	**1.7**	**J**
Total Recoverable Uranium	B096293-BLK1	ND	ug/L	1.0	0.10	
QC Batch ID: B096535						
Total Recoverable Aluminum	B096535-BLK1	ND	ug/L	50	26	
Total Recoverable Boron	B096535-BLK1	ND	ug/L	100	10	
Total Recoverable Iron	B096535-BLK1	ND	ug/L	50	30	
Total Recoverable Lithium	B096535-BLK1	ND	ug/L	20	6.6	
Total Recoverable Manganese	B096535-BLK1	ND	ug/L	10	4.0	
QC Batch ID: B096701						
Total Recoverable Mercury	B096701-BLK1	ND	ug/L	0.20	0.022	
QC Batch ID: B096702						
Total Recoverable Mercury	B096702-BLK1	ND	ug/L	0.20	0.022	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Metals Analysis

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B096099										
Hexavalent Chromium	B096099-BS1	LCS	20.495	20.000	ug/L	102		90 - 110		
QC Batch ID: B096136										
Hexavalent Chromium	B096136-BS1	LCS	20.031	20.000	ug/L	100		90 - 110		
QC Batch ID: B096231										
Total Recoverable Aluminum	B096231-BS1	LCS	983.07	1000.0	ug/L	98.3		85 - 115		
Total Recoverable Boron	B096231-BS1	LCS	1009.2	1000.0	ug/L	101		85 - 115		
Total Recoverable Iron	B096231-BS1	LCS	990.95	1000.0	ug/L	99.1		85 - 115		
Total Recoverable Lithium	B096231-BS1	LCS	205.65	200.00	ug/L	103		85 - 115		
Total Recoverable Manganese	B096231-BS1	LCS	497.69	500.00	ug/L	99.5		85 - 115		
QC Batch ID: B096292										
Total Recoverable Antimony	B096292-BS1	LCS	41.714	40.000	ug/L	104		85 - 115		
Total Recoverable Arsenic	B096292-BS1	LCS	108.05	100.00	ug/L	108		85 - 115		
Total Recoverable Barium	B096292-BS1	LCS	41.099	40.000	ug/L	103		85 - 115		
Total Recoverable Beryllium	B096292-BS1	LCS	45.870	40.000	ug/L	115		85 - 115		
Total Recoverable Cadmium	B096292-BS1	LCS	43.094	40.000	ug/L	108		85 - 115		
Total Recoverable Chromium	B096292-BS1	LCS	43.096	40.000	ug/L	108		85 - 115		
Total Recoverable Cobalt	B096292-BS1	LCS	42.588	40.000	ug/L	106		85 - 115		
Total Recoverable Copper	B096292-BS1	LCS	105.19	100.00	ug/L	105		85 - 115		
Total Recoverable Lead	B096292-BS1	LCS	108.12	100.00	ug/L	108		85 - 115		
Total Recoverable Molybdenum	B096292-BS1	LCS	39.597	40.000	ug/L	99.0		85 - 115		
Total Recoverable Nickel	B096292-BS1	LCS	107.65	100.00	ug/L	108		85 - 115		
Total Recoverable Selenium	B096292-BS1	LCS	108.91	100.00	ug/L	109		85 - 115		
Total Recoverable Silver	B096292-BS1	LCS	42.021	40.000	ug/L	105		85 - 115		
Total Recoverable Thallium	B096292-BS1	LCS	42.031	40.000	ug/L	105		85 - 115		
Total Recoverable Vanadium	B096292-BS1	LCS	40.946	40.000	ug/L	102		85 - 115		
Total Recoverable Zinc	B096292-BS1	LCS	112.81	100.00	ug/L	113		85 - 115		
Total Recoverable Uranium	B096292-BS1	LCS	38.394	40.000	ug/L	96.0		85 - 115		
QC Batch ID: B096293										
Total Recoverable Antimony	B096293-BS1	LCS	43.246	40.000	ug/L	108		85 - 115		
Total Recoverable Arsenic	B096293-BS2	LCS	106.65	100.00	ug/L	107		85 - 115		
Total Recoverable Barium	B096293-BS1	LCS	42.749	40.000	ug/L	107		85 - 115		
Total Recoverable Beryllium	B096293-BS3	LCS	43.259	40.000	ug/L	108		85 - 115		
Total Recoverable Cadmium	B096293-BS1	LCS	45.009	40.000	ug/L	113		85 - 115		

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Metals Analysis

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B096293										
Total Recoverable Chromium	B096293-BS2	LCS	43.349	40.000	ug/L	108		85 - 115		
Total Recoverable Cobalt	B096293-BS1	LCS	42.784	40.000	ug/L	107		85 - 115		
Total Recoverable Copper	B096293-BS1	LCS	108.17	100.00	ug/L	108		85 - 115		
Total Recoverable Lead	B096293-BS1	LCS	112.45	100.00	ug/L	112		85 - 115		
Total Recoverable Molybdenum	B096293-BS2	LCS	39.451	40.000	ug/L	98.6		85 - 115		
Total Recoverable Nickel	B096293-BS1	LCS	113.60	100.00	ug/L	114		85 - 115		
Total Recoverable Selenium	B096293-BS3	LCS	104.12	100.00	ug/L	104		85 - 115		
Total Recoverable Silver	B096293-BS1	LCS	43.670	40.000	ug/L	109		85 - 115		
Total Recoverable Thallium	B096293-BS1	LCS	44.331	40.000	ug/L	111		85 - 115		
Total Recoverable Vanadium	B096293-BS1	LCS	41.856	40.000	ug/L	105		85 - 115		
Total Recoverable Zinc	B096293-BS1	LCS	113.70	100.00	ug/L	114		85 - 115		
Total Recoverable Uranium	B096293-BS1	LCS	39.604	40.000	ug/L	99.0		85 - 115		
QC Batch ID: B096535										
Total Recoverable Aluminum	B096535-BS1	LCS	1002.0	1000.0	ug/L	100		85 - 115		
Total Recoverable Boron	B096535-BS1	LCS	1021.9	1000.0	ug/L	102		85 - 115		
Total Recoverable Iron	B096535-BS1	LCS	1025.7	1000.0	ug/L	103		85 - 115		
Total Recoverable Lithium	B096535-BS1	LCS	210.62	200.00	ug/L	105		85 - 115		
Total Recoverable Manganese	B096535-BS1	LCS	520.46	500.00	ug/L	104		85 - 115		
QC Batch ID: B096701										
Total Recoverable Mercury	B096701-BS1	LCS	0.98250	1.0000	ug/L	98.2		85 - 115		
QC Batch ID: B096702										
Total Recoverable Mercury	B096702-BS1	LCS	0.99250	1.0000	ug/L	99.2		85 - 115		

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B096099	Used client sample: N										
Hexavalent Chromium	DUP	2037850-01	ND	ND		ug/L			10		
	MS	2037850-01	ND	207.84	202.02	ug/L		103		90 - 110	
	MSD	2037850-01	ND	210.98	202.02	ug/L	1.5	104	10	90 - 110	
QC Batch ID: B096136	Used client sample: Y - Description: High School Well #1, 12/28/2020 11:35										
Hexavalent Chromium	DUP	2037877-01	2.4230	2.4360		ug/L	0.5		10		
	MS	2037877-01	2.4230	22.742	20.202	ug/L		101		90 - 110	
	MSD	2037877-01	2.4230	22.493	20.202	ug/L	1.1	99.3	10	90 - 110	
QC Batch ID: B096231	Used client sample: Y - Description: Vistra, 12/28/2020 15:30										
Total Recoverable Aluminum	DUP	2037877-04	ND	ND		ug/L			20		
	MS	2037877-04	ND	989.71	1020.4	ug/L		97.0		75 - 125	
	MSD	2037877-04	ND	985.52	1020.4	ug/L	0.4	96.6	20	75 - 125	
Total Recoverable Boron	DUP	2037877-04	104.63	103.66		ug/L	0.9		20		
	MS	2037877-04	104.63	1150.4	1020.4	ug/L		102		75 - 125	
	MSD	2037877-04	104.63	1147.1	1020.4	ug/L	0.3	102	20	75 - 125	
Total Recoverable Iron	DUP	2037877-04	ND	ND		ug/L			20		
	MS	2037877-04	ND	965.84	1020.4	ug/L		94.7		75 - 125	
	MSD	2037877-04	ND	963.78	1020.4	ug/L	0.2	94.5	20	75 - 125	
Total Recoverable Lithium	DUP	2037877-04	ND	ND		ug/L			20		
	MS	2037877-04	ND	208.68	204.08	ug/L		102		75 - 125	
	MSD	2037877-04	ND	210.28	204.08	ug/L	0.8	103	20	75 - 125	
Total Recoverable Manganese	DUP	2037877-04	1123.8	1120.6		ug/L	0.3		20		
	MS	2037877-04	1123.8	1546.1	510.20	ug/L		82.8		75 - 125	
	MSD	2037877-04	1123.8	1553.8	510.20	ug/L	0.5	84.3	20	75 - 125	
QC Batch ID: B096292	Used client sample: Y - Description: High School Well #1, 12/28/2020 11:35										
Total Recoverable Antimony	DUP	2037877-01	ND	ND		ug/L			20		
	MS	2037877-01	ND	44.027	40.000	ug/L		110		70 - 130	
	MSD	2037877-01	ND	42.256	40.000	ug/L	4.1	106	20	70 - 130	
Total Recoverable Arsenic	DUP	2037877-01	1.5550	ND		ug/L			20		
	MS	2037877-01	1.5550	118.72	100.00	ug/L		117		70 - 130	
	MSD	2037877-01	1.5550	114.20	100.00	ug/L	3.9	113	20	70 - 130	
Total Recoverable Barium	DUP	2037877-01	127.64	130.77		ug/L	2.4		20		
	MS	2037877-01	127.64	168.81	40.000	ug/L		103		70 - 130	
	MSD	2037877-01	127.64	163.74	40.000	ug/L	3.0	90.2	20	70 - 130	
Total Recoverable Beryllium	DUP	2037877-01	ND	ND		ug/L			20		
	MS	2037877-01	ND	45.785	40.000	ug/L		114		70 - 130	
	MSD	2037877-01	ND	43.328	40.000	ug/L	5.5	108	20	70 - 130	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Metals Analysis

Quality Control Report - Precision & Accuracy

QC Batch ID: B096292 Used client sample: Y - Description: High School Well #1, 12/28/2020 11:35

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
Total Recoverable Cadmium	DUP	2037877-01	ND	ND		ug/L			20		
	MS	2037877-01	ND	43.686	40.000	ug/L		109		70 - 130	
	MSD	2037877-01	ND	41.457	40.000	ug/L	5.2	104	20	70 - 130	
Total Recoverable Chromium	DUP	2037877-01	2.1560	2.5970		ug/L	18.6		20		J
	MS	2037877-01	2.1560	44.248	40.000	ug/L		105		70 - 130	
	MSD	2037877-01	2.1560	42.576	40.000	ug/L	3.9	101	20	70 - 130	
Total Recoverable Cobalt	DUP	2037877-01	ND	ND		ug/L			20		
	MS	2037877-01	ND	40.148	40.000	ug/L		100		70 - 130	
	MSD	2037877-01	ND	38.164	40.000	ug/L	5.1	95.4	20	70 - 130	
Total Recoverable Copper	DUP	2037877-01	2.5980	2.9080		ug/L	11.3		20		
	MS	2037877-01	2.5980	105.40	100.00	ug/L		103		70 - 130	
	MSD	2037877-01	2.5980	100.20	100.00	ug/L	5.1	97.6	20	70 - 130	
Total Recoverable Lead	DUP	2037877-01	ND	ND		ug/L			20		
	MS	2037877-01	ND	101.84	100.00	ug/L		102		70 - 130	
	MSD	2037877-01	ND	97.410	100.00	ug/L	4.4	97.4	20	70 - 130	
Total Recoverable Molybdenum	DUP	**2037877-01**	**1.8980**	**1.4100**		**ug/L**	**29.5**		**20**		**A02**
	MS	**2037877-01**	**1.8980**	**46.549**	**40.000**	**ug/L**		**112**		**70 - 130**	
	MSD	**2037877-01**	**1.8980**	**44.744**	**40.000**	**ug/L**	**4.0**	**107**	**20**	**70 - 130**	
Total Recoverable Nickel	DUP	2037877-01	3.6930	4.1380		ug/L	11.4		20		
	MS	2037877-01	3.6930	100.11	100.00	ug/L		96.4		70 - 130	
	MSD	2037877-01	3.6930	95.724	100.00	ug/L	4.5	92.0	20	70 - 130	
Total Recoverable Selenium	DUP	2037877-01	18.192	17.368		ug/L	4.6		20		
	MS	2037877-01	18.192	135.23	100.00	ug/L		117		70 - 130	
	MSD	2037877-01	18.192	131.10	100.00	ug/L	3.1	113	20	70 - 130	
Total Recoverable Silver	DUP	2037877-01	ND	ND		ug/L			20		
	MS	2037877-01	ND	42.429	40.000	ug/L		106		70 - 130	
	MSD	2037877-01	ND	40.730	40.000	ug/L	4.1	102	20	70 - 130	
Total Recoverable Thallium	DUP	2037877-01	ND	ND		ug/L			20		
	MS	2037877-01	ND	40.900	40.000	ug/L		102		70 - 130	
	MSD	2037877-01	ND	38.800	40.000	ug/L	5.3	97.0	20	70 - 130	
Total Recoverable Vanadium	DUP	**2037877-01**	**2.0420**	**2.5560**		**ug/L**	**22.4**		**20**		**J,A02**
	MS	**2037877-01**	**2.0420**	**44.073**	**40.000**	**ug/L**		**105**		**70 - 130**	
	MSD	**2037877-01**	**2.0420**	**42.675**	**40.000**	**ug/L**	**3.2**	**102**	**20**	**70 - 130**	
Total Recoverable Zinc	DUP	2037877-01	6.1180	5.3020		ug/L	14.3		20		J
	MS	2037877-01	6.1180	114.68	100.00	ug/L		109		70 - 130	
	MSD	2037877-01	6.1180	122.05	100.00	ug/L	6.2	116	20	70 - 130	
Total Recoverable Uranium	DUP	2037877-01	1.5040	1.5490		ug/L	2.9		20		
	MS	2037877-01	1.5040	48.587	40.000	ug/L		118		70 - 130	
	MSD	2037877-01	1.5040	46.100	40.000	ug/L	5.3	111	20	70 - 130	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 01/27/2021 16:11 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Metals Analysis

Quality Control Report - Precision & Accuracy

QC Batch ID: B096293 Used client sample: Y - Description: MB-3, 12/28/2020 12:18

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
Total Recoverable Antimony	DUP	2037877-02	0.12600	ND		ug/L			20		
	MS	2037877-02	0.12600	43.002	40.000	ug/L		107		70 - 130	
	MSD	2037877-02	0.12600	41.542	40.000	ug/L	3.5	104	20	70 - 130	
Total Recoverable Arsenic	DUP	**2037877-02**	**2.7030**	**1.8160**		**ug/L**	**39.3**		**20**		**J,A02**
	MS	**2037877-02**	**2.7030**	**109.52**	**100.00**	**ug/L**		**107**		**70 - 130**	
	MSD	**2037877-02**	**2.7030**	**104.32**	**100.00**	**ug/L**	**4.9**	**102**	**20**	**70 - 130**	
Total Recoverable Barium	DUP	2037877-02	121.84	125.02		ug/L	2.6		20		
	MS	2037877-02	121.84	152.69	40.000	ug/L		77.1		70 - 130	
	MSD	2037877-02	121.84	155.29	40.000	ug/L	1.7	83.6	20	70 - 130	
Total Recoverable Beryllium	DUP	2037877-02	ND	ND		ug/L			20		
	MS	2037877-02	ND	45.063	40.000	ug/L		113		70 - 130	
	MSD	2037877-02	ND	41.463	40.000	ug/L	8.3	104	20	70 - 130	
Total Recoverable Cadmium	DUP	2037877-02	0.14900	0.14400		ug/L	3.4		20		J
	MS	2037877-02	0.14900	41.519	40.000	ug/L		103		70 - 130	
	MSD	2037877-02	0.14900	40.784	40.000	ug/L	1.8	102	20	70 - 130	
Total Recoverable Chromium	DUP	2037877-02	1.2260	1.3350		ug/L	8.5		20		J
	MS	2037877-02	1.2260	41.230	40.000	ug/L		100		70 - 130	
	MSD	2037877-02	1.2260	40.411	40.000	ug/L	2.0	98.0	20	70 - 130	
Total Recoverable Cobalt	DUP	2037877-02	ND	ND		ug/L			20		
	MS	2037877-02	ND	35.196	40.000	ug/L		88.0		70 - 130	
	MSD	2037877-02	ND	34.101	40.000	ug/L	3.2	85.3	20	70 - 130	
Total Recoverable Copper	DUP	2037877-02	0.82700	0.70400		ug/L	16.1		20		J
	MS	2037877-02	0.82700	95.794	100.00	ug/L		95.0		70 - 130	
	MSD	2037877-02	0.82700	94.547	100.00	ug/L	1.3	93.7	20	70 - 130	
Total Recoverable Lead	DUP	2037877-02	ND	ND		ug/L			20		
	MS	2037877-02	ND	100.44	100.00	ug/L		100		70 - 130	
	MSD	2037877-02	ND	98.426	100.00	ug/L	2.0	98.4	20	70 - 130	
Total Recoverable Molybdenum	DUP	**2037877-02**	**1.9620**	**1.3560**		**ug/L**	**36.5**		**20**		**A02**
	MS	**2037877-02**	**1.9620**	**44.364**	**40.000**	**ug/L**		**106**		**70 - 130**	
	MSD	**2037877-02**	**1.9620**	**44.649**	**40.000**	**ug/L**	**0.6**	**107**	**20**	**70 - 130**	
Total Recoverable Nickel	DUP	2037877-02	3.8290	3.9530		ug/L	3.2		20		
	MS	2037877-02	3.8290	89.665	100.00	ug/L		85.8		70 - 130	
	MSD	2037877-02	3.8290	86.467	100.00	ug/L	3.6	82.6	20	70 - 130	
Total Recoverable Selenium	DUP	2037877-02	28.440	26.242		ug/L	8.0		20		
	MS	2037877-02	28.440	138.71	100.00	ug/L		110		70 - 130	
	MSD	2037877-02	28.440	135.29	100.00	ug/L	2.5	107	20	70 - 130	
Total Recoverable Silver	DUP	2037877-02	ND	ND		ug/L			20		
	MS	2037877-02	ND	40.239	40.000	ug/L		101		70 - 130	
	MSD	2037877-02	ND	38.797	40.000	ug/L	3.6	97.0	20	70 - 130	

Laboratories, Inc.
Environmental Testing Laboratory Since 1949

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 01/27/2021 16:11
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B096293	Used client sample: Y - Description: MB-3, 12/28/2020 12:18										
Total Recoverable Thallium	DUP	2037877-02	ND	ND		ug/L			20		
	MS	2037877-02	ND	40.228	40.000	ug/L		101		70 - 130	
	MSD	2037877-02	ND	39.124	40.000	ug/L	2.8	97.8	20	70 - 130	
Total Recoverable Vanadium	DUP	2037877-02	1.9280	1.6570		ug/L	15.1		20		J
	MS	2037877-02	1.9280	40.502	40.000	ug/L		96.4		70 - 130	
	MSD	2037877-02	1.9280	37.938	40.000	ug/L	6.5	90.0	20	70 - 130	
Total Recoverable Zinc	DUP	2037877-02	17.971	18.545		ug/L	3.1		20		
	MS	2037877-02	17.971	120.77	100.00	ug/L		103		70 - 130	
	MSD	2037877-02	17.971	118.47	100.00	ug/L	1.9	101	20	70 - 130	
Total Recoverable Uranium	DUP	2037877-02	1.8600	1.8650		ug/L	0.3		20		
	MS	2037877-02	1.8600	46.936	40.000	ug/L		113		70 - 130	
	MSD	2037877-02	1.8600	45.751	40.000	ug/L	2.6	110	20	70 - 130	
QC Batch ID: B096535	Used client sample: N										
Total Recoverable Aluminum	DUP	2100128-01	ND	ND		ug/L			20		
	MS	2100128-01	ND	1066.6	1000.0	ug/L		107		75 - 125	
	MSD	2100128-01	ND	1021.0	1000.0	ug/L	4.4	102	20	75 - 125	
Total Recoverable Boron	DUP	2100128-01	51.497	49.362		ug/L	4.2		20		J
	MS	2100128-01	51.497	1102.5	1000.0	ug/L		105		75 - 125	
	MSD	2100128-01	51.497	1063.4	1000.0	ug/L	3.6	101	20	75 - 125	
Total Recoverable Iron	DUP	2100128-01	38.919	44.128		ug/L	12.5		20		J
	MS	2100128-01	38.919	1116.6	1000.0	ug/L		108		75 - 125	
	MSD	2100128-01	38.919	1074.1	1000.0	ug/L	3.9	104	20	75 - 125	
Total Recoverable Lithium	DUP	2100128-01	ND	ND		ug/L			20		
	MS	2100128-01	ND	222.05	200.00	ug/L		111		75 - 125	
	MSD	2100128-01	ND	217.65	200.00	ug/L	2.0	109	20	75 - 125	
Total Recoverable Manganese	DUP	2100128-01	14.797	16.642		ug/L	11.7		20		
	MS	2100128-01	14.797	564.61	500.00	ug/L		110		75 - 125	
	MSD	2100128-01	14.797	538.98	500.00	ug/L	4.6	105	20	75 - 125	
QC Batch ID: B096701	Used client sample: N										
Total Recoverable Mercury	DUP	2037567-01	0.071250	0.059500		ug/L	18.0		20		J
	MS	2037567-01	0.071250	1.0700	1.0000	ug/L		99.9		70 - 130	
	MSD	2037567-01	0.071250	1.0675	1.0000	ug/L	0.2	99.6	20	70 - 130	
QC Batch ID: B096702	Used client sample: Y - Description: 19P-04, 12/28/2020 14:30										
Total Recoverable Mercury	DUP	2037877-03	ND	ND		ug/L			20		
	MS	2037877-03	ND	1.0450	1.0000	ug/L		104		70 - 130	
	MSD	2037877-03	ND	1.0400	1.0000	ug/L	0.5	104	20	70 - 130	

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

AEA0080
1/21/2021
Invoice: AE01581

Tina Green
BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

RE: Report for AEA0080 General: Project Manager-Tina Green

Dear Tina Green,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 1/4/2021. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2016 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Sarah K. Guenther , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Sarah Guenther

Sarah K. Guenther, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021-009

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AEA0080 FINAL 01212021 1114

BSK ASSOCIATES

AEA0080

General: Project Manager-Tina Green

Case Narrative

Project and Report Details		Invoice Details	
Client:	BC Laboratories	**Invoice To:**	BC Laboratories
Report To:	Tina Green	**Invoice Attn:**	Tina Green
Project #:	2037877	**Project PO#:**	-
Received:	1/04/2021 - 14:50		
Report Due:	1/18/2021		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt °C: 3.8

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Bubble Wrap
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Detailed Narrative

Chain of Custody Notes

Date: 01/21/2021
Initials: SKG
Note: Per e-mail received from Tina Green on 1/21/2021, okay to report Chlorite results analyzed out of hold time.

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

HT1.4	Initial analysis was performed within the holding time. However, a required dilution/re-extraction was performed past the holding time.
MS2.0	MS/MSD RPD exceeds control limit. No material impact as both sets of recovery data meet control criteria.

Report Distribution

Recipient(s)	Report Format	CC:
Tina Green	FINAL.RPT	
Tina Green	FINAL.RPT	sguenther@bskassociates.com;johnw@bclabs.com

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

BSK ASSOCIATES

AEA0080

General: Project Manager-Tina Green

2037877

Certificate of Analysis

Sample ID: AEA0080-01
Sampled By: Client
Sample Description: 2037877-01

Sample Date - Time: 12/28/2020 - 11:35
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Bromate	EPA 317.0	ND	0.0010	mg/L	1	AEA0210	01/07/21	01/07/21	

Organics

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Carbamates by HPLC									
3-Hydroxycarbofuran	EPA 531.1	ND	3.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Aldicarb	EPA 531.1	ND	3.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Aldicarb Sulfone	EPA 531.1	ND	2.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Aldicarb Sulfoxide	EPA 531.1	ND	3.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Carbaryl	EPA 531.1	ND	5.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Carbofuran	EPA 531.1	ND	5.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Methomyl	EPA 531.1	ND	2.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Oxamyl	EPA 531.1	ND	20	ug/L	1	AEA0336	01/13/21	01/15/21	
Glyphosate by HPLC									
Glyphosate	EPA 547	ND	25	ug/L	1	AEA0341	01/10/21	01/10/21	
Surrogate: AMPA	EPA 547	84 %	*Acceptable range: 70-130 %*						

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AEA0080 FINAL 01212021 1114

BSK ASSOCIATES

AEA0080

General: Project Manager-Tina Green

2037877

Certificate of Analysis

Sample ID: AEA0080-01RE1
Sampled By: Client
Sample Description: 2037877-01

Sample Date - Time: 12/28/2020 - 11:35
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Chlorate	EPA 300.1	ND	0.025	mg/L	5	AEA0397	01/12/21	01/12/21	
Surrogate: Dichloroacetate	EPA 300.1	105 %	*Acceptable range: 90-115 %*						
Chlorite	EPA 300.1	ND	0.025	mg/L	5	AEA0397	01/12/21	01/12/21	HT1.4
Surrogate: Dichloroacetate	EPA 300.1	105 %	*Acceptable range: 90-115 %*			*Qualifiers -*	*HT1.4*		

BSK ASSOCIATES

AEA0080
General: Project Manager-Tina Green
2037877

Certificate of Analysis

Sample ID: AEA0080-02
Sampled By: Client
Sample Description: 2037877-02

Sample Date - Time: 12/28/2020 - 12:18
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Bromate	EPA 317.0	ND	0.0010	mg/L	1	AEA0210	01/07/21	01/07/21	

Organics

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Carbamates by HPLC									
3-Hydroxycarbofuran	EPA 531.1	ND	3.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Aldicarb	EPA 531.1	ND	3.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Aldicarb Sulfone	EPA 531.1	ND	2.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Aldicarb Sulfoxide	EPA 531.1	ND	3.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Carbaryl	EPA 531.1	ND	5.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Carbofuran	EPA 531.1	ND	5.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Methomyl	EPA 531.1	ND	2.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Oxamyl	EPA 531.1	ND	20	ug/L	1	AEA0336	01/13/21	01/15/21	
Glyphosate by HPLC									
Glyphosate	EPA 547	ND	25	ug/L	1	AEA0341	01/10/21	01/10/21	
Surrogate: AMPA	EPA 547	90 %	*Acceptable range: 70-130 %*						

BSK ASSOCIATES

AEA0080

General: Project Manager-Tina Green

2037877

Certificate of Analysis

Sample ID: AEA0080-02RE1
Sampled By: Client
Sample Description: 2037877-02

Sample Date - Time: 12/28/2020 - 12:18
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Chlorate	EPA 300.1	ND	0.025	mg/L	5	AEA0397	01/12/21	01/12/21	
Surrogate: Dichloroacetate	EPA 300.1	105 %	*Acceptable range: 90-115 %*						
Chlorite	EPA 300.1	ND	0.025	mg/L	5	AEA0397	01/12/21	01/12/21	HT1.4
Surrogate: Dichloroacetate	EPA 300.1	105 %	*Acceptable range: 90-115 %*			*Qualifiers - HT1.4*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AEA0080 FINAL 01212021 1114

BSK ASSOCIATES

AEA0080

General: Project Manager-Tina Green

2037877

Certificate of Analysis

Sample ID: AEA0080-03
Sampled By: Client
Sample Description: 2037877-03

Sample Date - Time: 12/28/2020 - 14:30
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Bromate	EPA 317.0	ND	0.0010	mg/L	1	AEA0210	01/07/21	01/07/21	
Chlorate	EPA 300.1	ND	0.0050	mg/L	1	AEA0221	01/07/21	01/07/21	
Surrogate: Dichloroacetate	EPA 300.1	102 %	*Acceptable range: 90-115 %*						

Organics

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Carbamates by HPLC									
3-Hydroxycarbofuran	EPA 531.1	ND	3.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Aldicarb	EPA 531.1	ND	3.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Aldicarb Sulfone	EPA 531.1	ND	2.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Aldicarb Sulfoxide	EPA 531.1	ND	3.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Carbaryl	EPA 531.1	ND	5.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Carbofuran	EPA 531.1	ND	5.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Methomyl	EPA 531.1	ND	2.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Oxamyl	EPA 531.1	ND	20	ug/L	1	AEA0336	01/13/21	01/15/21	
Glyphosate by HPLC									
Glyphosate	EPA 547	ND	25	ug/L	1	AEA0341	01/10/21	01/10/21	
Surrogate: AMPA	EPA 547	88 %	*Acceptable range: 70-130 %*						

BSK ASSOCIATES

AEA0080

General: Project Manager-Tina Green

2037877

Certificate of Analysis

Sample ID: AEA0080-03RE1
Sampled By: Client
Sample Description: 2037877-03

Sample Date - Time: 12/28/2020 - 14:30
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Chlorite	EPA 300.1	ND	0.020	mg/L	4	AEA0397	01/12/21	01/12/21	HT1.4
Surrogate: Dichloroacetate	EPA 300.1	105 %	*Acceptable range: 90-115 %*			*Qualifiers - HT1.4*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AEA0080 FINAL 01212021 1114

BSK ASSOCIATES

AEA0080
General: Project Manager-Tina Green
2037877

Certificate of Analysis

Sample ID: AEA0080-04
Sampled By: Client
Sample Description: 2037877-04

Sample Date - Time: 12/28/2020 - 15:30
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno
General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Bromate	EPA 317.0	ND	0.0010	mg/L	1	AEA0210	01/07/21	01/07/21	
Chlorate	EPA 300.1	ND	0.0050	mg/L	1	AEA0221	01/07/21	01/07/21	
Surrogate: Dichloroacetate	EPA 300.1	103 %	*Acceptable range: 90-115 %*						

Organics

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Carbamates by HPLC									
3-Hydroxycarbofuran	EPA 531.1	ND	3.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Aldicarb	EPA 531.1	ND	3.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Aldicarb Sulfone	EPA 531.1	ND	2.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Aldicarb Sulfoxide	EPA 531.1	ND	3.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Carbaryl	EPA 531.1	ND	5.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Carbofuran	EPA 531.1	ND	5.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Methomyl	EPA 531.1	ND	2.0	ug/L	1	AEA0336	01/13/21	01/15/21	
Oxamyl	EPA 531.1	ND	20	ug/L	1	AEA0336	01/13/21	01/15/21	
Glyphosate by HPLC									
Glyphosate	EPA 547	ND	25	ug/L	1	AEA0341	01/10/21	01/10/21	
Surrogate: AMPA	EPA 547	94 %	*Acceptable range: 70-130 %*						

BSK ASSOCIATES

AEA0080

General: Project Manager-Tina Green

2037877

Certificate of Analysis

Sample ID: AEA0080-04RE1
Sampled By: Client
Sample Description: 2037877-04

Sample Date - Time: 12/28/2020 - 15:30
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Chlorite	EPA 300.1	ND	0.020	mg/L	4	AEA0397	01/12/21	01/12/21	HT1.4
Surrogate: Dichloroacetate	EPA 300.1	106 %	*Acceptable range: 90-115 %*			*Qualifiers - HT1.4*			

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AEA0080 FINAL 01212021 1114

BSK ASSOCIATES

AEA0080

General: Project Manager-Tina Green

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 300.1 - Quality Control											
Batch: AEA0221										Prepared: 1/7/2021	
Prep Method: Method Specific Preparation										Analyst: CTD	
Blank (AEA0221-BLK1)											
Chlorite	ND	0.0050	mg/L							01/07/21	
Chlorate	ND	0.0050	mg/L							01/07/21	
Surrogate: Dichloroacetate	*0.503*			*0.50*		*101*	*90-115*			01/07/21	
Blank Spike (AEA0221-BS1)											
Chlorite	0.20	0.0050	mg/L	0.20	ND	98	85-115			01/07/21	
Chlorate	0.20	0.0050	mg/L	0.20	ND	99	85-115			01/07/21	
Surrogate: Dichloroacetate	*0.517*			*0.50*		*103*	*90-115*			01/07/21	
Blank Spike Dup (AEA0221-BSD1)											
Chlorite	0.20	0.0050	mg/L	0.20	ND	98	85-115	1	10	01/07/21	
Chlorate	0.20	0.0050	mg/L	0.20	ND	99	85-115	0	10	01/07/21	
Surrogate: Dichloroacetate	*0.565*			*0.50*		*113*	*90-115*			01/07/21	
Matrix Spike (AEA0221-MS1), Source: AEA0126-01											
Chlorite	0.57	0.050	mg/L	0.50	ND	114	75-125			01/07/21	
Chlorate	0.46	0.050	mg/L	0.50	ND	93	75-125			01/07/21	
Surrogate: Dichloroacetate	*5.34*			*5.0*		*107*	*90-115*			01/07/21	
Matrix Spike Dup (AEA0221-MSD1), Source: AEA0126-01											
Chlorite	0.54	0.050	mg/L	0.50	ND	109	75-125	5	10	01/07/21	
Chlorate	0.48	0.050	mg/L	0.50	ND	95	75-125	3	10	01/07/21	
Surrogate: Dichloroacetate	*5.40*			*5.0*		*108*	*90-115*			01/07/21	
EPA 300.1 - Quality Control											
Batch: AEA0397										Prepared: 1/12/2021	
Prep Method: Method Specific Preparation										Analyst: CTD	
Blank (AEA0397-BLK1)											
Chlorite	ND	0.0050	mg/L							01/12/21	
Chlorate	ND	0.0050	mg/L							01/12/21	
Surrogate: Dichloroacetate	*0.517*			*0.50*		*103*	*90-115*			01/12/21	
Blank Spike (AEA0397-BS1)											
Chlorite	0.11	0.0050	mg/L	0.10	ND	108	85-115			01/12/21	
Chlorate	0.11	0.0050	mg/L	0.10	ND	106	85-115			01/12/21	
Surrogate: Dichloroacetate	*0.521*			*0.50*		*104*	*90-115*			01/12/21	
Blank Spike Dup (AEA0397-BSD1)											
Chlorite	0.11	0.0050	mg/L	0.10	ND	108	85-115	1	10	01/12/21	
Chlorate	0.10	0.0050	mg/L	0.10	ND	104	85-115	2	10	01/12/21	
Surrogate: Dichloroacetate	*0.538*			*0.50*		*108*	*90-115*			01/12/21	
Matrix Spike (AEA0397-MS1), Source: SEA0106-01											
Chlorite	0.11	0.010	mg/L	0.10	ND	106	75-125			01/12/21	

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General: Project Manager-Tina Green

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

EPA 300.1 - Quality Control

Batch: AEA0397 — Prepared: 1/12/2021
Prep Method: Method Specific Preparation — Analyst: CTD

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Matrix Spike (AEA0397-MS1), Source: SEA0106-01											
Chlorate	0.096	0.010	mg/L	0.10	ND	96	75-125			01/12/21	
Surrogate: Dichloroacetate	*1.05*			*1.0*		*105*	*90-115*			01/12/21	
Matrix Spike Dup (AEA0397-MSD1), Source: SEA0106-01											
Chlorite	0.12	0.010	mg/L	0.10	ND	120	75-125	12	10	01/12/21	MS2.0
Chlorate	0.097	0.010	mg/L	0.10	ND	97	75-125	1	10	01/12/21	
Surrogate: Dichloroacetate	*1.07*			*1.0*		*107*	*90-115*			01/12/21	

EPA 317.0 - Quality Control

Batch: AEA0210 — Prepared: 1/7/2021
Prep Method: Method Specific Preparation — Analyst: DXR

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AEA0210-BLK1)											
Bromate	ND	0.0010	mg/L							01/07/21	
Blank Spike (AEA0210-BS1)											
Bromate	0.010	0.0010	mg/L	0.010	ND	101	85-115			01/07/21	
Blank Spike Dup (AEA0210-BSD1)											
Bromate	0.010	0.0010	mg/L	0.010	ND	102	85-115	1	10	01/07/21	
Matrix Spike (AEA0210-MS1), Source: ADL3127-01											
Bromate	0.013	0.0010	mg/L	0.010	0.0027	101	75-125			01/07/21	
Matrix Spike Dup (AEA0210-MSD1), Source: ADL3127-01											
Bromate	0.013	0.0010	mg/L	0.010	0.0027	102	75-125	1	10	01/07/21	

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General: Project Manager-Tina Green

BSK Associates Laboratory Fresno

Organics Quality Control Report

EPA 531.1 - Quality Control

Batch: AEA0336 | Prepared: 1/13/2021
Prep Method: EPA 531.1 | Analyst: JNG

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AEA0336-BLK1)											
3-Hydroxycarbofuran	ND	3.0	ug/L							01/14/21	
Aldicarb	ND	3.0	ug/L							01/14/21	
Aldicarb Sulfone	ND	2.0	ug/L							01/14/21	
Aldicarb Sulfoxide	ND	3.0	ug/L							01/14/21	
Carbaryl	ND	5.0	ug/L							01/14/21	
Carbofuran	ND	5.0	ug/L							01/14/21	
Methomyl	ND	2.0	ug/L							01/14/21	
Oxamyl	ND	20	ug/L							01/14/21	
Blank Spike (AEA0336-BS1)											
3-Hydroxycarbofuran	4.0	3.0	ug/L	4.0	ND	100	80-120			01/14/21	
Aldicarb	2.1	3.0	ug/L	2.0	ND	105	80-120			01/14/21	
Aldicarb Sulfone	3.4	2.0	ug/L	3.2	ND	105	80-120			01/14/21	
Aldicarb Sulfoxide	2.1	3.0	ug/L	2.0	ND	104	80-120			01/14/21	
Carbaryl	4.2	5.0	ug/L	4.0	ND	104	80-120			01/14/21	
Carbofuran	3.7	5.0	ug/L	3.6	ND	103	80-120			01/14/21	
Methomyl	4.1	2.0	ug/L	4.0	ND	102	80-120			01/14/21	
Oxamyl	4.1	20	ug/L	4.0	ND	102	80-120			01/14/21	
Blank Spike (AEA0336-BS2)											
3-Hydroxycarbofuran	3.9	3.0	ug/L	4.0	ND	99	80-120			01/15/21	
Aldicarb	2.0	3.0	ug/L	2.0	ND	101	80-120			01/15/21	
Aldicarb Sulfone	3.2	2.0	ug/L	3.2	ND	101	80-120			01/15/21	
Aldicarb Sulfoxide	2.0	3.0	ug/L	2.0	ND	99	80-120			01/15/21	
Carbaryl	4.1	5.0	ug/L	4.0	ND	102	80-120			01/15/21	
Carbofuran	3.6	5.0	ug/L	3.6	ND	101	80-120			01/15/21	
Methomyl	4.0	2.0	ug/L	4.0	ND	100	80-120			01/15/21	
Oxamyl	4.0	20	ug/L	4.0	ND	100	80-120			01/15/21	
Blank Spike Dup (AEA0336-BSD1)											
3-Hydroxycarbofuran	4.0	3.0	ug/L	4.0	ND	99	80-120	2	20	01/14/21	
Aldicarb	2.1	3.0	ug/L	2.0	ND	104	80-120	1	20	01/14/21	
Aldicarb Sulfone	3.2	2.0	ug/L	3.2	ND	99	80-120	5	20	01/14/21	
Aldicarb Sulfoxide	2.0	3.0	ug/L	2.0	ND	98	80-120	6	20	01/14/21	
Carbaryl	3.9	5.0	ug/L	4.0	ND	99	80-120	6	20	01/14/21	
Carbofuran	3.6	5.0	ug/L	3.6	ND	101	80-120	2	20	01/14/21	
Methomyl	4.0	2.0	ug/L	4.0	ND	101	80-120	1	20	01/14/21	
Oxamyl	4.0	20	ug/L	4.0	ND	100	80-120	1	20	01/14/21	
Blank Spike Dup (AEA0336-BSD2)											
3-Hydroxycarbofuran	4.1	3.0	ug/L	4.0	ND	102	80-120	3	20	01/15/21	
Aldicarb	2.0	3.0	ug/L	2.0	ND	101	80-120	0	20	01/15/21	
Aldicarb Sulfone	3.2	2.0	ug/L	3.2	ND	101	80-120	0	20	01/15/21	

BSK ASSOCIATES

AEA0080

General: Project Manager-Tina Green

BSK Associates Laboratory Fresno

Organics Quality Control Report

EPA 531.1 - Quality Control

Batch: AEA0336 Prepared: 1/13/2021
Prep Method: EPA 531.1 Analyst: JNG

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank Spike Dup (AEA0336-BSD2)											
Aldicarb Sulfoxide	2.0	3.0	ug/L	2.0	ND	101	80-120	2	20	01/15/21	
Carbaryl	4.1	5.0	ug/L	4.0	ND	103	80-120	1	20	01/15/21	
Carbofuran	3.7	5.0	ug/L	3.6	ND	102	80-120	1	20	01/15/21	
Methomyl	3.9	2.0	ug/L	4.0	ND	98	80-120	2	20	01/15/21	
Oxamyl	4.1	20	ug/L	4.0	ND	102	80-120	2	20	01/15/21	
Matrix Spike (AEA0336-MS1), Source: AEA0730-02											
3-Hydroxycarbofuran	4.1	3.0	ug/L	4.0	ND	102	65-135			01/14/21	
Aldicarb	2.1	3.0	ug/L	2.0	ND	104	65-135			01/14/21	
Aldicarb Sulfone	3.3	2.0	ug/L	3.2	ND	104	65-135			01/14/21	
Aldicarb Sulfoxide	2.0	3.0	ug/L	2.0	ND	100	65-135			01/14/21	
Carbaryl	4.2	5.0	ug/L	4.0	ND	104	65-135			01/14/21	
Carbofuran	3.8	5.0	ug/L	3.6	ND	104	65-135			01/14/21	
Methomyl	4.1	2.0	ug/L	4.0	ND	102	65-135			01/14/21	
Oxamyl	4.1	20	ug/L	4.0	ND	103	65-135			01/14/21	

EPA 547 - Quality Control

Batch: AEA0341 Prepared: 1/10/2021
Prep Method: EPA 547 Analyst: JNG

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AEA0341-BLK1)											
Glyphosate	ND	25	ug/L							01/10/21	
Surrogate: AMPA	*200*			*200*		*100*	*70-130*			01/10/21	
Blank Spike (AEA0341-BS1)											
Glyphosate	110	25	ug/L	100	ND	109	70-130			01/10/21	
Surrogate: AMPA	*200*			*200*		*101*	*70-130*			01/10/21	
Blank Spike (AEA0341-BS2)											
Glyphosate	100	25	ug/L	100	ND	103	70-130			01/10/21	
Surrogate: AMPA	*200*			*200*		*101*	*70-130*			01/10/21	
Blank Spike Dup (AEA0341-BSD1)											
Glyphosate	100	25	ug/L	100	ND	100	70-130	9	30	01/10/21	
Surrogate: AMPA	*210*			*200*		*104*	*70-130*			01/10/21	
Blank Spike Dup (AEA0341-BSD2)											
Glyphosate	110	25	ug/L	100	ND	114	70-130	10	30	01/10/21	
Surrogate: AMPA	*200*			*200*		*102*	*70-130*			01/10/21	
Matrix Spike (AEA0341-MS1), Source: ADL3176-01											
Glyphosate	110	25	ug/L	100	ND	109	70-130			01/10/21	
Surrogate: AMPA	*210*			*200*		*103*	*70-130*			01/10/21	

BSK ASSOCIATES

AEA0080

General: Project Manager-Tina Green

BSK Associates Laboratory Fresno

Organics Quality Control Report

EPA 547 - Quality Control

Batch: AEA0341 Prepared: 1/10/2021
Prep Method: EPA 547 Analyst: JNG

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Matrix Spike Dup (AEA0341-MSD1), Source: ADL3176-01											
Glyphosate	98	25	ug/L	100	ND	98	70-130	10	30	01/10/21	
Surrogate: AMPA	*200*			*200*		*100*	*70-130*			01/10/21	

BSK ASSOCIATES

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General: Project Manager-Tina Green

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters: **NA**

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AEA0080 FINAL 01212021 1114

ASSOCIATES

AEA0080

General: Project Manager-Tina Green

Certificate of Analysis

Certifications: Please refer to our website for a copy of our Accredited Fields of Testing under each certification.

Fresno

State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-015
State of Nevada	CA000792020-2	State of Oregon - NELAP	4021-015
EPA - UCMR4	CA00079	State of Washington	C997-20b

Sacramento

State of California - ELAP	2435		

San Bernardino

State of California - ELAP	2993	Los Angeles CSD	9254478
NELAP certified	4119-005	State of Oregon - NELAP	4119-005

Vancouver

NELAP certified	WA100008-012	State of Oregon - NELAP	WA100008-013
State of Washington	C824-20		

BSK Associates SR-FL-0002-21

AEA0080 BCLab4911 01/04/2021
10

Sample Integrity

BSK Bottles: Yes No* Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TTHM)? TB Received? (Check Method Below)	Yes No NA / Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes No NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received

"—" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?	L4				
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—					
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 DW	Cl, pH > 8	P F					
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—					
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	P F					
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—					
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—	1V				
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F	1V				
NH_4Cl (AG) Purple Label 552	—	—					
EDA (P) or (AG) Brown Label DBPs	—	—	1D *				
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—					
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1 - **Field Blank Required**							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—					
Bottled Water	—	—					
Clear Glass 125mL / 250mL / 500mL / 1 Liter	—	—					
Solids: Brass / Steel / Plastic Bag	—	—					

E
1-4-21

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

*Preservation check completed by lab performing analysis.

✓ **Indicates Blanks Received**

504 __ 524.2 __ TTHM __ 537.1 __ 8260/624 __

✓ **MS/MSD Received Method:** ________

Scanned: lmc

SUBCONTRACT ORDER
BC Laboratories
2037877

3-8#67

AEA0080 BCLab4911 01/04/2021
10

SENDING LABORATORY:
BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308
Phone: 661-327-4911
FAX: 661-327-1918
Project Manager: Tina Green

RECEIVING LABORATORY:
BSK Analytical Labs- Fresno
1414 Stanislaus Street
Fresno, CA 93706
Phone: (800) 877-8310
FAX: (559) 485-6935

Analysis	Due	Expires	Comments
Sample ID: 2037877-01 Water Sampled: 12/28/20 11:35			
EPA 531.1 - Carbamate & Urea Pesticides	01/12/21 17:00	01/25/21 11:35	
EPA 547 - Glyphosate	01/12/21 17:00	01/11/21 11:35	
EPA 300.0 - Bromate	01/12/21 17:00	01/25/21 11:35	
EPA 300.0 - Chlorate	01/12/21 17:00	01/25/21 11:35	
EPA 300.1 - Chlorite	01/12/21 17:00	01/11/21 11:35	
Containers supplied:			
Sample ID: 2037877-02 Water Sampled: 12/28/20 12:18			
EPA 531.1 - Carbamate & Urea Pesticides	01/12/21 17:00	01/25/21 12:18	
EPA 547 - Glyphosate	01/12/21 17:00	01/11/21 12:18	
EPA 300.0 - Bromate	01/12/21 17:00	01/25/21 12:18	
EPA 300.0 - Chlorate	01/12/21 17:00	01/25/21 12:18	
EPA 300.1 - Chlorite	01/12/21 17:00	01/11/21 12:18	
Containers supplied:			
Sample ID: 2037877-03 Water Sampled: 12/28/20 14:30			
EPA 531.1 - Carbamate & Urea Pesticides	01/12/21 17:00	01/25/21 14:30	
EPA 547 - Glyphosate	01/12/21 17:00	01/11/21 14:30	
EPA 300.0 - Bromate	01/12/21 17:00	01/25/21 14:30	
EPA 300.0 - Chlorate	01/12/21 17:00	01/25/21 14:30	
EPA 300.1 - Chlorite	01/12/21 17:00	01/11/21 14:30	
Containers supplied:			

Released By	Date	Received By	Date
[signature]	1-4-21	[signature] BSK ATZ	1-4-2021 @ 1450
Released By	Date	Received By	Date

BSKSA by PMS

Page 1 of 2
Page 19 of 20

SUBCONTRACT ORDER
BC Laboratories
2037877

3.8#67

AEA0080 BCLab4911 01/04/2021
10

Analysis	Due	Expires	Con
Sample ID: 2037877-04 **Water**	**Sampled:**	**12/28/20 15:30**	
EPA 531.1 - Carbamate & Urea Pesticides	01/12/21 17:00	01/25/21 15:30	
EPA 547 - Glyphosate	01/12/21 17:00	01/11/21 15:30	
EPA 300.0 - Bromate	01/12/21 17:00	01/25/21 15:30	
EPA 300.0 - Chlorate	01/12/21 17:00	01/25/21 15:30	
EPA 300.1 - Chlorite	01/12/21 17:00	01/11/21 15:30	

Containers supplied:

Released By	Date	Received By	Date
[signature]	1-4-21	[signature] EGARSAFAR	1/4/21 @ 1410
Released By	Date	Received By	Date

BSKSA

Page 2 of 2

Page 20 of 20

CERES Analytical Laboratory, Inc.
4919 Windplay Dr.Suite 1, El Dorado Hills, CA 95762

January 11, 2021

Ceres ID: 14081

BC Laboratories, Inc.
4100 Atlas Court
Bakersfield, CA 93308

The following report contains the results for the four aqueous samples received on January 5, 2021. These samples were analyzed for 2,3,7,8-TCDD by EPA method 1613B. Routine turn-around time was provided for this work.

This work was authorized under the BC Laboratories Subcontract Order: 2037877.

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

The report consists of a Cover Letter, Sample Inventory (Section I), Data Summary (Section II), Sample Tracking (Section VI), and Qualifiers/Abbreviations (Section VII). Raw Data (Section III), Continuing Calibration (Section IV), and Initial Calibration (Section V) are available in a full report (.pdf format) upon request.

If you have any questions regarding this report, please feel free to contact me at (916)932-5011.

Sincerely,

James M. Hedin
Director of Operations/CEO
jhedin@ceres-lab.com

Section I: Sample Inventory

Ceres Sample ID:	Sample ID	Date Received	Collection Date &Time
14081-001	2037877-01	1/5/2021	12/28/2020 11:35
14081-002	2037877-02	1/5/2021	12/28/2020 12:18
14081-003	2037877-03	1/5/2021	12/28/2020 14:30
14081-004	2037877-04	1/5/2021	12/28/2020 15:30

Section II: Data Summary

CERES Analytical Laboratory, Inc.
4919 Windplay Dr Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample Method Blank Project ID: 2037877	QC Batch #: 2315 Matrix: Aqueous Sample Size: 1.000 L	Date Received: NA Date Extracted: 1/8/2021 ZB-5MS Analysis: 1/9/2021

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 1.35	0.772	5.00		13C-2378-TCDD	82.5	31-137	
					CRS			
					37Cl4-2378-TCDD	91.0	35-197	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH Reviewed by: BS

CERES Analytical Laboratory, Inc.
4919 Windplay Dr Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample Ongoing Precision and Recovery Project ID: 2037877	QC Batch #: 2315 Matrix: Aqueous Sample Size: 1.000 L	Date Received: NA Date Extracted: 1/8/2021 ZB-5MS Analysis: 1/9/2021

Analyte	Conc. (ng/mL)	Limits (a)	Labeled Standards	% Rec.	Limits (a)
2,3,7,8-TCDD	9.24	7.3-14.6	13C-2378-TCDD	89.5	25-141
			CRS		
			37Cl4-2378-TCDD	96.1	37-158

(a) Limits based on method acceptance criteria.

Analyst: JMH Reviewed by: BS

CERES Analytical Laboratory, Inc.
4919 Windplay Dr Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: 2037877-01		
Project ID: 2037877	Ceres Sample ID: 14081-001	Date Received: 1/5/2021
	QC Batch #: 2315	Date Extracted: 1/8/2021
Date Collected: 12/28/2020	Matrix: Aqueous	ZB-5MS Analysis: 1/9/2021
Time Collected: 11:35	Sample Size: 0.935 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 1.79	0.772	5.35		13C-2378-TCDD	65.8	31-137	
					CRS			
					37Cl4-2378-TCDD	97.9	42-164	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH Reviewed by: BS

CERES Analytical Laboratory, Inc.
4919 Windplay Dr Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: 2037877-02		
Project ID: 2037877	Ceres Sample ID: 14081-002	Date Received: 1/5/2021
	QC Batch #: 2315	Date Extracted: 1/8/2021
Date Collected: 12/28/2020	Matrix: Aqueous	ZB-5MS Analysis: 1/9/2021
Time Collected: 12:18	Sample Size: 0.948 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 1.72	0.772	5.27		13C-2378-TCDD	63.0	31-137	
					CRS			
					37Cl4-2378-TCDD	98.6	42-164	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH Reviewed by: BS

CERES Analytical Laboratory, Inc.
4919 Windplay Dr Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: 2037877-03		
Project ID: 2037877	Ceres Sample ID: 14081-003	Date Received: 1/5/2021
	QC Batch #: 2315	Date Extracted: 1/8/2021
Date Collected: 12/28/2020	Matrix: Aqueous	ZB-5MS Analysis:
Time Collected: 14:30	Sample Size: 0.940 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 1.54	0.772	5.32		13C-2378-TCDD	69.7	31-137	
					CRS			
					37Cl4-2378-TCDD	110	42-164	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH Reviewed by: BS

CERES Analytical Laboratory, Inc.
4919 Windplay Dr Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: 2037877-04		
Project ID: 2037877	Ceres Sample ID: 14081-004	Date Received: 1/5/2021
	QC Batch #: 2315	Date Extracted: 1/8/2021
Date Collected: 12/28/2020	Matrix: Aqueous	ZB-5MS Analysis: 1/9/2021
Time Collected: 15:30	Sample Size: 0.936 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 1.83	0.772	5.34		13C-2378-TCDD	67.7	31-137	
					CRS			
					37Cl4-2378-TCDD	107	42-164	

DL - Signifies Non-Detect (ND) at sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH

Reviewed by: BS

Section VI: Sample Tracking

SUBCONTRACT ORDER
BC Laboratories
2037877

SENDING LABORATORY:
BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308
Phone: 661-327-4911
FAX: 661-327-1918
Project Manager: Tina Green

RECEIVING LABORATORY: **CRSNL**
Ceres Analytical Laboratory, Inc.
4919 Windplay Dr., Ste. 1
El Dorado Hills, CA 95762
Phone: (916) 932-5011
FAX: ---

Analysis		Due	Expires	Comments
Sample ID: 2037877-01	**Water**	**Sampled:**	**12/28/20 11:35**	
EPA 1613B - 2,3,7,8-TCDD		01/12/21 17:00	12/27/21 11:35	
Containers supplied:				
Sample ID: 2037877-02	**Water**	**Sampled:**	**12/28/20 12:18**	
EPA 1613B - 2,3,7,8-TCDD		01/12/21 17:00	12/27/21 12:18	
Containers supplied:				
Sample ID: 2037877-03	**Water**	**Sampled:**	**12/28/20 14:30**	
EPA 1613B - 2,3,7,8-TCDD		01/12/21 17:00	12/27/21 14:30	
Containers supplied:				
Sample ID: 2037877-04	**Water**	**Sampled:**	**12/28/20 15:30**	
EPA 1613B - 2,3,7,8-TCDD		01/12/21 17:00	12/27/21 15:30	
Containers supplied:				

Released By	Date	Received By	Date
[signature]	1-4-21	[signature]	1/5/21 11:10
Released By	Date	Received By	Date

CRSNL

Sample Receipt Check List Logged by: J (initials)

Ceres ID: 14081	Date/Time: 1/5/21 11:10
Client Project ID: 2037877	Received Temp: 2.6 °C Acceptable: Y / N
Chain of Custody Relinquished by signed?	Y / N
Chain of Custody Received by signed?	Y / N
Custody Seals? Present? Intact? NA:	Y / N Y / N NA
Unlabeled / Illegible Samples	Y / N
Proper Containers:	Y / N
Preservation Acceptable (Chemical or Temperature)? Drinking Water, Sodium Thiosulfate present? Residual Cl? Aqueous sample pH: NA J 1/5/21	Y / N Y / N / NA Y / N
List COC discrepancies: J 1/5/21	
List Damaged Samples: J 1/5/21	

Rev 9 Form A5.0 Effective Date: 3/19/18

Section VII: Qualifiers/Abbreviations

J	Concentration found below the lower quantitation limit but greater than zero.
B	Analyte present in the associated Method Blank.
E	Concentration found exceeds the Calibration range of the HRGC/HRMS.
D	This analyte concentration was calculated from a dilution.
X	The concentration found is the estimated maximum possible concentration due to chlorinated diphenyl ethers present in the sample.
H	Recovery limits exceeded. See cover letter.
*****	Results taken from dilution.
I	Interference. See cover letter.
Conc.	Concentration Found
DL	Calculated Detection Limit
ND	Non-Detect
% Rec.	Percent Recovery

LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322100191
Customer ID: BCLA50
Customer PO:
Project ID:

Attn: Tina Green
BC Laboratories, Inc.
4100 Atlas Court
Bakersfield, CA 93308

Phone: (661) 327-4911
Fax: (661) 327-1918
Received: 01/06/2021
Analyzed: 01/19/2021

Proj: 2037877

Test Report: Determination of Asbestos Structures >10µm in Drinking Water Performed by the 100.2 Method (EPA 600/R-94/134)

					ASBESTOS				
Sample ID Client / EMSL	*Sample Filtration Date/Time*	*Original Sample Vol. Filtered (ml)*	*Effective Filter Area (mm²)*	*Area Analyzed (mm²)*	*Asbestos Types*	*Fibers Detected*	*Analytical Sensitivity*	*Concentration*	*Confidence Limits*
							MFL (million fibers per liter)		
2037877-01 322100191-0001	1/8/2021 02:35 PM	100	1288	0.0655	Chrysotile	1	0.20	0.20	0.01 - 1.10
Collection Date/Time:	*12/28/2020 11:35 AM*								
2037877-02 322100191-0002	1/8/2021 02:35 PM	100	1288	0.0655	None Detected	ND	0.20	<0.20	0.00 - 0.73
Collection Date/Time:	*12/28/2020 12:18 PM*								
2037877-03 322100191-0003	1/8/2021 02:35 PM	5	1288	0.2620	Chrysotile	1	0.98	0.98	0.02 - 5.40
Collection Date/Time:	*12/28/2020 14:30 PM*								
Due to excessive particulate the analytical sensitivity of 0.2 MFL as required by the method was not reached.									
2037877-04 322100191-0004	1/8/2021 02:35 PM	5	1288	0.2620	None Detected	ND	0.98	<0.98	0.00 - 3.60
Collection Date/Time:	*12/28/2020 15:30 PM*								
Due to excessive particulate the analytical sensitivity of 0.2 MFL as required by the method was not reached.									

Samples ozonated prior to analysis due to lab receipt time exceeding 48 hour method hold time.

Analyst(s)
Kyeong Corbin (4)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 01/19/2021 13:22:33

Test Report TEM100.2-2.2.0.2 Printed: 1/19/2021 01:22PM

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

January 19, 2021

Ms. Tina Green
BC Laboratories
4100 Atlas Ct.
Bakersfield, CA 93308

RE: Project: 2037877
Pace Project No.: 30399339

Dear Ms. Green:

Enclosed are the analytical results for sample(s) received by the laboratory on December 31, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:
- Pace Analytical Services - Greensburg

This test is accredited under the laboratory's DoD ELAP accrediation inssued by the Laboratory Accreditation Bureau (L-A-B). Refer to certificate and scope of accreditation L2417

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carin A. Ferris

Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

NELAP ACCREDITED TNI LABORATORY

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: 2037877
Pace Project No.: 30399339

Pace Analytical Services Pennsylvania
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE SUMMARY

Project: 2037877
Pace Project No.: 30399339

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30399339001	2037877-01	Water	12/28/20 11:35	12/31/20 10:10
30399339002	2037877-02	Water	12/28/20 12:18	12/31/20 10:10
30399339003	2037877-03	Water	12/28/20 14:30	12/31/20 10:10
30399339004	2037877-04	Water	12/28/20 15:30	12/31/20 10:10

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Greensburg, PA 15601
(724)850-5600

SAMPLE ANALYTE COUNT

Project: 2037877
Pace Project No.: 30399339

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30399339001	2037877-01	EPA 900.0	ERT	2	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		ASTM D5811-95	JJY	1	PASI-PA
		EPA 906.0	CLA	1	PASI-PA
30399339002	2037877-02	EPA 900.0	ERT	2	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		ASTM D5811-95	JJY	1	PASI-PA
		EPA 906.0	CLA	1	PASI-PA
30399339003	2037877-03	EPA 900.0	ERT	2	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		ASTM D5811-95	JJY	1	PASI-PA
		EPA 906.0	CLA	1	PASI-PA
30399339004	2037877-04	EPA 900.0	ERT	2	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		ASTM D5811-95	JJY	1	PASI-PA
		EPA 906.0	CLA	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

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Greensburg, PA 15601
(724)850-5600

PROJECT NARRATIVE

Project: 2037877
Pace Project No.: 30399339

Method: EPA 900.0
Description: 900.0 Gross Alpha/Beta
Client: BC Laboratories
Date: January 19, 2021

General Information:
4 samples were analyzed for EPA 900.0 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

Pace Analytical
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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

PROJECT NARRATIVE

Project: 2037877
Pace Project No.: 30399339

Method: EPA 903.1
Description: 903.1 Radium 226
Client: BC Laboratories
Date: January 19, 2021

General Information:
4 samples were analyzed for EPA 903.1 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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Greensburg, PA 15601
(724)850-5600

PROJECT NARRATIVE

Project: 2037877
Pace Project No.: 30399339

Method: EPA 904.0
Description: 904.0 Radium 228
Client: BC Laboratories
Date: January 19, 2021

General Information:
4 samples were analyzed for EPA 904.0 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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Greensburg, PA 15601
(724)850-5600

PROJECT NARRATIVE

Project:	2037877
Pace Project No.:	30399339

Method:	ASTM D5811-95
Description:	ASTM D5811 Sr 89/90 Eichrom
Client:	BC Laboratories
Date:	January 19, 2021

General Information:
4 samples were analyzed for ASTM D5811-95 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 429465

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- 2037877-01 (Lab ID: 30399339001)
  - Strontium-90
- 2037877-02 (Lab ID: 30399339002)
  - Strontium-90
- 2037877-03 (Lab ID: 30399339003)
  - Strontium-90
- 2037877-04 (Lab ID: 30399339004)
  - Strontium-90
- BLANK (Lab ID: 2074619)
  - Strontium-90

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC
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Greensburg, PA 15601
(724)850-5600

PROJECT NARRATIVE

Project: 2037877
Pace Project No.: 30399339

Method: EPA 906.0
Description: 906.0 Tritium
Client: BC Laboratories
Date: January 19, 2021

General Information:
4 samples were analyzed for EPA 906.0 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

Pace Analytical
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Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2037877
Pace Project No.: 30399339

Sample: 2037877-01 Lab ID: 30399339001 Collected: 12/28/20 11:35 Received: 12/31/20 10:10 Matrix: Water
PWS: Site ID: Sample Type:
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to one the sample containers to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Gross Alpha	EPA 900.0	0.073 ± 1.95 (4.15) C:NA T:NA	pCi/L	01/06/21 18:07	12587-46-1	
Gross Beta	EPA 900.0	1.09 ± 1.77 (3.43) C:NA T:NA	pCi/L	01/06/21 18:07	12587-47-2	
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.0589 ± 0.269 (0.634) C:NA T:86%	pCi/L	01/13/21 12:23	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.113 ± 0.439 (0.992) C:70% T:79%	pCi/L	01/08/21 14:29	15262-20-1	
	Pace Analytical Services - Greensburg					
Strontium-90	ASTM D5811-95	-0.117 ± 0.281 (0.578) C:98% T:NA	pCi/L	01/06/21 18:03	10098-97-2	N2
	Pace Analytical Services - Greensburg					
Tritium	EPA 906.0	25.2 ± 150 (260) C:NA T:NA	pCi/L	01/07/21 04:12	10028-17-8	

Sample: 2037877-02 Lab ID: 30399339002 Collected: 12/28/20 12:18 Received: 12/31/20 10:10 Matrix: Water
PWS: Site ID: Sample Type:
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to one the sample containers to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Gross Alpha	EPA 900.0	1.17 ± 2.44 (4.80) C:NA T:NA	pCi/L	01/06/21 18:04	12587-46-1	
Gross Beta	EPA 900.0	-0.814 ± 1.17 (2.42) C:NA T:NA	pCi/L	01/06/21 18:04	12587-47-2	
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.155 ± 0.365 (0.818) C:NA T:92%	pCi/L	01/13/21 12:23	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.178 ± 0.321 (0.702) C:96% T:84%	pCi/L	01/08/21 14:29	15262-20-1	
	Pace Analytical Services - Greensburg					
Strontium-90	ASTM D5811-95	0.0460 ± 0.556 (1.11) C:94% T:NA	pCi/L	01/06/21 18:07	10098-97-2	N2
	Pace Analytical Services - Greensburg					
Tritium	EPA 906.0	-57.6 ± 144 (259) C:NA T:NA	pCi/L	01/07/21 05:13	10028-17-8	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2037877
Pace Project No.: 30399339

Sample: 2037877-03 Lab ID: 30399339003 Collected: 12/28/20 14:30 Received: 12/31/20 10:10 Matrix: Water
PWS: Site ID: Sample Type:
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to one the sample containers to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
		Pace Analytical Services - Greensburg				
Gross Alpha	EPA 900.0	-1.02 ± 1.03 (2.54) C:NA T:NA	pCi/L	01/06/21 18:05	12587-46-1	
Gross Beta	EPA 900.0	8.61 ± 2.07 (2.00) C:NA T:NA	pCi/L	01/06/21 18:05	12587-47-2	
		Pace Analytical Services - Greensburg				
Radium-226	EPA 903.1	0.164 ± 0.250 (0.402) C:NA T:90%	pCi/L	01/13/21 12:23	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	0.278 ± 0.382 (0.818) C:70% T:86%	pCi/L	01/08/21 14:30	15262-20-1	
		Pace Analytical Services - Greensburg				
Strontium-90	ASTM D5811-95	0.571 ± 0.580 (1.09) C:98% T:NA	pCi/L	01/06/21 18:07	10098-97-2	N2
		Pace Analytical Services - Greensburg				
Tritium	EPA 906.0	109 ± 155 (261) C:NA T:NA	pCi/L	01/07/21 06:15	10028-17-8	

Sample: 2037877-04 Lab ID: 30399339004 Collected: 12/28/20 15:30 Received: 12/31/20 10:10 Matrix: Water
PWS: Site ID: Sample Type:
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to one the sample containers to meet the sample preservation requirement of pH <2 for radiochemistry analysis.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
		Pace Analytical Services - Greensburg				
Gross Alpha	EPA 900.0	0.781 ± 1.19 (2.29) C:NA T:NA	pCi/L	01/06/21 18:26	12587-46-1	
Gross Beta	EPA 900.0	2.85 ± 1.16 (1.82) C:NA T:NA	pCi/L	01/06/21 18:26	12587-47-2	
		Pace Analytical Services - Greensburg				
Radium-226	EPA 903.1	0.241 ± 0.413 (0.724) C:NA T:102%	pCi/L	01/13/21 12:23	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	0.0970 ± 0.339 (0.769) C:70% T:89%	pCi/L	01/08/21 14:30	15262-20-1	
		Pace Analytical Services - Greensburg				
Strontium-90	ASTM D5811-95	-0.334 ± 0.608 (1.26) C:91% T:NA	pCi/L	01/06/21 18:05	10098-97-2	N2
		Pace Analytical Services - Greensburg				
Tritium	EPA 906.0	-75.6 ± 144 (260) C:NA T:NA	pCi/L	01/07/21 07:16	10028-17-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2037877
Pace Project No.: 30399339

QC Batch: 429463
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30399339001, 30399339002, 30399339003, 30399339004

METHOD BLANK: 2074617 Matrix: Water
Associated Lab Samples: 30399339001, 30399339002, 30399339003, 30399339004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.128 ± 0.251 (0.601) C:NA T:89%	pCi/L	01/13/21 12:23	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2037877
Pace Project No.: 30399339

QC Batch:	429437	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 30399339001, 30399339002, 30399339003, 30399339004

METHOD BLANK: 2074546 Matrix: Water

Associated Lab Samples: 30399339001, 30399339002, 30399339003, 30399339004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.332 ± 0.408 (0.864) C:69% T:79%	pCi/L	01/08/21 11:30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2037877
Pace Project No.: 30399339

QC Batch: 429581 Analysis Method: EPA 900.0
QC Batch Method: EPA 900.0 Analysis Description: 900.0 Gross Alpha/Beta
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30399339001, 30399339002, 30399339003, 30399339004

METHOD BLANK: 2075229 Matrix: Water
Associated Lab Samples: 30399339001, 30399339002, 30399339003, 30399339004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Gross Alpha	-0.404 ± 0.555 (1.20) C:NA T:NA	pCi/L	01/06/21 18:01	
Gross Beta	0.125 ± 0.638 (1.27) C:NA T:NA	pCi/L	01/06/21 18:01	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2037877
Pace Project No.: 30399339

QC Batch:	429465	Analysis Method:	ASTM D5811-95
QC Batch Method:	ASTM D5811-95	Analysis Description:	ASTM D5811 Sr 89/90 Eichrom
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 30399339001, 30399339002, 30399339003, 30399339004

METHOD BLANK: 2074619 Matrix: Water

Associated Lab Samples: 30399339001, 30399339002, 30399339003, 30399339004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Strontium-90	-0.0760 ± 0.612 (1.55) C:80% T:NA	pCi/L	01/07/21 06:52	N2

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2037877
Pace Project No.: 30399339

QC Batch:	429434	Analysis Method:	EPA 906.0
QC Batch Method:	EPA 906.0	Analysis Description:	906.0 Tritium
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 30399339001, 30399339002, 30399339003, 30399339004

METHOD BLANK: 2074544 Matrix: Water

Associated Lab Samples: 30399339001, 30399339002, 30399339003, 30399339004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Tritium	12.6 ± 149 (260) C:NA T:NA	pCi/L	01/06/21 15:54	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 2037877
Pace Project No.: 30399339

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

REPORT OF LABORATORY ANALYSIS

SUBCONTRACT ORDE **WO# : 30399339**
BC Laboratories
2037877
30399339

SENDING LABORATORY:
BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308
Phone: 661-327-4911
FAX: 661-327-1918
Project Manager: Tina Green

RECEIVING LABORATORY:
PACE Analytical - PA
1638 Roseytown Road, Ste 2,3 &4
Greensburg, PA 15601
Phone: (724) 850-5600
FAX: (724) 850-5601

PACEA

Analysis		Due	Expires	Comments
Sample ID: 2037877-01	**Water**	**Sampled:**	**12/28/20 11:35**	001
EPA 900.0 Gross Alpha/Beta		01/12/21 17:00	06/27/21 11:35	
EPA 903.0 Radium 226		01/12/21 17:00	06/27/21 11:35	
EPA 904.0 Radium 228		01/12/21 17:00	06/27/21 11:35	
EPA 905.0 Strontium-90		01/12/21 17:00	06/27/21 11:35	
EPA 906.0 Tritium		01/12/21 17:00	06/27/21 11:35	
Containers supplied:				
Sample ID: 2037877-02	**Water**	**Sampled:**	**12/28/20 12:18**	002
EPA 900.0 Gross Alpha/Beta		01/12/21 17:00	06/27/21 12:18	Qt Metals
EPA 903.0 Radium 226		01/12/21 17:00	06/27/21 12:18	
EPA 904.0 Radium 228		01/12/21 17:00	06/27/21 12:18	
EPA 905.0 Strontium-90		01/12/21 17:00	06/27/21 12:18	Qt PE
EPA 906.0 Tritium		01/12/21 17:00	06/27/21 12:18	Pint Amber unpreserved
Containers supplied:				
Sample ID: 2037877-03	**Water**	**Sampled:**	**12/28/20 14:30**	003
EPA 900.0 Gross Alpha/Beta		01/12/21 17:00	06/27/21 14:30	Qt Metals
EPA 903.0 Radium 226		01/12/21 17:00	06/27/21 14:30	
EPA 904.0 Radium 228		01/12/21 17:00	06/27/21 14:30	
EPA 905.0 Strontium-90		01/12/21 17:00	06/27/21 14:30	Qt PE
EPA 906.0 Tritium		01/12/21 17:00	06/27/21 14:30	Pint Amber unpreserved
Containers supplied:				

Released By	Date	Received By	Date
[signature]	12-30-20	SWwell	12/31/2020 1010

Released By Date Received By Date

PACEA

SUBCONTRACT ORDER
BC Laboratories
2037877

Analysis	Due	Expires	Comments
Sample ID: 2037877-04 **Water**	**Sampled:**	**12/28/20 15:30**	004
EPA 900.0 Gross Alpha/Beta	01/12/21 17:00	06/27/21 15:30	Qt Metals
EPA 903.0 Radium 226	01/12/21 17:00	06/27/21 15:30	
EPA 904.0 Radium 228	01/12/21 17:00	06/27/21 15:30	
EPA 905.0 Strontium-90	01/12/21 17:00	06/27/21 15:30	Qt PE
EPA 906.0 Tritium	01/12/21 17:00	06/27/21 15:30	Pint Amber unpreserved

Containers supplied:

WO#: 30399339
PM: CAF Due Date: 01/22/21
CLIENT: BCLABS

Released By	Date	Received By	Date
[signature]	12-30-20	BWneel	12/31/2020 1010

Released By Date Received By Date

PACEA

Pittsburgh Lab Sample Condition Upon Receipt

WO# : 30399339
PM: CAF Due Date: 01/22/21
CLIENT: BCLABS

Pace Analytical® Client Name: BC Labs

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other ______ AF

Tracking #: 1796537601404 23655

LIMS Login AF

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Thermometer Used 11 Type of Ice: (Wet) Blue None

Cooler Temperature Observed Temp 5.4 °C Correction Factor: -0.3 °C Final Temp: 5.1 °C

Temp should be above freezing to 6°C

pH paper Lot# 10D1101

Date and Initials of person examining contents: 12/31/2020 SW

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:		✓		4.
Sample Labels match COC:	✓			5.
-Includes date/time/ID Matrix: WT				
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used:	✓			10.
-Pace Containers Used:		✓		
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Hex Cr Aqueous sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	✓			16. preserved with 50 ml HNO3 one BP container from 01, 02, 03, 04 2 2 X 2
All containers meet method preservation requirements.		✓		Initial when completed SW Date/time of preservation 12/31/2020 1405
				Lot # of added preservative DL20-1418
Headspace in VOA Vials (>6mm):			✓	17.
Trip Blank Present:		✓		18.
Trip Blank Custody Seals Present			✓	
Rad Samples Screened < 0.5 mrem/hr	✓			Initial when completed: SW Date: 12/31/2020

Client Notification/ Resolution:

Person Contacted: ______ Date/Time: ______ Contacted By: ______

Comments/ Resolution: ______

☐ **A check in this box indicates that additional information has been stored in ereports.**

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)
*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

J:\QAQC\Master\Document Management\Sample Mgt\Sample Condition Upon Receipt Pittsburgh (C056-9 5April2019)

Page 20 of 20

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders:	1A11027	**Report Date:**	1/26/2021
		Received Date:	1/9/2021
		Turnaround Time:	Normal
Project:	2037877	**Phones:**	(661) 852-4204
		Fax:	(661) 327-1918
		P.O. #:	
Attn:	Tina Green	**Billing Code:**	
Client:	BC Laboratories 4100 Atlas Court Bakersfield, CA 93308		

Dear Tina Green,

Enclosed are the results of analyses for samples received 1/09/21 with the Chain-of-Custody document. The samples were received in good condition, at 1.9 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: 2037877-01 Sampled: 12/28/20 11:35 by Client
1A11027-01 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 521		**Instr:** GCMS09				
Batch ID: W1A0474 **Preparation:** EPA 521/SPE		**Prepared:** 01/11/21 12:21				**Analyst:** mld
N-Nitrosodiethylamine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosodimethylamine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosodi-n-butylamine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosodi-n-propylamine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosomethylethylamine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosomorpholine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosopiperidine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosopyrrolidine	ND	2.0	ng/l	1	01/14/21	
Surrogate(s)						
NDMA-d6	*93%*	*70-130*	*Conc: 23.7*		*01/14/21*	
Method: EPA 522		**Instr:** GCMS20				
Batch ID: W1A0829 **Preparation:** EPA 522/SPE		**Prepared:** 01/18/21 09:51				**Analyst:** mld
1,4-Dioxane	ND	0.070	ug/l	1	01/21/21	
Surrogate(s)						
1,4-Dioxane-d8	*102%*	*70-130*	*Conc: 10.2*		*01/21/21*	
Method: EPA 8015B		**Instr:** GC09				
Batch ID: W1A0657 **Preparation:** _NONE (SVOC)		**Prepared:** 01/13/21 15:18				**Analyst:** rjg
Ethylene glycol	ND	10	mg/l	1	01/13/21	O-09

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WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Sample Results

(Continued)

Sample: 2037877-02 Sampled: 12/28/20 12:18 by Client
1A11027-02 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 521		**Instr:** GCMS09				
Batch ID: W1A0474 **Preparation:** EPA 521/SPE		**Prepared:** 01/11/21 12:21				**Analyst:** mld
N-Nitrosodiethylamine	**4.6**	2.0	ng/l	1	01/14/21	
N-Nitrosodimethylamine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosodi-n-butylamine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosodi-n-propylamine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosomethylethylamine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosomorpholine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosopiperidine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosopyrrolidine	ND	2.0	ng/l	1	01/14/21	
Surrogate(s)						
NDMA-d6	*97%*	*70-130*	*Conc: 24.8*		*01/14/21*	
Method: EPA 522		**Instr:** GCMS20				
Batch ID: W1A0829 **Preparation:** EPA 522/SPE		**Prepared:** 01/18/21 09:51				**Analyst:** mld
1,4-Dioxane	ND	0.070	ug/l	1	01/21/21	
Surrogate(s)						
1,4-Dioxane-d8	*99%*	*70-130*	*Conc: 9.85*		*01/21/21*	
Method: EPA 8015B		**Instr:** GC09				
Batch ID: W1A0657 **Preparation:** _NONE (SVOC)		**Prepared:** 01/13/21 15:18				**Analyst:** rjg
Ethylene glycol	ND	10	mg/l	1	01/13/21	O-09

Sample: 2037877-03 Sampled: 12/28/20 14:30 by Client
1A11027-03 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 521		**Instr:** GCMS09				
Batch ID: W1A0474 **Preparation:** EPA 521/SPE		**Prepared:** 01/11/21 12:21				**Analyst:** mld
N-Nitrosodiethylamine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosodimethylamine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosodi-n-butylamine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosodi-n-propylamine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosomethylethylamine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosomorpholine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosopiperidine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosopyrrolidine	ND	2.0	ng/l	1	01/14/21	
Surrogate(s)						
NDMA-d6	*89%*	*70-130*	*Conc: 22.8*		*01/14/21*	
Method: EPA 522		**Instr:** GCMS20				
Batch ID: W1A0829 **Preparation:** EPA 522/SPE		**Prepared:** 01/18/21 09:51				**Analyst:** mld
1,4-Dioxane	ND	0.070	ug/l	1	01/21/21	
Surrogate(s)						
1,4-Dioxane-d8	*99%*	*70-130*	*Conc: 9.89*		*01/21/21*	
Method: EPA 8015B		**Instr:** GC09				
Batch ID: W1A0657 **Preparation:** _NONE (SVOC)		**Prepared:** 01/13/21 15:18				**Analyst:** rjg
Ethylene glycol	ND	10	mg/l	1	01/13/21	O-09

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FINAL REPORT

Sample Results

(Continued)

Sample: 2037877-04 Sampled: 12/28/20 15:30 by Client
1A11027-04 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 521		**Instr:** GCMS09				
Batch ID: W1A0474 **Preparation:** EPA 521/SPE		**Prepared:** 01/11/21 12:21				**Analyst:** mld
N-Nitrosodiethylamine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosodimethylamine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosodi-n-butylamine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosodi-n-propylamine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosomethylethylamine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosomorpholine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosopiperidine	ND	2.0	ng/l	1	01/14/21	
N-Nitrosopyrrolidine	ND	2.0	ng/l	1	01/14/21	
Surrogate(s)						
NDMA-d6	*98%*	*70-130*	*Conc: 25.1*		*01/14/21*	
Method: EPA 522		**Instr:** GCMS20				
Batch ID: W1A0829 **Preparation:** EPA 522/SPE		**Prepared:** 01/18/21 09:51				**Analyst:** mld
1,4-Dioxane	ND	0.070	ug/l	1	01/21/21	
Surrogate(s)						
1,4-Dioxane-d8	*96%*	*70-130*	*Conc: 9.59*		*01/21/21*	
Method: EPA 8015B		**Instr:** GC09				
Batch ID: W1A0657 **Preparation:** _NONE (SVOC)		**Prepared:** 01/13/21 15:18				**Analyst:** rjg
Ethylene glycol	ND	10	mg/l	1	01/14/21	O-09

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FINAL REPORT

Quality Control Results

1,4-Dioxane by SPE/GCMS SIM, EPA Method 522

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W1A0829 - EPA 522/SPE										
Blank (W1A0829-BLK1)				Prepared: 01/18/21 Analyzed: 01/21/21						
1,4-Dioxane	ND	0.070	ug/l							
Surrogate(s)										
1,4-Dioxane-d8	*9.82*		*ug/l*	*10.0*		*98*	*70-130*			
LCS (W1A0829-BS1)				Prepared: 01/18/21 Analyzed: 01/21/21						
1,4-Dioxane	0.0544	0.070	ug/l	0.0600		91	50-150			
Surrogate(s)										
1,4-Dioxane-d8	*9.72*		*ug/l*	*10.0*		*97*	*70-130*			
LCS Dup (W1A0829-BSD1)				Prepared: 01/18/21 Analyzed: 01/21/21						
1,4-Dioxane	0.0520	0.070	ug/l	0.0600		87	50-150	4	30	
Surrogate(s)										
1,4-Dioxane-d8	*9.70*		*ug/l*	*10.0*		*97*	*70-130*			

Glycols by GC/FID

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W1A0657 - _NONE (SVOC)										
Blank (W1A0657-BLK1)				Prepared & Analyzed: 01/13/21						
Ethylene glycol	ND	10	mg/l							
LCS (W1A0657-BS1)				Prepared & Analyzed: 01/13/21						
Ethylene glycol	97.2	10	mg/l	100		97	70-130			
Matrix Spike (W1A0657-MS1)	Source: 1A12053-01			Prepared & Analyzed: 01/13/21						
Ethylene glycol	105	10	mg/l	100	*ND*	105	57-127			
Matrix Spike Dup (W1A0657-MSD1)	Source: 1A12053-01			Prepared & Analyzed: 01/13/21						
Ethylene glycol	105	10	mg/l	100	*ND*	105	57-127	0.8	25	

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FINAL REPORT

Quality Control Results

(Continued)

Nitrosamines by CI GC/MS/MS, EPA 521

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W1A0474 - EPA 521/SPE										
Blank (W1A0474-BLK1)				Prepared: 01/11/21 Analyzed: 01/13/21						
N-Nitrosodiethylamine	ND	2.0	ng/l							
N-Nitrosodimethylamine	ND	2.0	ng/l							
N-Nitrosodi-n-butylamine	ND	2.0	ng/l							
N-Nitrosodi-n-propylamine	ND	2.0	ng/l							
N-Nitrosomethylethylamine	ND	2.0	ng/l							
N-Nitrosomorpholine	ND	2.0	ng/l							
N-Nitrosopiperidine	ND	2.0	ng/l							
N-Nitrosopyrrolidine	ND	2.0	ng/l							
Surrogate(s)										
NDMA-d6	*21.7*		*ng/l*	*25.0*		*87*	*70-130*			
LCS (W1A0474-BS1)				Prepared: 01/11/21 Analyzed: 01/13/21						
N-Nitrosodiethylamine	2.31	2.0	ng/l	2.00		115	50-150			
N-Nitrosodimethylamine	2.28	2.0	ng/l	2.00		114	50-150			
N-Nitrosodi-n-butylamine	2.10	2.0	ng/l	2.00		105	50-150			
N-Nitrosodi-n-propylamine	2.23	2.0	ng/l	2.00		111	50-150			
N-Nitrosomethylethylamine	2.12	2.0	ng/l	2.00		106	50-150			
N-Nitrosomorpholine	1.85	2.0	ng/l	2.00		93	50-150			
N-Nitrosopiperidine	2.30	2.0	ng/l	2.00		115	50-150			
N-Nitrosopyrrolidine	1.68	2.0	ng/l	2.00		84	50-150			
Surrogate(s)										
NDMA-d6	*20.6*		*ng/l*	*25.0*		*83*	*70-130*			
Matrix Spike (W1A0474-MS1)	Source: 1A06079-04			Prepared: 01/11/21 Analyzed: 01/13/21						
N-Nitrosodiethylamine	2.97	2.0	ng/l	2.07	*ND*	144	50-150			
N-Nitrosodimethylamine	1.99	2.0	ng/l	2.07	*ND*	96	50-150			
N-Nitrosodi-n-butylamine	2.04	2.0	ng/l	2.07	*ND*	99	50-150			
N-Nitrosodi-n-propylamine	1.75	2.0	ng/l	2.07	*ND*	84	50-150			
N-Nitrosomethylethylamine	2.33	2.0	ng/l	2.07	*ND*	112	50-150			
N-Nitrosomorpholine	2.99	2.0	ng/l	2.07	*0.746*	108	50-150			
N-Nitrosopiperidine	2.23	2.0	ng/l	2.07	*ND*	108	50-150			
N-Nitrosopyrrolidine	1.96	2.0	ng/l	2.07	*ND*	95	50-150			
Surrogate(s)										
NDMA-d6	*23.3*		*ng/l*	*25.9*		*90*	*70-130*			
Matrix Spike Dup (W1A0474-MSD1)	Source: 1A06079-04			Prepared: 01/11/21 Analyzed: 01/13/21						
N-Nitrosodiethylamine	2.51	2.0	ng/l	2.06	*ND*	122	50-150	17	50	
N-Nitrosodimethylamine	2.29	2.0	ng/l	2.06	*ND*	111	50-150	14	50	
N-Nitrosodi-n-butylamine	2.21	2.0	ng/l	2.06	*ND*	107	50-150	8	50	
N-Nitrosodi-n-propylamine	2.02	2.0	ng/l	2.06	*ND*	98	50-150	15	50	
N-Nitrosomethylethylamine	2.17	2.0	ng/l	2.06	*ND*	105	50-150	7	50	
N-Nitrosomorpholine	3.11	2.0	ng/l	2.06	*0.746*	115	50-150	4	50	
N-Nitrosopiperidine	2.38	2.0	ng/l	2.06	*ND*	116	50-150	7	50	
N-Nitrosopyrrolidine	1.88	2.0	ng/l	2.06	*ND*	91	50-150	4	50	
Surrogate(s)										
NDMA-d6	*22.3*		*ng/l*	*25.7*		*87*	*70-130*			

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Certificate of Analysis

FINAL REPORT

Notes and Definitions

Item	Definition
O-09	This sample was received with the EPA recommended holding time expired.
%REC	Percent Recovery
Dil	Dilution
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Analyses Accreditation Summary

Analyte	CAS #	Not By NELAP	ANAB ISO 17025
EPA 521 in Water			
N-Nitrosodimethylamine	62-75-9	✓	
N-Nitrosomethylethylamine	10595-95-6	✓	
N-Nitrosodiethylamine	55-18-5	✓	
N-Nitrosodi-n-propylamine	621-64-7	✓	
N-Nitrosomorpholine	59-89-2	✓	
N-Nitrosopyrrolidine	930-55-2	✓	
N-Nitrosopiperidine	100-75-4	✓	
N-Nitrosodi-n-butylamine	924-16-3	✓	
NDMA-d6		✓	

Reviewed by:

Regina M. Giancola
Project Manager

DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • HW-DOH # • ISO17025 ANAB #L2457.01 • LACSD #10143 • NELAP-OR #4047 • NJ-DEP #CA015

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

City of Morro Bay		**Reported:**	01/27/2021 16:11
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Notes And Definitions

J	Estimated Value (CLP Flag)
MDL	Method Detection Limit
ND	Analyte Not Detected
PQL	Practical Quantitation Limit
A02	The difference between duplicate readings is less than the quantitation limit.
A07	Detection and quantitation limits were raised due to sample dilution caused by high analyte concentration or matrix interference.
L01	The Laboratory Control Sample Water (LCSW) recovery is not within laboratory established control limits.
M02	Analyte detected in the Method Blank at a level between the PQL and > 1/2 the PQL.
Q02	Matrix spike precision is not within the control limits.
Q03	Matrix spike recovery(s) was(were) not within the control limits.
S09	The surrogate recovery for this compound was not within the control limits.

Appendix C

Morro Bay January 2021 PFAS Sampling Event

Analytical Laboratory Reports

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Date of Report: 02/19/2021

John Gunderlock

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Client Project:	[none]
BCL Project:	GW Monitoring - PFAS
BCL Work Order:	2102381
Invoice ID:	B407268

Enclosed are the results of analyses for samples received by the laboratory on 1/22/2021. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Tina Green
Client Services

Table of Contents

Chain of Custody and Cooler Receipt Form for 2102381 Page 1 of 2

BC LABORATORIES

4100 Atlas Court Bakersfield, Ca. 93308
(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

Chain of Custody

* Required Fields 21-02381 TEMP: ______

Client/Company Name *: City of Morro Bay
Report Attention *: John Gunderlock
Phone * #: 805-772-6272 FAX * #:
E-mail: jgunderlock@morrobayca.gov

Address *: 160 Atascadero Road, Morro Bay, CA City * State * Zip *: 93442

Project Information: GW-Monitoring
PO #:
BCL Quote #:

How would you like your completed results sent? ☑ E-Mail ☐ Fax ☑ EDD ☐ Mail Only

Carbon Copies: CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co ☐ Other:

Regulatory Compliance Electronic Data Transfer: Y ☐ N ☑
System No. *: email file

Sampler Name Printed / Signature: John Gunderlock
QC Request: ☐ STD ☐ Level II
Result Request ** Surcharge: ☑ STD ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**

Matrix Types: RSW = Raw Surface Water, RGW = Raw Ground Water, CFW = Chlorinated Finished Water, FW = Finished Water, CWW = Chlorinated Waste Water, WW = Waste Water, SW = Storm Water, BW = Bottled Water, DW = Drinking Water, SO = Solid

ANALYSIS REQUESTED: ~~OIL & GREASE (1664A-HEM)~~; PFAS CA32

	Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	PFAS CA32
-1	1	2	1/21/21	0850	High School Well #1 PFAS	RGW		✓
	2			0850	High School Well #1 PFAS			
-2	3	2		0929	MB-3 PFAS			
	4			0929	MB-3 PFAS			
-3	5	2		1058	19P-04 PFAS			
	6			1058	19P-04 PFAS			
-4	7	2		1144	Vistra PFAS			
	8			1144	Vistra PFAS			
-5	9	2		1002	Field Blank PFAS		PFAS FREE H_2O	
-6	10	2		1008	Equipment Blank PFAS			✓

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
John Gunderlock	City of Morro Bay	1/21/21	1250 hrs	[signature]	BCL 1-22-21 1130
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
				[signature]	
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Date: Amount: Check/Cash/Card PIA # Init.	

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER

Cooling Method: WET BLUE NONE

Packing Material:

CHK BY [initials] DISTRIBUTION SUB OUT ☐

Chain of Custody and Cooler Receipt Form for 2102381 Page 2 of 2

BC LABORATORIES INC.

COOLER RECEIPT FORM

Page 1 Of 1

Submission #: 21-02381

SHIPPING INFORMATION
Fed Ex ☒ UPS ☐ Ontrac ☐ Hand Delivery ☐
BC Lab Field Service ☐ Other ☐ (Specify) ______

SHIPPING CONTAINER
Ice Chest ☒ None ☐ Box ☐
Other ☐ (Specify) ______

FREE LIQUID
YES ☐ NO ☐
W / S

Refrigerant: Ice ☒ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☒ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☐ No ☑

COC Received: ☒ YES ☐ NO

Emissivity: .97 Container: PE Thermometer ID: 274 Date/Time 1-22-21 1130

Temperature: (A) 4.1 °C / (C) 3.9 °C Analyst Init TKJ

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES										
4oz / 8oz / 16oz PE UNPRES										
2oz Cr+6										
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PIA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL										
QT EPA 1664										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608/8080										
QT EPA 515.1/8150										
QT EPA 525										
QT EPA 525 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548										
QT EPA 549										
QT EPA 8015M										
QT EPA 8270										
8oz / 16oz / 32oz AMBER										
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
~~SUMMA CANISTER~~ PFAS	A,B	A,B	A,B	A,B	A,B	A,B				

Comments: No time & no dates on sample bags
Sample Numbering Completed By: Cmg Date/Time: 1/25/21 1140
A = Actual / C = Corrected

Rev 21 05/23/2016
[S:\WPDocs\WordPerfect\LAB_DOCS\FORMS\SAMREC rev 20]

City of Morro Bay		**Reported:**	02/19/2021 14:24
160 Atascadero Rd.		Project:	GW Monitoring - PFAS
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
2102381-01	**COC Number:**	---	**Receive Date:**	01/22/2021 11:30
	Project Number:	---	**Sampling Date:**	01/21/2021 08:50
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	High School Well #1 PFA's	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Groundwater
2102381-02	**COC Number:**	---	**Receive Date:**	01/22/2021 11:30
	Project Number:	---	**Sampling Date:**	01/21/2021 09:29
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	MB-3	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Groundwater
2102381-03	**COC Number:**	---	**Receive Date:**	01/22/2021 11:30
	Project Number:	---	**Sampling Date:**	01/21/2021 10:58
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	19P-04	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Groundwater
2102381-04	**COC Number:**	---	**Receive Date:**	01/22/2021 11:30
	Project Number:	---	**Sampling Date:**	01/21/2021 11:44
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	Vistra	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Groundwater
2102381-05	**COC Number:**	---	**Receive Date:**	01/22/2021 11:30
	Project Number:	---	**Sampling Date:**	01/21/2021 10:02
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	Field Blank	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Groundwater
2102381-06	**COC Number:**	---	**Receive Date:**	01/22/2021 11:30
	Project Number:	---	**Sampling Date:**	01/21/2021 10:08
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	Equipment Blank	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Groundwater

APPL LABS
908 North Temperance Ave. ∇ Clovis, CA 93611 ∇ Phone 559-275-2175 ∇ Fax 559-275-4422

NELAP Certification number: CA00046 (HW)
State Certification Number: CA1312 (WW & DW)

February 19, 2021

BC Laboratories
4100 Atlas Court
Bakersfield, California 93308

Attn: Tina Green

Subject: Report of Data: Case 94952

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dear Ms. Green,

Six water samples for the "2102381" project were received on February 1, 2021, at -1.6°C. Written results are being provided on this February 19, 2021, for the requested analysis. All holding times were met.

For PFAS analysis, the samples were extracted according to APPL SOP PRE537 and analyzed according to APPL SOP ANA537 and DoD QSM Table B-15. Some extracted internal standards recovered outside of control limits.

If you have any questions or require further information, please contact us at your convenience. Thank you for choosing APPL, Inc.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. These test results meet all requirements of NELAC. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Loren Portwood, Laboratory Director
APPL, Inc.

LP/cm
Enclosure
cc: File

PFAS IN WATER

BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Tina Green

Project: 2102381

ARF: 94952

Sample ID: 2102381-01

APPL ID: BA26315

Sample Collection Date: 01/21/21

QCG: #PFASC-210211A1-261236

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
B-15	11-CL-PF3OUDS	Not detected	8.0	1.20	ng/L	02/11/21	02/12/21
B-15	9-CL-PF3ONS	Not detected	8.0	1.18	ng/L	02/11/21	02/12/21
B-15	ADONA	Not detected	8.0	1.30	ng/L	02/11/21	02/12/21
B-15	FTS 4:2	Not detected	8.0	0.54	ng/L	02/11/21	02/12/21
B-15	FTS 6:2	Not detected	8.0	0.45	ng/L	02/11/21	02/12/21
B-15	FTS 8:2	Not detected	8.0	1.01	ng/L	02/11/21	02/12/21
B-15	HFPO-DA	Not detected	8.0	2.45	ng/L	02/11/21	02/12/21
B-15	N-ETFOSA	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	N-ETFOSAA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
B-15	N-ETFOSE	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	N-MEFOSA	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	N-MEFOSAA	Not detected	8.0	0.36	ng/L	02/11/21	02/12/21
B-15	N-MEFOSE	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	PFBA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFBS	7.0	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFDA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFDOA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFDS	Not detected	5.0	0.32	ng/L	02/11/21	02/12/21
B-15	PFHPA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFHPS	Not detected	5.0	0.28	ng/L	02/11/21	02/12/21
B-15	PFHXA	2.8 J	5.0	0.32	ng/L	02/11/21	02/12/21
B-15	PFHXS	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFNA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFNS	Not detected	8.0	0.40	ng/L	02/11/21	02/12/21
B-15	PFOA	2.5 J	5.0	0.41	ng/L	02/11/21	02/12/21
B-15	PFOS	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFOSA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFPEA	3.0 J	5.0	0.31	ng/L	02/11/21	02/12/21
B-15	PFPES	Not detected	5.0	0.29	ng/L	02/11/21	02/12/21
B-15	PFTEDA	Not detected	8.0	0.43	ng/L	02/11/21	02/12/21
B-15	PFTRDA	Not detected	5.0	0.29	ng/L	02/11/21	02/12/21
B-15	PFUDA	Not detected	5.0	0.40	ng/L	02/11/21	02/12/21
B-15	SURROGATE: 13C2-4:2FTS (S)	144	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2-6:2FTS (S)	94.0	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2-8:2FTS (S)	98.3	50-150		%	02/11/21	02/12/21

J = Estimated value.
# = Recovery (or RPD) is outside QC limits.

Quant Method: B15\2021_02_01
Run #: 2021-02-118
Instrument: Saphira
Sequence: 2021-02-12
Dilution Factor: 1
Initials: HHE

Printed: 02/18/21 2:10:03 PM
APPL-F1-SC-NoMC-REG MDLs

PFAS IN WATER

BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Tina Green

Project: 2102381

ARF: 94952

Sample ID: 2102381-01

APPL ID: BA26315

Sample Collection Date: 01/21/21

QCG: #PFASC-210211A1-261236

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
B-15	SURROGATE: 13C2-PFDOA (S)	86.3	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2-PFTEDA (S)	84.0	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2D4-6:2FTS (S)	98.7	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C3-HFPO-DA (S)	85.1	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C3-PFBS (S)	85.4	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C3-PFHXS (S)	89.0	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C4-PFBA (S)	83.7	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C4-PFHPA (S)	90.2	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C5-PFHXA (S)	93.3	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C5-PFPEA (S)	86.5	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C6-PFDA (S)	85.4	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C7-PFUDA (S)	82.0	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C8-PFOA (S)	93.9	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C8-PFOS (S)	93.0	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C8-PFOSA (S)	78.1	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C9-PFNA (S)	90.2	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D3-MEFOSA (S)	47.2 #	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D3-NMEFOSAA (S)	81.9	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D5-ETFOSA (S)	43.8 #	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D5-NETFOSAA (S)	79.0	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D7-MEFOSE (S)	61.0	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D9-ETFOSE (S)	50.1	50-150		%	02/11/21	02/12/21

J = Estimated value.
# = Recovery (or RPD) is outside QC limits.

Quant Method: B15\2021_02_01
Run #: 2021-02-118
Instrument: Saphira
Sequence: 2021-02-12
Dilution Factor: 1
Initials: HHE

Printed: 02/18/21 2:10:03 PM
APPL-F1-SC-NoMC-REG MDLs

PFAS IN WATER

BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Tina Green

Project: 2102381

ARF: 94952

Sample ID: 2102381-02

APPL ID: BA26316

Sample Collection Date: 01/21/21

QCG: #PFASC-210211A1-261236

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
B-15	11-CL-PF3OUDS	Not detected	8.0	1.20	ng/L	02/11/21	02/12/21
B-15	9-CL-PF3ONS	Not detected	8.0	1.18	ng/L	02/11/21	02/12/21
B-15	ADONA	Not detected	8.0	1.30	ng/L	02/11/21	02/12/21
B-15	FTS 4:2	Not detected	8.0	0.54	ng/L	02/11/21	02/12/21
B-15	FTS 6:2	Not detected	8.0	0.45	ng/L	02/11/21	02/12/21
B-15	FTS 8:2	Not detected	8.0	1.01	ng/L	02/11/21	02/12/21
B-15	HFPO-DA	Not detected	8.0	2.45	ng/L	02/11/21	02/12/21
B-15	N-ETFOSA	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	N-ETFOSAA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
B-15	N-ETFOSE	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	N-MEFOSA	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	N-MEFOSAA	Not detected	8.0	0.36	ng/L	02/11/21	02/12/21
B-15	N-MEFOSE	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	PFBA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFBS	3.3 J	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFDA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFDOA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFDS	Not detected	5.0	0.32	ng/L	02/11/21	02/12/21
B-15	PFHPA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFHPS	Not detected	5.0	0.28	ng/L	02/11/21	02/12/21
B-15	PFHXA	Not detected	5.0	0.32	ng/L	02/11/21	02/12/21
B-15	PFHXS	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFNA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFNS	Not detected	8.0	0.40	ng/L	02/11/21	02/12/21
B-15	PFOA	Not detected	5.0	0.41	ng/L	02/11/21	02/12/21
B-15	PFOS	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFOSA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFPEA	Not detected	5.0	0.31	ng/L	02/11/21	02/12/21
B-15	PFPES	Not detected	5.0	0.29	ng/L	02/11/21	02/12/21
B-15	PFTEDA	Not detected	8.0	0.43	ng/L	02/11/21	02/12/21
B-15	PFTRDA	Not detected	5.0	0.29	ng/L	02/11/21	02/12/21
B-15	PFUDA	Not detected	5.0	0.40	ng/L	02/11/21	02/12/21
B-15	SURROGATE: 13C2-4:2FTS (S)	165 #	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2-6:2FTS (S)	117	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2-8:2FTS (S)	101	50-150		%	02/11/21	02/12/21

J = Estimated value.
# = Recovery (or RPD) is outside QC limits.

Quant Method: B15\2021_02_01
Run #: 2021-02-119
Instrument: Saphira
Sequence: 2021-02-12
Dilution Factor: 1
Initials: HHE

Printed: 02/18/21 2:10:03 PM
APPL-F1-SC-NoMC-REG MDLs

PFAS IN WATER

BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Tina Green

Project: 2102381

ARF: 94952

Sample ID: 2102381-02

APPL ID: BA26316

Sample Collection Date: 01/21/21

QCG: #PFASC-210211A1-261236

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
B-15	SURROGATE: 13C2-PFDOA (S)	101	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2-PFTEDA (S)	102	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2D4-6:2FTS (S)	122	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C3-HFPO-DA (S)	89.7	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C3-PFBS (S)	95.9	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C3-PFHXS (S)	94.1	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C4-PFBA (S)	86.5	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C4-PFHPA (S)	98.4	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C5-PFHXA (S)	95.6	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C5-PFPEA (S)	92.9	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C6-PFDA (S)	98.9	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C7-PFUDA (S)	99.4	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C8-PFOA (S)	100	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C8-PFOS (S)	96.3	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C8-PFOSA (S)	80.3	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C9-PFNA (S)	98.1	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D3-MEFOSA (S)	50.2	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D3-NMEFOSAA (S)	84.3	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D5-ETFOSA (S)	52.0	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D5-NETFOSAA (S)	91.3	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D7-MEFOSE (S)	70.7	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D9-ETFOSE (S)	70.4	50-150		%	02/11/21	02/12/21

J = Estimated value.
# = Recovery (or RPD) is outside QC limits.

Quant Method: B15\2021_02_01
Run #: 2021-02-119
Instrument: Saphira
Sequence: 2021-02-12
Dilution Factor: 1
Initials: HHE

Printed: 02/18/21 2:10:03 PM
APPL-F1-SC-NoMC-REG MDLs

PFAS IN WATER

BC Laboratories	APPL Inc.
4100 Atlas Court	908 North Temperance Avenue
Bakersfield, CA 93308	Clovis, CA 93611
Attn: Tina Green	
Project: 2102381	ARF: 94952
Sample ID: 2102381-03	**APPL ID: BA26317**
Sample Collection Date: 01/21/21	QCG: #PFASC-210211A1-261236

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
B-15	11-CL-PF3OUDS	Not detected	8.0	1.20	ng/L	02/11/21	02/12/21
B-15	9-CL-PF3ONS	Not detected	8.0	1.18	ng/L	02/11/21	02/12/21
B-15	ADONA	Not detected	8.0	1.30	ng/L	02/11/21	02/12/21
B-15	FTS 4:2	Not detected	8.0	0.54	ng/L	02/11/21	02/12/21
B-15	FTS 6:2	Not detected	8.0	0.45	ng/L	02/11/21	02/12/21
B-15	FTS 8:2	Not detected	8.0	1.01	ng/L	02/11/21	02/12/21
B-15	HFPO-DA	Not detected	8.0	2.45	ng/L	02/11/21	02/12/21
B-15	N-ETFOSA	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	N-ETFOSAA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
B-15	N-ETFOSE	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	N-MEFOSA	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	N-MEFOSAA	Not detected	8.0	0.36	ng/L	02/11/21	02/12/21
B-15	N-MEFOSE	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	PFBA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFBS	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFDA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFDOA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFDS	Not detected	5.0	0.32	ng/L	02/11/21	02/12/21
B-15	PFHPA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFHPS	Not detected	5.0	0.28	ng/L	02/11/21	02/12/21
B-15	PFHXA	Not detected	5.0	0.32	ng/L	02/11/21	02/12/21
B-15	PFHXS	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFNA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFNS	Not detected	8.0	0.40	ng/L	02/11/21	02/12/21
B-15	PFOA	Not detected	5.0	0.41	ng/L	02/11/21	02/12/21
B-15	PFOS	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFOSA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFPEA	Not detected	5.0	0.31	ng/L	02/11/21	02/12/21
B-15	PFPES	Not detected	5.0	0.29	ng/L	02/11/21	02/12/21
B-15	PFTEDA	Not detected	8.0	0.43	ng/L	02/11/21	02/12/21
B-15	PFTRDA	Not detected	5.0	0.29	ng/L	02/11/21	02/12/21
B-15	PFUDA	Not detected	5.0	0.40	ng/L	02/11/21	02/12/21
B-15	SURROGATE: 13C2-4:2FTS (S)	152 #	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2-6:2FTS (S)	106	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2-8:2FTS (S)	90.7	50-150		%	02/11/21	02/12/21

= Recovery (or RPD) is outside QC limits.

Quant Method:	B15\2021_02_01
Run #:	2021-02-1110
Instrument:	Saphira
Sequence:	2021-02-12
Dilution Factor:	1
Initials:	HHE

Printed: 02/18/21 2:10:03 PM
APPL-F1-SC-NoMC-REG MDLs

PFAS IN WATER

BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Tina Green

Project: 2102381

ARF: 94952

Sample ID: 2102381-03

APPL ID: BA26317

Sample Collection Date: 01/21/21

QCG: #PFASC-210211A1-261236

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
B-15	SURROGATE: 13C2-PFDOA (S)	92.4	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2-PFTEDA (S)	84.2	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2D4-6:2FTS (S)	106	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C3-HFPO-DA (S)	86.4	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C3-PFBS (S)	83.7	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C3-PFHXS (S)	86.8	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C4-PFBA (S)	81.8	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C4-PFHPA (S)	94.9	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C5-PFHXA (S)	90.5	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C5-PFPEA (S)	87.8	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C6-PFDA (S)	87.9	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C7-PFUDA (S)	93.1	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C8-PFOA (S)	94.3	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C8-PFOS (S)	95.6	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C8-PFOSA (S)	74.6	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C9-PFNA (S)	94.1	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D3-MEFOSA (S)	55.6	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D3-NMEFOSAA (S)	94.3	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D5-ETFOSA (S)	58.1	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D5-NETFOSAA (S)	94.4	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D7-MEFOSE (S)	74.8	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D9-ETFOSE (S)	77.6	50-150		%	02/11/21	02/12/21

= Recovery (or RPD) is outside QC limits.

Quant Method: B15\2021_02_01
Run #: 2021-02-1110
Instrument: Saphira
Sequence: 2021-02-12
Dilution Factor: 1
Initials: HHE

Printed: 02/18/21 2:10:03 PM
APPL-F1-SC-NoMC-REG MDLs

PFAS IN WATER

BC Laboratories	APPL Inc.
4100 Atlas Court	908 North Temperance Avenue
Bakersfield, CA 93308	Clovis, CA 93611
Attn: Tina Green	
Project: 2102381	ARF: 94952
Sample ID: 2102381-04	**APPL ID: BA26318**
Sample Collection Date: 01/21/21	QCG: #PFASC-210211A1-261236

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
B-15	11-CL-PF3OUDS	Not detected	8.0	1.20	ng/L	02/11/21	02/12/21
B-15	9-CL-PF3ONS	Not detected	8.0	1.18	ng/L	02/11/21	02/12/21
B-15	ADONA	Not detected	8.0	1.30	ng/L	02/11/21	02/12/21
B-15	FTS 4:2	Not detected	8.0	0.54	ng/L	02/11/21	02/12/21
B-15	FTS 6:2	Not detected	8.0	0.45	ng/L	02/11/21	02/12/21
B-15	FTS 8:2	Not detected	8.0	1.01	ng/L	02/11/21	02/12/21
B-15	HFPO-DA	Not detected	8.0	2.45	ng/L	02/11/21	02/12/21
B-15	N-ETFOSA	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	N-ETFOSAA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
B-15	N-ETFOSE	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	N-MEFOSA	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	N-MEFOSAA	Not detected	8.0	0.36	ng/L	02/11/21	02/12/21
B-15	N-MEFOSE	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	PFBA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFBS	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFDA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFDOA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFDS	Not detected	5.0	0.32	ng/L	02/11/21	02/12/21
B-15	PFHPA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFHPS	Not detected	5.0	0.28	ng/L	02/11/21	02/12/21
B-15	PFHXA	Not detected	5.0	0.32	ng/L	02/11/21	02/12/21
B-15	PFHXS	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFNA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFNS	Not detected	8.0	0.40	ng/L	02/11/21	02/12/21
B-15	PFOA	Not detected	5.0	0.41	ng/L	02/11/21	02/12/21
B-15	PFOS	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFOSA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFPEA	Not detected	5.0	0.31	ng/L	02/11/21	02/12/21
B-15	PFPES	Not detected	5.0	0.29	ng/L	02/11/21	02/12/21
B-15	PFTEDA	Not detected	8.0	0.43	ng/L	02/11/21	02/12/21
B-15	PFTRDA	Not detected	5.0	0.29	ng/L	02/11/21	02/12/21
B-15	PFUDA	Not detected	5.0	0.40	ng/L	02/11/21	02/12/21
B-15	SURROGATE: 13C2-4:2FTS (S)	173 #	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2-6:2FTS (S)	106	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2-8:2FTS (S)	101	50-150		%	02/11/21	02/12/21

= Recovery (or RPD) is outside QC limits.

Quant Method:	B15\2021_02_01
Run #:	2021-02-1111
Instrument:	Saphira
Sequence:	2021-02-12
Dilution Factor:	1
Initials:	HHE

Printed: 02/18/21 2:10:03 PM
APPL-F1-SC-NoMC-REG MDLs

PFAS IN WATER

BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Tina Green
Project: 2102381
ARF: 94952
Sample ID: 2102381-04
APPL ID: BA26318
Sample Collection Date: 01/21/21
QCG: #PFASC-210211A1-261236

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
B-15	SURROGATE: 13C2-PFDOA (S)	102	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2-PFTEDA (S)	90.1	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2D4-6:2FTS (S)	113	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C3-HFPO-DA (S)	92.6	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C3-PFBS (S)	90.0	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C3-PFHXS (S)	90.1	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C4-PFBA (S)	90.5	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C4-PFHPA (S)	99.4	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C5-PFHXA (S)	96.1	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C5-PFPEA (S)	90.3	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C6-PFDA (S)	98.9	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C7-PFUDA (S)	97.5	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C8-PFOA (S)	105	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C8-PFOS (S)	95.0	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C8-PFOSA (S)	84.8	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C9-PFNA (S)	97.5	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D3-MEFOSA (S)	51.8	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D3-NMEFOSAA (S)	84.6	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D5-ETFOSA (S)	58.4	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D5-NETFOSAA (S)	87.9	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D7-MEFOSE (S)	76.8	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D9-ETFOSE (S)	77.1	50-150		%	02/11/21	02/12/21

= Recovery (or RPD) is outside QC limits.

Quant Method: B15\2021_02_01
Run #: 2021-02-1111
Instrument: Saphira
Sequence: 2021-02-12
Dilution Factor: 1
Initials: HHE

Printed: 02/18/21 2:10:03 PM
APPL-F1-SC-NoMC-REG MDLs

PFAS IN WATER

BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Tina Green

Project: 2102381

ARF: 94952

Sample ID: 2102381-05

APPL ID: BA26319

Sample Collection Date: 01/21/21

QCG: #PFASC-210211A1-261236

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
B-15	11-CL-PF3OUDS	Not detected	8.0	1.20	ng/L	02/11/21	02/12/21
B-15	9-CL-PF3ONS	Not detected	8.0	1.18	ng/L	02/11/21	02/12/21
B-15	ADONA	Not detected	8.0	1.30	ng/L	02/11/21	02/12/21
B-15	FTS 4:2	Not detected	8.0	0.54	ng/L	02/11/21	02/12/21
B-15	FTS 6:2	Not detected	8.0	0.45	ng/L	02/11/21	02/12/21
B-15	FTS 8:2	Not detected	8.0	1.01	ng/L	02/11/21	02/12/21
B-15	HFPO-DA	Not detected	8.0	2.45	ng/L	02/11/21	02/12/21
B-15	N-ETFOSA	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	N-ETFOSAA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
B-15	N-ETFOSE	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	N-MEFOSA	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	N-MEFOSAA	Not detected	8.0	0.36	ng/L	02/11/21	02/12/21
B-15	N-MEFOSE	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	PFBA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFBS	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFDA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFDOA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFDS	Not detected	5.0	0.32	ng/L	02/11/21	02/12/21
B-15	PFHPA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFHPS	Not detected	5.0	0.28	ng/L	02/11/21	02/12/21
B-15	PFHXA	Not detected	5.0	0.32	ng/L	02/11/21	02/12/21
B-15	PFHXS	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFNA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFNS	Not detected	8.0	0.40	ng/L	02/11/21	02/12/21
B-15	PFOA	Not detected	5.0	0.41	ng/L	02/11/21	02/12/21
B-15	PFOS	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFOSA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFPEA	Not detected	5.0	0.31	ng/L	02/11/21	02/12/21
B-15	PFPES	Not detected	5.0	0.29	ng/L	02/11/21	02/12/21
B-15	PFTEDA	Not detected	8.0	0.43	ng/L	02/11/21	02/12/21
B-15	PFTRDA	Not detected	5.0	0.29	ng/L	02/11/21	02/12/21
B-15	PFUDA	Not detected	5.0	0.40	ng/L	02/11/21	02/12/21
B-15	SURROGATE: 13C2-4:2FTS (S)	140	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2-6:2FTS (S)	101	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2-8:2FTS (S)	103	50-150		%	02/11/21	02/12/21

= Recovery (or RPD) is outside QC limits.

Quant Method: B15\2021_02_01
Run #: 2021-02-1112
Instrument: Saphira
Sequence: 2021-02-12
Dilution Factor: 1
Initials: HHE

Printed: 02/18/21 2:10:03 PM
APPL-F1-SC-NoMC-REG MDLs

PFAS IN WATER

BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Tina Green
Project: 2102381
ARF: 94952
Sample ID: 2102381-05
APPL ID: BA26319
Sample Collection Date: 01/21/21
QCG: #PFASC-210211A1-261236

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
B-15	SURROGATE: 13C2-PFDOA (S)	83.3	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2-PFTEDA (S)	35.6 #	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2D4-6:2FTS (S)	106	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C3-HFPO-DA (S)	90.8	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C3-PFBS (S)	90.3	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C3-PFHXS (S)	84.1	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C4-PFBA (S)	90.9	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C4-PFHPA (S)	94.5	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C5-PFHXA (S)	95.4	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C5-PFPEA (S)	93.6	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C6-PFDA (S)	92.9	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C7-PFUDA (S)	91.4	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C8-PFOA (S)	99.6	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C8-PFOS (S)	94.0	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C8-PFOSA (S)	81.6	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C9-PFNA (S)	96.4	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D3-MEFOSA (S)	50.2	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D3-NMEFOSAA (S)	83.6	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D5-ETFOSA (S)	49.5	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D5-NETFOSAA (S)	89.5	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D7-MEFOSE (S)	69.4	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D9-ETFOSE (S)	69.5	50-150		%	02/11/21	02/12/21

= Recovery (or RPD) is outside QC limits.

Quant Method: B15\2021_02_01
Run #: 2021-02-1112
Instrument: Saphira
Sequence: 2021-02-12
Dilution Factor: 1
Initials: HHE

Printed: 02/18/21 2:10:03 PM
APPL-F1-SC-NoMC-REG MDLs

PFAS IN WATER

BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Tina Green

Project: 2102381

ARF: 94952

Sample ID: 2102381-06

APPL ID: BA26320

Sample Collection Date: 01/21/21

QCG: #PFASC-210211A1-261236

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
B-15	11-CL-PF3OUDS	Not detected	8.0	1.20	ng/L	02/11/21	02/12/21
B-15	9-CL-PF3ONS	Not detected	8.0	1.18	ng/L	02/11/21	02/12/21
B-15	ADONA	Not detected	8.0	1.30	ng/L	02/11/21	02/12/21
B-15	FTS 4:2	Not detected	8.0	0.54	ng/L	02/11/21	02/12/21
B-15	FTS 6:2	Not detected	8.0	0.45	ng/L	02/11/21	02/12/21
B-15	FTS 8:2	Not detected	8.0	1.01	ng/L	02/11/21	02/12/21
B-15	HFPO-DA	Not detected	8.0	2.45	ng/L	02/11/21	02/12/21
B-15	N-ETFOSA	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	N-ETFOSAA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
B-15	N-ETFOSE	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	N-MEFOSA	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	N-MEFOSAA	Not detected	8.0	0.36	ng/L	02/11/21	02/12/21
B-15	N-MEFOSE	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
B-15	PFBA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFBS	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFDA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFDOA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFDS	Not detected	5.0	0.32	ng/L	02/11/21	02/12/21
B-15	PFHPA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFHPS	Not detected	5.0	0.28	ng/L	02/11/21	02/12/21
B-15	PFHXA	Not detected	5.0	0.32	ng/L	02/11/21	02/12/21
B-15	PFHXS	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFNA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFNS	Not detected	8.0	0.40	ng/L	02/11/21	02/12/21
B-15	PFOA	Not detected	5.0	0.41	ng/L	02/11/21	02/12/21
B-15	PFOS	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFOSA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
B-15	PFPEA	Not detected	5.0	0.31	ng/L	02/11/21	02/12/21
B-15	PFPES	Not detected	5.0	0.29	ng/L	02/11/21	02/12/21
B-15	PFTEDA	Not detected	8.0	0.43	ng/L	02/11/21	02/12/21
B-15	PFTRDA	Not detected	5.0	0.29	ng/L	02/11/21	02/12/21
B-15	PFUDA	Not detected	5.0	0.40	ng/L	02/11/21	02/12/21
B-15	SURROGATE: 13C2-4:2FTS (S)	156 #	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2-6:2FTS (S)	112	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2-8:2FTS (S)	108	50-150		%	02/11/21	02/12/21

= Recovery (or RPD) is outside QC limits.

Quant Method: B15\2021_02_01
Run #: 2021-02-1113
Instrument: Saphira
Sequence: 2021-02-12
Dilution Factor: 1
Initials: HHE

Printed: 02/18/21 2:10:03 PM
APPL-F1-SC-NoMC-REG MDLs

PFAS IN WATER

BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Tina Green

Project: 2102381

ARF: 94952

Sample ID: 2102381-06

APPL ID: BA26320

Sample Collection Date: 01/21/21

QCG: #PFASC-210211A1-261236

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
B-15	SURROGATE: 13C2-PFDOA (S)	94.8	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2-PFTEDA (S)	77.5	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C2D4-6:2FTS (S)	110	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C3-HFPO-DA (S)	97.2	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C3-PFBS (S)	93.1	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C3-PFHXS (S)	95.8	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C4-PFBA (S)	95.4	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C4-PFHPA (S)	104	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C5-PFHXA (S)	101	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C5-PFPEA (S)	102	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C6-PFDA (S)	95.1	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C7-PFUDA (S)	95.2	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C8-PFOA (S)	98.7	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C8-PFOS (S)	90.3	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C8-PFOSA (S)	87.9	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: 13C9-PFNA (S)	93.1	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D3-MEFOSA (S)	54.2	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D3-NMEFOSAA (S)	80.6	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D5-ETFOSA (S)	55.0	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D5-NETFOSAA (S)	92.5	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D7-MEFOSE (S)	71.8	50-150		%	02/11/21	02/12/21
B-15	SURROGATE: D9-ETFOSE (S)	74.5	50-150		%	02/11/21	02/12/21

= Recovery (or RPD) is outside QC limits.

Quant Method: B15\2021_02_01
Run #: 2021-02-1113
Instrument: Saphira
Sequence: 2021-02-12
Dilution Factor: 1
Initials: HHE

Printed: 02/18/21 2:10:03 PM
APPL-F1-SC-NoMC-REG MDLs

Method Blank
PFAS IN WATER

Blank Name/QCG: **210211W-26292 - 261236**
Batch ID: #PFASC-210211A1

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Sample Type	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
BLANK	11-CL-PF3OUDS	Not detected	8.0	1.20	ng/L	02/11/21	02/12/21
BLANK	9-CL-PF3ONS	Not detected	8.0	1.18	ng/L	02/11/21	02/12/21
BLANK	ADONA	Not detected	8.0	1.30	ng/L	02/11/21	02/12/21
BLANK	FTS 4:2	Not detected	8.0	0.54	ng/L	02/11/21	02/12/21
BLANK	FTS 6:2	Not detected	8.0	0.45	ng/L	02/11/21	02/12/21
BLANK	FTS 8:2	Not detected	8.0	1.01	ng/L	02/11/21	02/12/21
BLANK	HFPO-DA	Not detected	8.0	2.45	ng/L	02/11/21	02/12/21
BLANK	N-ETFOSA	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
BLANK	N-ETFOSAA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
BLANK	N-ETFOSE	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
BLANK	N-MEFOSA	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
BLANK	N-MEFOSAA	Not detected	8.0	0.36	ng/L	02/11/21	02/12/21
BLANK	N-MEFOSE	Not detected	8.0	3.00	ng/L	02/11/21	02/12/21
BLANK	PFBA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
BLANK	PFBS	1.8 J	5.0	0.25	ng/L	02/11/21	02/12/21
BLANK	PFDA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
BLANK	PFDOA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
BLANK	PFDS	Not detected	5.0	0.32	ng/L	02/11/21	02/12/21
BLANK	PFHPA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
BLANK	PFHPS	Not detected	5.0	0.28	ng/L	02/11/21	02/12/21
BLANK	PFHXA	Not detected	5.0	0.32	ng/L	02/11/21	02/12/21
BLANK	PFHXS	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
BLANK	PFNA	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
BLANK	PFNS	Not detected	8.0	0.40	ng/L	02/11/21	02/12/21
BLANK	PFOA	Not detected	5.0	0.41	ng/L	02/11/21	02/12/21
BLANK	PFOS	Not detected	5.0	0.25	ng/L	02/11/21	02/12/21
BLANK	PFOSA	Not detected	8.0	0.25	ng/L	02/11/21	02/12/21
BLANK	PFPEA	Not detected	5.0	0.31	ng/L	02/11/21	02/12/21
BLANK	PFPES	Not detected	5.0	0.29	ng/L	02/11/21	02/12/21
BLANK	PFTEDA	Not detected	8.0	0.43	ng/L	02/11/21	02/12/21
BLANK	PFTRDA	Not detected	5.0	0.29	ng/L	02/11/21	02/12/21
BLANK	PFUDA	Not detected	5.0	0.40	ng/L	02/11/21	02/12/21
BLANK	SURROGATE: 13C2-4:2FTS (S)	138	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: 13C2-6:2FTS (S)	110	50-150		%	02/11/21	02/12/21

J = Estimated value.
# = Recovery (or RPD) is outside QC limits.

Quant Method: B15\2021_02
Run #: 2021-02-113
Instrument: Saphira
Sequence: 2021-02-12
Initials: HHE

GC SC-Blank-REG MDLs
Printed: 02/18/21 2:10:02 PM

Method Blank
PFAS IN WATER

Blank Name/QCG: **210211W-26292 - 261236**
Batch ID: #PFASC-210211A1

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Sample Type	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
BLANK	SURROGATE: 13C2-8:2FTS (S)	93.4	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: 13C2-PFDOA (S)	86.4	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: 13C2-PFTEDA (S)	32.6 #	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: 13C2D4-6:2FTS (S)	103	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: 13C3-HFPO-DA (S)	96.3	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: 13C3-PFBS (S)	91.5	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: 13C3-PFHXS (S)	92.0	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: 13C4-PFBA (S)	98.4	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: 13C4-PFHPA (S)	102	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: 13C5-PFHXA (S)	97.1	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: 13C5-PFPEA (S)	99.6	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: 13C6-PFDA (S)	92.6	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: 13C7-PFUDA (S)	96.0	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: 13C8-PFOA (S)	102	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: 13C8-PFOS (S)	94.8	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: 13C8-PFOSA (S)	84.8	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: 13C9-PFNA (S)	97.8	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: D3-MEFOSA (S)	61.8	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: D3-NMEFOSAA (S)	90.2	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: D5-ETFOSA (S)	63.9	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: D5-NETFOSAA (S)	90.0	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: D7-MEFOSE (S)	76.0	50-150		%	02/11/21	02/12/21
BLANK	SURROGATE: D9-ETFOSE (S)	79.6	50-150		%	02/11/21	02/12/21

J = Estimated value.
# = Recovery (or RPD) is outside QC limits.

Quant Method: B15\2021_02
Run #: 2021-02-113
Instrument: Saphira
Sequence: 2021-02-12
Initials: HHE

GC SC-Blank-REG MDLs
Printed: 02/18/21 2:10:02 PM

Laboratory Control Spike Recoveries
PFAS IN WATER

APPL ID: **210211W-26292 LCS - 261236**
Batch ID: #PFASC-210211A1

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ng/L	SPK Result ng/L	DUP Result ng/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
11-CL-PF3OUDS	189	201	197	107	104	54-138	2.0	30
9-CL-PF3ONS	187	192	188	103	101	62-140	2.1	30
ADONA	189	201	184	106	97.3	61-169	8.8	30
FTS 4:2	187	174	162	93.1	86.7	63-143	7.1	30
FTS 6:2	190	185	176	97.5	92.7	64-140	5.0	30
FTS 8:2	192	171	179	89.2	93.4	67-138	4.6	30
HFPO-DA	200	205	196	103	98.0	44-175	4.5	30
N-ETFOSA	200	190	174	95.0	87.0	76-137	8.8	30
N-ETFOSAA	200	208	178	104	89.0	61-135	15.5	30
N-ETFOSE	200	183	172	91.5	86.0	39-150	6.2	30
N-MEFOSA	200	164	169	82.0	84.5	68-141	3.0	30
N-MEFOSAA	200	181	177	90.5	88.5	65-136	2.2	30
N-MEFOSE	200	183	179	91.5	89.5	68-144	2.2	30
PFBA	200	190	187	95.0	93.5	73-129	1.6	30
PFBS	177	181	161	102	91.0	72-130	11.7	30
PFDA	200	179	184	89.5	92.0	71-129	2.8	30
PFDOA	200	182	166	91.0	83.0	72-134	9.2	30
PFDS	193	190	180	98.6	93.4	53-142	5.4	30
PFHPA	200	183	183	91.5	91.5	72-130	0.0	30
PFHPS	190	178	176	93.5	92.5	69-134	1.1	30
PFHXA	200	177	176	88.5	88.0	72-129	0.57	30
PFHXS	182	164	161	90.0	88.4	68-131	1.8	30
PFNA	200	200	185	100	92.5	69-130	7.8	30
PFNS	192	196	182	102	94.8	69-127	7.4	30

Comments:

Primary	SPK	DUP
Quant Method :	B15\2021_02_01	B15\2021_02_01
Extraction Date :	02/11/21	02/11/21
Analysis Date :	02/12/21	02/12/21
Instrument :	Saphira	Saphira
Run :	2021-02-114	2021-02-115
Initials :	HHE	

Printed: 02/18/21 2:10:10 PM
APPL Standard LCSD

Laboratory Control Spike Recoveries
PFAS IN WATER

APPL ID: **210211W-26292 LCS - 261236**
Batch ID: #PFASC-210211A1

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ng/L	SPK Result ng/L	DUP Result ng/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
PFOA	200	193	185	96.5	92.5	71-133	4.2	30
PFOS	185	212	192	114	104	65-140	9.9	30
PFOSA	200	182	186	91.0	93.0	67-137	2.2	30
PFPEA	200	178	165	89.0	82.5	72-129	7.6	30
PFPES	188	187	175	99.6	93.2	71-127	6.6	30
PFTEDA	200	195	173	97.5	86.5	71-132	12.0	30
PFTRDA	200	244	234	122	117	65-144	4.2	30
PFUDA	200	186	180	93.0	90.0	69-133	3.3	30
SURROGATE: 13C2-4:2FTS (S)	100	140	141	140	141	50-150		
SURROGATE: 13C2-6:2FTS (S)	100	108	103	108	103	50-150		
SURROGATE: 13C2-8:2FTS (S)	100	103	103	103	103	50-150		
SURROGATE: 13C2-PFDOA (S)	100	93.7	99.9	93.7	99.9	50-150		
SURROGATE: 13C2-PFTEDA (S)	100	83.1	67.5	83.1	67.5	50-150		
SURROGATE: 13C2D4-6:2FTS (S)	100	107	107	107	107	50-150		
SURROGATE: 13C3-HFPO-DA (S)	100	95.8	102	95.8	102	50-150		
SURROGATE: 13C3-PFBS (S)	100	87.5	91.0	87.5	91.0	50-150		
SURROGATE: 13C3-PFHXS (S)	100	96.2	96.9	96.2	96.9	50-150		
SURROGATE: 13C4-PFBA (S)	100	94.0	99.2	94.0	99.2	50-150		
SURROGATE: 13C4-PFHPA (S)	100	104	106	104	106	50-150		
SURROGATE: 13C5-PFHXA (S)	100	97.7	98.9	97.7	98.9	50-150		
SURROGATE: 13C5-PFPEA (S)	100	97.2	98.2	97.2	98.2	50-150		
SURROGATE: 13C6-PFDA (S)	100	92.9	94.7	92.9	94.7	50-150		
SURROGATE: 13C7-PFUDA (S)	100	92.2	102	92.2	102	50-150		
SURROGATE: 13C8-PFOA (S)	100	101	99.3	101	99.3	50-150		

Comments:

Primary	SPK	DUP
Quant Method :	B15\2021_02_01	B15\2021_02_01
Extraction Date :	02/11/21	02/11/21
Analysis Date :	02/12/21	02/12/21
Instrument :	Saphira	Saphira
Run :	2021-02-114	2021-02-115
Initials :	HHE	

Printed: 02/18/21 2:10:10 PM
APPL Standard LCSD

Laboratory Control Spike Recoveries
PFAS IN WATER

APPL ID: **210211W-26292 LCS - 261236**
Batch ID: #PFASC-210211A1

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ng/L	SPK Result ng/L	DUP Result ng/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
SURROGATE: 13C8-PFOS (S)	100	96.6	104	96.6	104	50-150		
SURROGATE: 13C8-PFOSA (S)	100	87.6	90.9	87.6	90.9	50-150		
SURROGATE: 13C9-PFNA (S)	100	97.2	98.1	97.2	98.1	50-150		
SURROGATE: D3-MEFOSA (S)	100	67.5	65.3	67.5	65.3	50-150		
SURROGATE: D3-NMEFOSAA (S)	100	92.8	97.9	92.8	97.9	50-150		
SURROGATE: D5-ETFOSA (S)	100	66.7	66.7	66.7	66.7	50-150		
SURROGATE: D5-NETFOSAA (S)	100	82.7	98.7	82.7	98.7	50-150		
SURROGATE: D7-MEFOSE (S)	100	74.4	84.6	74.4	84.6	50-150		
SURROGATE: D9-ETFOSE (S)	100	75.2	83.9	75.2	83.9	50-150		

Comments:

Primary	SPK	DUP
Quant Method :	B15\2021_02_01	B15\2021_02_01
Extraction Date :	02/11/21	02/11/21
Analysis Date :	02/12/21	02/12/21
Instrument :	Saphira	Saphira
Run :	2021-02-114	2021-02-115
Initials :	HHE	

Printed: 02/18/21 2:10:10 PM
APPL Standard LCSD

SUBCONTRACT ORDER
BC Laboratories
2102381

94952

IRB @ 0.3/-1.6°c

APPLN

SENDING LABORATORY:
BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308
Phone: 661-327-4911
FAX: 661-327-1918
Project Manager: Tina Green

RECEIVING LABORATORY:
APPL, Inc.
908 N. Temperance Ave.
Clovis, CA 93611
Lori Wilcox
Phone: (559) 275-2175
FAX: (559) 275-4422

Analysis	Due	Expires	Comments
Sample ID: 2102381-01 Water	**Sampled:**	**01/21/21 08:50**	
EPA 537.1 - Perfluorinated Akyl Acids	02/05/21 17:00	02/18/21 08:50	groundwater
Containers supplied:			
Sample ID: 2102381-02 Water	**Sampled:**	**01/21/21 09:29**	
EPA 537.1 - Perfluorinated Akyl Acids	02/05/21 17:00	02/18/21 09:29	groundwater
Containers supplied:			
Sample ID: 2102381-03 Water	**Sampled:**	**01/21/21 10:58**	
EPA 537.1 - Perfluorinated Akyl Acids	02/05/21 17:00	02/18/21 10:58	groundwater
Containers supplied:			
Sample ID: 2102381-04 Water	**Sampled:**	**01/21/21 11:44**	
EPA 537.1 - Perfluorinated Akyl Acids	02/05/21 17:00	02/18/21 11:44	groundwater
Containers supplied:			
Sample ID: 2102381-05 Water	**Sampled:**	**01/21/21 10:02**	
EPA 537.1 - Perfluorinated Akyl Acids	02/05/21 17:00	02/18/21 10:02	groundwater
Containers supplied:			
Sample ID: 2102381-06 Water	**Sampled:**	**01/21/21 10:08**	
EPA 537.1 - Perfluorinated Akyl Acids	02/05/21 17:00	02/18/21 10:08	groundwater
Containers supplied:			

Released By	Date	Received By	Date
[signature]	1-29-21		
		[signature]	2/1/21 955

APPLN 19 of 19 Page 1 of 1

City of Morro Bay	**Reported:** 02/19/2021 14:24
160 Atascadero Rd.	Project: GW Monitoring - PFAS
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Notes And Definitions

Appendix C

Morro Bay April 2021 Sampling Event

Analytical Laboratory Reports

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Date of Report: 06/18/2021

John Gunderlock

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Client Project:	[none]
BCL Project:	Morro Bay Wells
BCL Work Order:	2113280
Invoice ID:	B418272

Enclosed are the results of analyses for samples received by the laboratory on 4/28/2021. If you have any questions concerning this report, please feel free to contact me.

Revised Report: This report supercedes Report ID 1001174335

Sincerely,

Contact Person: Eli Velazquez
Client Service Rep

Stuart Buttram
Technical Director

Table of Contents

Table of Contents

Table of Contents

Chain of Custody and Cooler Receipt Form for 2113280 Page 1 of 12

BC LABORATORIES

4100 Atlas Court Bakersfield, Ca. 93308
(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

Chain of Custody

* Required Fields 21-13280 TEMP: ______

Client/Company Name *: City of Morro Bay	Report Attention *: John Gunderlock	Phone 805.772.6272 FAX * #: E-mail jgunderlock@morrobayca.gov
Address *: 955 Shasta Ave City *: Morro Bay State *: CA Zip *: 93442		Carbon Copies: CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co ☐ Other:
Project Information: Morro Bay Wells	PO # BCL Quote #	
How would you like your completed results sent? ☒ E-Mail ☐ Fax ☒ EDD ☐ Mail Only		Regulatory Compliance Electronic Data Transfer: Y ☐ N ☐ System No. *
Sampler Name Printed / Signature: John Gunderlock	QC Request ☒ STD ☐ Level II	Result Request ** Surcharge ☒ STD ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**

Matrix Types: RSW = Raw Surface Water RGW = Raw Ground Water CFW = Clorinated Finished Water FW = Finished Water CWW = Chorinated Waste Water WW = Waste Water BW = Bottled Water SW = Storm Water DW = Drinking Water SO = Solid

ANALYSIS REQUESTED

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	8260 VOCs see list	524 Full List	335.4 Cyanide	300 See below list	218.6 Cr-6	353.2 Nitrite as N	314 Perchlorate	515 Chlorinated Herbicides	504 EDB/DBCP
-1		4/27/21	0845	High School Well #2	GW	EPA 300: Chloride, Fluoride, Sulfate,	X	X	X	X	X	X	X	X	X
-2		↓	1020	Well #3	↓	Nitrate	↓	↓	↓	↓	↓	↓	↓	↓	↓
-3		↓	1150	19P-04	↓	EPA 8260: Acrolein, Acrylonitrile,	↓	↓	↓	↓	↓	↓	↓	↓	↓
-4		↓	1330	Vistra	↓	2-Chloroethylvinyl ether	↓	↓	↓	↓	↓	↓	↓	↓	↓

CHK BY PRG DISTRIBUTION JCH MA SUB mb RSN SUB OUT ☒

2186 SHORT HOLDING TIME
Cr^{+6} NO_2 NO_3 OP SS
DO Cl_2 BOD MBAS COD

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
John Gunderlock	MB	4/28/21	1151	Hector Baca	BcLabs
Hector Baca	BcLabs	4-28-21	6:30		

Received for Lab by: (Signature and Printed Name) Patrick E Date 4/28/21 Time 1830

Payment Received at Delivery: Date: Amount: Check/Cash/Card PIA # Init.

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER

Cooling Method: WET BLUE NONE

Packing Material:

BC LABORATORIES

4100 Atlas Court Bakersfield, Ca. 93308
(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

Chain of Custody

* Required Fields 21-13280

TEMP: ________

Client/Company Name *: City of Morro Bay	Report Attention *: John Gunderlock	Phone *: 805.772.6272 FAX * #:
		E-mail: jgunderlock@morrobayca.gov
Address *: 955 Shasta Ave.	City *: Morro Bay State *: CA Zip *: 93442	Carbon Copies: CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co ☐ Other:
Project Information: Morro Bay Wells	PO #: BCL Quote #:	
How would you like your completed results sent? ☒ E-Mail ☐ Fax ☒ EDD ☐ Mail Only		Regulatory Compliance Electronic Data Transfer: Y ☐ N ☐ System No. *
Sampler Name Printed / Signature: John Gunderlock [signature]	QC Request: ☒ STD ☐ Level II	Result Request ** Surcharge: ☒ STD ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**

Matrix Types: RSW = Raw Surface Water CFW = Chlorinated Finished Water CWW = Chlorinated Waste Water BW = Bottled Water
RGW = Raw Ground Water FW = Finished Water WW = Waste Water SW = Storm Water DW = Drinking Water SO = Solid

ANALYSIS REQUESTED

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	SM 5540C - MBAS	SRL 524M - TCP	200.7 / 200.8 (See List)*	531 Carbamates	548 Endothall	549 Diquat	552 HAA5	556 Formaldehyde	508 Pesticides & PCBs
-1		4/27/21	0845	High School Well #2	GW	* Al, Ba, B, Fe, Mn, Sb, As, Be, Cd, Cr, Li	X	X	X	X	X	X	X	X	X
-2			1030	Well #3		Cu, Co, Pb, Hg, Mo, Ni, Se, Ag, Tl, U, V, Zn									
-3			1150	19P-04											
-4			1330	Vistra											

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
John Gunderlock [signature]	MB	4/28/21	1151	Hector Borrera	Bc Labs
Hector Borrera	BcLabs	4-28-21	6:30		
Received for Lab by: (Signature and Printed Name) [signature] Patrick E		4/28/21	1830	Payment Received at Delivery: Date: Amount: Check/Cash/Card PIA #: Init.	

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER
Cooling Method: WET BLUE NONE
Packing Material:

SH-FL-0012-00 (Analytical)

BC LABORATORIES

4100 Atlas Court Bakersfield, Ca. 93308
(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

Chain of Custody

* Required Fields 21-13280

TEMP: ______

Client/Company Name *: City of Morro Bay	Report Attention *: John Gunderlock	Phone: 805.772.6272 E-mail: jgunderlock@morrobayca.gov
Address *: 955 Shasta Ave. City *: Morro Bay State *: CA Zip *: 93442		Carbon Copies: CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co ☐ Other:
Project Information: Morro Bay Wells	PO #: BCL Quote #:	
How would you like your completed results sent? ☒ E-Mail ☐ Fax ☒ EDD ☐ Mail Only		Regulatory Compliance Electronic Data Transfer: Y☐ N☐ System No. *
Sampler Name Printed / Signature: John Gunderlock [signature]	QC Request: ☒ STD ☐ Level II	Result Request ** Surcharge: ☒ STD ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**

Matrix Types: RSW = Raw Surface Water CFW = Clorinated Finished Water CWW = Chorinated Waste Water BW = Bottled Water
RGW = Raw Ground Water FW = Finished Water WW = Waste Water SW = Storm Water DW = Drinking Water SO = Solid

ANALYSIS REQUESTED

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	8270-SVOCs	525-SOCs	8330B-Explosives	SM 2120 B - Color	SM 2130 B - Turbidity	SM 2150 B - Odor	SM 2510 - S.C.	SM 2540 C - TDS	SM 5310 C - TOC
-1		4/27/21	0845	High School Well #2	GW	H.S. #2	X	X	X	X	X	X	X	X	X
-2		↓	1030	Well #3	↓	MB-3	↓	↓	↓	↓	↓	↓	↓	↓	↓
-3		↓	1150	19P-04	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓
-4		↓	1330	Vista	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
John Gunderlock [signature]	MB	4/28/21	1151	Hector Brcena	BcLabs
Hector Brcena	BcLabs	4-28-21	6:00		

Received for Lab by: (Signature and Printed Name)	Date	Time	Payment Received at Delivery:
[signature] Patrick E	4/28/21	1830	Date: Amount: Check/Cash/Card PIA # Init.

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER
Cooling Method: WET BLUE NONE
Packing Material:

Chain of Custody and Cooler Receipt Form for 2113280 Page 4 of 12

BC LABORATORIES

4100 Atlas Court Bakersfield, Ca. 93308
(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

Chain of Custody

* Required Fields 21-13280

TEMP: ______

Client/Company Name *: City of Morro Bay	Report Attention *: John Gunderlock	Phone 805.772.6232 FAX * #: E-mail jgunderlock@morrobayca.gov
Address *: 955 Shasta Ave.	City *: Morro Bay State *: CA	Zip *: 93442
Project Information: Morro Bay Wells	PO #: BCL Quote #:	Carbon Copies: CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co ☐ Other:
How would you like your completed results sent? ☒ E-Mail ☐ Fax ☒ EDD ☐ Mail Only		Regulatory Compliance Electronic Data Transfer: Y ☐ N ☐ System No. *
Sampler Name Printed / Signature: John Gunderlock	QC Request: ☒ STD ☐ Level II	Result Request ** Surcharge: ☒ STD ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**

Matrix Types: RSW = Raw Surface Water, CFW = Chlorinated Finished Water, CWW = Chlorinated Waste Water, BW = Bottled Water, RGW = Raw Ground Water, FW = Finished Water, WW = Waste Water, SW = Storm Water, DW = Drinking Water, SO = Solid

ANALYSIS REQUESTED

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	900 Gross Alpha/Beta (SUB)	903 Radium 226 (SUB)	905 Strontium (SUB)	906 Tritium (SUB)	Ra-05 Radium 228 (SUB)	537 PFOS/PFOA (SUB)	547 Glyphosate	8015-Ethylene Glycol (SUB)	100.2 Asbestos (SUB)
-1		4/27/21	0845	High School Well #2	GW	H.S. #2	X	X	X	X	X	X	X	X	X
-2		↓	1030	Well #3	↓	MB-3	↓	↓	↓	↓	↓	↓	↓	↓	↓
-3		↓	1150	19P-04	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓
-4		↓	1330	Vistra	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
John Gunderlock	MB	4/28/21	1151	Hector Barrera	BcLabs
Hector Barrera	BcLabs	4-28-21	6:30		

Received for Lab by: (Signature and Printed Name)	Date	Time	Payment Received at Delivery:
Patrick E	4/28/21	1830	Date: Amount: Check/Cash/Card PIA # Init.

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER

Cooling Method: WET BLUE NONE

Packing Material:

BC LABORATORIES

4100 Atlas Court Bakersfield. Ca. 93308
(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

Chain of Custody

* Required Fields 21-13280

TEMP: ______

Client/Company Name *: City of Morro Bay
Report Attention *: John Gunderlock
Phone *: 805.772.6272
E-mail: jgunderlock@morrobayca.gov

Address *: 955 Shasta Ave City *: Morro Bay State *: CA Zip *: 93442

Project Information: Morro Bay Wells
PO #
BCL Quote #

How would you like your completed results sent? ☒ E-Mail ☐ Fax ☒ EDD ☐ Mail Only

Carbon Copies: CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co ☐ Other:

Regulatory Compliance
Electronic Data Transfer: Y☐ N☐
System No. *

Sampler Name Printed / Signature: John Gunderlock
QC Request: ☒ STD ☐ Level II
Result Request ** Surcharge: ☒ STD ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**

Matrix Types: RSW = Raw Surface Water CFW = Chlorinated Finished Water CWW = Chlorinated Waste Water BW = Bottled Water
RGW = Raw Ground Water FW = Finished Water WW = Waste Water SW = Storm Water DW = Drinking Water SO = Solid

ANALYSIS REQUESTED

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	300.1 Chlorate, Chlorite (SUB)	317 Bromate (SUB)	521 Nitrosamines (SUB)	522 1,4-Dioxane (SUB)	1613 2,3,7,8-TCDD(Dioxin) SUB	PFAS CA32	Chromium III (Calculation)	Nitrate + Nitrite as N (Calculation)	Total N itrogen as N (Calculation)
-1		4/27/21	0845	High School Well #2	GW	H.S. #2	X	X	X	X	X	X	X	X	X
-2		↓	1030	Well #3	↓	MB-3	↓	↓	↓	↓	↓	↓	↓	↓	↓
-3		↓	1150	19P-04	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓
-4		↓	1330	Vistra	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓
-5		↓	1150	Field Blank		PFAS						↓			
-6		↓	1150	Equipment Blank		PFAS						↓			

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
John Gunderlock	MB	4/28/21	1157	Hector Borcero	BcLabs
Hector Borcero	BcLabs	4-28-21	6:30		

Received for Lab by: (Signature and Printed Name) Patrick E Date 4/28/21 Time 1830

Payment Received at Delivery: Date: Amount: Check/Cash/Card PIA # Init.

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER
Cooling Method: WET BLUE NONE
Packing Material:

City of Morro Bay
160 Atascadero Road
Morro Bay, CA 93442
John Gunderlock

Bottle Order #98425

Page 1 of 3

BC Laboratories
4100 Atlas Ct.
Bakersfield, CA 93308
(661) - 327-4911
(Sample Control)

Project Location: Morro Bay Wells
Bottle Order Requested By: tina on 04/14/2021
Bottle Order Needed By: 04/19/2021
Date Shipped: <No Entry>

Quantity	Size	Type	Label	Analysis Constituents	Collection & Preservation	Holding Time	Notes
4	1000 ml (quart)	Plastic Unpres	BLANK (WHITE)	Asbestos	None	Immediate to 28 days	
4	Set of 3 40 ml vials	Amber Vial	EPA 524SIM - 1,2,3-TCP				
4	500 ml (1 pint)	Plastic	Metals (RED)	Total metals	PROJECT SPECIFIC	Hg-28 days Others-6 mo	Bottle contains preservative. DO NOT RINSE!
4	1000 ml (quart)	Glass Amber Unpres	EPA 508 (WHITE)		None	7 Days	Dechlorinate during collection for chlorinated sources.
4	40 ml	Glass VOA	EPA 531.1	EPA 531.1	MCAA, Na2S2O3	28 Days	Dechlorinate during collection for chlorinated sources. Bottle contains preservative. DO NOT RINSE!
4	250 ml (8 oz)	Glass Amber	EPA 548	Endothall	Na2S2O3	7 days	Dechlorinate during collection for chlorinated sources.
4	1000 ml (quart)	Plastic Amber	EPA 549 (WHITE)	EPA 549	Na2S2O3, H2SO4	7 Days	Dechlorinate during collection for chlorinated sources. Bottle contains preservative. DO NOT RINSE!
4	40 ml	Glass Amber VOA	EPA 556.1	EPA 556.1	NH4Cl and CuSO4	7 days	Bottle contains preservative. DO NOT RINSE!
4	250 ml (8 oz)	Glass Amber	HAA5	HAA5	65 mg Ammonium chloride	9 Days	
4	Set of 2 250 ml	HDPE Unpres	EPA 537	PFAS	None	14 days	
4	1000 ml (quart)	Glass Amber	Blank	1613 2378 TCDD			
4	50 ml (2oz)	Plastic	Hexavalent Chromium	Cr6 by IC	Borate/HCO3/CO3 buffer preservative	14 days	Bottle contains preservative. DO NOT RINSE!
4	500 ml (1 pint)	Plastic	Cyanide (GREEN)		NaOH to pH > 12, 4 C	14 Days	Bottle contains preservative. DO NOT RINSE!
4	1000 ml (quart)	Plastic Unpres	BLANK (WHITE)	MBAS, NO2, PERC	None	Immediate to 28 days	
4	1000 ml (quart)	Plastic	Inorganic Chemical Metals (RED)	Gross Alpha/ Beta	PROJECT SPECIFIC	Hg-28 days Others-6 mo	Bottle contains preservative. DO NOT RINSE!
8	40 ml	Glass VOA Unpres	EPA 504 (WHITE)	EDB / DBCP	None	14 Days	Dechlorinate during collection for chlorinated sources.

City of Morro Bay
160 Atascadero Road
Morro Bay, CA 93442
John Gunderlock

Bottle Order #98425

Page 2 of 3

BC Laboratories
4100 Atlas Ct.
Bakersfield, CA 93308
(661) - 327-4911
(Sample Control)

Project Location: Morro Bay Wells
Bottle Order Requested By: tina on 04/14/2021
Bottle Order Needed By: 04/19/2021
Date Shipped: <No Entry>

Quantity	Size	Type	Label	Analysis Constituents	Collection & Preservation	Holding Time	Notes
4	1000 ml (quart)	Glass Amber Unpres	EPA 515.1 (WHITE)		None	7 Days	Dechlorinate during collection for chlorinated sources.
4	40 ml	Glass amber VOA	EPA 547	EPA 547	Na2S2O3	14 days	Dechlorinate during collection for chlorinated sources. Bottle contains preservative. DO NOT RINSE!
4	Set of 3 40 ml vials	Glass Vial	Volatile Organics	524	200 uL HCl	14 Days	Fill completely Leave no headspace. Cool to 4 C. Bottle contains preservative. DO NOT RINSE!
5	40 ml	Glass VOA Unpres	Volatile Organics	8015 Ethylene Glycol	Unpreserved		
4	500 ml (1 pint)	Glass Amber	Blank	Tritium			
4	1000 ml (quart)	Plastic	Inorganic Chemical Metals (RED)	Radium 226 / 228	PROJECT SPECIFIC	Hg-28 days Others-6 mo	Bottle contains preservative. DO NOT RINSE!
4	1000 ml (quart)	Plastic	Inorganic Chemical Metals (RED)		PROJECT SPECIFIC	Hg-28 days Others-6 mo	Bottle contains preservative. DO NOT RINSE!
4	500 ml (1 pint)	Plastic	Nitrogen Forms (YELLOW)	Total N	H2SO4 to pH < 2, 4 C	28 Days	Bottle contains preservative. DO NOT RINSE!
4	1000 ml (quart)	Glass Amber	Blank	521			
4	1000 ml (quart)	Glass Amber	Blank	522			
4	1000 ml (quart)	Plastic Unpres	BLANK (WHITE)	Strontium 90	None	Immediate to 28 days	
4	250 ml (8 oz)	Glass Amber	Blank	Chlorite			
4	1000 ml (quart)	Glass Amber	Blank	EXTRA - QC			
4	500 ml (1 pint)	Glass Amber Unpres	Odor	Color, Odor, Turbidity (Physical Analysis)	None	Odor-24 hours Others-48 Hours	
4	500 ml (1 pint)	Glass Amber	Total Organic Carbon (YELLOW)	Total Carbon, Organic Carbon	H2SO4 to pH < 2, 4 C	28 Days	Bottle contains preservative. DO NOT RINSE!
4	1000 ml (quart)	Glass Amber Unpres	EPA 8330 (WHITE)		None		

City of Morro Bay
160 Atascadero Road
Morro Bay, CA 93442
John Gunderlock

Bottle Order #98425

Page 3 of 3

BC Laboratories
4100 Atlas Ct.
Bakersfield, CA 93308
(661) - 327-4911
(Sample Control)

Project Location: Morro Bay Wells
Bottle Order Requested By: tina on 04/14/2021
Bottle Order Needed By: 04/19/2021
Date Shipped: <No Entry>

Quantity	Size	Type	Label	Analysis Constituents	Collection & Preservation	Holding Time	Notes
4	1000 ml (quart)	Glass Amber	EPA 525 (WHITE)	EPA 525	1 ml Na2S03	14 Days	Dechlorinate during collection for chlorinated sources. Bottle contains preservative. DO NOT RINSE!
8	40 ml	Glass Vial	Volatile Organics	8260	200 uL HCl	14 Days	Fill completely Leave no headspace. Cool to 4 C. Bottle contains preservative. DO NOT RINSE!

Coolers: Y   Blue Ice: Specific Packaging:

ship

send 2 liter ambers of PFAS free water (From APPL)

Order Checked By:

Preserved containers: If not used within 6 months please return to BC Laboratories for proper disposal. Do not use for sampling.

BC LABORATORIES INC. — COOLER RECEIPT FORM — Page 1 Of 4

Submission #: 21-13280

SHIPPING INFORMATION
Fed Ex ☐ UPS ☐ GSO / GLS ☐ Hand Delivery ☐
BC Lab Field Service ☑ Other ☐ (Specify)

SHIPPING CONTAINER
Ice Chest ☑ None ☐ Box ☐
Other ☐ (Specify)

FREE LIQUID
YES ☐ NO ☐
W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☑ YES ☐ NO

Emissivity: 0.97 Container: PE Thermometer ID: 208 Date/Time 4/28/21 1830
Temperature: (A) 1.8 °C / (C) 1.8 °C Analyst Init PPE

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES	PRS									
4oz / 8oz / 16oz PE UNPRES	TU									
2oz Cr+6	P									
QT INORGANIC CHEMICAL METALS	VWX									
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz	Y									
PT CYANIDE	Z									
PT NITROGEN FORMS	'AA'									
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON	'AB'									
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL 096	A→E									
QT EPA ~~1664~~ X18	FGH									
PT ODOR	'AC'									
~~RADIOLOGICAL~~ X18TCP	I									
BACTERIOLOGICAL										
40 ml VOA VIAL- 504	JK									
QT EPA 508/608/8081A	'AD'									
QT EPA 515.1/8150										
QT EPA 525	'AE'									
QT EPA ~~525 TRAVEL BLANK~~ 098	L									
40ml EPA 547	M									
40ml EPA 531.1	N									
8oz EPA 548	'AF'									
QT EPA 549	'AG'									
QT EPA ~~8015M~~ 089	'AH'									
QT EPA ~~8270~~ X24	'AI'									
8oz / 16oz / 32oz AMBER	'AJ'									
8oz / 16oz / 32oz ~~JAR~~ Amber	AK→AN'									
~~SOIL SLEEVE~~ 097	O									
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:
Sample Numbering Completed By: GSP Date/Time: 4/28 2033
A = Actual / C = Corrected

Rev 22 04/13/21

BC LABORATORIES INC. COOLER RECEIPT FORM Page 2 Of 4

Submission #: 21-13280

SHIPPING INFORMATION
Fed Ex ☐ UPS ☐ GSO / GLS ☐ Hand Delivery ☐
BC Lab Field Service ☑ Other ☐ (Specify)

SHIPPING CONTAINER
Ice Chest ☑ None ☐ Box ☐
Other ☐ (Specify)

FREE LIQUID
YES ☐ NO ☐
W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☑ YES ☐ NO

Emissivity: 0.98 Container: Amber Thermometer ID: 208 Date/Time 4/28/21 1830
Temperature: (A) 4.2 °C / (C) 4.1 °C Analyst Init PPE

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES		QRS								
4oz / 8oz / 16oz PE UNPRES		TU								
2oz Cr+6		P								
QT INORGANIC CHEMICAL METALS		VWX								
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz		Y								
PT CYANIDE		Z								
PT NITROGEN FORMS		'AA'								
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON		'AB'								
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL 096		A→E								
QT EPA ~~1664~~ X18		FGH								
PT ODOR		'AC'								
RADI~~OLOGICAL~~ X18 T29		I								
BACTERIOLOGICAL										
40 ml VOA VIAL-504		JK								
QT EPA 508/608/8081A		'AD'								
QT EPA 515.1/8150										
QT EPA 525		'AE'								
QT EPA 525 ~~TRAVEL BLANK~~ 098		L								
40ml EPA 547		M								
40ml EPA 531.1		N								
8oz EPA 548		'AF'								
QT EPA 549		'AG'								
QT EPA ~~8015M~~ 089		'AH'								
QT EPA ~~8270~~ X24		'AI'								
8oz / 16oz / 32oz AMBER		'AJ'								
8oz / 16oz / 32oz ~~JAR~~ Amber		'AK→AN'								
SOIL SL~~EEVE~~ 047		O								
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:
Sample Numbering Completed By: GBP Date/Time: 4/28 2033
A = Actual / C = Corrected

Rev 22 04/13/21
[H:\WPDoc\WordPerfect\LAB_DOCS\FORMS\SAMREC rev 22]

BC LABORATORIES INC. **COOLER RECEIPT FORM** Page 3 of 4

Submission #: 21-13280

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Fed Ex ☐ UPS ☐ GSO / GLS ☐ Hand Delivery ☐ BC Lab Field Service ☑ Other ☐ (Specify)____	Ice Chest ☑ None ☐ Box ☐ Other ☐ (Specify)____	YES ☐ NO ☐ W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☑ | Containers ☐ Intact? Yes ☐ No ☐ | None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received		
☑ YES ☐ NO	Emissivity: 0.98 Container: Amber Thermometer ID: 208 Temperature: (A) 4.1 °C / (C) 4.0 °C	Date/Time 4/28/21 1830 Analyst Init PPE

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES			QRS							
4oz / 8oz / 16oz PE UNPRES			TU		A	A				
2oz Cr^{+6}			P							
QT INORGANIC CHEMICAL METALS			VWX							
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz			Y							
PT CYANIDE			Z							
PT NITROGEN FORMS			'AA'							
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL 096			A-E							
QT EPA ~~1664~~ x18			FGH							
PT ODOR			'AC'							
RADIOL~~OGICAL~~ X18 TCP			I							
BACTERIOLOGICAL										
40 ml VOA VIAL- 504			JK							
QT EPA 508/608/8081A			'AD'							
QT EPA 515.1/8150										
QT EPA 525			'AE'							
QT EPA 525 ~~TRAVEL BLANK~~ 098			L							
40ml EPA 547			M							
40ml EPA 531.1			N							
8oz EPA 548			'AF'							
QT EPA 549			'AG'							
QT EPA ~~8015M~~ 089			'AH'							
QT EPA ~~8270~~ x27			'AI'							
8oz / 16oz / 32oz AMBER			'AJ'							
8oz / 16oz / 32oz ~~JAR~~ Amber			'AK'+'AN'							
SOIL SL~~EEVE~~ 047			D							
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:
Sample Numbering Completed By: GDP Date/Time: 4/28 2033

Rev 22 04/13/21

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

Chain of Custody and Cooler Receipt Form for 2113280 Page 12 of 12

BC LABORATORIES INC.

COOLER RECEIPT FORM

Page 4 Of 9

Submission #: 21-13280

SHIPPING INFORMATION
Fed Ex ☐ UPS ☐ GSO / GLS ☐ Hand Delivery ☐
BC Lab Field Service ☑ Other ☐ (Specify)______

SHIPPING CONTAINER
Ice Chest ☑ None ☐ Box ☐
Other ☐ (Specify)______

FREE LIQUID
YES ☐ NO ☐
W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☑ YES ☐ NO

Emissivity: 0.97 Container: PE Thermometer ID: 208 Date/Time 4/28/21 1830
Temperature: (A) 3.2 °C / (C) 3.2 °C Analyst Init PPE

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES				QRS						
4oz / 8oz / 16oz PE UNPRES				TU						
2oz Cr+6				P						
QT INORGANIC CHEMICAL METALS				VWX						
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz				Y						
PT CYANIDE				Z						
PT NITROGEN FORMS				'AA'						
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON				'AB'						
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL 096				A→E						
QT EPA ~~1664~~ x18				FGH						
PT ODOR				'AC'						
RADIOLO~~GICAL~~ XB TCP				I						
BACTERIOLOGICAL										
40 ml VOA VIAL- 504				JK						
QT EPA 508/608/8081A				'AD'						
QT EPA 515.1/8150										
QT EPA 525				'AE'						
QT EPA 525 TRA~~VEL BLANK~~ 098				L						
40ml EPA 547				M						
40ml EPA 531.1				N						
8oz EPA 548				'AF'						
QT EPA 549				'AG'						
QT EP~~A 8015M~~ 089				'AH'						
QT E~~PA 8270~~ x24				'AI'						
8oz / 16oz / 32oz AMBER				'AJ'						
8oz / 16oz / 32oz ~~JAR~~ Amber				'AK'→'AN'						
~~SOIL SLEEVE~~ 047				O						
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:
Sample Numbering Completed By: GEP Date/Time: 4/28 2033

Rev 22 04/13/21
[S:\WPDocs\WordPerfect\LAB_DOCS\FORMS\SAMREC rev 20]

City of Morro Bay		**Reported:**	06/18/2021 15:01
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
2113280-01	**COC Number:**	---	**Receive Date:**	04/28/2021 18:30
	Project Number:	---	**Sampling Date:**	04/27/2021 08:45
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	High School Well #2	**Lab Matrix:**	Water
	Sampled By:	John Gunderlock	**Sample Type:**	Groundwater
2113280-02	**COC Number:**	---	**Receive Date:**	04/28/2021 18:30
	Project Number:	---	**Sampling Date:**	04/27/2021 10:30
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	Well #3	**Lab Matrix:**	Water
	Sampled By:	John Gunderlock	**Sample Type:**	Groundwater
2113280-03	**COC Number:**	---	**Receive Date:**	04/28/2021 18:30
	Project Number:	---	**Sampling Date:**	04/27/2021 11:50
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	19P-04	**Lab Matrix:**	Water
	Sampled By:	John Gunderlock	**Sample Type:**	Groundwater
2113280-04	**COC Number:**	---	**Receive Date:**	04/28/2021 18:30
	Project Number:	---	**Sampling Date:**	04/27/2021 13:30
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	Vista	**Lab Matrix:**	Water
	Sampled By:	John Gunderlock	**Sample Type:**	Groundwater
2113280-05	**COC Number:**	---	**Receive Date:**	04/28/2021 18:30
	Project Number:	---	**Sampling Date:**	04/27/2021 11:50
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	Field Blank	**Lab Matrix:**	Water
	Sampled By:	John Gunderlock	**Sample Type:**	Water
2113280-06	**COC Number:**	---	**Receive Date:**	04/28/2021 18:30
	Project Number:	---	**Sampling Date:**	04/27/2021 11:50
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	Equipment Blank	**Lab Matrix:**	Water
	Sampled By:	John Gunderlock	**Sample Type:**	Water

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

BCL Sample ID: 2113280-01 **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2-Dibromo-3-chloropropane	ND	ug/L	0.010	0.0015	EPA-504.1	ND		1
Ethylene dibromide	ND	ug/L	0.010	0.0030	EPA-504.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-504.1	05/05/21 08:00	05/05/21 17:37	HKS	GC-15	0.949	B108310	EPA 504.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

BCL Sample ID: 2113280-01 **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Aldrin	ND	ug/L	0.0050	0.00095	EPA-508	ND		1
alpha-BHC	ND	ug/L	0.0050	0.00050	EPA-508	ND		1
beta-BHC	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
delta-BHC	ND	ug/L	0.0050	0.0015	EPA-508	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.0050	0.00067	EPA-508	ND		1
Chlordane (Technical)	ND	ug/L	0.10	0.045	EPA-508	ND		1
4,4'-DDD	ND	ug/L	0.0050	0.00086	EPA-508	ND		1
4,4'-DDE	ND	ug/L	0.0050	0.0013	EPA-508	ND		1
4,4'-DDT	ND	ug/L	0.0050	0.00096	EPA-508	ND		1
Dieldrin	ND	ug/L	0.0050	0.0011	EPA-508	ND		1
Endosulfan I	ND	ug/L	0.0050	0.00068	EPA-508	ND		1
Endosulfan II	ND	ug/L	0.0050	0.00098	EPA-508	ND		1
Endosulfan sulfate	ND	ug/L	0.0050	0.00055	EPA-508	ND		1
Endrin	ND	ug/L	0.0050	0.00069	EPA-508	ND		1
Endrin aldehyde	ND	ug/L	0.010	0.00054	EPA-508	ND		1
Heptachlor	ND	ug/L	0.0050	0.00094	EPA-508	ND		1
Heptachlor epoxide	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
Methoxychlor	ND	ug/L	0.0050	0.0037	EPA-508	ND		1
Toxaphene	ND	ug/L	1.0	0.20	EPA-508	ND		1
PCB-1016	ND	ug/L	0.20	0.066	EPA-508	ND		1
PCB-1221	ND	ug/L	0.20	0.063	EPA-508	ND		1
PCB-1232	ND	ug/L	0.20	0.059	EPA-508	ND		1
PCB-1242	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1248	ND	ug/L	0.20	0.044	EPA-508	ND		1
PCB-1254	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1260	ND	ug/L	0.20	0.089	EPA-508	ND		1
Total PCB's (Summation)	ND	ug/L	0.20	0.10	EPA-508	ND		1
TCMX (Surrogate)	58.4	%	60 - 130 (LCL - UCL)		EPA-508		A20	1
Decachlorobiphenyl (Surrogate)	45.9	%	60 - 130 (LCL - UCL)		EPA-508		A20	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-508	05/03/21 13:00	05/04/21 16:17	HKS	GC-17	1	B107991	EPA 508

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis (EPA Method 515.1)

BCL Sample ID: 2113280-01 **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Bentazon	ND	ug/L	0.80	0.22	EPA-515.1	ND		1
2,4-D	ND	ug/L	0.40	0.18	EPA-515.1	ND		1
2,4-DB	ND	ug/L	3.0	0.37	EPA-515.1	ND		1
Dalapon	ND	ug/L	5.0	0.31	EPA-515.1	ND		1
Dicamba	ND	ug/L	0.080	0.040	EPA-515.1	ND		1
Dichloroprop	ND	ug/L	0.50	0.11	EPA-515.1	ND		1
Dinoseb	ND	ug/L	0.20	0.057	EPA-515.1	ND		1
MCPA	ND	ug/L	10	6.0	EPA-515.1	ND		1
MCPP	ND	ug/L	10	6.0	EPA-515.1	ND		1
2,4,5-T	ND	ug/L	0.090	0.012	EPA-515.1	ND		1
2,4,5-TP (Silvex)	ND	ug/L	0.070	0.032	EPA-515.1	ND		1
2,4-Dichlorophenylacetic acid (Surrogate)	83.0	%	40 - 120 (LCL - UCL)		EPA-515.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-515.1	04/29/21 08:10	05/03/21 14:42	OLH	GC-8	1	B107516	EPA 515.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2113280-01 | **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
Bromobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Bromochloromethane	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Bromodichloromethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Bromoform	ND	ug/L	0.50	0.46	EPA-524.2	ND		1
Bromomethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
n-Butylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
sec-Butylbenzene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
tert-Butylbenzene	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Carbon tetrachloride	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chlorobenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chloroform	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloromethane	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
2-Chlorotoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
4-Chlorotoluene	ND	ug/L	0.50	0.093	EPA-524.2	ND		1
Dibromochloromethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0	0.89	EPA-524.2	ND		1
1,2-Dibromoethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
Dibromomethane	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
1,2-Dichlorobenzene	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,3-Dichlorobenzene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
1,4-Dichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Dichlorodifluoromethane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,1-Dichloroethane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,2-Dichloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,1-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
cis-1,2-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2-Dichloropropane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,3-Dichloropropane	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
2,2-Dichloropropane	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
1,1-Dichloropropene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2113280-01 | **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
Total 1,3-Dichloropropene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Ethylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Hexachlorobutadiene	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Isopropylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
p-Isopropyltoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Methylene chloride	ND	ug/L	0.50	0.21	EPA-524.2	ND	V11	1
Methyl t-butyl ether	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Naphthalene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
n-Propylbenzene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
Styrene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Tetrachloroethene	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
Toluene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2,3-Trichlorobenzene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,1,1-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Trichloroethene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
Trichlorofluoromethane	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
1,2,3-Trichloropropane	ND	ug/L	1.0	0.78	EPA-524.2	ND		1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trimethylbenzene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,3,5-Trimethylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Vinyl chloride	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Total Xylenes	ND	ug/L	0.50	0.47	EPA-524.2	ND		1
Total Trihalomethanes	ND	ug/L	2.0	0.97	EPA-524.2	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
t-Butyl alcohol	ND	ug/L	10	9.4	EPA-524.2	ND		1
Diisopropyl ether	ND	ug/L	0.50	0.36	EPA-524.2	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50	0.32	EPA-524.2	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2113280-01 **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
p- & m-Xylenes	ND	ug/L	0.50	0.34	EPA-524.2	ND		1
o-Xylene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
1,2-Dichloroethane-d4 (Surrogate)	105	%	75 - 125 (LCL - UCL)		EPA-524.2			1
Toluene-d8 (Surrogate)	101	%	80 - 120 (LCL - UCL)		EPA-524.2			1
4-Bromofluorobenzene (Surrogate)	99.2	%	80 - 120 (LCL - UCL)		EPA-524.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-524.2	04/29/21 06:00	04/29/21 18:35	ADC	MS-V15	1	B107391	EPA 524.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

BCL Sample ID: 2113280-01 | **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2,3-Trichloropropane	ND	ug/L	0.0050	0.0010	SRL 524M	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	SRL 524M	05/06/21 06:00	05/06/21 10:19	ADC	MS-V16	1	B108237	EPA 524.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2113280-01 **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthylene	ND	ug/L	0.10	0.031	EPA-525.2	ND		1
Alachlor	ND	ug/L	0.20	0.090	EPA-525.2	ND		1
Anthracene	ND	ug/L	0.10	0.034	EPA-525.2	ND		1
Atraton	ND	ug/L	0.50	0.057	EPA-525.2	ND		1
Atrazine	ND	ug/L	0.30	0.14	EPA-525.2	ND		1
Benzo[a]anthracene	ND	ug/L	0.20	0.044	EPA-525.2	ND		1
Benzo[b]fluoranthene	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Benzo[k]fluoranthene	ND	ug/L	0.30	0.072	EPA-525.2	ND		1
Benzo[a]pyrene	ND	ug/L	0.10	0.050	EPA-525.2	ND		1
Benzo[g,h,i]perylene	ND	ug/L	0.30	0.065	EPA-525.2	ND		1
Benzyl butyl phthalate	ND	ug/L	4.0	0.047	EPA-525.2	ND		1
delta-BHC	ND	ug/L	0.20	0.048	EPA-525.2	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.20	0.063	EPA-525.2	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	3.0	0.030	EPA-525.2	ND		1
Bromacil	ND	ug/L	0.50	0.043	EPA-525.2	ND		1
Chrysene	ND	ug/L	0.30	0.060	EPA-525.2	ND		1
Diazinon	ND	ug/L	0.20	0.080	EPA-525.2	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	0.30	0.051	EPA-525.2	ND		1
Di(2-ethylhexyl)adipate	ND	ug/L	1.0	0.025	EPA-525.2	ND		1
Dimethoate	ND	ug/L	2.0	0.050	EPA-525.2	ND		1
Dimethyl phthalate	ND	ug/L	1.0	0.034	EPA-525.2	ND		1
Di-n-butyl phthalate	ND	ug/L	1.0	0.063	EPA-525.2	ND		1
Fluorene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorobenzene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorocyclopentadiene	ND	ug/L	1.0	0.12	EPA-525.2	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.30	0.032	EPA-525.2	ND		1
Methoxychlor	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Metolachlor	ND	ug/L	0.50	0.056	EPA-525.2	ND		1
Metribuzin	ND	ug/L	0.50	0.048	EPA-525.2	ND		1
Molinate	ND	ug/L	0.50	0.036	EPA-525.2	ND		1
Phenanthrene	ND	ug/L	0.10	0.020	EPA-525.2	ND		1
Prometon	ND	ug/L	0.50	0.11	EPA-525.2	ND		1
Prometryn	ND	ug/L	0.50	0.045	EPA-525.2	ND		1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2113280-01 | **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Propachlor	ND	ug/L	0.50	0.077	EPA-525.2	ND		1
Pyrene	ND	ug/L	0.10	0.040	EPA-525.2	ND		1
Secbumeton	ND	ug/L	0.50	0.079	EPA-525.2	ND		1
Simazine	ND	ug/L	0.30	0.066	EPA-525.2	ND		1
Terbutryn	ND	ug/L	0.50	0.050	EPA-525.2	ND		1
Thiobencarb	ND	ug/L	0.50	0.044	EPA-525.2	ND		1
Perylene-d12 (Surrogate)	120	%	60 - 140 (LCL - UCL)		EPA-525.2			1
1,3-Dimethyl-2-nitrobenzene (Surrogate)	106	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Triphenylphosphate (Surrogate)	131	%	70 - 130 (LCL - UCL)		EPA-525.2		S09	1
Pyrene-d10 (Surrogate)	107	%	70 - 130 (LCL - UCL)		EPA-525.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-525.2	04/30/21 07:30	05/04/21 13:22	MK1	MS-B6	1	B107695	EPA 525.2

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Carbamate and Urea Pesticides (EPA Method 531.2)

BCL Sample ID: 2113280-01 **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1-Naphthol	ND	ug/L	5.0	0.86	EPA-531.2	ND		1
Aldicarb	ND	ug/L	3.0	1.2	EPA-531.2	ND		1
Aldicarb sulfone	ND	ug/L	4.0	0.60	EPA-531.2	ND		1
Aldicarb sulfoxide	ND	ug/L	3.0	0.40	EPA-531.2	ND		1
Propoxur	ND	ug/L	5.0	0.36	EPA-531.2	ND		1
Carbaryl	ND	ug/L	5.0	0.47	EPA-531.2	ND		1
Carbofuran	ND	ug/L	5.0	0.67	EPA-531.2	ND		1
3-Hydroxycarbofuran	ND	ug/L	3.0	0.41	EPA-531.2	ND		1
Methiocarb	ND	ug/L	5.0	0.31	EPA-531.2	ND		1
Methomyl	ND	ug/L	2.0	0.92	EPA-531.2	ND		1
Oxamyl	ND	ug/L	5.0	0.79	EPA-531.2	ND		1
BDMC (Surrogate)	110	%	70 - 130 (LCL - UCL)		EPA-531.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-531.2	04/29/21 13:00	04/30/21 08:21	SAW	HPLC15	1	B107326	EPA 531.2

City of Morro Bay		**Reported:**	06/18/2021 15:01
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Glyphosate Analysis (EPA Method 547)

BCL Sample ID: 2113280-01 | **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Glyphosate	ND	ug/L	25	3.5	EPA-547	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-547	05/03/21 11:00	05/03/21 16:43	SAW	HPLC15	1	B107318	EPA 547

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

BCL Sample ID: 2113280-01 | **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Endothal	ND	ug/L	20	5.3	EPA-548.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-548.1	05/04/21 08:00	05/05/21 04:23	MK1	MS-B1	10	B107921	EPA 548.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

BCL Sample ID: 2113280-01 | **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Diquat	ND	ug/L	4.0	1.3	EPA-549.2	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-549.2	05/03/21 08:00	05/04/21 07:59	SAW	HPLC16	1	B108031	EPA 549.2

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

BCL Sample ID: 2113280-01 **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Dibromoacetic acid	ND	ug/L	1.0	0.32	EPA-552.3	ND		1
Dichloroacetic acid	ND	ug/L	1.0	0.29	EPA-552.3	ND		1
Monobromoacetic acid	ND	ug/L	1.0	0.25	EPA-552.3	ND		1
Monochloroacetic acid	ND	ug/L	1.0	0.61	EPA-552.3	ND		1
Trichloroacetic acid	ND	ug/L	1.0	0.36	EPA-552.3	ND		1
Total HAA's (Summation)	ND	ug/L	1.0	1.0	EPA-552.3	ND		1
2,3-Dibromopropionic acid (Surrogate)	94.7	%	70 - 130 (LCL - UCL)		EPA-552.3			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-552.3	04/30/21 16:45	05/03/21 10:56	OLH	GC-3	1	B107691	EPA 552.3

City of Morro Bay		**Reported:**	06/18/2021 15:01
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

BCL Sample ID: 2113280-01 **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Formaldehyde	ND	ug/L	5.0	0.70	EPA-556.1	ND		1
2',4',5'-Trifluoroacetophenone (Surrogate)	70.5	%	30 - 150 (LCL - UCL)		EPA-556.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-556.1	04/29/21 17:30	04/30/21 15:38	OLH	GC-3	1	B107693	EPA 556.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 2113280-01 **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acrolein	ND	ug/L	10	7.9	EPA-8260B	ND		1
Acrylonitrile	ND	ug/L	5.0	1.2	EPA-8260B	ND		1
2-Chloroethyl vinyl ether	ND	ug/L	10	2.4	EPA-8260B	ND		1
1,2-Dichloroethane-d4 (Surrogate)	105	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	101	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	99.2	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8260B	04/29/21 06:00	04/29/21 18:35	ADC	MS-V15	1	B107391	EPA 5030 Water MS

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** Project: Project Number: Project Manager:	06/18/2021 15:01 Morro Bay Wells [none] John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2113280-01 | **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Acenaphthylene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Aldrin	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
Aniline	ND	ug/L	5.0	0.28	EPA-8270C	ND		1
Anthracene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzidine	ND	ug/L	20	1.6	EPA-8270C	ND		1
Benzo[a]anthracene	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
Benzo[b]fluoranthene	ND	ug/L	2.0	0.24	EPA-8270C	ND		1
Benzo[k]fluoranthene	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Benzo[a]pyrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzo[g,h,i]perylene	ND	ug/L	2.0	0.33	EPA-8270C	ND		1
Benzoic acid	ND	ug/L	10	0.52	EPA-8270C	ND		1
Benzyl alcohol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzyl butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
alpha-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
beta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
delta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
gamma-BHC (Lindane)	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethoxy)methane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethyl) ether	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
bis(2-Chloroisopropyl)ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	4.0	0.20	EPA-8270C	ND		1
4-Bromophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloroaniline	ND	ug/L	2.0	1.1	EPA-8270C	ND		1
2-Chloronaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chlorophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Chrysene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,4'-DDD	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
4,4'-DDE	ND	ug/L	3.0	0.24	EPA-8270C	ND		1
4,4'-DDT	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	3.0	0.34	EPA-8270C	ND		1
Dibenzofuran	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,2-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2113280-01 **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,3-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,4-Dichlorobenzene	ND	ug/L	2.0	0.27	EPA-8270C	ND		1
3,3-Dichlorobenzidine	ND	ug/L	10	0.53	EPA-8270C	ND		1
Dieldrin	ND	ug/L	3.0	0.39	EPA-8270C	ND		1
Diethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Dimethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dinitrotoluene	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2,6-Dinitrotoluene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-octyl phthalate	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
1,2-Diphenylhydrazine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Endosulfan I	ND	ug/L	10	0.31	EPA-8270C	ND		1
Endosulfan II	ND	ug/L	10	0.30	EPA-8270C	ND		1
Endosulfan sulfate	ND	ug/L	3.0	0.23	EPA-8270C	ND		1
Endrin	ND	ug/L	2.0	0.38	EPA-8270C	ND		1
Endrin aldehyde	ND	ug/L	10	0.44	EPA-8270C	ND		1
Fluoranthene	ND	ug/L	2.0	0.28	EPA-8270C	ND		1
Fluorene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor epoxide	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
Hexachlorobenzene	ND	ug/L	2.0	0.25	EPA-8270C	ND		1
Hexachlorobutadiene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Hexachlorocyclopentadiene	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
Hexachloroethane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	2.0	0.29	EPA-8270C	ND		1
Isophorone	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Methylnaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Naphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Naphthylamine	ND	ug/L	20	1.3	EPA-8270C	ND		1
2-Nitroaniline	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3-Nitroaniline	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
4-Nitroaniline	ND	ug/L	5.0	0.38	EPA-8270C	ND		1
Nitrobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2113280-01 | **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
N-Nitrosodimethylamine	ND	ug/L	2.0	1.2	EPA-8270C	ND		1
N-Nitrosodi-N-propylamine	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
N-Nitrosodiphenylamine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Phenanthrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Pyrene	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloro-3-methylphenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Chlorophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dichlorophenol	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
2,4-Dimethylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,6-Dinitro-2-methylphenol	ND	ug/L	10	0.24	EPA-8270C	ND		1
2,4-Dinitrophenol	ND	ug/L	10	0.20	EPA-8270C	ND		1
2-Methylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3- & 4-Methylphenol	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2-Nitrophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Nitrophenol	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Pentachlorophenol	ND	ug/L	10	0.40	EPA-8270C	ND		1
Phenol	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
2,4,5-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2,4,6-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Fluorophenol (Surrogate)	55.2	%	30 - 120 (LCL - UCL)		EPA-8270C			1
Phenol-d5 (Surrogate)	41.0	%	12 - 110 (LCL - UCL)		EPA-8270C			1
Nitrobenzene-d5 (Surrogate)	79.8	%	50 - 130 (LCL - UCL)		EPA-8270C			1
2-Fluorobiphenyl (Surrogate)	77.4	%	55 - 125 (LCL - UCL)		EPA-8270C			1
2,4,6-Tribromophenol (Surrogate)	69.3	%	40 - 150 (LCL - UCL)		EPA-8270C			1
p-Terphenyl-d14 (Surrogate)	58.7	%	40 - 150 (LCL - UCL)		EPA-8270C			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8270C	05/03/21 14:15	05/07/21 05:07	MK1	MS-B8	0.980	B107823	EPA 3510C

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Explosive Residues (EPA Method 8330)

BCL Sample ID: 2113280-01 **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
HMX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
RDX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
1,2-Dinitrobenzene (Surrogate)	116	%	70 - 130 (LCL - UCL)		EPA-8330			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8330	05/03/21 07:45	05/04/21 20:22	SAW	HPLC16	1	B107922	EPA 8330

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2113280-01 **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Trivalent Chromium	ND	ug/L	10	5.0	Calc	ND		1
Chloride	**970**	**mg/L**	**2.5**	**0.65**	**EPA-300.0**	0.86	**A07**	2
Fluoride	**0.28**	**mg/L**	**0.25**	**0.12**	**EPA-300.0**	ND	**A07**	2
Nitrate as N	**7.9**	**mg/L**	**0.50**	**0.12**	**EPA-300.0**	ND	**A07**	2
Sulfate	**140**	**mg/L**	**5.0**	**0.70**	**EPA-300.0**	ND	**A07**	2
Nitrate + Nitrite as N	**7.9**	**mg/L**	**0.10**	**0.018**	**Calc**	ND		3
Electrical Conductivity @ 25 C	**3830**	**umhos/cm**	**1.00**	**1.00**	**SM-2510B**			4
Total Dissolved Solids @ 180 C	**2200**	**mg/L**	**200**	**100**	**SM-2540C**	ND	**A07**	5
Color	**1.0**	**Color Units**	**1.0**	**1.0**	**SM-2120B**			6
Odor	No Obs Odor	Odor Units	1.0	1.0	SM-2150B	ND		7
Turbidity	**0.20**	**NT Units**	**0.10**	**0.10**	**EPA-180.1**			8
MBAS	ND	mg/L	0.10	0.024	SM-5540C	ND		9
Total Cyanide	ND	mg/L	0.0050	0.0017	EPA-335.4	ND		10
Total Nitrogen	**8.1**	**mg/L**	**0.30**	**0.10**	**Calc**	ND		11
Total Kjeldahl Nitrogen	**0.21**	**mg/L**	**0.20**	**0.088**	**EPA-351.2**	ND		12
Nitrite as N	ND	ug/L	50	10	EPA-353.2	ND		13
Perchlorate	ND	mg/L	0.0040	0.00081	EPA-314.0	ND		14
Non-Volatile Organic Carbon	**1.2**	**mg/L**	**1.0**	**0.30**	**SM-5310C**	ND		15

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2113280-01 | **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	
1	Calc	04/29/21 18:01	05/17/21 13:01	AMM	Calc	1	B_D0545	Calc
2	EPA-300.0	04/28/21 22:00	04/29/21 02:55	SAV	IC5	5	B107372	No Prep
3	Calc	04/29/21 18:01	05/06/21 17:05	AMM	Calc	1	B_D0545	Calc
4	SM-2510B	05/03/21 08:00	05/03/21 10:04	RML	MET-1	1	B105313	No Prep
5	SM-2540C	05/04/21 13:00	05/04/21 13:00	CAD	MANUAL	20	B107768	No Prep
6	SM-2120B	04/29/21 06:30	04/29/21 06:30	JTM	MANUAL	1	B107597	No Prep
7	SM-2150B	04/29/21 06:30	04/29/21 06:30	JTM	MANUAL	1	B107598	No Prep
8	EPA-180.1	04/29/21 06:30	04/29/21 06:30	JTM	TURB04	1	B107599	No Prep
9	SM-5540C	04/29/21 08:30	04/29/21 08:30	JMN	SPEC06	1	B107442	No Prep
10	EPA-335.4	05/05/21 09:18	05/05/21 15:58	MC1	KONE-1	1	B107876	EPA 335.4 Total
11	Calc	04/29/21 18:01	05/19/21 15:01	AMM	Calc	1	B_D0545	Calc
12	EPA-351.2	05/13/21 08:00	05/18/21 10:49	MC1	SC-1	1	B108698	EPA 351.2
13	EPA-353.2	04/28/21 21:14	04/28/21 21:14	GSP	KONE-1	1	B108067	No Prep
14	EPA-314.0	05/13/21 01:00	05/13/21 04:47	SAV	IC6	1	B108735	No Prep
15	SM-5310C	05/03/21 05:00	05/04/21 01:06	ALW	A537730907	1	B107603	No Prep

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Metals Analysis

BCL Sample ID: 2113280-01 **Client Sample Name:** High School Well #2, 4/27/2021 8:45:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Hexavalent Chromium	**2.0**	**ug/L**	**0.20**	**0.020**	**EPA-218.6**	ND		1
Total Recoverable Aluminum	ND	ug/L	50	26	EPA-200.7	ND		2
Total Recoverable Antimony	ND	ug/L	10	0.55	EPA-200.8	ND	A07	3
Total Recoverable Arsenic	**12**	**ug/L**	**10**	**3.5**	**EPA-200.8**	ND	**A07**	3
Total Recoverable Barium	**220**	**ug/L**	**5.0**	**1.0**	**EPA-200.8**	ND	**A07**	3
Total Recoverable Beryllium	ND	ug/L	5.0	0.70	EPA-200.8	ND	A07	3
Total Recoverable Boron	**170**	**ug/L**	**100**	**10**	**EPA-200.7**	16		2
Total Recoverable Cadmium	ND	ug/L	5.0	0.55	EPA-200.8	ND	A07	3
Total Recoverable Chromium	ND	ug/L	15	2.5	EPA-200.8	ND	A07	3
Total Recoverable Cobalt	ND	ug/L	5.0	0.50	EPA-200.8	ND	A07	3
Total Recoverable Copper	**7.2**	**ug/L**	**10**	**1.1**	**EPA-200.8**	ND	**J,A07**	3
Total Recoverable Iron	ND	ug/L	50	30	EPA-200.7	ND		2
Total Recoverable Lead	ND	ug/L	5.0	0.50	EPA-200.8	ND	A07	3
Total Recoverable Lithium	**9.6**	**ug/L**	**20**	**6.6**	**EPA-200.7**	ND	**J**	2
Total Recoverable Manganese	ND	ug/L	10	4.0	EPA-200.7	ND		2
Total Recoverable Mercury	ND	ug/L	0.20	0.022	EPA-245.1	ND		4
Total Recoverable Molybdenum	**0.62**	**ug/L**	**5.0**	**0.55**	**EPA-200.8**	ND	**J,A07**	3
Total Recoverable Nickel	**8.0**	**ug/L**	**10**	**0.95**	**EPA-200.8**	ND	**J,A07**	3
Total Recoverable Selenium	**17**	**ug/L**	**10**	**0.95**	**EPA-200.8**	ND	**A07**	3
Total Recoverable Silver	ND	ug/L	5.0	0.50	EPA-200.8	ND	A07	3
Total Recoverable Thallium	ND	ug/L	5.0	0.50	EPA-200.8	ND	A07	3
Total Recoverable Vanadium	ND	ug/L	15	3.9	EPA-200.8	ND	A07	3
Total Recoverable Zinc	**13**	**ug/L**	**50**	**8.5**	**EPA-200.8**	ND	**J,A07**	3
Total Recoverable Uranium	**2.2**	**ug/L**	**5.0**	**0.50**	**EPA-200.8**	ND	**J,A07**	3

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-218.6	05/06/21 14:00	05/06/21 21:17	KB1	IC-4	1	B108115	No Prep
2	EPA-200.7	04/30/21 12:28	04/30/21 14:48	JRG	PE-OP4	1	B107541	EPA 200.2
3	EPA-200.8	05/10/21 23:25	05/11/21 10:32	KHS	PE-EL2	5	B108356	EPA 200.2
4	EPA-245.1	05/11/21 08:10	05/11/21 14:21	TMT	CETAC3	1	B108414	EPA 245.1

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

BCL Sample ID: 2113280-02 **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2-Dibromo-3-chloropropane	ND	ug/L	0.010	0.0015	EPA-504.1	ND		1
Ethylene dibromide	ND	ug/L	0.010	0.0030	EPA-504.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-504.1	05/05/21 08:00	05/05/21 17:53	HKS	GC-15	0.966	B108310	EPA 504.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

BCL Sample ID: 2113280-02 | **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Aldrin	ND	ug/L	0.0050	0.00095	EPA-508	ND		1
alpha-BHC	ND	ug/L	0.0050	0.00050	EPA-508	ND		1
beta-BHC	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
delta-BHC	ND	ug/L	0.0050	0.0015	EPA-508	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.0050	0.00067	EPA-508	ND		1
Chlordane (Technical)	ND	ug/L	0.10	0.045	EPA-508	ND		1
4,4'-DDD	ND	ug/L	0.0050	0.00086	EPA-508	ND		1
4,4'-DDE	ND	ug/L	0.0050	0.0013	EPA-508	ND		1
4,4'-DDT	ND	ug/L	0.0050	0.00096	EPA-508	ND		1
Dieldrin	ND	ug/L	0.0050	0.0011	EPA-508	ND		1
Endosulfan I	ND	ug/L	0.0050	0.00068	EPA-508	ND		1
Endosulfan II	ND	ug/L	0.0050	0.00098	EPA-508	ND		1
Endosulfan sulfate	ND	ug/L	0.0050	0.00055	EPA-508	ND		1
Endrin	ND	ug/L	0.0050	0.00069	EPA-508	ND		1
Endrin aldehyde	ND	ug/L	0.010	0.00054	EPA-508	ND		1
Heptachlor	ND	ug/L	0.0050	0.00094	EPA-508	ND		1
Heptachlor epoxide	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
Methoxychlor	ND	ug/L	0.0050	0.0037	EPA-508	ND		1
Toxaphene	ND	ug/L	1.0	0.20	EPA-508	ND		1
PCB-1016	ND	ug/L	0.20	0.066	EPA-508	ND		1
PCB-1221	ND	ug/L	0.20	0.063	EPA-508	ND		1
PCB-1232	ND	ug/L	0.20	0.059	EPA-508	ND		1
PCB-1242	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1248	ND	ug/L	0.20	0.044	EPA-508	ND		1
PCB-1254	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1260	ND	ug/L	0.20	0.089	EPA-508	ND		1
Total PCB's (Summation)	ND	ug/L	0.20	0.10	EPA-508	ND		1
TCMX (Surrogate)	35.6	%	60 - 130 (LCL - UCL)		EPA-508		A20	1
Decachlorobiphenyl (Surrogate)	38.7	%	60 - 130 (LCL - UCL)		EPA-508		A20	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-508	05/03/21 13:00	05/04/21 16:46	HKS	GC-17	1	B107991	EPA 508

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis (EPA Method 515.1)

BCL Sample ID: 2113280-02 | **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Bentazon	ND	ug/L	0.80	0.22	EPA-515.1	ND		1
2,4-D	ND	ug/L	0.40	0.18	EPA-515.1	ND		1
2,4-DB	ND	ug/L	3.0	0.37	EPA-515.1	ND		1
Dalapon	ND	ug/L	5.0	0.31	EPA-515.1	ND		1
Dicamba	ND	ug/L	0.080	0.040	EPA-515.1	ND		1
Dichloroprop	ND	ug/L	0.50	0.11	EPA-515.1	ND		1
Dinoseb	ND	ug/L	0.20	0.057	EPA-515.1	ND		1
MCPA	ND	ug/L	10	6.0	EPA-515.1	ND		1
MCPP	ND	ug/L	10	6.0	EPA-515.1	ND		1
2,4,5-T	ND	ug/L	0.090	0.012	EPA-515.1	ND		1
2,4,5-TP (Silvex)	ND	ug/L	0.070	0.032	EPA-515.1	ND		1
2,4-Dichlorophenylacetic acid (Surrogate)	87.8	%	40 - 120 (LCL - UCL)		EPA-515.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-515.1	04/29/21 08:10	05/03/21 15:05	OLH	GC-8	1	B107516	EPA 515.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2113280-02 **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
Bromobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Bromochloromethane	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Bromodichloromethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Bromoform	ND	ug/L	0.50	0.46	EPA-524.2	ND		1
Bromomethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
n-Butylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
sec-Butylbenzene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
tert-Butylbenzene	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Carbon tetrachloride	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chlorobenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chloroform	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloromethane	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
2-Chlorotoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
4-Chlorotoluene	ND	ug/L	0.50	0.093	EPA-524.2	ND		1
Dibromochloromethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0	0.89	EPA-524.2	ND		1
1,2-Dibromoethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
Dibromomethane	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
1,2-Dichlorobenzene	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,3-Dichlorobenzene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
1,4-Dichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Dichlorodifluoromethane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,1-Dichloroethane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,2-Dichloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,1-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
cis-1,2-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2-Dichloropropane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,3-Dichloropropane	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
2,2-Dichloropropane	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
1,1-Dichloropropene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2113280-02 | **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
Total 1,3-Dichloropropene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Ethylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Hexachlorobutadiene	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Isopropylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
p-Isopropyltoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Methylene chloride	ND	ug/L	0.50	0.21	EPA-524.2	ND	V11	1
Methyl t-butyl ether	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Naphthalene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
n-Propylbenzene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
Styrene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Tetrachloroethene	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
Toluene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2,3-Trichlorobenzene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,1,1-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Trichloroethene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
Trichlorofluoromethane	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
1,2,3-Trichloropropane	ND	ug/L	1.0	0.78	EPA-524.2	ND		1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trimethylbenzene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,3,5-Trimethylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Vinyl chloride	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Total Xylenes	ND	ug/L	0.50	0.47	EPA-524.2	ND		1
Total Trihalomethanes	ND	ug/L	2.0	0.97	EPA-524.2	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
t-Butyl alcohol	ND	ug/L	10	9.4	EPA-524.2	ND		1
Diisopropyl ether	ND	ug/L	0.50	0.36	EPA-524.2	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50	0.32	EPA-524.2	ND		1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2113280-02 **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
p- & m-Xylenes	ND	ug/L	0.50	0.34	EPA-524.2	ND		1
o-Xylene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
1,2-Dichloroethane-d4 (Surrogate)	109	%	75 - 125 (LCL - UCL)		EPA-524.2			1
Toluene-d8 (Surrogate)	101	%	80 - 120 (LCL - UCL)		EPA-524.2			1
4-Bromofluorobenzene (Surrogate)	99.2	%	80 - 120 (LCL - UCL)		EPA-524.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-524.2	04/29/21 06:00	04/29/21 18:58	ADC	MS-V15	1	B107391	EPA 524.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

BCL Sample ID: 2113280-02 | **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2,3-Trichloropropane	ND	ug/L	0.0050	0.0010	SRL 524M	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	SRL 524M	05/06/21 06:00	05/06/21 10:43	ADC	MS-V16	1	B108237	EPA 524.2

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2113280-02 **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthylene	ND	ug/L	0.10	0.031	EPA-525.2	ND		1
Alachlor	ND	ug/L	0.20	0.090	EPA-525.2	ND		1
Anthracene	ND	ug/L	0.10	0.034	EPA-525.2	ND		1
Atraton	ND	ug/L	0.50	0.057	EPA-525.2	ND		1
Atrazine	ND	ug/L	0.30	0.14	EPA-525.2	ND		1
Benzo[a]anthracene	ND	ug/L	0.20	0.044	EPA-525.2	ND		1
Benzo[b]fluoranthene	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Benzo[k]fluoranthene	ND	ug/L	0.30	0.072	EPA-525.2	ND		1
Benzo[a]pyrene	ND	ug/L	0.10	0.050	EPA-525.2	ND		1
Benzo[g,h,i]perylene	ND	ug/L	0.30	0.065	EPA-525.2	ND		1
Benzyl butyl phthalate	ND	ug/L	4.0	0.047	EPA-525.2	ND		1
delta-BHC	ND	ug/L	0.20	0.048	EPA-525.2	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.20	0.063	EPA-525.2	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	3.0	0.030	EPA-525.2	ND		1
Bromacil	ND	ug/L	0.50	0.043	EPA-525.2	ND		1
Chrysene	ND	ug/L	0.30	0.060	EPA-525.2	ND		1
Diazinon	ND	ug/L	0.20	0.080	EPA-525.2	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	0.30	0.051	EPA-525.2	ND		1
Di(2-ethylhexyl)adipate	ND	ug/L	1.0	0.025	EPA-525.2	ND		1
Dimethoate	ND	ug/L	2.0	0.050	EPA-525.2	ND		1
Dimethyl phthalate	ND	ug/L	1.0	0.034	EPA-525.2	ND		1
Di-n-butyl phthalate	ND	ug/L	1.0	0.063	EPA-525.2	ND		1
Fluorene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorobenzene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorocyclopentadiene	ND	ug/L	1.0	0.12	EPA-525.2	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.30	0.032	EPA-525.2	ND		1
Methoxychlor	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Metolachlor	ND	ug/L	0.50	0.056	EPA-525.2	ND		1
Metribuzin	ND	ug/L	0.50	0.048	EPA-525.2	ND		1
Molinate	ND	ug/L	0.50	0.036	EPA-525.2	ND		1
Phenanthrene	ND	ug/L	0.10	0.020	EPA-525.2	ND		1
Prometon	ND	ug/L	0.50	0.11	EPA-525.2	ND		1
Prometryn	ND	ug/L	0.50	0.045	EPA-525.2	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2113280-02 **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Propachlor	ND	ug/L	0.50	0.077	EPA-525.2	ND		1
Pyrene	ND	ug/L	0.10	0.040	EPA-525.2	ND		1
Secbumeton	ND	ug/L	0.50	0.079	EPA-525.2	ND		1
Simazine	ND	ug/L	0.30	0.066	EPA-525.2	ND		1
Terbutryn	ND	ug/L	0.50	0.050	EPA-525.2	ND		1
Thiobencarb	ND	ug/L	0.50	0.044	EPA-525.2	ND		1
Perylene-d12 (Surrogate)	122	%	60 - 140 (LCL - UCL)		EPA-525.2			1
1,3-Dimethyl-2-nitrobenzene (Surrogate)	104	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Triphenylphosphate (Surrogate)	143	%	70 - 130 (LCL - UCL)		EPA-525.2		S09	1
Pyrene-d10 (Surrogate)	110	%	70 - 130 (LCL - UCL)		EPA-525.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-525.2	04/30/21 07:30	05/04/21 13:49	MK1	MS-B6	1	B107695	EPA 525.2

City of Morro Bay		**Reported:**	06/18/2021 15:01
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Carbamate and Urea Pesticides (EPA Method 531.2)

BCL Sample ID: 2113280-02 **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1-Naphthol	ND	ug/L	5.0	0.86	EPA-531.2	ND		1
Aldicarb	ND	ug/L	3.0	1.2	EPA-531.2	ND		1
Aldicarb sulfone	ND	ug/L	4.0	0.60	EPA-531.2	ND		1
Aldicarb sulfoxide	ND	ug/L	3.0	0.40	EPA-531.2	ND		1
Propoxur	ND	ug/L	5.0	0.36	EPA-531.2	ND		1
Carbaryl	ND	ug/L	5.0	0.47	EPA-531.2	ND		1
Carbofuran	ND	ug/L	5.0	0.67	EPA-531.2	ND		1
3-Hydroxycarbofuran	ND	ug/L	3.0	0.41	EPA-531.2	ND		1
Methiocarb	ND	ug/L	5.0	0.31	EPA-531.2	ND		1
Methomyl	ND	ug/L	2.0	0.92	EPA-531.2	ND		1
Oxamyl	ND	ug/L	5.0	0.79	EPA-531.2	ND		1
BDMC (Surrogate)	108	%	70 - 130 (LCL - UCL)		EPA-531.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-531.2	04/29/21 13:00	04/30/21 08:49	SAW	HPLC15	1	B107326	EPA 531.2

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Glyphosate Analysis (EPA Method 547)

BCL Sample ID: 2113280-02 | **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Glyphosate	ND	ug/L	25	3.5	EPA-547	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-547	05/03/21 11:00	05/03/21 16:58	SAW	HPLC15	1	B107318	EPA 547

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

BCL Sample ID: 2113280-02 **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Endothal	ND	ug/L	20	5.3	EPA-548.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-548.1	05/04/21 08:00	05/05/21 04:48	MK1	MS-B1	10	B107921	EPA 548.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

BCL Sample ID: 2113280-02 | **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Diquat	ND	ug/L	4.0	1.3	EPA-549.2	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-549.2	05/03/21 08:00	05/04/21 08:05	SAW	HPLC16	1	B108031	EPA 549.2

City of Morro Bay	**Reported:**	06/18/2021 15:01
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

BCL Sample ID: 2113280-02 **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Dibromoacetic acid	ND	ug/L	1.0	0.32	EPA-552.3	ND		1
Dichloroacetic acid	ND	ug/L	1.0	0.29	EPA-552.3	ND		1
Monobromoacetic acid	ND	ug/L	1.0	0.25	EPA-552.3	ND		1
Monochloroacetic acid	ND	ug/L	1.0	0.61	EPA-552.3	ND		1
Trichloroacetic acid	ND	ug/L	1.0	0.36	EPA-552.3	ND		1
Total HAA's (Summation)	ND	ug/L	1.0	1.0	EPA-552.3	ND		1
2,3-Dibromopropionic acid (Surrogate)	115	%	70 - 130 (LCL - UCL)		EPA-552.3			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-552.3	04/30/21 16:45	05/03/21 11:17	OLH	GC-3	1	B107691	EPA 552.3

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

BCL Sample ID: 2113280-02 | **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Formaldehyde	ND	ug/L	5.0	0.70	EPA-556.1	ND		1
2',4',5'-Trifluoroacetophenone (Surrogate)	60.5	%	30 - 150 (LCL - UCL)		EPA-556.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-556.1	04/29/21 17:30	04/30/21 16:32	OLH	GC-3	1	B107693	EPA 556.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 2113280-02 **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acrolein	ND	ug/L	10	7.9	EPA-8260B	ND		1
Acrylonitrile	ND	ug/L	5.0	1.2	EPA-8260B	ND		1
2-Chloroethyl vinyl ether	ND	ug/L	10	2.4	EPA-8260B	ND		1
1,2-Dichloroethane-d4 (Surrogate)	109	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	101	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	99.2	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8260B	04/29/21 06:00	04/29/21 18:58	ADC	MS-V15	1	B107391	EPA 5030 Water MS

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2113280-02 | **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Acenaphthylene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Aldrin	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
Aniline	ND	ug/L	5.0	0.28	EPA-8270C	ND		1
Anthracene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzidine	ND	ug/L	20	1.6	EPA-8270C	ND		1
Benzo[a]anthracene	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
Benzo[b]fluoranthene	ND	ug/L	2.0	0.24	EPA-8270C	ND		1
Benzo[k]fluoranthene	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Benzo[a]pyrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzo[g,h,i]perylene	ND	ug/L	2.0	0.33	EPA-8270C	ND		1
Benzoic acid	ND	ug/L	10	0.52	EPA-8270C	ND		1
Benzyl alcohol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzyl butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
alpha-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
beta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
delta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
gamma-BHC (Lindane)	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethoxy)methane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethyl) ether	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
bis(2-Chloroisopropyl)ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	4.0	0.20	EPA-8270C	ND		1
4-Bromophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloroaniline	ND	ug/L	2.0	1.1	EPA-8270C	ND		1
2-Chloronaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chlorophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Chrysene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,4'-DDD	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
4,4'-DDE	ND	ug/L	3.0	0.24	EPA-8270C	ND		1
4,4'-DDT	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	3.0	0.34	EPA-8270C	ND		1
Dibenzofuran	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,2-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2113280-02 | **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,3-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,4-Dichlorobenzene	ND	ug/L	2.0	0.27	EPA-8270C	ND		1
3,3-Dichlorobenzidine	ND	ug/L	10	0.53	EPA-8270C	ND		1
Dieldrin	ND	ug/L	3.0	0.39	EPA-8270C	ND		1
Diethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Dimethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dinitrotoluene	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2,6-Dinitrotoluene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-octyl phthalate	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
1,2-Diphenylhydrazine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Endosulfan I	ND	ug/L	10	0.31	EPA-8270C	ND		1
Endosulfan II	ND	ug/L	10	0.30	EPA-8270C	ND		1
Endosulfan sulfate	ND	ug/L	3.0	0.23	EPA-8270C	ND		1
Endrin	ND	ug/L	2.0	0.38	EPA-8270C	ND		1
Endrin aldehyde	ND	ug/L	10	0.44	EPA-8270C	ND		1
Fluoranthene	ND	ug/L	2.0	0.28	EPA-8270C	ND		1
Fluorene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor epoxide	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
Hexachlorobenzene	ND	ug/L	2.0	0.25	EPA-8270C	ND		1
Hexachlorobutadiene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Hexachlorocyclopentadiene	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
Hexachloroethane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	2.0	0.29	EPA-8270C	ND		1
Isophorone	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Methylnaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Naphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Naphthylamine	ND	ug/L	20	1.3	EPA-8270C	ND		1
2-Nitroaniline	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3-Nitroaniline	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
4-Nitroaniline	ND	ug/L	5.0	0.38	EPA-8270C	ND		1
Nitrobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2113280-02 **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
N-Nitrosodimethylamine	ND	ug/L	2.0	1.2	EPA-8270C	ND		1
N-Nitrosodi-N-propylamine	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
N-Nitrosodiphenylamine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Phenanthrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Pyrene	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloro-3-methylphenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Chlorophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dichlorophenol	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
2,4-Dimethylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,6-Dinitro-2-methylphenol	ND	ug/L	10	0.24	EPA-8270C	ND		1
2,4-Dinitrophenol	ND	ug/L	10	0.20	EPA-8270C	ND		1
2-Methylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3- & 4-Methylphenol	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2-Nitrophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Nitrophenol	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Pentachlorophenol	ND	ug/L	10	0.40	EPA-8270C	ND		1
Phenol	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
2,4,5-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2,4,6-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Fluorophenol (Surrogate)	48.7	%	30 - 120 (LCL - UCL)		EPA-8270C			1
Phenol-d5 (Surrogate)	39.0	%	12 - 110 (LCL - UCL)		EPA-8270C			1
Nitrobenzene-d5 (Surrogate)	80.7	%	50 - 130 (LCL - UCL)		EPA-8270C			1
2-Fluorobiphenyl (Surrogate)	80.8	%	55 - 125 (LCL - UCL)		EPA-8270C			1
2,4,6-Tribromophenol (Surrogate)	62.2	%	40 - 150 (LCL - UCL)		EPA-8270C			1
p-Terphenyl-d14 (Surrogate)	76.0	%	40 - 150 (LCL - UCL)		EPA-8270C			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8270C	05/03/21 14:15	05/07/21 05:34	MK1	MS-B8	0.990	B107823	EPA 3510C

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Explosive Residues (EPA Method 8330)

BCL Sample ID: 2113280-02 | **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
HMX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
RDX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
1,2-Dinitrobenzene (Surrogate)	108	%	70 - 130 (LCL - UCL)		EPA-8330			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8330	05/03/21 07:45	05/04/21 20:53	SAW	HPLC16	1	B107922	EPA 8330

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2113280-02 | **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Trivalent Chromium	ND	ug/L	10	5.0	Calc	ND		1
Chloride	**160**	**mg/L**	**1.0**	**0.26**	**EPA-300.0**	0.34	**A07**	2
Fluoride	**0.21**	**mg/L**	**0.10**	**0.050**	**EPA-300.0**	ND	**A07**	2
Nitrate as N	**22**	**mg/L**	**0.20**	**0.048**	**EPA-300.0**	ND	**A07**	2
Sulfate	**160**	**mg/L**	**2.0**	**0.28**	**EPA-300.0**	ND	**A07**	2
Nitrate + Nitrite as N	**22**	**mg/L**	**0.10**	**0.018**	**Calc**	ND		3
Electrical Conductivity @ 25 C	**1580**	**umhos/cm**	**1.00**	**1.00**	**SM-2510B**			4
Total Dissolved Solids @ 180 C	**1000**	**mg/L**	**50**	**25**	**SM-2540C**	ND	**A07**	5
Color	**2.0**	**Color Units**	**1.0**	**1.0**	**SM-2120B**			6
Odor	No Obs Odor	Odor Units	1.0	1.0	SM-2150B	ND		7
Turbidity	**0.18**	**NT Units**	**0.10**	**0.10**	**EPA-180.1**			8
MBAS	ND	mg/L	0.10	0.024	SM-5540C	ND		9
Total Cyanide	**0.0020**	**mg/L**	**0.0050**	**0.0017**	**EPA-335.4**	ND	**J**	10
Total Nitrogen	**26**	**mg/L**	**0.30**	**0.10**	**Calc**	ND		11
Total Kjeldahl Nitrogen	**4.6**	**mg/L**	**0.20**	**0.088**	**EPA-351.2**	ND		12
Nitrite as N	ND	ug/L	50	10	EPA-353.2	ND		13
Perchlorate	ND	mg/L	0.0040	0.00081	EPA-314.0	ND		14
Non-Volatile Organic Carbon	**1.1**	**mg/L**	**1.0**	**0.30**	**SM-5310C**	ND		15

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2113280-02 **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	
1	Calc	04/29/21 18:01	05/17/21 13:01	AMM	Calc	1	B_D0545	Calc
2	EPA-300.0	04/28/21 22:00	04/29/21 03:13	SAV	IC5	2	B107372	No Prep
3	Calc	04/29/21 18:01	05/06/21 17:05	AMM	Calc	1	B_D0545	Calc
4	SM-2510B	05/03/21 08:00	05/03/21 10:10	RML	MET-1	1	B105313	No Prep
5	SM-2540C	05/04/21 13:00	05/04/21 13:00	CAD	MANUAL	5	B107768	No Prep
6	SM-2120B	04/29/21 06:30	04/29/21 06:30	JTM	MANUAL	1	B107597	No Prep
7	SM-2150B	04/29/21 06:30	04/29/21 06:30	JTM	MANUAL	1	B107598	No Prep
8	EPA-180.1	04/29/21 06:30	04/29/21 06:30	JTM	TURB04	1	B107599	No Prep
9	SM-5540C	04/29/21 08:30	04/29/21 08:30	JMN	SPEC06	1	B107442	No Prep
10	EPA-335.4	05/05/21 09:18	05/05/21 15:58	MC1	KONE-1	1	B107876	EPA 335.4 Total
11	Calc	04/29/21 18:01	05/19/21 15:01	AMM	Calc	1	B_D0545	Calc
12	EPA-351.2	05/13/21 08:00	05/18/21 12:33	MC1	SC-1	1	B108698	EPA 351.2
13	EPA-353.2	04/28/21 21:14	04/28/21 21:14	GSP	KONE-1	1	B108067	No Prep
14	EPA-314.0	05/13/21 01:00	05/13/21 04:01	SAV	IC6	1	B108735	No Prep
15	SM-5310C	05/03/21 05:00	05/04/21 02:19	ALW	A537730907	1	B107603	No Prep

City of Morro Bay		**Reported:**	06/18/2021 15:01
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Metals Analysis

BCL Sample ID: 2113280-02 **Client Sample Name:** Well #3, 4/27/2021 10:30:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Hexavalent Chromium	**1.3**	**ug/L**	**0.20**	**0.020**	**EPA-218.6**	ND		1
Total Recoverable Aluminum	**28**	**ug/L**	**50**	**26**	**EPA-200.7**	ND	**J**	2
Total Recoverable Antimony	ND	ug/L	2.0	0.11	EPA-200.8	ND		3
Total Recoverable Arsenic	**2.1**	**ug/L**	**2.0**	**0.70**	**EPA-200.8**	ND		3
Total Recoverable Barium	**130**	**ug/L**	**1.0**	**0.21**	**EPA-200.8**	ND		3
Total Recoverable Beryllium	ND	ug/L	1.0	0.14	EPA-200.8	ND		3
Total Recoverable Boron	**110**	**ug/L**	**100**	**10**	**EPA-200.7**	16		2
Total Recoverable Cadmium	**0.11**	**ug/L**	**1.0**	**0.11**	**EPA-200.8**	ND	**J**	3
Total Recoverable Chromium	**0.96**	**ug/L**	**3.0**	**0.50**	**EPA-200.8**	ND	**J**	3
Total Recoverable Cobalt	**0.20**	**ug/L**	**1.0**	**0.10**	**EPA-200.8**	ND	**J**	3
Total Recoverable Copper	**4.1**	**ug/L**	**2.0**	**0.22**	**EPA-200.8**	ND		3
Total Recoverable Iron	ND	ug/L	50	30	EPA-200.7	ND		2
Total Recoverable Lead	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Lithium	ND	ug/L	20	6.6	EPA-200.7	ND		2
Total Recoverable Manganese	ND	ug/L	10	4.0	EPA-200.7	ND		2
Total Recoverable Mercury	**0.13**	**ug/L**	**0.20**	**0.022**	**EPA-245.1**	ND	**J**	4
Total Recoverable Molybdenum	**1.3**	**ug/L**	**1.0**	**0.11**	**EPA-200.8**	ND		3
Total Recoverable Nickel	**3.7**	**ug/L**	**2.0**	**0.19**	**EPA-200.8**	ND		3
Total Recoverable Selenium	**28**	**ug/L**	**2.0**	**0.19**	**EPA-200.8**	ND		3
Total Recoverable Silver	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Thallium	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Vanadium	**1.7**	**ug/L**	**3.0**	**0.78**	**EPA-200.8**	ND	**J**	3
Total Recoverable Zinc	**23**	**ug/L**	**10**	**1.7**	**EPA-200.8**	ND		3
Total Recoverable Uranium	**2.0**	**ug/L**	**1.0**	**0.10**	**EPA-200.8**	ND		3

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-218.6	05/06/21 14:00	05/06/21 21:27	KB1	IC-4	1	B108115	No Prep
2	EPA-200.7	04/30/21 12:28	04/30/21 14:50	JRG	PE-OP4	1	B107541	EPA 200.2
3	EPA-200.8	05/10/21 23:25	05/11/21 11:12	KHS	PE-EL2	1	B108356	EPA 200.2
4	EPA-245.1	05/11/21 08:10	05/11/21 14:23	TMT	CETAC3	1	B108414	EPA 245.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

BCL Sample ID: 2113280-03 | **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2-Dibromo-3-chloropropane	ND	ug/L	0.010	0.0015	EPA-504.1	ND		1
Ethylene dibromide	ND	ug/L	0.010	0.0030	EPA-504.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-504.1	05/05/21 08:00	05/05/21 18:39	HKS	GC-15	0.940	B108310	EPA 504.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

BCL Sample ID: 2113280-03 | **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Aldrin	ND	ug/L	0.0050	0.00095	EPA-508	ND		1
alpha-BHC	ND	ug/L	0.0050	0.00050	EPA-508	ND		1
beta-BHC	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
delta-BHC	ND	ug/L	0.0050	0.0015	EPA-508	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.0050	0.00067	EPA-508	ND		1
Chlordane (Technical)	ND	ug/L	0.10	0.045	EPA-508	ND		1
4,4'-DDD	ND	ug/L	0.0050	0.00086	EPA-508	ND		1
4,4'-DDE	ND	ug/L	0.0050	0.0013	EPA-508	ND		1
4,4'-DDT	ND	ug/L	0.0050	0.00096	EPA-508	ND		1
Dieldrin	ND	ug/L	0.0050	0.0011	EPA-508	ND		1
Endosulfan I	ND	ug/L	0.0050	0.00068	EPA-508	ND		1
Endosulfan II	ND	ug/L	0.0050	0.00098	EPA-508	ND		1
Endosulfan sulfate	ND	ug/L	0.0050	0.00055	EPA-508	ND		1
Endrin	ND	ug/L	0.0050	0.00069	EPA-508	ND		1
Endrin aldehyde	ND	ug/L	0.010	0.00054	EPA-508	ND		1
Heptachlor	ND	ug/L	0.0050	0.00094	EPA-508	ND		1
Heptachlor epoxide	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
Methoxychlor	ND	ug/L	0.0050	0.0037	EPA-508	ND		1
Toxaphene	ND	ug/L	1.0	0.20	EPA-508	ND		1
PCB-1016	ND	ug/L	0.20	0.066	EPA-508	ND		1
PCB-1221	ND	ug/L	0.20	0.063	EPA-508	ND		1
PCB-1232	ND	ug/L	0.20	0.059	EPA-508	ND		1
PCB-1242	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1248	ND	ug/L	0.20	0.044	EPA-508	ND		1
PCB-1254	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1260	ND	ug/L	0.20	0.089	EPA-508	ND		1
Total PCB's (Summation)	ND	ug/L	0.20	0.10	EPA-508	ND		1
TCMX (Surrogate)	71.6	%	60 - 130 (LCL - UCL)		EPA-508			1
Decachlorobiphenyl (Surrogate)	50.5	%	60 - 130 (LCL - UCL)		EPA-508		A20	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-508	05/03/21 13:00	05/04/21 18:00	HKS	GC-17	1	B107991	EPA 508

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis (EPA Method 515.1)

BCL Sample ID: 2113280-03 | **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Bentazon	ND	ug/L	0.80	0.22	EPA-515.1	ND		1
2,4-D	ND	ug/L	0.40	0.18	EPA-515.1	ND		1
2,4-DB	ND	ug/L	3.0	0.37	EPA-515.1	ND		1
Dalapon	ND	ug/L	5.0	0.31	EPA-515.1	ND		1
Dicamba	ND	ug/L	0.080	0.040	EPA-515.1	ND		1
Dichloroprop	ND	ug/L	0.50	0.11	EPA-515.1	ND		1
Dinoseb	ND	ug/L	0.20	0.057	EPA-515.1	ND		1
MCPA	ND	ug/L	10	6.0	EPA-515.1	ND		1
MCPP	ND	ug/L	10	6.0	EPA-515.1	ND		1
2,4,5-T	ND	ug/L	0.090	0.012	EPA-515.1	ND		1
2,4,5-TP (Silvex)	ND	ug/L	0.070	0.032	EPA-515.1	ND		1
2,4-Dichlorophenylacetic acid (Surrogate)	71.5	%	40 - 120 (LCL - UCL)		EPA-515.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-515.1	04/29/21 08:10	05/03/21 15:28	OLH	GC-8	1	B107516	EPA 515.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2113280-03 | **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
Bromobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Bromochloromethane	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Bromodichloromethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Bromoform	ND	ug/L	0.50	0.46	EPA-524.2	ND		1
Bromomethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
n-Butylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
sec-Butylbenzene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
tert-Butylbenzene	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Carbon tetrachloride	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chlorobenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chloroform	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloromethane	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
2-Chlorotoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
4-Chlorotoluene	ND	ug/L	0.50	0.093	EPA-524.2	ND		1
Dibromochloromethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0	0.89	EPA-524.2	ND		1
1,2-Dibromoethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
Dibromomethane	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
1,2-Dichlorobenzene	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,3-Dichlorobenzene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
1,4-Dichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Dichlorodifluoromethane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,1-Dichloroethane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,2-Dichloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,1-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
cis-1,2-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2-Dichloropropane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,3-Dichloropropane	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
2,2-Dichloropropane	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
1,1-Dichloropropene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2113280-03 | **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
Total 1,3-Dichloropropene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Ethylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Hexachlorobutadiene	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Isopropylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
p-Isopropyltoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Methylene chloride	ND	ug/L	0.50	0.21	EPA-524.2	ND	V11	1
Methyl t-butyl ether	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Naphthalene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
n-Propylbenzene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
Styrene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Tetrachloroethene	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
Toluene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2,3-Trichlorobenzene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,1,1-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Trichloroethene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
Trichlorofluoromethane	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
1,2,3-Trichloropropane	ND	ug/L	1.0	0.78	EPA-524.2	ND		1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trimethylbenzene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,3,5-Trimethylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Vinyl chloride	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Total Xylenes	ND	ug/L	0.50	0.47	EPA-524.2	ND		1
Total Trihalomethanes	ND	ug/L	2.0	0.97	EPA-524.2	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
t-Butyl alcohol	ND	ug/L	10	9.4	EPA-524.2	ND		1
Diisopropyl ether	ND	ug/L	0.50	0.36	EPA-524.2	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50	0.32	EPA-524.2	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2113280-03 | **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
p- & m-Xylenes	ND	ug/L	0.50	0.34	EPA-524.2	ND		1
o-Xylene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
1,2-Dichloroethane-d4 (Surrogate)	100	%	75 - 125 (LCL - UCL)		EPA-524.2			1
Toluene-d8 (Surrogate)	104	%	80 - 120 (LCL - UCL)		EPA-524.2			1
4-Bromofluorobenzene (Surrogate)	100	%	80 - 120 (LCL - UCL)		EPA-524.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-524.2	04/29/21 06:00	04/29/21 15:08	ADC	MS-V15	1	B107391	EPA 524.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

BCL Sample ID: 2113280-03 | **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2,3-Trichloropropane	ND	ug/L	0.0050	0.0010	SRL 524M	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	SRL 524M	05/06/21 06:00	05/06/21 11:08	ADC	MS-V16	1	B108237	EPA 524.2

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2113280-03 **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthylene	ND	ug/L	0.10	0.031	EPA-525.2	ND		1
Alachlor	ND	ug/L	0.20	0.090	EPA-525.2	ND		1
Anthracene	ND	ug/L	0.10	0.034	EPA-525.2	ND		1
Atraton	ND	ug/L	0.50	0.057	EPA-525.2	ND		1
Atrazine	ND	ug/L	0.30	0.14	EPA-525.2	ND		1
Benzo[a]anthracene	ND	ug/L	0.20	0.044	EPA-525.2	ND		1
Benzo[b]fluoranthene	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Benzo[k]fluoranthene	ND	ug/L	0.30	0.072	EPA-525.2	ND		1
Benzo[a]pyrene	ND	ug/L	0.10	0.050	EPA-525.2	ND		1
Benzo[g,h,i]perylene	ND	ug/L	0.30	0.065	EPA-525.2	ND		1
Benzyl butyl phthalate	ND	ug/L	4.0	0.047	EPA-525.2	ND		1
delta-BHC	ND	ug/L	0.20	0.048	EPA-525.2	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.20	0.063	EPA-525.2	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	3.0	0.030	EPA-525.2	ND		1
Bromacil	ND	ug/L	0.50	0.043	EPA-525.2	ND		1
Chrysene	ND	ug/L	0.30	0.060	EPA-525.2	ND		1
Diazinon	ND	ug/L	0.20	0.080	EPA-525.2	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	0.30	0.051	EPA-525.2	ND		1
Di(2-ethylhexyl)adipate	ND	ug/L	1.0	0.025	EPA-525.2	ND		1
Dimethoate	ND	ug/L	2.0	0.050	EPA-525.2	ND		1
Dimethyl phthalate	ND	ug/L	1.0	0.034	EPA-525.2	ND		1
Di-n-butyl phthalate	ND	ug/L	1.0	0.063	EPA-525.2	ND		1
Fluorene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorobenzene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorocyclopentadiene	ND	ug/L	1.0	0.12	EPA-525.2	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.30	0.032	EPA-525.2	ND		1
Methoxychlor	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Metolachlor	ND	ug/L	0.50	0.056	EPA-525.2	ND		1
Metribuzin	ND	ug/L	0.50	0.048	EPA-525.2	ND		1
Molinate	ND	ug/L	0.50	0.036	EPA-525.2	ND		1
Phenanthrene	ND	ug/L	0.10	0.020	EPA-525.2	ND		1
Prometon	ND	ug/L	0.50	0.11	EPA-525.2	ND		1
Prometryn	ND	ug/L	0.50	0.045	EPA-525.2	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2113280-03 **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Propachlor	ND	ug/L	0.50	0.077	EPA-525.2	ND		1
Pyrene	ND	ug/L	0.10	0.040	EPA-525.2	ND		1
Secbumeton	ND	ug/L	0.50	0.079	EPA-525.2	ND		1
Simazine	ND	ug/L	0.30	0.066	EPA-525.2	ND		1
Terbutryn	ND	ug/L	0.50	0.050	EPA-525.2	ND		1
Thiobencarb	ND	ug/L	0.50	0.044	EPA-525.2	ND		1
Perylene-d12 (Surrogate)	94.8	%	60 - 140 (LCL - UCL)		EPA-525.2			1
1,3-Dimethyl-2-nitrobenzene (Surrogate)	103	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Triphenylphosphate (Surrogate)	130	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Pyrene-d10 (Surrogate)	103	%	70 - 130 (LCL - UCL)		EPA-525.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-525.2	04/30/21 07:30	05/04/21 14:16	MK1	MS-B6	1	B107695	EPA 525.2

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Carbamate and Urea Pesticides (EPA Method 531.2)

BCL Sample ID: 2113280-03 **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1-Naphthol	ND	ug/L	5.0	0.86	EPA-531.2	ND		1
Aldicarb	ND	ug/L	3.0	1.2	EPA-531.2	ND		1
Aldicarb sulfone	ND	ug/L	4.0	0.60	EPA-531.2	ND		1
Aldicarb sulfoxide	ND	ug/L	3.0	0.40	EPA-531.2	ND		1
Propoxur	ND	ug/L	5.0	0.36	EPA-531.2	ND		1
Carbaryl	ND	ug/L	5.0	0.47	EPA-531.2	ND		1
Carbofuran	ND	ug/L	5.0	0.67	EPA-531.2	ND		1
3-Hydroxycarbofuran	ND	ug/L	3.0	0.41	EPA-531.2	ND		1
Methiocarb	ND	ug/L	5.0	0.31	EPA-531.2	ND		1
Methomyl	ND	ug/L	2.0	0.92	EPA-531.2	ND		1
Oxamyl	ND	ug/L	5.0	0.79	EPA-531.2	ND		1
BDMC (Surrogate)	96.5	%	70 - 130 (LCL - UCL)		EPA-531.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-531.2	04/29/21 13:00	04/30/21 09:16	SAW	HPLC15	1	B107326	EPA 531.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Glyphosate Analysis (EPA Method 547)

BCL Sample ID: 2113280-03 **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Glyphosate	ND	ug/L	25	3.5	EPA-547	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-547	05/03/21 11:00	05/03/21 17:40	SAW	HPLC15	1	B107318	EPA 547

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

BCL Sample ID: 2113280-03 | **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Endothal	ND	ug/L	20	5.3	EPA-548.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-548.1	05/04/21 08:00	05/05/21 05:12	MK1	MS-B1	10	B107921	EPA 548.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

BCL Sample ID: 2113280-03 | **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Diquat	ND	ug/L	4.0	1.3	EPA-549.2	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-549.2	05/03/21 08:00	05/04/21 08:11	SAW	HPLC16	1	B108031	EPA 549.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

BCL Sample ID: 2113280-03 | **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Dibromoacetic acid	ND	ug/L	1.0	0.32	EPA-552.3	ND		1
Dichloroacetic acid	ND	ug/L	1.0	0.29	EPA-552.3	ND		1
Monobromoacetic acid	ND	ug/L	1.0	0.25	EPA-552.3	ND		1
Monochloroacetic acid	ND	ug/L	1.0	0.61	EPA-552.3	ND		1
Trichloroacetic acid	ND	ug/L	1.0	0.36	EPA-552.3	ND		1
Total HAA's (Summation)	ND	ug/L	1.0	1.0	EPA-552.3	ND		1
2,3-Dibromopropionic acid (Surrogate)	127	%	70 - 130 (LCL - UCL)		EPA-552.3			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-552.3	04/30/21 16:45	05/03/21 11:39	OLH	GC-3	1	B107691	EPA 552.3

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

BCL Sample ID: 2113280-03 **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Formaldehyde	ND	ug/L	5.0	0.70	EPA-556.1	ND		1
2',4',5'-Trifluoroacetophenone (Surrogate)	71.5	%	30 - 150 (LCL - UCL)		EPA-556.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-556.1	04/29/21 17:30	04/30/21 16:50	OLH	GC-3	1	B107693	EPA 556.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 2113280-03 | **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acrolein	ND	ug/L	10	7.9	EPA-8260B	ND		1
Acrylonitrile	ND	ug/L	5.0	1.2	EPA-8260B	ND		1
2-Chloroethyl vinyl ether	ND	ug/L	10	2.4	EPA-8260B	ND		1
1,2-Dichloroethane-d4 (Surrogate)	100	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	104	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	100	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8260B	04/29/21 06:00	04/29/21 15:08	ADC	MS-V15	1	B107391	EPA 5030 Water MS

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2113280-03 **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Acenaphthylene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Aldrin	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
Aniline	ND	ug/L	5.0	0.28	EPA-8270C	ND		1
Anthracene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzidine	ND	ug/L	20	1.6	EPA-8270C	ND		1
Benzo[a]anthracene	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
Benzo[b]fluoranthene	ND	ug/L	2.0	0.24	EPA-8270C	ND		1
Benzo[k]fluoranthene	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Benzo[a]pyrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzo[g,h,i]perylene	ND	ug/L	2.0	0.33	EPA-8270C	ND		1
Benzoic acid	ND	ug/L	10	0.52	EPA-8270C	ND		1
Benzyl alcohol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzyl butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
alpha-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
beta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
delta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
gamma-BHC (Lindane)	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethoxy)methane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethyl) ether	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
bis(2-Chloroisopropyl)ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	4.0	0.20	EPA-8270C	ND		1
4-Bromophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloroaniline	ND	ug/L	2.0	1.1	EPA-8270C	ND		1
2-Chloronaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chlorophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Chrysene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,4'-DDD	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
4,4'-DDE	ND	ug/L	3.0	0.24	EPA-8270C	ND		1
4,4'-DDT	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	3.0	0.34	EPA-8270C	ND		1
Dibenzofuran	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,2-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2113280-03 **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,3-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,4-Dichlorobenzene	ND	ug/L	2.0	0.27	EPA-8270C	ND		1
3,3-Dichlorobenzidine	ND	ug/L	10	0.53	EPA-8270C	ND		1
Dieldrin	ND	ug/L	3.0	0.39	EPA-8270C	ND		1
Diethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Dimethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dinitrotoluene	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2,6-Dinitrotoluene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-octyl phthalate	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
1,2-Diphenylhydrazine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Endosulfan I	ND	ug/L	10	0.31	EPA-8270C	ND		1
Endosulfan II	ND	ug/L	10	0.30	EPA-8270C	ND		1
Endosulfan sulfate	ND	ug/L	3.0	0.23	EPA-8270C	ND		1
Endrin	ND	ug/L	2.0	0.38	EPA-8270C	ND		1
Endrin aldehyde	ND	ug/L	10	0.44	EPA-8270C	ND		1
Fluoranthene	ND	ug/L	2.0	0.28	EPA-8270C	ND		1
Fluorene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor epoxide	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
Hexachlorobenzene	ND	ug/L	2.0	0.25	EPA-8270C	ND		1
Hexachlorobutadiene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Hexachlorocyclopentadiene	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
Hexachloroethane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	2.0	0.29	EPA-8270C	ND		1
Isophorone	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Methylnaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Naphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Naphthylamine	ND	ug/L	20	1.3	EPA-8270C	ND		1
2-Nitroaniline	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3-Nitroaniline	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
4-Nitroaniline	ND	ug/L	5.0	0.38	EPA-8270C	ND		1
Nitrobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** Project: Project Number: Project Manager:	06/18/2021 15:01 Morro Bay Wells [none] John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2113280-03 **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
N-Nitrosodimethylamine	ND	ug/L	2.0	1.2	EPA-8270C	ND		1
N-Nitrosodi-N-propylamine	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
N-Nitrosodiphenylamine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Phenanthrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Pyrene	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloro-3-methylphenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Chlorophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dichlorophenol	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
2,4-Dimethylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,6-Dinitro-2-methylphenol	ND	ug/L	10	0.24	EPA-8270C	ND		1
2,4-Dinitrophenol	ND	ug/L	10	0.20	EPA-8270C	ND		1
2-Methylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3- & 4-Methylphenol	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2-Nitrophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Nitrophenol	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Pentachlorophenol	ND	ug/L	10	0.40	EPA-8270C	ND		1
Phenol	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
2,4,5-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2,4,6-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Fluorophenol (Surrogate)	52.4	%	30 - 120 (LCL - UCL)		EPA-8270C			1
Phenol-d5 (Surrogate)	21.9	%	12 - 110 (LCL - UCL)		EPA-8270C			1
Nitrobenzene-d5 (Surrogate)	85.5	%	50 - 130 (LCL - UCL)		EPA-8270C			1
2-Fluorobiphenyl (Surrogate)	360	%	55 - 125 (LCL - UCL)		EPA-8270C		S09	1
2,4,6-Tribromophenol (Surrogate)	105	%	40 - 150 (LCL - UCL)		EPA-8270C			1
p-Terphenyl-d14 (Surrogate)	7640	%	40 - 150 (LCL - UCL)		EPA-8270C		S09	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8270C	05/03/21 14:15	05/07/21 06:00	MK1	MS-B8	0.960	B107823	EPA 3510C

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Explosive Residues (EPA Method 8330)

BCL Sample ID:	2113280-03	**Client Sample Name:**	19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
HMX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
RDX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
1,2-Dinitrobenzene (Surrogate)	116	%	70 - 130 (LCL - UCL)		EPA-8330			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8330	05/03/21 07:45	05/04/21 21:24	SAW	HPLC16	1	B107922	EPA 8330

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2113280-03 | **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Trivalent Chromium	ND	ug/L	10	5.0	Calc	ND		1
Chloride	**160**	**mg/L**	**0.50**	**0.13**	**EPA-300.0**	0.17		2
Fluoride	**0.25**	**mg/L**	**0.050**	**0.025**	**EPA-300.0**	ND		2
Nitrate as N	**2.0**	**mg/L**	**0.10**	**0.024**	**EPA-300.0**	ND		2
Sulfate	**170**	**mg/L**	**1.0**	**0.14**	**EPA-300.0**	ND		2
Nitrate + Nitrite as N	**2.1**	**mg/L**	**0.10**	**0.018**	**Calc**	ND		3
Electrical Conductivity @ 25 C	**1400**	**umhos/cm**	**1.00**	**1.00**	**SM-2510B**			4
Total Dissolved Solids @ 180 C	**910**	**mg/L**	**50**	**25**	**SM-2540C**	ND	**A07**	5
Color	**2.0**	**Color Units**	**1.0**	**1.0**	**SM-2120B**			6
Odor	No Obs Odor	Odor Units	1.0	1.0	SM-2150B	ND		7
Turbidity	**4.7**	**NT Units**	**0.10**	**0.10**	**EPA-180.1**			8
MBAS	ND	mg/L	0.10	0.024	SM-5540C	ND		9
Total Cyanide	ND	mg/L	0.0050	0.0017	EPA-335.4	ND		10
Total Nitrogen	**2.3**	**mg/L**	**0.30**	**0.10**	**Calc**	ND		11
Total Kjeldahl Nitrogen	**0.18**	**mg/L**	**0.20**	**0.088**	**EPA-351.2**	ND	**J**	12
Nitrite as N	**120**	**ug/L**	**50**	**10**	**EPA-353.2**	ND		13
Perchlorate	ND	mg/L	0.0040	0.00081	EPA-314.0	ND		14
Non-Volatile Organic Carbon	**1.2**	**mg/L**	**1.0**	**0.30**	**SM-5310C**	ND		15

City of Morro Bay	**Reported:**	06/18/2021 15:01
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2113280-03 **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	
1	Calc	04/29/21 18:01	05/17/21 13:01	AMM	Calc	1	B_D0545	Calc
2	EPA-300.0	04/28/21 22:00	04/29/21 09:11	SAV	IC5	1	B107372	No Prep
3	Calc	04/29/21 18:01	05/06/21 17:05	AMM	Calc	1	B_D0545	Calc
4	SM-2510B	05/03/21 08:00	05/03/21 10:16	RML	MET-1	1	B105313	No Prep
5	SM-2540C	05/04/21 13:00	05/04/21 13:00	CAD	MANUAL	5	B107768	No Prep
6	SM-2120B	04/29/21 06:30	04/29/21 06:30	JTM	MANUAL	1	B107597	No Prep
7	SM-2150B	04/29/21 06:30	04/29/21 06:30	JTM	MANUAL	1	B107598	No Prep
8	EPA-180.1	04/29/21 06:30	04/29/21 06:30	JTM	TURB04	1	B107599	No Prep
9	SM-5540C	04/29/21 08:30	04/29/21 08:30	JMN	SPEC06	1	B107442	No Prep
10	EPA-335.4	05/05/21 09:18	05/05/21 15:58	MC1	KONE-1	1	B107876	EPA 335.4 Total
11	Calc	04/29/21 18:01	05/19/21 15:01	AMM	Calc	1	B_D0545	Calc
12	EPA-351.2	05/13/21 08:00	05/18/21 12:33	MC1	SC-1	1	B108698	EPA 351.2
13	EPA-353.2	04/28/21 21:14	04/28/21 21:14	GSP	KONE-1	1	B108067	No Prep
14	EPA-314.0	05/13/21 01:00	05/13/21 05:03	SAV	IC6	1	B108735	No Prep
15	SM-5310C	05/03/21 05:00	05/04/21 02:33	ALW	A537730907	1	B107603	No Prep

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Metals Analysis

BCL Sample ID: 2113280-03 | **Client Sample Name:** 19P-04, 4/27/2021 11:50:00AM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Hexavalent Chromium	ND	ug/L	0.20	0.020	EPA-218.6	ND		1
Total Recoverable Aluminum	**120**	**ug/L**	**50**	**26**	**EPA-200.7**	ND		2
Total Recoverable Antimony	ND	ug/L	2.0	0.11	EPA-200.8	ND		3
Total Recoverable Arsenic	**1.1**	**ug/L**	**2.0**	**0.70**	**EPA-200.8**	ND	**J**	3
Total Recoverable Barium	**200**	**ug/L**	**1.0**	**0.21**	**EPA-200.8**	ND		3
Total Recoverable Beryllium	ND	ug/L	1.0	0.14	EPA-200.8	ND		3
Total Recoverable Boron	**110**	**ug/L**	**100**	**10**	**EPA-200.7**	19		2
Total Recoverable Cadmium	ND	ug/L	1.0	0.11	EPA-200.8	ND		3
Total Recoverable Chromium	**0.57**	**ug/L**	**3.0**	**0.50**	**EPA-200.8**	ND	**J**	3
Total Recoverable Cobalt	**0.62**	**ug/L**	**1.0**	**0.10**	**EPA-200.8**	ND	**J**	3
Total Recoverable Copper	**1.2**	**ug/L**	**2.0**	**0.22**	**EPA-200.8**	ND	**J**	3
Total Recoverable Iron	**220**	**ug/L**	**50**	**30**	**EPA-200.7**	ND		2
Total Recoverable Lead	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Lithium	ND	ug/L	20	6.6	EPA-200.7	ND		2
Total Recoverable Manganese	**1300**	**ug/L**	**10**	**4.0**	**EPA-200.7**	ND		2
Total Recoverable Mercury	ND	ug/L	0.20	0.022	EPA-245.1	ND		4
Total Recoverable Molybdenum	**1.7**	**ug/L**	**1.0**	**0.11**	**EPA-200.8**	ND		3
Total Recoverable Nickel	**4.7**	**ug/L**	**2.0**	**0.19**	**EPA-200.8**	ND		3
Total Recoverable Selenium	**8.1**	**ug/L**	**2.0**	**0.19**	**EPA-200.8**	ND		3
Total Recoverable Silver	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Thallium	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Vanadium	**1.1**	**ug/L**	**3.0**	**0.78**	**EPA-200.8**	ND	**J**	3
Total Recoverable Zinc	**1.7**	**ug/L**	**10**	**1.7**	**EPA-200.8**	ND	**J**	3
Total Recoverable Uranium	**1.9**	**ug/L**	**1.0**	**0.10**	**EPA-200.8**	ND		3

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-218.6	05/06/21 14:00	05/06/21 21:36	KB1	IC-4	1	B108115	No Prep
2	EPA-200.7	05/10/21 20:45	05/11/21 13:59	JRG	PE-OP4	1	B108353	EPA 200.2
3	EPA-200.8	05/10/21 23:25	05/11/21 11:14	KHS	PE-EL2	1	B108356	EPA 200.2
4	EPA-245.1	05/11/21 08:10	05/11/21 14:25	TMT	CETAC3	1	B108414	EPA 245.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

BCL Sample ID: 2113280-04 **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2-Dibromo-3-chloropropane	ND	ug/L	0.010	0.0015	EPA-504.1	ND		1
Ethylene dibromide	ND	ug/L	0.010	0.0030	EPA-504.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-504.1	05/05/21 08:00	05/05/21 18:54	HKS	GC-15	0.957	B108310	EPA 504.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

BCL Sample ID: 2113280-04 | **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Aldrin	ND	ug/L	0.0050	0.00095	EPA-508	ND		1
alpha-BHC	ND	ug/L	0.0050	0.00050	EPA-508	ND		1
beta-BHC	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
delta-BHC	ND	ug/L	0.0050	0.0015	EPA-508	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.0050	0.00067	EPA-508	ND		1
Chlordane (Technical)	ND	ug/L	0.10	0.045	EPA-508	ND		1
4,4'-DDD	ND	ug/L	0.0050	0.00086	EPA-508	ND		1
4,4'-DDE	ND	ug/L	0.0050	0.0013	EPA-508	ND		1
4,4'-DDT	ND	ug/L	0.0050	0.00096	EPA-508	ND		1
Dieldrin	ND	ug/L	0.0050	0.0011	EPA-508	ND		1
Endosulfan I	ND	ug/L	0.0050	0.00068	EPA-508	ND		1
Endosulfan II	ND	ug/L	0.0050	0.00098	EPA-508	ND		1
Endosulfan sulfate	ND	ug/L	0.0050	0.00055	EPA-508	ND		1
Endrin	ND	ug/L	0.0050	0.00069	EPA-508	ND		1
Endrin aldehyde	ND	ug/L	0.010	0.00054	EPA-508	ND		1
Heptachlor	ND	ug/L	0.0050	0.00094	EPA-508	ND		1
Heptachlor epoxide	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
Methoxychlor	ND	ug/L	0.0050	0.0037	EPA-508	ND		1
Toxaphene	ND	ug/L	1.0	0.20	EPA-508	ND		1
PCB-1016	ND	ug/L	0.20	0.066	EPA-508	ND		1
PCB-1221	ND	ug/L	0.20	0.063	EPA-508	ND		1
PCB-1232	ND	ug/L	0.20	0.059	EPA-508	ND		1
PCB-1242	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1248	ND	ug/L	0.20	0.044	EPA-508	ND		1
PCB-1254	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1260	ND	ug/L	0.20	0.089	EPA-508	ND		1
Total PCB's (Summation)	ND	ug/L	0.20	0.10	EPA-508	ND		1
TCMX (Surrogate)	57.1	%	60 - 130 (LCL - UCL)		EPA-508		A20	1
Decachlorobiphenyl (Surrogate)	38.3	%	60 - 130 (LCL - UCL)		EPA-508		A20	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-508	05/03/21 13:00	05/04/21 18:15	HKS	GC-17	1	B107991	EPA 508

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis (EPA Method 515.1)

BCL Sample ID: 2113280-04 **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Bentazon	ND	ug/L	0.80	0.22	EPA-515.1	ND		1
2,4-D	ND	ug/L	0.40	0.18	EPA-515.1	ND		1
2,4-DB	ND	ug/L	3.0	0.37	EPA-515.1	ND		1
Dalapon	ND	ug/L	5.0	0.31	EPA-515.1	ND		1
Dicamba	ND	ug/L	0.080	0.040	EPA-515.1	ND		1
Dichloroprop	ND	ug/L	0.50	0.11	EPA-515.1	ND		1
Dinoseb	ND	ug/L	0.20	0.057	EPA-515.1	ND		1
MCPA	ND	ug/L	10	6.0	EPA-515.1	ND		1
MCPP	ND	ug/L	10	6.0	EPA-515.1	ND		1
2,4,5-T	ND	ug/L	0.090	0.012	EPA-515.1	ND		1
2,4,5-TP (Silvex)	ND	ug/L	0.070	0.032	EPA-515.1	ND		1
2,4-Dichlorophenylacetic acid (Surrogate)	41.5	%	40 - 120 (LCL - UCL)		EPA-515.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-515.1	04/29/21 08:10	05/03/21 15:52	OLH	GC-8	1	B107516	EPA 515.1

City of Morro Bay		**Reported:**	06/18/2021 15:01
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2113280-04 **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
Bromobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Bromochloromethane	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Bromodichloromethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Bromoform	ND	ug/L	0.50	0.46	EPA-524.2	ND		1
Bromomethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
n-Butylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
sec-Butylbenzene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
tert-Butylbenzene	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Carbon tetrachloride	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chlorobenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chloroform	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloromethane	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
2-Chlorotoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
4-Chlorotoluene	ND	ug/L	0.50	0.093	EPA-524.2	ND		1
Dibromochloromethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0	0.89	EPA-524.2	ND		1
1,2-Dibromoethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
Dibromomethane	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
1,2-Dichlorobenzene	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,3-Dichlorobenzene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
1,4-Dichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Dichlorodifluoromethane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,1-Dichloroethane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,2-Dichloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,1-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
cis-1,2-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2-Dichloropropane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,3-Dichloropropane	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
2,2-Dichloropropane	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
1,1-Dichloropropene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2113280-04 **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
Total 1,3-Dichloropropene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Ethylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Hexachlorobutadiene	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Isopropylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
p-Isopropyltoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Methylene chloride	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Methyl t-butyl ether	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Naphthalene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
n-Propylbenzene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
Styrene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Tetrachloroethene	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
Toluene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2,3-Trichlorobenzene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,1,1-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Trichloroethene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
Trichlorofluoromethane	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
1,2,3-Trichloropropane	ND	ug/L	1.0	0.78	EPA-524.2	ND		1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trimethylbenzene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,3,5-Trimethylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Vinyl chloride	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Total Xylenes	ND	ug/L	0.50	0.47	EPA-524.2	ND		1
Total Trihalomethanes	ND	ug/L	2.0	0.97	EPA-524.2	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
t-Butyl alcohol	ND	ug/L	10	9.4	EPA-524.2	ND		1
Diisopropyl ether	ND	ug/L	0.50	0.36	EPA-524.2	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50	0.32	EPA-524.2	ND		1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2113280-04 | **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
p- & m-Xylenes	ND	ug/L	0.50	0.34	EPA-524.2	ND		1
o-Xylene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
1,2-Dichloroethane-d4 (Surrogate)	106	%	75 - 125 (LCL - UCL)		EPA-524.2			1
Toluene-d8 (Surrogate)	102	%	80 - 120 (LCL - UCL)		EPA-524.2			1
4-Bromofluorobenzene (Surrogate)	104	%	80 - 120 (LCL - UCL)		EPA-524.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-524.2	04/29/21 06:00	04/30/21 02:57	ADC	MS-V15	1	B107392	EPA 524.2

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

BCL Sample ID: 2113280-04 | **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2,3-Trichloropropane	ND	ug/L	0.0050	0.0010	SRL 524M	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	SRL 524M	05/06/21 06:00	05/06/21 11:32	ADC	MS-V16	1	B108237	EPA 524.2

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2113280-04 **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthylene	ND	ug/L	0.10	0.031	EPA-525.2	ND		1
Alachlor	ND	ug/L	0.20	0.090	EPA-525.2	ND		1
Anthracene	ND	ug/L	0.10	0.034	EPA-525.2	ND		1
Atraton	ND	ug/L	0.50	0.057	EPA-525.2	ND		1
Atrazine	ND	ug/L	0.30	0.14	EPA-525.2	ND		1
Benzo[a]anthracene	ND	ug/L	0.20	0.044	EPA-525.2	ND		1
Benzo[b]fluoranthene	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Benzo[k]fluoranthene	ND	ug/L	0.30	0.072	EPA-525.2	ND		1
Benzo[a]pyrene	ND	ug/L	0.10	0.050	EPA-525.2	ND		1
Benzo[g,h,i]perylene	ND	ug/L	0.30	0.065	EPA-525.2	ND		1
Benzyl butyl phthalate	ND	ug/L	4.0	0.047	EPA-525.2	ND		1
delta-BHC	ND	ug/L	0.20	0.048	EPA-525.2	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.20	0.063	EPA-525.2	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	3.0	0.030	EPA-525.2	ND		1
Bromacil	ND	ug/L	0.50	0.043	EPA-525.2	ND		1
Chrysene	ND	ug/L	0.30	0.060	EPA-525.2	ND		1
Diazinon	ND	ug/L	0.20	0.080	EPA-525.2	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	0.30	0.051	EPA-525.2	ND		1
Di(2-ethylhexyl)adipate	ND	ug/L	1.0	0.025	EPA-525.2	ND		1
Dimethoate	ND	ug/L	2.0	0.050	EPA-525.2	ND		1
Dimethyl phthalate	ND	ug/L	1.0	0.034	EPA-525.2	ND		1
Di-n-butyl phthalate	ND	ug/L	1.0	0.063	EPA-525.2	ND		1
Fluorene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorobenzene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorocyclopentadiene	ND	ug/L	1.0	0.12	EPA-525.2	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.30	0.032	EPA-525.2	ND		1
Methoxychlor	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Metolachlor	ND	ug/L	0.50	0.056	EPA-525.2	ND		1
Metribuzin	ND	ug/L	0.50	0.048	EPA-525.2	ND		1
Molinate	ND	ug/L	0.50	0.036	EPA-525.2	ND		1
Phenanthrene	ND	ug/L	0.10	0.020	EPA-525.2	ND		1
Prometon	ND	ug/L	0.50	0.11	EPA-525.2	ND		1
Prometryn	ND	ug/L	0.50	0.045	EPA-525.2	ND		1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2113280-04 **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Propachlor	ND	ug/L	0.50	0.077	EPA-525.2	ND		1
Pyrene	ND	ug/L	0.10	0.040	EPA-525.2	ND		1
Secbumeton	ND	ug/L	0.50	0.079	EPA-525.2	ND		1
Simazine	ND	ug/L	0.30	0.066	EPA-525.2	ND		1
Terbutryn	ND	ug/L	0.50	0.050	EPA-525.2	ND		1
Thiobencarb	ND	ug/L	0.50	0.044	EPA-525.2	ND		1
Perylene-d12 (Surrogate)	115	%	60 - 140 (LCL - UCL)		EPA-525.2			1
1,3-Dimethyl-2-nitrobenzene (Surrogate)	76.6	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Triphenylphosphate (Surrogate)	96.6	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Pyrene-d10 (Surrogate)	115	%	70 - 130 (LCL - UCL)		EPA-525.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-525.2	04/30/21 07:30	05/04/21 14:42	MK1	MS-B6	1	B107695	EPA 525.2

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Carbamate and Urea Pesticides (EPA Method 531.2)

BCL Sample ID: 2113280-04 **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1-Naphthol	ND	ug/L	5.0	0.86	EPA-531.2	ND		1
Aldicarb	ND	ug/L	3.0	1.2	EPA-531.2	ND		1
Aldicarb sulfone	ND	ug/L	4.0	0.60	EPA-531.2	ND		1
Aldicarb sulfoxide	ND	ug/L	3.0	0.40	EPA-531.2	ND		1
Propoxur	ND	ug/L	5.0	0.36	EPA-531.2	ND		1
Carbaryl	ND	ug/L	5.0	0.47	EPA-531.2	ND		1
Carbofuran	ND	ug/L	5.0	0.67	EPA-531.2	ND		1
3-Hydroxycarbofuran	ND	ug/L	3.0	0.41	EPA-531.2	ND		1
Methiocarb	ND	ug/L	5.0	0.31	EPA-531.2	ND		1
Methomyl	ND	ug/L	2.0	0.92	EPA-531.2	ND		1
Oxamyl	ND	ug/L	5.0	0.79	EPA-531.2	ND		1
BDMC (Surrogate)	102	%	70 - 130 (LCL - UCL)		EPA-531.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-531.2	04/29/21 13:00	04/30/21 09:44	SAW	HPLC15	1	B107326	EPA 531.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Glyphosate Analysis (EPA Method 547)

BCL Sample ID: 2113280-04 | **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Glyphosate	ND	ug/L	25	3.5	EPA-547	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-547	05/03/21 11:00	05/03/21 17:54	SAW	HPLC15	1	B107318	EPA 547

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

BCL Sample ID: 2113280-04 **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Endothal	ND	ug/L	20	5.3	EPA-548.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-548.1	05/04/21 08:00	05/05/21 05:37	MK1	MS-B1	10	B107921	EPA 548.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

BCL Sample ID: 2113280-04 | **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Diquat	ND	ug/L	4.0	1.3	EPA-549.2	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-549.2	05/03/21 08:00	05/04/21 08:16	SAW	HPLC16	1	B108031	EPA 549.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

BCL Sample ID: 2113280-04 **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Dibromoacetic acid	ND	ug/L	1.0	0.32	EPA-552.3	ND		1
Dichloroacetic acid	ND	ug/L	1.0	0.29	EPA-552.3	ND		1
Monobromoacetic acid	ND	ug/L	1.0	0.25	EPA-552.3	ND		1
Monochloroacetic acid	ND	ug/L	1.0	0.61	EPA-552.3	ND		1
Trichloroacetic acid	ND	ug/L	1.0	0.36	EPA-552.3	ND		1
Total HAA's (Summation)	ND	ug/L	1.0	1.0	EPA-552.3	ND		1
2,3-Dibromopropionic acid (Surrogate)	121	%	70 - 130 (LCL - UCL)		EPA-552.3			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-552.3	04/30/21 16:45	05/03/21 12:01	OLH	GC-3	1	B107691	EPA 552.3

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

BCL Sample ID: 2113280-04 | **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Formaldehyde	ND	ug/L	5.0	0.70	EPA-556.1	ND		1
2',4',5'-Trifluoroacetophenone (Surrogate)	72.0	%	30 - 150 (LCL - UCL)		EPA-556.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-556.1	04/29/21 17:30	04/30/21 17:08	OLH	GC-3	1	B107693	EPA 556.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 2113280-04 | **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acrolein	ND	ug/L	10	7.9	EPA-8260B	ND		1
Acrylonitrile	ND	ug/L	5.0	1.2	EPA-8260B	ND		1
2-Chloroethyl vinyl ether	ND	ug/L	10	2.4	EPA-8260B	ND		1
1,2-Dichloroethane-d4 (Surrogate)	106	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	102	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	104	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8260B	04/29/21 06:00	04/30/21 02:57	ADC	MS-V15	1	B107392	EPA 5030 Water MS

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2113280-04 **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Acenaphthylene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Aldrin	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
Aniline	ND	ug/L	5.0	0.28	EPA-8270C	ND		1
Anthracene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzidine	ND	ug/L	20	1.6	EPA-8270C	ND		1
Benzo[a]anthracene	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
Benzo[b]fluoranthene	ND	ug/L	2.0	0.24	EPA-8270C	ND		1
Benzo[k]fluoranthene	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Benzo[a]pyrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzo[g,h,i]perylene	ND	ug/L	2.0	0.33	EPA-8270C	ND		1
Benzoic acid	ND	ug/L	10	0.52	EPA-8270C	ND		1
Benzyl alcohol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzyl butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
alpha-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
beta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
delta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
gamma-BHC (Lindane)	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethoxy)methane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethyl) ether	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
bis(2-Chloroisopropyl)ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	4.0	0.20	EPA-8270C	ND		1
4-Bromophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloroaniline	ND	ug/L	2.0	1.1	EPA-8270C	ND		1
2-Chloronaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chlorophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Chrysene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,4'-DDD	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
4,4'-DDE	ND	ug/L	3.0	0.24	EPA-8270C	ND		1
4,4'-DDT	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	3.0	0.34	EPA-8270C	ND		1
Dibenzofuran	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,2-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2113280-04 **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,3-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,4-Dichlorobenzene	ND	ug/L	2.0	0.27	EPA-8270C	ND		1
3,3-Dichlorobenzidine	ND	ug/L	10	0.53	EPA-8270C	ND		1
Dieldrin	ND	ug/L	3.0	0.39	EPA-8270C	ND		1
Diethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Dimethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dinitrotoluene	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2,6-Dinitrotoluene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-octyl phthalate	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
1,2-Diphenylhydrazine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Endosulfan I	ND	ug/L	10	0.31	EPA-8270C	ND		1
Endosulfan II	ND	ug/L	10	0.30	EPA-8270C	ND		1
Endosulfan sulfate	ND	ug/L	3.0	0.23	EPA-8270C	ND		1
Endrin	ND	ug/L	2.0	0.38	EPA-8270C	ND		1
Endrin aldehyde	ND	ug/L	10	0.44	EPA-8270C	ND		1
Fluoranthene	ND	ug/L	2.0	0.28	EPA-8270C	ND		1
Fluorene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor epoxide	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
Hexachlorobenzene	ND	ug/L	2.0	0.25	EPA-8270C	ND		1
Hexachlorobutadiene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Hexachlorocyclopentadiene	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
Hexachloroethane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	2.0	0.29	EPA-8270C	ND		1
Isophorone	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Methylnaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Naphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Naphthylamine	ND	ug/L	20	1.3	EPA-8270C	ND		1
2-Nitroaniline	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3-Nitroaniline	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
4-Nitroaniline	ND	ug/L	5.0	0.38	EPA-8270C	ND		1
Nitrobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2113280-04 | **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
N-Nitrosodimethylamine	ND	ug/L	2.0	1.2	EPA-8270C	ND		1
N-Nitrosodi-N-propylamine	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
N-Nitrosodiphenylamine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Phenanthrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Pyrene	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloro-3-methylphenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Chlorophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dichlorophenol	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
2,4-Dimethylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,6-Dinitro-2-methylphenol	ND	ug/L	10	0.24	EPA-8270C	ND		1
2,4-Dinitrophenol	ND	ug/L	10	0.20	EPA-8270C	ND		1
2-Methylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3- & 4-Methylphenol	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2-Nitrophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Nitrophenol	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Pentachlorophenol	ND	ug/L	10	0.40	EPA-8270C	ND		1
Phenol	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
2,4,5-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2,4,6-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Fluorophenol (Surrogate)	47.2	%	30 - 120 (LCL - UCL)		EPA-8270C			1
Phenol-d5 (Surrogate)	42.4	%	12 - 110 (LCL - UCL)		EPA-8270C			1
Nitrobenzene-d5 (Surrogate)	78.6	%	50 - 130 (LCL - UCL)		EPA-8270C			1
2-Fluorobiphenyl (Surrogate)	77.0	%	55 - 125 (LCL - UCL)		EPA-8270C			1
2,4,6-Tribromophenol (Surrogate)	67.3	%	40 - 150 (LCL - UCL)		EPA-8270C			1
p-Terphenyl-d14 (Surrogate)	78.6	%	40 - 150 (LCL - UCL)		EPA-8270C			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8270C	05/03/21 14:15	05/07/21 06:27	MK1	MS-B8	1.053	B107823	EPA 3510C

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Explosive Residues (EPA Method 8330)

BCL Sample ID: 2113280-04 **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
HMX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
RDX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
1,2-Dinitrobenzene (Surrogate)	116	%	70 - 130 (LCL - UCL)		EPA-8330			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8330	05/03/21 07:45	05/04/21 21:56	SAW	HPLC16	1	B107922	EPA 8330

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2113280-04 | **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Trivalent Chromium	ND	ug/L	10	5.0	Calc	ND		1
Chloride	**130**	**mg/L**	**0.50**	**0.13**	**EPA-300.0**	0.17		2
Fluoride	**0.28**	**mg/L**	**0.050**	**0.025**	**EPA-300.0**	ND		2
Nitrate as N	**1.4**	**mg/L**	**0.10**	**0.024**	**EPA-300.0**	ND		2
Sulfate	**140**	**mg/L**	**1.0**	**0.14**	**EPA-300.0**	ND		2
Nitrate + Nitrite as N	**1.5**	**mg/L**	**0.10**	**0.018**	**Calc**	ND		3
Electrical Conductivity @ 25 C	**1220**	**umhos/cm**	**1.00**	**1.00**	**SM-2510B**			4
Total Dissolved Solids @ 180 C	**760**	**mg/L**	**50**	**25**	**SM-2540C**	ND	**A07**	5
Color	**2.0**	**Color Units**	**1.0**	**1.0**	**SM-2120B**			6
Odor	No Obs Odor	Odor Units	1.0	1.0	SM-2150B	ND		7
Turbidity	**0.18**	**NT Units**	**0.10**	**0.10**	**EPA-180.1**			8
MBAS	ND	mg/L	0.10	0.024	SM-5540C	ND		9
Total Cyanide	ND	mg/L	0.0050	0.0017	EPA-335.4	ND		10
Total Nitrogen	**1.7**	**mg/L**	**0.30**	**0.10**	**Calc**	ND		11
Total Kjeldahl Nitrogen	**0.13**	**mg/L**	**0.20**	**0.088**	**EPA-351.2**	ND	**J**	12
Nitrite as N	**110**	**ug/L**	**50**	**10**	**EPA-353.2**	ND		13
Perchlorate	ND	mg/L	0.0040	0.00081	EPA-314.0	ND		14
Non-Volatile Organic Carbon	**1.2**	**mg/L**	**1.0**	**0.30**	**SM-5310C**	ND		15

City of Morro Bay	**Reported:**	06/18/2021 15:01
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2113280-04 **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	
1	Calc	04/29/21 18:01	05/17/21 13:01	AMM	Calc	1	B_D0545	Calc
2	EPA-300.0	04/28/21 22:00	04/29/21 09:29	SAV	IC5	1	B107372	No Prep
3	Calc	04/29/21 18:01	05/06/21 17:05	AMM	Calc	1	B_D0545	Calc
4	SM-2510B	05/03/21 08:00	05/03/21 10:22	RML	MET-1	1	B105313	No Prep
5	SM-2540C	05/04/21 13:00	05/04/21 13:00	CAD	MANUAL	5	B107768	No Prep
6	SM-2120B	04/29/21 06:30	04/29/21 06:30	JTM	MANUAL	1	B107597	No Prep
7	SM-2150B	04/29/21 06:30	04/29/21 06:30	JTM	MANUAL	1	B107598	No Prep
8	EPA-180.1	04/29/21 06:30	04/29/21 06:30	JTM	TURB04	1	B107599	No Prep
9	SM-5540C	04/29/21 08:30	04/29/21 08:30	JMN	SPEC06	1	B107442	No Prep
10	EPA-335.4	05/05/21 09:18	05/05/21 16:09	MC1	KONE-1	1	B107876	EPA 335.4 Total
11	Calc	04/29/21 18:01	05/19/21 15:01	AMM	Calc	1	B_D0545	Calc
12	EPA-351.2	05/13/21 08:00	05/18/21 12:35	MC1	SC-1	1	B108698	EPA 351.2
13	EPA-353.2	04/28/21 21:14	04/28/21 21:14	GSP	KONE-1	1	B108067	No Prep
14	EPA-314.0	05/13/21 01:00	05/13/21 10:25	SAV	IC6	1	B108735	No Prep
15	SM-5310C	05/03/21 05:00	05/04/21 02:47	ALW	A537730907	1	B107603	No Prep

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Metals Analysis

BCL Sample ID: 2113280-04 | **Client Sample Name:** Vista, 4/27/2021 1:30:00PM, John Gunderlock

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Hexavalent Chromium	**0.073**	**ug/L**	**0.20**	**0.020**	**EPA-218.6**	ND	**J**	1
Total Recoverable Aluminum	ND	ug/L	50	26	EPA-200.7	ND		2
Total Recoverable Antimony	ND	ug/L	2.0	0.11	EPA-200.8	ND		3
Total Recoverable Arsenic	**1.7**	**ug/L**	**2.0**	**0.70**	**EPA-200.8**	ND	**J**	3
Total Recoverable Barium	**170**	**ug/L**	**1.0**	**0.21**	**EPA-200.8**	ND		3
Total Recoverable Beryllium	ND	ug/L	1.0	0.14	EPA-200.8	ND		3
Total Recoverable Boron	**94**	**ug/L**	**100**	**10**	**EPA-200.7**	16	**J**	2
Total Recoverable Cadmium	ND	ug/L	1.0	0.11	EPA-200.8	ND		3
Total Recoverable Chromium	ND	ug/L	3.0	0.50	EPA-200.8	ND		3
Total Recoverable Cobalt	**0.81**	**ug/L**	**1.0**	**0.10**	**EPA-200.8**	ND	**J**	3
Total Recoverable Copper	**1.1**	**ug/L**	**2.0**	**0.22**	**EPA-200.8**	ND	**J**	3
Total Recoverable Iron	ND	ug/L	50	30	EPA-200.7	ND		2
Total Recoverable Lead	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Lithium	ND	ug/L	20	6.6	EPA-200.7	ND		2
Total Recoverable Manganese	**1000**	**ug/L**	**10**	**4.0**	**EPA-200.7**	ND		2
Total Recoverable Mercury	**0.037**	**ug/L**	**0.20**	**0.022**	**EPA-245.1**	ND	**J**	4
Total Recoverable Molybdenum	**1.9**	**ug/L**	**1.0**	**0.11**	**EPA-200.8**	ND		3
Total Recoverable Nickel	**3.4**	**ug/L**	**2.0**	**0.19**	**EPA-200.8**	ND		3
Total Recoverable Selenium	**1.2**	**ug/L**	**2.0**	**0.19**	**EPA-200.8**	ND	**J**	3
Total Recoverable Silver	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Thallium	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Vanadium	**1.3**	**ug/L**	**3.0**	**0.78**	**EPA-200.8**	ND	**J**	3
Total Recoverable Zinc	ND	ug/L	10	1.7	EPA-200.8	ND		3
Total Recoverable Uranium	**2.0**	**ug/L**	**1.0**	**0.10**	**EPA-200.8**	ND		3

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-218.6	05/06/21 14:00	05/06/21 21:46	KB1	IC-4	1	B108115	No Prep
2	EPA-200.7	04/30/21 12:28	04/30/21 14:53	JRG	PE-OP4	1	B107541	EPA 200.2
3	EPA-200.8	05/10/21 23:25	05/11/21 11:15	KHS	PE-EL2	1	B108356	EPA 200.2
4	EPA-245.1	05/11/21 08:10	05/11/21 14:27	TMT	CETAC3	1	B108414	EPA 245.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B108310						
1,2-Dibromo-3-chloropropane	B108310-BLK1	ND	ug/L	0.010	0.0015	
Ethylene dibromide	B108310-BLK1	ND	ug/L	0.010	0.0030	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B108310										
1,2-Dibromo-3-chloropropane	B108310-BS1	LCS	0.12349	0.14273	ug/L	86.5		70 - 130		
Ethylene dibromide	B108310-BS1	LCS	0.14222	0.14273	ug/L	99.6		70 - 130		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B108310	Used client sample: N										
1,2-Dibromo-3-chloropropane	MS	2110770-62	ND	0.13147	0.14265	ug/L		92.2		70 - 130	
	MSD	2110770-62	ND	0.12252	0.14273	ug/L	7.0	85.8	30	70 - 130	
Ethylene dibromide	MS	2110770-62	ND	0.15270	0.14265	ug/L		107		70 - 130	
	MSD	2110770-62	ND	0.12075	0.14273	ug/L	23.4	84.6	30	70 - 130	

City of Morro Bay		**Reported:**	06/18/2021 15:01
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

Quality Control Report - Method Blank Analysis

QC Batch ID: B107991

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Aldrin	B107991-BLK1	ND	ug/L	0.0050	0.00095	
alpha-BHC	B107991-BLK1	ND	ug/L	0.0050	0.00050	
beta-BHC	B107991-BLK1	ND	ug/L	0.0050	0.00064	
delta-BHC	B107991-BLK1	ND	ug/L	0.0050	0.0015	
gamma-BHC (Lindane)	B107991-BLK1	ND	ug/L	0.0050	0.00067	
Chlordane (Technical)	B107991-BLK1	ND	ug/L	0.10	0.045	
4,4'-DDD	B107991-BLK1	ND	ug/L	0.0050	0.00086	
4,4'-DDE	B107991-BLK1	ND	ug/L	0.0050	0.0013	
4,4'-DDT	B107991-BLK1	ND	ug/L	0.0050	0.00096	
Dieldrin	B107991-BLK1	ND	ug/L	0.0050	0.0011	
Endosulfan I	B107991-BLK1	ND	ug/L	0.0050	0.00068	
Endosulfan II	B107991-BLK1	ND	ug/L	0.0050	0.00098	
Endosulfan sulfate	B107991-BLK1	ND	ug/L	0.0050	0.00055	
Endrin	B107991-BLK1	ND	ug/L	0.0050	0.00069	
Endrin aldehyde	B107991-BLK1	ND	ug/L	0.010	0.00054	
Heptachlor	B107991-BLK1	ND	ug/L	0.0050	0.00094	
Heptachlor epoxide	B107991-BLK1	ND	ug/L	0.0050	0.00064	
Methoxychlor	B107991-BLK1	ND	ug/L	0.0050	0.0037	
Toxaphene	B107991-BLK1	ND	ug/L	1.0	0.20	
PCB-1016	B107991-BLK1	ND	ug/L	0.20	0.066	
PCB-1221	B107991-BLK1	ND	ug/L	0.20	0.063	
PCB-1232	B107991-BLK1	ND	ug/L	0.20	0.059	
PCB-1242	B107991-BLK1	ND	ug/L	0.20	0.037	
PCB-1248	B107991-BLK1	ND	ug/L	0.20	0.044	
PCB-1254	B107991-BLK1	ND	ug/L	0.20	0.037	
PCB-1260	B107991-BLK1	ND	ug/L	0.20	0.089	
Total PCB's (Summation)	B107991-BLK1	ND	ug/L	0.20	0.10	
TCMX (Surrogate)	**B107991-BLK1**	**66.3**	%	**60 - 130 (LCL - UCL)**		
Decachlorobiphenyl (Surrogate)	**B107991-BLK1**	**72.3**	%	**60 - 130 (LCL - UCL)**		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B107991										
Aldrin	B107991-BS1	LCS	0.11769	0.15000	ug/L	78.5		60 - 130		
gamma-BHC (Lindane)	B107991-BS1	LCS	0.13947	0.15000	ug/L	93.0		60 - 130		
4,4'-DDT	B107991-BS1	LCS	0.14571	0.15000	ug/L	97.1		60 - 130		
Dieldrin	B107991-BS1	LCS	0.092980	0.15000	ug/L	62.0		60 - 130		
Endrin	B107991-BS1	LCS	0.13477	0.15000	ug/L	89.8		60 - 130		
Heptachlor	B107991-BS1	LCS	0.12902	0.15000	ug/L	86.0		60 - 130		
TCMX (Surrogate)	B107991-BS1	LCS	0.22027	0.30000	ug/L	73.4		60 - 130		
Decachlorobiphenyl (Surrogate)	B107991-BS1	LCS	0.51572	0.60000	ug/L	86.0		60 - 130		

City of Morro Bay	Reported:	06/18/2021 15:01
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B107991	Used client sample: N										
Aldrin	MS	2110770-78	ND	0.10783	0.15000	ug/L		71.9		60 - 130	
	MSD	2110770-78	ND	0.11236	0.15000	ug/L	4.1	74.9	30	60 - 130	
gamma-BHC (Lindane)	MS	2110770-78	ND	0.14004	0.15000	ug/L		93.4		60 - 130	
	MSD	2110770-78	ND	0.14293	0.15000	ug/L	2.0	95.3	30	60 - 130	
4,4'-DDT	MS	2110770-78	ND	0.13218	0.15000	ug/L		88.1		60 - 130	
	MSD	2110770-78	ND	0.13692	0.15000	ug/L	3.5	91.3	30	60 - 130	
Dieldrin	MS	**2110770-78**	**ND**	**0.084870**	**0.15000**	**ug/L**		**56.6**		**60 - 130**	**Q03**
	MSD	**2110770-78**	**ND**	**0.087520**	**0.15000**	**ug/L**	**3.1**	**58.3**	**30**	**60 - 130**	**Q03**
Endrin	MS	2110770-78	ND	0.13147	0.15000	ug/L		87.6		60 - 130	
	MSD	2110770-78	ND	0.13683	0.15000	ug/L	4.0	91.2	30	60 - 130	
Heptachlor	MS	2110770-78	ND	0.12562	0.15000	ug/L		83.7		60 - 130	
	MSD	2110770-78	ND	0.12784	0.15000	ug/L	1.8	85.2	30	60 - 130	
TCMX (Surrogate)	MS	2110770-78	ND	0.20588	0.30000	ug/L		68.6		60 - 130	
	MSD	2110770-78	ND	0.21065	0.30000	ug/L	2.3	70.2		60 - 130	
Decachlorobiphenyl (Surrogate)	MS	2110770-78	ND	0.44645	0.60000	ug/L		74.4		60 - 130	
	MSD	2110770-78	ND	0.48467	0.60000	ug/L	8.2	80.8		60 - 130	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis (EPA Method 515.1)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B107516						
Bentazon	B107516-BLK1	ND	ug/L	0.80	0.22	
2,4-D	B107516-BLK1	ND	ug/L	0.40	0.18	
2,4-DB	B107516-BLK1	ND	ug/L	3.0	0.37	
Dalapon	B107516-BLK1	ND	ug/L	5.0	0.31	
Dicamba	B107516-BLK1	ND	ug/L	0.080	0.040	
Dichloroprop	B107516-BLK1	ND	ug/L	0.50	0.11	
Dinoseb	B107516-BLK1	ND	ug/L	0.20	0.057	
MCPA	B107516-BLK1	ND	ug/L	10	6.0	
MCPP	B107516-BLK1	ND	ug/L	10	6.0	
2,4,5-T	B107516-BLK1	ND	ug/L	0.090	0.012	
2,4,5-TP (Silvex)	B107516-BLK1	ND	ug/L	0.070	0.032	
2,4-Dichlorophenylacetic acid (Surrogate)	**B107516-BLK1**	**92.5**	%	**40 - 120 (LCL - UCL)**		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis (EPA Method 515.1)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B107516										
2,4-D	B107516-BS1	LCS	2.0200	2.4000	ug/L	84.2		50 - 120		
2,4-DB	B107516-BS1	LCS	5.8000	5.4000	ug/L	107		50 - 120		
Dicamba	B107516-BS1	LCS	0.52000	0.60000	ug/L	86.7		50 - 120		
Dichloroprop	B107516-BS1	LCS	2.0600	2.4000	ug/L	85.8		50 - 120		
Dinoseb	B107516-BS1	LCS	0.62000	1.2000	ug/L	51.7		50 - 120		
2,4,5-T	B107516-BS1	LCS	0.61000	0.60000	ug/L	102		40 - 120		
2,4,5-TP (Silvex)	B107516-BS1	LCS	0.55000	0.60000	ug/L	91.7		50 - 120		
2,4-Dichlorophenylacetic acid (Surrogate)	B107516-BS1	LCS	3.6200	4.0000	ug/L	90.5		40 - 120		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis (EPA Method 515.1)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B107516	Used client sample: N										
2,4-D	MS	2110770-71	ND	2.0300	2.4000	ug/L		84.6		40 - 120	
	MSD	2110770-71	ND	2.1400	2.4000	ug/L	5.3	89.2	30	40 - 120	
2,4-DB	MS	2110770-71	ND	5.9100	5.4000	ug/L		109		50 - 120	
	MSD	2110770-71	ND	6.4800	5.4000	ug/L	9.2	120	30	50 - 120	
Dicamba	MS	2110770-71	ND	0.53000	0.60000	ug/L		88.3		50 - 120	
	MSD	2110770-71	ND	0.54000	0.60000	ug/L	1.9	90.0	30	50 - 120	
Dichloroprop	MS	2110770-71	ND	2.0400	2.4000	ug/L		85.0		40 - 120	
	MSD	2110770-71	ND	2.1200	2.4000	ug/L	3.8	88.3	30	40 - 120	
Dinoseb	MS	2110770-71	ND	0.64000	1.2000	ug/L		53.3		40 - 130	
	MSD	2110770-71	ND	0.65000	1.2000	ug/L	1.6	54.2	30	40 - 130	
2,4,5-T	MS	2110770-71	ND	0.64000	0.60000	ug/L		107		40 - 120	
	MSD	2110770-71	ND	0.65000	0.60000	ug/L	1.6	108	30	40 - 120	
2,4,5-TP (Silvex)	MS	2110770-71	ND	0.54000	0.60000	ug/L		90.0		40 - 120	
	MSD	2110770-71	ND	0.56000	0.60000	ug/L	3.6	93.3	30	40 - 120	
2,4-Dichlorophenylacetic acid (Surrogate	MS	2110770-71	ND	3.7500	4.0000	ug/L		93.8		40 - 120	
	MSD	2110770-71	ND	3.8000	4.0000	ug/L	1.3	95.0		40 - 120	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B107391						
Benzene	B107391-BLK1	ND	ug/L	0.50	0.11	
Bromobenzene	B107391-BLK1	ND	ug/L	0.50	0.15	
Bromochloromethane	B107391-BLK1	ND	ug/L	0.50	0.27	
Bromodichloromethane	B107391-BLK1	ND	ug/L	0.50	0.20	
Bromoform	B107391-BLK1	ND	ug/L	0.50	0.46	
Bromomethane	B107391-BLK1	ND	ug/L	0.50	0.20	
n-Butylbenzene	B107391-BLK1	ND	ug/L	0.50	0.15	
sec-Butylbenzene	B107391-BLK1	ND	ug/L	0.50	0.13	
tert-Butylbenzene	B107391-BLK1	ND	ug/L	0.50	0.18	
Carbon tetrachloride	B107391-BLK1	ND	ug/L	0.50	0.17	
Chlorobenzene	B107391-BLK1	ND	ug/L	0.50	0.14	
Chloroethane	B107391-BLK1	ND	ug/L	0.50	0.17	
Chloroform	B107391-BLK1	ND	ug/L	0.50	0.14	
Chloromethane	B107391-BLK1	ND	ug/L	0.50	0.11	
2-Chlorotoluene	B107391-BLK1	ND	ug/L	0.50	0.14	
4-Chlorotoluene	B107391-BLK1	ND	ug/L	0.50	0.093	
Dibromochloromethane	B107391-BLK1	ND	ug/L	0.50	0.22	
1,2-Dibromo-3-chloropropane	B107391-BLK1	ND	ug/L	1.0	0.89	
1,2-Dibromoethane	B107391-BLK1	ND	ug/L	0.50	0.22	
Dibromomethane	B107391-BLK1	ND	ug/L	0.50	0.23	
1,2-Dichlorobenzene	B107391-BLK1	ND	ug/L	0.50	0.21	
1,3-Dichlorobenzene	B107391-BLK1	ND	ug/L	0.50	0.16	
1,4-Dichlorobenzene	B107391-BLK1	ND	ug/L	0.50	0.15	
Dichlorodifluoromethane	B107391-BLK1	ND	ug/L	0.50	0.15	
1,1-Dichloroethane	B107391-BLK1	ND	ug/L	0.50	0.15	
1,2-Dichloroethane	B107391-BLK1	ND	ug/L	0.50	0.17	
1,1-Dichloroethene	B107391-BLK1	ND	ug/L	0.50	0.27	
cis-1,2-Dichloroethene	B107391-BLK1	ND	ug/L	0.50	0.27	
trans-1,2-Dichloroethene	B107391-BLK1	ND	ug/L	0.50	0.17	
1,2-Dichloropropane	B107391-BLK1	ND	ug/L	0.50	0.15	
1,3-Dichloropropane	B107391-BLK1	ND	ug/L	0.50	0.13	
2,2-Dichloropropane	B107391-BLK1	ND	ug/L	0.50	0.18	
1,1-Dichloropropene	B107391-BLK1	ND	ug/L	0.50	0.19	
cis-1,3-Dichloropropene	B107391-BLK1	ND	ug/L	0.50	0.14	

City of Morro Bay	Reported:	06/18/2021 15:01
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Method Blank Analysis

QC Batch ID: B107391

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
trans-1,3-Dichloropropene	B107391-BLK1	ND	ug/L	0.50	0.13	
Total 1,3-Dichloropropene	B107391-BLK1	ND	ug/L	0.50	0.27	
Ethylbenzene	B107391-BLK1	ND	ug/L	0.50	0.15	
Hexachlorobutadiene	B107391-BLK1	ND	ug/L	0.50	0.20	
Isopropylbenzene	B107391-BLK1	ND	ug/L	0.50	0.14	
p-Isopropyltoluene	B107391-BLK1	ND	ug/L	0.50	0.14	
Methylene chloride	B107391-BLK1	ND	ug/L	0.50	0.21	
Methyl t-butyl ether	B107391-BLK1	ND	ug/L	0.50	0.14	
Naphthalene	B107391-BLK1	ND	ug/L	0.50	0.16	
n-Propylbenzene	B107391-BLK1	ND	ug/L	0.50	0.12	
Styrene	B107391-BLK1	ND	ug/L	0.50	0.12	
1,1,1,2-Tetrachloroethane	B107391-BLK1	ND	ug/L	0.50	0.21	
1,1,2,2-Tetrachloroethane	B107391-BLK1	ND	ug/L	0.50	0.17	
Tetrachloroethene	B107391-BLK1	ND	ug/L	0.50	0.23	
Toluene	B107391-BLK1	ND	ug/L	0.50	0.17	
1,2,3-Trichlorobenzene	B107391-BLK1	ND	ug/L	0.50	0.19	
1,2,4-Trichlorobenzene	B107391-BLK1	ND	ug/L	0.50	0.15	
1,1,1-Trichloroethane	B107391-BLK1	ND	ug/L	0.50	0.21	
1,1,2-Trichloroethane	B107391-BLK1	ND	ug/L	0.50	0.21	
Trichloroethene	B107391-BLK1	ND	ug/L	0.50	0.19	
Trichlorofluoromethane	B107391-BLK1	ND	ug/L	0.50	0.14	
1,2,3-Trichloropropane	B107391-BLK1	ND	ug/L	1.0	0.78	
1,1,2-Trichloro-1,2,2-trifluoroethane	B107391-BLK1	ND	ug/L	0.50	0.19	
1,2,4-Trimethylbenzene	B107391-BLK1	ND	ug/L	0.50	0.17	
1,3,5-Trimethylbenzene	B107391-BLK1	ND	ug/L	0.50	0.14	
Vinyl chloride	B107391-BLK1	ND	ug/L	0.50	0.18	
Total Xylenes	B107391-BLK1	ND	ug/L	0.50	0.47	
Total Trihalomethanes	B107391-BLK1	ND	ug/L	2.0	0.97	
t-Amyl Methyl ether	B107391-BLK1	ND	ug/L	0.50	0.19	
t-Butyl alcohol	B107391-BLK1	ND	ug/L	10	9.4	
Diisopropyl ether	B107391-BLK1	ND	ug/L	0.50	0.36	
Ethyl t-butyl ether	B107391-BLK1	ND	ug/L	0.50	0.32	
p- & m-Xylenes	B107391-BLK1	ND	ug/L	0.50	0.34	
o-Xylene	B107391-BLK1	ND	ug/L	0.50	0.13	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B107391						
1,2-Dichloroethane-d4 (Surrogate)	**B107391-BLK1**	**108**	%	**75 - 125 (LCL - UCL)**		
Toluene-d8 (Surrogate)	**B107391-BLK1**	**101**	%	**80 - 120 (LCL - UCL)**		
4-Bromofluorobenzene (Surrogate)	**B107391-BLK1**	**96.6**	%	**80 - 120 (LCL - UCL)**		
QC Batch ID: B107392						
Benzene	B107392-BLK1	ND	ug/L	0.50	0.11	
Bromobenzene	B107392-BLK1	ND	ug/L	0.50	0.15	
Bromochloromethane	B107392-BLK1	ND	ug/L	0.50	0.27	
Bromodichloromethane	B107392-BLK1	ND	ug/L	0.50	0.20	
Bromoform	B107392-BLK1	ND	ug/L	0.50	0.46	
Bromomethane	B107392-BLK1	ND	ug/L	0.50	0.20	
n-Butylbenzene	B107392-BLK1	ND	ug/L	0.50	0.15	
sec-Butylbenzene	B107392-BLK1	ND	ug/L	0.50	0.13	
tert-Butylbenzene	B107392-BLK1	ND	ug/L	0.50	0.18	
Carbon tetrachloride	B107392-BLK1	ND	ug/L	0.50	0.17	
Chlorobenzene	B107392-BLK1	ND	ug/L	0.50	0.14	
Chloroethane	B107392-BLK1	ND	ug/L	0.50	0.17	
Chloroform	B107392-BLK1	ND	ug/L	0.50	0.14	
Chloromethane	B107392-BLK1	ND	ug/L	0.50	0.11	
2-Chlorotoluene	B107392-BLK1	ND	ug/L	0.50	0.14	
4-Chlorotoluene	B107392-BLK1	ND	ug/L	0.50	0.093	
Dibromochloromethane	B107392-BLK1	ND	ug/L	0.50	0.22	
1,2-Dibromo-3-chloropropane	B107392-BLK1	ND	ug/L	1.0	0.89	
1,2-Dibromoethane	B107392-BLK1	ND	ug/L	0.50	0.22	
Dibromomethane	B107392-BLK1	ND	ug/L	0.50	0.23	
1,2-Dichlorobenzene	B107392-BLK1	ND	ug/L	0.50	0.21	
1,3-Dichlorobenzene	B107392-BLK1	ND	ug/L	0.50	0.16	
1,4-Dichlorobenzene	B107392-BLK1	ND	ug/L	0.50	0.15	
Dichlorodifluoromethane	B107392-BLK1	ND	ug/L	0.50	0.15	
1,1-Dichloroethane	B107392-BLK1	ND	ug/L	0.50	0.15	
1,2-Dichloroethane	B107392-BLK1	ND	ug/L	0.50	0.17	
1,1-Dichloroethene	B107392-BLK1	ND	ug/L	0.50	0.27	
cis-1,2-Dichloroethene	B107392-BLK1	ND	ug/L	0.50	0.27	
trans-1,2-Dichloroethene	B107392-BLK1	ND	ug/L	0.50	0.17	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B107392						
1,2-Dichloropropane	B107392-BLK1	ND	ug/L	0.50	0.15	
1,3-Dichloropropane	B107392-BLK1	ND	ug/L	0.50	0.13	
2,2-Dichloropropane	B107392-BLK1	ND	ug/L	0.50	0.18	
1,1-Dichloropropene	B107392-BLK1	ND	ug/L	0.50	0.19	
cis-1,3-Dichloropropene	B107392-BLK1	ND	ug/L	0.50	0.14	
trans-1,3-Dichloropropene	B107392-BLK1	ND	ug/L	0.50	0.13	
Total 1,3-Dichloropropene	B107392-BLK1	ND	ug/L	0.50	0.27	
Ethylbenzene	B107392-BLK1	ND	ug/L	0.50	0.15	
Hexachlorobutadiene	B107392-BLK1	ND	ug/L	0.50	0.20	
Isopropylbenzene	B107392-BLK1	ND	ug/L	0.50	0.14	
p-Isopropyltoluene	B107392-BLK1	ND	ug/L	0.50	0.14	
Methylene chloride	B107392-BLK1	ND	ug/L	0.50	0.21	
Methyl t-butyl ether	B107392-BLK1	ND	ug/L	0.50	0.14	
Naphthalene	B107392-BLK1	ND	ug/L	0.50	0.16	
n-Propylbenzene	B107392-BLK1	ND	ug/L	0.50	0.12	
Styrene	B107392-BLK1	ND	ug/L	0.50	0.12	
1,1,1,2-Tetrachloroethane	B107392-BLK1	ND	ug/L	0.50	0.21	
1,1,2,2-Tetrachloroethane	B107392-BLK1	ND	ug/L	0.50	0.17	
Tetrachloroethene	B107392-BLK1	ND	ug/L	0.50	0.23	
Toluene	B107392-BLK1	ND	ug/L	0.50	0.17	
1,2,3-Trichlorobenzene	B107392-BLK1	ND	ug/L	0.50	0.19	
1,2,4-Trichlorobenzene	B107392-BLK1	ND	ug/L	0.50	0.15	
1,1,1-Trichloroethane	B107392-BLK1	ND	ug/L	0.50	0.21	
1,1,2-Trichloroethane	B107392-BLK1	ND	ug/L	0.50	0.21	
Trichloroethene	B107392-BLK1	ND	ug/L	0.50	0.19	
Trichlorofluoromethane	B107392-BLK1	ND	ug/L	0.50	0.14	
1,2,3-Trichloropropane	B107392-BLK1	ND	ug/L	1.0	0.78	
1,1,2-Trichloro-1,2,2-trifluoroethane	B107392-BLK1	ND	ug/L	0.50	0.19	
1,2,4-Trimethylbenzene	B107392-BLK1	ND	ug/L	0.50	0.17	
1,3,5-Trimethylbenzene	B107392-BLK1	ND	ug/L	0.50	0.14	
Vinyl chloride	B107392-BLK1	ND	ug/L	0.50	0.18	
Total Xylenes	B107392-BLK1	ND	ug/L	0.50	0.47	
Total Trihalomethanes	B107392-BLK1	ND	ug/L	2.0	0.97	
t-Amyl Methyl ether	B107392-BLK1	ND	ug/L	0.50	0.19	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B107392						
t-Butyl alcohol	B107392-BLK1	ND	ug/L	10	9.4	
Diisopropyl ether	B107392-BLK1	ND	ug/L	0.50	0.36	
Ethyl t-butyl ether	B107392-BLK1	ND	ug/L	0.50	0.32	
p- & m-Xylenes	B107392-BLK1	ND	ug/L	0.50	0.34	
o-Xylene	B107392-BLK1	ND	ug/L	0.50	0.13	
1,2-Dichloroethane-d4 (Surrogate)	**B107392-BLK1**	**120**	%	**75 - 125 (LCL - UCL)**		
Toluene-d8 (Surrogate)	**B107392-BLK1**	**83.0**	%	**80 - 120 (LCL - UCL)**		
4-Bromofluorobenzene (Surrogate)	**B107392-BLK1**	**85.5**	%	**80 - 120 (LCL - UCL)**		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B107391										
Benzene	B107391-BS1	LCS	27.340	25.000	ug/L	109		70 - 130		
Bromodichloromethane	B107391-BS1	LCS	25.500	25.000	ug/L	102		70 - 130		
Chlorobenzene	B107391-BS1	LCS	25.840	25.000	ug/L	103		70 - 130		
Chloroethane	B107391-BS1	LCS	26.520	25.000	ug/L	106		70 - 130		
1,4-Dichlorobenzene	B107391-BS1	LCS	24.780	25.000	ug/L	99.1		70 - 130		
1,1-Dichloroethane	B107391-BS1	LCS	26.990	25.000	ug/L	108		70 - 130		
1,1-Dichloroethene	B107391-BS1	LCS	28.120	25.000	ug/L	112		70 - 130		
Toluene	B107391-BS1	LCS	26.870	25.000	ug/L	107		70 - 130		
Trichloroethene	B107391-BS1	LCS	27.430	25.000	ug/L	110		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	B107391-BS1	LCS	10.480	10.000	ug/L	105		75 - 125		
Toluene-d8 (Surrogate)	B107391-BS1	LCS	10.180	10.000	ug/L	102		80 - 120		
4-Bromofluorobenzene (Surrogate)	B107391-BS1	LCS	9.9000	10.000	ug/L	99.0		80 - 120		
QC Batch ID: B107392										
Benzene	B107392-BS1	LCS	27.380	25.000	ug/L	110		70 - 130		
Bromodichloromethane	B107392-BS1	LCS	26.390	25.000	ug/L	106		70 - 130		
Chlorobenzene	B107392-BS1	LCS	26.600	25.000	ug/L	106		70 - 130		
Chloroethane	B107392-BS1	LCS	25.120	25.000	ug/L	100		70 - 130		
1,4-Dichlorobenzene	B107392-BS1	LCS	25.840	25.000	ug/L	103		70 - 130		
1,1-Dichloroethane	B107392-BS1	LCS	27.060	25.000	ug/L	108		70 - 130		
1,1-Dichloroethene	B107392-BS1	LCS	26.860	25.000	ug/L	107		70 - 130		
Toluene	B107392-BS1	LCS	26.390	25.000	ug/L	106		70 - 130		
Trichloroethene	B107392-BS1	LCS	26.500	25.000	ug/L	106		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	B107392-BS1	LCS	10.370	10.000	ug/L	104		75 - 125		
Toluene-d8 (Surrogate)	B107392-BS1	LCS	9.9600	10.000	ug/L	99.6		80 - 120		
4-Bromofluorobenzene (Surrogate)	B107392-BS1	LCS	9.8500	10.000	ug/L	98.5		80 - 120		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B107391	Used client sample: N										
Benzene	MS	2110770-61	ND	23.660	25.000	ug/L		94.6		70 - 130	
	MSD	2110770-61	ND	26.760	25.000	ug/L	12.3	107	20	70 - 130	
Bromodichloromethane	MS	2110770-61	ND	22.970	25.000	ug/L		91.9		70 - 130	
	MSD	2110770-61	ND	25.660	25.000	ug/L	11.1	103	20	70 - 130	
Chlorobenzene	MS	2110770-61	ND	24.020	25.000	ug/L		96.1		70 - 130	
	MSD	2110770-61	ND	26.650	25.000	ug/L	10.4	107	20	70 - 130	
Chloroethane	MS	2110770-61	ND	22.040	25.000	ug/L		88.2		70 - 130	
	MSD	2110770-61	ND	25.380	25.000	ug/L	14.1	102	20	70 - 130	
1,4-Dichlorobenzene	MS	2110770-61	ND	23.560	25.000	ug/L		94.2		70 - 130	
	MSD	2110770-61	ND	25.850	25.000	ug/L	9.3	103	20	70 - 130	
1,1-Dichloroethane	MS	2110770-61	ND	22.800	25.000	ug/L		91.2		70 - 130	
	MSD	2110770-61	ND	26.310	25.000	ug/L	14.3	105	20	70 - 130	
1,1-Dichloroethene	MS	2110770-61	ND	23.170	25.000	ug/L		92.7		70 - 130	
	MSD	2110770-61	ND	27.000	25.000	ug/L	15.3	108	20	70 - 130	
Toluene	MS	2110770-61	ND	24.800	25.000	ug/L		99.2		70 - 130	
	MSD	2110770-61	ND	26.560	25.000	ug/L	6.9	106	20	70 - 130	
Trichloroethene	MS	2110770-61	ND	24.010	25.000	ug/L		96.0		70 - 130	
	MSD	2110770-61	ND	26.770	25.000	ug/L	10.9	107	20	70 - 130	
1,2-Dichloroethane-d4 (Surrogate)	MS	2110770-61	ND	9.2100	10.000	ug/L		92.1		75 - 125	
	MSD	2110770-61	ND	9.6900	10.000	ug/L	5.1	96.9		75 - 125	
Toluene-d8 (Surrogate)	MS	2110770-61	ND	10.170	10.000	ug/L		102		80 - 120	
	MSD	2110770-61	ND	10.050	10.000	ug/L	1.2	100		80 - 120	
4-Bromofluorobenzene (Surrogate)	MS	2110770-61	ND	9.7900	10.000	ug/L		97.9		80 - 120	
	MSD	2110770-61	ND	9.8300	10.000	ug/L	0.4	98.3		80 - 120	
QC Batch ID: B107392	Used client sample: N										
Benzene	MS	2110770-62	ND	29.250	25.000	ug/L		117		70 - 130	
	MSD	2110770-62	ND	29.100	25.000	ug/L	0.5	116	20	70 - 130	
Bromodichloromethane	MS	2110770-62	ND	27.120	25.000	ug/L		108		70 - 130	
	MSD	2110770-62	ND	28.450	25.000	ug/L	4.8	114	20	70 - 130	
Chlorobenzene	MS	2110770-62	ND	28.060	25.000	ug/L		112		70 - 130	
	MSD	2110770-62	ND	28.120	25.000	ug/L	0.2	112	20	70 - 130	
Chloroethane	MS	2110770-62	ND	26.300	25.000	ug/L		105		70 - 130	
	MSD	2110770-62	ND	26.670	25.000	ug/L	1.4	107	20	70 - 130	
1,4-Dichlorobenzene	MS	2110770-62	ND	26.930	25.000	ug/L		108		70 - 130	
	MSD	2110770-62	ND	27.380	25.000	ug/L	1.7	110	20	70 - 130	
1,1-Dichloroethane	MS	2110770-62	ND	28.020	25.000	ug/L		112		70 - 130	
	MSD	2110770-62	ND	28.430	25.000	ug/L	1.5	114	20	70 - 130	

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B107392	Used client sample: N										
1,1-Dichloroethene	MS	2110770-62	ND	28.020	25.000	ug/L		112		70 - 130	
	MSD	2110770-62	ND	28.570	25.000	ug/L	1.9	114	20	70 - 130	
Toluene	MS	2110770-62	ND	28.360	25.000	ug/L		113		70 - 130	
	MSD	2110770-62	ND	28.710	25.000	ug/L	1.2	115	20	70 - 130	
Trichloroethene	MS	2110770-62	ND	28.310	25.000	ug/L		113		70 - 130	
	MSD	2110770-62	ND	29.650	25.000	ug/L	4.6	119	20	70 - 130	
1,2-Dichloroethane-d4 (Surrogate)	MS	2110770-62	ND	9.6800	10.000	ug/L		96.8		75 - 125	
	MSD	2110770-62	ND	9.8500	10.000	ug/L	1.7	98.5		75 - 125	
Toluene-d8 (Surrogate)	MS	2110770-62	ND	10.090	10.000	ug/L		101		80 - 120	
	MSD	2110770-62	ND	9.9100	10.000	ug/L	1.8	99.1		80 - 120	
4-Bromofluorobenzene (Surrogate)	MS	2110770-62	ND	9.5400	10.000	ug/L		95.4		80 - 120	
	MSD	2110770-62	ND	9.5400	10.000	ug/L	0	95.4		80 - 120	

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B108237						
1,2,3-Trichloropropane	B108237-BLK1	ND	ug/L	0.0050	0.0010	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B108237										
1,2,3-Trichloropropane	B108237-BS1	LCS	0.055030	0.050000	ug/L	110		80 - 120		

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B108237	Used client sample: N										
1,2,3-Trichloropropane	MS	2113656-01	ND	0.055760	0.050000	ug/L		112		70 - 130	
	MSD	2113656-01	ND	0.045800	0.050000	ug/L	19.6	91.6	30	70 - 130	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

Quality Control Report - Method Blank Analysis

QC Batch ID: B107695

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Acenaphthylene	B107695-BLK1	ND	ug/L	0.10	0.031	
Alachlor	B107695-BLK1	ND	ug/L	0.20	0.090	
Anthracene	B107695-BLK1	ND	ug/L	0.10	0.034	
Atraton	B107695-BLK1	ND	ug/L	0.50	0.057	
Atrazine	B107695-BLK1	ND	ug/L	0.30	0.14	
Benzo[a]anthracene	B107695-BLK1	ND	ug/L	0.20	0.044	
Benzo[b]fluoranthene	B107695-BLK1	ND	ug/L	0.30	0.034	
Benzo[k]fluoranthene	B107695-BLK1	ND	ug/L	0.30	0.072	
Benzo[a]pyrene	B107695-BLK1	ND	ug/L	0.10	0.050	
Benzo[g,h,i]perylene	B107695-BLK1	ND	ug/L	0.30	0.065	
Benzyl butyl phthalate	B107695-BLK1	ND	ug/L	4.0	0.047	
delta-BHC	B107695-BLK1	ND	ug/L	0.20	0.048	
gamma-BHC (Lindane)	B107695-BLK1	ND	ug/L	0.20	0.063	
bis(2-Ethylhexyl)phthalate	B107695-BLK1	ND	ug/L	3.0	0.030	
Bromacil	B107695-BLK1	ND	ug/L	0.50	0.043	
Chrysene	B107695-BLK1	ND	ug/L	0.30	0.060	
Diazinon	B107695-BLK1	ND	ug/L	0.20	0.080	
Dibenzo[a,h]anthracene	B107695-BLK1	ND	ug/L	0.30	0.051	
Di(2-ethylhexyl)adipate	B107695-BLK1	ND	ug/L	1.0	0.025	
Dimethoate	B107695-BLK1	ND	ug/L	2.0	0.050	
Dimethyl phthalate	B107695-BLK1	ND	ug/L	1.0	0.034	
Di-n-butyl phthalate	B107695-BLK1	ND	ug/L	1.0	0.063	
Fluorene	B107695-BLK1	ND	ug/L	0.20	0.029	
Hexachlorobenzene	B107695-BLK1	ND	ug/L	0.20	0.029	
Hexachlorocyclopentadiene	B107695-BLK1	ND	ug/L	1.0	0.12	
Indeno[1,2,3-cd]pyrene	B107695-BLK1	ND	ug/L	0.30	0.032	
Methoxychlor	B107695-BLK1	ND	ug/L	0.30	0.034	
Metolachlor	B107695-BLK1	ND	ug/L	0.50	0.056	
Metribuzin	B107695-BLK1	ND	ug/L	0.50	0.048	
Molinate	B107695-BLK1	ND	ug/L	0.50	0.036	
Phenanthrene	B107695-BLK1	ND	ug/L	0.10	0.020	
Prometon	B107695-BLK1	ND	ug/L	0.50	0.11	
Prometryn	B107695-BLK1	ND	ug/L	0.50	0.045	
Propachlor	B107695-BLK1	ND	ug/L	0.50	0.077	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B107695						
Pyrene	B107695-BLK1	ND	ug/L	0.10	0.040	
Secbumeton	B107695-BLK1	ND	ug/L	0.50	0.079	
Simazine	B107695-BLK1	ND	ug/L	0.30	0.066	
Terbutryn	B107695-BLK1	ND	ug/L	0.50	0.050	
Thiobencarb	B107695-BLK1	ND	ug/L	0.50	0.044	
Perylene-d12 (Surrogate)	**B107695-BLK1**	**144**	%	**60 - 140 (LCL - UCL)**		**S09**
1,3-Dimethyl-2-nitrobenzene (Surrogate)	**B107695-BLK1**	**95.0**	%	**70 - 130 (LCL - UCL)**		
Triphenylphosphate (Surrogate)	**B107695-BLK1**	**128**	%	**70 - 130 (LCL - UCL)**		
Pyrene-d10 (Surrogate)	**B107695-BLK1**	**105**	%	**70 - 130 (LCL - UCL)**		

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B107695										
Acenaphthylene	B107695-BS1	LCS	0.65000	2.0000	ug/L	32.5		60 - 120		L01
Alachlor	B107695-BS1	LCS	1.9000	2.0000	ug/L	95.0		60 - 120		
Atrazine	B107695-BS1	LCS	2.2100	2.0000	ug/L	110		60 - 120		
Benzo[a]pyrene	B107695-BS1	LCS	2.5400	2.0000	ug/L	127		60 - 120		L01
Chrysene	B107695-BS1	LCS	2.7300	2.0000	ug/L	136		60 - 120		L01
Pyrene	B107695-BS1	LCS	2.2200	2.0000	ug/L	111		60 - 120		
Simazine	B107695-BS1	LCS	1.2700	2.0000	ug/L	63.5		60 - 120		
Perylene-d12 (Surrogate)	B107695-BS1	LCS	7.4300	5.0000	ug/L	149		60 - 140		S09
1,3-Dimethyl-2-nitrobenzene (Surrogate)	B107695-BS1	LCS	4.5600	5.0000	ug/L	91.2		70 - 130		
Triphenylphosphate (Surrogate)	B107695-BS1	LCS	6.2100	5.0000	ug/L	124		70 - 130		
Pyrene-d10 (Surrogate)	B107695-BS1	LCS	5.3300	5.0000	ug/L	107		70 - 130		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

Quality Control Report - Precision & Accuracy

QC Batch ID: B107695 Used client sample: N

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
Acenaphthylene	MS	**2110770-70**	**ND**	**0.83000**	**2.0000**	**ug/L**		**41.5**		**50 - 120**	**Q03**
	MSD	**2110770-70**	**ND**	**0.91000**	**2.0000**	**ug/L**	**9.2**	**45.5**	**30**	**50 - 120**	**Q03**
Alachlor	MS	2110770-70	ND	2.1700	2.0000	ug/L		108		50 - 120	
	MSD	2110770-70	ND	2.2500	2.0000	ug/L	3.6	112	30	50 - 120	
Atrazine	MS	**2110770-70**	**ND**	**2.1100**	**2.0000**	**ug/L**		**106**		**50 - 120**	
	MSD	**2110770-70**	**ND**	**2.4300**	**2.0000**	**ug/L**	**14.1**	**122**	**30**	**50 - 120**	**Q03**
Benzo[a]pyrene	MS	**2110770-70**	**ND**	**2.2000**	**2.0000**	**ug/L**		**110**		**50 - 120**	
	MSD	**2110770-70**	**ND**	**2.5800**	**2.0000**	**ug/L**	**15.9**	**129**	**30**	**50 - 120**	**Q03**
Chrysene	MS	**2110770-70**	**ND**	**2.8400**	**2.0000**	**ug/L**		**142**		**50 - 120**	**Q03**
	MSD	**2110770-70**	**ND**	**2.8400**	**2.0000**	**ug/L**	**0**	**142**	**30**	**50 - 120**	**Q03**
Pyrene	MS	2110770-70	ND	2.1400	2.0000	ug/L		107		50 - 120	
	MSD	2110770-70	ND	2.3200	2.0000	ug/L	8.1	116	30	50 - 120	
Simazine	MS	2110770-70	ND	1.2300	2.0000	ug/L		61.5		50 - 120	
	MSD	2110770-70	ND	1.4100	2.0000	ug/L	13.6	70.5	30	50 - 120	
Perylene-d12 (Surrogate)	MS	**2110770-70**	**ND**	**6.3400**	**5.0000**	**ug/L**		**127**		**60 - 140**	
	MSD	**2110770-70**	**ND**	**7.1400**	**5.0000**	**ug/L**	**11.9**	**143**		**60 - 140**	**S09**
1,3-Dimethyl-2-nitrobenzene (Surrogate)	MS	2110770-70	ND	4.8700	5.0000	ug/L		97.4		70 - 130	
	MSD	2110770-70	ND	4.9800	5.0000	ug/L	2.2	99.6		70 - 130	
Triphenylphosphate (Surrogate)	MS	**2110770-70**	**ND**	**6.2700**	**5.0000**	**ug/L**		**125**		**70 - 130**	
	MSD	**2110770-70**	**ND**	**6.8600**	**5.0000**	**ug/L**	**9.0**	**137**		**70 - 130**	**S09**
Pyrene-d10 (Surrogate)	MS	2110770-70	ND	4.9900	5.0000	ug/L		99.8		70 - 130	
	MSD	2110770-70	ND	5.1700	5.0000	ug/L	3.5	103		70 - 130	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Carbamate and Urea Pesticides (EPA Method 531.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B107326						
1-Naphthol	B107326-BLK1	ND	ug/L	5.0	0.86	
Aldicarb	B107326-BLK1	ND	ug/L	3.0	1.2	
Aldicarb sulfone	B107326-BLK1	ND	ug/L	4.0	0.60	
Aldicarb sulfoxide	B107326-BLK1	ND	ug/L	3.0	0.40	
Propoxur	B107326-BLK1	ND	ug/L	5.0	0.36	
Carbaryl	B107326-BLK1	ND	ug/L	5.0	0.47	
Carbofuran	B107326-BLK1	ND	ug/L	5.0	0.67	
3-Hydroxycarbofuran	B107326-BLK1	ND	ug/L	3.0	0.41	
Methiocarb	B107326-BLK1	ND	ug/L	5.0	0.31	
Methomyl	B107326-BLK1	ND	ug/L	2.0	0.92	
Oxamyl	B107326-BLK1	ND	ug/L	5.0	0.79	
BDMC (Surrogate)	**B107326-BLK1**	**91.6**	%	**70 - 130 (LCL - UCL)**		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Carbamate and Urea Pesticides (EPA Method 531.2)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B107326										
1-Naphthol	B107326-BS1	LCS	15.542	25.000	ug/L	62.2		70 - 130		L01
Aldicarb	B107326-BS1	LCS	23.993	25.000	ug/L	96.0		70 - 130		
Aldicarb sulfone	B107326-BS1	LCS	20.076	25.000	ug/L	80.3		70 - 130		
Aldicarb sulfoxide	B107326-BS1	LCS	22.483	25.000	ug/L	89.9		70 - 130		
Propoxur	B107326-BS1	LCS	23.265	25.000	ug/L	93.1		70 - 130		
Carbaryl	B107326-BS1	LCS	23.923	25.000	ug/L	95.7		70 - 130		
Carbofuran	B107326-BS1	LCS	22.293	25.000	ug/L	89.2		70 - 130		
3-Hydroxycarbofuran	B107326-BS1	LCS	24.195	25.000	ug/L	96.8		70 - 130		
Methiocarb	B107326-BS1	LCS	22.818	25.000	ug/L	91.3		70 - 130		
Methomyl	B107326-BS1	LCS	23.612	25.000	ug/L	94.4		70 - 130		
Oxamyl	B107326-BS1	LCS	20.555	25.000	ug/L	82.2		70 - 130		
BDMC (Surrogate)	B107326-BS1	LCS	10.7	10.0	ug/L	107		70 - 130		

City of Morro Bay	Reported:	06/18/2021 15:01
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Carbamate and Urea Pesticides (EPA Method 531.2)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B107326	Used client sample: N										
1-Naphthol	MS	**2112541-01**	**ND**	**15.238**	**25.000**	**ug/L**		**61.0**		**70 - 130**	**Q03**
	MSD	**2112541-01**	**ND**	**15.625**	**25.000**	**ug/L**	**2.5**	**62.5**	**30**	**70 - 130**	**Q03**
Aldicarb	MS	2112541-01	ND	23.308	25.000	ug/L		93.2		70 - 130	
	MSD	2112541-01	ND	23.406	25.000	ug/L	0.4	93.6	30	70 - 130	
Aldicarb sulfone	MS	2112541-01	ND	21.078	25.000	ug/L		84.3		70 - 130	
	MSD	2112541-01	ND	20.343	25.000	ug/L	3.5	81.4	30	70 - 130	
Aldicarb sulfoxide	MS	2112541-01	ND	23.727	25.000	ug/L		94.9		70 - 130	
	MSD	2112541-01	ND	24.440	25.000	ug/L	3.0	97.8	30	70 - 130	
Propoxur	MS	2112541-01	ND	23.518	25.000	ug/L		94.1		70 - 130	
	MSD	2112541-01	ND	23.191	25.000	ug/L	1.4	92.8	30	70 - 130	
Carbaryl	MS	2112541-01	ND	23.553	25.000	ug/L		94.2		70 - 130	
	MSD	2112541-01	ND	24.247	25.000	ug/L	2.9	97.0	30	70 - 130	
Carbofuran	MS	2112541-01	ND	23.512	25.000	ug/L		94.0		70 - 130	
	MSD	2112541-01	ND	23.243	25.000	ug/L	1.2	93.0	30	70 - 130	
3-Hydroxycarbofuran	MS	2112541-01	ND	24.477	25.000	ug/L		97.9		70 - 130	
	MSD	2112541-01	ND	24.222	25.000	ug/L	1.0	96.9	30	70 - 130	
Methiocarb	MS	2112541-01	ND	22.565	25.000	ug/L		90.3		70 - 130	
	MSD	2112541-01	ND	23.268	25.000	ug/L	3.1	93.1	30	70 - 130	
Methomyl	MS	2112541-01	ND	24.506	25.000	ug/L		98.0		70 - 130	
	MSD	2112541-01	ND	24.806	25.000	ug/L	1.2	99.2	30	70 - 130	
Oxamyl	MS	2112541-01	ND	21.713	25.000	ug/L		86.9		70 - 130	
	MSD	2112541-01	ND	21.380	25.000	ug/L	1.5	85.5	30	70 - 130	
BDMC (Surrogate)	MS	2112541-01	ND	9.76	10.0	ug/L		97.6		70 - 130	
	MSD	2112541-01	ND	9.30	10.0	ug/L	4.9	93.0		70 - 130	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** Project: Project Number: Project Manager:	06/18/2021 15:01 Morro Bay Wells [none] John Gunderlock

Glyphosate Analysis (EPA Method 547)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B107318						
Glyphosate	B107318-BLK1	ND	ug/L	25	3.5	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Glyphosate Analysis (EPA Method 547)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B107318										
Glyphosate	B107318-BS1	LCS	268.84	250.00	ug/L	108		70 - 130		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Glyphosate Analysis (EPA Method 547)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B107318	Used client sample: N										
Glyphosate	MS	2112806-01	ND	278.95	250.00	ug/L		112		70 - 130	
	MSD	2112806-01	ND	264.09	250.00	ug/L	5.5	106	30	70 - 130	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B107921						
Endothal	B107921-BLK1	ND	ug/L	2.0	0.53	

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

Quality Control Report - Laboratory Control Sample

								Control Limits		
Constituent	**QC Sample ID**	**Type**	**Result**	**Spike Level**	**Units**	**Percent Recovery**	**RPD**	**Percent Recovery**	**RPD**	**Lab Quals**
QC Batch ID: B107921										
Endothal	B107921-BS1	LCS	86.200	100.00	ug/L	86.2		70 - 130		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B107921	Used client sample: N										
Endothal	MS	2110770-66	ND	87.910	100.00	ug/L		87.9		70 - 130	
	MSD	2110770-66	ND	89.960	100.00	ug/L	2.3	90.0	30	70 - 130	

City of Morro Bay	**Reported:**	06/18/2021 15:01
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B108031						
Diquat	B108031-BLK1	ND	ug/L	4.0	1.3	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

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Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B108031										
Diquat	B108031-BS1	LCS	74.240	80.000	ug/L	92.8		70 - 130		

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B108031	Used client sample: N										
Diquat	MS	2110770-72	ND	72.400	80.000	ug/L		90.5		70 - 130	
	MSD	2110770-72	ND	68.560	80.000	ug/L	5.4	85.7	30	70 - 130	

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B107691						
Dibromoacetic acid	B107691-BLK1	ND	ug/L	1.0	0.32	
Dichloroacetic acid	B107691-BLK1	ND	ug/L	1.0	0.29	
Monobromoacetic acid	B107691-BLK1	ND	ug/L	1.0	0.25	
Monochloroacetic acid	B107691-BLK1	ND	ug/L	1.0	0.61	
Trichloroacetic acid	B107691-BLK1	ND	ug/L	1.0	0.36	
Total HAA's (Summation)	B107691-BLK1	ND	ug/L	1.0	1.0	
2,3-Dibromopropionic acid (Surrogate)	**B107691-BLK1**	**99.5**	%	**70 - 130 (LCL - UCL)**		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B107691										
Dibromoacetic acid	B107691-BS1	LCS	15.084	15.000	ug/L	101		70 - 130		
Dichloroacetic acid	B107691-BS1	LCS	14.248	15.000	ug/L	95.0		70 - 130		
Monobromoacetic acid	B107691-BS1	LCS	14.182	15.000	ug/L	94.5		70 - 130		
Monochloroacetic acid	B107691-BS1	LCS	14.601	15.000	ug/L	97.3		70 - 130		
Trichloroacetic acid	B107691-BS1	LCS	12.455	15.000	ug/L	83.0		70 - 130		
2,3-Dibromopropionic acid (Surrogate)	B107691-BS1	LCS	16.3	15.0	ug/L	109		70 - 130		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
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Project Number: [none]
Project Manager: John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Precision & Accuracy

QC Batch ID: B107691 Used client sample: N

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
Dibromoacetic acid	MS	2110770-73	ND	13.141	15.000	ug/L		87.6		70 - 130	
	MSD	2110770-73	ND	13.268	15.000	ug/L	1.0	88.5	30	70 - 130	
Dichloroacetic acid	MS	2110770-73	ND	12.792	15.000	ug/L		85.3		70 - 130	
	MSD	2110770-73	ND	12.650	15.000	ug/L	1.1	84.3	30	70 - 130	
Monobromoacetic acid	MS	2110770-73	ND	11.671	15.000	ug/L		77.8		70 - 130	
	MSD	2110770-73	ND	12.228	15.000	ug/L	4.7	81.5	30	70 - 130	
Monochloroacetic acid	MS	2110770-73	ND	11.634	15.000	ug/L		77.6		70 - 130	
	MSD	2110770-73	ND	12.599	15.000	ug/L	8.0	84.0	30	70 - 130	
Trichloroacetic acid	MS	2110770-73	ND	11.831	15.000	ug/L		78.9		70 - 130	
	MSD	2110770-73	ND	11.942	15.000	ug/L	0.9	79.6	30	70 - 130	
2,3-Dibromopropionic acid (Surrogate)	MS	2110770-73	ND	14.5	15.0	ug/L		96.5		70 - 130	
	MSD	2110770-73	ND	15.6	15.0	ug/L	7.7	104		70 - 130	

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B107693						
Formaldehyde	B107693-BLK1	ND	ug/L	5.0	0.70	
2',4',5'-Trifluoroacetophenone (Surrogate)	**B107693-BLK1**	**89.0**	%	**30 - 150 (LCL - UCL)**		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B107693										
Formaldehyde	B107693-BS1	LCS	18.782	20.000	ug/L	93.9		60 - 150		
2',4',5'-Trifluoroacetophenone (Surrogate)	B107693-BS1	LCS	18.0	20.0	ug/L	90.0		30 - 150		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B107693	Used client sample: N										
Formaldehyde	MS	2110770-71	ND	18.481	20.000	ug/L		92.4		50 - 150	
	MSD	2110770-71	ND	20.011	20.000	ug/L	7.9	100	30	50 - 150	
2',4',5'-Trifluoroacetophenone (Surrogate	MS	2110770-71	ND	16.7	20.0	ug/L		83.7		30 - 150	
	MSD	2110770-71	ND	19.5	20.0	ug/L	15.2	97.4		30 - 150	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B107391						
Benzene	B107391-BLK1	ND	ug/L	0.50	0.083	
Bromodichloromethane	B107391-BLK1	ND	ug/L	0.50	0.14	
Chlorobenzene	B107391-BLK1	ND	ug/L	0.50	0.093	
Chloroethane	B107391-BLK1	ND	ug/L	0.50	0.14	
1,4-Dichlorobenzene	B107391-BLK1	ND	ug/L	0.50	0.062	
1,1-Dichloroethane	B107391-BLK1	ND	ug/L	0.50	0.11	
1,1-Dichloroethene	B107391-BLK1	ND	ug/L	0.50	0.18	
Toluene	B107391-BLK1	ND	ug/L	0.50	0.093	
Trichloroethene	B107391-BLK1	ND	ug/L	0.50	0.085	
Acrolein	B107391-BLK1	ND	ug/L	10	7.9	
Acrylonitrile	B107391-BLK1	ND	ug/L	5.0	1.2	
2-Chloroethyl vinyl ether	B107391-BLK1	ND	ug/L	10	2.4	
1,2-Dichloroethane-d4 (Surrogate)	**B107391-BLK1**	**108**	%	**75 - 125 (LCL - UCL)**		
Toluene-d8 (Surrogate)	**B107391-BLK1**	**101**	%	**80 - 120 (LCL - UCL)**		
4-Bromofluorobenzene (Surrogate)	**B107391-BLK1**	**96.6**	%	**80 - 120 (LCL - UCL)**		
QC Batch ID: B107392						
Benzene	B107392-BLK1	ND	ug/L	0.50	0.083	
Bromodichloromethane	B107392-BLK1	ND	ug/L	0.50	0.14	
Chlorobenzene	B107392-BLK1	ND	ug/L	0.50	0.093	
Chloroethane	B107392-BLK1	ND	ug/L	0.50	0.14	
1,4-Dichlorobenzene	B107392-BLK1	ND	ug/L	0.50	0.062	
1,1-Dichloroethane	B107392-BLK1	ND	ug/L	0.50	0.11	
1,1-Dichloroethene	B107392-BLK1	ND	ug/L	0.50	0.18	
Toluene	B107392-BLK1	ND	ug/L	0.50	0.093	
Trichloroethene	B107392-BLK1	ND	ug/L	0.50	0.085	
Acrolein	B107392-BLK1	ND	ug/L	10	7.9	
Acrylonitrile	B107392-BLK1	ND	ug/L	5.0	1.2	
2-Chloroethyl vinyl ether	B107392-BLK1	ND	ug/L	10	2.4	
1,2-Dichloroethane-d4 (Surrogate)	**B107392-BLK1**	**120**	%	**75 - 125 (LCL - UCL)**		
Toluene-d8 (Surrogate)	**B107392-BLK1**	**83.0**	%	**80 - 120 (LCL - UCL)**		
4-Bromofluorobenzene (Surrogate)	**B107392-BLK1**	**85.5**	%	**80 - 120 (LCL - UCL)**		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B107391										
Benzene	B107391-BS1	LCS	27.340	25.000	ug/L	109		70 - 130		
Bromodichloromethane	B107391-BS1	LCS	25.500	25.000	ug/L	102		70 - 130		
Chlorobenzene	B107391-BS1	LCS	25.840	25.000	ug/L	103		70 - 130		
Chloroethane	B107391-BS1	LCS	26.520	25.000	ug/L	106		70 - 130		
1,4-Dichlorobenzene	B107391-BS1	LCS	24.780	25.000	ug/L	99.1		70 - 130		
1,1-Dichloroethane	B107391-BS1	LCS	26.990	25.000	ug/L	108		70 - 130		
1,1-Dichloroethene	B107391-BS1	LCS	28.120	25.000	ug/L	112		70 - 130		
Toluene	B107391-BS1	LCS	26.870	25.000	ug/L	107		70 - 130		
Trichloroethene	B107391-BS1	LCS	27.430	25.000	ug/L	110		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	B107391-BS1	LCS	10.480	10.000	ug/L	105		75 - 125		
Toluene-d8 (Surrogate)	B107391-BS1	LCS	10.180	10.000	ug/L	102		80 - 120		
4-Bromofluorobenzene (Surrogate)	B107391-BS1	LCS	9.9000	10.000	ug/L	99.0		80 - 120		
QC Batch ID: B107392										
Benzene	B107392-BS1	LCS	27.380	25.000	ug/L	110		70 - 130		
Bromodichloromethane	B107392-BS1	LCS	26.390	25.000	ug/L	106		70 - 130		
Chlorobenzene	B107392-BS1	LCS	26.600	25.000	ug/L	106		70 - 130		
Chloroethane	B107392-BS1	LCS	25.120	25.000	ug/L	100		70 - 130		
1,4-Dichlorobenzene	B107392-BS1	LCS	25.840	25.000	ug/L	103		70 - 130		
1,1-Dichloroethane	B107392-BS1	LCS	27.060	25.000	ug/L	108		70 - 130		
1,1-Dichloroethene	B107392-BS1	LCS	26.860	25.000	ug/L	107		70 - 130		
Toluene	B107392-BS1	LCS	26.390	25.000	ug/L	106		70 - 130		
Trichloroethene	B107392-BS1	LCS	26.500	25.000	ug/L	106		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	B107392-BS1	LCS	10.370	10.000	ug/L	104		75 - 125		
Toluene-d8 (Surrogate)	B107392-BS1	LCS	9.9600	10.000	ug/L	99.6		80 - 120		
4-Bromofluorobenzene (Surrogate)	B107392-BS1	LCS	9.8500	10.000	ug/L	98.5		80 - 120		

City of Morro Bay	**Reported:**	06/18/2021 15:01
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B107391	Used client sample: N										
Benzene	MS	2110770-61	ND	23.660	25.000	ug/L		94.6		70 - 130	
	MSD	2110770-61	ND	26.760	25.000	ug/L	12.3	107	20	70 - 130	
Bromodichloromethane	MS	2110770-61	ND	22.970	25.000	ug/L		91.9		70 - 130	
	MSD	2110770-61	ND	25.660	25.000	ug/L	11.1	103	20	70 - 130	
Chlorobenzene	MS	2110770-61	ND	24.020	25.000	ug/L		96.1		70 - 130	
	MSD	2110770-61	ND	26.650	25.000	ug/L	10.4	107	20	70 - 130	
Chloroethane	MS	2110770-61	ND	22.040	25.000	ug/L		88.2		70 - 130	
	MSD	2110770-61	ND	25.380	25.000	ug/L	14.1	102	20	70 - 130	
1,4-Dichlorobenzene	MS	2110770-61	ND	23.560	25.000	ug/L		94.2		70 - 130	
	MSD	2110770-61	ND	25.850	25.000	ug/L	9.3	103	20	70 - 130	
1,1-Dichloroethane	MS	2110770-61	ND	22.800	25.000	ug/L		91.2		70 - 130	
	MSD	2110770-61	ND	26.310	25.000	ug/L	14.3	105	20	70 - 130	
1,1-Dichloroethene	MS	2110770-61	ND	23.170	25.000	ug/L		92.7		70 - 130	
	MSD	2110770-61	ND	27.000	25.000	ug/L	15.3	108	20	70 - 130	
Toluene	MS	2110770-61	ND	24.800	25.000	ug/L		99.2		70 - 130	
	MSD	2110770-61	ND	26.560	25.000	ug/L	6.9	106	20	70 - 130	
Trichloroethene	MS	2110770-61	ND	24.010	25.000	ug/L		96.0		70 - 130	
	MSD	2110770-61	ND	26.770	25.000	ug/L	10.9	107	20	70 - 130	
1,2-Dichloroethane-d4 (Surrogate)	MS	2110770-61	ND	9.2100	10.000	ug/L		92.1		75 - 125	
	MSD	2110770-61	ND	9.6900	10.000	ug/L	5.1	96.9		75 - 125	
Toluene-d8 (Surrogate)	MS	2110770-61	ND	10.170	10.000	ug/L		102		80 - 120	
	MSD	2110770-61	ND	10.050	10.000	ug/L	1.2	100		80 - 120	
4-Bromofluorobenzene (Surrogate)	MS	2110770-61	ND	9.7900	10.000	ug/L		97.9		80 - 120	
	MSD	2110770-61	ND	9.8300	10.000	ug/L	0.4	98.3		80 - 120	
QC Batch ID: B107392	Used client sample: N										
Benzene	MS	2110770-62	ND	29.250	25.000	ug/L		117		70 - 130	
	MSD	2110770-62	ND	29.100	25.000	ug/L	0.5	116	20	70 - 130	
Bromodichloromethane	MS	2110770-62	ND	27.120	25.000	ug/L		108		70 - 130	
	MSD	2110770-62	ND	28.450	25.000	ug/L	4.8	114	20	70 - 130	
Chlorobenzene	MS	2110770-62	ND	28.060	25.000	ug/L		112		70 - 130	
	MSD	2110770-62	ND	28.120	25.000	ug/L	0.2	112	20	70 - 130	
Chloroethane	MS	2110770-62	ND	26.300	25.000	ug/L		105		70 - 130	
	MSD	2110770-62	ND	26.670	25.000	ug/L	1.4	107	20	70 - 130	
1,4-Dichlorobenzene	MS	2110770-62	ND	26.930	25.000	ug/L		108		70 - 130	
	MSD	2110770-62	ND	27.380	25.000	ug/L	1.7	110	20	70 - 130	
1,1-Dichloroethane	MS	2110770-62	ND	28.020	25.000	ug/L		112		70 - 130	
	MSD	2110770-62	ND	28.430	25.000	ug/L	1.5	114	20	70 - 130	

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Precision & Accuracy

QC Batch ID: B107392 Used client sample: N

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
1,1-Dichloroethene	MS	2110770-62	ND	28.020	25.000	ug/L		112		70 - 130	
	MSD	2110770-62	ND	28.570	25.000	ug/L	1.9	114	20	70 - 130	
Toluene	MS	2110770-62	ND	28.360	25.000	ug/L		113		70 - 130	
	MSD	2110770-62	ND	28.710	25.000	ug/L	1.2	115	20	70 - 130	
Trichloroethene	MS	2110770-62	ND	28.310	25.000	ug/L		113		70 - 130	
	MSD	2110770-62	ND	29.650	25.000	ug/L	4.6	119	20	70 - 130	
1,2-Dichloroethane-d4 (Surrogate)	MS	2110770-62	ND	9.6800	10.000	ug/L		96.8		75 - 125	
	MSD	2110770-62	ND	9.8500	10.000	ug/L	1.7	98.5		75 - 125	
Toluene-d8 (Surrogate)	MS	2110770-62	ND	10.090	10.000	ug/L		101		80 - 120	
	MSD	2110770-62	ND	9.9100	10.000	ug/L	1.8	99.1		80 - 120	
4-Bromofluorobenzene (Surrogate)	MS	2110770-62	ND	9.5400	10.000	ug/L		95.4		80 - 120	
	MSD	2110770-62	ND	9.5400	10.000	ug/L	0	95.4		80 - 120	

City of Morro Bay		**Reported:**	06/18/2021 15:01
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Method Blank Analysis

QC Batch ID: B107823

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
Acenaphthene	B107823-BLK1	ND	ug/L	2.0	0.20	
Acenaphthylene	B107823-BLK1	ND	ug/L	2.0	0.20	
Aldrin	B107823-BLK1	ND	ug/L	2.0	0.23	
Aniline	B107823-BLK1	ND	ug/L	5.0	0.28	
Anthracene	B107823-BLK1	ND	ug/L	2.0	0.20	
Benzidine	B107823-BLK1	ND	ug/L	20	1.6	
Benzo[a]anthracene	B107823-BLK1	ND	ug/L	2.0	0.21	
Benzo[b]fluoranthene	B107823-BLK1	ND	ug/L	2.0	0.24	
Benzo[k]fluoranthene	B107823-BLK1	ND	ug/L	2.0	0.30	
Benzo[a]pyrene	B107823-BLK1	ND	ug/L	2.0	0.20	
Benzo[g,h,i]perylene	B107823-BLK1	ND	ug/L	2.0	0.33	
Benzoic acid	B107823-BLK1	ND	ug/L	10	0.52	
Benzyl alcohol	B107823-BLK1	ND	ug/L	2.0	0.20	
Benzyl butyl phthalate	B107823-BLK1	ND	ug/L	2.0	0.20	
alpha-BHC	B107823-BLK1	ND	ug/L	2.0	0.20	
beta-BHC	B107823-BLK1	ND	ug/L	2.0	0.20	
delta-BHC	B107823-BLK1	ND	ug/L	2.0	0.20	
gamma-BHC (Lindane)	B107823-BLK1	ND	ug/L	2.0	0.20	
bis(2-Chloroethoxy)methane	B107823-BLK1	ND	ug/L	2.0	0.20	
bis(2-Chloroethyl) ether	B107823-BLK1	ND	ug/L	2.0	0.31	
bis(2-Chloroisopropyl)ether	B107823-BLK1	ND	ug/L	2.0	0.20	
bis(2-Ethylhexyl)phthalate	B107823-BLK1	ND	ug/L	4.0	0.20	
4-Bromophenyl phenyl ether	B107823-BLK1	ND	ug/L	2.0	0.20	
4-Chloroaniline	B107823-BLK1	ND	ug/L	2.0	1.1	
2-Chloronaphthalene	B107823-BLK1	ND	ug/L	2.0	0.20	
4-Chlorophenyl phenyl ether	B107823-BLK1	ND	ug/L	2.0	0.20	
Chrysene	B107823-BLK1	ND	ug/L	2.0	0.20	
4,4'-DDD	B107823-BLK1	ND	ug/L	2.0	0.26	
4,4'-DDE	B107823-BLK1	ND	ug/L	3.0	0.24	
4,4'-DDT	B107823-BLK1	ND	ug/L	2.0	0.22	
Dibenzo[a,h]anthracene	B107823-BLK1	ND	ug/L	3.0	0.34	
Dibenzofuran	B107823-BLK1	ND	ug/L	2.0	0.20	
1,2-Dichlorobenzene	B107823-BLK1	ND	ug/L	2.0	0.20	
1,3-Dichlorobenzene	B107823-BLK1	ND	ug/L	2.0	0.20	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Method Blank Analysis

QC Batch ID: B107823

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
1,4-Dichlorobenzene	B107823-BLK1	ND	ug/L	2.0	0.27	
3,3-Dichlorobenzidine	B107823-BLK1	ND	ug/L	10	0.53	
Dieldrin	B107823-BLK1	ND	ug/L	3.0	0.39	
Diethyl phthalate	B107823-BLK1	ND	ug/L	2.0	0.20	
Dimethyl phthalate	B107823-BLK1	ND	ug/L	2.0	0.20	
Di-n-butyl phthalate	B107823-BLK1	ND	ug/L	2.0	0.20	
2,4-Dinitrotoluene	B107823-BLK1	ND	ug/L	2.0	0.40	
2,6-Dinitrotoluene	B107823-BLK1	ND	ug/L	2.0	0.20	
Di-n-octyl phthalate	B107823-BLK1	ND	ug/L	2.0	0.21	
1,2-Diphenylhydrazine	B107823-BLK1	ND	ug/L	2.0	0.20	
Endosulfan I	B107823-BLK1	ND	ug/L	10	0.31	
Endosulfan II	B107823-BLK1	ND	ug/L	10	0.30	
Endosulfan sulfate	B107823-BLK1	ND	ug/L	3.0	0.23	
Endrin	B107823-BLK1	ND	ug/L	2.0	0.38	
Endrin aldehyde	B107823-BLK1	ND	ug/L	10	0.44	
Fluoranthene	B107823-BLK1	ND	ug/L	2.0	0.28	
Fluorene	B107823-BLK1	ND	ug/L	2.0	0.20	
Heptachlor	B107823-BLK1	ND	ug/L	2.0	0.20	
Heptachlor epoxide	B107823-BLK1	ND	ug/L	2.0	0.26	
Hexachlorobenzene	B107823-BLK1	ND	ug/L	2.0	0.25	
Hexachlorobutadiene	B107823-BLK1	ND	ug/L	2.0	0.20	
Hexachlorocyclopentadiene	B107823-BLK1	ND	ug/L	2.0	0.31	
Hexachloroethane	B107823-BLK1	ND	ug/L	2.0	0.20	
Indeno[1,2,3-cd]pyrene	B107823-BLK1	ND	ug/L	2.0	0.29	
Isophorone	B107823-BLK1	ND	ug/L	2.0	0.20	
2-Methylnaphthalene	B107823-BLK1	ND	ug/L	2.0	0.20	
Naphthalene	B107823-BLK1	ND	ug/L	2.0	0.20	
2-Naphthylamine	B107823-BLK1	ND	ug/L	20	1.3	
2-Nitroaniline	B107823-BLK1	ND	ug/L	2.0	0.20	
3-Nitroaniline	B107823-BLK1	ND	ug/L	2.0	0.22	
4-Nitroaniline	B107823-BLK1	ND	ug/L	5.0	0.38	
Nitrobenzene	B107823-BLK1	ND	ug/L	2.0	0.20	
N-Nitrosodimethylamine	B107823-BLK1	ND	ug/L	2.0	1.2	
N-Nitrosodi-N-propylamine	B107823-BLK1	ND	ug/L	2.0	0.21	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

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Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Method Blank Analysis

QC Batch ID: B107823

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
N-Nitrosodiphenylamine	B107823-BLK1	ND	ug/L	2.0	0.20	
Phenanthrene	B107823-BLK1	ND	ug/L	2.0	0.20	
Pyrene	B107823-BLK1	ND	ug/L	2.0	0.22	
1,2,4-Trichlorobenzene	B107823-BLK1	ND	ug/L	2.0	0.20	
4-Chloro-3-methylphenol	B107823-BLK1	ND	ug/L	5.0	0.20	
2-Chlorophenol	B107823-BLK1	ND	ug/L	2.0	0.20	
2,4-Dichlorophenol	B107823-BLK1	ND	ug/L	2.0	0.23	
2,4-Dimethylphenol	B107823-BLK1	ND	ug/L	2.0	0.20	
4,6-Dinitro-2-methylphenol	B107823-BLK1	ND	ug/L	10	0.24	
2,4-Dinitrophenol	B107823-BLK1	ND	ug/L	10	0.20	
2-Methylphenol	B107823-BLK1	ND	ug/L	2.0	0.20	
3- & 4-Methylphenol	B107823-BLK1	ND	ug/L	2.0	0.40	
2-Nitrophenol	B107823-BLK1	ND	ug/L	2.0	0.20	
4-Nitrophenol	B107823-BLK1	ND	ug/L	2.0	0.30	
Pentachlorophenol	B107823-BLK1	ND	ug/L	10	0.40	
Phenol	B107823-BLK1	ND	ug/L	2.0	0.21	
2,4,5-Trichlorophenol	B107823-BLK1	ND	ug/L	5.0	0.20	
2,4,6-Trichlorophenol	B107823-BLK1	ND	ug/L	5.0	0.20	
2-Fluorophenol (Surrogate)	**B107823-BLK1**	**43.1**	%	**30 - 120 (LCL - UCL)**		
Phenol-d5 (Surrogate)	**B107823-BLK1**	**27.6**	%	**12 - 110 (LCL - UCL)**		
Nitrobenzene-d5 (Surrogate)	**B107823-BLK1**	**77.0**	%	**50 - 130 (LCL - UCL)**		
2-Fluorobiphenyl (Surrogate)	**B107823-BLK1**	**74.4**	%	**55 - 125 (LCL - UCL)**		
2,4,6-Tribromophenol (Surrogate)	**B107823-BLK1**	**72.3**	%	**40 - 150 (LCL - UCL)**		
p-Terphenyl-d14 (Surrogate)	**B107823-BLK1**	**83.8**	%	**40 - 150 (LCL - UCL)**		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

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Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B107823										
Acenaphthene	B107823-BS1	LCS	38.006	50.000	ug/L	76.0		50 - 120		
1,4-Dichlorobenzene	B107823-BS1	LCS	34.086	50.000	ug/L	68.2		50 - 120		
2,4-Dinitrotoluene	B107823-BS1	LCS	44.461	50.000	ug/L	88.9		50 - 120		
Hexachlorobenzene	B107823-BS1	LCS	51.361	50.000	ug/L	103		60 - 120		
Hexachlorobutadiene	B107823-BS1	LCS	28.760	50.000	ug/L	57.5		40 - 110		
Hexachloroethane	B107823-BS1	LCS	29.641	50.000	ug/L	59.3		40 - 120		
Nitrobenzene	B107823-BS1	LCS	48.381	50.000	ug/L	96.8		50 - 120		
N-Nitrosodi-N-propylamine	B107823-BS1	LCS	36.531	50.000	ug/L	73.1		50 - 120		
Pyrene	B107823-BS1	LCS	41.530	50.000	ug/L	83.1		40 - 140		
1,2,4-Trichlorobenzene	B107823-BS1	LCS	40.016	50.000	ug/L	80.0		45 - 120		
4-Chloro-3-methylphenol	B107823-BS1	LCS	32.710	50.000	ug/L	65.4		50 - 120		
2-Chlorophenol	B107823-BS1	LCS	27.374	50.000	ug/L	54.7		50 - 120		
2-Methylphenol	B107823-BS1	LCS	26.938	50.000	ug/L	53.9		40 - 110		
3- & 4-Methylphenol	B107823-BS1	LCS	50.500	100.00	ug/L	50.5		40 - 110		
4-Nitrophenol	B107823-BS1	LCS	10.811	50.000	ug/L	21.6		10 - 110		
Pentachlorophenol	B107823-BS1	LCS	31.769	50.000	ug/L	63.5		30 - 130		
Phenol	B107823-BS1	LCS	12.672	50.000	ug/L	25.3		20 - 110		
2,4,6-Trichlorophenol	B107823-BS1	LCS	36.858	50.000	ug/L	73.7		54 - 120		
2-Fluorophenol (Surrogate)	B107823-BS1	LCS	15.216	40.000	ug/L	38.0		30 - 120		
Phenol-d5 (Surrogate)	B107823-BS1	LCS	10.662	40.000	ug/L	26.7		12 - 110		
Nitrobenzene-d5 (Surrogate)	B107823-BS1	LCS	30.809	40.000	ug/L	77.0		50 - 130		
2-Fluorobiphenyl (Surrogate)	B107823-BS1	LCS	30.433	40.000	ug/L	76.1		55 - 125		
2,4,6-Tribromophenol (Surrogate)	B107823-BS1	LCS	28.047	40.000	ug/L	70.1		40 - 150		
p-Terphenyl-d14 (Surrogate)	B107823-BS1	LCS	17.850	20.000	ug/L	89.2		40 - 150		

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Precision & Accuracy

QC Batch ID: B107823 Used client sample: N

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
Acenaphthene	MS	2110770-61	ND	36.632	50.000	ug/L		73.3		50 - 120	
	MSD	2110770-61	ND	46.037	50.000	ug/L	22.8	92.1	30	50 - 120	
1,4-Dichlorobenzene	MS	2110770-61	ND	32.918	50.000	ug/L		65.8		47 - 120	
	MSD	2110770-61	ND	43.102	50.000	ug/L	26.8	86.2	30	47 - 120	
2,4-Dinitrotoluene	MS	2110770-61	ND	42.669	50.000	ug/L		85.3		50 - 130	
	MSD	2110770-61	ND	56.221	50.000	ug/L	27.4	112	30	50 - 130	
Hexachlorobenzene	MS	**2110770-61**	**ND**	**49.118**	**50.000**	**ug/L**		**98.2**		**50 - 120**	**Q03**
	MSD	**2110770-61**	**ND**	**65.712**	**50.000**	**ug/L**	**28.9**	**131**	**30**	**50 - 120**	**Q03**
Hexachlorobutadiene	MS	2110770-61	ND	27.489	50.000	ug/L		55.0		40 - 110	
	MSD	2110770-61	ND	35.492	50.000	ug/L	25.4	71.0	30	40 - 110	
Hexachloroethane	MS	2110770-61	ND	28.459	50.000	ug/L		56.9		40 - 120	
	MSD	2110770-61	ND	37.060	50.000	ug/L	26.3	74.1	30	40 - 120	
Nitrobenzene	MS	**2110770-61**	**ND**	**47.883**	**50.000**	**ug/L**		**95.8**		**50 - 120**	**Q03**
	MSD	**2110770-61**	**ND**	**62.833**	**50.000**	**ug/L**	**27.0**	**126**	**30**	**50 - 120**	**Q03**
N-Nitrosodi-N-propylamine	MS	2110770-61	ND	36.240	50.000	ug/L		72.5		50 - 120	
	MSD	2110770-61	ND	46.084	50.000	ug/L	23.9	92.2	30	50 - 120	
Pyrene	MS	2110770-61	ND	39.710	50.000	ug/L		79.4		40 - 140	
	MSD	2110770-61	ND	49.296	50.000	ug/L	21.5	98.6	30	40 - 140	
1,2,4-Trichlorobenzene	MS	**2110770-61**	**ND**	**37.965**	**50.000**	**ug/L**		**75.9**		**43 - 120**	
	MSD	**2110770-61**	**ND**	**51.832**	**50.000**	**ug/L**	**30.9**	**104**	**30**	**43 - 120**	**Q02**
4-Chloro-3-methylphenol	MS	**2110770-61**	**ND**	**33.428**	**50.000**	**ug/L**		**66.9**		**50 - 120**	
	MSD	**2110770-61**	**ND**	**48.070**	**50.000**	**ug/L**	**35.9**	**96.1**	**30**	**50 - 120**	**Q02**
2-Chlorophenol	MS	**2110770-61**	**ND**	**28.234**	**50.000**	**ug/L**		**56.5**		**50 - 120**	
	MSD	**2110770-61**	**ND**	**40.422**	**50.000**	**ug/L**	**35.5**	**80.8**	**30**	**50 - 120**	**Q02**
2-Methylphenol	MS	**2110770-61**	**ND**	**26.999**	**50.000**	**ug/L**		**54.0**		**40 - 110**	
	MSD	**2110770-61**	**ND**	**37.620**	**50.000**	**ug/L**	**32.9**	**75.2**	**30**	**40 - 110**	**Q02**
3- & 4-Methylphenol	MS	**2110770-61**	**ND**	**50.568**	**100.00**	**ug/L**		**50.6**		**40 - 110**	
	MSD	**2110770-61**	**ND**	**70.272**	**100.00**	**ug/L**	**32.6**	**70.3**	**30**	**40 - 110**	**Q02**
4-Nitrophenol	MS	2110770-61	ND	11.397	50.000	ug/L		22.8		10 - 110	
	MSD	2110770-61	ND	15.096	50.000	ug/L	27.9	30.2	30	10 - 110	
Pentachlorophenol	MS	2110770-61	ND	32.115	50.000	ug/L		64.2		30 - 120	
	MSD	2110770-61	ND	41.287	50.000	ug/L	25.0	82.6	30	30 - 120	
Phenol	MS	2110770-61	ND	12.603	50.000	ug/L		25.2		20 - 110	
	MSD	2110770-61	ND	17.024	50.000	ug/L	29.8	34.0	30	20 - 110	
2,4,6-Trichlorophenol	MS	**2110770-61**	**ND**	**36.868**	**50.000**	**ug/L**		**73.7**		**50 - 150**	
	MSD	**2110770-61**	**ND**	**52.468**	**50.000**	**ug/L**	**34.9**	**105**	**30**	**50 - 150**	**Q02**

City of Morro Bay	Reported:	06/18/2021 15:01
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Precision & Accuracy

QC Batch ID: B107823 Used client sample: N

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
2-Fluorophenol (Surrogate)	MS	2110770-61	ND	15.278	40.000	ug/L		38.2		30 - 120	
	MSD	2110770-61	ND	20.786	40.000	ug/L	30.5	52.0		30 - 120	
Phenol-d5 (Surrogate)	MS	2110770-61	ND	10.339	40.000	ug/L		25.8		12 - 110	
	MSD	2110770-61	ND	13.822	40.000	ug/L	28.8	34.6		12 - 110	
Nitrobenzene-d5 (Surrogate)	MS	2110770-61	ND	30.106	40.000	ug/L		75.3		50 - 130	
	MSD	2110770-61	ND	37.952	40.000	ug/L	23.1	94.9		50 - 130	
2-Fluorobiphenyl (Surrogate)	MS	2110770-61	ND	29.978	40.000	ug/L		74.9		55 - 125	
	MSD	2110770-61	ND	36.356	40.000	ug/L	19.2	90.9		55 - 125	
2,4,6-Tribromophenol (Surrogate)	MS	2110770-61	ND	27.146	40.000	ug/L		67.9		40 - 150	
	MSD	2110770-61	ND	37.496	40.000	ug/L	32.0	93.7		40 - 150	
p-Terphenyl-d14 (Surrogate)	MS	2110770-61	ND	16.719	20.000	ug/L		83.6		40 - 150	
	MSD	2110770-61	ND	20.273	20.000	ug/L	19.2	101		40 - 150	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Explosive Residues (EPA Method 8330)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B107922						
HMX	B107922-BLK1	ND	ug/L	2.0	0.24	
RDX	B107922-BLK1	ND	ug/L	2.0	0.24	
1,2-Dinitrobenzene (Surrogate)	**B107922-BLK1**	**105**	%	**70 - 130 (LCL - UCL)**		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
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Project Number: [none]
Project Manager: John Gunderlock

Explosive Residues (EPA Method 8330)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B107922										
HMX	B107922-BS1	LCS	14.655	15.000	ug/L	97.7		60 - 120		
RDX	B107922-BS1	LCS	14.820	15.000	ug/L	98.8		50 - 120		
1,2-Dinitrobenzene (Surrogate)	B107922-BS1	LCS	100.84	100.00	ug/L	101		70 - 130		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
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Project Number: [none]
Project Manager: John Gunderlock

Explosive Residues (EPA Method 8330)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B107922	Used client sample: N										
HMX	MS	2110770-77	ND	13.935	15.000	ug/L		92.9		50 - 120	
	MSD	2110770-77	ND	13.625	15.000	ug/L	2.2	90.8	30	50 - 120	
RDX	MS	2110770-77	ND	14.095	15.000	ug/L		94.0		50 - 120	
	MSD	2110770-77	ND	13.850	15.000	ug/L	1.8	92.3	30	50 - 120	
1,2-Dinitrobenzene (Surrogate)	MS	2110770-77	ND	101.34	100.00	ug/L		101		70 - 130	
	MSD	2110770-77	ND	101.78	100.00	ug/L	0.4	102		70 - 130	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
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Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B_D0545						
Trivalent Chromium	B_D0545-BLK1	ND	ug/L	10	5.0	
Nitrate + Nitrite as N	B_D0545-BLK1	ND	mg/L	0.10	0.018	
Total Nitrogen	B_D0545-BLK1	ND	mg/L	0.30	0.10	
QC Batch ID: B107372						
Chloride	**B107372-BLK1**	**0.17200**	**mg/L**	**0.50**	**0.13**	**J**
Fluoride	B107372-BLK1	ND	mg/L	0.050	0.025	
Nitrate as N	B107372-BLK1	ND	mg/L	0.10	0.024	
Sulfate	B107372-BLK1	ND	mg/L	1.0	0.14	
QC Batch ID: B107442						
MBAS	B107442-BLK1	ND	mg/L	0.10	0.024	
QC Batch ID: B107598						
Odor	B107598-BLK1	ND	Odor Units	1.0	1.0	
QC Batch ID: B107603						
Non-Volatile Organic Carbon	B107603-BLK1	ND	mg/L	1.0	0.30	
QC Batch ID: B107768						
Total Dissolved Solids @ 180 C	B107768-BLK1	ND	mg/L	6.7	3.3	
QC Batch ID: B107876						
Total Cyanide	B107876-BLK1	ND	mg/L	0.0050	0.0017	
QC Batch ID: B108067						
Nitrite as N	B108067-BLK1	ND	ug/L	50	10	
QC Batch ID: B108698						
Total Kjeldahl Nitrogen	B108698-BLK1	ND	mg/L	0.20	0.088	
QC Batch ID: B108735						
Perchlorate	B108735-BLK1	ND	mg/L	0.0040	0.00081	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B105313										
Electrical Conductivity @ 25 C	B105313-BS1	LCS	309.90	303.00	umhos/cm	102		90 - 110		
QC Batch ID: B107372										
Chloride	B107372-BS1	LCS	50.585	50.000	mg/L	101		90 - 110		
Fluoride	B107372-BS1	LCS	1.0530	1.0000	mg/L	105		90 - 110		
Nitrate as N	B107372-BS1	LCS	5.0730	5.0000	mg/L	101		90 - 110		
Sulfate	B107372-BS1	LCS	98.974	100.00	mg/L	99.0		90 - 110		
QC Batch ID: B107442										
MBAS	B107442-BS1	LCS	0.19530	0.20000	mg/L	97.6		85 - 115		
QC Batch ID: B107603										
Non-Volatile Organic Carbon	B107603-BS1	LCS	5.2870	5.0000	mg/L	106		85 - 115		
QC Batch ID: B107768										
Total Dissolved Solids @ 180 C	B107768-BS1	LCS	560.00	586.00	mg/L	95.6		90 - 110		
QC Batch ID: B107876										
Total Cyanide	B107876-BS1	LCS	0.14573	0.15000	mg/L	97.2		90 - 110		
QC Batch ID: B108067										
Nitrite as N	B108067-BS1	LCS	496.53	500.00	ug/L	99.3		90 - 110		
QC Batch ID: B108698										
Total Kjeldahl Nitrogen	B108698-BS1	LCS	1.9385	2.0000	mg/L	96.9		90 - 110		
QC Batch ID: B108735										
Perchlorate	B108735-BS1	LCS	0.0088912	0.010000	mg/L	88.9		85 - 115		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B105313	Used client sample: N										
Electrical Conductivity @ 25 C	DUP	2113172-01	984.10	994.10		umhos/cm	1.0		10		
QC Batch ID: B107372	Used client sample: N										
Chloride	DUP	2113253-01	24.848	24.646		mg/L	0.8		10		
	MS	2113253-01	24.848	77.291	50.505	mg/L		104		80 - 120	
	MSD	2113253-01	24.848	77.463	50.505	mg/L	0.2	104	10	80 - 120	
Fluoride	DUP	2113253-01	0.066000	0.068000		mg/L	3.0		10		
	MS	2113253-01	0.066000	1.1384	1.0101	mg/L		106		80 - 120	
	MSD	2113253-01	0.066000	1.1141	1.0101	mg/L	2.2	104	10	80 - 120	
Nitrate as N	DUP	2113253-01	5.6770	5.7000		mg/L	0.4		10		
	MS	2113253-01	5.6770	10.782	5.0505	mg/L		101		80 - 120	
	MSD	2113253-01	5.6770	10.775	5.0505	mg/L	0.1	101	10	80 - 120	
Sulfate	DUP	2113253-01	90.794	90.395		mg/L	0.4		10		
	MS	2113253-01	90.794	196.75	101.01	mg/L		105		80 - 120	
	MSD	2113253-01	90.794	197.24	101.01	mg/L	0.2	105	10	80 - 120	
QC Batch ID: B107442	Used client sample: N										
MBAS	DUP	2113253-01	ND	ND		mg/L			20		
	MS	2113253-01	ND	0.42580	0.40000	mg/L		106		80 - 120	
	MSD	2113253-01	ND	0.40240	0.40000	mg/L	5.7	101	20	80 - 120	
QC Batch ID: B107597	Used client sample: N										
Color	DUP	2113253-01	1.0000	1.0000		Color Units	0		20		
QC Batch ID: B107599	Used client sample: N										
Turbidity	DUP	2113253-01	4.5200	4.5200		NT Units	0		10		
QC Batch ID: B107603	Used client sample: Y - Description: High School Well #2, 04/27/2021 08:45										
Non-Volatile Organic Carbon	DUP	2113280-01	1.2000	1.1960		mg/L	0.3		10		
	MS	2113280-01	1.2000	5.9558	5.0251	mg/L		94.6		80 - 120	
	MSD	2113280-01	1.2000	5.9889	5.0251	mg/L	0.6	95.3	10	80 - 120	
QC Batch ID: B107768	Used client sample: Y - Description: High School Well #2, 04/27/2021 08:45										
Total Dissolved Solids @ 180 C	DUP	2113280-01	2200.0	2260.0		mg/L	2.7		10		
QC Batch ID: B107876	Used client sample: N										
Total Cyanide	DUP	2113523-01	ND	ND		mg/L			10		
	MS	2113523-01	ND	0.098760	0.10000	mg/L		98.8		90 - 110	
	MSD	2113523-01	ND	0.10058	0.10000	mg/L	1.8	101	10	90 - 110	
QC Batch ID: B108067	Used client sample: N										
Nitrite as N	DUP	2113162-01	14.476	14.793		ug/L	2.2		10		J
	MS	2113162-01	14.476	549.43	526.32	ug/L		102		90 - 110	
	MSD	2113162-01	14.476	553.06	526.32	ug/L	0.7	102	10	90 - 110	

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B108698	Used client sample: Y - Description: High School Well #2, 04/27/2021 08:45										
Total Kjeldahl Nitrogen	DUP	2113280-01	0.21180	0.21510		mg/L	1.5		20		
	MS	2113280-01	0.21180	2.3229	2.0000	mg/L		106		90 - 110	
	MSD	2113280-01	0.21180	2.3702	2.0000	mg/L	2.0	108	20	90 - 110	
QC Batch ID: B108735	Used client sample: N										
Perchlorate	DUP	2115202-05	ND	ND		mg/L			15		
	MS	2115202-05	ND	0.010364	0.010101	mg/L		103		80 - 120	
	MSD	2115202-05	ND	0.010069	0.010101	mg/L	2.9	99.7	15	80 - 120	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B107541						
Total Recoverable Aluminum	B107541-BLK1	ND	ug/L	50	26	
Total Recoverable Boron	**B107541-BLK1**	**16.492**	**ug/L**	**100**	**10**	**J**
Total Recoverable Iron	B107541-BLK1	ND	ug/L	50	30	
Total Recoverable Lithium	B107541-BLK1	ND	ug/L	20	6.6	
Total Recoverable Manganese	B107541-BLK1	ND	ug/L	10	4.0	
QC Batch ID: B108115						
Hexavalent Chromium	B108115-BLK1	ND	ug/L	0.20	0.020	
QC Batch ID: B108353						
Total Recoverable Aluminum	B108353-BLK1	ND	ug/L	50	26	
Total Recoverable Boron	**B108353-BLK1**	**18.793**	**ug/L**	**100**	**10**	**J**
Total Recoverable Iron	B108353-BLK1	ND	ug/L	50	30	
Total Recoverable Lithium	B108353-BLK1	ND	ug/L	20	6.6	
Total Recoverable Manganese	B108353-BLK1	ND	ug/L	10	4.0	
QC Batch ID: B108356						
Total Recoverable Antimony	B108356-BLK1	ND	ug/L	2.0	0.11	
Total Recoverable Arsenic	B108356-BLK1	ND	ug/L	2.0	0.70	
Total Recoverable Barium	B108356-BLK1	ND	ug/L	1.0	0.21	
Total Recoverable Beryllium	B108356-BLK1	ND	ug/L	1.0	0.14	
Total Recoverable Cadmium	B108356-BLK1	ND	ug/L	1.0	0.11	
Total Recoverable Chromium	B108356-BLK1	ND	ug/L	3.0	0.50	
Total Recoverable Cobalt	B108356-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Copper	B108356-BLK1	ND	ug/L	2.0	0.22	
Total Recoverable Lead	B108356-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Molybdenum	B108356-BLK1	ND	ug/L	1.0	0.11	
Total Recoverable Nickel	B108356-BLK1	ND	ug/L	2.0	0.19	
Total Recoverable Selenium	B108356-BLK1	ND	ug/L	2.0	0.19	
Total Recoverable Silver	B108356-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Thallium	B108356-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Vanadium	B108356-BLK1	ND	ug/L	3.0	0.78	
Total Recoverable Zinc	B108356-BLK1	ND	ug/L	10	1.7	
Total Recoverable Uranium	B108356-BLK1	ND	ug/L	1.0	0.10	
QC Batch ID: B108414						

City of Morro Bay	**Reported:**	06/18/2021 15:01
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B108414						
Total Recoverable Mercury	B108414-BLK1	ND	ug/L	0.20	0.022	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Metals Analysis

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B107541										
Total Recoverable Aluminum	B107541-BS1	LCS	948.34	1000.0	ug/L	94.8		85 - 115		
Total Recoverable Boron	B107541-BS1	LCS	1019.1	1000.0	ug/L	102		85 - 115		
Total Recoverable Iron	B107541-BS1	LCS	941.10	1000.0	ug/L	94.1		85 - 115		
Total Recoverable Lithium	B107541-BS1	LCS	200.04	200.00	ug/L	100		85 - 115		
Total Recoverable Manganese	B107541-BS1	LCS	462.79	500.00	ug/L	92.6		85 - 115		
QC Batch ID: B108115										
Hexavalent Chromium	B108115-BS1	LCS	18.179	20.000	ug/L	90.9		90 - 110		
QC Batch ID: B108353										
Total Recoverable Aluminum	B108353-BS1	LCS	928.49	1000.0	ug/L	92.8		85 - 115		
Total Recoverable Boron	B108353-BS1	LCS	989.64	1000.0	ug/L	99.0		85 - 115		
Total Recoverable Iron	B108353-BS1	LCS	1002.6	1000.0	ug/L	100		85 - 115		
Total Recoverable Lithium	B108353-BS1	LCS	199.16	200.00	ug/L	99.6		85 - 115		
Total Recoverable Manganese	B108353-BS1	LCS	486.06	500.00	ug/L	97.2		85 - 115		
QC Batch ID: B108356										
Total Recoverable Antimony	B108356-BS1	LCS	39.634	40.000	ug/L	99.1		85 - 115		
Total Recoverable Arsenic	B108356-BS1	LCS	101.42	100.00	ug/L	101		85 - 115		
Total Recoverable Barium	B108356-BS1	LCS	39.414	40.000	ug/L	98.5		85 - 115		
Total Recoverable Beryllium	B108356-BS1	LCS	43.356	40.000	ug/L	108		85 - 115		
Total Recoverable Cadmium	B108356-BS1	LCS	41.564	40.000	ug/L	104		85 - 115		
Total Recoverable Chromium	B108356-BS1	LCS	39.463	40.000	ug/L	98.7		85 - 115		
Total Recoverable Cobalt	B108356-BS1	LCS	40.390	40.000	ug/L	101		85 - 115		
Total Recoverable Copper	B108356-BS1	LCS	103.41	100.00	ug/L	103		85 - 115		
Total Recoverable Lead	B108356-BS1	LCS	102.65	100.00	ug/L	103		85 - 115		
Total Recoverable Molybdenum	B108356-BS1	LCS	38.338	40.000	ug/L	95.8		85 - 115		
Total Recoverable Nickel	B108356-BS1	LCS	102.21	100.00	ug/L	102		85 - 115		
Total Recoverable Selenium	B108356-BS1	LCS	109.34	100.00	ug/L	109		85 - 115		
Total Recoverable Silver	B108356-BS1	LCS	41.351	40.000	ug/L	103		85 - 115		
Total Recoverable Thallium	B108356-BS1	LCS	40.287	40.000	ug/L	101		85 - 115		
Total Recoverable Vanadium	B108356-BS1	LCS	38.538	40.000	ug/L	96.3		85 - 115		
Total Recoverable Zinc	B108356-BS1	LCS	106.69	100.00	ug/L	107		85 - 115		
Total Recoverable Uranium	B108356-BS1	LCS	36.554	40.000	ug/L	91.4		85 - 115		
QC Batch ID: B108414										
Total Recoverable Mercury	B108414-BS1	LCS	0.89500	1.0000	ug/L	89.5		85 - 115		

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B107541	Used client sample: N										
Total Recoverable Aluminum	DUP	2113213-01	ND	ND		ug/L			20		
	MS	2113213-01	ND	905.88	1020.4	ug/L		88.8		75 - 125	
	MSD	2113213-01	ND	917.59	1020.4	ug/L	1.3	89.9	20	75 - 125	
Total Recoverable Boron	DUP	2113213-01	42.291	39.096		ug/L	7.9		20		J
	MS	2113213-01	42.291	1019.3	1020.4	ug/L		95.7		75 - 125	
	MSD	2113213-01	42.291	1031.2	1020.4	ug/L	1.2	96.9	20	75 - 125	
Total Recoverable Iron	DUP	2113213-01	ND	ND		ug/L			20		
	MS	2113213-01	ND	864.66	1020.4	ug/L		84.7		75 - 125	
	MSD	2113213-01	ND	882.47	1020.4	ug/L	2.0	86.5	20	75 - 125	
Total Recoverable Lithium	DUP	2113213-01	ND	ND		ug/L			20		
	MS	2113213-01	ND	192.67	204.08	ug/L		94.4		75 - 125	
	MSD	2113213-01	ND	193.37	204.08	ug/L	0.4	94.7	20	75 - 125	
Total Recoverable Manganese	DUP	2113213-01	ND	ND		ug/L			20		
	MS	2113213-01	ND	428.93	510.20	ug/L		84.1		75 - 125	
	MSD	2113213-01	ND	434.11	510.20	ug/L	1.2	85.1	20	75 - 125	
QC Batch ID: B108115	Used client sample: N										
Hexavalent Chromium	DUP	2113701-01	1.3460	1.3170		ug/L	2.2		10		
	MS	2113701-01	1.3460	19.893	20.202	ug/L		91.8		90 - 110	
	MSD	2113701-01	1.3460	19.775	20.202	ug/L	0.6	91.2	10	90 - 110	
QC Batch ID: B108353	Used client sample: N										
Total Recoverable Aluminum	DUP	2113959-01	ND	ND		ug/L			20		
	MS	2113959-01	ND	896.55	1000.0	ug/L		89.7		75 - 125	
	MSD	2113959-01	ND	902.86	1000.0	ug/L	0.7	90.3	20	75 - 125	
Total Recoverable Boron	DUP	2113959-01	173.66	155.19		ug/L	11.2		20		
	MS	2113959-01	173.66	1091.6	1000.0	ug/L		91.8		75 - 125	
	MSD	2113959-01	173.66	1132.5	1000.0	ug/L	3.7	95.9	20	75 - 125	
Total Recoverable Iron	DUP	2113959-01	ND	ND		ug/L			20		
	MS	2113959-01	ND	971.71	1000.0	ug/L		97.2		75 - 125	
	MSD	2113959-01	ND	982.08	1000.0	ug/L	1.1	98.2	20	75 - 125	
Total Recoverable Lithium	DUP	2113959-01	8.8971	8.6711		ug/L	2.6		20		J
	MS	2113959-01	8.8971	196.17	200.00	ug/L		93.6		75 - 125	
	MSD	2113959-01	8.8971	199.37	200.00	ug/L	1.6	95.2	20	75 - 125	
Total Recoverable Manganese	DUP	2113959-01	ND	ND		ug/L			20		
	MS	2113959-01	ND	460.19	500.00	ug/L		92.0		75 - 125	
	MSD	2113959-01	ND	462.92	500.00	ug/L	0.6	92.6	20	75 - 125	
QC Batch ID: B108356	Used client sample: Y - Description: High School Well #2, 04/27/2021 08:45										

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 06/18/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Metals Analysis

Quality Control Report - Precision & Accuracy

QC Batch ID: B108356 Used client sample: Y - Description: High School Well #2, 04/27/2021 08:45

									Control Limits		
Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	RPD	Percent Recovery	Lab Quals
Total Recoverable Antimony	DUP	2113280-01	ND	ND		ug/L			20		
	MS	2113280-01	ND	38.895	40.000	ug/L		97.2		70 - 130	
	MSD	2113280-01	ND	37.935	40.000	ug/L	2.5	94.8	20	70 - 130	
Total Recoverable Arsenic	DUP	**2113280-01**	**12.080**	**7.0500**		**ug/L**	**52.6**		**20**		**J,A02**
	MS	**2113280-01**	**12.080**	**112.08**	**100.00**	**ug/L**		**100**		**70 - 130**	
	MSD	**2113280-01**	**12.080**	**106.56**	**100.00**	**ug/L**	**5.0**	**94.5**	**20**	**70 - 130**	
Total Recoverable Barium	DUP	**2113280-01**	**223.29**	**232.08**		**ug/L**	**3.9**		**20**		
	MS	**2113280-01**	**223.29**	**276.89**	**40.000**	**ug/L**		**134**		**70 - 130**	**A03**
	MSD	**2113280-01**	**223.29**	**261.71**	**40.000**	**ug/L**	**5.6**	**96.0**	**20**	**70 - 130**	
Total Recoverable Beryllium	DUP	2113280-01	ND	ND		ug/L			20		
	MS	2113280-01	ND	42.920	40.000	ug/L		107		70 - 130	
	MSD	2113280-01	ND	39.260	40.000	ug/L	8.9	98.2	20	70 - 130	
Total Recoverable Cadmium	DUP	2113280-01	ND	ND		ug/L			20		
	MS	2113280-01	ND	38.275	40.000	ug/L		95.7		70 - 130	
	MSD	2113280-01	ND	38.590	40.000	ug/L	0.8	96.5	20	70 - 130	
Total Recoverable Chromium	DUP	2113280-01	ND	ND		ug/L			20		
	MS	2113280-01	ND	41.340	40.000	ug/L		103		70 - 130	
	MSD	2113280-01	ND	41.160	40.000	ug/L	0.4	103	20	70 - 130	
Total Recoverable Cobalt	DUP	2113280-01	ND	ND		ug/L			20		
	MS	2113280-01	ND	39.230	40.000	ug/L		98.1		70 - 130	
	MSD	2113280-01	ND	37.590	40.000	ug/L	4.3	94.0	20	70 - 130	
Total Recoverable Copper	DUP	2113280-01	7.1550	7.7200		ug/L	7.6		20		J
	MS	2113280-01	7.1550	105.66	100.00	ug/L		98.5		70 - 130	
	MSD	2113280-01	7.1550	104.44	100.00	ug/L	1.2	97.3	20	70 - 130	
Total Recoverable Lead	DUP	2113280-01	ND	ND		ug/L			20		
	MS	2113280-01	ND	94.445	100.00	ug/L		94.4		70 - 130	
	MSD	2113280-01	ND	94.235	100.00	ug/L	0.2	94.2	20	70 - 130	
Total Recoverable Molybdenum	DUP	**2113280-01**	**0.61500**	**0.90500**		**ug/L**	**38.2**		**20**		**J,A02**
	MS	**2113280-01**	**0.61500**	**46.275**	**40.000**	**ug/L**		**114**		**70 - 130**	
	MSD	**2113280-01**	**0.61500**	**43.805**	**40.000**	**ug/L**	**5.5**	**108**	**20**	**70 - 130**	
Total Recoverable Nickel	DUP	2113280-01	8.0450	8.2850		ug/L	2.9		20		J
	MS	2113280-01	8.0450	104.32	100.00	ug/L		96.3		70 - 130	
	MSD	2113280-01	8.0450	98.200	100.00	ug/L	6.0	90.2	20	70 - 130	
Total Recoverable Selenium	DUP	2113280-01	16.660	19.215		ug/L	14.2		20		
	MS	2113280-01	16.660	126.40	100.00	ug/L		110		70 - 130	
	MSD	2113280-01	16.660	114.88	100.00	ug/L	9.6	98.2	20	70 - 130	
Total Recoverable Silver	DUP	2113280-01	ND	ND		ug/L			20		
	MS	2113280-01	ND	39.565	40.000	ug/L		98.9		70 - 130	
	MSD	2113280-01	ND	38.760	40.000	ug/L	2.1	96.9	20	70 - 130	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 06/18/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B108356	Used client sample: Y - Description: High School Well #2, 04/27/2021 08:45										
Total Recoverable Thallium	DUP	2113280-01	ND	ND		ug/L			20		
	MS	2113280-01	ND	37.920	40.000	ug/L		94.8		70 - 130	
	MSD	2113280-01	ND	37.795	40.000	ug/L	0.3	94.5	20	70 - 130	
Total Recoverable Vanadium	DUP	2113280-01	ND	ND		ug/L			20		
	MS	2113280-01	ND	38.065	40.000	ug/L		95.2		70 - 130	
	MSD	2113280-01	ND	38.070	40.000	ug/L	0.0	95.2	20	70 - 130	
Total Recoverable Zinc	DUP	2113280-01	12.695	14.525		ug/L	13.4		20		J
	MS	2113280-01	12.695	105.80	100.00	ug/L		93.1		70 - 130	
	MSD	2113280-01	12.695	105.84	100.00	ug/L	0.0	93.2	20	70 - 130	
Total Recoverable Uranium	DUP	2113280-01	2.1900	2.3050		ug/L	5.1		20		J
	MS	2113280-01	2.1900	44.600	40.000	ug/L		106		70 - 130	
	MSD	2113280-01	2.1900	43.745	40.000	ug/L	1.9	104	20	70 - 130	
QC Batch ID: B108414	Used client sample: N										
Total Recoverable Mercury	DUP	2113095-02	ND	ND		ug/L			20		
	MS	2113095-02	ND	1.0450	1.0000	ug/L		104		70 - 130	
	MSD	2113095-02	ND	1.0525	1.0000	ug/L	0.7	105	20	70 - 130	

APPL LABS
908 North Temperance Ave. ∇ Clovis, CA 93611 ∇ Phone 559-275-2175 ∇ Fax 559-275-4422

NELAP Certification number: CA00046 (HW)
State Certification Number: CA1312 (WW & DW)

May 24, 2021

BC Laboratories
4100 Atlas Court
Bakersfield, California 93308

Attn: Eli Velazquez

Subject: Report of Data: Case 96108

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dear Mr. Velazquez,

Six water samples for the "2113280" project were received on May 7, 2021, at 3.0°C. Written results are being provided on this May 24, 2021, for the requested analysis. All holding times were met.

For EPA 537.1 analysis, the samples were extracted and analyzed according to the method.

If you have any questions or require further information, please contact us at your convenience. Thank you for choosing APPL, Inc.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. These test results meet all requirements of NELAC. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Loren E. Portwood

Loren Portwood, Laboratory Director
APPL, Inc.

LP/cm
Enclosure
cc: File

EPA 537.1 PFAS IN DRINKING WATER

BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Eli Velazquez
Project: 2113280
ARF: 96108
Sample ID: 2113280-01
APPL ID: BA32182
Sample Collection Date: 04/27/21
QCG: #537W-210511A-264152

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 537.1	11-CL-PF3OUDS	Not detected	2.0	0.36	ng/L	05/11/21	05/20/21
EPA 537.1	9-CL-PF3ONS	Not detected	2.0	0.35	ng/L	05/11/21	05/20/21
EPA 537.1	ADONA	Not detected	2.0	0.50	ng/L	05/11/21	05/20/21
EPA 537.1	HFPO-DA	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	N-ETFOSAA	Not detected	2.0	0.46	ng/L	05/11/21	05/20/21
EPA 537.1	N-MEFOSAA	Not detected	2.0	0.43	ng/L	05/11/21	05/20/21
EPA 537.1	PFBS	9.8	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	PFDA	Not detected	2.0	0.37	ng/L	05/11/21	05/20/21
EPA 537.1	PFDOA	Not detected	2.0	0.23	ng/L	05/11/21	05/20/21
EPA 537.1	PFHPA	2.9	2.0	0.69	ng/L	05/11/21	05/20/21
EPA 537.1	PFHXA	3.3	2.0	0.46	ng/L	05/11/21	05/20/21
EPA 537.1	PFHXS	13	2.0	0.29	ng/L	05/11/21	05/20/21
EPA 537.1	PFNA	Not detected	2.0	0.59	ng/L	05/11/21	05/20/21
EPA 537.1	PFOA	4.5	2.0	0.47	ng/L	05/11/21	05/20/21
EPA 537.1	PFOS	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	PFTEDA	Not detected	2.0	0.19	ng/L	05/11/21	05/20/21
EPA 537.1	PFTRDA	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	PFUDA	Not detected	2.0	0.38	ng/L	05/11/21	05/20/21
EPA 537.1	SURROGATE: 13C2-PFDA (S)	128	70-130		%	05/11/21	05/20/21
EPA 537.1	SURROGATE: 13C2-PFHXA (S)	91.3	70-130		%	05/11/21	05/20/21
EPA 537.1	SURROGATE: 13C3-HFPO-DA (S)	103	70-130		%	05/11/21	05/20/21
EPA 537.1	SURROGATE: D5-NETFOSAA (S)	92.1	70-130		%	05/11/21	05/20/21

Quant Method:	537\2021_05_20
Run #:	2021-05-2037
Instrument:	Saphira
Sequence:	2021-05-20
Dilution Factor:	1
Initials:	DG

Printed: 05/21/21 6:18:47 PM
APPL-F1-SC-NoMC-REG MDLs

EPA 537.1 PFAS IN DRINKING WATER

BC Laboratories	APPL Inc.
4100 Atlas Court	908 North Temperance Avenue
Bakersfield, CA 93308	Clovis, CA 93611
Attn: Eli Velazquez	
Project: 2113280	ARF: 96108
Sample ID: 2113280-02	**APPL ID: BA32183**
Sample Collection Date: 04/27/21	QCG: #537W-210511A-264152

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 537.1	11-CL-PF3OUDS	Not detected	2.0	0.36	ng/L	05/11/21	05/20/21
EPA 537.1	9-CL-PF3ONS	Not detected	2.0	0.35	ng/L	05/11/21	05/20/21
EPA 537.1	ADONA	Not detected	2.0	0.50	ng/L	05/11/21	05/20/21
EPA 537.1	HFPO-DA	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	N-ETFOSAA	Not detected	2.0	0.46	ng/L	05/11/21	05/20/21
EPA 537.1	N-MEFOSAA	Not detected	2.0	0.43	ng/L	05/11/21	05/20/21
EPA 537.1	PFBS	1.6 J	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	PFDA	Not detected	2.0	0.37	ng/L	05/11/21	05/20/21
EPA 537.1	PFDOA	Not detected	2.0	0.23	ng/L	05/11/21	05/20/21
EPA 537.1	PFHPA	Not detected	2.0	0.69	ng/L	05/11/21	05/20/21
EPA 537.1	PFHXA	Not detected	2.0	0.46	ng/L	05/11/21	05/20/21
EPA 537.1	PFHXS	Not detected	2.0	0.29	ng/L	05/11/21	05/20/21
EPA 537.1	PFNA	Not detected	2.0	0.59	ng/L	05/11/21	05/20/21
EPA 537.1	PFOA	Not detected	2.0	0.47	ng/L	05/11/21	05/20/21
EPA 537.1	PFOS	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	PFTEDA	Not detected	2.0	0.19	ng/L	05/11/21	05/20/21
EPA 537.1	PFTRDA	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	PFUDA	Not detected	2.0	0.38	ng/L	05/11/21	05/20/21
EPA 537.1	SURROGATE: 13C2-PFDA (S)	103	70-130		%	05/11/21	05/20/21
EPA 537.1	SURROGATE: 13C2-PFHXA (S)	89.1	70-130		%	05/11/21	05/20/21
EPA 537.1	SURROGATE: 13C3-HFPO-DA (S)	101	70-130		%	05/11/21	05/20/21
EPA 537.1	SURROGATE: D5-NETFOSAA (S)	86.3	70-130		%	05/11/21	05/20/21

J = Estimated value.

Quant Method:	537\2021_05_20
Run #:	2021-05-2038
Instrument:	Saphira
Sequence:	2021-05-20
Dilution Factor:	1
Initials:	DG

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APPL-F1-SC-NoMC-REG MDLs

EPA 537.1 PFAS IN DRINKING WATER

BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Eli Velazquez
Project: 2113280
Sample ID: 2113280-03
Sample Collection Date: 04/27/21

ARF: 96108
APPL ID: BA32184
QCG: #537W-210511A-264152

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 537.1	11-CL-PF3OUDS	Not detected	2.0	0.36	ng/L	05/11/21	05/20/21
EPA 537.1	9-CL-PF3ONS	Not detected	2.0	0.35	ng/L	05/11/21	05/20/21
EPA 537.1	ADONA	Not detected	2.0	0.50	ng/L	05/11/21	05/20/21
EPA 537.1	HFPO-DA	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	N-ETFOSAA	Not detected	2.0	0.46	ng/L	05/11/21	05/20/21
EPA 537.1	N-MEFOSAA	Not detected	2.0	0.43	ng/L	05/11/21	05/20/21
EPA 537.1	PFBS	1.4 J	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	PFDA	Not detected	2.0	0.37	ng/L	05/11/21	05/20/21
EPA 537.1	PFDOA	Not detected	2.0	0.23	ng/L	05/11/21	05/20/21
EPA 537.1	PFHPA	Not detected	2.0	0.69	ng/L	05/11/21	05/20/21
EPA 537.1	PFHXA	Not detected	2.0	0.46	ng/L	05/11/21	05/20/21
EPA 537.1	PFHXS	Not detected	2.0	0.29	ng/L	05/11/21	05/20/21
EPA 537.1	PFNA	Not detected	2.0	0.59	ng/L	05/11/21	05/20/21
EPA 537.1	PFOA	Not detected	2.0	0.47	ng/L	05/11/21	05/20/21
EPA 537.1	PFOS	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	PFTEDA	Not detected	2.0	0.19	ng/L	05/11/21	05/20/21
EPA 537.1	PFTRDA	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	PFUDA	Not detected	2.0	0.38	ng/L	05/11/21	05/20/21
EPA 537.1	SURROGATE: 13C2-PFDA (S)	117	70-130		%	05/11/21	05/20/21
EPA 537.1	SURROGATE: 13C2-PFHXA (S)	88.2	70-130		%	05/11/21	05/20/21
EPA 537.1	SURROGATE: 13C3-HFPO-DA (S)	100	70-130		%	05/11/21	05/20/21
EPA 537.1	SURROGATE: D5-NETFOSAA (S)	89.8	70-130		%	05/11/21	05/20/21

J = Estimated value.

Quant Method: 537\2021_05_20
Run #: 2021-05-2039
Instrument: Saphira
Sequence: 2021-05-20
Dilution Factor: 1
Initials: DG

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EPA 537.1 PFAS IN DRINKING WATER

BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Eli Velazquez
Project: 2113280
Sample ID: 2113280-04
Sample Collection Date: 04/27/21

ARF: 96108
APPL ID: BA32185
QCG: #537W-210511A-264152

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 537.1	11-CL-PF3OUDS	Not detected	2.0	0.36	ng/L	05/11/21	05/20/21
EPA 537.1	9-CL-PF3ONS	Not detected	2.0	0.35	ng/L	05/11/21	05/20/21
EPA 537.1	ADONA	Not detected	2.0	0.50	ng/L	05/11/21	05/20/21
EPA 537.1	HFPO-DA	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	N-ETFOSAA	Not detected	2.0	0.46	ng/L	05/11/21	05/20/21
EPA 537.1	N-MEFOSAA	Not detected	2.0	0.43	ng/L	05/11/21	05/20/21
EPA 537.1	PFBS	1.6 J	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	PFDA	Not detected	2.0	0.37	ng/L	05/11/21	05/20/21
EPA 537.1	PFDOA	Not detected	2.0	0.23	ng/L	05/11/21	05/20/21
EPA 537.1	PFHPA	Not detected	2.0	0.69	ng/L	05/11/21	05/20/21
EPA 537.1	PFHXA	Not detected	2.0	0.46	ng/L	05/11/21	05/20/21
EPA 537.1	PFHXS	Not detected	2.0	0.29	ng/L	05/11/21	05/20/21
EPA 537.1	PFNA	Not detected	2.0	0.59	ng/L	05/11/21	05/20/21
EPA 537.1	PFOA	Not detected	2.0	0.47	ng/L	05/11/21	05/20/21
EPA 537.1	PFOS	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	PFTEDA	Not detected	2.0	0.19	ng/L	05/11/21	05/20/21
EPA 537.1	PFTRDA	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	PFUDA	Not detected	2.0	0.38	ng/L	05/11/21	05/20/21
EPA 537.1	SURROGATE: 13C2-PFDA (S)	127	70-130		%	05/11/21	05/20/21
EPA 537.1	SURROGATE: 13C2-PFHXA (S)	100	70-130		%	05/11/21	05/20/21
EPA 537.1	SURROGATE: 13C3-HFPO-DA (S)	112	70-130		%	05/11/21	05/20/21
EPA 537.1	SURROGATE: D5-NETFOSAA (S)	96.3	70-130		%	05/11/21	05/20/21

J = Estimated value.

Quant Method:	537\2021_05_20
Run #:	2021-05-2040
Instrument:	Saphira
Sequence:	2021-05-20
Dilution Factor:	1
Initials:	DG

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APPL-F1-SC-NoMC-REG MDLs

EPA 537.1 PFAS IN DRINKING WATER

BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Eli Velazquez
Project: 2113280
ARF: 96108
Sample ID: 2113280-05
APPL ID: BA32186
Sample Collection Date: 04/27/21
QCG: #537W-210511A-264152

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 537.1	11-CL-PF3OUDS	Not detected	2.0	0.36	ng/L	05/11/21	05/20/21
EPA 537.1	9-CL-PF3ONS	Not detected	2.0	0.35	ng/L	05/11/21	05/20/21
EPA 537.1	ADONA	Not detected	2.0	0.50	ng/L	05/11/21	05/20/21
EPA 537.1	HFPO-DA	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	N-ETFOSAA	Not detected	2.0	0.46	ng/L	05/11/21	05/20/21
EPA 537.1	N-MEFOSAA	Not detected	2.0	0.43	ng/L	05/11/21	05/20/21
EPA 537.1	PFBS	0.30 J	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	PFDA	Not detected	2.0	0.37	ng/L	05/11/21	05/20/21
EPA 537.1	PFDOA	Not detected	2.0	0.23	ng/L	05/11/21	05/20/21
EPA 537.1	PFHPA	Not detected	2.0	0.69	ng/L	05/11/21	05/20/21
EPA 537.1	PFHXA	Not detected	2.0	0.46	ng/L	05/11/21	05/20/21
EPA 537.1	PFHXS	Not detected	2.0	0.29	ng/L	05/11/21	05/20/21
EPA 537.1	PFNA	Not detected	2.0	0.59	ng/L	05/11/21	05/20/21
EPA 537.1	PFOA	Not detected	2.0	0.47	ng/L	05/11/21	05/20/21
EPA 537.1	PFOS	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	PFTEDA	Not detected	2.0	0.19	ng/L	05/11/21	05/20/21
EPA 537.1	PFTRDA	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	PFUDA	Not detected	2.0	0.38	ng/L	05/11/21	05/20/21
EPA 537.1	SURROGATE: 13C2-PFDA (S)	127	70-130		%	05/11/21	05/20/21
EPA 537.1	SURROGATE: 13C2-PFHXA (S)	92.3	70-130		%	05/11/21	05/20/21
EPA 537.1	SURROGATE: 13C3-HFPO-DA (S)	104	70-130		%	05/11/21	05/20/21
EPA 537.1	SURROGATE: D5-NETFOSAA (S)	96.3	70-130		%	05/11/21	05/20/21

J = Estimated value.

Quant Method:	537\2021_05_20
Run #:	2021-05-2041
Instrument:	Saphira
Sequence:	2021-05-20
Dilution Factor:	1
Initials:	DG

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APPL-F1-SC-NoMC-REG MDLs

EPA 537.1 PFAS IN DRINKING WATER

BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Attn: Eli Velazquez

Project: 2113280

ARF: 96108

Sample ID: 2113280-06

APPL ID: BA32187

Sample Collection Date: 04/27/21

QCG: #537W-210511A-264152

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 537.1	11-CL-PF3OUDS	Not detected	2.0	0.36	ng/L	05/11/21	05/20/21
EPA 537.1	9-CL-PF3ONS	Not detected	2.0	0.35	ng/L	05/11/21	05/20/21
EPA 537.1	ADONA	Not detected	2.0	0.50	ng/L	05/11/21	05/20/21
EPA 537.1	HFPO-DA	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	N-ETFOSAA	Not detected	2.0	0.46	ng/L	05/11/21	05/20/21
EPA 537.1	N-MEFOSAA	Not detected	2.0	0.43	ng/L	05/11/21	05/20/21
EPA 537.1	PFBS	0.30 J	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	PFDA	Not detected	2.0	0.37	ng/L	05/11/21	05/20/21
EPA 537.1	PFDOA	Not detected	2.0	0.23	ng/L	05/11/21	05/20/21
EPA 537.1	PFHPA	Not detected	2.0	0.69	ng/L	05/11/21	05/20/21
EPA 537.1	PFHXA	Not detected	2.0	0.46	ng/L	05/11/21	05/20/21
EPA 537.1	PFHXS	Not detected	2.0	0.29	ng/L	05/11/21	05/20/21
EPA 537.1	PFNA	Not detected	2.0	0.59	ng/L	05/11/21	05/20/21
EPA 537.1	PFOA	Not detected	2.0	0.47	ng/L	05/11/21	05/20/21
EPA 537.1	PFOS	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	PFTEDA	Not detected	2.0	0.19	ng/L	05/11/21	05/20/21
EPA 537.1	PFTRDA	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
EPA 537.1	PFUDA	Not detected	2.0	0.38	ng/L	05/11/21	05/20/21
EPA 537.1	SURROGATE: 13C2-PFDA (S)	129	70-130		%	05/11/21	05/20/21
EPA 537.1	SURROGATE: 13C2-PFHXA (S)	102	70-130		%	05/11/21	05/20/21
EPA 537.1	SURROGATE: 13C3-HFPO-DA (S)	115	70-130		%	05/11/21	05/20/21
EPA 537.1	SURROGATE: D5-NETFOSAA (S)	93.6	70-130		%	05/11/21	05/20/21

J = Estimated value.

Quant Method: 537\2021_05_20
Run #: 2021-05-2042
Instrument: Saphira
Sequence: 2021-05-20
Dilution Factor: 1
Initials: DG

Printed: 05/21/21 6:18:47 PM
APPL-F1-SC-NoMC-REG MDLs

Method Blank
EPA 537.1 PFAS IN DRINKING WATER

Blank Name/QCG: **210511W-31998 - 264152**
Batch ID: #537W-210511A

APPL Inc.
908 North Temperance Avenu
Clovis, CA 93611

Sample Type	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
BLANK	11-CL-PF3OUDS	Not detected	2.0	0.36	ng/L	05/11/21	05/20/21
BLANK	9-CL-PF3ONS	Not detected	2.0	0.35	ng/L	05/11/21	05/20/21
BLANK	ADONA	Not detected	2.0	0.50	ng/L	05/11/21	05/20/21
BLANK	HFPO-DA	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
BLANK	N-ETFOSAA	Not detected	2.0	0.46	ng/L	05/11/21	05/20/21
BLANK	N-MEFOSAA	Not detected	2.0	0.43	ng/L	05/11/21	05/20/21
BLANK	PFBS	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
BLANK	PFDA	Not detected	2.0	0.37	ng/L	05/11/21	05/20/21
BLANK	PFDOA	Not detected	2.0	0.23	ng/L	05/11/21	05/20/21
BLANK	PFHPA	Not detected	2.0	0.69	ng/L	05/11/21	05/20/21
BLANK	PFHXA	Not detected	2.0	0.46	ng/L	05/11/21	05/20/21
BLANK	PFHXS	Not detected	2.0	0.29	ng/L	05/11/21	05/20/21
BLANK	PFNA	Not detected	2.0	0.59	ng/L	05/11/21	05/20/21
BLANK	PFOA	Not detected	2.0	0.47	ng/L	05/11/21	05/20/21
BLANK	PFOS	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
BLANK	PFTEDA	Not detected	2.0	0.19	ng/L	05/11/21	05/20/21
BLANK	PFTRDA	Not detected	2.0	0.27	ng/L	05/11/21	05/20/21
BLANK	PFUDA	Not detected	2.0	0.38	ng/L	05/11/21	05/20/21
BLANK	SURROGATE: 13C2-PFDA (S)	129	70-130		%	05/11/21	05/20/21
BLANK	SURROGATE: 13C2-PFHXA (S)	109	70-130		%	05/11/21	05/20/21
BLANK	SURROGATE: 13C3-HFPO-DA (S)	111	70-130		%	05/11/21	05/20/21
BLANK	SURROGATE: D5-NETFOSAA (S)	105	70-130		%	05/11/21	05/20/21

Quant Method: 537\2021_05
Run #: 2021-05-203
Instrument: Saphira
Sequence: 2021-05-20
Initials: DG

GC SC-Blank-REG MDLs
Printed: 05/21/21 6:18:46 PM

Laboratory Control Spike Recoveries
EPA 537.1 PFAS IN DRINKING WATER

APPL ID: **210511W-31998 LCS - 264152**
Batch ID: #537W-210511A

APPL Inc.
908 North Temperance Avenue
Clovis, CA 93611

Compound Name	Spike Lvl ng/L	SPK Result ng/L	DUP Result ng/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
11-CL-PF3OUDS	75.5	81.7	78.5	108	104	70-130	4.0	30
9-CL-PF3ONS	74.7	81.2	78.4	109	105	70-130	3.5	30
ADONA	75.6	82.4	77.3	109	102	70-130	6.4	30
HFPO-DA	80.0	80.8	74.9	101	93.6	70-130	7.6	30
N-ETFOSAA	80.0	82.3	75.9	103	94.9	70-130	8.1	30
N-MEFOSAA	80.0	83.2	76.3	104	95.4	70-130	8.7	30
PFBS	70.8	68.1	61.2	96.2	86.5	70-130	10.7	30
PFDA	80.0	81.2	81.2	102	102	70-130	0.0	30
PFDOA	80.0	86.3	78.6	108	98.3	70-130	9.3	30
PFHPA	80.0	82.7	78.2	103	97.8	70-130	5.6	30
PFHXA	80.0	73.8	69.6	92.3	87.0	70-130	5.9	30
PFHXS	72.9	79.2	74.3	109	102	70-130	6.4	30
PFNA	80.0	82.3	78.8	103	98.5	70-130	4.3	30
PFOA	80.0	85.0	78.4	106	98.0	70-130	8.1	30
PFOS	74.2	80.5	76.3	108	103	70-130	5.4	30
PFTEDA	80.0	75.6	70.8	94.5	88.5	70-130	6.6	30
PFTRDA	80.0	85.5	76.9	107	96.1	70-130	10.6	30
PFUDA	80.0	84.2	81.0	105	101	70-130	3.9	30
SURROGATE: 13C2-PFDA (S)	10.00	12.8	12.4	128	124	70-130		
SURROGATE: 13C2-PFHXA (S)	10.00	11.5	10.7	115	107	70-130		
SURROGATE: 13C3-HFPO-DA (S)	10.00	12.1	11.5	121	115	70-130		
SURROGATE: D5-NETFOSAA (S)	40.0	40.8	37.2	102	93.0	70-130		

Comments:

Primary	SPK	DUP
Quant Method :	537\2021_05_20	537\2021_05_20
Extraction Date :	05/11/21	05/11/21
Analysis Date :	05/20/21	05/20/21
Instrument :	Saphira	Saphira
Run :	2021-05-2031	2021-05-2032
Initials :	DG	

Printed: 05/21/21 6:18:54 PM
APPL Standard LCSD

SUBCONTRACT ORDER
BC Laboratories
2113280

46108

IRB 5.4/3.0°C

SENDING LABORATORY:
BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308
Phone: 661-327-4911
FAX: 661-327-1918
Project Manager: Eli Velazquez

RECEIVING LABORATORY:
APPL, Inc.
908 N. Temperance Ave.
Clovis, CA 93611
Lori Wilcox
Phone: (559) 275-2175
FAX: (559) 275-4422

APPLN

2 - 250 ml. unpres. HDPE PER sample. 4/30/21 1140

Analysis	Due	Expires	Comments
Sample ID: 2113280-01 **Water** **Sampled: 04/27/21 08:45**			
EPA 537.1 - Perfluorinated Akyl Acids	05/12/21 17:00	05/25/21 08:45	groundwater
Containers supplied:			
Sample ID: 2113280-02 **Water** **Sampled: 04/27/21 10:30**			
EPA 537.1 - Perfluorinated Akyl Acids	05/12/21 17:00	05/25/21 10:30	groundwater
Containers supplied:			
Sample ID: 2113280-03 **Water** **Sampled: 04/27/21 11:50**			
EPA 537.1 - Perfluorinated Akyl Acids	05/12/21 17:00	05/25/21 11:50	groundwater
Containers supplied:			
Sample ID: 2113280-04 **Water** **Sampled: 04/27/21 13:30**			
EPA 537.1 - Perfluorinated Akyl Acids	05/12/21 17:00	05/25/21 13:30	groundwater
Containers supplied:			
Sample ID: 2113280-05 **Water** **Sampled: 04/27/21 11:50**			
EPA 537.1 - Perfluorinated Akyl Acids	05/12/21 17:00	05/25/21 11:50	groundwater
Containers supplied:			
Sample ID: 2113280-06 **Water** **Sampled: 04/27/21 11:50**			
EPA 537.1 - Perfluorinated Akyl Acids	05/12/21 17:00	05/25/21 11:50	groundwater
Containers supplied:			

Released By	Date	Received By	Date
[signature]	5/6/21		
		[signature]	5-7-21 1025

Released By / Date / Received By / Date

APPLN 10 of 10 Page 1 of 1

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

AEE0205
5/17/2021
Invoice: AE10586

Eli Velazquez
BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

RE: Report for AEE0205 General: Project Manager Eli Velazquez

Dear Eli Velazquez,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 5/4/2021. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2016 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Sarah K. Guenther , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Sarah Guenther

Sarah K. Guenther, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021-009

BSK ASSOCIATES

AEE0205

General: Project Manager Eli Velazquez

Case Narrative

Project and Report Details		Invoice Details	
Client:	BC Laboratories	**Invoice To:**	BC Laboratories
Report To:	Eli Velazquez	**Invoice Attn:**	Wendy
Project #:	2113280	**Project PO#:**	-
Received:	5/04/2021 - 11:14		
Report Due:	5/18/2021		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt °C: 0.0

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Bubble Wrap
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

DL1.0	Sample required a dilution due to the matrix or high concentration of non-target analytes.
SC1.41	Sample was received without chemical preservation. Sample volume was split and preserved by the laboratory.

Report Distribution

Recipient(s)	Report Format	CC:
Eli Velazquez	FINAL.RPT	
Eli Velazquez	FINAL.RPT	

BSK ASSOCIATES

AEE0205

General: Project Manager Eli Velazquez

2113280

Certificate of Analysis

Sample ID: AEE0205-01
Sampled By: Client
Sample Description: 2113280-01

Sample Date - Time: 04/27/2021 - 08:45
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Bromate	EPA 317.0	ND	0.0010	mg/L	1	AEE0548	05/11/21	05/11/21	SC141

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AEE0205 FINAL 05172021 1709

BSK ASSOCIATES

AEE0205

General: Project Manager Eli Velazquez

2113280

Certificate of Analysis

Sample ID: AEE0205-01RE1
Sampled By: Client
Sample Description: 2113280-01

Sample Date - Time: 04/27/2021 - 08:45
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Chlorate	EPA 300.1	ND	0.050	mg/L	10	AEE0561	05/11/21	05/11/21	DL1.0, SC1.41
Surrogate: Dichloroacetate	EPA 300.1	109 %	*Acceptable range: 90-115 %*						
Chlorite	EPA 300.1	ND	0.050	mg/L	10	AEE0561	05/11/21	05/11/21	SC1.41, DL1.0
Surrogate: Dichloroacetate	EPA 300.1	109 %	*Acceptable range: 90-115 %*						

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AEE0205 FINAL 05172021 1709

BSK ASSOCIATES

AEE0205

General: Project Manager Eli Velazquez

2113280

Certificate of Analysis

Sample ID: AEE0205-02
Sampled By: Client
Sample Description: 2113280-02

Sample Date - Time: 04/27/2021 - 10:30
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Bromate	EPA 317.0	ND	0.0010	mg/L	1	AEE0548	05/11/21	05/11/21	SC1.41
Chlorate	EPA 300.1	ND	0.020	mg/L	4	AEE0494	05/10/21	05/10/21	SC1.41
Surrogate: Dichloroacetate	EPA 300.1	103 %	*Acceptable range: 90-115 %*						
Chlorite	EPA 300.1	ND	0.020	mg/L	4	AEE0494	05/10/21	05/10/21	SC1.41
Surrogate: Dichloroacetate	EPA 300.1	103 %	*Acceptable range: 90-115 %*						

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AEE0205 FINAL 05172021 1709

BSK ASSOCIATES

AEE0205

General: Project Manager Eli Velazquez

2113280

Certificate of Analysis

Sample ID: AEE0205-03
Sampled By: Client
Sample Description: 2113280-03

Sample Date - Time: 04/27/2021 - 11:50
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Bromate	EPA 317.0	ND	0.0010	mg/L	1	AEE0548	05/11/21	05/11/21	SC1.41
Chlorate	EPA 300.1	ND	0.020	mg/L	4	AEE0494	05/10/21	05/10/21	SC1.41
Surrogate: Dichloroacetate	EPA 300.1	103 %	*Acceptable range:*	*90-115 %*					
Chlorite	EPA 300.1	ND	0.020	mg/L	4	AEE0494	05/10/21	05/10/21	SC1.41
Surrogate: Dichloroacetate	EPA 300.1	103 %	*Acceptable range:*	*90-115 %*					

BSK ASSOCIATES

AEE0205

General: Project Manager Eli Velazquez

2113280

Certificate of Analysis

Sample ID: AEE0205-04
Sampled By: Client
Sample Description: 2113280-04

Sample Date - Time: 04/27/2021 - 13:30
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Bromate	EPA 317.0	ND	0.0010	mg/L	1	AEE0548	05/11/21	05/11/21	SC1.41
Chlorate	EPA 300.1	ND	0.020	mg/L	4	AEE0494	05/10/21	05/10/21	SC1.41
Surrogate: Dichloroacetate	EPA 300.1	103 %	*Acceptable range:*	*90-115 %*					
Chlorite	EPA 300.1	ND	0.020	mg/L	4	AEE0494	05/10/21	05/10/21	SC1.41
Surrogate: Dichloroacetate	EPA 300.1	103 %	*Acceptable range:*	*90-115 %*					

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AEE0205 FINAL 05172021 1709

BSK ASSOCIATES

AEE0205

General: Project Manager Eli Velazquez

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

EPA 300.1 - Quality Control

Batch: AEE0494 Prepared: 5/10/2021
Prep Method: Method Specific Preparation Analyst: CTD

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AEE0494-BLK1)											
Chlorite	ND	0.0050	mg/L							05/10/21	
Chlorate	ND	0.0050	mg/L							05/10/21	
Surrogate: Dichloroacetate	*0.511*			*0.50*		*102*	*90-115*			05/10/21	
Blank Spike (AEE0494-BS1)											
Chlorite	0.19	0.0050	mg/L	0.20	ND	96	85-115			05/10/21	
Chlorate	0.20	0.0050	mg/L	0.20	ND	99	85-115			05/10/21	
Surrogate: Dichloroacetate	*0.507*			*0.50*		*101*	*90-115*			05/10/21	
Blank Spike Dup (AEE0494-BSD1)											
Chlorite	0.20	0.0050	mg/L	0.20	ND	99	85-115	3	10	05/10/21	
Chlorate	0.20	0.0050	mg/L	0.20	ND	100	85-115	1	10	05/10/21	
Surrogate: Dichloroacetate	*0.528*			*0.50*		*106*	*90-115*			05/10/21	
Matrix Spike (AEE0494-MS1), Source: AED3120-01											
Chlorite	0.51	0.025	mg/L	0.50	ND	102	75-125			05/10/21	
Chlorate	0.50	0.025	mg/L	0.50	ND	99	75-125			05/10/21	
Surrogate: Dichloroacetate	*2.58*			*2.5*		*103*	*90-115*			05/10/21	
Matrix Spike (AEE0494-MS2), Source: AED3120-02											
Chlorite	0.46	0.025	mg/L	0.50	ND	93	75-125			05/11/21	
Chlorate	0.55	0.025	mg/L	0.50	0.043	101	75-125			05/11/21	
Surrogate: Dichloroacetate	*2.53*			*2.5*		*101*	*90-115*			05/11/21	
Matrix Spike Dup (AEE0494-MSD1), Source: AED3120-01											
Chlorite	0.51	0.025	mg/L	0.50	ND	102	75-125	0	10	05/10/21	
Chlorate	0.49	0.025	mg/L	0.50	ND	98	75-125	1	10	05/10/21	
Surrogate: Dichloroacetate	*2.59*			*2.5*		*104*	*90-115*			05/10/21	
Matrix Spike Dup (AEE0494-MSD2), Source: AED3120-02											
Chlorite	0.47	0.025	mg/L	0.50	ND	95	75-125	2	10	05/11/21	
Chlorate	0.55	0.025	mg/L	0.50	0.043	101	75-125	0	10	05/11/21	
Surrogate: Dichloroacetate	*2.63*			*2.5*		*105*	*90-115*			05/11/21	

EPA 300.1 - Quality Control

Batch: AEE0561 Prepared: 5/11/2021
Prep Method: Method Specific Preparation Analyst: CTD

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AEE0561-BLK1)											
Chlorite	ND	0.0050	mg/L							05/11/21	
Chlorate	ND	0.0050	mg/L							05/11/21	
Surrogate: Dichloroacetate	*0.528*			*0.50*		*106*	*90-115*			05/11/21	
Blank Spike (AEE0561-BS1)											
Chlorite	0.19	0.0050	mg/L	0.20	ND	97	85-115			05/11/21	

BSK ASSOCIATES

AEE0205

General: Project Manager Eli Velazquez

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

EPA 300.1 - Quality Control

Batch: AEE0561 Prepared: 5/11/2021
Prep Method: Method Specific Preparation Analyst: CTD

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank Spike (AEE0561-BS1)											
Chlorate	0.20	0.0050	mg/L	0.20	ND	99	85-115			05/11/21	
Surrogate: Dichloroacetate	*0.532*			*0.50*		*106*	*90-115*			05/11/21	
Blank Spike Dup (AEE0561-BSD1)											
Chlorite	0.19	0.0050	mg/L	0.20	ND	96	85-115	1	10	05/11/21	
Chlorate	0.20	0.0050	mg/L	0.20	ND	99	85-115	1	10	05/11/21	
Surrogate: Dichloroacetate	*0.543*			*0.50*		*109*	*90-115*			05/11/21	
Matrix Spike (AEE0561-MS1), Source: AEE0125-01											
Chlorite	0.52	0.025	mg/L	0.50	ND	103	75-125			05/11/21	
Chlorate	0.49	0.025	mg/L	0.50	ND	99	75-125			05/11/21	
Surrogate: Dichloroacetate	*2.55*			*2.5*		*102*	*90-115*			05/11/21	
Matrix Spike (AEE0561-MS2), Source: AEE0502-03											
Chlorite	0.50	0.025	mg/L	0.50	ND	99	75-125			05/12/21	
Chlorate	0.49	0.025	mg/L	0.50	ND	98	75-125			05/12/21	
Surrogate: Dichloroacetate	*2.51*			*2.5*		*101*	*90-115*			05/12/21	
Matrix Spike Dup (AEE0561-MSD1), Source: AEE0125-01											
Chlorite	0.50	0.025	mg/L	0.50	ND	100	75-125	3	10	05/11/21	
Chlorate	0.49	0.025	mg/L	0.50	ND	97	75-125	2	10	05/11/21	
Surrogate: Dichloroacetate	*2.56*			*2.5*		*102*	*90-115*			05/11/21	
Matrix Spike Dup (AEE0561-MSD2), Source: AEE0502-03											
Chlorite	0.49	0.025	mg/L	0.50	ND	97	75-125	2	10	05/12/21	
Chlorate	0.49	0.025	mg/L	0.50	ND	98	75-125	1	10	05/12/21	
Surrogate: Dichloroacetate	*2.57*			*2.5*		*103*	*90-115*			05/12/21	

EPA 317.0 - Quality Control

Batch: AEE0548 Prepared: 5/11/2021
Prep Method: Method Specific Preparation Analyst: DXR

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AEE0548-BLK1)											
Bromate	ND	0.0010	mg/L							05/11/21	
Blank Spike (AEE0548-BS1)											
Bromate	0.0098	0.0010	mg/L	0.010	ND	98	85-115			05/11/21	
Blank Spike Dup (AEE0548-BSD1)											
Bromate	0.010	0.0010	mg/L	0.010	ND	101	85-115	3	10	05/11/21	
Matrix Spike (AEE0548-MS1), Source: AEE0148-01											
Bromate	0.0095	0.0010	mg/L	0.010	ND	95	75-125			05/11/21	
Matrix Spike Dup (AEE0548-MSD1), Source: AEE0148-01											

BSK ASSOCIATES

AEE0205

General: Project Manager Eli Velazquez

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 317.0 - Quality Control											
Batch: AEE0548										Prepared: 5/11/2021	
Prep Method: Method Specific Preparation										Analyst: DXR	
Matrix Spike Dup (AEE0548-MSD1), Source: AEE0148-01											
Bromate	0.010	0.0010	mg/L	0.010	ND	104	75-125	9	10	05/11/21	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AEE0205 FINAL 05172021 1709

BSK ASSOCIATES

AEE0205

General: Project Manager Eli Velazquez

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters: **NA**

BSK ASSOCIATES

AEE0205

General: Project Manager Eli Velazquez

Certificate of Analysis

Certifications: Please refer to our website for a copy of our Accredited Fields of Testing under each certification.

Fresno

State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-018
State of Nevada	CA000792020-2	State of Oregon - NELAP	4021-018
EPA - UCMR4	CA00079	State of Washington	C997-21

Sacramento

State of California - ELAP	2435

San Bernardino

State of California - ELAP	2993	Los Angeles CSD	9254478
NELAP certified	4119-005	State of Oregon - NELAP	4119-005

Vancouver

NELAP certified	WA100008-014	State of Oregon - NELAP	WA100008-014
State of Washington	C824-20		

BSK Associates SR-FL-0002-22

AEE0205 BCLab4911 05/04/2021
10

Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	
Did all bottles arrive unbroken and intact?	Yes No	
Did all bottle labels agree with COC?	Yes No	
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes NA	
Were correct containers and preservatives received for the tests requested?	Yes No NA	
Bubbles Present VOAs (524.2/TTHM/TCP)?	Yes No NA	
TB Received? (Check Method Below)	Yes No NA	
Was a sufficient amount of sample received?	Yes No	
Do samples have a hold time <72 hours?	Yes No	
Was PM notified of discrepancies? PM: By/Time:	Yes No NA	

Bottles Received — "—" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?	1-4
Bacti $Na_2S_2O_3$	—	—	
None (P) White Cap	—	—	
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 DW	Cl, pH > 8	P F	
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 WW	pH 9.3-9.7	P F	
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F	
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—	
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F	
NaOH (P) Green Cap	Cl, pH >10	P F	
NaOH + ZnAc (P)	pH > 9	P F	
Dissolved Oxygen 300ml (g)	—	—	
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—	
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—	
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—	
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—	
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—	
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—	
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—	
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F	
NH_4Cl (AG) Purple Label 552	—	—	
EDA (P) or (AG) Brown Label DBPs	—	—	1A
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—	
Buffer pH 4 (CG)	—	—	
H_3PO_4 (CG) Salmon Label	—	—	
Trizma – EPA 537.1 - **Field Blank Required**			
Other:			
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—	
Bottled Water	—	—	
Clear Glass 125mL / 250mL / 500mL / 1 Liter	—	—	
Solids: Brass / Steel / Plastic Bag	—	—	

VCH 5-4-21

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P	1A (AG)	EDA	5-4-21/11:20/VCH	S P			
S P				S P			

Comments

*Preservation check completed by lab performing analysis.

✓ Indicates Blanks Received

504 ___ 524.2 ___ TTHM ___ 537.1 ___ TCP___

✓ MS/MSD Received Method: ________

Scanned: [signature] Rush/Short HT Page: ________

AEE0205 BCLab4911 05/04/2021

10

0-0#66
650 wi/gw

SUBCONTRACT ORDER

BC Laboratories

2113280

SENDING LABORATORY:

BC Laboratories
4100 Atlas Ct
Bakersfield, CA 93308
Phone: 661-327-4911
Fax: 661-327-1918
Project Manager: Eli Velazquez

RECEIVING LABORATORY:

BSK Analytical Labs- Fresno $BSKSA-EINV
1414 Stanislaus Street
Fresno, CA 93706
Phone :(800) 877-8310
Fax: (559) 485-6935

per sample
250 ml.
glass amber
MKW 4/30/21

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 2113280-01	**Water**	**Sampled:04/27/21 08:45**	[redacted]	
oi300.0w Bromate BSKSA	05/12/21 17:00	05/25/21 08:45		
oi300.0w Chlorate BSKSA	05/12/21 17:00	05/25/21 08:45		
oi300.1w Chlorite BSKSA	05/12/21 17:00	05/11/21 08:45		Chorite - 8oz amber with EDA. The HT is 14 days. Can run unpreserved, but will flag the report.
Containers Supplied:				
Sample ID: 2113280-02	**Water**	**Sampled:04/27/21 10:30**	[redacted]	
oi300.0w Bromate BSKSA	05/12/21 17:00	05/25/21 10:30		
oi300.0w Chlorate BSKSA	05/12/21 17:00	05/25/21 10:30		
oi300.1w Chlorite BSKSA	05/12/21 17:00	05/11/21 10:30		Chorite - 8oz amber with EDA. The HT is 14 days. Can run unpreserved, but will flag the report.
Containers Supplied:				
Sample ID: 2113280-03	**Water**	**Sampled:04/27/21 11:50**	[redacted]	
oi300.0w Bromate BSKSA	05/12/21 17:00	05/25/21 11:50		
oi300.0w Chlorate BSKSA	05/12/21 17:00	05/25/21 11:50		
oi300.1w Chlorite BSKSA	05/12/21 17:00	05/11/21 11:50		Chorite - 8oz amber with EDA. The HT is 14 days. Can run unpreserved, but will flag the report.
Containers Supplied:				

VCH 5-4-21

Released By	Date	Received By	Date
Amarquez	5-3-21		
		Vernon	5-4-21 11:14

Page 1 of 2

0.0 #106
650
VI, BW

AEE0205 BCLab4911 05/04/2021

10

SUBCONTRACT ORDER

BC Laboratories

2113280

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 2113280-04	**Water**	**Sampled:04/27/21 13:30**	[redacted]	
oi300.0w Bromate BSKSA	05/12/21 17:00	05/25/21 13:30		
oi300.0w Chlorate BSKSA	05/12/21 17:00	05/25/21 13:30		
oi300.1w Chlorite BSKSA	05/12/21 17:00	05/11/21 13:30		Chorite - 8oz amber with EDA. The HT is 14 days. Can run unpreserved, but will flag the report.

Containers Supplied:

VCA 5-4-21

Amarquez Released By	5-3-21 Date	Received By	Date
Released By	Date	Veronica Received By	5-4-21 11:14 Date

Page 2 of 2

CERES Analytical Laboratory, Inc.
4919 Windplay Dr Suite 1, El Dorado Hills, CA 95762

May 7, 2021

Ceres ID: 14321

BC Laboratories, Inc.
4100 Atlas Court
Bakersfield, CA 93308

The following report contains the results for the four aqueous samples received on May 4, 2021. These samples were analyzed for 2,3,7,8-TCDD by EPA method 1613B. Routine turn-around time was provided for this work.

This work was authorized under the BC Laboratories Subcontract Order: 2113280.

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

The report consists of a Cover Letter, Sample Inventory (Section I), Data Summary (Section II), Sample Tracking (Section VI), and Qualifiers/Abbreviations (Section VII). Raw Data (Section III), Continuing Calibration (Section IV), and Initial Calibration (Section V) are available in a full report (.pdf format) upon request.

If you have any questions regarding this report, please feel free to contact me at (916)932-5011.

Sincerely,

James M. Hedin
Director of Operations/CEO
jhedin@ceres-lab.com

Section I: Sample Inventory

Ceres Sample ID:	Sample ID	Date Received	Collection Date	&Time
14321-001	2113280-01	5/4/2021	4/27/2021	8:45
14321-002	2113280-02	5/4/2021	4/27/2021	10:30
14321-003	2113280-03	5/4/2021	4/27/2021	11:50
14321-004	2113280-04	5/4/2021	4/27/2021	13:30

Section II: Data Summary

CERES Analytical Laboratory, Inc.
4919 Windplay Dr Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample Method Blank Project ID: 2113280	QC Batch #: 2379 Matrix: Aqueous Sample Size: 1.000 L	Date Received: NA Date Extracted: 5/5/2021 ZB-5MS Analysis: 5/6/2021

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 3.11	0.772	5.00		13C-2378-TCDD	70.7	31-137	
					CRS			
					37Cl4-2378-TCDD	87.6	35-197	

DL - Signifies Non-Detect (ND<) sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH

Reviewed by: BS

CERES Analytical Laboratory, Inc.
4919 Windplay Dr Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample Ongoing Precision and Recovery Project ID: 2113280	QC Batch #: 2379 Matrix: Aqueous Sample Size: 1.000 L	Date Received: NA Date Extracted: 5/5/2021 ZB-5MS Analysis: 5/6/2021

Analyte	Conc. (ng/mL)	Limits (a)	Labeled Standards	% Rec.	Limits (a)
2,3,7,8-TCDD	11.2	7.3-14.6	13C-2378-TCDD	77.3	25-141
			CRS		
			37Cl4-2378-TCDD	93.1	37-158

(a) Limits based on method acceptance criteria.

Analyst: JMH Reviewed by: BS

CERES Analytical Laboratory, Inc.
4919 Windplay Dr Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: 2113280-01		
Project ID: 2113280	Ceres Sample ID: 14321-001	Date Received: 5/4/2021
	QC Batch #: 2379	Date Extracted: 5/5/2021
Date Collected: 4/27/2021	Matrix: Aqueous	ZB-5MS Analysis: 5/6/2021
Time Collected: 8:45	Sample Size: 0.935 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 3.00	0.772	5.35		13C-2378-TCDD	71.6	31-137	
					CRS			
					37Cl4-2378-TCDD	117	42-164	

DL - Signifies Non-Detect (ND<) sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH Reviewed by: BS

CERES Analytical Laboratory, Inc.
4919 Windplay Dr Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: 2113280-02		
Project ID: 2113280	Ceres Sample ID: 14321-002	Date Received: 5/4/2021
	QC Batch #: 2379	Date Extracted: 5/5/2021
Date Collected: 4/27/2021	Matrix: Aqueous	ZB-5MS Analysis: 5/6/2021
Time Collected: 10:30	Sample Size: 0.945 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 1.78	0.772	5.29		13C-2378-TCDD	77.8	31-137	
					CRS			
					37Cl4-2378-TCDD	112	42-164	

DL - Signifies Non-Detect (ND<) sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH Reviewed by: BS

CERES Analytical Laboratory, Inc.
4919 Windplay Dr Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: 2113280-03		
Project ID: 2113280	Ceres Sample ID: 14321-003	Date Received: 5/4/2021
	QC Batch #: 2379	Date Extracted: 5/5/2021
Date Collected: 4/27/2021	Matrix: Aqueous	ZB-5MS Analysis: 5/6/2021
Time Collected: 11:50	Sample Size: 0.927 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 2.64	0.772	5.39		13C-2378-TCDD	70.6	31-137	
					CRS			
					37Cl4-2378-TCDD	111	42-164	

DL - Signifies Non-Detect (ND<) sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH

Reviewed by: BS

CERES Analytical Laboratory, Inc.
4919 Windplay Dr Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: 2113280-04		
Project ID: 2113280	Ceres Sample ID: 14321-004	Date Received: 5/4/2021
	QC Batch #: 2379	Date Extracted: 5/5/2021
Date Collected: 4/27/2021	Matrix: Aqueous	ZB-5MS Analysis: 5/6/2021
Time Collected: 13:30	Sample Size: 0.930 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 3.06	0.772	5.38		13C-2378-TCDD	62.8	31-137	
					CRS			
					37Cl4-2378-TCDD	117	42-164	

DL - Signifies Non-Detect (ND<) sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH Reviewed by: BS

Section VI: Sample Tracking

SUBCONTRACT ORDER
BC Laboratories
2113280

SENDING LABORATORY:
BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308
Phone: 661-327-4911
FAX: 661-327-1918
Project Manager: Eli Velazquez

RECEIVING LABORATORY: CRSNL
Ceres Analytical Laboratory, Inc.
4919 Windplay Dr., Ste. 1
El Dorado Hills, CA 95762
Phone: (916) 932-5011
FAX: ---

1 QT Amber per sample. MCV 4/27/21 1750

Analysis		Due	Expires	Comments
Sample ID: 2113280-01	**Water**	**Sampled:**	**04/27/21 08:45**	
EPA 1613B - 2,3,7,8-TCDD		05/12/21 17:00	04/26/22 08:45	Qt Amber
Containers supplied:				
Sample ID: 2113280-02	**Water**	**Sampled:**	**04/27/21 10:30**	
EPA 1613B - 2,3,7,8-TCDD		05/12/21 17:00	04/26/22 10:30	Qt Amber
Containers supplied:				
Sample ID: 2113280-03	**Water**	**Sampled:**	**04/27/21 11:50**	
EPA 1613B - 2,3,7,8-TCDD		05/12/21 17:00	04/26/22 11:50	Qt Amber
Containers supplied:				
Sample ID: 2113280-04	**Water**	**Sampled:**	**04/27/21 13:30**	
EPA 1613B - 2,3,7,8-TCDD		05/12/21 17:00	04/26/22 13:30	Qt Amber
Containers supplied:				

Released By	Date	Received By	Date
Amorques	5-3-21	[signature]	5/4/21 1108

CRSNL

Sample Receipt Check List Logged by: ______ (initials)

Ceres ID: 14321	Date/Time: 5/4/21 1100
Client Project ID: 2113280	Received Temp: 4.5 °C Acceptable: Y / N
Chain of Custody Relinquished by signed?	Y / N
Chain of Custody Received by signed?	Y / N
Custody Seals? Present? Intact? NA:	Y / N Y / N NA
Unlabeled / Illegible Samples	Y / N
Proper Containers:	Y / N
Preservation Acceptable (Chemical or Temperature)? Drinking Water, Sodium Thiosulfate present? Residual Cl? Aqueous sample pH: 7,7,7,7	Y / N Y / N / NA Y / N

List COC discrepancies:

5/4/21

List Damaged Samples:

5/4/21

Rev 9 Form A5.0 Effective Date: 3/19/18

Section VII: Qualifiers/Abbreviations

J	Concentration found below the lower quantitation limit but greater than zero.
B	Analyte present in the associated Method Blank.
E	Concentration found exceeds the Calibration range of the HRGC/HRMS.
D	This analyte concentration was calculated from a dilution.
X	The concentration found is the estimated maximum possible concentration due to chlorinated diphenyl ethers present in the sample.
H	Recovery limits exceeded. See cover letter.
*****	Results taken from dilution.
I	Interference. See cover letter.
Conc.	Concentration Found
DL	Calculated Detection Limit
ND	Non-Detect
% Rec.	Percent Recovery

LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322108155
Customer ID: BCLA50
Customer PO:
Project ID:

Attn: Eli Velazquez
BC Laboratories, Inc.
4100 Atlas Court
Bakersfield, CA 93308

Phone: (661) 327-4911
Fax: (661) 327-1918
Received: 05/01/2021
Analyzed: 05/14/2021

Proj: 2113280

Test Report: Determination of Asbestos Structures >10µm in Drinking Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm^2)	Area Analyzed (mm^2)	ASBESTOS: Asbestos Types	Fibers Detected	Analytical Sensitivity (MFL (million fibers per liter))	Concentration (MFL)	Confidence Limits (MFL)
2113280-01 322108155-0001	5/3/2021 12:50 PM	100	1288	0.0635	None Detected	ND	0.20	<0.20	0.00 - 0.75
Collection Date/Time:	*04/27/2021 08:45 AM*								
2113280-02 322108155-0002	5/3/2021 12:50 PM	100	1288	0.0635	None Detected	ND	0.20	<0.20	0.00 - 0.75
Collection Date/Time:	*04/27/2021 10:30 AM*								
2113280-03 322108155-0003	5/3/2021 12:50 PM	15	1288	0.2540	None Detected	ND	0.34	<0.34	0.00 - 1.20
Collection Date/Time:	*04/27/2021 11:50 AM*								
Due to excessive particulate the analytical sensitivity of 0.2 MFL as required by the method was not reached.									
2113280-04 322108155-0004	5/3/2021 12:50 PM	5	1288	0.2540	None Detected	ND	1.00	<1.00	0.00 - 3.70
Collection Date/Time:	*04/27/2021 13:30 PM*								
Due to excessive particulate the analytical sensitivity of 0.2 MFL as required by the method was not reached.									

Samples ozonated prior to analysis due to lab reciept time exceeding 48 hour method hold time.

Analyst(s)
Kyeong Corbin (4)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 05/14/2021 10:48:17

Test Report: TEM100.2-2.2.0.2 Printed: 5/14/2021 10:48AM

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

June 03, 2021

Eli Velazquez
BC Laboratories
4100 Atlas Ct.
Bakersfield, CA 93308

RE: Project: 2113280
Pace Project No.: 30420437

Dear Eli Velazquez:

Enclosed are the analytical results for sample(s) received by the laboratory on May 10, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:
- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carin a. Ferris

Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

Pace Analytical
www.pacelabs.com

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: 2113280
Pace Project No.: 30420437

Pace Analytical Services Pennsylvania
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

Pace Analytical
www.pacelabs.com

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

SAMPLE SUMMARY

Project: 2113280
Pace Project No.: 30420437

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30420437001	2113280-01	Water	04/27/21 08:45	05/10/21 10:20
30420437002	2113280-02	Water	04/27/21 10:30	05/10/21 10:20
30420437003	2113280-03	Water	04/27/21 11:50	05/10/21 10:20
30420437004	2113280-04	Water	04/27/21 13:30	05/10/21 10:20

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SAMPLE ANALYTE COUNT

Project: 2113280
Pace Project No.: 30420437

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30420437001	2113280-01	EPA 900.0	ERT	2	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		ASTM D5811-95	JJY	1	PASI-PA
		EPA 906.0	CLA	1	PASI-PA
30420437002	2113280-02	EPA 900.0	ERT	2	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		ASTM D5811-95	JJY	1	PASI-PA
		EPA 906.0	CLA	1	PASI-PA
30420437003	2113280-03	EPA 900.0	ERT	2	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		ASTM D5811-95	JJY	1	PASI-PA
		EPA 906.0	CLA	1	PASI-PA
30420437004	2113280-04	EPA 900.0	ERT	2	PASI-PA
		EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
		ASTM D5811-95	JJY	1	PASI-PA
		EPA 906.0	CLA	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

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PROJECT NARRATIVE

Project: 2113280
Pace Project No.: 30420437

Method: EPA 900.0
Description: 900.0 Gross Alpha/Beta
Client: BC Laboratories
Date: June 03, 2021

General Information:
4 samples were analyzed for EPA 900.0 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 2113280
Pace Project No.: 30420437

Method: EPA 903.1
Description: 903.1 Radium 226
Client: BC Laboratories
Date: June 03, 2021

General Information:
4 samples were analyzed for EPA 903.1 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 2113280
Pace Project No.: 30420437

Method: EPA 904.0
Description: 904.0 Radium 228
Client: BC Laboratories
Date: June 03, 2021

General Information:
4 samples were analyzed for EPA 904.0 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 2113280
Pace Project No.: 30420437

Method: ASTM D5811-95
Description: ASTM D5811 Sr 89/90 Eichrom
Client: BC Laboratories
Date: June 03, 2021

General Information:
4 samples were analyzed for ASTM D5811-95 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 448411

1c: Chemical yield > 110%, less than maximum permissible of 130%. Reported with supervisor permission.

- 2113280-01 (Lab ID: 30420437001)
  - Strontium-90
- 2113280-02 (Lab ID: 30420437002)
  - Strontium-90

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- 2113280-01 (Lab ID: 30420437001)
  - Strontium-90
- 2113280-02 (Lab ID: 30420437002)
  - Strontium-90
- 2113280-03 (Lab ID: 30420437003)
  - Strontium-90
- 2113280-04 (Lab ID: 30420437004)
  - Strontium-90
- BLANK (Lab ID: 2164232)
  - Strontium-90

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PROJECT NARRATIVE

Project: 2113280
Pace Project No.: 30420437

Method: EPA 906.0
Description: 906.0 Tritium
Client: BC Laboratories
Date: June 03, 2021

General Information:
4 samples were analyzed for EPA 906.0 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2113280
Pace Project No.: 30420437

Sample: 2113280-01 Lab ID: 30420437001 Collected: 04/27/21 08:45 Received: 05/10/21 10:20 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to 01R and 5.0 ml added to 01X to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
		Pace Analytical Services - Greensburg				
Gross Alpha	EPA 900.0	1.40 ± 4.03 (7.79) C:NA T:NA	pCi/L	05/25/21 19:16	12587-46-1	
Gross Beta	EPA 900.0	4.47 ± 3.39 (5.85) C:NA T:NA	pCi/L	05/25/21 19:16	12587-47-2	
		Pace Analytical Services - Greensburg				
Radium-226	EPA 903.1	0.280 ± 0.330 (0.519) C:NA T:95%	pCi/L	06/02/21 16:18	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	0.129 ± 0.273 (0.604) C:74% T:91%	pCi/L	06/02/21 14:20	15262-20-1	
		Pace Analytical Services - Greensburg				
Strontium-90	ASTM D5811-95	-0.211 ± 0.320 (0.875) C:117% T:NA	pCi/L	05/23/21 12:24	10098-97-2	1c,N2
		Pace Analytical Services - Greensburg				
Tritium	EPA 906.0	-183 ± 142 (263) C:NA T:NA	pCi/L	05/26/21 14:10	10028-17-8	

Sample: 2113280-02 Lab ID: 30420437002 Collected: 04/27/21 10:30 Received: 05/10/21 10:20 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to 02Q to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
		Pace Analytical Services - Greensburg				
Gross Alpha	EPA 900.0	2.11 ± 1.74 (2.94) C:NA T:NA	pCi/L	05/25/21 19:16	12587-46-1	
Gross Beta	EPA 900.0	0.636 ± 1.19 (2.17) C:NA T:NA	pCi/L	05/25/21 19:16	12587-47-2	
		Pace Analytical Services - Greensburg				
Radium-226	EPA 903.1	0.281 ± 0.333 (0.523) C:NA T:92%	pCi/L	06/02/21 16:18	13982-63-3	
		Pace Analytical Services - Greensburg				
Radium-228	EPA 904.0	0.323 ± 0.592 (1.30) C:74% T:93%	pCi/L	06/02/21 18:43	15262-20-1	
		Pace Analytical Services - Greensburg				
Strontium-90	ASTM D5811-95	-0.166 ± 0.351 (0.935) C:111% T:NA	pCi/L	05/23/21 12:24	10098-97-2	1c,N2
		Pace Analytical Services - Greensburg				
Tritium	EPA 906.0	-230 ± 140 (262) C:NA T:NA	pCi/L	05/26/21 15:11	10028-17-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2113280
Pace Project No.: 30420437

Sample: 2113280-03 Lab ID: 30420437003 Collected: 04/27/21 11:50 Received: 05/10/21 10:20 Matrix: Water
PWS: Site ID: Sample Type:
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to 03Q to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Gross Alpha	EPA 900.0	1.35 ± 1.50 (2.66) C:NA T:NA	pCi/L	05/25/21 19:16	12587-46-1	
Gross Beta	EPA 900.0	1.62 ± 1.09 (1.86) C:NA T:NA	pCi/L	05/25/21 19:16	12587-47-2	
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	0.327 ± 0.304 (0.401) C:NA T:101%	pCi/L	06/02/21 16:18	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.677 ± 0.425 (0.807) C:74% T:90%	pCi/L	06/02/21 14:23	15262-20-1	
	Pace Analytical Services - Greensburg					
Strontium-90	ASTM D5811-95	0.253 ± 0.400 (0.899) C:109% T:NA	pCi/L	05/23/21 12:24	10098-97-2	N2
	Pace Analytical Services - Greensburg					
Tritium	EPA 906.0	-168 ± 142 (263) C:NA T:NA	pCi/L	05/26/21 16:12	10028-17-8	

Sample: 2113280-04 Lab ID: 30420437004 Collected: 04/27/21 13:30 Received: 05/10/21 10:20 Matrix: Water
PWS: Site ID: Sample Type:
Comments: • Upon receipt at the laboratory, 5 mls of nitric acid were added to the 04Q to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Gross Alpha	EPA 900.0	1.46 ± 1.26 (2.14) C:NA T:NA	pCi/L	05/25/21 19:16	12587-46-1	
Gross Beta	EPA 900.0	1.54 ± 0.875 (1.43) C:NA T:NA	pCi/L	05/25/21 19:16	12587-47-2	
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.0593 ± 0.271 (0.551) C:NA T:87%	pCi/L	06/02/21 16:18	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.403 ± 0.374 (0.766) C:72% T:91%	pCi/L	06/02/21 14:23	15262-20-1	
	Pace Analytical Services - Greensburg					
Strontium-90	ASTM D5811-95	-0.131 ± 0.379 (0.994) C:105% T:NA	pCi/L	05/23/21 12:24	10098-97-2	N2
	Pace Analytical Services - Greensburg					
Tritium	EPA 906.0	-213 ± 141 (263) C:NA T:NA	pCi/L	05/26/21 17:14	10028-17-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2113280
Pace Project No.: 30420437

QC Batch: 449122
QC Batch Method: EPA 904.0
Analysis Method: EPA 904.0
Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30420437001, 30420437002, 30420437003, 30420437004

METHOD BLANK: 2167437 Matrix: Water
Associated Lab Samples: 30420437001, 30420437002, 30420437003, 30420437004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.158 ± 0.361 (0.801) C:66% T:82%	pCi/L	06/02/21 11:22	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2113280
Pace Project No.: 30420437

QC Batch: 449095 Analysis Method: EPA 900.0
QC Batch Method: EPA 900.0 Analysis Description: 900.0 Gross Alpha/Beta
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30420437001, 30420437002, 30420437003, 30420437004

METHOD BLANK: 2167386 Matrix: Water
Associated Lab Samples: 30420437001, 30420437002, 30420437003, 30420437004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Gross Alpha	-0.271 ± 0.203 (0.463) C:NA T:NA	pCi/L	05/25/21 18:54	
Gross Beta	-0.144 ± 0.356 (0.688) C:NA T:NA	pCi/L	05/25/21 18:54	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2113280
Pace Project No.: 30420437

QC Batch: 448411
QC Batch Method: ASTM D5811-95
Analysis Method: ASTM D5811-95
Analysis Description: ASTM D5811 Sr 89/90 Eichrom
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30420437001, 30420437002, 30420437003, 30420437004

METHOD BLANK: 2164232 Matrix: Water
Associated Lab Samples: 30420437001, 30420437002, 30420437003, 30420437004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Strontium-90	-0.0280 ± 0.342 (0.868) C:108% T:NA	pCi/L	05/23/21 12:24	N2

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2113280
Pace Project No.: 30420437

QC Batch: 449121
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30420437001, 30420437002, 30420437003, 30420437004

METHOD BLANK: 2167433 Matrix: Water
Associated Lab Samples: 30420437001, 30420437002, 30420437003, 30420437004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	-0.130 ± 0.225 (0.568) C:NA T:94%	pCi/L	06/02/21 15:30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 2113280
Pace Project No.: 30420437

QC Batch: 449120 Analysis Method: EPA 906.0
QC Batch Method: EPA 906.0 Analysis Description: 906.0 Tritium
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30420437001, 30420437002, 30420437003, 30420437004

METHOD BLANK: 2167430 Matrix: Water
Associated Lab Samples: 30420437001, 30420437002, 30420437003, 30420437004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Tritium	-92.3 ± 145 (262) C:NA T:NA	pCi/L	05/25/21 17:40	

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QUALIFIERS

Project: 2113280
Pace Project No.: 30420437

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

1c	Chemical yield > 110%, less than maximum permissible of 130%. Reported with supervisor permission.
N2	The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

SUBCONTRACT ORDER

BC Laboratories

~~2113280~~

SENDING LABORATORY:

BC Laboratories
4100 Atlas Ct
Bakersfield, CA 93308
Phone: 661-327-4911
Fax: 661-327-1918
Project Manager: Eli Velazquez

RECEIVING LABORATORY:

PACE Analytical - PA $PACEA
1638 Roseytown Road, Ste 2,3 &4
Greensburg, PA 15601
Phone :(724) 850-5600
Fax: (724) 850-5601

PER SAMPLE
3 - QT METALS
1 QT UNPRES.
1 PT GLASS AMBER
MW 4/30/21 11:19

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 2113280-01	**Water**	**Sampled:04/27/21 08:45**		001
om900.0Mw Gross Alpha/Beta PACEA	05/12/21 17:00	10/25/21 08:45		Qt Metals
om903.0w Radium226 PACEA	05/12/21 17:00	10/25/21 08:45		
om904.0w Radium228 PACEA	05/12/21 17:00	10/25/21 08:45		
om905.0w Strontium-90 PACEA	05/12/21 17:00	10/25/21 08:45		Qt PE
om906.0w Tritium PACEA	05/12/21 17:00	10/25/21 08:45		Pint Amber unpreserved
Containers Supplied:				
Sample ID: 2113280-02	**Water**	**Sampled:04/27/21 10:30**		002
om900.0Mw Gross Alpha/Beta PACEA	05/12/21 17:00	10/25/21 10:30		Qt Metals
om903.0w Radium226 PACEA	05/12/21 17:00	10/25/21 10:30		
om904.0w Radium228 PACEA	05/12/21 17:00	10/25/21 10:30		
om905.0w Strontium-90 PACEA	05/12/21 17:00	10/25/21 10:30		Qt PE
om906.0w Tritium PACEA	05/12/21 17:00	10/25/21 10:30		Pint Amber unpreserved
Containers Supplied:				

WO#: 30420437
30420437

Released By	Date 5/3/21	Received By	Date 5-4-21
Released By	Date 5-4-21	Received By	Date 5-10-21 10:20

SUBCONTRACT ORDER

BC Laboratories

~~2113280~~

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 2113280-03	**Water**	**Sampled:04/27/21 11:50**		003
om900.0Mw Gross Alpha/Beta PACEA	05/12/21 17:00	10/25/21 11:50		Qt Metals
om903.0w Radium226 PACEA	05/12/21 17:00	10/25/21 11:50		
om904.0w Radium228 PACEA	05/12/21 17:00	10/25/21 11:50		
om905.0w Strontium-90 PACEA	05/12/21 17:00	10/25/21 11:50		Qt PE
om906.0w Tritium PACEA	05/12/21 17:00	10/25/21 11:50		Pint Amber unpreserved
Containers Supplied:				
Sample ID: 2113280-04	**Water**	**Sampled:04/27/21 13:30**		004
om900.0Mw Gross Alpha/Beta PACEA	05/12/21 17:00	10/25/21 13:30		Qt Metals
om903.0w Radium226 PACEA	05/12/21 17:00	10/25/21 13:30		
om904.0w Radium228 PACEA	05/12/21 17:00	10/25/21 13:30		
om905.0w Strontium-90 PACEA	05/12/21 17:00	10/25/21 13:30		Qt PE
om906.0w Tritium PACEA	05/12/21 17:00	10/25/21 13:30		Pint Amber unpreserved
Containers Supplied:				

WO#: 30420437
PM: CAF Due Date: 06/01/21
CLIENT: BCLABS

Released By	5/3/21 Date	Received By	5-4-21 Date
Released By	5-4-21 Date	Received By	5-10-21 10:20 Date

Page 2 of 2

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: BC Laboratories Project #

Label AF
LIMS Login AF

WO#: 30420437
PM: CRF Due Date: 06/01/21
CLIENT: BCLABS

Courier: ☐ Fed Ex ☑ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #: 1Z 965 376 03 4198 4526 (see below)

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Thermometer Used — Type of Ice: Wet Blue (None)

Cooler Temperature Observed Temp — °C Correction Factor: — °C Final Temp: — °C

Temp should be above freezing to 6°C

pH paper Lot# 10D1101

Date and Initials of person examining contents: 5-12-21 JA

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓			3.
Sampler Name & Signature on COC:		✓		4. no name or signature
Sample Labels match COC:	✓			5.
-Includes date/time/ID Matrix: WT				
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used:	✓			10.
-Pace Containers Used:		✓		
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Hex Cr Aqueous sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	✓			16. added 2.5 mL HNO_3 to samples 2113280-01R, 2113280-02Q, 2113280-03Q - added 5 mL HNO_3 to samples 2113280-01K, 2113280-04Q
All containers meet method preservation requirements.		✓		Initial when completed JA; Date/time of preservation 5-12-21 16:14
				Lot # of added preservative DL21-0439
Headspace in VOA Vials (>6mm):			✓	17.
Trip Blank Present:			✓	18.
Trip Blank Custody Seals Present			✓	
Rad Samples Screened < 0.5 mrem/hr	✓			Initial when completed: JA; Date: 5-12-21; Survey Meter SN: 563

Client Notification/ Resolution:

Person Contacted: Date/Time: Contacted By:

Comments/ Resolution:

1Z 965 376 03 4294 7510

2113280-03 - one sample missing

☐ **A check in this box indicates that additional information has been stored in ereports.**

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

J:\QAQC\17_Master\Document Management\Sample Mgt\Mastercontrol\ENV-FRM-GBUR-0088 00 Sample Condition Upon Receipt-Pittsburgh Page 20 of 20

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders:	1E11110	Report Date:	5/25/2021
		Received Date:	5/11/2021
Project:	2113280	Turnaround Time:	Normal
		Phones:	(661) 327-4911
		Fax:	(661) 327-1918
Attn:	BC Laboratories	P.O. #:	
Client:	BC Laboratories 4100 Atlas Court Bakersfield, CA 93308	Billing Code:	

Dear BC Laboratories,

Enclosed are the results of analyses for samples received 5/11/21 with the Chain-of-Custody document. The samples were received in good condition, at 11.1 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: 2113280-01 — Sampled: 04/27/21 8:45 by Client
1E11110-01 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 521		**Instr:** GCMS09				
Batch ID: W1E0773 — **Preparation:** EPA 521/SPE		**Prepared:** 05/14/21 09:14				**Analyst:** mld
N-Nitrosodiethylamine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosodimethylamine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosodi-n-butylamine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosodi-n-propylamine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosomethylethylamine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosomorpholine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosopiperidine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosopyrrolidine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
Surrogate(s)						
NDMA-d6	*80%*	*70-130*	*Conc: 20.1*		*05/15/21*	*A-01, O-15*
Method: EPA 522		**Instr:** GCMS20				
Batch ID: W1E0900 — **Preparation:** EPA 522/SPE		**Prepared:** 05/18/21 08:36				**Analyst:** mld
1,4-Dioxane	ND	0.070	ug/l	1	05/18/21	
Surrogate(s)						
1,4-Dioxane-d8	*110%*	*70-130*	*Conc: 11.0*		*05/18/21*	
Method: EPA 8015B		**Instr:** GC09				
Batch ID: W1E0709 — **Preparation:** _NONE (SVOC)		**Prepared:** 05/13/21 10:14				**Analyst:** rjg

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Sample Results

(Continued)

Sample: 2113280-01 Sampled: 04/27/21 8:45 by Client
1E11110-01 (Water) (Continued)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 8015B		**Instr:** GC09				
Batch ID: W1E0709 **Preparation:** _NONE (SVOC)		**Prepared:** 05/13/21 10:14				**Analyst:** rjg
Ethylene glycol	ND	10	mg/l	1	05/13/21	O-09

Sample: 2113280-02 Sampled: 04/27/21 10:30 by Client
1E11110-02 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 521		**Instr:** GCMS09				
Batch ID: W1E0773 **Preparation:** EPA 521/SPE		**Prepared:** 05/14/21 09:14				**Analyst:** mld
N-Nitrosodiethylamine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosodimethylamine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosodi-n-butylamine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosodi-n-propylamine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosomethylethylamine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosomorpholine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosopiperidine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosopyrrolidine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
Surrogate(s)						
NDMA-d6	*81%*	*70-130*	*Conc: 20.1*		*05/15/21*	*A-01, O-15*
Method: EPA 522		**Instr:** GCMS20				
Batch ID: W1E0900 **Preparation:** EPA 522/SPE		**Prepared:** 05/18/21 08:36				**Analyst:** mld
1,4-Dioxane	ND	0.070	ug/l	1	05/18/21	
Surrogate(s)						
1,4-Dioxane-d8	*114%*	*70-130*	*Conc: 11.4*		*05/18/21*	
Method: EPA 8015B		**Instr:** GC09				
Batch ID: W1E0709 **Preparation:** _NONE (SVOC)		**Prepared:** 05/13/21 10:14				**Analyst:** rjg
Ethylene glycol	ND	10	mg/l	1	05/13/21	O-09

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Certificate of Analysis

FINAL REPORT

Sample Results

(Continued)

Sample: 2113280-03 Sampled: 04/27/21 11:50 by Client
1E11110-03 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 521		**Instr:** GCMS09				
Batch ID: W1E0773 **Preparation:** EPA 521/SPE		**Prepared:** 05/14/21 09:14				**Analyst:** mld
N-Nitrosodiethylamine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosodimethylamine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosodi-n-butylamine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosodi-n-propylamine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosomethylethylamine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosomorpholine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosopiperidine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosopyrrolidine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
Surrogate(s)						
NDMA-d6	*87%*	*70-130*	*Conc: 21.7*		*05/15/21*	*A-01, O-15*
Method: EPA 522		**Instr:** GCMS20				
Batch ID: W1E0900 **Preparation:** EPA 522/SPE		**Prepared:** 05/18/21 08:36				**Analyst:** mld
1,4-Dioxane	ND	0.070	ug/l	1	05/18/21	
Surrogate(s)						
1,4-Dioxane-d8	*108%*	*70-130*	*Conc: 10.8*		*05/18/21*	
Method: EPA 8015B		**Instr:** GC09				
Batch ID: W1E0709 **Preparation:** _NONE (SVOC)		**Prepared:** 05/13/21 10:14				**Analyst:** rjg
Ethylene glycol	ND	10	mg/l	1	05/13/21	O-09

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FINAL REPORT

Sample Results

(Continued)

Sample: 2113280-04 Sampled: 04/27/21 13:30 by Client

1E11110-04 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 521		**Instr:** GCMS09				
Batch ID: W1E0773 **Preparation:** EPA 521/SPE		**Prepared:** 05/14/21 09:14				**Analyst:** mld
N-Nitrosodiethylamine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosodimethylamine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosodi-n-butylamine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosodi-n-propylamine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosomethylethylamine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosomorpholine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosopiperidine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
N-Nitrosopyrrolidine	ND	2.0	ng/l	1	05/15/21	A-01, O-15
Surrogate(s)						
NDMA-d6	*70%*	*70-130*	*Conc: 17.6*		*05/15/21*	*A-01, O-15*
Method: EPA 522		**Instr:** GCMS20				
Batch ID: W1E0900 **Preparation:** EPA 522/SPE		**Prepared:** 05/18/21 08:36				**Analyst:** mld
1,4-Dioxane	ND	0.070	ug/l	1	05/18/21	
Surrogate(s)						
1,4-Dioxane-d8	*119%*	*70-130*	*Conc: 11.9*		*05/18/21*	
Method: EPA 8015B		**Instr:** GC09				
Batch ID: W1E0709 **Preparation:** _NONE (SVOC)		**Prepared:** 05/13/21 10:14				**Analyst:** rjg
Ethylene glycol	ND	10	mg/l	1	05/13/21	O-09

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Quality Control Results

1,4-Dioxane by SPE/GCMS SIM, EPA Method 522

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W1E0900 - EPA 522/SPE										
Blank (W1E0900-BLK1)				**Prepared & Analyzed: 05/18/21**						
1,4-Dioxane	ND	0.070	ug/l							
Surrogate(s)										
1,4-Dioxane-d8	*10.7*		*ug/l*	*10.0*		*107*	*70-130*			
LCS (W1E0900-BS1)				**Prepared & Analyzed: 05/18/21**						
1,4-Dioxane	0.0886	0.070	ug/l	0.0600		148	50-150			
Surrogate(s)										
1,4-Dioxane-d8	*12.5*		*ug/l*	*10.0*		*125*	*70-130*			
LCS Dup (W1E0900-BSD1)				**Prepared & Analyzed: 05/18/21**						
1,4-Dioxane	0.0829	0.070	ug/l	0.0600		138	50-150	7	30	
Surrogate(s)										
1,4-Dioxane-d8	*11.5*		*ug/l*	*10.0*		*115*	*70-130*			

Glycols by GC/FID

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W1E0709 - _NONE (SVOC)										
Blank (W1E0709-BLK1)				**Prepared & Analyzed: 05/13/21**						
Ethylene glycol	ND	10	mg/l							
LCS (W1E0709-BS1)				**Prepared & Analyzed: 05/13/21**						
Ethylene glycol	90.6	10	mg/l	100		91	70-130			
Matrix Spike (W1E0709-MS1)	**Source: 1C29077-01**			**Prepared & Analyzed: 05/13/21**						
Ethylene glycol	98.0	10	mg/l	100	*ND*	98	57-127			
Matrix Spike Dup (W1E0709-MSD1)	**Source: 1C29077-01**			**Prepared & Analyzed: 05/13/21**						
Ethylene glycol	94.3	10	mg/l	100	*ND*	94	57-127	4	25	

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Quality Control Results

(Continued)

Nitrosamines by CI GC/MS/MS, EPA 521

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W1E0773 - EPA 521/SPE										
Blank (W1E0773-BLK1)				Prepared: 05/14/21 Analyzed: 05/15/21						
N-Nitrosodiethylamine	ND	2.0	ng/l							
N-Nitrosodimethylamine	ND	2.0	ng/l							
N-Nitrosodi-n-butylamine	ND	2.0	ng/l							
N-Nitrosodi-n-propylamine	ND	2.0	ng/l							
N-Nitrosomethylethylamine	ND	2.0	ng/l							
N-Nitrosomorpholine	ND	2.0	ng/l							
N-Nitrosopiperidine	ND	2.0	ng/l							
N-Nitrosopyrrolidine	ND	2.0	ng/l							
Surrogate(s)										
NDMA-d6	*24.0*		*ng/l*	*25.0*		*96*	*70-130*			
LCS (W1E0773-BS1)				Prepared: 05/14/21 Analyzed: 05/15/21						
N-Nitrosodiethylamine	2.10	2.0	ng/l	2.00		105	50-150			
N-Nitrosodimethylamine	2.10	2.0	ng/l	2.00		105	50-150			
N-Nitrosodi-n-butylamine	1.53	2.0	ng/l	2.00		76	50-150			
N-Nitrosodi-n-propylamine	1.41	2.0	ng/l	2.00		70	50-150			
N-Nitrosomethylethylamine	2.09	2.0	ng/l	2.00		104	50-150			
N-Nitrosomorpholine	2.05	2.0	ng/l	2.00		103	50-150			
N-Nitrosopiperidine	1.77	2.0	ng/l	2.00		89	50-150			
N-Nitrosopyrrolidine	1.61	2.0	ng/l	2.00		80	50-150			
Surrogate(s)										
NDMA-d6	*26.0*		*ng/l*	*25.0*		*104*	*70-130*			
Matrix Spike (W1E0773-MS1)	Source: 1E12052-01			Prepared: 05/14/21 Analyzed: 05/15/21						
N-Nitrosodiethylamine	2.22	2.0	ng/l	2.02	*ND*	110	50-150			
N-Nitrosodimethylamine	2.55	2.0	ng/l	2.02	*ND*	126	50-150			
N-Nitrosodi-n-butylamine	0.468	2.0	ng/l	2.02	*ND*	23	50-150			MS-01
N-Nitrosodi-n-propylamine	1.21	2.0	ng/l	2.02	*ND*	60	50-150			
N-Nitrosomethylethylamine	2.07	2.0	ng/l	2.02	*ND*	103	50-150			
N-Nitrosomorpholine	3.88	2.0	ng/l	2.02	*2.19*	84	50-150			
N-Nitrosopiperidine	2.08	2.0	ng/l	2.02	*0.603*	73	50-150			
N-Nitrosopyrrolidine	2.12	2.0	ng/l	2.02	*0.515*	80	50-150			
Surrogate(s)										
NDMA-d6	*24.9*		*ng/l*	*25.2*		*99*	*70-130*			
Matrix Spike Dup (W1E0773-MSD1)	Source: 1E12052-01			Prepared: 05/14/21 Analyzed: 05/15/21						
N-Nitrosodiethylamine	2.24	2.0	ng/l	2.10	*ND*	107	50-150	0.9	50	
N-Nitrosodimethylamine	2.36	2.0	ng/l	2.10	*ND*	112	50-150	8	50	
N-Nitrosodi-n-butylamine	0.506	2.0	ng/l	2.10	*ND*	24	50-150	8	50	MS-01
N-Nitrosodi-n-propylamine	1.86	2.0	ng/l	2.10	*ND*	89	50-150	42	50	
N-Nitrosomethylethylamine	2.04	2.0	ng/l	2.10	*ND*	97	50-150	1	50	
N-Nitrosomorpholine	5.17	2.0	ng/l	2.10	*2.19*	142	50-150	29	50	
N-Nitrosopiperidine	2.29	2.0	ng/l	2.10	*0.603*	81	50-150	10	50	
N-Nitrosopyrrolidine	2.55	2.0	ng/l	2.10	*0.515*	97	50-150	18	50	
Surrogate(s)										
NDMA-d6	*26.3*		*ng/l*	*26.2*		*100*	*70-130*			

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Certificate of Analysis

FINAL REPORT

Notes and Definitions

Item	Definition
A-01	Sample was received in incorrect container and no preservative.
MS-01	The spike recovery for this QC sample is outside of established control limits possibly due to sample matrix interference.
O-09	This sample was received with the EPA recommended holding time expired.
O-15	The sample was received with the recommended holding time nearly expired. It was analyzed as soon as possible but the maximum holding time was slightly exceeded.
%REC	Percent Recovery
Dil	Dilution
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Analyses Accreditation Summary

Analyte	CAS #	Not By NELAP	ANAB ISO 17025
EPA 521 in Water			
N-Nitrosodimethylamine	62-75-9	✓	
N-Nitrosomethylethylamine	10595-95-6	✓	
N-Nitrosodiethylamine	55-18-5	✓	
N-Nitrosodi-n-propylamine	621-64-7	✓	
N-Nitrosomorpholine	59-89-2	✓	
N-Nitrosopyrrolidine	930-55-2	✓	
N-Nitrosopiperidine	100-75-4	✓	
N-Nitrosodi-n-butylamine	924-16-3	✓	
NDMA-d6		✓	

Reviewed by:

Brandon Gee
Operations Manager/Senior PM

California Water Boards

1964 50th Anniversary 2014

DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • ISO17025 ANAB #L2457.01 • LACSD #10143 • NJ-DEP #CA015

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

City of Morro Bay	**Reported:** 06/18/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Notes And Definitions

J	Estimated Value (CLP Flag)
MDL	Method Detection Limit
ND	Analyte Not Detected
PQL	Practical Quantitation Limit
A02	The difference between duplicate readings is less than the quantitation limit.
A03	The sample concentration was more than 4 times the spike level.
A07	Detection and quantitation limits were raised due to sample dilution caused by high analyte concentration or matrix interference.
A20	Surrogate is low due to matrix interference. Interference verified through second extraction/analysis.
L01	The Laboratory Control Sample Water (LCSW) recovery is not within laboratory established control limits.
Q02	Matrix spike precision is not within the control limits.
Q03	Matrix spike recovery(s) was(were) not within the control limits.
S09	The surrogate recovery for this compound was not within the control limits.
V11	The Continuing Calibration Verification (CCV) recovery was not within established control limits.

Appendix C

Morro Bay July 2021 Sampling Event

Analytical Laboratory Reports

Date of Report: 08/17/2021

John Gunderlock

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Client Project:	[none]
BCL Project:	Morro Bay Wells
BCL Work Order:	2122475
Invoice ID:	B425807

Enclosed are the results of analyses for samples received by the laboratory on 7/14/2021. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Eli Velazquez
Client Service Rep

Stuart Buttram
Technical Director

Table of Contents

Table of Contents

Table of Contents

BC LABORATORIES

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(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

Chain of Custody

* Required Fields 21-22475 TEMP: ______

Client/Company Name *: City of Morro Bay
Report Attention *: John Gunderlock
Phone * 805.772.6272 FAX * #:
E-mail: jgunderlock@morrobayca.gov

Address *: 955 Shasta Ave. City *: Morro Bay State *: CA Zip *: 93442

Project Information: Morro Bay Wells
PO #
BCL Quote #

Carbon Copies: CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co ☐ Other:

How would you like your completed results sent? ☒ E-Mail ☐ Fax ☒ EDD ☐ Mail Only

Regulatory Compliance
Electronic Data Transfer: Y ☐ N ☐
System No. *

Sampler Name Printed / Signature: John Gunderlock
QC Request: ☒ STD ☐ Level II
Result Request ** Surcharge: ☒ STD ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**

Matrix Types: RSW = Raw Surface Water / CFW = Clorinated Finished Water CWW = Chorinated Waste Water BW = Bottled Water
RGW = Raw Ground Water FW = Finished Water WW = Waste Water SW = Storm Water DW = Drinking Water SO = Solid

ANALYSIS REQUESTED

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	624 VOCs see list	524 Full List	335.4 Cyanide	300 See below list	218.6 Cr-6	353.2 Nitrite as N	314 Perchlorate	515 Chlorinated Herbicides	504 EDB/DBCP
-1		7/13/21	0825	H.S. Well #2	GW	EPA 300: Chloride, Fluoride, Sulfate,	X	X	X	X	X	X	X	X	X
-2			1012	Well #3		Nitrate									
-3			1145	19P-04		EPA 8260: Acrolein, Acrylonitrile,									
-4			1401	Vista		2-Chloroethylvinyl ether									

SHORT HOLDING TIME
Cr+6 NO2 NO3 OP SS
DO Cl2 BOD MBAS COT

CHK BY: GA
DISTRIBUTION
SUB OUT ☒

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
John Gunderlock	MB	7/14/21	1325		BC
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
		7/14/21	2030		
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery:	
Patrick E		7/14/21	2030	Date: Amount: Check/Cash/Card PIA # Init.	

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER
Cooling Method: WET BLUE NONE
Packing Material:

Chain of Custody and Cooler Receipt Form for 2122475 Page 2 of 13

BC LABORATORIES

4100 Atlas Court Bakersfield, Ca. 93308
(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

Chain of Custody

21-22475

* Required Fields

TEMP: ______

Client/Company Name *: City of Morro Bay	Report Attention *: John Gunderlock	Phone 805.772.6272 FAX * #: E-mail jgunderlock@morrobayca.gov
Address *: 955 Shasta Ave. City *: Morro Bay State *: CA Zip *: 93442		Carbon Copies: CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co ☐ Other:
Project Information: Morro Bay Wells	PO # BCL Quote #	
How would you like your completed results sent? ☒ E-Mail ☐ Fax ☒ EDD ☐ Mail Only		Regulatory Compliance Electronic Data Transfer: Y ☐ N ☐ System No. *
Sampler Name Printed / Signature: John Gunderlock	QC Request ☒ STD ☐ Level II	Result Request ** Surcharge ☒ STD ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**

Matrix Types: RSW = Raw Surface Water CFW = Clorinated Finished Water CWW = Chorinated Waste Water BW = Bottled Water
RGW = Raw Ground Water FW = Finished Water WW = Waste Water SW = Storm Water DW = Drinking Water SO = Solid

ANALYSIS REQUESTED

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	8270-SVOCs	525-SOCs	8330B-Explosives	SM 2120 B - Color	SM 2130 B - Turbidity	SM 2150 B - Odor	SM 2510 - S.C.	SM 2540 C - TDS	SM 5310 C - TOC
-1		7/13/21	0825	H.S. Well #2	GW		X	X	X	X	X	X	X	X	X
-2		↓	1012	Well #3	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓
-3		↓	1145	19P-04	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓
-4		↓	1401	Vistra	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
John Gunderlock	MB	7/14/21	1325	[signature]	BC
[signature]	BC	7-14-21	2030		

Received for Lab by: (Signature and Printed Name)	Date	Time	Payment Received at Delivery:
Patrick G	7/14/21	2030	Date: Amount: Check/Cash/Card PIA # Init.

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER

Cooling Method: WET BLUE NONE

Packing Material:

BC LABORATORIES

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(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

Chain of Custody

* Required Fields 21-22475 TEMP: ______

Client/Company Name *:	Report Attention *:	Phone 805.772.6272 FAX *#:
City of Morro Bay	John Gunderlock	E-mail jgunderlock@morrobayca.gov

Address *: 955 Shasta Ave. City *: Morro Bay State *: CA Zip *: 93442

Project Information: Morro Bay Wells
PO #
BCL Quote #

How would you like your completed results sent? ☒ E-Mail ☐ Fax ☒ EDD ☐ Mail Only

Carbon Copies: CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co ☐ Other:

Regulatory Compliance
Electronic Data Transfer: Y☐ N☐
System No. *

Sampler Name Printed / Signature: John Gunderlock

QC Request: ☒ STD ☐ Level II

Result Request ** Surcharge: ☒ STD ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**

Matrix Types: RSW = Raw Surface Water, RGW = Raw Ground Water, CFW = Clorinated Finished Water, FW = Finished Water, CWW = Chlorinated Waste Water, WW = Waste Water, SW = Storm Water, BW = Bottled Water, DW = Drinking Water, SO = Solid

ANALYSIS REQUESTED

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	SM 5540C - MBAS	SRL 524M - TCP	200.7 / 200.8 (See List)*	531 Carbamates	548 Endothall	549 Diquat	552 HAA5	556 Formaldehyde	508 Pesticides & PCBs
-1		7/13/21	0825	H.S. Well #2	GW	* Al, Ba, B, Fe, Mn, Sb, As, Be, Cd, Cr, Li	X	X	X	X	X	X	X	X	X
-2		↓	1012	Well #3	↓	Cu, Co, Pb, Hg, Mo, Ni, Se, Ag, Tl, U, V, Zn	↓	↓	↓	↓	↓	↓	↓	↓	↓
-3		↓	1145	19P-04	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓
-4		↓	1401	Vistra	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
John Gunderlock	MB	7/14/21	1325	[signature]	BC
M Ray Mason	BC	7/14/21	2030		

Received for Lab by: (Signature and Printed Name)	Date	Time	Payment Received at Delivery:
Patrick E	7/14/21	2030	Date: Amount: Check/Cash/Card PIA # Init.

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER
Cooling Method: WET BLUE NONE
Packing Material:

SR-FL-0012-00 (Analysis)

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Chain of Custody

21-22475

* Required Fields

TEMP: ________

Client/Company Name *: City of Morro Bay	Report Attention *: John Gunderlock	Phone 805 772.6272 FAX * #: E-mail: jgunderlock@morrobayca.gov
Address *: 955 Shasta Ave. City *: Morro Bay State *: CA Zip *: 93442		Carbon Copies: CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co ☐ Other:
Project Information: Morro Bay Wells	PO #: BCL Quote #:	
How would you like your completed results sent? ☒ E-Mail ☐ Fax ☒ EDD ☐ Mail Only		Regulatory Compliance: Electronic Data Transfer: Y ☐ N ☐ System No. *
Sampler Name Printed / Signature: John Gunderlock	QC Request: ☒ STD ☐ Level II	Result Request ** Surcharge: ☒ STD ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**

Matrix Types: RSW = Raw Surface Water / CFW = Chlorinated Finished Water CWW = Chlorinated Waste Water BW = Bottled Water
RGW = Raw Ground Water FW = Finished Water WW = Waste Water SW = Storm Water DW = Drinking Water SO = Solid

ANALYSIS REQUESTED

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	300.1 Chlorate, Chlorite (SUB)	317 Bromate (SUB)	521 Nitrosamines (SUB)	Low Level 1,4-Dioxane (SUB)	1613 2,3,7,8-TCDD(Dioxin) SUB		Chromium III (Calculation)	Nitrate + Nitrite as N (Calculation)	Total Nitrogen as N (Calculation)
-1		7/13/21	0825	H.S. Well #2	GW		X	X	X	X	X		X	X	X
-2		↓	1012	Well #3	↓		↓	↓	↓	↓	↓		↓	↓	↓
-3		↓	1145	19P-04	↓		↓	↓	↓	↓	↓		↓	↓	↓
-4		↓	1401	Vistra	↓		↓	↓	↓	↓	↓		↓	↓	↓

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Print Name)	Company
John Gunderlock	MB	7/14/21	1325	[signature]	BC
[signature]	BC	7/14/21	2030		

Received for Lab by: (Signature and Printed Name)	Date	Time	Payment Received at Delivery:
Patrick E	7/14/21	2030	Date: Amount: Check/Cash/Card PIA # Init.

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER

Cooling Method: WET BLUE NONE

Packing Material:

BC LABORATORIES

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(661) 327-4911 • FAX (661) 327-1918 • www.bclabs.com

Chain of Custody

* Required Fields 21-22475 TEMP: ________

Client/Company Name *: City of Morro Bay	Report Attention *: John Gunderlock	Phone 805.772.6272 FAX * #: E-mail jgunderlock@morrobayca.gov
Address *: 955 Shasta Ave. City *: Morro Bay State *: CA Zip *: 93442		Carbon Copies: ☐ CDHS ☐ Fresno Co ☐ EPA ☐ Merced Co ☐ Tulare Co Other:
Project Information: Morro Bay Wells	PO # BCL Quote #	
How would you like your completed results sent? ☒ E-Mail ☐ Fax ☒ EDD ☐ Mail Only		Regulatory Compliance Electronic Data Transfer: Y☐ N☐ System No. *
Sampler Name Printed / Signature: John Gunderlock	QC Request: ☒ STD ☐ Level II	Result Request ** Surcharge: ☒ STD ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**

Matrix Types: RSW = Raw Surface Water CFW = Chlorinated Finished Water CWW = Chlorinated Waste Water BW = Bottled Water RGW = Raw Ground Water FW = Finished Water WW = Waste Water SW = Storm Water DW = Drinking Water SO = Solid

ANALYSIS REQUESTED

Sample #	# Bottles	Sampled Date	Sampled Time	Sample Description / Location *	Matrix *	Comments / Station Code	900 Gross Alpha/Beta (SUB)	903 Radium 226 (SUB)	905 Strontium (SUB)	906 Tritium (SUB)	Ra-05 Radium 228 (SUB)	547 Glyphosate	8015-Ethylene Glycol (SUB)	100.2 Asbestos (SUB)	
-1		7/13/21	0825	H.S. Well #2	GW		X	X	X	X	X	X	X	X	X
-2		↓	1012	Well #3	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓
-3		↓	1145	19P-04	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓
-4		↓	1401	Vistra	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by (Signature and Print Name)	Company
John Gunderlock	MB	7/14/21	1325	[signature]	BC
[signature]	BC	7/14/21	2020		

Received for Lab by: (Signature and Printed Name)	Date	Time	Payment Received at Delivery:
[signature]	7/14/21	2030	Date: Amount: Check/Cash/Card PIA # Init.

Shipping Method: CAO UPS GSO WALK-IN SJVC FED EX OTHER
Cooling Method: WET BLUE NONE
Packing Material:

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

BC LABORATORIES INC. COOLER RECEIPT FORM Page 1 Of 8

Submission #: 21-22475

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Fed Ex ☐ UPS ☐ GSO / GLS ☐ Hand Delivery ☐ BC Lab Field Service ☑ Other ☐ (Specify)____	Ice Chest ☑ None ☐ Box ☐ Other ☐ (Specify)____	YES ☐ NO ☐ W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received		
☑ YES ☐ NO	Emissivity: 0.95 Container: PE Thermometer ID: 208 Temperature: (A) 0.4 °C / (C) 0.3 °C	Date/Time 7/14/21 2030 Analyst Init FE

SAMPLE CONTAINERS	SAMPLE NUMBERS 1	2	3	4	5	6	7	8	9	10
QT PE UNPRES	P-S									
4oz / 8oz / 16oz PE UNPRES	T,U									
2oz Cr+6	"AS"									
QT INORGANIC CHEMICAL METALS	V,W,X									
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz	Y									
PT CYANIDE	Z									
PT NITROGEN FORMS	"AA"									
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON	"AB"									
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL ~~TRAVEL BLANK~~	A-F									
40ml VOA VIAL Unp.	~~A-F~~ G-I									
QT EPA 1664B										
PT ODOR	"AC"									
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504	J									
QT EPA 508/608.3/8081A										
QT EPA 515.1/8151A										
QT EPA 525.2										
QT EPA 525.2 TRAVEL BLANK										
40ml EPA 547	K,L,M									
40ml EPA 531.1	N									
8oz EPA 548.1	"AM"									
QT EPA 549.2										
~~QT EPA 8015M~~ 40ml VOA 556.1	O									
QT EPA 8270C										
8oz / 16oz / 32oz AMBER										
8oz / 16oz / 32oz ~~JAR~~ Amber w/Na2SO3										
~~SOIL SLEEVE~~ 8oz Amber HAA5	"AN"									
~~PCB VIAL~~ 8oz Amber	"AO"									
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments: -2 all samples labeled "MG-3"

Sample Numbering Completed By: CAB Date/Time: 7/15/21 1030

A = Actual / C = Corrected

Rev 22 04/13/21

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Chain of Custody and Cooler Receipt Form for 2122475 Page 7 of 13

BC LABORATORIES INC. COOLER RECEIPT FORM Page 2 Of 8

Submission #: 21-22475

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Fed Ex ☐ UPS ☐ GSO / GLS ☐ Hand Delivery ☐ BC Lab Field Service ☑ Other ☐ (Specify)____	Ice Chest ☑ None ☐ Box ☐ Other ☐ (Specify)____	YES ☐ NO ☐ W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received		
☑ YES ☐ NO	Emissivity: 0.95 Container: Amber Thermometer ID: 208 Temperature: (A) 0.5 °C / (C) 0.6 °C	Date/Time 7/14/21 2030 Analyst Init FE

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES										
4oz / 8oz / 16oz PE UNPRES										
2oz Cr^{+6}										
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PIA PHENOLICS										
40ml VOA VIAL ~~TRAV BLANK~~										
40ml VOA VIAL UNP										
QT EPA 1664B										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608.3/8081A	"AD"									
QT EPA 515.3/8151A	"AE"									
QT EPA 525.2	"AF"									
QT EPA 525.2 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548.1										
QT EPA 549.2	"AL"									
~~QT EPA 8015M~~ 40ml VOA 556.1										
QT EPA 8270C	"AG"									
8oz / 16oz / 32oz AMBER	"AH - AK"									
8oz / 16oz / 32oz ~~JAR~~ Amber w/Na2S2O3	"AQ;AC"									
~~SOIL SLEEVE~~ 8oz Amber HAA5										
~~PCB VIAL~~ 8oz Amber	"AP"									
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:

Sample Numbering Completed By: CAS Date/Time: 7/15/21 1030

A = Actual / C = Corrected

Rev 22 04/13/21

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BC LABORATORIES INC. COOLER RECEIPT FORM Page 3 Of 8

Submission #: 21-22475

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Fed Ex ☐ UPS ☐ GSO / GLS ☐ Hand Delivery ☐ BC Lab Field Service ☑ Other ☐ (Specify)________	Ice Chest ☑ None ☐ Box ☐ Other ☐ (Specify)________	YES ☐ NO ☐ W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received		
☑ YES ☐ NO	Emissivity: 0.95 Container: PE Thermometer ID: 208 Temperature: (A) 1.1 °C / (C) 1.0 °C	Date/Time 7/14/21 2030 Analyst Init PEE

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES										
4oz / 8oz / 16oz PE UNPRES										
2oz Cr^{+6}										
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON		"AB"								
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL ~~TRAVEL BLANK~~										
40ml VOA VIAL DUP.										
QT EPA 1664B										
PT ODOR		"AC"								
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608.3/8081A										
QT EPA 515.1/8151A		"AE"								
QT EPA 525.2		"AF"								
QT EPA 525.2 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548.1		"AM"								
QT EPA 549.2										
~~QT EPA 8015M~~ 40ml VOA 556.1										
QT EPA 8270C										
8oz / 16oz / 32oz AMBER		"AH"								
8oz / 16oz / 32oz ~~JAR~~ Amber w/Na2SO3		"AG,AK"								
~~SOIL SLEEVE~~ 8oz Amber HAA5		"AN"								
~~PCB VIAL~~ 8oz Amber		"AO,AP"								
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:________
Sample Numbering Completed By: CAB Date/Time: 7/15/21 1030
A = Actual / C = Corrected

Rev 22 04/13/21
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BC LABORATORIES INC. COOLER RECEIPT FORM Page 4 Of 8

Submission #: 21-22475

SHIPPING INFORMATION
Fed Ex ☐ UPS ☐ GSO / GLS ☐ Hand Delivery ☐
BC Lab Field Service ☑ Other ☐ (Specify)

SHIPPING CONTAINER
Ice Chest ☑ None ☐ Box ☐
Other ☐ (Specify)

FREE LIQUID
YES ☐ NO ☐
W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☑

COC Received ☑ YES ☐ NO

Emissivity: 0.95 Container: amber Thermometer ID: 208 Date/Time 7/14/21 2030
Temperature: (A) 2.4 °C / (C) 2.5 °C Analyst Init FE

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES		P-S								
4oz / 8oz / 16oz PE UNPRES		T, U								
2oz Cr^{+6}		"AS"								
QT INORGANIC CHEMICAL METALS		V-X								
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz		Y								
PT CYANIDE		Z								
PT NITROGEN FORMS		"AA"								
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PIA PHENOLICS										
40ml VOA VIAL ~~TRAVEL BLANK~~		A-F								
40ml VOA VIAL Unp.		G-I								
QT EPA 1664B										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504		J								
QT EPA 508/608.3/8081A		"AD"								
QT EPA 515.1/8151A										
QT EPA 525.2										
QT EPA 525.2 TRAVEL BLANK										
40ml EPA 547		K-M								
40ml EPA 531.1		N								
8oz EPA 548.1										
QT EPA 549.2		"AL"								
~~QT EPA 8015M~~ 40ml VOA 556.1		O								
QT EPA 8270C		"AG"								
8oz / 16oz / 32oz AMBER		"AI-AR"								
8oz / 16oz / 32oz ~~JAR~~ Amber w/Na2S03										
~~SOIL SLEEVE~~ 8oz Amber HAAS										
~~PCB VIAL~~ 8oz Amber										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:
Sample Numbering Completed By: CAB Date/Time: 7/15/21 1030
A = Actual / C = Corrected

Rev 22 04/13/21
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BC LABORATORIES INC. COOLER RECEIPT FORM Page 5 Of 8

Submission #: 21-22475

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Fed Ex ☐ UPS ☐ GSO / GLS ☐ Hand Delivery ☐ BC Lab Field Service ☑ Other ☐ (Specify)________	Ice Chest ☑ None ☐ Box ☐ Other ☐ (Specify)________	YES ☐ NO ☐ W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ~~☑~~ No ☒ [initials] 7/15

COC Received		
☑ YES ☐ NO	Emissivity: 0.98 Container: PE Thermometer ID: 208 Temperature: (A) 0.4 °C / (C) 0.3 °C	Date/Time 7/14/21 2030 Analyst Init PE

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES			P-S							
4oz / 8oz / 16oz PE UNPRES			T, U							
2oz Cr+6			"AS"							
QT INORGANIC CHEMICAL METALS			V, W, X							
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz			Y							
PT CYANIDE			Z							
PT NITROGEN FORMS			"AA"							
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON			"AB"							
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL ~~TRAV BLANK~~			A-F							
40ml VOA VIAL Imp.			G-I							
QT EPA 1664B										
PT ODOR			"AC"							
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504			J							
QT EPA 508/608.3/8081A										
QT EPA 515.1/8151A										
QT EPA 525.2										
QT EPA 525.2 TRAVEL BLANK										
40ml EPA 547			K-M							
40ml EPA 531.1			N							
8oz EPA 548.1			"AM"							
QT EPA 549.2			"AL"							
~~QT EPA 8015M~~ 40ml VOA 556.1			O							
QT EPA 8270C										
8oz / 16oz / ~~32oz~~ AMBER Ammo (16oz)			"AQ, AR"							
8oz / 16oz / 32oz ~~JAR~~ Amber (32oz)			"AJ, AK"							
~~SOIL SLEEVE~~ 8oz Amber HAA5										
~~PCB VIAL~~ 8oz Amber			"AO, AP"							
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments: -3M was received empty

Sample Numbering Completed By: CAB Date/Time: 7/15/21 1030

A = Actual / C = Corrected

Rev 22 04/13/21

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BC LABORATORIES INC. COOLER RECEIPT FORM Page 6 Of 8

Submission #: 21-22475

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Fed Ex ☐ UPS ☐ GSO / GLS ☐ Hand Delivery ☐ BC Lab Field Service ☑ Other ☐ (Specify)____	Ice Chest ☑ None ☐ Box ☐ Other ☐ (Specify)____	YES ☐ NO ☐ W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received		Date/Time
☑ YES ☐ NO	Emissivity: 0.95 Container: PE Thermometer ID: 208 Temperature: (A) 0.2 °C / (C) 0.1 °C	Date/Time 7/14/21 2030 Analyst Init PE

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES										
4oz / 8oz / 16oz PE UNPRES										
2oz Cr⁺⁶										
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL ~~TRAV BLANK~~										
40ml VOA VIAL VAP.										
QT EPA 1664B										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 505/608.3/8081A			"AD"							
QT EPA 515.1/8151A			"AE"							
QT EPA 525.2			"AF"							
QT EPA 525.2 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548.1										
QT EPA 549.2										
~~QT EPA 8015M~~ 40ml VOA 556.1										
QT EPA 8270C			"AG"							
8oz / 16oz / 32oz AMBER			"AH,AI"							
8oz / 16oz / 32oz ~~JAR~~ Amber W/Na2SO3										
~~SOIL SLEEVE~~ 8oz. Amber HAAS			"AN"							
~~PCB VIAL~~ 8oz. Amber										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:____

Sample Numbering Completed By: CAO Date/Time: 7/15/21 1030

A = Actual / C = Corrected

Rev 22 04/13/21
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BC LABORATORIES INC. COOLER RECEIPT FORM Page 7 Of 8

Submission #: 21-22475

SHIPPING INFORMATION
Fed Ex ☐ UPS ☐ GSO / GLS ☐ Hand Delivery ☐
BC Lab Field Service ☑ Other ☐ (Specify)

SHIPPING CONTAINER
Ice Chest ☑ None ☐ Box ☐
Other ☐ (Specify)

FREE LIQUID
YES ☐ NO ☐
W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☑ Comments:

All samples received? Yes ☒ No ☐ All samples containers intact? Yes ☒ No ☐ Description(s) match COC? Yes ☒ No ☒ COC VOA

COC Received ☑ YES ☐ NO

Emissivity: 0.95 Container: Amber Thermometer ID: 208 Date/Time 7/14/21 2030
Temperature: (A) 1.1 °C / (C) 1.2 °C Analyst Init FE

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES				P-S						
4oz / 8oz / 16oz PE UNPRES				T,U						
2oz Cr⁺⁶				"AS"						
QT INORGANIC CHEMICAL METALS				V-X						
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz				Y						
PT CYANIDE				Z						
PT NITROGEN FORMS				"AA"						
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON										
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL ~~TRAVEL BLANK~~				A-F						
40ml VOA VIAL Unp.				G-I						
QT EPA 1664B										
PT ODOR				"AC"						
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504				J						
QT EPA 505/608.3/8081A				"AD"						
QT EPA 515.1/8151A				"AE"						
QT EPA 525.2				"AF"						
QT EPA 525.2 TRAVEL BLANK										
40ml EPA 547				K-M						
40ml EPA 531.1				N						
8oz EPA 548.1										
QT EPA 549.2										
~~QT EPA 8015M~~ 40ml VOA 556.1				O						
QT EPA 8270C				"AG"						
8oz / 16oz / 32oz AMBER				"AH"						
8oz / 16oz / 32oz ~~JAR~~ Amber w/Na2S03										
~~SOIL SLEEVE~~ 8oz. Amber HAA5										
~~PCB VIAL~~ 8oz. Amber										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:
Sample Numbering Completed By: CAG Date/Time: 7/15/21 1030
A = Actual / C = Corrected

Rev 22 04/13/21
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BC LABORATORIES INC. COOLER RECEIPT FORM Page 8 of 8

Submission #: 21-22475

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Fed Ex ☐ UPS ☐ GSO / GLS ☐ Hand Delivery ☐ BC Lab Field Service ☑ Other ☐ (Specify)___	Ice Chest ☑ None ☐ Box ☐ Other ☐ (Specify)___	YES ☐ NO ☐ W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☒ No ☒

COC Received ☑ YES ☐ NO

Emissivity: 0.95 Container: Amber Thermometer ID: 208 Date/Time 7/14/21 2030

Temperature: (A) 2.4 °C / (C) 2.5 °C Analyst Init FC

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES										
4oz / 8oz / 16oz PE UNPRES										
2oz Cr+6										
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS										
PT TOTAL SULFIDE										
2oz. NITRATE / NITRITE										
PT TOTAL ORGANIC CARBON				"AG"						
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL ~~TRAVEL BLANK~~										
40ml VOA VIAL Unp.										
QT EPA 1664B										
PT ODOR										
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608.3/8081A										
QT EPA 515.1/8151A										
QT EPA 525.2										
QT EPA 525.2 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548.1				"AM"						
QT EPA 549.2				"AL"						
~~QT EPA 8015M~~ 40ml VOA 556.1										
QT EPA 8270C										
8oz / 16oz / 32oz AMBER				"AI-AK"						
8oz / 16oz / 32oz ~~JAR~~ Amber w/Na2S2O3				"AQ, AR"						
~~SOIL SLEEVE~~ 8oz. Amber HAAS				"AN"						
~~PCB VIAL~~ 8oz. Amber				"AO, AP"						
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:___

Sample Numbering Completed By: CAB Date/Time: 7/15/21 1030

A = Actual / C = Corrected

Rev 22 04/13/21 [S:\WPDocs\WordPerfect\LAB_DOCS\FORMS\SAMREC rev 20] X

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
2122475-01	**COC Number:**	---	**Receive Date:**	07/14/2021 20:30
	Project Number:	---	**Sampling Date:**	07/13/2021 08:25
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	H.S. Well #2	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Groundwater
2122475-02	**COC Number:**	---	**Receive Date:**	07/14/2021 20:30
	Project Number:	---	**Sampling Date:**	07/13/2021 10:12
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	Well #3	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Groundwater
2122475-03	**COC Number:**	---	**Receive Date:**	07/14/2021 20:30
	Project Number:	---	**Sampling Date:**	07/13/2021 11:45
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	I9P-04	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Groundwater
2122475-04	**COC Number:**	---	**Receive Date:**	07/14/2021 20:30
	Project Number:	---	**Sampling Date:**	07/13/2021 14:01
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	Vistra	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Groundwater

City of Morro Bay		**Reported:**	08/17/2021 15:01
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

BCL Sample ID: 2122475-01 **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2-Dibromo-3-chloropropane	ND	ug/L	0.010	0.0015	EPA-504.1	ND		1
Ethylene dibromide	ND	ug/L	0.010	0.0030	EPA-504.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-504.1	07/21/21 08:00	07/21/21 17:08	HKS	GC-15	0.937	B114866	EPA 504.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

BCL Sample ID: 2122475-01 **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Aldrin	ND	ug/L	0.0050	0.00095	EPA-508	ND		1
alpha-BHC	ND	ug/L	0.0050	0.00050	EPA-508	ND		1
beta-BHC	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
delta-BHC	ND	ug/L	0.0050	0.0015	EPA-508	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.0050	0.00067	EPA-508	ND		1
Chlordane (Technical)	ND	ug/L	0.10	0.045	EPA-508	ND		1
4,4'-DDD	ND	ug/L	0.0050	0.00086	EPA-508	ND		1
4,4'-DDE	ND	ug/L	0.0050	0.0013	EPA-508	ND		1
4,4'-DDT	ND	ug/L	0.0050	0.00096	EPA-508	ND		1
Dieldrin	ND	ug/L	0.0050	0.0011	EPA-508	ND		1
Endosulfan I	ND	ug/L	0.0050	0.00068	EPA-508	ND		1
Endosulfan II	ND	ug/L	0.0050	0.00098	EPA-508	ND		1
Endosulfan sulfate	ND	ug/L	0.0050	0.00055	EPA-508	ND		1
Endrin	ND	ug/L	0.0050	0.00069	EPA-508	ND		1
Endrin aldehyde	ND	ug/L	0.010	0.00054	EPA-508	ND		1
Heptachlor	ND	ug/L	0.0050	0.00094	EPA-508	ND		1
Heptachlor epoxide	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
Methoxychlor	ND	ug/L	0.0050	0.0037	EPA-508	ND		1
Toxaphene	ND	ug/L	1.0	0.20	EPA-508	ND		1
PCB-1016	ND	ug/L	0.20	0.066	EPA-508	ND		1
PCB-1221	ND	ug/L	0.20	0.063	EPA-508	ND		1
PCB-1232	ND	ug/L	0.20	0.059	EPA-508	ND		1
PCB-1242	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1248	ND	ug/L	0.20	0.044	EPA-508	ND		1
PCB-1254	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1260	ND	ug/L	0.20	0.089	EPA-508	ND		1
Total PCB's (Summation)	ND	ug/L	0.20	0.10	EPA-508	ND		1
TCMX (Surrogate)	92.7	%	60 - 130 (LCL - UCL)		EPA-508			1
Decachlorobiphenyl (Surrogate)	83.5	%	60 - 130 (LCL - UCL)		EPA-508			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-508	07/19/21 10:30	07/22/21 03:42	HKS	GC-17	1.010	B114872	EPA 508

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442		**Reported:**	08/17/2021 15:01
		Project:	Morro Bay Wells
		Project Number:	[none]
		Project Manager:	John Gunderlock

Organic Analysis (EPA Method 515.1)

BCL Sample ID: 2122475-01 | **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Bentazon	ND	ug/L	0.80	0.22	EPA-515.1	ND		1
2,4-D	ND	ug/L	0.40	0.18	EPA-515.1	ND		1
2,4-DB	ND	ug/L	3.0	0.37	EPA-515.1	ND		1
Dalapon	ND	ug/L	5.0	0.31	EPA-515.1	ND		1
Dicamba	ND	ug/L	0.080	0.040	EPA-515.1	ND		1
Dichloroprop	ND	ug/L	0.50	0.11	EPA-515.1	ND		1
Dinoseb	ND	ug/L	0.20	0.057	EPA-515.1	ND		1
MCPA	ND	ug/L	10	6.0	EPA-515.1	ND		1
MCPP	ND	ug/L	10	6.0	EPA-515.1	ND		1
2,4,5-T	ND	ug/L	0.090	0.012	EPA-515.1	ND		1
2,4,5-TP (Silvex)	ND	ug/L	0.070	0.032	EPA-515.1	ND		1
2,4-Dichlorophenylacetic acid (Surrogate)	98.2	%	40 - 120 (LCL - UCL)		EPA-515.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-515.1	07/19/21 13:30	07/21/21 13:42	OLH	GC-8	1	B114937	EPA 515.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2122475-01 **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
Bromobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Bromochloromethane	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Bromodichloromethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Bromoform	ND	ug/L	0.50	0.46	EPA-524.2	ND		1
Bromomethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
n-Butylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
sec-Butylbenzene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
tert-Butylbenzene	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Carbon tetrachloride	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chlorobenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chloroform	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloromethane	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
2-Chlorotoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
4-Chlorotoluene	ND	ug/L	0.50	0.093	EPA-524.2	ND		1
Dibromochloromethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0	0.89	EPA-524.2	ND		1
1,2-Dibromoethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
Dibromomethane	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
1,2-Dichlorobenzene	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,3-Dichlorobenzene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
1,4-Dichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Dichlorodifluoromethane	ND	ug/L	0.50	0.15	EPA-524.2	ND	V11	1
1,1-Dichloroethane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,2-Dichloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,1-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
cis-1,2-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2-Dichloropropane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,3-Dichloropropane	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
2,2-Dichloropropane	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
1,1-Dichloropropene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2122475-01 **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
Total 1,3-Dichloropropene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Ethylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Hexachlorobutadiene	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Isopropylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
p-Isopropyltoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Methylene chloride	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Methyl t-butyl ether	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Naphthalene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
n-Propylbenzene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
Styrene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Tetrachloroethene	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
Toluene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2,3-Trichlorobenzene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,1,1-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Trichloroethene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
Trichlorofluoromethane	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
1,2,3-Trichloropropane	ND	ug/L	1.0	0.78	EPA-524.2	ND		1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trimethylbenzene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,3,5-Trimethylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Vinyl chloride	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Total Xylenes	ND	ug/L	0.50	0.47	EPA-524.2	ND		1
Total Trihalomethanes	ND	ug/L	2.0	0.97	EPA-524.2	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
t-Butyl alcohol	ND	ug/L	10	9.4	EPA-524.2	ND	V11	1
Diisopropyl ether	ND	ug/L	0.50	0.36	EPA-524.2	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50	0.32	EPA-524.2	ND		1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2122475-01 | **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
p- & m-Xylenes	ND	ug/L	0.50	0.34	EPA-524.2	ND		1
o-Xylene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
1,2-Dichloroethane-d4 (Surrogate)	123	%	75 - 125 (LCL - UCL)		EPA-524.2			1
Toluene-d8 (Surrogate)	103	%	80 - 120 (LCL - UCL)		EPA-524.2			1
4-Bromofluorobenzene (Surrogate)	88.9	%	80 - 120 (LCL - UCL)		EPA-524.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-524.2	07/19/21 06:00	07/19/21 23:16	ADC	MS-V15	1	B114577	EPA 524.2

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

BCL Sample ID: 2122475-01 | **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2,3-Trichloropropane	ND	ug/L	0.0050	0.0010	SRL 524M	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	SRL 524M	07/20/21 06:00	07/20/21 10:44	ADC	MS-V16	1	B114201	EPA 524.2

City of Morro Bay	Reported:	08/17/2021 15:01
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2122475-01 **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthylene	ND	ug/L	0.10	0.031	EPA-525.2	ND		1
Alachlor	ND	ug/L	0.20	0.090	EPA-525.2	ND		1
Anthracene	ND	ug/L	0.10	0.034	EPA-525.2	ND		1
Atraton	ND	ug/L	0.50	0.057	EPA-525.2	ND		1
Atrazine	ND	ug/L	0.30	0.14	EPA-525.2	ND		1
Benzo[a]anthracene	ND	ug/L	0.20	0.044	EPA-525.2	ND		1
Benzo[b]fluoranthene	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Benzo[k]fluoranthene	ND	ug/L	0.30	0.072	EPA-525.2	ND		1
Benzo[a]pyrene	ND	ug/L	0.10	0.050	EPA-525.2	ND		1
Benzo[g,h,i]perylene	ND	ug/L	0.30	0.065	EPA-525.2	ND		1
Benzyl butyl phthalate	ND	ug/L	4.0	0.047	EPA-525.2	ND		1
delta-BHC	ND	ug/L	0.20	0.048	EPA-525.2	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.20	0.063	EPA-525.2	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	3.0	0.030	EPA-525.2	ND		1
Bromacil	ND	ug/L	0.50	0.043	EPA-525.2	ND		1
Chrysene	ND	ug/L	0.30	0.060	EPA-525.2	ND		1
Diazinon	ND	ug/L	0.20	0.080	EPA-525.2	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	0.30	0.051	EPA-525.2	ND		1
Di(2-ethylhexyl)adipate	ND	ug/L	1.0	0.025	EPA-525.2	ND		1
Dimethoate	ND	ug/L	2.0	0.050	EPA-525.2	ND		1
Dimethyl phthalate	ND	ug/L	1.0	0.034	EPA-525.2	ND		1
Di-n-butyl phthalate	ND	ug/L	1.0	0.063	EPA-525.2	ND		1
Fluorene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorobenzene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorocyclopentadiene	ND	ug/L	1.0	0.12	EPA-525.2	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.30	0.032	EPA-525.2	ND		1
Methoxychlor	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Metolachlor	ND	ug/L	0.50	0.056	EPA-525.2	ND		1
Metribuzin	ND	ug/L	0.50	0.048	EPA-525.2	ND		1
Molinate	ND	ug/L	0.50	0.036	EPA-525.2	ND		1
Phenanthrene	ND	ug/L	0.10	0.020	EPA-525.2	ND		1
Prometon	ND	ug/L	0.50	0.11	EPA-525.2	ND		1
Prometryn	ND	ug/L	0.50	0.045	EPA-525.2	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2122475-01 | **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Propachlor	ND	ug/L	0.50	0.077	EPA-525.2	ND		1
Pyrene	ND	ug/L	0.10	0.040	EPA-525.2	ND		1
Secbumeton	ND	ug/L	0.50	0.079	EPA-525.2	ND		1
Simazine	ND	ug/L	0.30	0.066	EPA-525.2	ND		1
Terbutryn	ND	ug/L	0.50	0.050	EPA-525.2	ND		1
Thiobencarb	ND	ug/L	0.50	0.044	EPA-525.2	ND		1
Perylene-d12 (Surrogate)	96.2	%	60 - 140 (LCL - UCL)		EPA-525.2			1
1,3-Dimethyl-2-nitrobenzene (Surrogate)	97.0	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Triphenylphosphate (Surrogate)	124	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Pyrene-d10 (Surrogate)	95.4	%	70 - 130 (LCL - UCL)		EPA-525.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-525.2	07/20/21 07:45	07/21/21 18:19	CMM	MS-B6	1	B114874	EPA 525.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Carbamate and Urea Pesticides (EPA Method 531.2)

BCL Sample ID: 2122475-01 **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1-Naphthol	ND	ug/L	5.0	0.86	EPA-531.2	ND		1
Aldicarb	ND	ug/L	3.0	1.2	EPA-531.2	ND		1
Aldicarb sulfone	ND	ug/L	4.0	0.60	EPA-531.2	ND		1
Aldicarb sulfoxide	ND	ug/L	3.0	0.40	EPA-531.2	ND		1
Propoxur	ND	ug/L	5.0	0.36	EPA-531.2	ND		1
Carbaryl	ND	ug/L	5.0	0.47	EPA-531.2	ND		1
Carbofuran	ND	ug/L	5.0	0.67	EPA-531.2	ND		1
3-Hydroxycarbofuran	ND	ug/L	3.0	0.41	EPA-531.2	ND		1
Methiocarb	ND	ug/L	5.0	0.31	EPA-531.2	ND		1
Methomyl	ND	ug/L	2.0	0.92	EPA-531.2	ND		1
Oxamyl	ND	ug/L	5.0	0.79	EPA-531.2	ND		1
BDMC (Surrogate)	102	%	70 - 130 (LCL - UCL)		EPA-531.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-531.2	07/21/21 10:00	07/22/21 10:11	SAW	HPLC15	1	B114952	EPA 531.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Glyphosate Analysis (EPA Method 547)

BCL Sample ID: 2122475-01 **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Glyphosate	ND	ug/L	25	3.5	EPA-547	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-547	07/19/21 13:00	07/20/21 01:12	SAW	HPLC15	1	B114716	EPA 547

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

BCL Sample ID: 2122475-01 **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Endothal	ND	ug/L	20	5.3	EPA-548.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-548.1	07/20/21 10:00	07/22/21 20:02	CMM	MS-B1	10	B114989	EPA 548.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** Project: Project Number: Project Manager:	08/17/2021 15:01 Morro Bay Wells [none] John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

BCL Sample ID: 2122475-01 **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Diquat	ND	ug/L	4.0	1.3	EPA-549.2	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-549.2	07/20/21 09:15	07/21/21 10:24	SAW	HPLC16	1	B114817	EPA 549.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

BCL Sample ID: 2122475-01 | **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Dibromoacetic acid	ND	ug/L	1.0	0.32	EPA-552.3	ND		1
Dichloroacetic acid	ND	ug/L	1.0	0.29	EPA-552.3	ND		1
Monobromoacetic acid	ND	ug/L	1.0	0.25	EPA-552.3	ND		1
Monochloroacetic acid	ND	ug/L	1.0	0.61	EPA-552.3	ND		1
Trichloroacetic acid	ND	ug/L	1.0	0.36	EPA-552.3	ND		1
Total HAA's (Summation)	ND	ug/L	1.0	1.0	EPA-552.3	ND		1
2,3-Dibromopropionic acid (Surrogate)	75.3	%	70 - 130 (LCL - UCL)		EPA-552.3			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-552.3	07/19/21 16:45	07/20/21 12:29	OLH	GC-3	1	B114742	EPA 552.3

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

BCL Sample ID: 2122475-01 **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Formaldehyde	ND	ug/L	5.0	0.70	EPA-556.1	ND		1
2',4',5'-Trifluoroacetophenone (Surrogate)	106	%	30 - 150 (LCL - UCL)		EPA-556.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-556.1	07/19/21 17:30	07/21/21 14:22	OLH	GC-3	1	B114826	EPA 556.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 2122475-01 | **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acrolein	ND	ug/L	10	7.9	EPA-8260B	ND		1
Acrylonitrile	ND	ug/L	5.0	1.2	EPA-8260B	ND		1
2-Chloroethyl vinyl ether	ND	ug/L	10	2.4	EPA-8260B	ND		1
1,2-Dichloroethane-d4 (Surrogate)	123	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	103	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	88.9	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8260B	07/19/21 06:00	07/19/21 23:16	ADC	MS-V15	1	B114577	EPA 5030 Water MS

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2122475-01 **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Acenaphthylene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Aldrin	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
Aniline	ND	ug/L	5.0	0.28	EPA-8270C	ND		1
Anthracene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzidine	ND	ug/L	20	1.6	EPA-8270C	ND		1
Benzo[a]anthracene	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
Benzo[b]fluoranthene	ND	ug/L	2.0	0.24	EPA-8270C	ND		1
Benzo[k]fluoranthene	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Benzo[a]pyrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzo[g,h,i]perylene	ND	ug/L	2.0	0.33	EPA-8270C	ND		1
Benzoic acid	ND	ug/L	10	0.52	EPA-8270C	ND		1
Benzyl alcohol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzyl butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
alpha-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
beta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
delta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
gamma-BHC (Lindane)	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethoxy)methane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethyl) ether	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
bis(2-Chloroisopropyl)ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	4.0	0.20	EPA-8270C	ND		1
4-Bromophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloroaniline	ND	ug/L	2.0	1.1	EPA-8270C	ND		1
2-Chloronaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chlorophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Chrysene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,4'-DDD	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
4,4'-DDE	ND	ug/L	3.0	0.24	EPA-8270C	ND		1
4,4'-DDT	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	3.0	0.34	EPA-8270C	ND		1
Dibenzofuran	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,2-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2122475-01 **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,3-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,4-Dichlorobenzene	ND	ug/L	2.0	0.27	EPA-8270C	ND		1
3,3-Dichlorobenzidine	ND	ug/L	10	0.53	EPA-8270C	ND		1
Dieldrin	ND	ug/L	3.0	0.39	EPA-8270C	ND		1
Diethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Dimethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dinitrotoluene	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2,6-Dinitrotoluene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-octyl phthalate	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
1,2-Diphenylhydrazine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Endosulfan I	ND	ug/L	10	0.31	EPA-8270C	ND		1
Endosulfan II	ND	ug/L	10	0.30	EPA-8270C	ND		1
Endosulfan sulfate	ND	ug/L	3.0	0.23	EPA-8270C	ND		1
Endrin	ND	ug/L	2.0	0.38	EPA-8270C	ND		1
Endrin aldehyde	ND	ug/L	10	0.44	EPA-8270C	ND		1
Fluoranthene	ND	ug/L	2.0	0.28	EPA-8270C	ND		1
Fluorene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor epoxide	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
Hexachlorobenzene	ND	ug/L	2.0	0.25	EPA-8270C	ND		1
Hexachlorobutadiene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Hexachlorocyclopentadiene	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
Hexachloroethane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	2.0	0.29	EPA-8270C	ND		1
Isophorone	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Methylnaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Naphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Naphthylamine	ND	ug/L	20	1.3	EPA-8270C	ND		1
2-Nitroaniline	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3-Nitroaniline	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
4-Nitroaniline	ND	ug/L	5.0	0.38	EPA-8270C	ND		1
Nitrobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay		**Reported:**	08/17/2021 15:01
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2122475-01 **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
N-Nitrosodimethylamine	ND	ug/L	2.0	1.2	EPA-8270C	ND		1
N-Nitrosodi-N-propylamine	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
N-Nitrosodiphenylamine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Phenanthrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Pyrene	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloro-3-methylphenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Chlorophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dichlorophenol	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
2,4-Dimethylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,6-Dinitro-2-methylphenol	ND	ug/L	10	0.24	EPA-8270C	ND		1
2,4-Dinitrophenol	ND	ug/L	10	0.20	EPA-8270C	ND		1
2-Methylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3- & 4-Methylphenol	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2-Nitrophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Nitrophenol	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Pentachlorophenol	ND	ug/L	10	0.40	EPA-8270C	ND		1
Phenol	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
2,4,5-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2,4,6-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Fluorophenol (Surrogate)	58.7	%	30 - 120 (LCL - UCL)		EPA-8270C			1
Phenol-d5 (Surrogate)	49.6	%	12 - 110 (LCL - UCL)		EPA-8270C			1
Nitrobenzene-d5 (Surrogate)	94.8	%	50 - 130 (LCL - UCL)		EPA-8270C			1
2-Fluorobiphenyl (Surrogate)	89.2	%	55 - 125 (LCL - UCL)		EPA-8270C			1
2,4,6-Tribromophenol (Surrogate)	86.1	%	40 - 150 (LCL - UCL)		EPA-8270C			1
p-Terphenyl-d14 (Surrogate)	87.1	%	40 - 150 (LCL - UCL)		EPA-8270C			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8270C	07/20/21 08:15	07/24/21 00:20	CMM	MS-B2	0.950	B114923	EPA 3510C

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Explosive Residues (EPA Method 8330)

BCL Sample ID: 2122475-01 | **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
HMX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
RDX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
1,2-Dinitrobenzene (Surrogate)	103	%	70 - 130 (LCL - UCL)		EPA-8330			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8330	07/19/21 08:30	07/22/21 02:30	SAW	HPLC16	1	B114621	EPA 8330

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2122475-01 **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Trivalent Chromium	ND	ug/L	10	5.0	Calc	ND		1
Chloride	**1100**	**mg/L**	**5.0**	**1.3**	**EPA-300.0**	1.9	**A10**	2
Fluoride	ND	mg/L	0.50	0.25	EPA-300.0	ND	A10	2
Nitrate as N	**8.7**	**mg/L**	**0.50**	**0.12**	**EPA-300.0**	ND	**A10**	3
Sulfate	**150**	**mg/L**	**5.0**	**0.70**	**EPA-300.0**	ND	**A10**	3
Nitrate + Nitrite as N	**8.7**	**mg/L**	**0.10**	**0.018**	**Calc**	ND		4
Electrical Conductivity @ 25 C	**4040**	**umhos/cm**	**1.00**	**1.00**	**SM-2510B**			5
Total Dissolved Solids @ 180 C	**2700**	**mg/L**	**100**	**50**	**SM-2540C**	ND	**A10**	6
Color	**1.0**	**Color Units**	**1.0**	**1.0**	**SM-2120B**			7
Odor	No Obs Odor	Odor Units	1.0	1.0	SM-2150B	ND		8
Turbidity	**0.34**	**NT Units**	**0.10**	**0.10**	**EPA-180.1**			9
MBAS	ND	mg/L	0.20	0.048	SM-5540C	ND	A07	10
Total Cyanide	ND	mg/L	0.0050	0.0017	EPA-335.4	ND		11
Total Nitrogen	**8.9**	**mg/L**	**0.30**	**0.10**	**Calc**	ND		12
Total Kjeldahl Nitrogen	**0.25**	**mg/L**	**0.20**	**0.088**	**EPA-351.2**	ND		13
Nitrite as N	ND	ug/L	50	10	EPA-353.2	ND		14
Perchlorate	ND	mg/L	0.0020	0.00081	EPA-314.0	ND		15
Non-Volatile Organic Carbon	**1.1**	**mg/L**	**1.0**	**0.30**	**SM-5310C**	ND		16

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2122475-01 **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	
1	Calc	07/19/21 13:01	08/02/21 16:01	AMM	Calc	1	B_G0417	Calc
2	EPA-300.0	07/15/21 00:30	07/15/21 07:34	ANK	IC5	10	B114282	No Prep
3	EPA-300.0	07/15/21 00:30	07/15/21 00:42	ANK	IC5	5	B114282	No Prep
4	Calc	07/19/21 13:01	07/28/21 18:01	AMM	Calc	1	B_G0417	Calc
5	SM-2510B	07/21/21 07:20	07/21/21 14:08	RML	MET-1	1	B112458	No Prep
6	SM-2540C	07/20/21 12:00	07/20/21 12:00	CAD	MANUAL	10	B114694	No Prep
7	SM-2120B	07/15/21 07:10	07/15/21 07:10	JTM	MANUAL	1	B114614	No Prep
8	SM-2150B	07/15/21 07:10	07/15/21 07:10	JTM	MANUAL	1	B114615	No Prep
9	EPA-180.1	07/15/21 07:10	07/15/21 07:10	JTM	TURB04	1	B114616	No Prep
10	SM-5540C	07/15/21 08:00	07/15/21 08:00	JMN	SPEC06	2	B114627	No Prep
11	EPA-335.4	07/20/21 08:12	07/20/21 10:56	JMH	KONE-1	1	B114659	EPA 335.4 Total
12	Calc	07/19/21 13:01	08/02/21 18:01	AMM	Calc	1	B_G0417	Calc
13	EPA-351.2	07/20/21 08:00	07/28/21 09:33	JMH2	SC-1	1	B114677	EPA 351.2
14	EPA-353.2	07/14/21 23:00	07/15/21 00:01	KB1	KONE-1	1	B114265	No Prep
15	EPA-314.0	08/05/21 08:00	08/05/21 13:51	ANK	IC6	1	B116350	No Prep
16	SM-5310C	07/19/21 05:00	07/19/21 16:59	ALW	TOC2	1	B114515	No Prep

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Metals Analysis

BCL Sample ID: 2122475-01 | **Client Sample Name:** H.S. Well #2, 7/13/2021 8:25:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Hexavalent Chromium	**2.3**	**ug/L**	**0.20**	**0.020**	**EPA-218.6**	0.025		1
Total Recoverable Aluminum	ND	ug/L	50	26	EPA-200.7	ND		2
Total Recoverable Antimony	ND	ug/L	4.0	0.22	EPA-200.8	ND	A10	3
Total Recoverable Arsenic	**3.3**	**ug/L**	**4.0**	**1.4**	**EPA-200.8**	ND	**J,A10**	3
Total Recoverable Barium	**220**	**ug/L**	**2.0**	**0.42**	**EPA-200.8**	0.61	**A10**	3
Total Recoverable Beryllium	ND	ug/L	2.0	0.28	EPA-200.8	ND	A10	3
Total Recoverable Boron	**170**	**ug/L**	**100**	**10**	**EPA-200.7**	ND		2
Total Recoverable Cadmium	ND	ug/L	2.0	0.22	EPA-200.8	ND	A10	3
Total Recoverable Chromium	**2.2**	**ug/L**	**6.0**	**1.0**	**EPA-200.8**	ND	**J,A10**	3
Total Recoverable Cobalt	**0.61**	**ug/L**	**2.0**	**0.20**	**EPA-200.8**	ND	**J,A10**	3
Total Recoverable Copper	**5.1**	**ug/L**	**4.0**	**0.44**	**EPA-200.8**	0.57	**A10**	3
Total Recoverable Iron	ND	ug/L	50	30	EPA-200.7	ND		2
Total Recoverable Lead	ND	ug/L	2.0	0.20	EPA-200.8	ND	A10	3
Total Recoverable Lithium	**8.3**	**ug/L**	**20**	**6.6**	**EPA-200.7**	ND	**J**	2
Total Recoverable Manganese	ND	ug/L	10	4.0	EPA-200.7	ND		2
Total Recoverable Mercury	ND	ug/L	0.20	0.022	EPA-245.1	ND		4
Total Recoverable Molybdenum	**1.0**	**ug/L**	**2.0**	**0.22**	**EPA-200.8**	ND	**J,A10**	3
Total Recoverable Nickel	**9.8**	**ug/L**	**4.0**	**0.38**	**EPA-200.8**	0.52	**A10**	3
Total Recoverable Selenium	**15**	**ug/L**	**4.0**	**0.38**	**EPA-200.8**	ND	**A10**	3
Total Recoverable Silver	ND	ug/L	2.0	0.20	EPA-200.8	ND	A10	3
Total Recoverable Thallium	ND	ug/L	2.0	0.20	EPA-200.8	ND	A10	3
Total Recoverable Vanadium	**5.4**	**ug/L**	**6.0**	**1.6**	**EPA-200.8**	2.5	**J,A10**	3
Total Recoverable Zinc	**110**	**ug/L**	**10**	**1.7**	**EPA-200.8**	ND		5
Total Recoverable Uranium	**2.3**	**ug/L**	**2.0**	**0.20**	**EPA-200.8**	ND	**A10**	3

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-218.6	07/21/21 11:00	07/21/21 15:33	KEB	IC-4	1	B114845	No Prep
2	EPA-200.7	07/21/21 10:45	07/21/21 17:18	JRG	PE-OP4	1	B114828	EPA 200.2
3	EPA-200.8	07/20/21 22:10	07/21/21 12:24	KHS	PE-EL4	2	B114760	EPA 200.2
4	EPA-245.1	07/22/21 10:05	07/22/21 15:14	TMT	CETAC3	1	B114949	EPA 245.1
5	EPA-200.8	07/21/21 22:40	07/22/21 09:31	KHS	PE-EL2	1	B114899	EPA 200.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

BCL Sample ID: 2122475-02 **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2-Dibromo-3-chloropropane	ND	ug/L	0.010	0.0015	EPA-504.1	ND		1
Ethylene dibromide	ND	ug/L	0.010	0.0030	EPA-504.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-504.1	07/21/21 08:00	07/21/21 17:24	HKS	GC-15	0.930	B114866	EPA 504.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

BCL Sample ID: 2122475-02 **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Aldrin	ND	ug/L	0.0050	0.00095	EPA-508	ND		1
alpha-BHC	ND	ug/L	0.0050	0.00050	EPA-508	ND		1
beta-BHC	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
delta-BHC	ND	ug/L	0.0050	0.0015	EPA-508	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.0050	0.00067	EPA-508	ND		1
Chlordane (Technical)	ND	ug/L	0.10	0.045	EPA-508	ND		1
4,4'-DDD	ND	ug/L	0.0050	0.00086	EPA-508	ND		1
4,4'-DDE	ND	ug/L	0.0050	0.0013	EPA-508	ND		1
4,4'-DDT	ND	ug/L	0.0050	0.00096	EPA-508	ND		1
Dieldrin	ND	ug/L	0.0050	0.0011	EPA-508	ND		1
Endosulfan I	ND	ug/L	0.0050	0.00068	EPA-508	ND		1
Endosulfan II	ND	ug/L	0.0050	0.00098	EPA-508	ND		1
Endosulfan sulfate	ND	ug/L	0.0050	0.00055	EPA-508	ND		1
Endrin	ND	ug/L	0.0050	0.00069	EPA-508	ND		1
Endrin aldehyde	ND	ug/L	0.010	0.00054	EPA-508	ND		1
Heptachlor	ND	ug/L	0.0050	0.00094	EPA-508	ND		1
Heptachlor epoxide	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
Methoxychlor	ND	ug/L	0.0050	0.0037	EPA-508	ND		1
Toxaphene	ND	ug/L	1.0	0.20	EPA-508	ND		1
PCB-1016	ND	ug/L	0.20	0.066	EPA-508	ND		1
PCB-1221	ND	ug/L	0.20	0.063	EPA-508	ND		1
PCB-1232	ND	ug/L	0.20	0.059	EPA-508	ND		1
PCB-1242	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1248	ND	ug/L	0.20	0.044	EPA-508	ND		1
PCB-1254	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1260	ND	ug/L	0.20	0.089	EPA-508	ND		1
Total PCB's (Summation)	ND	ug/L	0.20	0.10	EPA-508	ND		1
TCMX (Surrogate)	111	%	60 - 130 (LCL - UCL)		EPA-508			1
Decachlorobiphenyl (Surrogate)	101	%	60 - 130 (LCL - UCL)		EPA-508			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-508	07/19/21 10:30	07/22/21 03:57	HKS	GC-17	1	B114872	EPA 508

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis (EPA Method 515.1)

BCL Sample ID: 2122475-02 **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Bentazon	ND	ug/L	0.80	0.22	EPA-515.1	ND		1
2,4-D	ND	ug/L	0.40	0.18	EPA-515.1	ND		1
2,4-DB	ND	ug/L	3.0	0.37	EPA-515.1	ND		1
Dalapon	ND	ug/L	5.0	0.31	EPA-515.1	ND		1
Dicamba	ND	ug/L	0.080	0.040	EPA-515.1	ND		1
Dichloroprop	ND	ug/L	0.50	0.11	EPA-515.1	ND		1
Dinoseb	ND	ug/L	0.20	0.057	EPA-515.1	ND		1
MCPA	ND	ug/L	10	6.0	EPA-515.1	ND		1
MCPP	ND	ug/L	10	6.0	EPA-515.1	ND		1
2,4,5-T	ND	ug/L	0.090	0.012	EPA-515.1	ND		1
2,4,5-TP (Silvex)	ND	ug/L	0.070	0.032	EPA-515.1	ND		1
2,4-Dichlorophenylacetic acid (Surrogate)	90.2	%	40 - 120 (LCL - UCL)		EPA-515.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-515.1	07/19/21 13:30	07/21/21 14:03	OLH	GC-8	1	B114937	EPA 515.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** Project: Project Number: Project Manager:	08/17/2021 15:01 Morro Bay Wells [none] John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2122475-02 **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
Bromobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Bromochloromethane	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Bromodichloromethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Bromoform	ND	ug/L	0.50	0.46	EPA-524.2	ND		1
Bromomethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
n-Butylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
sec-Butylbenzene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
tert-Butylbenzene	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Carbon tetrachloride	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chlorobenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chloroform	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloromethane	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
2-Chlorotoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
4-Chlorotoluene	ND	ug/L	0.50	0.093	EPA-524.2	ND		1
Dibromochloromethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0	0.89	EPA-524.2	ND		1
1,2-Dibromoethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
Dibromomethane	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
1,2-Dichlorobenzene	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,3-Dichlorobenzene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
1,4-Dichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Dichlorodifluoromethane	ND	ug/L	0.50	0.15	EPA-524.2	ND	V11	1
1,1-Dichloroethane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,2-Dichloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,1-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
cis-1,2-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2-Dichloropropane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,3-Dichloropropane	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
2,2-Dichloropropane	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
1,1-Dichloropropene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2122475-02 **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
Total 1,3-Dichloropropene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Ethylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Hexachlorobutadiene	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Isopropylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
p-Isopropyltoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Methylene chloride	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Methyl t-butyl ether	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Naphthalene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
n-Propylbenzene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
Styrene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Tetrachloroethene	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
Toluene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2,3-Trichlorobenzene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,1,1-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Trichloroethene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
Trichlorofluoromethane	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
1,2,3-Trichloropropane	ND	ug/L	1.0	0.78	EPA-524.2	ND		1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trimethylbenzene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,3,5-Trimethylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Vinyl chloride	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Total Xylenes	ND	ug/L	0.50	0.47	EPA-524.2	ND		1
Total Trihalomethanes	ND	ug/L	2.0	0.97	EPA-524.2	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
t-Butyl alcohol	ND	ug/L	10	9.4	EPA-524.2	ND	V11	1
Diisopropyl ether	ND	ug/L	0.50	0.36	EPA-524.2	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50	0.32	EPA-524.2	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2122475-02 **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
p- & m-Xylenes	ND	ug/L	0.50	0.34	EPA-524.2	ND		1
o-Xylene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
1,2-Dichloroethane-d4 (Surrogate)	121	%	75 - 125 (LCL - UCL)		EPA-524.2			1
Toluene-d8 (Surrogate)	103	%	80 - 120 (LCL - UCL)		EPA-524.2			1
4-Bromofluorobenzene (Surrogate)	89.5	%	80 - 120 (LCL - UCL)		EPA-524.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-524.2	07/19/21 06:00	07/19/21 23:39	ADC	MS-V15	1	B114577	EPA 524.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

BCL Sample ID: 2122475-02 **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2,3-Trichloropropane	ND	ug/L	0.0050	0.0010	SRL 524M	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	SRL 524M	07/20/21 06:00	07/20/21 11:33	ADC	MS-V16	1	B114201	EPA 524.2

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2122475-02 | **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthylene	ND	ug/L	0.10	0.031	EPA-525.2	ND		1
Alachlor	ND	ug/L	0.20	0.090	EPA-525.2	ND		1
Anthracene	ND	ug/L	0.10	0.034	EPA-525.2	ND		1
Atraton	ND	ug/L	0.50	0.057	EPA-525.2	ND		1
Atrazine	ND	ug/L	0.30	0.14	EPA-525.2	ND		1
Benzo[a]anthracene	ND	ug/L	0.20	0.044	EPA-525.2	ND		1
Benzo[b]fluoranthene	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Benzo[k]fluoranthene	ND	ug/L	0.30	0.072	EPA-525.2	ND		1
Benzo[a]pyrene	ND	ug/L	0.10	0.050	EPA-525.2	ND		1
Benzo[g,h,i]perylene	ND	ug/L	0.30	0.065	EPA-525.2	ND		1
Benzyl butyl phthalate	ND	ug/L	4.0	0.047	EPA-525.2	ND		1
delta-BHC	ND	ug/L	0.20	0.048	EPA-525.2	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.20	0.063	EPA-525.2	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	3.0	0.030	EPA-525.2	ND		1
Bromacil	ND	ug/L	0.50	0.043	EPA-525.2	ND		1
Chrysene	ND	ug/L	0.30	0.060	EPA-525.2	ND		1
Diazinon	ND	ug/L	0.20	0.080	EPA-525.2	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	0.30	0.051	EPA-525.2	ND		1
Di(2-ethylhexyl)adipate	ND	ug/L	1.0	0.025	EPA-525.2	ND		1
Dimethoate	ND	ug/L	2.0	0.050	EPA-525.2	ND		1
Dimethyl phthalate	ND	ug/L	1.0	0.034	EPA-525.2	ND		1
Di-n-butyl phthalate	ND	ug/L	1.0	0.063	EPA-525.2	ND		1
Fluorene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorobenzene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorocyclopentadiene	ND	ug/L	1.0	0.12	EPA-525.2	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.30	0.032	EPA-525.2	ND		1
Methoxychlor	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Metolachlor	ND	ug/L	0.50	0.056	EPA-525.2	ND		1
Metribuzin	ND	ug/L	0.50	0.048	EPA-525.2	ND		1
Molinate	ND	ug/L	0.50	0.036	EPA-525.2	ND		1
Phenanthrene	ND	ug/L	0.10	0.020	EPA-525.2	ND		1
Prometon	ND	ug/L	0.50	0.11	EPA-525.2	ND		1
Prometryn	ND	ug/L	0.50	0.045	EPA-525.2	ND		1

City of Morro Bay	**Reported:**	08/17/2021 15:01
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2122475-02 **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Propachlor	ND	ug/L	0.50	0.077	EPA-525.2	ND		1
Pyrene	ND	ug/L	0.10	0.040	EPA-525.2	ND		1
Secbumeton	ND	ug/L	0.50	0.079	EPA-525.2	ND		1
Simazine	ND	ug/L	0.30	0.066	EPA-525.2	ND		1
Terbutryn	ND	ug/L	0.50	0.050	EPA-525.2	ND		1
Thiobencarb	ND	ug/L	0.50	0.044	EPA-525.2	ND		1
Perylene-d12 (Surrogate)	101	%	60 - 140 (LCL - UCL)		EPA-525.2			1
1,3-Dimethyl-2-nitrobenzene (Surrogate)	98.2	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Triphenylphosphate (Surrogate)	131	%	70 - 130 (LCL - UCL)		EPA-525.2		S09	1
Pyrene-d10 (Surrogate)	99.2	%	70 - 130 (LCL - UCL)		EPA-525.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-525.2	07/20/21 07:45	07/21/21 18:46	CMM	MS-B6	1	B114874	EPA 525.2

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Carbamate and Urea Pesticides (EPA Method 531.2)

BCL Sample ID: 2122475-02 **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1-Naphthol	ND	ug/L	5.0	0.86	EPA-531.2	ND		1
Aldicarb	ND	ug/L	3.0	1.2	EPA-531.2	ND		1
Aldicarb sulfone	ND	ug/L	4.0	0.60	EPA-531.2	ND		1
Aldicarb sulfoxide	ND	ug/L	3.0	0.40	EPA-531.2	ND		1
Propoxur	ND	ug/L	5.0	0.36	EPA-531.2	ND		1
Carbaryl	ND	ug/L	5.0	0.47	EPA-531.2	ND		1
Carbofuran	ND	ug/L	5.0	0.67	EPA-531.2	ND		1
3-Hydroxycarbofuran	ND	ug/L	3.0	0.41	EPA-531.2	ND		1
Methiocarb	ND	ug/L	5.0	0.31	EPA-531.2	ND		1
Methomyl	ND	ug/L	2.0	0.92	EPA-531.2	ND		1
Oxamyl	ND	ug/L	5.0	0.79	EPA-531.2	ND		1
BDMC (Surrogate)	101	%	70 - 130 (LCL - UCL)		EPA-531.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-531.2	07/21/21 10:00	07/22/21 10:40	SAW	HPLC15	1	B114952	EPA 531.2

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Glyphosate Analysis (EPA Method 547)

BCL Sample ID: 2122475-02 | **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Glyphosate	ND	ug/L	25	3.5	EPA-547	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-547	07/19/21 13:00	07/20/21 01:27	SAW	HPLC15	1	B114716	EPA 547

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

BCL Sample ID: 2122475-02 **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Endothal	ND	ug/L	20	5.3	EPA-548.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-548.1	07/20/21 10:00	07/22/21 20:27	CMM	MS-B1	10	B114989	EPA 548.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

BCL Sample ID: 2122475-02 **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Diquat	ND	ug/L	4.0	1.3	EPA-549.2	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-549.2	07/20/21 09:15	07/21/21 10:29	SAW	HPLC16	1	B114817	EPA 549.2

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

BCL Sample ID: 2122475-02 | **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Dibromoacetic acid	ND	ug/L	1.0	0.32	EPA-552.3	ND		1
Dichloroacetic acid	ND	ug/L	1.0	0.29	EPA-552.3	ND		1
Monobromoacetic acid	ND	ug/L	1.0	0.25	EPA-552.3	ND		1
Monochloroacetic acid	ND	ug/L	1.0	0.61	EPA-552.3	ND		1
Trichloroacetic acid	ND	ug/L	1.0	0.36	EPA-552.3	ND		1
Total HAA's (Summation)	ND	ug/L	1.0	1.0	EPA-552.3	ND		1
2,3-Dibromopropionic acid (Surrogate)	87.3	%	70 - 130 (LCL - UCL)		EPA-552.3			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-552.3	07/19/21 16:45	07/20/21 12:52	OLH	GC-3	1	B114742	EPA 552.3

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

BCL Sample ID: 2122475-02 | **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Formaldehyde	ND	ug/L	5.0	0.70	EPA-556.1	ND		1
2',4',5'-Trifluoroacetophenone (Surrogate)	84.5	%	30 - 150 (LCL - UCL)		EPA-556.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-556.1	07/19/21 17:30	07/21/21 14:41	OLH	GC-3	1	B114826	EPA 556.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 2122475-02 | **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acrolein	ND	ug/L	10	7.9	EPA-8260B	ND		1
Acrylonitrile	ND	ug/L	5.0	1.2	EPA-8260B	ND		1
2-Chloroethyl vinyl ether	ND	ug/L	10	2.4	EPA-8260B	ND		1
1,2-Dichloroethane-d4 (Surrogate)	121	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	103	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	89.5	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8260B	07/19/21 06:00	07/19/21 23:39	ADC	MS-V15	1	B114577	EPA 5030 Water MS

City of Morro Bay	Reported:	08/17/2021 15:01
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2122475-02 | **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Acenaphthylene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Aldrin	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
Aniline	ND	ug/L	5.0	0.28	EPA-8270C	ND		1
Anthracene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzidine	ND	ug/L	20	1.6	EPA-8270C	ND		1
Benzo[a]anthracene	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
Benzo[b]fluoranthene	ND	ug/L	2.0	0.24	EPA-8270C	ND		1
Benzo[k]fluoranthene	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Benzo[a]pyrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzo[g,h,i]perylene	ND	ug/L	2.0	0.33	EPA-8270C	ND		1
Benzoic acid	ND	ug/L	10	0.52	EPA-8270C	ND		1
Benzyl alcohol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzyl butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
alpha-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
beta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
delta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
gamma-BHC (Lindane)	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethoxy)methane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethyl) ether	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
bis(2-Chloroisopropyl)ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	4.0	0.20	EPA-8270C	ND		1
4-Bromophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloroaniline	ND	ug/L	2.0	1.1	EPA-8270C	ND		1
2-Chloronaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chlorophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Chrysene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,4'-DDD	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
4,4'-DDE	ND	ug/L	3.0	0.24	EPA-8270C	ND		1
4,4'-DDT	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	3.0	0.34	EPA-8270C	ND		1
Dibenzofuran	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,2-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2122475-02 | **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,3-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,4-Dichlorobenzene	ND	ug/L	2.0	0.27	EPA-8270C	ND		1
3,3-Dichlorobenzidine	ND	ug/L	10	0.53	EPA-8270C	ND		1
Dieldrin	ND	ug/L	3.0	0.39	EPA-8270C	ND		1
Diethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Dimethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dinitrotoluene	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2,6-Dinitrotoluene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-octyl phthalate	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
1,2-Diphenylhydrazine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Endosulfan I	ND	ug/L	10	0.31	EPA-8270C	ND		1
Endosulfan II	ND	ug/L	10	0.30	EPA-8270C	ND		1
Endosulfan sulfate	ND	ug/L	3.0	0.23	EPA-8270C	ND		1
Endrin	ND	ug/L	2.0	0.38	EPA-8270C	ND		1
Endrin aldehyde	ND	ug/L	10	0.44	EPA-8270C	ND		1
Fluoranthene	ND	ug/L	2.0	0.28	EPA-8270C	ND		1
Fluorene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor epoxide	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
Hexachlorobenzene	ND	ug/L	2.0	0.25	EPA-8270C	ND		1
Hexachlorobutadiene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Hexachlorocyclopentadiene	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
Hexachloroethane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	2.0	0.29	EPA-8270C	ND		1
Isophorone	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Methylnaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Naphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Naphthylamine	ND	ug/L	20	1.3	EPA-8270C	ND		1
2-Nitroaniline	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3-Nitroaniline	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
4-Nitroaniline	ND	ug/L	5.0	0.38	EPA-8270C	ND		1
Nitrobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2122475-02 | **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
N-Nitrosodimethylamine	ND	ug/L	2.0	1.2	EPA-8270C	ND		1
N-Nitrosodi-N-propylamine	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
N-Nitrosodiphenylamine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Phenanthrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Pyrene	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloro-3-methylphenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Chlorophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dichlorophenol	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
2,4-Dimethylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,6-Dinitro-2-methylphenol	ND	ug/L	10	0.24	EPA-8270C	ND		1
2,4-Dinitrophenol	ND	ug/L	10	0.20	EPA-8270C	ND		1
2-Methylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3- & 4-Methylphenol	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2-Nitrophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Nitrophenol	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Pentachlorophenol	ND	ug/L	10	0.40	EPA-8270C	ND		1
Phenol	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
2,4,5-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2,4,6-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Fluorophenol (Surrogate)	43.2	%	30 - 120 (LCL - UCL)		EPA-8270C			1
Phenol-d5 (Surrogate)	36.4	%	12 - 110 (LCL - UCL)		EPA-8270C			1
Nitrobenzene-d5 (Surrogate)	80.5	%	50 - 130 (LCL - UCL)		EPA-8270C			1
2-Fluorobiphenyl (Surrogate)	79.6	%	55 - 125 (LCL - UCL)		EPA-8270C			1
2,4,6-Tribromophenol (Surrogate)	72.6	%	40 - 150 (LCL - UCL)		EPA-8270C			1
p-Terphenyl-d14 (Surrogate)	62.3	%	40 - 150 (LCL - UCL)		EPA-8270C			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8270C	07/20/21 08:15	07/24/21 00:46	CMM	MS-B2	0.970	B114923	EPA 3510C

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Explosive Residues (EPA Method 8330)

BCL Sample ID: 2122475-02 **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
HMX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
RDX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
1,2-Dinitrobenzene (Surrogate)	98.9	%	70 - 130 (LCL - UCL)		EPA-8330			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8330	07/19/21 08:30	07/21/21 21:48	SAW	HPLC16	1	B114621	EPA 8330

BC Laboratories, Inc.
Environmental Testing Laboratory Since 1949

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2122475-02 **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Trivalent Chromium	ND	ug/L	10	5.0	Calc	ND		1
Chloride	**170**	**mg/L**	**1.0**	**0.26**	**EPA-300.0**	0.37	**A10**	2
Fluoride	**0.25**	**mg/L**	**0.10**	**0.050**	**EPA-300.0**	ND	**A10**	2
Nitrate as N	**24**	**mg/L**	**0.20**	**0.048**	**EPA-300.0**	ND	**A10**	2
Sulfate	**170**	**mg/L**	**2.0**	**0.28**	**EPA-300.0**	ND	**A10**	2
Nitrate + Nitrite as N	**24**	**mg/L**	**0.10**	**0.018**	**Calc**	ND		3
Electrical Conductivity @ 25 C	**1650**	**umhos/cm**	**1.00**	**1.00**	**SM-2510B**			4
Total Dissolved Solids @ 180 C	**1100**	**mg/L**	**50**	**25**	**SM-2540C**	ND	**A10**	5
Color	**1.0**	**Color Units**	**1.0**	**1.0**	**SM-2120B**			6
Odor	No Obs Odor	Odor Units	1.0	1.0	SM-2150B	ND		7
Turbidity	**0.14**	**NT Units**	**0.10**	**0.10**	**EPA-180.1**			8
MBAS	ND	mg/L	0.10	0.024	SM-5540C	ND		9
Total Cyanide	ND	mg/L	0.0050	0.0017	EPA-335.4	ND		10
Total Nitrogen	**24**	**mg/L**	**0.30**	**0.10**	**Calc**	ND		11
Total Kjeldahl Nitrogen	**0.13**	**mg/L**	**0.20**	**0.088**	**EPA-351.2**	ND	**J**	12
Nitrite as N	ND	ug/L	50	10	EPA-353.2	ND		13
Perchlorate	ND	mg/L	0.0020	0.00081	EPA-314.0	ND		14
Non-Volatile Organic Carbon	**1.1**	**mg/L**	**1.0**	**0.30**	**SM-5310C**	ND		15

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2122475-02 **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	
1	Calc	07/19/21 13:01	08/02/21 16:01	AMM	Calc	1	B_G0417	Calc
2	EPA-300.0	07/15/21 00:30	07/15/21 07:51	ANK	IC5	2	B114282	No Prep
3	Calc	07/19/21 13:01	07/28/21 18:01	AMM	Calc	1	B_G0417	Calc
4	SM-2510B	07/21/21 07:20	07/21/21 14:14	RML	MET-1	1	B112458	No Prep
5	SM-2540C	07/20/21 12:00	07/20/21 12:00	CAD	MANUAL	5	B114694	No Prep
6	SM-2120B	07/15/21 07:10	07/15/21 07:10	JTM	MANUAL	1	B114614	No Prep
7	SM-2150B	07/15/21 07:10	07/15/21 07:10	JTM	MANUAL	1	B114615	No Prep
8	EPA-180.1	07/15/21 07:10	07/15/21 07:10	JTM	TURB04	1	B114616	No Prep
9	SM-5540C	07/15/21 08:00	07/15/21 08:00	JMN	SPEC06	1	B114627	No Prep
10	EPA-335.4	07/20/21 08:12	07/20/21 10:56	JMH	KONE-1	1	B114659	EPA 335.4 Total
11	Calc	07/19/21 13:01	08/02/21 18:01	AMM	Calc	1	B_G0417	Calc
12	EPA-351.2	07/20/21 08:00	07/28/21 09:36	JMH2	SC-1	1	B114677	EPA 351.2
13	EPA-353.2	07/14/21 23:00	07/15/21 00:01	KB1	KONE-1	1	B114265	No Prep
14	EPA-314.0	08/05/21 08:00	08/05/21 14:06	ANK	IC6	1	B116350	No Prep
15	SM-5310C	07/19/21 05:00	07/19/21 18:11	ALW	TOC2	1	B114515	No Prep

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Metals Analysis

BCL Sample ID: 2122475-02 **Client Sample Name:** Well #3, 7/13/2021 10:12:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Hexavalent Chromium	**1.3**	**ug/L**	**0.20**	**0.020**	**EPA-218.6**	0.025		1
Total Recoverable Aluminum	ND	ug/L	50	26	EPA-200.7	ND		2
Total Recoverable Antimony	ND	ug/L	2.0	0.11	EPA-200.8	ND		3
Total Recoverable Arsenic	ND	ug/L	2.0	0.70	EPA-200.8	ND		3
Total Recoverable Barium	**130**	**ug/L**	**1.0**	**0.21**	**EPA-200.8**	0.34		3
Total Recoverable Beryllium	ND	ug/L	1.0	0.14	EPA-200.8	ND		4
Total Recoverable Boron	**110**	**ug/L**	**100**	**10**	**EPA-200.7**	ND		2
Total Recoverable Cadmium	ND	ug/L	1.0	0.11	EPA-200.8	ND		3
Total Recoverable Chromium	ND	ug/L	3.0	0.50	EPA-200.8	ND		3
Total Recoverable Cobalt	**0.43**	**ug/L**	**1.0**	**0.10**	**EPA-200.8**	ND	**J**	3
Total Recoverable Copper	**3.3**	**ug/L**	**2.0**	**0.22**	**EPA-200.8**	ND		3
Total Recoverable Iron	ND	ug/L	50	30	EPA-200.7	ND		2
Total Recoverable Lead	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Lithium	ND	ug/L	20	6.6	EPA-200.7	ND		2
Total Recoverable Manganese	ND	ug/L	10	4.0	EPA-200.7	ND		2
Total Recoverable Mercury	**0.034**	**ug/L**	**0.20**	**0.022**	**EPA-245.1**	ND	**J**	5
Total Recoverable Molybdenum	**1.3**	**ug/L**	**1.0**	**0.11**	**EPA-200.8**	ND		3
Total Recoverable Nickel	**4.4**	**ug/L**	**2.0**	**0.19**	**EPA-200.8**	ND		3
Total Recoverable Selenium	**26**	**ug/L**	**2.0**	**0.19**	**EPA-200.8**	ND		3
Total Recoverable Silver	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Thallium	ND	ug/L	1.0	0.10	EPA-200.8	ND		3
Total Recoverable Vanadium	ND	ug/L	3.0	0.78	EPA-200.8	ND		3
Total Recoverable Zinc	**22**	**ug/L**	**10**	**1.7**	**EPA-200.8**	3.4		4
Total Recoverable Uranium	**1.9**	**ug/L**	**1.0**	**0.10**	**EPA-200.8**	ND		3

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-218.6	07/21/21 11:00	07/21/21 15:42	KEB	IC-4	1	B114845	No Prep
2	EPA-200.7	07/21/21 10:45	07/21/21 17:21	JRG	PE-OP4	1	B114828	EPA 200.2
3	EPA-200.8	07/20/21 22:25	07/21/21 20:25	AK1	PE-EL2	1	B114761	EPA 200.2
4	EPA-200.8	07/20/21 22:25	07/22/21 10:08	ARD	PE-EL4	1	B114761	EPA 200.2
5	EPA-245.1	07/22/21 10:05	07/22/21 15:16	TMT	CETAC3	1	B114949	EPA 245.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

BCL Sample ID: 2122475-03 | **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2-Dibromo-3-chloropropane	ND	ug/L	0.010	0.0015	EPA-504.1	ND		1
Ethylene dibromide	ND	ug/L	0.010	0.0030	EPA-504.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-504.1	07/21/21 08:00	07/21/21 17:39	HKS	GC-15	0.943	B114866	EPA 504.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

BCL Sample ID: 2122475-03 | **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Aldrin	ND	ug/L	0.0050	0.00095	EPA-508	ND		1
alpha-BHC	ND	ug/L	0.0050	0.00050	EPA-508	ND		1
beta-BHC	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
delta-BHC	ND	ug/L	0.0050	0.0015	EPA-508	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.0050	0.00067	EPA-508	ND		1
Chlordane (Technical)	ND	ug/L	0.10	0.045	EPA-508	ND		1
4,4'-DDD	ND	ug/L	0.0050	0.00086	EPA-508	ND		1
4,4'-DDE	ND	ug/L	0.0050	0.0013	EPA-508	ND		1
4,4'-DDT	ND	ug/L	0.0050	0.00096	EPA-508	ND		1
Dieldrin	ND	ug/L	0.0050	0.0011	EPA-508	ND		1
Endosulfan I	ND	ug/L	0.0050	0.00068	EPA-508	ND		1
Endosulfan II	ND	ug/L	0.0050	0.00098	EPA-508	ND		1
Endosulfan sulfate	ND	ug/L	0.0050	0.00055	EPA-508	ND		1
Endrin	ND	ug/L	0.0050	0.00069	EPA-508	ND		1
Endrin aldehyde	ND	ug/L	0.010	0.00054	EPA-508	ND		1
Heptachlor	ND	ug/L	0.0050	0.00094	EPA-508	ND		1
Heptachlor epoxide	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
Methoxychlor	ND	ug/L	0.0050	0.0037	EPA-508	ND		1
Toxaphene	ND	ug/L	1.0	0.20	EPA-508	ND		1
PCB-1016	ND	ug/L	0.20	0.066	EPA-508	ND		1
PCB-1221	ND	ug/L	0.20	0.063	EPA-508	ND		1
PCB-1232	ND	ug/L	0.20	0.059	EPA-508	ND		1
PCB-1242	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1248	ND	ug/L	0.20	0.044	EPA-508	ND		1
PCB-1254	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1260	ND	ug/L	0.20	0.089	EPA-508	ND		1
Total PCB's (Summation)	ND	ug/L	0.20	0.10	EPA-508	ND		1
TCMX (Surrogate)	70.4	%	60 - 130 (LCL - UCL)		EPA-508			1
Decachlorobiphenyl (Surrogate)	56.2	%	60 - 130 (LCL - UCL)		EPA-508		A20	1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-508	07/19/21 10:30	07/22/21 04:11	HKS	GC-17	1	B114872	EPA 508

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis (EPA Method 515.1)

BCL Sample ID: 2122475-03 | **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Bentazon	ND	ug/L	0.80	0.22	EPA-515.1	ND		1
2,4-D	ND	ug/L	0.40	0.18	EPA-515.1	ND		1
2,4-DB	ND	ug/L	3.0	0.37	EPA-515.1	ND		1
Dalapon	ND	ug/L	5.0	0.31	EPA-515.1	ND		1
Dicamba	ND	ug/L	0.080	0.040	EPA-515.1	ND		1
Dichloroprop	ND	ug/L	0.50	0.11	EPA-515.1	ND		1
Dinoseb	ND	ug/L	0.20	0.057	EPA-515.1	ND		1
MCPA	ND	ug/L	10	6.0	EPA-515.1	ND		1
MCPP	ND	ug/L	10	6.0	EPA-515.1	ND		1
2,4,5-T	ND	ug/L	0.090	0.012	EPA-515.1	ND		1
2,4,5-TP (Silvex)	ND	ug/L	0.070	0.032	EPA-515.1	ND		1
2,4-Dichlorophenylacetic acid (Surrogate)	76.0	%	40 - 120 (LCL - UCL)		EPA-515.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-515.1	07/19/21 13:30	07/21/21 16:10	OLH	GC-8	1	B114937	EPA 515.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2122475-03 **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
Bromobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Bromochloromethane	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Bromodichloromethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Bromoform	ND	ug/L	0.50	0.46	EPA-524.2	ND		1
Bromomethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
n-Butylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
sec-Butylbenzene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
tert-Butylbenzene	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Carbon tetrachloride	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chlorobenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chloroform	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloromethane	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
2-Chlorotoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
4-Chlorotoluene	ND	ug/L	0.50	0.093	EPA-524.2	ND		1
Dibromochloromethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0	0.89	EPA-524.2	ND		1
1,2-Dibromoethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
Dibromomethane	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
1,2-Dichlorobenzene	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,3-Dichlorobenzene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
1,4-Dichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Dichlorodifluoromethane	ND	ug/L	0.50	0.15	EPA-524.2	ND	V11	1
1,1-Dichloroethane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,2-Dichloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,1-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
cis-1,2-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2-Dichloropropane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,3-Dichloropropane	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
2,2-Dichloropropane	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
1,1-Dichloropropene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2122475-03 | **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
Total 1,3-Dichloropropene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Ethylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Hexachlorobutadiene	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Isopropylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
p-Isopropyltoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Methylene chloride	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Methyl t-butyl ether	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Naphthalene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
n-Propylbenzene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
Styrene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Tetrachloroethene	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
Toluene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2,3-Trichlorobenzene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,1,1-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Trichloroethene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
Trichlorofluoromethane	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
1,2,3-Trichloropropane	ND	ug/L	1.0	0.78	EPA-524.2	ND		1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trimethylbenzene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,3,5-Trimethylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Vinyl chloride	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Total Xylenes	ND	ug/L	0.50	0.47	EPA-524.2	ND		1
Total Trihalomethanes	ND	ug/L	2.0	0.97	EPA-524.2	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
t-Butyl alcohol	ND	ug/L	10	9.4	EPA-524.2	ND	V11	1
Diisopropyl ether	ND	ug/L	0.50	0.36	EPA-524.2	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50	0.32	EPA-524.2	ND		1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2122475-03 | **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
p- & m-Xylenes	ND	ug/L	0.50	0.34	EPA-524.2	ND		1
o-Xylene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
1,2-Dichloroethane-d4 (Surrogate)	117	%	75 - 125 (LCL - UCL)		EPA-524.2			1
Toluene-d8 (Surrogate)	105	%	80 - 120 (LCL - UCL)		EPA-524.2			1
4-Bromofluorobenzene (Surrogate)	87.6	%	80 - 120 (LCL - UCL)		EPA-524.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-524.2	07/19/21 06:00	07/20/21 00:02	ADC	MS-V15	1	B114577	EPA 524.2

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

BCL Sample ID: 2122475-03 | **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2,3-Trichloropropane	ND	ug/L	0.0050	0.0010	SRL 524M	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	SRL 524M	07/20/21 06:00	07/20/21 11:58	ADC	MS-V16	1	B114201	EPA 524.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2122475-03 **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthylene	ND	ug/L	0.10	0.031	EPA-525.2	ND		1
Alachlor	ND	ug/L	0.20	0.090	EPA-525.2	ND		1
Anthracene	ND	ug/L	0.10	0.034	EPA-525.2	ND		1
Atraton	ND	ug/L	0.50	0.057	EPA-525.2	ND		1
Atrazine	ND	ug/L	0.30	0.14	EPA-525.2	ND		1
Benzo[a]anthracene	ND	ug/L	0.20	0.044	EPA-525.2	ND		1
Benzo[b]fluoranthene	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Benzo[k]fluoranthene	ND	ug/L	0.30	0.072	EPA-525.2	ND		1
Benzo[a]pyrene	ND	ug/L	0.10	0.050	EPA-525.2	ND		1
Benzo[g,h,i]perylene	ND	ug/L	0.30	0.065	EPA-525.2	ND		1
Benzyl butyl phthalate	ND	ug/L	4.0	0.047	EPA-525.2	ND		1
delta-BHC	ND	ug/L	0.20	0.048	EPA-525.2	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.20	0.063	EPA-525.2	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	3.0	0.030	EPA-525.2	ND		1
Bromacil	ND	ug/L	0.50	0.043	EPA-525.2	ND		1
Chrysene	ND	ug/L	0.30	0.060	EPA-525.2	ND		1
Diazinon	ND	ug/L	0.20	0.080	EPA-525.2	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	0.30	0.051	EPA-525.2	ND		1
Di(2-ethylhexyl)adipate	ND	ug/L	1.0	0.025	EPA-525.2	ND		1
Dimethoate	ND	ug/L	2.0	0.050	EPA-525.2	ND		1
Dimethyl phthalate	ND	ug/L	1.0	0.034	EPA-525.2	ND		1
Di-n-butyl phthalate	ND	ug/L	1.0	0.063	EPA-525.2	ND		1
Fluorene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorobenzene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorocyclopentadiene	ND	ug/L	1.0	0.12	EPA-525.2	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.30	0.032	EPA-525.2	ND		1
Methoxychlor	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Metolachlor	ND	ug/L	0.50	0.056	EPA-525.2	ND		1
Metribuzin	ND	ug/L	0.50	0.048	EPA-525.2	ND		1
Molinate	ND	ug/L	0.50	0.036	EPA-525.2	ND		1
Phenanthrene	ND	ug/L	0.10	0.020	EPA-525.2	ND		1
Prometon	ND	ug/L	0.50	0.11	EPA-525.2	ND		1
Prometryn	ND	ug/L	0.50	0.045	EPA-525.2	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2122475-03 **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Propachlor	ND	ug/L	0.50	0.077	EPA-525.2	ND		1
Pyrene	ND	ug/L	0.10	0.040	EPA-525.2	ND		1
Secbumeton	ND	ug/L	0.50	0.079	EPA-525.2	ND		1
Simazine	ND	ug/L	0.30	0.066	EPA-525.2	ND		1
Terbutryn	ND	ug/L	0.50	0.050	EPA-525.2	ND		1
Thiobencarb	ND	ug/L	0.50	0.044	EPA-525.2	ND		1
Perylene-d12 (Surrogate)	91.4	%	60 - 140 (LCL - UCL)		EPA-525.2			1
1,3-Dimethyl-2-nitrobenzene (Surrogate)	101	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Triphenylphosphate (Surrogate)	128	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Pyrene-d10 (Surrogate)	94.2	%	70 - 130 (LCL - UCL)		EPA-525.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-525.2	07/20/21 07:45	07/21/21 19:13	CMM	MS-B6	1	B114874	EPA 525.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Carbamate and Urea Pesticides (EPA Method 531.2)

BCL Sample ID: 2122475-03 **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1-Naphthol	ND	ug/L	5.0	0.86	EPA-531.2	ND		1
Aldicarb	ND	ug/L	3.0	1.2	EPA-531.2	ND		1
Aldicarb sulfone	ND	ug/L	4.0	0.60	EPA-531.2	ND		1
Aldicarb sulfoxide	ND	ug/L	3.0	0.40	EPA-531.2	ND		1
Propoxur	ND	ug/L	5.0	0.36	EPA-531.2	ND		1
Carbaryl	ND	ug/L	5.0	0.47	EPA-531.2	ND		1
Carbofuran	ND	ug/L	5.0	0.67	EPA-531.2	ND		1
3-Hydroxycarbofuran	ND	ug/L	3.0	0.41	EPA-531.2	ND		1
Methiocarb	ND	ug/L	5.0	0.31	EPA-531.2	ND		1
Methomyl	ND	ug/L	2.0	0.92	EPA-531.2	ND		1
Oxamyl	ND	ug/L	5.0	0.79	EPA-531.2	ND		1
BDMC (Surrogate)	95.6	%	70 - 130 (LCL - UCL)		EPA-531.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-531.2	07/21/21 10:00	07/22/21 11:08	SAW	HPLC15	1	B114952	EPA 531.2

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Glyphosate Analysis (EPA Method 547)

BCL Sample ID: 2122475-03 **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Glyphosate	ND	ug/L	25	3.5	EPA-547	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-547	07/19/21 13:00	07/20/21 01:41	SAW	HPLC15	1	B114716	EPA 547

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

BCL Sample ID: 2122475-03 | **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Endothal	ND	ug/L	20	5.3	EPA-548.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-548.1	07/20/21 10:00	07/22/21 20:51	CMM	MS-B1	10	B114989	EPA 548.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

BCL Sample ID: 2122475-03 | **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Diquat	ND	ug/L	4.0	1.3	EPA-549.2	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-549.2	07/20/21 09:15	07/21/21 10:35	SAW	HPLC16	1	B114817	EPA 549.2

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

BCL Sample ID: 2122475-03 **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Dibromoacetic acid	ND	ug/L	1.0	0.32	EPA-552.3	ND		1
Dichloroacetic acid	ND	ug/L	1.0	0.29	EPA-552.3	ND		1
Monobromoacetic acid	ND	ug/L	1.0	0.25	EPA-552.3	ND		1
Monochloroacetic acid	ND	ug/L	1.0	0.61	EPA-552.3	ND		1
Trichloroacetic acid	ND	ug/L	1.0	0.36	EPA-552.3	ND		1
Total HAA's (Summation)	ND	ug/L	1.0	1.0	EPA-552.3	ND		1
2,3-Dibromopropionic acid (Surrogate)	101	%	70 - 130 (LCL - UCL)		EPA-552.3			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-552.3	07/19/21 16:45	07/20/21 13:16	OLH	GC-3	1	B114742	EPA 552.3

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

BCL Sample ID: 2122475-03 **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Formaldehyde	ND	ug/L	5.0	0.70	EPA-556.1	ND		1
2',4',5'-Trifluoroacetophenone (Surrogate)	85.5	%	30 - 150 (LCL - UCL)		EPA-556.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-556.1	07/19/21 17:30	07/21/21 14:59	OLH	GC-3	1	B114826	EPA 556.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 2122475-03 **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acrolein	ND	ug/L	10	7.9	EPA-8260B	ND		1
Acrylonitrile	ND	ug/L	5.0	1.2	EPA-8260B	ND		1
2-Chloroethyl vinyl ether	ND	ug/L	10	2.4	EPA-8260B	ND		1
1,2-Dichloroethane-d4 (Surrogate)	117	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	105	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	87.6	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8260B	07/19/21 06:00	07/20/21 00:02	ADC	MS-V15	1	B114577	EPA 5030 Water MS

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2122475-03 **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Acenaphthylene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Aldrin	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
Aniline	ND	ug/L	5.0	0.28	EPA-8270C	ND		1
Anthracene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzidine	ND	ug/L	20	1.6	EPA-8270C	ND		1
Benzo[a]anthracene	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
Benzo[b]fluoranthene	ND	ug/L	2.0	0.24	EPA-8270C	ND		1
Benzo[k]fluoranthene	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Benzo[a]pyrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzo[g,h,i]perylene	ND	ug/L	2.0	0.33	EPA-8270C	ND		1
Benzoic acid	ND	ug/L	10	0.52	EPA-8270C	ND		1
Benzyl alcohol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzyl butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
alpha-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
beta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
delta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
gamma-BHC (Lindane)	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethoxy)methane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethyl) ether	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
bis(2-Chloroisopropyl)ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	4.0	0.20	EPA-8270C	ND		1
4-Bromophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloroaniline	ND	ug/L	2.0	1.1	EPA-8270C	ND		1
2-Chloronaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chlorophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Chrysene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,4'-DDD	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
4,4'-DDE	ND	ug/L	3.0	0.24	EPA-8270C	ND		1
4,4'-DDT	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	3.0	0.34	EPA-8270C	ND		1
Dibenzofuran	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,2-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2122475-03 | **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,3-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,4-Dichlorobenzene	ND	ug/L	2.0	0.27	EPA-8270C	ND		1
3,3-Dichlorobenzidine	ND	ug/L	10	0.53	EPA-8270C	ND		1
Dieldrin	ND	ug/L	3.0	0.39	EPA-8270C	ND		1
Diethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Dimethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dinitrotoluene	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2,6-Dinitrotoluene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-octyl phthalate	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
1,2-Diphenylhydrazine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Endosulfan I	ND	ug/L	10	0.31	EPA-8270C	ND		1
Endosulfan II	ND	ug/L	10	0.30	EPA-8270C	ND		1
Endosulfan sulfate	ND	ug/L	3.0	0.23	EPA-8270C	ND		1
Endrin	ND	ug/L	2.0	0.38	EPA-8270C	ND		1
Endrin aldehyde	ND	ug/L	10	0.44	EPA-8270C	ND		1
Fluoranthene	ND	ug/L	2.0	0.28	EPA-8270C	ND		1
Fluorene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor epoxide	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
Hexachlorobenzene	ND	ug/L	2.0	0.25	EPA-8270C	ND		1
Hexachlorobutadiene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Hexachlorocyclopentadiene	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
Hexachloroethane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	2.0	0.29	EPA-8270C	ND		1
Isophorone	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Methylnaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Naphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Naphthylamine	ND	ug/L	20	1.3	EPA-8270C	ND		1
2-Nitroaniline	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3-Nitroaniline	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
4-Nitroaniline	ND	ug/L	5.0	0.38	EPA-8270C	ND		1
Nitrobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2122475-03 **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
N-Nitrosodimethylamine	ND	ug/L	2.0	1.2	EPA-8270C	ND		1
N-Nitrosodi-N-propylamine	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
N-Nitrosodiphenylamine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Phenanthrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Pyrene	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloro-3-methylphenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Chlorophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dichlorophenol	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
2,4-Dimethylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,6-Dinitro-2-methylphenol	ND	ug/L	10	0.24	EPA-8270C	ND		1
2,4-Dinitrophenol	ND	ug/L	10	0.20	EPA-8270C	ND		1
2-Methylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3- & 4-Methylphenol	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2-Nitrophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Nitrophenol	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Pentachlorophenol	ND	ug/L	10	0.40	EPA-8270C	ND		1
Phenol	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
2,4,5-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2,4,6-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Fluorophenol (Surrogate)	38.6	%	30 - 120 (LCL - UCL)		EPA-8270C			1
Phenol-d5 (Surrogate)	34.1	%	12 - 110 (LCL - UCL)		EPA-8270C			1
Nitrobenzene-d5 (Surrogate)	77.8	%	50 - 130 (LCL - UCL)		EPA-8270C			1
2-Fluorobiphenyl (Surrogate)	77.2	%	55 - 125 (LCL - UCL)		EPA-8270C			1
2,4,6-Tribromophenol (Surrogate)	63.1	%	40 - 150 (LCL - UCL)		EPA-8270C			1
p-Terphenyl-d14 (Surrogate)	71.4	%	40 - 150 (LCL - UCL)		EPA-8270C			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8270C	07/20/21 08:15	07/24/21 01:12	CMM	MS-B2	0.950	B114923	EPA 3510C

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Explosive Residues (EPA Method 8330)

BCL Sample ID: 2122475-03 | **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
HMX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
RDX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
1,2-Dinitrobenzene (Surrogate)	102	%	70 - 130 (LCL - UCL)		EPA-8330			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8330	07/19/21 08:30	07/21/21 22:19	SAW	HPLC16	1	B114621	EPA 8330

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2122475-03 | **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Trivalent Chromium	ND	ug/L	10	5.0	Calc	ND		1
Chloride	**170**	**mg/L**	**1.0**	**0.26**	**EPA-300.0**	0.37	**A10**	2
Fluoride	**0.28**	**mg/L**	**0.10**	**0.050**	**EPA-300.0**	ND	**A10**	2
Nitrate as N	**2.4**	**mg/L**	**0.20**	**0.048**	**EPA-300.0**	ND	**A10**	2
Sulfate	**180**	**mg/L**	**2.0**	**0.28**	**EPA-300.0**	ND	**A10**	2
Nitrate + Nitrite as N	**2.5**	**mg/L**	**0.10**	**0.018**	**Calc**	ND		3
Electrical Conductivity @ 25 C	**1470**	**umhos/cm**	**1.00**	**1.00**	**SM-2510B**			4
Total Dissolved Solids @ 180 C	**990**	**mg/L**	**50**	**25**	**SM-2540C**	ND	**A10**	5
Color	**3.0**	**Color Units**	**1.0**	**1.0**	**SM-2120B**			6
Odor	No Obs Odor	Odor Units	1.0	1.0	SM-2150B	ND		7
Turbidity	**1.8**	**NT Units**	**0.10**	**0.10**	**EPA-180.1**			8
MBAS	ND	mg/L	0.10	0.024	SM-5540C	ND		9
Total Cyanide	ND	mg/L	0.0050	0.0017	EPA-335.4	ND		10
Total Nitrogen	**2.7**	**mg/L**	**0.30**	**0.10**	**Calc**	ND		11
Total Kjeldahl Nitrogen	**0.11**	**mg/L**	**0.20**	**0.088**	**EPA-351.2**	ND	**J**	12
Nitrite as N	**100**	**ug/L**	**50**	**10**	**EPA-353.2**	ND		13
Perchlorate	ND	mg/L	0.0020	0.00081	EPA-314.0	ND		14
Non-Volatile Organic Carbon	**1.2**	**mg/L**	**1.0**	**0.30**	**SM-5310C**	ND		15

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2122475-03 **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	
1	Calc	07/19/21 13:01	08/02/21 16:01	AMM	Calc	1	B_G0417	Calc
2	EPA-300.0	07/15/21 00:30	07/15/21 09:03	ANK	IC5	2	B114282	No Prep
3	Calc	07/19/21 13:01	07/28/21 18:01	AMM	Calc	1	B_G0417	Calc
4	SM-2510B	07/21/21 07:20	07/21/21 14:37	RML	MET-1	1	B112459	No Prep
5	SM-2540C	07/20/21 12:00	07/20/21 12:00	CAD	MANUAL	5	B114694	No Prep
6	SM-2120B	07/15/21 07:10	07/15/21 07:10	JTM	MANUAL	1	B114614	No Prep
7	SM-2150B	07/15/21 07:10	07/15/21 07:10	JTM	MANUAL	1	B114615	No Prep
8	EPA-180.1	07/15/21 07:10	07/15/21 07:10	JTM	TURB04	1	B114616	No Prep
9	SM-5540C	07/15/21 08:00	07/15/21 08:00	JMN	SPEC06	1	B114627	No Prep
10	EPA-335.4	07/20/21 08:12	07/20/21 10:56	JMH	KONE-1	1	B114659	EPA 335.4 Total
11	Calc	07/19/21 13:01	08/02/21 18:01	AMM	Calc	1	B_G0417	Calc
12	EPA-351.2	07/20/21 08:00	07/28/21 09:38	JMH2	SC-1	1	B114677	EPA 351.2
13	EPA-353.2	07/14/21 23:00	07/15/21 00:01	KB1	KONE-1	1	B114265	No Prep
14	EPA-314.0	08/05/21 08:00	08/05/21 14:22	ANK	IC6	1	B116350	No Prep
15	SM-5310C	07/19/21 05:00	07/19/21 18:26	ALW	TOC2	1	B114515	No Prep

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Metals Analysis

BCL Sample ID: 2122475-03 **Client Sample Name:** I9P-04, 7/13/2021 11:45:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Hexavalent Chromium	ND	ug/L	0.20	0.020	EPA-218.6	0.025		1
Total Recoverable Aluminum	**43**	**ug/L**	**50**	**26**	**EPA-200.7**	ND	**J**	2
Total Recoverable Antimony	ND	ug/L	10	0.55	EPA-200.8	ND	A10	3
Total Recoverable Arsenic	ND	ug/L	10	3.5	EPA-200.8	ND	A10	3
Total Recoverable Barium	**230**	**ug/L**	**5.0**	**1.0**	**EPA-200.8**	1.7	**A10**	3
Total Recoverable Beryllium	ND	ug/L	5.0	0.70	EPA-200.8	ND	A10	4
Total Recoverable Boron	**93**	**ug/L**	**100**	**10**	**EPA-200.7**	ND	**J**	2
Total Recoverable Cadmium	ND	ug/L	5.0	0.55	EPA-200.8	ND	A10	3
Total Recoverable Chromium	ND	ug/L	15	2.5	EPA-200.8	ND	A10	3
Total Recoverable Cobalt	**0.97**	**ug/L**	**5.0**	**0.50**	**EPA-200.8**	ND	**J,A10**	3
Total Recoverable Copper	**1.8**	**ug/L**	**10**	**1.1**	**EPA-200.8**	ND	**J,A10**	3
Total Recoverable Iron	**61**	**ug/L**	**50**	**30**	**EPA-200.7**	ND		2
Total Recoverable Lead	ND	ug/L	5.0	0.50	EPA-200.8	ND	A10	3
Total Recoverable Lithium	ND	ug/L	20	6.6	EPA-200.7	ND		2
Total Recoverable Manganese	**1300**	**ug/L**	**10**	**4.0**	**EPA-200.7**	ND		2
Total Recoverable Mercury	ND	ug/L	0.20	0.022	EPA-245.1	ND		5
Total Recoverable Molybdenum	**3.8**	**ug/L**	**5.0**	**0.55**	**EPA-200.8**	ND	**J,A10**	3
Total Recoverable Nickel	**5.8**	**ug/L**	**10**	**0.95**	**EPA-200.8**	ND	**J,A10**	3
Total Recoverable Selenium	**6.3**	**ug/L**	**10**	**0.95**	**EPA-200.8**	ND	**J,A10**	3
Total Recoverable Silver	ND	ug/L	5.0	0.50	EPA-200.8	ND	A10	3
Total Recoverable Thallium	ND	ug/L	5.0	0.50	EPA-200.8	ND	A10	3
Total Recoverable Vanadium	ND	ug/L	15	3.9	EPA-200.8	ND	A10	3
Total Recoverable Zinc	ND	ug/L	50	8.5	EPA-200.8	17	A10	4
Total Recoverable Uranium	**2.2**	**ug/L**	**5.0**	**0.50**	**EPA-200.8**	ND	**J,A10**	3

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-218.6	07/21/21 11:00	07/21/21 15:52	KEB	IC-4	1	B114845	No Prep
2	EPA-200.7	07/21/21 10:45	07/21/21 17:23	JRG	PE-OP4	1	B114828	EPA 200.2
3	EPA-200.8	07/20/21 22:25	07/21/21 20:48	AK1	PE-EL2	5	B114761	EPA 200.2
4	EPA-200.8	07/20/21 22:25	07/22/21 10:44	ARD	PE-EL4	5	B114761	EPA 200.2
5	EPA-245.1	07/22/21 10:05	07/22/21 15:18	TMT	CETAC3	1	B114949	EPA 245.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

BCL Sample ID: 2122475-04 | **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2-Dibromo-3-chloropropane	ND	ug/L	0.010	0.0015	EPA-504.1	ND		1
Ethylene dibromide	ND	ug/L	0.010	0.0030	EPA-504.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-504.1	07/21/21 08:00	07/21/21 17:55	HKS	GC-15	0.939	B114866	EPA 504.1

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

BCL Sample ID: 2122475-04 **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Aldrin	ND	ug/L	0.0050	0.00095	EPA-508	ND		1
alpha-BHC	ND	ug/L	0.0050	0.00050	EPA-508	ND		1
beta-BHC	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
delta-BHC	ND	ug/L	0.0050	0.0015	EPA-508	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.0050	0.00067	EPA-508	ND		1
Chlordane (Technical)	ND	ug/L	0.10	0.045	EPA-508	ND		1
4,4'-DDD	ND	ug/L	0.0050	0.00086	EPA-508	ND		1
4,4'-DDE	ND	ug/L	0.0050	0.0013	EPA-508	ND		1
4,4'-DDT	ND	ug/L	0.0050	0.00096	EPA-508	ND		1
Dieldrin	ND	ug/L	0.0050	0.0011	EPA-508	ND		1
Endosulfan I	ND	ug/L	0.0050	0.00068	EPA-508	ND		1
Endosulfan II	ND	ug/L	0.0050	0.00098	EPA-508	ND		1
Endosulfan sulfate	ND	ug/L	0.0050	0.00055	EPA-508	ND		1
Endrin	ND	ug/L	0.0050	0.00069	EPA-508	ND		1
Endrin aldehyde	ND	ug/L	0.010	0.00054	EPA-508	ND		1
Heptachlor	ND	ug/L	0.0050	0.00094	EPA-508	ND		1
Heptachlor epoxide	ND	ug/L	0.0050	0.00064	EPA-508	ND		1
Methoxychlor	ND	ug/L	0.0050	0.0037	EPA-508	ND		1
Toxaphene	ND	ug/L	1.0	0.20	EPA-508	ND		1
PCB-1016	ND	ug/L	0.20	0.066	EPA-508	ND		1
PCB-1221	ND	ug/L	0.20	0.063	EPA-508	ND		1
PCB-1232	ND	ug/L	0.20	0.059	EPA-508	ND		1
PCB-1242	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1248	ND	ug/L	0.20	0.044	EPA-508	ND		1
PCB-1254	ND	ug/L	0.20	0.037	EPA-508	ND		1
PCB-1260	ND	ug/L	0.20	0.089	EPA-508	ND		1
Total PCB's (Summation)	ND	ug/L	0.20	0.10	EPA-508	ND		1
TCMX (Surrogate)	84.7	%	60 - 130 (LCL - UCL)		EPA-508			1
Decachlorobiphenyl (Surrogate)	90.5	%	60 - 130 (LCL - UCL)		EPA-508			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-508	07/19/21 10:30	07/22/21 04:26	HKS	GC-17	1	B114872	EPA 508

City of Morro Bay		**Reported:**	08/17/2021 15:01
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Organic Analysis (EPA Method 515.1)

BCL Sample ID: 2122475-04 **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Bentazon	ND	ug/L	0.80	0.22	EPA-515.1	ND		1
2,4-D	ND	ug/L	0.40	0.18	EPA-515.1	ND		1
2,4-DB	ND	ug/L	3.0	0.37	EPA-515.1	ND		1
Dalapon	ND	ug/L	5.0	0.31	EPA-515.1	ND		1
Dicamba	ND	ug/L	0.080	0.040	EPA-515.1	ND		1
Dichloroprop	ND	ug/L	0.50	0.11	EPA-515.1	ND		1
Dinoseb	ND	ug/L	0.20	0.057	EPA-515.1	ND		1
MCPA	ND	ug/L	10	6.0	EPA-515.1	ND		1
MCPP	ND	ug/L	10	6.0	EPA-515.1	ND		1
2,4,5-T	ND	ug/L	0.090	0.012	EPA-515.1	ND		1
2,4,5-TP (Silvex)	ND	ug/L	0.070	0.032	EPA-515.1	ND		1
2,4-Dichlorophenylacetic acid (Surrogate)	84.0	%	40 - 120 (LCL - UCL)		EPA-515.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-515.1	07/19/21 13:30	07/21/21 16:31	OLH	GC-8	1	B114937	EPA 515.1

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2122475-04 | **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Benzene	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
Bromobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Bromochloromethane	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Bromodichloromethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Bromoform	ND	ug/L	0.50	0.46	EPA-524.2	ND		1
Bromomethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
n-Butylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
sec-Butylbenzene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
tert-Butylbenzene	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Carbon tetrachloride	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chlorobenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Chloroform	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Chloromethane	ND	ug/L	0.50	0.11	EPA-524.2	ND		1
2-Chlorotoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
4-Chlorotoluene	ND	ug/L	0.50	0.093	EPA-524.2	ND		1
Dibromochloromethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0	0.89	EPA-524.2	ND		1
1,2-Dibromoethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
Dibromomethane	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
1,2-Dichlorobenzene	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,3-Dichlorobenzene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
1,4-Dichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Dichlorodifluoromethane	ND	ug/L	0.50	0.15	EPA-524.2	ND	V11	1
1,1-Dichloroethane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,2-Dichloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,1-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
cis-1,2-Dichloroethene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
trans-1,2-Dichloroethene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2-Dichloropropane	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,3-Dichloropropane	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
2,2-Dichloropropane	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
1,1-Dichloropropene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1

City of Morro Bay		**Reported:**	08/17/2021 15:01
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2122475-04 **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
cis-1,3-Dichloropropene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
trans-1,3-Dichloropropene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
Total 1,3-Dichloropropene	ND	ug/L	0.50	0.27	EPA-524.2	ND		1
Ethylbenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
Hexachlorobutadiene	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Isopropylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
p-Isopropyltoluene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Methylene chloride	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Methyl t-butyl ether	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Naphthalene	ND	ug/L	0.50	0.16	EPA-524.2	ND		1
n-Propylbenzene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
Styrene	ND	ug/L	0.50	0.12	EPA-524.2	ND		1
1,1,1,2-Tetrachloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2,2-Tetrachloroethane	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
Tetrachloroethene	ND	ug/L	0.50	0.23	EPA-524.2	ND		1
Toluene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,2,3-Trichlorobenzene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	0.50	0.15	EPA-524.2	ND		1
1,1,1-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
1,1,2-Trichloroethane	ND	ug/L	0.50	0.21	EPA-524.2	ND		1
Trichloroethene	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
Trichlorofluoromethane	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
1,2,3-Trichloropropane	ND	ug/L	1.0	0.78	EPA-524.2	ND		1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
1,2,4-Trimethylbenzene	ND	ug/L	0.50	0.17	EPA-524.2	ND		1
1,3,5-Trimethylbenzene	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Vinyl chloride	ND	ug/L	0.50	0.18	EPA-524.2	ND		1
Total Xylenes	ND	ug/L	0.50	0.47	EPA-524.2	ND		1
Total Trihalomethanes	ND	ug/L	2.0	0.97	EPA-524.2	ND		1
t-Amyl Methyl ether	ND	ug/L	0.50	0.19	EPA-524.2	ND		1
t-Butyl alcohol	ND	ug/L	10	9.4	EPA-524.2	ND	V11	1
Diisopropyl ether	ND	ug/L	0.50	0.36	EPA-524.2	ND		1
Ethyl t-butyl ether	ND	ug/L	0.50	0.32	EPA-524.2	ND		1

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2122475-04 **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
p- & m-Xylenes	ND	ug/L	0.50	0.34	EPA-524.2	ND		1
o-Xylene	ND	ug/L	0.50	0.13	EPA-524.2	ND		1
1,2-Dichloroethane-d4 (Surrogate)	123	%	75 - 125 (LCL - UCL)		EPA-524.2			1
Toluene-d8 (Surrogate)	104	%	80 - 120 (LCL - UCL)		EPA-524.2			1
4-Bromofluorobenzene (Surrogate)	86.5	%	80 - 120 (LCL - UCL)		EPA-524.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-524.2	07/19/21 06:00	07/20/21 00:25	ADC	MS-V15	1	B114577	EPA 524.2

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** Project: Project Number: Project Manager:	08/17/2021 15:01 Morro Bay Wells [none] John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

BCL Sample ID: 2122475-04 **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,2,3-Trichloropropane	ND	ug/L	0.0050	0.0010	SRL 524M	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	SRL 524M	07/20/21 06:00	07/20/21 12:22	ADC	MS-V16	1	B114201	EPA 524.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2122475-04 **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthylene	ND	ug/L	0.10	0.031	EPA-525.2	ND		1
Alachlor	ND	ug/L	0.20	0.090	EPA-525.2	ND		1
Anthracene	ND	ug/L	0.10	0.034	EPA-525.2	ND		1
Atraton	ND	ug/L	0.50	0.057	EPA-525.2	ND		1
Atrazine	ND	ug/L	0.30	0.14	EPA-525.2	ND		1
Benzo[a]anthracene	ND	ug/L	0.20	0.044	EPA-525.2	ND		1
Benzo[b]fluoranthene	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Benzo[k]fluoranthene	ND	ug/L	0.30	0.072	EPA-525.2	ND		1
Benzo[a]pyrene	ND	ug/L	0.10	0.050	EPA-525.2	ND		1
Benzo[g,h,i]perylene	ND	ug/L	0.30	0.065	EPA-525.2	ND		1
Benzyl butyl phthalate	ND	ug/L	4.0	0.047	EPA-525.2	ND		1
delta-BHC	ND	ug/L	0.20	0.048	EPA-525.2	ND		1
gamma-BHC (Lindane)	ND	ug/L	0.20	0.063	EPA-525.2	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	3.0	0.030	EPA-525.2	ND		1
Bromacil	ND	ug/L	0.50	0.043	EPA-525.2	ND		1
Chrysene	ND	ug/L	0.30	0.060	EPA-525.2	ND		1
Diazinon	ND	ug/L	0.20	0.080	EPA-525.2	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	0.30	0.051	EPA-525.2	ND		1
Di(2-ethylhexyl)adipate	ND	ug/L	1.0	0.025	EPA-525.2	ND		1
Dimethoate	ND	ug/L	2.0	0.050	EPA-525.2	ND		1
Dimethyl phthalate	ND	ug/L	1.0	0.034	EPA-525.2	ND		1
Di-n-butyl phthalate	ND	ug/L	1.0	0.063	EPA-525.2	ND		1
Fluorene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorobenzene	ND	ug/L	0.20	0.029	EPA-525.2	ND		1
Hexachlorocyclopentadiene	ND	ug/L	1.0	0.12	EPA-525.2	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	0.30	0.032	EPA-525.2	ND		1
Methoxychlor	ND	ug/L	0.30	0.034	EPA-525.2	ND		1
Metolachlor	ND	ug/L	0.50	0.056	EPA-525.2	ND		1
Metribuzin	ND	ug/L	0.50	0.048	EPA-525.2	ND		1
Molinate	ND	ug/L	0.50	0.036	EPA-525.2	ND		1
Phenanthrene	ND	ug/L	0.10	0.020	EPA-525.2	ND		1
Prometon	ND	ug/L	0.50	0.11	EPA-525.2	ND		1
Prometryn	ND	ug/L	0.50	0.045	EPA-525.2	ND		1

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

BCL Sample ID: 2122475-04 **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Propachlor	ND	ug/L	0.50	0.077	EPA-525.2	ND		1
Pyrene	ND	ug/L	0.10	0.040	EPA-525.2	ND		1
Secbumeton	ND	ug/L	0.50	0.079	EPA-525.2	ND		1
Simazine	ND	ug/L	0.30	0.066	EPA-525.2	ND		1
Terbutryn	ND	ug/L	0.50	0.050	EPA-525.2	ND		1
Thiobencarb	ND	ug/L	0.50	0.044	EPA-525.2	ND		1
Perylene-d12 (Surrogate)	88.8	%	60 - 140 (LCL - UCL)		EPA-525.2			1
1,3-Dimethyl-2-nitrobenzene (Surrogate)	102	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Triphenylphosphate (Surrogate)	128	%	70 - 130 (LCL - UCL)		EPA-525.2			1
Pyrene-d10 (Surrogate)	94.0	%	70 - 130 (LCL - UCL)		EPA-525.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-525.2	07/20/21 07:45	07/21/21 19:40	CMM	MS-B6	1	B114874	EPA 525.2

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Carbamate and Urea Pesticides (EPA Method 531.2)

BCL Sample ID: 2122475-04 | **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1-Naphthol	ND	ug/L	5.0	0.86	EPA-531.2	ND		1
Aldicarb	ND	ug/L	3.0	1.2	EPA-531.2	ND		1
Aldicarb sulfone	ND	ug/L	4.0	0.60	EPA-531.2	ND		1
Aldicarb sulfoxide	ND	ug/L	3.0	0.40	EPA-531.2	ND		1
Propoxur	ND	ug/L	5.0	0.36	EPA-531.2	ND		1
Carbaryl	ND	ug/L	5.0	0.47	EPA-531.2	ND		1
Carbofuran	ND	ug/L	5.0	0.67	EPA-531.2	ND		1
3-Hydroxycarbofuran	ND	ug/L	3.0	0.41	EPA-531.2	ND		1
Methiocarb	ND	ug/L	5.0	0.31	EPA-531.2	ND		1
Methomyl	ND	ug/L	2.0	0.92	EPA-531.2	ND		1
Oxamyl	ND	ug/L	5.0	0.79	EPA-531.2	ND		1
BDMC (Surrogate)	95.9	%	70 - 130 (LCL - UCL)		EPA-531.2			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-531.2	07/21/21 10:00	07/22/21 11:37	SAW	HPLC15	1	B114952	EPA 531.2

City of Morro Bay	**Reported:**	08/17/2021 15:01
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Glyphosate Analysis (EPA Method 547)

BCL Sample ID: 2122475-04 | **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Glyphosate	ND	ug/L	25	3.5	EPA-547	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-547	07/19/21 13:00	07/20/21 01:56	SAW	HPLC15	1	B114716	EPA 547

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

BCL Sample ID: 2122475-04 | **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Endothal	ND	ug/L	20	5.3	EPA-548.1	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-548.1	07/20/21 10:00	07/22/21 21:16	CMM	MS-B1	10	B114989	EPA 548.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

BCL Sample ID: 2122475-04 **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Diquat	ND	ug/L	4.0	1.3	EPA-549.2	ND		1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-549.2	07/20/21 09:15	07/21/21 10:52	SAW	HPLC16	1	B114817	EPA 549.2

City of Morro Bay		**Reported:**	08/17/2021 15:01
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

BCL Sample ID: 2122475-04 **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Dibromoacetic acid	ND	ug/L	1.0	0.32	EPA-552.3	ND		1
Dichloroacetic acid	ND	ug/L	1.0	0.29	EPA-552.3	ND		1
Monobromoacetic acid	ND	ug/L	1.0	0.25	EPA-552.3	ND		1
Monochloroacetic acid	ND	ug/L	1.0	0.61	EPA-552.3	ND		1
Trichloroacetic acid	ND	ug/L	1.0	0.36	EPA-552.3	ND		1
Total HAA's (Summation)	ND	ug/L	1.0	1.0	EPA-552.3	ND		1
2,3-Dibromopropionic acid (Surrogate)	94.0	%	70 - 130 (LCL - UCL)		EPA-552.3			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-552.3	07/19/21 16:45	07/20/21 13:39	OLH	GC-3	1	B114742	EPA 552.3

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

BCL Sample ID: 2122475-04 **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Formaldehyde	ND	ug/L	5.0	0.70	EPA-556.1	ND		1
2',4',5'-Trifluoroacetophenone (Surrogate)	85.5	%	30 - 150 (LCL - UCL)		EPA-556.1			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-556.1	07/19/21 17:30	07/21/21 15:17	OLH	GC-3	1	B114826	EPA 556.1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

BCL Sample ID: 2122475-04 | **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acrolein	ND	ug/L	10	7.9	EPA-8260B	ND		1
Acrylonitrile	ND	ug/L	5.0	1.2	EPA-8260B	ND		1
2-Chloroethyl vinyl ether	ND	ug/L	10	2.4	EPA-8260B	ND		1
1,2-Dichloroethane-d4 (Surrogate)	123	%	75 - 125 (LCL - UCL)		EPA-8260B			1
Toluene-d8 (Surrogate)	104	%	80 - 120 (LCL - UCL)		EPA-8260B			1
4-Bromofluorobenzene (Surrogate)	86.5	%	80 - 120 (LCL - UCL)		EPA-8260B			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8260B	07/19/21 06:00	07/20/21 00:25	ADC	MS-V15	1	B114577	EPA 5030 Water MS

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2122475-04 **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Acenaphthene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Acenaphthylene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Aldrin	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
Aniline	ND	ug/L	5.0	0.28	EPA-8270C	ND		1
Anthracene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzidine	ND	ug/L	20	1.6	EPA-8270C	ND		1
Benzo[a]anthracene	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
Benzo[b]fluoranthene	ND	ug/L	2.0	0.24	EPA-8270C	ND		1
Benzo[k]fluoranthene	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Benzo[a]pyrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzo[g,h,i]perylene	ND	ug/L	2.0	0.33	EPA-8270C	ND		1
Benzoic acid	ND	ug/L	10	0.52	EPA-8270C	ND		1
Benzyl alcohol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Benzyl butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
alpha-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
beta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
delta-BHC	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
gamma-BHC (Lindane)	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethoxy)methane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Chloroethyl) ether	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
bis(2-Chloroisopropyl)ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
bis(2-Ethylhexyl)phthalate	ND	ug/L	4.0	0.20	EPA-8270C	ND		1
4-Bromophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloroaniline	ND	ug/L	2.0	1.1	EPA-8270C	ND		1
2-Chloronaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chlorophenyl phenyl ether	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Chrysene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,4'-DDD	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
4,4'-DDE	ND	ug/L	3.0	0.24	EPA-8270C	ND		1
4,4'-DDT	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
Dibenzo[a,h]anthracene	ND	ug/L	3.0	0.34	EPA-8270C	ND		1
Dibenzofuran	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,2-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2122475-04 **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
1,3-Dichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
1,4-Dichlorobenzene	ND	ug/L	2.0	0.27	EPA-8270C	ND		1
3,3-Dichlorobenzidine	ND	ug/L	10	0.53	EPA-8270C	ND		1
Dieldrin	ND	ug/L	3.0	0.39	EPA-8270C	ND		1
Diethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Dimethyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-butyl phthalate	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dinitrotoluene	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2,6-Dinitrotoluene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Di-n-octyl phthalate	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
1,2-Diphenylhydrazine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Endosulfan I	ND	ug/L	10	0.31	EPA-8270C	ND		1
Endosulfan II	ND	ug/L	10	0.30	EPA-8270C	ND		1
Endosulfan sulfate	ND	ug/L	3.0	0.23	EPA-8270C	ND		1
Endrin	ND	ug/L	2.0	0.38	EPA-8270C	ND		1
Endrin aldehyde	ND	ug/L	10	0.44	EPA-8270C	ND		1
Fluoranthene	ND	ug/L	2.0	0.28	EPA-8270C	ND		1
Fluorene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Heptachlor epoxide	ND	ug/L	2.0	0.26	EPA-8270C	ND		1
Hexachlorobenzene	ND	ug/L	2.0	0.25	EPA-8270C	ND		1
Hexachlorobutadiene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Hexachlorocyclopentadiene	ND	ug/L	2.0	0.31	EPA-8270C	ND		1
Hexachloroethane	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Indeno[1,2,3-cd]pyrene	ND	ug/L	2.0	0.29	EPA-8270C	ND		1
Isophorone	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Methylnaphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Naphthalene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2-Naphthylamine	ND	ug/L	20	1.3	EPA-8270C	ND		1
2-Nitroaniline	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3-Nitroaniline	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
4-Nitroaniline	ND	ug/L	5.0	0.38	EPA-8270C	ND		1
Nitrobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

BCL Sample ID: 2122475-04 | **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
N-Nitrosodimethylamine	ND	ug/L	2.0	1.2	EPA-8270C	ND		1
N-Nitrosodi-N-propylamine	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
N-Nitrosodiphenylamine	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Phenanthrene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
Pyrene	ND	ug/L	2.0	0.22	EPA-8270C	ND		1
1,2,4-Trichlorobenzene	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Chloro-3-methylphenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Chlorophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
2,4-Dichlorophenol	ND	ug/L	2.0	0.23	EPA-8270C	ND		1
2,4-Dimethylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4,6-Dinitro-2-methylphenol	ND	ug/L	10	0.24	EPA-8270C	ND		1
2,4-Dinitrophenol	ND	ug/L	10	0.20	EPA-8270C	ND		1
2-Methylphenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
3- & 4-Methylphenol	ND	ug/L	2.0	0.40	EPA-8270C	ND		1
2-Nitrophenol	ND	ug/L	2.0	0.20	EPA-8270C	ND		1
4-Nitrophenol	ND	ug/L	2.0	0.30	EPA-8270C	ND		1
Pentachlorophenol	ND	ug/L	10	0.40	EPA-8270C	ND		1
Phenol	ND	ug/L	2.0	0.21	EPA-8270C	ND		1
2,4,5-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2,4,6-Trichlorophenol	ND	ug/L	5.0	0.20	EPA-8270C	ND		1
2-Fluorophenol (Surrogate)	35.1	%	30 - 120 (LCL - UCL)		EPA-8270C			1
Phenol-d5 (Surrogate)	31.2	%	12 - 110 (LCL - UCL)		EPA-8270C			1
Nitrobenzene-d5 (Surrogate)	80.3	%	50 - 130 (LCL - UCL)		EPA-8270C			1
2-Fluorobiphenyl (Surrogate)	79.4	%	55 - 125 (LCL - UCL)		EPA-8270C			1
2,4,6-Tribromophenol (Surrogate)	64.1	%	40 - 150 (LCL - UCL)		EPA-8270C			1
p-Terphenyl-d14 (Surrogate)	51.8	%	40 - 150 (LCL - UCL)		EPA-8270C			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8270C	07/20/21 08:15	07/24/21 01:37	CMM	MS-B2	0.970	B114923	EPA 3510C

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Explosive Residues (EPA Method 8330)

BCL Sample ID: 2122475-04 **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
HMX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
RDX	ND	ug/L	2.0	0.24	EPA-8330	ND		1
1,2-Dinitrobenzene (Surrogate)	108	%	70 - 130 (LCL - UCL)		EPA-8330			1

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-8330	07/19/21 08:30	07/21/21 22:51	SAW	HPLC16	1	B114621	EPA 8330

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2122475-04 | **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Trivalent Chromium	ND	ug/L	10	5.0	Calc	ND		1
Chloride	**140**	**mg/L**	**1.0**	**0.26**	**EPA-300.0**	0.37	**A10**	2
Fluoride	**0.30**	**mg/L**	**0.10**	**0.050**	**EPA-300.0**	ND	**A10**	2
Nitrate as N	**1.7**	**mg/L**	**0.20**	**0.048**	**EPA-300.0**	ND	**A10**	2
Sulfate	**150**	**mg/L**	**2.0**	**0.28**	**EPA-300.0**	ND	**A10**	2
Nitrate + Nitrite as N	**1.8**	**mg/L**	**0.10**	**0.018**	**Calc**	ND		3
Electrical Conductivity @ 25 C	**1290**	**umhos/cm**	**1.00**	**1.00**	**SM-2510B**			4
Total Dissolved Solids @ 180 C	**860**	**mg/L**	**50**	**25**	**SM-2540C**	ND	**A10**	5
Color	**1.0**	**Color Units**	**1.0**	**1.0**	**SM-2120B**			6
Odor	No Obs Odor	Odor Units	1.0	1.0	SM-2150B	ND		7
Turbidity	**0.32**	**NT Units**	**0.10**	**0.10**	**EPA-180.1**			8
MBAS	ND	mg/L	0.10	0.024	SM-5540C	ND		9
Total Cyanide	ND	mg/L	0.0050	0.0017	EPA-335.4	ND		10
Total Nitrogen	**1.9**	**mg/L**	**0.30**	**0.10**	**Calc**	ND		11
Total Kjeldahl Nitrogen	ND	mg/L	0.20	0.088	EPA-351.2	ND		12
Nitrite as N	**120**	**ug/L**	**50**	**10**	**EPA-353.2**	ND		13
Perchlorate	ND	mg/L	0.0020	0.00081	EPA-314.0	ND		14
Non-Volatile Organic Carbon	**1.2**	**mg/L**	**1.0**	**0.30**	**SM-5310C**	ND		15

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Water Analysis (General Chemistry)

BCL Sample ID: 2122475-04 **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	
1	Calc	07/19/21 13:01	08/02/21 16:01	AMM	Calc	1	B_G0417	Calc
2	EPA-300.0	07/15/21 00:30	07/15/21 09:57	ANK	IC5	2	B114282	No Prep
3	Calc	07/19/21 13:01	07/28/21 18:01	AMM	Calc	1	B_G0417	Calc
4	SM-2510B	07/21/21 07:20	07/21/21 15:08	RML	MET-1	1	B112459	No Prep
5	SM-2540C	07/20/21 12:00	07/20/21 12:00	CAD	MANUAL	5	B114694	No Prep
6	SM-2120B	07/15/21 07:10	07/15/21 07:10	JTM	MANUAL	1	B114614	No Prep
7	SM-2150B	07/15/21 07:10	07/15/21 07:10	JTM	MANUAL	1	B114615	No Prep
8	EPA-180.1	07/15/21 07:10	07/15/21 07:10	JTM	TURB04	1	B114616	No Prep
9	SM-5540C	07/15/21 08:00	07/15/21 08:00	JMN	SPEC06	1	B114627	No Prep
10	EPA-335.4	07/20/21 08:12	07/20/21 11:03	JMH	KONE-1	1	B114659	EPA 335.4 Total
11	Calc	07/19/21 13:01	08/02/21 18:01	AMM	Calc	1	B_G0417	Calc
12	EPA-351.2	07/20/21 08:00	07/28/21 09:40	JMH2	SC-1	1	B114677	EPA 351.2
13	EPA-353.2	07/14/21 23:00	07/15/21 00:01	KB1	KONE-1	1	B114265	No Prep
14	EPA-314.0	08/05/21 08:00	08/05/21 14:37	ANK	IC6	1	B116350	No Prep
15	SM-5310C	07/19/21 05:00	07/19/21 19:08	ALW	TOC2	1	B114515	No Prep

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Metals Analysis

BCL Sample ID: 2122475-04 **Client Sample Name:** Vistra, 7/13/2021 2:01:00PM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	Run #
Hexavalent Chromium	ND	ug/L	0.20	0.020	EPA-218.6	0.025		1
Total Recoverable Aluminum	ND	ug/L	50	26	EPA-200.7	ND		2
Total Recoverable Antimony	ND	ug/L	10	0.55	EPA-200.8	ND	A10	3
Total Recoverable Arsenic	ND	ug/L	10	3.5	EPA-200.8	ND	A10	3
Total Recoverable Barium	**190**	**ug/L**	**5.0**	**1.0**	**EPA-200.8**	1.7	**A10**	3
Total Recoverable Beryllium	ND	ug/L	5.0	0.70	EPA-200.8	ND	A10	4
Total Recoverable Boron	**92**	**ug/L**	**100**	**10**	**EPA-200.7**	ND	**J**	2
Total Recoverable Cadmium	ND	ug/L	5.0	0.55	EPA-200.8	ND	A10	3
Total Recoverable Chromium	ND	ug/L	15	2.5	EPA-200.8	ND	A10	3
Total Recoverable Cobalt	**1.3**	**ug/L**	**5.0**	**0.50**	**EPA-200.8**	ND	**J,A10**	3
Total Recoverable Copper	**1.6**	**ug/L**	**10**	**1.1**	**EPA-200.8**	ND	**J,A10**	3
Total Recoverable Iron	ND	ug/L	50	30	EPA-200.7	ND		2
Total Recoverable Lead	ND	ug/L	5.0	0.50	EPA-200.8	ND	A10	3
Total Recoverable Lithium	ND	ug/L	20	6.6	EPA-200.7	ND		2
Total Recoverable Manganese	**1100**	**ug/L**	**10**	**4.0**	**EPA-200.7**	ND		2
Total Recoverable Mercury	ND	ug/L	0.20	0.022	EPA-245.1	ND		5
Total Recoverable Molybdenum	**2.5**	**ug/L**	**5.0**	**0.55**	**EPA-200.8**	ND	**J,A10**	3
Total Recoverable Nickel	**4.6**	**ug/L**	**10**	**0.95**	**EPA-200.8**	ND	**J,A10**	3
Total Recoverable Selenium	ND	ug/L	10	0.95	EPA-200.8	ND	A10	3
Total Recoverable Silver	ND	ug/L	5.0	0.50	EPA-200.8	ND	A10	3
Total Recoverable Thallium	ND	ug/L	5.0	0.50	EPA-200.8	ND	A10	3
Total Recoverable Vanadium	ND	ug/L	15	3.9	EPA-200.8	ND	A10	3
Total Recoverable Zinc	ND	ug/L	50	8.5	EPA-200.8	17	A10	4
Total Recoverable Uranium	**2.0**	**ug/L**	**5.0**	**0.50**	**EPA-200.8**	ND	**J,A10**	3

Run #	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-218.6	07/21/21 11:00	07/21/21 16:02	KEB	IC-4	1	B114845	No Prep
2	EPA-200.7	07/21/21 10:45	07/21/21 17:25	JRG	PE-OP4	1	B114828	EPA 200.2
3	EPA-200.8	07/20/21 22:25	07/21/21 20:49	AK1	PE-EL2	5	B114761	EPA 200.2
4	EPA-200.8	07/20/21 22:25	07/22/21 10:46	ARD	PE-EL4	5	B114761	EPA 200.2
5	EPA-245.1	07/22/21 10:05	07/22/21 15:20	TMT	CETAC3	1	B114949	EPA 245.1

City of Morro Bay	**Reported:**	08/17/2021 15:01
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114866						
1,2-Dibromo-3-chloropropane	B114866-BLK1	ND	ug/L	0.010	0.0015	
Ethylene dibromide	B114866-BLK1	ND	ug/L	0.010	0.0030	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B114866										
1,2-Dibromo-3-chloropropane	B114866-BS1	LCS	0.13669	0.14286	ug/L	95.7		70 - 130		
Ethylene dibromide	B114866-BS1	LCS	0.13251	0.14286	ug/L	92.8		70 - 130		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

EDB/DBCP Analysis (EPA Method 504.1)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B114866	Used client sample: N										
1,2-Dibromo-3-chloropropane	MS	2121078-52	ND	0.14354	0.14286	ug/L		100		70 - 130	
	MSD	2121078-52	ND	0.14091	0.14273	ug/L	1.9	98.7	30	70 - 130	
Ethylene dibromide	MS	2121078-52	ND	0.13589	0.14286	ug/L		95.1		70 - 130	
	MSD	2121078-52	ND	0.13234	0.14273	ug/L	2.6	92.7	30	70 - 130	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114872						
Aldrin	B114872-BLK1	ND	ug/L	0.0050	0.00095	
alpha-BHC	B114872-BLK1	ND	ug/L	0.0050	0.00050	
beta-BHC	B114872-BLK1	ND	ug/L	0.0050	0.00064	
delta-BHC	B114872-BLK1	ND	ug/L	0.0050	0.0015	
gamma-BHC (Lindane)	B114872-BLK1	ND	ug/L	0.0050	0.00067	
Chlordane (Technical)	B114872-BLK1	ND	ug/L	0.10	0.045	
4,4'-DDD	B114872-BLK1	ND	ug/L	0.0050	0.00086	
4,4'-DDE	B114872-BLK1	ND	ug/L	0.0050	0.0013	
4,4'-DDT	B114872-BLK1	ND	ug/L	0.0050	0.00096	
Dieldrin	B114872-BLK1	ND	ug/L	0.0050	0.0011	
Endosulfan I	B114872-BLK1	ND	ug/L	0.0050	0.00068	
Endosulfan II	B114872-BLK1	ND	ug/L	0.0050	0.00098	
Endosulfan sulfate	B114872-BLK1	ND	ug/L	0.0050	0.00055	
Endrin	B114872-BLK1	ND	ug/L	0.0050	0.00069	
Endrin aldehyde	B114872-BLK1	ND	ug/L	0.010	0.00054	
Heptachlor	B114872-BLK1	ND	ug/L	0.0050	0.00094	
Heptachlor epoxide	B114872-BLK1	ND	ug/L	0.0050	0.00064	
Methoxychlor	B114872-BLK1	ND	ug/L	0.0050	0.0037	
Toxaphene	B114872-BLK1	ND	ug/L	1.0	0.20	
PCB-1016	B114872-BLK1	ND	ug/L	0.20	0.066	
PCB-1221	B114872-BLK1	ND	ug/L	0.20	0.063	
PCB-1232	B114872-BLK1	ND	ug/L	0.20	0.059	
PCB-1242	B114872-BLK1	ND	ug/L	0.20	0.037	
PCB-1248	B114872-BLK1	ND	ug/L	0.20	0.044	
PCB-1254	B114872-BLK1	ND	ug/L	0.20	0.037	
PCB-1260	B114872-BLK1	ND	ug/L	0.20	0.089	
Total PCB's (Summation)	B114872-BLK1	ND	ug/L	0.20	0.10	
TCMX (Surrogate)	**B114872-BLK1**	**81.2**	%	**60 - 130 (LCL - UCL)**		
Decachlorobiphenyl (Surrogate)	**B114872-BLK1**	**93.0**	%	**60 - 130 (LCL - UCL)**		

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B114872										
Aldrin	B114872-BS1	LCS	0.10457	0.15000	ug/L	69.7		60 - 130		
gamma-BHC (Lindane)	B114872-BS1	LCS	0.11961	0.15000	ug/L	79.7		60 - 130		
4,4'-DDT	B114872-BS1	LCS	0.10203	0.15000	ug/L	68.0		60 - 130		
Dieldrin	B114872-BS1	LCS	0.14194	0.15000	ug/L	94.6		60 - 130		
Endrin	B114872-BS1	LCS	0.16634	0.15000	ug/L	111		60 - 130		
Heptachlor	B114872-BS1	LCS	0.096900	0.15000	ug/L	64.6		60 - 130		
TCMX (Surrogate)	B114872-BS1	LCS	0.19629	0.30000	ug/L	65.4		60 - 130		
Decachlorobiphenyl (Surrogate)	B114872-BS1	LCS	0.51038	0.60000	ug/L	85.1		60 - 130		

City of Morro Bay	**Reported:**	08/17/2021 15:01
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Organochlorine Pesticides and PCB's (EPA Method 508)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B114872	Used client sample: N										
Aldrin	MS	2121078-58	ND	0.13423	0.15000	ug/L		89.5		60 - 130	
	MSD	2121078-58	ND	0.14399	0.15000	ug/L	7.0	96.0	30	60 - 130	
gamma-BHC (Lindane)	MS	2121078-58	ND	0.15642	0.15000	ug/L		104		60 - 130	
	MSD	2121078-58	ND	0.16079	0.15000	ug/L	2.8	107	30	60 - 130	
4,4'-DDT	MS	2121078-58	ND	0.13524	0.15000	ug/L		90.2		60 - 130	
	MSD	2121078-58	ND	0.13931	0.15000	ug/L	3.0	92.9	30	60 - 130	
Dieldrin	MS	2121078-58	ND	0.17689	0.15000	ug/L		118		60 - 130	
	MSD	2121078-58	ND	0.17916	0.15000	ug/L	1.3	119	30	60 - 130	
Endrin	MS	**2121078-58**	**ND**	**0.21418**	**0.15000**	**ug/L**		**143**		**60 - 130**	**Q03**
	MSD	**2121078-58**	**ND**	**0.22536**	**0.15000**	**ug/L**	**5.1**	**150**	**30**	**60 - 130**	**Q03**
Heptachlor	MS	2121078-58	ND	0.12541	0.15000	ug/L		83.6		60 - 130	
	MSD	2121078-58	ND	0.13457	0.15000	ug/L	7.0	89.7	30	60 - 130	
TCMX (Surrogate)	MS	2121078-58	ND	0.26884	0.30000	ug/L		89.6		60 - 130	
	MSD	2121078-58	ND	0.27668	0.30000	ug/L	2.9	92.2		60 - 130	
Decachlorobiphenyl (Surrogate)	MS	2121078-58	ND	0.61494	0.60000	ug/L		102		60 - 130	
	MSD	2121078-58	ND	0.64204	0.60000	ug/L	4.3	107		60 - 130	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis (EPA Method 515.1)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114937						
Bentazon	B114937-BLK1	ND	ug/L	0.80	0.22	
2,4-D	B114937-BLK1	ND	ug/L	0.40	0.18	
2,4-DB	B114937-BLK1	ND	ug/L	3.0	0.37	
Dalapon	B114937-BLK1	ND	ug/L	5.0	0.31	
Dicamba	B114937-BLK1	ND	ug/L	0.080	0.040	
Dichloroprop	B114937-BLK1	ND	ug/L	0.50	0.11	
Dinoseb	B114937-BLK1	ND	ug/L	0.20	0.057	
MCPA	B114937-BLK1	ND	ug/L	10	6.0	
MCPP	B114937-BLK1	ND	ug/L	10	6.0	
2,4,5-T	B114937-BLK1	ND	ug/L	0.090	0.012	
2,4,5-TP (Silvex)	B114937-BLK1	ND	ug/L	0.070	0.032	
2,4-Dichlorophenylacetic acid (Surrogate)	**B114937-BLK1**	**96.8**	%	**40 - 120 (LCL - UCL)**		

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis (EPA Method 515.1)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B114937										
2,4-D	B114937-BS1	LCS	1.9100	2.4000	ug/L	79.6		50 - 120		
2,4-DB	B114937-BS1	LCS	4.8000	5.4000	ug/L	88.9		50 - 120		
Dicamba	B114937-BS1	LCS	0.47000	0.60000	ug/L	78.3		50 - 120		
Dichloroprop	B114937-BS1	LCS	1.9300	2.4000	ug/L	80.4		50 - 120		
Dinoseb	B114937-BS1	LCS	0.74000	1.2000	ug/L	61.7		50 - 120		
2,4,5-T	B114937-BS1	LCS	0.51000	0.60000	ug/L	85.0		40 - 120		
2,4,5-TP (Silvex)	B114937-BS1	LCS	0.53000	0.60000	ug/L	88.3		50 - 120		
2,4-Dichlorophenylacetic acid (Surrogate)	B114937-BS1	LCS	3.5400	4.0000	ug/L	88.5		40 - 120		

City of Morro Bay		**Reported:**	08/17/2021 15:01
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Organic Analysis (EPA Method 515.1)

Quality Control Report - Precision & Accuracy

QC Batch ID: B114937 Used client sample: N

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
2,4-D	MS	2121078-44	ND	2.1100	2.4000	ug/L		87.9		40 - 120	
	MSD	2121078-44	ND	1.9800	2.4000	ug/L	6.4	82.5	30	40 - 120	
2,4-DB	MS	2121078-44	ND	5.1300	5.4000	ug/L		95.0		50 - 120	
	MSD	2121078-44	ND	4.8500	5.4000	ug/L	5.6	89.8	30	50 - 120	
Dicamba	MS	2121078-44	ND	0.50000	0.60000	ug/L		83.3		50 - 120	
	MSD	2121078-44	ND	0.47000	0.60000	ug/L	6.2	78.3	30	50 - 120	
Dichloroprop	MS	2121078-44	ND	2.0900	2.4000	ug/L		87.1		40 - 120	
	MSD	2121078-44	ND	1.9800	2.4000	ug/L	5.4	82.5	30	40 - 120	
Dinoseb	MS	2121078-44	ND	0.82000	1.2000	ug/L		68.3		40 - 130	
	MSD	2121078-44	ND	0.72000	1.2000	ug/L	13.0	60.0	30	40 - 130	
2,4,5-T	MS	2121078-44	ND	0.56000	0.60000	ug/L		93.3		40 - 120	
	MSD	2121078-44	ND	0.51000	0.60000	ug/L	9.3	85.0	30	40 - 120	
2,4,5-TP (Silvex)	MS	2121078-44	ND	0.58000	0.60000	ug/L		96.7		40 - 120	
	MSD	2121078-44	ND	0.54000	0.60000	ug/L	7.1	90.0	30	40 - 120	
2,4-Dichlorophenylacetic acid (Surrogate	MS	2121078-44	ND	3.9000	4.0000	ug/L		97.5		40 - 120	
	MSD	2121078-44	ND	3.5300	4.0000	ug/L	10.0	88.2		40 - 120	

City of Morro Bay		**Reported:**	08/17/2021 15:01
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114577						
Benzene	B114577-BLK1	ND	ug/L	0.50	0.11	
Bromobenzene	B114577-BLK1	ND	ug/L	0.50	0.15	
Bromochloromethane	B114577-BLK1	ND	ug/L	0.50	0.27	
Bromodichloromethane	B114577-BLK1	ND	ug/L	0.50	0.20	
Bromoform	B114577-BLK1	ND	ug/L	0.50	0.46	
Bromomethane	B114577-BLK1	ND	ug/L	0.50	0.20	
n-Butylbenzene	B114577-BLK1	ND	ug/L	0.50	0.15	
sec-Butylbenzene	B114577-BLK1	ND	ug/L	0.50	0.13	
tert-Butylbenzene	B114577-BLK1	ND	ug/L	0.50	0.18	
Carbon tetrachloride	B114577-BLK1	ND	ug/L	0.50	0.17	
Chlorobenzene	B114577-BLK1	ND	ug/L	0.50	0.14	
Chloroethane	B114577-BLK1	ND	ug/L	0.50	0.17	
Chloroform	B114577-BLK1	ND	ug/L	0.50	0.14	
Chloromethane	B114577-BLK1	ND	ug/L	0.50	0.11	
2-Chlorotoluene	B114577-BLK1	ND	ug/L	0.50	0.14	
4-Chlorotoluene	B114577-BLK1	ND	ug/L	0.50	0.093	
Dibromochloromethane	B114577-BLK1	ND	ug/L	0.50	0.22	
1,2-Dibromo-3-chloropropane	B114577-BLK1	ND	ug/L	1.0	0.89	
1,2-Dibromoethane	B114577-BLK1	ND	ug/L	0.50	0.22	
Dibromomethane	B114577-BLK1	ND	ug/L	0.50	0.23	
1,2-Dichlorobenzene	B114577-BLK1	ND	ug/L	0.50	0.21	
1,3-Dichlorobenzene	B114577-BLK1	ND	ug/L	0.50	0.16	
1,4-Dichlorobenzene	B114577-BLK1	ND	ug/L	0.50	0.15	
Dichlorodifluoromethane	B114577-BLK1	ND	ug/L	0.50	0.15	
1,1-Dichloroethane	B114577-BLK1	ND	ug/L	0.50	0.15	
1,2-Dichloroethane	B114577-BLK1	ND	ug/L	0.50	0.17	
1,1-Dichloroethene	B114577-BLK1	ND	ug/L	0.50	0.27	
cis-1,2-Dichloroethene	B114577-BLK1	ND	ug/L	0.50	0.27	
trans-1,2-Dichloroethene	B114577-BLK1	ND	ug/L	0.50	0.17	
1,2-Dichloropropane	B114577-BLK1	ND	ug/L	0.50	0.15	
1,3-Dichloropropane	B114577-BLK1	ND	ug/L	0.50	0.13	
2,2-Dichloropropane	B114577-BLK1	ND	ug/L	0.50	0.18	
1,1-Dichloropropene	B114577-BLK1	ND	ug/L	0.50	0.19	
cis-1,3-Dichloropropene	B114577-BLK1	ND	ug/L	0.50	0.14	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114577						
trans-1,3-Dichloropropene	B114577-BLK1	ND	ug/L	0.50	0.13	
Total 1,3-Dichloropropene	B114577-BLK1	ND	ug/L	0.50	0.27	
Ethylbenzene	B114577-BLK1	ND	ug/L	0.50	0.15	
Hexachlorobutadiene	B114577-BLK1	ND	ug/L	0.50	0.20	
Isopropylbenzene	B114577-BLK1	ND	ug/L	0.50	0.14	
p-Isopropyltoluene	B114577-BLK1	ND	ug/L	0.50	0.14	
Methylene chloride	B114577-BLK1	ND	ug/L	0.50	0.21	
Methyl t-butyl ether	B114577-BLK1	ND	ug/L	0.50	0.14	
Naphthalene	B114577-BLK1	ND	ug/L	0.50	0.16	
n-Propylbenzene	B114577-BLK1	ND	ug/L	0.50	0.12	
Styrene	B114577-BLK1	ND	ug/L	0.50	0.12	
1,1,1,2-Tetrachloroethane	B114577-BLK1	ND	ug/L	0.50	0.21	
1,1,2,2-Tetrachloroethane	B114577-BLK1	ND	ug/L	0.50	0.17	
Tetrachloroethene	B114577-BLK1	ND	ug/L	0.50	0.23	
Toluene	B114577-BLK1	ND	ug/L	0.50	0.17	
1,2,3-Trichlorobenzene	B114577-BLK1	ND	ug/L	0.50	0.19	
1,2,4-Trichlorobenzene	B114577-BLK1	ND	ug/L	0.50	0.15	
1,1,1-Trichloroethane	B114577-BLK1	ND	ug/L	0.50	0.21	
1,1,2-Trichloroethane	B114577-BLK1	ND	ug/L	0.50	0.21	
Trichloroethene	B114577-BLK1	ND	ug/L	0.50	0.19	
Trichlorofluoromethane	B114577-BLK1	ND	ug/L	0.50	0.14	
1,2,3-Trichloropropane	B114577-BLK1	ND	ug/L	1.0	0.78	
1,1,2-Trichloro-1,2,2-trifluoroethane	B114577-BLK1	ND	ug/L	0.50	0.19	
1,2,4-Trimethylbenzene	B114577-BLK1	ND	ug/L	0.50	0.17	
1,3,5-Trimethylbenzene	B114577-BLK1	ND	ug/L	0.50	0.14	
Vinyl chloride	B114577-BLK1	ND	ug/L	0.50	0.18	
Total Xylenes	B114577-BLK1	ND	ug/L	0.50	0.47	
Total Trihalomethanes	B114577-BLK1	ND	ug/L	2.0	0.97	
t-Amyl Methyl ether	B114577-BLK1	ND	ug/L	0.50	0.19	
t-Butyl alcohol	B114577-BLK1	ND	ug/L	10	9.4	
Diisopropyl ether	B114577-BLK1	ND	ug/L	0.50	0.36	
Ethyl t-butyl ether	B114577-BLK1	ND	ug/L	0.50	0.32	
p- & m-Xylenes	B114577-BLK1	ND	ug/L	0.50	0.34	
o-Xylene	B114577-BLK1	ND	ug/L	0.50	0.13	

City of Morro Bay	**Reported:**	08/17/2021 15:01
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114577						
1,2-Dichloroethane-d4 (Surrogate)	**B114577-BLK1**	**114**	%	**75 - 125 (LCL - UCL)**		
Toluene-d8 (Surrogate)	**B114577-BLK1**	**102**	%	**80 - 120 (LCL - UCL)**		
4-Bromofluorobenzene (Surrogate)	**B114577-BLK1**	**89.6**	%	**80 - 120 (LCL - UCL)**		

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B114577										
Benzene	B114577-BS1	LCS	25.440	25.000	ug/L	102		70 - 130		
Bromodichloromethane	B114577-BS1	LCS	25.930	25.000	ug/L	104		70 - 130		
Chlorobenzene	B114577-BS1	LCS	25.560	25.000	ug/L	102		70 - 130		
Chloroethane	B114577-BS1	LCS	22.520	25.000	ug/L	90.1		70 - 130		
1,4-Dichlorobenzene	B114577-BS1	LCS	26.550	25.000	ug/L	106		70 - 130		
1,1-Dichloroethane	B114577-BS1	LCS	25.300	25.000	ug/L	101		70 - 130		
1,1-Dichloroethene	B114577-BS1	LCS	26.110	25.000	ug/L	104		70 - 130		
Toluene	B114577-BS1	LCS	26.510	25.000	ug/L	106		70 - 130		
Trichloroethene	B114577-BS1	LCS	28.100	25.000	ug/L	112		70 - 130		
1,2-Dichloroethane-d4 (Surrogate)	B114577-BS1	LCS	10.410	10.000	ug/L	104		75 - 125		
Toluene-d8 (Surrogate)	B114577-BS1	LCS	10.390	10.000	ug/L	104		80 - 120		
4-Bromofluorobenzene (Surrogate)	B114577-BS1	LCS	9.8100	10.000	ug/L	98.1		80 - 120		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B114577	Used client sample: N										
Benzene	MS	2121078-42	ND	25.470	25.000	ug/L		102		70 - 130	
	MSD	2121078-42	ND	25.490	25.000	ug/L	0.1	102	20	70 - 130	
Bromodichloromethane	MS	2121078-42	ND	26.490	25.000	ug/L		106		70 - 130	
	MSD	2121078-42	ND	25.750	25.000	ug/L	2.8	103	20	70 - 130	
Chlorobenzene	MS	2121078-42	ND	25.740	25.000	ug/L		103		70 - 130	
	MSD	2121078-42	ND	25.640	25.000	ug/L	0.4	103	20	70 - 130	
Chloroethane	MS	2121078-42	ND	22.070	25.000	ug/L		88.3		70 - 130	
	MSD	2121078-42	ND	22.540	25.000	ug/L	2.1	90.2	20	70 - 130	
1,4-Dichlorobenzene	MS	2121078-42	ND	26.770	25.000	ug/L		107		70 - 130	
	MSD	2121078-42	ND	26.230	25.000	ug/L	2.0	105	20	70 - 130	
1,1-Dichloroethane	MS	2121078-42	ND	25.210	25.000	ug/L		101		70 - 130	
	MSD	2121078-42	ND	25.180	25.000	ug/L	0.1	101	20	70 - 130	
1,1-Dichloroethene	MS	2121078-42	ND	25.880	25.000	ug/L		104		70 - 130	
	MSD	2121078-42	ND	26.050	25.000	ug/L	0.7	104	20	70 - 130	
Toluene	MS	2121078-42	ND	26.730	25.000	ug/L		107		70 - 130	
	MSD	2121078-42	ND	26.430	25.000	ug/L	1.1	106	20	70 - 130	
Trichloroethene	MS	2121078-42	ND	28.140	25.000	ug/L		113		70 - 130	
	MSD	2121078-42	ND	27.380	25.000	ug/L	2.7	110	20	70 - 130	
1,2-Dichloroethane-d4 (Surrogate)	MS	2121078-42	ND	10.750	10.000	ug/L		108		75 - 125	
	MSD	2121078-42	ND	10.820	10.000	ug/L	0.6	108		75 - 125	
Toluene-d8 (Surrogate)	MS	2121078-42	ND	10.420	10.000	ug/L		104		80 - 120	
	MSD	2121078-42	ND	10.530	10.000	ug/L	1.1	105		80 - 120	
4-Bromofluorobenzene (Surrogate)	MS	2121078-42	ND	9.9900	10.000	ug/L		99.9		80 - 120	
	MSD	2121078-42	ND	9.9900	10.000	ug/L	0	99.9		80 - 120	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114201						
1,2,3-Trichloropropane	B114201-BLK1	ND	ug/L	0.0050	0.0010	

City of Morro Bay	**Reported:**	08/17/2021 15:01
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B114201										
1,2,3-Trichloropropane	B114201-BS1	LCS	0.042960	0.050000	ug/L	85.9		80 - 120		

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

DHS Low Level 1,2,3-TCP by SRL 524M

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B114201	Used client sample: N										
1,2,3-Trichloropropane	MS	2118955-75	ND	0.040340	0.050000	ug/L		80.7		70 - 130	
	MSD	2118955-75	ND	0.042880	0.050000	ug/L	6.1	85.8	30	70 - 130	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114874						
Acenaphthylene	B114874-BLK1	ND	ug/L	0.10	0.031	
Alachlor	B114874-BLK1	ND	ug/L	0.20	0.090	
Anthracene	B114874-BLK1	ND	ug/L	0.10	0.034	
Atraton	B114874-BLK1	ND	ug/L	0.50	0.057	
Atrazine	B114874-BLK1	ND	ug/L	0.30	0.14	
Benzo[a]anthracene	B114874-BLK1	ND	ug/L	0.20	0.044	
Benzo[b]fluoranthene	B114874-BLK1	ND	ug/L	0.30	0.034	
Benzo[k]fluoranthene	B114874-BLK1	ND	ug/L	0.30	0.072	
Benzo[a]pyrene	B114874-BLK1	ND	ug/L	0.10	0.050	
Benzo[g,h,i]perylene	B114874-BLK1	ND	ug/L	0.30	0.065	
Benzyl butyl phthalate	B114874-BLK1	ND	ug/L	4.0	0.047	
delta-BHC	B114874-BLK1	ND	ug/L	0.20	0.048	
gamma-BHC (Lindane)	B114874-BLK1	ND	ug/L	0.20	0.063	
bis(2-Ethylhexyl)phthalate	B114874-BLK1	ND	ug/L	3.0	0.030	
Bromacil	B114874-BLK1	ND	ug/L	0.50	0.043	
Chrysene	B114874-BLK1	ND	ug/L	0.30	0.060	
Diazinon	B114874-BLK1	ND	ug/L	0.20	0.080	
Dibenzo[a,h]anthracene	B114874-BLK1	ND	ug/L	0.30	0.051	
Di(2-ethylhexyl)adipate	B114874-BLK1	ND	ug/L	1.0	0.025	
Dimethoate	B114874-BLK1	ND	ug/L	2.0	0.050	
Dimethyl phthalate	B114874-BLK1	ND	ug/L	1.0	0.034	
Di-n-butyl phthalate	B114874-BLK1	ND	ug/L	1.0	0.063	
Fluorene	B114874-BLK1	ND	ug/L	0.20	0.029	
Hexachlorobenzene	B114874-BLK1	ND	ug/L	0.20	0.029	
Hexachlorocyclopentadiene	B114874-BLK1	ND	ug/L	1.0	0.12	
Indeno[1,2,3-cd]pyrene	B114874-BLK1	ND	ug/L	0.30	0.032	
Methoxychlor	B114874-BLK1	ND	ug/L	0.30	0.034	
Metolachlor	B114874-BLK1	ND	ug/L	0.50	0.056	
Metribuzin	B114874-BLK1	ND	ug/L	0.50	0.048	
Molinate	B114874-BLK1	ND	ug/L	0.50	0.036	
Phenanthrene	B114874-BLK1	ND	ug/L	0.10	0.020	
Prometon	B114874-BLK1	ND	ug/L	0.50	0.11	
Prometryn	B114874-BLK1	ND	ug/L	0.50	0.045	
Propachlor	B114874-BLK1	ND	ug/L	0.50	0.077	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114874						
Pyrene	B114874-BLK1	ND	ug/L	0.10	0.040	
Secbumeton	B114874-BLK1	ND	ug/L	0.50	0.079	
Simazine	B114874-BLK1	ND	ug/L	0.30	0.066	
Terbutryn	B114874-BLK1	ND	ug/L	0.50	0.050	
Thiobencarb	B114874-BLK1	ND	ug/L	0.50	0.044	
Perylene-d12 (Surrogate)	**B114874-BLK1**	**85.4**	%	**60 - 140 (LCL - UCL)**		
1,3-Dimethyl-2-nitrobenzene (Surrogate)	**B114874-BLK1**	**101**	%	**70 - 130 (LCL - UCL)**		
Triphenylphosphate (Surrogate)	**B114874-BLK1**	**120**	%	**70 - 130 (LCL - UCL)**		
Pyrene-d10 (Surrogate)	**B114874-BLK1**	**82.2**	%	**70 - 130 (LCL - UCL)**		

City of Morro Bay		**Reported:**	08/17/2021 15:01
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B114874										
Acenaphthylene	B114874-BS1	LCS	0.84000	2.0000	ug/L	42.0		60 - 120		L01
Alachlor	B114874-BS1	LCS	2.3600	2.0000	ug/L	118		60 - 120		
Atrazine	B114874-BS1	LCS	2.2800	2.0000	ug/L	114		60 - 120		
Benzo[a]pyrene	B114874-BS1	LCS	1.1000	2.0000	ug/L	55.0		60 - 120		L01
Chrysene	B114874-BS1	LCS	2.6900	2.0000	ug/L	134		60 - 120		L01
Pyrene	B114874-BS1	LCS	2.0500	2.0000	ug/L	102		60 - 120		
Simazine	B114874-BS1	LCS	1.4900	2.0000	ug/L	74.5		60 - 120		
Perylene-d12 (Surrogate)	B114874-BS1	LCS	4.0000	5.0000	ug/L	80.0		60 - 140		
1,3-Dimethyl-2-nitrobenzene (Surrogate)	B114874-BS1	LCS	4.9900	5.0000	ug/L	99.8		70 - 130		
Triphenylphosphate (Surrogate)	B114874-BS1	LCS	5.9300	5.0000	ug/L	119		70 - 130		
Pyrene-d10 (Surrogate)	B114874-BS1	LCS	4.3700	5.0000	ug/L	87.4		70 - 130		

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Organic Analysis by Liquid Solids Extraction (EPA Method 525.2)

Quality Control Report - Precision & Accuracy

QC Batch ID: B114874 Used client sample: N

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
Acenaphthylene	MS	**2121078-08**	**ND**	**0.89000**	**2.0000**	**ug/L**		**44.5**		**50 - 120**	**Q03**
	MSD	**2121078-08**	**ND**	**0.87000**	**2.0000**	**ug/L**	**2.3**	**43.5**	**30**	**50 - 120**	**Q03**
Alachlor	MS	2121078-08	ND	2.2600	2.0000	ug/L		113		50 - 120	
	MSD	2121078-08	ND	2.1700	2.0000	ug/L	4.1	108	30	50 - 120	
Atrazine	MS	**2121078-08**	**ND**	**2.4400**	**2.0000**	**ug/L**		**122**		**50 - 120**	**Q03**
	MSD	**2121078-08**	**ND**	**2.2700**	**2.0000**	**ug/L**	**7.2**	**114**	**30**	**50 - 120**	
Benzo[a]pyrene	MS	2121078-08	ND	1.2700	2.0000	ug/L		63.5		50 - 120	
	MSD	2121078-08	ND	1.1300	2.0000	ug/L	11.7	56.5	30	50 - 120	
Chrysene	MS	**2121078-08**	**ND**	**2.7100**	**2.0000**	**ug/L**		**136**		**50 - 120**	**Q03**
	MSD	**2121078-08**	**ND**	**2.5700**	**2.0000**	**ug/L**	**5.3**	**128**	**30**	**50 - 120**	**Q03**
Pyrene	MS	2121078-08	ND	2.0100	2.0000	ug/L		100		50 - 120	
	MSD	2121078-08	ND	1.9800	2.0000	ug/L	1.5	99.0	30	50 - 120	
Simazine	MS	2121078-08	ND	1.3200	2.0000	ug/L		66.0		50 - 120	
	MSD	2121078-08	ND	1.3800	2.0000	ug/L	4.4	69.0	30	50 - 120	
Perylene-d12 (Surrogate)	MS	2121078-08	ND	4.5700	5.0000	ug/L		91.4		60 - 140	
	MSD	2121078-08	ND	4.5400	5.0000	ug/L	0.7	90.8		60 - 140	
1,3-Dimethyl-2-nitrobenzene (Surrogate)	MS	2121078-08	ND	4.9000	5.0000	ug/L		98.0		70 - 130	
	MSD	2121078-08	ND	4.8300	5.0000	ug/L	1.4	96.6		70 - 130	
Triphenylphosphate (Surrogate)	MS	2121078-08	ND	5.6500	5.0000	ug/L		113		70 - 130	
	MSD	2121078-08	ND	5.7900	5.0000	ug/L	2.4	116		70 - 130	
Pyrene-d10 (Surrogate)	MS	2121078-08	ND	4.5600	5.0000	ug/L		91.2		70 - 130	
	MSD	2121078-08	ND	4.4200	5.0000	ug/L	3.1	88.4		70 - 130	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Carbamate and Urea Pesticides (EPA Method 531.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114952						
1-Naphthol	B114952-BLK1	ND	ug/L	5.0	0.86	
Aldicarb	B114952-BLK1	ND	ug/L	3.0	1.2	
Aldicarb sulfone	B114952-BLK1	ND	ug/L	4.0	0.60	
Aldicarb sulfoxide	B114952-BLK1	ND	ug/L	3.0	0.40	
Propoxur	B114952-BLK1	ND	ug/L	5.0	0.36	
Carbaryl	B114952-BLK1	ND	ug/L	5.0	0.47	
Carbofuran	B114952-BLK1	ND	ug/L	5.0	0.67	
3-Hydroxycarbofuran	B114952-BLK1	ND	ug/L	3.0	0.41	
Methiocarb	B114952-BLK1	ND	ug/L	5.0	0.31	
Methomyl	B114952-BLK1	ND	ug/L	2.0	0.92	
Oxamyl	B114952-BLK1	ND	ug/L	5.0	0.79	
BDMC (Surrogate)	**B114952-BLK1**	**111**	%	**70 - 130 (LCL - UCL)**		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Carbamate and Urea Pesticides (EPA Method 531.2)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B114952										
1-Naphthol	B114952-BS1	LCS	26.052	25.000	ug/L	104		70 - 130		
Aldicarb	B114952-BS1	LCS	24.523	25.000	ug/L	98.1		70 - 130		
Aldicarb sulfone	B114952-BS1	LCS	22.657	25.000	ug/L	90.6		70 - 130		
Aldicarb sulfoxide	B114952-BS1	LCS	22.991	25.000	ug/L	92.0		70 - 130		
Propoxur	B114952-BS1	LCS	23.764	25.000	ug/L	95.1		70 - 130		
Carbaryl	B114952-BS1	LCS	24.037	25.000	ug/L	96.1		70 - 130		
Carbofuran	B114952-BS1	LCS	24.293	25.000	ug/L	97.2		70 - 130		
3-Hydroxycarbofuran	B114952-BS1	LCS	23.462	25.000	ug/L	93.8		70 - 130		
Methiocarb	B114952-BS1	LCS	24.250	25.000	ug/L	97.0		70 - 130		
Methomyl	B114952-BS1	LCS	24.472	25.000	ug/L	97.9		70 - 130		
Oxamyl	B114952-BS1	LCS	24.075	25.000	ug/L	96.3		70 - 130		
BDMC (Surrogate)	B114952-BS1	LCS	10.3	10.0	ug/L	103		70 - 130		

City of Morro Bay		**Reported:**	08/17/2021 15:01
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Carbamate and Urea Pesticides (EPA Method 531.2)

Quality Control Report - Precision & Accuracy

QC Batch ID: B114952 Used client sample: N

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
1-Naphthol	MS	2122045-01	ND	24.850	25.000	ug/L		99.4		70 - 130	
	MSD	2122045-01	ND	25.367	25.000	ug/L	2.1	101	30	70 - 130	
Aldicarb	MS	2122045-01	ND	25.202	25.000	ug/L		101		70 - 130	
	MSD	2122045-01	ND	26.135	25.000	ug/L	3.6	105	30	70 - 130	
Aldicarb sulfone	MS	2122045-01	ND	23.495	25.000	ug/L		94.0		70 - 130	
	MSD	2122045-01	ND	22.959	25.000	ug/L	2.3	91.8	30	70 - 130	
Aldicarb sulfoxide	MS	2122045-01	ND	23.737	25.000	ug/L		94.9		70 - 130	
	MSD	2122045-01	ND	23.330	25.000	ug/L	1.7	93.3	30	70 - 130	
Propoxur	MS	2122045-01	ND	24.254	25.000	ug/L		97.0		70 - 130	
	MSD	2122045-01	ND	24.779	25.000	ug/L	2.1	99.1	30	70 - 130	
Carbaryl	MS	2122045-01	ND	23.968	25.000	ug/L		95.9		70 - 130	
	MSD	2122045-01	ND	24.611	25.000	ug/L	2.6	98.4	30	70 - 130	
Carbofuran	MS	2122045-01	ND	25.163	25.000	ug/L		101		70 - 130	
	MSD	2122045-01	ND	25.298	25.000	ug/L	0.5	101	30	70 - 130	
3-Hydroxycarbofuran	MS	2122045-01	ND	24.076	25.000	ug/L		96.3		70 - 130	
	MSD	2122045-01	ND	24.852	25.000	ug/L	3.2	99.4	30	70 - 130	
Methiocarb	MS	2122045-01	ND	24.334	25.000	ug/L		97.3		70 - 130	
	MSD	2122045-01	ND	25.323	25.000	ug/L	4.0	101	30	70 - 130	
Methomyl	MS	2122045-01	ND	24.601	25.000	ug/L		98.4		70 - 130	
	MSD	2122045-01	ND	24.700	25.000	ug/L	0.4	98.8	30	70 - 130	
Oxamyl	MS	2122045-01	ND	24.096	25.000	ug/L		96.4		70 - 130	
	MSD	2122045-01	ND	23.764	25.000	ug/L	1.4	95.1	30	70 - 130	
BDMC (Surrogate)	MS	2122045-01	ND	10.5	10.0	ug/L		105		70 - 130	
	MSD	2122045-01	ND	10.4	10.0	ug/L	1.2	104		70 - 130	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Glyphosate Analysis (EPA Method 547)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114716						
Glyphosate	B114716-BLK1	ND	ug/L	25	3.5	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Glyphosate Analysis (EPA Method 547)

Quality Control Report - Laboratory Control Sample

								Control Limits		
Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Percent Recovery	RPD	Lab Quals
QC Batch ID: B114716										
Glyphosate	B114716-BS1	LCS	217.57	250.00	ug/L	87.0		70 - 130		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Glyphosate Analysis (EPA Method 547)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B114716	Used client sample: N										
Glyphosate	MS	2122045-01	ND	282.86	250.00	ug/L		113		70 - 130	
	MSD	2122045-01	ND	306.62	250.00	ug/L	8.1	123	30	70 - 130	

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114989						
Endothal	B114989-BLK1	ND	ug/L	2.0	0.53	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B114989										
Endothal	B114989-BS1	LCS	106.86	100.00	ug/L	107		70 - 130		

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** Project: Project Number: Project Manager:	08/17/2021 15:01 Morro Bay Wells [none] John Gunderlock

Organic Analysis for Endothal (EPA Method 548.1)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B114989	Used client sample: N										
Endothal	MS	**2121078-54**	**ND**	**113.95**	**100.00**	**ug/L**		**114**		**70 - 130**	
	MSD	**2121078-54**	**ND**	**134.75**	**100.00**	**ug/L**	**16.7**	**135**	**30**	**70 - 130**	**Q03**

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114817						
Diquat	B114817-BLK1	ND	ug/L	4.0	1.3	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B114817										
Diquat	B114817-BS1	LCS	79.560	80.000	ug/L	99.4		70 - 130		

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Organic Analysis for Herbicides (EPA Method 549.2)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B114817	Used client sample: N										
Diquat	MS	2121078-55	ND	84.440	80.000	ug/L		106		70 - 130	
	MSD	2121078-55	ND	85.000	80.000	ug/L	0.7	106	30	70 - 130	

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114742						
Dibromoacetic acid	B114742-BLK1	ND	ug/L	1.0	0.32	
Dichloroacetic acid	B114742-BLK1	ND	ug/L	1.0	0.29	
Monobromoacetic acid	B114742-BLK1	ND	ug/L	1.0	0.25	
Monochloroacetic acid	B114742-BLK1	ND	ug/L	1.0	0.61	
Trichloroacetic acid	B114742-BLK1	ND	ug/L	1.0	0.36	
Total HAA's (Summation)	B114742-BLK1	ND	ug/L	1.0	1.0	
2,3-Dibromopropionic acid (Surrogate)	**B114742-BLK1**	**85.4**	%	**70 - 130 (LCL - UCL)**		

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B114742										
Dibromoacetic acid	B114742-BS1	LCS	15.392	15.000	ug/L	103		70 - 130		
Dichloroacetic acid	B114742-BS1	LCS	15.252	15.000	ug/L	102		70 - 130		
Monobromoacetic acid	B114742-BS1	LCS	15.724	15.000	ug/L	105		70 - 130		
Monochloroacetic acid	B114742-BS1	LCS	16.350	15.000	ug/L	109		70 - 130		
Trichloroacetic acid	B114742-BS1	LCS	18.780	15.000	ug/L	125		70 - 130		
2,3-Dibromopropionic acid (Surrogate)	B114742-BS1	LCS	19.5	15.0	ug/L	130		70 - 130		

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B114742	Used client sample: N										
Dibromoacetic acid	MS	2121078-48	ND	12.688	15.000	ug/L		84.6		70 - 130	
	MSD	2121078-48	ND	14.226	15.000	ug/L	11.4	94.8	30	70 - 130	
Dichloroacetic acid	MS	2121078-48	ND	13.338	15.000	ug/L		88.9		70 - 130	
	MSD	2121078-48	ND	14.551	15.000	ug/L	8.7	97.0	30	70 - 130	
Monobromoacetic acid	MS	2121078-48	ND	12.616	15.000	ug/L		84.1		70 - 130	
	MSD	2121078-48	ND	15.663	15.000	ug/L	21.6	104	30	70 - 130	
Monochloroacetic acid	MS	2121078-48	ND	14.016	15.000	ug/L		93.4		70 - 130	
	MSD	2121078-48	ND	17.658	15.000	ug/L	23.0	118	30	70 - 130	
Trichloroacetic acid	MS	2121078-48	ND	14.997	15.000	ug/L		100		70 - 130	
	MSD	2121078-48	ND	17.319	15.000	ug/L	14.4	115	30	70 - 130	
2,3-Dibromopropionic acid (Surrogate)	MS	2121078-48	ND	11.7	15.0	ug/L		77.9		70 - 130	
	MSD	2121078-48	ND	12.1	15.0	ug/L	3.1	80.4		70 - 130	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114826						
Formaldehyde	B114826-BLK1	ND	ug/L	5.0	0.70	
2',4',5'-Trifluoroacetophenone (Surrogate)	**B114826-BLK1**	**87.8**	%	**30 - 150 (LCL - UCL)**		

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B114826										
Formaldehyde	B114826-BS1	LCS	14.137	20.000	ug/L	70.7		60 - 150		
2',4',5'-Trifluoroacetophenone (Surrogate)	B114826-BS1	LCS	16.8	20.0	ug/L	84.1		30 - 150		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Formaldehyde by Derivatization (EPA 556.1 by GC/ECD)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B114826	Used client sample: N										
Formaldehyde	MS	2121078-52	ND	14.033	20.000	ug/L		70.2		50 - 150	
	MSD	2121078-52	ND	12.960	20.000	ug/L	8.0	64.8	30	50 - 150	
2',4',5'-Trifluoroacetophenone (Surrogate	MS	2121078-52	ND	18.3	20.0	ug/L		91.5		30 - 150	
	MSD	2121078-52	ND	20.3	20.0	ug/L	10.4	102		30 - 150	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114577						
Acrolein	B114577-BLK1	ND	ug/L	10	7.9	
Acrylonitrile	B114577-BLK1	ND	ug/L	5.0	1.2	
2-Chloroethyl vinyl ether	B114577-BLK1	ND	ug/L	10	2.4	
1,2-Dichloroethane-d4 (Surrogate)	**B114577-BLK1**	**114**	%	**75 - 125 (LCL - UCL)**		
Toluene-d8 (Surrogate)	**B114577-BLK1**	**102**	%	**80 - 120 (LCL - UCL)**		
4-Bromofluorobenzene (Surrogate)	**B114577-BLK1**	**89.6**	%	**80 - 120 (LCL - UCL)**		

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B114577										
1,2-Dichloroethane-d4 (Surrogate)	B114577-BS1	LCS	10.410	10.000	ug/L	104		75 - 125		
Toluene-d8 (Surrogate)	B114577-BS1	LCS	10.390	10.000	ug/L	104		80 - 120		
4-Bromofluorobenzene (Surrogate)	B114577-BS1	LCS	9.8100	10.000	ug/L	98.1		80 - 120		

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Volatile Organic Analysis (EPA Method 8260B)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B114577	Used client sample: N										
1,2-Dichloroethane-d4 (Surrogate)	MS	2121078-42	ND	10.750	10.000	ug/L		108		75 - 125	
	MSD	2121078-42	ND	10.820	10.000	ug/L	0.6	108		75 - 125	
Toluene-d8 (Surrogate)	MS	2121078-42	ND	10.420	10.000	ug/L		104		80 - 120	
	MSD	2121078-42	ND	10.530	10.000	ug/L	1.1	105		80 - 120	
4-Bromofluorobenzene (Surrogate)	MS	2121078-42	ND	9.9900	10.000	ug/L		99.9		80 - 120	
	MSD	2121078-42	ND	9.9900	10.000	ug/L	0	99.9		80 - 120	

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114923						
Acenaphthene	B114923-BLK1	ND	ug/L	2.0	0.20	
Acenaphthylene	B114923-BLK1	ND	ug/L	2.0	0.20	
Aldrin	B114923-BLK1	ND	ug/L	2.0	0.23	
Aniline	B114923-BLK1	ND	ug/L	5.0	0.28	
Anthracene	B114923-BLK1	ND	ug/L	2.0	0.20	
Benzidine	B114923-BLK1	ND	ug/L	20	1.6	
Benzo[a]anthracene	B114923-BLK1	ND	ug/L	2.0	0.21	
Benzo[b]fluoranthene	B114923-BLK1	ND	ug/L	2.0	0.24	
Benzo[k]fluoranthene	B114923-BLK1	ND	ug/L	2.0	0.30	
Benzo[a]pyrene	B114923-BLK1	ND	ug/L	2.0	0.20	
Benzo[g,h,i]perylene	B114923-BLK1	ND	ug/L	2.0	0.33	
Benzoic acid	B114923-BLK1	ND	ug/L	10	0.52	
Benzyl alcohol	B114923-BLK1	ND	ug/L	2.0	0.20	
Benzyl butyl phthalate	B114923-BLK1	ND	ug/L	2.0	0.20	
alpha-BHC	B114923-BLK1	ND	ug/L	2.0	0.20	
beta-BHC	B114923-BLK1	ND	ug/L	2.0	0.20	
delta-BHC	B114923-BLK1	ND	ug/L	2.0	0.20	
gamma-BHC (Lindane)	B114923-BLK1	ND	ug/L	2.0	0.20	
bis(2-Chloroethoxy)methane	B114923-BLK1	ND	ug/L	2.0	0.20	
bis(2-Chloroethyl) ether	B114923-BLK1	ND	ug/L	2.0	0.31	
bis(2-Chloroisopropyl)ether	B114923-BLK1	ND	ug/L	2.0	0.20	
bis(2-Ethylhexyl)phthalate	B114923-BLK1	ND	ug/L	4.0	0.20	
4-Bromophenyl phenyl ether	B114923-BLK1	ND	ug/L	2.0	0.20	
4-Chloroaniline	B114923-BLK1	ND	ug/L	2.0	1.1	
2-Chloronaphthalene	B114923-BLK1	ND	ug/L	2.0	0.20	
4-Chlorophenyl phenyl ether	B114923-BLK1	ND	ug/L	2.0	0.20	
Chrysene	B114923-BLK1	ND	ug/L	2.0	0.20	
4,4'-DDD	B114923-BLK1	ND	ug/L	2.0	0.26	
4,4'-DDE	B114923-BLK1	ND	ug/L	3.0	0.24	
4,4'-DDT	B114923-BLK1	ND	ug/L	2.0	0.22	
Dibenzo[a,h]anthracene	B114923-BLK1	ND	ug/L	3.0	0.34	
Dibenzofuran	B114923-BLK1	ND	ug/L	2.0	0.20	
1,2-Dichlorobenzene	B114923-BLK1	ND	ug/L	2.0	0.20	
1,3-Dichlorobenzene	B114923-BLK1	ND	ug/L	2.0	0.20	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114923						
1,4-Dichlorobenzene	B114923-BLK1	ND	ug/L	2.0	0.27	
3,3-Dichlorobenzidine	B114923-BLK1	ND	ug/L	10	0.53	
Dieldrin	B114923-BLK1	ND	ug/L	3.0	0.39	
Diethyl phthalate	B114923-BLK1	ND	ug/L	2.0	0.20	
Dimethyl phthalate	B114923-BLK1	ND	ug/L	2.0	0.20	
Di-n-butyl phthalate	B114923-BLK1	ND	ug/L	2.0	0.20	
2,4-Dinitrotoluene	B114923-BLK1	ND	ug/L	2.0	0.40	
2,6-Dinitrotoluene	B114923-BLK1	ND	ug/L	2.0	0.20	
Di-n-octyl phthalate	B114923-BLK1	ND	ug/L	2.0	0.21	
1,2-Diphenylhydrazine	B114923-BLK1	ND	ug/L	2.0	0.20	
Endosulfan I	B114923-BLK1	ND	ug/L	10	0.31	
Endosulfan II	B114923-BLK1	ND	ug/L	10	0.30	
Endosulfan sulfate	B114923-BLK1	ND	ug/L	3.0	0.23	
Endrin	B114923-BLK1	ND	ug/L	2.0	0.38	
Endrin aldehyde	B114923-BLK1	ND	ug/L	10	0.44	
Fluoranthene	B114923-BLK1	ND	ug/L	2.0	0.28	
Fluorene	B114923-BLK1	ND	ug/L	2.0	0.20	
Heptachlor	B114923-BLK1	ND	ug/L	2.0	0.20	
Heptachlor epoxide	B114923-BLK1	ND	ug/L	2.0	0.26	
Hexachlorobenzene	B114923-BLK1	ND	ug/L	2.0	0.25	
Hexachlorobutadiene	B114923-BLK1	ND	ug/L	2.0	0.20	
Hexachlorocyclopentadiene	B114923-BLK1	ND	ug/L	2.0	0.31	
Hexachloroethane	B114923-BLK1	ND	ug/L	2.0	0.20	
Indeno[1,2,3-cd]pyrene	B114923-BLK1	ND	ug/L	2.0	0.29	
Isophorone	B114923-BLK1	ND	ug/L	2.0	0.20	
2-Methylnaphthalene	B114923-BLK1	ND	ug/L	2.0	0.20	
Naphthalene	B114923-BLK1	ND	ug/L	2.0	0.20	
2-Naphthylamine	B114923-BLK1	ND	ug/L	20	1.3	
2-Nitroaniline	B114923-BLK1	ND	ug/L	2.0	0.20	
3-Nitroaniline	B114923-BLK1	ND	ug/L	2.0	0.22	
4-Nitroaniline	B114923-BLK1	ND	ug/L	5.0	0.38	
Nitrobenzene	B114923-BLK1	ND	ug/L	2.0	0.20	
N-Nitrosodimethylamine	B114923-BLK1	ND	ug/L	2.0	1.2	
N-Nitrosodi-N-propylamine	B114923-BLK1	ND	ug/L	2.0	0.21	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

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Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114923						
N-Nitrosodiphenylamine	B114923-BLK1	ND	ug/L	2.0	0.20	
Phenanthrene	B114923-BLK1	ND	ug/L	2.0	0.20	
Pyrene	B114923-BLK1	ND	ug/L	2.0	0.22	
1,2,4-Trichlorobenzene	B114923-BLK1	ND	ug/L	2.0	0.20	
4-Chloro-3-methylphenol	B114923-BLK1	ND	ug/L	5.0	0.20	
2-Chlorophenol	B114923-BLK1	ND	ug/L	2.0	0.20	
2,4-Dichlorophenol	B114923-BLK1	ND	ug/L	2.0	0.23	
2,4-Dimethylphenol	B114923-BLK1	ND	ug/L	2.0	0.20	
4,6-Dinitro-2-methylphenol	B114923-BLK1	ND	ug/L	10	0.24	
2,4-Dinitrophenol	B114923-BLK1	ND	ug/L	10	0.20	
2-Methylphenol	B114923-BLK1	ND	ug/L	2.0	0.20	
3- & 4-Methylphenol	B114923-BLK1	ND	ug/L	2.0	0.40	
2-Nitrophenol	B114923-BLK1	ND	ug/L	2.0	0.20	
4-Nitrophenol	B114923-BLK1	ND	ug/L	2.0	0.30	
Pentachlorophenol	B114923-BLK1	ND	ug/L	10	0.40	
Phenol	B114923-BLK1	ND	ug/L	2.0	0.21	
2,4,5-Trichlorophenol	B114923-BLK1	ND	ug/L	5.0	0.20	
2,4,6-Trichlorophenol	B114923-BLK1	ND	ug/L	5.0	0.20	
2-Fluorophenol (Surrogate)	**B114923-BLK1**	**58.5**	%	**30 - 120 (LCL - UCL)**		
Phenol-d5 (Surrogate)	**B114923-BLK1**	**37.1**	%	**12 - 110 (LCL - UCL)**		
Nitrobenzene-d5 (Surrogate)	**B114923-BLK1**	**91.3**	%	**50 - 130 (LCL - UCL)**		
2-Fluorobiphenyl (Surrogate)	**B114923-BLK1**	**89.5**	%	**55 - 125 (LCL - UCL)**		
2,4,6-Tribromophenol (Surrogate)	**B114923-BLK1**	**89.6**	%	**40 - 150 (LCL - UCL)**		
p-Terphenyl-d14 (Surrogate)	**B114923-BLK1**	**111**	%	**40 - 150 (LCL - UCL)**		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B114923										
Acenaphthene	B114923-BS1	LCS	47.365	50.000	ug/L	94.7		50 - 120		
1,4-Dichlorobenzene	B114923-BS1	LCS	47.016	50.000	ug/L	94.0		50 - 120		
2,4-Dinitrotoluene	B114923-BS1	LCS	60.024	50.000	ug/L	120		50 - 120		
Hexachlorobenzene	B114923-BS1	LCS	60.528	50.000	ug/L	121		60 - 120		L01
Hexachlorobutadiene	B114923-BS1	LCS	39.052	50.000	ug/L	78.1		40 - 110		
Hexachloroethane	B114923-BS1	LCS	40.992	50.000	ug/L	82.0		40 - 120		
Nitrobenzene	B114923-BS1	LCS	58.782	50.000	ug/L	118		50 - 120		
N-Nitrosodi-N-propylamine	B114923-BS1	LCS	46.638	50.000	ug/L	93.3		50 - 120		
Pyrene	B114923-BS1	LCS	47.540	50.000	ug/L	95.1		40 - 140		
1,2,4-Trichlorobenzene	B114923-BS1	LCS	51.575	50.000	ug/L	103		45 - 120		
4-Chloro-3-methylphenol	B114923-BS1	LCS	45.192	50.000	ug/L	90.4		50 - 120		
2-Chlorophenol	B114923-BS1	LCS	45.377	50.000	ug/L	90.8		50 - 120		
2-Methylphenol	B114923-BS1	LCS	40.886	50.000	ug/L	81.8		40 - 110		
3- & 4-Methylphenol	B114923-BS1	LCS	76.640	100.00	ug/L	76.6		40 - 110		
4-Nitrophenol	B114923-BS1	LCS	21.757	50.000	ug/L	43.5		10 - 110		
Pentachlorophenol	B114923-BS1	LCS	44.203	50.000	ug/L	88.4		30 - 130		
Phenol	B114923-BS1	LCS	19.429	50.000	ug/L	38.9		20 - 110		
2,4,6-Trichlorophenol	B114923-BS1	LCS	52.593	50.000	ug/L	105		54 - 120		
2-Fluorophenol (Surrogate)	B114923-BS1	LCS	25.074	40.000	ug/L	62.7		30 - 120		
Phenol-d5 (Surrogate)	B114923-BS1	LCS	16.606	40.000	ug/L	41.5		12 - 110		
Nitrobenzene-d5 (Surrogate)	B114923-BS1	LCS	40.527	40.000	ug/L	101		50 - 130		
2-Fluorobiphenyl (Surrogate)	B114923-BS1	LCS	39.537	40.000	ug/L	98.8		55 - 125		
2,4,6-Tribromophenol (Surrogate)	B114923-BS1	LCS	39.722	40.000	ug/L	99.3		40 - 150		
p-Terphenyl-d14 (Surrogate)	B114923-BS1	LCS	24.774	20.000	ug/L	124		40 - 150		

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B114923	Used client sample: N										
Acenaphthene	MS	2121078-75	ND	39.120	50.000	ug/L		78.2		50 - 120	
	MSD	2121078-75	ND	35.402	50.000	ug/L	10.0	70.8	30	50 - 120	
1,4-Dichlorobenzene	MS	2121078-75	ND	42.144	50.000	ug/L		84.3		47 - 120	
	MSD	2121078-75	ND	37.135	50.000	ug/L	12.6	74.3	30	47 - 120	
2,4-Dinitrotoluene	MS	2121078-75	ND	48.902	50.000	ug/L		97.8		50 - 130	
	MSD	2121078-75	ND	42.511	50.000	ug/L	14.0	85.0	30	50 - 130	
Hexachlorobenzene	MS	2121078-75	ND	50.381	50.000	ug/L		101		50 - 120	
	MSD	2121078-75	ND	46.332	50.000	ug/L	8.4	92.7	30	50 - 120	
Hexachlorobutadiene	MS	2121078-75	ND	37.738	50.000	ug/L		75.5		40 - 110	
	MSD	2121078-75	ND	33.373	50.000	ug/L	12.3	66.7	30	40 - 110	
Hexachloroethane	MS	2121078-75	ND	39.715	50.000	ug/L		79.4		40 - 120	
	MSD	2121078-75	ND	34.482	50.000	ug/L	14.1	69.0	30	40 - 120	
Nitrobenzene	MS	2121078-75	ND	48.067	50.000	ug/L		96.1		50 - 120	
	MSD	2121078-75	ND	44.085	50.000	ug/L	8.6	88.2	30	50 - 120	
N-Nitrosodi-N-propylamine	MS	2121078-75	ND	39.427	50.000	ug/L		78.9		50 - 120	
	MSD	2121078-75	ND	34.323	50.000	ug/L	13.8	68.6	30	50 - 120	
Pyrene	MS	2121078-75	ND	39.744	50.000	ug/L		79.5		40 - 140	
	MSD	2121078-75	ND	35.541	50.000	ug/L	11.2	71.1	30	40 - 140	
1,2,4-Trichlorobenzene	MS	2121078-75	ND	44.035	50.000	ug/L		88.1		43 - 120	
	MSD	2121078-75	ND	40.699	50.000	ug/L	7.9	81.4	30	43 - 120	
4-Chloro-3-methylphenol	MS	2121078-75	ND	39.226	50.000	ug/L		78.5		50 - 120	
	MSD	2121078-75	ND	34.036	50.000	ug/L	14.2	68.1	30	50 - 120	
2-Chlorophenol	MS	2121078-75	ND	39.629	50.000	ug/L		79.3		50 - 120	
	MSD	2121078-75	ND	35.294	50.000	ug/L	11.6	70.6	30	50 - 120	
2-Methylphenol	MS	2121078-75	ND	35.434	50.000	ug/L		70.9		40 - 110	
	MSD	2121078-75	ND	31.324	50.000	ug/L	12.3	62.6	30	40 - 110	
3- & 4-Methylphenol	MS	2121078-75	ND	66.557	100.00	ug/L		66.6		40 - 110	
	MSD	2121078-75	ND	58.737	100.00	ug/L	12.5	58.7	30	40 - 110	
4-Nitrophenol	MS	2121078-75	ND	17.558	50.000	ug/L		35.1		10 - 110	
	MSD	2121078-75	ND	15.345	50.000	ug/L	13.5	30.7	30	10 - 110	
Pentachlorophenol	MS	2121078-75	ND	36.922	50.000	ug/L		73.8		30 - 120	
	MSD	2121078-75	ND	32.432	50.000	ug/L	12.9	64.9	30	30 - 120	
Phenol	MS	2121078-75	ND	16.320	50.000	ug/L		32.6		20 - 110	
	MSD	2121078-75	ND	15.226	50.000	ug/L	6.9	30.5	30	20 - 110	
2,4,6-Trichlorophenol	MS	2121078-75	ND	42.826	50.000	ug/L		85.7		50 - 150	
	MSD	2121078-75	ND	38.956	50.000	ug/L	9.5	77.9	30	50 - 150	

City of Morro Bay		Reported:	08/17/2021 15:01
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Base Neutral and Acid Extractables Organic Analysis (EPA Method 8270C)

Quality Control Report - Precision & Accuracy

QC Batch ID: B114923 Used client sample: N

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
2-Fluorophenol (Surrogate)	MS	2121078-75	ND	21.456	40.000	ug/L		53.6		30 - 120	
	MSD	2121078-75	ND	20.325	40.000	ug/L	5.4	50.8		30 - 120	
Phenol-d5 (Surrogate)	MS	2121078-75	ND	13.738	40.000	ug/L		34.3		12 - 110	
	MSD	2121078-75	ND	12.870	40.000	ug/L	6.5	32.2		12 - 110	
Nitrobenzene-d5 (Surrogate)	MS	2121078-75	ND	34.128	40.000	ug/L		85.3		50 - 130	
	MSD	2121078-75	ND	29.354	40.000	ug/L	15.0	73.4		50 - 130	
2-Fluorobiphenyl (Surrogate)	MS	2121078-75	ND	32.534	40.000	ug/L		81.3		55 - 125	
	MSD	2121078-75	ND	29.987	40.000	ug/L	8.1	75.0		55 - 125	
2,4,6-Tribromophenol (Surrogate)	MS	2121078-75	ND	34.454	40.000	ug/L		86.1		40 - 150	
	MSD	2121078-75	ND	29.987	40.000	ug/L	13.9	75.0		40 - 150	
p-Terphenyl-d14 (Surrogate)	MS	2121078-75	ND	21.658	20.000	ug/L		108		40 - 150	
	MSD	2121078-75	ND	19.226	20.000	ug/L	11.9	96.1		40 - 150	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Explosive Residues (EPA Method 8330)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114621						
HMX	B114621-BLK1	ND	ug/L	2.0	0.24	
RDX	B114621-BLK1	ND	ug/L	2.0	0.24	
1,2-Dinitrobenzene (Surrogate)	**B114621-BLK1**	**102**	%	**70 - 130 (LCL - UCL)**		

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Explosive Residues (EPA Method 8330)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B114621										
HMX	B114621-BS1	LCS	12.500	15.000	ug/L	83.3		60 - 120		
RDX	B114621-BS1	LCS	13.295	15.000	ug/L	88.6		50 - 120		
1,2-Dinitrobenzene (Surrogate)	B114621-BS1	LCS	102.31	100.00	ug/L	102		70 - 130		

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Explosive Residues (EPA Method 8330)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B114621	Used client sample: N										
HMX	MS	2121078-49	ND	12.780	15.000	ug/L		85.2		50 - 120	
	MSD	2121078-49	ND	13.455	15.000	ug/L	5.1	89.7	30	50 - 120	
RDX	MS	2121078-49	ND	13.215	15.000	ug/L		88.1		50 - 120	
	MSD	2121078-49	ND	13.835	15.000	ug/L	4.6	92.2	30	50 - 120	
1,2-Dinitrobenzene (Surrogate)	MS	2121078-49	ND	100.76	100.00	ug/L		101		70 - 130	
	MSD	2121078-49	ND	106.78	100.00	ug/L	5.8	107		70 - 130	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B_G0417						
Trivalent Chromium	B_G0417-BLK1	ND	ug/L	10	5.0	
Nitrate + Nitrite as N	B_G0417-BLK1	ND	mg/L	0.10	0.018	
Total Nitrogen	B_G0417-BLK1	ND	mg/L	0.30	0.10	
QC Batch ID: B114265						
Nitrite as N	B114265-BLK1	ND	ug/L	50	10	
QC Batch ID: B114282						
Chloride	**B114282-BLK1**	**0.18600**	**mg/L**	**0.50**	**0.13**	**J**
Fluoride	B114282-BLK1	ND	mg/L	0.050	0.025	
Nitrate as N	B114282-BLK1	ND	mg/L	0.10	0.024	
Sulfate	B114282-BLK1	ND	mg/L	1.0	0.14	
QC Batch ID: B114515						
Non-Volatile Organic Carbon	B114515-BLK1	ND	mg/L	1.0	0.30	
QC Batch ID: B114615						
Odor	B114615-BLK1	ND	Odor Units	1.0	1.0	
QC Batch ID: B114627						
MBAS	B114627-BLK1	ND	mg/L	0.10	0.024	
QC Batch ID: B114659						
Total Cyanide	B114659-BLK1	ND	mg/L	0.0050	0.0017	
QC Batch ID: B114677						
Total Kjeldahl Nitrogen	B114677-BLK1	ND	mg/L	0.20	0.088	
QC Batch ID: B114694						
Total Dissolved Solids @ 180 C	B114694-BLK1	ND	mg/L	6.7	3.3	
QC Batch ID: B116350						
Perchlorate	B116350-BLK1	ND	mg/L	0.0020	0.00081	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B112458										
Electrical Conductivity @ 25 C	B112458-BS1	LCS	310.10	303.00	umhos/cm	102		90 - 110		
QC Batch ID: B112459										
Electrical Conductivity @ 25 C	B112459-BS1	LCS	313.80	303.00	umhos/cm	104		90 - 110		
QC Batch ID: B114265										
Nitrite as N	B114265-BS1	LCS	511.78	500.00	ug/L	102		90 - 110		
QC Batch ID: B114282										
Chloride	B114282-BS1	LCS	53.193	50.000	mg/L	106		90 - 110		
Fluoride	B114282-BS1	LCS	1.0980	1.0000	mg/L	110		90 - 110		
Nitrate as N	B114282-BS1	LCS	5.2520	5.0000	mg/L	105		90 - 110		
Sulfate	B114282-BS1	LCS	105.50	100.00	mg/L	106		90 - 110		
QC Batch ID: B114515										
Non-Volatile Organic Carbon	B114515-BS1	LCS	5.2370	5.0000	mg/L	105		85 - 115		
QC Batch ID: B114627										
MBAS	B114627-BS1	LCS	0.19440	0.20000	mg/L	97.2		85 - 115		
QC Batch ID: B114659										
Total Cyanide	B114659-BS1	LCS	0.14009	0.15000	mg/L	93.4		90 - 110		
QC Batch ID: B114677										
Total Kjeldahl Nitrogen	B114677-BS1	LCS	2.0608	2.0000	mg/L	103		90 - 110		
QC Batch ID: B114694										
Total Dissolved Solids @ 180 C	B114694-BS1	LCS	595.00	586.00	mg/L	102		90 - 110		
QC Batch ID: B116350										
Perchlorate	B116350-BS1	LCS	0.0085077	0.010000	mg/L	85.1		85 - 115		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B112458	Used client sample: N										
Electrical Conductivity @ 25 C	DUP	2122974-01	2997.2	3004.3		umhos/cm	0.2		10		
QC Batch ID: B112459	Used client sample: Y - Description: I9P-04, 07/13/2021 11:45										
Electrical Conductivity @ 25 C	DUP	2122475-03	1473.9	1470.2		umhos/cm	0.3		10		
QC Batch ID: B114265	Used client sample: N										
Nitrite as N	DUP	2122268-03	11.194	10.966		ug/L	2.1		10		J
	MS	2122268-03	11.194	512.92	526.32	ug/L		95.3		90 - 110	
	MSD	2122268-03	11.194	515.12	526.32	ug/L	0.4	95.7	10	90 - 110	
QC Batch ID: B114282	Used client sample: N										
Chloride	DUP	2122465-01	68.590	68.852		mg/L	0.4		10		
	MS	2122465-01	68.590	125.74	50.505	mg/L		113		80 - 120	
	MSD	2122465-01	68.590	125.74	50.505	mg/L	0.0	113	10	80 - 120	
Fluoride	DUP	2122465-01	ND	ND		mg/L			10		
	MS	2122465-01	ND	1.1081	1.0101	mg/L		110		80 - 120	
	MSD	2122465-01	ND	1.1101	1.0101	mg/L	0.2	110	10	80 - 120	
Nitrate as N	DUP	2122465-01	0.18300	0.19300		mg/L	5.3		10		
	MS	2122465-01	0.18300	5.4566	5.0505	mg/L		104		80 - 120	
	MSD	2122465-01	0.18300	5.4515	5.0505	mg/L	0.1	104	10	80 - 120	
Sulfate	DUP	2122465-01	119.78	120.20		mg/L	0.3		10		
	MS	2122465-01	119.78	235.59	101.01	mg/L		115		80 - 120	
	MSD	2122465-01	119.78	235.41	101.01	mg/L	0.1	114	10	80 - 120	
QC Batch ID: B114515	Used client sample: Y - Description: H.S. Well #2, 07/13/2021 08:25										
Non-Volatile Organic Carbon	DUP	2122475-01	1.1140	1.1070		mg/L	0.6		10		
	MS	2122475-01	1.1140	5.8905	5.0251	mg/L		95.1		80 - 120	
	MSD	2122475-01	1.1140	5.8533	5.0251	mg/L	0.6	94.3	10	80 - 120	
QC Batch ID: B114614	Used client sample: N										
Color	DUP	2122311-01	1.0000	1.0000		Color Units	0		20		
QC Batch ID: B114616	Used client sample: N										
Turbidity	DUP	2122311-01	0.18600	0.18600		NT Units	0		10		
QC Batch ID: B114627	Used client sample: Y - Description: H.S. Well #2, 07/13/2021 08:25										
MBAS	DUP	2122475-01	ND	ND		mg/L			20		
	MS	2122475-01	ND	0.42360	0.40000	mg/L		106		80 - 120	
	MSD	2122475-01	ND	0.40040	0.40000	mg/L	5.6	100	20	80 - 120	
QC Batch ID: B114659	Used client sample: N										
Total Cyanide	DUP	2122620-01	ND	ND		mg/L			10		
	MS	2122620-01	ND	0.10122	0.10000	mg/L		101		90 - 110	
	MSD	2122620-01	ND	0.10108	0.10000	mg/L	0.1	101	10	90 - 110	

City of Morro Bay	**Reported:**	08/17/2021 15:01
160 Atascadero Rd.	Project:	Morro Bay Wells
Morro Bay, CA 93442	Project Number:	[none]
	Project Manager:	John Gunderlock

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B114677	Used client sample: Y - Description: H.S. Well #2, 07/13/2021 08:25										
Total Kjeldahl Nitrogen	DUP	2122475-01	0.25330	0.22970		mg/L	9.8		20		
	MS	2122475-01	0.25330	2.2342	2.0000	mg/L		99.0		90 - 110	
	MSD	2122475-01	0.25330	2.2802	2.0000	mg/L	2.0	101	20	90 - 110	
QC Batch ID: B114694	Used client sample: Y - Description: H.S. Well #2, 07/13/2021 08:25										
Total Dissolved Solids @ 180 C	DUP	2122475-01	2710.0	2680.0		mg/L	1.1		10		
QC Batch ID: B116350	Used client sample: N										
Perchlorate	DUP	2124874-05	ND	ND		mg/L			15		
	MS	2124874-05	ND	0.0082490	0.010101	mg/L		81.7		80 - 120	
	MSD	2124874-05	ND	0.0082704	0.010101	mg/L	0.3	81.9	15	80 - 120	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114760						
Total Recoverable Antimony	B114760-BLK1	ND	ug/L	2.0	0.11	
Total Recoverable Arsenic	B114760-BLK1	ND	ug/L	2.0	0.70	
Total Recoverable Barium	**B114760-BLK1**	**0.30400**	**ug/L**	**1.0**	**0.21**	**J**
Total Recoverable Beryllium	B114760-BLK1	ND	ug/L	1.0	0.14	
Total Recoverable Cadmium	B114760-BLK1	ND	ug/L	1.0	0.11	
Total Recoverable Chromium	B114760-BLK1	ND	ug/L	3.0	0.50	
Total Recoverable Cobalt	B114760-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Copper	**B114760-BLK1**	**0.28700**	**ug/L**	**2.0**	**0.22**	**J**
Total Recoverable Lead	B114760-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Molybdenum	B114760-BLK1	ND	ug/L	1.0	0.11	
Total Recoverable Nickel	**B114760-BLK1**	**0.26100**	**ug/L**	**2.0**	**0.19**	**J**
Total Recoverable Selenium	B114760-BLK1	ND	ug/L	2.0	0.19	
Total Recoverable Silver	B114760-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Thallium	B114760-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Vanadium	**B114760-BLK1**	**1.2390**	**ug/L**	**3.0**	**0.78**	**J**
Total Recoverable Uranium	B114760-BLK1	ND	ug/L	1.0	0.10	
QC Batch ID: B114761						
Total Recoverable Antimony	B114761-BLK1	ND	ug/L	2.0	0.11	
Total Recoverable Arsenic	B114761-BLK1	ND	ug/L	2.0	0.70	
Total Recoverable Barium	**B114761-BLK1**	**0.34100**	**ug/L**	**1.0**	**0.21**	**J**
Total Recoverable Beryllium	B114761-BLK2	ND	ug/L	1.0	0.14	
Total Recoverable Cadmium	B114761-BLK1	ND	ug/L	1.0	0.11	
Total Recoverable Chromium	B114761-BLK1	ND	ug/L	3.0	0.50	
Total Recoverable Cobalt	B114761-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Copper	B114761-BLK1	ND	ug/L	2.0	0.22	
Total Recoverable Lead	B114761-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Molybdenum	B114761-BLK1	ND	ug/L	1.0	0.11	
Total Recoverable Nickel	B114761-BLK1	ND	ug/L	2.0	0.19	
Total Recoverable Selenium	B114761-BLK1	ND	ug/L	2.0	0.19	
Total Recoverable Silver	B114761-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Thallium	B114761-BLK1	ND	ug/L	1.0	0.10	
Total Recoverable Vanadium	B114761-BLK1	ND	ug/L	3.0	0.78	
Total Recoverable Zinc	**B114761-BLK2**	**3.4340**	**ug/L**	**10**	**1.7**	**J**

City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals
QC Batch ID: B114761						
Total Recoverable Uranium	B114761-BLK1	ND	ug/L	1.0	0.10	
QC Batch ID: B114828						
Total Recoverable Aluminum	B114828-BLK1	ND	ug/L	50	26	
Total Recoverable Boron	B114828-BLK1	ND	ug/L	100	10	
Total Recoverable Iron	B114828-BLK1	ND	ug/L	50	30	
Total Recoverable Lithium	B114828-BLK1	ND	ug/L	20	6.6	
Total Recoverable Manganese	B114828-BLK1	ND	ug/L	10	4.0	
QC Batch ID: B114845						
Hexavalent Chromium	**B114845-BLK1**	**0.025000**	**ug/L**	**0.20**	**0.020**	**J**
QC Batch ID: B114899						
Total Recoverable Zinc	B114899-BLK1	ND	ug/L	10	1.7	
QC Batch ID: B114949						
Total Recoverable Mercury	B114949-BLK1	ND	ug/L	0.20	0.022	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Metals Analysis

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B114760										
Total Recoverable Antimony	B114760-BS1	LCS	40.140	40.000	ug/L	100		85 - 115		
Total Recoverable Arsenic	B114760-BS1	LCS	99.970	100.00	ug/L	100		85 - 115		
Total Recoverable Barium	B114760-BS1	LCS	42.350	40.000	ug/L	106		85 - 115		
Total Recoverable Beryllium	B114760-BS1	LCS	45.341	40.000	ug/L	113		85 - 115		
Total Recoverable Cadmium	B114760-BS1	LCS	40.980	40.000	ug/L	102		85 - 115		
Total Recoverable Chromium	B114760-BS1	LCS	41.345	40.000	ug/L	103		85 - 115		
Total Recoverable Cobalt	B114760-BS1	LCS	38.925	40.000	ug/L	97.3		85 - 115		
Total Recoverable Copper	B114760-BS1	LCS	105.04	100.00	ug/L	105		85 - 115		
Total Recoverable Lead	B114760-BS1	LCS	109.42	100.00	ug/L	109		85 - 115		
Total Recoverable Molybdenum	B114760-BS1	LCS	38.434	40.000	ug/L	96.1		85 - 115		
Total Recoverable Nickel	B114760-BS1	LCS	98.841	100.00	ug/L	98.8		85 - 115		
Total Recoverable Selenium	B114760-BS1	LCS	97.852	100.00	ug/L	97.9		85 - 115		
Total Recoverable Silver	B114760-BS1	LCS	40.631	40.000	ug/L	102		85 - 115		
Total Recoverable Thallium	B114760-BS1	LCS	43.045	40.000	ug/L	108		85 - 115		
Total Recoverable Vanadium	B114760-BS1	LCS	39.034	40.000	ug/L	97.6		85 - 115		
Total Recoverable Uranium	B114760-BS1	LCS	37.681	40.000	ug/L	94.2		85 - 115		
QC Batch ID: B114761										
Total Recoverable Antimony	B114761-BS1	LCS	43.131	40.000	ug/L	108		85 - 115		
Total Recoverable Arsenic	B114761-BS1	LCS	107.43	100.00	ug/L	107		85 - 115		
Total Recoverable Barium	B114761-BS1	LCS	42.888	40.000	ug/L	107		85 - 115		
Total Recoverable Beryllium	B114761-BS2	LCS	40.747	40.000	ug/L	102		85 - 115		
Total Recoverable Cadmium	B114761-BS1	LCS	45.126	40.000	ug/L	113		85 - 115		
Total Recoverable Chromium	B114761-BS1	LCS	42.235	40.000	ug/L	106		85 - 115		
Total Recoverable Cobalt	B114761-BS1	LCS	43.349	40.000	ug/L	108		85 - 115		
Total Recoverable Copper	B114761-BS1	LCS	107.39	100.00	ug/L	107		85 - 115		
Total Recoverable Lead	B114761-BS1	LCS	111.74	100.00	ug/L	112		85 - 115		
Total Recoverable Molybdenum	B114761-BS1	LCS	39.695	40.000	ug/L	99.2		85 - 115		
Total Recoverable Nickel	B114761-BS1	LCS	110.34	100.00	ug/L	110		85 - 115		
Total Recoverable Selenium	B114761-BS1	LCS	115.22	100.00	ug/L	115		85 - 115		
Total Recoverable Silver	B114761-BS1	LCS	44.033	40.000	ug/L	110		85 - 115		
Total Recoverable Thallium	B114761-BS1	LCS	44.559	40.000	ug/L	111		85 - 115		
Total Recoverable Vanadium	B114761-BS1	LCS	40.438	40.000	ug/L	101		85 - 115		
Total Recoverable Zinc	B114761-BS2	LCS	112.42	100.00	ug/L	112		85 - 115		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Metals Analysis

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals
QC Batch ID: B114761										
Total Recoverable Uranium	B114761-BS1	LCS	40.432	40.000	ug/L	101		85 - 115		
QC Batch ID: B114828										
Total Recoverable Aluminum	B114828-BS1	LCS	966.89	1000.0	ug/L	96.7		85 - 115		
Total Recoverable Boron	B114828-BS1	LCS	967.96	1000.0	ug/L	96.8		85 - 115		
Total Recoverable Iron	B114828-BS1	LCS	1019.7	1000.0	ug/L	102		85 - 115		
Total Recoverable Lithium	B114828-BS1	LCS	202.65	200.00	ug/L	101		85 - 115		
Total Recoverable Manganese	B114828-BS1	LCS	523.17	500.00	ug/L	105		85 - 115		
QC Batch ID: B114845										
Hexavalent Chromium	B114845-BS1	LCS	19.157	20.000	ug/L	95.8		90 - 110		
QC Batch ID: B114899										
Total Recoverable Zinc	B114899-BS1	LCS	113.86	100.00	ug/L	114		85 - 115		
QC Batch ID: B114949										
Total Recoverable Mercury	B114949-BS1	LCS	1.0325	1.0000	ug/L	103		85 - 115		

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Metals Analysis

Quality Control Report - Precision & Accuracy

QC Batch ID: B114760 Used client sample: Y - Description: H.S. Well #2, 07/13/2021 08:25

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
Total Recoverable Antimony	DUP	2122475-01	ND	ND		ug/L			20		
	MS	2122475-01	ND	42.654	40.000	ug/L		107		70 - 130	
	MSD	2122475-01	ND	44.184	40.000	ug/L	3.5	110	20	70 - 130	
Total Recoverable Arsenic	DUP	2122475-01	3.2960	3.3340		ug/L	1.1		20		J
	MS	2122475-01	3.2960	110.40	100.00	ug/L		107		70 - 130	
	MSD	2122475-01	3.2960	113.71	100.00	ug/L	3.0	110	20	70 - 130	
Total Recoverable Barium	DUP	2122475-01	224.16	227.77		ug/L	1.6		20		
	MS	2122475-01	224.16	271.23	40.000	ug/L		118		70 - 130	
	MSD	2122475-01	224.16	275.26	40.000	ug/L	1.5	128	20	70 - 130	
Total Recoverable Beryllium	DUP	2122475-01	ND	ND		ug/L			20		
	MS	2122475-01	ND	45.160	40.000	ug/L		113		70 - 130	
	MSD	2122475-01	ND	43.440	40.000	ug/L	3.9	109	20	70 - 130	
Total Recoverable Cadmium	DUP	2122475-01	ND	ND		ug/L			20		
	MS	2122475-01	ND	40.048	40.000	ug/L		100		70 - 130	
	MSD	2122475-01	ND	41.852	40.000	ug/L	4.4	105	20	70 - 130	
Total Recoverable Chromium	DUP	**2122475-01**	**2.2020**	**2.9300**		**ug/L**	**28.4**		**20**		**J,A02**
	MS	**2122475-01**	**2.2020**	**43.638**	**40.000**	**ug/L**		**104**		**70 - 130**	
	MSD	**2122475-01**	**2.2020**	**42.070**	**40.000**	**ug/L**	**3.7**	**99.7**	**20**	**70 - 130**	
Total Recoverable Cobalt	DUP	2122475-01	0.61400	0.64400		ug/L	4.8		20		J
	MS	2122475-01	0.61400	38.458	40.000	ug/L		94.6		70 - 130	
	MSD	2122475-01	0.61400	39.900	40.000	ug/L	3.7	98.2	20	70 - 130	
Total Recoverable Copper	DUP	2122475-01	5.1080	4.4960		ug/L	12.7		20		
	MS	2122475-01	5.1080	103.92	100.00	ug/L		98.8		70 - 130	
	MSD	2122475-01	5.1080	105.31	100.00	ug/L	1.3	100	20	70 - 130	
Total Recoverable Lead	DUP	2122475-01	ND	ND		ug/L			20		
	MS	2122475-01	ND	101.88	100.00	ug/L		102		70 - 130	
	MSD	2122475-01	ND	104.69	100.00	ug/L	2.7	105	20	70 - 130	
Total Recoverable Molybdenum	DUP	2122475-01	1.0420	1.0340		ug/L	0.8		20		J
	MS	2122475-01	1.0420	46.192	40.000	ug/L		113		70 - 130	
	MSD	2122475-01	1.0420	45.748	40.000	ug/L	1.0	112	20	70 - 130	
Total Recoverable Nickel	DUP	2122475-01	9.8440	11.178		ug/L	12.7		20		
	MS	2122475-01	9.8440	102.96	100.00	ug/L		93.1		70 - 130	
	MSD	2122475-01	9.8440	104.03	100.00	ug/L	1.0	94.2	20	70 - 130	
Total Recoverable Selenium	DUP	2122475-01	15.238	15.820		ug/L	3.7		20		
	MS	2122475-01	15.238	118.62	100.00	ug/L		103		70 - 130	
	MSD	2122475-01	15.238	121.92	100.00	ug/L	2.7	107	20	70 - 130	
Total Recoverable Silver	DUP	2122475-01	ND	ND		ug/L			20		
	MS	2122475-01	ND	38.776	40.000	ug/L		96.9		70 - 130	
	MSD	2122475-01	ND	39.136	40.000	ug/L	0.9	97.8	20	70 - 130	

City of Morro Bay 160 Atascadero Rd. Morro Bay, CA 93442	**Reported:** 08/17/2021 15:01 Project: Morro Bay Wells Project Number: [none] Project Manager: John Gunderlock

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B114760	Used client sample: Y - Description: H.S. Well #2, 07/13/2021 08:25										
Total Recoverable Thallium	DUP	2122475-01	ND	ND		ug/L			20		
	MS	2122475-01	ND	40.560	40.000	ug/L		101		70 - 130	
	MSD	2122475-01	ND	41.582	40.000	ug/L	2.5	104	20	70 - 130	
Total Recoverable Vanadium	DUP	**2122475-01**	**5.4240**	**3.9540**		**ug/L**	**31.3**		**20**		**J,A02**
	MS	**2122475-01**	**5.4240**	**46.482**	**40.000**	**ug/L**		**103**		**70 - 130**	
	MSD	**2122475-01**	**5.4240**	**47.198**	**40.000**	**ug/L**	**1.5**	**104**	**20**	**70 - 130**	
Total Recoverable Uranium	DUP	2122475-01	2.2920	2.3180		ug/L	1.1		20		
	MS	2122475-01	2.2920	49.262	40.000	ug/L		117		70 - 130	
	MSD	2122475-01	2.2920	49.016	40.000	ug/L	0.5	117	20	70 - 130	
QC Batch ID: B114761	Used client sample: Y - Description: Well #3, 07/13/2021 10:12										
Total Recoverable Antimony	DUP	2122475-02	ND	ND		ug/L			20		
	MS	2122475-02	ND	43.816	40.000	ug/L		110		70 - 130	
	MSD	2122475-02	ND	44.461	40.000	ug/L	1.5	111	20	70 - 130	
Total Recoverable Arsenic	DUP	2122475-02	ND	ND		ug/L			20		
	MS	2122475-02	ND	112.93	100.00	ug/L		113		70 - 130	
	MSD	2122475-02	ND	113.69	100.00	ug/L	0.7	114	20	70 - 130	
Total Recoverable Barium	DUP	2122475-02	130.50	128.78		ug/L	1.3		20		
	MS	2122475-02	130.50	179.29	40.000	ug/L		122		70 - 130	
	MSD	2122475-02	130.50	172.16	40.000	ug/L	4.1	104	20	70 - 130	
Total Recoverable Beryllium	DUP	2122475-02	ND	ND		ug/L			20		
	MS	2122475-02	ND	44.154	40.000	ug/L		110		70 - 130	
	MSD	2122475-02	ND	44.550	40.000	ug/L	0.9	111	20	70 - 130	
Total Recoverable Cadmium	DUP	2122475-02	ND	ND		ug/L			20		
	MS	2122475-02	ND	43.205	40.000	ug/L		108		70 - 130	
	MSD	2122475-02	ND	43.729	40.000	ug/L	1.2	109	20	70 - 130	
Total Recoverable Chromium	DUP	2122475-02	ND	ND		ug/L			20		
	MS	2122475-02	ND	38.768	40.000	ug/L		96.9		70 - 130	
	MSD	2122475-02	ND	39.279	40.000	ug/L	1.3	98.2	20	70 - 130	
Total Recoverable Cobalt	DUP	2122475-02	0.43300	0.47700		ug/L	9.7		20		J
	MS	2122475-02	0.43300	38.356	40.000	ug/L		94.8		70 - 130	
	MSD	2122475-02	0.43300	38.493	40.000	ug/L	0.4	95.2	20	70 - 130	
Total Recoverable Copper	DUP	2122475-02	3.2590	2.9650		ug/L	9.4		20		
	MS	2122475-02	3.2590	104.66	100.00	ug/L		101		70 - 130	
	MSD	2122475-02	3.2590	106.51	100.00	ug/L	1.7	103	20	70 - 130	
Total Recoverable Lead	DUP	2122475-02	ND	ND		ug/L			20		
	MS	2122475-02	ND	102.82	100.00	ug/L		103		70 - 130	
	MSD	2122475-02	ND	103.18	100.00	ug/L	0.4	103	20	70 - 130	

City of Morro Bay		**Reported:**	08/17/2021 15:01
160 Atascadero Rd.		Project:	Morro Bay Wells
Morro Bay, CA 93442		Project Number:	[none]
		Project Manager:	John Gunderlock

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B114761	Used client sample: Y - Description: Well #3, 07/13/2021 10:12										
Total Recoverable Molybdenum	DUP	2122475-02	1.2560	1.2280		ug/L	2.3		20		
	MS	2122475-02	1.2560	48.710	40.000	ug/L		119		70 - 130	
	MSD	2122475-02	1.2560	46.935	40.000	ug/L	3.7	114	20	70 - 130	
Total Recoverable Nickel	DUP	2122475-02	4.4320	4.9290		ug/L	10.6		20		
	MS	2122475-02	4.4320	96.437	100.00	ug/L		92.0		70 - 130	
	MSD	2122475-02	4.4320	97.090	100.00	ug/L	0.7	92.7	20	70 - 130	
Total Recoverable Selenium	DUP	2122475-02	25.604	26.435		ug/L	3.2		20		
	MS	2122475-02	25.604	144.17	100.00	ug/L		119		70 - 130	
	MSD	2122475-02	25.604	142.86	100.00	ug/L	0.9	117	20	70 - 130	
Total Recoverable Silver	DUP	2122475-02	ND	ND		ug/L			20		
	MS	2122475-02	ND	42.221	40.000	ug/L		106		70 - 130	
	MSD	2122475-02	ND	42.479	40.000	ug/L	0.6	106	20	70 - 130	
Total Recoverable Thallium	DUP	2122475-02	ND	ND		ug/L			20		
	MS	2122475-02	ND	41.621	40.000	ug/L		104		70 - 130	
	MSD	2122475-02	ND	41.499	40.000	ug/L	0.3	104	20	70 - 130	
Total Recoverable Vanadium	DUP	2122475-02	ND	ND		ug/L			20		
	MS	2122475-02	ND	40.742	40.000	ug/L		102		70 - 130	
	MSD	2122475-02	ND	40.734	40.000	ug/L	0.0	102	20	70 - 130	
Total Recoverable Zinc	DUP	2122475-02	21.573	18.362		ug/L	16.1		20		
	MS	2122475-02	21.573	127.14	100.00	ug/L		106		70 - 130	
	MSD	2122475-02	21.573	134.03	100.00	ug/L	5.3	112	20	70 - 130	
Total Recoverable Uranium	DUP	2122475-02	1.9250	1.9730		ug/L	2.5		20		
	MS	2122475-02	1.9250	49.324	40.000	ug/L		118		70 - 130	
	MSD	2122475-02	1.9250	49.503	40.000	ug/L	0.4	119	20	70 - 130	
QC Batch ID: B114828	Used client sample: N										
Total Recoverable Aluminum	DUP	2122710-01	ND	ND		ug/L			20		
	MS	2122710-01	ND	961.46	1020.4	ug/L		94.2		75 - 125	
	MSD	2122710-01	ND	943.54	1020.4	ug/L	1.9	92.5	20	75 - 125	
Total Recoverable Boron	DUP	2122710-01	2020.3	2031.7		ug/L	0.6		20		
	MS	2122710-01	2020.3	3015.2	1020.4	ug/L		97.5		75 - 125	
	MSD	2122710-01	2020.3	3087.6	1020.4	ug/L	2.4	105	20	75 - 125	
Total Recoverable Iron	DUP	2122710-01	30.714	30.267		ug/L	1.5		20		J
	MS	2122710-01	30.714	1039.6	1020.4	ug/L		98.9		75 - 125	
	MSD	2122710-01	30.714	1018.9	1020.4	ug/L	2.0	96.8	20	75 - 125	
Total Recoverable Lithium	DUP	2122710-01	19.379	19.318		ug/L	0.3		20		J
	MS	2122710-01	19.379	213.22	204.08	ug/L		95.0		75 - 125	
	MSD	2122710-01	19.379	214.34	204.08	ug/L	0.5	95.5	20	75 - 125	

City of Morro Bay
160 Atascadero Rd.
Morro Bay, CA 93442

Reported: 08/17/2021 15:01
Project: Morro Bay Wells
Project Number: [none]
Project Manager: John Gunderlock

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals
QC Batch ID: B114828	Used client sample: N										
Total Recoverable Manganese	DUP	2122710-01	ND	ND		ug/L			20		
	MS	2122710-01	ND	531.79	510.20	ug/L		104		75 - 125	
	MSD	2122710-01	ND	523.32	510.20	ug/L	1.6	103	20	75 - 125	
QC Batch ID: B114845	Used client sample: N										
Hexavalent Chromium	DUP	**2122950-03**	**0.13200**	**0.11500**		**ug/L**	**13.8**		**10**		**J,A02**
	MS	**2122950-03**	**0.13200**	**18.606**	**20.202**	**ug/L**		**91.4**		**90 - 110**	
	MSD	**2122950-03**	**0.13200**	**18.433**	**20.202**	**ug/L**	**0.9**	**90.6**	**10**	**90 - 110**	
QC Batch ID: B114899	Used client sample: N										
Total Recoverable Zinc	DUP	**2122412-01RE1**	**5.3270**	**2.5440**		**ug/L**	**70.7**		**20**		**J,A02**
	MS	**2122412-01RE1**	**5.3270**	**114.86**	**100.00**	**ug/L**		**110**		**70 - 130**	
	MSD	**2122412-01RE1**	**5.3270**	**113.04**	**100.00**	**ug/L**	**1.6**	**108**	**20**	**70 - 130**	
QC Batch ID: B114949	Used client sample: N										
Total Recoverable Mercury	DUP	2122421-01	ND	ND		ug/L			20		
	MS	2122421-01	ND	0.94000	1.0000	ug/L		94.0		70 - 130	
	MSD	2122421-01	ND	0.81750	1.0000	ug/L	13.9	81.8	20	70 - 130	

BSK ASSOCIATES
BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

AEG3409
8/05/2021
Invoice: AE17366

Eli Velazquez
BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308

RE: Report for AEG3409 General: Project Manager Eli Velazquez

Dear Eli Velazquez,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 7/22/2021. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2016 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Sarah K. Guenther , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Elaine M. Phillips, Project Coordinator II

Accredited in Accordance with NELAP
ORELAP #4021

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AEG3409 FINAL 08052021 1728

BSK ASSOCIATES

AEG3409

General: Project Manager Eli Velazquez

Case Narrative

Project and Report Details		Invoice Details	
Client:	BC Laboratories	**Invoice To:**	BC Laboratories
Report To:	Eli Velazquez	**Invoice Attn:**	Wendy
Project #:	2122475	**Project PO#:**	-
Received:	7/22/2021 - 11:55		
Report Due:	8/05/2021		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt °C: 0.0

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Bubble Wrap
Packing Material - Other
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

DL1.0	Sample required a dilution due to the matrix or high concentration of non-target analytes.
HT1.3	Holding time exceeded. Sample was analyzed past the holding time.

Report Distribution

Recipient(s)	Report Format	CC:
Eli Velazquez	FINAL.RPT	
Eli Velazquez	FINAL.RPT	

BSK ASSOCIATES

AEG3409

General: Project Manager Eli Velazquez

2122475

Certificate of Analysis

Sample ID: AEG3409-01
Sampled By: Client
Sample Description: 2122475-01

Sample Date - Time: 07/13/2021 - 08:25
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Bromate	EPA 317.0	ND	0.0010	mg/L	1	AEH0121	08/03/21	08/03/21	
Chlorate	EPA 300.1	ND	0.020	mg/L	4	AEH0105	08/03/21	08/03/21	DL1.0
Surrogate: Dichloroacetate	EPA 300.1	107 %	*Acceptable range: 90-115 %*						
Chlorite	EPA 300.1	ND	0.020	mg/L	4	AEH0105	08/03/21	08/03/21	HT1.3
Surrogate: Dichloroacetate	EPA 300.1	107 %	*Acceptable range: 90-115 %*						

BSK ASSOCIATES

AEG3409

General: Project Manager Eli Velazquez

2122475

Certificate of Analysis

Sample ID: AEG3409-02
Sampled By: Client
Sample Description: 2122475-02

Sample Date - Time: 07/13/2021 - 10:12
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Bromate	EPA 317.0	ND	0.0010	mg/L	1	AEH0121	08/03/21	08/03/21	
Chlorate	EPA 300.1	ND	0.020	mg/L	4	AEH0105	08/03/21	08/03/21	DL1.0
Surrogate: Dichloroacetate	EPA 300.1	110 %	*Acceptable range:*	*90-115 %*					
Chlorite	EPA 300.1	ND	0.020	mg/L	4	AEH0105	08/03/21	08/03/21	HT1.3
Surrogate: Dichloroacetate	EPA 300.1	110 %	*Acceptable range:*	*90-115 %*					

BSK ASSOCIATES

AEG3409

General: Project Manager Eli Velazquez

2122475

Certificate of Analysis

Sample ID: AEG3409-03
Sampled By: Client
Sample Description: 2122475-03

Sample Date - Time: 07/13/2021 - 11:45
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Bromate	EPA 317.0	ND	0.0010	mg/L	1	AEH0121	08/03/21	08/03/21	
Chlorate	EPA 300.1	ND	0.020	mg/L	4	AEH0105	08/03/21	08/03/21	DL1.0
Surrogate: Dichloroacetate	EPA 300.1	109 %	*Acceptable range: 90-115 %*						
Chlorite	EPA 300.1	ND	0.020	mg/L	4	AEH0105	08/03/21	08/03/21	HT1.3
Surrogate: Dichloroacetate	EPA 300.1	109 %	*Acceptable range: 90-115 %*						

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AEG3409 FINAL 08052021 1728

BSK ASSOCIATES

AEG3409

General: Project Manager Eli Velazquez

2122475

Certificate of Analysis

Sample ID: AEG3409-04
Sampled By: Client
Sample Description: 2122475-04

Sample Date - Time: 07/13/2021 - 14:01
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Bromate	EPA 317.0	ND	0.0010	mg/L	1	AEH0121	08/03/21	08/03/21	
Chlorate	EPA 300.1	ND	0.020	mg/L	4	AEH0105	08/03/21	08/03/21	DL1.0
Surrogate: Dichloroacetate	EPA 300.1	110 %	*Acceptable range: 90-115 %*						
Chlorite	EPA 300.1	ND	0.020	mg/L	4	AEH0105	08/03/21	08/03/21	HT1.3
Surrogate: Dichloroacetate	EPA 300.1	110 %	*Acceptable range: 90-115 %*						

BSK ASSOCIATES

AEG3409

General: Project Manager Eli Velazquez

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 300.1 - Quality Control											
Batch: AEH0105 Prepared: 8/3/2021											
Prep Method: Method Specific Preparation Analyst: CTD											
Blank (AEH0105-BLK1)											
Chlorite	ND	0.0050	mg/L							08/03/21	
Chlorate	ND	0.0050	mg/L							08/03/21	
Surrogate: Dichloroacetate	*0.537*			*0.50*		*107*	*90-115*			08/03/21	
Blank Spike (AEH0105-BS1)											
Chlorite	0.19	0.0050	mg/L	0.20	ND	95	85-115			08/03/21	
Chlorate	0.20	0.0050	mg/L	0.20	ND	99	85-115			08/03/21	
Surrogate: Dichloroacetate	*0.526*			*0.50*		*105*	*90-115*			08/03/21	
Blank Spike Dup (AEH0105-BSD1)											
Chlorite	0.17	0.0050	mg/L	0.20	ND	87	85-115	8	10	08/03/21	
Chlorate	0.20	0.0050	mg/L	0.20	ND	100	85-115	0	10	08/03/21	
Surrogate: Dichloroacetate	*0.530*			*0.50*		*106*	*90-115*			08/03/21	
Matrix Spike (AEH0105-MS1), Source: AEG3019-03											
Chlorite	0.43	0.025	mg/L	0.50	ND	86	75-125			08/03/21	
Chlorate	0.50	0.025	mg/L	0.50	ND	100	75-125			08/03/21	
Surrogate: Dichloroacetate	*2.76*			*2.5*		*110*	*90-115*			08/03/21	
Matrix Spike (AEH0105-MS2), Source: AEG3524-01											
Chlorite	0.46	0.025	mg/L	0.50	ND	93	75-125			08/04/21	
Chlorate	0.50	0.025	mg/L	0.50	ND	99	75-125			08/04/21	
Surrogate: Dichloroacetate	*2.67*			*2.5*		*107*	*90-115*			08/04/21	
Matrix Spike Dup (AEH0105-MSD1), Source: AEG3019-03											
Chlorite	0.47	0.025	mg/L	0.50	ND	93	75-125	8	10	08/03/21	
Chlorate	0.49	0.025	mg/L	0.50	ND	97	75-125	2	10	08/03/21	
Surrogate: Dichloroacetate	*2.78*			*2.5*		*111*	*90-115*			08/03/21	
Matrix Spike Dup (AEH0105-MSD2), Source: AEG3524-01											
Chlorite	0.46	0.025	mg/L	0.50	ND	92	75-125	1	10	08/04/21	
Chlorate	0.49	0.025	mg/L	0.50	ND	98	75-125	1	10	08/04/21	
Surrogate: Dichloroacetate	*2.79*			*2.5*		*112*	*90-115*			08/04/21	
EPA 317.0 - Quality Control											
Batch: AEH0121 Prepared: 8/3/2021											
Prep Method: Method Specific Preparation Analyst: DXR											
Blank (AEH0121-BLK1)											
Bromate	ND	0.0010	mg/L							08/03/21	
Blank Spike (AEH0121-BS1)											
Bromate	0.011	0.0010	mg/L	0.010	ND	105	85-115			08/03/21	
Blank Spike Dup (AEH0121-BSD1)											

BSK ASSOCIATES

AEG3409

General: Project Manager Eli Velazquez

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 317.0 - Quality Control

Batch: AEH0121 Prepared: 8/3/2021
Prep Method: Method Specific Preparation Analyst: DXR

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank Spike Dup (AEH0121-BSD1)											
Bromate	0.010	0.0010	mg/L	0.010	ND	103	85-115	2	10	08/03/21	
Matrix Spike (AEH0121-MS1), Source: AEG3394-01											
Bromate	0.0086	0.0010	mg/L	0.010	ND	86	75-125			08/03/21	
Matrix Spike Dup (AEH0121-MSD1), Source: AEG3394-01											
Bromate	0.0082	0.0010	mg/L	0.010	ND	82	75-125	5	10	08/03/21	

BSK ASSOCIATES

AEG3409

General: Project Manager Eli Velazquez

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters: **NA**

BSK ASSOCIATES

AEG3409

General: Project Manager Eli Velazquez

Certificate of Analysis

Certifications: Please refer to our website for a copy of our Accredited Fields of Testing under each certification.

Fresno

State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-018
State of Nevada	CA000792022-1	State of Oregon - NELAP	4021-018
EPA - UCMR4	CA00079	State of Washington	C997-21

Sacramento

State of California - ELAP	2435

San Bernardino

State of California - ELAP	2993	Los Angeles CSD	9254478
NELAP certified	4119-005	State of Oregon - NELAP	4119-005

Vancouver

NELAP certified	WA100008-014	State of Oregon - NELAP	WA100008-014
State of Washington	C824-20		

AEG3409 BCLab4911 07/22/2021

10

BSK Associates SR-FL-0002-22

Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TTHM/TCP)? TB Received? (Check Method Below)	Yes No NA / Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes NA	Was PM notified of discrepancies? PM: Sarah By/Time: Vero	Yes No NA

Bottles Received ("—" means preservation/chlorine checks are either N/A or are performed in the lab)

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?	1-4				
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—					
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 DW	Cl, pH > 8	P F					
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—					
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	P F					
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—					
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—				VCH	
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—				7-22-21	
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—					
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F					
NH_4Cl (AG) Purple Label 552	—	—					
EDA (P) or (AG) Brown Label DBPs	—	—	1A				
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—					
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1 - **Field Blank Required**							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—					
Bottled Water	—	—					
Clear Glass 125mL / 250mL / 500mL / 1 Liter	—	—					
Solids: Brass / Steel / Plastic Bag	—	—					

Split

	Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials
S P				S P			
S P				S P			

Comments

*Preservation check completed by lab performing analysis.

EDA on all containers expired on 6-24-21. VCH 7-22-21

✓ **Indicates Blanks Received**

504 ___ 524.2 ___ TTHM ___ 537.1 ___ TCP___

✓ **MS/MSD Received Method:** ________

proceed with analysis per e-mail from Eli Velazquez 7/29/21. SKG

Scanned: JML Rush/Short HT Page: ________ Time:______

Page 11 of 12

T3

0.0#67
7/15
WI@W

SUBCONTRACT ORDER
BC Laboratories
2122475

AEG3409 BCLab4911 07/22/2021
10

SENDING LABORATORY:
BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308
Phone: 661-327-4911
FAX: 661-327-1918
Project Manager: Eli Velazquez

RECEIVING LABORATORY
BSK Analytical Labs- Fresno
1414 Stanislaus Street
Fresno, CA 93706
Phone: (800) 877-8310
FAX: (559) 485-6935

Non-potable GW

Analysis	Due	Expires	Comments
Sample ID: 2122475-01 Water **Sampled:**		**07/13/21 08:25**	
EPA 300.0 - Bromate	07/28/21 17:00	08/10/21 08:25	
EPA 300.0 - Chlorate	07/28/21 17:00	08/10/21 08:25	
EPA 300.1 - Chlorite	07/28/21 17:00	07/27/21 08:25	Chlorite - 8oz amber with EDA. The HT is 14 days. Can run unpreserved, but will flag the report.
Containers supplied:			
Sample ID: 2122475-02 Water **Sampled:**		**07/13/21 10:12**	
EPA 300.0 - Bromate	07/28/21 17:00	08/10/21 10:12	
EPA 300.0 - Chlorate	07/28/21 17:00	08/10/21 10:12	
EPA 300.1 - Chlorite	07/28/21 17:00	07/27/21 10:12	Chlorite - 8oz amber with EDA. The HT is 14 days. Can run unpreserved, but will flag the report.
Containers supplied:			
Sample ID: 2122475-03 Water **Sampled:**		**07/13/21 11:45**	
EPA 300.0 - Bromate	07/28/21 17:00	08/10/21 11:45	
EPA 300.0 - Chlorate	07/28/21 17:00	08/10/21 11:45	
EPA 300.1 - Chlorite	07/28/21 17:00	07/27/21 11:45	Chlorite - 8oz amber with EDA. The HT is 14 days. Can run unpreserved, but will flag the report.
Containers supplied:			
Sample ID: 2122475-04 Water **Sampled:**		**07/13/21 14:01**	
EPA 300.0 - Bromate	07/28/21 17:00	08/10/21 14:01	
EPA 300.0 - Chlorate	07/28/21 17:00	08/10/21 14:01	
EPA 300.1 - Chlorite	07/28/21 17:00	07/27/21 14:01	Chlorite - 8oz amber with EDA. The HT is 14 days. Can run unpreserved, but will flag the report.
Containers supplied:			

Released By	Date	Received By	Date
Amarquez	7-21-21		
		Veronica	7-22-21 11:55

BSKSA

CERES Analytical Laboratory, Inc.
4919 Windplay Dr Suite 1, El Dorado Hills, CA 95762

NELAP ACCREDITED TNI LABORATORY

July 28, 2021

Ceres ID: 14412

BC Laboratories, Inc.
4100 Atlas Court
Bakersfield, CA 93308

The following report contains the results for the four aqueous sample received on July 22, 2021. These samples were analyzed for 2,3,7,8-TCDD by EPA method 1613B. Routine turn-around time was provided for this work.

This work was authorized under the BC Laboratories Subcontract Order: 2122475.

Continuing Calibration Verification (CCV) Requirements
All associated calibration verification standard(s) (CCV) met the acceptance criteria.

The report consists of a Cover Letter, Sample Inventory (Section I), Data Summary (Section II), Sample Tracking (Section VI), and Qualifiers/Abbreviations (Section VII). Raw Data (Section III), Continuing Calibration (Section IV), and Initial Calibration (Section V) are available in a full report (.pdf format) upon request.

If you have any questions regarding this report, please feel free to contact me at (916)932-5011.

Sincerely,

James M. Hedin
Director of Operations/CEO
jhedin@ceres-lab.com

Section I: Sample Inventory

Ceres Sample ID:	Sample ID	Date Received	Collection Date &Time
14488-001	2122475-01	7/22/2021	7/13/2021 8:25
14488-002	2122475-02	7/22/2021	7/13/2021 10:12
14488-003	2122475-03	7/22/2021	7/13/2021 11:45
14488-004	2122475-04	7/22/2021	7/13/2021 14:01

Section II: Data Summary

CERES Analytical Laboratory, Inc.
4919 Windplay Dr Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample Method Blank Project ID: 2122475	QC Batch #: 2433 Matrix: Aqueous Sample Size: 1.000 L	Date Received: NA Date Extracted: 7/25/2021 ZB-5MS Analysis: 7/27/2021

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 2.47	0.772	5.00		13C-2378-TCDD	90.1	31-137	
					CRS			
					37Cl4-2378-TCDD	101	35-197	

DL - Signifies Non-Detect (ND<) sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH
Reviewed by: BS

CERES Analytical Laboratory, Inc.
4919 Windplay Dr Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Quality Assurance Sample Ongoing Precision and Recovery Project ID: 2122475	QC Batch #: 2433 Matrix: Aqueous Sample Size: 1.000 L	Date Received: NA Date Extracted: 7/25/2021 ZB-5MS Analysis: 7/27/2021

Analyte	Conc. (ng/mL)	Limits (a)	Labeled Standards	% Rec.	Limits (a)
2,3,7,8-TCDD	11.9	7.3-14.6	13C-2378-TCDD	78.8	25-141
			CRS		
			37Cl4-2378-TCDD	89.5	37-158

(a) Limits based on method acceptance criteria.

Analyst: JMH Reviewed by: BS

CERES Analytical Laboratory, Inc.
4919 Windplay Dr Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: 2122475-01		
Project ID: 2122475	Ceres Sample ID: 14488-001	Date Received: 7/22/2021
	QC Batch #: 2433	Date Extracted: 7/25/2021
Date Collected: 7/13/2021	Matrix: Aqueous	ZB-5MS Analysis: 7/27/2021
Time Collected: 8:25	Sample Size: 0.941 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 2.17	0.772	5.31		13C-2378-TCDD	78.3	31-137	
					CRS			
					37Cl4-2378-TCDD	98.8	42-164	

DL - Signifies Non-Detect (ND<) sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH Reviewed by: BS

CERES Analytical Laboratory, Inc.
4919 Windplay Dr Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: 2122475-02		
Project ID: 2122475	Ceres Sample ID: 14488-002	Date Received: 7/22/2021
	QC Batch #: 2433	Date Extracted: 7/25/2021
Date Collected: 7/13/2021	Matrix: Aqueous	ZB-5MS Analysis: 7/27/2021
Time Collected: 10:12	Sample Size: 0.938 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 2.29	0.772	5.33		13C-2378-TCDD	69.9	31-137	
					CRS			
					37Cl4-2378-TCDD	82.2	42-164	

DL - Signifies Non-Detect (ND<) sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH Reviewed by: BS

CERES Analytical Laboratory, Inc.
4919 Windplay Dr Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: 2122475-03		
Project ID: 2122475	Ceres Sample ID: 14488-003	Date Received: 7/22/2021
	QC Batch #: 2433	Date Extracted: 7/25/2021
Date Collected: 7/13/2021	Matrix: Aqueous	ZB-5MS Analysis: 7/28/2021
Time Collected: 11:45	Sample Size: 0.952 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 3.36	0.772	5.25		13C-2378-TCDD	69.0	31-137	
					CRS			
					37Cl4-2378-TCDD	85.4	42-164	

DL - Signifies Non-Detect (ND<) sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH Reviewed by: BS

CERES Analytical Laboratory, Inc.
4919 Windplay Dr Suite 1, El Dorado Hills, CA 95762

EPA Method 1613B

Client Sample ID: 2122475-04		
Project ID: 2122475	Ceres Sample ID: 14488-004	Date Received: 7/22/2021
	QC Batch #: 2433	Date Extracted: 7/25/2021
Date Collected: 7/13/2021	Matrix: Aqueous	ZB-5MS Analysis: 7/27/2021
Time Collected: 14:01	Sample Size: 0.959 L	

Analyte	Conc. (pg/L)	MDL	RL	Qual.	Labeled Standards	% R	LCL-UCL (a)	Qualifiers
2,3,7,8-TCDD	DL= 1.56	0.772	5.21		13C-2378-TCDD	72.1	31-137	
					CRS			
					37Cl4-2378-TCDD	87.6	42-164	

DL - Signifies Non-Detect (ND<) sample specific detection limit.
EMPC - Estimated Maximum Possible Concentration due to ion abundance ratio failure.
(a) - Lower control limit - Upper control limit

Analyst: JMH

Reviewed by: BS

Section VI: Sample Tracking

SUBCONTRACT ORDER
BC Laboratories
2122475

SENDING LABORATORY:
BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308
Phone: 661-327-4911
FAX: 661-327-1918
Project Manager: Eli Velazquez

RECEIVING LABORATORY: CRSNL
Ceres Analytical Laboratory, Inc.
4919 Windplay Dr., Ste. 1
El Dorado Hills, CA 95762
Phone: (916) 932-5011
FAX: ---

Analysis		Due	Expires	Comments
Sample ID: 2122475-01	**Water**	**Sampled:**	**07/13/21 08:25**	
EPA 1613B - 2,3,7,8-TCDD		07/28/21 17:00	07/12/22 08:25	Qt Amber
Containers supplied:				
Sample ID: 2122475-02	**Water**	**Sampled:**	**07/13/21 10:12**	
EPA 1613B - 2,3,7,8-TCDD		07/28/21 17:00	07/12/22 10:12	Qt Amber
Containers supplied:				
Sample ID: 2122475-03	**Water**	**Sampled:**	**07/13/21 11:45**	
EPA 1613B - 2,3,7,8-TCDD		07/28/21 17:00	07/12/22 11:45	Qt Amber
Containers supplied:				
Sample ID: 2122475-04	**Water**	**Sampled:**	**07/13/21 14:01**	
EPA 1613B - 2,3,7,8-TCDD		07/28/21 17:00	07/12/22 14:01	Qt Amber
Containers supplied:				

non-potable
GW.

Released By	Date	Received By	Date
Amezquez	7-21-21	[signature]	7/22/21 10:30
Released By	Date	Received By	Date

CRSNL

Page 1 of 1
Page 11 of 13

Sample Receipt Check List Logged by: J (initials)

Ceres ID: 14488	Date/Time: 7/22/21 10:30
Client Project ID: 2122475	Received Temp: 3.6 °C Acceptable: Y / N
Chain of Custody Relinquished by signed?	Y / N
Chain of Custody Received by signed?	Y / N
Custody Seals? Present? Intact? NA:	Y / N Y / N NA
Unlabeled / Illegible Samples	Y / N
Proper Containers:	Y / N
Preservation Acceptable (Chemical or Temperature)? Drinking Water, Sodium Thiosulfate present? Residual Cl? Aqueous sample pH: 7,7,7,7	Y / N Y / N / NA Y / N
List COC discrepancies: J 7/22/21	
List Damaged Samples: J 7/22/21	

Rev 9 Form A5.0 Effective Date: 3/19/18

Section VII: Qualifiers/Abbreviations

J	Concentration found below the lower quantitation limit but greater than zero.
B	Analyte present in the associated Method Blank.
E	Concentration found exceeds the Calibration range of the HRGC/HRMS.
D	This analyte concentration was calculated from a dilution.
X	The concentration found is the estimated maximum possible concentration due to chlorinated diphenyl ethers present in the sample.
H	Recovery limits exceeded. See cover letter.
*****	Results taken from dilution.
I	Interference. See cover letter.
Conc.	Concentration Found
DL	Calculated Detection Limit
ND	Non-Detect
% Rec.	Percent Recovery

LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322113274
Customer ID: BCLA50
Customer PO:
Project ID:

Attn: Eli Velazquez
BC Laboratories, Inc.
4100 Atlas Court
Bakersfield, CA 93308

Phone: (661) 327-4911
Fax: (661) 327-1918
Received: 07/22/2021
Analyzed: 08/02/2021

Proj: 2122475

Test Report: Determination of Asbestos Structures ≥ 0.5 µm & > 10µm in Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm²)	Area Analyzed (mm²)		ASBESTOS Asbestos Types	Fibers Detected	Analytical Sensitivity (MFL)	Concentration (MFL)	Confidence Limits (MFL)
2122475-01 322113274-0001	7/23/2021 01:15 PM	5	1288	0.2620	≥ 0.5 µm	None Detected	ND	0.98	<0.98	0.00 - 3.60
					> 10 µm only	None Detected	ND	0.98	<0.98	0.00 - 3.60

Collection Date/Time: 07/13/2021 08:25 AM

Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm²)	Area Analyzed (mm²)		ASBESTOS Asbestos Types	Fibers Detected	Analytical Sensitivity (MFL)	Concentration (MFL)	Confidence Limits (MFL)
2122475-02 322113274-0002	7/23/2021 01:15 PM	30	1288	0.2227	≥ 0.5 µm	Chrysotile	7	0.19	1.30	0.54 - 2.80
					> 10 µm only	None Detected	ND	0.19	<0.19	0.00 - 0.71

MFL (million fibers per liter)

Collection Date/Time: 07/13/2021 10:12 AM

Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.

Analyst(s)
Kyeong Corbin (4)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 08/04/2021 07:28:54

LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322113274
Customer ID: BCLA50
Customer PO:
Project ID:

Attn: Eli Velazquez
BC Laboratories, Inc.
4100 Atlas Court
Bakersfield, CA 93308

Phone: (661) 327-4911
Fax: (661) 327-1918
Received: 07/22/2021
Analyzed: 08/02/2021

Proj: 2122475

Test Report: Determination of Asbestos Structures ≥ 0.5 µm & > 10µm in Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm^2)	Area Analyzed (mm^2)		ASBESTOS Asbestos Types	Fibers Detected	Analytical Sensitivity (MFL (million fibers per liter))	Concentration (MFL)	Confidence Limits (MFL)
2122475-03 322113274-0003	7/23/2021 01:15 PM	1	1288	0.2620	≥ 0.5 µm	None Detected	ND	4.90	<4.90	0.00 - 18.00
					> 10 µm only	None Detected	ND	4.90	<4.90	0.00 - 18.00

Collection Date/Time: *07/13/2021 11:45 AM*

Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm^2)	Area Analyzed (mm^2)		ASBESTOS Asbestos Types	Fibers Detected	Analytical Sensitivity (MFL (million fibers per liter))	Concentration (MFL)	Confidence Limits (MFL)
2122475-04 322113274-0004	7/23/2021 01:15 PM	1	1288	0.2620	≥ 0.5 µm	None Detected	ND	4.90	<4.90	0.00 - 18.00
					> 10 µm only	None Detected	ND	4.90	<4.90	0.00 - 18.00

Collection Date/Time: *07/13/2021 14:01 PM*

Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.

Analyst(s)
Kyeong Corbin (4)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 08/04/2021 07:28:54

Test Report: TEM100.2-2.2.0.2 Printed: 8/04/2021 07:28AM

Pace Analytical
www.pacelabs.com

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

August 17, 2021

Eli Velazquez
BC Laboratories
4100 Atlas Ct.
Bakersfield, CA 93308

RE: Project: 2122475
Pace Project No.: 30432617

Dear Eli Velazquez:

Enclosed are the analytical results for sample(s) received by the laboratory on July 26, 2021. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:
- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carin A. Ferris

Carin Ferris
carin.ferris@pacelabs.com
724-850-5615
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

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www.pacelabs.com

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Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: 2122475
Pace Project No.: 30432617

Pace Analytical Services Pennsylvania
1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601
ANAB DOD-ELAP Rad Accreditation #: L2417
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California Certification #: 04222CA
Colorado Certification #: PA01547
Connecticut Certification #: PH-0694
Delaware Certification
EPA Region 4 DW Rad
Florida/TNI Certification #: E87683
Georgia Certification #: C040
Florida: Cert E871149 SEKS WET
Guam Certification
Hawaii Certification
Idaho Certification
Illinois Certification
Indiana Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: KY90133
KY WW Permit #: KY0098221
KY WW Permit #: KY0000221
Louisiana DHH/TNI Certification #: LA180012
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: 2017020
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification #: 9991
Missouri Certification #: 235
Montana Certification #: Cert0082
Nebraska Certification #: NE-OS-29-14
Nevada Certification #: PA014572018-1
New Hampshire/TNI Certification #: 297617
New Jersey/TNI Certification #: PA051
New Mexico Certification #: PA01457
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Ohio EPA Rad Approval: #41249
Oregon/TNI Certification #: PA200002-010
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
Rhode Island Certification #: 65-00282
South Dakota Certification
Tennessee Certification #: 02867
Texas/TNI Certification #: T104704188-17-3
Utah/TNI Certification #: PA014572017-9
USDA Soil Permit #: P330-17-00091
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 9526
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin Approve List for Rad
Wyoming Certification #: 8TMS-L

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Greensburg, PA 15601
(724)850-5600

SAMPLE SUMMARY

Project: 2122475
Pace Project No.: 30432617

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30432617001	2122475-01	Water	07/13/21 08:25	07/26/21 10:20
30432617002	2122475-02	Water	07/13/21 10:12	07/26/21 10:20
30432617003	2122475-03	Water	07/13/21 11:45	07/26/21 10:20
30432617004	2122475-04	Water	07/13/21 14:01	07/26/21 10:20

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Greensburg, PA 15601
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SAMPLE ANALYTE COUNT

Project: 2122475
Pace Project No.: 30432617

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30432617001	2122475-01	EPA 900.0	CLA	2	PASI-PA
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	JC2	1	PASI-PA
		ASTM D5811-95	JJY	1	PASI-PA
		EPA 906.0	CLA	1	PASI-PA
30432617002	2122475-02	EPA 900.0	CLA	2	PASI-PA
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	JC2	1	PASI-PA
		ASTM D5811-95	JJY	1	PASI-PA
		EPA 906.0	CLA	1	PASI-PA
30432617003	2122475-03	EPA 900.0	CLA	2	PASI-PA
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	JC2	1	PASI-PA
		ASTM D5811-95	JJY	1	PASI-PA
		EPA 906.0	CLA	1	PASI-PA
30432617004	2122475-04	EPA 900.0	CLA	2	PASI-PA
		EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	JC2	1	PASI-PA
		ASTM D5811-95	JJY	1	PASI-PA
		EPA 906.0	CLA	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

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PROJECT NARRATIVE

Project: 2122475
Pace Project No.: 30432617

Method: EPA 900.0
Description: 900.0 Gross Alpha/Beta
Client: BC Laboratories
Date: August 17, 2021

General Information:
4 samples were analyzed for EPA 900.0 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 2122475
Pace Project No.: 30432617

Method: EPA 903.1
Description: 903.1 Radium 226
Client: BC Laboratories
Date: August 17, 2021

General Information:
4 samples were analyzed for EPA 903.1 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 2122475
Pace Project No.: 30432617

Method: EPA 904.0
Description: 904.0 Radium 228
Client: BC Laboratories
Date: August 17, 2021

General Information:
4 samples were analyzed for EPA 904.0 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

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PROJECT NARRATIVE

Project: 2122475
Pace Project No.: 30432617

Method: ASTM D5811-95
Description: ASTM D5811 Sr 89/90 Eichrom
Client: BC Laboratories
Date: August 17, 2021

General Information:
4 samples were analyzed for ASTM D5811-95 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 458541

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- 2122475-01 (Lab ID: 30432617001)
  - Strontium-90
- 2122475-02 (Lab ID: 30432617002)
  - Strontium-90
- 2122475-03 (Lab ID: 30432617003)
  - Strontium-90
- 2122475-04 (Lab ID: 30432617004)
  - Strontium-90
- BLANK (Lab ID: 2213851)
  - Strontium-90

REPORT OF LABORATORY ANALYSIS

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(724)850-5600

PROJECT NARRATIVE

Project: 2122475
Pace Project No.: 30432617

Method: EPA 906.0
Description: 906.0 Tritium
Client: BC Laboratories
Date: August 17, 2021

General Information:
4 samples were analyzed for EPA 906.0 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:
The samples were analyzed within the method required hold times with any exceptions noted below.

Method Blank:
All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:
All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:
All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

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Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2122475
Pace Project No.: 30432617

Sample: 2122475-01 Lab ID: 30432617001 Collected: 07/13/21 08:25 Received: 07/26/21 10:20 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Gross Alpha	EPA 900.0	-9.33 ± 5.61 (12.3) C:NA T:NA	pCi/L	08/11/21 17:28	12587-46-1	
Gross Beta	EPA 900.0	-0.924 ± 5.07 (9.84) C:NA T:NA	pCi/L	08/11/21 17:28	12587-47-2	
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	0.0584 ± 0.303 (0.629) C:NA T:103%	pCi/L	08/09/21 17:12	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.450 ± 0.378 (0.758) C:69% T:94%	pCi/L	08/06/21 14:44	15262-20-1	
	Pace Analytical Services - Greensburg					
Strontium-90	ASTM D5811-95	-0.580 ± 1.03 (2.01) C:95% T:NA	pCi/L	08/04/21 17:31	10098-97-2	N2
	Pace Analytical Services - Greensburg					
Tritium	EPA 906.0	-113 ± 147 (267) C:NA T:NA	pCi/L	08/07/21 15:50	10028-17-8	

Sample: 2122475-02 Lab ID: 30432617002 Collected: 07/13/21 10:12 Received: 07/26/21 10:20 Matrix: Water
PWS: Site ID: Sample Type:

Comments: • Upon receipt at the laboratory, 5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Gross Alpha	EPA 900.0	2.26 ± 2.05 (3.54) C:NA T:NA	pCi/L	08/11/21 17:29	12587-46-1	
Gross Beta	EPA 900.0	-0.395 ± 1.73 (3.30) C:NA T:NA	pCi/L	08/11/21 17:29	12587-47-2	
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.114 ± 0.318 (0.750) C:NA T:99%	pCi/L	08/09/21 17:12	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.769 ± 0.418 (0.753) C:69% T:92%	pCi/L	08/06/21 14:44	15262-20-1	
	Pace Analytical Services - Greensburg					
Strontium-90	ASTM D5811-95	-0.690 ± 1.36 (2.62) C:81% T:NA	pCi/L	08/04/21 17:32	10098-97-2	N2
	Pace Analytical Services - Greensburg					
Tritium	EPA 906.0	-144 ± 145 (265) C:NA T:NA	pCi/L	08/07/21 16:52	10028-17-8	

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Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 2122475
Pace Project No.: 30432617

Sample: 2122475-03 Lab ID: 30432617003 Collected: 07/13/21 11:45 Received: 07/26/21 10:20 Matrix: Water
PWS: Site ID: Sample Type:
Comments: • Upon receipt at the laboratory, 5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Gross Alpha	EPA 900.0	-2.10 ± 1.66 (3.72) C:NA T:NA	pCi/L	08/11/21 17:29	12587-46-1	
Gross Beta	EPA 900.0	0.581 ± 1.21 (2.29) C:NA T:NA	pCi/L	08/11/21 17:29	12587-47-2	
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	-0.0536 ± 0.245 (0.498) C:NA T:100%	pCi/L	08/09/21 17:12	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.352 ± 0.328 (0.668) C:78% T:91%	pCi/L	08/06/21 14:44	15262-20-1	
	Pace Analytical Services - Greensburg					
Strontium-90	ASTM D5811-95	-0.740 ± 1.35 (2.62) C:71% T:NA	pCi/L	08/04/21 17:32	10098-97-2	N2
	Pace Analytical Services - Greensburg					
Tritium	EPA 906.0	-112 ± 146 (264) C:NA T:NA	pCi/L	08/07/21 17:53	10028-17-8	

Sample: 2122475-04 Lab ID: 30432617004 Collected: 07/13/21 14:01 Received: 07/26/21 10:20 Matrix: Water
PWS: Site ID: Sample Type:
Comments: • Upon receipt at the laboratory, 5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Gross Alpha	EPA 900.0	0.634 ± 1.24 (2.33) C:NA T:NA	pCi/L	08/11/21 17:40	12587-46-1	
Gross Beta	EPA 900.0	0.189 ± 1.14 (2.15) C:NA T:NA	pCi/L	08/11/21 17:40	12587-47-2	
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	0.177 ± 0.348 (0.636) C:NA T:96%	pCi/L	08/09/21 17:12	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	0.485 ± 0.425 (0.869) C:78% T:90%	pCi/L	08/06/21 14:50	15262-20-1	
	Pace Analytical Services - Greensburg					
Strontium-90	ASTM D5811-95	-0.0500 ± 1.75 (3.32) C:55% T:NA	pCi/L	08/04/21 17:33	10098-97-2	N2
	Pace Analytical Services - Greensburg					
Tritium	EPA 906.0	-94.6 ± 130 (238) C:NA T:NA	pCi/L	08/13/21 18:59	10028-17-8	

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 2122475
Pace Project No.: 30432617

QC Batch: 459261 Analysis Method: EPA 900.0
QC Batch Method: EPA 900.0 Analysis Description: 900.0 Gross Alpha/Beta
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30432617001, 30432617002, 30432617003, 30432617004

METHOD BLANK: 2217302 Matrix: Water
Associated Lab Samples: 30432617001, 30432617002, 30432617003, 30432617004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Gross Alpha	0.085 ± 1.10 (2.89) C:NA T:NA	pCi/L	08/11/21 09:14	
Gross Beta	-0.320 ± 1.32 (3.34) C:NA T:NA	pCi/L	08/11/21 09:14	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical
www.pacelabs.com

Pace Analytical Services, LLC
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 2122475
Pace Project No.: 30432617

QC Batch: 458541 Analysis Method: ASTM D5811-95
QC Batch Method: ASTM D5811-95 Analysis Description: ASTM D5811 Sr 89/90 Eichrom
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30432617001, 30432617002, 30432617003, 30432617004

METHOD BLANK: 2213851 Matrix: Water
Associated Lab Samples: 30432617001, 30432617002, 30432617003, 30432617004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Strontium-90	0.0240 ± 0.421 (0.944) C:75% T:NA	pCi/L	08/04/21 17:30	N2

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 2122475
Pace Project No.: 30432617

QC Batch: 457860
QC Batch Method: EPA 903.1
Analysis Method: EPA 903.1
Analysis Description: 903.1 Radium-226
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30432617001, 30432617002, 30432617003, 30432617004

METHOD BLANK: 2210358 Matrix: Water
Associated Lab Samples: 30432617001, 30432617002, 30432617003, 30432617004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0474 ± 0.308 (0.621) C:NA T:91%	pCi/L	08/09/21 16:44	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 2122475
Pace Project No.: 30432617

QC Batch: 459179 Analysis Method: EPA 906.0
QC Batch Method: EPA 906.0 Analysis Description: 906.0 Tritium
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30432617001, 30432617002, 30432617003

METHOD BLANK: 2216860 Matrix: Water
Associated Lab Samples: 30432617001, 30432617002, 30432617003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Tritium	-194 ± 143 (265) C:NA T:NA	pCi/L	08/06/21 21:19	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 2122475
Pace Project No.: 30432617

QC Batch: 457861 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30432617001, 30432617002, 30432617003, 30432617004

METHOD BLANK: 2210361 Matrix: Water
Associated Lab Samples: 30432617001, 30432617002, 30432617003, 30432617004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.261 ± 0.316 (0.667) C:78% T:91%	pCi/L	08/06/21 11:24	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 2122475
Pace Project No.: 30432617

QC Batch: 460029 Analysis Method: EPA 906.0
QC Batch Method: EPA 906.0 Analysis Description: 906.0 Tritium
Laboratory: Pace Analytical Services - Greensburg
Associated Lab Samples: 30432617004

METHOD BLANK: 2220937 Matrix: Water
Associated Lab Samples: 30432617004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Tritium	-44.6 ± 132 (237) C:NA T:NA	pCi/L	08/13/21 17:58	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: 2122475
Pace Project No.: 30432617

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

SUBCONTRACT ORDER
BC Laboratories
2122475

PACEA

SENDING LABORATORY:
BC Laboratories
4100 Atlas Court
Bakersfield, CA 93308
Phone: 661-327-4911
FAX: 661-327-1918
Project Manager: Eli Velazquez

RECEIVING LABORATORY:
PACE Analytical - PA
1638 Roseytown Road, Ste 2,3 &4
Greensburg, PA 15601
Phone: (724) 850-5600
FAX: (724) 850-5601

Analysis	Due	Expires	Comments
Sample ID: 2122475-01 Water	**Sampled: 07/13/21 08:25**		001
EPA 900.0 Gross Alpha/Beta	07/28/21 17:00	01/10/22 08:25	Qt Metals (1)
EPA 903.0 Radium 226	07/28/21 17:00	01/10/22 08:25	Qt Metals (1)
EPA 904.0 Radium 228	07/28/21 17:00	01/10/22 08:25	Qt Metals (1)
EPA 905.0 Strontium-90	07/28/21 17:00	01/10/22 08:25	Qt PE unpres. (1)
EPA 906.0 Tritium	07/28/21 17:00	01/10/22 08:25	Pt amber unpres. (1)
Containers supplied:			
Sample ID: 2122475-02 Water	**Sampled: 07/13/21 10:12**		002
EPA 900.0 Gross Alpha/Beta	07/28/21 17:00	01/10/22 10:12	Qt Metals (1)
EPA 903.0 Radium 226	07/28/21 17:00	01/10/22 10:12	Qt Metals (1)
EPA 904.0 Radium 228	07/28/21 17:00	01/10/22 10:12	Qt Metals (1)
EPA 905.0 Strontium-90	07/28/21 17:00	01/10/22 10:12	Qt PE unpres. (1)
EPA 906.0 Tritium	07/28/21 17:00	01/10/22 10:12	Pt amber unpres. (1)
Containers supplied:			
Sample ID: 2122475-03 Water	**Sampled: 07/13/21 11:45**		003
EPA 900.0 Gross Alpha/Beta	07/28/21 17:00	01/10/22 11:45	Qt Metals (1)
EPA 903.0 Radium 226	07/28/21 17:00	01/10/22 11:45	Qt Metals (1)
EPA 904.0 Radium 228	07/28/21 17:00	01/10/22 11:45	Qt Metals (1)
EPA 905.0 Strontium-90	07/28/21 17:00	01/10/22 11:45	Qt PE unpres. (1)
EPA 906.0 Tritium	07/28/21 17:00	01/10/22 11:45	Pt amber unpres. (1)
Containers supplied:			

WO#: 30432617
30432617

non-potable GW.

Released By	Date	Received By	Date
[signature]	7-20-21	[signature]	7-26-21 1020

Page 19 of 22
Page 1 of 2

PACEA

SUBCONTRACT ORDER
BC Laboratories
2122475

Analysis	Due	Expires	Comments
			003
Sample ID: 2122475-04 **Water**	**Sampled:**	**07/13/21 14:01**	
EPA 900.0 Gross Alpha/Beta	07/28/21 17:00	01/10/22 14:01	Qt Metals (1)
EPA 903.0 Radium 226	07/28/21 17:00	01/10/22 14:01	Qt Metals (1)
EPA 904.0 Radium 228	07/28/21 17:00	01/10/22 14:01	Qt Metals (1)
EPA 905.0 Strontium-90	07/28/21 17:00	01/10/22 14:01	Qt PE unpres. (1)
EPA 906.0 Tritium	07/28/21 17:00	01/10/22 14:01	Pt amber unpres. (1)

Containers supplied:

WO#: 30432617
PM: CAF Due Date: 08/16/21
CLIENT: BCLABS

Released By	Date	Received By	Date
[signature]	7-20-21	[signature]	7-26-21 1020

Released By Date Received By Date

Page 20 of 22

Page 2 of 2

PACEA

Pace Analytical®

Pace Greensburg Lab -Sample Container Count

Client Bc labs

Site 2122475

Profile Number 14149

Notes

Sample Line Item	Matrix	AG1H	AG1S	AG1T	AG2U	AG3S	AG3U	AG5U	AG5T	BG1U	BG2U	BP1N	BP1U	BP2S	BP2U	BP3C	BP3N	BP3S	BP3U	DG9S	GCUB	VG9H	VG9T	VG9U	VOAK	WGFU	WGKU	ZPLC	
1	WT				1							1																	
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

WO#: 30432617
PM: CAF Due Date: 08/16/21
CLIENT: BCLABS

Container Codes

Glass

GJN	1 Gallon Jug with HNO3	DG9S	40mL amber VOA vial H2SO4
AG5U	100mL amber glass unprserved	VG9U	40mL clear VOA vial
AG5T	100mL amber glass Na Thiosulfate	VG9T	40mL clear VOA vial Na Thiosul
GJN	1 Gallon Jug	VG9H	40mL clear VOA vial HCl
AG1S	1L amber glass H2SO4	JGFU	4oz amber wide jar
AG1H	1L amber glass HCl	WGFU	4oz wide jar unpreserved
AG1T	1L amber glass Na Thiosulfate	BG2U	500mL clear glass unpreserved
BG1U	1L clear glass unpreserved	AG2U	500mL amber glass unpreserved
AG3S	250mL amber glass H2SO4	WGKU	8oz wide jar unpreserved
AG3U	250mL amber glass unpreserved		

Plastic / Misc.

GCUB	1 Gallon Cubitainer
12GN	1/2 Gallon Cubitainer
SP5T	120mL Coliform Na Thiosulfate
BP1N	1L plastic HNO3
BP1U	1L plastic unpreserved
BP3S	250mL plastic H2SO4
BP3N	250mL plastic HNO3
BP3U	250mL plastic unpreserved
BP3C	250ml plastic NAOH
BP2S	500mL plastic H2SO4
BP2U	500mL plastic unpreserved

EZI	5g Encore
VOAK	Kit for Volatile Solid
I	Wipe/Swab
ZPLC	Ziploc Bag

WT	Water
SL	Solid
OL	Non-aqueous liquid
WP	Wipe

Page 21 of 22

ENV-FRM-GBUR-0072.00 29Dec2020

Pittsburgh Lab Sample Condition Upon Receipt

Pace Analytical

Client Name: BC Labs Project #

WO#: 30432617
PM: CRF
CLIENT: BCLABS
Due Date: 08/16/21

Label rpm
LIMS Login VPINC

Courier: ☐ Fed Ex ☑ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other

Tracking #: 1Z 965 371 03 4157 4424

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☑ no

Thermometer Used — Type of Ice: Wet Blue None

Cooler Temperature Observed Temp — °C Correction Factor: — °C Final Temp: — °C

Temp should be above freezing to 6°C

pH paper Lot# 1003801

Date and Initials of person examining contents: rpm 7-26-21

Comments:	Yes	No	N/A	
Chain of Custody Present:	✓			1.
Chain of Custody Filled Out:	✓			2.
Chain of Custody Relinquished:	✓	7-26-21		3.
Sampler Name & Signature on COC:	rpm	✓		4.
Sample Labels match COC:	✓			5.
-Includes date/time/ID Matrix:				
Samples Arrived within Hold Time:	✓			6.
Short Hold Time Analysis (<72hr remaining):		✓		7.
Rush Turn Around Time Requested:		✓		8.
Sufficient Volume:	✓			9.
Correct Containers Used:	✓			10.
-Pace Containers Used:		✓		
Containers Intact:	✓			11.
Orthophosphate field filtered			✓	12.
Hex Cr Aqueous sample field filtered			✓	13.
Organic Samples checked for dechlorination:			✓	14.
Filtered volume received for Dissolved tests			✓	15.
All containers have been checked for preservation. exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix	✓			16. Added 5.0 ml HNO3 to 2122475-01-02-03-04
All containers meet method preservation requirements.		✓		Initial when completed rpm; Date/time of preservation 7-26-21 1600; Lot # of added preservative DL21-0693
Headspace in VOA Vials (>6mm):			✓	17.
Trip Blank Present:			✓	18.
Trip Blank Custody Seals Present			✓	
Rad Samples Screened < 0.5 mrem/hr	✓			Initial when completed: rpm; Date: 7-26-21; Survey Meter SN: 1563

Client Notification/ Resolution:

Person Contacted: Date/Time: Contacted By:

Comments/ Resolution:

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)
*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

Page 22 of 22

J:\QAQC\17_Master\Document Management\Sample Mgt\Mastercontrol\ENV-FRM-GBUR-0086 00 Sample Condition Upon Receipt-Pittsburgh

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Work Orders:	1G21057	**Report Date:**	8/09/2021
		Received Date:	7/21/2021
Project:	2122475	**Turnaround Time:**	Normal
		Phones:	(661) 327-4911
		Fax:	(661) 327-1918
Attn:	BC Laboratories	**P.O. #:**	
Client:	BC Laboratories 4100 Atlas Court Bakersfield, CA 93308	**Billing Code:**	

Dear BC Laboratories,

Enclosed are the results of analyses for samples received 7/21/21 with the Chain-of-Custody document. The samples were received in good condition, at 2.4 °C and on ice. All analyses met the method criteria except as noted in the case narrative or in the report with data qualifiers.

Sample Results

Sample: 2122475-01 Sampled: 07/13/21 8:25 by Client
1G21057-01 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 521		**Instr:** GCMS09				
Batch ID: W1G1139 **Preparation:** EPA 521/SPE		**Prepared:** 07/22/21 08:35				**Analyst:** mld
N-Nitrosodiethylamine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosodimethylamine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosodi-n-butylamine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosodi-n-propylamine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosomethylethylamine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosomorpholine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosopiperidine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosopyrrolidine	ND	2.0	ng/l	1	07/24/21	
Surrogate(s)						
NDMA-d6	*81%*	*70-130*	*Conc: 20.1*		*07/24/21*	
Method: EPA 522		**Instr:** GCMS20				
Batch ID: W1H0022 **Preparation:** EPA 522/SPE		**Prepared:** 08/02/21 09:56				**Analyst:** mld
1,4-Dioxane	ND	0.070	ug/l	1	08/03/21	
Surrogate(s)						
1,4-Dioxane-d8	*82%*	*70-130*	*Conc: 8.21*		*08/03/21*	
Method: EPA 8015B		**Instr:** GC09				
Batch ID: W1G0869 **Preparation:** _NONE (SVOC)		**Prepared:** 07/21/21 17:00				**Analyst:** ecs
Ethylene glycol	ND	100	mg/l	10	07/21/21	M-05, O-09

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www.wecklabs.com

WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Sample Results

(Continued)

Sample: 2122475-02 Sampled: 07/13/21 10:12 by Client
1G21057-02 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 521		**Instr:** GCMS09				
Batch ID: W1G1139 — **Preparation:** EPA 521/SPE		**Prepared:** 07/22/21 08:35				**Analyst:** mld
N-Nitrosodiethylamine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosodimethylamine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosodi-n-butylamine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosodi-n-propylamine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosomethylethylamine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosomorpholine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosopiperidine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosopyrrolidine	ND	2.0	ng/l	1	07/24/21	
Surrogate(s)						
NDMA-d6	*92%*	*70-130*	*Conc: 22.9*		*07/24/21*	
Method: EPA 522		**Instr:** GCMS20				
Batch ID: W1H0022 — **Preparation:** EPA 522/SPE		**Prepared:** 08/02/21 09:56				**Analyst:** mld
1,4-Dioxane	ND	0.070	ug/l	1	08/03/21	
Surrogate(s)						
1,4-Dioxane-d8	*82%*	*70-130*	*Conc: 8.23*		*08/03/21*	
Method: EPA 8015B		**Instr:** GC09				
Batch ID: W1G0869 — **Preparation:** _NONE (SVOC)		**Prepared:** 07/21/21 17:00				**Analyst:** ecs
Ethylene glycol	ND	10		1	07/21/21	O-09

Sample: 2122475-03 Sampled: 07/13/21 11:45 by Client
1G21057-03 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 521		**Instr:** GCMS09				
Batch ID: W1G1139 — **Preparation:** EPA 521/SPE		**Prepared:** 07/22/21 08:35				**Analyst:** mld
N-Nitrosodiethylamine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosodimethylamine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosodi-n-butylamine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosodi-n-propylamine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosomethylethylamine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosomorpholine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosopiperidine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosopyrrolidine	ND	2.0	ng/l	1	07/24/21	
Surrogate(s)						
NDMA-d6	*98%*	*70-130*	*Conc: 24.5*		*07/24/21*	
Method: EPA 522		**Instr:** GCMS20				
Batch ID: W1H0022 — **Preparation:** EPA 522/SPE		**Prepared:** 08/02/21 09:56				**Analyst:** mld
1,4-Dioxane	ND	0.070	ug/l	1	08/03/21	
Surrogate(s)						
1,4-Dioxane-d8	*82%*	*70-130*	*Conc: 8.20*		*08/03/21*	
Method: EPA 8015B		**Instr:** GC09				
Batch ID: W1G0869 — **Preparation:** _NONE (SVOC)		**Prepared:** 07/21/21 17:00				**Analyst:** ecs
Ethylene glycol	ND	10	mg/l	1	07/21/21	O-09

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WECK LABORATORIES, INC.

Certificate of Analysis

FINAL REPORT

Sample Results

(Continued)

Sample: 2122475-04 Sampled: 07/13/21 14:01 by Client
1G21057-04 (Water)

Analyte	Result	MRL	Units	Dil	Analyzed	Qualifier
Method: EPA 521		**Instr:** GCMS09				
Batch ID: W1G1139 **Preparation:** EPA 521/SPE		**Prepared:** 07/22/21 08:35				**Analyst:** mld
N-Nitrosodiethylamine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosodimethylamine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosodi-n-butylamine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosodi-n-propylamine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosomethylethylamine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosomorpholine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosopiperidine	ND	2.0	ng/l	1	07/24/21	
N-Nitrosopyrrolidine	ND	2.0	ng/l	1	07/24/21	
Surrogate(s)						
NDMA-d6	*94%*	*70-130*	*Conc: 23.5*		*07/24/21*	
Method: EPA 522		**Instr:** GCMS20				
Batch ID: W1H0022 **Preparation:** EPA 522/SPE		**Prepared:** 08/02/21 09:56				**Analyst:** mld
1,4-Dioxane	ND	0.070	ug/l	1	08/04/21	
Surrogate(s)						
1,4-Dioxane-d8	*83%*	*70-130*	*Conc: 8.32*		*08/04/21*	
Method: EPA 8015B		**Instr:** GC09				
Batch ID: W1G0869 **Preparation:** _NONE (SVOC)		**Prepared:** 07/21/21 17:00				**Analyst:** ecs
Ethylene glycol	ND	10	mg/l	1	07/21/21	O-09

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Quality Control Results

1,4-Dioxane by SPE/GCMS SIM, EPA Method 522

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W1H0022 - EPA 522/SPE										
Blank (W1H0022-BLK1)				Prepared: 08/02/21 Analyzed: 08/03/21						
1,4-Dioxane	ND	0.070	ug/l							
Surrogate(s)										
1,4-Dioxane-d8	*11.0*		*ug/l*	*10.0*		*110*	*70-130*			
LCS (W1H0022-BS1)				Prepared: 08/02/21 Analyzed: 08/03/21						
1,4-Dioxane	0.0713	0.070	ug/l	0.0600		119	50-150			
Surrogate(s)										
1,4-Dioxane-d8	*10.4*		*ug/l*	*10.0*		*104*	*70-130*			
LCS Dup (W1H0022-BSD1)				Prepared: 08/02/21 Analyzed: 08/03/21						
1,4-Dioxane	0.0544	0.070	ug/l	0.0600		91	50-150	27	30	
Surrogate(s)										
1,4-Dioxane-d8	*7.86*		*ug/l*	*10.0*		*79*	*70-130*			

Glycols by GC/FID

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W1G0869 - _NONE (SVOC)										
Blank (W1G0869-BLK1)				Prepared & Analyzed: 07/21/21						
Ethylene glycol	ND	10	mg/l							
LCS (W1G0869-BS1)				Prepared & Analyzed: 07/21/21						
Ethylene glycol	95.5	10	mg/l	100		96	70-130			
Matrix Spike (W1G0869-MS1)	Source: 1G15078-01			Prepared & Analyzed: 07/21/21						
Ethylene glycol	95.7	10	mg/l	100	*ND*	96	57-127			
Matrix Spike Dup (W1G0869-MSD1)	Source: 1G15078-01			Prepared & Analyzed: 07/21/21						
Ethylene glycol	95.0	10	mg/l	100	*ND*	95	57-127	0.7	25	

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Quality Control Results

(Continued)

Nitrosamines by CI GC/MS/MS, EPA 521

Analyte	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
Batch: W1G1139 - EPA 521/SPE										
Blank (W1G1139-BLK1)				Prepared: 07/22/21 Analyzed: 07/23/21						
N-Nitrosodiethylamine	ND	2.0	ng/l							
N-Nitrosodimethylamine	ND	2.0	ng/l							
N-Nitrosodi-n-butylamine	ND	2.0	ng/l							
N-Nitrosodi-n-propylamine	ND	2.0	ng/l							
N-Nitrosomethylethylamine	ND	2.0	ng/l							
N-Nitrosomorpholine	ND	2.0	ng/l							
N-Nitrosopiperidine	ND	2.0	ng/l							
N-Nitrosopyrrolidine	ND	2.0	ng/l							
Surrogate(s)										
NDMA-d6	*30.2*		*ng/l*	*25.0*		*121*	*70-130*			
LCS (W1G1139-BS1)				Prepared: 07/22/21 Analyzed: 07/24/21						
N-Nitrosodiethylamine	1.74	2.0	ng/l	2.00		87	50-150			
N-Nitrosodimethylamine	2.23	2.0	ng/l	2.00		112	50-150			
N-Nitrosodi-n-butylamine	1.84	2.0	ng/l	2.00		92	50-150			
N-Nitrosodi-n-propylamine	1.76	2.0	ng/l	2.00		88	50-150			
N-Nitrosomethylethylamine	2.02	2.0	ng/l	2.00		101	50-150			
N-Nitrosomorpholine	2.30	2.0	ng/l	2.00		115	50-150			
N-Nitrosopiperidine	1.92	2.0	ng/l	2.00		96	50-150			
N-Nitrosopyrrolidine	1.95	2.0	ng/l	2.00		97	50-150			
Surrogate(s)										
NDMA-d6	*27.5*		*ng/l*	*25.0*		*110*	*70-130*			
Matrix Spike (W1G1139-MS1)	Source: 1G16039-01			Prepared: 07/22/21 Analyzed: 07/24/21						
N-Nitrosodiethylamine	1.84	2.0	ng/l	2.04	ND	90	50-150			
N-Nitrosodimethylamine	2.12	2.0	ng/l	2.04	ND	104	50-150			
N-Nitrosodi-n-butylamine	1.67	2.0	ng/l	2.04	ND	82	50-150			
N-Nitrosodi-n-propylamine	1.61	2.0	ng/l	2.04	ND	79	50-150			
N-Nitrosomethylethylamine	2.09	2.0	ng/l	2.04	ND	102	50-150			
N-Nitrosomorpholine	2.09	2.0	ng/l	2.04	ND	102	50-150			
N-Nitrosopiperidine	1.80	2.0	ng/l	2.04	ND	88	50-150			
N-Nitrosopyrrolidine	1.89	2.0	ng/l	2.04	ND	93	50-150			
Surrogate(s)										
NDMA-d6	*29.8*		*ng/l*	*25.5*		*117*	*70-130*			
Matrix Spike Dup (W1G1139-MSD1)	Source: 1G16039-01			Prepared: 07/22/21 Analyzed: 07/24/21						
N-Nitrosodiethylamine	2.01	2.0	ng/l	2.03	ND	99	50-150	9	50	
N-Nitrosodimethylamine	2.15	2.0	ng/l	2.03	ND	106	50-150	2	50	
N-Nitrosodi-n-butylamine	1.81	2.0	ng/l	2.03	ND	89	50-150	8	50	
N-Nitrosodi-n-propylamine	1.89	2.0	ng/l	2.03	ND	93	50-150	16	50	
N-Nitrosomethylethylamine	1.99	2.0	ng/l	2.03	ND	98	50-150	5	50	
N-Nitrosomorpholine	2.68	2.0	ng/l	2.03	ND	132	50-150	25	50	
N-Nitrosopiperidine	2.03	2.0	ng/l	2.03	ND	100	50-150	12	50	
N-Nitrosopyrrolidine	2.34	2.0	ng/l	2.03	ND	115	50-150	21	50	
Surrogate(s)										
NDMA-d6	*25.9*		*ng/l*	*25.4*		*102*	*70-130*			

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Notes and Definitions

Item	Definition
M-05	Due to the nature of matrix interferences, sample was diluted prior to analysis. The MDL and MRL were raised due to the dilution.
O-09	This sample was received with the EPA recommended holding time expired.
%REC	Percent Recovery
Dil	Dilution
MRL	The minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence. The MRL is also known as Limit of Quantitation (LOQ)
ND	NOT DETECTED at or above the Method Reporting Limit (MRL). If Method Detection Limit (MDL) is reported, then ND means not detected at or above the MDL.
RPD	Relative Percent Difference
Source	Sample that was matrix spiked or duplicated.

Any remaining sample(s) will be disposed of one month from the final report date unless other arrangements are made in advance.

All results are expressed on wet weight basis unless otherwise specified.

All samples collected by Weck Laboratories have been sampled in accordance to laboratory SOP Number MIS002.

Analyses Accreditation Summary

Analyte	CAS #	Not By NELAP	ANAB ISO 17025
EPA 521 in Water			
N-Nitrosodimethylamine	62-75-9	✓	
N-Nitrosomethylethylamine	10595-95-6	✓	
N-Nitrosodiethylamine	55-18-5	✓	
N-Nitrosodi-n-propylamine	621-64-7	✓	
N-Nitrosomorpholine	59-89-2	✓	
N-Nitrosopyrrolidine	930-55-2	✓	
N-Nitrosopiperidine	100-75-4	✓	
N-Nitrosodi-n-butylamine	924-16-3	✓	
NDMA-d6		✓	

Reviewed by:

Rahul R. Nair
Project Manager

DoD-ELAP ANAB #ADE-2882 • DoD-ISO ANAB # • ELAP-CA #1132 • EPA-UCMR #CA00211 • Guam-EPA #17-008R • HW-DOH #4047 • ISO17025 ANAB #L2457.01 • LACSD #10143 • NELAP-OR #4047 • NJ-DEP #CA015 • SCAQMD #93LA1006

This is a complete final report. The information in this report applies to the samples analyzed in accordance with the chain-of-custody document. Weck Laboratories certifies that the test results meet all requirements of TNI unless noted by qualifiers or written in the Case Narrative. This analytical report must be reproduced in its entirety.

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City of Morro Bay	**Reported:** 08/17/2021 15:01
160 Atascadero Rd.	Project: Morro Bay Wells
Morro Bay, CA 93442	Project Number: [none]
	Project Manager: John Gunderlock

Notes And Definitions

J	Estimated Value (CLP Flag)
MDL	Method Detection Limit
ND	Analyte Not Detected
PQL	Practical Quantitation Limit
A02	The difference between duplicate readings is less than the quantitation limit.
A07	Detection and quantitation limits were raised due to sample dilution caused by high analyte concentration or matrix interference.
A10	Detection and quantitation limits were raised due to matrix interference.
A20	Surrogate is low due to matrix interference. Interference verified through second extraction/analysis.
L01	The Laboratory Control Sample Water (LCSW) recovery is not within laboratory established control limits.
Q03	Matrix spike recovery(s) was(were) not within the control limits.
S09	The surrogate recovery for this compound was not within the control limits.
V11	The Continuing Calibration Verification (CCV) recovery was not within established control limits.

APPENDIX C

Injection Testing Work Plan for Groundwater Management Replenishment and Reuse Project, Morro Bay, California

GSI Water Solutions, Inc.

DRAFT TECHNICAL MEMORANDUM

DRAFT Injection Testing Work Plan for Groundwater Replenishment and Reuse Project, Morro Bay, California

To:	Lydia Holmes and Anthony Cemo, Carollo Engineers
From:	Tim Thompson and Tim Nicely, GSI Water Solutions
CC:	Brynne Weeks and Andrew Salveson, Carollo Engineers
Attachments:	Figure Water Quality Sampling Constituents Table
Date:	August 26, 2021

Introduction and Purpose

GSI Water Solutions (GSI) is supporting the City of Morro Bay with the implementation of a planned indirect potable reuse (IPR) project, which will use highly treated recycled water from the City's forthcoming Water Reclamation Facility (WRF). The installation and operation of a Groundwater Replenishment Reuse Project (GRRP) using injection wells is a key part of the overall project. This memorandum presents the work plan for testing at a new injection well proposed to be installed in Spring 2021.

The injection testing presented in this work plan is a portion of work being performed by GSI for the City of Morro Bay in the lower portion of the Morro Valley Groundwater Basin, which also includes injection well design and installation, groundwater monitoring, permitting support, and groundwater flow modeling.

Injection Work Plan

The injection testing presented in this work plan provides diagnostic information regarding injection rates, aquifer response, and water quality at anticipated injection rates for a single well. Injection testing will be conducted at a newly constructed injection well located as shown on Figure 1.

Injection Testing

A series of injection tests will be conducted by conveying water from the City's municipal water supply distribution system into the new injection well. The injection tests will consist of an 8-hour injection step test and a 7-day injection constant rate test, operated by the Contractor. The wellhead will be sealed and capable of maintaining injection pressures up to 20 psi with anticipated injection pressures of up to 10 psi during testing in order to observe and maintain a range of injection rates. The injected water will consist of chlorinated water provided by the City from their State Water Project source.

City staff will install an outlet fitting and backflow prevention device onto the nearby City distribution pipeline located east of the nearby bike path for the purposes of this project. City staff will also construct a trench across the bike path and install a short section of piping that daylights west of the bike path and, for security purposes, west of the fence within the Dynegy/Vistra property. The drilling Contractor will connect to this fitting, the location of which is shown approximately on Figure 1 and run a temporary pipeline that will convey

the water to the injection well for the testing. The pipeline conveying the injection water to the well will be equipped by the Contractor with a flow control valve, flow meter, sampling port, pressure gauge, and a bypass filter. The bypass filter allows for monitoring of the turbidity of the injected water and will verify if turbid water is being injected (which is undesirable because of clogging potential) -- GSI will provide guidance to the Contractor for the materials and setup of this filter. A pressure transducer will be installed by the Contractor in the well to collect continuous water level data, and manual water level (and wellhead pressure) measurements will also be collected. All conveyance piping, measurement devices, and downhole equipment will be installed, maintained, and operated by the Contractor. GSI staff will be onsite to oversee the installation of the equipment. The Contractor will be required to provide temporary fencing around the immediate wellhead, which is assumed to require a 12- by 20-foot fenced area.

The following sections provide details for each phase of the injection testing program. The injection testing activities will be conducted following the drilling, construction, and pump testing of the injection well. The pump testing component will consist of both a step test and a constant rate test using a temporary pump installed and operated by the drilling contractor. The step test will involve pumping the well at 4 successively higher flow rates for 1 to 2 hours each while carefully monitoring water level drawdowns in the injection well and at the nearby monitoring well. The drawdown results of the step test will be used to establish the pumping rate used in the 24-hour constant rate pumping test.

Injection Step Test

The data collected during the pumping tests will be used by GSI to select the injection rates for the injection step test. This initial injection test will consist of four steps conducted at a series of discrete flow rates that will each last approximately 2 hours. The steps for the injection rates will be selected based on the drawdown results of the constant rate aquifer pumping test performed as part of the injection well installation. They will likely vary from approximately 10 to 80 gpm, but final rates will be determined after installation and testing of the injection well. The injection rate will be increased incrementally for each of the steps while simultaneously monitoring the water level in the well. Water level measurements will be recorded both at the injection well and at the nearby monitoring well with transducer and manual measurements. The results of the injection step test will be analyzed to determine appropriate injection rate for the constant rate injection test.

Injection Constant Rate Test

After the well has fully recovered from the injection step test, the constant rate injection test will be run at a continuous injection rate for various durations and ultimately for a continuous period of up to 7 days. During the tests, measurements of the flow rate, and corresponding water level shall be made at both the injection well and the nearby monitoring well. During the injection tests, a pressure transducer will record continuous water level data throughout the test. Manual measurement of water levels will also be collected at the following times relative to the start of the test:

- Every 5 minutes until 30 minutes have elapsed.
- Every 10 minutes until one hour has elapsed.
- Every 20 minutes until two hours have elapsed.
- Every hour until 24 hours have elapsed.
- Every two hours until 48 hours have elapsed.
- Every 4 to 6 hours until the end of the 7-day test.

Immediately after termination of the test, the rate of recovery of the water level shall be monitored for a period of 48 hours at both the injection and monitoring wells. The water levels will be recorded at the same time intervals (logarithmic) as the start of the constant rate injection test.

Analysis of Injection Testing Results

Following the completion of injection testing, data will be analyzed to estimate aquifer properties and provide a range of operational injection rates for the well. This information will also be used to update the groundwater model to evaluate project build out options.

Following updates to groundwater model, a series of scenarios will be developed in coordination with the City and Carollo Engineers to assess the ultimate number and location of wells required for the full project. Additional information from the modeling scenarios will include assessment of retention time within the aquifer, water level changes during and following injection periods and identification of any potential adverse conditions.

Recommendations will be provided for anticipated operational scheduling and approaches to minimize any potential adverse consequences and maximize the benefits of the proposed injection program.

Water Quality Sampling and Geochemical Evaluation

In addition to the collection of aquifer data collected during the tests, water quality samples will be collected at both the Injection well and/or the nearby monitoring well at the following times and analyzed for the list of constituents identified in the attached table:

- Collect samples at both the Injection and monitoring well on the last day of the constant rate pumping test (to establish the baseline aquifer water quality)
- Collect a sample at the Injection well at the end of the first and last day of contestant rate injection to document water quality of source water
- Samples will be collected from the monitoring well during the constant rate injection test during day 3, day 5, and day 7 (three sampling events). If groundwater quality changes occur based on field parameters (indicating that the injected water has reached the monitor well), the samples will be analyzed for a reduced suite of parameters.
- After completion of the constant rate injection test, groundwater samples will be collected once a week at the Injection well and monitoring well for four consecutive weeks. For each sampling episode, the well will be pumped to waste until parameters stabilize prior to sampling.

Water quality results for key constituents will be evaluated to identify mixing relationships and/or the presence of geochemical reactions. These field results will be used to verify the findings of the geochemical modeling described in the Geochemical Work Plan for Groundwater Replenishment and Reuse Project (GSI, 2021).

Table 1. Sampling Schedule

Stage	Purpose	Injection Well	Monitoring Well 21P-01
		Constituents	**Constituents**
Pumping constant rate (end)	Baseline groundwater quality	Complete suite	Complete suite
Injection Day 1 (end of day)	Source water quality	Complete suite	Field parameters [2]
Injection Day 3	Source water quality changes	--	Field parameters [2]
Injection Day 5	Source water quality changes	--	Field parameters [2]
Injection Day 7	Residence time	Complete suite	Complete suite
Post-Injection Weeks 1, 2, 3 and 4	Geochemical reactions	Complete suite [1]	Reduced / Complete suite [3]

Notes:
Complete and reduced suite defined in Water Quality Testing Constituents attached.
[1] If any trends are evident, a further complete sample will be collected at 6 weeks.
[2] Water quality samples will be collected for reduced suite if field-measured groundwater quality parameters changes.
[2] The monitoring well will be analyzed for the reduced suite (except DPBs) unless the field parameters indicate a change, which would trigger complete suite,

Injection Testing Schedule and Reporting

The injection testing will be conducted following the completion of the well installation and constant rate aquifer test. It is anticipated that the injection testing will begin by late May 2021 and require approximately 6 to 7 weeks to complete, including the 4 weeks of post-testing water quality sampling. Following the completion of the injection testing program, the Contractor will be responsible for removing all equipment and conveyance pipelines. The Contractor will not be provided final payment until the site condition is deemed satisfactory by the City and the terms of the project Technical Specifications are met.

The testing results will be provided in a technical memorandum (TM). This TM is anticipated to be completed by the end of July, approximately one month following the completion of the field work if the proposed drilling and injection testing schedules are met.

Figure

FIGURE 1

Site and Well Location Map

Morro Bay
Indirect Potable Reuse Program
Injection Testing

LEGEND

- Injection Well No. 1
- Well Construction Site
- Cuttings and Drilling Fluids Disposal
- Bike Path
- Piezometer
- Temporary Hose
- MBMWC Well
- Yeh Piezometer
- PG&E Property Boundary
- Western Project Area, 17 Acres
- Watercourse

NOTE
MBMWC: Morro Bay Mutual Water Company

N

0 150 300
Feet

Date: August 26, 2021
Data Sources: NAIP Imagery, ESRI

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Pilot_Inject_Well\Figure1_Western_Project_Site_Injection_Well_2021.mxd

Water Quality Sampling Constituents

Parameter Type	Parameter	Method
Field	Dissolved oxygen	YSI 556 or similar
	pH	EPA 150.1
	Oxidation-Reduction Potential	SM2580B
	Specific Conductance	EPA 120.1
	Temperature	YSI 556 or similar
	Turbidity	EPA 180.1
Inorganics	Alkalinity	SM2320B
	Ammonia	SM4500NH3G
	Bicarbonate	SM2320B
	Carbonate	SM2320B
	Chloride	EPA 300.0
	Cyanide (HCN)	EPA 335.4
	Fluoride	EPA 300.0
	Hardness	EPA 200.8
	Nitrate+Nitrite (total N)	EPA 300.0
	Nitrate (as N)	EPA 300.0
	Nitrite-N	EPA 300.0
	Orthophosphate as P	EPA 300.0
	Total Silica (as SiO2)	EPA 200.7
	Dissolved Silica (as SiO2)	EPA 200.7
	Sulfate	EPA 300.0
	Sulfide	SM4500S2F
Metals (Dissolved)	Aluminum	EPA 200.7
	Antimony	EPA 200.8
	Arsenic	EPA 200.8
	Barium	EPA 200.8
	Beryllium	EPA 200.8
	Cadmium	EPA 200.8
	Calcium	EPA 200.7
	Chromium	EPA 200.8
	Cobalt	EPA 200.8
	Copper	EPA 200.8
	Iron	EPA 200.7
	Lead	EPA 200.8
	Magnesium	EPA 200.7
	Manganese	EPA 200.8
	Mercury	EPA 245.7
	Molybdenum	EPA 200.8
	Nickel	EPA 200.8
	Potassium	EPA 200.7
	Selenium	EPA 200.8
	Silver	EPA 200.8

	Sodium	EPA 200.7
	Strontium	EPA 200.8
	Thallium	EPA 200.8
	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

Parameter Type	Parameter	Method
Field	Dissolved oxygen	YSI 556 or similar
	pH	EPA 150.1
	Oxidation-Reduction Potential	SM2580B
	Specific Conductance	EPA 120.1
	Temperature	YSI 556 or similar
	Turbidity	EPA 180.1
Inorganics	Chloride	EPA 300.0
Metals (Dissolved)	Arsenic	EPA 200.8

Miscellaneous		
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other		
	Hexavalent Chromium	EPA 218.7

APPENDIX D

Analytical Results from Injection Testing Sampling

Appendix D Analytical Results from Injection Testing Sampling

Table of Contents

Table D-1. Injection Well Test Results

Group	Analyte	Units	MCL	SCML	NL	SWP Source Water	Injection Well #1							Monitoring Well (21P-01)							
						Sample of Injection Water	*Samples Collected During Injection Test*			*Post Injection Testing Samples*				Sample collected after CRT	*Samples Collected During Injection Test*			*Post Injection Testing Samples*			
						12/7/2022	9/26/2022	9/29/2022	12/7/2022	1/4/2023	1/12/2023	1/19/2023	1/26/2023	10/3/2022	12/7/2022	12/14/2022	12/20/2022	1/4/2023	1/12/2023	1/19/2023	1/26/2023
General	Chemical Oxygen Demand	mg/L	—	—	—	25 U	—	21 J	—	15 U	21	15 U	15 U	18 J	25 U	25 U	15 U	33	15	15 U	15 U
	Chlorine, Free Residual	mg/L	—	—	—	—	—	—	—	0.34	—	—	—	—	—	—	0.1 U	0.1 U	—	—	—
	Chlorine, Total Residual	mg/L	—	—	—	0.53	—	0.1 U	—	1.7	—	—	—	0.18	0.1 U	0.1 U	0.1 U	0.1 U	—	—	—
	Color	Units	—	15	—	1	—	1	—	5	25	5	10	3	1	2	5 U	5	5 U	5 U	5 U
	Conductivity	umhos/cm	—	1600	—	692	1449	—	676	650	700	750	790	1420	925	826	880	670	750	820	850
	Dissolved Organic Carbon	mg/L	—	—	—	—	—	—	—	2.5	2.9	2.8	2.8	—	—	—	2.4	2.1	2.2	2.2	2.2
	Dissolved Oxygen	%	—	—	—	—	—	—	—	—	—	—	—	0.1	—	—	—	—	—	—	—
		mg/L	—	—	—	—	NM	—	NM	8.14	6.99	7.24	7.39	0.01	NM	1.93	—	5.05	0.06	0.04	0.05
	Langelier Saturation Index	LANG	—	—	—	0.26	—	0.69	—	-0.88	-0.26	-0.65	-0.38	0.71	0.16	-0.14	1	-1.1	-0.98	-0.56	0.063
	Non-Volatile Organic Carbon	mg/L	—	—	—	2.3	—	—	—	—	—	—	—	—	0.49 J	—	—	—	—	—	—
	Odor	TON	—	3	—	0 U	—	0 U	—	1.2	1.5	1 U	1.5	0 U	4	4	1.3	1.2	1	1 U	1
	Oxidation Reduction Potential	mv	—	—	—	—	NM	—	NM	310	160	150	150	141.3	NM	255.9	170	280	140	140	140
	Oxidation Reduction Potential (Eh)	mv	—	—	—	536	—	405	—	—	—	—	—	390	535	356	—	—	—	—	—
	Oxidation Reduction Potential (Eobs_Ag/AgCl)	mv	—	—	—	319.8	—	191.3	—	—	—	—	—	177.4	319.2	140.9	—	—	—	—	—
	pH	SU	—	—	—	—	6.53	—	NM	7.87	7.65	7.78	7.68	6.9	NM	7.18	—	7.2	7.08	7.06	7
	pH (Lab)	SU	—	—	—	8.2	—	7.8	—	7.5	7.9	7.5	7.6	7.67	7.93	7.82	8.9	7.2	7.1	7.4	7.9
	Temperature	degC	—	—	—	15.6	17.6	18.8	20.33	15.5	16.4	16.4	17.6	20.5	16.2	16.1	—	16.1	16.9	17.1	17.2
	Total Dissolved Solids	mg/L	—	1000	—	—	—	—	—	330	360	410	430	—	—	—	480	350	400	460	460
	Total Dissolved Solids (180C)	mg/L	—	—	—	420	—	860	—	—	—	—	—	940	560	630	—	—	—	—	—
	Total Organic Carbon	mg/L	—	—	—	—	—	11	—	2.6	2.9	2.5	2.7	29	—	—	2.6	2.2	1.5	1.7	2
	Total Suspended Solids	mg/L	—	—	—	0.67 U	—	0.67 U	—	5 U	5 U	9.8	5 U	15	3.3	1 U	5 U	5 U	5 U	5 U	5 U
	Turbidity	NTU	—	5	—	1.5	—	0.7	—	1.3	9.4	2.5	7.4	24	0.19	1.3	0.62	1.5	1.1	0.29	0.28
Minerals	Alkalinity, Bicarbonate (as CaCO3)	mg/L	—	—	—	100	—	520	—	82	100	110	130	560	250	140	150	86	120	140	160
	Alkalinity, Carbonate (as CaCO3)	mg/L	—	—	—	2.5 U	—	5 U	—	3 U	3 U	3 U	3 U	5 U	2.5 U	2.5 U	39	3 U	3 U	3 U	3 U
	Alkalinity, Hydroxide (as CaCO3)	mg/L	—	—	—	—	—	—	—	3 U	3 U	3 U	3 U	—	—	—	3 U	3 U	3 U	3 U	3 U
	Alkalinity, Total (as CaCO3)	mg/L	—	—	—	85	—	420	—	82	100	110	130	460	200	110	190	86	120	140	160
	Hardness (as CaCO3)	mg/L	—	—	—	350	—	570	—	110	140	160	170	650	130	230	190	140	170	210	220
Anion	Bromate	µg/L	10	—	—	—	—	—	—	1 U	1 U	1 U	1 U	—	—	—	1 U	1 U	1 U	1 U	1 U
	Chloride	mg/L	—	500	—	120	—	140	—	100	110	110	120	150	130	140	130	110	120	120	120
	Fluoride	mg/L	2	—	—	0.054	—	0.3	—	0.1 U	0.1 U	0.14	0.13	0.21	0.22	0.25	0.19	0.16	0.19	0.19	0.19
	Sulfate	mg/L	—	500	—	73	—	110	—	61	71	76	80	120	88	91	100	65	79	85	85
	Sulfide	mg/L	—	—	—	0.1 U	—	0.1 U	—	—	—	—	—	0.1 U	0.1 U	0.1 U	—	—	—	—	—
Nutrients	Ammonia (as N)	mg/L	—	—	—	0.18 J	—	0.17 J	—	0.33	0.17	0.1 U	0.15	—	0.093 J	0.16 J	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
	Nitrate (as N)	mg/L	10	—	—	0.82	—	0.1 J	—	0.23 U	0.23 U	0.23 U	0.23 U	0.1 U	0.54	0.85	0.62	0.23 U	0.23 U	0.23 U	0.23 U
	Nitrate/Nitrite (as N)	mg/L	10	—	—	1.1	—	—	—	0.23 U	0.23 U	0.23 U	0.23 U	0.1 U	0.76	1.1	0.62	0.23 U	0.23 U	0.23 U	0.23 U
	Nitrite (as N)	mg/L	1	—	—	0.18	—	0.016 J	—	0.05 U	0.06	0.052	0.05 U	0.013 J	0.12	0.15	0.05 U	0.11	0.05 U	0.05 U	0.05 U
	Total Orthophosphate (as P)	mg/L	—	—	—	0.05 U	—	0.18	—	0.2 U	0.2 U	0.2 U	0.2 U	0.2	0.12	0.095	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Metals	Aluminum	µg/L	1000	200	—	50 U	—	50 U	—	50 U	50 U	50 U	50 U	50 U	37 J	50 U	50 U	50 U	50 U	50 U	50 U
	Antimony	µg/L	6	—	—	2 U	—	2 U	—	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U
	Arsenic	µg/L	10	—	—	1 J	—	0.42 J	—	2 U	2 U	2 U	2 U	0.56 J	0.74 J	1.4 J	2 U	2 U	2 U	2 U	2 U
	Barium	µg/L	1000	—	—	80	—	140	—	33	44	54	60	180	43	60	55	39	54	68	67
	Beryllium	µg/L	4	—	—	—	—	—	—	1 U	1 U	1 U	1 U	—	—	—	1 U	1 U	1 U	1 U	1 U
	Cadmium	µg/L	5	—	—	0.13 J	—	1 U	—	1 U	1 U	1 U	1 U	0.051 J	0.093 J	0.15 J	1 U	1 U	1 U	1 U	1 U
	Calcium	mg/L	—	—	—	52	—	77	—	23	27	31	32	100	29	35	29	21	27	34	34
	Chromium	µg/L	50	—	—	3 U	—	0.26 J	—	10 U	10 U	10 U	10 U	3 U	3 U	3 U	10 U	10 U	10 U	10 U	10 U
	Chromium, Hexavalent	µg/L	—	—	—	0.11 J	—	0.2 U	—	0.088	0.16	0.13	0.05 U	0.61	0.22	0.16 J	0.12	0.087	0.097	0.093	0.05 U
	Cobalt	µg/L	—	—	—	0.33 J	—	0.38 J	—	10 U	10 U	10 U	10 U	0.83 J	0.058 J	0.2 J	10 U	10 U	10 U	10 U	10 U
	Copper	µg/L	1300	1000	—	1.7 J	—	7.3	—	5 U	5 U	5 U	5 U	0.78 J	3.2	2.4	5 U	5 U	5 U	5 U	5 U
	Cyanide	µg/L	150	—	—	2.1 J	—	5 U	—	5 U	5 U	5 U	5 U	5 U	3.5 J	2.4 J	5 U	5 U	5 U	5 U	5 U
	Iron	µg/L	—	300	—	50 U	—	50 U	—	33	44	75	180	50 U	50 U	50 U	30 U	30 U	30 U	30 U	30 U
	Lead	µg/L	15	—	—	0.91 J	—	1 U	—	1 U	1 U	1 U	1 U	1 U	1	1.5	1 U	1 U	1 U	1 U	1 U
	Magnesium	mg/L	—	—	—	55	—	92	—	14	17	21	22	97	15	35	28	21	26	32	32
	Manganese	µg/L	—	50	—	770	—	1300	—	10 U	60	94	130	2300	3.6	410	330	10 U	230	270	310
	Mercury	µg/L	2	—	—	0.2 U	—	0.2 U	—	0.2 U	0.2 U	0.2 U	0.2 U	1.3	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
	Molybdenum	µg/L	—	—	—	2.3	—	1.7	—	10 U	10 U	10 U	10 U	1.7	2	2.5	10 U	10 U	10 U	10 U	10 U
	Nickel	µg/L	100	—	—	2.1	—	1.5 J	—	10 U	10 U	10 U	10 U	2.9	1.3 J	1.6 J	10 U	10 U	10 U	10 U	10 U
	Potassium	mg/L	—	—	—	1.9	—	2.2	—	3.5	3.2	3.3	3.3	1.9	4.1	1.9	2 U	2 U	2 U	2 U	2
	Selenium	µg/L	50	—	—	2.5	—	0.42 J	—	2 U	2 U	2 U	2 U	0.29 J	1.9 J	3.1	2.3	2 U	2 U	2 U	2 U
	Silica	µg/L	—	—	—	9900	—	28000	—	7200	12000	14000	14000	27000	23000	18000	16000	14000	18000	19000	20000
	Silicon (as SiO2)	µg/L	—	—	—	23000	—	27000	—	—	—	—	—	27000	10000	18000	—	—	—	—	—
	Silver	µg/L	—	100	—	1 U	—	1 U	—	10 U	10 U	10 U	10 U	1 U	1 U	1 U	10 U	10 U	10 U	10 U	10 U
	Sodium	mg/L	—	—	—	64	—	72	—	79	85	86	85	69	92	78	92	77	79	81	75
	Strontium	µg/L	—	—	—	370	—	520	—	200	240	280	300	630	250	250	220	150	200	260	260
	Thallium	µg/L	2	—	—	1 U	—	1 U	—	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	Uranium	µg/L	25	—	—	0.32 J	—	0.94 J	—	1 U	1 U	1 U	1 U	1.4	0.067 J	0.12 J	1 U	1 U	1 U	1 U	1 U
	Vanadium	µg/L	—	—	50	2.7 J	—	3 U	—	10 U	10 U	10 U	10 U	0.72 J	1 J	3.2	10 U	10 U	10 U	10 U	10 U
	Zinc	µg/L	—	5000	—	3.3 J	—	47	—	50 U	50 U	50 U	50 U	70	11	5 U	50 U	50 U	50 U	50 U	50 U
DBPs	Bromoacetic Acid	µg/L	—	—	—	1 U	—	1 U	—	1	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
	Bromodichloromethane	µg/L	—	—	—	4.9	—	0.5 U	—	16	9.3	10	8.1	0.5 U	15	12	15	14	10	8.1	6.8
	Bromoform	µg/L	80	—	—	2.5	—	0.5 U	—	9.7	5	4.7	4	0.5 U	9.9	5.9	8.2	7.1	4.1	3.1	3.2
	Chloroacetic Acid	µg/L	—	—	—	1 U	—	1 U	—	2 U	2 U	2 U	2 U	1 U	1 U	1 U	2 U	2 U	2 U	2 U	2 U
	Chloroform	µg/L	—	—	—	3.4	—	0.5 U	—	7.9	6.6	6.9	7.4	0.5 U	8.3	8.8	11	7.5	5.7	4.5	4.6
	Dibromoacetic Acid	µg/L	—	—	—	6.6	—	1 U	—	7.1	1 U	1 U	1 U	1 U	9.7	1 U	3.6	1.1	1 U	1 U	1 U
	Dibromochloromethane	µg/L	—	—	—	5.7	—	0.5 U	—	22	11	11	9	0.5 U	20	12	17	18	11	8.1	7.7
	Dichloroacetic Acid	µg/L	—	—	—	4.4	—	1 U	—	8.4	2.3	1.4	1.5	1 U	6.3	2.1	5.5	1.1	1 U	1 U	1 U
	Haloacetic Acids	µg/L	60	—	—	15	—	1.4	—	21	6.3	3.6	3	1 U	16	9.9	19	7.4	2 U	2 U	2 U
	Methylene Blue Active Substances	mg/L	—	0.5	—	0.1 U	—	0.2 U	—	0.05 U	0.05 U	0.05 U	0.05 U	0.1 U	0.1 U	0.2 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
	Total Trihalomethanes	µg/L	80	—	—	16	—	2 U	—	55	32	33	28	2 U	53	39	51	46	30	24	22
	Trichloroacetic Acid	µg/L	—	—	—	4	—	1.4	—	4.8	3.9	2.2	1.6	1 U	1 U	7.7	10	5.2	1 U	1 U	1 U
VOC	Methane	mg/L	—	—	—	0.001	—	0.001 U	—	—	—	—	—	0.001 U	0.001 U	0.001 U	—	—	—	—	—

Sample from Pilot Injection Well at End of Constant Rate Pumping Test (September 29, 2022)

Field Notes

GSI Water Solutions, Inc.

Daily Field Report

9.29.22

Morro Bay Inj. Well CRT

0430 Call from Jose - Generator down
0700 Onsite
0710 Begin pumping ; Man Meas @ 5 min int.
0815 Data DOWNLOADED ; shared
0900 Prepare to sample; Precision Continue Pumping
0915 Collect Samples

Measurements on additional Sheets

1030 ~~0930~~ Field Parameters: 1449 EC
17.6 °C
6.53 pH

Depart for Bakersfield to Relinquish

Name: John Gauthier
Signature:
Date: 9.29.22

Chain-of-Custody Form(s)

Pace ANALYTICAL SERVICES

Chain of Custody Form

4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.pacelabs.com

Page 1 of 1

Report To: Client: GSI Water Solutions	Project #: ~~[illegible]~~ 645.007
Attn: BFRANZ@GSIWS.com	Project Name: MB IJection
Street Address: 418 Chapala St Suite	PO#:
City, State, Zip: Santa Barbara Ca	Sampler(s) Name Printed: John Gauthier
Phone: 805 453 8267 Fax:	
Email: Brian Franz	
Work Order #: 2223190	

Analysis Requested: SEE Attached

Comments: EDF NO GEO Tracker
Complete Suite On Attch. Doc

Result Request **Surcharge
☒ STD (10 Days) ☐ 5 Day** ☐ 4 Day**
☐ 3 Day** ☐ 2 Day** ☐ 1 Day**
Rush requests must be approved

Sample #	Description	Date Sampled	Time Sampled	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Notes
-1	PIW-I-092922	9/29/22	0915				X			
-2										

CHK BY JJB DISTRIBUTION
BMC WW TDS TSS SUN
SUB-OUT ☒

SHORT HOLDING TIME
Cr+6 NO2 NO3 OP SS
DO Cl2 BOD MBAS COT

Billing ☒ Same as above

Client:
Address:
City: State Zip
Attn:
P.O. #:

System #
(Needed for CHP)

GIS/Key ☐ Well Star ☐

EDF Required Geotracker ☐ Yes ☐ No Global ID

Relinquished By	Date	Time	Received By	Date	Time
1. John Gauthier	9.29.22	1340	1. [signature]	9/29/22	1335
2.			2.		
3.			3.		

REV 12/2021

2223190

Parameter Type	Parameter	Method
Field	Dissolved oxygen	YSI 556 or similar
	pH	EPA 150.1
	Oxidation-Reduction Potential	SM2580B
	Specific Conductance	EPA 120.1
	Temperature	YSI 556 or similar
	Turbidity	EPA 180.1
Inorganics	Alkalinity	SM2320B
	Ammonia	SM4500NH3G
	Bicarbonate	SM2320B
	Carbonate	SM2320B
	Chloride	EPA 300.0
	Cyanide (HCN)	EPA 335.4
	Fluoride	EPA 300.0
	Hardness	EPA 200.8
	Nitrate+Nitrite (total N)	EPA 300.0
	Nitrate (as N)	EPA 300.0
	Nitrite-N	EPA 300.0
	Orthophosphate as P	EPA 300.0
	Total Silica (as SiO2)	EPA 200.7
	Dissolved Silica (as SiO2)	EPA 200.7
	Sulfate	EPA 300.0
	Sulfide	SM4500S2F
Metals (Dissolved)	Aluminum	EPA 200.7
	Antimony	EPA 200.8
	Arsenic	EPA 200.8
	Barium	EPA 200.8
	Beryllium	EPA 200.8
	Cadmium	EPA 200.8
	Calcium	EPA 200.7
	Chromium	EPA 200.8
	Cobalt	EPA 200.8
	Copper	EPA 200.8
	Iron	EPA 200.7
	Lead	EPA 200.8
	Magnesium	EPA 200.7
	Manganese	EPA 200.8
	Mercury	EPA 245.7
	Molybdenum	EPA 200.8
	Nickel	EPA 200.8
	Potassium	EPA 200.7
	Selenium	EPA 200.8
	Silver	EPA 200.8

	Sodium	EPA 200.7
	Strontium	EPA 200.8
	Thallium	EPA 200.8
	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

PACE ANALYTICAL — COOLER RECEIPT FORM — Page 1 Of 1

Submission #: 2223190

SHIPPING INFORMATION
Fed Ex ☑ UPS ☐ GSO / GLS ☐ Hand Delivery ☐
Pace Lab Field Service ☐ Other ☐ (Specify)________

SHIPPING CONTAINER
Ice Chest ☑ None ☐ Box ☐
Other ☐ (Specify)________

FREE LIQUID
YES ☐ NO ☑
W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☑ YES ☐ NO

Emissivity: 0.98 Container: PE Thermometer ID: 332
Temperature: (A) 2.3 °C / (C) 2.2 °C

Date/Time 9/29/22 1335
Analyst Init JCD

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES	H-J									
4oz / 8oz / 16oz PE UNPRES	K-M									
2oz Cr^{+6}	F									
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS	N									
PT TOTAL SULFIDE	O									
2oz. NITRATE / NITRITE	G									
~~PT~~ TOTAL ORGANIC CARBON 8oz	P									
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK		A								
40ml VOA VIAL	A-C									
QT EPA 1664B										
PT ODOR	Q									
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL ~~504~~ RSK	D,E									
QT EPA 508/608.3/8081A										
QT EPA 515.1/8151A										
QT EPA 525.2										
QT EPA 525.2 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548.1										
QT EPA 549.2										
QT EPA 8015M										
QT EPA 8270C										
8oz / 16oz / 32oz AMBER HAAS	R									
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:
Sample Numbering Completed By: PRE Date/Time: 9/29/22 1815
A = Actual / C = Corrected

Laboratory Reports

Date of Report: 11/28/2022

Brian Franz

GSI Water Solutions, Inc.
418 Chapala Street Suite H
Santa Barbara, CA 93101

Client Project:	645.007
BCL Project:	Morro Bay Injection
BCL Work Order:	2223190
Invoice ID:	B463493

Enclosed are the results of analyses for samples received by the laboratory on 9/29/2022. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Ragen Schallock
Client Service Rep

Stuart Buttram
Operations Manager

Certifications: CA ELAP #1186; NV #CA00014; OR ELAP #4032-001; AK UST101

Table of Contents

Pace ANALYTICAL SERVICES

4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.pacelabs.com

Chain of Custody Form

Page 1 of 1

Report To: Client:	GSi Water Solutions	Project #:	~~[illegible]~~ 645.007
Attn:	BFRANZ@GSiWS.com	Project Name:	MB IJection
Street Address:	418 Chapala St Suite [illegible]	PO#	
City, State, Zip:	Santa Barbara Ca	Sampler(s) Name Printed:	John Gauthier
Phone:	805 453 8267	Fax:	
Email:	Brian Franz		
Work Order #:	2223190		

Analysis Requested: SEE Attached

Comments: EDF NO GEO Tracker. Complete Suite On Attch. Doc.

Result Request **Surcharge: ☒ STD (10 Days) ☐ 5 Day** ☐ 4 Day** ☐ 3 Day** ☐ 2 Day** ☐ 1 Day**
Rush requests must be approved

Sample #	Description	Date Sampled	Time Sampled	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Notes
-1	PIW-I-092922	9/29/22	0915				X			
-2										

CHK BY: [illegible] DISTRIBUTION: EML MK TDS TSS SLM SUB-OUT ☒

SHORT HOLDING TIME: Cr+6 NO2 NO3 OP SS DO Cl2 BOD MBAS COT

Billing

☒ Same as above

Client:
Address:
City: State: Zip:
Attn:
P.O. #:

System # (Needed for CUP)
GIS/Key ☐ Well Star ☐

EDF Required Geotracker ☐ Yes ☐ No Global ID

1. Relinquished By	Date	Time	1. Received By	Date	Time
John Gauthier	9-29-22	1340	[signature]	9/29/22	1335
2. Relinquished By	Date	Time	2. Received By	Date	Time
3. Relinquished By	Date	Time	3. Received By	Date	Time

Pace Analytical Bakersfield does not accept samples containing radioactive material above background levels. Samples containing radioactive material must be disclosed prior to receipt. Any samples suspected of containing radioactive material above background levels will not be accepted and will be returned to client.

REV 12/2021

Morro Bay Indirect Potable Reuse Pilot Injection Testing Sampling Plan — Complete Suite — August 6, 2021 — GSI Water Solutions

2223190

Parameter Type	Parameter	Method
Field	Dissolved oxygen	YSI 556 or similar
	pH	EPA 150.1
	Oxidation-Reduction Potential	SM2580B
	Specific Conductance	EPA 120.1
	Temperature	YSI 556 or similar
	Turbidity	EPA 180.1
Inorganics	Alkalinity	SM2320B
	Ammonia	SM4500NH3G
	Bicarbonate	SM2320B
	Carbonate	SM2320B
	Chloride	EPA 300.0
	Cyanide (HCN)	EPA 335.4
	Fluoride	EPA 300.0
	Hardness	EPA 200.8
	Nitrate+Nitrite (total N)	EPA 300.0
	Nitrate (as N)	EPA 300.0
	Nitrite-N	EPA 300.0
	Orthophosphate as P	EPA 300.0
	Total Silica (as SiO2)	EPA 200.7
	Dissolved Silica (as SiO2)	EPA 200.7
	Sulfate	EPA 300.0
	Sulfide	SM4500S2F
Metals (Dissolved)	Aluminum	EPA 200.7
	Antimony	EPA 200.8
	Arsenic	EPA 200.8
	Barium	EPA 200.8
	Beryllium	EPA 200.8
	Cadmium	EPA 200.8
	Calcium	EPA 200.7
	Chromium	EPA 200.8
	Cobalt	EPA 200.8
	Copper	EPA 200.8
	Iron	EPA 200.7
	Lead	EPA 200.8
	Magnesium	EPA 200.7
	Manganese	EPA 200.8
	Mercury	EPA 245.7
	Molybdenum	EPA 200.8
	Nickel	EPA 200.8
	Potassium	EPA 200.7
	Selenium	EPA 200.8
	Silver	EPA 200.8

2223190

Morro Bay Indirect Potable Reuse **Complete Suite** **August 6, 2021**
Pilot Injection Testing Sampling Plan **GSI Water Solutions**

	Sodium	EPA 200.7
	Strontium	EPA 200.8
	Thallium	EPA 200.8
	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

Pace Analytical®
ENVIRONMENTAL SCIENCES

PACE ANALYTICAL — COOLER RECEIPT FORM — Page 1 Of 1

Submission #: 2223190

SHIPPING INFORMATION
Fed Ex ☑ UPS ☐ GSO / GLS ☐ Hand Delivery ☐
Pace Lab Field Service ☐ Other ☐ (Specify)________

SHIPPING CONTAINER
Ice Chest ☑ None ☐ Box ☐
Other ☐ (Specify)________

FREE LIQUID
YES ☐ NO ☑
W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☑ YES ☐ NO

Emissivity: 0.98 Container: PE Thermometer ID: 357
Temperature: (A) 2.3 °C / (C) 2.2 °C

Date/Time 9/29/22 1335
Analyst Init JCD

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES	H-J									
4oz / 8oz / 16oz PE UNPRES	K-M									
2oz Cr+6	F									
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS	N									
PT TOTAL SULFIDE	O									
2oz. NITRATE / NITRITE	G									
~~PT~~ TOTAL ORGANIC CARBON 8oz	P									
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK		A								
40ml VOA VIAL	A-C									
QT EPA 1664B										
PT ODOR	Q									
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL ~~504~~ RSK	D,E									
QT EPA 508/608.3/8081A										
QT EPA 515.1/8151A										
QT EPA 525.2										
QT EPA 525.2 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548.1										
QT EPA 549.2										
QT EPA 8015M										
QT EPA 8270C										
8oz / 16oz / 32oz AMBER HAAS	R									
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:________
Sample Numbering Completed By: PRE Date/Time: 9/29/22 1815
A = Actual / C = Corrected

Rev 23 05/20/22
(S:\WPDocs\WordPerfect\LAB_DOCS\FORMS\SAMREC.rev 23)

GSI Water Solutions, Inc.
418 Chapala Street Suite H
Santa Barbara, CA 93101

Reported: 11/28/2022 10:07
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
2223190-01	**COC Number:**	---	**Receive Date:**	09/29/2022 13:35
	Project Number:	---	**Sampling Date:**	09/29/2022 09:15
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	PIW-1-092922	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Groundwater
			Metal Analysis: 2-Lab Filtered and Acidified past 15 minute holding time	
2223190-02	**COC Number:**	---	**Receive Date:**	09/29/2022 13:35
	Project Number:	---	**Sampling Date:**	09/29/2022 09:15
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	Travel Blank	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Trip Blank

GSI Water Solutions, Inc. 418 Chapala Street Suite H Santa Barbara, CA 93101	**Reported:** 11/28/2022 10:07 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Brian Franz

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2223190-01 | **Client Sample Name:** PIW-1-092922, 9/29/2022 9:15:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Bromodichloromethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Bromoform	ND	ug/L	0.50	0.46	EPA-524.2	ND		1
Chloroform	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Dibromochloromethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
Total Trihalomethanes	ND	ug/L	2.0	0.97	EPA-524.2	ND		1
1,2-Dichloroethane-d4 (Surrogate)	121	%	75 - 125 (LCL - UCL)		EPA-524.2			1
Toluene-d8 (Surrogate)	100	%	80 - 120 (LCL - UCL)		EPA-524.2			1
4-Bromofluorobenzene (Surrogate)	89.7	%	80 - 120 (LCL - UCL)		EPA-524.2			1

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-524.2	09/30/22 06:00	09/30/22 12:03	ADC	MS-V15	1	B150475	EPA 524.2

DCN = Data Continuation Number

GSI Water Solutions, Inc.
418 Chapala Street Suite H
Santa Barbara, CA 93101

Reported: 11/28/2022 10:07
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Halogenated Acetic Acids (Method EPA-552.3)

BCL Sample ID: 2223190-01 | **Client Sample Name:** PIW-1-092922, 9/29/2022 9:15:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Dibromoacetic acid	ND	ug/L	1.0	0.32	EPA-552.3	ND		1
Dichloroacetic acid	ND	ug/L	1.0	0.29	EPA-552.3	ND		1
Monobromoacetic acid	ND	ug/L	1.0	0.25	EPA-552.3	ND		1
Monochloroacetic acid	ND	ug/L	1.0	0.61	EPA-552.3	ND		1
Trichloroacetic acid	**1.4**	**ug/L**	**1.0**	**0.36**	**EPA-552.3**	ND		1
Total HAA's (Summation)	**1.4**	**ug/L**	**1.0**	**1.0**	**EPA-552.3**	ND		1
2,3-Dibromopropionic acid (Surrogate)	108	%	70 - 130 (LCL - UCL)		EPA-552.3			1

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-552.3	10/06/22 16:45	10/07/22 10:51	RSM	GC-3	1	B150928	EPA 552.3

DCN = Data Continuation Number

GSI Water Solutions, Inc.
418 Chapala Street Suite H
Santa Barbara, CA 93101

Reported: 11/28/2022 10:07
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Gas Testing in Water

BCL Sample ID: 2223190-01 | **Client Sample Name:** PIW-1-092922, 9/29/2022 9:15:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Methane	ND	mg/L	0.0010	0.00046	RSK-175M	ND		1

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	RSK-175M	10/11/22 08:39	10/11/22 15:50	RMK	GC-V10	1	B151169	None

DCN = Data Continuation Number

Pace Analytical ENVIRONMENTAL SCIENCES

GSI Water Solutions, Inc. 418 Chapala Street Suite H Santa Barbara, CA 93101	**Reported:** 11/28/2022 10:07 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Brian Franz

Water Analysis (General Chemistry)

BCL Sample ID: 2223190-01 **Client Sample Name:** PIW-1-092922, 9/29/2022 9:15:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Dissolved Calcium	**77**	**mg/L**	**0.10**	**0.016**	**EPA-200.7**	0.032		1
Dissolved Magnesium	**92**	**mg/L**	**0.050**	**0.019**	**EPA-200.7**	ND		2
Dissolved Sodium	**72**	**mg/L**	**0.50**	**0.051**	**EPA-200.7**	ND		2
Dissolved Potassium	**2.2**	**mg/L**	**1.0**	**0.10**	**EPA-200.7**	ND		2
Bicarbonate	**520**	**mg/L**	**10**	**10**	**SM-2320B**	ND	**A10**	3
Carbonate	ND	mg/L	5.0	5.0	SM-2320B	ND	A10	3
Total Alkalinity as CaCO3	**420**	**mg/L**	**8.2**	**8.2**	**SM-2320B**	ND	**A10**	3
Chloride	**140**	**mg/L**	**1.0**	**0.26**	**EPA-300.0**	ND	**A10**	4
Fluoride	**0.30**	**mg/L**	**0.10**	**0.050**	**EPA-300.0**	ND	**A10**	4
Nitrate as N	**0.10**	**mg/L**	**0.20**	**0.048**	**EPA-300.0**	ND	**J,A10**	4
Sulfate	**110**	**mg/L**	**2.0**	**0.28**	**EPA-300.0**	ND	**A10**	4
Dissolved Hardness as CaCO3	**570**	**mg/L**	**0.50**	**0.10**	**Calc**	ND		5
Langlier Index	**0.69**	**NA**	**-2.00**	**-2.00**	**Calc**	0		5
pH	**7.80**	**pH Units**	**0.05**	**0.05**	**EPA-150.1**		**S05**	6
Total Dissolved Solids @ 180 C	**860**	**mg/L**	**50**	**25**	**SM-2540C**	ND	**A10**	7
Total Suspended Solids (Glass Fiber)	ND	mg/L	0.67	0.67	SM-2540D	ND	A10	8
Color	**1.0**	**Color Units**	**1.0**	**1.0**	**SM-2120B**		**S16**	9
Odor	No Obs Odor	Odor Units	1.0	1.0	EPA-140.1	ND	S16	10
Turbidity	**0.70**	**NT Units**	**0.10**	**0.10**	**EPA-180.1**		**S16**	11
MBAS	ND	mg/L	0.20	0.048	SM-5540C	ND	A10,S16	12
Residual Chlorine	ND	mg/L	0.10	0.10	SM-4500-CLF	ND	S05	13
Total Cyanide	ND	mg/L	0.0050	0.0017	EPA-335.4	ND		14
Ammonia as N	**0.17**	**mg/L**	**0.20**	**0.067**	**EPA-350.1**	0.098	**J**	15
Nitrite as N	**0.016**	**mg/L**	**0.050**	**0.010**	**EPA-353.2**	ND	**J**	16
ortho-Phosphate as P	**0.18**	**mg/L**	**0.050**	**0.017**	**EPA-365.1**	ND		17
Total Sulfide	ND	mg/L	0.10	0.050	SM-4500SD	ND		18
Total Organic Carbon	**11**	**mg/L**	**5.0**	**1.5**	**SM-5310C**	ND		19
Chemical Oxygen Demand	**21**	**mg O2/L**	**25**	**4.3**	**EPA-410.4**	ND	**J**	20
Oxidation Reduction Potential (Eh)	**405.0**	**mV**	**-1000**	**-1000**	**ASTM-D1498**			21
Oxidation Reduction Potential (Eobs_Ag/AgCl)	**191.3**	**mV**	**-1000**	**-1000**	**ASTM-D1498**			21
Temperature	**18.8**	**°C**	**0.1**	**0.1**	**ASTM-D1498**			21

GSI Water Solutions, Inc.
418 Chapala Street Suite H
Santa Barbara, CA 93101

Reported: 11/28/2022 10:07
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Water Analysis (General Chemistry)

BCL Sample ID: 2223190-01 **Client Sample Name:** PIW-1-092922, 9/29/2022 9:15:00AM

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	
1	EPA-200.7	10/17/22 13:23	10/19/22 16:22	JRG	OP-PE4	1	B151572	200.7/ No Digest
2	EPA-200.7	10/17/22 13:23	10/17/22 21:50	JRG	OP-PE4	1	B151572	200.7/ No Digest
3	SM-2320B	10/05/22 07:00	10/05/22 09:38	RML	MET-1	2	B150264	No Prep
4	EPA-300.0	09/29/22 23:50	09/30/22 09:31	SAV	IC1	2	B150451	No Prep
5	Calc	10/04/22 16:01	10/21/22 16:58	SPB	Calc	1	B`J0024	Calc
6	EPA-150.1	10/05/22 07:00	10/05/22 09:38	RML	MET-1	1	B150264	No Prep
7	SM-2540C	10/05/22 11:30	10/05/22 11:30	CAD	MANUAL	5	B150685	No Prep
8	SM-2540D	10/05/22 11:00	10/05/22 11:00	TJV	MANUAL	1.333	B150656	No Prep
9	SM-2120B	10/11/22 08:00	10/11/22 08:00	RML	MANUAL	1	B151129	No Prep
10	EPA-140.1	10/11/22 08:00	10/11/22 08:00	RML	MANUAL	1	B151146	No Prep
11	EPA-180.1	10/11/22 08:00	10/11/22 08:00	RML	MANUAL	1	B151155	No Prep
12	SM-5540C	10/05/22 07:25	10/05/22 07:25	JMN	SPEC06	2	B150696	No Prep
13	SM-4500-CLF	10/06/22 09:30	10/06/22 09:30	JTM	MANUAL	1	B150891	No Prep
14	EPA-335.4	10/11/22 09:45	10/11/22 15:29	MKB	KONE-1	1	B151162	EPA 335.4 Total
15	EPA-350.1	10/05/22 13:30	10/06/22 13:45	MKB	SC-2	1.058	B150736	No Prep
16	EPA-353.2	09/29/22 22:12	09/29/22 22:45	KB1	KONE-1	1	B150952	No Prep
17	EPA-365.1	09/29/22 21:00	09/29/22 21:55	KB1	SC-1	1	B150971	No Prep
18	SM-4500SD	09/30/22 09:40	09/30/22 09:40	JT3	SPEC06	1	B150483	SM 4500SD
19	SM-5310C	10/19/22 12:00	10/19/22 16:43	JAT	TOC3	5	B151570	No Prep
20	EPA-410.4	10/10/22 11:00	10/10/22 11:00	SPB	SPEC06	1	B151358	EPA 410.4
21	ASTM-D1498	10/06/22 07:00	10/06/22 09:04	RML	MET-1	1	B150774	No Prep

DCN = Data Continuation Number

GSI Water Solutions, Inc.
418 Chapala Street Suite H
Santa Barbara, CA 93101

Reported: 11/28/2022 10:07
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Metals Analysis

BCL Sample ID: 2223190-01 **Client Sample Name:** PIW-1-092922, 9/29/2022 9:15:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Dissolved Aluminum	ND	ug/L	50	23	EPA-200.7	ND		1
Dissolved Antimony	ND	ug/L	2.0	0.23	EPA-200.8	ND		2
Dissolved Arsenic	**0.42**	**ug/L**	**2.0**	**0.38**	**EPA-200.8**	ND	**J**	2
Hexavalent Chromium	ND	ug/L	0.20	0.020	EPA-218.6	0.070		3
Dissolved Barium	**140**	**ug/L**	**1.0**	**0.066**	**EPA-200.8**	ND		2
Dissolved Cadmium	ND	ug/L	1.0	0.034	EPA-200.8	ND		2
Dissolved Chromium	**0.26**	**ug/L**	**3.0**	**0.15**	**EPA-200.8**	ND	**J**	2
Dissolved Cobalt	**0.38**	**ug/L**	**1.0**	**0.011**	**EPA-200.8**	ND	**J**	2
Dissolved Copper	**7.3**	**ug/L**	**2.0**	**0.32**	**EPA-200.8**	ND		2
Dissolved Iron	ND	ug/L	50	30	EPA-200.7	ND		1
Dissolved Lead	ND	ug/L	1.0	0.021	EPA-200.8	ND		2
Dissolved Manganese	**1300**	**ug/L**	**1.0**	**0.040**	**EPA-200.8**	0.045		2
Dissolved Mercury	ND	ug/L	0.20	0.022	EPA-245.1	ND		4
Dissolved Molybdenum	**1.7**	**ug/L**	**1.0**	**0.033**	**EPA-200.8**	ND		2
Dissolved Nickel	**1.5**	**ug/L**	**2.0**	**0.15**	**EPA-200.8**	0.19	**J**	2
Dissolved Selenium	**0.42**	**ug/L**	**2.0**	**0.25**	**EPA-200.8**	0.63	**J**	2
Dissolved Silicon as SiO2	**27000**	**ug/L**	**200**	**31**	**EPA-200.7**	ND		5
Dissolved Silver	ND	ug/L	1.0	0.015	EPA-200.8	ND		2
Dissolved Strontium	**520**	**ug/L**	**10**	**1.0**	**EPA-200.7**	ND		5
Dissolved Thallium	ND	ug/L	1.0	0.025	EPA-200.8	ND		2
Dissolved Uranium	**0.94**	**ug/L**	**1.0**	**0.051**	**EPA-200.8**	ND	**J**	2
Dissolved Vanadium	ND	ug/L	3.0	0.39	EPA-200.8	ND		2
Dissolved Zinc	**47**	**ug/L**	**5.0**	**2.2**	**EPA-200.8**	ND		2
Total Recoverable Silica	**28000**	**ug/L**	**200**	**53**	**EPA-200.7**	120		6

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-200.7	10/17/22 13:23	10/17/22 21:50	JRG	OP-PE4	1	B151572	EPA 200.7 Dissolved
2	EPA-200.8	10/12/22 06:00	10/12/22 12:33	KHS	PE-EL4	1	B151212	EPA 200.8 Dissolved
3	EPA-218.6	10/06/22 10:00	10/06/22 12:31	SAV	IC-4	1	B150833	No Prep
4	EPA-245.1	10/11/22 09:30	10/11/22 14:12	TMT	CETAC3	1	B151113	EPA 245.1
5	EPA-200.7	10/17/22 13:23	10/19/22 16:22	JRG	OP-PE4	1	B151572	EPA 200.7 Dissolved
6	EPA-200.7	10/05/22 17:10	10/06/22 20:07	JRG	PE-OP4	1	B150764	EPA 200.2

DCN = Data Continuation Number

GSI Water Solutions, Inc.
418 Chapala Street Suite H
Santa Barbara, CA 93101

Reported: 11/28/2022 10:07
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2223190-02 | **Client Sample Name:** Travel Blank, 9/29/2022 9:15:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Bromodichloromethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Bromoform	ND	ug/L	0.50	0.46	EPA-524.2	ND		1
Chloroform	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Dibromochloromethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
Total Trihalomethanes	ND	ug/L	2.0	0.97	EPA-524.2	ND		1
1,2-Dichloroethane-d4 (Surrogate)	126	%	75 - 125 (LCL - UCL)		EPA-524.2		S09	1
Toluene-d8 (Surrogate)	101	%	80 - 120 (LCL - UCL)		EPA-524.2			1
4-Bromofluorobenzene (Surrogate)	93.4	%	80 - 120 (LCL - UCL)		EPA-524.2			1

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-524.2	09/30/22 06:00	09/30/22 12:27	ADC	MS-V15	1	B150475	EPA 524.2

DCN = Data Continuation Number

GSI Water Solutions, Inc.
418 Chapala Street Suite H
Santa Barbara, CA 93101

Reported: 11/28/2022 10:07
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B150475							
Bromodichloromethane	B150475-BLK1	ND	ug/L	0.50	0.20		1
Bromoform	B150475-BLK1	ND	ug/L	0.50	0.46		1
Chloroform	B150475-BLK1	ND	ug/L	0.50	0.14		1
Dibromochloromethane	B150475-BLK1	ND	ug/L	0.50	0.22		1
Total Trihalomethanes	B150475-BLK1	ND	ug/L	2.0	0.97		1
1,2-Dichloroethane-d4 (Surrogate)	**B150475-BLK1**	**113**	%	**75 - 125 (LCL - UCL)**			1
Toluene-d8 (Surrogate)	**B150475-BLK1**	**97.4**	%	**80 - 120 (LCL - UCL)**			1
4-Bromofluorobenzene (Surrogate)	**B150475-BLK1**	**98.2**	%	**80 - 120 (LCL - UCL)**			1

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150475-BLK1	PB	EPA-524.2	09/30/22	09/30/22 23:08	ADC	MS-V15	1

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Reported: 11/28/2022 10:07
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B150475											
Bromodichloromethane	B150475-BS1	LCS	26.980	25.000	ug/L	108		70 - 130			1
Bromoform	B150475-BS1	LCS	26.900	25.000	ug/L	108		70 - 130			1
Chloroform	B150475-BS1	LCS	26.740	25.000	ug/L	107		70 - 130			1
Dibromochloromethane	B150475-BS1	LCS	27.140	25.000	ug/L	109		70 - 130			1
1,2-Dichloroethane-d4 (Surrogate)	B150475-BS1	LCS	10.020	10.000	ug/L	100		75 - 125			1
Toluene-d8 (Surrogate)	B150475-BS1	LCS	10.160	10.000	ug/L	102		80 - 120			1
4-Bromofluorobenzene (Surrogate)	B150475-BS1	LCS	9.9200	10.000	ug/L	99.2		80 - 120			1

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150475-BS1	LCS	EPA-524.2	09/30/22	09/30/22 22:20	ADC	MS-V15	1

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GSI Water Solutions, Inc. 418 Chapala Street Suite H Santa Barbara, CA 93101	**Reported:** 11/28/2022 10:07 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Brian Franz

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Precision & Accuracy

QC Batch ID: B150475 Used client sample: N

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
Bromodichloromethane	MS	2223113-22	ND	27.110	25.000	ug/L		108		70 - 130		1
	MSD	2223113-22	ND	31.080	25.000	ug/L	13.6	124	20	70 - 130		2
Bromoform	MS	2223113-22	ND	28.150	25.000	ug/L		113		70 - 130		1
	MSD	2223113-22	ND	26.500	25.000	ug/L	6.0	106	20	70 - 130		2
Chloroform	MS	2223113-22	ND	26.710	25.000	ug/L		107		70 - 130		1
	MSD	2223113-22	ND	26.890	25.000	ug/L	0.7	108	20	70 - 130		2
Dibromochloromethane	MS	**2223113-22**	**ND**	**27.650**	**25.000**	**ug/L**		**111**		**70 - 130**		1
	MSD	**2223113-22**	**ND**	**47.340**	**25.000**	**ug/L**	**52.5**	**189**	**20**	**70 - 130**	**Q02,Q03**	2
1,2-Dichloroethane-d4 (Surrogate)	MS	2223113-22	ND	10.360	10.000	ug/L		104		75 - 125		1
	MSD	2223113-22	ND	12.430	10.000	ug/L	18.2	124		75 - 125		2
Toluene-d8 (Surrogate)	MS	2223113-22	ND	10.070	10.000	ug/L		101		80 - 120		1
	MSD	2223113-22	ND	10.550	10.000	ug/L	4.7	106		80 - 120		2
4-Bromofluorobenzene (Surrogate)	MS	2223113-22	ND	10.110	10.000	ug/L		101		80 - 120		1
	MSD	2223113-22	ND	10.140	10.000	ug/L	0.3	101		80 - 120		2

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150475-MS1	MS	EPA-524.2	09/30/22	09/30/22 21:56	ADC	MS-V15	1
2	B150475-MSD1	MSD	EPA-524.2	09/30/22	09/30/22 21:32	ADC	MS-V15	1

GSI Water Solutions, Inc.
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Reported: 11/28/2022 10:07
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B150928							
Dibromoacetic acid	B150928-BLK1	ND	ug/L	1.0	0.32		1
Dichloroacetic acid	B150928-BLK1	ND	ug/L	1.0	0.29		1
Monobromoacetic acid	B150928-BLK1	ND	ug/L	1.0	0.25		1
Monochloroacetic acid	B150928-BLK1	ND	ug/L	1.0	0.61		1
Trichloroacetic acid	B150928-BLK1	ND	ug/L	1.0	0.36		1
Total HAA's (Summation)	B150928-BLK1	ND	ug/L	1.0	1.0		1
2,3-Dibromopropionic acid (Surrogate)	**B150928-BLK1**	**106**	%	**70 - 130 (LCL - UCL)**			1

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150928-BLK1	PB	EPA-552.3	10/06/22	10/07/22 09:23	RSM	GC-3	1

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Reported: 11/28/2022 10:07
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B150928											
Dibromoacetic acid	B150928-BS1	LCS	23.758	20.000	ug/L	119		70 - 130			1
Dichloroacetic acid	B150928-BS1	LCS	22.663	20.000	ug/L	113		70 - 130			1
Monobromoacetic acid	B150928-BS1	LCS	20.772	20.000	ug/L	104		70 - 130			1
Monochloroacetic acid	B150928-BS1	LCS	23.169	20.000	ug/L	116		70 - 130			1
Trichloroacetic acid	B150928-BS1	LCS	28.966	20.000	ug/L	145		70 - 130		L01	1
2,3-Dibromopropionic acid (Surrogate)	B150928-BS1	LCS	20.8	20.0	ug/L	104		70 - 130			1

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150928-BS1	LCS	EPA-552.3	10/06/22	10/07/22 09:45	RSM	GC-3	1

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Reported: 11/28/2022 10:07
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B150928	Used client sample: N											
Dibromoacetic acid	MS	2223113-47	ND	21.039	20.000	ug/L		105		70 - 130		1
	MSD	2223113-47	ND	22.419	20.000	ug/L	6.3	112	30	70 - 130		2
Dichloroacetic acid	MS	2223113-47	ND	20.033	20.000	ug/L		100		70 - 130		1
	MSD	2223113-47	ND	21.563	20.000	ug/L	7.4	108	30	70 - 130		2
Monobromoacetic acid	MS	2223113-47	ND	18.920	20.000	ug/L		94.6		70 - 130		1
	MSD	2223113-47	ND	18.211	20.000	ug/L	3.8	91.1	30	70 - 130		2
Monochloroacetic acid	MS	**2223113-47**	**ND**	**21.708**	**20.000**	**ug/L**		**109**		**70 - 130**		1
	MSD	**2223113-47**	**ND**	**40.775**	**20.000**	**ug/L**	**61.0**	**204**	**30**	**70 - 130**	**Q02,Q03**	2
Trichloroacetic acid	MS	**2223113-47**	**ND**	**24.116**	**20.000**	**ug/L**		**121**		**70 - 130**		1
	MSD	**2223113-47**	**ND**	**26.773**	**20.000**	**ug/L**	**10.4**	**134**	**30**	**70 - 130**	**Q03**	2
2,3-Dibromopropionic acid (Surrogate)	MS	2223113-47	ND	19.3	20.0	ug/L		96.7		70 - 130		1
	MSD	2223113-47	ND	18.8	20.0	ug/L	2.7	94.1		70 - 130		2

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150928-MS1	MS	EPA-552.3	10/06/22	10/07/22 10:08	RSM	GC-3	1
2	B150928-MSD1	MSD	EPA-552.3	10/06/22	10/07/22 10:29	RSM	GC-3	1

GSI Water Solutions, Inc. 418 Chapala Street Suite H Santa Barbara, CA 93101	**Reported:** 11/28/2022 10:07 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Brian Franz

Gas Testing in Water

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B151169							
Methane	B151169-BLK1	ND	mg/L	0.0010	0.00046		1

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B151169-BLK1	PB	RSK-175M	10/11/22	10/11/22 13:05	RMK	GC-V10	1

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Reported: 11/28/2022 10:07
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Gas Testing in Water

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B151169											
Methane	B151169-BS1	LCS	0.010741	0.010843	mg/L	99.1		80 - 120			1
	B151169-BSD1	LCSD	0.010529	0.010843	mg/L	97.1	2.0	80 - 120	20		2

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B151169-BS1	LCS	RSK-175M	10/11/22	10/11/22 12:51	RMK	GC-V10	1
2	B151169-BSD1	LCSD	RSK-175M	10/11/22	10/11/22 12:59	RMK	GC-V10	1

GSI Water Solutions, Inc. 418 Chapala Street Suite H Santa Barbara, CA 93101	**Reported:** 11/28/2022 10:07 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Brian Franz

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B\`J0024							
Dissolved Hardness as CaCO3	B\`J0024-BLK1	ND	mg/L	0.50	0.10		1
Langlier Index	**B\`J0024-BLK1**	**0**	**NA**	**-2.00**	**-2.00**		1
QC Batch ID: B150264							
Bicarbonate	B150264-BLK1	ND	mg/L	5.0	5.0		2
Carbonate	B150264-BLK1	ND	mg/L	2.5	2.5		2
Total Alkalinity as CaCO3	B150264-BLK1	ND	mg/L	4.1	4.1		2
QC Batch ID: B150451							
Chloride	B150451-BLK1	ND	mg/L	0.50	0.13		3
Fluoride	B150451-BLK1	ND	mg/L	0.050	0.025		3
Nitrate as N	B150451-BLK1	ND	mg/L	0.10	0.024		3
Sulfate	B150451-BLK1	ND	mg/L	1.0	0.14		3
QC Batch ID: B150483							
Total Sulfide	B150483-BLK1	ND	mg/L	0.10	0.050		4
QC Batch ID: B150656							
Total Suspended Solids (Glass Fiber)	B150656-BLK1	ND	mg/L	0.50	0.50		5
QC Batch ID: B150685							
Total Dissolved Solids @ 180 C	B150685-BLK1	ND	mg/L	6.7	3.3		6
QC Batch ID: B150696							
MBAS	B150696-BLK1	ND	mg/L	0.10	0.024		7
QC Batch ID: B150736							
Ammonia as N	**B150736-BLK1**	**0.092600**	**mg/L**	**0.20**	**0.067**	**J**	8
QC Batch ID: B150891							
Residual Chlorine	B150891-BLK1	ND	mg/L	0.10	0.10		9
QC Batch ID: B150952							
Nitrite as N	B150952-BLK1	ND	mg/L	0.050	0.010		10
QC Batch ID: B150971							
ortho-Phosphate as P	B150971-BLK1	ND	mg/L	0.050	0.017		11
QC Batch ID: B151146							
Odor	B151146-BLK1	ND	Odor Units	1.0	1.0		12

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Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B151162							
Total Cyanide	B151162-BLK1	ND	mg/L	0.0050	0.0017		13
QC Batch ID: B151358							
Chemical Oxygen Demand	B151358-BLK1	ND	mg O2/L	25	4.3		14
QC Batch ID: B151570							
Total Organic Carbon	B151570-BLK1	ND	mg/L	1.0	0.30		15
QC Batch ID: B151572							
Dissolved Calcium	**B151572-BLK2**	**0.032157**	**mg/L**	**0.10**	**0.016**	**J**	16
Dissolved Magnesium	B151572-BLK1	ND	mg/L	0.050	0.019		17
Dissolved Sodium	B151572-BLK1	ND	mg/L	0.50	0.051		17
Dissolved Potassium	B151572-BLK1	ND	mg/L	1.0	0.10		17

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B`J0024-BLK1	PB	Calc	10/04/22	10/21/22 15:53	SPB	Calc	1
2	B150264-BLK1	PB	SM-2320B	10/05/22	10/05/22 08:32	RML	MET-1	1
3	B150451-BLK1	PB	EPA-300.0	09/29/22	09/30/22 03:46	SAV	IC1	1
4	B150483-BLK1	PB	SM-4500SD	09/30/22	09/30/22 09:40	JT3	SPEC06	1
5	B150656-BLK1	PB	SM-2540D	10/05/22	10/05/22 11:00	TJV	MANUAL	1
6	B150685-BLK1	PB	SM-2540C	10/05/22	10/05/22 11:30	CAD	MANUAL	0.667
7	B150696-BLK1	PB	SM-5540C	10/05/22	10/05/22 07:25	JMN	SPEC06	1
8	B150736-BLK1	PB	EPA-350.1	10/05/22	10/06/22 13:40	MKB	SC-2	1
9	B150891-BLK1	PB	SM-4500-CLF	10/06/22	10/06/22 09:30	JTM	MANUAL	1
10	B150952-BLK1	PB	EPA-353.2	09/29/22	09/29/22 22:45	KB1	KONE-1	1
11	B150971-BLK1	PB	EPA-365.1	09/29/22	09/29/22 01:07	KB1	SC-1	1
12	B151146-BLK1	PB	EPA-140.1	10/11/22	10/11/22 08:00	RML	MANUAL	1
13	B151162-BLK1	PB	EPA-335.4	10/11/22	10/11/22 15:22	MKB	KONE-1	1
14	B151358-BLK1	PB	EPA-410.4	10/10/22	10/10/22 11:00	SPB	SPEC06	1
15	B151570-BLK1	PB	SM-5310C	10/19/22	10/21/22 02:30	JAT	TOC3	1
16	B151572-BLK2	PB	EPA-200.7	10/17/22	10/19/22 16:01	JRG	OP-PE4	1
17	B151572-BLK1	PB	EPA-200.7	10/17/22	10/17/22 21:11	JRG	OP-PE4	1

GSI Water Solutions, Inc.
418 Chapala Street Suite H
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Reported: 11/28/2022 10:07
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B150264											
Total Alkalinity as CaCO3	B150264-BS3	LCS	102.84	100.00	mg/L	103		90 - 110			1
pH	B150264-BS2	LCS	7.0200	7.0000	pH Units	100		95 - 105			2
QC Batch ID: B150451											
Chloride	B150451-BS1	LCS	49.771	50.000	mg/L	99.5		90 - 110			3
Fluoride	B150451-BS1	LCS	1.0740	1.0000	mg/L	107		90 - 110			3
Nitrate as N	B150451-BS1	LCS	5.1060	5.0000	mg/L	102		90 - 110			3
Sulfate	B150451-BS1	LCS	100.14	100.00	mg/L	100		90 - 110			3
QC Batch ID: B150483											
Total Sulfide	B150483-BS1	LCS	0.51023	0.50000	mg/L	102		90 - 110			4
	B150483-BSD1	LCSD	0.51023	0.50000	mg/L	102	0	90 - 110	10		5
QC Batch ID: B150685											
Total Dissolved Solids @ 180 C	B150685-BS1	LCS	595.00	586.00	mg/L	102		90 - 110			6
QC Batch ID: B150696											
MBAS	B150696-BS1	LCS	0.18580	0.20000	mg/L	92.9		85 - 115			7
QC Batch ID: B150736											
Ammonia as N	B150736-BS1	LCS	2.0587	2.0000	mg/L	103		90 - 110			8
QC Batch ID: B150952											
Nitrite as N	B150952-BS1	LCS	0.47811	0.50000	mg/L	95.6		90 - 110			9
QC Batch ID: B150971											
ortho-Phosphate as P	B150971-BS1	LCS	0.50630	0.50000	mg/L	101		90 - 110			10
QC Batch ID: B151162											
Total Cyanide	B151162-BS1	LCS	0.15784	0.15000	mg/L	105		90 - 110			11
QC Batch ID: B151358											
Chemical Oxygen Demand	B151358-BS1	LCS	769.91	750.00	mg O2/L	103		90 - 110			12
QC Batch ID: B151570											
Total Organic Carbon	B151570-BS1	LCS	5.1920	5.0000	mg/L	104		85 - 115			13
QC Batch ID: B151572											
Dissolved Calcium	B151572-BS2	LCS	9.8180	10.000	mg/L	98.2		85 - 115			14
Dissolved Magnesium	B151572-BS1	LCS	9.7454	10.000	mg/L	97.5		85 - 115			15
Dissolved Sodium	B151572-BS1	LCS	9.7023	10.000	mg/L	97.0		85 - 115			15
Dissolved Potassium	B151572-BS1	LCS	9.2865	10.000	mg/L	92.9		85 - 115			15

GSI Water Solutions, Inc. 418 Chapala Street Suite H Santa Barbara, CA 93101	**Reported:** 11/28/2022 10:07 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Brian Franz

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150264-BS3	LCS	SM-2320B	10/05/22	10/05/22 08:24	RML	MET-1	1
2	B150264-BS2	LCS	EPA-150.1	10/05/22	10/05/22 08:21	RML	MET-1	1
3	B150451-BS1	LCS	EPA-300.0	09/29/22	09/30/22 04:08	SAV	IC1	1
4	B150483-BS1	LCS	SM-4500SD	09/30/22	09/30/22 09:40	JT3	SPEC06	1
5	B150483-BSD1	LCSD	SM-4500SD	09/30/22	09/30/22 09:40	JT3	SPEC06	1
6	B150685-BS1	LCS	SM-2540C	10/05/22	10/05/22 11:30	CAD	MANUAL	5
7	B150696-BS1	LCS	SM-5540C	10/05/22	10/05/22 07:25	JMN	SPEC06	1
8	B150736-BS1	LCS	EPA-350.1	10/05/22	10/06/22 13:38	MKB	SC-2	1
9	B150952-BS1	LCS	EPA-353.2	09/29/22	09/29/22 22:44	KB1	KONE-1	1
10	B150971-BS1	LCS	EPA-365.1	09/29/22	09/29/22 01:06	KB1	SC-1	1
11	B151162-BS1	LCS	EPA-335.4	10/11/22	10/11/22 15:22	MKB	KONE-1	1
12	B151358-BS1	LCS	EPA-410.4	10/10/22	10/10/22 11:00	SPB	SPEC06	1
13	B151570-BS1	LCS	SM-5310C	10/19/22	10/21/22 02:09	JAT	TOC3	1
14	B151572-BS2	LCS	EPA-200.7	10/17/22	10/19/22 16:03	JRG	OP-PE4	1
15	B151572-BS1	LCS	EPA-200.7	10/17/22	10/17/22 21:13	JRG	OP-PE4	1

GSI Water Solutions, Inc.
418 Chapala Street Suite H
Santa Barbara, CA 93101

Reported: 11/28/2022 10:07
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B150264	Used client sample: Y - Description: PIW-1-092922, 09/29/2022 09:15											
Bicarbonate	DUP	2223190-01	515.29	510.84		mg/L	0.9		10			1
Carbonate	DUP	2223190-01	ND	ND		mg/L			10			1
Total Alkalinity as CaCO3	DUP	2223190-01	422.62	418.97		mg/L	0.9		10			1
pH	DUP	2223190-01	7.8000	7.8900		pH Units	1.1		20			2
QC Batch ID: B150451	Used client sample: N											
Chloride	DUP	2223182-01	142.92	142.15		mg/L	0.5		10			3
	MS	2223182-01	142.92	191.47	50.505	mg/L		96.1		80 - 120		4
	MSD	2223182-01	142.92	191.25	50.505	mg/L	0.1	95.7	10	80 - 120		5
Fluoride	DUP	2223182-01	0.19500	0.18000		mg/L	8.0		10			3
	MS	2223182-01	0.19500	1.2374	1.0101	mg/L		103		80 - 120		4
	MSD	2223182-01	0.19500	1.2626	1.0101	mg/L	2.0	106	10	80 - 120		5
Nitrate as N	DUP	2223182-01	1.4170	1.4180		mg/L	0.1		10			3
	MS	2223182-01	1.4170	6.7313	5.0505	mg/L		105		80 - 120		4
	MSD	2223182-01	1.4170	6.8081	5.0505	mg/L	1.1	107	10	80 - 120		5
Sulfate	DUP	2223182-01	95.602	95.589		mg/L	0.0		10			3
	MS	2223182-01	95.602	206.86	101.01	mg/L		110		80 - 120		4
	MSD	2223182-01	95.602	207.71	101.01	mg/L	0.4	111	10	80 - 120		5
QC Batch ID: B150483	Used client sample: N											
Total Sulfide	DUP	2223144-01	0.077320	0.075420		mg/L	2.5		10		J	6
	MS	2223144-01	0.077320	0.52162	0.50000	mg/L		88.9		80 - 120		7
	MSD	2223144-01	0.077320	0.52352	0.50000	mg/L	0.4	89.2	10	80 - 120		8
QC Batch ID: B150656	Used client sample: N											
Total Suspended Solids (Glass Fiber)	DUP	2223226-02	27.600	28.800		mg/L	4.3		10			9
QC Batch ID: B150685	Used client sample: Y - Description: PIW-1-092922, 09/29/2022 09:15											
Total Dissolved Solids @ 180 C	DUP	2223190-01	865.00	870.00		mg/L	0.6		10			10
QC Batch ID: B150696	Used client sample: Y - Description: PIW-1-092922, 09/29/2022 09:15											
MBAS	DUP	2223190-01	ND	ND		mg/L			20			11
	MS	2223190-01	ND	0.38700	0.40000	mg/L		96.8		80 - 120		12
	MSD	2223190-01	ND	0.37940	0.40000	mg/L	2.0	94.8	20	80 - 120		13
QC Batch ID: B150736	Used client sample: N											
Ammonia as N	DUP	**2223080-01**	**0.44029**	**0.38622**		**mg/L**	**13.1**		**10**		**A02**	14
	MS	**2223080-01**	**0.44029**	**2.9493**	**2.3952**	**mg/L**		**105**		**90 - 110**		15
	MSD	**2223080-01**	**0.44029**	**2.8871**	**2.3952**	**mg/L**	**2.1**	**102**	**10**	**90 - 110**		16
QC Batch ID: B150774	Used client sample: Y - Description: PIW-1-092922, 09/29/2022 09:15											
Oxidation Reduction Potential (Eh)	DUP	2223190-01	405.00	400.00		mV	1.2		10			17

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GSI Water Solutions, Inc.	**Reported:** 11/28/2022 10:07
418 Chapala Street Suite H	Project: Morro Bay Injection
Santa Barbara, CA 93101	Project Number: 645.007
	Project Manager: Brian Franz

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B150774	Used client sample: Y - Description: PIW-1-092922, 09/29/2022 09:15											
Oxidation Reduction Potential (Eobs_Ag/	DUP	2223190-01	191.34	186.38		mV	2.6		10			17
QC Batch ID: B150891	Used client sample: Y - Description: PIW-1-092922, 09/29/2022 09:15											
Residual Chlorine	DUP	2223190-01	ND	ND		mg/L			10			18
QC Batch ID: B150952	Used client sample: Y - Description: PIW-1-092922, 09/29/2022 09:15											
Nitrite as N	DUP	**2223190-01**	**0.015820**	**0.013921**		**mg/L**	**12.8**		**10**		**J,A02**	19
	MS	**2223190-01**	**0.015820**	**0.50282**	**0.52632**	**mg/L**		**92.5**		**90 - 110**		20
	MSD	**2223190-01**	**0.015820**	**0.49903**	**0.52632**	**mg/L**	**0.8**	**91.8**	**10**	**90 - 110**		21
QC Batch ID: B150971	Used client sample: N											
ortho-Phosphate as P	DUP	2222994-01	3.5460	3.5650		mg/L	0.5		10			22
	MS	2222994-01	3.5460	9.0158	5.2632	mg/L		104		90 - 110		23
	MSD	2222994-01	3.5460	8.9526	5.2632	mg/L	0.7	103	10	90 - 110		24
QC Batch ID: B151129	Used client sample: Y - Description: PIW-1-092922, 09/29/2022 09:15											
Color	DUP	2223190-01	1.0000	1.0000		Color Units	0		20			25
QC Batch ID: B151155	Used client sample: Y - Description: PIW-1-092922, 09/29/2022 09:15											
Turbidity	DUP	2223190-01	0.69500	0.71900		NT Units	3.4		10			26
QC Batch ID: B151162	Used client sample: N											
Total Cyanide	DUP	**2223431-02**	**ND**	**ND**		**mg/L**			**10**			27
	MS	**2223431-02**	**ND**	**ND**	**0.10000**	**mg/L**		**-2.6**		**90 - 110**	**Q03**	28
	MSD	**2223431-02**	**ND**	**ND**	**0.10000**	**mg/L**	**7.1**	**-2.8**	**10**	**90 - 110**	**Q03**	29
QC Batch ID: B151358	Used client sample: Y - Description: PIW-1-092922, 09/29/2022 09:15											
Chemical Oxygen Demand	DUP	2223190-01	20.833	20.833		mg O2/L	0		20		J	30
	MS	2223190-01	20.833	752.39	750.00	mg O2/L		97.5		80 - 120		31
	MSD	2223190-01	20.833	743.64	750.00	mg O2/L	1.2	96.4	20	80 - 120		32
QC Batch ID: B151570	Used client sample: N											
Total Organic Carbon	DUP	**2223080-01**	**0.55600**	**3.1100**		**mg/L**	**139**		**10**		**J,A10**	33
	MS	**2223080-01**	**0.55600**	**28.668**	**25.126**	**mg/L**		**112**		**80 - 120**	**A10**	34
	MSD	**2223080-01**	**0.55600**	**28.422**	**25.126**	**mg/L**	**0.9**	**111**	**10**	**80 - 120**	**A10**	35
QC Batch ID: B151572	Used client sample: N											
Dissolved Calcium	DUP	2223144-18	31.734	30.574		mg/L	3.7		20			36
	MS	2223144-18	31.734	78.224	51.020	mg/L		91.1		85 - 115		37
	MSD	2223144-18	31.734	78.432	51.020	mg/L	0.3	91.5	20	85 - 115		38
Dissolved Magnesium	DUP	**2223144-18**	**42.454**	**43.087**		**mg/L**	**1.5**		**20**			39
	MS	**2223144-18**	**42.454**	**54.475**	**10.204**	**mg/L**		**118**		**85 - 115**	**A03**	40
	MSD	**2223144-18**	**42.454**	**50.080**	**10.204**	**mg/L**	**8.4**	**74.7**	**20**	**85 - 115**	**A03**	41

GSI Water Solutions, Inc. 418 Chapala Street Suite H Santa Barbara, CA 93101	**Reported:** 11/28/2022 10:07 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Brian Franz

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B151572	Used client sample: N											
Dissolved Sodium	DUP	**2223144-18**	**43.567**	**43.870**		**mg/L**	**0.7**		**20**			39
	MS	**2223144-18**	**43.567**	**55.484**	**10.204**	**mg/L**		**117**		**85 - 115**	**A03**	40
	MSD	**2223144-18**	**43.567**	**51.011**	**10.204**	**mg/L**	**8.4**	**72.9**	**20**	**85 - 115**	**A03**	41
Dissolved Potassium	DUP	2223144-18	0.73662	0.74193		mg/L	0.7		20		J	39
	MS	2223144-18	0.73662	10.990	10.204	mg/L		100		85 - 115		40
	MSD	2223144-18	0.73662	10.032	10.204	mg/L	9.1	91.1	20	85 - 115		41

GSI Water Solutions, Inc.
418 Chapala Street Suite H
Santa Barbara, CA 93101

Reported: 11/28/2022 10:07
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150264-DUP1	DUP	SM-2320B	10/05/22	10/05/22 09:45	RML	MET-1	2
2	B150264-DUP1	DUP	EPA-150.1	10/05/22	10/05/22 09:45	RML	MET-1	1
3	B150451-DUP1	DUP	EPA-300.0	09/29/22	09/30/22 04:51	SAV	IC1	1
4	B150451-MS1	MS	EPA-300.0	09/29/22	09/30/22 05:12	SAV	IC1	1.010
5	B150451-MSD1	MSD	EPA-300.0	09/29/22	09/30/22 05:33	SAV	IC1	1.010
6	B150483-DUP1	DUP	SM-4500SD	09/30/22	09/30/22 09:40	JT3	SPEC06	1
7	B150483-MS1	MS	SM-4500SD	09/30/22	09/30/22 09:40	JT3	SPEC06	1
8	B150483-MSD1	MSD	SM-4500SD	09/30/22	09/30/22 09:40	JT3	SPEC06	1
9	B150656-DUP1	DUP	SM-2540D	10/05/22	10/05/22 11:00	TJV	MANUAL	4
10	B150685-DUP1	DUP	SM-2540C	10/05/22	10/05/22 11:30	CAD	MANUAL	5
11	B150696-DUP1	DUP	SM-5540C	10/05/22	10/05/22 07:25	JMN	SPEC06	2
12	B150696-MS1	MS	SM-5540C	10/05/22	10/05/22 07:25	JMN	SPEC06	2
13	B150696-MSD1	MSD	SM-5540C	10/05/22	10/05/22 07:25	JMN	SPEC06	2
14	B150736-DUP1	DUP	EPA-350.1	10/05/22	10/06/22 13:41	MKB	SC-2	1.079
15	B150736-MS1	MS	EPA-350.1	10/05/22	10/06/22 13:42	MKB	SC-2	1.198
16	B150736-MSD1	MSD	EPA-350.1	10/05/22	10/06/22 13:43	MKB	SC-2	1.198
17	B150774-DUP1	DUP	ASTM-D1498	10/06/22	10/06/22 09:09	RML	MET-1	1
18	B150891-DUP1	DUP	SM-4500-CLF	10/06/22	10/06/22 09:30	JTM	MANUAL	1
19	B150952-DUP1	DUP	EPA-353.2	09/29/22	09/29/22 22:45	KB1	KONE-1	1
20	B150952-MS1	MS	EPA-353.2	09/29/22	09/29/22 22:45	KB1	KONE-1	1.053
21	B150952-MSD1	MSD	EPA-353.2	09/29/22	09/29/22 22:45	KB1	KONE-1	1.053
22	B150971-DUP1	DUP	EPA-365.1	09/29/22	09/29/22 01:08	KB1	SC-1	10
23	B150971-MS1	MS	EPA-365.1	09/29/22	09/29/22 01:08	KB1	SC-1	10.526
24	B150971-MSD1	MSD	EPA-365.1	09/29/22	09/29/22 01:09	KB1	SC-1	10.526
25	B151129-DUP1	DUP	SM-2120B	10/11/22	10/11/22 08:00	RML	MANUAL	1
26	B151155-DUP1	DUP	EPA-180.1	10/11/22	10/11/22 08:00	RML	MANUAL	1
27	B151162-DUP1	DUP	EPA-335.4	10/11/22	10/11/22 15:22	MKB	KONE-1	1
28	B151162-MS1	MS	EPA-335.4	10/11/22	10/11/22 15:22	MKB	KONE-1	1
29	B151162-MSD1	MSD	EPA-335.4	10/11/22	10/11/22 15:22	MKB	KONE-1	1
30	B151358-DUP1	DUP	EPA-410.4	10/10/22	10/10/22 11:00	SPB	SPEC06	1
31	B151358-MS1	MS	EPA-410.4	10/10/22	10/10/22 11:00	SPB	SPEC06	1
32	B151358-MSD1	MSD	EPA-410.4	10/10/22	10/10/22 11:00	SPB	SPEC06	1

GSI Water Solutions, Inc. 418 Chapala Street Suite H Santa Barbara, CA 93101	**Reported:** 11/28/2022 10:07 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Brian Franz

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
33	B151570-DUP1	DUP	SM-5310C	10/19/22	10/21/22 03:22	JAT	TOC3	5
34	B151570-MS1	MS	SM-5310C	10/19/22	10/21/22 03:39	JAT	TOC3	5.025
35	B151570-MSD1	MSD	SM-5310C	10/19/22	10/21/22 03:55	JAT	TOC3	5.025
36	B151572-DUP2	DUP	EPA-200.7	10/17/22	10/19/22 16:08	JRG	OP-PE4	5
37	B151572-MS2	MS	EPA-200.7	10/17/22	10/19/22 16:17	JRG	OP-PE4	5.102
38	B151572-MSD2	MSD	EPA-200.7	10/17/22	10/19/22 16:20	JRG	OP-PE4	5.102
39	B151572-DUP1	DUP	EPA-200.7	10/17/22	10/17/22 21:17	JRG	OP-PE4	1
40	B151572-MS1	MS	EPA-200.7	10/17/22	10/17/22 21:22	JRG	OP-PE4	1.020
41	B151572-MSD1	MSD	EPA-200.7	10/17/22	10/17/22 21:24	JRG	OP-PE4	1.020

GSI Water Solutions, Inc.
418 Chapala Street Suite H
Santa Barbara, CA 93101

Reported: 11/28/2022 10:07
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B150764							
Total Recoverable Silica	**B150764-BLK1**	**120.89**	**ug/L**	**200**	**53**	**J**	1
QC Batch ID: B150833							
Hexavalent Chromium	**B150833-BLK1**	**0.070000**	**ug/L**	**0.20**	**0.020**	**J**	2
QC Batch ID: B151113							
Dissolved Mercury	B151113-BLK1	ND	ug/L	0.20	0.022		3
QC Batch ID: B151212							
Dissolved Antimony	B151212-BLK1	ND	ug/L	2.0	0.23		4
Dissolved Arsenic	B151212-BLK1	ND	ug/L	2.0	0.38		4
Dissolved Barium	B151212-BLK1	ND	ug/L	1.0	0.066		4
Dissolved Cadmium	B151212-BLK1	ND	ug/L	1.0	0.034		4
Dissolved Chromium	B151212-BLK1	ND	ug/L	3.0	0.15		4
Dissolved Cobalt	B151212-BLK1	ND	ug/L	1.0	0.011		4
Dissolved Copper	B151212-BLK1	ND	ug/L	2.0	0.32		4
Dissolved Lead	B151212-BLK1	ND	ug/L	1.0	0.021		4
Dissolved Manganese	**B151212-BLK1**	**0.045000**	**ug/L**	**1.0**	**0.040**	**J**	4
Dissolved Molybdenum	B151212-BLK1	ND	ug/L	1.0	0.033		4
Dissolved Nickel	**B151212-BLK1**	**0.18700**	**ug/L**	**2.0**	**0.15**	**J**	4
Dissolved Selenium	**B151212-BLK1**	**0.62900**	**ug/L**	**2.0**	**0.25**	**J**	4
Dissolved Silver	B151212-BLK1	ND	ug/L	1.0	0.015		4
Dissolved Thallium	B151212-BLK1	ND	ug/L	1.0	0.025		4
Dissolved Uranium	B151212-BLK1	ND	ug/L	1.0	0.051		4
Dissolved Vanadium	B151212-BLK1	ND	ug/L	3.0	0.39		4
Dissolved Zinc	B151212-BLK1	ND	ug/L	5.0	2.2		4
QC Batch ID: B151572							
Dissolved Aluminum	B151572-BLK1	ND	ug/L	50	23		5
Dissolved Iron	B151572-BLK1	ND	ug/L	50	30		5
Dissolved Silicon as SiO2	B151572-BLK2	ND	ug/L	200	31		6
Dissolved Strontium	B151572-BLK2	ND	ug/L	10	1.0		6

GSI Water Solutions, Inc. 418 Chapala Street Suite H Santa Barbara, CA 93101	**Reported:** 11/28/2022 10:07 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Brian Franz

Metals Analysis

Quality Control Report - Method Blank Analysis

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150764-BLK1	PB	EPA-200.7	10/05/22	10/06/22 18:55	JRG	PE-OP4	1
2	B150833-BLK1	PB	EPA-218.6	10/06/22	10/06/22 11:14	SAV	IC-4	1
3	B151113-BLK1	PB	EPA-245.1	10/11/22	10/11/22 13:33	TMT	CETAC3	1
4	B151212-BLK1	PB	EPA-200.8	10/12/22	10/12/22 11:15	KHS	PE-EL4	1
5	B151572-BLK1	PB	EPA-200.7	10/17/22	10/17/22 21:11	JRG	OP-PE4	1
6	B151572-BLK2	PB	EPA-200.7	10/17/22	10/19/22 16:01	JRG	OP-PE4	1

GSI Water Solutions, Inc.
418 Chapala Street Suite H
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Reported: 11/28/2022 10:07
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Metals Analysis

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B150764											
Total Recoverable Silica	B150764-BS1	LCS	22902	21392	ug/L	107		85 - 115			1
QC Batch ID: B150833											
Hexavalent Chromium	B150833-BS1	LCS	18.905	20.000	ug/L	94.5		90 - 110			2
QC Batch ID: B151113											
Dissolved Mercury	B151113-BS1	LCS	0.95750	1.0000	ug/L	95.8		85 - 115			3
QC Batch ID: B151212											
Dissolved Antimony	B151212-BS1	LCS	38.460	40.000	ug/L	96.2		85 - 115			4
Dissolved Arsenic	B151212-BS1	LCS	92.584	100.00	ug/L	92.6		85 - 115			4
Dissolved Barium	B151212-BS1	LCS	40.417	40.000	ug/L	101		85 - 115			4
Dissolved Cadmium	B151212-BS1	LCS	37.935	40.000	ug/L	94.8		85 - 115			4
Dissolved Chromium	B151212-BS1	LCS	38.471	40.000	ug/L	96.2		85 - 115			4
Dissolved Cobalt	B151212-BS1	LCS	38.387	40.000	ug/L	96.0		85 - 115			4
Dissolved Copper	B151212-BS1	LCS	94.237	100.00	ug/L	94.2		85 - 115			4
Dissolved Lead	B151212-BS1	LCS	101.91	100.00	ug/L	102		85 - 115			4
Dissolved Manganese	B151212-BS1	LCS	96.350	100.00	ug/L	96.4		85 - 115			4
Dissolved Molybdenum	B151212-BS1	LCS	35.948	40.000	ug/L	89.9		85 - 115			4
Dissolved Nickel	B151212-BS1	LCS	98.238	100.00	ug/L	98.2		85 - 115			4
Dissolved Selenium	B151212-BS1	LCS	95.528	100.00	ug/L	95.5		85 - 115			4
Dissolved Silver	B151212-BS1	LCS	38.089	40.000	ug/L	95.2		85 - 115			4
Dissolved Thallium	B151212-BS1	LCS	40.109	40.000	ug/L	100		85 - 115			4
Dissolved Uranium	B151212-BS1	LCS	37.081	40.000	ug/L	92.7		85 - 115			4
Dissolved Vanadium	B151212-BS1	LCS	36.766	40.000	ug/L	91.9		85 - 115			4
Dissolved Zinc	B151212-BS1	LCS	93.466	100.00	ug/L	93.5		85 - 115			4
QC Batch ID: B151572											
Dissolved Aluminum	B151572-BS1	LCS	951.71	1000.0	ug/L	95.2		85 - 115			5
Dissolved Iron	B151572-BS1	LCS	965.05	1000.0	ug/L	96.5		85 - 115			5
Dissolved Silicon as SiO2	B151572-BS2	LCS	20641	21392	ug/L	96.5		85 - 115			6
Dissolved Strontium	B151572-BS2	LCS	461.75	500.00	ug/L	92.3		85 - 115			6

GSI Water Solutions, Inc.
418 Chapala Street Suite H
Santa Barbara, CA 93101

Reported: 11/28/2022 10:07
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Metals Analysis

Quality Control Report - Laboratory Control Sample

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150764-BS1	LCS	EPA-200.7	10/05/22	10/06/22 18:57	JRG	PE-OP4	1
2	B150833-BS1	LCS	EPA-218.6	10/06/22	10/06/22 11:24	SAV	IC-4	1
3	B151113-BS1	LCS	EPA-245.1	10/11/22	10/11/22 13:42	TMT	CETAC3	1
4	B151212-BS1	LCS	EPA-200.8	10/12/22	10/12/22 11:23	KHS	PE-EL4	1
5	B151572-BS1	LCS	EPA-200.7	10/17/22	10/17/22 21:13	JRG	OP-PE4	1
6	B151572-BS2	LCS	EPA-200.7	10/17/22	10/19/22 16:03	JRG	OP-PE4	1

GSI Water Solutions, Inc.
418 Chapala Street Suite H
Santa Barbara, CA 93101

Reported: 11/28/2022 10:07
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B150764	Used client sample: N											
Total Recoverable Silica	DUP	2223431-01	2079.5	2147.8		ug/L	3.2		20			1
	MS	2223431-01	2079.5	23090	21392	ug/L		98.2		75 - 125		2
	MSD	2223431-01	2079.5	20352	21392	ug/L	12.6	85.4	20	75 - 125		3
QC Batch ID: B150833	Used client sample: N											
Hexavalent Chromium	DUP	**2222992-01**	**0.064000**	**0.048000**		**ug/L**	**28.6**		**10**		**J,A02**	4
	MS	**2222992-01**	**0.064000**	**19.192**	**20.202**	**ug/L**		**94.7**		**90 - 110**		5
	MSD	**2222992-01**	**0.064000**	**19.507**	**20.202**	**ug/L**	**1.6**	**96.2**	**10**	**90 - 110**		6
QC Batch ID: B151113	Used client sample: N											
Dissolved Mercury	DUP	2223120-01	ND	0.11525		ug/L			20		J	7
	MS	2223120-01	ND	0.95250	1.0000	ug/L		95.2		70 - 130		8
	MSD	2223120-01	ND	0.94250	1.0000	ug/L	1.1	94.2	20	70 - 130		9
QC Batch ID: B151212	Used client sample: N											
Dissolved Antimony	DUP	2223668-01	ND	ND		ug/L			20			10
	MS	2223668-01	ND	41.072	40.816	ug/L		101		70 - 130		11
	MSD	2223668-01	ND	40.417	40.816	ug/L	1.6	99.0	20	70 - 130		12
Dissolved Arsenic	DUP	2223668-01	0.38900	ND		ug/L			20			10
	MS	2223668-01	0.38900	102.15	102.04	ug/L		99.7		70 - 130		11
	MSD	2223668-01	0.38900	102.97	102.04	ug/L	0.8	101	20	70 - 130		12
Dissolved Barium	DUP	2223668-01	61.532	62.265		ug/L	1.2		20			10
	MS	2223668-01	61.532	100.60	40.816	ug/L		95.7		70 - 130		11
	MSD	2223668-01	61.532	108.08	40.816	ug/L	7.2	114	20	70 - 130		12
Dissolved Cadmium	DUP	2223668-01	ND	ND		ug/L			20			10
	MS	2223668-01	ND	41.656	40.816	ug/L		102		70 - 130		11
	MSD	2223668-01	ND	39.568	40.816	ug/L	5.1	96.9	20	70 - 130		12
Dissolved Chromium	DUP	2223668-01	0.50400	ND		ug/L			20			10
	MS	2223668-01	0.50400	40.576	40.816	ug/L		98.2		70 - 130		11
	MSD	2223668-01	0.50400	38.961	40.816	ug/L	4.1	94.2	20	70 - 130		12
Dissolved Cobalt	DUP	2223668-01	0.37200	0.36100		ug/L	3.0		20		J	10
	MS	2223668-01	0.37200	40.257	40.816	ug/L		97.7		70 - 130		11
	MSD	2223668-01	0.37200	39.209	40.816	ug/L	2.6	95.2	20	70 - 130		12
Dissolved Copper	DUP	2223668-01	0.37400	0.36100		ug/L	3.5		20		J	10
	MS	2223668-01	0.37400	98.326	102.04	ug/L		96.0		70 - 130		11
	MSD	2223668-01	0.37400	98.140	102.04	ug/L	0.2	95.8	20	70 - 130		12
Dissolved Lead	DUP	2223668-01	ND	ND		ug/L			20			10
	MS	2223668-01	ND	96.027	102.04	ug/L		94.1		70 - 130		11
	MSD	2223668-01	ND	100.69	102.04	ug/L	4.7	98.7	20	70 - 130		12

GSI Water Solutions, Inc.
418 Chapala Street Suite H
Santa Barbara, CA 93101

Reported: 11/28/2022 10:07
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B151212	Used client sample: N											
Dissolved Manganese	DUP	2223668-01	0.47700	0.40400		ug/L	16.6		20		J	10
	MS	2223668-01	0.47700	99.201	102.04	ug/L		96.7		70 - 130		11
	MSD	2223668-01	0.47700	100.05	102.04	ug/L	0.9	97.6	20	70 - 130		12
Dissolved Molybdenum	DUP	2223668-01	ND	0.064000		ug/L			20		J	10
	MS	2223668-01	ND	38.334	40.816	ug/L		93.9		70 - 130		11
	MSD	2223668-01	ND	37.776	40.816	ug/L	1.5	92.6	20	70 - 130		12
Dissolved Nickel	DUP	2223668-01	3.8020	3.4870		ug/L	8.6		20			10
	MS	2223668-01	3.8020	101.34	102.04	ug/L		95.6		70 - 130		11
	MSD	2223668-01	3.8020	99.536	102.04	ug/L	1.8	93.8	20	70 - 130		12
Dissolved Selenium	DUP	2223668-01	0.40500	0.41100		ug/L	1.5		20		J	10
	MS	2223668-01	0.40500	99.426	102.04	ug/L		97.0		70 - 130		11
	MSD	2223668-01	0.40500	102.93	102.04	ug/L	3.5	100	20	70 - 130		12
Dissolved Silver	DUP	2223668-01	ND	ND		ug/L			20			10
	MS	2223668-01	ND	28.878	40.816	ug/L		70.8		70 - 130		11
	MSD	2223668-01	ND	29.267	40.816	ug/L	1.3	71.7	20	70 - 130		12
Dissolved Thallium	DUP	2223668-01	ND	ND		ug/L			20			10
	MS	2223668-01	ND	38.511	40.816	ug/L		94.4		70 - 130		11
	MSD	2223668-01	ND	39.822	40.816	ug/L	3.3	97.6	20	70 - 130		12
Dissolved Uranium	DUP	2223668-01	56.442	55.999		ug/L	0.8		20			10
	MS	2223668-01	56.442	100.03	40.816	ug/L		107		70 - 130		11
	MSD	2223668-01	56.442	102.55	40.816	ug/L	2.5	113	20	70 - 130		12
Dissolved Vanadium	DUP	2223668-01	ND	ND		ug/L			20			10
	MS	2223668-01	ND	35.728	40.816	ug/L		87.5		70 - 130		11
	MSD	2223668-01	ND	36.616	40.816	ug/L	2.5	89.7	20	70 - 130		12
Dissolved Zinc	DUP	2223668-01	6.2950	6.4480		ug/L	2.4		20			10
	MS	2223668-01	6.2950	108.97	102.04	ug/L		101		70 - 130		11
	MSD	2223668-01	6.2950	107.45	102.04	ug/L	1.4	99.1	20	70 - 130		12
QC Batch ID: B151572	Used client sample: N											
Dissolved Aluminum	DUP	2223144-18	ND	ND		ug/L			20			13
	MS	2223144-18	ND	1057.7	1020.4	ug/L		104		85 - 115		14
	MSD	2223144-18	ND	986.46	1020.4	ug/L	7.0	96.7	20	85 - 115		15
Dissolved Iron	DUP	2223144-18	ND	ND		ug/L			20			13
	MS	2223144-18	ND	1060.9	1020.4	ug/L		104		85 - 115		14
	MSD	2223144-18	ND	996.45	1020.4	ug/L	6.3	97.7	20	85 - 115		15
Dissolved Silicon as SiO2	DUP	2223144-18	47054	47846		ug/L	1.7		20			16
	MS	2223144-18	47054	143940	109140	ug/L		88.8		85 - 115		17
	MSD	2223144-18	47054	144620	109140	ug/L	0.5	89.4	20	85 - 115		18

GSI Water Solutions, Inc. 418 Chapala Street Suite H Santa Barbara, CA 93101	**Reported:** 11/28/2022 10:07 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Brian Franz

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B151572	Used client sample: N											
Dissolved Strontium	DUP	2223144-18	274.10	262.45		ug/L	4.3		20			16
	MS	2223144-18	274.10	2660.3	2551.0	ug/L		93.5		85 - 115		17
	MSD	2223144-18	274.10	2638.4	2551.0	ug/L	0.8	92.7	20	85 - 115		18

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150764-DUP1	DUP	EPA-200.7	10/05/22	10/06/22 19:02	JRG	PE-OP4	1
2	B150764-MS1	MS	EPA-200.7	10/05/22	10/06/22 19:06	JRG	PE-OP4	1
3	B150764-MSD1	MSD	EPA-200.7	10/05/22	10/06/22 19:08	JRG	PE-OP4	1
4	B150833-DUP1	DUP	EPA-218.6	10/06/22	10/06/22 11:43	SAV	IC-4	1
5	B150833-MS1	MS	EPA-218.6	10/06/22	10/06/22 11:52	SAV	IC-4	1.010
6	B150833-MSD1	MSD	EPA-218.6	10/06/22	10/06/22 12:02	SAV	IC-4	1.010
7	B151113-DUP1	DUP	EPA-245.1	10/11/22	10/11/22 13:47	TMT	CETAC3	1
8	B151113-MS1	MS	EPA-245.1	10/11/22	10/11/22 13:49	TMT	CETAC3	1
9	B151113-MSD1	MSD	EPA-245.1	10/11/22	10/11/22 13:51	TMT	CETAC3	1
10	B151212-DUP1	DUP	EPA-200.8	10/12/22	10/12/22 12:20	KHS	PE-EL4	1
11	B151212-MS1	MS	EPA-200.8	10/12/22	10/12/22 12:11	KHS	PE-EL4	1.020
12	B151212-MSD1	MSD	EPA-200.8	10/12/22	10/12/22 11:25	KHS	PE-EL4	1.020
13	B151572-DUP1	DUP	EPA-200.7	10/17/22	10/17/22 21:17	JRG	OP-PE4	1
14	B151572-MS1	MS	EPA-200.7	10/17/22	10/17/22 21:22	JRG	OP-PE4	1.020
15	B151572-MSD1	MSD	EPA-200.7	10/17/22	10/17/22 21:24	JRG	OP-PE4	1.020
16	B151572-DUP2	DUP	EPA-200.7	10/17/22	10/19/22 16:08	JRG	OP-PE4	5
17	B151572-MS2	MS	EPA-200.7	10/17/22	10/19/22 16:17	JRG	OP-PE4	5.102
18	B151572-MSD2	MSD	EPA-200.7	10/17/22	10/19/22 16:20	JRG	OP-PE4	5.102

Pace

2218 Railroad Avenue
Redding, California 96001
voice 530.243.7234
fax 530.243.7494

3860 Morrow Lane, Suite F
Chico, California 95928
voice 530.894.8966
fax 530.894.5143

Analytical Report

Report To:	PACE ANALYTICAL SERVICES - BAKERSFIELD	**Lab No:**	22J1078
	4100 ATLAS COURT	**Reported:**	11/08/22
	BAKERSFIELD, CA 93308	**Phone:**	(800) 878-4911
Attention:	Ragen Schallock		
Project:	Nutrients Testing 2223190		

Included in this report are laboratory results for work order 22J1078, received on 10/25/22. All analyses were performed in strict adherence to our established Quality Manual. Any qualifications or abnormalities are listed in the Notes and Definitions and/or the Case Narrative section of this report. The project Chain of Custody and laboratory sample receipt record are included as attachments to this report.

Sample Results

Description: 2223190-01 PIW-1-092922 **Sampled:** 09/29/22 09:15

Matrix / Type: Water (Grab) **Lab ID:** 22J1078-01 **Received:** 10/25/22 15:03

General Chemistry - Chico Location

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch / Analyst
Nitrate+Nitrite as N	mg/l	0.07	I-02, R-08, J	0.04	0.10	EPA 353.2	10/27/22	10/27/22	B2J1534 / JPW

Quality Control Data

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
General Chemistry - Chico Location	**Batch B2J1534 - General Prep - Chico Gen Chem**									
Blank										
Nitrate+Nitrite as N	ND	0.05	mg/l							
LCS										
Nitrate+Nitrite as N	0.98	0.05	mg/l	1.00		97.8	90-110			
Duplicate	Source: 22J1078-01									
Nitrate+Nitrite as N	0.07	0.10	mg/l		0.07			6.30	20	J
Matrix Spike	Source: 22J1078-01									
Nitrate+Nitrite as N	2.22	0.10	mg/l	2.00	0.07	108	90-110			

Notes and Definitions

R-08 The sample was diluted due to sample matrix resulting in elevated reporting limits.

Pace®

2218 Railroad Avenue
Redding, California 96001
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fax 530.243.7494

3860 Morrow Lane, Suite F
Chico, California 95928
voice 530.894.8966
fax 530.894.5143

Analytical Report

Notes and Definitions

J	Detected but below the Reporting Limit; therefore, result is an estimated concentration (CLP J-Flag). The J flag is equivalent to the DNQ Estimated Concentration flag.
I-02	Sample was analyzed outside of the EPA recommended holding time.
ND	Analyte NOT DETECTED at or above the detection limit
RPD	Relative Percent Difference
MDL	Method Detection Limit
RL	Reporting Limit
* or #	The laboratory does not hold CA-ELAP accreditiation for this analyte or method. Accreditation may not be available from CA-ELAP for this analyte or method.
**	The laboratory holds accreditation for this analyte or method with WA -ECY Lab ID: Lab ID C783. Accreditation is not offered for this method by CA-ELAP
Note 2	According to 40 CFR Part 136 Table II, the following tests should be analyzed in the field within 15 minutes of sampling: pH, chlorine, dissolved oxygen, and sulfite.

Accreditations Held:
Redding Location: CA-ELAP - Cert # 1677
Chico Location: CA-ELAP - Cert # 2718

Approved By

I certify that these results meet the requirements of the applicable accreditation standard, and were performed in compliance with the stated analytical methods unless otherwise noted in the qualifications or Case Narrative section of this report.

Approved By: Ricky Jensen
Ricky Jensen, Operations Manager
Pace Analytical Services LLC - Redding CA

SUBCONTRACT ORDER

22J1078

Pace Analytical Labs - Bakersfield, CA

2223190

22J1078

SENDING LABORATORY:

Pace Analytical Labs
4100 Atlas Ct
Bakersfield, CA 93308
Phone: 661-327-4911
Fax: 661-327-1918
Project Manager: Ragen Schallock

RECEIVING LABORATORY:

Pace - Redding (Basic) $BSCLB
2218 Railroad Ave.
Redding, CA 96001
Phone :(530) 243-7234
Fax: ---

DOD: No **Level 4:** No **EDDs Needed:**

Analysis	Due	Expires	Comments
i353.2w NO3/NO2 as N	10/11/22 23:59	10/27/22 09:15	-01

CA Drinking Water PSCode:

GeoTracker - Global ID: Field Point: Log Code:

Sample ID: 2223190-01 Water **Sampled:** 09/29/22 09:15 **Sample Name:** PIW-1-092922

Containers Supplied:
I20: Nitrate/Nitrite YELLOW PE 50ml, H2SO4 to pH<2

Released By	Date	Received By	Date
[signature]	10/24/22	[signature]	10.25.22 15:03
Released By	Date	Received By	Date

Page 2 of 2

basic laboratory

SAMPLE RECEIPT CHECKLIST

WO NUMBER 22J1078

SHIPPING INFORMATION

Walk-In ☐
Courier ☐
FedEx ☑
UPS ☐
Other ☐

Cooler Present? Yes ☑ No ☐

Samples Received By: AmL Date: 10-25-22

	Yes	No
Samples received on ice?	☑	☐
Samples received the same day collected?	☐	☑

Ice type? ☑ Wet ☐ Blue ☐ Other ______

SAMPLE TEMPERATURES AT RECEIPT Therm. ID (Circle one): Therm-36 Therm-37 Therm-59 Other Therm-41

Cooler temp used: 0.3°c

Sample ID	Corr Temp (°C)	Sample ID	Corr Temp (°C)	Sample ID	Corr Temp (°C)	Sample ID	Corr Temp (°C)
-01		-06		-11		-16	
-02		-07		-12		-17	
-03		-08		-13		-18	
-04		-09		-14		-19	
-05		-10		-15		-20	

SAMPLE CONDITION AND PROCESSING

Samples Processed and Labeled By: AmL Date: 10-25-22

	Yes	No	NA
Custody seals present?	☐	☐	☑
Samples in proper containers?	☑	☐	
Sample containers damaged?	☐	☑	
Sufficient sample volume for indicated tests?	☑	☐	
Samples received within holding times?	☑	☐	
Are VOA vials free of headspace?	☐	☐	☑
Dechlor. agent labels present (i.e., colilert, TTHMs)?	☐	☐	☑

SAMPLE PRESERVATION NA ☐

	Yes	No	NA
Preserved in the field?	☑	☐	☐
Preserved in the lab?	☐	☑	☐

Lab Preservation Date & Time ______

☐ H2SO4 (ID______) ☐ HNO3 (ID______) ☐ NaOH (ID______)
☐ Other (ID______) ☐ Other (ID______) ☐ Other (ID______)

	Yes	No	NA
H2SO4 preserved samples confirmed to pH <2 (i.e., E350.1, SM5220, SM5310)?	☑	☐	☐
HNO3 preserved samples confirmed to pH <2 (i.e., E200.7, E200.8, 6010)?	☐	☐	☑
NaOH preserved samples confirmed to pH >10 (cyanide) or >9 (sulfide)?	☐	☐	☑
Hexavalent Chromium (DW) preserved samples confirmed to pH >8 & Chlorine <0.1 mg/l?	☐	☐	☑
Hexavalent Chromium (W) preserved samples confirmed to pH 9.3 - 9.7?	☐	☐	☑
Are proper preservation lables present?	☑	☐	☐

By:______ Meter ID:______

Preservation checked at Lab? Date & Time 10.25.22 16:41 Test Strip (ID 2J12028)

Preservation and Preservation Checks performed by: AmL

COMMENTS, DISCREPANCEIS, ANOMALIES

Rev 2.0 Page 1 FRM-008 Sample Receipt Form

Dominique Aceituno

From:	Eli Velazquez
Sent:	Monday, October 31, 2022 2:14 PM
To:	Dominique Aceituno
Cc:	Kaylee Mayall
Subject:	RE: 2223190 Holding Time

Ok I received a response:

"Please report the results with a flag."

Eli Velazquez
Project Manager
4100 Atlas Ct, Bakersfield, CA 93308
O: 661.327.4911 | D: 661.852.4215 | pacelabs.com

From: Eli Velazquez
Sent: Monday, October 31, 2022 1:25 PM
To: Dominique Aceituno <Dominique.Aceituno@pacelabs.com>
Cc: Kaylee Mayall <Kaylee.Mayall@pacelabs.com>
Subject: RE: 2223190 Holding Time

Hi Dominique,

I did not, and tried again.

Thanks,

Eli Velazquez
Project Manager
4100 Atlas Ct, Bakersfield, CA 93308
O: 661.327.4911 | D: 661.852.4215 | pacelabs.com

From: Dominique Aceituno <Dominique.Aceituno@pacelabs.com>
Sent: Monday, October 31, 2022 11:43 AM
To: Eli Velazquez <Eli.Velazquez@pacelabs.com>

Cc: Kaylee Mayall <Kaylee.Mayall@pacelabs.com>
Subject: RE: 2223190 Holding Time

Were you able to hear back from your client?

Dominique (Nikki) Aceituno
Manager – Client Services
O:530-243-7234 Ext. 202 | M:530-605-9020 | pacelabs.com

PROCESS PAYMENTS ONLINE – click on the link below
Online Bill Pay
A 2.5% surcharge may be added to your credit card payment. Debit and ACH/e-checks incur no additional fees.

From: Dominique Aceituno
Sent: Thursday, October 27, 2022 4:35 PM
To: Eli Velazquez <Eli.Velazquez@pacelabs.com>
Cc: Kaylee Mayall <Kaylee.Mayall@pacelabs.com>
Subject: RE: 2223190 Holding Time

Okay thank you. Let me know.

Dominique (Nikki) Aceituno
Manager – Client Services
O:530-243-7234 Ext. 202 | M:530-605-9020 | pacelabs.com

PROCESS PAYMENTS ONLINE – click on the link below
Online Bill Pay
A 2.5% surcharge may be added to your credit card payment. Debit and ACH/e-checks incur no additional fees.

Please consider the environment before printing this email

From: Eli Velazquez <Eli.Velazquez@pacelabs.com>
Sent: Thursday, October 27, 2022 4:13 PM
To: Dominique Aceituno <Dominique.Aceituno@pacelabs.com>
Cc: Kaylee Mayall <Kaylee.Mayall@pacelabs.com>
Subject: RE: 2223190 Holding Time

Dominique,

I am checking with the client.

Thank you,

Eli Velazquez
Project Manager
4100 Atlas Ct, Bakersfield, CA 93308
O: 661.327.4911 | D: 661.852.4215 | pacelabs.com

Pace

From: Vanessa Sandoval <Vanessa.Sandoval@pacelabs.com>
Sent: Thursday, October 27, 2022 9:16 AM
To: Dominique Aceituno <Dominique.Aceituno@pacelabs.com>
Cc: Eli Velazquez <Eli.Velazquez@pacelabs.com>
Subject: RE: 2223190 Holding Time

Hi Nikki,

Eli Velazquez is helping out with this client for Ragen. Hopefully he can help out.

Thanks,

Vanessa Sandoval
Project Manager I
4100 Atlas Ct., Bakersfield, CA 93308
O: 661.852.4203 | pacelabs.com

Pace

From: Dominique Aceituno <Dominique.Aceituno@pacelabs.com>
Sent: Thursday, October 27, 2022 8:48 AM

To: Vanessa Sandoval <Vanessa.Sandoval@pacelabs.com>
Subject: FW: 2223190 Holding Time

Hello Vanessa,

I don't believe Ragen is in, but she is the project manager listed and I am not sure who else to direct my question to.

Dominique (Nikki) Aceituno
Manager – Client Services
O:530-243-7234 Ext. 202 | M:530-605-9020 | pacelabs.com

Pace

PROCESS PAYMENTS ONLINE – click on the link below
Online Bill Pay
A 2.5% surcharge may be added to your credit card payment. Debit and ACH/e-checks incur no additional fees.

From: Dominique Aceituno
Sent: Wednesday, October 26, 2022 4:33 PM
To: Ragen Williams <Ragen.Williams@pacelabs.com>
Subject: 2223190 Holding Time

Hello,

We received a sample for N+N for the above work order. According to your subcontract order the sample expires 10/27/22 at 9:15. We will not be able to meet this. Is it okay if it is analyzed the day it expires to meet the holding time?

Thank you,
Dominique (Nikki) Aceituno
Manager – Client Services
O:530-243-7234 Ext. 202 | M:530-605-9020 | pacelabs.com

Pace

PROCESS PAYMENTS ONLINE – click on the link below
Online Bill Pay
A 2.5% surcharge may be added to your credit card payment. Debit and ACH/e-checks incur no additional fees.

4

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)

AFJ3415
11/08/2022
Invoice: AF29132

Ragen Williams
Pace Analytical (Bakersfield, CA)
4100 Atlas Court
Bakersfield, CA 93308

RE: Report for AFJ3415 General: Project Manager-Ragen Williams

Dear Ragen Williams,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 10/25/2022. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2016 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Sarah K. Guenther , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Sarah Guenther

Sarah K. Guenther, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AFJ3415 FINAL 11082022 1611

AFJ3415

General: Project Manager-Ragen Williams

BSK ASSOCIATES

Case Narrative

Project and Report Details		Invoice Details	
Client:	Pace Analytical (Bakersfield, CA)	**Invoice To:**	Pace Analytical (Bakersfield, CA)
Report To:	Ragen Williams	**Invoice Attn:**	Invoicing
Project #:	2223190	**Project PO#:**	-
Received:	10/25/2022 - 13:00		
Report Due:	11/08/2022		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt °C: 5.1

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Bubble Wrap
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

None applied

Report Distribution

Recipient(s)	Report Format	CC:
Ragen Williams	FINAL.RPT	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AFJ3415 FINAL 11082022 1611

AFJ3415

General: Project Manager-Ragen Williams

2223190

Certificate of Analysis

Sample ID: AFJ3415-01
Sampled By: Client
Sample Description: 2223190-01 // PIW-1-092922

Sample Date - Time: 09/29/2022 - 09:15
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Total Organic Carbon	SM 5310C	1.1	0.20	mg/L	1	AFJ1761	10/27/22	10/27/22	

AFJ3415

General: Project Manager-Ragen Williams

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 5310C - Quality Control											
Batch: AFJ1761										Prepared: 10/27/2022	
Prep Method: Method Specific Preparation										Analyst: ERA	
Blank (AFJ1761-BLK1)											
Total Organic Carbon	ND	0.20	mg/L							10/27/22	
Blank Spike (AFJ1761-BS1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	104	80-120			10/27/22	
Blank Spike Dup (AFJ1761-BSD1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	104	80-120	0	20	10/27/22	
Matrix Spike (AFJ1761-MS1), Source: AFJ3419-05											
Total Organic Carbon	17	0.20	mg/L	10	6.5	102	80-120			10/27/22	
Matrix Spike (AFJ1761-MS2), Source: AFJ3419-16											
Total Organic Carbon	19	0.20	mg/L	10	9.2	102	80-120			10/28/22	
Matrix Spike Dup (AFJ1761-MSD1), Source: AFJ3419-05											
Total Organic Carbon	17	0.20	mg/L	10	6.5	100	80-120	1	20	10/27/22	
Matrix Spike Dup (AFJ1761-MSD2), Source: AFJ3419-16											
Total Organic Carbon	19	0.20	mg/L	10	9.2	101	80-120	0	20	10/28/22	

BSK ASSOCIATES

AFJ3415

General: Project Manager-Ragen Williams

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

  Unless otherwise noted, TOC results by SM 5310C method do not include purgeable organic carbon, which is removed along with the inorganic carbon interference. The POC contribution to TOC is considered to be negligible.

AFJ3415

General: Project Manager-Ragen Williams

Certificate of Analysis

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

The following parameters are calculated values and are outside the scope of our NELAP accreditation:

Total Nitrogen Aggressive Index Trivalent Chromium

BSK is not accredited under the NELAP program for the following additional parameters: **NA**

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AFJ3415 FINAL 11082022 1611

Certifications: Please refer to our website for a copy of our Accredited Fields of Testing under each certification.

Fresno

State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-019
State of Nevada	CA000792022-1	State of Oregon - NELAP	4021-019
EPA UCMR5	CA00079	State of Washington	C997-22a

Sacramento

State of California - ELAP	1180-S1

San Bernardino

State of California - ELAP	2993	Los Angeles CSD	9254478
NELAP certified	4119-007	State of Oregon - NELAP	4119-007

Vancouver

NELAP certified	WA100008-015	State of Oregon - NELAP	WA100008-015
State of Washington	C824-22		

AFJ3415 BCLab4911 10/25/2022

10

SUBCONTRACT ORDER

Pace Analytical Labs - Bakersfield, CA

2223190

SENDING LABORATORY:

Pace Analytical Labs
4100 Atlas Ct
Bakersfield, CA 93308
Phone: 661-327-4911
Fax: 661-327-1918
Project Manager: Ragen Schallock

RECEIVING LABORATORY:

BSK Analytical Labs- Fresno $BSKSA-EINV
1414 Stanislaus Street
Fresno, CA 93706
Phone :(800) 877-8310
Fax: (559) 485-6935

DOD: No **Level 4:** No **EDDs Needed:**

Analysis	Due	Expires	Comments
iSM5310Cw NVOC as TOC	10/11/22 23:59	10/27/22 09:15	

CA Drinking Water PSCode:

GeoTracker - Global ID: **Field Point:** **Log Code:**

Sample ID: 2223190-01 **Water** **Sampled:** **09/29/22 09:15** **Sample Name:** PIW-1-092922

Containers Supplied:
I44: TOC/TOX/Phenolics, GA 250ml, H2SO4 to pH<2

BW, Wat

Released By	Date	Received By	Date
Fed Ex		BSK	10/25/22 1300
Released By	Date	Received By	Date

Page 1 of 2

AFJ3415 BCLab4911 10/25/2022

10

BSK Associates SR-FL-0002-23

Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info			
Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TTHM/TCP)? TB Received? (Check Method Below)	Yes No NA / Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received — "—" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40ml VOA(V) 125ml(D)	Checks*	Passed?	1
Bacti $Na_2S_2O_3$	—	—	
None (P) White Cap	—	—	
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 DW	Cl, pH > 8	P F	
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 WW	pH 9.3-9.7	P F	
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F	
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—	
H_2SO_4 (P) or (AG) Yellow Cap/Label	~~pH < 2~~	~~P~~ F	1A
NaOH (P) Green Cap	Cl, pH >10	P F	
NaOH + ZnAc (P)	pH > 9	P F	
Dissolved Oxygen 300ml (g)	—	—	
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—	
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—	
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—	
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—	
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—	
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—	
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—	
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F	
NH_4Cl (AG) Purple Label 552	—	—	
EDA (P) or (AG) Brown Label DBPs	—	—	
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—	
Buffer pH 4 (CG)	—	—	
H_3PO_4 (CG) Salmon Label	—	—	
Trizma – EPA 537.1 - Field Blank Required			
Other:			
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—	
Bottled Water	—	—	
Clear Glass	—	—	
Solids: Brass / Steel / Plastic Bag	—	—	

10/25/22

Split	Container	Preservative	Lot #	Initials	Date/Time
S P					
S P					

Preservation Check
pH Lot #
Cl Lot #

Comments: *Preservation check completed by lab performing analysis.

✓ Indicates Blanks Received

504 ___ 524.2 ___ TTHM ___ 537.1 ___ TCP___

✓ MS/MSD Received Method: ________

Scanned: ___ Rush/Short HT Page: ________ Time:_______

Page 9 of 9

LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322220022
Customer ID: BCLA50
Customer PO:
Project ID:

Attn:	Ragen Schallock	Phone:	(661) 327-4911
	Pace Analytical Services, LLC	Fax:	(661) 327-1918
	4100 Atlas Court	Received:	10/05/2022
	Bakersfield, CA 93308	Analyzed:	10/15/2022
Proj:	2223190		

Test Report: Determination of Asbestos Structures ≥ 0.5 µm & > 10µm in Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm²)	Area Analyzed (mm²)		ASBESTOS Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits
								MFL (million fibers per liter)		
2223190-01 322220022-0001	10/5/2022 03:10 PM	1	1288	0.2580	≥ 0.5 µm	None Detected	ND	5.00	<5.00	0.00 - 18.00
					> 10 µm only	None Detected	ND	5.00	<5.00	0.00 - 18.00

Collection Date/Time: 09/29/2022 09:15 AM

Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.

Analyst(s)
Sherrie Ahmad (1)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 10/16/2022 08:13:58

Samples analyzed by LA Testing South Pasadena, CA CA ELAP 2283

GSI Water Solutions, Inc.	**Reported:** 11/28/2022 10:07
418 Chapala Street Suite H	Project: Morro Bay Injection
Santa Barbara, CA 93101	Project Number: 645.007
	Project Manager: Brian Franz

Notes And Definitions

J	Estimated Value (CLP Flag)
MDL	Method Detection Limit
ND	Analyte Not Detected
PQL	Practical Quantitation Limit
A02	The difference between duplicate readings is less than the quantitation limit.
A03	The sample concentration was more than 4 times the spike level.
A10	Detection and quantitation limits were raised due to matrix interference.
L01	The Laboratory Control Sample Water (LCSW) recovery is not within laboratory established control limits.
Q02	Matrix spike precision is not within the control limits.
Q03	Matrix spike recovery(s) was(were) not within the control limits.
S05	The sample holding time was exceeded.
S09	The surrogate recovery for this compound was not within the control limits.
S16	Sample analysis performed outside of the method holding time and reported per client request.

Sample from 21P-01 after Constant Rate Pumping Test (October 3, 2022)

Field Notes

GSI Water Solutions, Inc.

MB pilot Inj well testing

Daily Field Report

10/3/22

1200 NP on site. <Collect WQ sample from MW post Inj well constant rate test>

1210 DTW = 15.58' btoc (2" PVC) ZIP-01 = MW

remove CTD

1226 pump on Flow rate: 5 gal / 2.75 min → 1.8 gpm

	T°C	pH	SC	DO mg/L	DO%	ORP	Notes
1227	17.5	7.23	1451	1.03	10.2	220	silty
1230	17.5	6.99	1445	0.23	2.3	215.2	less silty
1235	17.5	6.91	1430	0.08	0.9	200.4	clearing
~~1240~~ 1245	17.5	6.90	1411	0.03	0.3	173.8	clear
~~1245~~ 1250	17.5	6.90	1408	0.01	0.1	149.6	clear
~~1250~~ 1255	17.5	6.90	1406	0.01	0.1	141.3	

1255 → Sample Collected: ZIP-01

1314 CTD back on MW

1320 NP off site

Name: Nate Page

Signature:

Date: 10/3/22

BC LABORATORIES, INC.

Chain of Custody Form

Page 1 of 1

Report To:			
Client:	GSI Water Solutions	Project #:	645.007
Attn:	Dave O'Rourke	Project Name:	MB IPR
Street Address:	5855 Capistrano Ave STE C		
City, State, Zip:	Atascadero CA 93422	Sampler(s):	Nate Page
Phone:	512.423.5457 Fax:		(970) 692-3598
Email:	dorourke@gsiws.com		
Work Order #:			

Analysis Requested

Please refer to the back of this page for completion instructions and method legend.

SEE Attached

Comments:

EDF NO Geotracker

Complete Suite on attached

Result Request **Surcharge

☒ STD (10 Days) ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**

Sample #	Description	Date Sampled	Time Sampled	Soil	Sludge	Drinking Water	Ground Waater	Waste Water	Other	Notes
	ZIP-01	10/3/22	1255				X			

Billing ☒ Same as above

Client:

Address:

City: State Zip

Attn:

P.O. #:

EDF Required? Geotracker ☐ Yes ☒ No

Send Copy to State of CA? (EDT) ☐ Yes ☒ No

Global ID (Needed for EDF)

System # (Needed for EDT)

	Date	Time		Date	Time
1. Relinquished By Nate Page	10/3/22	1430	1. Received By	10-3-22	1500
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Chain-of-Custody Form(s)

BC LABORATORIES, INC.

Chain of Custody Form

Page 1 of 1

Report To			
Client: GSI Water Solutions		Project #: 645.007	
Attn: Dave O'Rourke		Project Name: MB IPR	
Street Address: 5855 Capistrano Ave STE C			
City, State, Zip: Atascadero CA 93422		Sampler(s): Nate Page	
Phone: 512.423.5457	Fax:	(970) 672-3593	
Email: dorourke@gsiws.com			
Work Order #: 22-23471			

Analysis Requested: SEE Attached

Comments: EDF NO Geotracker
Complete Suite on attached

Result Request **Surcharge: ☒ STD (10 Days) ☐ 5 Day** ☐ 2 Day** ☐ 1 Day**

Sample #	Description	Date Sampled	Time Sampled	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Notes
-1	ZIP-01	10/3/22	1255				X			

SHORT HOLDING TIME
Cr NO NO OP SS
DO Cl_2 BOD MBAS COT

CHK BY: [illegible]
DISTRIBUTION: [illegible]
SUB OUT ☒

Billing ☒ Same as above

Client:
Address:
City: State Zip
Attn:
P.O. #:

EDF Required? Geotracker ☐ Yes ☒ No

Send Copy to State of CA? (EDT) ☐ Yes ☒ No

Global ID (Needed for EDF)

System # (Needed for EDT)

Relinquished By	Date	Time	Received By	Date	Time
1. Nate Page	10/3/22	1430	1. [signature]	10-3-22	1500
2. [signature]	10-3-22	1923	2. [signature]	10/3/22	1923
3.			3.		

22-23471

Parameter Type	Parameter	Method
Field	Dissolved oxygen	YSI 556 or similar
	pH	EPA 150.1
	Oxidation-Reduction Potential	SM2580B
	Specific Conductance	EPA 120.1
	Temperature	YSI 556 or similar
	Turbidity	EPA 180.1
Inorganics	Alkalinity	SM2320B
	Ammonia	SM4500NH3G
	Bicarbonate	SM2320B
	Carbonate	SM2320B
	Chloride	EPA 300.0
	Cyanide (HCN)	EPA 335.4
	Fluoride	EPA 300.0
	Hardness	EPA 200.8
	Nitrate+Nitrite (total N)	EPA 300.0
	Nitrate (as N)	EPA 300.0
	Nitrite-N	EPA 300.0
	Orthophosphate as P	EPA 300.0
	Total Silica (as SiO2)	EPA 200.7
	Dissolved Silica (as SiO2)	EPA 200.7
	Sulfate	EPA 300.0
	Sulfide	SM4500S2F
Metals (Dissolved)	Aluminum	EPA 200.7
	Antimony	EPA 200.8
	Arsenic	EPA 200.8
	Barium	EPA 200.8
	Beryllium	EPA 200.8
	Cadmium	EPA 200.8
	Calcium	EPA 200.7
	Chromium	EPA 200.8
	Cobalt	EPA 200.8
	Copper	EPA 200.8
	Iron	EPA 200.7
	Lead	EPA 200.8
	Magnesium	EPA 200.7
	Manganese	EPA 200.8
	Mercury	EPA 245.7
	Molybdenum	EPA 200.8
	Nickel	EPA 200.8
	Potassium	EPA 200.7
	Selenium	EPA 200.8
	Silver	EPA 200.8

22-23471

	Sodium	EPA 200.7
	Strontium	EPA 200.8
	Thallium	EPA 200.8
	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

PACE ANALYTICAL — COOLER RECEIPT FORM — Page 1 Of 1

Submission #: 22-23471

SHIPPING INFORMATION
Fed Ex ☐ UPS ☐ GSO / GLS ☐ Hand Delivery ☐
Pace Lab Field Service ☑ Other ☐ (Specify)________

SHIPPING CONTAINER
Ice Chest ☑ None ☐ Box ☐
Other ☐ (Specify)________

FREE LIQUID
YES ☑ NO ☐
W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☑ YES ☐ NO

Emissivity: 0.98 Container: PE Thermometer ID: 274
Temperature: (A) 4.9 °C / (C) 4.9 °C

Date/Time 10/3/22 1923
Analyst Init PPE

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES	D-F									
4oz / 8oz / 16oz PE UNPRES	G-I									
2oz Cr^{+6}	J									
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS	K									
PT TOTAL SULFIDE	L									
2oz. NITRATE / NITRITE	M									
PT TOTAL ORGANIC CARBON	N									
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	A-C									
QT EPA 1664B										
PT ODOR	O									
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608.3/8081A										
QT EPA 515.1/8151A										
QT EPA 525.2										
QT EPA 525.2 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548.1										
QT EPA 549.2										
QT EPA 8015M										
QT EPA 8270C										
8oz / 16oz / 32oz AMBER HAA5	P									
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:
Sample Numbering Completed By: KD Date/Time: 10/4/22 08:25
A = Actual / C = Corrected

Laboratory Reports

Date of Report: 01/27/2023

Brian Franz

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Client Project:	645.007
BCL Project:	Morro Bay Injection
BCL Work Order:	2223471
Invoice ID:	B468385

Enclosed are the results of analyses for samples received by the laboratory on 10/3/2022. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Ragen Schallock
Client Service Rep

Stuart Buttram
Operations Manager

Certifications: CA ELAP #1186; NV #CA00014; OR ELAP #4032-001; AK UST101

Table of Contents

BC LABORATORIES, INC. — Chain of Custody Form

Page 1 of 1

Report To: Client: GSI Water Solutions		Project #: 645.007	
Attn: Dave O'Rourke		Project Name: MB IPR	
Street Address: 5855 Capistrano Ave STE C			
City, State, Zip: Atascadero CA 93422		Sampler(s): Nate Page	
Phone: 512.423.5457 Fax:		(970) 692-3598	
Email: dorourke@gsiws.com			
Work Order #: 22-23471			

Analysis Requested

Please refer to the back of this page for completion instructions and method legend.

SEE Attached

Comments: EDF NO Geotracker
Complete Site on attached

Sample #	Description	Date Sampled	Time Sampled	Sample Matrix	Result Request	Notes
-1	ZIP-01	10/3/22	1255	Ground Water (X)	STD (10 Days) ☒ 5 Day** ☐ 2 Day** ☐ 1 Day** ☐	

Sample Matrix: Soil, Sludge, Drinking Water, Ground Water, Waste Water, Other

**Surcharge

SHORT HOLDING TIME
Cr+6 NO2 NO3 COD SS
DO Cl2 BOD MBAS COT

CHK BY: JWC
DISTRIBUTION
SUB OUT ☒

Billing	☒ Same as above
Client:	
Address:	
City: State Zip	
Attn:	
P.O. #:	

EDF Required? Geotracker ☐ Yes ☒ No

Send Copy to State of CA? (EDT) ☐ Yes ☒ No

Global ID (Needed for EDF)

System # (Needed for EDT)

	Date	Time		Date	Time
1. Relinquished By: Nate Page	10/3/22	1430	1. Received By:	10-3-22	1500
2. Relinquished By:	10-3-22	1923	2. Received By:	10/3/22	1923
3. Relinquished By:			3. Received By:		

BC Laboratories, Inc. – 4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.bclabs.com

22-23471

Parameter Type	Parameter	Method
Field	Dissolved oxygen	YSI 556 or similar
	pH	EPA 150.1
	Oxidation-Reduction Potential	SM2580B
	Specific Conductance	EPA 120.1
	Temperature	YSI 556 or similar
	Turbidity	EPA 180.1
Inorganics	Alkalinity	SM2320B
	Ammonia	SM4500NH3G
	Bicarbonate	SM2320B
	Carbonate	SM2320B
	Chloride	EPA 300.0
	Cyanide (HCN)	EPA 335.4
	Fluoride	EPA 300.0
	Hardness	EPA 200.8
	Nitrate+Nitrite (total N)	EPA 300.0
	Nitrate (as N)	EPA 300.0
	Nitrite-N	EPA 300.0
	Orthophosphate as P	EPA 300.0
	Total Silica (as SiO2)	EPA 200.7
	Dissolved Silica (as SiO2)	EPA 200.7
	Sulfate	EPA 300.0
	Sulfide	SM4500S2F
Metals (Dissolved)	Aluminum	EPA 200.7
	Antimony	EPA 200.8
	Arsenic	EPA 200.8
	Barium	EPA 200.8
	Beryllium	EPA 200.8
	Cadmium	EPA 200.8
	Calcium	EPA 200.7
	Chromium	EPA 200.8
	Cobalt	EPA 200.8
	Copper	EPA 200.8
	Iron	EPA 200.7
	Lead	EPA 200.8
	Magnesium	EPA 200.7
	Manganese	EPA 200.8
	Mercury	EPA 245.7
	Molybdenum	EPA 200.8
	Nickel	EPA 200.8
	Potassium	EPA 200.7
	Selenium	EPA 200.8
	Silver	EPA 200.8

Morro Bay Indirect Potable Reuse Pilot Injection Testing Sampling Plan — Complete Suite — August 6, 2021 — GSI Water Solutions

22-23471

	Sodium	EPA 200.7
	Strontium	EPA 200.8
	Thallium	EPA 200.8
	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

Page 2

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ENVIRONMENTAL SCIENCES

PACE ANALYTICAL — COOLER RECEIPT FORM — Page 1 Of 1

Submission #: 22-23471

SHIPPING INFORMATION
Fed Ex ☐ UPS ☐ GSO / GLS ☐ Hand Delivery ☐
Pace Lab Field Service ☑ Other ☐ (Specify)

SHIPPING CONTAINER
Ice Chest ☑ None ☐ Box ☐
Other ☐ (Specify)

FREE LIQUID
YES ☑ NO ☐
W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☑ YES ☐ NO

Emissivity: 0.98 Container: PE Thermometer ID: 274 Date/Time 10/3/22 1923
Temperature: (A) 4.9 °C / (C) 4.9 °C Analyst Init PRE

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES	D-F									
4oz / 8oz / 16oz PE UNPRES	G-I									
2oz Cr⁶	J									
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS	K									
PT TOTAL SULFIDE	L									
2oz. NITRATE / NITRITE	M									
PT TOTAL ORGANIC CARBON	N									
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK										
40ml VOA VIAL	A-C									
QT EPA 1664B										
PT ODOR	O									
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608.3/8081A										
QT EPA 515.1/8151A										
QT EPA 525.2										
QT EPA 525.2 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548.1										
QT EPA 549.2										
QT EPA 8015M										
QT EPA 8270C										
8oz / 16oz / 32oz AMBER HAAS	P									
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:
Sample Numbering Completed By: JCD Date/Time: 10/4/22 08 25
A = Actual / C = Corrected

Rev 23 05/20/22
[S:\WPDocs\WordPerfect\LAB_DOCS\FORMS\SAMREC.rev 23]

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/27/2023 6:03 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Brian Franz

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
2223471-01	**COC Number:**	---	**Receive Date:**	10/03/2022 19:23
	Project Number:	---	**Sampling Date:**	10/03/2022 12:55
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	ZIP-01	**Lab Matrix:**	Water
	Sampled By:	Nate Page	**Sample Type:**	Groundwater
2223471-02	**COC Number:**	---	**Receive Date:**	10/03/2022 19:23
	Project Number:	---	**Sampling Date:**	10/03/2022 00:00
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	Trip Blank	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Blank Water

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/27/2023 6:03
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2223471-01 **Client Sample Name:** ZIP-01, 10/3/2022 12:55:00PM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Bromodichloromethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Bromoform	ND	ug/L	0.50	0.46	EPA-524.2	ND		1
Chloroform	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Dibromochloromethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
Total Trihalomethanes	ND	ug/L	2.0	0.97	EPA-524.2	ND		1
1,2-Dichloroethane-d4 (Surrogate)	100	%	75 - 125 (LCL - UCL)		EPA-524.2			1
Toluene-d8 (Surrogate)	96.4	%	80 - 120 (LCL - UCL)		EPA-524.2			1
4-Bromofluorobenzene (Surrogate)	91.9	%	80 - 120 (LCL - UCL)		EPA-524.2			1

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-524.2	10/06/22 11:54	10/06/22 22:14	MGC	MS-V5	1	B150770	EPA 524.2

DCN = Data Continuation Number

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/27/2023 6:03 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Brian Franz

Halogenated Acetic Acids (Method EPA-552.3)

BCL Sample ID: 2223471-01 **Client Sample Name:** ZIP-01, 10/3/2022 12:55:00PM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Dibromoacetic acid	ND	ug/L	1.0	0.32	EPA-552.3	ND		1
Dichloroacetic acid	ND	ug/L	1.0	0.29	EPA-552.3	ND		1
Monobromoacetic acid	ND	ug/L	1.0	0.25	EPA-552.3	ND		1
Monochloroacetic acid	ND	ug/L	1.0	0.61	EPA-552.3	ND		1
Trichloroacetic acid	ND	ug/L	1.0	0.36	EPA-552.3	ND		1
Total HAA's (Summation)	ND	ug/L	1.0	1.0	EPA-552.3	ND		1
2,3-Dibromopropionic acid (Surrogate)	92.5	%	70 - 130 (LCL - UCL)		EPA-552.3			1

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-552.3	10/06/22 16:45	10/07/22 11:56	RSM	GC-3	1	B150928	EPA 552.3

DCN = Data Continuation Number

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/27/2023 6:03 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Brian Franz

Gas Testing in Water

BCL Sample ID: 2223471-01 **Client Sample Name:** ZIP-01, 10/3/2022 12:55:00PM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Methane	ND	mg/L	0.0010	0.00046	RSK-175M	ND		1

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	RSK-175M	10/11/22 08:39	10/11/22 15:59	RMK	GC-V10	1	B151169	None

DCN = Data Continuation Number

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ENVIRONMENTAL SCIENCES

GSI Water Solutions, Inc.	**Reported:**	01/27/2023 6:03
5855 Capistran Avenue, Suite C	Project:	Morro Bay Injection
Atascadero, CA 93422	Project Number:	645.007
	Project Manager:	Brian Franz

Water Analysis (General Chemistry)

BCL Sample ID: 2223471-01 **Client Sample Name:** ZIP-01, 10/3/2022 12:55:00PM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Dissolved Calcium	**100**	**mg/L**	**0.10**	**0.016**	**EPA-200.7**	ND		1
Dissolved Magnesium	**97**	**mg/L**	**0.050**	**0.019**	**EPA-200.7**	ND		1
Dissolved Sodium	**69**	**mg/L**	**0.50**	**0.051**	**EPA-200.7**	ND		1
Dissolved Potassium	**1.9**	**mg/L**	**1.0**	**0.10**	**EPA-200.7**	ND		1
Bicarbonate	**560**	**mg/L**	**10**	**10**	**SM-2320B**	ND	**A10**	2
Carbonate	ND	mg/L	5.0	5.0	SM-2320B	ND	A10	2
Total Alkalinity as CaCO3	**460**	**mg/L**	**8.2**	**8.2**	**SM-2320B**	ND	**A10**	2
Alkalinity as CaCO3	**460**	**mg/L**	**4.1**	**4.1**	**Calc**	ND		3
Chloride	**150**	**mg/L**	**0.50**	**0.13**	**EPA-300.0**	0.14		4
Fluoride	**0.21**	**mg/L**	**0.050**	**0.025**	**EPA-300.0**	ND		4
Nitrate/Nitrite as N	ND	mg/L	0.10	0.034	EPA-353.2	ND	S05	5
Nitrate as N	ND	mg/L	0.10	0.024	EPA-300.0	ND		4
Sulfate	**120**	**mg/L**	**1.0**	**0.14**	**EPA-300.0**	0.20		4
Dissolved Hardness as CaCO3	**650**	**mg/L**	**0.50**	**0.10**	**Calc**	ND		6
Langlier Index	**0.71**	**NA**	**-2.00**	**-2.00**	**Calc**	0		6
pH	**7.67**	**pH Units**	**0.05**	**0.05**	**EPA-150.1**		**S05**	7
Electrical Conductivity @ 25 C	**1420**	**umhos/cm**	**1.00**	**1.00**	**EPA-120.1**			8
Total Dissolved Solids @ 180 C	**940**	**mg/L**	**50**	**25**	**SM-2540C**	ND	**A10**	9
Total Suspended Solids (Glass Fiber)	**15**	**mg/L**	**0.67**	**0.67**	**SM-2540D**	ND	**A10**	10
Color	**3.0**	**Color Units**	**1.0**	**1.0**	**SM-2120B**			11
Odor	No Obs Odor	Odor Units	1.0	1.0	SM-2150B	ND		12
Odor	No Obs Odor	Odor Units	1.0	1.0	EPA-140.1	ND		13
Turbidity	**24**	**NT Units**	**0.10**	**0.10**	**EPA-180.1**			14
MBAS	ND	mg/L	0.10	0.024	SM-5540C	ND		15
Residual Chlorine	**0.18**	**mg/L**	**0.10**	**0.10**	**SM-4500-CLF**	ND	**S05**	16
Total Cyanide	ND	mg/L	0.0050	0.0017	EPA-335.4	ND		17
Nitrite as N	**0.013**	**mg/L**	**0.050**	**0.010**	**EPA-353.2**	0.015	**J**	18
ortho-Phosphate as P	**0.20**	**mg/L**	**0.050**	**0.017**	**EPA-365.1**	ND		19
Total Sulfide	ND	mg/L	0.10	0.050	SM-4500SD	ND		20
Total Organic Carbon	**29**	**mg/L**	**5.0**	**1.5**	**SM-5310C**	ND		21
Chemical Oxygen Demand	**18**	**mg O2/L**	**25**	**4.3**	**EPA-410.4**	ND	**J**	22
Oxidation Reduction Potential (Eh)	**390.0**	**mV**	**-1000**	**-1000**	**ASTM-D1498**			23

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/27/2023 6:03
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Water Analysis (General Chemistry)

BCL Sample ID: 2223471-01 **Client Sample Name:** ZIP-01, 10/3/2022 12:55:00PM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Oxidation Reduction Potential (Eobs_Ag/AgCl)	**177.4**	**mV**	**-1000**	**-1000**	**ASTM-D1498**			23
Temperature	**20.5**	**°C**	**0.1**	**0.1**	**ASTM-D1498**			23

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-200.7	10/05/22 12:54	10/05/22 16:23	JRG	OP-PE4	1	B150747	200.7/ No Digest
2	SM-2320B	10/05/22 07:00	10/05/22 10:29	RML	MET-1	2	B150264	No Prep
3	Calc	10/21/22 11:01	11/09/22 11:05	SPB	Calc	1	B`J0012	Calc
4	EPA-300.0	10/04/22 17:00	10/05/22 00:31	SAV	IC1	1	B150714	No Prep
5	EPA-353.2	12/15/22 16:00	12/15/22 16:33	KB1	SC-1	1	B156116	No Prep
6	Calc	10/05/22 12:01	11/09/22 11:05	SPB	Calc	1	B`J0012	Calc
7	EPA-150.1	10/05/22 07:00	10/05/22 10:29	RML	MET-1	1	B150264	No Prep
8	EPA-120.1	10/05/22 07:00	10/05/22 10:29	RML	MET-1	1	B150264	No Prep
9	SM-2540C	10/05/22 11:30	10/05/22 11:30	CAD	MANUAL	5	B150686	No Prep
10	SM-2540D	10/06/22 11:15	10/06/22 11:15	TJV	MANUAL	1.333	B150863	No Prep
11	SM-2120B	10/05/22 07:40	10/05/22 07:40	JTM	MANUAL	1	B151030	No Prep
12	SM-2150B	10/05/22 07:40	10/05/22 07:40	JTM	MANUAL	1	B151035	No Prep
13	EPA-140.1	10/05/22 07:40	10/05/22 07:40	JTM	MANUAL	1	B151035	No Prep
14	EPA-180.1	10/05/22 07:40	10/05/22 07:40	JTM	MANUAL	1	B151046	No Prep
15	SM-5540C	10/05/22 07:25	10/05/22 07:25	JMN	SPEC06	1	B150696	No Prep
16	SM-4500-CLF	10/05/22 10:00	10/05/22 10:00	JTM	MANUAL	1	B151088	No Prep
17	EPA-335.4	10/17/22 11:55	10/17/22 14:09	MKB	KONE-1	1	B151568	EPA 335.4 Total
18	EPA-353.2	10/04/22 20:42	10/04/22 20:51	KB1	KONE-1	1	B150957	No Prep
19	EPA-365.1	10/05/22 01:29	10/05/22 01:37	KB1	SC-2	1	B150970	No Prep
20	SM-4500SD	10/07/22 08:00	10/07/22 08:00	JT3	SPEC06	1	B150896	SM 4500SD
21	SM-5310C	10/19/22 12:00	10/20/22 18:05	JAT	TOC3	5	B151570	No Prep
22	EPA-410.4	10/20/22 11:00	10/20/22 15:30	SPB	SPEC06	1	B152117	EPA 410.4
23	ASTM-D1498	10/06/22 07:00	10/06/22 09:13	RML	MET-1	1	B150774	No Prep

DCN = Data Continuation Number

Pace Analytical
ENVIRONMENTAL SCIENCES

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/27/2023 6:03
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Metals Analysis

BCL Sample ID: 2223471-01 **Client Sample Name:** ZIP-01, 10/3/2022 12:55:00PM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Dissolved Aluminum	ND	ug/L	50	23	EPA-200.7	ND		1
Dissolved Antimony	ND	ug/L	2.0	0.23	EPA-200.8	ND		2
Dissolved Arsenic	**0.56**	**ug/L**	**2.0**	**0.38**	**EPA-200.8**	ND	**J**	2
Hexavalent Chromium	**0.61**	**ug/L**	**0.20**	**0.020**	**EPA-218.6**	ND		3
Dissolved Barium	**180**	**ug/L**	**1.0**	**0.066**	**EPA-200.8**	0.15		2
Dissolved Cadmium	**0.051**	**ug/L**	**1.0**	**0.034**	**EPA-200.8**	ND	**J**	2
Dissolved Chromium	ND	ug/L	3.0	0.15	EPA-200.8	ND		2
Dissolved Cobalt	**0.83**	**ug/L**	**1.0**	**0.011**	**EPA-200.8**	ND	**J**	2
Dissolved Copper	**0.78**	**ug/L**	**2.0**	**0.32**	**EPA-200.8**	ND	**J**	2
Dissolved Iron	ND	ug/L	50	30	EPA-200.7	ND		1
Dissolved Lead	ND	ug/L	1.0	0.021	EPA-200.8	ND		2
Dissolved Manganese	**2300**	**ug/L**	**5.0**	**0.20**	**EPA-200.8**	ND		4
Dissolved Mercury	**1.3**	**ug/L**	**0.20**	**0.022**	**EPA-245.1**	0.061		5
Dissolved Molybdenum	**1.7**	**ug/L**	**1.0**	**0.033**	**EPA-200.8**	ND		2
Dissolved Nickel	**2.9**	**ug/L**	**2.0**	**0.15**	**EPA-200.8**	0.53		2
Dissolved Selenium	**0.29**	**ug/L**	**2.0**	**0.25**	**EPA-200.8**	ND	**J**	2
Dissolved Silicon as SiO2	**27000**	**ug/L**	**200**	**31**	**EPA-200.7**	ND		1
Dissolved Silver	ND	ug/L	1.0	0.015	EPA-200.8	ND		2
Dissolved Strontium	**630**	**ug/L**	**10**	**1.0**	**EPA-200.7**	ND		1
Dissolved Thallium	ND	ug/L	1.0	0.025	EPA-200.8	ND		2
Dissolved Uranium	**1.4**	**ug/L**	**1.0**	**0.051**	**EPA-200.8**	ND		2
Dissolved Vanadium	**0.72**	**ug/L**	**3.0**	**0.39**	**EPA-200.8**	ND	**J**	6
Dissolved Zinc	**70**	**ug/L**	**25**	**11**	**EPA-200.8**	ND	**A10**	7
Total Recoverable Silica	**27000**	**ug/L**	**200**	**53**	**EPA-200.7**	140		8

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/27/2023 6:03
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Metals Analysis

BCL Sample ID: 2223471-01 | **Client Sample Name:** ZIP-01, 10/3/2022 12:55:00PM, Nate Page

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	
1	EPA-200.7	10/05/22 12:54	10/05/22 16:23	JRG	OP-PE4	1	B150747	EPA 200.7 Dissolved
2	EPA-200.8	10/06/22 08:34	10/12/22 16:05	KHS	PE-EL4	1	B150791	EPA 200.8 Dissolved
3	EPA-218.6	10/06/22 10:00	10/06/22 15:14	KSA	IC-4	1	B150834	No Prep
4	EPA-200.8	10/06/22 08:34	10/14/22 16:00	KHS	PE-EL4	5	B150791	EPA 200.8 Dissolved
5	EPA-245.1	10/14/22 08:30	10/14/22 12:33	TMT	CETAC3	1	B151417	EPA 245.1
6	EPA-200.8	10/06/22 08:34	10/13/22 16:18	KHS	PE-EL4	1	B150791	EPA 200.8 Dissolved
7	EPA-200.8	10/18/22 06:00	10/18/22 11:24	KHS	PE-EL4	5	B151620	EPA 200.8 Dissolved
8	EPA-200.7	10/10/22 20:25	10/11/22 15:54	JRG	OP-PE4	1	B151081	EPA 200.2

DCN = Data Continuation Number

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/27/2023 6:03 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Brian Franz

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B150770							
Bromodichloromethane	B150770-BLK1	ND	ug/L	0.50	0.20		1
Bromoform	B150770-BLK1	ND	ug/L	0.50	0.46		1
Chloroform	B150770-BLK1	ND	ug/L	0.50	0.14		1
Dibromochloromethane	B150770-BLK1	ND	ug/L	0.50	0.22		1
Total Trihalomethanes	B150770-BLK1	ND	ug/L	2.0	0.97		1
1,2-Dichloroethane-d4 (Surrogate)	**B150770-BLK1**	**105**	%	**75 - 125 (LCL - UCL)**			1
Toluene-d8 (Surrogate)	**B150770-BLK1**	**95.8**	%	**80 - 120 (LCL - UCL)**			1
4-Bromofluorobenzene (Surrogate)	**B150770-BLK1**	**96.2**	%	**80 - 120 (LCL - UCL)**			1

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150770-BLK1	PB	EPA-524.2	10/06/22	10/06/22 17:26	MGC	MS-V5	1

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/27/2023 6:03 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Brian Franz

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B150770											
Bromodichloromethane	B150770-BS1	LCS	26.960	25.000	ug/L	108		70 - 130			1
Bromoform	B150770-BS1	LCS	25.030	25.000	ug/L	100		70 - 130			1
Chloroform	B150770-BS1	LCS	24.470	25.000	ug/L	97.9		70 - 130			1
Dibromochloromethane	B150770-BS1	LCS	25.340	25.000	ug/L	101		70 - 130			1
1,2-Dichloroethane-d4 (Surrogate)	B150770-BS1	LCS	10.030	10.000	ug/L	100		75 - 125			1
Toluene-d8 (Surrogate)	B150770-BS1	LCS	9.6200	10.000	ug/L	96.2		80 - 120			1
4-Bromofluorobenzene (Surrogate)	B150770-BS1	LCS	10.320	10.000	ug/L	103		80 - 120			1

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150770-BS1	LCS	EPA-524.2	10/06/22	10/07/22 01:02	MGC	MS-V5	1

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/27/2023 6:03
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Precision & Accuracy

QC Batch ID: B150770 Used client sample: N

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
Bromodichloromethane	MS	2223703-01	ND	28.040	25.000	ug/L		112		70 - 130		1
	MSD	2223703-01	ND	28.130	25.000	ug/L	0.3	113	20	70 - 130		2
Bromoform	MS	2223703-01	ND	26.550	25.000	ug/L		106		70 - 130		1
	MSD	2223703-01	ND	27.670	25.000	ug/L	4.1	111	20	70 - 130		2
Chloroform	MS	2223703-01	ND	25.790	25.000	ug/L		103		70 - 130		1
	MSD	2223703-01	ND	25.280	25.000	ug/L	2.0	101	20	70 - 130		2
Dibromochloromethane	MS	2223703-01	ND	27.300	25.000	ug/L		109		70 - 130		1
	MSD	2223703-01	ND	26.870	25.000	ug/L	1.6	107	20	70 - 130		2
1,2-Dichloroethane-d4 (Surrogate)	MS	2223703-01	ND	9.9700	10.000	ug/L		99.7		75 - 125		1
	MSD	2223703-01	ND	10.420	10.000	ug/L	4.4	104		75 - 125		2
Toluene-d8 (Surrogate)	MS	2223703-01	ND	9.7500	10.000	ug/L		97.5		80 - 120		1
	MSD	2223703-01	ND	9.6200	10.000	ug/L	1.3	96.2		80 - 120		2
4-Bromofluorobenzene (Surrogate)	MS	2223703-01	ND	10.220	10.000	ug/L		102		80 - 120		1
	MSD	2223703-01	ND	10.400	10.000	ug/L	1.7	104		80 - 120		2

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150770-MS1	MS	EPA-524.2	10/06/22	10/07/22 01:26	MGC	MS-V5	1
2	B150770-MSD1	MSD	EPA-524.2	10/06/22	10/07/22 01:50	MGC	MS-V5	1

GSI Water Solutions, Inc.
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Atascadero, CA 93422

Reported: 01/27/2023 6:03
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Method Blank Analysis

QC Batch ID: B150928

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
Dibromoacetic acid	B150928-BLK1	ND	ug/L	1.0	0.32		1
Dichloroacetic acid	B150928-BLK1	ND	ug/L	1.0	0.29		1
Monobromoacetic acid	B150928-BLK1	ND	ug/L	1.0	0.25		1
Monochloroacetic acid	B150928-BLK1	ND	ug/L	1.0	0.61		1
Trichloroacetic acid	B150928-BLK1	ND	ug/L	1.0	0.36		1
Total HAA's (Summation)	B150928-BLK1	ND	ug/L	1.0	1.0		1
2,3-Dibromopropionic acid (Surrogate)	**B150928-BLK1**	**106**	%	**70 - 130 (LCL - UCL)**			1

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150928-BLK1	PB	EPA-552.3	10/06/22	10/07/22 09:23	RSM	GC-3	1

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/27/2023 6:03
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B150928											
Dibromoacetic acid	B150928-BS1	LCS	23.758	20.000	ug/L	119		70 - 130			1
Dichloroacetic acid	B150928-BS1	LCS	22.663	20.000	ug/L	113		70 - 130			1
Monobromoacetic acid	B150928-BS1	LCS	20.772	20.000	ug/L	104		70 - 130			1
Monochloroacetic acid	B150928-BS1	LCS	23.169	20.000	ug/L	116		70 - 130			1
Trichloroacetic acid	B150928-BS1	LCS	28.966	20.000	ug/L	145		70 - 130		L01	1
2,3-Dibromopropionic acid (Surrogate)	B150928-BS1	LCS	20.8	20.0	ug/L	104		70 - 130			1

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150928-BS1	LCS	EPA-552.3	10/06/22	10/07/22 09:45	RSM	GC-3	1

GSI Water Solutions, Inc.
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Atascadero, CA 93422

Reported: 01/27/2023 6:03
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Precision & Accuracy

QC Batch ID: B150928 Used client sample: N

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
Dibromoacetic acid	MS	2223113-47	ND	21.039	20.000	ug/L		105		70 - 130		1
	MSD	2223113-47	ND	22.419	20.000	ug/L	6.3	112	30	70 - 130		2
Dichloroacetic acid	MS	2223113-47	ND	20.033	20.000	ug/L		100		70 - 130		1
	MSD	2223113-47	ND	21.563	20.000	ug/L	7.4	108	30	70 - 130		2
Monobromoacetic acid	MS	2223113-47	ND	18.920	20.000	ug/L		94.6		70 - 130		1
	MSD	2223113-47	ND	18.211	20.000	ug/L	3.8	91.1	30	70 - 130		2
Monochloroacetic acid	MS	**2223113-47**	**ND**	**21.708**	**20.000**	**ug/L**		**109**		**70 - 130**		1
	MSD	**2223113-47**	**ND**	**40.775**	**20.000**	**ug/L**	**61.0**	**204**	**30**	**70 - 130**	**Q02,Q03**	2
Trichloroacetic acid	MS	**2223113-47**	**ND**	**24.116**	**20.000**	**ug/L**		**121**		**70 - 130**		1
	MSD	**2223113-47**	**ND**	**26.773**	**20.000**	**ug/L**	**10.4**	**134**	**30**	**70 - 130**	**Q03**	2
2,3-Dibromopropionic acid (Surrogate)	MS	2223113-47	ND	19.3	20.0	ug/L		96.7		70 - 130		1
	MSD	2223113-47	ND	18.8	20.0	ug/L	2.7	94.1		70 - 130		2

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150928-MS1	MS	EPA-552.3	10/06/22	10/07/22 10:08	RSM	GC-3	1
2	B150928-MSD1	MSD	EPA-552.3	10/06/22	10/07/22 10:29	RSM	GC-3	1

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Atascadero, CA 93422

Reported: 01/27/2023 6:03
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Project Number: 645.007
Project Manager: Brian Franz

Gas Testing in Water

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B151169							
Methane	B151169-BLK1	ND	mg/L	0.0010	0.00046		1

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B151169-BLK1	PB	RSK-175M	10/11/22	10/11/22 13:05	RMK	GC-V10	1

GSI Water Solutions, Inc.
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Project Number: 645.007
Project Manager: Brian Franz

Gas Testing in Water

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B151169											
Methane	B151169-BS1	LCS	0.010741	0.010843	mg/L	99.1		80 - 120			1
	B151169-BSD1	LCSD	0.010529	0.010843	mg/L	97.1	2.0	80 - 120	20		2

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B151169-BS1	LCS	RSK-175M	10/11/22	10/11/22 12:51	RMK	GC-V10	1
2	B151169-BSD1	LCSD	RSK-175M	10/11/22	10/11/22 12:59	RMK	GC-V10	1

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/27/2023 6:03 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Brian Franz

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B`J0012							
Alkalinity as CaCO3	B`J0012-BLK1	ND	mg/L	4.1	4.1		1
Dissolved Hardness as CaCO3	B`J0012-BLK1	ND	mg/L	0.50	0.10		1
Langlier Index	**B`J0012-BLK1**	**0**	**NA**	**-2.00**	**-2.00**		1
QC Batch ID: B150264							
Bicarbonate	B150264-BLK1	ND	mg/L	5.0	5.0		2
Carbonate	B150264-BLK1	ND	mg/L	2.5	2.5		2
Total Alkalinity as CaCO3	B150264-BLK1	ND	mg/L	4.1	4.1		2
QC Batch ID: B150686							
Total Dissolved Solids @ 180 C	B150686-BLK1	ND	mg/L	6.7	3.3		3
QC Batch ID: B150696							
MBAS	B150696-BLK1	ND	mg/L	0.10	0.024		4
QC Batch ID: B150714							
Chloride	**B150714-BLK1**	**0.13700**	**mg/L**	**0.50**	**0.13**	**J**	5
Fluoride	B150714-BLK1	ND	mg/L	0.050	0.025		5
Nitrate as N	B150714-BLK1	ND	mg/L	0.10	0.024		5
Sulfate	**B150714-BLK1**	**0.20500**	**mg/L**	**1.0**	**0.14**	**J**	5
QC Batch ID: B150747							
Dissolved Calcium	B150747-BLK1	ND	mg/L	0.10	0.016		6
Dissolved Magnesium	B150747-BLK1	ND	mg/L	0.050	0.019		6
Dissolved Sodium	B150747-BLK1	ND	mg/L	0.50	0.051		6
Dissolved Potassium	B150747-BLK1	ND	mg/L	1.0	0.10		6
QC Batch ID: B150863							
Total Suspended Solids (Glass Fiber)	B150863-BLK1	ND	mg/L	0.50	0.50		7
QC Batch ID: B150896							
Total Sulfide	B150896-BLK1	ND	mg/L	0.10	0.050		8
QC Batch ID: B150957							
Nitrite as N	**B150957-BLK1**	**0.014789**	**mg/L**	**0.050**	**0.010**	**J**	9
QC Batch ID: B150970							
ortho-Phosphate as P	B150970-BLK1	ND	mg/L	0.050	0.017		10
QC Batch ID: B151035							

GSI Water Solutions, Inc.
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Project Number: 645.007
Project Manager: Brian Franz

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B151035							
Odor	B151035-BLK1	ND	Odor Units	1.0	1.0		11
Odor	B151035-BLK1	ND	Odor Units	1.0	1.0		12
QC Batch ID: B151088							
Residual Chlorine	B151088-BLK1	ND	mg/L	0.10	0.10		13
QC Batch ID: B151568							
Total Cyanide	B151568-BLK1	ND	mg/L	0.0050	0.0017		14
QC Batch ID: B151570							
Total Organic Carbon	B151570-BLK1	ND	mg/L	1.0	0.30		15
QC Batch ID: B152117							
Chemical Oxygen Demand	B152117-BLK1	ND	mg O2/L	25	4.3		16
QC Batch ID: B156116							
Nitrate/Nitrite as N	B156116-BLK1	ND	mg/L	0.10	0.034		17

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Project Manager: Brian Franz

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B`J0012-BLK1	PB	Calc	10/21/22	10/21/22 15:57	SPB	Calc	1
2	B150264-BLK1	PB	SM-2320B	10/05/22	10/05/22 08:32	RML	MET-1	1
3	B150686-BLK1	PB	SM-2540C	10/05/22	10/05/22 11:30	CAD	MANUAL	0.667
4	B150696-BLK1	PB	SM-5540C	10/05/22	10/05/22 07:25	JMN	SPEC06	1
5	B150714-BLK1	PB	EPA-300.0	10/04/22	10/04/22 18:06	KSA	IC1	1
6	B150747-BLK1	PB	EPA-200.7	10/05/22	10/05/22 16:18	JRG	OP-PE4	1
7	B150863-BLK1	PB	SM-2540D	10/06/22	10/06/22 11:15	TJV	MANUAL	1
8	B150896-BLK1	PB	SM-4500SD	10/07/22	10/07/22 08:00	JT3	SPEC06	1
9	B150957-BLK1	PB	EPA-353.2	10/04/22	10/04/22 20:48	KB1	KONE-1	1
10	B150970-BLK1	PB	EPA-365.1	10/05/22	10/05/22 01:37	KB1	SC-2	1
11	B151035-BLK1	PB	EPA-140.1	10/05/22	10/05/22 07:40	JTM	MANUAL	1
12	B151035-BLK1	PB	SM-2150B	10/05/22	10/05/22 07:40	JTM	MANUAL	1
13	B151088-BLK1	PB	SM-4500-CLF	10/05/22	10/05/22 10:00	JTM	MANUAL	1
14	B151568-BLK1	PB	EPA-335.4	10/17/22	10/17/22 14:09	MKB	KONE-1	1
15	B151570-BLK1	PB	SM-5310C	10/19/22	10/21/22 02:30	JAT	TOC3	1
16	B152117-BLK1	PB	EPA-410.4	10/20/22	10/20/22 15:30	SPB	SPEC06	1
17	B156116-BLK1	PB	EPA-353.2	12/15/22	12/15/22 16:23	KB1	SC-1	1

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/27/2023 6:03
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B150264											
Total Alkalinity as CaCO3	B150264-BS3	LCS	102.84	100.00	mg/L	103		90 - 110			1
pH	B150264-BS2	LCS	7.0200	7.0000	pH Units	100		95 - 105			2
Electrical Conductivity @ 25 C	B150264-BS1	LCS	303.90	303.00	umhos/cm	100		90 - 110			3
QC Batch ID: B150686											
Total Dissolved Solids @ 180 C	B150686-BS1	LCS	590.00	586.00	mg/L	101		90 - 110			4
QC Batch ID: B150696											
MBAS	B150696-BS1	LCS	0.18580	0.20000	mg/L	92.9		85 - 115			5
QC Batch ID: B150714											
Chloride	B150714-BS1	LCS	51.118	50.000	mg/L	102		90 - 110			6
Fluoride	B150714-BS1	LCS	0.96900	1.0000	mg/L	96.9		90 - 110			6
Nitrate as N	B150714-BS1	LCS	5.1660	5.0000	mg/L	103		90 - 110			6
Sulfate	B150714-BS1	LCS	100.96	100.00	mg/L	101		90 - 110			6
QC Batch ID: B150747											
Dissolved Calcium	B150747-BS1	LCS	10.557	10.000	mg/L	106		85 - 115			7
Dissolved Magnesium	B150747-BS1	LCS	10.503	10.000	mg/L	105		85 - 115			7
Dissolved Sodium	B150747-BS1	LCS	10.359	10.000	mg/L	104		85 - 115			7
Dissolved Potassium	B150747-BS1	LCS	9.8997	10.000	mg/L	99.0		85 - 115			7
QC Batch ID: B150896											
Total Sulfide	B150896-BS1	LCS	0.50127	0.50000	mg/L	100		90 - 110			8
	B150896-BSD1	LCSD	0.50127	0.50000	mg/L	100	0	90 - 110	10		9
QC Batch ID: B150957											
Nitrite as N	B150957-BS1	LCS	0.47278	0.50000	mg/L	94.6		90 - 110			10
QC Batch ID: B150970											
ortho-Phosphate as P	B150970-BS1	LCS	0.49300	0.50000	mg/L	98.6		90 - 110			11
QC Batch ID: B151568											
Total Cyanide	B151568-BS1	LCS	0.16067	0.15000	mg/L	107		90 - 110			12
QC Batch ID: B151570											
Total Organic Carbon	B151570-BS1	LCS	5.1920	5.0000	mg/L	104		85 - 115			13
QC Batch ID: B152117											
Chemical Oxygen Demand	B152117-BS1	LCS	756.67	750.00	mg O2/L	101		90 - 110			14
QC Batch ID: B156116											
Nitrate/Nitrite as N	B156116-BS1	LCS	2.0180	2.0000	mg/L	101		90 - 110			15

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Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150264-BS3	LCS	SM-2320B	10/05/22	10/05/22 08:24	RML	MET-1	1
2	B150264-BS2	LCS	EPA-150.1	10/05/22	10/05/22 08:21	RML	MET-1	1
3	B150264-BS1	LCS	EPA-120.1	10/05/22	10/05/22 07:48	RML	MET-1	1
4	B150686-BS1	LCS	SM-2540C	10/05/22	10/05/22 11:30	CAD	MANUAL	5
5	B150696-BS1	LCS	SM-5540C	10/05/22	10/05/22 07:25	JMN	SPEC06	1
6	B150714-BS1	LCS	EPA-300.0	10/04/22	10/04/22 18:27	KSA	IC1	1
7	B150747-BS1	LCS	EPA-200.7	10/05/22	10/05/22 16:21	JRG	OP-PE4	1
8	B150896-BS1	LCS	SM-4500SD	10/07/22	10/07/22 08:00	JT3	SPEC06	1
9	B150896-BSD1	LCSD	SM-4500SD	10/07/22	10/07/22 08:00	JT3	SPEC06	1
10	B150957-BS1	LCS	EPA-353.2	10/04/22	10/04/22 20:48	KB1	KONE-1	1
11	B150970-BS1	LCS	EPA-365.1	10/05/22	10/05/22 01:36	KB1	SC-2	1
12	B151568-BS1	LCS	EPA-335.4	10/17/22	10/17/22 14:09	MKB	KONE-1	1
13	B151570-BS1	LCS	SM-5310C	10/19/22	10/21/22 02:09	JAT	TOC3	1
14	B152117-BS1	LCS	EPA-410.4	10/20/22	10/20/22 15:30	SPB	SPEC06	1
15	B156116-BS1	LCS	EPA-353.2	12/15/22	12/15/22 16:22	KB1	SC-1	1

GSI Water Solutions, Inc.
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Reported: 01/27/2023 6:03
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B150264	Used client sample: N											
Bicarbonate	DUP	2223190-01	515.29	510.84		mg/L	0.9		10			1
Carbonate	DUP	2223190-01	ND	ND		mg/L			10			1
Total Alkalinity as CaCO3	DUP	2223190-01	422.62	418.97		mg/L	0.9		10			1
pH	DUP	2223190-01	7.8000	7.8900		pH Units	1.1		20			2
Electrical Conductivity @ 25 C	DUP	2223190-01	1322.1	1326.5		umhos/cm	0.3		10			3
QC Batch ID: B150686	Used client sample: N											
Total Dissolved Solids @ 180 C	DUP	2223439-01	686.66	693.33		mg/L	1.0		10			4
QC Batch ID: B150696	Used client sample: N											
MBAS	DUP	2223190-01	ND	ND		mg/L			20			5
	MS	2223190-01	ND	0.38700	0.40000	mg/L		96.8		80 - 120		6
	MSD	2223190-01	ND	0.37940	0.40000	mg/L	2.0	94.8	20	80 - 120		7
QC Batch ID: B150714	Used client sample: N											
Chloride	DUP	2223474-01	13.593	13.547		mg/L	0.3		10			8
	MS	2223474-01	13.593	68.540	50.505	mg/L		109		80 - 120		9
	MSD	2223474-01	13.593	68.428	50.505	mg/L	0.2	109	10	80 - 120		10
Fluoride	DUP	2223474-01	ND	ND		mg/L			10			8
	MS	2223474-01	ND	1.0273	1.0101	mg/L		102		80 - 120		9
	MSD	2223474-01	ND	1.0434	1.0101	mg/L	1.6	103	10	80 - 120		10
Nitrate as N	DUP	2223474-01	ND	ND		mg/L			10			8
	MS	2223474-01	ND	5.2737	5.0505	mg/L		104		80 - 120		9
	MSD	2223474-01	ND	5.2828	5.0505	mg/L	0.2	105	10	80 - 120		10
Sulfate	DUP	**2223474-01**	**0.52800**	**0.46500**		**mg/L**	**12.7**		**10**		**J,A02**	8
	MS	**2223474-01**	**0.52800**	**103.78**	**101.01**	**mg/L**		**102**		**80 - 120**		9
	MSD	**2223474-01**	**0.52800**	**103.69**	**101.01**	**mg/L**	**0.1**	**102**	**10**	**80 - 120**		10
QC Batch ID: B150747	Used client sample: Y - Description: ZIP-01, 10/03/2022 12:55											
Dissolved Calcium	DUP	2223471-01	101.92	102.36		mg/L	0.4		20			11
	MS	2223471-01	101.92	111.36	10.204	mg/L		92.5		85 - 115		12
	MSD	2223471-01	101.92	111.97	10.204	mg/L	0.5	98.5	20	85 - 115		13
Dissolved Magnesium	DUP	2223471-01	97.020	97.127		mg/L	0.1		20			11
	MS	2223471-01	97.020	106.99	10.204	mg/L		97.7		85 - 115		12
	MSD	2223471-01	97.020	107.50	10.204	mg/L	0.5	103	20	85 - 115		13
Dissolved Sodium	DUP	2223471-01	68.553	68.748		mg/L	0.3		20			11
	MS	2223471-01	68.553	78.224	10.204	mg/L		94.8		85 - 115		12
	MSD	2223471-01	68.553	78.400	10.204	mg/L	0.2	96.5	20	85 - 115		13
Dissolved Potassium	DUP	2223471-01	1.9469	1.9680		mg/L	1.1		20			11
	MS	2223471-01	1.9469	12.172	10.204	mg/L		100		85 - 115		12
	MSD	2223471-01	1.9469	12.307	10.204	mg/L	1.1	102	20	85 - 115		13

GSI Water Solutions, Inc.
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Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B150774	Used client sample: N											
Oxidation Reduction Potential (Eh)	DUP	2223190-01	405.00	400.00		mV	1.2		10			14
Oxidation Reduction Potential (Eobs_Ag/	DUP	2223190-01	191.34	186.38		mV	2.6		10			14
QC Batch ID: B150863	Used client sample: N											
Total Suspended Solids (Glass Fiber)	DUP	2223404-01	465.00	450.00		mg/L	3.3		10			15
QC Batch ID: B150896	Used client sample: Y - Description: ZIP-01, 10/03/2022 12:55											
Total Sulfide	DUP	2223471-01	ND	ND		mg/L			10			16
	MS	2223471-01	ND	0.48379	0.50000	mg/L		96.8		80 - 120		17
	MSD	2223471-01	ND	0.48379	0.50000	mg/L	0	96.8	10	80 - 120		18
QC Batch ID: B150957	Used client sample: N											
Nitrite as N	DUP	2223535-01	ND	ND		mg/L			10			19
	MS	2223535-01	ND	0.50499	0.52632	mg/L		95.9		90 - 110		20
	MSD	2223535-01	ND	0.48946	0.52632	mg/L	3.1	93.0	10	90 - 110		21
QC Batch ID: B150970	Used client sample: Y - Description: ZIP-01, 10/03/2022 12:55											
ortho-Phosphate as P	DUP	2223471-01	0.20030	0.19900		mg/L	0.7		10			22
	MS	2223471-01	0.20030	0.75947	0.52632	mg/L		106		90 - 110		23
	MSD	2223471-01	0.20030	0.75758	0.52632	mg/L	0.2	106	10	90 - 110		24
QC Batch ID: B151030	Used client sample: Y - Description: ZIP-01, 10/03/2022 12:55											
Color	DUP	2223471-01	3.0000	3.0000		Color Units	0		20			25
QC Batch ID: B151046	Used client sample: Y - Description: ZIP-01, 10/03/2022 12:55											
Turbidity	DUP	2223471-01	23.500	23.800		NT Units	1.3		10			26
QC Batch ID: B151088	Used client sample: Y - Description: ZIP-01, 10/03/2022 12:55											
Residual Chlorine	DUP	**2223471-01**	**0.18000**	**0.20000**		**mg/L**	**10.5**		**10**		**A02**	27
QC Batch ID: B151568	Used client sample: N											
Total Cyanide	DUP	2223581-02	ND	ND		mg/L			10			28
	MS	2223581-02	ND	0.10835	0.10000	mg/L		108		90 - 110		29
	MSD	2223581-02	ND	0.10875	0.10000	mg/L	0.4	109	10	90 - 110		30
QC Batch ID: B151570	Used client sample: N											
Total Organic Carbon	DUP	**2223080-01**	**2.7800**	**3.1100**		**mg/L**	**11.2**		**10**		**J,A02**	31
	MS	**2223080-01**	**2.7800**	**28.668**	**25.126**	**mg/L**		**103**		**80 - 120**		32
	MSD	**2223080-01**	**2.7800**	**28.422**	**25.126**	**mg/L**	**0.9**	**102**	**10**	**80 - 120**		33
QC Batch ID: B152117	Used client sample: N											
Chemical Oxygen Demand	DUP	2223935-01	25.240	27.450		mg O2/L	8.4		20			34
	MS	2223935-01	25.240	778.77	750.00	mg O2/L		100		80 - 120		35
	MSD	2223935-01	25.240	787.61	750.00	mg O2/L	1.1	102	20	80 - 120		36
QC Batch ID: B156116	Used client sample: N											

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/27/2023 6:03 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Brian Franz

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

									Control Limits			
Constituent	**Type**	**Source Sample ID**	**Source Result**	**Result**	**Spike Added**	**Units**	**RPD**	**Percent Recovery**	**RPD**	**Percent Recovery**	**Lab Quals**	**R#**
QC Batch ID: B156116	Used client sample: N											
Nitrate/Nitrite as N	DUP	2228251-01	1.4901	1.4742		mg/L	1.1		10			37
	MS	2228251-01	1.4901	3.5699	2.1053	mg/L		98.8		90 - 110		38
	MSD	2228251-01	1.4901	3.7418	2.1053	mg/L	4.7	107	10	90 - 110		39

GSI Water Solutions, Inc.
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Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150264-DUP1	DUP	SM-2320B	10/05/22	10/05/22 09:45	RML	MET-1	2
2	B150264-DUP1	DUP	EPA-150.1	10/05/22	10/05/22 09:45	RML	MET-1	1
3	B150264-DUP1	DUP	EPA-120.1	10/05/22	10/05/22 09:45	RML	MET-1	1
4	B150686-DUP1	DUP	SM-2540C	10/05/22	10/05/22 11:30	CAD	MANUAL	3.333
5	B150696-DUP1	DUP	SM-5540C	10/05/22	10/05/22 07:25	JMN	SPEC06	2
6	B150696-MS1	MS	SM-5540C	10/05/22	10/05/22 07:25	JMN	SPEC06	2
7	B150696-MSD1	MSD	SM-5540C	10/05/22	10/05/22 07:25	JMN	SPEC06	2
8	B150714-DUP1	DUP	EPA-300.0	10/04/22	10/04/22 20:14	KSA	IC1	1
9	B150714-MS1	MS	EPA-300.0	10/04/22	10/04/22 20:36	KSA	IC1	1.010
10	B150714-MSD1	MSD	EPA-300.0	10/04/22	10/04/22 20:57	KSA	IC1	1.010
11	B150747-DUP1	DUP	EPA-200.7	10/05/22	10/05/22 16:25	JRG	OP-PE4	1
12	B150747-MS1	MS	EPA-200.7	10/05/22	10/05/22 16:29	JRG	OP-PE4	1.020
13	B150747-MSD1	MSD	EPA-200.7	10/05/22	10/05/22 16:32	JRG	OP-PE4	1.020
14	B150774-DUP1	DUP	ASTM-D1498	10/06/22	10/06/22 09:09	RML	MET-1	1
15	B150863-DUP1	DUP	SM-2540D	10/06/22	10/06/22 11:15	TJV	MANUAL	50
16	B150896-DUP1	DUP	SM-4500SD	10/07/22	10/07/22 08:00	JT3	SPEC06	1
17	B150896-MS1	MS	SM-4500SD	10/07/22	10/07/22 08:00	JT3	SPEC06	1
18	B150896-MSD1	MSD	SM-4500SD	10/07/22	10/07/22 08:00	JT3	SPEC06	1
19	B150957-DUP1	DUP	EPA-353.2	10/04/22	10/04/22 20:48	KB1	KONE-1	1
20	B150957-MS1	MS	EPA-353.2	10/04/22	10/04/22 21:55	KB1	KONE-1	1.053
21	B150957-MSD1	MSD	EPA-353.2	10/04/22	10/04/22 21:55	KB1	KONE-1	1.053
22	B150970-DUP1	DUP	EPA-365.1	10/05/22	10/05/22 01:38	KB1	SC-2	1
23	B150970-MS1	MS	EPA-365.1	10/05/22	10/05/22 01:38	KB1	SC-2	1.053
24	B150970-MSD1	MSD	EPA-365.1	10/05/22	10/05/22 01:39	KB1	SC-2	1.053
25	B151030-DUP1	DUP	SM-2120B	10/05/22	10/05/22 07:40	JTM	MANUAL	1
26	B151046-DUP1	DUP	EPA-180.1	10/05/22	10/05/22 07:40	JTM	MANUAL	1
27	B151088-DUP1	DUP	SM-4500-CLF	10/05/22	10/05/22 10:00	JTM	MANUAL	1
28	B151568-DUP1	DUP	EPA-335.4	10/17/22	10/17/22 14:09	MKB	KONE-1	1
29	B151568-MS1	MS	EPA-335.4	10/17/22	10/17/22 14:09	MKB	KONE-1	1
30	B151568-MSD1	MSD	EPA-335.4	10/17/22	10/17/22 14:09	MKB	KONE-1	1
31	B151570-DUP1	DUP	SM-5310C	10/19/22	10/21/22 03:22	JAT	TOC3	5
32	B151570-MS1	MS	SM-5310C	10/19/22	10/21/22 03:39	JAT	TOC3	5.025

GSI Water Solutions, Inc.
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Project Manager: Brian Franz

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
33	B151570-MSD1	MSD	SM-5310C	10/19/22	10/21/22 03:55	JAT	TOC3	5.025
34	B152117-DUP1	DUP	EPA-410.4	10/20/22	10/20/22 15:30	SPB	SPEC06	1
35	B152117-MS1	MS	EPA-410.4	10/20/22	10/20/22 15:30	SPB	SPEC06	1
36	B152117-MSD1	MSD	EPA-410.4	10/20/22	10/20/22 15:30	SPB	SPEC06	1
37	B156116-DUP1	DUP	EPA-353.2	12/15/22	12/15/22 16:26	KB1	SC-1	1
38	B156116-MS1	MS	EPA-353.2	12/15/22	12/15/22 16:27	KB1	SC-1	1.053
39	B156116-MSD1	MSD	EPA-353.2	12/15/22	12/15/22 16:28	KB1	SC-1	1.053

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/27/2023 6:03 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Brian Franz

Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B150747							
Dissolved Aluminum	B150747-BLK1	ND	ug/L	50	23		1
Dissolved Iron	B150747-BLK1	ND	ug/L	50	30		1
Dissolved Silicon as SiO2	B150747-BLK1	ND	ug/L	200	31		1
Dissolved Strontium	B150747-BLK1	ND	ug/L	10	1.0		1
QC Batch ID: B150791							
Dissolved Antimony	B150791-BLK1	ND	ug/L	2.0	0.23		2
Dissolved Arsenic	B150791-BLK1	ND	ug/L	2.0	0.38		2
Dissolved Barium	**B150791-BLK1**	**0.15400**	**ug/L**	**1.0**	**0.066**	**J**	2
Dissolved Cadmium	B150791-BLK1	ND	ug/L	1.0	0.034		2
Dissolved Chromium	B150791-BLK1	ND	ug/L	3.0	0.15		2
Dissolved Cobalt	B150791-BLK1	ND	ug/L	1.0	0.011		2
Dissolved Copper	B150791-BLK1	ND	ug/L	2.0	0.32		2
Dissolved Lead	B150791-BLK1	ND	ug/L	1.0	0.021		2
Dissolved Manganese	B150791-BLK3	ND	ug/L	1.0	0.040		3
Dissolved Molybdenum	B150791-BLK1	ND	ug/L	1.0	0.033		2
Dissolved Nickel	**B150791-BLK1**	**0.52800**	**ug/L**	**2.0**	**0.15**	**J**	2
Dissolved Selenium	B150791-BLK1	ND	ug/L	2.0	0.25		2
Dissolved Silver	B150791-BLK1	ND	ug/L	1.0	0.015		2
Dissolved Thallium	B150791-BLK1	ND	ug/L	1.0	0.025		2
Dissolved Uranium	B150791-BLK1	ND	ug/L	1.0	0.051		2
Dissolved Vanadium	B150791-BLK2	ND	ug/L	3.0	0.39		4
QC Batch ID: B150834							
Hexavalent Chromium	B150834-BLK1	ND	ug/L	0.20	0.020		5
QC Batch ID: B151081							
Total Recoverable Silica	**B151081-BLK1**	**144.39**	**ug/L**	**200**	**53**	**J**	6
QC Batch ID: B151417							
Dissolved Mercury	**B151417-BLK1**	**0.061000**	**ug/L**	**0.20**	**0.022**	**J**	7
QC Batch ID: B151620							
Dissolved Zinc	B151620-BLK1	ND	ug/L	5.0	2.2		8

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/27/2023 6:03
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Brian Franz

Metals Analysis

Quality Control Report - Method Blank Analysis

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150747-BLK1	PB	EPA-200.7	10/05/22	10/05/22 16:18	JRG	OP-PE4	1
2	B150791-BLK1	PB	EPA-200.8	10/06/22	10/12/22 16:03	KHS	PE-EL4	1
3	B150791-BLK3	PB	EPA-200.8	10/06/22	10/14/22 15:58	KHS	PE-EL4	1
4	B150791-BLK2	PB	EPA-200.8	10/06/22	10/13/22 16:16	KHS	PE-EL4	1
5	B150834-BLK1	PB	EPA-218.6	10/06/22	10/06/22 13:57	KSA	IC-4	1
6	B151081-BLK1	PB	EPA-200.7	10/10/22	10/11/22 14:54	JRG	OP-PE4	1
7	B151417-BLK1	PB	EPA-245.1	10/14/22	10/14/22 11:53	TMT	CETAC3	1
8	B151620-BLK1	PB	EPA-200.8	10/18/22	10/18/22 11:00	KHS	PE-EL4	1

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/27/2023 6:03 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Brian Franz

Metals Analysis

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B150747											
Dissolved Aluminum	B150747-BS1	LCS	1009.3	1000.0	ug/L	101		85 - 115			1
Dissolved Iron	B150747-BS1	LCS	1058.0	1000.0	ug/L	106		85 - 115			1
Dissolved Silicon as SiO2	B150747-BS1	LCS	21220	21392	ug/L	99.2		85 - 115			1
Dissolved Strontium	B150747-BS1	LCS	533.53	500.00	ug/L	107		85 - 115			1
QC Batch ID: B150791											
Dissolved Antimony	B150791-BS1	LCS	37.784	40.000	ug/L	94.5		85 - 115			2
Dissolved Arsenic	B150791-BS1	LCS	100.68	100.00	ug/L	101		85 - 115			2
Dissolved Barium	B150791-BS1	LCS	39.829	40.000	ug/L	99.6		85 - 115			2
Dissolved Cadmium	B150791-BS1	LCS	38.664	40.000	ug/L	96.7		85 - 115			2
Dissolved Chromium	B150791-BS1	LCS	44.086	40.000	ug/L	110		85 - 115			2
Dissolved Cobalt	B150791-BS1	LCS	41.618	40.000	ug/L	104		85 - 115			2
Dissolved Copper	B150791-BS1	LCS	102.90	100.00	ug/L	103		85 - 115			2
Dissolved Lead	B150791-BS1	LCS	104.28	100.00	ug/L	104		85 - 115			2
Dissolved Manganese	B150791-BS3	LCS	107.28	100.00	ug/L	107		85 - 115			3
Dissolved Molybdenum	B150791-BS1	LCS	41.623	40.000	ug/L	104		85 - 115			2
Dissolved Nickel	B150791-BS1	LCS	110.38	100.00	ug/L	110		85 - 115			2
Dissolved Selenium	B150791-BS1	LCS	97.628	100.00	ug/L	97.6		85 - 115			2
Dissolved Silver	B150791-BS1	LCS	42.594	40.000	ug/L	106		85 - 115			2
Dissolved Thallium	B150791-BS1	LCS	40.455	40.000	ug/L	101		85 - 115			2
Dissolved Uranium	B150791-BS1	LCS	40.131	40.000	ug/L	100		85 - 115			2
Dissolved Vanadium	B150791-BS2	LCS	40.393	40.000	ug/L	101		85 - 115			4
QC Batch ID: B150834											
Hexavalent Chromium	B150834-BS1	LCS	20.488	20.000	ug/L	102		90 - 110			5
QC Batch ID: B151081											
Total Recoverable Silica	B151081-BS1	LCS	20924	21392	ug/L	97.8		85 - 115			6
QC Batch ID: B151417											
Dissolved Mercury	B151417-BS1	LCS	1.1100	1.0000	ug/L	111		85 - 115			7
	B151417-BSD1	LCSD	1.0300	1.0000	ug/L	103	7.5	85 - 115	20		8
QC Batch ID: B151620											
Dissolved Zinc	B151620-BS1	LCS	100.62	100.00	ug/L	101		85 - 115			9

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Reported: 01/27/2023 6:03
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Metals Analysis

Quality Control Report - Laboratory Control Sample

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150747-BS1	LCS	EPA-200.7	10/05/22	10/05/22 16:21	JRG	OP-PE4	1
2	B150791-BS1	LCS	EPA-200.8	10/06/22	10/12/22 16:11	KHS	PE-EL4	1
3	B150791-BS3	LCS	EPA-200.8	10/06/22	10/14/22 16:05	KHS	PE-EL4	1
4	B150791-BS2	LCS	EPA-200.8	10/06/22	10/13/22 16:24	KHS	PE-EL4	1
5	B150834-BS1	LCS	EPA-218.6	10/06/22	10/06/22 14:07	KSA	IC-4	1
6	B151081-BS1	LCS	EPA-200.7	10/10/22	10/11/22 14:56	JRG	OP-PE4	1
7	B151417-BS1	LCS	EPA-245.1	10/14/22	10/14/22 12:24	TMT	CETAC3	1
8	B151417-BSD1	LCSD	EPA-245.1	10/14/22	10/14/22 12:35	TMT	CETAC3	1
9	B151620-BS1	LCS	EPA-200.8	10/18/22	10/18/22 11:08	KHS	PE-EL4	1

GSI Water Solutions, Inc.
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Reported: 01/27/2023 6:03
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Project Manager: Brian Franz

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B150747	Used client sample: Y - Description: ZIP-01, 10/03/2022 12:55											
Dissolved Aluminum	DUP	2223471-01	ND	ND		ug/L			20			1
	MS	2223471-01	ND	1039.8	1020.4	ug/L		102		85 - 115		2
	MSD	2223471-01	ND	1042.2	1020.4	ug/L	0.2	102	20	85 - 115		3
Dissolved Iron	DUP	2223471-01	ND	ND		ug/L			20			1
	MS	2223471-01	ND	1019.2	1020.4	ug/L		99.9		85 - 115		2
	MSD	2223471-01	ND	1033.0	1020.4	ug/L	1.3	101	20	85 - 115		3
Dissolved Silicon as SiO2	DUP	2223471-01	26552	26546		ug/L	0.0		20			1
	MS	2223471-01	26552	47872	21829	ug/L		97.7		85 - 115		2
	MSD	2223471-01	26552	48049	21829	ug/L	0.4	98.5	20	85 - 115		3
Dissolved Strontium	DUP	2223471-01	627.07	617.40		ug/L	1.6		20			1
	MS	2223471-01	627.07	1119.3	510.20	ug/L		96.5		85 - 115		2
	MSD	2223471-01	627.07	1137.1	510.20	ug/L	1.6	100	20	85 - 115		3
QC Batch ID: B150791	Used client sample: Y - Description: ZIP-01, 10/03/2022 12:55											
Dissolved Antimony	DUP	2223471-01	ND	ND		ug/L			20			4
	MS	2223471-01	ND	40.030	40.816	ug/L		98.1		70 - 130		5
	MSD	2223471-01	ND	39.788	40.816	ug/L	0.6	97.5	20	70 - 130		6
Dissolved Arsenic	DUP	2223471-01	0.55700	ND		ug/L			20			4
	MS	2223471-01	0.55700	102.61	102.04	ug/L		100		70 - 130		5
	MSD	2223471-01	0.55700	103.74	102.04	ug/L	1.1	101	20	70 - 130		6
Dissolved Barium	DUP	2223471-01	180.35	171.98		ug/L	4.7		20			4
	MS	2223471-01	180.35	212.40	40.816	ug/L		78.5		70 - 130		5
	MSD	2223471-01	180.35	218.17	40.816	ug/L	2.7	92.7	20	70 - 130		6
Dissolved Cadmium	DUP	2223471-01	0.051000	0.053000		ug/L	3.8		20		J	4
	MS	2223471-01	0.051000	40.400	40.816	ug/L		98.9		70 - 130		5
	MSD	2223471-01	0.051000	38.215	40.816	ug/L	5.6	93.5	20	70 - 130		6
Dissolved Chromium	DUP	2223471-01	ND	ND		ug/L			20			4
	MS	2223471-01	ND	39.062	40.816	ug/L		95.7		70 - 130		5
	MSD	2223471-01	ND	41.610	40.816	ug/L	6.3	102	20	70 - 130		6
Dissolved Cobalt	DUP	2223471-01	0.83100	0.76300		ug/L	8.5		20		J	4
	MS	2223471-01	0.83100	38.596	40.816	ug/L		92.5		70 - 130		5
	MSD	2223471-01	0.83100	39.715	40.816	ug/L	2.9	95.3	20	70 - 130		6
Dissolved Copper	DUP	2223471-01	0.78200	0.71900		ug/L	8.4		20		J	4
	MS	2223471-01	0.78200	98.667	102.04	ug/L		95.9		70 - 130		5
	MSD	2223471-01	0.78200	94.894	102.04	ug/L	3.9	92.2	20	70 - 130		6
Dissolved Lead	DUP	2223471-01	ND	0.025000		ug/L			20		J	4
	MS	2223471-01	ND	97.714	102.04	ug/L		95.8		70 - 130		5
	MSD	2223471-01	ND	97.132	102.04	ug/L	0.6	95.2	20	70 - 130		6

GSI Water Solutions, Inc.
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Reported: 01/27/2023 6:03
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Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B150791	Used client sample: Y - Description: ZIP-01, 10/03/2022 12:55											
Dissolved Manganese	DUP	**2223471-01**	**2308.0**	**2281.7**		**ug/L**	**1.1**		**20**			7
	MS	**2223471-01**	**2308.0**	**2897.2**	**510.20**	**ug/L**		**115**		**70 - 130**		8
	MSD	**2223471-01**	**2308.0**	**2980.0**	**510.20**	**ug/L**	**2.8**	**132**	**20**	**70 - 130**	**A03**	9
Dissolved Molybdenum	DUP	2223471-01	1.7360	1.8430		ug/L	6.0		20			4
	MS	2223471-01	1.7360	43.573	40.816	ug/L		103		70 - 130		5
	MSD	2223471-01	1.7360	41.726	40.816	ug/L	4.3	98.0	20	70 - 130		6
Dissolved Nickel	DUP	2223471-01	2.8650	2.4800		ug/L	14.4		20			4
	MS	2223471-01	2.8650	100.24	102.04	ug/L		95.4		70 - 130		5
	MSD	2223471-01	2.8650	100.42	102.04	ug/L	0.2	95.6	20	70 - 130		6
Dissolved Selenium	DUP	**2223471-01**	**0.28900**	**0.44500**		**ug/L**	**42.5**		**20**		**J,A02**	4
	MS	**2223471-01**	**0.28900**	**101.02**	**102.04**	**ug/L**		**98.7**		**70 - 130**		5
	MSD	**2223471-01**	**0.28900**	**98.953**	**102.04**	**ug/L**	**2.1**	**96.7**	**20**	**70 - 130**		6
Dissolved Silver	DUP	2223471-01	ND	ND		ug/L			20			4
	MS	2223471-01	ND	40.600	40.816	ug/L		99.5		70 - 130		5
	MSD	2223471-01	ND	39.659	40.816	ug/L	2.3	97.2	20	70 - 130		6
Dissolved Thallium	DUP	2223471-01	ND	ND		ug/L			20			4
	MS	2223471-01	ND	40.029	40.816	ug/L		98.1		70 - 130		5
	MSD	2223471-01	ND	39.501	40.816	ug/L	1.3	96.8	20	70 - 130		6
Dissolved Uranium	DUP	2223471-01	1.4060	1.4700		ug/L	4.5		20			4
	MS	2223471-01	1.4060	42.008	40.816	ug/L		99.5		70 - 130		5
	MSD	2223471-01	1.4060	42.911	40.816	ug/L	2.1	102	20	70 - 130		6
Dissolved Vanadium	DUP	2223471-01	0.72500	ND		ug/L			20			10
	MS	2223471-01	0.72500	42.756	40.816	ug/L		103		70 - 130		11
	MSD	2223471-01	0.72500	38.721	40.816	ug/L	9.9	93.1	20	70 - 130		12
QC Batch ID: B150834	Used client sample: N											
Hexavalent Chromium	DUP	2223439-01	ND	ND		ug/L			10			13
	MS	2223439-01	ND	19.001	20.202	ug/L		94.1		90 - 110		14
	MSD	2223439-01	ND	19.598	20.202	ug/L	3.1	97.0	10	90 - 110		15
QC Batch ID: B151081	Used client sample: N											
Total Recoverable Silica	DUP	2223535-01	17986	18360		ug/L	2.1		20			16
	MS	2223535-01	17986	37798	21392	ug/L		92.6		75 - 125		17
	MSD	2223535-01	17986	36367	21392	ug/L	3.9	85.9	20	75 - 125		18
QC Batch ID: B151417	Used client sample: N											
Dissolved Mercury	DUP	**2223652-01**	**0.10225**	**0.18475**		**ug/L**	**57.5**		**20**		**J,A02**	19
	MS	**2223652-01**	**0.10225**	**1.3000**	**1.0000**	**ug/L**		**120**		**70 - 130**		20
	MSD	**2223652-01**	**0.10225**	**1.2725**	**1.0000**	**ug/L**	**2.1**	**117**	**20**	**70 - 130**		21
QC Batch ID: B151620	Used client sample: N											

GSI Water Solutions, Inc.
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Project Manager: Brian Franz

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B151620	Used client sample: N											
Dissolved Zinc	DUP	2223781-01	11.347	11.382		ug/L	0.3		20			22
	MS	2223781-01	11.347	128.10	102.04	ug/L		114		70 - 130		23
	MSD	2223781-01	11.347	134.51	102.04	ug/L	4.9	121	20	70 - 130		24

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B150747-DUP1	DUP	EPA-200.7	10/05/22	10/05/22 16:25	JRG	OP-PE4	1
2	B150747-MS1	MS	EPA-200.7	10/05/22	10/05/22 16:29	JRG	OP-PE4	1.020
3	B150747-MSD1	MSD	EPA-200.7	10/05/22	10/05/22 16:32	JRG	OP-PE4	1.020
4	B150791-DUP1	DUP	EPA-200.8	10/06/22	10/12/22 16:07	KHS	PE-EL4	1
5	B150791-MS1	MS	EPA-200.8	10/06/22	10/12/22 16:13	KHS	PE-EL4	1.020
6	B150791-MSD1	MSD	EPA-200.8	10/06/22	10/12/22 16:14	KHS	PE-EL4	1.020
7	B150791-DUP3	DUP	EPA-200.8	10/06/22	10/14/22 16:01	KHS	PE-EL4	5
8	B150791-MS3	MS	EPA-200.8	10/06/22	10/14/22 16:07	KHS	PE-EL4	5.102
9	B150791-MSD3	MSD	EPA-200.8	10/06/22	10/14/22 16:09	KHS	PE-EL4	5.102
10	B150791-DUP2	DUP	EPA-200.8	10/06/22	10/13/22 16:20	KHS	PE-EL4	1
11	B150791-MS2	MS	EPA-200.8	10/06/22	10/13/22 16:26	KHS	PE-EL4	1.020
12	B150791-MSD2	MSD	EPA-200.8	10/06/22	10/13/22 16:28	KHS	PE-EL4	1.020
13	B150834-DUP1	DUP	EPA-218.6	10/06/22	10/06/22 14:26	KSA	IC-4	1
14	B150834-MS1	MS	EPA-218.6	10/06/22	10/06/22 14:35	KSA	IC-4	1.010
15	B150834-MSD1	MSD	EPA-218.6	10/06/22	10/06/22 15:04	KSA	IC-4	1.010
16	B151081-DUP1	DUP	EPA-200.7	10/10/22	10/11/22 15:01	JRG	OP-PE4	1
17	B151081-MS1	MS	EPA-200.7	10/10/22	10/11/22 15:05	JRG	OP-PE4	1
18	B151081-MSD1	MSD	EPA-200.7	10/10/22	10/11/22 15:08	JRG	OP-PE4	1
19	B151417-DUP1	DUP	EPA-245.1	10/14/22	10/14/22 11:59	TMT	CETAC3	1
20	B151417-MS1	MS	EPA-245.1	10/14/22	10/14/22 12:01	TMT	CETAC3	1
21	B151417-MSD1	MSD	EPA-245.1	10/14/22	10/14/22 12:41	TMT	CETAC3	1
22	B151620-DUP1	DUP	EPA-200.8	10/18/22	10/18/22 11:04	KHS	PE-EL4	1
23	B151620-MS1	MS	EPA-200.8	10/18/22	10/18/22 11:10	KHS	PE-EL4	1.020
24	B151620-MSD1	MSD	EPA-200.8	10/18/22	10/18/22 11:12	KHS	PE-EL4	1.020

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Analytical Report

Report To:	PACE ANALYTICAL SERVICES - BAKERSFIELD 4100 ATLAS COURT BAKERSFIELD, CA 93308	**Lab No:**	22J0759
		Reported:	10/28/22
		Phone:	(800) 878-4911
Attention:	Ragen Schallock		
Project:	Nutrients Testing 2223471		

Included in this report are laboratory results for work order 22J0759, received on 10/18/22. All analyses were performed in strict adherence to our established Quality Manual. Any qualifications or abnormalities are listed in the Notes and Definitions and/or the Case Narrative section of this report. The project Chain of Custody and laboratory sample receipt record are included as attachments to this report.

Sample Results

Description: 2223471-01 **Sampled:** 10/03/22 12:55
Matrix / Type: Water () **Lab ID:** 22J0759-01 **Received:** 10/18/22 14:40

General Chemistry - Redding Location

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch / Analyst
Ammonia as N	mg/l	0.067		0.017	0.050	EPA 350.1	10/25/22	10/25/22	B2J1418 / TAH

Quality Control Data

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
General Chemistry - Redding Location	**Batch B2J1418 - General Prep - GC**									
Blank										
Ammonia as N	ND	0.050	mg/l							
LCS										
Ammonia as N	0.510	0.050	mg/l	0.500		102	90-110			
Duplicate	Source: 22J0759-01									
Ammonia as N	0.068	0.050	mg/l		0.067			1.04	20	
Duplicate	Source: 22J0772-01									
Ammonia as N	ND	0.050	mg/l		ND				20	
Matrix Spike	Source: 22J0759-01									
Ammonia as N	0.573	0.050	mg/l	0.500	0.067	101	90-110			
Matrix Spike	Source: 22J0772-01									
Ammonia as N	0.501	0.050	mg/l	0.500	ND	100	90-110			

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Analytical Report

Notes and Definitions

ND	Analyte NOT DETECTED at or above the detection limit
RPD	Relative Percent Difference
MDL	Method Detection Limit
RL	Reporting Limit
* or #	The laboratory does not hold CA-ELAP accreditiation for this analyte or method. Accreditation may not be available from CA-ELAP for this analyte or method.
**	The laboratory holds accreditation for this analyte or method with WA -ECY Lab ID: Lab ID C783. Accreditation is not offered for this method by CA-ELAP
Note 2	According to 40 CFR Part 136 Table II, the following tests should be analyzed in the field within 15 minutes of sampling: pH, chlorine, dissolved oxygen, and sulfite.

Accreditations Held:
Redding Location: CA-ELAP - Cert # 1677
Chico Location: CA-ELAP - Cert # 2718

Approved By

I certify that these results meet the requirements of the applicable accreditation standard, and were performed in compliance with the stated analytical methods unless otherwise noted in the qualifications or Case Narrative section of this report.

Approved By: Ricky Jensen
Ricky Jensen, Operations Manager
Pace Analytical Services LLC - Redding CA

The data included in this report relate only to the specific items as received, recorded on the Chain of Custody, and analyzed at the laboratory. All data is expressed on a wet-weight basis unless otherwise noted. Interpretation and use of the information included in this report is the sole responsibility of the client. This report may not be reproduced except in full, and may not be modified in any way without prior written approval from Pace Analytical. Use of this report in whole or part for public advertising or any other commercial purpose requires prior written authorization.

SUBCONTRACT ORDER

22J0759

Pace Analytical Labs - Bakersfield, CA

2223471

22J0759

SENDING LABORATORY:	RECEIVING LABORATORY:
Pace Analytical Labs	Pace - Redding (Basic) $BSCLB
4100 Atlas Ct	2218 Railroad Ave.
Bakersfield, CA 93308	Redding, CA 96001
Phone: 661-327-4911	Phone :(530) 243-7234
Fax: 661-327-1918	Fax: ---
Project Manager: Ragen Schallock	

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 2223471-01	**Water**	**Sampled:10/03/22 12:55**		-01
i350.1w Ammonia as N	10/17/22 23:59	10/31/22 12:55		
Containers Supplied:				

Released By	Date	Received By	Date
FOR	10/17/22	MM	10.18.22

Released By Date Received By Date

Page 1 of 1

basic laboratory

SAMPLE RECEIPT CHECKLIST

WO NUMBER 22J0759

SHIPPING INFORMATION

Walk-In ☐
Courier ☐
FedEx ☑
UPS ☐
Other ☐

Cooler Present? Yes ☑ No ☐

Samples Received By: mu Date: 10-18-22

	Yes	No
Samples received on ice?	☑	☐
Samples received the same day collected?	☐	☑

Ice type? ☑ Wet ☐ Blue ☐ Other

SAMPLE TEMPERATURES AT RECEIPT mu 10-18-22 Therm. ID (Circle one): Therm-36 Therm-37 ~~Therm-59~~ Other: Therm-41 mu 10-18-22

Cooler Temp ~~recorded~~ used for all sample(s): 0.4°c

Sample ID	Corr Temp (°C)	Sample ID	Corr Temp (°C)	Sample ID	Corr Temp (°C)	Sample ID	Corr Temp (°C)
-01	~~0.4~~ mu 10-18-22	-06		-11		-16	
-02		-07		-12		-17	
-03		-08		-13		-18	
-04		-09		-14		-19	
-05		-10		-15		-20	

SAMPLE CONDITION AND PROCESSING

Samples Processed and Labeled By: mu Date: 10-18-22

	Yes	No	NA
Custody seals present?	☐	☐	☑
Samples in proper containers?	☑	☐	
Sample containers damaged?	☐	☑	
Sufficient sample volume for indicated tests?	☑	☐	
Samples received within holding times?	☑	☐	
Are VOA vials free of headspace?	☐	☐	☑
Dechlor. agent labels present (i.e., colilert, TTHMs)?	☐	☐	☑

SAMPLE PRESERVATION NA ☐

	Yes	No	NA
Preserved in the field?	☑	☐	☐
Preserved in the lab?	☐	☑	☐

Lab Preservation Date & Time ____________

☐ H2SO4 (ID________) ☐ HNO3 (ID________) ☐ NaOH (ID________)
☐ Other (ID________) ☐ Other (ID________) ☐ Other (ID________)

	Yes	No	NA
H2SO4 preserved samples confirmed to pH <2 (i.e., E350.1, SM5220, SM5310)?	☑	☐	☐
HNO3 preserved samples confirmed to pH <2 (i.e., E200.7, E200.8, 6010)?	☐	☐	☑
NaOH preserved samples confirmed to pH >10 (cyanide) or >9 (sulfide)?	☐	☐	☑
Hexavalent Chromium (DW) preserved samples confirmed to pH >8 & Chlorine <0.1 mg/l?	☐	☐	☑
Hexavalent Chromium (W) preserved samples confirmed to pH 9.3 - 9.7?	☐	☐	☑
Are proper preservation lables present?	☑	☐	☐

By:______ Meter ID:__________

Preservation checked at Lab? Date & Time 10/19/22 1746 Test Strip (ID 2B26019)

Preservation and Preservation Checks performed by: LM

COMMENTS, DISCREPANCEIS, ANOMALIES

____

Rev 2.0 Page 1 FRM-008 Sample Receipt Form

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)

AFJ1807
10/27/2022
Invoice: AF27795

Ragen Williams
Pace Analytical (Bakersfield, CA)
4100 Atlas Court
Bakersfield, CA 93308

RE: Report for AFJ1807 General: Project Manager-Ragen Williams

Dear Ragen Williams,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 10/13/2022. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2016 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Sarah K. Guenther , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Sarah Guenther

Sarah K. Guenther, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AFJ1807 FINAL 10272022 1316

AFJ1807

General: Project Manager-Ragen Williams

BSK ASSOCIATES

Case Narrative

Project and Report Details		Invoice Details	
Client:	Pace Analytical (Bakersfield, CA)	**Invoice To:**	Pace Analytical (Bakersfield, CA)
Report To:	Ragen Williams	**Invoice Attn:**	Invoicing
Project #:	2223471	**Project PO#:**	-
Received:	10/13/2022 - 11:30		
Report Due:	10/27/2022		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt °C: 2.4

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Other
Sample(s) were received in temperature range.
Sample(s) preserved after receipt at lab.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

SC1.41 Sample was received without chemical preservation. Sample volume was split and preserved by the laboratory.

Report Distribution

Recipient(s)	Report Format	CC:
Ragen Williams	FINAL.RPT	

AFJ1807

General: Project Manager-Ragen Williams
2223471

Certificate of Analysis

Sample ID: AFJ1807-01
Sampled By: Client
Sample Description: 2223471-01

Sample Date - Time: 10/03/2022 - 12:55
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Bromate	EPA 317.0	ND	1.0	ug/L	1	AFJ1233	10/20/22	10/20/22	SC1.41

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Beryllium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AFJ1181	10/19/22	10/25/22	

AFJ1807

General: Project Manager-Ragen Williams

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

EPA 317.0 - Quality Control

Batch: AFJ1233 — Prepared: 10/20/2022

Prep Method: Method Specific Preparation — Analyst: DXR

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AFJ1233-BLK1)											
Bromate	ND	1.0	ug/L							10/20/22	
Blank Spike (AFJ1233-BS1)											
Bromate	9.8	1.0	ug/L	10	ND	98	85-115			10/20/22	
Blank Spike Dup (AFJ1233-BSD1)											
Bromate	10	1.0	ug/L	10	ND	100	85-115	2	10	10/20/22	
Matrix Spike (AFJ1233-MS1), Source: AFJ1978-01											
Bromate	11	1.0	ug/L	10	ND	108	75-125			10/21/22	
Matrix Spike Dup (AFJ1233-MSD1), Source: AFJ1978-01											
Bromate	10	1.0	ug/L	10	ND	100	75-125	8	10	10/21/22	

AFJ1807

General: Project Manager-Ragen Williams

BSK Associates Laboratory Fresno

Metals Quality Control Report

EPA 200.8 - Quality Control

Batch: AFJ1181 | Prepared: 10/19/2022
Prep Method: Filtration - Metals | Analyst: JRO

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AFJ1181-BLK1)											
Beryllium - Dissolved (1)	ND	1.0	ug/L							10/25/22	
Blank Spike (AFJ1181-BS1)											
Beryllium - Dissolved (1)	210	1.0	ug/L	200	ND	103	85-115			10/25/22	
Blank Spike Dup (AFJ1181-BSD1)											
Beryllium - Dissolved (1)	210	1.0	ug/L	200	ND	107	85-115	4	20	10/25/22	
Matrix Spike (AFJ1181-MS2), Source: AFJ1911-06											
Beryllium - Dissolved (1)	200	1.0	ug/L	200	ND	102	70-130			10/25/22	
Matrix Spike Dup (AFJ1181-MSD2), Source: AFJ1911-06											
Beryllium - Dissolved (1)	200	1.0	ug/L	200	ND	99	70-130	3	20	10/25/22	

ASSOCIATES

AFJ1807

General: Project Manager-Ragen Williams

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

  Unless otherwise noted, TOC results by SM 5310C method do not include purgeable organic carbon, which is removed along with the inorganic carbon interference. The POC contribution to TOC is considered to be negligible.

AFJ1807

General: Project Manager-Ragen Williams

Certificate of Analysis

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

The following parameters are calculated values and are outside the scope of our NELAP accreditation:

Total Nitrogen   Aggressive Index   Trivalent Chromium

BSK is not accredited under the NELAP program for the following additional parameters: **NA**

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AFJ1807 FINAL 10272022 1316

Certifications: Please refer to our website for a copy of our Accredited Fields of Testing under each certification.

Fresno

State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-019
State of Nevada	CA000792022-1	State of Oregon - NELAP	4021-019
EPA UCMR5	CA00079	State of Washington	C997-22a

Sacramento

State of California - ELAP	1180-S1		

San Bernardino

State of California - ELAP	2993	Los Angeles CSD	9254478
NELAP certified	4119-007	State of Oregon - NELAP	4119-007

Vancouver

NELAP certified	WA100008-015	State of Oregon - NELAP	WA100008-015
State of Washington	C824-22		

N

SUBCONTRACT ORDER
Pace Analytical Labs - Bakersfield, CA
2223471

AFJ1807 BCLab4911 10/13/2022
10

2.4°
TS #01

SENDING LABORATORY:	**RECEIVING LABORATORY:**
Pace Analytical Labs	BSK Analytical Labs- Fresno $BSKSA-EINV
4100 Atlas Ct	1414 Stanislaus Street
Bakersfield, CA 93308	Fresno, CA 93706
Phone: 661-327-4911	Phone :(800) 877-8310
Fax: 661-327-1918	Fax: (559) 485-6935
Project Manager: Ragen Schallock	

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 2223471-01	**Water**	**Sampled:10/03/22 12:55**	[redacted]	
oi317.0w Bromate BSKSA	10/17/22 23:59	10/31/22 12:55		
om200.8wb Diss Beryllium BSKSA	10/17/22 23:59	04/02/23 12:55		

Containers Supplied:

WT

ICR	10/12/22	Fed Ex.	10/13/22
Released By	Date	Received By	Date
Fed Ex		BSK	1130
Released By	Date	Received By	Date

Page 1 of 1

AFJ1807 BCLab4911 10/13/2022

10

BSK Associates SR-FL-0002-23

Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info				
Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TTHM/TCP)? TB Received? (Check Method Below)	Yes No NA / Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received — "—" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?					
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap w/ EDA	—	—	1a				
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 DW	Cl, pH > 8	P F					
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—	1a				
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	P F					
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—					
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—					
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F					
NH_4Cl (AG) Purple Label 552	—	—					
EDA (P) or (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—					
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1 - Field Blank Required							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—					
Bottled Water	—	—					
Clear Glass	—	—					
Solids: Brass / Steel / Plastic Bag	—	—					

G 10/13/22

Split	Container	Preservative	Lot #	Initials	Date/Time	Preservation Check
S P	EDA	250 P NBSK				pH Lot #
S P						Cl Lot #

Comments

*Preservation check completed by lab performing analysis.

✓ Indicates Blanks Received

504 ___ 524.2 ___ TTHM ___ 537.1 ___ TCP___

✓ MS/MSD Received Method: ________

Scanned: ________ Rush/Short HT Page: ________ Time:_______

Page 10 of 10

LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322220412
Customer ID: BCLA50
Customer PO:
Project ID:

Attn: Ragen Schallock
Pace Analytical Services, LLC
4100 Atlas Court
Bakersfield, CA 93308

Phone: (661) 327-4911
Fax: (661) 327-1918
Received: 10/11/2022
Analyzed: 10/22/2022

Proj: 2223471

Test Report: Determination of Asbestos Structures ≥ 0.5 µm & > 10µm in Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm^2)	Area Analyzed (mm^2)		ASBESTOS: Asbestos Types	Fibers Detected	Analytical Sensitivity (MFL (million fibers per liter))	Concentration (MFL)	Confidence Limits (MFL)
2223471-01 322220412-0001	10/12/2022 11:50 AM	1	1288	0.2560	≥ 0.5 µm	Chrysotile	8	5.00	40.00	17.00 - 79.00
					> 10 µm only	Chrysotile	1	5.00	5.00	0.13 - 28.00

Collection Date/Time: *10/03/2022 12:55 PM*

Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.

Analyst(s)
Sherrie Ahmad (1)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 10/23/2022 11:12:47

Samples analyzed by LA Testing South Pasadena, CA CA ELAP 2283

GSI Water Solutions, Inc.	**Reported:** 01/27/2023 6:03
5855 Capistran Avenue, Suite C	Project: Morro Bay Injection
Atascadero, CA 93422	Project Number: 645.007
	Project Manager: Brian Franz

Notes And Definitions

J	Estimated Value (CLP Flag)
MDL	Method Detection Limit
ND	Analyte Not Detected
PQL	Practical Quantitation Limit
A02	The difference between duplicate readings is less than the quantitation limit.
A03	The sample concentration was more than 4 times the spike level.
A10	Detection and quantitation limits were raised due to matrix interference.
L01	The Laboratory Control Sample Water (LCSW) recovery is not within laboratory established control limits.
Q02	Matrix spike precision is not within the control limits.
Q03	Matrix spike recovery(s) was(were) not within the control limits.
S05	The sample holding time was exceeded.

2218 Railroad Avenue
Redding, California 96001
voice 530.243.7234
fax 530.243.7494

3860 Morrow Lane, Suite F
Chico, California 95928
voice 530.894.8966
fax 530.894.5143

Analytical Report

Report To:	PACE ANALYTICAL SERVICES - BAKERSFIELD	**Lab No:**	22J0759
	4100 ATLAS COURT	**Reported:**	10/28/22
	BAKERSFIELD, CA 93308	**Phone:**	(800) 878-4911
Attention:	Ragen Schallock		
Project:	Nutrients Testing 2223471		

Included in this report are laboratory results for work order 22J0759, received on 10/18/22. All analyses were performed in strict adherence to our established Quality Manual. Any qualifications or abnormalities are listed in the Notes and Definitions and/or the Case Narrative section of this report. The project Chain of Custody and laboratory sample receipt record are included as attachments to this report.

Sample Results

Description:	2223471-01			**Sampled:**	10/03/22 12:55
Matrix / Type:	Water ()	**Lab ID:**	22J0759-01	**Received:**	10/18/22 14:40

General Chemistry - Redding Location

Analyte	Units	Results	Qualifier	MDL	RL	Method	Analyzed	Prepared	Batch / Analyst
Ammonia as N	mg/l	0.067		0.017	0.050	EPA 350.1	10/25/22	10/25/22	B2J1418 / TAH

Quality Control Data

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifier
General Chemistry - Redding Location	**Batch B2J1418 - General Prep - GC**									
Blank										
Ammonia as N	ND	0.050	mg/l							
LCS										
Ammonia as N	0.510	0.050	mg/l	0.500		102	90-110			
Duplicate	Source: 22J0759-01									
Ammonia as N	0.068	0.050	mg/l		0.067			1.04	20	
Duplicate	Source: 22J0772-01									
Ammonia as N	ND	0.050	mg/l		ND				20	
Matrix Spike	Source: 22J0759-01									
Ammonia as N	0.573	0.050	mg/l	0.500	0.067	101	90-110			
Matrix Spike	Source: 22J0772-01									
Ammonia as N	0.501	0.050	mg/l	0.500	ND	100	90-110			

2218 Railroad Avenue
Redding, California 96001
voice 530.243.7234
fax 530.243.7494

3860 Morrow Lane, Suite F
Chico, California 95928
voice 530.894.8966
fax 530.894.5143

Notes and Definitions

ND	Analyte NOT DETECTED at or above the detection limit
RPD	Relative Percent Difference
MDL	Method Detection Limit
RL	Reporting Limit
* or #	The laboratory does not hold CA-ELAP accreditiation for this analyte or method. Accreditation may not be available from CA-ELAP for this analyte or method.
**	The laboratory holds accreditation for this analyte or method with WA-ECY Lab ID: Lab ID C783. Accreditation is not offered for this method by CA-ELAP
Note 2	According to 40 CFR Part 136 Table II, the following tests should be analyzed in the field within 15 minutes of sampling: pH, chlorine, dissolved oxygen, and sulfite.

Accreditations Held:
Redding Location: CA-ELAP - Cert # 1677
Chico Location: CA-ELAP - Cert # 2718

Approved By

I certify that these results meet the requirements of the applicable accreditation standard, and were performed in compliance with the stated analytical methods unless otherwise noted in the qualifications or Case Narrative section of this report.

Approved By: Ricky Jensen
Ricky Jensen, Operations Manager
Pace Analytical Services LLC - Redding CA

SUBCONTRACT ORDER 22J0759

Pace Analytical Labs - Bakersfield, CA

2223471 22J0759

SENDING LABORATORY:	**RECEIVING LABORATORY:**
Pace Analytical Labs	Pace - Redding (Basic) $BSCLB
4100 Atlas Ct	2218 Railroad Ave.
Bakersfield, CA 93308	Redding, CA 96001
Phone: 661-327-4911	Phone :(530) 243-7234
Fax: 661-327-1918	Fax: ---
Project Manager: Ragen Schallock	

Analysis	Due	Expires	Laboratory ID	Comments	
Sample ID: 2223471-01	**Water**	**Sampled:10/03/22 12:55**	[redacted]		-01
i350.1w Ammonia as N *Containers Supplied:*	10/17/22 23:59	10/31/22 12:55			

Released By	Date	Received By	Date
IDR	10/17/22	MM	10.18.22
Released By	Date	Received By	Date

SAMPLE RECEIPT CHECKLIST

basic laboratory

WO NUMBER 22J0759

SHIPPING INFORMATION

- Walk-In ☐
- Courier ☐
- FedEx ☑
- UPS ☐
- Other ☐

Cooler Present? Yes ☑ No ☐

Samples Received By: mu Date: 10.18.22

	Yes	No
Samples received on ice?	☑	☐
Samples received the same day collected?	☐	☑

Ice type? ☑ Wet ☐ Blue ☐ Other ____

SAMPLE TEMPERATURES AT RECEIPT mu 10.18.22 Therm. ID (Circle one): Therm-36 Therm-37 ~~Therm-59~~ Other: Therm-41

Cooler Temp ~~recorded~~ used for all sample(s): 0.4°c mu 10.18.22

Sample ID	Corr Temp (°C)	Sample ID	Corr Temp (°C)	Sample ID	Corr Temp (°C)	Sample ID	Corr Temp (°C)
-01	~~0.4~~ mu 10.18.22	-06		-11		-16	
-02		-07		-12		-17	
-03		-08		-13		-18	
-04		-09		-14		-19	
-05		-10		-15		-20	

SAMPLE CONDITION AND PROCESSING

Samples Processed and Labeled By: mu Date: 10.18.22

	Yes	No	NA
Custody seals present?	☐	☐	☑
Samples in proper containers?	☑	☐	
Sample containers damaged?	☐	☑	
Sufficient sample volume for indicated tests?	☑	☐	
Samples received within holding times?	☑	☐	
Are VOA vials free of headspace?	☐	☐	☑
Dechlor. agent labels present (i.e., colilert, TTHMs)?	☐	☐	☑

SAMPLE PRESERVATION NA ☐

	Yes	No	NA
Preserved in the field?	☑	☐	☐
Preserved in the lab?	☐	☑	☐

Lab Preservation Date & Time ____

- ☐ H2SO4 (ID____) ☐ HNO3 (ID____) ☐ NaOH (ID____)
- ☐ Other (ID____) ☐ Other (ID____) ☐ Other (ID____)

	Yes	No	NA
H2SO4 preserved samples confirmed to pH <2 (i.e., E350.1, SM5220, SM5310)?	☑	☐	☐
HNO3 preserved samples confirmed to pH <2 (i.e., E200.7, E200.8, 6010)?	☐	☐	☑
NaOH preserved samples confirmed to pH >10 (cyanide) or >9 (sulfide)?	☐	☐	☑
Hexavalent Chromium (DW) preserved samples confirmed to pH >8 & Chlorine <0.1 mg/l?	☐	☐	☑
Hexavalent Chromium (W) preserved samples confirmed to pH 9.3 - 9.7?	☐	☐	☑
Are proper preservation lables present?	☑	☐	☐

By:____ Meter ID:____

Preservation checked at Lab? Date & Time 10/18/22 1716 Test Strip (ID 2B2409)

Preservation and Preservation Checks performed by: LY

COMMENTS, DISCREPANCEIS, ANOMALIES

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)

AFJ1807
10/27/2022
Invoice: AF27795

Ragen Williams
Pace Analytical (Bakersfield, CA)
4100 Atlas Court
Bakersfield, CA 93308

RE: Report for AFJ1807 General: Project Manager-Ragen Williams

Dear Ragen Williams,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 10/13/2022. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2016 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an “as received” basis.

If additional clarification of any information is required, please contact your Project Manager,
Sarah K. Guenther , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Sarah Guenther

Sarah K. Guenther, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021

BSK ASSOCIATES

Case Narrative

Project and Report Details		Invoice Details	
Client:	Pace Analytical (Bakersfield, CA)	**Invoice To:**	Pace Analytical (Bakersfield, CA)
Report To:	Ragen Williams	**Invoice Attn:**	Invoicing
Project #:	2223471	**Project PO#:**	-
Received:	10/13/2022 - 11:30		
Report Due:	10/27/2022		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt ºC: 2.4

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Other
Sample(s) were received in temperature range.
Sample(s) preserved after receipt at lab.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

SC1.41 Sample was received without chemical preservation. Sample volume was split and preserved by the laboratory.

Report Distribution

Recipient(s)	Report Format	CC:
Ragen Williams	FINAL.RPT	

Certificate of Analysis

Sample ID: AFJ1807-01
Sampled By: Client
Sample Description: 2223471-01

Sample Date - Time: 10/03/2022 - 12:55
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Bromate	EPA 317.0	ND	1.0	ug/L	1	AFJ1233	10/20/22	10/20/22	SC1.41

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Beryllium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AFJ1181	10/19/22	10/25/22	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 317.0 - Quality Control

Batch: AFJ1233 Prepared: 10/20/2022

Prep Method: Method Specific Preparation Analyst: DXR

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AFJ1233-BLK1)											
Bromate	ND	1.0	ug/L							10/20/22	
Blank Spike (AFJ1233-BS1)											
Bromate	9.8	1.0	ug/L	10	ND	98	85-115			10/20/22	
Blank Spike Dup (AFJ1233-BSD1)											
Bromate	10	1.0	ug/L	10	ND	100	85-115	2	10	10/20/22	
Matrix Spike (AFJ1233-MS1), Source: AFJ1978-01											
Bromate	11	1.0	ug/L	10	ND	108	75-125			10/21/22	
Matrix Spike Dup (AFJ1233-MSD1), Source: AFJ1978-01											
Bromate	10	1.0	ug/L	10	ND	100	75-125	8	10	10/21/22	

BSK Associates Laboratory Fresno

Metals Quality Control Report

EPA 200.8 - Quality Control

Batch: AFJ1181 Prepared: 10/19/2022

Prep Method: Filtration - Metals Analyst: JRO

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AFJ1181-BLK1)											
Beryllium - Dissolved (1)	ND	1.0	ug/L							10/25/22	
Blank Spike (AFJ1181-BS1)											
Beryllium - Dissolved (1)	210	1.0	ug/L	200	ND	103	85-115			10/25/22	
Blank Spike Dup (AFJ1181-BSD1)											
Beryllium - Dissolved (1)	210	1.0	ug/L	200	ND	107	85-115	4	20	10/25/22	
Matrix Spike (AFJ1181-MS2), Source: AFJ1911-06											
Beryllium - Dissolved (1)	200	1.0	ug/L	200	ND	102	70-130			10/25/22	
Matrix Spike Dup (AFJ1181-MSD2), Source: AFJ1911-06											
Beryllium - Dissolved (1)	200	1.0	ug/L	200	ND	99	70-130	3	20	10/25/22	

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

  Unless otherwise noted, TOC results by SM 5310C method do not include purgeable organic carbon, which is removed along with the inorganic carbon interference. The POC contribution to TOC is considered to be negligible.

Certificate of Analysis

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

The following parameters are calculated values and are outside the scope of our NELAP accreditation:

Total Nitrogen   Aggressive Index   Trivalent Chromium

BSK is not accredited under the NELAP program for the following additional parameters: **NA**

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

Fresno

State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-019
State of Nevada	CA000792022-1	State of Oregon - NELAP	4021-019
EPA UCMR5	CA00079	State of Washington	C997-22a

Sacramento

State of California - ELAP	1180-S1

San Bernardino

State of California - ELAP	2993	Los Angeles CSD	9254478
NELAP certified	4119-007	State of Oregon - NELAP	4119-007

Vancouver

NELAP certified	WA100008-015	State of Oregon - NELAP	WA100008-015
State of Washington	C824-22		

N

SUBCONTRACT ORDER

Pace Analytical Labs - Bakersfield, CA

2223471

AFJ1807 BCLab4911 10/13/2022

10

SENDING LABORATORY:

Pace Analytical Labs
4100 Atlas Ct
Bakersfield, CA 93308
Phone: 661-327-4911
Fax: 661-327-1918
Project Manager: Ragen Schallock

2.4°
15 #01

RECEIVING LABORATORY:

BSK Analytical Labs- Fresno $BSKSA-EINV
1414 Stanislaus Street
Fresno, CA 93706
Phone :(800) 877-8310
Fax: (559) 485-6935

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 2223471-01	**Water**	**Sampled:10/03/22 12:55**	[redacted]	
oi317.0w Bromate BSKSA	10/17/22 23:59	10/31/22 12:55		
om200.8wb Diss Beryllium BSKSA	10/17/22 23:59	04/02/23 12:55		
Containers Supplied:				

ICR	10/12/22	Fed Ex.	10/13/22
Released By	Date	Received By	Date
Fed Ex		Mica BSK	1130
Released By	Date	Received By	Date

Page 1 of 1

AFJ1807 BCLab4911 10/13/2022

10

BSK Associates SR-FL-0002-23

Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TTHM/TCP)? TB Received? (Check Method Below)	Yes No NA / Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received

"—" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?	1				
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap w/ EDA	—	—	1a				
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 DW	Cl, pH > 8	P F					
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—	1a				
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	P F					
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—					
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—					
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F					
NH_4Cl (AG) Purple Label 552	—	—					
EDA (P) or (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—					
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1 - **Field Blank Required**							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—					
Bottled Water	—	—					
Clear Glass	—	—					
Solids: Brass / Steel / Plastic Bag	—	—					

G 10/13/22

Split

	Container	Preservative	Lot #	Initials	Date/Time
S P	EDA	250 P NBK			
S P					

Preservation Check
pH Lot #
Cl Lot #

Comments

*Preservation check completed by lab performing analysis.

✓ **Indicates Blanks Received**

504 ___ 524.2 ___ TTHM ___ 537.1 ___ TCP___

✓ **MS/MSD Received Method:** ________

Scanned: ________ Rush/Short HT Page: ________ Time:_______

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)

AGA1682
2/03/2023
Invoice: AG02793

Ragen Williams
Pace Analytical (Bakersfield, CA)
4100 Atlas Court
Bakersfield, CA 93308

RE: Report for AGA1682 General: Project Manager-Ragen Williams

Dear Ragen Williams,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 1/12/2023. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2016 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an “as received” basis.

If additional clarification of any information is required, please contact your Project Manager,
Sarah K. Guenther , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Sarah K. Guenther, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021

General: Project Manager-Ragen Williams

Case Narrative

Project and Report Details		Invoice Details	
Client:	Pace Analytical (Bakersfield, CA)	**Invoice To:**	Pace Analytical (Bakersfield, CA)
Report To:	Ragen Williams	**Invoice Attn:**	Invoicing
Project #:	2223471	**Project PO#:**	-
Received:	1/12/2023 - 12:00		
Report Due:	2/02/2023		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt °C: 1.6

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Bubble Wrap
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Cooler: New Cooler
Temperature on Receipt °C: 4.4

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Bubble Wrap
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

DL1.0	Sample required a dilution due to the matrix or high concentration of non-target analytes.
HT1.0	Holding time exceeded. Sample was received at the lab past holding time.
SC1.15	Sample was received in plastic container instead of recommended glass container for TOC analysis.

Report Distribution

Recipient(s)	Report Format	CC:
Ragen Williams	FINAL.RPT	

Certificate of Analysis

Sample ID: AGA1682-01
Sampled By: Ragen Williams
Sample Description: 2223471-01

Sample Date - Time: 10/03/2022 - 12:55
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Dissolved Organic Carbon	SM 5310C	ND	2.0	mg/L	10	AGA1716	01/30/23	01/30/23	DL1.0, HT1.0, SC1.15

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

SM 5310C - Quality Control

Batch: AGA1716 Prepared: 1/30/2023

Prep Method: Method Specific Preparation Analyst: ERA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1716-BLK1)											
Dissolved Organic Carbon	ND	0.20	mg/L							01/30/23	
Blank Spike (AGA1716-BS1)											
Dissolved Organic Carbon	10	0.20	mg/L	10	ND	102	80-120			01/30/23	
Blank Spike Dup (AGA1716-BSD1)											
Dissolved Organic Carbon	10	0.20	mg/L	10	ND	102	80-120	0	20	01/30/23	
Matrix Spike (AGA1716-MS1), Source: AGA2510-02											
Dissolved Organic Carbon	10	0.20	mg/L	10	0.21	102	80-120			01/30/23	
Matrix Spike Dup (AGA1716-MSD1), Source: AGA2510-02											
Dissolved Organic Carbon	10	0.20	mg/L	10	0.21	102	80-120	0	20	01/30/23	

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

  Unless otherwise noted, TOC results by SM 5310C method do not include purgeable organic carbon, which is removed along with the inorganic carbon interference. The POC contribution to TOC is considered to be negligible.

Certificate of Analysis

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

The following parameters are calculated values and are outside the scope of our NELAP accreditation:

Total Nitrogen Aggressive Index Trivalent Chromium

BSK is not accredited under the NELAP program for the following additional parameters: **NA**

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

Fresno

State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-020
State of Nevada	CA000792022-1	State of Oregon - NELAP	4021-020
EPA UCMR5	CA00079	State of Washington	C997-22a

Sacramento

State of California - ELAP	1180-S1		

San Bernardino

State of California - ELAP	1180-S2	Los Angeles CSD	9254478
NELAP certified	4119-007	State of Oregon - NELAP	4119-007

Vancouver

NELAP certified	WA100008-015	State of Oregon - NELAP	WA100008-015
State of Washington	C824-22		

AGA1682 BCLab4911 01/12/2023

10

Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info				
Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TTHM/TCP)? TB Received? (Check Method Below)	Yes No NA / Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received — "—" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?						
Bacti $Na_2S_2O_3$	—	—	1					
None (P) White Cap	—	—						
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 DW	Cl, pH > 8	P F						
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 WW	pH 9.3-9.7	P F						
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F						
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—						
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	~~P~~ F	1A					
NaOH (P) Green Cap	Cl, pH >10	P F						
NaOH + ZnAc (P)	pH > 9	P F						
Dissolved Oxygen 300ml (g)	—	—						
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—				VGH		
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—				1-12-23		
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—						
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—						
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—						
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—						
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—						
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F						
NH_4Cl (AG) Purple Label 552	—	—						
EDA (P) or (AG) Brown Label DBPs	—	—						
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—						
Buffer pH 4 (CG)	—	—						
H_3PO_4 (CG) Salmon Label	—	—						
Trizma – EPA 537.1 Light Blue Label FB	---	---						
Ammonia Acetate - EPA 533 Purple Label FB	—	—						
Bottled Water	—	—						
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—						
Clear Glass	—	—						
OTHER:	—	—						

Split

	Container	Preservative	Lot #	Initials	Date/Time
S P					
S P					

Preservation Check
pH Lot #
Cl Lot #

Comments

*Preservation check completed by lab performing analysis.

✓ Indicates Blanks Received

504 ___ 524.2 ___ TTHM ___ 537/533 ___ TCP___

✓ MS/MSD Received Method: ________

Labeled by: Labels Checked by:

Scanned: VNA Rush/Short HT Page: ________ Time:_______

13

1-6#75 FB ~~W~~ BW

SUBCONTRACT ORDER

Pace Analytical Labs - Bakersfield, CA

2223471

AGA1682 BCLab4911 01/12/2023

10

SENDING LABORATORY:

Pace Analytical Labs
4100 Atlas Ct
Bakersfield, CA 93308
Phone: 661-327-4911
Fax: 661-327-1918
Project Manager: Ragen Schallock

RECEIVING LABORATORY:

BSK Analytical Labs- Fresno $BSKSA-EINV
1414 Stanislaus Street
Fresno, CA 93706
Phone :(800) 877-8310
Fax: (559) 485-6935

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 2223471-01	**Water**	**Sampled:10/03/22 12:55**		
iSM5310Cw Dis NVOC	10/14/22 23:59	10/31/22 12:55		okay past hold time
~~iSM5310Cw NVOC as TOC~~	~~10/18/22 23:59~~	~~10/31/22 12:55~~		
~~oi317.0w Bromate BSKSA~~	~~10/18/22 23:59~~	~~10/31/22 12:55~~		
~~om200.8wb Diss Beryllium BSKSA~~	~~10/18/22 23:59~~	04/02/23 12:55		

Containers Supplied:

VGH 1-12-23

Released By	Date	Received By	Date
[signature]	1-11-23		
		VGH	1-12-23 12:00

Page 1 of 1

BSK Associates SR-FL-0002-24

AGA1682 BCLab4911 01/12/2023

10

Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info				
Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TTHM/TCP)? TB Received? (Check Method Below)	Yes No NA / Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received — "*—" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?						
Bacti $Na_2S_2O_3$	—	—						
None (P) White Cap	—	—	1B					
Cr6 (P) LL Green Label/Blue Cap NH4OH(NH4)2SO4 DW	Cl, pH > 8	P F						
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 WW	pH 9.3-9.7	P F						
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F						
HNO_3 (P) Red Cap or HCl (P) Purple Cap/LL Blue Label	—	—						
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F						
NaOH (P) Green Cap	Cl, pH >10	P F						
NaOH + ZnAc (P)	pH > 9	P F						
Dissolved Oxygen 300ml (g)	—	—						
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—						
HCl (AG) LL Blue Label O&G, Diesel, TCP	—	—						
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—						
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—						
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—						
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—						
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—						
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F						
NH_4Cl (AG) Purple Label 552	—	—						
EDA (P) or (AG) Brown Label DBPs	—	—						
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—						
Buffer pH 4 (CG)	—	—						
H_3PO_4 (CG) Salmon Label	—	—						
Trizma – EPA 537.1 Light Blue Label FB	—	—						
Ammonia Acetate - EPA 533 Purple Label FB	—	—						
Bottled Water	—	—						
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—						
Clear Glass	—	—						
OTHER:	—	—						

VCH 1-24-23

Split	Container	Preservative	Lot #	Initials	Date/Time
S P					
S P					

Preservation Check
pH Lot #
Cl Lot #

Comments

*Preservation check completed by lab performing analysis.

✓ **Indicates Blanks Received**

504 ___ 524.2 ___ TTHM ___ 537/533 ___ TCP___

✓ **MS/MSD Received Method:** ________

Labeled by: **Labels Checked by:**

Scanned: Ce Rush/Short HT Page: ________ Time:_______

4.4 #75
FX
WI

SUBCONTRACT ORDER

Pace Analytical Labs - Bakersfield, CA

2223471

AGA1682 BCLab4911 01/12/2023

10

SENDING LABORATORY:	**RECEIVING LABORATORY:**
Pace Analytical Labs	BSK Analytical Labs- Fresno $BSKSA-EINV
4100 Atlas Ct	1414 Stanislaus Street
Bakersfield, CA 93308	Fresno, CA 93706
Phone: 661-327-4911	Phone :(800) 877-8310
Fax: 661-327-1918	Fax: (559) 485-6935
Project Manager: Ragen Schallock	

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 2223471-01	**Water**	**Sampled:10/03/22 12:55**		
iSM5310Cw Dis NVOC	01/26/23 23:59	10/31/22 12:55		additional for AGA1682
~~iSM5310Cw NVOC as TOC~~	~~10/18/22 23:59~~	~~10/31/22 12:55~~		
~~oi317.0w Bromate BSKSA~~	~~10/18/22 23:59~~	~~10/31/22 12:55~~		
~~om200.8sub Diss Beryllium BSKSA~~	~~10/18/22 23:59~~	~~04/??/23 12:55~~		

Containers Supplied:

* okay Past hold *

VCH 1-24-23

Released By	Date 1-23-23	Received By	Date VCH 1-24-23 11:20
Released By	Date	Received By	Date

LA Testing

520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322220412
Customer ID: BCLA50
Customer PO:
Project ID:

Attn: Ragen Schallock
Pace Analytical Services, LLC
4100 Atlas Court
Bakersfield, CA 93308

Phone: (661) 327-4911
Fax: (661) 327-1918
Received: 10/11/2022
Analyzed: 10/22/2022

Proj: 2223471

Test Report: Determination of Asbestos Structures ≥ 0.5 µm & > 10µm in Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	*Sample Filtration Date/Time*	*Original Sample Vol. Filtered (ml)*	*Effective Filter Area (mm²)*	*Area Analyzed (mm²)*		*ASBESTOS* Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits
								MFL (million fibers per liter)		
2223471-01 322220412-0001	10/12/2022 11:50 AM	1	1288	0.2560	≥ 0.5 µm	Chrysotile	8	5.00	40.00	17.00 - 79.00
					> 10 µm only	Chrysotile	1	5.00	5.00	0.13 - 28.00

Collection Date/Time: *10/03/2022 12:55 PM*

Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.

Analyst(s)
Sherrie Ahmad (1)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 10/23/2022 11:12:47

Work Order

2223471

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Report To:

GSI Water Solutions, Inc.
418 Chapala Street Suite H
Santa Barbara, CA 93101
Attn: Brian Franz
Phone: (805) 979-3084
FAX: (000) 000-0000

Invoice To:

GSI Water Solutions, Inc.
418 Chapala Street Suite H
Santa Barbara, CA 93101
Attn: AP
Phone: (805) 979-3084
FAX: (000) 000-0000
PO Number:

Date Received:	10/04/2022 19:23	Date Due:	10/19/2022 17:00 (10 day TAT)
Received By:	Patrick Espiritu	CSR Name:	Ragen Schallock
Samples Received at:	4.9 C	CSR Email:	Ragen.Williams@pacelabs.com
Date Logged In:	10/04/2022 09:49	CSR Phone:	661-327-4911
Logged In By:	Cari Bernotas	(CSR = Client Service Representative)	

Lab Number	Client Sample Description	Matrix	# of Bottles
2223471-01	ZIP-01, 10/3/2022 12:55:00PM, Nate Page	Water	18
2223471-02	Trip Blank, 10/3/2022 12:00:00AM	Water	2

Client Sample Description Format: *<Project Name>, *<Location>, <Sample Name>, <Date/ Time Sampled>, *<Sampled By>, *<Sample Depth>
(* = shown if available)

Work Order

2223471

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Analysis	Matrix	Due Date	Samples
Hold			
hw Balance Check Diss	Water	10/19/2022 17:00	01
Metals			
i200.7wm Dis Calcium	Water	10/17/2022 23:59	01
i200.7wm Dis Magnesium	Water	10/17/2022 23:59	01
i200.7wm Dis Potassium	Water	10/17/2022 23:59	01
i200.7wm Dis Sodium	Water	10/17/2022 23:59	01
m200.7wb Dis Aluminum	Water	10/17/2022 23:59	01
m200.7wb Dis Iron	Water	10/17/2022 23:59	01
m200.7wb Dis Silica	Water	10/17/2022 23:59	01
m200.7wb Dis Strontium	Water	10/17/2022 23:59	01
m200.7wb TRM Silica	Water	10/17/2022 23:59	01
m200.8wb Dis Antimony	Water	10/17/2022 23:59	01
m200.8wb Dis Arsenic	Water	10/17/2022 23:59	01
m200.8wb Dis Barium	Water	10/17/2022 23:59	01
m200.8wb Dis Cadmium	Water	10/17/2022 23:59	01
m200.8wb Dis Chromium	Water	10/17/2022 23:59	01
m200.8wb Dis Cobalt	Water	10/17/2022 23:59	01
m200.8wb Dis Copper	Water	10/17/2022 23:59	01
m200.8wb Dis Lead	Water	10/17/2022 23:59	01
m200.8wb Dis Manganese	Water	10/17/2022 23:59	01
m200.8wb Dis Molybdenum	Water	10/17/2022 23:59	01
m200.8wb Dis Nickel	Water	10/17/2022 23:59	01
m200.8wb Dis Selenium	Water	10/17/2022 23:59	01
m200.8wb Dis Silver	Water	10/17/2022 23:59	01
m200.8wb Dis Thallium	Water	10/17/2022 23:59	01
m200.8wb Dis Uranium	Water	10/17/2022 23:59	01
m200.8wb Dis Vanadium	Water	10/17/2022 23:59	01
m200.8wb Dis Zinc	Water	10/17/2022 23:59	01
m245.1wb Dis Mercury	Water	10/17/2022 23:59	01
mp200.2w TRM 200.(7,8,9), 2xx.x	Water	10/17/2022 23:59	01
mp600/4-79-020w Diss All	Water	10/17/2022 23:59	01
Semi-Volatiles			
g552.3w	Water	10/17/2022 23:59	01
Subcontract			
oi100.1w Asbestos LATSA	Water	10/17/2022 23:59	01
oi317.0w Bromate BSKSA	Water	10/17/2022 23:59	01
om200.8wb Diss Beryllium BSKSA	Water	10/17/2022 23:59	01
Volatiles - GC			
gRSK175 Diss Methane	Water	10/17/2022 23:59	01
Volatiles - GC/MS			
g524.2w THMs only	Water	10/17/2022 23:59	01

Work Order

2223471

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Analysis	Matrix	Due Date	Samples
Wet Chem			
ciw Alkalinity	Water	10/17/2022 23:59	01
ciw Hardness (Diss)	Water	10/17/2022 23:59	01
ciw Langlier Index	Water	10/17/2022 23:59	01
i120.1w EC	Water	10/17/2022 23:59	01
i150.1w pH	Water	10/17/2022 23:59	01
i180.1w Turbidity	Water	10/17/2022 23:59	01
i218.6w Cr6 (Preserved)	Water	10/17/2022 23:59	01
i300.0w Chloride	Water	10/17/2022 23:59	01
i300.0w Fluoride	Water	10/17/2022 23:59	01
i300.0w Nitrate as N	Water	10/17/2022 23:59	01
i300.0w Sulfate	Water	10/17/2022 23:59	01
i335.4w Tot CN	Water	10/17/2022 23:59	01
i350.1w Ammonia as N	Water	10/17/2022 23:59	01
i353.2w NO3/NO2 as N	Water	10/17/2022 23:59	01
i353.2wm NO2 as N	Water	10/17/2022 23:59	01
i365.1w o-PO4 as P	Water	10/17/2022 23:59	01
i410.4w COD	Water	10/17/2022 23:59	01
ISM2120Bw Color	Water	10/17/2022 23:59	01
ISM2150Bw Odor	Water	10/17/2022 23:59	01
iSM2320Bw CO3	Water	10/17/2022 23:59	01
iSM2320Bw HCO3	Water	10/17/2022 23:59	01
iSM2320Bw Tot Alk as CaCO3	Water	10/17/2022 23:59	01
iSM2540Cw TDS	Water	10/17/2022 23:59	01
iSM2540Dw TSS Glass Fiber	Water	10/17/2022 23:59	01
iSM4500ClFw Residual Chlorine	Water	10/17/2022 23:59	01
iSM4500SDw Total Sulfide	Water	10/17/2022 23:59	01
iSM5310Cw NVOC as TOC	Water	10/17/2022 23:59	01
iSM5540Cw MBAS	Water	10/17/2022 23:59	01
uwBC A-D1498w Oxidation Reducti	Water	10/17/2022 23:59	01
yiA-D1498w ORP Measurement Ter	Water	10/17/2022 23:59	01
yiA-D1498w Oxidation Reduction Pc	Water	10/17/2022 23:59	01

Work Order

2223471

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Metals

i200.7wm Dis Calcium	**Analyte** Calcium
i200.7wm Dis Magnesium	**Analyte** Magnesium
i200.7wm Dis Potassium	**Analyte** Potassium
i200.7wm Dis Sodium	**Analyte** Sodium
m200.7wb Dis Aluminum	**Analyte** Aluminum
m200.7wb Dis Iron	**Analyte** Iron
m200.7wb Dis Silica	**Analyte** Silicon as SiO2
m200.7wb Dis Strontium	**Analyte** Strontium
m200.7wb TRM Silica	**Analyte** Total Recoverable Silica
m200.8wb Dis Antimony	**Analyte** Antimony
m200.8wb Dis Arsenic	**Analyte** Arsenic
m200.8wb Dis Barium	**Analyte** Barium
m200.8wb Dis Cadmium	**Analyte** Cadmium
m200.8wb Dis Chromium	**Analyte** Chromium
m200.8wb Dis Cobalt	**Analyte** Cobalt
m200.8wb Dis Copper	**Analyte** Copper
m200.8wb Dis Lead	**Analyte** Lead
m200.8wb Dis Manganese	**Analyte** Manganese
m200.8wb Dis Molybdenum	**Analyte**

Work Order

2223471

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Metals

m200.8wb Dis Molybdenum	**Analyte** Molybdenum
m200.8wb Dis Nickel	**Analyte** Nickel
m200.8wb Dis Selenium	**Analyte** Selenium
m200.8wb Dis Silver	**Analyte** Silver
m200.8wb Dis Thallium	**Analyte** Thallium
m200.8wb Dis Uranium	**Analyte** Uranium
m200.8wb Dis Vanadium	**Analyte** Vanadium
m200.8wb Dis Zinc	**Analyte** Zinc
m245.1wb Dis Mercury	**Analyte** Mercury

Work Order

2223471

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Semi-Volatiles

	Analyte
g552.3w	Dibromoacetic acid
	Dichloroacetic acid
	Monobromoacetic acid
	Monochloroacetic acid
	Trichloroacetic acid
	Total HAA's (Summation)
	2,3-Dibromopropionic acid (Surrogate)

Work Order

2223471

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Subcontract

oi100.1w Asbestos LATSA	**Analyte** Asbestos
oi317.0w Bromate BSKSA	**Analyte** Bromate
om200.8wb Diss Beryllium BSKSA	**Analyte** Beryllium

Work Order

2223471

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Volatiles - GC

gRSK175 Diss Methane	Analyte
	Methane

Work Order
2223471
BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Volatiles - GC/MS

	Analyte
g524.2w THMs only	Bromodichloromethane
	Bromoform
	Chloroform
	Dibromochloromethane
	Total Trihalomethanes
	1,2-Dichloroethane-d4 (Surrogate)
	Toluene-d8 (Surrogate)
	4-Bromofluorobenzene (Surrogate)

Work Order

2223471

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Wet Chem

ciw Alkalinity	**Analyte** Alkalinity as CaCO3
ciw Hardness (Diss)	**Analyte** Hardness as CaCO3
ciw Langlier Index	**Analyte** Langlier Index
i120.1w EC	**Analyte** Electrical Conductivity @ 25 C
i150.1w pH	**Analyte** pH
i180.1w Turbidity	**Analyte** Turbidity
i218.6w Cr6 (Preserved)	**Analyte** Hexavalent Chromium
i300.0w Chloride	**Analyte** Chloride
i300.0w Fluoride	**Analyte** Fluoride
i300.0w Nitrate as N	**Analyte** Nitrate as N
i300.0w Sulfate	**Analyte** Sulfate
i335.4w Tot CN	**Analyte** Total Cyanide
i350.1w Ammonia as N	**Analyte** Ammonia as N
i353.2w NO3/NO2 as N	**Analyte** Nitrate/Nitrite as N
i353.2wm NO2 as N	**Analyte** Nitrite as N
i365.1w o-PO4 as P	**Analyte** ortho-Phosphate as P
i410.4w COD	**Analyte** Chemical Oxygen Demand
ISM2120Bw Color	**Analyte** Color
ISM2150Bw Odor	**Analyte**

Work Order

2223471

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Wet Chem

Test	Analyte
ISM2150Bw Odor	Odor
iSM2320Bw CO3	Carbonate
iSM2320Bw HCO3	Bicarbonate
iSM2320Bw Tot Alk as CaCO3	Total Alkalinity as CaCO3
iSM2540Cw TDS	Total Dissolved Solids @ 180 C
iSM2540Dw TSS Glass Fiber	Total Suspended Solids (Glass Fiber)
iSM4500ClFw Residual Chlorine	Residual Chlorine
iSM4500SDw Total Sulfide	Total Sulfide
iSM5310Cw NVOC as TOC	Total Organic Carbon
iSM5540Cw MBAS	MBAS
yiA-D1498w ORP Measurement Temp	Temperature
yiA-D1498w Oxidation Reduction Potential (ORP)	Oxidation Reduction Potential (Eh) Oxidation Reduction Potential (Eobs_Ag/AgCl)

Sample of Injection Water at Start of Long-Term Injection Test (December 7. 2022)

Field Notes

Morro Bay sample inj source water and 21P-01

12/7/22 Nate Page

1045 sample of Pilot Inj Source collected
Field parameters from hydac
T: 68.6
pH: unreliable
Cond: 6.76 uS/cm x100

1115 sample of 21P-01 collected
Xd out at 1112, dtw manual: 12.81′ btoc
Cond: 8.13
T: 65.9

Summary of Comments on Morro Bay sample inj source water and 21P-01

Page: 1

Number: 1 Author: npage Subject: Highlight Date: 12/19/2022 4:51:36 PM -08'00'

after review, these may be unreliable (see values from YSI in 12/8/22 field notes)

Number: 2 Author: npage Subject: Highlight Date: 12/9/2022 11:51:21 AM -08'00'

Chain-of-Custody Form(s)

Pace®
ANALYTICAL SERVICES

Chain of Custody Form

4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.pacelabs.com

Page 1 of 1

Report To:

Client: GSI Water Solutions	Project #: 645.007
Attn: Nate Page	Project Name: Morro Bay
Street Address: 5855 Capistrano Ave	BID# SFEC
City, State, Zip: Atascadero CA 93422	Sampler(s) Name Printed: Nate Page
Phone: 970 692 3593 Fax:	
Email: npage@gsiws.com	
Work Order #:	

Analysis Requested

SEE Attached (2 pages)

Comments:
EDF NO Geotracker
Complete suite on Attached

Sample Matrix: Soil / Sludge / Drinking Water / Ground Water / Waste Water / Other

Result Request **Surcharge
☒ STD (10 Days) ☐ 5 Day** ☐ 4 Day**
☐ 3 Day** ☐ 2 Day** ☐ 1 Day**
Rush requests must be approved

Sample #	Description	Date Sampled	Time Sampled	Analysis	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Notes
	Pilot Inj Source	12/7/22	1045	X							
	ZIP-01	12/7/22	1115	X							

Billing ☒ Same as above

Client:
Address:
City: State Zip
Attn:
P.O. #:

System #
(Needed for CLIP)

GIS/Key ☐ Well Star ☐

EDF Required Geotracker ☐ Yes ☒ No Global ID

Relinquished By	Date	Time	Received By	Date	Time
1. Relinquished By: Nate Page	12/7/22	1200	1. Received By:	12/7/22	1200
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Pace Analytical Bakersfield does not accept samples containing radioactive material above background levels. Samples containing radioactive material must be disclosed prior to receipt. Any samples suspected of containing radioactive material above background levels will not be accepted and will be returned to client.

REV 12/2021

JOM 1A 12-7-22 1-cooler

Pace® ANALYTICAL SERVICES

4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.pacelabs.com

...dy Form

2228971

Page 1 of 1

Report To: Client: GSI Water Solutions	Project #: 645.007
Attn: Nate Page	Project Name: Morro Bay [redacted] STEC
Street Address: 5855 Capistrano Ave	Sampler(s) Name Printed: Nate Page
City, State, Zip: Atascadero CA 93422	
Phone: 970 692 3593 Fax:	
Email: npage@gsiws.com	
Work Order #: 22-28971	

Analysis Requested

EDF NO Geotracker

Complete suite on Attached

SEE Attached (2 pages)

Sample #	Description		Date Sampled	Time Sampled	Analysis
Pilot Inj Source		-1	12 7 22	1045	X
ZIP-01		-2	12 7 22	1115	X

Sample Matrix: Soil / Sludge / Drinking Water / Ground Water / Waste Water / Other

Result Request **Surcharge
☒ STD (10 Days) ☐ 5 Day** ☐ 4 Day**
☐ 3 Day** ☐ 2 Day** ☐ 1 Day**
Rush requests must be approved

Notes

Stamp: Cr⁶ dO LANG TIME DO NO OP SS BOD MBAS COT

CHK BY DISTRIBUTION TP3 T55 WT JNK SLM SUB-OUT ☐

Billing ☒ Same as above

Client:

Address:

City: State Zip

Attn:

P.O. #:

System # (Needed for CLIP)

GIS/Key ☐ Well Star ☐

EDF Required Geotracker ☐ Yes ☒ No Global ID

Relinquished By	Date	Time	Received By	Date	Time
1. Nate Page	12/7/22	1200	1.	12-7-22	1200
2.	12-7-22	1930	2. Isbet Olliveros	12/7/22	1952
3.			3.		

JDM IA 12-7-22 1-Coole

Morro Bay Indirect Potable Reuse **Complete Suite**
Pilot Injection Testing Sampling Plan

August 6, 2021
GSI Water Solutions

2223190 22-28971

Parameter Type	Parameter	Method
Field	Dissolved oxygen	YSI 556 or similar
	pH	EPA 150.1
	Oxidation-Reduction Potential	SM2580B
	Specific Conductance	EPA 120.1
	Temperature	YSI 556 or similar
	Turbidity	EPA 180.1
Inorganics	Alkalinity	SM2320B
	Ammonia	SM4500NH3G
	Bicarbonate	SM2320B
	Carbonate	SM2320B
	Chloride	EPA 300.0
	Cyanide (HCN)	EPA 335.4
	Fluoride	EPA 300.0
	Hardness	EPA 200.8
	Nitrate+Nitrite (total N)	EPA 300.0
	Nitrate (as N)	EPA 300.0
	Nitrite-N	EPA 300.0
	Orthophosphate as P	EPA 300.0
	Total Silica (as SiO2)	EPA 200.7
	Dissolved Silica (as SiO2)	EPA 200.7
	Sulfate	EPA 300.0
	Sulfide	SM4500S2F
Metals (Dissolved)	Aluminum	EPA 200.7
	Antimony	EPA 200.8
	Arsenic	EPA 200.8
	Barium	EPA 200.8
	Beryllium	EPA 200.8
	Cadmium	EPA 200.8
	Calcium	EPA 200.7
	Chromium	EPA 200.8
	Cobalt	EPA 200.8
	Copper	EPA 200.8
	Iron	EPA 200.7
	Lead	EPA 200.8
	Magnesium	EPA 200.7
	Manganese	EPA 200.8
	Mercury	EPA 245.7
	Molybdenum	EPA 200.8
	Nickel	EPA 200.8
	Potassium	EPA 200.7
	Selenium	EPA 200.8
	Silver	EPA 200.8

JOM IA 12-7-22 [illegible]

2223140

22-28971

	Sodium	EPA 200.7
	Strontium	EPA 200.8
	Thallium	EPA 200.8
	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

PACE ANALYTICAL	COOLER RECEIPT FORM	Page 1 Of 1
Submission #: 22-28971		

SHIPPING INFORMATION
Fed Ex ☐ UPS ☐ GSO / GLS ☐ Hand Delivery ☐
Pace Lab Field Service ☑ Other ☐ (Specify)

SHIPPING CONTAINER
Ice Chest ☑ None ☐ Box ☐
Other ☐ (Specify)

FREE LIQUID
YES ☑ NO ☐
W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☑ YES ☐ NO

Emissivity: 0.98 Container: PE Thermometer ID: 274

Temperature: (A) 4.5 °C / (C) 4.5 °C

Date/Time 12/7/22 Analyst Init IO 1952

SAMPLE CONTAINERS	SAMPLE NUMBERS 1	2	3	4	5	6	7	8	9	10
QT PE UNPRES	F-H	F-H								
4oz / 8oz / 16oz PE UNPRES	I-K	I-K								
2oz Cr^{+6}	L	L								
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS	M	M								
PT TOTAL SULFIDE	N	N								
2oz. NITRATE / NITRITE	O	O								
PT TOTAL ORGANIC CARBON	P	P								
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL ~~TRAVEL BLANK~~ Unpresv	D,E	D,E								
40ml VOA VIAL	A-C	A-C								
QT EPA 1664B										
PT ODOR	Q	Q								
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608.3/8081A										
QT EPA 515.1/8151A										
QT EPA 525.2										
QT EPA 525.2 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548.1										
QT EPA 549.2										
QT EPA 8015M										
QT EPA 8270C										
8oz / 16oz / 32oz AMBER HAAS	R	R								
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:
Sample Numbering Completed By: JCD Date/Time: 12/8/22 0730
A = Actual / C = Corrected

Laboratory Reports

Date of Report: 01/25/2023

Nate Page

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Client Project:	645.007
BCL Project:	Morro Bay Injection
BCL Work Order:	2228971
Invoice ID:	B468215

Enclosed are the results of analyses for samples received by the laboratory on 12/7/2022. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Ragen Schallock
Client Service Rep

Stuart Buttram
Operations Manager

Certifications: CA ELAP #1186; NV #CA00014; OR ELAP #4032-001; AK UST101

Table of Contents

JDM IA 12-7-22 1-cooler

Pace® ANALYTICAL SERVICES

4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.pacelabs.com

...dy Form

Page 1 of 1

2228971

EDF NO Geotracker

Complete Suite on Attached

Report To: Client: GSI Water Solutions		Project #: 645.007	
Attn: Nate Page		Project Name: Morro Bay STEC	
Street Address: 5855 Capistrano Ave		Sampler(s) Name Printed: Nate Page	
City, State, Zip: Atascadero CA 93422			
Phone: 970 692 3593	Fax:		
Email: npage@gsiws.com			
Work Order #: 22-28971			

Analysis Requested: SEE Attached (2 pages)

Sample #	Description		Date Sampled	Time Sampled	Analysis Requested	Sample Matrix	Result Request / Notes
Pilot Inj Source		-1	12 7 22	1045	X		
2IP-01		-2	12 7 22	1115	X		

Sample Matrix: Soil, Sludge, Drinking Water, Ground Water, Waste Water, Other

Result Request **Surcharge: ☒ STD (10 Days) ☐ 5 Day** ☐ 4 Day** ☐ 3 Day** ☐ 2 Day** ☐ 1 Day**
Rush requests must be approved

Notes

Stamp: Cr6 SO4 Cl NO3 NO HOLDING TIME DO OP SS BOD MBAS COT

CHK BY

DISTRIBUTION
TDS TSS WT JNK SCM
SUB-OUT ☐

Billing	☒ Same as above
Client:	
Address:	
City: ____ State ____ Zip ____	
Attn:	
P.O. #:	

System # (Needed for CLIP)

GIS/Key ☐ Well Star ☐

EDF Required Geotracker ☐ Yes ☒ No Global ID

Relinquished By	Date	Time	Received By	Date	Time
1. Nate Page	12/7/22	1200	1. [signature]	12/7/22	1400
2. [signature]	12.7.22	1930	2. Isbet Oliveros	12/7/22	1952
3.			3.		

Pace Analytical Bakersfield does not accept samples containing radioactive material above background levels. Samples containing radioactive material must be disclosed prior to receipt. Any samples suspected of containing radioactive material above background levels will not be accepted and will be returned to client.

REV 12/2021

JJM IA 07-22 1-Coole

Morro Bay Indirect Potable Reuse Pilot Injection Testing Sampling Plan **Complete Suite**

August 6, 2021
GSI Water Solutions

2223190 22-28971

Parameter Type	Parameter	Method
Field	Dissolved oxygen	YSI 556 or similar
	pH	EPA 150.1
	Oxidation-Reduction Potential	SM2580B
	Specific Conductance	EPA 120.1
	Temperature	YSI 556 or similar
	Turbidity	EPA 180.1
Inorganics	Alkalinity	SM2320B
	Ammonia	SM4500NH3G
	Bicarbonate	SM2320B
	Carbonate	SM2320B
	Chloride	EPA 300.0
	Cyanide (HCN)	EPA 335.4
	Fluoride	EPA 300.0
	Hardness	EPA 200.8
	Nitrate+Nitrite (total N)	EPA 300.0
	Nitrate (as N)	EPA 300.0
	Nitrite-N	EPA 300.0
	Orthophosphate as P	EPA 300.0
	Total Silica (as SIO2)	EPA 200.7
	Dissolved Silica (as SiO2)	EPA 200.7
	Sulfate	EPA 300.0
	Sulfide	SM4500S2F
Metals (Dissolved)	Aluminum	EPA 200.7
	Antimony	EPA 200.8
	Arsenic	EPA 200.8
	Barium	EPA 200.8
	Beryllium	EPA 200.8
	Cadmium	EPA 200.8
	Calcium	EPA 200.7
	Chromium	EPA 200.8
	Cobalt	EPA 200.8
	Copper	EPA 200.8
	Iron	EPA 200.7
	Lead	EPA 200.8
	Magnesium	EPA 200.7
	Manganese	EPA 200.8
	Mercury	EPA 245.7
	Molybdenum	EPA 200.8
	Nickel	EPA 200.8
	Potassium	EPA 200.7
	Selenium	EPA 200.8
	Silver	EPA 200.8

Page 1

JOM 1A 12-7-22 [illegible]

2223140

Morro Bay Indirect Potable Reuse Complete Suite
Pilot Injection Testing Sampling Plan

August 6, 2021
GSI Water Solutions

22-28971

	Sodium	EPA 200.7
	Strontium	EPA 200.8
	Thallium	EPA 200.8
	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

Page 2

PACE ANALYTICAL | COOLER RECEIPT FORM | Page 1 Of 1

Submission #: 22-28971

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Fed Ex ☐ UPS ☐ GSO / GLS ☐ Hand Delivery ☐ Pace Lab Field Service ☑ Other ☐ (Specify)	Ice Chest ☑ None ☐ Box ☐ Other ☐ (Specify)	YES ☑ NO ☐ W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received		
☑ YES ☐ NO	Emissivity: 0.98 Container: PE Thermometer ID: 274 Temperature: (A) 4.5 °C / (C) 4.5 °C	Date/Time 12/7/22 Analyst Init IO2 1952

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES	F-H	F-H								
4oz / 8oz / 16oz PE UNPRES	I-K	I-K								
2oz Cr+6	L	L								
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS	M	M								
PT TOTAL SULFIDE	N	N								
2oz. NITRATE / NITRITE	O	O								
PT TOTAL ORGANIC CARBON	P	P								
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL ~~TRAVEL BLANK~~ Unpres'd	D,E	D,E								
40ml VOA VIAL	A-C	A-C								
QT EPA 1664B										
PT ODOR	Q	Q								
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL- 504										
QT EPA 508/608.3/8081A										
QT EPA 515.1/8151A										
QT EPA 525.2										
QT EPA 525.2 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548.1										
QT EPA 549.2										
QT EPA 8015M										
QT EPA 8270C										
8oz / 16oz / 32oz AMBER HAAS	R	R								
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments:
Sample Numbering Completed By: JCD Date/Time: 12/8/22 0730
A = Actual / C = Corrected

Rev 23 05/20/22
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GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/25/2023 9:16 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Nate Page

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
2228971-01	**COC Number:**	---	**Receive Date:**	12/07/2022 19:52
	Project Number:	---	**Sampling Date:**	12/07/2022 10:45
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	Pilot Inj Source	**Lab Matrix:**	Water
	Sampled By:	Nate Page	**Sample Type:**	Water
			Metal Analysis: 2-Lab Filtered and Acidified past 15 minute holding time	
2228971-02	**COC Number:**	---	**Receive Date:**	12/07/2022 19:52
	Project Number:	---	**Sampling Date:**	12/07/2022 11:15
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	ZIP-01	**Lab Matrix:**	Water
	Sampled By:	Nate Page	**Sample Type:**	Water
			Metal Analysis: 2-Lab Filtered and Acidified past 15 minute holding time	

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2228971-01 | **Client Sample Name:** Pilot Inj Source, 12/7/2022 10:45:00AM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Bromodichloromethane	**4.9**	**ug/L**	**0.50**	**0.20**	**EPA-524.2**	ND		1
Bromoform	**2.5**	**ug/L**	**0.50**	**0.46**	**EPA-524.2**	ND		1
Chloroform	**3.4**	**ug/L**	**0.50**	**0.14**	**EPA-524.2**	ND		1
Dibromochloromethane	**5.7**	**ug/L**	**0.50**	**0.22**	**EPA-524.2**	ND		1
Total Trihalomethanes	**16**	**ug/L**	**2.0**	**0.97**	**EPA-524.2**	ND		1
1,2-Dichloroethane-d4 (Surrogate)	124	%	75 - 125 (LCL - UCL)		EPA-524.2			1
Toluene-d8 (Surrogate)	98.6	%	80 - 120 (LCL - UCL)		EPA-524.2			1
4-Bromofluorobenzene (Surrogate)	93.9	%	80 - 120 (LCL - UCL)		EPA-524.2			1

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-524.2	12/08/22 09:00	12/09/22 05:20	ADC	MS-V15	1	B155518	EPA 524.2

DCN = Data Continuation Number

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Halogenated Acetic Acids (Method EPA-552.3)

BCL Sample ID: 2228971-01 | **Client Sample Name:** Pilot Inj Source, 12/7/2022 10:45:00AM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Dibromoacetic acid	**6.6**	**ug/L**	**1.0**	**0.32**	**EPA-552.3**	ND		1
Dichloroacetic acid	**4.4**	**ug/L**	**1.0**	**0.29**	**EPA-552.3**	ND		1
Monobromoacetic acid	ND	ug/L	1.0	0.25	EPA-552.3	ND		1
Monochloroacetic acid	ND	ug/L	1.0	0.61	EPA-552.3	ND		1
Trichloroacetic acid	**4.0**	**ug/L**	**1.0**	**0.36**	**EPA-552.3**	ND		1
Total HAA's (Summation)	**15**	**ug/L**	**1.0**	**1.0**	**EPA-552.3**	ND		1
2,3-Dibromopropionic acid (Surrogate)	98.0	%	70 - 130 (LCL - UCL)		EPA-552.3			1

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-552.3	12/09/22 16:50	12/11/22 21:37	NAP	GC-3	1	B155737	EPA 552.3

DCN = Data Continuation Number

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Gas Testing in Water

BCL Sample ID: 2228971-01 | **Client Sample Name:** Pilot Inj Source, 12/7/2022 10:45:00AM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Methane	**0.0010**	**mg/L**	**0.0010**	**0.00046**	**RSK-175M**	ND		1

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	RSK-175M	12/13/22 08:11	12/13/22 15:32	RMK	GC-V10	1	B155887	None

DCN = Data Continuation Number

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Water Analysis (General Chemistry)

BCL Sample ID: 2228971-01 **Client Sample Name:** Pilot Inj Source, 12/7/2022 10:45:00AM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Dissolved Calcium	**52**	**mg/L**	**0.10**	**0.016**	**EPA-200.7**	ND		1
Dissolved Magnesium	**55**	**mg/L**	**0.050**	**0.019**	**EPA-200.7**	ND		1
Dissolved Sodium	**64**	**mg/L**	**0.50**	**0.051**	**EPA-200.7**	ND		2
Dissolved Potassium	**1.9**	**mg/L**	**1.0**	**0.10**	**EPA-200.7**	ND		1
Bicarbonate	**100**	**mg/L**	**5.0**	**5.0**	**SM-2320B**	ND		3
Carbonate	ND	mg/L	2.5	2.5	SM-2320B	ND		3
Total Alkalinity as CaCO3	**85**	**mg/L**	**4.1**	**4.1**	**SM-2320B**	ND		3
Chloride	**120**	**mg/L**	**0.50**	**0.13**	**EPA-300.0**	ND		4
Fluoride	**0.054**	**mg/L**	**0.050**	**0.025**	**EPA-300.0**	ND		4
Nitrate/Nitrite as N	**1.1**	**mg/L**	**0.10**	**0.034**	**EPA-353.2**	ND		5
Nitrate as N	**0.82**	**mg/L**	**0.10**	**0.024**	**EPA-300.0**	ND		4
Sulfate	**73**	**mg/L**	**1.0**	**0.14**	**EPA-300.0**	ND		4
Dissolved Hardness as CaCO3	**350**	**mg/L**	**0.50**	**0.10**	**Calc**	ND		6
Langlier Index	**0.26**	**NA**	**-2.00**	**-2.00**	**Calc**	0		6
pH	**8.20**	**pH Units**	**0.05**	**0.05**	**EPA-150.1**		**S05**	7
Electrical Conductivity @ 25 C	**692**	**umhos/cm**	**1.00**	**1.00**	**EPA-120.1**			8
Total Dissolved Solids @ 180 C	**420**	**mg/L**	**20**	**10**	**SM-2540C**	ND	**A10**	9
Total Suspended Solids (Glass Fiber)	ND	mg/L	0.67	0.67	SM-2540D	ND	A10	10
Color	**1.0**	**Color Units**	**1.0**	**1.0**	**SM-2120B**			11
Odor	No Obs Odor	Odor Units	1.0	1.0	EPA-140.1	ND		12
Turbidity	**1.5**	**NT Units**	**0.10**	**0.10**	**EPA-180.1**			13
MBAS	ND	mg/L	0.10	0.024	SM-5540C	ND		14
Residual Chlorine	**0.53**	**mg/L**	**0.10**	**0.10**	**SM-4500-CLF**	ND	**S05**	15
Total Cyanide	**0.0021**	**mg/L**	**0.0050**	**0.0017**	**EPA-335.4**	0.0020	**J**	16
Ammonia as N	**0.18**	**mg/L**	**0.20**	**0.067**	**Timberline-001**	ND	**J**	17
Nitrite as N	**0.18**	**mg/L**	**0.050**	**0.010**	**EPA-353.2**	0.012		18
ortho-Phosphate as P	ND	mg/L	0.050	0.017	EPA-365.1	ND		19
Total Sulfide	ND	mg/L	0.10	0.050	SM-4500SD	ND		20
Dissolved Non-Volatile Organic Carbon	**2.3**	**mg/L**	**1.0**	**0.30**	**SM-5310C**	ND		21
Chemical Oxygen Demand	ND	mg O2/L	25	4.3	EPA-410.4	ND		22
Oxidation Reduction Potential (Eh)	**536.0**	**mV**	**-1000**	**-1000**	**ASTM-D1498**			23

Pace Analytical ENVIRONMENTAL SCIENCES

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/25/2023 9:16 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Nate Page

Water Analysis (General Chemistry)

BCL Sample ID: 2228971-01 **Client Sample Name:** Pilot Inj Source, 12/7/2022 10:45:00AM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Oxidation Reduction Potential (Eobs_Ag/AgCl)	**319.8**	**mV**	**-1000**	**-1000**	**ASTM-D1498**			23
Temperature	**15.6**	**°C**	**0.1**	**0.1**	**ASTM-D1498**			23

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-200.7	12/30/22 16:53	01/03/23 15:55	JRG	PE-OP4	1	B157026	200.7/ No Digest
2	EPA-200.7	12/30/22 16:53	01/05/23 14:57	JRG	PE-OP4	1	B157026	200.7/ No Digest
3	SM-2320B	12/09/22 06:00	12/09/22 17:03	RML	MET-1	1	B155592	No Prep
4	EPA-300.0	12/08/22 16:00	12/08/22 17:29	SAV	IC1	1	B155520	No Prep
5	EPA-353.2	12/20/22 12:00	12/20/22 12:19	KB1	SC-1	1	B156576	No Prep
6	Calc	12/08/22 10:01	01/10/23 09:37	SGB	Calc	1	B`L0064	Calc
7	EPA-150.1	12/09/22 06:00	12/09/22 17:03	RML	MET-1	1	B155592	No Prep
8	EPA-120.1	12/09/22 06:00	12/09/22 17:03	RML	MET-1	1	B155592	No Prep
9	SM-2540C	12/12/22 10:30	12/12/22 10:30	CAD	MANUAL	2	B155795	No Prep
10	SM-2540D	12/14/22 12:50	12/14/22 12:50	TJV	MANUAL	1.333	B155976	No Prep
11	SM-2120B	12/09/22 08:00	12/09/22 08:00	RML	MANUAL	1	B155752	No Prep
12	EPA-140.1	12/09/22 08:00	12/12/22 08:00	RML	MANUAL	1	B155776	No Prep
13	EPA-180.1	12/09/22 08:00	12/09/22 08:00	RML	MANUAL	1	B155785	No Prep
14	SM-5540C	12/08/22 13:15	12/08/22 13:15	JMN	SPEC06	1	B155517	No Prep
15	SM-4500-CLF	12/09/22 10:30	12/09/22 10:30	RML	MANUAL	1	B155686	No Prep
16	EPA-335.4	12/15/22 09:30	12/15/22 13:24	MC1	Konelab	1	B156029	EPA 335.4 Total
17	Timberline-001	01/03/23 10:00	01/03/23 11:23	SPB	Timberline	1	B157498	No Prep
18	EPA-353.2	12/08/22 11:56	12/08/22 11:56	MC1	KONE-1	1	B156038	No Prep
19	EPA-365.1	12/08/22 17:24	12/08/22 17:33	KB1	SC-1	1	B156066	No Prep
20	SM-4500SD	12/09/22 06:10	12/09/22 06:10	JT3	SPEC06	1	B155706	SM 4500SD
21	SM-5310C	12/17/22 12:00	12/17/22 22:39	JAT	TOC3	1	B156051	No Prep
22	EPA-410.4	01/03/23 12:00	01/03/23 16:40	SPB	SPEC06	1	B157159	EPA 410.4
23	ASTM-D1498	12/09/22 06:00	12/09/22 10:11	RML	MET-1	1	B155673	No Prep

DCN = Data Continuation Number

Pace Analytical
ENVIRONMENTAL SCIENCES

GSI Water Solutions, Inc.	**Reported:** 01/25/2023 9:16
5855 Capistran Avenue, Suite C	Project: Morro Bay Injection
Atascadero, CA 93422	Project Number: 645.007
	Project Manager: Nate Page

Metals Analysis

BCL Sample ID: 2228971-01 **Client Sample Name:** Pilot Inj Source, 12/7/2022 10:45:00AM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Dissolved Aluminum	ND	ug/L	50	23	EPA-200.7	ND		1
Dissolved Antimony	ND	ug/L	2.0	0.23	EPA-200.8	ND		2
Dissolved Arsenic	**1.0**	**ug/L**	**2.0**	**0.38**	**EPA-200.8**	ND	**J**	2
Hexavalent Chromium	**0.11**	**ug/L**	**0.20**	**0.020**	**EPA-218.6**	ND	**J**	3
Dissolved Barium	**80**	**ug/L**	**1.0**	**0.066**	**EPA-200.8**	ND		2
Dissolved Cadmium	**0.13**	**ug/L**	**1.0**	**0.034**	**EPA-200.8**	ND	**J**	2
Dissolved Chromium	ND	ug/L	3.0	0.15	EPA-200.8	ND		2
Dissolved Cobalt	**0.33**	**ug/L**	**1.0**	**0.011**	**EPA-200.8**	ND	**J**	2
Dissolved Copper	**1.7**	**ug/L**	**2.0**	**0.32**	**EPA-200.8**	ND	**J**	2
Dissolved Iron	ND	ug/L	50	30	EPA-200.7	ND		1
Dissolved Lead	**0.91**	**ug/L**	**1.0**	**0.021**	**EPA-200.8**	ND	**J**	2
Dissolved Manganese	**770**	**ug/L**	**1.0**	**0.040**	**EPA-200.8**	ND		2
Dissolved Mercury	ND	ug/L	0.20	0.022	EPA-245.1	ND		4
Dissolved Molybdenum	**2.3**	**ug/L**	**1.0**	**0.033**	**EPA-200.8**	ND		2
Dissolved Nickel	**2.1**	**ug/L**	**2.0**	**0.15**	**EPA-200.8**	ND		2
Dissolved Selenium	**2.5**	**ug/L**	**2.0**	**0.25**	**EPA-200.8**	ND		2
Dissolved Silicon as SiO2	**23000**	**ug/L**	**200**	**31**	**EPA-200.7**	ND		5
Dissolved Silver	ND	ug/L	1.0	0.015	EPA-200.8	ND		2
Dissolved Strontium	**370**	**ug/L**	**10**	**1.0**	**EPA-200.7**	ND		1
Dissolved Thallium	ND	ug/L	1.0	0.025	EPA-200.8	ND		2
Dissolved Uranium	**0.32**	**ug/L**	**1.0**	**0.051**	**EPA-200.8**	0.086	**J**	2
Dissolved Vanadium	**2.7**	**ug/L**	**3.0**	**0.39**	**EPA-200.8**	ND	**J**	2
Dissolved Zinc	**3.3**	**ug/L**	**5.0**	**2.2**	**EPA-200.8**	ND	**J**	2
Total Recoverable Silica	**9900**	**ug/L**	**200**	**53**	**EPA-200.7**	ND		6

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-200.7	12/30/22 16:53	01/03/23 15:55	JRG	PE-OP4	1	B157026	EPA 200.7 Dissolved
2	EPA-200.8	12/19/22 06:00	12/19/22 14:24	ARD	PE-EL4	1	B156239	EPA 200.8 Dissolved
3	EPA-218.6	12/09/22 17:00	12/10/22 10:42	RC1	IC-4	1	B155731	No Prep
4	EPA-245.1	12/21/22 07:30	12/21/22 13:00	TMT	CETAC3	1	B156488	EPA 245.1
5	EPA-200.7	12/30/22 16:53	01/05/23 14:57	JRG	PE-OP4	1	B157026	EPA 200.7 Dissolved
6	EPA-200.7	01/04/23 15:30	01/05/23 14:06	JRG	PE-OP4	1	B157273	EPA 200.2

DCN = Data Continuation Number

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2228971-02 | **Client Sample Name:** ZIP-01, 12/7/2022 11:15:00AM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Bromodichloromethane	**15**	**ug/L**	**0.50**	**0.20**	**EPA-524.2**	ND		1
Bromoform	**9.9**	**ug/L**	**0.50**	**0.46**	**EPA-524.2**	ND		1
Chloroform	**8.3**	**ug/L**	**0.50**	**0.14**	**EPA-524.2**	ND		1
Dibromochloromethane	**20**	**ug/L**	**0.50**	**0.22**	**EPA-524.2**	ND		1
Total Trihalomethanes	**53**	**ug/L**	**2.0**	**0.97**	**EPA-524.2**	ND		1
1,2-Dichloroethane-d4 (Surrogate)	118	%	75 - 125 (LCL - UCL)		EPA-524.2			1
Toluene-d8 (Surrogate)	99.3	%	80 - 120 (LCL - UCL)		EPA-524.2			1
4-Bromofluorobenzene (Surrogate)	93.5	%	80 - 120 (LCL - UCL)		EPA-524.2			1

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-524.2	12/08/22 09:00	12/09/22 05:44	ADC	MS-V15	1	B155518	EPA 524.2

DCN = Data Continuation Number

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Halogenated Acetic Acids (Method EPA-552.3)

BCL Sample ID: 2228971-02 | **Client Sample Name:** ZIP-01, 12/7/2022 11:15:00AM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Dibromoacetic acid	**9.7**	**ug/L**	**1.0**	**0.32**	**EPA-552.3**	ND		1
Dichloroacetic acid	**6.3**	**ug/L**	**1.0**	**0.29**	**EPA-552.3**	ND		1
Monobromoacetic acid	ND	ug/L	1.0	0.25	EPA-552.3	ND		1
Monochloroacetic acid	ND	ug/L	1.0	0.61	EPA-552.3	ND		1
Trichloroacetic acid	ND	ug/L	1.0	0.36	EPA-552.3	ND		1
Total HAA's (Summation)	**16**	**ug/L**	**1.0**	**1.0**	**EPA-552.3**	ND		1
2,3-Dibromopropionic acid (Surrogate)	16.1	%	70 - 130 (LCL - UCL)		EPA-552.3		S09	1

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-552.3	12/09/22 16:50	12/11/22 21:59	NAP	GC-3	1	B155737	EPA 552.3

DCN = Data Continuation Number

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Gas Testing in Water

BCL Sample ID: 2228971-02 | **Client Sample Name:** ZIP-01, 12/7/2022 11:15:00AM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Methane	ND	mg/L	0.0010	0.00046	RSK-175M	ND		1

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	RSK-175M	12/13/22 08:11	12/13/22 15:39	RMK	GC-V10	1	B155887	None

DCN = Data Continuation Number

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Water Analysis (General Chemistry)

BCL Sample ID: 2228971-02 **Client Sample Name:** ZIP-01, 12/7/2022 11:15:00AM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Dissolved Calcium	**29**	**mg/L**	**0.10**	**0.016**	**EPA-200.7**	ND		1
Dissolved Magnesium	**15**	**mg/L**	**0.050**	**0.019**	**EPA-200.7**	ND		1
Dissolved Sodium	**92**	**mg/L**	**0.50**	**0.051**	**EPA-200.7**	ND		2
Dissolved Potassium	**4.1**	**mg/L**	**1.0**	**0.10**	**EPA-200.7**	ND		1
Bicarbonate	**250**	**mg/L**	**5.0**	**5.0**	**SM-2320B**	ND		3
Carbonate	ND	mg/L	2.5	2.5	SM-2320B	ND		3
Total Alkalinity as CaCO3	**200**	**mg/L**	**4.1**	**4.1**	**SM-2320B**	ND		3
Chloride	**130**	**mg/L**	**0.50**	**0.13**	**EPA-300.0**	ND		4
Fluoride	**0.22**	**mg/L**	**0.050**	**0.025**	**EPA-300.0**	ND		4
Nitrate/Nitrite as N	**0.76**	**mg/L**	**0.10**	**0.034**	**EPA-353.2**	ND		5
Nitrate as N	**0.54**	**mg/L**	**0.10**	**0.024**	**EPA-300.0**	ND		4
Sulfate	**88**	**mg/L**	**1.0**	**0.14**	**EPA-300.0**	ND		4
Dissolved Hardness as CaCO3	**130**	**mg/L**	**0.50**	**0.10**	**Calc**	ND		6
Langlier Index	**0.16**	**NA**	**-2.00**	**-2.00**	**Calc**	0		6
pH	**7.93**	**pH Units**	**0.05**	**0.05**	**EPA-150.1**		**S05**	7
Electrical Conductivity @ 25 C	**925**	**umhos/cm**	**1.00**	**1.00**	**EPA-120.1**			8
Total Dissolved Solids @ 180 C	**560**	**mg/L**	**33**	**17**	**SM-2540C**	ND	**A10**	9
Total Suspended Solids (Glass Fiber)	**3.3**	**mg/L**	**0.67**	**0.67**	**SM-2540D**	ND	**A10**	10
Color	**1.0**	**Color Units**	**1.0**	**1.0**	**SM-2120B**			11
Odor	**4.0**	**Odor Units**	**1.0**	**1.0**	**EPA-140.1**	ND		12
Turbidity	**0.19**	**NT Units**	**0.10**	**0.10**	**EPA-180.1**			13
MBAS	ND	mg/L	0.10	0.024	SM-5540C	ND		14
Residual Chlorine	ND	mg/L	0.10	0.10	SM-4500-CLF	ND	S05	15
Total Cyanide	**0.0035**	**mg/L**	**0.0050**	**0.0017**	**EPA-335.4**	0.0020	**J**	16
Ammonia as N	**0.093**	**mg/L**	**0.20**	**0.067**	**Timberline-001**	ND	**J**	17
Nitrite as N	**0.12**	**mg/L**	**0.050**	**0.010**	**EPA-353.2**	0.012		18
ortho-Phosphate as P	**0.12**	**mg/L**	**0.050**	**0.017**	**EPA-365.1**	ND		19
Total Sulfide	ND	mg/L	0.10	0.050	SM-4500SD	ND		20
Dissolved Non-Volatile Organic Carbon	**0.49**	**mg/L**	**1.0**	**0.30**	**SM-5310C**	ND	**J**	21
Chemical Oxygen Demand	ND	mg O2/L	25	4.3	EPA-410.4	ND		22
Oxidation Reduction Potential (Eh)	**535.0**	**mV**	**-1000**	**-1000**	**ASTM-D1498**			23

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/25/2023 9:16 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Nate Page

Water Analysis (General Chemistry)

BCL Sample ID: 2228971-02 **Client Sample Name:** ZIP-01, 12/7/2022 11:15:00AM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Oxidation Reduction Potential (Eobs_Ag/AgCl)	**319.2**	**mV**	**-1000**	**-1000**	**ASTM-D1498**			23
Temperature	**16.2**	**°C**	**0.1**	**0.1**	**ASTM-D1498**			23

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-200.7	12/30/22 16:53	01/03/23 15:57	JRG	PE-OP4	1	B157026	200.7/ No Digest
2	EPA-200.7	12/30/22 16:53	01/05/23 15:00	JRG	PE-OP4	1	B157026	200.7/ No Digest
3	SM-2320B	12/09/22 06:00	12/09/22 17:26	RML	MET-1	1	B155593	No Prep
4	EPA-300.0	12/08/22 16:00	12/08/22 18:53	SAV	IC1	1	B155520	No Prep
5	EPA-353.2	12/20/22 12:00	12/20/22 12:24	KB1	SC-1	1	B156576	No Prep
6	Calc	12/08/22 10:01	01/10/23 09:37	SGB	Calc	1	B`L0064	Calc
7	EPA-150.1	12/09/22 06:00	12/09/22 17:26	RML	MET-1	1	B155593	No Prep
8	EPA-120.1	12/09/22 06:00	12/09/22 17:26	RML	MET-1	1	B155593	No Prep
9	SM-2540C	12/12/22 10:30	12/12/22 10:30	CAD	MANUAL	3.333	B155795	No Prep
10	SM-2540D	12/14/22 12:50	12/14/22 12:50	TJV	MANUAL	1.333	B155976	No Prep
11	SM-2120B	12/09/22 08:00	12/09/22 08:00	RML	MANUAL	1	B155752	No Prep
12	EPA-140.1	12/09/22 08:00	12/12/22 08:00	RML	MANUAL	1	B155776	No Prep
13	EPA-180.1	12/09/22 08:00	12/09/22 08:00	RML	MANUAL	1	B155785	No Prep
14	SM-5540C	12/08/22 13:15	12/08/22 13:15	JMN	SPEC06	1	B155517	No Prep
15	SM-4500-CLF	12/09/22 10:30	12/09/22 10:30	RML	MANUAL	1	B155686	No Prep
16	EPA-335.4	12/15/22 09:30	12/15/22 13:24	MC1	Konelab	1	B156029	EPA 335.4 Total
17	Timberline-001	01/03/23 10:00	01/03/23 11:26	SPB	Timberline	1	B157498	No Prep
18	EPA-353.2	12/08/22 11:56	12/08/22 11:56	MC1	KONE-1	1	B156038	No Prep
19	EPA-365.1	12/08/22 17:24	12/08/22 17:35	KB1	SC-1	1	B156066	No Prep
20	SM-4500SD	12/09/22 06:10	12/09/22 06:10	JT3	SPEC06	1	B155706	SM 4500SD
21	SM-5310C	12/17/22 12:00	12/17/22 22:55	JAT	TOC3	1	B156051	No Prep
22	EPA-410.4	01/03/23 12:00	01/03/23 16:40	SPB	SPEC06	1	B157159	EPA 410.4
23	ASTM-D1498	12/09/22 06:00	12/09/22 10:19	RML	MET-1	1	B155673	No Prep

DCN = Data Continuation Number

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Metals Analysis

BCL Sample ID: 2228971-02 | **Client Sample Name:** ZIP-01, 12/7/2022 11:15:00AM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Dissolved Aluminum	**37**	**ug/L**	**50**	**23**	**EPA-200.7**	ND	**J**	1
Dissolved Antimony	ND	ug/L	2.0	0.23	EPA-200.8	ND		2
Dissolved Arsenic	**0.74**	**ug/L**	**2.0**	**0.38**	**EPA-200.8**	ND	**J**	2
Hexavalent Chromium	**0.22**	**ug/L**	**0.20**	**0.020**	**EPA-218.6**	ND		3
Dissolved Barium	**43**	**ug/L**	**1.0**	**0.066**	**EPA-200.8**	ND		2
Dissolved Cadmium	**0.093**	**ug/L**	**1.0**	**0.034**	**EPA-200.8**	ND	**J**	2
Dissolved Chromium	ND	ug/L	3.0	0.15	EPA-200.8	ND		2
Dissolved Cobalt	**0.058**	**ug/L**	**1.0**	**0.011**	**EPA-200.8**	ND	**J**	2
Dissolved Copper	**3.2**	**ug/L**	**2.0**	**0.32**	**EPA-200.8**	ND		2
Dissolved Iron	ND	ug/L	50	30	EPA-200.7	ND		1
Dissolved Lead	**1.0**	**ug/L**	**1.0**	**0.021**	**EPA-200.8**	ND		2
Dissolved Manganese	**3.6**	**ug/L**	**1.0**	**0.040**	**EPA-200.8**	ND		2
Dissolved Mercury	ND	ug/L	0.20	0.022	EPA-245.1	ND		4
Dissolved Molybdenum	**2.0**	**ug/L**	**1.0**	**0.033**	**EPA-200.8**	ND		2
Dissolved Nickel	**1.3**	**ug/L**	**2.0**	**0.15**	**EPA-200.8**	ND	**J**	2
Dissolved Selenium	**1.9**	**ug/L**	**2.0**	**0.25**	**EPA-200.8**	ND	**J**	2
Dissolved Silicon as SiO2	**10000**	**ug/L**	**200**	**31**	**EPA-200.7**	ND		5
Dissolved Silver	ND	ug/L	1.0	0.015	EPA-200.8	ND		2
Dissolved Strontium	**250**	**ug/L**	**10**	**1.0**	**EPA-200.7**	ND		1
Dissolved Thallium	ND	ug/L	1.0	0.025	EPA-200.8	ND		2
Dissolved Uranium	**0.067**	**ug/L**	**1.0**	**0.051**	**EPA-200.8**	0.086	**J**	2
Dissolved Vanadium	**1.0**	**ug/L**	**3.0**	**0.39**	**EPA-200.8**	ND	**J**	2
Dissolved Zinc	**11**	**ug/L**	**5.0**	**2.2**	**EPA-200.8**	ND		2
Total Recoverable Silica	**23000**	**ug/L**	**200**	**53**	**EPA-200.7**	ND		6

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-200.7	12/30/22 16:53	01/03/23 15:57	JRG	PE-OP4	1	B157026	EPA 200.7 Dissolved
2	EPA-200.8	12/19/22 06:00	12/19/22 14:47	ARD	PE-EL4	1	B156239	EPA 200.8 Dissolved
3	EPA-218.6	12/09/22 17:00	12/10/22 10:52	RC1	IC-4	1	B155731	No Prep
4	EPA-245.1	12/21/22 07:30	12/21/22 13:02	TMT	CETAC3	1	B156488	EPA 245.1
5	EPA-200.7	12/30/22 16:53	01/05/23 15:00	JRG	PE-OP4	1	B157026	EPA 200.7 Dissolved
6	EPA-200.7	01/04/23 15:30	01/05/23 14:09	JRG	PE-OP4	1	B157273	EPA 200.2

DCN = Data Continuation Number

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B155518							
Bromodichloromethane	B155518-BLK1	ND	ug/L	0.50	0.20		1
Bromoform	B155518-BLK1	ND	ug/L	0.50	0.46		1
Chloroform	B155518-BLK1	ND	ug/L	0.50	0.14		1
Dibromochloromethane	B155518-BLK1	ND	ug/L	0.50	0.22		1
Total Trihalomethanes	B155518-BLK1	ND	ug/L	2.0	0.97		1
1,2-Dichloroethane-d4 (Surrogate)	**B155518-BLK1**	**109**	%	**75 - 125 (LCL - UCL)**			1
Toluene-d8 (Surrogate)	**B155518-BLK1**	**98.1**	%	**80 - 120 (LCL - UCL)**			1
4-Bromofluorobenzene (Surrogate)	**B155518-BLK1**	**96.6**	%	**80 - 120 (LCL - UCL)**			1

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B155518-BLK1	PB	EPA-524.2	12/08/22	12/08/22 23:22	ADC	MS-V15	1

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/25/2023 9:16 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Nate Page

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B155518											
Bromodichloromethane	B155518-BS1	LCS	26.470	25.000	ug/L	106		70 - 130			1
Bromoform	B155518-BS1	LCS	26.400	25.000	ug/L	106		70 - 130			1
Chloroform	B155518-BS1	LCS	26.160	25.000	ug/L	105		70 - 130			1
Dibromochloromethane	B155518-BS1	LCS	26.730	25.000	ug/L	107		70 - 130			1
1,2-Dichloroethane-d4 (Surrogate)	B155518-BS1	LCS	10.450	10.000	ug/L	104		75 - 125			1
Toluene-d8 (Surrogate)	B155518-BS1	LCS	10.020	10.000	ug/L	100		80 - 120			1
4-Bromofluorobenzene (Surrogate)	B155518-BS1	LCS	10.230	10.000	ug/L	102		80 - 120			1

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B155518-BS1	LCS	EPA-524.2	12/08/22	12/08/22 21:47	ADC	MS-V15	1

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Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B155518	Used client sample: N											
Bromodichloromethane	MS	2228776-03	ND	27.190	25.000	ug/L		109		70 - 130		1
	MSD	2228776-03	ND	25.770	25.000	ug/L	5.4	103	20	70 - 130		2
Bromoform	MS	2228776-03	ND	27.170	25.000	ug/L		109		70 - 130		1
	MSD	2228776-03	ND	25.460	25.000	ug/L	6.5	102	20	70 - 130		2
Chloroform	MS	2228776-03	ND	26.490	25.000	ug/L		106		70 - 130		1
	MSD	2228776-03	ND	25.460	25.000	ug/L	4.0	102	20	70 - 130		2
Dibromochloromethane	MS	2228776-03	ND	27.390	25.000	ug/L		110		70 - 130		1
	MSD	2228776-03	ND	25.960	25.000	ug/L	5.4	104	20	70 - 130		2
1,2-Dichloroethane-d4 (Surrogate)	MS	2228776-03	ND	10.080	10.000	ug/L		101		75 - 125		1
	MSD	2228776-03	ND	9.9100	10.000	ug/L	1.7	99.1		75 - 125		2
Toluene-d8 (Surrogate)	MS	2228776-03	ND	10.050	10.000	ug/L		100		80 - 120		1
	MSD	2228776-03	ND	9.9200	10.000	ug/L	1.3	99.2		80 - 120		2
4-Bromofluorobenzene (Surrogate)	MS	2228776-03	ND	9.9900	10.000	ug/L		99.9		80 - 120		1
	MSD	2228776-03	ND	9.9300	10.000	ug/L	0.6	99.3		80 - 120		2

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B155518-MS1	MS	EPA-524.2	12/08/22	12/08/22 22:11	ADC	MS-V15	1
2	B155518-MSD1	MSD	EPA-524.2	12/08/22	12/08/22 22:34	ADC	MS-V15	1

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Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B155737							
Dibromoacetic acid	B155737-BLK1	ND	ug/L	1.0	0.32		1
Dichloroacetic acid	B155737-BLK1	ND	ug/L	1.0	0.29		1
Monobromoacetic acid	B155737-BLK1	ND	ug/L	1.0	0.25		1
Monochloroacetic acid	B155737-BLK1	ND	ug/L	1.0	0.61		1
Trichloroacetic acid	B155737-BLK1	ND	ug/L	1.0	0.36		1
Total HAA's (Summation)	B155737-BLK1	ND	ug/L	1.0	1.0		1
2,3-Dibromopropionic acid (Surrogate)	**B155737-BLK1**	**103**	%	**70 - 130 (LCL - UCL)**			1

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B155737-BLK1	PB	EPA-552.3	12/09/22	12/11/22 20:10	NAP	GC-3	1

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Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B155737											
Dibromoacetic acid	B155737-BS1	LCS	18.947	20.000	ug/L	94.7		70 - 130			1
Dichloroacetic acid	B155737-BS1	LCS	15.514	20.000	ug/L	77.6		70 - 130			1
Monobromoacetic acid	B155737-BS1	LCS	19.304	20.000	ug/L	96.5		70 - 130			1
Monochloroacetic acid	B155737-BS1	LCS	19.779	20.000	ug/L	98.9		70 - 130			1
Trichloroacetic acid	B155737-BS1	LCS	16.328	20.000	ug/L	81.6		70 - 130			1
2,3-Dibromopropionic acid (Surrogate)	B155737-BS1	LCS	19.2	20.0	ug/L	96.1		70 - 130			1

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B155737-BS1	LCS	EPA-552.3	12/09/22	12/11/22 20:32	NAP	GC-3	1

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/25/2023 9:16 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Nate Page

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B155737	Used client sample: N											
Dibromoacetic acid	MS	2228776-26	ND	19.928	20.000	ug/L		99.6		70 - 130		1
	MSD	2228776-26	ND	19.588	20.000	ug/L	1.7	97.9	30	70 - 130		2
Dichloroacetic acid	MS	2228776-26	ND	16.362	20.000	ug/L		81.8		70 - 130		1
	MSD	2228776-26	ND	15.829	20.000	ug/L	3.3	79.1	30	70 - 130		2
Monobromoacetic acid	MS	2228776-26	ND	19.365	20.000	ug/L		96.8		70 - 130		1
	MSD	2228776-26	ND	17.623	20.000	ug/L	9.4	88.1	30	70 - 130		2
Monochloroacetic acid	MS	2228776-26	ND	18.805	20.000	ug/L		94.0		70 - 130		1
	MSD	2228776-26	ND	16.669	20.000	ug/L	12.0	83.3	30	70 - 130		2
Trichloroacetic acid	MS	2228776-26	ND	17.679	20.000	ug/L		88.4		70 - 130		1
	MSD	2228776-26	ND	17.787	20.000	ug/L	0.6	88.9	30	70 - 130		2
2,3-Dibromopropionic acid (Surrogate)	MS	2228776-26	ND	19.8	20.0	ug/L		98.9		70 - 130		1
	MSD	2228776-26	ND	21.9	20.0	ug/L	10.0	109		70 - 130		2

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B155737-MS1	MS	EPA-552.3	12/09/22	12/11/22 20:54	NAP	GC-3	1
2	B155737-MSD1	MSD	EPA-552.3	12/09/22	12/11/22 21:15	NAP	GC-3	1

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/25/2023 9:16 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Nate Page

Gas Testing in Water

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B155887							
Methane	B155887-BLK1	ND	mg/L	0.0010	0.00046		1

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B155887-BLK1	PB	RSK-175M	12/13/22	12/13/22 15:15	RMK	GC-V10	1

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Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Gas Testing in Water

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B155887											
Methane	B155887-BS1	LCS	0.011709	0.010843	mg/L	108		80 - 120			1
	B155887-BSD1	LCSD	0.011983	0.010843	mg/L	111	2.3	80 - 120	20		2

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B155887-BS1	LCS	RSK-175M	12/13/22	12/13/22 14:59	RMK	GC-V10	1
2	B155887-BSD1	LCSD	RSK-175M	12/13/22	12/13/22 15:07	RMK	GC-V10	1

GSI Water Solutions, Inc.
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Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B`L0064							
Dissolved Hardness as CaCO3	B`L0064-BLK1	ND	mg/L	0.50	0.10		1
Langlier Index	**B`L0064-BLK1**	**0**	**NA**	**-2.00**	**-2.00**		1
QC Batch ID: B155517							
MBAS	B155517-BLK1	ND	mg/L	0.10	0.024		2
QC Batch ID: B155520							
Chloride	B155520-BLK1	ND	mg/L	0.50	0.13		3
Fluoride	B155520-BLK1	ND	mg/L	0.050	0.025		3
Nitrate as N	B155520-BLK1	ND	mg/L	0.10	0.024		3
Sulfate	B155520-BLK1	ND	mg/L	1.0	0.14		3
QC Batch ID: B155592							
Bicarbonate	B155592-BLK1	ND	mg/L	5.0	5.0		4
Carbonate	B155592-BLK1	ND	mg/L	2.5	2.5		4
Total Alkalinity as CaCO3	B155592-BLK1	ND	mg/L	4.1	4.1		4
QC Batch ID: B155593							
Bicarbonate	B155593-BLK1	ND	mg/L	5.0	5.0		5
Carbonate	B155593-BLK1	ND	mg/L	2.5	2.5		5
Total Alkalinity as CaCO3	B155593-BLK1	ND	mg/L	4.1	4.1		5
QC Batch ID: B155686							
Residual Chlorine	B155686-BLK1	ND	mg/L	0.10	0.10		6
QC Batch ID: B155706							
Total Sulfide	B155706-BLK1	ND	mg/L	0.10	0.050		7
QC Batch ID: B155776							
Odor	B155776-BLK1	ND	Odor Units	1.0	1.0		8
QC Batch ID: B155795							
Total Dissolved Solids @ 180 C	B155795-BLK1	ND	mg/L	6.7	3.3		9
QC Batch ID: B155976							
Total Suspended Solids (Glass Fiber)	B155976-BLK1	ND	mg/L	0.50	0.50		10
QC Batch ID: B156029							
Total Cyanide	**B156029-BLK1**	**0.0020020**	**mg/L**	**0.0050**	**0.0017**	**J**	11
QC Batch ID: B156038							

GSI Water Solutions, Inc.
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Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B156038							
Nitrite as N	**B156038-BLK1**	**0.012033**	**mg/L**	**0.050**	**0.010**	**J**	12
QC Batch ID: B156051							
Dissolved Non-Volatile Organic Carbon	B156051-BLK1	ND	mg/L	1.0	0.30		13
QC Batch ID: B156066							
ortho-Phosphate as P	B156066-BLK1	ND	mg/L	0.050	0.017		14
QC Batch ID: B156576							
Nitrate/Nitrite as N	B156576-BLK1	ND	mg/L	0.10	0.034		15
QC Batch ID: B157026							
Dissolved Calcium	B157026-BLK1	ND	mg/L	0.10	0.016		16
Dissolved Magnesium	B157026-BLK1	ND	mg/L	0.050	0.019		16
Dissolved Sodium	B157026-BLK3	ND	mg/L	0.50	0.051		17
Dissolved Potassium	B157026-BLK1	ND	mg/L	1.0	0.10		16
QC Batch ID: B157159							
Chemical Oxygen Demand	B157159-BLK1	ND	mg O2/L	25	4.3		18
QC Batch ID: B157498							
Ammonia as N	B157498-BLK1	ND	mg/L	0.20	0.067		19

GSI Water Solutions, Inc.	Reported:	01/25/2023 9:16
5855 Capistran Avenue, Suite C	Project:	Morro Bay Injection
Atascadero, CA 93422	Project Number:	645.007
	Project Manager:	Nate Page

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B`L0064-BLK1	PB	Calc	12/08/22	01/10/23 09:37	SGB	Calc	1
2	B155517-BLK1	PB	SM-5540C	12/08/22	12/08/22 08:55	JMN	SPEC06	1
3	B155520-BLK1	PB	EPA-300.0	12/08/22	12/08/22 16:47	SAV	IC1	1
4	B155592-BLK1	PB	SM-2320B	12/09/22	12/09/22 15:46	RML	MET-1	1
5	B155593-BLK1	PB	SM-2320B	12/09/22	12/09/22 17:21	RML	MET-1	1
6	B155686-BLK1	PB	SM-4500-CLF	12/09/22	12/09/22 10:30	RML	MANUAL	1
7	B155706-BLK1	PB	SM-4500SD	12/09/22	12/09/22 06:10	JT3	SPEC06	1
8	B155776-BLK1	PB	EPA-140.1	12/09/22	12/12/22 08:00	RML	MANUAL	1
9	B155795-BLK1	PB	SM-2540C	12/12/22	12/12/22 10:30	CAD	MANUAL	0.667
10	B155976-BLK1	PB	SM-2540D	12/14/22	12/14/22 12:50	TJV	MANUAL	1
11	B156029-BLK1	PB	EPA-335.4	12/15/22	12/15/22 13:18	MC1	Konelab	1
12	B156038-BLK1	PB	EPA-353.2	12/08/22	12/08/22 11:56	MC1	KONE-1	1
13	B156051-BLK1	PB	SM-5310C	12/17/22	12/17/22 17:17	JAT	TOC3	1
14	B156066-BLK1	PB	EPA-365.1	12/08/22	12/08/22 17:32	KB1	SC-1	1
15	B156576-BLK1	PB	EPA-353.2	12/20/22	12/20/22 12:18	KB1	SC-1	1
16	B157026-BLK1	PB	EPA-200.7	12/30/22	01/03/23 15:35	JRG	PE-OP4	1
17	B157026-BLK3	PB	EPA-200.7	12/30/22	01/06/23 01:56	JRG	PE-OP4	1
18	B157159-BLK1	PB	EPA-410.4	01/03/23	01/03/23 16:40	SPB	SPEC06	1
19	B157498-BLK1	PB	Timberline-001	01/03/23	01/03/23 10:37	SPB	Timberline	1

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B155517											
MBAS	B155517-BS1	LCS	0.19750	0.20000	mg/L	98.8		85 - 115			1
QC Batch ID: B155520											
Chloride	B155520-BS1	LCS	50.766	50.000	mg/L	102		90 - 110			2
Fluoride	B155520-BS1	LCS	0.98100	1.0000	mg/L	98.1		90 - 110			2
Nitrate as N	B155520-BS1	LCS	5.0280	5.0000	mg/L	101		90 - 110			2
Sulfate	B155520-BS1	LCS	101.64	100.00	mg/L	102		90 - 110			2
QC Batch ID: B155592											
Total Alkalinity as CaCO3	B155592-BS3	LCS	105.43	100.00	mg/L	105		90 - 110			3
pH	B155592-BS2	LCS	7.0300	7.0000	pH Units	100		95 - 105			4
Electrical Conductivity @ 25 C	B155592-BS1	LCS	308.00	303.00	umhos/cm	102		90 - 110			5
QC Batch ID: B155593											
Total Alkalinity as CaCO3	B155593-BS3	LCS	104.97	100.00	mg/L	105		90 - 110			6
pH	B155593-BS2	LCS	7.0300	7.0000	pH Units	100		95 - 105			7
Electrical Conductivity @ 25 C	B155593-BS1	LCS	296.20	303.00	umhos/cm	97.8		90 - 110			8
QC Batch ID: B155706											
Total Sulfide	B155706-BS1	LCS	0.49017	0.50000	mg/L	98.0		90 - 110			9
	B155706-BSD1	LCSD	0.49017	0.50000	mg/L	98.0	0	90 - 110	10		10
QC Batch ID: B155795											
Total Dissolved Solids @ 180 C	B155795-BS1	LCS	570.00	586.00	mg/L	97.3		90 - 110			11
QC Batch ID: B156029											
Total Cyanide	B156029-BS1	LCS	0.16273	0.15000	mg/L	108		90 - 110			12
QC Batch ID: B156038											
Nitrite as N	B156038-BS1	LCS	0.48306	0.50000	mg/L	96.6		90 - 110			13
QC Batch ID: B156051											
Dissolved Non-Volatile Organic Carbon	B156051-BS1	LCS	5.2330	5.0000	mg/L	105		85 - 115			14
QC Batch ID: B156066											
ortho-Phosphate as P	B156066-BS1	LCS	0.49230	0.50000	mg/L	98.5		90 - 110			15
QC Batch ID: B156576											
Nitrate/Nitrite as N	B156576-BS1	LCS	1.9746	2.0000	mg/L	98.7		90 - 110			16
QC Batch ID: B157026											
Dissolved Calcium	B157026-BS1	LCS	9.6141	10.000	mg/L	96.1		85 - 115			17
Dissolved Magnesium	B157026-BS1	LCS	9.9860	10.000	mg/L	99.9		85 - 115			17

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/25/2023 9:16 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Nate Page

Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B157026											
Dissolved Sodium	B157026-BS3	LCS	10.623	10.000	mg/L	106		85 - 115			18
Dissolved Potassium	B157026-BS1	LCS	9.4805	10.000	mg/L	94.8		85 - 115			17
QC Batch ID: B157159											
Chemical Oxygen Demand	B157159-BS1	LCS	770.96	750.00	mg O2/L	103		90 - 110			19
QC Batch ID: B157498											
Ammonia as N	B157498-BS1	LCS	2.1370	2.0000	mg/L	107		90 - 110			20

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B155517-BS1	LCS	SM-5540C	12/08/22	12/08/22 08:55	JMN	SPEC06	1
2	B155520-BS1	LCS	EPA-300.0	12/08/22	12/08/22 17:08	SAV	IC1	1
3	B155592-BS3	LCS	SM-2320B	12/09/22	12/09/22 15:40	RML	MET-1	1
4	B155592-BS2	LCS	EPA-150.1	12/09/22	12/09/22 15:37	RML	MET-1	1
5	B155592-BS1	LCS	EPA-120.1	12/09/22	12/09/22 15:35	RML	MET-1	1
6	B155593-BS3	LCS	SM-2320B	12/09/22	12/09/22 17:15	RML	MET-1	1
7	B155593-BS2	LCS	EPA-150.1	12/09/22	12/09/22 17:12	RML	MET-1	1
8	B155593-BS1	LCS	EPA-120.1	12/09/22	12/09/22 17:10	RML	MET-1	1
9	B155706-BS1	LCS	SM-4500SD	12/09/22	12/09/22 06:10	JT3	SPEC06	1
10	B155706-BSD1	LCSD	SM-4500SD	12/09/22	12/09/22 06:10	JT3	SPEC06	1
11	B155795-BS1	LCS	SM-2540C	12/12/22	12/12/22 10:30	CAD	MANUAL	5
12	B156029-BS1	LCS	EPA-335.4	12/15/22	12/15/22 13:18	MC1	Konelab	1
13	B156038-BS1	LCS	EPA-353.2	12/08/22	12/08/22 11:56	MC1	KONE-1	1
14	B156051-BS1	LCS	SM-5310C	12/17/22	12/17/22 17:33	JAT	TOC3	1
15	B156066-BS1	LCS	EPA-365.1	12/08/22	12/08/22 17:31	KB1	SC-1	1
16	B156576-BS1	LCS	EPA-353.2	12/20/22	12/20/22 12:17	KB1	SC-1	1
17	B157026-BS1	LCS	EPA-200.7	12/30/22	01/03/23 15:37	JRG	PE-OP4	1
18	B157026-BS3	LCS	EPA-200.7	12/30/22	01/06/23 01:58	JRG	PE-OP4	1
19	B157159-BS1	LCS	EPA-410.4	01/03/23	01/03/23 16:40	SPB	SPEC06	1
20	B157498-BS1	LCS	Timberline-001	01/03/23	01/03/23 10:35	SPB	Timberline	1

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B155517	Used client sample: N											
MBAS	DUP	2228916-01	ND	ND		mg/L			20			1
	MS	2228916-01	ND	0.39900	0.40000	mg/L		99.8		80 - 120		2
	MSD	2228916-01	ND	0.40700	0.40000	mg/L	2.0	102	20	80 - 120		3
QC Batch ID: B155520	Used client sample: Y - Description: Pilot Inj Source, 12/07/2022 10:45											
Chloride	DUP	2228971-01	123.95	123.96		mg/L	0.0		10			4
	MS	2228971-01	123.95	173.83	50.505	mg/L		98.8		80 - 120		5
	MSD	2228971-01	123.95	173.90	50.505	mg/L	0.0	98.9	10	80 - 120		6
Fluoride	**DUP**	**2228971-01**	**0.054000**	**0.063000**		**mg/L**	**15.4**		**10**		**A02**	4
	MS	**2228971-01**	**0.054000**	**1.0030**	**1.0101**	**mg/L**		**94.0**		**80 - 120**		5
	MSD	**2228971-01**	**0.054000**	**1.0192**	**1.0101**	**mg/L**	**1.6**	**95.6**	**10**	**80 - 120**		6
Nitrate as N	DUP	2228971-01	0.81700	0.84800		mg/L	3.7		10			4
	MS	2228971-01	0.81700	6.0909	5.0505	mg/L		104		80 - 120		5
	MSD	2228971-01	0.81700	6.0758	5.0505	mg/L	0.2	104	10	80 - 120		6
Sulfate	DUP	2228971-01	73.364	74.963		mg/L	2.2		10			4
	MS	2228971-01	73.364	185.52	101.01	mg/L		111		80 - 120		5
	MSD	2228971-01	73.364	189.23	101.01	mg/L	2.0	115	10	80 - 120		6
QC Batch ID: B155592	Used client sample: N											
Bicarbonate	DUP	2228942-04	273.79	276.75		mg/L	1.1		10			7
Carbonate	DUP	2228942-04	ND	ND		mg/L			10			7
Total Alkalinity as CaCO3	DUP	2228942-04	224.55	226.98		mg/L	1.1		10			7
pH	DUP	2228942-04	7.6600	7.6800		pH Units	0.3		20			8
Electrical Conductivity @ 25 C	DUP	2228942-04	2643.5	2652.3		umhos/cm	0.3		10			9
QC Batch ID: B155593	Used client sample: Y - Description: ZIP-01, 12/07/2022 11:15											
Bicarbonate	DUP	2228971-02	248.75	234.47		mg/L	5.9		10			10
Carbonate	DUP	2228971-02	ND	ND		mg/L			10			10
Total Alkalinity as CaCO3	DUP	2228971-02	204.01	192.30		mg/L	5.9		10			10
pH	DUP	2228971-02	7.9300	7.9600		pH Units	0.4		20			11
Electrical Conductivity @ 25 C	DUP	2228971-02	925.30	916.40		umhos/cm	1.0		10			12
QC Batch ID: B155673	Used client sample: Y - Description: Pilot Inj Source, 12/07/2022 10:45											
Oxidation Reduction Potential (Eh)	DUP	2228971-01	536.00	537.00		mV	0.2		10			13
Oxidation Reduction Potential (Eobs_Ag/	DUP	2228971-01	319.78	321.13		mV	0.4		10			13
QC Batch ID: B155686	Used client sample: Y - Description: Pilot Inj Source, 12/07/2022 10:45											
Residual Chlorine	DUP	2228971-01	0.53000	0.54000		mg/L	1.9		10			14
QC Batch ID: B155706	Used client sample: N											

GSI Water Solutions, Inc.	**Reported:** 01/25/2023 9:16
5855 Capistran Avenue, Suite C	Project: Morro Bay Injection
Atascadero, CA 93422	Project Number: 645.007
	Project Manager: Nate Page

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B155706	Used client sample: N											
Total Sulfide	DUP	2228609-01	ND	ND		mg/L			10			15
	MS	2228609-01	ND	0.46425	0.50000	mg/L		92.8		80 - 120		16
	MSD	2228609-01	ND	0.46641	0.50000	mg/L	0.5	93.3	10	80 - 120		17
QC Batch ID: B155752	Used client sample: Y - Description: Pilot Inj Source, 12/07/2022 10:45											
Color	DUP	2228971-01	1.0000	1.0000		Color Units	0		20			18
QC Batch ID: B155785	Used client sample: Y - Description: Pilot Inj Source, 12/07/2022 10:45											
Turbidity	DUP	2228971-01	1.5400	1.5600		NT Units	1.3		10			19
QC Batch ID: B155795	Used client sample: N											
Total Dissolved Solids @ 180 C	DUP	2229027-01	795.00	805.00		mg/L	1.2		10			20
QC Batch ID: B155976	Used client sample: N											
Total Suspended Solids (Glass Fiber)	DUP	2229027-01	ND	ND		mg/L			10			21
QC Batch ID: B156029	Used client sample: N											
Total Cyanide	DUP	2229410-01	0.0018140	0.0018690		mg/L	3.0		10		J	22
	MS	2229410-01	0.0018140	0.11199	0.10000	mg/L		110		90 - 110		23
	MSD	2229410-01	0.0018140	0.11223	0.10000	mg/L	0.2	110	10	90 - 110		24
QC Batch ID: B156038	Used client sample: Y - Description: Pilot Inj Source, 12/07/2022 10:45											
Nitrite as N	DUP	2228971-01	0.17907	0.17719		mg/L	1.1		10			25
	MS	2228971-01	0.17907	0.66368	0.52632	mg/L		92.1		90 - 110		26
	MSD	2228971-01	0.17907	0.66244	0.52632	mg/L	0.2	91.8	10	90 - 110		27
QC Batch ID: B156051	Used client sample: N											
Dissolved Non-Volatile Organic Carbon	DUP	**2227997-01**	**0.79520**	**0.78880**		**mg/L**	**0.8**		**10**		**J**	28
	MS	**2227997-01**	**0.79520**	**4.8090**	**5.0251**	**mg/L**		**79.9**		**80 - 120**	**Q03**	29
	MSD	**2227997-01**	**0.79520**	**4.8271**	**5.0251**	**mg/L**	**0.4**	**80.2**	**10**	**80 - 120**	**Q03**	30
QC Batch ID: B156066	Used client sample: Y - Description: Pilot Inj Source, 12/07/2022 10:45											
ortho-Phosphate as P	DUP	2228971-01	ND	ND		mg/L			10			31
	MS	2228971-01	ND	0.51305	0.52632	mg/L		97.5		90 - 110		32
	MSD	2228971-01	ND	0.50474	0.52632	mg/L	1.6	95.9	10	90 - 110		33
QC Batch ID: B156576	Used client sample: Y - Description: Pilot Inj Source, 12/07/2022 10:45											
Nitrate/Nitrite as N	DUP	2228971-01	1.1245	1.1016		mg/L	2.1		10			34
	MS	2228971-01	1.1245	3.1486	2.1053	mg/L		96.1		90 - 110		35
	MSD	2228971-01	1.1245	3.2763	2.1053	mg/L	4.0	102	10	90 - 110		36
QC Batch ID: B157026	Used client sample: N											
Dissolved Calcium	DUP	2229746-03	22.777	22.964		mg/L	0.8		20			37
	MS	2229746-03	22.777	31.505	10.204	mg/L		85.5		85 - 115		38
	MSD	2229746-03	22.777	31.629	10.204	mg/L	0.4	86.7	20	85 - 115		39

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B157026	Used client sample: N											
Dissolved Magnesium	DUP	2229746-03	11.074	11.351		mg/L	2.5		20			37
	MS	2229746-03	11.074	21.077	10.204	mg/L		98.0		85 - 115		38
	MSD	2229746-03	11.074	21.256	10.204	mg/L	0.8	99.8	20	85 - 115		39
Dissolved Sodium	DUP	2229746-03	30.233	29.596		mg/L	2.1		20			40
	MS	2229746-03	30.233	82.747	51.020	mg/L		103		85 - 115		41
	MSD	2229746-03	30.233	81.257	51.020	mg/L	1.8	100	20	85 - 115		42
Dissolved Potassium	DUP	2229746-03	6.2540	6.3494		mg/L	1.5		20			37
	MS	2229746-03	6.2540	15.901	10.204	mg/L		94.5		85 - 115		38
	MSD	2229746-03	6.2540	15.908	10.204	mg/L	0.0	94.6	20	85 - 115		39
QC Batch ID: B157159	Used client sample: N											
Chemical Oxygen Demand	DUP	2229015-01	13.462	11.538		mg O2/L	15.4		20		J	43
	MS	2229015-01	13.462	925.15	882.35	mg O2/L		103		80 - 120		44
	MSD	2229015-01	13.462	917.38	882.35	mg O2/L	0.8	102	20	80 - 120		45
QC Batch ID: B157498	Used client sample: N											
Ammonia as N	DUP	**2228919-04**	**0.15740**	**0.077500**		**mg/L**	**68.0**		**10**		**J,A02**	46
	MS	**2228919-04**	**0.15740**	**2.2736**	**2.0000**	**mg/L**		**106**		**90 - 110**		47
	MSD	**2228919-04**	**0.15740**	**2.3243**	**2.0000**	**mg/L**	**2.2**	**108**	**10**	**90 - 110**		48

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Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B155517-DUP1	DUP	SM-5540C	12/08/22	12/08/22 08:55	JMN	SPEC06	2
2	B155517-MS1	MS	SM-5540C	12/08/22	12/08/22 08:55	JMN	SPEC06	2
3	B155517-MSD1	MSD	SM-5540C	12/08/22	12/08/22 08:55	JMN	SPEC06	2
4	B155520-DUP1	DUP	EPA-300.0	12/08/22	12/08/22 17:50	SAV	IC1	1
5	B155520-MS1	MS	EPA-300.0	12/08/22	12/08/22 18:11	SAV	IC1	1.010
6	B155520-MSD1	MSD	EPA-300.0	12/08/22	12/08/22 18:32	SAV	IC1	1.010
7	B155592-DUP1	DUP	SM-2320B	12/09/22	12/09/22 15:56	RML	MET-1	2
8	B155592-DUP1	DUP	EPA-150.1	12/09/22	12/09/22 15:56	RML	MET-1	1
9	B155592-DUP1	DUP	EPA-120.1	12/09/22	12/09/22 15:56	RML	MET-1	1
10	B155593-DUP1	DUP	SM-2320B	12/09/22	12/09/22 17:32	RML	MET-1	1
11	B155593-DUP1	DUP	EPA-150.1	12/09/22	12/09/22 17:32	RML	MET-1	1
12	B155593-DUP1	DUP	EPA-120.1	12/09/22	12/09/22 17:32	RML	MET-1	1
13	B155673-DUP1	DUP	ASTM-D1498	12/09/22	12/09/22 10:15	RML	MET-1	1
14	B155686-DUP1	DUP	SM-4500-CLF	12/09/22	12/09/22 10:30	RML	MANUAL	1
15	B155706-DUP1	DUP	SM-4500SD	12/09/22	12/09/22 06:10	JT3	SPEC06	1
16	B155706-MS1	MS	SM-4500SD	12/09/22	12/09/22 06:10	JT3	SPEC06	1
17	B155706-MSD1	MSD	SM-4500SD	12/09/22	12/09/22 06:10	JT3	SPEC06	1
18	B155752-DUP1	DUP	SM-2120B	12/09/22	12/09/22 08:00	RML	MANUAL	1
19	B155785-DUP1	DUP	EPA-180.1	12/09/22	12/09/22 08:00	RML	MANUAL	1
20	B155795-DUP1	DUP	SM-2540C	12/12/22	12/12/22 10:30	CAD	MANUAL	5
21	B155976-DUP1	DUP	SM-2540D	12/14/22	12/14/22 12:50	TJV	MANUAL	2.500
22	B156029-DUP1	DUP	EPA-335.4	12/15/22	12/15/22 13:18	MC1	Konelab	1
23	B156029-MS1	MS	EPA-335.4	12/15/22	12/15/22 13:18	MC1	Konelab	1
24	B156029-MSD1	MSD	EPA-335.4	12/15/22	12/15/22 13:18	MC1	Konelab	1
25	B156038-DUP1	DUP	EPA-353.2	12/08/22	12/08/22 11:56	MC1	KONE-1	1
26	B156038-MS1	MS	EPA-353.2	12/08/22	12/08/22 11:56	MC1	KONE-1	1.053
27	B156038-MSD1	MSD	EPA-353.2	12/08/22	12/08/22 11:56	MC1	KONE-1	1.053
28	B156051-DUP1	DUP	SM-5310C	12/17/22	12/17/22 18:42	JAT	TOC3	1
29	B156051-MS1	MS	SM-5310C	12/17/22	12/17/22 19:03	JAT	TOC3	1.005
30	B156051-MSD1	MSD	SM-5310C	12/17/22	12/17/22 19:25	JAT	TOC3	1.005
31	B156066-DUP1	DUP	EPA-365.1	12/08/22	12/08/22 17:34	KB1	SC-1	1
32	B156066-MS1	MS	EPA-365.1	12/08/22	12/08/22 17:34	KB1	SC-1	1.053

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
33	B156066-MSD1	MSD	EPA-365.1	12/08/22	12/08/22 17:35	KB1	SC-1	1.053
34	B156576-DUP1	DUP	EPA-353.2	12/20/22	12/20/22 12:21	KB1	SC-1	1
35	B156576-MS1	MS	EPA-353.2	12/20/22	12/20/22 12:22	KB1	SC-1	1.053
36	B156576-MSD1	MSD	EPA-353.2	12/20/22	12/20/22 12:23	KB1	SC-1	1.053
37	B157026-DUP1	DUP	EPA-200.7	12/30/22	01/03/23 15:42	JRG	PE-OP4	1
38	B157026-MS1	MS	EPA-200.7	12/30/22	01/03/23 15:46	JRG	PE-OP4	1.020
39	B157026-MSD1	MSD	EPA-200.7	12/30/22	01/03/23 15:48	JRG	PE-OP4	1.020
40	B157026-DUP3	DUP	EPA-200.7	12/30/22	01/06/23 02:02	JRG	PE-OP4	5
41	B157026-MS3	MS	EPA-200.7	12/30/22	01/06/23 02:07	JRG	PE-OP4	5.102
42	B157026-MSD3	MSD	EPA-200.7	12/30/22	01/06/23 02:09	JRG	PE-OP4	5.102
43	B157159-DUP1	DUP	EPA-410.4	01/03/23	01/03/23 16:40	SPB	SPEC06	1
44	B157159-MS1	MS	EPA-410.4	01/03/23	01/03/23 16:40	SPB	SPEC06	1.176
45	B157159-MSD1	MSD	EPA-410.4	01/03/23	01/03/23 16:40	SPB	SPEC06	1.176
46	B157498-DUP1	DUP	Timberline-001	01/03/23	01/03/23 10:42	SPB	Timberline	1
47	B157498-MS1	MS	Timberline-001	01/03/23	01/03/23 10:44	SPB	Timberline	1
48	B157498-MSD1	MSD	Timberline-001	01/03/23	01/03/23 10:46	SPB	Timberline	1

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B155731							
Hexavalent Chromium	B155731-BLK1	ND	ug/L	0.20	0.020		1
QC Batch ID: B156239							
Dissolved Antimony	B156239-BLK1	ND	ug/L	2.0	0.23		2
Dissolved Arsenic	B156239-BLK1	ND	ug/L	2.0	0.38		2
Dissolved Barium	B156239-BLK1	ND	ug/L	1.0	0.066		2
Dissolved Cadmium	B156239-BLK1	ND	ug/L	1.0	0.034		2
Dissolved Chromium	B156239-BLK1	ND	ug/L	3.0	0.15		2
Dissolved Cobalt	B156239-BLK1	ND	ug/L	1.0	0.011		2
Dissolved Copper	B156239-BLK1	ND	ug/L	2.0	0.32		2
Dissolved Lead	B156239-BLK1	ND	ug/L	1.0	0.021		2
Dissolved Manganese	B156239-BLK1	ND	ug/L	1.0	0.040		2
Dissolved Molybdenum	B156239-BLK1	ND	ug/L	1.0	0.033		2
Dissolved Nickel	B156239-BLK1	ND	ug/L	2.0	0.15		2
Dissolved Selenium	B156239-BLK1	ND	ug/L	2.0	0.25		2
Dissolved Silver	B156239-BLK1	ND	ug/L	1.0	0.015		2
Dissolved Thallium	B156239-BLK1	ND	ug/L	1.0	0.025		2
Dissolved Uranium	**B156239-BLK1**	**0.086000**	**ug/L**	**1.0**	**0.051**	**J**	2
Dissolved Vanadium	B156239-BLK1	ND	ug/L	3.0	0.39		2
Dissolved Zinc	B156239-BLK1	ND	ug/L	5.0	2.2		2
QC Batch ID: B156488							
Dissolved Mercury	B156488-BLK1	ND	ug/L	0.20	0.022		3
QC Batch ID: B157026							
Dissolved Aluminum	B157026-BLK1	ND	ug/L	50	23		4
Dissolved Iron	B157026-BLK1	ND	ug/L	50	30		4
Dissolved Silicon as SiO2	B157026-BLK3	ND	ug/L	200	31		5
Dissolved Strontium	B157026-BLK1	ND	ug/L	10	1.0		4
QC Batch ID: B157273							
Total Recoverable Silica	B157273-BLK1	ND	ug/L	200	53		6

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/25/2023 9:16 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Nate Page

Metals Analysis

Quality Control Report - Method Blank Analysis

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B155731-BLK1	PB	EPA-218.6	12/09/22	12/10/22 08:38	RC1	IC-4	1
2	B156239-BLK1	PB	EPA-200.8	12/19/22	12/19/22 15:05	ARD	PE-EL4	1
3	B156488-BLK1	PB	EPA-245.1	12/21/22	12/21/22 12:16	TMT	CETAC3	1
4	B157026-BLK1	PB	EPA-200.7	12/30/22	01/03/23 15:35	JRG	PE-OP4	1
5	B157026-BLK3	PB	EPA-200.7	12/30/22	01/06/23 01:56	JRG	PE-OP4	1
6	B157273-BLK1	PB	EPA-200.7	01/04/23	01/05/23 13:29	JRG	PE-OP4	1

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/25/2023 9:16 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Nate Page

Metals Analysis

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B155731											
Hexavalent Chromium	B155731-BS1	LCS	19.141	20.000	ug/L	95.7		90 - 110			1
QC Batch ID: B156239											
Dissolved Antimony	B156239-BS1	LCS	40.059	40.000	ug/L	100		85 - 115			2
Dissolved Arsenic	B156239-BS1	LCS	99.318	100.00	ug/L	99.3		85 - 115			2
Dissolved Barium	B156239-BS1	LCS	40.134	40.000	ug/L	100		85 - 115			2
Dissolved Cadmium	B156239-BS1	LCS	40.597	40.000	ug/L	101		85 - 115			2
Dissolved Chromium	B156239-BS1	LCS	39.022	40.000	ug/L	97.6		85 - 115			2
Dissolved Cobalt	B156239-BS1	LCS	39.258	40.000	ug/L	98.1		85 - 115			2
Dissolved Copper	B156239-BS1	LCS	104.52	100.00	ug/L	105		85 - 115			2
Dissolved Lead	B156239-BS1	LCS	103.35	100.00	ug/L	103		85 - 115			2
Dissolved Manganese	B156239-BS1	LCS	98.745	100.00	ug/L	98.7		85 - 115			2
Dissolved Molybdenum	B156239-BS1	LCS	37.199	40.000	ug/L	93.0		85 - 115			2
Dissolved Nickel	B156239-BS1	LCS	100.17	100.00	ug/L	100		85 - 115			2
Dissolved Selenium	B156239-BS1	LCS	98.705	100.00	ug/L	98.7		85 - 115			2
Dissolved Silver	B156239-BS1	LCS	40.287	40.000	ug/L	101		85 - 115			2
Dissolved Thallium	B156239-BS1	LCS	39.392	40.000	ug/L	98.5		85 - 115			2
Dissolved Uranium	B156239-BS1	LCS	35.122	40.000	ug/L	87.8		85 - 115			2
Dissolved Vanadium	B156239-BS1	LCS	38.236	40.000	ug/L	95.6		85 - 115			2
Dissolved Zinc	B156239-BS1	LCS	102.54	100.00	ug/L	103		85 - 115			2
QC Batch ID: B156488											
Dissolved Mercury	B156488-BS1	LCS	0.99500	1.0000	ug/L	99.5		85 - 115			3
QC Batch ID: B157026											
Dissolved Aluminum	B157026-BS1	LCS	960.23	1000.0	ug/L	96.0		85 - 115			4
Dissolved Iron	B157026-BS1	LCS	986.65	1000.0	ug/L	98.7		85 - 115			4
Dissolved Silicon as SiO2	B157026-BS3	LCS	22380	21392	ug/L	105		85 - 115			5
Dissolved Strontium	B157026-BS1	LCS	506.31	500.00	ug/L	101		85 - 115			4
QC Batch ID: B157273											
Total Recoverable Silica	B157273-BS1	LCS	20593	21392	ug/L	96.3		85 - 115			6

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/25/2023 9:16 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Nate Page

Metals Analysis

Quality Control Report - Laboratory Control Sample

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B155731-BS1	LCS	EPA-218.6	12/09/22	12/10/22 08:47	RC1	IC-4	1
2	B156239-BS1	LCS	EPA-200.8	12/19/22	12/19/22 14:30	ARD	PE-EL4	1
3	B156488-BS1	LCS	EPA-245.1	12/21/22	12/21/22 12:22	TMT	CETAC3	1
4	B157026-BS1	LCS	EPA-200.7	12/30/22	01/03/23 15:37	JRG	PE-OP4	1
5	B157026-BS3	LCS	EPA-200.7	12/30/22	01/06/23 01:58	JRG	PE-OP4	1
6	B157273-BS1	LCS	EPA-200.7	01/04/23	01/05/23 13:32	JRG	PE-OP4	1

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B155731	Used client sample: N											
Hexavalent Chromium	DUP	2228844-01	0.027000	ND		ug/L			10			1
	MS	2228844-01	0.027000	19.517	20.202	ug/L		96.5		90 - 110		2
	MSD	2228844-01	0.027000	19.488	20.202	ug/L	0.2	96.3	10	90 - 110		3
QC Batch ID: B156239	Used client sample: Y - Description: Pilot Inj Source, 12/07/2022 10:45											
Dissolved Antimony	DUP	2228971-01	ND	ND		ug/L			20			4
	MS	2228971-01	ND	42.465	40.816	ug/L		104		70 - 130		5
	MSD	2228971-01	ND	43.800	40.816	ug/L	3.1	107	20	70 - 130		6
Dissolved Arsenic	DUP	2228971-01	1.0350	0.97700		ug/L	5.8		20		J	4
	MS	2228971-01	1.0350	118.02	102.04	ug/L		115		70 - 130		5
	MSD	2228971-01	1.0350	120.02	102.04	ug/L	1.7	117	20	70 - 130		6
Dissolved Barium	DUP	2228971-01	79.989	77.899		ug/L	2.6		20			4
	MS	2228971-01	79.989	123.95	40.816	ug/L		108		70 - 130		5
	MSD	2228971-01	79.989	124.99	40.816	ug/L	0.8	110	20	70 - 130		6
Dissolved Cadmium	DUP	2228971-01	0.13200	0.13100		ug/L	0.8		20		J	4
	MS	2228971-01	0.13200	43.666	40.816	ug/L		107		70 - 130		5
	MSD	2228971-01	0.13200	43.965	40.816	ug/L	0.7	107	20	70 - 130		6
Dissolved Chromium	DUP	2228971-01	ND	ND		ug/L			20			4
	MS	2228971-01	ND	38.349	40.816	ug/L		94.0		70 - 130		5
	MSD	2228971-01	ND	37.787	40.816	ug/L	1.5	92.6	20	70 - 130		6
Dissolved Cobalt	DUP	2228971-01	0.33100	0.30300		ug/L	8.8		20		J	4
	MS	2228971-01	0.33100	38.309	40.816	ug/L		93.0		70 - 130		5
	MSD	2228971-01	0.33100	36.888	40.816	ug/L	3.8	89.6	20	70 - 130		6
Dissolved Copper	DUP	2228971-01	1.7470	1.8300		ug/L	4.6		20		J	4
	MS	2228971-01	1.7470	103.06	102.04	ug/L		99.3		70 - 130		5
	MSD	2228971-01	1.7470	107.40	102.04	ug/L	4.1	104	20	70 - 130		6
Dissolved Lead	DUP	**2228971-01**	**0.91300**	**0.74200**		**ug/L**	**20.7**		**20**		**J,A02**	4
	MS	**2228971-01**	**0.91300**	**104.57**	**102.04**	**ug/L**		**102**		**70 - 130**		5
	MSD	**2228971-01**	**0.91300**	**111.64**	**102.04**	**ug/L**	**6.5**	**109**	**20**	**70 - 130**		6
Dissolved Manganese	DUP	2228971-01	769.99	768.81		ug/L	0.2		20			4
	MS	2228971-01	769.99	863.88	102.04	ug/L		92.0		70 - 130		5
	MSD	2228971-01	769.99	847.54	102.04	ug/L	1.9	76.0	20	70 - 130		6
Dissolved Molybdenum	DUP	2228971-01	2.3030	2.2840		ug/L	0.8		20			4
	MS	2228971-01	2.3030	44.284	40.816	ug/L		103		70 - 130		5
	MSD	2228971-01	2.3030	44.376	40.816	ug/L	0.2	103	20	70 - 130		6
Dissolved Nickel	DUP	2228971-01	2.1360	2.1140		ug/L	1.0		20			4
	MS	2228971-01	2.1360	94.650	102.04	ug/L		90.7		70 - 130		5
	MSD	2228971-01	2.1360	93.182	102.04	ug/L	1.6	89.2	20	70 - 130		6

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/25/2023 9:16 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Nate Page

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B156239	Used client sample: Y - Description: Pilot Inj Source, 12/07/2022 10:45											
Dissolved Selenium	DUP	2228971-01	2.4600	2.5240		ug/L	2.6		20			4
	MS	2228971-01	2.4600	128.85	102.04	ug/L		124		70 - 130		5
	MSD	2228971-01	2.4600	130.89	102.04	ug/L	1.6	126	20	70 - 130		6
Dissolved Silver	DUP	2228971-01	ND	ND		ug/L			20			4
	MS	2228971-01	ND	40.068	40.816	ug/L		98.2		70 - 130		5
	MSD	2228971-01	ND	39.871	40.816	ug/L	0.5	97.7	20	70 - 130		6
Dissolved Thallium	DUP	2228971-01	ND	ND		ug/L			20			4
	MS	2228971-01	ND	39.233	40.816	ug/L		96.1		70 - 130		5
	MSD	2228971-01	ND	39.820	40.816	ug/L	1.5	97.6	20	70 - 130		6
Dissolved Uranium	DUP	2228971-01	0.32100	0.32500		ug/L	1.2		20		J	4
	MS	2228971-01	0.32100	40.474	40.816	ug/L		98.4		70 - 130		5
	MSD	2228971-01	0.32100	41.553	40.816	ug/L	2.6	101	20	70 - 130		6
Dissolved Vanadium	DUP	2228971-01	2.6820	2.4660		ug/L	8.4		20		J	4
	MS	2228971-01	2.6820	41.953	40.816	ug/L		96.2		70 - 130		5
	MSD	2228971-01	2.6820	42.469	40.816	ug/L	1.2	97.5	20	70 - 130		6
Dissolved Zinc	DUP	2228971-01	3.3240	3.4330		ug/L	3.2		20		J	4
	MS	2228971-01	3.3240	118.12	102.04	ug/L		113		70 - 130		5
	MSD	2228971-01	3.3240	119.81	102.04	ug/L	1.4	114	20	70 - 130		6
QC Batch ID: B156488	Used client sample: N											
Dissolved Mercury	DUP	2229921-01	ND	ND		ug/L			20			7
	MS	2229921-01	ND	1.0925	1.0000	ug/L		109		70 - 130		8
	MSD	2229921-01	ND	1.0900	1.0000	ug/L	0.2	109	20	70 - 130		9
QC Batch ID: B157026	Used client sample: N											
Dissolved Aluminum	DUP	2229746-03	ND	ND		ug/L			20			10
	MS	2229746-03	ND	1008.2	1020.4	ug/L		98.8		85 - 115		11
	MSD	2229746-03	ND	1017.8	1020.4	ug/L	0.9	99.7	20	85 - 115		12
Dissolved Iron	DUP	2229746-03	ND	ND		ug/L			20			10
	MS	2229746-03	ND	1052.8	1020.4	ug/L		103		85 - 115		11
	MSD	2229746-03	ND	1071.2	1020.4	ug/L	1.7	105	20	85 - 115		12
Dissolved Silicon as SiO2	DUP	2229746-03	80563	79019		ug/L	1.9		20			13
	MS	2229746-03	80563	183400	109140	ug/L		94.2		85 - 115		14
	MSD	2229746-03	80563	181540	109140	ug/L	1.0	92.5	20	85 - 115		15
Dissolved Strontium	DUP	2229746-03	301.65	301.95		ug/L	0.1		20			10
	MS	2229746-03	301.65	811.24	510.20	ug/L		99.9		85 - 115		11
	MSD	2229746-03	301.65	804.10	510.20	ug/L	0.9	98.5	20	85 - 115		12
QC Batch ID: B157273	Used client sample: N											

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/25/2023 9:16
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B157273	Used client sample: N											
Total Recoverable Silica	DUP	2230211-03	26077	25762		ug/L	1.2		20			16
	MS	2230211-03	26077	46430	21392	ug/L		95.1		75 - 125		17
	MSD	2230211-03	26077	45906	21392	ug/L	1.1	92.7	20	75 - 125		18

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B155731-DUP1	DUP	EPA-218.6	12/09/22	12/10/22 09:07	RC1	IC-4	1
2	B155731-MS1	MS	EPA-218.6	12/09/22	12/10/22 11:11	RC1	IC-4	1.010
3	B155731-MSD1	MSD	EPA-218.6	12/09/22	12/10/22 11:21	RC1	IC-4	1.010
4	B156239-DUP1	DUP	EPA-200.8	12/19/22	12/19/22 15:33	ARD	PE-EL4	1
5	B156239-MS1	MS	EPA-200.8	12/19/22	12/19/22 14:32	ARD	PE-EL4	1.020
6	B156239-MSD1	MSD	EPA-200.8	12/19/22	12/19/22 14:34	ARD	PE-EL4	1.020
7	B156488-DUP1	DUP	EPA-245.1	12/21/22	12/21/22 12:26	TMT	CETAC3	1
8	B156488-MS1	MS	EPA-245.1	12/21/22	12/21/22 12:28	TMT	CETAC3	1
9	B156488-MSD1	MSD	EPA-245.1	12/21/22	12/21/22 12:30	TMT	CETAC3	1
10	B157026-DUP1	DUP	EPA-200.7	12/30/22	01/03/23 15:42	JRG	PE-OP4	1
11	B157026-MS1	MS	EPA-200.7	12/30/22	01/03/23 15:46	JRG	PE-OP4	1.020
12	B157026-MSD1	MSD	EPA-200.7	12/30/22	01/03/23 15:48	JRG	PE-OP4	1.020
13	B157026-DUP3	DUP	EPA-200.7	12/30/22	01/06/23 02:02	JRG	PE-OP4	5
14	B157026-MS3	MS	EPA-200.7	12/30/22	01/06/23 02:07	JRG	PE-OP4	5.102
15	B157026-MSD3	MSD	EPA-200.7	12/30/22	01/06/23 02:09	JRG	PE-OP4	5.102
16	B157273-DUP1	DUP	EPA-200.7	01/04/23	01/05/23 13:36	JRG	PE-OP4	1
17	B157273-MS1	MS	EPA-200.7	01/04/23	01/05/23 13:41	JRG	PE-OP4	1
18	B157273-MSD1	MSD	EPA-200.7	01/04/23	01/05/23 13:43	JRG	PE-OP4	1

BSK ASSOCIATES

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)

AFL2754
1/06/2023
Invoice: AG00416

Ragen Williams
Pace Analytical (Bakersfield, CA)
4100 Atlas Court
Bakersfield, CA 93308

RE: Report for AFL2754 General: Project Manager-Ragen Williams

Dear Ragen Williams,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 12/20/2022. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2016 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Sarah K. Guenther , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Sarah Guenther

Sarah K. Guenther, Project Manager

NELAP ACCREDITED TNI LABORATORY

Accredited in Accordance with NELAP
ORELAP #4021

BSK ASSOCIATES

AFL2754

General: Project Manager-Ragen Williams

Case Narrative

Project and Report Details		Invoice Details	
Client:	Pace Analytical (Bakersfield, CA)	**Invoice To:**	Pace Analytical (Bakersfield, CA)
Report To:	Ragen Williams	**Invoice Attn:**	Invoicing
Project #:	2228971	**Project PO#:**	2228971
Received:	12/20/2022 - 11:30		
Report Due:	1/05/2023		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt °C: 0.2

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Other
Sample(s) were received in temperature range.
Sample(s) split after receipt at the laboratory.
Sample(s) preserved after receipt at lab.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

SC1.41 Sample was received without chemical preservation. Sample volume was split and preserved by the laboratory.

Report Distribution

Recipient(s)	Report Format	CC:
Ragen Williams	FINAL.RPT	

AFL2754

General: Project Manager-Ragen Williams
2228971

Certificate of Analysis

Sample ID: AFL2754-01
Sampled By: Client
Sample Description: 2228971-01 // Pilot Inj Source

Sample Date - Time: 12/07/2022 - 10:45
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Bromate	EPA 317.0	ND	1.0	ug/L	1	AFL1957	01/04/23	01/04/23	SC1.41

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Beryllium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AFL1541	12/22/22	12/28/22	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AFL2754 FINAL 01062023 1412

BSK ASSOCIATES

AFL2754

General: Project Manager-Ragen Williams

2228971

Certificate of Analysis

Sample ID: AFL2754-02
Sampled By: Client
Sample Description: 2228971-02 // Zip-01

Sample Date - Time: 12/07/2022 - 11:15
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Bromate	EPA 317.0	ND	1.0	ug/L	1	AFL1957	01/04/23	01/04/23	SC1.41

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Beryllium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AFL1541	12/22/22	12/28/22	

BSK ASSOCIATES

AFL2754

General: Project Manager-Ragen Williams

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

EPA 317.0 - Quality Control

Batch: AFL1957
Prep Method: Method Specific Preparation

Prepared: 1/4/2023
Analyst: DXR

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AFL1957-BLK1)											
Bromate	ND	1.0	ug/L							01/04/23	
Blank Spike (AFL1957-BS1)											
Bromate	9.5	1.0	ug/L	10	ND	95	85-115			01/04/23	
Blank Spike Dup (AFL1957-BSD1)											
Bromate	9.5	1.0	ug/L	10	ND	95	85-115	0	10	01/04/23	
Matrix Spike (AFL1957-MS1), Source: AFL2990-01											
Bromate	8.8	1.0	ug/L	10	ND	82	75-125			01/04/23	
Matrix Spike Dup (AFL1957-MSD1), Source: AFL2990-01											
Bromate	8.9	1.0	ug/L	10	ND	83	75-125	1	10	01/04/23	

BSK ASSOCIATES

AFL2754

General: Project Manager-Ragen Williams

BSK Associates Laboratory Fresno

Metals Quality Control Report

EPA 200.8 - Quality Control

Batch: AFL1541 Prepared: 12/22/2022
Prep Method: Filtration - Metals Analyst: CEG

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AFL1541-BLK1)											
Beryllium - Dissolved (1)	ND	1.0	ug/L							12/28/22	
Blank Spike (AFL1541-BS1)											
Beryllium - Dissolved (1)	190	1.0	ug/L	200	ND	97	85-115			12/28/22	
Blank Spike Dup (AFL1541-BSD1)											
Beryllium - Dissolved (1)	190	1.0	ug/L	200	ND	97	85-115	0	20	12/28/22	
Matrix Spike (AFL1541-MS1), Source: AFL2864-02											
Beryllium - Dissolved (1)	180	1.0	ug/L	200	ND	91	70-130			12/28/22	
Matrix Spike (AFL1541-MS2), Source: AFL2864-03											
Beryllium - Dissolved (1)	200	1.0	ug/L	200	ND	100	70-130			12/28/22	
Matrix Spike Dup (AFL1541-MSD1), Source: AFL2864-02											
Beryllium - Dissolved (1)	200	1.0	ug/L	200	ND	100	70-130	9	20	12/28/22	
Matrix Spike Dup (AFL1541-MSD2), Source: AFL2864-03											
Beryllium - Dissolved (1)	200	1.0	ug/L	200	ND	101	70-130	1	20	12/28/22	

ASSOCIATES

AFL2754

General: Project Manager-Ragen Williams

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Unless otherwise noted, TOC results by SM 5310C method do not include purgeable organic carbon, which is removed along with the inorganic carbon interference. The POC contribution to TOC is considered to be negligible.

BSK ASSOCIATES

AFL2754

General: Project Manager-Ragen Williams

Certificate of Analysis

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

The following parameters are calculated values and are outside the scope of our NELAP accreditation:

Total Nitrogen   Aggressive Index   Trivalent Chromium

BSK is not accredited under the NELAP program for the following additional parameters: **NA**

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AFL2754 FINAL 01062023 1412

Certifications: Please refer to our website for a copy of our Accredited Fields of Testing under each certification.

Fresno

State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-019
State of Nevada	CA000792022-1	State of Oregon - NELAP	4021-019
EPA UCMR5	CA00079	State of Washington	C997-22a

Sacramento

State of California - ELAP	1180-S1

San Bernardino

State of California - ELAP	2993	Los Angeles CSD	9254478
NELAP certified	4119-007	State of Oregon - NELAP	4119-007

Vancouver

NELAP certified	WA100008-015	State of Oregon - NELAP	WA100008-015
State of Washington	C824-22		

AFL2754 BCLab4911 12/20/2022

BSK Associates SR-FL-0002-23

Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TTHM/TCP)? TB Received? (Check Method Below)	Yes No NA / Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received (— means preservation/chlorine checks are either N/A or are performed in the lab)

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?	1-2					
Bacti $Na_2S_2O_3$	—	—						
None (P) White Cap	—	—	1B					
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 DW	Cl, pH > 8	P F						
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 WW	pH 9.3-9.7	P F						
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F						
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—	1A					
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F						
NaOH (P) Green Cap	Cl, pH >10	P F						
NaOH + ZnAc (P)	pH > 9	P F						
Dissolved Oxygen 300ml (g)	—	—						
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—						
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—						VCH
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—						12-20-22
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—						
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—						
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—						
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—						
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F						
NH_4Cl (AG) Purple Label 552	—	—						
EDA (P) or (AG) Brown Label DBPs	—	—	1A					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—						
Buffer pH 4 (CG)	—	—						
H_3PO_4 (CG) Salmon Label	—	—						
Trizma – EPA 537.1 - **Field Blank Required**								
Other:								
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—						
Bottled Water	—	—						
Clear Glass	—	—						
Solids: Brass / Steel / Plastic Bag	—	—						

Split

	Container	Preservative	Lot #	Initials	Date/Time	Preservation Check
S P	1A(AG)	EDA	A1222047	VCH	12/20 11:30	pH Lot #
S P						Cl Lot #

Comments

*Preservation check completed by lab performing analysis.

✓ **Indicates Blanks Received**

504 ___ 524.2 ___ TTHM ___ 537.1 ___ TCP___

✓ **MS/MSD Received Method:** ________

Scanned: [signature] Rush/Short HT Page: ________Time:______

Page 10 of 11

T2

0.2 #75
FX-W#

SUBCONTRACT ORDER
Pace Analytical (Bakersfield,
2228971

AFL2754 BCLab4911 12/20/2022
10

SENDING LABORATORY:
Pace Analytical
4100 Atlas Court
Bakersfield, CA 93308
Phone: 661-327-4911
FAX: 661-327-1918
Project Manager: Ragen Schallock

RECEIVING LABORATORY: BSKSA
BSK Analytical Labs- Fresno
1414 Stanislaus Street
Fresno, CA 93706
Phone: (800) 877-8310
FAX: (559) 485-6935

DOD: No Level 4: No EDDs Needed:

Analysis	Due	Expires	Comments
EPA 317.0 - Bromate	12/28/22 23:59	01/04/23 10:45	
EPA 200.8 - Dissolved Beryllium	12/28/22 23:59	06/06/23 10:45	

CA Drinking Water PSCode
GeoTracker - Global ID: Field Point: Log Code: ---
Sample ID: 2228971-01 **Water** **Sampled: 12/07/22 10:45** **Sample Name:** Pilot Inj Source

Containers supplied:
X40: Plastic 250 ml (8 oz) X48: Plastic 1000 ml (quart)

Analysis	Due	Expires	Comments
EPA 317.0 - Bromate	12/28/22 23:59	01/04/23 11:15	
EPA 200.8 - Dissolved Beryllium	12/28/22 23:59	06/06/23 11:15	

CA Drinking Water PSCode
GeoTracker - Global ID: Field Point: Log Code: ---
Sample ID: 2228971-02 **Water** **Sampled: 12/07/22 11:15** **Sample Name:** ZIP-01

Containers supplied:
X40: Plastic 250 ml (8 oz) X48: Plastic 1000 ml (quart)

VCH 12-20-22

Released By	Date	Received By	Date
[signature]	12-19-22	[signature] Ventura	12-20-22 11:30
Released By	Date	Received By	Date

BSKSA Printed 12/9/2022 3:17:21PM Page 11 of 11

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)

AGA1372
1/24/2023
Invoice: AG01798

Ragen Williams
Pace Analytical (Bakersfield, CA)
4100 Atlas Court
Bakersfield, CA 93308

RE: Report for AGA1372 General: Project Manager-Ragen Williams

Dear Ragen Williams,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 1/11/2023. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2016 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Sarah K. Guenther , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Sarah Guenther

Sarah K. Guenther, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AGA1372 FINAL 01242023 1240

BSK ASSOCIATES

AGA1372

General: Project Manager-Ragen Williams

Case Narrative

Project and Report Details		Invoice Details	
Client:	Pace Analytical (Bakersfield, CA)	**Invoice To:**	Pace Analytical (Bakersfield, CA)
Report To:	Ragen Williams	**Invoice Attn:**	Invoicing
Project #:	2228971	**Project PO#:**	-
Received:	1/11/2023 - 12:15		
Report Due:	1/25/2023		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt °C: 0.2

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Bubble Wrap
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

HT1.0	Holding time exceeded. Sample was received at the lab past holding time.
MS1.0	Matrix spike recoveries exceed control limits.
MS1.1	Matrix spike recovery exceeds upper control limit. Reported results for parent matrix should be considered estimated due to matrix interferences.

Report Distribution

Recipient(s)	Report Format	CC:
Ragen Williams	FINAL.RPT	

AGA1372

General: Project Manager-Ragen Williams
2228971

Certificate of Analysis

Sample ID: AGA1372-01
Sampled By: Client
Sample Description: 2228971-01

Sample Date - Time: 12/07/2022 - 10:45
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Total Organic Carbon	SM 5310C	2.3	0.20	mg/L	1	AGA1104	01/19/23	01/19/23	HT1.0, MS1.1

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AGA1372 FINAL 01242023 1240

BSK ASSOCIATES

AGA1372

General: Project Manager-Ragen Williams
2228971

Certificate of Analysis

Sample ID: AGA1372-02
Sampled By: Client
Sample Description: 2228971-02

Sample Date - Time: 12/07/2022 - 11:15
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Total Organic Carbon	SM 5310C	2.1	0.20	mg/L	1	AGA1104	01/20/23	01/20/23	HT1.0

BSK ASSOCIATES

AGA1372

General: Project Manager-Ragen Williams

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

SM 5310C - Quality Control

Batch: AGA1104
Prep Method: Method Specific Preparation

Prepared: 1/19/2023
Analyst: ERA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1104-BLK1)											
Total Organic Carbon	ND	0.20	mg/L							01/19/23	
Blank Spike (AGA1104-BS1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	104	80-120			01/19/23	
Blank Spike Dup (AGA1104-BSD1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	103	80-120	1	20	01/19/23	
Matrix Spike (AGA1104-MS1), Source: AGA1372-01											
Total Organic Carbon	13	0.20	mg/L	10	2.3	104	80-120			01/19/23	
Matrix Spike (AGA1104-MS2), Source: AGA1372-02											
Total Organic Carbon	13	0.20	mg/L	10	2.1	106	80-120			01/20/23	
Matrix Spike Dup (AGA1104-MSD1), Source: AGA1372-01											
Total Organic Carbon	18	0.20	mg/L	10	2.3	153	80-120	32	20	01/20/23	MS1.0 *High*
Matrix Spike Dup (AGA1104-MSD2), Source: AGA1372-02											
Total Organic Carbon	13	0.20	mg/L	10	2.1	108	80-120	1	20	01/20/23	

BSK ASSOCIATES

AGA1372

General: Project Manager-Ragen Williams

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Unless otherwise noted, TOC results by SM 5310C method do not include purgeable organic carbon, which is removed along with the inorganic carbon interference. The POC contribution to TOC is considered to be negligible.

BSK ASSOCIATES

AGA1372

General: Project Manager-Ragen Williams

Certificate of Analysis

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

The following parameters are calculated values and are outside the scope of our NELAP accreditation:

Total Nitrogen Aggressive Index Trivalent Chromium

BSK is not accredited under the NELAP program for the following additional parameters: **NA**

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AGA1372 FINAL 01242023 1240

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

Fresno

State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-019
State of Nevada	CA000792022-1	State of Oregon - NELAP	4021-019
EPA UCMR5	CA00079	State of Washington	C997-22a

Sacramento

State of California - ELAP	1180-S1		

San Bernardino

State of California - ELAP	1180-S2	Los Angeles CSD	9254478
NELAP certified	4119-007	State of Oregon - NELAP	4119-007

Vancouver

NELAP certified	WA100008-015	State of Oregon - NELAP	WA100008-015
State of Washington	C824-22		

BSK Associates SR-FL-0002-24

AGA1372 BCLab4911 01/10/2023

10

Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TTHM/TCP)? TB Received? (Check Method Below)	Yes No NA / Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received — "—" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?	1-2					
Bacti $Na_2S_2O_3$	—	—						
None (P) White Cap	—	—						
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	P F						
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	P F						
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F						
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—						
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F	1A					
NaOH (P) Green Cap	Cl, pH >10	P F						
NaOH + ZnAc (P)	pH > 9	P F				VCH		
Dissolved Oxygen 300ml (g)	—	—				1-11-23		
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—						
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—						
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—						
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—						
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—						
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—						
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—						
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F						
NH_4Cl (AG) Purple Label 552	—	—						
EDA (P) or (AG) Brown Label DBPs	—	—						
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—						
Buffer pH 4 (CG)	—	—						
H_3PO_4 (CG) Salmon Label	—	—						
Trizma – EPA 537.1 Light Blue Label FB	—	—						
Ammonia Acetate - EPA 533 Purple Label FB	—	—						
Bottled Water	—	—						
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—						
Clear Glass	—	—						
OTHER:	—	—						

Split

	Container	Preservative	Lot #	Initials	Date/Time	Preservation Check
S P						pH Lot #
S P						Cl Lot #

Comments

*Preservation check completed by lab performing analysis.

✓ Indicates Blanks Received

504 ___ 524.2 ___ TTHM ___ 537/533 ___ TCP___

✓ MS/MSD Received Method: ________

Labeled by: Labels Checked by:

Scanned: ________ Rush/Short HT Page: ________ Time:_______

Page 9 of 10

T2

0.2#75
FX
VCO

SUBCONTRACT ORDER AGA1372 BCLab4911 01/10/2023

Pace Analytical Labs - Bakersfield, C.

2228971

10

SENDING LABORATORY:

Pace Analytical Labs
4100 Atlas Ct
Bakersfield, CA 93308
Phone: 661-327-4911
Fax: 661-327-1918
Project Manager: Ragen Schallock

RECEIVING LABORATORY:

BSK Analytical Labs- Fresno SBSKSA-EINV
1414 Stanislaus Street
Fresno, CA 93706
Phone :(800) 877-8310
Fax: (559) 485-6935

Analysis	Due	Expires	Laboratory ID	Comments
				OK past hold
Sample ID: 2228971-01	**Water**	**Sampled:12/07/22 10:45**		
iSM5310Cw NVOC as TOC	12/28/22 23:59	01/04/23 10:45		
~~oi317.0w Bromate BSKSA~~	~~12/28/22 23:59~~	~~01/04/23 10:45~~		
~~om200.8wb Diss Beryllium BSKSA~~	~~12/28/22 23:59~~	~~06/06/23 10:45~~		
Containers Supplied:				
Sample ID: 2228971-02	**Water**	**Sampled:12/07/22 11:15**		
iSM5310Cw NVOC as TOC	12/28/22 23:59	01/04/23 11:15		
~~oi317.0w Bromate BSKSA~~	~~12/28/22 23:59~~	~~01/04/23 11:15~~		
~~om200.8wb Diss Beryllium BSKSA~~	~~12/28/22 23:59~~	~~06/06/23 11:15~~		
Containers Supplied:				

VCR 1-11-23

Released By	Date	Received By	Date
Smnguez	1-10-23	Veronih	1-11-23 12:15
Released By	Date	Received By	Date

1-9

Page 1 of 1

Page 10 of 10

LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322224948
Customer ID: BCLA50
Customer PO:
Project ID:

Attn: Ragen Schallock
Pace Analytical Services, LLC
4100 Atlas Court
Bakersfield, CA 93308

Phone: (661) 327-4911
Fax: (661) 327-1918
Received: 12/13/2022
Analyzed: 12/22/2022

Proj: 2228971

Test Report: Determination of Asbestos Structures >10µm in Drinking Water Performed by the 100.2 Method (EPA 600/R-94/134)

					ASBESTOS				
Sample ID Client / EMSL	*Sample Filtration Date/Time*	*Original Sample Vol. Filtered (ml)*	*Effective Filter Area (mm^2)*	*Area Analyzed (mm^2)*	*Asbestos Types*	*Fibers Detected*	*Analytical Sensitivity*	*Concentration*	*Confidence Limits*
							MFL (million fibers per liter)		
2228971-01 322224948-0001	12/16/2022 04:50 PM	1	1288	0.2580	None Detected	ND	5.00	<5.00	0.00 - 18.00
Collection Date/Time:	*12/07/2022 10:45 AM*								
Due to excessive particulate the analytical sensitivity of 0.2 MFL as required by the method was not reached.									
2228971-02 322224948-0002	12/16/2022 04:50 PM	100	1288	0.0645	None Detected	ND	0.20	<0.20	0.00 - 0.74
Collection Date/Time:	*12/07/2022 11:15 AM*								

Samples ozonated prior to analysis due to lab receipt time exceeding 48 hour method hold time.

Analyst(s)
Kyeong Corbin (2)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 12/27/2022 07:41:29

Samples analyzed by LA Testing South Pasadena, CA CA ELAP 2283

GSI Water Solutions, Inc.	**Reported:** 01/25/2023 9:16
5855 Capistran Avenue, Suite C	Project: Morro Bay Injection
Atascadero, CA 93422	Project Number: 645.007
	Project Manager: Nate Page

Notes And Definitions

J	Estimated Value (CLP Flag)
MDL	Method Detection Limit
ND	Analyte Not Detected
PQL	Practical Quantitation Limit
A02	The difference between duplicate readings is less than the quantitation limit.
A10	Detection and quantitation limits were raised due to matrix interference.
Q03	Matrix spike recovery(s) was(were) not within the control limits.
S05	The sample holding time was exceeded.
S09	The surrogate recovery for this compound was not within the control limits.

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)

AFL2754
1/06/2023
Invoice: AG00416

Ragen Williams
Pace Analytical (Bakersfield, CA)
4100 Atlas Court
Bakersfield, CA 93308

RE: Report for AFL2754 General: Project Manager-Ragen Williams

Dear Ragen Williams,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 12/20/2022. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2016 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Sarah K. Guenther , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Sarah Guenther

Sarah K. Guenther, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021

ASSOCIATES

Case Narrative

Project and Report Details		Invoice Details	
Client:	Pace Analytical (Bakersfield, CA)	**Invoice To:**	Pace Analytical (Bakersfield, CA)
Report To:	Ragen Williams	**Invoice Attn:**	Invoicing
Project #:	2228971	**Project PO#:**	2228971
Received:	12/20/2022 - 11:30		
Report Due:	1/05/2023		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt °C: 0.2

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Other
Sample(s) were received in temperature range.
Sample(s) split after receipt at the laboratory.
Sample(s) preserved after receipt at lab.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

SC1.41 Sample was received without chemical preservation. Sample volume was split and preserved by the laboratory.

Report Distribution

Recipient(s)	Report Format	CC:
Ragen Williams	FINAL.RPT	

ASSOCIATES

Certificate of Analysis

Sample ID: AFL2754-01
Sampled By: Client
Sample Description: 2228971-01 // Pilot Inj Source

Sample Date - Time: 12/07/2022 - 10:45
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Bromate	EPA 317.0	ND	1.0	ug/L	1	AFL1957	01/04/23	01/04/23	SC1.41

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Beryllium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AFL1541	12/22/22	12/28/22	

Certificate of Analysis

Sample ID: AFL2754-02
Sampled By: Client
Sample Description: 2228971-02 // Zip-01

Sample Date - Time: 12/07/2022 - 11:15
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Bromate	EPA 317.0	ND	1.0	ug/L	1	AFL1957	01/04/23	01/04/23	SC1.41

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Beryllium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AFL1541	12/22/22	12/28/22	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 317.0 - Quality Control

Batch: AFL1957 Prepared: 1/4/2023

Prep Method: Method Specific Preparation Analyst: DXR

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AFL1957-BLK1)											
Bromate	ND	1.0	ug/L							01/04/23	
Blank Spike (AFL1957-BS1)											
Bromate	9.5	1.0	ug/L	10	ND	95	85-115			01/04/23	
Blank Spike Dup (AFL1957-BSD1)											
Bromate	9.5	1.0	ug/L	10	ND	95	85-115	0	10	01/04/23	
Matrix Spike (AFL1957-MS1), Source: AFL2990-01											
Bromate	8.8	1.0	ug/L	10	ND	82	75-125			01/04/23	
Matrix Spike Dup (AFL1957-MSD1), Source: AFL2990-01											
Bromate	8.9	1.0	ug/L	10	ND	83	75-125	1	10	01/04/23	

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 200.8 - Quality Control

Batch: AFL1541 — Prepared: 12/22/2022

Prep Method: Filtration - Metals — Analyst: CEG

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AFL1541-BLK1)											
Beryllium - Dissolved (1)	ND	1.0	ug/L							12/28/22	
Blank Spike (AFL1541-BS1)											
Beryllium - Dissolved (1)	190	1.0	ug/L	200	ND	97	85-115			12/28/22	
Blank Spike Dup (AFL1541-BSD1)											
Beryllium - Dissolved (1)	190	1.0	ug/L	200	ND	97	85-115	0	20	12/28/22	
Matrix Spike (AFL1541-MS1), Source: AFL2864-02											
Beryllium - Dissolved (1)	180	1.0	ug/L	200	ND	91	70-130			12/28/22	
Matrix Spike (AFL1541-MS2), Source: AFL2864-03											
Beryllium - Dissolved (1)	200	1.0	ug/L	200	ND	100	70-130			12/28/22	
Matrix Spike Dup (AFL1541-MSD1), Source: AFL2864-02											
Beryllium - Dissolved (1)	200	1.0	ug/L	200	ND	100	70-130	9	20	12/28/22	
Matrix Spike Dup (AFL1541-MSD2), Source: AFL2864-03											
Beryllium - Dissolved (1)	200	1.0	ug/L	200	ND	101	70-130	1	20	12/28/22	

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.
- Unless otherwise noted, TOC results by SM 5310C method do not include purgeable organic carbon, which is removed along with the inorganic carbon interference. The POC contribution to TOC is considered to be negligible.

ASSOCIATES

Certificate of Analysis

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

The following parameters are calculated values and are outside the scope of our NELAP accreditation:

Total Nitrogen   Aggressive Index   Trivalent Chromium

BSK is not accredited under the NELAP program for the following additional parameters: **NA**

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

Fresno

State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-019
State of Nevada	CA000792022-1	State of Oregon - NELAP	4021-019
EPA UCMR5	CA00079	State of Washington	C997-22a

Sacramento

State of California - ELAP	1180-S1		

San Bernardino

State of California - ELAP	2993	Los Angeles CSD	9254478
NELAP certified	4119-007	State of Oregon - NELAP	4119-007

Vancouver

NELAP certified	WA100008-015	State of Oregon - NELAP	WA100008-015
State of Washington	C824-22		

BSK Associates SR-FL-0002-23

Sample Integrity

BSK Bottles: Yes (No) Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	(Yes) No NA	Were correct containers and preservatives received for the tests requested?	Yes No (NA)
If samples were taken today, is there evidence that chilling has begun?	Yes No (NA)	Bubbles Present VOAs (524.2/TTHM/TCP)? TB Received? (Check Method Below)	Yes No (NA) / Yes No (NA)
Did all bottles arrive unbroken and intact?	(Yes) No	Was a sufficient amount of sample received?	(Yes) No
Did all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours?	Yes (No)
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes (NA)	Was PM notified of discrepancies? PM: By/Time:	Yes No (NA)

Bottles Received (means preservation/chlorine checks are either N/A or are performed in the lab)

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?	1-2				
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—	1B				
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 DW	Cl, pH > 8	P F					
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—	1A				
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	P F					
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—					VCH
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					12-20-22
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—					
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F					
NH_4Cl (AG) Purple Label 552	—	—					
EDA (P) or (AG) Brown Label DBPs	—	—	1A				
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—					
Buffer pH 4 (CG)	—						
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1 - Field Blank Required							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—					
Bottled Water	—	—					
Clear Glass	—	—					
Solids: Brass / Steel / Plastic Bag	—	—					

Split

	Container	Preservative	Lot #	Initials	Date/Time	Preservation Check
S (P)	1A(AG)	EDA	A122047	VCH	12/20/22 11:30	pH Lot #
S P						Cl Lot #

Comments

*Preservation check completed by lab performing analysis.

✓ **Indicates Blanks Received**

504 ___ 524.2 ___ TTHM ___ 537.1 ___ TCP___

✓ **MS/MSD Received Method:** ________

Scanned: [signature] Rush/Short HT Page: ________ Time: ______

T2

0.2 #75 Fx wt

SUBCONTRACT ORDER
Pace Analytical (Bakersfield,
2228971

AF12754 BCLab4911 12/20/2022

10

SENDING LABORATORY:

Pace Analytical
4100 Atlas Court
Bakersfield, CA 93308
Phone: 661-327-4911
FAX: 661-327-1918
Project Manager: Ragen Schallock

RECEIVING LABORATORY: **BSKSA**

BSK Analytical Labs- Fresno
1414 Stanislaus Street
Fresno, CA 93706
Phone: (800) 877-8310
FAX: (559) 485-6935

DOD: No | **Level 4:** No | **EDDs Needed:**

Analysis	Due	Expires	Comments
EPA 317.0 - Bromate	12/28/22 23:59	01/04/23 10:45	
EPA 200.8 - Dissolved Beryllium	12/28/22 23:59	06/06/23 10:45	

CA Drinking Water PSCode

GeoTracker - Global ID: Field Point: Log Code: ---

Sample ID: 2228971-01 **Water** **Sampled: 12/07/22 10:45** **Sample Name:** Pilot Inj Source

Containers supplied:

X40: Plastic 250 ml (8 oz) X48: Plastic 1000 ml (quart)

Analysis	Due	Expires	Comments
EPA 317.0 - Bromate	12/28/22 23:59	01/04/23 11:15	
EPA 200.8 - Dissolved Beryllium	12/28/22 23:59	06/06/23 11:15	

CA Drinking Water PSCode

GeoTracker - Global ID: Field Point: Log Code: ---

Sample ID: 2228971-02 **Water** **Sampled: 12/07/22 11:15** **Sample Name:** ZIP-01

Containers supplied:

X40: Plastic 250 ml (8 oz) X48: Plastic 1000 ml (quart)

VCH 12-20-22

Released By	Date	Received By	Date
[signature]	12-19-22	Veronica	12-20-22 11:30
Released By	Date	Received By	Date

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)

AGA1372
1/24/2023
Invoice: AG01798

Ragen Williams
Pace Analytical (Bakersfield, CA)
4100 Atlas Court
Bakersfield, CA 93308

RE: Report for AGA1372 General: Project Manager-Ragen Williams

Dear Ragen Williams,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 1/11/2023. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2016 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Sarah K. Guenther , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Sarah Guenther

Sarah K. Guenther, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021

ASSOCIATES

Case Narrative

Project and Report Details		Invoice Details	
Client:	Pace Analytical (Bakersfield, CA)	Invoice To:	Pace Analytical (Bakersfield, CA)
Report To:	Ragen Williams	Invoice Attn:	Invoicing
Project #:	2228971	Project PO#:	-
Received:	1/11/2023 - 12:15		
Report Due:	1/25/2023		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt °C: 0.2

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Bubble Wrap
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

HT1.0 Holding time exceeded. Sample was received at the lab past holding time.
MS1.0 Matrix spike recoveries exceed control limits.
MS1.1 Matrix spike recovery exceeds upper control limit. Reported results for parent matrix should be considered estimated due to matrix interferences.

Report Distribution

Recipient(s)	Report Format	CC:
Ragen Williams	FINAL.RPT	

ASSOCIATES

Certificate of Analysis

Sample ID: AGA1372-01
Sampled By: Client
Sample Description: 2228971-01

Sample Date - Time: 12/07/2022 - 10:45
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Total Organic Carbon	SM 5310C	2.3	0.20	mg/L	1	AGA1104	01/19/23	01/19/23	HT1 0, MS1 1

Certificate of Analysis

Sample ID: AGA1372-02
Sampled By: Client
Sample Description: 2228971-02

Sample Date - Time: 12/07/2022 - 11:15
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Total Organic Carbon	SM 5310C	2.1	0.20	mg/L	1	AGA1104	01/20/23	01/20/23	HT1.0

ASSOCIATES

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
				SM 5310C - Quality Control							
Batch: AGA1104										Prepared: 1/19/2023	
Prep Method: Method Specific Preparation										Analyst: ERA	
Blank (AGA1104-BLK1)											
Total Organic Carbon	ND	0.20	mg/L							01/19/23	
Blank Spike (AGA1104-BS1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	104	80-120			01/19/23	
Blank Spike Dup (AGA1104-BSD1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	103	80-120	1	20	01/19/23	
Matrix Spike (AGA1104-MS1), Source: AGA1372-01											
Total Organic Carbon	13	0.20	mg/L	10	2.3	104	80-120			01/19/23	
Matrix Spike (AGA1104-MS2), Source: AGA1372-02											
Total Organic Carbon	13	0.20	mg/L	10	2.1	106	80-120			01/20/23	
Matrix Spike Dup (AGA1104-MSD1), Source: AGA1372-01											
Total Organic Carbon	18	0.20	mg/L	10	2.3	153	80-120	32	20	01/20/23	MS1.0 ***High***
Matrix Spike Dup (AGA1104-MSD2), Source: AGA1372-02											
Total Organic Carbon	13	0.20	mg/L	10	2.1	108	80-120	1	20	01/20/23	

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
  Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
  RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.
  Unless otherwise noted, TOC results by SM 5310C method do not include purgeable organic carbon, which is removed along with the inorganic carbon interference. The POC contribution to TOC is considered to be negligible.

Certificate of Analysis

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

The following parameters are calculated values and are outside the scope of our NELAP accreditation:

Total Nitrogen   Aggressive Index   Trivalent Chromium

BSK is not accredited under the NELAP program for the following additional parameters: **NA**

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

Fresno

State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-019
State of Nevada	CA000792022-1	State of Oregon - NELAP	4021-019
EPA UCMR5	CA00079	State of Washington	C997-22a

Sacramento

State of California - ELAP	1180-S1

San Bernardino

State of California - ELAP	1180-S2	Los Angeles CSD	9254478
NELAP certified	4119-007	State of Oregon - NELAP	4119-007

Vancouver

NELAP certified	WA100008-015	State of Oregon - NELAP	WA100008-015
State of Washington	C824-22		

AGA1372 BCLab4911 01/10/2023

10

Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TTHM/TCP)? TB Received? (Check Method Below)	Yes No NA / Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received — means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?	1-2				
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—					
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 DW	Cl, pH > 8	P F					
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—					
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F	1A				
NaOH (P) Green Cap	Cl, pH >10	P F					
NaOH + ZnAc (P)	pH > 9	P F				VCH	
Dissolved Oxygen 300ml (g)	—	—				1-11-23	
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—					
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—					
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F					
NH_4Cl (AG) Purple Label 552	—	—					
EDA (P) or (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—					
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1 Light Blue Label FB	—	—					
Ammonia Acetate - EPA 533 Purple Label FB	—	—					
Bottled Water	—	—					
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—					
Clear Glass	—	—					
OTHER:	—	—					

Split

	Container	Preservative	Lot #	Initials	Date/Time	Preservation Check
S P						pH Lot #
S P						Cl Lot #

Comments

*Preservation check completed by lab performing analysis.

✓ **Indicates Blanks Received**

504 ___ 524.2 ___ TTHM ___ 537/533 ___ TCP___

✓ **MS/MSD Received Method:** ________

Labeled by: **Labels Checked by:**

Scanned: ________ Rush/Short HT Page: ________ Time:________

SUBCONTRACT ORDER AGA1372 BCLab4911 01/10/2023

Pace Analytical Labs - Bakersfield, C.

2228971

10

SENDING LABORATORY:

Pace Analytical Labs
4100 Atlas Ct
Bakersfield, CA 93308
Phone: 661-327-4911
Fax: 661-327-1918
Project Manager: Ragen Schallock

RECEIVING LABORATORY:

BSK Analytical Labs- Fresno SBSKSA-EINV
1414 Stanislaus Street
Fresno, CA 93706
Phone :(800) 877-8310
Fax: (559) 485-6935

Analysis	Due	Expires	Laboratory ID	Comments
				OK past hold
Sample ID: 2228971-01	**Water**	**Sampled:12/07/22 10:45**		
iSM5310Cw NVOC as TOC	12/28/22 23:59	01/04/23 10:45		
~~oi317.0w Bromate BSKSA~~	~~12/28/22 23:59~~	~~01/04/23 10:45~~		
~~om200.8wb Diss Beryllium BSKSA~~	~~12/28/22 23:59~~	~~06/06/23 10:45~~		
Containers Supplied:				
Sample ID: 2228971-02	**Water**	**Sampled:12/07/22 11:15**		
iSM5310Cw NVOC as TOC	12/28/22 23:59	01/04/23 11:15		
~~oi317.0w Bromate BSKSA~~	~~12/28/22 23:59~~	~~01/04/23 11:15~~		
~~om200.8wb Diss Beryllium BSKSA~~	~~12/28/22 23:59~~	~~06/06/23 11:15~~		
Containers Supplied:				

Released By	Date	Received By	Date
[signature]	1-10-23	Veronika	1-11-23 12:15
Released By	Date	Received By	Date

1-9

LA Testing

520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322224948
Customer ID: BCLA50
Customer PO:
Project ID:

Attn: Ragen Schallock
Pace Analytical Services, LLC
4100 Atlas Court
Bakersfield, CA 93308

Phone: (661) 327-4911
Fax: (661) 327-1918
Received: 12/13/2022
Analyzed: 12/22/2022

Proj: 2228971

Test Report: Determination of Asbestos Structures >10µm in Drinking Water Performed by the 100.2 Method (EPA 600/R-94/134)

					ASBESTOS				
Sample ID Client / EMSL	***Sample Filtration Date/Time***	***Original Sample Vol. Filtered (ml)***	***Effective Filter Area (mm²)***	***Area Analyzed (mm²)***	*Asbestos Types*	*Fibers Detected*	*Analytical Sensitivity*	*Concentration*	*Confidence Limits*
							MFL (million fibers per liter)		
2228971-01 322224948-0001	12/16/2022 04:50 PM	1	1288	0.2580	None Detected	ND	5.00	<5.00	0.00 - 18.00
Collection Date/Time:	*12/07/2022 10:45 AM*								
Due to excessive particulate the analytical sensitivity of 0.2 MFL as required by the method was not reached.									
2228971-02 322224948-0002	12/16/2022 04:50 PM	100	1288	0.0645	None Detected	ND	0.20	<0.20	0.00 - 0.74
Collection Date/Time:	*12/07/2022 11:15 AM*								

Samples ozonated prior to analysis due to lab receipt time exceeding 48 hour method hold time.

Analyst(s)

Kyeong Corbin (2)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 12/27/2022 07:41:29

Work Order

2228971

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Report To:

GSI Water Solutions, Inc.
418 Chapala Street Suite H
Santa Barbara, CA 93101
Attn: Brian Franz
Phone: (805) 979-3084
FAX: (000) 000-0000

Invoice To:

GSI Water Solutions, Inc.
418 Chapala Street Suite H
Santa Barbara, CA 93101
Attn: AP
Phone: (805) 979-3084
FAX: (000) 000-0000
PO Number:

Date Received:	12/07/2022 19:52	Date Due:	12/30/2022 17:00 (15 day TAT)
Received By:	Isbet Oliveros	CSR Name:	Ragen Schallock
Samples Received at:	4.5 C	CSR Email:	Ragen.Williams@pacelabs.com
Date Logged In:	12/08/2022 08:14	CSR Phone:	661-327-4911
Logged In By:	Jeffrey Dato	(CSR = Client Service Representative)	

Lab Number	Client Sample Description	Matrix	# of Bottles
2228971-01	Pilot Inj Source, 12/7/2022 10:45:00AM, Nate Page	Water	18
2228971-02	ZIP-01, 12/7/2022 11:15:00AM, Nate Page	Water	18

Client Sample Description Format: *<Project Name>, *<Location>, <Sample Name>, <Date/ Time Sampled>, *<Sampled By>, *<Sample Depth>
(* = shown if available)

Work Order

2228971

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Analysis	Matrix	Due Date	Samples
Hold			
hw Balance Check Diss	Water	12/30/2022 17:00	01, 02
Metals			
i200.7wm Dis Calcium	Water	12/28/2022 23:59	01, 02
i200.7wm Dis Magnesium	Water	12/28/2022 23:59	01, 02
i200.7wm Dis Potassium	Water	12/28/2022 23:59	01, 02
i200.7wm Dis Sodium	Water	12/28/2022 23:59	01, 02
m200.7wb Dis Aluminum	Water	12/28/2022 23:59	01, 02
m200.7wb Dis Iron	Water	12/28/2022 23:59	01, 02
m200.7wb Dis Silica	Water	12/28/2022 23:59	01, 02
m200.7wb Dis Strontium	Water	12/28/2022 23:59	01, 02
m200.7wb TRM Silica	Water	12/28/2022 23:59	01, 02
m200.8wb Dis Antimony	Water	12/28/2022 23:59	01, 02
m200.8wb Dis Arsenic	Water	12/28/2022 23:59	01, 02
m200.8wb Dis Barium	Water	12/28/2022 23:59	01, 02
m200.8wb Dis Cadmium	Water	12/28/2022 23:59	01, 02
m200.8wb Dis Chromium	Water	12/28/2022 23:59	01, 02
m200.8wb Dis Cobalt	Water	12/28/2022 23:59	01, 02
m200.8wb Dis Copper	Water	12/28/2022 23:59	01, 02
m200.8wb Dis Lead	Water	12/28/2022 23:59	01, 02
m200.8wb Dis Manganese	Water	12/28/2022 23:59	01, 02
m200.8wb Dis Molybdenum	Water	12/28/2022 23:59	01, 02
m200.8wb Dis Nickel	Water	12/28/2022 23:59	01, 02
m200.8wb Dis Selenium	Water	12/28/2022 23:59	01, 02
m200.8wb Dis Silver	Water	12/28/2022 23:59	01, 02
m200.8wb Dis Thallium	Water	12/28/2022 23:59	01, 02
m200.8wb Dis Uranium	Water	12/28/2022 23:59	01, 02
m200.8wb Dis Vanadium	Water	12/28/2022 23:59	01, 02
m200.8wb Dis Zinc	Water	12/28/2022 23:59	01, 02
m245.1wb Dis Mercury	Water	12/28/2022 23:59	01, 02
mp200.2w TRM 200.(7,8,9), 2xx.x	Water	12/28/2022 23:59	01, 02
mp600/4-79-020w Diss All	Water	12/28/2022 23:59	01, 02
Semi-Volatiles			
g552.3w	Water	12/28/2022 23:59	01, 02
Subcontract			
oi100.1w Asbestos LATSA	Water	12/28/2022 23:59	01, 02
oi317.0w Bromate BSKSA	Water	12/28/2022 23:59	01, 02
om200.8wb Diss Beryllium BSKSA	Water	12/28/2022 23:59	01, 02
Volatiles - GC			
gRSK175 Diss Methane	Water	12/28/2022 23:59	01, 02
Volatiles - GC/MS			
g524.2w THMs only	Water	12/28/2022 23:59	01, 02

Work Order

2228971

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Analysis	Matrix	Due Date	Samples
Wet Chem			
ciw Hardness (Diss)	Water	12/28/2022 23:59	01, 02
ciw Langlier Index	Water	12/28/2022 23:59	01, 02
i120.1w EC	Water	12/28/2022 23:59	01, 02
i140.1w Odor	Water	12/28/2022 23:59	01, 02
i150.1w pH	Water	12/28/2022 23:59	01, 02
i180.1w Turbidity	Water	12/28/2022 23:59	01, 02
i218.6w Cr6 (Preserved)	Water	12/28/2022 23:59	01, 02
i300.0w Chloride	Water	12/28/2022 23:59	01, 02
i300.0w Fluoride	Water	12/28/2022 23:59	01, 02
i300.0w Nitrate as N	Water	12/28/2022 23:59	01, 02
i300.0w Sulfate	Water	12/28/2022 23:59	01, 02
i335.4w Tot CN	Water	12/28/2022 23:59	01, 02
i350.1w Ammonia as N	Water	12/28/2022 23:59	01, 02
i353.2w NO3/NO2 as N	Water	12/28/2022 23:59	01, 02
i353.2wm NO2 as N	Water	12/28/2022 23:59	01, 02
i365.1w o-PO4 as P	Water	12/28/2022 23:59	01, 02
i410.4w COD	Water	12/28/2022 23:59	01, 02
ISM2120Bw Color	Water	12/28/2022 23:59	01, 02
iSM2320Bw CO3	Water	12/28/2022 23:59	01, 02
iSM2320Bw HCO3	Water	12/28/2022 23:59	01, 02
iSM2320Bw Tot Alk as CaCO3	Water	12/28/2022 23:59	01, 02
iSM2540Cw TDS	Water	12/28/2022 23:59	01, 02
iSM2540Dw TSS Glass Fiber	Water	12/28/2022 23:59	01, 02
iSM4500ClFw Residual Chlorine	Water	12/28/2022 23:59	01, 02
iSM4500SDw Total Sulfide	Water	12/28/2022 23:59	01, 02
iSM5310Cw Dis NVOC	Water	12/28/2022 23:59	01, 02
iSM5310Cw NVOC as TOC	Water	12/28/2022 23:59	01, 02
iSM5540Cw MBAS	Water	12/28/2022 23:59	01, 02
uwBC A-D1498w Oxidation Reducti	Water	12/28/2022 23:59	01, 02
yiA-D1498w ORP Measurement Ter	Water	12/22/2022 23:59	01, 02
yiA-D1498w Oxidation Reduction Po	Water	12/22/2022 23:59	01, 02

Work Order

2228971

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Metals

i200.7wm Dis Calcium	**Analyte** Calcium
i200.7wm Dis Magnesium	**Analyte** Magnesium
i200.7wm Dis Potassium	**Analyte** Potassium
i200.7wm Dis Sodium	**Analyte** Sodium
m200.7wb Dis Aluminum	**Analyte** Aluminum
m200.7wb Dis Iron	**Analyte** Iron
m200.7wb Dis Silica	**Analyte** Silicon as SiO2
m200.7wb Dis Strontium	**Analyte** Strontium
m200.7wb TRM Silica	**Analyte** Total Recoverable Silica
m200.8wb Dis Antimony	**Analyte** Antimony
m200.8wb Dis Arsenic	**Analyte** Arsenic
m200.8wb Dis Barium	**Analyte** Barium
m200.8wb Dis Cadmium	**Analyte** Cadmium
m200.8wb Dis Chromium	**Analyte** Chromium
m200.8wb Dis Cobalt	**Analyte** Cobalt
m200.8wb Dis Copper	**Analyte** Copper
m200.8wb Dis Lead	**Analyte** Lead
m200.8wb Dis Manganese	**Analyte** Manganese
m200.8wb Dis Molybdenum	**Analyte**

Work Order

2228971

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Metals

m200.8wb Dis Molybdenum	**Analyte** Molybdenum
m200.8wb Dis Nickel	**Analyte** Nickel
m200.8wb Dis Selenium	**Analyte** Selenium
m200.8wb Dis Silver	**Analyte** Silver
m200.8wb Dis Thallium	**Analyte** Thallium
m200.8wb Dis Uranium	**Analyte** Uranium
m200.8wb Dis Vanadium	**Analyte** Vanadium
m200.8wb Dis Zinc	**Analyte** Zinc
m245.1wb Dis Mercury	**Analyte** Mercury

Work Order

2228971

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Semi-Volatiles

	Analyte
g552.3w	Dibromoacetic acid
	Dichloroacetic acid
	Monobromoacetic acid
	Monochloroacetic acid
	Trichloroacetic acid
	Total HAA's (Summation)
	2,3-Dibromopropionic acid (Surrogate)

Work Order

2228971

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Subcontract

oi100.1w Asbestos LATSA	**Analyte** Asbestos
oi317.0w Bromate BSKSA	**Analyte** Bromate
om200.8wb Diss Beryllium BSKSA	**Analyte** Beryllium

Work Order

2228971

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Volatiles - GC

gRSK175 Diss Methane	Analyte
	Methane

Work Order

2228971

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Volatiles - GC/MS

	Analyte
g524.2w THMs only	Bromodichloromethane
	Bromoform
	Chloroform
	Dibromochloromethane
	Total Trihalomethanes
	1,2-Dichloroethane-d4 (Surrogate)
	Toluene-d8 (Surrogate)
	4-Bromofluorobenzene (Surrogate)

Work Order

2228971

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Wet Chem

ciw Hardness (Diss)	**Analyte** Hardness as CaCO3
ciw Langlier Index	**Analyte** Langlier Index
i120.1w EC	**Analyte** Electrical Conductivity @ 25 C
i140.1w Odor	**Analyte** Odor
i150.1w pH	**Analyte** pH
i180.1w Turbidity	**Analyte** Turbidity
i218.6w Cr6 (Preserved)	**Analyte** Hexavalent Chromium
i300.0w Chloride	**Analyte** Chloride
i300.0w Fluoride	**Analyte** Fluoride
i300.0w Nitrate as N	**Analyte** Nitrate as N
i300.0w Sulfate	**Analyte** Sulfate
i335.4w Tot CN	**Analyte** Total Cyanide
i350.1w Ammonia as N	**Analyte** Ammonia as N
i353.2w NO3/NO2 as N	**Analyte** Nitrate/Nitrite as N
i353.2wm NO2 as N	**Analyte** Nitrite as N
i365.1w o-PO4 as P	**Analyte** ortho-Phosphate as P
i410.4w COD	**Analyte** Chemical Oxygen Demand
ISM2120Bw Color	**Analyte** Color
iSM2320Bw CO3	**Analyte**

Work Order

2228971

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Wet Chem

iSM2320Bw CO3	**Analyte** Carbonate
iSM2320Bw HCO3	**Analyte** Bicarbonate
iSM2320Bw Tot Alk as CaCO3	**Analyte** Total Alkalinity as CaCO3
iSM2540Cw TDS	**Analyte** Total Dissolved Solids @ 180 C
iSM2540Dw TSS Glass Fiber	**Analyte** Total Suspended Solids (Glass Fiber)
iSM4500ClFw Residual Chlorine	**Analyte** Residual Chlorine
iSM4500SDw Total Sulfide	**Analyte** Total Sulfide
iSM5310Cw Dis NVOC	**Analyte** Dissolved Non-Volatile Organic Carbon
iSM5310Cw NVOC as TOC	**Analyte** Total Organic Carbon
iSM5540Cw MBAS	**Analyte** MBAS
yiA-D1498w ORP Measurement Temp	**Analyte** Temperature
yiA-D1498w Oxidation Reduction Potential (ORP)	**Analyte** Oxidation Reduction Potential (Eh) Oxidation Reduction Potential (Eobs_Ag/AgCl)

Sample from 21P-01 during Long-Term Injection (December 14, 2022)

Field Notes

Water Solutions, Inc.

Daily Field Report

Name: Nate Page **Date:** 12/14/22 **Activity:** Sample ZIP-01

Project: MB Inj Test **PN:** **Page** 1 **of** 1

0910 pull XD, DTW = 12.13' btoc (PVC)

0919 pump on

	T	pH	SC	DO mg/L	ORP mV
0920	17.7	7.51	0.856	2.48	262.9
~~0925~~					
0930	17.9	7.24	0.857	2.04	258.9
0935	18.0	7.19	0.860	1.95	257.4
0940	18.0	7.18	0.857	1.93	255.9

Sample collected (0940)

Signature:

Chain-of-Custody Form(s)

JDM 8A 12-14-22 1-600

Pace® ANALYTICAL SERVICES

4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.pacelabs.com

ly Form

2229738

age ___ of ___

Report To:
Client: GSI Water Sol'n's
Attn: Nate Page
Street Address: 5855 Capistrano Ave Ste C
City, State, Zip: Atascadero CA 93422
Phone: 970 692 3893 Fax:
Email: npage@gsiws.com
Work Order #: 22-29738

Project #: 645.007
Project Name: Morro Bay
~~BID#~~
Sampler(s) Name Printed: Nate Page

Analysis Requested: SEE Attached (2 pages)

Comments:
EDF NO Geotracker
Complete Suite on Attached

Result Request **Surcharge
☒ STD (10 Days) ☐ 5 Day** ☐ 4 Day**
☐ 3 Day** ☐ 2 Day** ☐ 1 Day**
Rush requests must be approved

Sample #	Description	Date Sampled	Time Sampled	Analysis	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Notes
21P-01		12/14/22	0940	X							
-1											
-2											

CHK BY: PG
DISTRIBUTION: RMG MT B3 TO JKA
SUB OUT ☒

SHORT HOLDING TIME
Cr^{6} NO_2 NO_3 OP SS
DO Cl_2 BOD MBAS COT

Billing
☒ Same as above
Client:
Address:
City: State: Zip:
Attn:
P.O. #:

System # (Needed for CLIP)
GIS/Key ☐ Well Star ☐

EDF Required Geotracker ☐ Yes ☒ No
Global ID

	Date	Time		Date	Time
1. Relinquished By: Nate Page	12/14/22	1300	1. Received By: [signature]	12-14-22	1300
2. Relinquished By: [signature]	12-14-22	1930	2. Received By: TOO	12-14-22	1930
3. Relinquished By			3. Received By		

REV 12/2021

JOM 2A 12-14-22 Hode

2229738

Parameter Type	Parameter	Method
Field	Dissolved oxygen	YSI 556 or similar
	pH	EPA 150.1
	Oxidation-Reduction Potential	SM2580B
	Specific Conductance	EPA 120.1
	Temperature	YSI 556 or similar
	Turbidity	EPA 180.1
Inorganics	Alkalinity	SM2320B
	Ammonia	SM4500NH3G
	Bicarbonate	SM2320B
	Carbonate	SM2320B
	Chloride	EPA 300.0
	Cyanide (HCN)	EPA 335.4
	Fluoride	EPA 300.0
	Hardness	EPA 200.8
	Nitrate+Nitrite (total N)	EPA 300.0
	Nitrate (as N)	EPA 300.0
	Nitrite-N	EPA 300.0
	Orthophosphate as P	EPA 300.0
	Total Silica (as SiO2)	EPA 200.7
	Dissolved Silica (as SiO2)	EPA 200.7
	Sulfate	EPA 300.0
	Sulfide	SM4500S2F
Metals (Dissolved)	Aluminum	EPA 200.7
	Antimony	EPA 200.8
	Arsenic	EPA 200.8
	Barium	EPA 200.8
	Beryllium	EPA 200.8
	Cadmium	EPA 200.8
	Calcium	EPA 200.7
	Chromium	EPA 200.8
	Cobalt	EPA 200.8
	Copper	EPA 200.8
	Iron	EPA 200.7
	Lead	EPA 200.8
	Magnesium	EPA 200.7
	Manganese	EPA 200.8
	Mercury	EPA 245.7
	Molybdenum	EPA 200.8
	Nickel	EPA 200.8
	Potassium	EPA 200.7
	Selenium	EPA 200.8
	Silver	EPA 200.8

JAN 24 2022 Lwolu

22-29738

	Sodium	EPA 200.7
	Strontium	EPA 200.8
	Thallium	EPA 200.8
	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

PACE ANALYTICAL — COOLER RECEIPT FORM — Page 1 Of 1

Submission #: 22-29738

SHIPPING INFORMATION	SHIPPING CONTAINER	FREE LIQUID
Fed Ex ☐ UPS ☐ GSO / GLS ☐ Hand Delivery ☐ Pace Lab Field Service ☑ Other ☐ (Specify)____	Ice Chest ☑ None ☐ Box ☐ Other ☐ (Specify)____	YES ☑ NO ☐ W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ | Containers ☐ Intact? Yes ☐ No ☐ | None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☑ YES ☐ NO

Emissivity: 0.98 Container: PE Thermometer ID: 274

Temperature: (A) 4.7 °C / (C) 4.7 °C

Date/Time 12-14-22 1430

Analyst Init CJC

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES	H-J									
4oz / 8oz / 16oz PE UNPRES	K-M									
2oz Cr^{+6}	F									
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS	N									
PT TOTAL SULFIDE	O									
2oz. NITRATE / NITRITE	G									
PT TOTAL ORGANIC CARBON	P									
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK		A,B								
40ml VOA VIAL	A-C									
QT EPA 1664B										
PT ODOR	Q									
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL ~~504~~ RSK	D,E									
QT EPA 508/608.3/8081A										
QT EPA 515.1/8151A										
QT EPA 525.2										
QT EPA 525.2 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548.1										
QT EPA 549.2										
QT EPA 8015M										
QT EPA 8270C										
8oz / 16oz / 32oz AMBER	R									
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments: 2 added as travel blanks

Sample Numbering Completed By: PPB Date/Time: 12/14/22 2110

A = Actual / C = Corrected

Rev 23 05/20/22

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Pace ANALYTICAL SERVICES

4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.pacelabs.com

Chain of Custody Form

Page ____ of ____

Report To:

Client: GSI Water Sol'ns	Project #: 645.007
Attn: Nate Page	Project Name: Morro Bay
Street Address: 5855 Capistrano Ave	BID# Site C
City, State, Zip: Atascadero CA 93422	Sampler(s) Name Printed: Nate Page
Phone: 970 692 3593 Fax:	
Email: npage@gsiws.com	
Work Order #:	

Analysis Requested

SEE Attached (2 pages)

Comments: EDF NO Geotracker
Complete Suite on Attached

Result Request **Surcharge: [X] STD (10 Days) [ ] 5 Day** [ ] 4 Day** [ ] 3 Day** [ ] 2 Day** [ ] 1 Day**
Rush requests must be approved

Sample #	Description	Date Sampled	Time Sampled	Analysis Requested	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Notes
21P-01		12/14/22	0940	X							

Billing [X] Same as above

Client:
Address:
City: ____ State ____ Zip ____
Attn:
P.O. #:

System # (Needed for CLIP)

GIS/Key [ ] Well Star [ ]

EDF Required Geotracker [ ] Yes [X] No Global ID

	Date	Time		Date	Time
1. Relinquished By: Nate Page	12/14/22	1300	1. Received By:	12/14/22	1300
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Laboratory Reports

Date of Report: 01/17/2023

Nate Page

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Client Project:	645.007
BCL Project:	Morro Bay Injection
BCL Work Order:	2229738
Invoice ID:	B467473

Enclosed are the results of analyses for samples received by the laboratory on 12/14/2022. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Contact Person: Ragen Schallock
Client Service Rep

Stuart Buttram
Operations Manager

Table of Contents

JDM 8A 12-14-22 1-600

Pace® ANALYTICAL SERVICES 4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.pacelabs.com

ly Form

2229738

age ___ of ___

Report To: Client: GSI Water Sol'n's	Project #: 645.007
Attn: Nate Page	Project Name: Morro Bay
Street Address: 5855 Capistrano Ave	~~BID#~~ Ste C
City, State, Zip: Atascadero CA 93422	Sampler(s) Name Printed: Nate Page
Phone: 970 692 3593 Fax:	
Email: npage@gsiws.com	
Work Order #: 22-29738	

Analysis Requested

Comments: EDF NO Geotracker
Complete Suite on Attached

Sample #	Description	Date Sampled	Time Sampled	↓SEE Attached (2 pages)	Sample Matrix: Soil / Sludge / Drinking Water / Ground Water / Waste Water / Other	Notes
21P-01		12/14/22	0940	X		
-1						
-2						

Result Request **Surcharge
☒ STD (10 Days) ☐ 5 Day** ☐ 4 Day**
☐ 3 Day** ☐ 2 Day** ☐ 1 Day**
Rush requests must be approved

CHK BY PM
DISTRIBUTION RMG MT AB RD JKH
SUB OUT ☒

SHORT HOLDING TIME
Cr6 NO2 NO3 OP SS DO Cl2 BOD MBAS COT

Billing ☒ Same as above
Client:
Address:
City: ____ State ____ Zip ____
Attn:
P.O. #:

System # (Needed for CLIP)
GIS/Key ☐ Well Star ☐

EDF Required Geotracker ☐ Yes ☒ No
Global ID

Relinquished By	Date	Time	Received By	Date	Time
1. Nate Page	12/14/22	1300	1.	12-14-22	1300
2.	12-14-22	1930	2.	12-14-22	1930
3.			3.		

Pace Analytical Bakersfield does not accept samples containing radioactive material above background levels. Samples containing radioactive material must be disclosed prior to receipt. Any samples suspected of containing radioactive material above background levels will not be accepted and will be returned to client.

REV 12/2021

JOM QA 12-14-22 Hoda

Morro Bay Indirect Potable Reuse Complete Suite
Pilot Injection Testing Sampling Plan

August 6, 2021
GSI Water Solutions

2229738

Parameter Type	Parameter	Method
Field	Dissolved oxygen	YSI 556 or similar
	pH	EPA 150.1
	Oxidation-Reduction Potential	SM2580B
	Specific Conductance	EPA 120.1
	Temperature	YSI 556 or similar
	Turbidity	EPA 180.1
Inorganics	Alkalinity	SM2320B
	Ammonia	SM4500NH3G
	Bicarbonate	SM2320B
	Carbonate	SM2320B
	Chloride	EPA 300.0
	Cyanide (HCN)	EPA 335.4
	Fluoride	EPA 300.0
	Hardness	EPA 200.8
	Nitrate+Nitrite (total N)	EPA 300.0
	Nitrate (as N)	EPA 300.0
	Nitrite-N	EPA 300.0
	Orthophosphate as P	EPA 300.0
	Total Silica (as SiO2)	EPA 200.7
	Dissolved Silica (as SiO2)	EPA 200.7
	Sulfate	EPA 300.0
	Sulfide	SM4500S2F
Metals (Dissolved)	Aluminum	EPA 200.7
	Antimony	EPA 200.8
	Arsenic	EPA 200.8
	Barium	EPA 200.8
	Beryllium	EPA 200.8
	Cadmium	EPA 200.8
	Calcium	EPA 200.7
	Chromium	EPA 200.8
	Cobalt	EPA 200.8
	Copper	EPA 200.8
	Iron	EPA 200.7
	Lead	EPA 200.8
	Magnesium	EPA 200.7
	Manganese	EPA 200.8
	Mercury	EPA 245.7
	Molybdenum	EPA 200.8
	Nickel	EPA 200.8
	Potassium	EPA 200.7
	Selenium	EPA 200.8
	Silver	EPA 200.8

Page 1

Pace Analytical®
ENVIRONMENTAL SCIENCES

JAM 2A 8-4-21 LCole

Morro Bay Indirect Potable Reuse Complete Suite
Pilot Injection Testing Sampling Plan

August 6, 2021
GSI Water Solutions

22-29738

	Sodium	EPA 200.7
	Strontium	EPA 200.8
	Thallium	EPA 200.8
	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

Pace Analytical®
ENVIRONMENTAL SCIENCES

PACE ANALYTICAL — COOLER RECEIPT FORM — Page 1 Of 1

Submission #: 22-29738

SHIPPING INFORMATION
Fed Ex ☐ UPS ☐ GSO / GLS ☐ Hand Delivery ☐
Pace Lab Field Service ☑ Other ☐ (Specify)________

SHIPPING CONTAINER
Ice Chest ☑ None ☐ Box ☐
Other ☐ (Specify)________

FREE LIQUID
YES ☑ NO ☐
W / S

Refrigerant: Ice ☑ Blue Ice ☐ None ☐ Other ☐ Comments:

Custody Seals: Ice Chest ☐ Intact? Yes ☐ No ☐ Containers ☐ Intact? Yes ☐ No ☐ None ☑ Comments:

All samples received? Yes ☑ No ☐ All samples containers intact? Yes ☑ No ☐ Description(s) match COC? Yes ☑ No ☐

COC Received ☑ YES ☐ NO

Emissivity: 0.98 Container: PE Thermometer ID: 274 Date/Time 12-14-22 1430
Temperature: (A) 4.7 °C / (C) 4.7 °C Analyst Init CJC

SAMPLE CONTAINERS	1	2	3	4	5	6	7	8	9	10
QT PE UNPRES	H-J									
4oz / 8oz / 16oz PE UNPRES	K-M									
2oz Cr^{+6}	F									
QT INORGANIC CHEMICAL METALS										
INORGANIC CHEMICAL METALS 4oz / 8oz / 16oz										
PT CYANIDE										
PT NITROGEN FORMS	N									
PT TOTAL SULFIDE	O									
2oz. NITRATE / NITRITE	G									
PT TOTAL ORGANIC CARBON	P									
PT CHEMICAL OXYGEN DEMAND										
PtA PHENOLICS										
40ml VOA VIAL TRAVEL BLANK		A,B								
40ml VOA VIAL	A-C									
QT EPA 1664B										
PT ODOR	Q									
RADIOLOGICAL										
BACTERIOLOGICAL										
40 ml VOA VIAL ~~504~~ RSK	D,E									
QT EPA 508/608.3/8081A										
QT EPA 515.1/8151A										
QT EPA 525.2										
QT EPA 525.2 TRAVEL BLANK										
40ml EPA 547										
40ml EPA 531.1										
8oz EPA 548.1										
QT EPA 549.2										
QT EPA 8015M										
QT EPA 8270C										
8oz / 16oz / 32oz AMBER	R									
8oz / 16oz / 32oz JAR										
SOIL SLEEVE										
PCB VIAL										
PLASTIC BAG										
TEDLAR BAG										
FERROUS IRON										
ENCORE										
SMART KIT										
SUMMA CANISTER										

Comments: 2 added as travel blank
Sample Numbering Completed By: RRG Date/Time: 12/14/22 2118
A = Actual / C = Corrected

Rev 23 05/20/22
[S:\WP Doc\WordPerfect\LAB_DOCS\FORMS\SAMREC.rev 20]

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/17/2023 7:13
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Laboratory / Client Sample Cross Reference

Laboratory	Client Sample Information			
2229738-01	**COC Number:**	---	**Receive Date:**	12/14/2022 19:30
	Project Number:	---	**Sampling Date:**	12/14/2022 09:40
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	ZIP-01	**Lab Matrix:**	Water
	Sampled By:	Nate Page	**Sample Type:**	Water
			Metal Analysis: 2-Lab Filtered and Acidified past 15 minute holding time	
2229738-02	**COC Number:**	---	**Receive Date:**	12/14/2022 19:30
	Project Number:	---	**Sampling Date:**	12/14/2022 00:00
	Sampling Location:	---	**Sample Depth:**	---
	Sampling Point:	Travel Blank	**Lab Matrix:**	Water
	Sampled By:	---	**Sample Type:**	Trip Blank

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/17/2023 7:13
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2229738-01 | **Client Sample Name:** ZIP-01, 12/14/2022 9:40:00AM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Bromodichloromethane	**12**	**ug/L**	**0.50**	**0.20**	**EPA-524.2**	ND		1
Bromoform	**5.9**	**ug/L**	**0.50**	**0.46**	**EPA-524.2**	ND		1
Chloroform	**8.8**	**ug/L**	**0.50**	**0.14**	**EPA-524.2**	ND		1
Dibromochloromethane	**12**	**ug/L**	**0.50**	**0.22**	**EPA-524.2**	ND		1
Total Trihalomethanes	**39**	**ug/L**	**2.0**	**0.97**	**EPA-524.2**	ND		1
1,2-Dichloroethane-d4 (Surrogate)	113	%	75 - 125 (LCL - UCL)		EPA-524.2			1
Toluene-d8 (Surrogate)	98.2	%	80 - 120 (LCL - UCL)		EPA-524.2			1
4-Bromofluorobenzene (Surrogate)	85.3	%	80 - 120 (LCL - UCL)		EPA-524.2			1

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-524.2	12/15/22 06:00	12/15/22 16:04	ADC	MS-V15	1	B155945	EPA 524.2

DCN = Data Continuation Number

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/17/2023 7:13 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Nate Page

Halogenated Acetic Acids (Method EPA-552.3)

BCL Sample ID: 2229738-01 | **Client Sample Name:** ZIP-01, 12/14/2022 9:40:00AM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Dibromoacetic acid	ND	ug/L	1.0	0.32	EPA-552.3	ND		1
Dichloroacetic acid	**2.1**	**ug/L**	**1.0**	**0.29**	**EPA-552.3**	ND		1
Monobromoacetic acid	ND	ug/L	1.0	0.25	EPA-552.3	ND		1
Monochloroacetic acid	ND	ug/L	1.0	0.61	EPA-552.3	ND		1
Trichloroacetic acid	**7.7**	**ug/L**	**1.0**	**0.36**	**EPA-552.3**	ND		1
Total HAA's (Summation)	**9.9**	**ug/L**	**1.0**	**1.0**	**EPA-552.3**	ND		1
2,3-Dibromopropionic acid (Surrogate)	71.5	%	70 - 130 (LCL - UCL)		EPA-552.3			1

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-552.3	12/19/22 18:00	12/22/22 09:25	NAP	GC-3	1	B156436	EPA 552.3

DCN = Data Continuation Number

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/17/2023 7:13 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Nate Page

Gas Testing in Water

BCL Sample ID: 2229738-01 | **Client Sample Name:** ZIP-01, 12/14/2022 9:40:00AM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Methane	ND	mg/L	0.0010	0.00046	RSK-175M	ND		1

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	RSK-175M	12/21/22 08:53	12/21/22 14:18	RMK	GC-V10	1	B156525	None

DCN = Data Continuation Number

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/17/2023 7:13
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Water Analysis (General Chemistry)

BCL Sample ID: 2229738-01 | **Client Sample Name:** ZIP-01, 12/14/2022 9:40:00AM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Dissolved Calcium	**35**	**mg/L**	**0.10**	**0.016**	**EPA-200.7**	ND		1
Dissolved Magnesium	**35**	**mg/L**	**0.050**	**0.019**	**EPA-200.7**	ND		1
Dissolved Sodium	**78**	**mg/L**	**0.50**	**0.051**	**EPA-200.7**	ND		2
Dissolved Potassium	**1.9**	**mg/L**	**1.0**	**0.10**	**EPA-200.7**	ND		1
Bicarbonate	**140**	**mg/L**	**5.0**	**5.0**	**SM-2320B**	ND		3
Carbonate	ND	mg/L	2.5	2.5	SM-2320B	ND		3
Total Alkalinity as CaCO3	**110**	**mg/L**	**4.1**	**4.1**	**SM-2320B**	ND		3
Chloride	**140**	**mg/L**	**0.50**	**0.13**	**EPA-300.0**	0.16		4
Fluoride	**0.25**	**mg/L**	**0.050**	**0.025**	**EPA-300.0**	ND		4
Nitrate/Nitrite as N	**1.1**	**mg/L**	**0.10**	**0.034**	**EPA-353.2**	ND		5
Nitrate as N	**0.85**	**mg/L**	**0.10**	**0.024**	**EPA-300.0**	ND		4
Sulfate	**91**	**mg/L**	**1.0**	**0.14**	**EPA-300.0**	0.25		4
Dissolved Hardness as CaCO3	**230**	**mg/L**	**0.50**	**0.10**	**Calc**	ND		6
Langlier Index	**-0.14**	**NA**	**-2.00**	**-2.00**	**Calc**	0		6
pH	**7.82**	**pH Units**	**0.05**	**0.05**	**EPA-150.1**		**S05**	7
Electrical Conductivity @ 25 C	**826**	**umhos/cm**	**1.00**	**1.00**	**EPA-120.1**			8
Total Dissolved Solids @ 180 C	**630**	**mg/L**	**33**	**17**	**SM-2540C**	ND	**A10**	9
Total Suspended Solids (Glass Fiber)	ND	mg/L	1.0	1.0	SM-2540D	ND	A10	10
Color	**2.0**	**Color Units**	**1.0**	**1.0**	**SM-2120B**			11
Odor	**4.0**	**Odor Units**	**1.0**	**1.0**	**EPA-140.1**	ND		12
Turbidity	**1.3**	**NT Units**	**0.10**	**0.10**	**EPA-180.1**			13
MBAS	ND	mg/L	0.20	0.048	SM-5540C	ND	A10	14
Residual Chlorine	ND	mg/L	0.10	0.10	SM-4500-CLF	ND	S05	15
Total Cyanide	**0.0024**	**mg/L**	**0.0050**	**0.0017**	**EPA-335.4**	0.0020	**J**	16
Ammonia as N	**0.16**	**mg/L**	**0.20**	**0.067**	**EPA-350.1**	ND	**J**	17
Nitrite as N	**0.15**	**mg/L**	**0.050**	**0.010**	**EPA-353.2**	ND		18
ortho-Phosphate as P	**0.095**	**mg/L**	**0.050**	**0.017**	**EPA-365.1**	ND		19
Total Sulfide	ND	mg/L	0.10	0.050	SM-4500SD	ND		20
Chemical Oxygen Demand	ND	mg O2/L	25	4.3	EPA-410.4	ND		21
Oxidation Reduction Potential (Eh)	**356.0**	**mV**	**-1000**	**-1000**	**ASTM-D1498**			22
Oxidation Reduction Potential (Eobs_Ag/AgCl)	**140.9**	**mV**	**-1000**	**-1000**	**ASTM-D1498**			22
Temperature	**16.1**	**°C**	**0.1**	**0.1**	**ASTM-D1498**			22

Pace Analytical ENVIRONMENTAL SCIENCES

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/17/2023 7:13 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Nate Page

Water Analysis (General Chemistry)

BCL Sample ID: 2229738-01 **Client Sample Name:** ZIP-01, 12/14/2022 9:40:00AM, Nate Page

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	
1	EPA-200.7	12/30/22 16:53	01/03/23 15:59	JRG	PE-OP4	1	B157026	200.7/ No Digest
2	EPA-200.7	12/30/22 16:53	01/05/23 15:02	JRG	PE-OP4	1	B157026	200.7/ No Digest
3	SM-2320B	12/15/22 08:30	12/15/22 12:29	RML	MET-1	1	B155613	No Prep
4	EPA-300.0	12/15/22 09:00	12/15/22 10:28	KSA	IC1	1	B156022	No Prep
5	EPA-353.2	12/20/22 12:00	12/20/22 18:31	KB1	SC-1	1	B156579	No Prep
6	Calc	12/15/22 00:01	01/10/23 09:36	SGB	Calc	1	B`L0124	Calc
7	EPA-150.1	12/15/22 08:30	12/15/22 12:29	RML	MET-1	1	B155613	No Prep
8	EPA-120.1	12/15/22 08:30	12/15/22 12:29	RML	MET-1	1	B155613	No Prep
9	SM-2540C	12/20/22 13:00	12/20/22 13:00	CAD	MANUAL	3.333	B156413	No Prep
10	SM-2540D	12/19/22 13:30	12/19/22 13:30	TJV	MANUAL	2	B156349	No Prep
11	SM-2120B	12/15/22 06:30	12/15/22 06:30	RML	MANUAL	1	B156557	No Prep
12	EPA-140.1	12/15/22 06:30	12/15/22 06:30	RML	MANUAL	1	B156569	No Prep
13	EPA-180.1	12/15/22 06:30	12/15/22 06:30	RML	MANUAL	1	B156584	No Prep
14	SM-5540C	12/16/22 06:40	12/16/22 06:40	JMN	SPEC06	2	B156115	No Prep
15	SM-4500-CLF	12/15/22 07:45	12/15/22 07:45	RML	MANUAL	1	B156026	No Prep
16	EPA-335.4	12/15/22 09:30	12/15/22 13:25	MC1	Konelab	1	B156029	EPA 335.4 Total
17	EPA-350.1	01/06/23 12:45	01/06/23 14:24	KB1	SC-1	1.071	B157463	No Prep
18	EPA-353.2	12/15/22 08:44	12/15/22 09:13	IJO	KONE-1	1	B156382	No Prep
19	EPA-365.1	12/16/22 09:00	12/16/22 09:33	MC1	SC-1	1	B156289	No Prep
20	SM-4500SD	12/15/22 08:00	12/15/22 08:00	JT3	SPEC06	1	B156236	SM 4500SD
21	EPA-410.4	01/04/23 13:00	01/04/23 16:00	SPB	SPEC06	1	B157256	EPA 410.4
22	ASTM-D1498	12/15/22 08:30	12/15/22 10:09	RML	MET-1	1	B156023	No Prep

DCN = Data Continuation Number

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/17/2023 7:13 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Nate Page

Metals Analysis

BCL Sample ID: 2229738-01 **Client Sample Name:** ZIP-01, 12/14/2022 9:40:00AM, Nate Page

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Dissolved Aluminum	ND	ug/L	50	23	EPA-200.7	ND		1
Dissolved Antimony	ND	ug/L	2.0	0.23	EPA-200.8	ND		2
Dissolved Arsenic	**1.4**	**ug/L**	**2.0**	**0.38**	**EPA-200.8**	ND	**J**	2
Hexavalent Chromium	**0.16**	**ug/L**	**0.20**	**0.020**	**EPA-218.6**	ND	**J**	3
Dissolved Barium	**60**	**ug/L**	**1.0**	**0.066**	**EPA-200.8**	ND		2
Dissolved Cadmium	**0.15**	**ug/L**	**1.0**	**0.034**	**EPA-200.8**	ND	**J**	2
Dissolved Chromium	ND	ug/L	3.0	0.15	EPA-200.8	ND		2
Dissolved Cobalt	**0.20**	**ug/L**	**1.0**	**0.011**	**EPA-200.8**	ND	**J**	2
Dissolved Copper	**2.4**	**ug/L**	**2.0**	**0.32**	**EPA-200.8**	ND		2
Dissolved Iron	ND	ug/L	50	30	EPA-200.7	ND		1
Dissolved Lead	**1.5**	**ug/L**	**1.0**	**0.021**	**EPA-200.8**	ND		2
Dissolved Manganese	**410**	**ug/L**	**1.0**	**0.040**	**EPA-200.8**	ND		2
Dissolved Mercury	ND	ug/L	0.20	0.022	EPA-245.1	ND		4
Dissolved Molybdenum	**2.5**	**ug/L**	**1.0**	**0.033**	**EPA-200.8**	ND		2
Dissolved Nickel	**1.6**	**ug/L**	**2.0**	**0.15**	**EPA-200.8**	ND	**J**	2
Dissolved Selenium	**3.1**	**ug/L**	**2.0**	**0.25**	**EPA-200.8**	ND		2
Dissolved Silicon as SiO2	**18000**	**ug/L**	**200**	**31**	**EPA-200.7**	ND		5
Dissolved Silver	ND	ug/L	1.0	0.015	EPA-200.8	ND		2
Dissolved Strontium	**250**	**ug/L**	**10**	**1.0**	**EPA-200.7**	ND		1
Dissolved Thallium	ND	ug/L	1.0	0.025	EPA-200.8	ND		2
Dissolved Uranium	**0.12**	**ug/L**	**1.0**	**0.051**	**EPA-200.8**	0.086	**J**	2
Dissolved Vanadium	**3.2**	**ug/L**	**3.0**	**0.39**	**EPA-200.8**	ND		2
Dissolved Zinc	ND	ug/L	5.0	2.2	EPA-200.8	ND		2
Total Recoverable Silica	**18000**	**ug/L**	**200**	**53**	**EPA-200.7**	ND		6

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-200.7	12/30/22 16:53	01/03/23 15:59	JRG	PE-OP4	1	B157026	EPA 200.7 Dissolved
2	EPA-200.8	12/19/22 06:00	12/19/22 14:49	ARD	PE-EL4	1	B156239	EPA 200.8 Dissolved
3	EPA-218.6	12/21/22 20:00	12/21/22 22:19	KSA	IC-4	1	B156600	No Prep
4	EPA-245.1	12/21/22 07:30	12/21/22 13:13	TMT	CETAC3	1	B156489	EPA 245.1
5	EPA-200.7	12/30/22 16:53	01/05/23 15:02	JRG	PE-OP4	1	B157026	EPA 200.7 Dissolved
6	EPA-200.7	01/04/23 15:30	01/05/23 14:11	JRG	PE-OP4	1	B157273	EPA 200.2

DCN = Data Continuation Number

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/17/2023 7:13
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Volatile Organic Analysis (EPA Method 524.2)

BCL Sample ID: 2229738-02 | **Client Sample Name:** Travel Blank, 12/14/2022 12:00:00AM

Constituent	Result	Units	PQL	MDL	Method	MB Bias	Lab Quals	DCN
Bromodichloromethane	ND	ug/L	0.50	0.20	EPA-524.2	ND		1
Bromoform	ND	ug/L	0.50	0.46	EPA-524.2	ND		1
Chloroform	ND	ug/L	0.50	0.14	EPA-524.2	ND		1
Dibromochloromethane	ND	ug/L	0.50	0.22	EPA-524.2	ND		1
Total Trihalomethanes	ND	ug/L	2.0	0.97	EPA-524.2	ND		1
1,2-Dichloroethane-d4 (Surrogate)	112	%	75 - 125 (LCL - UCL)		EPA-524.2			1
Toluene-d8 (Surrogate)	96.9	%	80 - 120 (LCL - UCL)		EPA-524.2			1
4-Bromofluorobenzene (Surrogate)	85.7	%	80 - 120 (LCL - UCL)		EPA-524.2			1

DCN	Method	Prep Date	Run Date/Time	Analyst	Instrument	Dilution	QC Batch ID	Prep Method
1	EPA-524.2	12/15/22 06:00	12/15/22 15:40	ADC	MS-V15	1	B155945	EPA 524.2

DCN = Data Continuation Number

GSI Water Solutions, Inc. 5855 Capistran Avenue, Suite C Atascadero, CA 93422	**Reported:** 01/17/2023 7:13 Project: Morro Bay Injection Project Number: 645.007 Project Manager: Nate Page

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B155945							
Bromodichloromethane	B155945-BLK1	ND	ug/L	0.50	0.20		1
Bromoform	B155945-BLK1	ND	ug/L	0.50	0.46		1
Chloroform	B155945-BLK1	ND	ug/L	0.50	0.14		1
Dibromochloromethane	B155945-BLK1	ND	ug/L	0.50	0.22		1
Total Trihalomethanes	B155945-BLK1	ND	ug/L	2.0	0.97		1
1,2-Dichloroethane-d4 (Surrogate)	**B155945-BLK1**	**100**	%	**75 - 125 (LCL - UCL)**			1
Toluene-d8 (Surrogate)	**B155945-BLK1**	**96.4**	%	**80 - 120 (LCL - UCL)**			1
4-Bromofluorobenzene (Surrogate)	**B155945-BLK1**	**91.8**	%	**80 - 120 (LCL - UCL)**			1

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B155945-BLK1	PB	EPA-524.2	12/14/22	12/14/22 18:42	ADC	MS-V15	1

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/17/2023 7:13
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B155945											
Bromodichloromethane	B155945-BS1	LCS	25.830	25.000	ug/L	103		70 - 130			1
Bromoform	B155945-BS1	LCS	26.480	25.000	ug/L	106		70 - 130			1
Chloroform	B155945-BS1	LCS	24.990	25.000	ug/L	100		70 - 130			1
Dibromochloromethane	B155945-BS1	LCS	26.630	25.000	ug/L	107		70 - 130			1
1,2-Dichloroethane-d4 (Surrogate)	B155945-BS1	LCS	9.2600	10.000	ug/L	92.6		75 - 125			1
Toluene-d8 (Surrogate)	B155945-BS1	LCS	9.9700	10.000	ug/L	99.7		80 - 120			1
4-Bromofluorobenzene (Surrogate)	B155945-BS1	LCS	9.8700	10.000	ug/L	98.7		80 - 120			1

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B155945-BS1	LCS	EPA-524.2	12/14/22	12/14/22 17:06	ADC	MS-V15	1

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/17/2023 7:13
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Volatile Organic Analysis (EPA Method 524.2)

Quality Control Report - Precision & Accuracy

QC Batch ID: B155945 Used client sample: N

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
Bromodichloromethane	MS	2228776-11	ND	25.460	25.000	ug/L		102		70 - 130		1
	MSD	2228776-11	ND	27.270	25.000	ug/L	6.9	109	20	70 - 130		2
Bromoform	MS	2228776-11	ND	26.280	25.000	ug/L		105		70 - 130		1
	MSD	2228776-11	ND	29.450	25.000	ug/L	11.4	118	20	70 - 130		2
Chloroform	MS	2228776-11	ND	24.560	25.000	ug/L		98.2		70 - 130		1
	MSD	2228776-11	ND	26.250	25.000	ug/L	6.7	105	20	70 - 130		2
Dibromochloromethane	MS	2228776-11	ND	26.730	25.000	ug/L		107		70 - 130		1
	MSD	2228776-11	ND	29.030	25.000	ug/L	8.2	116	20	70 - 130		2
1,2-Dichloroethane-d4 (Surrogate)	MS	2228776-11	ND	9.7300	10.000	ug/L		97.3		75 - 125		1
	MSD	2228776-11	ND	9.6000	10.000	ug/L	1.3	96.0		75 - 125		2
Toluene-d8 (Surrogate)	MS	2228776-11	ND	9.9300	10.000	ug/L		99.3		80 - 120		1
	MSD	2228776-11	ND	9.8100	10.000	ug/L	1.2	98.1		80 - 120		2
4-Bromofluorobenzene (Surrogate)	MS	2228776-11	ND	9.9900	10.000	ug/L		99.9		80 - 120		1
	MSD	2228776-11	ND	9.9700	10.000	ug/L	0.2	99.7		80 - 120		2

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B155945-MS1	MS	EPA-524.2	12/14/22	12/14/22 17:30	ADC	MS-V15	1
2	B155945-MSD1	MSD	EPA-524.2	12/14/22	12/14/22 17:54	ADC	MS-V15	1

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/17/2023 7:13
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Method Blank Analysis

QC Batch ID: B156436

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
Dibromoacetic acid	B156436-BLK1	ND	ug/L	1.0	0.32		1
Dichloroacetic acid	B156436-BLK1	ND	ug/L	1.0	0.29		1
Monobromoacetic acid	B156436-BLK1	ND	ug/L	1.0	0.25		1
Monochloroacetic acid	B156436-BLK1	ND	ug/L	1.0	0.61		1
Trichloroacetic acid	B156436-BLK1	ND	ug/L	1.0	0.36		1
Total HAA's (Summation)	B156436-BLK1	ND	ug/L	1.0	1.0		1
2,3-Dibromopropionic acid (Surrogate)	**B156436-BLK1**	**114**	%	**70 - 130 (LCL - UCL)**			1

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B156436-BLK1	PB	EPA-552.3	12/19/22	12/20/22 17:23	NAP	GC-3	1

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/17/2023 7:13
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B156436											
Dibromoacetic acid	B156436-BS1	LCS	19.429	20.000	ug/L	97.1		70 - 130			1
Dichloroacetic acid	B156436-BS1	LCS	18.836	20.000	ug/L	94.2		70 - 130			1
Monobromoacetic acid	B156436-BS1	LCS	20.783	20.000	ug/L	104		70 - 130			1
Monochloroacetic acid	B156436-BS1	LCS	19.501	20.000	ug/L	97.5		70 - 130			1
Trichloroacetic acid	B156436-BS1	LCS	22.246	20.000	ug/L	111		70 - 130			1
2,3-Dibromopropionic acid (Surrogate)	B156436-BS1	LCS	21.9	20.0	ug/L	110		70 - 130			1

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B156436-BS1	LCS	EPA-552.3	12/19/22	12/20/22 17:45	NAP	GC-3	1

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/17/2023 7:13
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Halogenated Acetic Acids (Method EPA-552.3)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B156436	Used client sample: N											
Dibromoacetic acid	MS	2228776-19	ND	19.349	20.000	ug/L		96.7		70 - 130		1
	MSD	2228776-19	ND	18.121	20.000	ug/L	6.6	90.6	30	70 - 130		2
Dichloroacetic acid	MS	2228776-19	ND	18.967	20.000	ug/L		94.8		70 - 130		1
	MSD	2228776-19	ND	18.030	20.000	ug/L	5.1	90.1	30	70 - 130		2
Monobromoacetic acid	MS	2228776-19	ND	22.155	20.000	ug/L		111		70 - 130		1
	MSD	2228776-19	ND	19.732	20.000	ug/L	11.6	98.7	30	70 - 130		2
Monochloroacetic acid	MS	2228776-19	ND	18.851	20.000	ug/L		94.3		70 - 130		1
	MSD	2228776-19	ND	17.812	20.000	ug/L	5.7	89.1	30	70 - 130		2
Trichloroacetic acid	MS	2228776-19	ND	22.953	20.000	ug/L		115		70 - 130		1
	MSD	2228776-19	ND	22.232	20.000	ug/L	3.2	111	30	70 - 130		2
2,3-Dibromopropionic acid (Surrogate)	MS	2228776-19	ND	21.4	20.0	ug/L		107		70 - 130		1
	MSD	2228776-19	ND	21.1	20.0	ug/L	1.2	106		70 - 130		2

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B156436-MS1	MS	EPA-552.3	12/19/22	12/20/22 18:07	NAP	GC-3	1
2	B156436-MSD1	MSD	EPA-552.3	12/19/22	12/20/22 18:28	NAP	GC-3	1

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/17/2023 7:13
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Gas Testing in Water

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B156525							
Methane	B156525-BLK1	ND	mg/L	0.0010	0.00046		1

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B156525-BLK1	PB	RSK-175M	12/21/22	12/21/22 14:08	RMK	GC-V10	1

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/17/2023 7:13
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Gas Testing in Water

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B156525											
Methane	B156525-BS1	LCS	0.011537	0.010843	mg/L	106		80 - 120			1
	B156525-BSD1	LCSD	0.011525	0.010843	mg/L	106	0.1	80 - 120	20		2

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B156525-BS1	LCS	RSK-175M	12/21/22	12/21/22 13:48	RMK	GC-V10	1
2	B156525-BSD1	LCSD	RSK-175M	12/21/22	12/21/22 13:58	RMK	GC-V10	1

Pace Analytical ENVIRONMENTAL SCIENCES

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/17/2023 7:13
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B`L0124							
Dissolved Hardness as CaCO3	B`L0124-BLK1	ND	mg/L	0.50	0.10		1
Langlier Index	**B`L0124-BLK1**	**0**	**NA**	**-2.00**	**-2.00**		1
QC Batch ID: B155613							
Bicarbonate	B155613-BLK1	ND	mg/L	5.0	5.0		2
Carbonate	B155613-BLK1	ND	mg/L	2.5	2.5		2
Total Alkalinity as CaCO3	B155613-BLK1	ND	mg/L	4.1	4.1		2
QC Batch ID: B156022							
Chloride	**B156022-BLK1**	**0.16100**	**mg/L**	**0.50**	**0.13**	**J**	3
Fluoride	B156022-BLK1	ND	mg/L	0.050	0.025		3
Nitrate as N	B156022-BLK1	ND	mg/L	0.10	0.024		3
Sulfate	**B156022-BLK1**	**0.25000**	**mg/L**	**1.0**	**0.14**	**J**	3
QC Batch ID: B156026							
Residual Chlorine	B156026-BLK1	ND	mg/L	0.10	0.10		4
QC Batch ID: B156029							
Total Cyanide	**B156029-BLK1**	**0.0020020**	**mg/L**	**0.0050**	**0.0017**	**J**	5
QC Batch ID: B156115							
MBAS	B156115-BLK1	ND	mg/L	0.10	0.024		6
QC Batch ID: B156236							
Total Sulfide	B156236-BLK1	ND	mg/L	0.10	0.050		7
QC Batch ID: B156289							
ortho-Phosphate as P	B156289-BLK1	ND	mg/L	0.050	0.017		8
QC Batch ID: B156349							
Total Suspended Solids (Glass Fiber)	B156349-BLK1	ND	mg/L	0.50	0.50		9
QC Batch ID: B156382							
Nitrite as N	B156382-BLK1	ND	mg/L	0.050	0.010		10
QC Batch ID: B156413							
Total Dissolved Solids @ 180 C	B156413-BLK1	ND	mg/L	6.7	3.3		11
QC Batch ID: B156569							
Odor	B156569-BLK1	ND	Odor Units	1.0	1.0		12

GSI Water Solutions, Inc.
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Reported: 01/17/2023 7:13
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B156579							
Nitrate/Nitrite as N	B156579-BLK1	ND	mg/L	0.10	0.034		13
QC Batch ID: B157026							
Dissolved Calcium	B157026-BLK1	ND	mg/L	0.10	0.016		14
Dissolved Magnesium	B157026-BLK1	ND	mg/L	0.050	0.019		14
Dissolved Sodium	B157026-BLK3	ND	mg/L	0.50	0.051		15
Dissolved Potassium	B157026-BLK1	ND	mg/L	1.0	0.10		14
QC Batch ID: B157256							
Chemical Oxygen Demand	B157256-BLK1	ND	mg O2/L	25	4.3		16
QC Batch ID: B157463							
Ammonia as N	B157463-BLK1	ND	mg/L	0.20	0.067		17

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Water Analysis (General Chemistry)

Quality Control Report - Method Blank Analysis

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B`L0124-BLK1	PB	Calc	12/15/22	01/10/23 09:36	SGB	Calc	1
2	B155613-BLK1	PB	SM-2320B	12/15/22	12/15/22 12:24	RML	MET-1	1
3	B156022-BLK1	PB	EPA-300.0	12/15/22	12/15/22 09:46	KSA	IC1	1
3	B156022-BLK1	PB	EPA-300.0	12/15/22	12/15/22 09:46	KSA	IC1	1
3	B156022-BLK1	PB	EPA-300.0	12/15/22	12/15/22 09:46	KSA	IC1	1
3	B156022-BLK1	PB	EPA-300.0	12/15/22	12/15/22 09:46	KSA	IC1	1
4	B156026-BLK1	PB	SM-4500-CLF	12/15/22	12/15/22 07:45	RML	MANUAL	1
5	B156029-BLK1	PB	EPA-335.4	12/15/22	12/15/22 13:18	MC1	Konelab	1
6	B156115-BLK1	PB	SM-5540C	12/16/22	12/16/22 06:40	JMN	SPEC06	1
7	B156236-BLK1	PB	SM-4500SD	12/15/22	12/15/22 08:00	JT3	SPEC06	1
8	B156289-BLK1	PB	EPA-365.1	12/16/22	12/16/22 09:33	MC1	SC-1	1
9	B156349-BLK1	PB	SM-2540D	12/19/22	12/19/22 13:30	TJV	MANUAL	1
10	B156382-BLK1	PB	EPA-353.2	12/05/22	12/15/22 08:44	IJO	KONE-1	1
11	B156413-BLK1	PB	SM-2540C	12/20/22	12/20/22 13:00	CAD	MANUAL	0.667
12	B156569-BLK1	PB	EPA-140.1	12/15/22	12/15/22 06:30	RML	MANUAL	1
13	B156579-BLK1	PB	EPA-353.2	12/20/22	12/20/22 18:17	KB1	SC-1	1
14	B157026-BLK1	PB	EPA-200.7	12/30/22	01/03/23 15:35	JRG	PE-OP4	1
15	B157026-BLK3	PB	EPA-200.7	12/30/22	01/06/23 01:56	JRG	PE-OP4	1
16	B157256-BLK1	PB	EPA-410.4	01/04/23	01/04/23 16:00	SPB	SPEC06	1
17	B157463-BLK1	PB	EPA-350.1	01/06/23	01/06/23 14:11	KB1	SC-1	1

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Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B155613											
Total Alkalinity as CaCO3	B155613-BS3	LCS	105.88	100.00	mg/L	106		90 - 110			1
pH	B155613-BS2	LCS	7.0300	7.0000	pH Units	100		95 - 105			2
Electrical Conductivity @ 25 C	B155613-BS1	LCS	292.80	303.00	umhos/cm	96.6		90 - 110			3
QC Batch ID: B156022											
Chloride	B156022-BS1	LCS	49.978	50.000	mg/L	100		90 - 110			4
Fluoride	B156022-BS1	LCS	0.99600	1.0000	mg/L	99.6		90 - 110			4
Nitrate as N	B156022-BS1	LCS	4.7990	5.0000	mg/L	96.0		90 - 110			4
Sulfate	B156022-BS1	LCS	99.429	100.00	mg/L	99.4		90 - 110			4
QC Batch ID: B156029											
Total Cyanide	B156029-BS1	LCS	0.16273	0.15000	mg/L	108		90 - 110			5
QC Batch ID: B156115											
MBAS	B156115-BS1	LCS	0.20170	0.20000	mg/L	101		85 - 115			6
QC Batch ID: B156236											
Total Sulfide	B156236-BS1	LCS	0.49978	0.50000	mg/L	100		90 - 110			7
	B156236-BSD1	LCSD	0.49978	0.50000	mg/L	100	0	90 - 110	10		8
QC Batch ID: B156289											
ortho-Phosphate as P	B156289-BS1	LCS	0.51060	0.50000	mg/L	102		90 - 110			9
QC Batch ID: B156382											
Nitrite as N	B156382-BS1	LCS	0.47914	0.50000	mg/L	95.8		90 - 110			10
QC Batch ID: B156413											
Total Dissolved Solids @ 180 C	B156413-BS1	LCS	590.00	586.00	mg/L	101		90 - 110			11
	B156413-BSD1	LCSD	595.00	586.00	mg/L	102	0.8	90 - 110	200		12
QC Batch ID: B156579											
Nitrate/Nitrite as N	B156579-BS1	LCS	2.0559	2.0000	mg/L	103		90 - 110			13
	B156579-BSD1	LCSD	1.9925	2.0000	mg/L	99.6	3.1	90 - 110	10		14
QC Batch ID: B157026											
Dissolved Calcium	B157026-BS1	LCS	9.6141	10.000	mg/L	96.1		85 - 115			15
Dissolved Magnesium	B157026-BS1	LCS	9.9860	10.000	mg/L	99.9		85 - 115			15
Dissolved Sodium	B157026-BS3	LCS	10.623	10.000	mg/L	106		85 - 115			16
Dissolved Potassium	B157026-BS1	LCS	9.4805	10.000	mg/L	94.8		85 - 115			15
QC Batch ID: B157256											
Chemical Oxygen Demand	B157256-BS1	LCS	759.52	750.00	mg O2/L	101		90 - 110			17

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Water Analysis (General Chemistry)

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B157463											
Ammonia as N	B157463-BS1	LCS	2.1249	2.0000	mg/L	106		90 - 110			18

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B155613-BS3	LCS	SM-2320B	12/15/22	12/15/22 12:18	RML	MET-1	1
2	B155613-BS2	LCS	EPA-150.1	12/15/22	12/15/22 12:14	RML	MET-1	1
3	B155613-BS1	LCS	EPA-120.1	12/15/22	12/15/22 12:13	RML	MET-1	1
4	B156022-BS1	LCS	EPA-300.0	12/15/22	12/15/22 10:07	KSA	IC1	1
4	B156022-BS1	LCS	EPA-300.0	12/15/22	12/15/22 10:07	KSA	IC1	1
4	B156022-BS1	LCS	EPA-300.0	12/15/22	12/15/22 10:07	KSA	IC1	1
4	B156022-BS1	LCS	EPA-300.0	12/15/22	12/15/22 10:07	KSA	IC1	1
5	B156029-BS1	LCS	EPA-335.4	12/15/22	12/15/22 13:18	MC1	Konelab	1
6	B156115-BS1	LCS	SM-5540C	12/16/22	12/16/22 06:40	JMN	SPEC06	1
7	B156236-BS1	LCS	SM-4500SD	12/15/22	12/15/22 08:00	JT3	SPEC06	1
8	B156236-BSD1	LCSD	SM-4500SD	12/15/22	12/15/22 08:00	JT3	SPEC06	1
9	B156289-BS1	LCS	EPA-365.1	12/16/22	12/16/22 09:32	MC1	SC-1	1
10	B156382-BS1	LCS	EPA-353.2	12/05/22	12/15/22 08:44	IJO	KONE-1	1
11	B156413-BS1	LCS	SM-2540C	12/20/22	12/20/22 13:00	CAD	MANUAL	5
12	B156413-BSD1	LCSD	SM-2540C	12/20/22	12/20/22 13:00	CAD	MANUAL	5
13	B156579-BS1	LCS	EPA-353.2	12/20/22	12/20/22 18:14	KB1	SC-1	1
14	B156579-BSD1	LCSD	EPA-353.2	12/20/22	12/20/22 18:16	KB1	SC-1	1
15	B157026-BS1	LCS	EPA-200.7	12/30/22	01/03/23 15:37	JRG	PE-OP4	1
16	B157026-BS3	LCS	EPA-200.7	12/30/22	01/06/23 01:58	JRG	PE-OP4	1
17	B157256-BS1	LCS	EPA-410.4	01/04/23	01/04/23 16:00	SPB	SPEC06	1
18	B157463-BS1	LCS	EPA-350.1	01/06/23	01/06/23 14:10	KB1	SC-1	1

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Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B155613	Used client sample: Y - Description: ZIP-01, 12/14/2022 09:40											
Bicarbonate	DUP	2229738-01	136.71	140.79		mg/L	2.9		10			1
Carbonate	DUP	2229738-01	ND	ND		mg/L			10			1
Total Alkalinity as CaCO3	DUP	2229738-01	112.12	115.47		mg/L	2.9		10			1
pH	DUP	2229738-01	7.8200	7.8300		pH Units	0.1		20			2
Electrical Conductivity @ 25 C	DUP	2229738-01	825.50	824.80		umhos/cm	0.1		10			3
QC Batch ID: B156022	Used client sample: Y - Description: ZIP-01, 12/14/2022 09:40											
Chloride	DUP	2229738-01	135.66	135.48		mg/L	0.1		10			4
	MS	2229738-01	135.66	183.41	50.505	mg/L		94.5		80 - 120		5
	MSD	2229738-01	135.66	182.93	50.505	mg/L	0.3	93.6	10	80 - 120		6
Fluoride	DUP	2229738-01	0.25200	0.22800		mg/L	10.0		10			4
	MS	2229738-01	0.25200	1.2212	1.0101	mg/L		96.0		80 - 120		5
	MSD	2229738-01	0.25200	1.2505	1.0101	mg/L	2.4	98.9	10	80 - 120		6
Nitrate as N	DUP	2229738-01	0.85300	0.87600		mg/L	2.7		10			4
	MS	2229738-01	0.85300	5.5636	5.0505	mg/L		93.3		80 - 120		5
	MSD	2229738-01	0.85300	5.5525	5.0505	mg/L	0.2	93.1	10	80 - 120		6
Sulfate	DUP	2229738-01	90.601	90.535		mg/L	0.1		10			4
	MS	2229738-01	90.601	196.73	101.01	mg/L		105		80 - 120		5
	MSD	2229738-01	90.601	196.50	101.01	mg/L	0.1	105	10	80 - 120		6
QC Batch ID: B156023	Used client sample: Y - Description: ZIP-01, 12/14/2022 09:40											
Oxidation Reduction Potential (Eh)	DUP	2229738-01	356.00	366.00		mV	2.8		10			7
Oxidation Reduction Potential (Eobs_Ag/	DUP	2229738-01	140.92	150.86		mV	6.8		10			7
QC Batch ID: B156026	Used client sample: Y - Description: ZIP-01, 12/14/2022 09:40											
Residual Chlorine	DUP	2229738-01	ND	ND		mg/L			10			8
QC Batch ID: B156029	Used client sample: N											
Total Cyanide	DUP	2229410-01	0.0018140	0.0018690		mg/L	3.0		10		J	9
	MS	2229410-01	0.0018140	0.11199	0.10000	mg/L		110		90 - 110		10
	MSD	2229410-01	0.0018140	0.11223	0.10000	mg/L	0.2	110	10	90 - 110		11
QC Batch ID: B156115	Used client sample: Y - Description: ZIP-01, 12/14/2022 09:40											
MBAS	DUP	2229738-01	ND	ND		mg/L			20			12
	MS	2229738-01	ND	0.41600	0.40000	mg/L		104		80 - 120		13
	MSD	2229738-01	ND	0.40760	0.40000	mg/L	2.0	102	20	80 - 120		14
QC Batch ID: B156236	Used client sample: N											
Total Sulfide	DUP	2229532-07	ND	ND		mg/L			10			15
	MS	2229532-07	ND	0.47873	0.50000	mg/L		95.7		80 - 120		16
	MSD	2229532-07	ND	0.48575	0.50000	mg/L	1.5	97.2	10	80 - 120		17

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Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B156289	Used client sample: Y - Description: ZIP-01, 12/14/2022 09:40											
ortho-Phosphate as P	DUP	2229738-01	0.095300	0.093000		mg/L	2.4		10			18
	MS	2229738-01	0.095300	0.64589	0.52632	mg/L		105		90 - 110		19
	MSD	2229738-01	0.095300	0.62863	0.52632	mg/L	2.7	101	10	90 - 110		20
QC Batch ID: B156349	Used client sample: N											
Total Suspended Solids (Glass Fiber)	DUP	2229733-03	55.435	58.152		mg/L	4.8		10			21
QC Batch ID: B156382	Used client sample: Y - Description: ZIP-01, 12/14/2022 09:40											
Nitrite as N	DUP	2229738-01	0.15428	0.15228		mg/L	1.3		10			22
	MS	2229738-01	0.15428	0.66265	0.52632	mg/L		96.6		90 - 110		23
	MSD	2229738-01	0.15428	0.66438	0.52632	mg/L	0.3	96.9	10	90 - 110		24
QC Batch ID: B156413	Used client sample: N											
Total Dissolved Solids @ 180 C	DUP	2229689-01	388.00	394.00		mg/L	1.5		10			25
QC Batch ID: B156557	Used client sample: Y - Description: ZIP-01, 12/14/2022 09:40											
Color	DUP	2229738-01	2.0000	2.0000		Color Units	0		20			26
QC Batch ID: B156579	Used client sample: N											
Nitrate/Nitrite as N	DUP	2229644-02	ND	ND		mg/L			10			27
	MS	2229644-02	ND	2.1119	2.1053	mg/L		100		90 - 110		28
	MSD	2229644-02	ND	2.2062	2.1053	mg/L	4.4	105	10	90 - 110		29
QC Batch ID: B156584	Used client sample: Y - Description: ZIP-01, 12/14/2022 09:40											
Turbidity	DUP	2229738-01	1.3300	1.3500		NT Units	1.5		10			30
QC Batch ID: B157026	Used client sample: N											
Dissolved Calcium	DUP	2229746-03	22.777	22.964		mg/L	0.8		20			31
	MS	2229746-03	22.777	31.505	10.204	mg/L		85.5		85 - 115		32
	MSD	2229746-03	22.777	31.629	10.204	mg/L	0.4	86.7	20	85 - 115		33
Dissolved Magnesium	DUP	2229746-03	11.074	11.351		mg/L	2.5		20			31
	MS	2229746-03	11.074	21.077	10.204	mg/L		98.0		85 - 115		32
	MSD	2229746-03	11.074	21.256	10.204	mg/L	0.8	99.8	20	85 - 115		33
Dissolved Sodium	DUP	2229746-03	30.233	29.596		mg/L	2.1		20			34
	MS	2229746-03	30.233	82.747	51.020	mg/L		103		85 - 115		35
	MSD	2229746-03	30.233	81.257	51.020	mg/L	1.8	100	20	85 - 115		36
Dissolved Potassium	DUP	2229746-03	6.2540	6.3494		mg/L	1.5		20			31
	MS	2229746-03	6.2540	15.901	10.204	mg/L		94.5		85 - 115		32
	MSD	2229746-03	6.2540	15.908	10.204	mg/L	0.0	94.6	20	85 - 115		33
QC Batch ID: B157256	Used client sample: Y - Description: ZIP-01, 12/14/2022 09:40											
Chemical Oxygen Demand	DUP	2229738-01	ND	ND		mg O2/L			20			37
	MS	2229738-01	ND	906.52	882.35	mg O2/L		103		80 - 120		38
	MSD	2229738-01	ND	893.55	882.35	mg O2/L	1.4	101	20	80 - 120		39

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Reported: 01/17/2023 7:13
Project: Morro Bay Injection
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Project Manager: Nate Page

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B157463	Used client sample: N											
Ammonia as N	DUP	2229756-01	0.20574	0.21159		mg/L	2.8		10			40
	MS	2229756-01	0.20574	2.4622	2.2770	mg/L		99.1		90 - 110		41
	MSD	2229756-01	0.20574	2.5407	2.2770	mg/L	3.1	103	10	90 - 110		42

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Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B155613-DUP1	DUP	SM-2320B	12/15/22	12/15/22 12:35	RML	MET-1	1
2	B155613-DUP1	DUP	EPA-150.1	12/15/22	12/15/22 12:35	RML	MET-1	1
3	B155613-DUP1	DUP	EPA-120.1	12/15/22	12/15/22 12:35	RML	MET-1	1
4	B156022-DUP1	DUP	EPA-300.0	12/15/22	12/15/22 10:49	KSA	IC1	1
4	B156022-DUP1	DUP	EPA-300.0	12/15/22	12/15/22 10:49	KSA	IC1	1
4	B156022-DUP1	DUP	EPA-300.0	12/15/22	12/15/22 10:49	KSA	IC1	1
4	B156022-DUP1	DUP	EPA-300.0	12/15/22	12/15/22 10:49	KSA	IC1	1
5	B156022-MS1	MS	EPA-300.0	12/15/22	12/15/22 11:10	KSA	IC1	1.010
5	B156022-MS1	MS	EPA-300.0	12/15/22	12/15/22 11:10	KSA	IC1	1.010
5	B156022-MS1	MS	EPA-300.0	12/15/22	12/15/22 11:10	KSA	IC1	1.010
5	B156022-MS1	MS	EPA-300.0	12/15/22	12/15/22 11:10	KSA	IC1	1.010
6	B156022-MSD1	MSD	EPA-300.0	12/15/22	12/15/22 11:31	KSA	IC1	1.010
6	B156022-MSD1	MSD	EPA-300.0	12/15/22	12/15/22 11:31	KSA	IC1	1.010
6	B156022-MSD1	MSD	EPA-300.0	12/15/22	12/15/22 11:31	KSA	IC1	1.010
6	B156022-MSD1	MSD	EPA-300.0	12/15/22	12/15/22 11:31	KSA	IC1	1.010
7	B156023-DUP1	DUP	ASTM-D1498	12/15/22	12/15/22 10:24	RML	MET-1	1
8	B156026-DUP1	DUP	SM-4500-CLF	12/15/22	12/15/22 07:45	RML	MANUAL	1
9	B156029-DUP1	DUP	EPA-335.4	12/15/22	12/15/22 13:18	MC1	Konelab	1
10	B156029-MS1	MS	EPA-335.4	12/15/22	12/15/22 13:18	MC1	Konelab	1
11	B156029-MSD1	MSD	EPA-335.4	12/15/22	12/15/22 13:18	MC1	Konelab	1
12	B156115-DUP1	DUP	SM-5540C	12/16/22	12/16/22 06:40	JMN	SPEC06	2
13	B156115-MS1	MS	SM-5540C	12/16/22	12/16/22 06:40	JMN	SPEC06	2
14	B156115-MSD1	MSD	SM-5540C	12/16/22	12/16/22 06:40	JMN	SPEC06	2
15	B156236-DUP1	DUP	SM-4500SD	12/15/22	12/15/22 08:00	JT3	SPEC06	1
16	B156236-MS1	MS	SM-4500SD	12/15/22	12/15/22 08:00	JT3	SPEC06	1
17	B156236-MSD1	MSD	SM-4500SD	12/15/22	12/15/22 08:00	JT3	SPEC06	1
18	B156289-DUP1	DUP	EPA-365.1	12/16/22	12/16/22 09:34	MC1	SC-1	1
19	B156289-MS1	MS	EPA-365.1	12/16/22	12/16/22 09:35	MC1	SC-1	1.053
20	B156289-MSD1	MSD	EPA-365.1	12/16/22	12/16/22 09:35	MC1	SC-1	1.053
21	B156349-DUP1	DUP	SM-2540D	12/19/22	12/19/22 13:30	TJV	MANUAL	5.435
22	B156382-DUP1	DUP	EPA-353.2	12/05/22	12/15/22 09:13	IJO	KONE-1	1
23	B156382-MS1	MS	EPA-353.2	12/05/22	12/15/22 08:44	IJO	KONE-1	1.053

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/17/2023 7:13
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Water Analysis (General Chemistry)

Quality Control Report - Precision & Accuracy

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
24	B156382-MSD1	MSD	EPA-353.2	12/05/22	12/15/22 08:44	IJO	KONE-1	1.053
25	B156413-DUP1	DUP	SM-2540C	12/20/22	12/20/22 13:00	CAD	MANUAL	2
26	B156557-DUP1	DUP	SM-2120B	12/15/22	12/15/22 06:30	RML	MANUAL	1
27	B156579-DUP1	DUP	EPA-353.2	12/20/22	12/20/22 18:19	KB1	SC-1	1
28	B156579-MS1	MS	EPA-353.2	12/20/22	12/20/22 18:20	KB1	SC-1	1.053
29	B156579-MSD1	MSD	EPA-353.2	12/20/22	12/20/22 18:22	KB1	SC-1	1.053
30	B156584-DUP1	DUP	EPA-180.1	12/15/22	12/15/22 06:30	RML	MANUAL	1
31	B157026-DUP1	DUP	EPA-200.7	12/30/22	01/03/23 15:42	JRG	PE-OP4	1
32	B157026-MS1	MS	EPA-200.7	12/30/22	01/03/23 15:46	JRG	PE-OP4	1.020
33	B157026-MSD1	MSD	EPA-200.7	12/30/22	01/03/23 15:48	JRG	PE-OP4	1.020
34	B157026-DUP3	DUP	EPA-200.7	12/30/22	01/06/23 02:02	JRG	PE-OP4	5
35	B157026-MS3	MS	EPA-200.7	12/30/22	01/06/23 02:07	JRG	PE-OP4	5.102
36	B157026-MSD3	MSD	EPA-200.7	12/30/22	01/06/23 02:09	JRG	PE-OP4	5.102
37	B157256-DUP1	DUP	EPA-410.4	01/04/23	01/04/23 16:00	SPB	SPEC06	1
38	B157256-MS1	MS	EPA-410.4	01/04/23	01/04/23 16:00	SPB	SPEC06	1.176
39	B157256-MSD1	MSD	EPA-410.4	01/04/23	01/04/23 16:00	SPB	SPEC06	1.176
40	B157463-DUP1	DUP	EPA-350.1	01/06/23	01/06/23 14:13	KB1	SC-1	1.026
41	B157463-MS1	MS	EPA-350.1	01/06/23	01/06/23 14:13	KB1	SC-1	1.139
42	B157463-MSD1	MSD	EPA-350.1	01/06/23	01/06/23 14:15	KB1	SC-1	1.139

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/17/2023 7:13
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Project Manager: Nate Page

Metals Analysis

Quality Control Report - Method Blank Analysis

Constituent	QC Sample ID	MB Result	Units	PQL	MDL	Lab Quals	Run #
QC Batch ID: B156239							
Dissolved Antimony	B156239-BLK1	ND	ug/L	2.0	0.23		1
Dissolved Arsenic	B156239-BLK1	ND	ug/L	2.0	0.38		1
Dissolved Barium	B156239-BLK1	ND	ug/L	1.0	0.066		1
Dissolved Cadmium	B156239-BLK1	ND	ug/L	1.0	0.034		1
Dissolved Chromium	B156239-BLK1	ND	ug/L	3.0	0.15		1
Dissolved Cobalt	B156239-BLK1	ND	ug/L	1.0	0.011		1
Dissolved Copper	B156239-BLK1	ND	ug/L	2.0	0.32		1
Dissolved Lead	B156239-BLK1	ND	ug/L	1.0	0.021		1
Dissolved Manganese	B156239-BLK1	ND	ug/L	1.0	0.040		1
Dissolved Molybdenum	B156239-BLK1	ND	ug/L	1.0	0.033		1
Dissolved Nickel	B156239-BLK1	ND	ug/L	2.0	0.15		1
Dissolved Selenium	B156239-BLK1	ND	ug/L	2.0	0.25		1
Dissolved Silver	B156239-BLK1	ND	ug/L	1.0	0.015		1
Dissolved Thallium	B156239-BLK1	ND	ug/L	1.0	0.025		1
Dissolved Uranium	**B156239-BLK1**	**0.086000**	**ug/L**	**1.0**	**0.051**	**J**	1
Dissolved Vanadium	B156239-BLK1	ND	ug/L	3.0	0.39		1
Dissolved Zinc	B156239-BLK1	ND	ug/L	5.0	2.2		1
QC Batch ID: B156489							
Dissolved Mercury	B156489-BLK1	ND	ug/L	0.20	0.022		2
QC Batch ID: B156600							
Hexavalent Chromium	B156600-BLK1	ND	ug/L	0.20	0.020		3
QC Batch ID: B157026							
Dissolved Aluminum	B157026-BLK1	ND	ug/L	50	23		4
Dissolved Iron	B157026-BLK1	ND	ug/L	50	30		4
Dissolved Silicon as SiO2	B157026-BLK3	ND	ug/L	200	31		5
Dissolved Strontium	B157026-BLK1	ND	ug/L	10	1.0		4
QC Batch ID: B157273							
Total Recoverable Silica	B157273-BLK1	ND	ug/L	200	53		6

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Metals Analysis

Quality Control Report - Method Blank Analysis

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B156239-BLK1	PB	EPA-200.8	12/19/22	12/19/22 15:05	ARD	PE-EL4	1
1	B156239-BLK1	PB	EPA-200.8	12/19/22	12/19/22 15:05	ARD	PE-EL4	1
2	B156489-BLK1	PB	EPA-245.1	12/21/22	12/21/22 13:08	TMT	CETAC3	1
3	B156600-BLK1	PB	EPA-218.6	12/21/22	12/21/22 21:02	KSA	IC-4	1
4	B157026-BLK1	PB	EPA-200.7	12/30/22	01/03/23 15:35	JRG	PE-OP4	1
5	B157026-BLK3	PB	EPA-200.7	12/30/22	01/06/23 01:56	JRG	PE-OP4	1
6	B157273-BLK1	PB	EPA-200.7	01/04/23	01/05/23 13:29	JRG	PE-OP4	1

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Metals Analysis

Quality Control Report - Laboratory Control Sample

Constituent	QC Sample ID	Type	Result	Spike Level	Units	Percent Recovery	RPD	Control Limits Percent Recovery	Control Limits RPD	Lab Quals	Run #
QC Batch ID: B156239											
Dissolved Antimony	B156239-BS1	LCS	40.059	40.000	ug/L	100		85 - 115			1
Dissolved Arsenic	B156239-BS1	LCS	99.318	100.00	ug/L	99.3		85 - 115			1
Dissolved Barium	B156239-BS1	LCS	40.134	40.000	ug/L	100		85 - 115			1
Dissolved Cadmium	B156239-BS1	LCS	40.597	40.000	ug/L	101		85 - 115			1
Dissolved Chromium	B156239-BS1	LCS	39.022	40.000	ug/L	97.6		85 - 115			1
Dissolved Cobalt	B156239-BS1	LCS	39.258	40.000	ug/L	98.1		85 - 115			1
Dissolved Copper	B156239-BS1	LCS	104.52	100.00	ug/L	105		85 - 115			1
Dissolved Lead	B156239-BS1	LCS	103.35	100.00	ug/L	103		85 - 115			1
Dissolved Manganese	B156239-BS1	LCS	98.745	100.00	ug/L	98.7		85 - 115			1
Dissolved Molybdenum	B156239-BS1	LCS	37.199	40.000	ug/L	93.0		85 - 115			1
Dissolved Nickel	B156239-BS1	LCS	100.17	100.00	ug/L	100		85 - 115			1
Dissolved Selenium	B156239-BS1	LCS	98.705	100.00	ug/L	98.7		85 - 115			1
Dissolved Silver	B156239-BS1	LCS	40.287	40.000	ug/L	101		85 - 115			1
Dissolved Thallium	B156239-BS1	LCS	39.392	40.000	ug/L	98.5		85 - 115			1
Dissolved Uranium	B156239-BS1	LCS	35.122	40.000	ug/L	87.8		85 - 115			1
Dissolved Vanadium	B156239-BS1	LCS	38.236	40.000	ug/L	95.6		85 - 115			1
Dissolved Zinc	B156239-BS1	LCS	102.54	100.00	ug/L	103		85 - 115			1
QC Batch ID: B156489											
Dissolved Mercury	B156489-BS1	LCS	1.0650	1.0000	ug/L	106		85 - 115			2
QC Batch ID: B156600											
Hexavalent Chromium	B156600-BS1	LCS	18.445	20.000	ug/L	92.2		90 - 110			3
	B156600-BSD1	LCSD	18.440	20.000	ug/L	92.2	0.0	90 - 110	10		4
QC Batch ID: B157026											
Dissolved Aluminum	B157026-BS1	LCS	960.23	1000.0	ug/L	96.0		85 - 115			5
Dissolved Iron	B157026-BS1	LCS	986.65	1000.0	ug/L	98.7		85 - 115			5
Dissolved Silicon as SiO2	B157026-BS3	LCS	22380	21392	ug/L	105		85 - 115			6
Dissolved Strontium	B157026-BS1	LCS	506.31	500.00	ug/L	101		85 - 115			5
QC Batch ID: B157273											
Total Recoverable Silica	B157273-BS1	LCS	20593	21392	ug/L	96.3		85 - 115			7

GSI Water Solutions, Inc.
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Metals Analysis

Quality Control Report - Laboratory Control Sample

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B156239-BS1	LCS	EPA-200.8	12/19/22	12/19/22 14:30	ARD	PE-EL4	1
1	B156239-BS1	LCS	EPA-200.8	12/19/22	12/19/22 14:30	ARD	PE-EL4	1
2	B156489-BS1	LCS	EPA-245.1	12/21/22	12/21/22 13:10	TMT	CETAC3	1
3	B156600-BS1	LCS	EPA-218.6	12/21/22	12/21/22 21:12	KSA	IC-4	1
4	B156600-BSD1	LCSD	EPA-218.6	12/21/22	12/21/22 21:21	KSA	IC-4	1
5	B157026-BS1	LCS	EPA-200.7	12/30/22	01/03/23 15:37	JRG	PE-OP4	1
6	B157026-BS3	LCS	EPA-200.7	12/30/22	01/06/23 01:58	JRG	PE-OP4	1
7	B157273-BS1	LCS	EPA-200.7	01/04/23	01/05/23 13:32	JRG	PE-OP4	1

GSI Water Solutions, Inc.
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Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B156239	Used client sample: N											
Dissolved Antimony	DUP	2228971-01	ND	ND		ug/L			20			1
	MS	2228971-01	ND	42.465	40.816	ug/L		104		70 - 130		2
	MSD	2228971-01	ND	43.800	40.816	ug/L	3.1	107	20	70 - 130		3
Dissolved Arsenic	DUP	2228971-01	1.0350	0.97700		ug/L	5.8		20		J	1
	MS	2228971-01	1.0350	118.02	102.04	ug/L		115		70 - 130		2
	MSD	2228971-01	1.0350	120.02	102.04	ug/L	1.7	117	20	70 - 130		3
Dissolved Barium	DUP	2228971-01	79.989	77.899		ug/L	2.6		20			1
	MS	2228971-01	79.989	123.95	40.816	ug/L		108		70 - 130		2
	MSD	2228971-01	79.989	124.99	40.816	ug/L	0.8	110	20	70 - 130		3
Dissolved Cadmium	DUP	2228971-01	0.13200	0.13100		ug/L	0.8		20		J	1
	MS	2228971-01	0.13200	43.666	40.816	ug/L		107		70 - 130		2
	MSD	2228971-01	0.13200	43.965	40.816	ug/L	0.7	107	20	70 - 130		3
Dissolved Chromium	DUP	2228971-01	ND	ND		ug/L			20			1
	MS	2228971-01	ND	38.349	40.816	ug/L		94.0		70 - 130		2
	MSD	2228971-01	ND	37.787	40.816	ug/L	1.5	92.6	20	70 - 130		3
Dissolved Cobalt	DUP	2228971-01	0.33100	0.30300		ug/L	8.8		20		J	1
	MS	2228971-01	0.33100	38.309	40.816	ug/L		93.0		70 - 130		2
	MSD	2228971-01	0.33100	36.888	40.816	ug/L	3.8	89.6	20	70 - 130		3
Dissolved Copper	DUP	2228971-01	1.7470	1.8300		ug/L	4.6		20		J	1
	MS	2228971-01	1.7470	103.06	102.04	ug/L		99.3		70 - 130		2
	MSD	2228971-01	1.7470	107.40	102.04	ug/L	4.1	104	20	70 - 130		3
Dissolved Lead	DUP	**2228971-01**	**0.91300**	**0.74200**		**ug/L**	**20.7**		**20**		**J,A02**	1
	MS	**2228971-01**	**0.91300**	**104.57**	**102.04**	**ug/L**		**102**		**70 - 130**		2
	MSD	**2228971-01**	**0.91300**	**111.64**	**102.04**	**ug/L**	**6.5**	**109**	**20**	**70 - 130**		3
Dissolved Manganese	DUP	2228971-01	769.99	768.81		ug/L	0.2		20			1
	MS	2228971-01	769.99	863.88	102.04	ug/L		92.0		70 - 130		2
	MSD	2228971-01	769.99	847.54	102.04	ug/L	1.9	76.0	20	70 - 130		3
Dissolved Molybdenum	DUP	2228971-01	2.3030	2.2840		ug/L	0.8		20			1
	MS	2228971-01	2.3030	44.284	40.816	ug/L		103		70 - 130		2
	MSD	2228971-01	2.3030	44.376	40.816	ug/L	0.2	103	20	70 - 130		3
Dissolved Nickel	DUP	2228971-01	2.1360	2.1140		ug/L	1.0		20			1
	MS	2228971-01	2.1360	94.650	102.04	ug/L		90.7		70 - 130		2
	MSD	2228971-01	2.1360	93.182	102.04	ug/L	1.6	89.2	20	70 - 130		3
Dissolved Selenium	DUP	2228971-01	2.4600	2.5240		ug/L	2.6		20			1
	MS	2228971-01	2.4600	128.85	102.04	ug/L		124		70 - 130		2
	MSD	2228971-01	2.4600	130.89	102.04	ug/L	1.6	126	20	70 - 130		3
Dissolved Silver	DUP	2228971-01	ND	ND		ug/L			20			1
	MS	2228971-01	ND	40.068	40.816	ug/L		98.2		70 - 130		2
	MSD	2228971-01	ND	39.871	40.816	ug/L	0.5	97.7	20	70 - 130		3

GSI Water Solutions, Inc.
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Metals Analysis

Quality Control Report - Precision & Accuracy

Constituent	Type	Source Sample ID	Source Result	Result	Spike Added	Units	RPD	Percent Recovery	Control Limits RPD	Control Limits Percent Recovery	Lab Quals	R#
QC Batch ID: B156239	Used client sample: N											
Dissolved Thallium	DUP	2228971-01	ND	ND		ug/L			20			1
	MS	2228971-01	ND	39.233	40.816	ug/L		96.1		70 - 130		2
	MSD	2228971-01	ND	39.820	40.816	ug/L	1.5	97.6	20	70 - 130		3
Dissolved Uranium	DUP	2228971-01	0.32100	0.32500		ug/L	1.2		20		J	1
	MS	2228971-01	0.32100	40.474	40.816	ug/L		98.4		70 - 130		2
	MSD	2228971-01	0.32100	41.553	40.816	ug/L	2.6	101	20	70 - 130		3
Dissolved Vanadium	DUP	2228971-01	2.6820	2.4660		ug/L	8.4		20		J	1
	MS	2228971-01	2.6820	41.953	40.816	ug/L		96.2		70 - 130		2
	MSD	2228971-01	2.6820	42.469	40.816	ug/L	1.2	97.5	20	70 - 130		3
Dissolved Zinc	DUP	2228971-01	3.3240	3.4330		ug/L	3.2		20		J	1
	MS	2228971-01	3.3240	118.12	102.04	ug/L		113		70 - 130		2
	MSD	2228971-01	3.3240	119.81	102.04	ug/L	1.4	114	20	70 - 130		3
QC Batch ID: B156489	Used client sample: Y - Description: ZIP-01, 12/14/2022 09:40											
Dissolved Mercury	DUP	2229738-01	ND	ND		ug/L			20			4
	MS	2229738-01	ND	0.83750	1.0000	ug/L		83.8		70 - 130		5
	MSD	2229738-01	ND	0.93750	1.0000	ug/L	11.3	93.8	20	70 - 130		6
QC Batch ID: B156600	Used client sample: N											
Hexavalent Chromium	DUP	2230269-02	ND	ND		ug/L			10			7
	MS	2230269-02	ND	18.280	20.202	ug/L		90.5		90 - 110		8
	MSD	2230269-02	ND	19.808	20.202	ug/L	8.0	98.0	10	90 - 110		9
QC Batch ID: B157026	Used client sample: N											
Dissolved Aluminum	DUP	2229746-03	ND	ND		ug/L			20			10
	MS	2229746-03	ND	1008.2	1020.4	ug/L		98.8		85 - 115		11
	MSD	2229746-03	ND	1017.8	1020.4	ug/L	0.9	99.7	20	85 - 115		12
Dissolved Iron	DUP	2229746-03	ND	ND		ug/L			20			10
	MS	2229746-03	ND	1052.8	1020.4	ug/L		103		85 - 115		11
	MSD	2229746-03	ND	1071.2	1020.4	ug/L	1.7	105	20	85 - 115		12
Dissolved Silicon as SiO2	DUP	2229746-03	80563	79019		ug/L	1.9		20			13
	MS	2229746-03	80563	183400	109140	ug/L		94.2		85 - 115		14
	MSD	2229746-03	80563	181540	109140	ug/L	1.0	92.5	20	85 - 115		15
Dissolved Strontium	DUP	2229746-03	301.65	301.95		ug/L	0.1		20			10
	MS	2229746-03	301.65	811.24	510.20	ug/L		99.9		85 - 115		11
	MSD	2229746-03	301.65	804.10	510.20	ug/L	0.9	98.5	20	85 - 115		12
QC Batch ID: B157273	Used client sample: N											
Total Recoverable Silica	DUP	2230211-03	26077	25762		ug/L	1.2		20			16
	MS	2230211-03	26077	46430	21392	ug/L		95.1		75 - 125		17
	MSD	2230211-03	26077	45906	21392	ug/L	1.1	92.7	20	75 - 125		18

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/17/2023 7:13
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Metals Analysis

Quality Control Report - Precision & Accuracy

Run #	QC Sample ID	QC Type	Method	Prep Date	Run Date Time	Analyst	Instrument	Dilution
1	B156239-DUP1	DUP	EPA-200.8	12/19/22	12/19/22 15:33	ARD	PE-EL4	1
1	B156239-DUP1	DUP	EPA-200.8	12/19/22	12/19/22 15:33	ARD	PE-EL4	1
2	B156239-MS1	MS	EPA-200.8	12/19/22	12/19/22 14:32	ARD	PE-EL4	1.020
2	B156239-MS1	MS	EPA-200.8	12/19/22	12/19/22 14:32	ARD	PE-EL4	1.020
3	B156239-MSD1	MSD	EPA-200.8	12/19/22	12/19/22 14:34	ARD	PE-EL4	1.020
3	B156239-MSD1	MSD	EPA-200.8	12/19/22	12/19/22 14:34	ARD	PE-EL4	1.020
4	B156489-DUP1	DUP	EPA-245.1	12/21/22	12/21/22 13:15	TMT	CETAC3	1
5	B156489-MS1	MS	EPA-245.1	12/21/22	12/21/22 13:18	TMT	CETAC3	1
6	B156489-MSD1	MSD	EPA-245.1	12/21/22	12/21/22 13:20	TMT	CETAC3	1
7	B156600-DUP1	DUP	EPA-218.6	12/21/22	12/21/22 21:41	KSA	IC-4	1
8	B156600-MS1	MS	EPA-218.6	12/21/22	12/22/22 07:50	RC1	IC-4	1.010
9	B156600-MSD1	MSD	EPA-218.6	12/21/22	12/22/22 09:35	RC1	IC-4	1.010
10	B157026-DUP1	DUP	EPA-200.7	12/30/22	01/03/23 15:42	JRG	PE-OP4	1
11	B157026-MS1	MS	EPA-200.7	12/30/22	01/03/23 15:46	JRG	PE-OP4	1.020
12	B157026-MSD1	MSD	EPA-200.7	12/30/22	01/03/23 15:48	JRG	PE-OP4	1.020
13	B157026-DUP3	DUP	EPA-200.7	12/30/22	01/06/23 02:02	JRG	PE-OP4	5
14	B157026-MS3	MS	EPA-200.7	12/30/22	01/06/23 02:07	JRG	PE-OP4	5.102
15	B157026-MSD3	MSD	EPA-200.7	12/30/22	01/06/23 02:09	JRG	PE-OP4	5.102
16	B157273-DUP1	DUP	EPA-200.7	01/04/23	01/05/23 13:36	JRG	PE-OP4	1
17	B157273-MS1	MS	EPA-200.7	01/04/23	01/05/23 13:41	JRG	PE-OP4	1
18	B157273-MSD1	MSD	EPA-200.7	01/04/23	01/05/23 13:43	JRG	PE-OP4	1

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)

AFL2535
1/03/2023
Invoice: AG00022

Ragen Williams
Pace Analytical (Bakersfield, CA)
4100 Atlas Court
Bakersfield, CA 93308

RE: Report for AFL2535 General: Project Manager-Ragen Williams

Dear Ragen Williams,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 12/16/2022. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2016 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Sarah K. Guenther , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Sarah Guenther

Sarah K. Guenther, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AFL2535 FINAL 01032023 1038

AFL2535

General: Project Manager-Ragen Williams

BSK ASSOCIATES

Case Narrative

Project and Report Details		Invoice Details	
Client:	Pace Analytical (Bakersfield, CA)	Invoice To:	Pace Analytical (Bakersfield, CA)
Report To:	Ragen Williams	Invoice Attn:	Invoicing
Project #:	2229738	Project PO#:	-
Received:	12/16/2022 - 17:00		
Report Due:	1/03/2023		

Sample Receipt Conditions

Cooler: Default Cooler

Temperature on Receipt °C: 3.4

Containers Intact
COC/Labels Agree
Received On Wet Ice
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

SC1.41 Sample was received without chemical preservation. Sample volume was split and preserved by the laboratory.

Report Distribution

Recipient(s)	Report Format	CC:
Ragen Williams	FINAL.RPT	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AFL2535 FINAL 01032023 1038

BSK ASSOCIATES

AFL2535

General: Project Manager-Ragen Williams
2229738

Certificate of Analysis

Sample ID: AFL2535-01
Sampled By: Client
Sample Description: 2229738-01 // ZIP-01

Sample Date - Time: 12/14/2022 - 09:40
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Bromate	EPA 317.0	ND	1.0	ug/L	1	AFL1261	12/17/22	12/17/22	SC1.41

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Beryllium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AFL1277	12/19/22	12/20/22	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AFL2535 FINAL 01032023 1038

BSK ASSOCIATES

AFL2535

General: Project Manager-Ragen Williams

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

EPA 317.0 - Quality Control

Batch: AFL1261
Prep Method: Method Specific Preparation

Prepared: 12/17/2022
Analyst: DXR

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AFL1261-BLK1)											
Bromate	ND	1.0	ug/L							12/17/22	
Blank Spike (AFL1261-BS1)											
Bromate	9.7	1.0	ug/L	10	ND	97	85-115			12/17/22	
Blank Spike Dup (AFL1261-BSD1)											
Bromate	10	1.0	ug/L	10	ND	100	85-115	3	10	12/17/22	
Matrix Spike (AFL1261-MS1), Source: AFL2535-01											
Bromate	10	1.0	ug/L	10	ND	100	75-125			12/17/22	
Matrix Spike Dup (AFL1261-MSD1), Source: AFL2535-01											
Bromate	10	1.0	ug/L	10	ND	101	75-125	1	10	12/17/22	

BSK ASSOCIATES

AFL2535

General: Project Manager-Ragen Williams

BSK Associates Laboratory Fresno

Metals Quality Control Report

EPA 200.8 - Quality Control

Batch: AFL1277 Prepared: 12/19/2022
Prep Method: Filtration - Metals Analyst: CEG

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AFL1277-BLK1)											
Beryllium - Dissolved (1)	ND	1.0	ug/L							12/20/22	
Blank Spike (AFL1277-BS1)											
Beryllium - Dissolved (1)	220	1.0	ug/L	200	ND	109	85-115			12/20/22	
Blank Spike Dup (AFL1277-BSD1)											
Beryllium - Dissolved (1)	210	1.0	ug/L	200	ND	106	85-115	2	20	12/20/22	
Matrix Spike (AFL1277-MS1), Source: AFL2220-04											
Beryllium - Dissolved (1)	210	1.0	ug/L	200	ND	107	70-130			12/20/22	
Matrix Spike Dup (AFL1277-MSD1), Source: AFL2220-04											
Beryllium - Dissolved (1)	220	1.0	ug/L	200	ND	109	70-130	1	20	12/20/22	

BSK ASSOCIATES

AFL2535

General: Project Manager-Ragen Williams

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Unless otherwise noted, TOC results by SM 5310C method do not include purgeable organic carbon, which is removed along with the inorganic carbon interference. The POC contribution to TOC is considered to be negligible.

BSK ASSOCIATES

AFL2535

General: Project Manager-Ragen Williams

Certificate of Analysis

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

The following parameters are calculated values and are outside the scope of our NELAP accreditation:

Total Nitrogen   Aggressive Index   Trivalent Chromium

BSK is not accredited under the NELAP program for the following additional parameters: **NA**

Certifications: Please refer to our website for a copy of our Accredited Fields of Testing under each certification.

Fresno

State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-019
State of Nevada	CA000792022-1	State of Oregon - NELAP	4021-019
EPA UCMR5	CA00079	State of Washington	C997-22a

Sacramento

State of California - ELAP	1180-S1

San Bernardino

State of California - ELAP	2993	Los Angeles CSD	9254478
NELAP certified	4119-007	State of Oregon - NELAP	4119-007

Vancouver

NELAP certified	WA100008-015	State of Oregon - NELAP	WA100008-015
State of Washington	C824-22		

AFL2535 BCLab4911 12/16/2022

BSK Associates SR-FL-0002-23

Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TTHM/TCP)?	Yes No NA
		TB Received? (Check Method Below)	Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received ("—" means preservation/chlorine checks are either N/A or are performed in the lab)

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?	1				
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—	1B A				
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 DW	Cl, pH > 8	P F					
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—	1A B				
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	P F					
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—					
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—					
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F					
NH_4Cl (AG) Purple Label 552	—	—					
EDA (P) or (AG) Brown Label DBPs	—	—	1A				
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—					
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1 - Field Blank Required							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—					
Bottled Water	—	—					
Clear Glass	—	—					
Solids: Brass / Steel / Plastic Bag	—	—					

YCH 12-16-22

Split

	Container	Preservative	Lot #	Initials	Date/Time
S P	1A	EDA	A1222001	YCH	12/16/22 1720
S P					

Preservation Check
pH Lot #
Cl Lot #

*Preservation check completed by lab performing analysis.

Comments

✓ Indicates Blanks Received

504 ___ 524.2 ___ TTHM ___ 537.1 ___ TCP ___

✓ MS/MSD Received Method: ________

Scanned: CSU Rush/Short HT Page: ________ Time: ______

Page 9 of 10

3.4#75 wm/wI

SUBCONTRACT ORDER
Pace Analytical (Bakersfield, CA)
2229738

AFL2535 BCLab4911 12/16/2022

10

SENDING LABORATORY:

Pace Analytical
4100 Atlas Court
Bakersfield, CA 93308
Phone: 661-327-4911
FAX: 661-327-1918
Project Manager: Ragen Schallock

RECEIVING LABORATORY:

BSK Analytical Labs- Fresno
1414 Stanislaus Street
Fresno, CA 93706
Phone: (800) 877-8310
FAX: (559) 485-6935

DOD: No **Level 4:** No **EDDs Needed:**

Analysis	Due	Expires	Comments
EPA 317.0 - Bromate	12/28/22 23:59	01/11/23 09:40	
EPA 200.8 - Dissolved Beryllium	12/28/22 23:59	06/13/23 09:40	

CA Drinking Water PSCode

GeoTracker - Global ID: Field Point: Log Code: ---

Sample ID: 2229738-01 **Water** **Sampled: 12/14/22 09:40** **Sample Name:** ZIP-01

Containers supplied:

X40: Plastic 250 ml (8 oz) X48: Plastic 1000 ml (quart)

12-16-22		12-16-22	11:00
Released By	Date	Received By	Date
12-16-22	VCH	12-16-22	17:00
Released By	Date	Received By	Date

BSKSA Printed 12/15/2022 12:30:26PM Page 1 of 1

Page 10 of 10

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)

AGA0313
1/16/2023
Invoice: AG01128

Ragen Williams
Pace Analytical (Bakersfield, CA)
4100 Atlas Court
Bakersfield, CA 93308

RE: Report for AGA0313 General: Project Manager-Ragen Williams

Dear Ragen Williams,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 1/4/2023. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2016 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Sarah K. Guenther , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Sarah Guenther

Sarah K. Guenther, Project Manager

NELAP ACCREDITED TNI LABORATORY

Accredited in Accordance with NELAP
ORELAP #4021

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AGA0313 FINAL 01162023 1308

BSK ASSOCIATES

AGA0313

General: Project Manager-Ragen Williams

Case Narrative

Project and Report Details		Invoice Details	
Client:	Pace Analytical (Bakersfield, CA)	**Invoice To:**	Pace Analytical (Bakersfield, CA)
Report To:	Ragen Williams	**Invoice Attn:**	Invoicing
Project #:	2229738	**Project PO#:**	-
Received:	1/04/2023 - 14:12		
Report Due:	1/18/2023		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt °C: 1.6

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Bubble Wrap
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Cooler: Rec 1-6-23 @ 12
Temperature on Receipt °C: 1.6

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Bubble Wrap
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

B1.0 Analyte present in method blank above reporting limit.
B2.0 Analyte present in the method blank above the method detection limit (MDL). Laboratory does not determine batch acceptance on detections below the reporting limit (RL).

Report Distribution

Recipient(s)	Report Format	CC:
Ragen Williams	FINAL.RPT	

BSK ASSOCIATES

AGA0313

General: Project Manager-Ragen Williams

2229738

Certificate of Analysis

Sample ID: AGA0313-01
Sampled By: Client
Sample Description: 2229738-01 // ZIP-01

Sample Date - Time: 12/14/2022 - 09:40
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Total Organic Carbon	SM 5310C	**2.6**	1.0	mg/L	5	AGA0246	01/06/23	01/06/23	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AGA0313 FINAL 01162023 1308

ASSOCIATES

AGA0313

General: Project Manager-Ragen Williams

2229738

Certificate of Analysis

Sample ID: AGA0313-01RE1
Sampled By: Client
Sample Description: 2229738-01 // ZIP-01

Sample Date - Time: 12/14/2022 - 09:40
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Dissolved Organic Carbon	SM 5310C	**2.5**	0.20	mg/L	1	AGA0515	01/10/23	01/10/23	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AGA0313 FINAL 01162023 1308

BSK ASSOCIATES

AGA0313

General: Project Manager-Ragen Williams

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

SM 5310C - Quality Control

Batch: AGA0246 — Prepared: 1/5/2023
Prep Method: Method Specific Preparation — Analyst: ERA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0246-BLK1)											
Total Organic Carbon	ND	0.20	mg/L							01/05/23	
Blank Spike (AGA0246-BS1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	102	80-120			01/05/23	
Blank Spike Dup (AGA0246-BSD1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	102	80-120	0	20	01/05/23	
Matrix Spike (AGA0246-MS1), Source: AGA0318-03											
Total Organic Carbon	11	0.20	mg/L	10	0.36	102	80-120			01/05/23	
Matrix Spike (AGA0246-MS2), Source: AGA0324-01											
Total Organic Carbon	11	0.20	mg/L	10	1.3	101	80-120			01/06/23	
Matrix Spike Dup (AGA0246-MSD1), Source: AGA0318-03											
Total Organic Carbon	11	0.20	mg/L	10	0.36	105	80-120	2	20	01/05/23	
Matrix Spike Dup (AGA0246-MSD2), Source: AGA0324-01											
Total Organic Carbon	12	0.20	mg/L	10	1.3	104	80-120	3	20	01/06/23	

SM 5310C - Quality Control

Batch: AGA0431 — Prepared: 1/9/2023
Prep Method: Method Specific Preparation — Analyst: ERA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0431-BLK1)											
Dissolved Organic Carbon	0.28	0.20	mg/L							01/09/23	B1.0
Blank Spike (AGA0431-BS1)											
Dissolved Organic Carbon	10	0.20	mg/L	10	ND	103	80-120			01/09/23	
Blank Spike Dup (AGA0431-BSD1)											
Dissolved Organic Carbon	10	0.20	mg/L	10	ND	104	80-120	1	20	01/09/23	
Matrix Spike (AGA0431-MS1), Source: AGA0242-01											
Dissolved Organic Carbon	15	0.20	mg/L	10	4.4	104	80-120			01/09/23	
Matrix Spike Dup (AGA0431-MSD1), Source: AGA0242-01											
Dissolved Organic Carbon	15	0.20	mg/L	10	4.4	106	80-120	2	20	01/09/23	

SM 5310C - Quality Control

Batch: AGA0515 — Prepared: 1/10/2023
Prep Method: Method Specific Preparation — Analyst: ERA

Blank (AGA0515-BLK1)

BSK ASSOCIATES

AGA0313

General: Project Manager-Ragen Williams

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

SM 5310C - Quality Control

Batch: AGA0515 Prepared: 1/10/2023

Prep Method: Method Specific Preparation Analyst: ERA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0515-BLK1)											
Dissolved Organic Carbon	ND	0.20	mg/L							01/10/23	B2.0
Blank Spike (AGA0515-BS1)											
Dissolved Organic Carbon	10	0.20	mg/L	10	ND	104	80-120			01/10/23	
Blank Spike Dup (AGA0515-BSD1)											
Dissolved Organic Carbon	10	0.20	mg/L	10	ND	104	80-120	0	20	01/10/23	
Matrix Spike (AGA0515-MS1), Source: AGA0313-01RE1											
Dissolved Organic Carbon	13	0.20	mg/L	10	2.5	105	80-120			01/10/23	
Matrix Spike Dup (AGA0515-MSD1), Source: AGA0313-01RE1											
Dissolved Organic Carbon	13	0.20	mg/L	10	2.5	104	80-120	1	20	01/10/23	

BSK ASSOCIATES

AGA0313

General: Project Manager-Ragen Williams

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Unless otherwise noted, TOC results by SM 5310C method do not include purgeable organic carbon, which is removed along with the inorganic carbon interference. The POC contribution to TOC is considered to be negligible.

BSK ASSOCIATES

AGA0313

General: Project Manager-Ragen Williams

Certificate of Analysis

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

The following parameters are calculated values and are outside the scope of our NELAP accreditation:

Total Nitrogen   Aggressive Index   Trivalent Chromium

BSK is not accredited under the NELAP program for the following additional parameters: **NA**

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

AGA0313 FINAL 01162023 1308

Certifications: Please refer to our website for a copy of our Accredited Fields of Testing under each certification.

Fresno

State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-019
State of Nevada	CA000792022-1	State of Oregon - NELAP	4021-019
EPA UCMR5	CA00079	State of Washington	C997-22a

Sacramento

State of California - ELAP	1180-S1

San Bernardino

State of California - ELAP	1180-S2	Los Angeles CSD	9254478
NELAP certified	4119-007	State of Oregon - NELAP	4119-007

Vancouver

NELAP certified	WA100008-015	State of Oregon - NELAP	WA100008-015
State of Washington	C824-22		

AGA0313 BCLab4911 01/04/2023

10

BSK Associates SR-FL-0002-23

Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info			
Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TTHM/TCP)? TB Received? (Check Method Below)	Yes No NA Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received — "—" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?					
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—					
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 DW	Cl, pH > 8	P F					
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—					
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	~~P~~ F	1P				
NaOH (P) Green Cap	Cl, pH >10	P F					
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—				VLH 1/4/23	
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—					
Ascorbic, EDTA, KH2Ct (AG) Pink Label 525	—	—					
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—					
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F					
NH_4Cl (AG) Purple Label 552	—	—					
EDA (P) or (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—					
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1 - **Field Blank Required**							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—					
Bottled Water	—	—					
Clear Glass	—	—					
Solids: Brass / Steel / Plastic Bag	—	—					

Split	Container	Preservative	Lot #	Initials	Date/Time	Preservation Check
S P						pH Lot #
S P						Cl Lot #

Comments

***Preservation check completed by lab performing analysis.**

✓ **Indicates Blanks Received**

504 ___ 524.2 ___ TTHM ___ 537.1 ___ TCP___

✓ **MS/MSD Received Method:** ________

Scanned: VLH Rush/Short HT Page: _________Time:_______

Page 10 of 12

T3

1.6#53 IT BW WI

AGA0313 BCLab4911 01/04/2023

10

SUBCONTRACT ORDER

Pace Analytical Labs - Bakersfield, CA

2229738

SENDING LABORATORY:

Pace Analytical Labs
4100 Atlas Ct
Bakersfield, CA 93308
Phone: 661-327-4911
Fax: 661-327-1918
Project Manager: Ragen Schallock

RECEIVING LABORATORY:

BSK Analytical Labs- Fresno $BSKSA-EINV
1414 Stanislaus Street
Fresno, CA 93706
Phone :(800) 877-8310
Fax: (559) 485-6935

DOD: No **Level 4:** No **EDDs Needed:**

Analysis	Due	Expires	Comments
iSM5310Cw Dis NVOC	12/28/22 23:59	01/11/23 09:40	
iSM5310Cw NVOC as TOC	12/28/22 23:59	01/11/23 09:40	

CA Drinking Water PSCode:

GeoTracker - Global ID: Field Point: Log Code:

Sample ID: 2229738-01 **Water** **Sampled:** **12/14/22 09:40** **Sample Name:** ZIP-01

Containers Supplied:
I44: TOC/TOX/Phenolics, GA 250ml, H2SO4 to pH<2   X28: Glass Amber 500 ml (1 pint)

Released By	Date	Received By	Date
[signature]	1-3-23	[signature] VLH	1-4-23 14:12

Page 1 of 1

Page 11 of 12

1.6
67

AGA0313 BCLab4911 01/04/2023

10

SUBCONTRACT ORDER

Pace Analytical Labs - Bakersfield, CA

2229738

SENDING LABORATORY:

Pace Analytical Labs
4100 Atlas Ct
Bakersfield, CA 93308
Phone: 661-327-4911
Fax: 661-327-1918
Project Manager: Ragen Schallock

RECEIVING LABORATORY:

BSK Analytical Labs- Fresno $BSKSA-EINV
1414 Stanislaus Street
Fresno, CA 93706
Phone :(800) 877-8310
Fax: (559) 485-6935

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 2229738-01	**Water**	**Sampled:12/14/22 09:40**		
iSM5310Cw Dis NVOC	12/28/22 23:59	01/11/23 09:40		additional sample
iSM5310Cw NVOC as TOC	12/28/22 23:59	01/11/23 09:40		1 250ml unp plastic
oi317.0w Bromate BSKSA	12/28/22 23:59	01/11/23 09:40		
om200.8wb Diss Beryllium BSKSA	12/28/22 23:59	06/13/23 09:40		

Containers Supplied:

Released By	Date	Received By	Date
[signature]	1-5-23 1411	[signature]	1.6.23 1222
			Fx wet Bm

Released By	Date	Received By	Date

Page 1 of 1

Page 12 of 12

LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322224947
Customer ID: BCLA50
Customer PO:
Project ID:

Attn: Ragen Schallock
Pace Analytical Services, LLC
4100 Atlas Court
Bakersfield, CA 93308

Phone: (661) 327-4911
Fax: (661) 327-1918
Received: 12/16/2022
Analyzed: 12/31/2022

Proj: 2229738

Test Report: Determination of Asbestos Structures >10µm in Drinking Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm^2)	Area Analyzed (mm^2)	ASBESTOS: Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits
							MFL (million fibers per liter)		
2229738-01 322224947-0001	12/16/2022 12:50 PM	30	1288	0.2580	Chrysotile	17	0.17	2.80	1.60 - 4.50

Collection Date/Time: 12/14/2022 09:40 AM

Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.

Analyst(s)
Sherrie Ahmad (1)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 01/03/2023 07:46:37

Samples analyzed by LA Testing South Pasadena, CA CA ELAP 2283

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422

Reported: 01/17/2023 7:13
Project: Morro Bay Injection
Project Number: 645.007
Project Manager: Nate Page

Notes And Definitions

J	Estimated Value (CLP Flag)
MDL	Method Detection Limit
ND	Analyte Not Detected
PQL	Practical Quantitation Limit
A02	The difference between duplicate readings is less than the quantitation limit.
A10	Detection and quantitation limits were raised due to matrix interference.
S05	The sample holding time was exceeded.

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)

AFL2535
1/03/2023
Invoice: AG00022

Ragen Williams
Pace Analytical (Bakersfield, CA)
4100 Atlas Court
Bakersfield, CA 93308

RE: Report for AFL2535 General: Project Manager-Ragen Williams

Dear Ragen Williams,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 12/16/2022. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2016 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Sarah K. Guenther , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Sarah Guenther

Sarah K. Guenther, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021

ASSOCIATES

Case Narrative

Project and Report Details		Invoice Details	
Client:	Pace Analytical (Bakersfield, CA)	Invoice To:	Pace Analytical (Bakersfield, CA)
Report To:	Ragen Williams	Invoice Attn:	Invoicing
Project #:	2229738	Project PO#:	-
Received:	12/16/2022 - 17:00		
Report Due:	1/03/2023		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt °C: 3.4

Containers Intact
COC/Labels Agree
Received On Wet Ice
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

SC1.41 Sample was received without chemical preservation. Sample volume was split and preserved by the laboratory.

Report Distribution

Recipient(s)	Report Format	CC:
Ragen Williams	FINAL.RPT	

Certificate of Analysis

Sample ID: AFL2535-01
Sampled By: Client
Sample Description: 2229738-01 // ZIP-01

Sample Date - Time: 12/14/2022 - 09:40
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Bromate	EPA 317.0	ND	1.0	ug/L	1	AFL1261	12/17/22	12/17/22	SC1 41

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Beryllium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AFL1277	12/19/22	12/20/22	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 317.0 - Quality Control											
Batch: AFL1261										Prepared: 12/17/2022	
Prep Method: Method Specific Preparation										Analyst: DXR	
Blank (AFL1261-BLK1)											
Bromate	ND	1.0	ug/L							12/17/22	
Blank Spike (AFL1261-BS1)											
Bromate	9.7	1.0	ug/L	10	ND	97	85-115			12/17/22	
Blank Spike Dup (AFL1261-BSD1)											
Bromate	10	1.0	ug/L	10	ND	100	85-115	3	10	12/17/22	
Matrix Spike (AFL1261-MS1), Source: AFL2535-01											
Bromate	10	1.0	ug/L	10	ND	100	75-125			12/17/22	
Matrix Spike Dup (AFL1261-MSD1), Source: AFL2535-01											
Bromate	10	1.0	ug/L	10	ND	101	75-125	1	10	12/17/22	

BSK Associates Laboratory Fresno

Metals Quality Control Report

EPA 200.8 - Quality Control

Batch: AFL1277 — Prepared: 12/19/2022

Prep Method: Filtration - Metals — Analyst: CEG

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AFL1277-BLK1)											
Beryllium - Dissolved (1)	ND	1.0	ug/L							12/20/22	
Blank Spike (AFL1277-BS1)											
Beryllium - Dissolved (1)	220	1.0	ug/L	200	ND	109	85-115			12/20/22	
Blank Spike Dup (AFL1277-BSD1)											
Beryllium - Dissolved (1)	210	1.0	ug/L	200	ND	106	85-115	2	20	12/20/22	
Matrix Spike (AFL1277-MS1), Source: AFL2220-04											
Beryllium - Dissolved (1)	210	1.0	ug/L	200	ND	107	70-130			12/20/22	
Matrix Spike Dup (AFL1277-MSD1), Source: AFL2220-04											
Beryllium - Dissolved (1)	220	1.0	ug/L	200	ND	109	70-130	1	20	12/20/22	

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Unless otherwise noted, TOC results by SM 5310C method do not include purgeable organic carbon, which is removed along with the inorganic carbon interference. The POC contribution to TOC is considered to be negligible.

Certificate of Analysis

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

The following parameters are calculated values and are outside the scope of our NELAP accreditation:

Total Nitrogen   Aggressive Index   Trivalent Chromium

BSK is not accredited under the NELAP program for the following additional parameters: **NA**

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

Fresno

State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-019
State of Nevada	CA000792022-1	State of Oregon - NELAP	4021-019
EPA UCMR5	CA00079	State of Washington	C997-22a

Sacramento

State of California - ELAP	1180-S1

San Bernardino

State of California - ELAP	2993	Los Angeles CSD	9254478
NELAP certified	4119-007	State of Oregon - NELAP	4119-007

Vancouver

NELAP certified	WA100008-015	State of Oregon - NELAP	WA100008-015
State of Washington	C824-22		

BSK Associates SR-FL-0002-23

Sample Integrity

BSK Bottles: Yes (No) Page 1 of 1

COC Info	Was temperature within range? Chemistry ≤ 6°C Micro ≤ 8°C	(Yes) No NA	Were correct containers and preservatives received for the tests requested? Yes No (NA)
	If samples were taken today, is there evidence that chilling has begun?	Yes No (NA)	Bubbles Present VOAs (524.2/TTHM/TCP)? Yes No (NA)
			TB Received? (Check Method Below) Yes No (NA)
	Did all bottles arrive unbroken and intact?	(Yes) No	Was a sufficient amount of sample received? (Yes) No
	Did all bottle labels agree with COC?	(Yes) No	Do samples have a hold time <72 hours? Yes (No)
	Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes (NA)	Was PM notified of discrepancies? Yes No (NA) PM: By/Time:

Bottles Received (means preservation/chlorine checks are either N/A or are performed in the lab)

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?					
Bacti $Na_2S_2O_3$	—	—	1				
None (P) White Cap	—	—	1P A				
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 DW	Cl, pH > 8	P F					
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—	1AB				
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F					
NaOH (P) Green Cap	Cl, pH >10	P F					
NaOH + ZnAc (P)	pH > 9	P F					
Dissolved Oxygen 300ml (g)	—	—				VLH 12-16-22	
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—					
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—					
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—					
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F					
NH_4Cl (AG) Purple Label 552	—	—					
EDA (P) or (AG) Brown Label DBPs	—	—	1A				
HCL (CG) 524.2, BTEX, Gas, MTBE, 8260/624	—	—					
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1 - **Field Blank Required**							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—					
Bottled Water	—	—					
Clear Glass	—	—					
Solids: Brass / Steel / Plastic Bag	—	—					

Split

	Container	Preservative	Lot #	Initials	Date/Time
(S) P	1A	EDA	A1222007	VLH	12/16/22 1743
S P					

Preservation Check
pH Lot #
Cl Lot #

*Preservation check completed by lab performing analysis.

Comments

✓ **Indicates Blanks Received**

504 ___ 524.2 ___ TTHM ___ 537.1 ___ TCP___

✓ **MS/MSD Received Method:** ________

Scanned: CSU Rush/Short HT Page: ________ Time:_______

3 4#75 w/n/ls

SUBCONTRACT ORDER
Pace Analytical (Bakersfield, CA)
2229738

AFL2535 BCLab4911 12/16/2022 10

SENDING LABORATORY:	**RECEIVING LABORATORY:**
Pace Analytical	BSK Analytical Labs- Fresno
4100 Atlas Court	1414 Stanislaus Street
Bakersfield, CA 93308	Fresno, CA 93706
Phone: 661-327-4911	Phone: (800) 877-8310
FAX: 661-327-1918	FAX: (559) 485-6935
Project Manager: Ragen Schallock	

DOD: No **Level 4:** No **EDDs Needed:**

Analysis	Due	Expires	Comments
EPA 317.0 - Bromate	12/28/22 23:59	01/11/23 09:40	
EPA 200.8 - Dissolved Beryllium	12/28/22 23:59	06/13/23 09:40	

CA Drinking Water PSCode

GeoTracker - Global ID: Field Point: Log Code: ---

Sample ID: 2229738-01 **Water** **Sampled: 12/14/22 09:40** **Sample Name:** ZIP-01

Containers supplied:

X40: Plastic 250 ml (8 oz) X48: Plastic 1000 ml (quart)

Released By	Date	Received By	Date	
[signature]	12-16-22	[signature]	12-16-22	11:00
[signature]	12-16-22	VCH	12-16-22	17:00

BSKSA Printed 12/15/2022 12:30:26PM

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)

AGA0313
1/16/2023
Invoice: AG01128

Ragen Williams
Pace Analytical (Bakersfield, CA)
4100 Atlas Court
Bakersfield, CA 93308

RE: Report for AGA0313 General: Project Manager-Ragen Williams

Dear Ragen Williams,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 1/4/2023. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2016 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

If additional clarification of any information is required, please contact your Project Manager, Sarah K. Guenther , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Sarah Guenther

Sarah K. Guenther, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021

ASSOCIATES

Case Narrative

Project and Report Details		Invoice Details	
Client:	Pace Analytical (Bakersfield, CA)	**Invoice To:**	Pace Analytical (Bakersfield, CA)
Report To:	Ragen Williams	**Invoice Attn:**	Invoicing
Project #:	2229738	**Project PO#:**	-
Received:	1/04/2023 - 14:12		
Report Due:	1/18/2023		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt °C: 1.6

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Bubble Wrap
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Cooler: Rec 1-6-23 @ 12
Temperature on Receipt °C: 1.6

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Bubble Wrap
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

B1.0 Analyte present in method blank above reporting limit.
B2.0 Analyte present in the method blank above the method detection limit (MDL). Laboratory does not determine batch acceptance on detections below the reporting limit (RL).

Report Distribution

Recipient(s)	Report Format	CC:
Ragen Williams	FINAL.RPT	

ASSOCIATES

AGA0313

General: Project Manager-Ragen Williams

2229738

Certificate of Analysis

Sample ID: AGA0313-01
Sampled By: Client
Sample Description: 2229738-01 // ZIP-01

Sample Date - Time: 12/14/2022 - 09:40
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Total Organic Carbon	SM 5310C	2.6	1.0	mg/L	5	AGA0246	01/06/23	01/06/23	

BSK ASSOCIATES

Certificate of Analysis

Sample ID: AGA0313-01RE1
Sampled By: Client
Sample Description: 2229738-01 // ZIP-01

Sample Date - Time: 12/14/2022 - 09:40
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Dissolved Organic Carbon	SM 5310C	**2.5**	0.20	mg/L	1	AGA0515	01/10/23	01/10/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 5310C - Quality Control											
Batch: AGA0246										Prepared: 1/5/2023	
Prep Method: Method Specific Preparation										Analyst: ERA	
Blank (AGA0246-BLK1)											
Total Organic Carbon	ND	0.20	mg/L							01/05/23	
Blank Spike (AGA0246-BS1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	102	80-120			01/05/23	
Blank Spike Dup (AGA0246-BSD1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	102	80-120	0	20	01/05/23	
Matrix Spike (AGA0246-MS1), Source: AGA0318-03											
Total Organic Carbon	11	0.20	mg/L	10	0.36	102	80-120			01/05/23	
Matrix Spike (AGA0246-MS2), Source: AGA0324-01											
Total Organic Carbon	11	0.20	mg/L	10	1.3	101	80-120			01/06/23	
Matrix Spike Dup (AGA0246-MSD1), Source: AGA0318-03											
Total Organic Carbon	11	0.20	mg/L	10	0.36	105	80-120	2	20	01/05/23	
Matrix Spike Dup (AGA0246-MSD2), Source: AGA0324-01											
Total Organic Carbon	12	0.20	mg/L	10	1.3	104	80-120	3	20	01/06/23	
SM 5310C - Quality Control											
Batch: AGA0431										Prepared: 1/9/2023	
Prep Method: Method Specific Preparation										Analyst: ERA	
Blank (AGA0431-BLK1)											
Dissolved Organic Carbon	0.28	0.20	mg/L							01/09/23	B1.0
Blank Spike (AGA0431-BS1)											
Dissolved Organic Carbon	10	0.20	mg/L	10	ND	103	80-120			01/09/23	
Blank Spike Dup (AGA0431-BSD1)											
Dissolved Organic Carbon	10	0.20	mg/L	10	ND	104	80-120	1	20	01/09/23	
Matrix Spike (AGA0431-MS1), Source: AGA0242-01											
Dissolved Organic Carbon	15	0.20	mg/L	10	4.4	104	80-120			01/09/23	
Matrix Spike Dup (AGA0431-MSD1), Source: AGA0242-01											
Dissolved Organic Carbon	15	0.20	mg/L	10	4.4	106	80-120	2	20	01/09/23	
SM 5310C - Quality Control											
Batch: AGA0515										Prepared: 1/10/2023	
Prep Method: Method Specific Preparation										Analyst: ERA	
Blank (AGA0515-BLK1)											

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 5310C - Quality Control											
Batch: AGA0515										Prepared: 1/10/2023	
Prep Method: Method Specific Preparation										Analyst: ERA	
Blank (AGA0515-BLK1)											
Dissolved Organic Carbon	ND	0.20	mg/L							01/10/23	B2.0
Blank Spike (AGA0515-BS1)											
Dissolved Organic Carbon	10	0.20	mg/L	10	ND	104	80-120			01/10/23	
Blank Spike Dup (AGA0515-BSD1)											
Dissolved Organic Carbon	10	0.20	mg/L	10	ND	104	80-120	0	20	01/10/23	
Matrix Spike (AGA0515-MS1), Source: AGA0313-01RE1											
Dissolved Organic Carbon	13	0.20	mg/L	10	2.5	105	80-120			01/10/23	
Matrix Spike Dup (AGA0515-MSD1), Source: AGA0313-01RE1											
Dissolved Organic Carbon	13	0.20	mg/L	10	2.5	104	80-120	1	20	01/10/23	

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.
- Unless otherwise noted, TOC results by SM 5310C method do not include purgeable organic carbon, which is removed along with the inorganic carbon interference. The POC contribution to TOC is considered to be negligible.

Certificate of Analysis

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

The following parameters are calculated values and are outside the scope of our NELAP accreditation:

Total Nitrogen Aggressive Index Trivalent Chromium

BSK is not accredited under the NELAP program for the following additional parameters: **NA**

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

Fresno

State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-019
State of Nevada	CA000792022-1	State of Oregon - NELAP	4021-019
EPA UCMR5	CA00079	State of Washington	C997-22a

Sacramento

State of California - ELAP	1180-S1

San Bernardino

State of California - ELAP	1180-S2	Los Angeles CSD	9254478
NELAP certified	4119-007	State of Oregon - NELAP	4119-007

Vancouver

NELAP certified	WA100008-015	State of Oregon - NELAP	WA100008-015
State of Washington	C824-22		

BSK Associates SR-FL-0002-23

Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TTHM/TCP)? TB Received? (Check Method Below)	Yes No NA Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received (— means preservation/chlorine checks are either N/A or are performed in the lab)

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?						
Bacti $Na_2S_2O_3$	—	—						
None (P) White Cap	—	—						
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 DW	Cl, pH > 8	P F						
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 WW	pH 9.3-9.7	P F						
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F						
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—						
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	~~P~~ F	1A					
NaOH (P) Green Cap	Cl, pH >10	P F						
NaOH + ZnAc (P)	pH > 9	P F						
Dissolved Oxygen 300ml (g)	—	—						
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—						
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—						
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—						
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—						
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—						
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—						
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—						
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F						
NH_4Cl (AG) Purple Label 552	—	—						
EDA (P) or (AG) Brown Label DBPs	—	—						
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—						
Buffer pH 4 (CG)	—	—						
H_3PO_4 (CG) Salmon Label	—	—						
Trizma – EPA 537.1 - Field Blank Required								
Other:								
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—						
Bottled Water	—	—						
Clear Glass	—	—						
Solids: Brass / Steel / Plastic Bag	—	—						

WA 1-4-23

Split

	Container	Preservative	Lot #	Initials	Date/Time	Preservation Check
S P						pH Lot #
S P						Cl Lot #

Comments

*Preservation check completed by lab performing analysis.

✓ Indicates Blanks Received

504 ___ 524.2 ___ TTHM ___ 537.1 ___ TCP___

✓ MS/MSD Received Method: ________

Scanned: WA Rush/Short HT Page: ________ Time: ________

T3 1.6#53 IR Bw wt

SUBCONTRACT ORDER

Pace Analytical Labs - Bakersfield, CA

2229738

AGA0313 BCLab4911 01/04/2023

10

SENDING LABORATORY:

Pace Analytical Labs
4100 Atlas Ct
Bakersfield, CA 93308
Phone: 661-327-4911
Fax: 661-327-1918
Project Manager: Ragen Schallock

RECEIVING LABORATORY:

BSK Analytical Labs- Fresno SBSKSA-EINV
1414 Stanislaus Street
Fresno, CA 93706
Phone :(800) 877-8310
Fax: (559) 485-6935

DOD: No **Level 4:** No **EDDs Needed:**

Analysis	Due	Expires	Comments
iSM5310Cw Dis NVOC	12/28/22 23:59	01/11/23 09:40	
iSM5310Cw NVOC as TOC	12/28/22 23:59	01/11/23 09:40	

CA Drinking Water PSCode:

GeoTracker - Global ID: Field Point: Log Code:

Sample ID: 2229738-01 **Water** **Sampled:** **12/14/22 09:40** **Sample Name:** ZIP-01

Containers Supplied:
144: TOC/TOX/Phenolics, GA 250ml, H2SO4 to pH<2 X28: Glass Amber 500 ml (1 pint)

Released By	Date	Received By	Date
Dmarquez	1-3-23		
		VHt	1-4-23 14:12

Page 1 of 1

AGA0313 BCLab4911 01/04/2023

1.6
6.7

SUBCONTRACT ORDER

Pace Analytical Labs - Bakersfield, CA

2229738

10

SENDING LABORATORY:

Pace Analytical Labs
4100 Atlas Ct
Bakersfield, CA 93308
Phone: 661-327-4911
Fax: 661-327-1918
Project Manager: Ragen Schallock

RECEIVING LABORATORY:

BSK Analytical Labs- Fresno $BSKSA-EINV
1414 Stanislaus Street
Fresno, CA 93706
Phone :(800) 877-8310
Fax: (559) 485-6935

Analysis	Due	Expires	Laboratory ID	Comments
Sample ID: 2229738-01	**Water**	**Sampled: 12/14/22 09:40**		
iSM5310Cw Dis NVOC	12/28/22 23:59	01/11/23 09:40		additional sample 1 250ml unp plastic
iSM5310Cw NVOC as TOC	12/28/22 23:59	01/11/23 09:40		
oi317.0w Bromate BSKSA	12/28/22 23:59	01/11/23 09:40		
om200.8wb Diss Beryllium BSKSA	12/28/22 23:59	06/13/23 09:40		
Containers Supplied:				

Released By	Date	Received By	Date
[signature]	1-5-23 1411	[signature]	1.6.23 1232
Released By	Date	Received By	Date
		Ex wct Bm	

LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322224947
Customer ID: BCLA50
Customer PO:
Project ID:

Attn: Ragen Schallock
Pace Analytical Services, LLC
4100 Atlas Court
Bakersfield, CA 93308

Phone: (661) 327-4911
Fax: (661) 327-1918
Received: 12/16/2022
Analyzed: 12/31/2022

Proj: 2229738

Test Report: Determination of Asbestos Structures >10µm in Drinking Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm²)	Area Analyzed (mm²)	ASBESTOS Asbestos Types	Fibers Detected	Analytical Sensitivity (MFL (million fibers per liter))	Concentration (MFL (million fibers per liter))	Confidence Limits (MFL (million fibers per liter))
2229738-01 322224947-0001	12/16/2022 12:50 PM	30	1288	0.2580	Chrysotile	17	0.17	2.80	1.60 - 4.50

Collection Date/Time: *12/14/2022 09:40 AM*

Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.

Analyst(s)
Sherrie Ahmad (1)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 01/03/2023 07:46:37

Work Order

2229738

BC Laboratories, Inc.

Client: GSI Water Solutions, Inc.	COC Number:
Project: Morro Bay Injection	Project Number: 645.007

Report To:

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422
Attn: Nate Page
Phone: (970) 692-3593
FAX: (000) 000-0000

Invoice To:

GSI Water Solutions, Inc.
5855 Capistran Avenue, Suite C
Atascadero, CA 93422
Attn: AP
Phone: (970) 692-3593
FAX: (000) 000-0000
PO Number:

Date Received:	12/14/2022 19:30	Date Due:	12/30/2022 17:00 (10 day TAT)
Received By:	Todd Lejander	CSR Name:	Ragen Schallock
Samples Received at:	4.7 C	CSR Email:	Ragen.Williams@pacelabs.com
Date Logged In:	12/14/2022 22:57	CSR Phone:	661-327-4911
Logged In By:	Patrick Espiritu	(CSR = Client Service Representative)	

Lab Number	Client Sample Description	Matrix	# of Bottles
2229738-01	ZIP-01, 12/14/2022 9:40:00AM, Nate Page	Water	19
2229738-02	Travel Blank, 12/14/2022 12:00:00AM	Water	2

Client Sample Description Format: *<Project Name>, *<Location>, <Sample Name>, <Date/ Time Sampled>, *<Sampled By>, *<Sample Depth>
(* = shown if available)

Work Order

2229738

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Analysis	Matrix	Due Date	Samples
Hold			
hw Balance Check Diss	Water	12/28/2022 23:59	01
Metals			
i200.7wm Dis Calcium	Water	12/28/2022 23:59	01
i200.7wm Dis Magnesium	Water	12/28/2022 23:59	01
i200.7wm Dis Potassium	Water	12/28/2022 23:59	01
i200.7wm Dis Sodium	Water	12/28/2022 23:59	01
m200.7wb Dis Aluminum	Water	12/28/2022 23:59	01
m200.7wb Dis Iron	Water	12/28/2022 23:59	01
m200.7wb Dis Silica	Water	12/28/2022 23:59	01
m200.7wb Dis Strontium	Water	12/28/2022 23:59	01
m200.7wb TRM Silica	Water	12/28/2022 23:59	01
m200.8wb Dis Antimony	Water	12/28/2022 23:59	01
m200.8wb Dis Arsenic	Water	12/28/2022 23:59	01
m200.8wb Dis Barium	Water	12/28/2022 23:59	01
m200.8wb Dis Cadmium	Water	12/28/2022 23:59	01
m200.8wb Dis Chromium	Water	12/28/2022 23:59	01
m200.8wb Dis Cobalt	Water	12/28/2022 23:59	01
m200.8wb Dis Copper	Water	12/28/2022 23:59	01
m200.8wb Dis Lead	Water	12/28/2022 23:59	01
m200.8wb Dis Manganese	Water	12/28/2022 23:59	01
m200.8wb Dis Molybdenum	Water	12/28/2022 23:59	01
m200.8wb Dis Nickel	Water	12/28/2022 23:59	01
m200.8wb Dis Selenium	Water	12/28/2022 23:59	01
m200.8wb Dis Silver	Water	12/28/2022 23:59	01
m200.8wb Dis Thallium	Water	12/28/2022 23:59	01
m200.8wb Dis Uranium	Water	12/28/2022 23:59	01
m200.8wb Dis Vanadium	Water	12/28/2022 23:59	01
m200.8wb Dis Zinc	Water	12/28/2022 23:59	01
m245.1wb Dis Mercury	Water	12/28/2022 23:59	01
mp200.2w TRM 200.(7,8,9), 2xx.x	Water	12/28/2022 23:59	01
mp600/4-79-020w Diss All	Water	12/28/2022 23:59	01
Semi-Volatiles			
g552.3w	Water	12/28/2022 23:59	01
Subcontract			
oi100.1w Asbestos LATSA	Water	12/28/2022 23:59	01
oi317.0w Bromate BSKSA	Water	12/28/2022 23:59	01
om200.8wb Diss Beryllium BSKSA	Water	12/28/2022 23:59	01
Volatiles - GC			
gRSK175 Diss Methane	Water	12/28/2022 23:59	01
Volatiles - GC/MS			
g524.2w THMs only	Water	12/28/2022 23:59	01, 02

Work Order

2229738

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Analysis	Matrix	Due Date	Samples
Wet Chem			
ciw Hardness (Diss)	Water	12/28/2022 23:59	01
ciw Langlier Index	Water	12/28/2022 23:59	01
i120.1w EC	Water	12/28/2022 23:59	01
i140.1w Odor	Water	12/28/2022 23:59	01
i150.1w pH	Water	12/28/2022 23:59	01
i180.1w Turbidity	Water	12/28/2022 23:59	01
i218.6w Cr6 (Preserved)	Water	12/28/2022 23:59	01
i300.0w Chloride	Water	12/28/2022 23:59	01
i300.0w Fluoride	Water	12/28/2022 23:59	01
i300.0w Nitrate as N	Water	12/28/2022 23:59	01
i300.0w Sulfate	Water	12/28/2022 23:59	01
i335.4w Tot CN	Water	12/28/2022 23:59	01
i350.1w Ammonia as N	Water	12/28/2022 23:59	01
i353.2w NO3/NO2 as N	Water	12/28/2022 23:59	01
i353.2wm NO2 as N	Water	12/28/2022 23:59	01
i365.1w o-PO4 as P	Water	12/28/2022 23:59	01
i410.4w COD	Water	12/28/2022 23:59	01
ISM2120Bw Color	Water	12/28/2022 23:59	01
iSM2320Bw CO3	Water	12/28/2022 23:59	01
iSM2320Bw HCO3	Water	12/28/2022 23:59	01
iSM2320Bw Tot Alk as CaCO3	Water	12/28/2022 23:59	01
iSM2540Cw TDS	Water	12/28/2022 23:59	01
iSM2540Dw TSS Glass Fiber	Water	12/28/2022 23:59	01
iSM4500ClFw Residual Chlorine	Water	12/28/2022 23:59	01
iSM4500SDw Total Sulfide	Water	12/28/2022 23:59	01
iSM5310Cw Dis NVOC	Water	12/28/2022 23:59	01
iSM5310Cw NVOC as TOC	Water	12/28/2022 23:59	01
iSM5540Cw MBAS	Water	12/28/2022 23:59	01
uwBC A-D1498w Oxidation Reducti	Water	12/28/2022 23:59	01
yiA-D1498w ORP Measurement Ter	Water	12/28/2022 23:59	01
yiA-D1498w Oxidation Reduction Pc	Water	12/28/2022 23:59	01

Work Order

2229738

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Metals

i200.7wm Dis Calcium	**Analyte** Calcium
i200.7wm Dis Magnesium	**Analyte** Magnesium
i200.7wm Dis Potassium	**Analyte** Potassium
i200.7wm Dis Sodium	**Analyte** Sodium
m200.7wb Dis Aluminum	**Analyte** Aluminum
m200.7wb Dis Iron	**Analyte** Iron
m200.7wb Dis Silica	**Analyte** Silicon as SiO2
m200.7wb Dis Strontium	**Analyte** Strontium
m200.7wb TRM Silica	**Analyte** Total Recoverable Silica
m200.8wb Dis Antimony	**Analyte** Antimony
m200.8wb Dis Arsenic	**Analyte** Arsenic
m200.8wb Dis Barium	**Analyte** Barium
m200.8wb Dis Cadmium	**Analyte** Cadmium
m200.8wb Dis Chromium	**Analyte** Chromium
m200.8wb Dis Cobalt	**Analyte** Cobalt
m200.8wb Dis Copper	**Analyte** Copper
m200.8wb Dis Lead	**Analyte** Lead
m200.8wb Dis Manganese	**Analyte** Manganese
m200.8wb Dis Molybdenum	**Analyte**

Work Order

2229738

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Metals

m200.8wb Dis Molybdenum	**Analyte** Molybdenum
m200.8wb Dis Nickel	**Analyte** Nickel
m200.8wb Dis Selenium	**Analyte** Selenium
m200.8wb Dis Silver	**Analyte** Silver
m200.8wb Dis Thallium	**Analyte** Thallium
m200.8wb Dis Uranium	**Analyte** Uranium
m200.8wb Dis Vanadium	**Analyte** Vanadium
m200.8wb Dis Zinc	**Analyte** Zinc
m245.1wb Dis Mercury	**Analyte** Mercury

Work Order

2229738

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Semi-Volatiles

	Analyte
g552.3w	
	Dibromoacetic acid
	Dichloroacetic acid
	Monobromoacetic acid
	Monochloroacetic acid
	Trichloroacetic acid
	Total HAA's (Summation)
	2,3-Dibromopropionic acid (Surrogate)

Work Order

2229738

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Subcontract

oi100.1w Asbestos LATSA	**Analyte** Asbestos
oi317.0w Bromate BSKSA	**Analyte** Bromate
om200.8wb Diss Beryllium BSKSA	**Analyte** Beryllium

Work Order

2229738

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Volatiles - GC

	Analyte
gRSK175 Diss Methane	Methane

Work Order

2229738

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Volatiles - GC/MS

	Analyte
g524.2w THMs only	Bromodichloromethane
	Bromoform
	Chloroform
	Dibromochloromethane
	Total Trihalomethanes
	1,2-Dichloroethane-d4 (Surrogate)
	Toluene-d8 (Surrogate)
	4-Bromofluorobenzene (Surrogate)

Work Order

2229738

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Wet Chem

ciw Hardness (Diss)	**Analyte** Hardness as CaCO3
ciw Langlier Index	**Analyte** Langlier Index
i120.1w EC	**Analyte** Electrical Conductivity @ 25 C
i140.1w Odor	**Analyte** Odor
i150.1w pH	**Analyte** pH
i180.1w Turbidity	**Analyte** Turbidity
i218.6w Cr6 (Preserved)	**Analyte** Hexavalent Chromium
i300.0w Chloride	**Analyte** Chloride
i300.0w Fluoride	**Analyte** Fluoride
i300.0w Nitrate as N	**Analyte** Nitrate as N
i300.0w Sulfate	**Analyte** Sulfate
i335.4w Tot CN	**Analyte** Total Cyanide
i350.1w Ammonia as N	**Analyte** Ammonia as N
i353.2w NO3/NO2 as N	**Analyte** Nitrate/Nitrite as N
i353.2wm NO2 as N	**Analyte** Nitrite as N
i365.1w o-PO4 as P	**Analyte** ortho-Phosphate as P
i410.4w COD	**Analyte** Chemical Oxygen Demand
ISM2120Bw Color	**Analyte** Color
iSM2320Bw CO3	**Analyte**

Work Order

2229738

BC Laboratories, Inc.

Client:	GSI Water Solutions, Inc.	COC Number:	
Project:	Morro Bay Injection	Project Number:	645.007

Wet Chem

iSM2320Bw CO3	**Analyte** Carbonate
iSM2320Bw HCO3	**Analyte** Bicarbonate
iSM2320Bw Tot Alk as CaCO3	**Analyte** Total Alkalinity as CaCO3
iSM2540Cw TDS	**Analyte** Total Dissolved Solids @ 180 C
iSM2540Dw TSS Glass Fiber	**Analyte** Total Suspended Solids (Glass Fiber)
iSM4500ClFw Residual Chlorine	**Analyte** Residual Chlorine
iSM4500SDw Total Sulfide	**Analyte** Total Sulfide
iSM5310Cw Dis NVOC	**Analyte** Dissolved Non-Volatile Organic Carbon
iSM5310Cw NVOC as TOC	**Analyte** Total Organic Carbon
iSM5540Cw MBAS	**Analyte** MBAS
yiA-D1498w ORP Measurement Temp	**Analyte** Temperature
yiA-D1498w Oxidation Reduction Potential (ORP)	**Analyte** Oxidation Reduction Potential (Eh) Oxidation Reduction Potential (Eobs_Ag/AgCl)

Sample from 21P-01 during Long-Term Injection Test (December 20, 2022)

Field Notes

Water Solutions, Inc.

Daily Field Report

Name: Nate Page **Date:** 12/20/22 **Activity:** sample 21P-01

Project: Morro Bay IPR **PN:** **Page** 1 **of** 1

0910 NP on site. Label bottles. Forgot well key...
0954 Remove XD from 21P-01
0956 DTW = 9.48' btoc (PVC)

1004 Start Purge

	T	pH	SC	DO mg/L	ORP mV	(YSI)
1005	17.5	7.79	0.859	3.67	243.5	
1010	17.7	7.43	0.854	3.35	245.8	
1015	17.7	7.30	0.854	2.14	247.5	
1020	17.7	7.27	0.855	1.51	248.2	
1025	17.7	7.25	0.855	1.43	248.8	
1030	17.7	7.24	0.856	1.40	249.2	

1030 sample collected (samples are labeled 0940)

1045 XD back in 21P-01

1052 Check field params of Source H_2O
T - 17.1
pH - 6.75
SC - 0.624
DO - 4.28 mg/L
ORP - 589.5 mV

1055 NP offsite

Signature:

Chain-of-Custody Form(s)

AFL2946 GSIWA3956 12/21/2022

BSK Associates SR-FL-0002-23

Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TTHM/TCP)? TB Received? (Check Method Below)	Yes No NA / Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes NA	Was PM notified of discrepancies? PM: Heather By/Time: Nicole	Yes No NA

Bottles Received ("—" means preservation/chlorine checks are either N/A or are performed in the lab)

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?					
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—	2D, 3B, 3C				
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 **DW**	Cl, pH > 8	P F					
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 **WW**	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 **7199** ******24 HOUR HOLD TIME******	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—					
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F	1B, 1A*				
NaOH (P) Green Cap	Cl, pH >10	P F					
NaOH + ZnAc (P)	pH > 9	P F	1B				
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—	1A, 1B				
HCl (AG) Lt. Blue Label O&G, Diesel, **TCP**	—	—					
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—					
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F					
NH_4Cl (AG) Purple Label 552	—	—					
EDA (P) or (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—	3V				
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1 - **Field Blank Required**							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—					
Bottled Water	—	—					
Clear Glass NonPreserve	—	—	2V				
Solids: Brass / Steel / Plastic Bag	—	—					

NH 12-21-22

Split

	Container	Preservative	Lot #	Initials	Date/Time
S P					
S P					

Preservation Check
pH Lot # AF01843
Cl Lot #

Comments

*Preservation check completed by lab performing analysis.

Odor received after 24hrs NH HAA, OH no preserved. Container CW

✓ **Indicates Blanks Received**

504 ___ 524.2 ___ TTHM ___ 537.1 ___ TCP___

✓ **MS/MSD Received Method:** ________

Scanned paperwork to PM to confirm testing Called to follow up Cav

Scanned: Cav Rush/Short HT Page: ________ Time: ______

Pace ANALYTICAL SERVICES BSK

2.8 #75

4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.pacelabs.com

Cha[illegible]m

AFL2946 GSIWA3956 12/21/2022

Page 1 of 1

Report To
Client: GSI Water Solutions
Attn: Nate Page
Street Address: 5855 Capistrano Ave STE C
City, State, Zip: Atascadero CA 93422
Phone: (970) 692-3593
Email: npage@gsiws.com
Work Order #:

Project #:
Project Name: Morro Bay IPR
BID#
Sampler(s) Name Printed: Nate Page

Analysis Requested

Comments: EDD requested, no Geotracker
Analyses = "Complete Suite" attached

Sample #	Description	Date Sampled	Time Sampled	Number of Containers	Please See Attached "Complete Suite"	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Notes
ZIP-01		12/20/22	0940	X					X			Shiped GLS

NH 12-21-22

Result Request **Surcharge
☒ STD (10 Days) ☐ 5 Day** ☐ 4 Day**
☐ 3 Day** ☐ 2 Day** ☐ 1 Day**
Rush requests must be approved

Billing ☒ Same as above
Client:
Address:
City: State Zip
Attn:
P.O. #:

System # (Needed for CLIP)
GIS/Key ☐ Well Star ☐

EDF Required Geotracker ☐ Yes ☒ No Global ID

Relinquished By	Date	Time	Received By	Date	Time
1. Relinquished By [signature]	12/20/22	1200	1. Received By		
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By N Hammond	12/21/22	1330

GLS W IBW

Pace Analytical Bakersfield does not accept samples containing radioactive material above background levels. Samples containing radioactive material must be disclosed prior to receipt. Any samples suspected of containing radioactive material above background levels will not be accepted and will be returned to client.

Bottle Order

General | Client Info | **Bottles**

AFL2946 GSIWA3956 12/21/2022

10

	Mark	Seq ###	Container	Qty	Ana Cnt	Bottle Size	Bottle Type	Bottle Label
1		00 A	I24: Nitrogen Forms YELLOW PE 500ml, H2SO4 to pH<2	5	1	500 ml (1 pint)	Plastic	Nitrogen Forms (YELLOW
2		00 B	X44: Plastic 500 ml (1 pint)	15	1	500 ml (1 pint)	Plastic	Blank (WHITE)
3		00 C	X48: Plastic 1000 ml (quart)	15	1	1000 ml (quart)	Plastic	Blank (WHITE)
4		00 D	I20: Nitrate/Nitrite YELLOW PE 50ml, H2SO4 to pH<2	5	1	50 ml (2 oz)	Plastic	Nitrate / Nitrite (YELLOW)
5		0 E	I28: Odor, Glass Amber 500ml, No Preserve	5	1	500 ml (1 pint)	Glass Amber U	Odor
6		00 F	I40: Sulfides (BROWN), PE 500ml, 1 ml Zinc Acetate	5	1	500 ml (1 pint)	Plastic	Sulfides (Brown)
7		00 G	I44: TOC/TOX/Phenolics, GA 250ml, H2SO4 to pH<2	5	1	250 ml (8 oz)	Glass Amber	TOC/TOX/Phenolics (YEL
8		00 H	O87: RSK-175, Glass Vial 40ml, Unpreserved	10	1	40 ml	Glass Vial Unp	
9		01 I	O89: HAA5 GA, 250 ml, NH4Cl	5	1	250 ml (8 oz)	Glass Amber	HAA5
10		01 J	O96c: VOA, Glass Vial 40ml, 200uL HCl (Set of 3)	15	0	Set of 3 40 ml vi	Glass Vial	Volatile Organics
11		01 K	I06: Cr6, PE 50ml, Borate/HCO3/CO3 buffer preserve	5	1	50 ml (2oz)	Plastic	Hexavalent Chromium
12		01 L	O94: VOA TB, Glass Vial, 200uL HCl	3	0	40 ml	Glass Vial	Volatile Organics Travel B

PER SET: A - 1 A bottles - ammonia, COD

B - 3 B bottle - unpreserved plastic - dissolved metals (filter in lab)

C - 3 C bottle- Alk, Cl,EC,F,MBAS,NO3, NO2, ortho,ph, SO4,TDS,TSS, ORP (Send 2 per sample)

D - 1 D bottle - NO3+NO2 as N

E - 1 E bottles -odor,turbidity

F - 1 F bottle - Total Sulfide

G - 1 G bottle - TOC

H - 2 H bottle - 524.2 TTHM

I - 1 I Bottle- HAA5

J - 3 VOAS = 1 SET IN POUCH J - RSK 175

K - 1 K bottle - Cr6

L - TRAVEL BLANKS

Asbestos - Send one liter poly

Bromate - We can analyze out of an unreserved container. Ideally we would prefer 250 ml plastic preserved with EDA

DOC - 40 ml voa unpreseved

	Sodium	EPA 200.7
	Strontium	EPA 200.8
	Thallium	EPA 200.8
	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

Parameter Type	Parameter	Method
Field	~~Dissolved oxygen~~	~~YSI 556 or similar~~
	~~pH~~	~~EPA 150.1~~
	~~Oxidation-Reduction Potential~~	~~SM2580B~~
	~~Specific Conductance~~	~~EPA 120.1~~
	~~Temperature~~	~~YSI 556 or similar~~
	~~Turbidity~~	~~EPA 180.1~~
Inorganics	Alkalinity	SM2320B
	Ammonia	SM4500NH3G
	Bicarbonate	SM2320B
	Carbonate	SM2320B
	Chloride	EPA 300.0
	Cyanide (HCN)	EPA 335.4
	Fluoride	EPA 300.0
	Hardness	EPA 200.8
	Nitrate+Nitrite (total N)	EPA 300.0
	Nitrate (as N)	EPA 300.0
	Nitrite-N	EPA 300.0
	Orthophosphate as P	EPA 300.0
	Total Silica (as SiO2)	EPA 200.7
	Dissolved Silica (as SiO2)	EPA 200.7
	Sulfate	EPA 300.0
	Sulfide	SM4500S2F
Metals (Dissolved)	Aluminum	EPA 200.7
	Antimony	EPA 200.8
	Arsenic	EPA 200.8
	Barium	EPA 200.8
	Beryllium	EPA 200.8
	Cadmium	EPA 200.8
	Calcium	EPA 200.7
	Chromium	EPA 200.8
	Cobalt	EPA 200.8
	Copper	EPA 200.8
	Iron	EPA 200.7
	Lead	EPA 200.8
	Magnesium	EPA 200.7
	Manganese	EPA 200.8
	Mercury	EPA 245.7
	Molybdenum	EPA 200.8
	Nickel	EPA 200.8
	Potassium	EPA 200.7
	Selenium	EPA 200.8
	Silver	EPA 200.8

	Sodium	EPA 200.7
	Strontium	EPA 200.8
	Thallium	EPA 200.8
	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 2212K57

Report Created for: BSK Analytical Laboratories

550 West Locust Avenue
Fresno, CA 93650

Project Contact: Tina Green
Project P.O.:
Project: AFL2946

Project Received: 12/29/2022

Analytical Report reviewed & approved for release on 01/06/2023 by:

Susan Thompson
Project Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in a case narrative.

1534 Willow Pass Rd. Pittsburg, CA 94565 ♦ TEL: (877) 252-9262 ♦ FAX: (925) 252-9269 ♦ www.mccampbell.com
CA ELAP 1644 ♦ NELAP 4033 ORELAP

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Glossary of Terms & Qualifier Definitions

Client: BSK Analytical Laboratories **WorkOrder:** 2212K57
Project: AFL2946

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
CPT	Consumer Product Testing not NELAP Accredited
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
LQL	Lowest Quantitation Level
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	MDL is the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results. Definition and Procedure for the Determination of the Method Detection Limit, Revision 2, 40CFR, Part 136, Appendix B, EPA 821-R-16-006, December 2016.
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NA	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting limit is the lowest level that can be reliably determined within specified limits of precision and accuracy during routine laboratory operating conditions. (The RL cannot be lower than the lowest calibration standard used in the initial calibration of the instrument and must be greater than the MDL.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
TZA	TimeZone Net Adjustment for sample collected outside of MAI's UTC.
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Glossary of Terms & Qualifier Definitions

Client: BSK Analytical Laboratories **WorkOrder:** 2212K57
Project: AFL2946

Analytical Qualifiers

H	Sample was analyzed out of hold time

Analytical Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2212K57
Date Received:	12/29/2022 10:25	**Extraction Method:**	RSK175
Date Prepared:	01/03/2023	**Analytical Method:**	RSK175
Project:	AFL2946	**Unit:**	µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AFL2946-01	**2212K57-001A**	**Water**	**12/20/2022 09:40**	**GC26 0103230305.D**	**261268**

Analytes	Result	RL	DF	Date Analyzed
Ethane	ND	0.24	1	01/03/2023 16:14
Ethylene	ND	0.31	1	01/03/2023 16:14
Methane	**0.17**	0.12	1	01/03/2023 16:14

Analyst(s): MBE

McCampbell Analytical, Inc.
"When Quality Counts"
1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Analytical Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2212K57
Date Received:	12/29/2022 10:25	**Extraction Method:**	SM4500-S^{-2} D-2000
Date Prepared:	12/30/2022	**Analytical Method:**	SM4500 S^{-2} D
Project:	AFL2946	**Unit:**	mg/L

Total Sulfide - S

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AFL2946-01	**2212K57-001B**	**Water**	**12/20/2022 09:40**	**SPECTROPHOTOMETER2**	**261187**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND	H	0.10	1	12/30/2022 16:15

Analyst(s): IGC

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http://www.mccampbell.com / E-mail: main@mccampbell.com

Quality Control Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2212K57
Date Prepared:	01/03/2023	**BatchID:**	261268
Date Analyzed:	01/03/2023	**Extraction Method:**	RSK175
Instrument:	GC26	**Analytical Method:**	RSK175
Matrix:	Water	**Unit:**	µg/L
Project:	AFL2946	**Sample ID:**	MB/LCS/LCSD-261268

QC Summary Report for RSK175

Analyte	MB Result	MDL	RL			
Ethane	ND	0.24	0.24	-	-	-
Ethylene	ND	0.31	0.31	-	-	-
Methane	ND	0.12	0.12	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Ethane	2.2	2.2	2.38	92	94	70-130	1.73	20
Ethylene	2.9	2.9	3.08	94	96	70-130	1.98	20
Methane	1.1	1.1	1.17	94	94	70-130	0.119	20

Quality Control Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2212K57
Date Prepared:	12/30/2022	**BatchID:**	261187
Date Analyzed:	12/30/2022	**Extraction Method:**	SM4500-S^{-2} D-2000
Instrument:	SPECTROPHOTOMETER2	**Analytical Method:**	SM4500 S^{-2} D
Matrix:	Water	**Unit:**	mg/L
Project:	AFL2946	**Sample ID:**	MB/LCS/LCSD-261187

QC Summary Report For SM4500 S-2D

Analyte	MB Result	MDL	RL			
Total Sulfide	ND	0.044	0.10	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Total Sulfide	0.48	0.48	0.50	97	96	80-120	0.601	20

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 2212K57 **ClientCode: BSKF**

☐ WaterTrax ☐ CLIP ☐ EDF ☐ EQuIS ☐ Dry-Weight ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☐ Detection Summary ☐ Excel

Report to:
Tina Green
BSK Analytical Laboratories
550 West Locust Avenue
Fresno, CA 93650
(559) 497-2888 FAX: (559) 485-6935

Email: tgreen@bskassociates.com
cc/3rd Party:
PO:
Project: AFL2946

Bill to:
Accounts Payable
BSK Analytical Laboratories
550 West Locust Avenue
Fresno, CA 93650

Requested TAT: **5 days;**

Date Received: **12/29/2022**
Date Logged: **12/29/2022**

Lab ID	ClientSampID	Matrix	Collection Date	Hold	1	2	3	4	5	6	7	8	9	10	11	12
					Requested Tests (See legend below)											
2212K57-001	AFL2946-01	Water	12/20/2022 09:40	☐	A	B										

Test Legend:

1	RSK175_W	2	SULFIDE_W	3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Cassandra Gallegos

Comments:

NOTE: Soil samples are discarded 60 days after receipt unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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WORK ORDER SUMMARY

Client Name: BSK ANALYTICAL LABORATORIES **Project:** AFL2946 **Work Order:** 2212K57
Client Contact: Tina Green **QC Level:** LEVEL 2
Contact's Email: tgreen@bskassociates.com **Comments:** **Date Logged:** 12/29/2022

☐ WaterTrax ☐ CLIP ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	U**	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	Sub Out
001A	AFL2946-01	Water	RSK175 <Ethane_4, Ethylene_4, Methane_4>	2	VOA w/ HCl	☐	☐	☐	12/20/2022 9:40	5 days	1/6/2023	None	☐	☐
001B	AFL2946-01	Water	SM4500S2D (Total Sulfide)	1	500mL HDPE w/ NaOH + ZnAc	☐	☐	☐	12/20/2022 9:40	5 days	1/6/2023	None	☐	☐

NOTES: * STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- Organic extracts are held for 40 days before disposal; Inorganic extract are held for 30 days.

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

U = An unpreserved container was received for a method that suggests a preservation in order to extend hold time for analysis.**

ASSOCIATES

SUBCONTRACT ORDER

AFL2946

2212K57

SENDING LABORATORY:

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Tina Green
E-mail: tgreen@bskassociates.com

RECEIVING LABORATORY:

McCampbell Analytical, Inc.
1534 Willow Pass Road
Pittsburg, CA 94565-1701
Phone :(925) 252-9262
Fax: (925) 252-9269
Turnaround (Days): Standard
QC Deliverables: I Std III IV

Sample ID	Samp Desc			Sample Date
AFL2946-01	**ZIP-01**	**Client Matrix**	Ground Water	**12/20/2022 09:40**
		Sampled By:	Nate Page	

Lab Matrix: Water

Analysis:
EXT-RSK-175 Methane, Ethane, Ethene
EXT-Sulfide

State Forms: **No** System Name:

2.0°C Blue

Released By	Date	Received By	Date
[signature]	12-27-22	GLS	
GLS	12-29-22 1025	Coronela Gallegos	12-29-22 1025

TRK#: 5585 05503

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http://www.mccampbell.com / E-mail: main@mccampbell.com

Sample Receipt Checklist

Client Name:	BSK Analytical Laboratories	Date and Time Received:	12/29/2022 10:25
Project:	AFL2946	Date Logged:	12/29/2022
		Received by:	Cassandra Gallegos
WorkOrder №:	2212K57 Matrix: Water	Logged by:	Cassandra Gallegos
Carrier:	Golden State Overnight		

Chain of Custody (COC) Information

	Yes	No	NA
Chain of custody present?	☑	☐	
Chain of custody signed when relinquished and received?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Sample IDs noted by Client on COC?	☑	☐	
Date and Time of collection noted by Client on COC?	☑	☐	
Sampler's name noted on COC?	☑	☐	
COC agrees with Quote?	☐	☐	☑

Sample Receipt Information

	Yes	No	NA
Custody seals intact on shipping container/cooler?	☑	☐	☐
Custody seals intact on sample bottles?	☐	☐	☑
Shipping container/cooler in good condition?	☑	☐	
Samples in proper containers/bottles?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	

Sample Preservation and Hold Time (HT) Information

	Yes	No	NA
All samples received within holding time?	☐	☑	☐
Samples Received on Ice? (Ice Type: BLUE ICE)	☑	☐	
Sample/Temp Blank temperature	Temp: 2°C		☐
ZHS conditional analyses: VOA meets zero headspace requirement (VOCs, TPHg/BTEX, RSK)?	☑	☐	☐
Sample labels checked for correct preservation?	☑	☐	
pH acceptable upon receipt (Metal: <2; Nitrate 353.2/4500NO3: <2; 522: <4; 218.7: >8)?	☐	☐	☑

UCMR Samples:

	Yes	No	NA
pH tested and acceptable upon receipt (200.7: ≤2; 533: 6 - 8; 537.1: 6 - 8)?	☐	☐	☑
Free Chlorine tested and acceptable upon receipt (<0.1mg/L) [not applicable to 200.7]?	☐	☐	☑

Comments: Method SM4500S2D (Total Sulfide) was received past its 7-day holding time.

Pace ANALYTICAL SERVICES BSK

4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.pacelabs.com

Chain of Custody Form

Page 1 of 1

Report To:

Client: GSI Water Solutions	Project #:
Attn: Nate Page	Project Name: Morro Bay IPR
Street Address: 5855 Capistrano Ave STE C	BID#
City, State, Zip: Atascadero CA 93422	Sampler(s) Name Printed: Nate Page
Phone: (970) 692-3593	
Email: npage@gsiws.com	
Work Order #:	

Analysis Requested: Please see Attached "Complete Suite"

Comments: EDD requested, no Geotracker Analyses = "Complete Suite" attached

Result Request **Surcharge**: ☒ STD (10 Days) ☐ 5 Day** ☐ 4 Day** ☐ 3 Day** ☐ 2 Day** ☐ 1 Day**

Rush requests must be approved

Sample #	Description	Date Sampled	Time Sampled	Number of Containers	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Notes
ZIP-01		12/20/22	0940	X				X			Shipped GLS

Billing ☒ Same as above

Client:

Address:

City: State Zip

Attn:

P.O. #:

System # (Needed for CLIP)

GIS/Key ☐ Well Star ☐

EDF Required Geotracker ☐ Yes ☒ No Global ID

Relinquished By	Date	Time	Received By	Date	Time
1. Relinquished By [signature]	12/20/22	1200	1. Received By		
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Pace Analytical Bakersfield does not accept samples containing radioactive material above background levels. Samples containing radioactive material must be disclosed prior to receipt. Any samples suspected of containing radioactive material above background levels will not be accepted and will be returned to client.

Laboratory Reports

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)

AFL2946
1/27/2023
Invoice: AG02131

Nate Page
GSI Water Solutions, Inc
418 Chapala Street, Suite H
Santa Barbara, CA 93101

RE: Report for AFL2946 Morro Bay IPR - Complete Suite

Dear Nate Page,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 12/21/2022. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2016 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an "as received" basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Heather S. White , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Heather S. White, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021

Case Narrative

Project and Report Details		Invoice Details	
Client:	GSI Water Solutions, Inc	**Invoice To:**	GSI Water Solutions, Inc
Report To:	Nate Page	**Invoice Attn:**	Nate Page
Project #:	-	**Project PO#:**	-
Received:	12/21/2022 - 13:30		
Report Due:	1/06/2023		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt ºC: 2.8

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Bubble Wrap
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

DP1.1	Sample Duplicate RPD exceeded method acceptance criteria.
HT2.0	Holding time exceeded. Sample was received at the lab past recommended holding time.
MS1.0	Matrix spike recoveries exceed control limits.
MS1.2	Matrix spike recovery exceeds lower control limit. Reported results for parent matrix should be considered estimated due to matrix interferences.
MS1.4	Matrix spike recovery data unreliable due to significant parent sample concentration relative to fortification level (>4x).
MS2.1	MS/MSD RPD exceeds control limit. Reportable results in parent sample may have some degree of variability, higher than that inherent in the method.
OD.d	Marshy/Swampy/Septic/Sulfurous
OD.f	Fishy/Rancid
SC1.41	Sample was received without chemical preservation. Sample volume was split and preserved by the laboratory.

Report Distribution

Recipient(s)	Report Format	CC:
Nate Page	FINAL.RPT	

Certificate of Analysis

Sample ID: AFL2946-01
Sampled By: Nate Page
Sample Description: ZIP-01

Sample Date - Time: 12/20/2022 - 09:40
Matrix: Ground Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Alkalinity as CaCO3	SM 2320B	**190**	3.0	mg/L	1	AGA0009	01/03/23	01/03/23	
Bicarbonate as CaCO3	SM 2320B	**150**	3.0	mg/L	1	AGA0009	01/03/23	01/03/23	
Carbonate as CaCO3	SM 2320B	**39**	3.0	mg/L	1	AGA0009	01/03/23	01/03/23	
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	AGA0009	01/03/23	01/03/23	
Ammonia as N	EPA 350.1	ND	0.10	mg/L	1	AFL1668	12/23/22	12/23/22	MS1.2
Bromate	EPA 317.0	ND	1.0	ug/L	1	AFL1957	01/04/23	01/04/23	
Chloride	EPA 300.0	**130**	1.0	mg/L	1	AFL1529	12/21/22	12/21/22	
Chlorine, Free Residual (1)	SM 4500-Cl G	ND	0.10	mg/L	1	AFL1645	12/22/22 18:27	12/22/22	
Chlorine, Total Residual (1)	SM 4500-Cl G	ND	0.10	mg/L	1	AFL1645	12/22/22 18:27	12/22/22	
Chemical Oxygen Demand	SM 5220D	ND	15	mg/L	1	AFL1819	12/28/22	12/28/22	
Color, Apparent	SM 2120B	ND	5.0	CU	1	AFL1247	12/21/22 19:02	12/21/22	
Cyanide (total)	SM 4500-CN E	ND	5.0	ug/L	1	AGA0070	01/03/23	01/04/23	SC1.41
Dissolved Organic Carbon	SM 5310C	**2.4**	0.20	mg/L	1	AFL1789	12/28/22	12/28/22	
Conductivity @ 25C	SM 2510B	**880**	1.0	umhos/cm	1	AGA0009	01/03/23	01/03/23	
Fluoride	EPA 300.0	**0.19**	0.10	mg/L	1	AFL1529	12/21/22	12/21/22	
Hexavalent Chromium	EPA 218.6	**0.12**	0.050	ug/L	1	AFL1967	12/30/22	12/30/22	
Langelier Index	SM 2330B	**1.0**				AGA0276	01/05/23	01/05/23	
MBAS, Calculated as LAS, mol wt 340	SM 5540C	ND	0.050	mg/L	1	AFL1528	12/21/22 18:35	12/21/22	
Nitrate + Nitrite as N	CALC	**0.62**	0.23	mg/L					
Nitrate as N	EPA 300.0	**0.62**	0.23	mg/L	1	AFL1529	12/21/22 21:58	12/21/22	
Nitrite as N	EPA 300.0	ND	0.050	mg/L	1	AFL1529	12/21/22 21:58	12/21/22	
Threshold Odor	SM 2150B	**1.3**	1.0	T.O.N.	1	AFL1489	12/21/22 18:34	12/21/22	HT2.0, OD.d, OD.f
Orthophosphate as P	EPA 300.0	ND	0.20	mg/L	1	AFL1529	12/21/22 21:58	12/21/22	
Oxidation/Reduction Potential	Hach 10228	**170**	-10000	mV	1	AFL1538	12/21/22 23:44	12/21/22	
pH (1)	SM 4500-H+ B	**8.9**	0.0	pH Units	1	AGA0009	01/03/23 14:33	01/03/23	
pH Temperature in °C		**21.8**							
Sulfate as SO4	EPA 300.0	**100**	1.0	mg/L	1	AFL1529	12/21/22	12/21/22	
Total Dissolved Solids	SM 2540C	**480**	5.0	mg/L	1	AFL1742	12/27/22	12/27/22	
Total Organic Carbon	SM 5310C	**2.6**	0.20	mg/L	1	AFL1822	12/29/22	12/29/22	
Total Suspended Solids	SM 2540D	ND	5.0	mg/L	1	AFL1744	12/27/22	12/27/22	
Turbidity	SM 2130B	**0.62**	0.10	NTU	1	AFL1247	12/21/22 19:14	12/21/22	

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Aluminum - Dissolved (1)	EPA 200.7	ND	50	ug/L	1	AFL1773	12/28/22	12/30/22	
Antimony - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AFL1773	12/28/22	12/30/22	
Arsenic - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AFL1773	12/28/22	12/30/22	
Barium - Dissolved (1)	EPA 200.8	**55**	5.0	ug/L	1	AFL1773	12/28/22	12/30/22	
Beryllium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AFL1773	12/28/22	12/30/22	
Cadmium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AFL1773	12/28/22	12/30/22	
Calcium - Dissolved (1)	EPA 200.7	**29**	0.10	mg/L	1	AFL1773	12/28/22	12/30/22	
Chromium - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AFL1773	12/28/22	12/30/22	

Certificate of Analysis

Sample ID: AFL2946-01
Sampled By: Nate Page
Sample Description: ZIP-01

Sample Date - Time: 12/20/2022 - 09:40
Matrix: Ground Water
Sample Type: Grab

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Cobalt - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AFL1773	12/28/22	12/30/22	
Copper - Dissolved (1)	EPA 200.8	ND	5.0	ug/L	1	AFL1773	12/28/22	12/30/22	
Hardness as CaCO3, Dissolved	SM 2340B	**190**	0.41	mg/L					
Iron - Dissolved (1)	EPA 200.7	ND	30	ug/L	1	AFL1773	12/28/22	12/30/22	
Lead - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AFL1773	12/28/22	12/30/22	
Magnesium - Dissolved (1)	EPA 200.7	**28**	0.10	mg/L	1	AFL1773	12/28/22	12/30/22	
Manganese - Dissolved (1)	EPA 200.7	**330**	10	ug/L	1	AFL1773	12/28/22	12/30/22	
Mercury - Dissolved (1)	EPA 245.7	ND	0.20	ug/L	1	AFL1708	12/27/22	12/28/22	
Molybdenum - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AFL1773	12/28/22	12/30/22	
Nickel - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AFL1773	12/28/22	12/30/22	
Potassium - Dissolved (1)	EPA 200.7	ND	2.0	mg/L	1	AFL1773	12/28/22	12/30/22	
Selenium - Dissolved (1)	EPA 200.8	**2.3**	2.0	ug/L	1	AFL1773	12/28/22	12/30/22	
Silica (SiO2)	EPA 200.7	**16**	0.20	mg/L	1	AFL1772	12/28/22	12/30/22	
Silica (SiO2) - Dissolved (1)	EPA 200.7	**16**	0.20	mg/L	1	AFL1773	12/28/22	12/30/22	MS1.4
Silver - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AFL1773	12/28/22	12/30/22	
Sodium - Dissolved (1)	EPA 200.7	**92**	1.0	mg/L	1	AFL1773	12/28/22	12/30/22	MS1.4
Strontium - Dissolved (1)	EPA 200.8	**220**	1.0	ug/L	1	AFL1773	12/28/22	12/30/22	
Thallium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AFL1773	12/28/22	12/30/22	
Uranium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AFL1773	12/28/22	12/30/22	
Vanadium - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AFL1773	12/28/22	12/30/22	
Zinc - Dissolved (1)	EPA 200.8	ND	50	ug/L	1	AFL1773	12/28/22	12/30/22	

Organics

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Trihalomethanes by GC-MS									
Bromodichloromethane	EPA 524.2	**15**	0.50	ug/L	1	AFL1534	12/21/22	12/22/22	
Bromoform	EPA 524.2	**8.2**	0.50	ug/L	1	AFL1534	12/21/22	12/22/22	
Chloroform	EPA 524.2	**11**	0.50	ug/L	1	AFL1534	12/21/22	12/22/22	
Dibromochloromethane	EPA 524.2	**17**	0.50	ug/L	1	AFL1534	12/21/22	12/22/22	
Total Trihalomethanes		**51**	0.50	ug/L					
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	97 %	*Acceptable range:*	*70-130 %*					
Surrogate: Bromofluorobenzene	EPA 524.2	103 %	*Acceptable range:*	*70-130 %*					
Haloacetic Acids by GC-MS									
Dibromoacetic Acid (DBAA)	EPA 552.3	**3.6**	1.0	ug/L	1	AFL1709	12/27/22	12/28/22	
Dichloroacetic Acid (DCAA)	EPA 552.3	**5.5**	1.0	ug/L	1	AFL1709	12/27/22	12/28/22	
Monobromoacetic Acid (MBAA)	EPA 552.3	ND	1.0	ug/L	1	AFL1709	12/27/22	12/28/22	
Monochloroacetic Acid (MCAA)	EPA 552.3	ND	2.0	ug/L	1	AFL1709	12/27/22	12/28/22	
Trichloroacetic Acid (TCAA)	EPA 552.3	**10**	1.0	ug/L	1	AFL1709	12/27/22	12/28/22	
Total Haloacetic Acids		**19**	2.0	ug/L					
Surrogate: 2-Bromobutanoic Acid	EPA 552.3	100 %	*Acceptable range:*	*70-130 %*					

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 218.6 - Quality Control											
Batch: AFL1967										Prepared: 12/30/2022	
Prep Method: Method Specific Preparation										Analyst: CTD	
Blank (AFL1967-BLK1)											
Hexavalent Chromium	ND	0.050	ug/L							12/30/22	
Blank Spike (AFL1967-BS1)											
Hexavalent Chromium	2.0	0.050	ug/L	2.0	ND	101	90-110			12/30/22	
Blank Spike Dup (AFL1967-BSD1)											
Hexavalent Chromium	2.0	0.050	ug/L	2.0	ND	100	90-110	1	10	12/30/22	
Matrix Spike (AFL1967-MS1), Source: AFL2835-01											
Hexavalent Chromium	16	0.10	ug/L	4.0	9.8	149	90-110			12/30/22	MS1.0 ***High***
Matrix Spike Dup (AFL1967-MSD1), Source: AFL2835-01											
Hexavalent Chromium	14	0.10	ug/L	4.0	9.8	95	90-110	14	10	12/30/22	MS2.1
EPA 300.0 - Quality Control											
Batch: AFL1529										Prepared: 12/21/2022	
Prep Method: Method Specific Preparation										Analyst: DXR	
Blank (AFL1529-BLK1)											
Fluoride	ND	0.10	mg/L							12/21/22	
Nitrate as N	ND	0.23	mg/L							12/21/22	
Chloride	ND	1.0	mg/L							12/21/22	
Nitrite as N	ND	0.050	mg/L							12/21/22	
Orthophosphate as P	ND	0.20	mg/L							12/21/22	
Sulfate as SO4	ND	1.0	mg/L							12/21/22	
Blank Spike (AFL1529-BS1)											
Fluoride	1.0	0.10	mg/L	1.0	ND	102	90-110			12/21/22	
Nitrate as N	22	0.23	mg/L	23	ND	99	90-110			12/21/22	
Chloride	99	1.0	mg/L	100	ND	99	90-110			12/21/22	
Nitrite as N	1.0	0.050	mg/L	1.0	ND	103	90-110			12/21/22	
Orthophosphate as P	5.1	0.20	mg/L	5.0	ND	102	90-110			12/21/22	
Sulfate as SO4	99	1.0	mg/L	100	ND	99	90-110			12/21/22	
Matrix Spike (AFL1529-MS1), Source: AFL2908-01											
Fluoride	0.56	0.10	mg/L	0.50	ND	99	80-120			12/21/22	
Nitrate as N	15	0.23	mg/L	11	3.8	99	80-120			12/21/22	
Chloride	53	1.0	mg/L	50	3.8	97	80-120			12/21/22	
Nitrite as N	0.50	0.050	mg/L	0.50	ND	99	75-125			12/21/22	
Orthophosphate as P	2.6	0.20	mg/L	2.5	ND	99	80-120			12/21/22	
Sulfate as SO4	53	1.0	mg/L	50	4.6	98	80-120			12/21/22	
Matrix Spike Dup (AFL1529-MSD1), Source: AFL2908-01											
Fluoride	0.57	0.10	mg/L	0.50	ND	102	80-120	3	10	12/21/22	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 300.0 - Quality Control

Batch: AFL1529 Prepared: 12/21/2022
Prep Method: Method Specific Preparation Analyst: DXR

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Matrix Spike Dup (AFL1529-MSD1), Source: AFL2908-01											
Nitrate as N	15	0.23	mg/L	11	3.8	102	80-120	2	20	12/21/22	
Chloride	54	1.0	mg/L	50	3.8	100	80-120	2	20	12/21/22	
Nitrite as N	0.51	0.050	mg/L	0.50	ND	102	75-125	3	20	12/21/22	
Orthophosphate as P	2.7	0.20	mg/L	2.5	ND	103	80-120	3	20	12/21/22	
Sulfate as SO4	64	1.0	mg/L	50	4.6	120	80-120	19	20	12/22/22	

EPA 317.0 - Quality Control

Batch: AFL1957 Prepared: 1/4/2023
Prep Method: Method Specific Preparation Analyst: DXR

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AFL1957-BLK1)											
Bromate	ND	1.0	ug/L							01/04/23	
Blank Spike (AFL1957-BS1)											
Bromate	9.5	1.0	ug/L	10	ND	95	85-115			01/04/23	
Blank Spike Dup (AFL1957-BSD1)											
Bromate	9.5	1.0	ug/L	10	ND	95	85-115	0	10	01/04/23	
Matrix Spike (AFL1957-MS1), Source: AFL2990-01											
Bromate	8.8	1.0	ug/L	10	ND	82	75-125			01/04/23	
Matrix Spike Dup (AFL1957-MSD1), Source: AFL2990-01											
Bromate	8.9	1.0	ug/L	10	ND	83	75-125	1	10	01/04/23	

EPA 350.1 - Quality Control

Batch: AFL1668 Prepared: 12/23/2022
Prep Method: Method Specific Preparation Analyst: GJA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AFL1668-BLK1)											
Ammonia as N	ND	0.10	mg/L							12/23/22	
Blank Spike (AFL1668-BS1)											
Ammonia as N	3.9	0.10	mg/L	4.0	ND	98	90-110			12/23/22	
Blank Spike Dup (AFL1668-BSD1)											
Ammonia as N	4.0	0.10	mg/L	4.0	ND	99	90-110	1	20	12/23/22	
Matrix Spike (AFL1668-MS1), Source: AFL2946-01											
Ammonia as N	3.6	0.10	mg/L	4.0	ND	87	90-110			12/23/22	MS1.0 ***Low***
Matrix Spike (AFL1668-MS2), Source: VFL0414-04											
Ammonia as N	3.5	0.10	mg/L	4.0	ND	87	90-110			12/23/22	MS1.0 ***Low***

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Hach 10228 - Quality Control											
Batch: AFL1538										Prepared: 12/21/2022	
Prep Method: Method Specific Preparation										Analyst: DXR	
Duplicate (AFL1538-DUP1), Source: AFL2946-01											
Oxidation/Reduction Potential	160	-10000	mV		170			8	20	12/21/22	
SM 2120B - Quality Control											
Batch: AFL1247										Prepared: 12/21/2022	
Prep Method: Method Specific Preparation										Analyst: BCB	
Blank (AFL1247-BLK1)											
Color, Apparent	ND	5.0	CU							12/21/22	
Duplicate (AFL1247-DUP1), Source: AFL2908-02											
Color, Apparent	10	5.0	CU		10			0	20	12/21/22	
SM 2130B - Quality Control											
Batch: AFL1247										Prepared: 12/21/2022	
Prep Method: Method Specific Preparation										Analyst: BCB	
Blank (AFL1247-BLK1)											
Turbidity	ND	0.10	NTU							12/21/22	
Duplicate (AFL1247-DUP1), Source: AFL2908-02											
Turbidity	5.5	0.10	NTU		5.6			1	20	12/21/22	
SM 2150B - Quality Control											
Batch: AFL1489										Prepared: 12/21/2022	
Prep Method: Method Specific Preparation										Analyst: BCB	
Blank (AFL1489-BLK1)											
Threshold Odor	ND	1.0	T.O.N.							12/21/22	
Blank (AFL1489-BLK2)											
Threshold Odor	ND	1.0	T.O.N.							12/21/22	
SM 2320B - Quality Control											
Batch: AGA0009										Prepared: 1/3/2023	
Prep Method: Method Specific Preparation										Analyst: CEG	
Blank (AGA0009-BLK1)											
Alkalinity as CaCO3	ND	3.0	mg/L							01/03/23	
Bicarbonate as CaCO3	ND	3.0	mg/L							01/03/23	
Carbonate as CaCO3	ND	3.0	mg/L							01/03/23	
Hydroxide as CaCO3	ND	3.0	mg/L							01/03/23	
Blank Spike (AGA0009-BS1)											
Alkalinity as CaCO3	100	3.0	mg/L	100	ND	100	80-120			01/03/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2320B - Quality Control											
Batch: AGA0009										Prepared: 1/3/2023	
Prep Method: Method Specific Preparation										Analyst: CEG	
Blank Spike Dup (AGA0009-BSD1)											
Alkalinity as CaCO3	100	3.0	mg/L	100	ND	101	80-120	1	20	01/03/23	
Duplicate (AGA0009-DUP1), Source: AFL3297-01											
Alkalinity as CaCO3	210	3.0	mg/L		210			1	10	01/03/23	
Bicarbonate as CaCO3	210	3.0	mg/L		210			1	10	01/03/23	
Carbonate as CaCO3	ND	3.0	mg/L		ND				10	01/03/23	
Hydroxide as CaCO3	ND	3.0	mg/L		ND				10	01/03/23	
SM 2510B - Quality Control											
Batch: AGA0009										Prepared: 1/3/2023	
Prep Method: Method Specific Preparation										Analyst: CEG	
Blank Spike (AGA0009-BS1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400	ND	100	90-110			01/03/23	
Blank Spike Dup (AGA0009-BSD1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400	ND	102	90-110	1	5	01/03/23	
Duplicate (AGA0009-DUP1), Source: AFL3297-01											
Conductivity @ 25C	1200	1.0	umhos/cm		1200			0	5	01/03/23	
SM 2540C - Quality Control											
Batch: AFL1742										Prepared: 12/27/2022	
Prep Method: Method Specific Preparation										Analyst: TSY/SYY	
Blank (AFL1742-BLK1)											
Total Dissolved Solids	ND	5.0	mg/L							12/27/22	
Blank Spike (AFL1742-BS1)											
Total Dissolved Solids	1000		mg/L	1000		102	70-130			12/27/22	
Duplicate (AFL1742-DUP1), Source: SFL0416-01											
Total Dissolved Solids	3500	5.0	mg/L		3700			5	10	12/27/22	
Duplicate (AFL1742-DUP2), Source: AFL2864-02											
Total Dissolved Solids	1100	5.0	mg/L		1100			0	10	12/27/22	
SM 2540D - Quality Control											
Batch: AFL1744										Prepared: 12/27/2022	
Prep Method: Method Specific Preparation										Analyst: TSY	
Blank (AFL1744-BLK1)											
Total Suspended Solids	ND	5.0	mg/L							12/27/22	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

SM 2540D - Quality Control

Batch: AFL1744 Prepared: 12/27/2022
Prep Method: Method Specific Preparation Analyst: TSY

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank Spike (AFL1744-BS1)											
Total Suspended Solids	92		mg/L	100		92	70-130			12/27/22	
Duplicate (AFL1744-DUP1), Source: AFL3275-01											
Total Suspended Solids	180	5.0	mg/L		170			5	10	12/27/22	
Duplicate (AFL1744-DUP2), Source: AFL2910-01											
Total Suspended Solids	1500	5.0	mg/L		1400			4	10	12/27/22	

SM 4500-Cl G - Quality Control

Batch: AFL1645 Prepared: 12/22/2022
Prep Method: Method Specific Preparation Analyst: CMH

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AFL1645-BLK1)											
Chlorine, Free Residual (1)	ND	0.10	mg/L							12/22/22	
Chlorine, Total Residual (1)	ND	0.10	mg/L							12/22/22	
Blank Spike (AFL1645-BS1)											
Chlorine, Free Residual (1)	0.98	0.10	mg/L	1.0	ND	98	90-110			12/22/22	
Chlorine, Total Residual (1)	1.0	0.10	mg/L	1.0	ND	101	90-110			12/22/22	
Duplicate (AFL1645-DUP1), Source: AFL3171-01											
Chlorine, Free Residual (1)	ND	0.10	mg/L		ND				20	12/22/22	DP1.1
Chlorine, Total Residual (1)	ND	0.10	mg/L		ND				20	12/22/22	DP1.1

SM 4500-CN E - Quality Control

Batch: AGA0070 Prepared: 1/3/2023
Prep Method: Method Specific Preparation Analyst: ERA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0070-BLK1)											
Cyanide (total)	ND	5.0	ug/L							01/04/23	
Blank Spike (AGA0070-BS1)											
Cyanide (total)	240	5.0	ug/L	250	ND	96	80-120			01/04/23	
Blank Spike Dup (AGA0070-BSD1)											
Cyanide (total)	250	5.0	ug/L	250	ND	100	80-120	4	20	01/04/23	
Matrix Spike (AGA0070-MS1), Source: AFL2946-01											
Cyanide (total)	240	5.0	ug/L	250	ND	96	80-120			01/04/23	
Matrix Spike Dup (AGA0070-MSD1), Source: AFL2946-01											
Cyanide (total)	240	5.0	ug/L	250	ND	95	80-120	1	20	01/04/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 4500-H+ B - Quality Control											
Batch: AGA0009										Prepared: 1/3/2023	
Prep Method: Method Specific Preparation										Analyst: CEG	
Duplicate (AGA0009-DUP1), Source: AFL3297-01											
pH (1)	7.22	0.0	pH Units		7.20			0		01/03/23	
SM 5220D - Quality Control											
Batch: AFL1819										Prepared: 12/28/2022	
Prep Method: Method Specific Preparation										Analyst: BCB	
Blank (AFL1819-BLK1)											
Chemical Oxygen Demand	ND	15	mg/L							12/28/22	
Blank Spike (AFL1819-BS1)											
Chemical Oxygen Demand	110	30	mg/L	100	ND	112	80-120			12/28/22	
Blank Spike Dup (AFL1819-BSD1)											
Chemical Oxygen Demand	120	30	mg/L	100	ND	115	80-120	3	20	12/28/22	
Matrix Spike (AFL1819-MS1), Source: AFL2946-01											
Chemical Oxygen Demand	87	30	mg/L	100	ND	87	80-120			12/28/22	
Matrix Spike Dup (AFL1819-MSD1), Source: AFL2946-01											
Chemical Oxygen Demand	82	30	mg/L	100	ND	82	80-120	7	20	12/28/22	
SM 5310C - Quality Control											
Batch: AFL1789										Prepared: 12/28/2022	
Prep Method: Method Specific Preparation										Analyst: ERA	
Blank (AFL1789-BLK1)											
Dissolved Organic Carbon	ND	0.20	mg/L							12/28/22	
Blank Spike (AFL1789-BS1)											
Dissolved Organic Carbon	10	0.20	mg/L	10	ND	102	80-120			12/28/22	
Blank Spike Dup (AFL1789-BSD1)											
Dissolved Organic Carbon	10	0.20	mg/L	10	ND	102	80-120	0	20	12/28/22	
Matrix Spike (AFL1789-MS1), Source: AFL2486-01											
Dissolved Organic Carbon	10	0.20	mg/L	10	ND	103	80-120			12/28/22	
Matrix Spike Dup (AFL1789-MSD1), Source: AFL2486-01											
Dissolved Organic Carbon	11	0.20	mg/L	10	ND	105	80-120	2	20	12/28/22	
SM 5310C - Quality Control											
Batch: AFL1822										Prepared: 12/29/2022	
Prep Method: Method Specific Preparation										Analyst: ERA	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

SM 5310C - Quality Control

Batch: AFL1822 Prepared: 12/29/2022

Prep Method: Method Specific Preparation Analyst: ERA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AFL1822-BLK1)											
Total Organic Carbon	ND	0.20	mg/L							12/29/22	
Blank Spike (AFL1822-BS1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	102	80-120			12/29/22	
Blank Spike Dup (AFL1822-BSD1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	103	80-120	0	20	12/29/22	
Matrix Spike (AFL1822-MS1), Source: AFL3002-01											
Total Organic Carbon	11	0.20	mg/L	10	0.37	105	80-120			12/29/22	
Matrix Spike Dup (AFL1822-MSD1), Source: AFL3002-01											
Total Organic Carbon	11	0.20	mg/L	10	0.37	108	80-120	3	20	12/29/22	

SM 5540C - Quality Control

Batch: AFL1528 Prepared: 12/21/2022

Prep Method: Method Specific Preparation Analyst: PXC

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AFL1528-BLK1)											
MBAS, Calculated as LAS, mol wt 340	ND	0.050	mg/L							12/21/22	
Blank Spike (AFL1528-BS1)											
MBAS, Calculated as LAS, mol wt 340	0.93	0.050	mg/L	1.0	ND	93	82-112			12/21/22	
Blank Spike Dup (AFL1528-BSD1)											
MBAS, Calculated as LAS, mol wt 340	0.97	0.050	mg/L	1.0	ND	97	82-112	4	20	12/21/22	
Matrix Spike (AFL1528-MS1), Source: AFL2936-01											
MBAS, Calculated as LAS, mol wt 340	0.84	0.050	mg/L	1.0	ND	84	80-112			12/21/22	
Matrix Spike Dup (AFL1528-MSD1), Source: AFL2936-01											
MBAS, Calculated as LAS, mol wt 340	0.89	0.050	mg/L	1.0	ND	89	80-112	6	20	12/21/22	

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 200.7 - Quality Control

Batch: AFL1772 Prepared: 12/28/2022

Prep Method: EPA 200.2 - Silica Analyst: MDS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AFL1772-BLK1)											
Silica (SiO2)	ND	0.20	mg/L							12/30/22	
Blank Spike (AFL1772-BS1)											
Silica (SiO2)	2.1	0.20	mg/L	2.1	ND	98	85-115			12/30/22	
Blank Spike Dup (AFL1772-BSD1)											
Silica (SiO2)	2.1	0.20	mg/L	2.1	ND	98	85-115	0	20	12/30/22	
Matrix Spike (AFL1772-MS1), Source: AFL2835-01											
Silica (SiO2)	21	0.20	mg/L	2.1	18	108	70-130			12/30/22	
Matrix Spike (AFL1772-MS2), Source: AFL3167-01											
Silica (SiO2)	21	0.20	mg/L	2.1	18	122	70-130			12/30/22	
Matrix Spike Dup (AFL1772-MSD1), Source: AFL2835-01											
Silica (SiO2)	22	0.20	mg/L	2.1	18	146	70-130	4	20	12/30/22	MS1.0 ***High***
Matrix Spike Dup (AFL1772-MSD2), Source: AFL3167-01											
Silica (SiO2)	20	0.20	mg/L	2.1	18	97	70-130	3	20	12/30/22	

EPA 200.7 - Quality Control

Batch: AFL1773 Prepared: 12/28/2022

Prep Method: Filtration - Metals Analyst: MDS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AFL1773-BLK2)											
Aluminum - Dissolved (1)	ND	50	ug/L							12/30/22	
Calcium - Dissolved (1)	ND	0.10	mg/L							12/30/22	
Iron - Dissolved (1)	ND	30	ug/L							12/30/22	
Potassium - Dissolved (1)	ND	2.0	mg/L							12/30/22	
Magnesium - Dissolved (1)	ND	0.10	mg/L							12/30/22	
Manganese - Dissolved (1)	ND	10	ug/L							12/30/22	
Sodium - Dissolved (1)	ND	1.0	mg/L							12/30/22	
Silica (SiO2) - Dissolved (1)	ND	0.20	mg/L							12/30/22	
Blank Spike (AFL1773-BS2)											
Aluminum - Dissolved (1)	190	50	ug/L	200	ND	97	85-115			12/30/22	
Calcium - Dissolved (1)	3.7	0.10	mg/L	4.0	ND	91	85-115			12/30/22	
Iron - Dissolved (1)	210	30	ug/L	200	ND	103	85-115			12/30/22	
Potassium - Dissolved (1)	3.8	2.0	mg/L	4.0	ND	94	85-115			12/30/22	
Magnesium - Dissolved (1)	3.8	0.10	mg/L	4.0	ND	95	85-115			12/30/22	
Manganese - Dissolved (1)	190	10	ug/L	200	ND	95	85-115			12/30/22	
Sodium - Dissolved (1)	4.1	1.0	mg/L	4.0	ND	102	85-115			12/30/22	
Silica (SiO2) - Dissolved (1)	2.1	0.20	mg/L	2.1	ND	100	85-115			12/30/22	

BSK Associates Laboratory Fresno

Metals Quality Control Report

EPA 200.7 - Quality Control

Batch: AFL1773 Prepared: 12/28/2022

Prep Method: Filtration - Metals Analyst: MDS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank Spike Dup (AFL1773-BSD2)											
Aluminum - Dissolved (1)	190	50	ug/L	200	ND	93	85-115	4	20	12/30/22	
Calcium - Dissolved (1)	3.7	0.10	mg/L	4.0	ND	91	85-115	0	20	12/30/22	
Iron - Dissolved (1)	210	30	ug/L	200	ND	103	85-115	0	20	12/30/22	
Potassium - Dissolved (1)	3.9	2.0	mg/L	4.0	ND	97	85-115	3	20	12/30/22	
Magnesium - Dissolved (1)	3.8	0.10	mg/L	4.0	ND	95	85-115	0	20	12/30/22	
Manganese - Dissolved (1)	190	10	ug/L	200	ND	97	85-115	2	20	12/30/22	
Sodium - Dissolved (1)	4.1	1.0	mg/L	4.0	ND	101	85-115	1	20	12/30/22	
Silica (SiO2) - Dissolved (1)	2.1	0.20	mg/L	2.1	ND	98	85-115	1	20	12/30/22	
Matrix Spike (AFL1773-MS3), Source: AFL2946-01											
Aluminum - Dissolved (1)	160	50	ug/L	200	ND	82	70-130			12/30/22	
Calcium - Dissolved (1)	33	0.10	mg/L	4.0	29	103	70-130			12/30/22	
Iron - Dissolved (1)	200	30	ug/L	200	ND	100	70-130			12/30/22	
Potassium - Dissolved (1)	5.7	2.0	mg/L	4.0	ND	98	70-130			12/30/22	
Magnesium - Dissolved (1)	32	0.10	mg/L	4.0	28	98	70-130			12/30/22	
Manganese - Dissolved (1)	530	10	ug/L	200	330	99	70-130			12/30/22	
Sodium - Dissolved (1)	90	1.0	mg/L	4.0	92	NR	70-130			12/30/22	MS1.0 ***Low***
Silica (SiO2) - Dissolved (1)	16	0.20	mg/L	2.1	16	33	70-130			12/30/22	MS1.0 ***Low***
Matrix Spike (AFL1773-MS4), Source: AFL3159-01											
Aluminum - Dissolved (1)	190	50	ug/L	200	ND	95	70-130			12/30/22	
Calcium - Dissolved (1)	70	0.10	mg/L	4.0	66	96	70-130			12/30/22	
Iron - Dissolved (1)	210	30	ug/L	200	ND	105	70-130			12/30/22	
Potassium - Dissolved (1)	8.3	2.0	mg/L	4.0	4.2	103	70-130			12/30/22	
Magnesium - Dissolved (1)	32	0.10	mg/L	4.0	28	99	70-130			12/30/22	
Manganese - Dissolved (1)	210	10	ug/L	200	ND	104	70-130			12/30/22	
Sodium - Dissolved (1)	31	1.0	mg/L	4.0	27	99	70-130			12/30/22	
Silica (SiO2) - Dissolved (1)	39	0.20	mg/L	2.1	37	108	70-130			12/30/22	
Matrix Spike Dup (AFL1773-MSD3), Source: AFL2946-01											
Aluminum - Dissolved (1)	200	50	ug/L	200	ND	99	70-130	18	20	12/30/22	
Calcium - Dissolved (1)	33	0.10	mg/L	4.0	29	117	70-130	2	20	12/30/22	
Iron - Dissolved (1)	210	30	ug/L	200	ND	106	70-130	6	20	12/30/22	
Potassium - Dissolved (1)	5.6	2.0	mg/L	4.0	ND	96	70-130	1	20	12/30/22	
Magnesium - Dissolved (1)	33	0.10	mg/L	4.0	28	115	70-130	2	20	12/30/22	
Manganese - Dissolved (1)	530	10	ug/L	200	330	101	70-130	1	20	12/30/22	
Sodium - Dissolved (1)	96	1.0	mg/L	4.0	92	101	70-130	7	20	12/30/22	
Silica (SiO2) - Dissolved (1)	17	0.20	mg/L	2.1	16	46	70-130	2	20	12/30/22	MS1.0 ***Low***
Matrix Spike Dup (AFL1773-MSD4), Source: AFL3159-01											
Aluminum - Dissolved (1)	200	50	ug/L	200	ND	101	70-130	7	20	12/30/22	
Calcium - Dissolved (1)	70	0.10	mg/L	4.0	66	100	70-130	0	20	12/30/22	
Iron - Dissolved (1)	210	30	ug/L	200	ND	106	70-130	0	20	12/30/22	

BSK Associates Laboratory Fresno

Metals Quality Control Report

EPA 200.7 - Quality Control

Batch: AFL1773 Prepared: 12/28/2022

Prep Method: Filtration - Metals Analyst: MDS

Matrix Spike Dup (AFL1773-MSD4), Source: AFL3159-01

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Potassium - Dissolved (1)	8.2	2.0	mg/L	4.0	4.2	99	70-130	2	20	12/30/22	
Magnesium - Dissolved (1)	32	0.10	mg/L	4.0	28	101	70-130	0	20	12/30/22	
Manganese - Dissolved (1)	190	10	ug/L	200	ND	95	70-130	9	20	12/30/22	
Sodium - Dissolved (1)	31	1.0	mg/L	4.0	27	97	70-130	0	20	12/30/22	
Silica (SiO2) - Dissolved (1)	39	0.20	mg/L	2.1	37	104	70-130	0	20	12/30/22	

EPA 200.8 - Quality Control

Batch: AFL1773 Prepared: 12/28/2022

Prep Method: Filtration - Metals Analyst: CEG

Blank (AFL1773-BLK1)

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Beryllium - Dissolved (1)	ND	1.0	ug/L							12/30/22	
Vanadium - Dissolved (1)	ND	10	ug/L							12/30/22	
Chromium - Dissolved (1)	ND	10	ug/L							12/30/22	
Cobalt - Dissolved (1)	ND	10	ug/L							12/30/22	
Nickel - Dissolved (1)	ND	10	ug/L							12/30/22	
Copper - Dissolved (1)	ND	5.0	ug/L							12/30/22	
Zinc - Dissolved (1)	ND	50	ug/L							12/30/22	
Arsenic - Dissolved (1)	ND	2.0	ug/L							12/30/22	
Selenium - Dissolved (1)	ND	2.0	ug/L							12/30/22	
Strontium - Dissolved (1)	ND	1.0	ug/L							12/30/22	
Molybdenum - Dissolved (1)	ND	10	ug/L							12/30/22	
Silver - Dissolved (1)	ND	10	ug/L							12/30/22	
Cadmium - Dissolved (1)	ND	1.0	ug/L							12/30/22	
Antimony - Dissolved (1)	ND	2.0	ug/L							12/30/22	
Barium - Dissolved (1)	ND	5.0	ug/L							12/30/22	
Thallium - Dissolved (1)	ND	1.0	ug/L							12/30/22	
Lead - Dissolved (1)	ND	1.0	ug/L							12/30/22	
Uranium - Dissolved (1)	ND	1.0	ug/L							12/30/22	

Blank Spike (AFL1773-BS1)

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Beryllium - Dissolved (1)	210	1.0	ug/L	200	ND	105	85-115			12/30/22	
Chromium - Dissolved (1)	190	10	ug/L	200	ND	96	85-115			12/30/22	
Cobalt - Dissolved (1)	220	10	ug/L	200	ND	110	85-115			12/30/22	
Nickel - Dissolved (1)	200	10	ug/L	200	ND	98	85-115			12/30/22	
Copper - Dissolved (1)	200	5.0	ug/L	200	ND	99	85-115			12/30/22	
Zinc - Dissolved (1)	190	50	ug/L	200	ND	95	85-115			12/30/22	
Arsenic - Dissolved (1)	190	2.0	ug/L	200	ND	96	85-115			12/30/22	
Selenium - Dissolved (1)	190	2.0	ug/L	200	ND	93	85-115			12/30/22	
Strontium - Dissolved (1)	200	1.0	ug/L	200	ND	101	85-115			12/30/22	
Molybdenum - Dissolved (1)	210	10	ug/L	200	ND	103	85-115			12/30/22	
Silver - Dissolved (1)	98	10	ug/L	100	ND	98	75-125			12/30/22	
Cadmium - Dissolved (1)	200	1.0	ug/L	200	ND	99	85-115			12/30/22	

BSK Associates Laboratory Fresno

Metals Quality Control Report

EPA 200.8 - Quality Control

Batch: AFL1773 Prepared: 12/28/2022

Prep Method: Filtration - Metals Analyst: CEG

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank Spike (AFL1773-BS1)											
Antimony - Dissolved (1)	210	2.0	ug/L	200	ND	106	85-115			12/30/22	
Barium - Dissolved (1)	200	5.0	ug/L	200	ND	98	85-115			12/30/22	
Thallium - Dissolved (1)	200	1.0	ug/L	200	ND	101	85-115			12/30/22	
Lead - Dissolved (1)	200	1.0	ug/L	200	ND	100	85-115			12/30/22	
Uranium - Dissolved (1)	220	1.0	ug/L	200	ND	111	85-115			12/30/22	
Blank Spike (AFL1773-BS3)											
Vanadium - Dissolved (1)	230	10	ug/L	200	ND	113	85-115			01/03/23	
Blank Spike Dup (AFL1773-BSD1)											
Beryllium - Dissolved (1)	210	1.0	ug/L	200	ND	105	85-115	0	20	12/30/22	
Chromium - Dissolved (1)	190	10	ug/L	200	ND	96	85-115	1	20	12/30/22	
Cobalt - Dissolved (1)	220	10	ug/L	200	ND	109	85-115	1	20	12/30/22	
Nickel - Dissolved (1)	190	10	ug/L	200	ND	97	85-115	1	20	12/30/22	
Copper - Dissolved (1)	200	5.0	ug/L	200	ND	100	85-115	1	20	12/30/22	
Zinc - Dissolved (1)	190	50	ug/L	200	ND	94	85-115	0	20	12/30/22	
Arsenic - Dissolved (1)	190	2.0	ug/L	200	ND	96	85-115	0	20	12/30/22	
Selenium - Dissolved (1)	190	2.0	ug/L	200	ND	94	85-115	0	20	12/30/22	
Strontium - Dissolved (1)	200	1.0	ug/L	200	ND	101	85-115	0	20	12/30/22	
Molybdenum - Dissolved (1)	210	10	ug/L	200	ND	104	85-115	1	20	12/30/22	
Silver - Dissolved (1)	98	10	ug/L	100	ND	98	75-125	0	20	12/30/22	
Cadmium - Dissolved (1)	200	1.0	ug/L	200	ND	99	85-115	0	20	12/30/22	
Antimony - Dissolved (1)	210	2.0	ug/L	200	ND	106	85-115	1	20	12/30/22	
Barium - Dissolved (1)	200	5.0	ug/L	200	ND	98	85-115	1	20	12/30/22	
Thallium - Dissolved (1)	200	1.0	ug/L	200	ND	101	85-115	0	20	12/30/22	
Lead - Dissolved (1)	200	1.0	ug/L	200	ND	98	85-115	1	20	12/30/22	
Uranium - Dissolved (1)	220	1.0	ug/L	200	ND	110	85-115	1	20	12/30/22	
Blank Spike Dup (AFL1773-BSD3)											
Vanadium - Dissolved (1)	220	10	ug/L	200	ND	112	85-115	1	20	01/03/23	
Matrix Spike (AFL1773-MS1), Source: AFL2946-01											
Beryllium - Dissolved (1)	210	1.0	ug/L	200	ND	106	70-130			12/30/22	
Vanadium - Dissolved (1)	240	10	ug/L	200	ND	122	70-130			12/30/22	
Chromium - Dissolved (1)	200	10	ug/L	200	ND	98	70-130			12/30/22	
Cobalt - Dissolved (1)	220	10	ug/L	200	ND	112	70-130			12/30/22	
Nickel - Dissolved (1)	200	10	ug/L	200	ND	98	70-130			12/30/22	
Copper - Dissolved (1)	200	5.0	ug/L	200	ND	98	70-130			12/30/22	
Zinc - Dissolved (1)	190	50	ug/L	200	ND	93	70-130			12/30/22	
Arsenic - Dissolved (1)	200	2.0	ug/L	200	ND	100	70-130			12/30/22	
Selenium - Dissolved (1)	200	2.0	ug/L	200	2.3	97	70-130			12/30/22	
Strontium - Dissolved (1)	430	1.0	ug/L	200	220	103	70-130			12/30/22	
Molybdenum - Dissolved (1)	220	10	ug/L	200	ND	110	70-130			12/30/22	

BSK Associates Laboratory Fresno

Metals Quality Control Report

EPA 200.8 - Quality Control

Batch: AFL1773 Prepared: 12/28/2022

Prep Method: Filtration - Metals Analyst: CEG

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Matrix Spike (AFL1773-MS1), Source: AFL2946-01											
Silver - Dissolved (1)	93	10	ug/L	100	ND	93	70-130			12/30/22	
Cadmium - Dissolved (1)	200	1.0	ug/L	200	ND	98	70-130			12/30/22	
Antimony - Dissolved (1)	220	2.0	ug/L	200	ND	108	70-130			12/30/22	
Barium - Dissolved (1)	250	5.0	ug/L	200	55	100	70-130			12/30/22	
Thallium - Dissolved (1)	190	1.0	ug/L	200	ND	97	70-130			12/30/22	
Lead - Dissolved (1)	190	1.0	ug/L	200	ND	96	70-130			12/30/22	
Uranium - Dissolved (1)	220	1.0	ug/L	200	ND	109	70-130			12/30/22	
Matrix Spike (AFL1773-MS2), Source: AFL3159-01											
Beryllium - Dissolved (1)	210	1.0	ug/L	200	ND	106	70-130			12/30/22	
Vanadium - Dissolved (1)	250	10	ug/L	200	ND	124	70-130			12/30/22	
Chromium - Dissolved (1)	200	10	ug/L	200	ND	99	70-130			12/30/22	
Cobalt - Dissolved (1)	230	10	ug/L	200	ND	113	70-130			12/30/22	
Nickel - Dissolved (1)	200	10	ug/L	200	ND	98	70-130			12/30/22	
Copper - Dissolved (1)	190	5.0	ug/L	200	ND	96	70-130			12/30/22	
Zinc - Dissolved (1)	190	50	ug/L	200	ND	93	70-130			12/30/22	
Arsenic - Dissolved (1)	200	2.0	ug/L	200	ND	101	70-130			12/30/22	
Selenium - Dissolved (1)	190	2.0	ug/L	200	ND	97	70-130			12/30/22	
Strontium - Dissolved (1)	770	1.0	ug/L	200	580	99	70-130			12/30/22	
Molybdenum - Dissolved (1)	220	10	ug/L	200	ND	108	70-130			12/30/22	
Silver - Dissolved (1)	95	10	ug/L	100	ND	95	70-130			12/30/22	
Cadmium - Dissolved (1)	200	1.0	ug/L	200	ND	99	70-130			12/30/22	
Antimony - Dissolved (1)	220	2.0	ug/L	200	ND	108	70-130			12/30/22	
Barium - Dissolved (1)	280	5.0	ug/L	200	77	99	70-130			12/30/22	
Thallium - Dissolved (1)	200	1.0	ug/L	200	ND	98	70-130			12/30/22	
Lead - Dissolved (1)	190	1.0	ug/L	200	ND	97	70-130			12/30/22	
Uranium - Dissolved (1)	250	1.0	ug/L	200	30	109	70-130			12/30/22	
Matrix Spike Dup (AFL1773-MSD1), Source: AFL2946-01											
Beryllium - Dissolved (1)	210	1.0	ug/L	200	ND	106	70-130	0	20	12/30/22	
Vanadium - Dissolved (1)	250	10	ug/L	200	ND	125	70-130	3	20	12/30/22	
Chromium - Dissolved (1)	200	10	ug/L	200	ND	98	70-130	0	20	12/30/22	
Cobalt - Dissolved (1)	220	10	ug/L	200	ND	112	70-130	1	20	12/30/22	
Nickel - Dissolved (1)	200	10	ug/L	200	ND	98	70-130	0	20	12/30/22	
Copper - Dissolved (1)	200	5.0	ug/L	200	ND	97	70-130	1	20	12/30/22	
Zinc - Dissolved (1)	190	50	ug/L	200	ND	93	70-130	0	20	12/30/22	
Arsenic - Dissolved (1)	200	2.0	ug/L	200	ND	100	70-130	0	20	12/30/22	
Selenium - Dissolved (1)	200	2.0	ug/L	200	2.3	99	70-130	2	20	12/30/22	
Strontium - Dissolved (1)	430	1.0	ug/L	200	220	106	70-130	1	20	12/30/22	
Molybdenum - Dissolved (1)	220	10	ug/L	200	ND	111	70-130	1	20	12/30/22	
Silver - Dissolved (1)	94	10	ug/L	100	ND	94	70-130	1	20	12/30/22	
Cadmium - Dissolved (1)	200	1.0	ug/L	200	ND	98	70-130	0	20	12/30/22	
Antimony - Dissolved (1)	220	2.0	ug/L	200	ND	110	70-130	1	20	12/30/22	

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 200.8 - Quality Control

Batch: AFL1773 Prepared: 12/28/2022
Prep Method: Filtration - Metals Analyst: CEG

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Matrix Spike Dup (AFL1773-MSD1), Source: AFL2946-01											
Barium - Dissolved (1)	260	5.0	ug/L	200	55	102	70-130	2	20	12/30/22	
Thallium - Dissolved (1)	200	1.0	ug/L	200	ND	98	70-130	1	20	12/30/22	
Lead - Dissolved (1)	190	1.0	ug/L	200	ND	96	70-130	0	20	12/30/22	
Uranium - Dissolved (1)	220	1.0	ug/L	200	ND	110	70-130	1	20	12/30/22	
Matrix Spike Dup (AFL1773-MSD2), Source: AFL3159-01											
Beryllium - Dissolved (1)	200	1.0	ug/L	200	ND	101	70-130	5	20	12/30/22	
Vanadium - Dissolved (1)	240	10	ug/L	200	ND	118	70-130	5	20	12/30/22	
Chromium - Dissolved (1)	190	10	ug/L	200	ND	94	70-130	6	20	12/30/22	
Cobalt - Dissolved (1)	210	10	ug/L	200	ND	105	70-130	7	20	12/30/22	
Nickel - Dissolved (1)	190	10	ug/L	200	ND	93	70-130	5	20	12/30/22	
Copper - Dissolved (1)	190	5.0	ug/L	200	ND	93	70-130	4	20	12/30/22	
Zinc - Dissolved (1)	180	50	ug/L	200	ND	89	70-130	5	20	12/30/22	
Arsenic - Dissolved (1)	190	2.0	ug/L	200	ND	97	70-130	4	20	12/30/22	
Selenium - Dissolved (1)	190	2.0	ug/L	200	ND	95	70-130	2	20	12/30/22	
Strontium - Dissolved (1)	770	1.0	ug/L	200	580	95	70-130	1	20	12/30/22	
Molybdenum - Dissolved (1)	210	10	ug/L	200	ND	105	70-130	3	20	12/30/22	
Silver - Dissolved (1)	92	10	ug/L	100	ND	92	70-130	4	20	12/30/22	
Cadmium - Dissolved (1)	190	1.0	ug/L	200	ND	96	70-130	3	20	12/30/22	
Antimony - Dissolved (1)	210	2.0	ug/L	200	ND	105	70-130	3	20	12/30/22	
Barium - Dissolved (1)	270	5.0	ug/L	200	77	96	70-130	3	20	12/30/22	
Thallium - Dissolved (1)	190	1.0	ug/L	200	ND	95	70-130	3	20	12/30/22	
Lead - Dissolved (1)	180	1.0	ug/L	200	ND	92	70-130	5	20	12/30/22	
Uranium - Dissolved (1)	240	1.0	ug/L	200	30	104	70-130	4	20	12/30/22	

EPA 245.7 - Quality Control

Batch: AFL1708 Prepared: 12/27/2022
Prep Method: EPA 245.7 Analyst: TSY

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AFL1708-BLK1)											
Mercury - Dissolved (1)	ND	0.20	ug/L							12/28/22	
Matrix Spike (AFL1708-MS1), Source: AFL2946-01											
Mercury - Dissolved (1)	0.78	0.20	ug/L	0.80	ND	97	63-111			12/28/22	
Matrix Spike Dup (AFL1708-MSD1), Source: AFL2946-01											
Mercury - Dissolved (1)	0.85	0.20	ug/L	0.80	ND	107	63-111	9	18	12/28/22	

BSK Associates Laboratory Fresno

Organics Quality Control Report

EPA 524.2 - Quality Control

Batch: AFL1534 Prepared: 12/21/2022

Prep Method: EPA 524.2 Analyst: JNG

Blank (AFL1534-BLK1)

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Bromodichloromethane	ND	0.50	ug/L							12/21/22	
Bromoform	ND	0.50	ug/L							12/21/22	
Chloroform	ND	0.50	ug/L							12/21/22	
Dibromochloromethane	ND	0.50	ug/L							12/21/22	
Total Trihalomethanes	ND	0.50	ug/L							12/21/22	
Surrogate: 1,2-Dichlorobenzene-d4	*49*			*50*		*98*	*70-130*			12/21/22	
Surrogate: Bromofluorobenzene	*47*			*50*		*94*	*70-130*			12/21/22	

Blank Spike (AFL1534-BS1)

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Bromodichloromethane	9.0	0.50	ug/L	10	ND	90	70-130			12/21/22	
Bromoform	8.3	0.50	ug/L	10	ND	83	70-130			12/21/22	
Chloroform	9.7	0.50	ug/L	10	ND	97	70-130			12/21/22	
Dibromochloromethane	9.7	0.50	ug/L	10	ND	97	70-130			12/21/22	
Surrogate: 1,2-Dichlorobenzene-d4	*51*			*50*		*102*	*70-130*			12/21/22	
Surrogate: Bromofluorobenzene	*47*			*50*		*94*	*70-130*			12/21/22	

Blank Spike Dup (AFL1534-BSD1)

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Bromodichloromethane	9.0	0.50	ug/L	10	ND	90	70-130	0	30	12/21/22	
Bromoform	9.3	0.50	ug/L	10	ND	93	70-130	11	30	12/21/22	
Chloroform	9.8	0.50	ug/L	10	ND	98	70-130	0	30	12/21/22	
Dibromochloromethane	9.6	0.50	ug/L	10	ND	96	70-130	1	30	12/21/22	
Surrogate: 1,2-Dichlorobenzene-d4	*51*			*50*		*102*	*70-130*			12/21/22	
Surrogate: Bromofluorobenzene	*49*			*50*		*98*	*70-130*			12/21/22	

EPA 552.3 - Quality Control

Batch: AFL1709 Prepared: 12/27/2022

Prep Method: EPA 552.3 Analyst: DAB

Blank (AFL1709-BLK1)

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Dibromoacetic Acid (DBAA)	ND	1.0	ug/L							12/28/22	
Dichloroacetic Acid (DCAA)	ND	1.0	ug/L							12/28/22	
Monobromoacetic Acid (MBAA)	ND	1.0	ug/L							12/28/22	
Monochloroacetic Acid (MCAA)	ND	2.0	ug/L							12/28/22	
Trichloroacetic Acid (TCAA)	ND	1.0	ug/L							12/28/22	
Total Haloacetic Acids	ND	2.0	ug/L							12/28/22	
Surrogate: 2-Bromobutanoic Acid	*9.9*			*10*		*99*	*70-130*			12/28/22	

Duplicate (AFL1709-DUP1), Source: VFL0519-01

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Dibromoacetic Acid (DBAA)	ND	1.0	ug/L		ND				30	12/28/22	
Dichloroacetic Acid (DCAA)	ND	1.0	ug/L		ND				30	12/28/22	
Monobromoacetic Acid (MBAA)	ND	1.0	ug/L		ND				30	12/28/22	
Monochloroacetic Acid (MCAA)	ND	2.0	ug/L		ND				30	12/28/22	
Trichloroacetic Acid (TCAA)	ND	1.0	ug/L		ND				30	12/28/22	
Total Haloacetic Acids	ND	2.0	ug/L		ND				30	12/28/22	

BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 552.3 - Quality Control											
Batch: AFL1709										Prepared: 12/27/2022	
Prep Method: EPA 552.3										Analyst: DAB	
Duplicate (AFL1709-DUP1), Source: VFL0519-01											
Surrogate: 2-Bromobutanoic Acid	*8.1*			*10*		*81*	*70-130*			12/28/22	
Matrix Spike (AFL1709-MS1), Source: AFL3036-01											
Dibromoacetic Acid (DBAA)	29	1.0	ug/L	10	18	102	70-130			12/28/22	
Dichloroacetic Acid (DCAA)	13	1.0	ug/L	10	2.7	100	70-130			12/28/22	
Monobromoacetic Acid (MBAA)	12	1.0	ug/L	10	1.9	104	70-130			12/28/22	
Monochloroacetic Acid (MCAA)	21	2.0	ug/L	20	ND	105	70-130			12/28/22	
Trichloroacetic Acid (TCAA)	12	1.0	ug/L	10	1.7	105	70-130			12/28/22	
Surrogate: 2-Bromobutanoic Acid	*9.9*			*10*		*99*	*70-130*			12/28/22	

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Unless otherwise noted, TOC results by SM 5310C method do not include purgeable organic carbon, which is removed along with the inorganic carbon interference. The POC contribution to TOC is considered to be negligible.

Certificate of Analysis

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

The following parameters are calculated values and are outside the scope of our NELAP accreditation:

Total Nitrogen   Aggressive Index   Trivalent Chromium

BSK is not accredited under the NELAP program for the following additional parameters:

Cobalt
Molybdenum
Oxidation/Reduction Potential
Strontium
Vanadium

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

Fresno

State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-020
State of Nevada	CA000792022-1	State of Oregon - NELAP	4021-020
EPA UCMR5	CA00079	State of Washington	C997-22a

Sacramento

State of California - ELAP	1180-S1

San Bernardino

State of California - ELAP	1180-S2	Los Angeles CSD	9254478
NELAP certified	4119-007	State of Oregon - NELAP	4119-007

Vancouver

NELAP certified	WA100008-015	State of Oregon - NELAP	WA100008-015
State of Washington	C824-22		

AFL2946 GSIWA3956 12/21/2022

BSK Associates SR-FL-0002-23

Sample Integrity

BSK Bottles: Yes / No Page 1 of 1

COC Info				
Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TTHM/TCP)? TB Received? (Check Method Below)	Yes No NA / Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes NA	Was PM notified of discrepancies? PM: Heather By/Time: NICOLE	Yes No NA

Bottles Received — "—" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?						
Bacti $Na_2S_2O_3$	—	—						
None (P) White Cap	—	—	2D,3B,3C					
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	P F						
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	P F						
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F						
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—						
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F	1B, 1A*					
NaOH (P) Green Cap	Cl, pH >10	P F						
NaOH + ZnAc (P)	pH > 9	P F	1B					
Dissolved Oxygen 300ml (g)	—	—						
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—	1A, 1B					
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—						
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—						
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—						
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—						
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—						
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—						
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F						
NH_4Cl (AG) Purple Label 552	—	—						
EDA (P) or (AG) Brown Label DBPs	—	—						
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—	3V					
Buffer pH 4 (CG)	—	—						
H_3PO_4 (CG) Salmon Label	—	—						
Trizma – EPA 537.1 - **Field Blank Required**								
Other:								
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—						
Bottled Water	—	—						
Clear Glass NON Preserve	—	—	2V					
Solids: Brass / Steel / Plastic Bag	—	—						

NH 12-21-22

Split	Container	Preservative	Lot #	Initials	Date/Time
S P					
S P					

Preservation Check
pH Lot # AF01843
Cl Lot #

Comments

*Preservation check completed by lab performing analysis.

Odor Received after 24hrs NH
HAA, OH no preserved.
Container CW

✓ **Indicates Blanks Received**

504 ___ 524.2 ___ TTHM ___ 537.1 ___ TCP ___

✓ **MS/MSD Received Method:** ________

Scanned paperwork to PM
to confirm testing
Called to follow up. CW

Scanned: CW Rush/Short HT Page: ________ Time: ______

Pace ANALYTICAL SERVICES BSK 2.8#15

4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.pacelabs.com

Cha[illegible]

AFL2946 GSIWA3956 12/21/2022 10

Page 1 of 1

Report To Client: GSI Water Solutions	Project #:
Attn: Nate Page	Project Name: Morro Bay IPR
Street Address: 5855 Capistrano Ave STE C	BID#
City, State, Zip: Atascadero CA 93422	Sampler(s) Name Printed: Nate Page
Phone: (970) 692-3593	
Email: npage@gsiws.com	
Work Order #:	

Analysis Requested

Number of Containers

Please See Attached "Complete Suite"

Comments: EDD requested, no Geotracker
Analyses = "Complete Suite" attached

Result Request **Surcharge: ☒ STD (10 Days) ☐ 5 Day** ☐ 4 Day** ☐ 3 Day** ☐ 2 Day** ☐ 1 Day**
Rush requests must be approved

Sample #	Description	Date Sampled	Time Sampled	Number of Containers	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Notes
21P-01		12/20/22	0940	X				X			Shipped GLS

NH 12-21-22

Billing ☒ Same as above

Client:
Address:
City: State Zip
Attn:
P.O. #:

System # (Needed for CLIP)

GIS/Key ☐ Well Star ☐

EDF Required Geotracker ☐ Yes ☒ No Global ID

Relinquished By	Date	Time	Received By	Date	Time
1. Relinquished By [signature]	12/20/22	1200	1. Received By		
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By [signature] N Hammond	12/21/22	1330

Pace Analytical Bakersfield does not accept samples containing radioactive material above background levels. Samples containing radioactive material must be disclosed prior to receipt. Any samples suspected of containing radioactive material above background levels will not be accepted and will be returned to client.

GLS WIBW

AFL2946 GSIWA3956 12/21/2022 10

Bottle Order

General | Client Info | **Bottles**

	Mark	Seq ####	Container	Qty	Ana Cnt	Bottle Size	Bottle Type	Bottle Label
1		00 A	I24: Nitrogen Forms YELLOW PE 500ml, H2SO4 to pH<2	5	1	500 ml (1 pint)	Plastic	Nitrogen Forms (YELLOW
2		00 B	X44: Plastic 500 ml (1 pint)	15	1	500 ml (1 pint)	Plastic	Blank (WHITE)
3		00 C	X48: Plastic 1000 ml (quart)	15	1	1000 ml (quart)	Plastic	Blank (WHITE)
4		00 D	I20: Nitrate/Nitrite YELLOW PE 50ml, H2SO4 to pH<2	5	1	50 ml (2 oz)	Plastic	Nitrate / Nitrite (YELLOW)
5		0 E	I28: Odor, Glass Amber 500ml, No Preserve	5	1	500 ml (1 pint)	Glass Amber U	Odor
6		00 F	I40: Sulfides (BROWN), PE 500ml, 1 ml Zinc Acetate	5	1	500 ml (1 pint)	Plastic	Sulfides (Brown)
7		00 G	I44: TOC/TOX/Phenolics, GA 250ml, H2SO4 to pH<2	5	1	250 ml (8 oz)	Glass Amber	TOC/TOX/Phenolics (YEL
8		00 H	O87: RSK-175, Glass Vial 40ml, Unpreserved	10	1	40 ml	Glass Vial Unp	
9		0 I	O89: HAA5 GA, 250 ml, NH4Cl	5	1	250 ml (8 oz)	Glass Amber	HAA5
10		0 J	O96c: VOA, Glass Vial 40ml, 200uL HCl (Set of 3)	15	0	Set of 3 40 ml vi	Glass Vial	Volatile Organics
11		0 K	I06: Cr6, PE 50ml, Borate/HCO3/CO3 buffer preserve	5	1	50 ml (2oz)	Plastic	Hexavalent Chromium
12		0 L	O94: VOA TB, Glass Vial, 200uL HCl	3	0	40 ml	Glass Vial	Volatile Organics Travel B

PER SET:
A - 1 A bottles - ammonia, COD
B - 3 B bottle - unpreserved plastic - dissolved metals (filter in lab)
C - 3 C bottle- Alk, Cl,EC,F,MBAS,NO3, NO2, ortho,ph, SO4,TDS,TSS, ORP (Send 2 per sample)
D - 1 D bottle - NO3+NO2 as N
E - 1 E bottles -odor,turbidity
F - 1 F bottle - Total Sulfide
G - 1 G bottle - TOC
H - 2 H bottle - 524.2 TTHM
I - 1 I Bottle- HAA5
J - 3 VOAS = 1 SET IN POUCH J - RSK 175
K - 1 K bottle - Cr6
L - TRAVEL BLANKS

Asbestos - Send one liter poly

Bromate - We can analyze out of an unreserved container. Ideally we would prefer 250 ml plastic preserved with EDA

DOC - 40 ml voa unpreseved

	Sodium	EPA 200.7
	Strontium	EPA 200.8
	Thallium	EPA 200.8
	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

AFL2946 GSIWA3956 12/21/2022
10

Parameter Type	Parameter	Method
Field	~~Dissolved oxygen~~	~~YSI 556 or similar~~
	~~pH~~	~~EPA 150.1~~
	~~Oxidation-Reduction Potential~~	~~SM2580B~~
	~~Specific Conductance~~	~~EPA 120.1~~
	~~Temperature~~	~~YSI 556 or similar~~
	~~Turbidity~~	~~EPA 180.1~~
Inorganics	Alkalinity	SM2320B
	Ammonia	SM4500NH3G
	Bicarbonate	SM2320B
	Carbonate	SM2320B
	Chloride	EPA 300.0
	Cyanide (HCN)	EPA 335.4
	Fluoride	EPA 300.0
	Hardness	EPA 200.8
	Nitrate+Nitrite (total N)	EPA 300.0
	Nitrate (as N)	EPA 300.0
	Nitrite-N	EPA 300.0
	Orthophosphate as P	EPA 300.0
	Total Silica (as SiO2)	EPA 200.7
	Dissolved Silica (as SiO2)	EPA 200.7
	Sulfate	EPA 300.0
	Sulfide	SM4500S2F
Metals (Dissolved)	Aluminum	EPA 200.7
	Antimony	EPA 200.8
	Arsenic	EPA 200.8
	Barium	EPA 200.8
	Beryllium	EPA 200.8
	Cadmium	EPA 200.8
	Calcium	EPA 200.7
	Chromium	EPA 200.8
	Cobalt	EPA 200.8
	Copper	EPA 200.8
	Iron	EPA 200.7
	Lead	EPA 200.8
	Magnesium	EPA 200.7
	Manganese	EPA 200.8
	Mercury	EPA 245.7
	Molybdenum	EPA 200.8
	Nickel	EPA 200.8
	Potassium	EPA 200.7
	Selenium	EPA 200.8
	Silver	EPA 200.8

	Sodium	EPA 200.7
	Strontium	EPA 200.8
	Thallium	EPA 200.8
	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 2212K57

Report Created for: BSK Analytical Laboratories

550 West Locust Avenue
Fresno, CA 93650

Project Contact: Tina Green
Project P.O.:
Project: AFL2946

Project Received: 12/29/2022

Analytical Report reviewed & approved for release on 01/06/2023 by:

Susan Thompson
Project Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in a case narrative.

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Glossary of Terms & Qualifier Definitions

Client: BSK Analytical Laboratories **WorkOrder:** 2212K57

Project: AFL2946

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
CPT	Consumer Product Testing not NELAP Accredited
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 μm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
LQL	Lowest Quantitation Level
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	MDL is the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results. Definition and Procedure for the Determination of the Method Detection Limit, Revision 2, 40CFR, Part 136, Appendix B, EPA 821-R-16-006, December 2016.
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NA	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting limit is the lowest level that can be reliably determined within specified limits of precision and accuracy during routine laboratory operating conditions. (The RL cannot be lower than the lowest calibration standard used in the initial calibration of the instrument and must be greater than the MDL.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
TZA	TimeZone Net Adjustment for sample collected outside of MAI's UTC.
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Glossary of Terms & Qualifier Definitions

Client: BSK Analytical Laboratories **WorkOrder:** 2212K57
Project: AFL2946

Analytical Qualifiers

H	Sample was analyzed out of hold time

Analytical Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2212K57
Date Received:	12/29/2022 10:25	**Extraction Method:**	RSK175
Date Prepared:	01/03/2023	**Analytical Method:**	RSK175
Project:	AFL2946	**Unit:**	µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AFL2946-01	**2212K57-001A**	**Water**	**12/20/2022 09:40**	**GC26 0103230305.D**	**261268**

Analytes	Result	RL	DF	Date Analyzed
Ethane	ND	0.24	1	01/03/2023 16:14
Ethylene	ND	0.31	1	01/03/2023 16:14
Methane	**0.17**	0.12	1	01/03/2023 16:14

Analyst(s): MBE

McCampbell Analytical, Inc.
"When Quality Counts"
1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Analytical Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2212K57
Date Received:	12/29/2022 10:25	**Extraction Method:**	SM4500-S^{-2} D-2000
Date Prepared:	12/30/2022	**Analytical Method:**	SM4500 S^{-2} D
Project:	AFL2946	**Unit:**	mg/L

Total Sulfide - S

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AFL2946-01	**2212K57-001B**	**Water**	**12/20/2022 09:40**	**SPECTROPHOTOMETER2**	**261187**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND	H	0.10	1	12/30/2022 16:15

Analyst(s): IGC

Quality Control Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2212K57
Date Prepared:	01/03/2023	**BatchID:**	261268
Date Analyzed:	01/03/2023	**Extraction Method:**	RSK175
Instrument:	GC26	**Analytical Method:**	RSK175
Matrix:	Water	**Unit:**	µg/L
Project:	AFL2946	**Sample ID:**	MB/LCS/LCSD-261268

QC Summary Report for RSK175

Analyte	MB Result	MDL	RL			
Ethane	ND	0.24	0.24	-	-	-
Ethylene	ND	0.31	0.31	-	-	-
Methane	ND	0.12	0.12	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Ethane	2.2	2.2	2.38	92	94	70-130	1.73	20
Ethylene	2.9	2.9	3.08	94	96	70-130	1.98	20
Methane	1.1	1.1	1.17	94	94	70-130	0.119	20

Quality Control Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2212K57
Date Prepared:	12/30/2022	**BatchID:**	261187
Date Analyzed:	12/30/2022	**Extraction Method:**	SM4500-S^{-2} D-2000
Instrument:	SPECTROPHOTOMETER2	**Analytical Method:**	SM4500 S^{-2} D
Matrix:	Water	**Unit:**	mg/L
Project:	AFL2946	**Sample ID:**	MB/LCS/LCSD-261187

QC Summary Report For SM4500 S-2D

Analyte	MB Result	MDL	RL			
Total Sulfide	ND	0.044	0.10	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Total Sulfide	0.48	0.48	0.50	97	96	80-120	0.601	20

McCampbell Analytical, Inc.

CHAIN-OF-CUSTODY RECORD

1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

WorkOrder: 2212K57 **ClientCode: BSKF**

☐ WaterTrax ☐ CLIP ☐ EDF ☐ EQuIS ☐ Dry-Weight ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☐ Detection Summary ☐ Excel

Report to:
Tina Green
BSK Analytical Laboratories
550 West Locust Avenue
Fresno, CA 93650
(559) 497-2888 FAX: (559) 485-6935

Email: tgreen@bskassociates.com
cc/3rd Party:
PO:
Project: AFL2946

Bill to:
Accounts Payable
BSK Analytical Laboratories
550 West Locust Avenue
Fresno, CA 93650

Requested TAT: **5 days;**

Date Received: **12/29/2022**
Date Logged: **12/29/2022**

					Requested Tests (See legend below)											
Lab ID	**ClientSampID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
2212K57-001	AFL2946-01	Water	12/20/2022 09:40	☐	A	B										

Test Legend:

1	RSK175_W	2	SULFIDE_W	3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Cassandra Gallegos

Comments:

NOTE: Soil samples are discarded 60 days after receipt unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

McCampbell Analytical, Inc.
"When Quality Counts"
1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

WORK ORDER SUMMARY

Client Name: BSK ANALYTICAL LABORATORIES **Project:** AFL2946 **Work Order:** 2212K57
Client Contact: Tina Green **QC Level:** LEVEL 2
Contact's Email: tgreen@bskassociates.com **Comments:** **Date Logged:** 12/29/2022

☐ WaterTrax ☐ CLIP ☐ EDF ☐ Excel ■ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	U**	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	Sub Out
001A	AFL2946-01	Water	RSK175 <Ethane_4, Ethylene_4, Methane_4>	2	VOA w/ HCl	☐	☐	☐	12/20/2022 9:40	5 days	1/6/2023	None	☐	☐
001B	AFL2946-01	Water	SM4500S2D (Total Sulfide)	1	500mL HDPE w/ NaOH + ZnAc	☐	☐	☐	12/20/2022 9:40	5 days	1/6/2023	None	☐	☐

NOTES: * STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- Organic extracts are held for 40 days before disposal; Inorganic extract are held for 30 days.

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

U = An unpreserved container was received for a method that suggests a preservation in order to extend hold time for analysis.**

BSK ASSOCIATES

SUBCONTRACT ORDER

AFL2946

2212K57

SENDING LABORATORY:

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Tina Green
E-mail: tgreen@bskassociates.com

RECEIVING LABORATORY:

McCampbell Analytical, Inc.
1534 Willow Pass Road
Pittsburg, CA 94565-1701
Phone :(925) 252-9262
Fax: (925) 252-9269
Turnaround (Days): Standard
QC Deliverables: I Std III IV

Sample ID	Samp Desc			Sample Date
AFL2946-01	ZIP-01	Client Matrix	Ground Water	12/20/2022 09:40
		Sampled By:	Nate Page	

Lab Matrix: Water

Analysis:
EXT-RSK-175 Methane, Ethane, Ethene
EXT-Sulfide

State Forms: **No** System Name:

2.0°C Blue

Released By	Date	Received By	Date
[signature]	12-27-22	GLS	
GLS	12-29-22 1025	Coronda Gallegos	12-29-22 1025

TRK#: 5585 05503

McCampbell Analytical, Inc.
"When Quality Counts"
1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Sample Receipt Checklist

Client Name:	BSK Analytical Laboratories	Date and Time Received:	12/29/2022 10:25
Project:	AFL2946	Date Logged:	12/29/2022
		Received by:	Cassandra Gallegos
WorkOrder №:	2212K57 Matrix: Water	Logged by:	Cassandra Gallegos
Carrier:	Golden State Overnight		

Chain of Custody (COC) Information

	Yes	No	NA
Chain of custody present?	☑	☐	
Chain of custody signed when relinquished and received?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Sample IDs noted by Client on COC?	☑	☐	
Date and Time of collection noted by Client on COC?	☑	☐	
Sampler's name noted on COC?	☑	☐	
COC agrees with Quote?	☐	☐	☑

Sample Receipt Information

	Yes	No	NA
Custody seals intact on shipping container/cooler?	☑	☐	☐
Custody seals intact on sample bottles?	☐	☐	☑
Shipping container/cooler in good condition?	☑	☐	
Samples in proper containers/bottles?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	

Sample Preservation and Hold Time (HT) Information

	Yes	No	NA
All samples received within holding time?	☐	☑	☐
Samples Received on Ice?	☑	☐	
	(Ice Type: BLUE ICE)		
Sample/Temp Blank temperature		Temp: 2°C	☐
ZHS conditional analyses: VOA meets zero headspace requirement (VOCs, TPHg/BTEX, RSK)?	☑	☐	☐
Sample labels checked for correct preservation?	☑	☐	
pH acceptable upon receipt (Metal: <2; Nitrate 353.2/4500NO3: <2; 522: <4; 218.7: >8)?	☐	☐	☑
UCMR Samples:			
pH tested and acceptable upon receipt (200.7: ≤2; 533: 6 - 8; 537.1: 6 - 8)?	☐	☐	☑
Free Chlorine tested and acceptable upon receipt (<0.1mg/L) [not applicable to 200.7]?	☐	☐	☑

Comments: Method SM4500S2D (Total Sulfide) was received past its 7-day holding time.

LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322225683
Customer ID: 32BSK50
Customer PO:
Project ID:

Attn: Tina Green
BSK Analytical Laboratories
1414 Stanislaus Street
Fresno, CA 93706

Phone: (559) 497-2888
Fax:
Received: 12/29/2022
Analyzed: 01/07/2023

Proj: AFL2946

Test Report: Determination of Asbestos Structures ≥ 0.5 µm & > 10µm in Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	*Sample Filtration Date/Time*	*Original Sample Vol. Filtered (ml)*	*Effective Filter Area (mm²)*	*Area Analyzed (mm²)*		*ASBESTOS* Asbestos Types	Fibers Detected	Analytical Sensitivity (MFL)	Concentration (MFL)	Confidence Limits (MFL)
AFL2946-01 322225683-0001	12/29/2022 03:20 PM	5	1288	0.2580	≥ 0.5 µm	None Detected	ND	1.00	<1.00	0.00 - 3.70
					> 10 µm only	None Detected	ND	1.00	<1.00	0.00 - 3.70

MFL (million fibers per liter)

Collection Date/Time: 12/20/2022 09:40 AM

Sample ozonated prior to analysis due to lab receipt time exceeding 48 hours method hold time.

Analyst(s)
Sherrie Ahmad (1)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 01/08/2023 07:01:40

Post-Injection Samples from
Pilot Injection Well and 21P-01
(First set; January 4, 2023)

Field Notes

Water Solutions, Inc.

Daily Field Report

Name: Nate Page **Date:** 1/4/23 **Activity:** terminate Inj test
Project: MB Pilot Inj. **PN:** **Page** 1 **of** 1

0900 NP on site. Daniel here (PH)

Pilot Inj well

	T °C	pH	SC	DO	ORP
0920	15.2	7.97	0.653	6.99	390.2
0925	15.3	7.89	0.647	7.68	460.4
0935	15.5	7.89	0.647	8.05	495.5
0940	15.5	7.89	0.648	8.13	500.6
0946	15.5	7.87	0.649	8.14	506.8

1000 sample collected "Pilot Inj well"

ZIP-01

1040 pump on

	T °C	pH	SC	DO	ORP
1045	16.1	7.23	0.629	4.87	298.0
1054	16.1	7.22	0.628	5.02	303.2
1100	16.1	7.21	0.628	5.05	303.9
1105	16.1	7.20	0.629	5.05	304.2

1110 sample collected "ZIP-01"

Signature:

Chain-of-Custody Form(s)

Pace® ANALYTICAL SERVICES BSK

Chain of Custody Form

4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.pacelabs.com

Report To: Client: GSI Water Sol'ns	Project #:
Attn: Nate Page	Project Name: Morro Bay IPR
Street Address: 5855 Capistrano Ave	BID# Ste C
City, State, Zip: Atascadero CA 93422	Sampler(s) Name Printed: Nate Page
Phone: 9706923583 Fax:	
Email: npage@gsiws.com	
Work Order #:	

Analysis Requested: Please see Attached "Complete Suite"

Comments: EDD requested, NO Geotracker. Analysis = "Complete Suite" attached

Result Request **Surcharge

- [x] STD (10 Days)
- [ ] 5 Day**
- [ ] 4 Day**
- [ ] 3 Day**
- [ ] 2 Day**
- [ ] 1 Day**

Rush requests must be approved

Sample #	Description	Date Sampled	Time Sampled	Analysis Requested	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Notes
Pilot Inj Well		1/4/23	1000	X				X			Shipped GLS
21P-01		1/4/23	1110	X				X			" "

Billing

- [x] Same as above

Client:

Address:

City: State Zip

Attn:

P.O. #:

System # (Needed for CLIP)

GIS/Key ☐ Well Star ☐

EDF Required Geotracker ☐ Yes ☒ No Global ID

Relinquished By	Date	Time	Received By	Date	Time
1. [signature]	1/4/23	1200	1.		
2.			2.		
3.			3.		

Pace Analytical Bakersfield does not accept samples containing radioactive material above background levels. Samples containing radioactive material must be disclosed prior to receipt. Any samples suspected of containing radioactive material above background levels will not be accepted and will be returned to client.

REV 12/2021

Laboratory Reports

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)

AGA0633
1/23/2023
Invoice: AG01633

Nate Page
GSI Water Solutions, Inc
418 Chapala Street, Suite H
Santa Barbara, CA 93101

RE: Report for AGA0633 Morro Bay IPR - Complete Suite

Dear Nate Page,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 1/5/2023. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2016 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an “as received” basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Heather S. White , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Heather S. White, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021

Case Narrative

Project and Report Details		**Invoice Details**	
Client:	GSI Water Solutions, Inc	**Invoice To:**	GSI Water Solutions, Inc
Report To:	Nate Page	**Invoice Attn:**	Nate Page
Project #:	Morro Bay	**Project PO#:**	-
Received:	1/05/2023 - 16:30		
Report Due:	1/19/2023		

Sample Receipt Conditions

Cooler: Default Cooler

Temperature on Receipt °C: 0.4

Containers Intact
COC/Labels Agree
Preservation Confirmed
Packing Material - Bubble Wrap
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

B2.0	Analyte present in the method blank above the method detection limit (MDL). Laboratory does not determine batch acceptance on detections below the reporting limit (RL).
DP1.0	Sample Duplicate RPD exceeded the method acceptance limit. Concentration estimated.
DP1.1	Sample Duplicate RPD exceeded method acceptance criteria.
HT2.0	Holding time exceeded. Sample was received at the lab past recommended holding time.
MS1.0	Matrix spike recoveries exceed control limits.
MS1.4	Matrix spike recovery data unreliable due to significant parent sample concentration relative to fortification level (>4x).
OD.a	Chlorinous/Ozonous
OD.b	Earthy/Musty/Moldy
OD.c	Grassy/Hay/Straw/Woody
OD.d	Marshy/Swampy/Septic/Sulfurous

Report Distribution

Recipient(s)	Report Format	CC:
Nate Page	FINAL.RPT	

ASSOCIATES

Certificate of Analysis

Sample ID: AGA0633-01
Sampled By: Nate Page
Sample Description: Pilot Fuij Well

Sample Date - Time: 01/04/2023 - 10:00
Matrix: Ground Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Alkalinity as CaCO3	SM 2320B	**82**	3.0	mg/L	1	AGA0582	01/11/23	01/11/23	
Bicarbonate as CaCO3	SM 2320B	**82**	3.0	mg/L	1	AGA0582	01/11/23	01/11/23	
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	AGA0582	01/11/23	01/11/23	
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	AGA0582	01/11/23	01/11/23	
Ammonia as N	EPA 350.1	**0.33**	0.10	mg/L	1	AGA0473	01/09/23	01/10/23	
Bromate	EPA 317.0	ND	1.0	ug/L	1	AGA0798	01/14/23	01/14/23	
Chloride	EPA 300.0	**100**	1.0	mg/L	1	AGA0261	01/05/23	01/05/23	
Chlorine, Free Residual (1)	SM 4500-Cl G	**0.34**	0.10	mg/L	1	AGA0385	01/06/23 20:39	01/06/23	DP1.0
Chlorine, Total Residual (1)	SM 4500-Cl G	**1.7**	0.10	mg/L	1	AGA0385	01/06/23 20:39	01/06/23	
Chemical Oxygen Demand	SM 5220D	ND	15	mg/L	1	AGA0956	01/17/23	01/17/23	
Color, Apparent	SM 2120B	**5.0**	5.0	CU	1	AGA0120	01/05/23 18:17	01/05/23	
Cyanide (total)	SM 4500-CN E	ND	5.0	ug/L	1	AGA0590	01/11/23	01/12/23	
Dissolved Organic Carbon	SM 5310C	**2.5**	0.20	mg/L	1	AGA0760	01/14/23	01/14/23	
Conductivity @ 25C	SM 2510B	**650**	1.0	umhos/cm	1	AGA0582	01/11/23	01/11/23	
Fluoride	EPA 300.0	ND	0.10	mg/L	1	AGA0261	01/05/23	01/05/23	
Hexavalent Chromium	EPA 218.6	**0.088**	0.050	ug/L	1	AGA0604	01/11/23	01/11/23	
Langelier Index	SM 2330B	**-0.88**				AGA1043	01/18/23	01/18/23	
MBAS, Calculated as LAS, mol wt 340	SM 5540C	ND	0.050	mg/L	1	AGA0297	01/05/23 18:55	01/05/23	
Nitrate + Nitrite as N	CALC	ND	0.23	mg/L					
Nitrate as N	EPA 300.0	ND	0.23	mg/L	1	AGA0261	01/05/23 21:01	01/05/23	
Nitrite as N	EPA 300.0	ND	0.050	mg/L	1	AGA0261	01/05/23 21:01	01/05/23	
Threshold Odor	SM 2150B	**1.2**	1.0	T.O.N.	1	AGA0343	01/06/23 16:02	01/06/23	HT2.0, OD.a, OD.c
Orthophosphate as P	EPA 300.0	ND	0.20	mg/L	1	AGA0261	01/05/23 21:01	01/05/23	
Oxidation/Reduction Potential	Hach 10228	**310**	-10000	mV	1	AGA0309	01/05/23 21:43	01/05/23	
pH (1)	SM 4500-H+ B	**7.5**	0.0	pH Units	1	AGA0582	01/11/23 23:42	01/11/23	
pH Temperature in °C		**20.8**							
Sulfate as SO4	EPA 300.0	**61**	1.0	mg/L	1	AGA0261	01/05/23	01/05/23	
Total Dissolved Solids	SM 2540C	**330**	5.0	mg/L	1	AGA0586	01/11/23	01/11/23	
Total Suspended Solids	SM 2540D	ND	5.0	mg/L	1	AGA0492	01/10/23	01/10/23	
Turbidity	SM 2130B	**1.3**	0.10	NTU	1	AGA0120	01/05/23 18:36	01/05/23	

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Aluminum - Dissolved (1)	EPA 200.7	ND	50	ug/L	1	AGA0839	01/16/23	01/17/23	
Antimony - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Arsenic - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Barium - Dissolved (1)	EPA 200.8	**33**	5.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Beryllium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Cadmium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Calcium - Dissolved (1)	EPA 200.7	**23**	0.10	mg/L	1	AGA0839	01/16/23	01/17/23	
Chromium - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0839	01/16/23	01/18/23	
Cobalt - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0839	01/16/23	01/18/23	

Certificate of Analysis

Sample ID: AGA0633-01
Sampled By: Nate Page
Sample Description: Pilot Fuij Well

Sample Date - Time: 01/04/2023 - 10:00
Matrix: Ground Water
Sample Type: Grab

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Copper - Dissolved (1)	EPA 200.8	ND	5.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Hardness as CaCO3, Dissolved	SM 2340B	**110**	0.41	mg/L					
Iron - Dissolved (1)	EPA 200.7	**33**	30	ug/L	1	AGA0839	01/16/23	01/17/23	
Lead - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Magnesium - Dissolved (1)	EPA 200.7	**14**	0.10	mg/L	1	AGA0839	01/16/23	01/17/23	
Manganese - Dissolved (1)	EPA 200.7	ND	10	ug/L	1	AGA0839	01/16/23	01/17/23	
Mercury - Dissolved (1)	EPA 245.7	ND	0.20	ug/L	1	AGA0472	01/10/23	01/12/23	
Molybdenum - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0839	01/16/23	01/18/23	
Nickel - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0839	01/16/23	01/18/23	
Potassium - Dissolved (1)	EPA 200.7	**3.5**	2.0	mg/L	1	AGA0839	01/16/23	01/17/23	
Selenium - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Silica (SiO2)	EPA 200.7	**7.2**	0.20	mg/L	1	AGA0465	01/10/23	01/11/23	
Silica (SiO2) - Dissolved (1)	EPA 200.7	**6.8**	0.20	mg/L	1	AGA0839	01/16/23	01/17/23	
Silver - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0839	01/16/23	01/18/23	
Sodium - Dissolved (1)	EPA 200.7	**79**	1.0	mg/L	1	AGA0839	01/16/23	01/17/23	
Strontium - Dissolved (1)	EPA 200.8	**200**	1.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Thallium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Uranium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Vanadium - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0839	01/16/23	01/18/23	
Zinc - Dissolved (1)	EPA 200.8	ND	50	ug/L	1	AGA0839	01/16/23	01/18/23	

Organics

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Trihalomethanes by GC-MS									
Bromodichloromethane	EPA 524.2	**16**	0.50	ug/L	1	AGA0373	01/06/23	01/07/23	
Bromoform	EPA 524.2	**9.7**	0.50	ug/L	1	AGA0373	01/06/23	01/07/23	
Chloroform	EPA 524.2	**7.9**	0.50	ug/L	1	AGA0373	01/06/23	01/07/23	
Dibromochloromethane	EPA 524.2	**22**	0.50	ug/L	1	AGA0373	01/06/23	01/07/23	
Total Trihalomethanes		**55**	0.50	ug/L					
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	113 %	*Acceptable range:*	*70-130 %*					
Surrogate: Bromofluorobenzene	EPA 524.2	108 %	*Acceptable range:*	*70-130 %*					
Haloacetic Acids by GC-MS									
Dibromoacetic Acid (DBAA)	EPA 552.3	**7.1**	1.0	ug/L	1	AGA0459	01/10/23	01/11/23	
Dichloroacetic Acid (DCAA)	EPA 552.3	**8.4**	1.0	ug/L	1	AGA0459	01/10/23	01/11/23	
Monobromoacetic Acid (MBAA)	EPA 552.3	**1.0**	1.0	ug/L	1	AGA0459	01/10/23	01/11/23	
Monochloroacetic Acid (MCAA)	EPA 552.3	ND	2.0	ug/L	1	AGA0459	01/10/23	01/11/23	
Trichloroacetic Acid (TCAA)	EPA 552.3	**4.8**	1.0	ug/L	1	AGA0459	01/10/23	01/11/23	
Total Haloacetic Acids		**21**	2.0	ug/L					
Surrogate: 2-Bromobutanoic Acid	EPA 552.3	115 %	*Acceptable range:*	*70-130 %*					

Certificate of Analysis

Sample ID: AGA0633-01RE1
Sampled By: Nate Page
Sample Description: Pilot Fuij Well

Sample Date - Time: 01/04/2023 - 10:00
Matrix: Ground Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Total Organic Carbon	SM 5310C	**2.6**	0.20	mg/L	1	AGA0759	01/13/23	01/13/23	

BSK ASSOCIATES

Certificate of Analysis

Sample ID: AGA0633-02
Sampled By: Nate Page
Sample Description: ZIP-01

Sample Date - Time: 01/04/2023 - 11:10
Matrix: Ground Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Alkalinity as CaCO3	SM 2320B	**86**	3.0	mg/L	1	AGA0582	01/11/23	01/11/23	
Bicarbonate as CaCO3	SM 2320B	**86**	3.0	mg/L	1	AGA0582	01/11/23	01/11/23	
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	AGA0582	01/11/23	01/11/23	
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	AGA0582	01/11/23	01/11/23	
Ammonia as N	EPA 350.1	ND	0.10	mg/L	1	AGA0473	01/09/23	01/10/23	
Bromate	EPA 317.0	ND	1.0	ug/L	1	AGA0798	01/14/23	01/14/23	
Chloride	EPA 300.0	**110**	1.0	mg/L	1	AGA0261	01/05/23	01/05/23	
Chlorine, Free Residual (1)	SM 4500-Cl G	ND	0.10	mg/L	1	AGA0385	01/06/23 20:39	01/06/23	
Chlorine, Total Residual (1)	SM 4500-Cl G	ND	0.10	mg/L	1	AGA0385	01/06/23 20:39	01/06/23	
Chemical Oxygen Demand	SM 5220D	**33**	15	mg/L	1	AGA0956	01/17/23	01/17/23	
Color, Apparent	SM 2120B	**5.0**	5.0	CU	1	AGA0120	01/05/23 18:18	01/05/23	
Cyanide (total)	SM 4500-CN E	ND	5.0	ug/L	1	AGA0590	01/11/23	01/12/23	
Dissolved Organic Carbon	SM 5310C	**2.1**	0.20	mg/L	1	AGA0760	01/14/23	01/14/23	
Conductivity @ 25C	SM 2510B	**670**	1.0	umhos/cm	1	AGA0582	01/11/23	01/11/23	
Fluoride	EPA 300.0	**0.16**	0.10	mg/L	1	AGA0261	01/05/23	01/05/23	
Hexavalent Chromium	EPA 218.6	**0.087**	0.050	ug/L	1	AGA0604	01/11/23	01/11/23	
Langelier Index	SM 2330B	**-1.1**				AGA1043	01/18/23	01/18/23	
MBAS, Calculated as LAS, mol wt 340	SM 5540C	ND	0.050	mg/L	1	AGA0297	01/05/23 18:55	01/05/23	
Nitrate + Nitrite as N	CALC	ND	0.23	mg/L					
Nitrate as N	EPA 300.0	ND	0.23	mg/L	1	AGA0261	01/05/23 21:15	01/05/23	
Nitrite as N	EPA 300.0	**0.11**	0.050	mg/L	1	AGA0261	01/05/23 21:15	01/05/23	
Threshold Odor	SM 2150B	**1.2**	1.0	T.O.N.	1	AGA0343	01/06/23 16:02	01/06/23	HT2.0, OD.b, OD.c, OD.d
Orthophosphate as P	EPA 300.0	ND	0.20	mg/L	1	AGA0261	01/05/23 21:15	01/05/23	
Oxidation/Reduction Potential	Hach 10228	**280**	-10000	mV	1	AGA0309	01/05/23 21:52	01/05/23	
pH (1)	SM 4500-H+ B	**7.2**	0.0	pH Units	1	AGA0582	01/11/23 23:48	01/11/23	
pH Temperature in °C		**20.9**							
Sulfate as SO4	EPA 300.0	**65**	1.0	mg/L	1	AGA0261	01/05/23	01/05/23	
Total Dissolved Solids	SM 2540C	**350**	5.0	mg/L	1	AGA0586	01/11/23	01/11/23	
Total Suspended Solids	SM 2540D	ND	5.0	mg/L	1	AGA0492	01/10/23	01/10/23	
Turbidity	SM 2130B	**1.5**	0.10	NTU	1	AGA0120	01/05/23 18:37	01/05/23	

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Aluminum - Dissolved (1)	EPA 200.7	ND	50	ug/L	1	AGA0839	01/16/23	01/17/23	
Antimony - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Arsenic - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Barium - Dissolved (1)	EPA 200.8	**39**	5.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Beryllium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Cadmium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Calcium - Dissolved (1)	EPA 200.7	**21**	0.10	mg/L	1	AGA0839	01/16/23	01/17/23	
Chromium - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0839	01/16/23	01/18/23	

Certificate of Analysis

Sample ID: AGA0633-02
Sampled By: Nate Page
Sample Description: ZIP-01

Sample Date - Time: 01/04/2023 - 11:10
Matrix: Ground Water
Sample Type: Grab

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Cobalt - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0839	01/16/23	01/18/23	
Copper - Dissolved (1)	EPA 200.8	ND	5.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Hardness as CaCO3, Dissolved	SM 2340B	**140**	0.41	mg/L					
Iron - Dissolved (1)	EPA 200.7	ND	30	ug/L	1	AGA0839	01/16/23	01/17/23	
Lead - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Magnesium - Dissolved (1)	EPA 200.7	**21**	0.10	mg/L	1	AGA0839	01/16/23	01/17/23	
Manganese - Dissolved (1)	EPA 200.7	ND	10	ug/L	1	AGA0839	01/16/23	01/17/23	
Mercury - Dissolved (1)	EPA 245.7	ND	0.20	ug/L	1	AGA0472	01/10/23	01/12/23	
Molybdenum - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0839	01/16/23	01/18/23	
Nickel - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0839	01/16/23	01/18/23	
Potassium - Dissolved (1)	EPA 200.7	ND	2.0	mg/L	1	AGA0839	01/16/23	01/17/23	
Selenium - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Silica (SiO2)	EPA 200.7	**14**	0.20	mg/L	1	AGA0658	01/12/23	01/13/23	
Silica (SiO2) - Dissolved (1)	EPA 200.7	**13**	0.20	mg/L	1	AGA0839	01/16/23	01/17/23	
Silver - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0839	01/16/23	01/18/23	
Sodium - Dissolved (1)	EPA 200.7	**77**	1.0	mg/L	1	AGA0839	01/16/23	01/17/23	MS1.4
Strontium - Dissolved (1)	EPA 200.8	**150**	1.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Thallium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Uranium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA0839	01/16/23	01/18/23	
Vanadium - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0839	01/16/23	01/18/23	
Zinc - Dissolved (1)	EPA 200.8	ND	50	ug/L	1	AGA0839	01/16/23	01/18/23	

Organics

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Trihalomethanes by GC-MS									
Bromodichloromethane	EPA 524.2	**14**	0.50	ug/L	1	AGA0373	01/06/23	01/07/23	
Bromoform	EPA 524.2	**7.1**	0.50	ug/L	1	AGA0373	01/06/23	01/07/23	
Chloroform	EPA 524.2	**7.5**	0.50	ug/L	1	AGA0373	01/06/23	01/07/23	
Dibromochloromethane	EPA 524.2	**18**	0.50	ug/L	1	AGA0373	01/06/23	01/07/23	
Total Trihalomethanes		**46**	0.50	ug/L					
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	110 %	*Acceptable range: 70-130 %*						
Surrogate: Bromofluorobenzene	EPA 524.2	103 %	*Acceptable range: 70-130 %*						
Haloacetic Acids by GC-MS									
Dibromoacetic Acid (DBAA)	EPA 552.3	**1.1**	1.0	ug/L	1	AGA0459	01/10/23	01/11/23	
Dichloroacetic Acid (DCAA)	EPA 552.3	**1.1**	1.0	ug/L	1	AGA0459	01/10/23	01/11/23	
Monobromoacetic Acid (MBAA)	EPA 552.3	ND	1.0	ug/L	1	AGA0459	01/10/23	01/11/23	
Monochloroacetic Acid (MCAA)	EPA 552.3	ND	2.0	ug/L	1	AGA0459	01/10/23	01/11/23	
Trichloroacetic Acid (TCAA)	EPA 552.3	**5.2**	1.0	ug/L	1	AGA0459	01/10/23	01/11/23	
Total Haloacetic Acids		**7.4**	2.0	ug/L					
Surrogate: 2-Bromobutanoic Acid	EPA 552.3	89 %	*Acceptable range: 70-130 %*						

Certificate of Analysis

Sample ID: AGA0633-02RE1
Sampled By: Nate Page
Sample Description: ZIP-01

Sample Date - Time: 01/04/2023 - 11:10
Matrix: Ground Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Total Organic Carbon	SM 5310C	**2.2**	0.20	mg/L	1	AGA0759	01/13/23	01/13/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 218.6 - Quality Control

Batch: AGA0604 Prepared: 1/11/2023
Prep Method: Method Specific Preparation Analyst: CTD

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0604-BLK1)											
Hexavalent Chromium	ND	0.050	ug/L							01/11/23	
Blank Spike (AGA0604-BS1)											
Hexavalent Chromium	2.0	0.050	ug/L	2.0	ND	101	90-110			01/11/23	
Blank Spike Dup (AGA0604-BSD1)											
Hexavalent Chromium	2.0	0.050	ug/L	2.0	ND	101	90-110	1	10	01/11/23	
Matrix Spike (AGA0604-MS1), Source: AFL3761-01											
Hexavalent Chromium	13	0.10	ug/L	4.0	9.5	98	90-110			01/11/23	
Matrix Spike (AGA0604-MS2), Source: AGA0357-01											
Hexavalent Chromium	14	0.10	ug/L	4.0	9.9	98	90-110			01/11/23	
Matrix Spike Dup (AGA0604-MSD1), Source: AFL3761-01											
Hexavalent Chromium	13	0.10	ug/L	4.0	9.5	97	90-110	0	10	01/11/23	
Matrix Spike Dup (AGA0604-MSD2), Source: AGA0357-01											
Hexavalent Chromium	14	0.10	ug/L	4.0	9.9	99	90-110	0	10	01/11/23	

EPA 300.0 - Quality Control

Batch: AGA0261 Prepared: 1/5/2023
Prep Method: Method Specific Preparation Analyst: DXR

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0261-BLK1)											
Fluoride	ND	0.10	mg/L							01/05/23	
Nitrate as N	ND	0.23	mg/L							01/05/23	
Chloride	ND	1.0	mg/L							01/05/23	
Nitrite as N	ND	0.050	mg/L							01/05/23	
Orthophosphate as P	ND	0.20	mg/L							01/05/23	
Sulfate as SO4	ND	1.0	mg/L							01/05/23	
Blank Spike (AGA0261-BS1)											
Fluoride	0.94	0.10	mg/L	1.0	ND	94	90-110			01/05/23	
Nitrate as N	21	0.23	mg/L	23	ND	94	90-110			01/05/23	
Chloride	94	1.0	mg/L	100	ND	94	90-110			01/05/23	
Nitrite as N	0.97	0.050	mg/L	1.0	ND	97	90-110			01/05/23	
Orthophosphate as P	4.8	0.20	mg/L	5.0	ND	96	90-110			01/05/23	
Sulfate as SO4	94	1.0	mg/L	100	ND	94	90-110			01/05/23	
Matrix Spike (AGA0261-MS1), Source: AGA0345-01											
Fluoride	0.58	0.10	mg/L	0.50	0.16	85	80-120			01/05/23	
Nitrate as N	10	0.23	mg/L	11	0.28	89	80-120			01/05/23	
Chloride	65	1.0	mg/L	50	22	86	80-120			01/05/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 300.0 - Quality Control

Batch: AGA0261 Prepared: 1/5/2023
Prep Method: Method Specific Preparation Analyst: DXR

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Matrix Spike (AGA0261-MS1), Source: AGA0345-01											
Nitrite as N	0.47	0.050	mg/L	0.50	ND	94	75-125			01/05/23	
Orthophosphate as P	2.4	0.20	mg/L	2.5	ND	95	80-120			01/05/23	
Sulfate as SO4	46	1.0	mg/L	50	1.8	89	80-120			01/05/23	
Matrix Spike (AGA0261-MS2), Source: AGA0377-02											
Fluoride	0.66	0.10	mg/L	0.50	0.17	99	80-120			01/05/23	
Nitrate as N	13	0.23	mg/L	11	2.1	100	80-120			01/05/23	
Chloride	71	1.0	mg/L	50	21	100	80-120			01/05/23	
Nitrite as N	0.51	0.050	mg/L	0.50	ND	101	75-125			01/05/23	
Orthophosphate as P	2.5	0.20	mg/L	2.5	ND	100	80-120			01/05/23	
Sulfate as SO4	55	1.0	mg/L	50	5.3	99	80-120			01/05/23	
Matrix Spike Dup (AGA0261-MSD1), Source: AGA0345-01											
Fluoride	0.61	0.10	mg/L	0.50	0.16	90	80-120	4	10	01/05/23	
Nitrate as N	11	0.23	mg/L	11	0.28	93	80-120	5	20	01/05/23	
Chloride	67	1.0	mg/L	50	22	90	80-120	3	20	01/05/23	
Nitrite as N	0.49	0.050	mg/L	0.50	ND	98	75-125	5	20	01/05/23	
Orthophosphate as P	2.5	0.20	mg/L	2.5	ND	101	80-120	7	20	01/05/23	
Sulfate as SO4	48	1.0	mg/L	50	1.8	93	80-120	5	20	01/05/23	
Matrix Spike Dup (AGA0261-MSD2), Source: AGA0377-02											
Fluoride	0.66	0.10	mg/L	0.50	0.17	97	80-120	1	10	01/05/23	
Nitrate as N	13	0.23	mg/L	11	2.1	98	80-120	2	20	01/05/23	
Chloride	70	1.0	mg/L	50	21	98	80-120	1	20	01/05/23	
Nitrite as N	0.50	0.050	mg/L	0.50	ND	100	75-125	1	20	01/05/23	
Orthophosphate as P	2.5	0.20	mg/L	2.5	ND	100	80-120	0	20	01/05/23	
Sulfate as SO4	53	1.0	mg/L	50	5.3	96	80-120	2	20	01/05/23	

EPA 317.0 - Quality Control

Batch: AGA0798 Prepared: 1/14/2023
Prep Method: Method Specific Preparation Analyst: DXR

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0798-BLK1)											
Bromate	ND	1.0	ug/L							01/14/23	
Blank Spike (AGA0798-BS1)											
Bromate	11	1.0	ug/L	10	ND	109	85-115			01/14/23	
Blank Spike Dup (AGA0798-BSD1)											
Bromate	11	1.0	ug/L	10	ND	113	85-115	4	10	01/14/23	
Matrix Spike (AGA0798-MS1), Source: AGA1771-01											
Bromate	12	1.0	ug/L	10	ND	114	75-125			01/14/23	

ASSOCIATES

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 317.0 - Quality Control											
Batch: AGA0798 Prepared: 1/14/2023											
Prep Method: Method Specific Preparation Analyst: DXR											
Matrix Spike Dup (AGA0798-MSD1), Source: AGA1771-01											
Bromate	12	1.0	ug/L	10	ND	113	75-125	1	10	01/14/23	
EPA 350.1 - Quality Control											
Batch: AGA0473 Prepared: 1/10/2023											
Prep Method: Method Specific Preparation Analyst: GJA											
Blank (AGA0473-BLK1)											
Ammonia as N	ND	0.10	mg/L							01/10/23	
Blank Spike (AGA0473-BS1)											
Ammonia as N	3.8	0.10	mg/L	4.0	ND	95	90-110			01/10/23	
Blank Spike Dup (AGA0473-BSD1)											
Ammonia as N	3.8	0.10	mg/L	4.0	ND	95	90-110	1	20	01/10/23	
Matrix Spike (AGA0473-MS1), Source: RGA0020-01											
Ammonia as N	3.4	0.10	mg/L	4.0	ND	84	90-110			01/10/23	MS1.0 ***Low***
Matrix Spike (AGA0473-MS2), Source: AGA0585-02											
Ammonia as N	3.3	0.10	mg/L	4.0	ND	83	90-110			01/10/23	MS1.0 ***Low***
Hach 10228 - Quality Control											
Batch: AGA0309 Prepared: 1/5/2023											
Prep Method: Method Specific Preparation Analyst: DXR											
Duplicate (AGA0309-DUP1), Source: AGA0633-01											
Oxidation/Reduction Potential	320	-10000	mV		310			3	20	01/05/23	
SM 2120B - Quality Control											
Batch: AGA0120 Prepared: 1/5/2023											
Prep Method: Method Specific Preparation Analyst: PXC											
Blank (AGA0120-BLK1)											
Color, Apparent	ND	5.0	CU							01/05/23	
Duplicate (AGA0120-DUP1), Source: AGA0550-01											
Color, Apparent	ND	5.0	CU		ND				20	01/05/23	
Duplicate (AGA0120-DUP2), Source: AGA0626-06											
Color, Apparent	ND	10	CU		ND				20	01/05/23	

SM 2130B - Quality Control

Batch: AGA0120 Prepared: 1/5/2023

Prep Method: Method Specific Preparation Analyst: PXC

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

SM 2130B - Quality Control

Batch: AGA0120 Prepared: 1/5/2023
Prep Method: Method Specific Preparation Analyst: PXC

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0120-BLK1)											
Turbidity	ND	0.10	NTU							01/05/23	
Duplicate (AGA0120-DUP1), Source: AGA0550-01											
Turbidity	0.20	0.10	NTU		0.10			67	20	01/05/23	DP1.1

SM 2150B - Quality Control

Batch: AGA0343 Prepared: 1/6/2023
Prep Method: Method Specific Preparation Analyst: BCB

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0343-BLK1)											
Threshold Odor	ND	1.0	T.O.N.							01/06/23	
Blank (AGA0343-BLK2)											
Threshold Odor	ND	1.0	T.O.N.							01/06/23	
Blank (AGA0343-BLK3)											
Threshold Odor	ND	1.0	T.O.N.							01/06/23	

SM 2320B - Quality Control

Batch: AGA0582 Prepared: 1/11/2023
Prep Method: Method Specific Preparation Analyst: CMH

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0582-BLK1)											
Alkalinity as CaCO3	ND	3.0	mg/L							01/11/23	
Bicarbonate as CaCO3	ND	3.0	mg/L							01/11/23	
Carbonate as CaCO3	ND	3.0	mg/L							01/11/23	
Hydroxide as CaCO3	ND	3.0	mg/L							01/11/23	
Blank Spike (AGA0582-BS1)											
Alkalinity as CaCO3	100	3.0	mg/L	100	ND	102	80-120			01/11/23	
Blank Spike Dup (AGA0582-BSD1)											
Alkalinity as CaCO3	98	3.0	mg/L	100	ND	98	80-120	4	20	01/11/23	
Duplicate (AGA0582-DUP1), Source: AGA0688-03											
Alkalinity as CaCO3	24	3.0	mg/L		24			2	10	01/12/23	
Bicarbonate as CaCO3	24	3.0	mg/L		24			2	10	01/12/23	
Carbonate as CaCO3	ND	3.0	mg/L		ND				10	01/12/23	
Hydroxide as CaCO3	ND	3.0	mg/L		ND				10	01/12/23	

SM 2510B - Quality Control

Batch: AGA0582 Prepared: 1/11/2023
Prep Method: Method Specific Preparation Analyst: CMH

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

SM 2510B - Quality Control

Batch: AGA0582 Prepared: 1/11/2023
Prep Method: Method Specific Preparation Analyst: CMH

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0582-BLK1)											
Conductivity @ 25C	ND	1.0	umhos/cm							01/11/23	
Blank Spike (AGA0582-BS1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400	ND	100	90-110			01/11/23	
Blank Spike Dup (AGA0582-BSD1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400	ND	101	90-110	1	5	01/11/23	
Duplicate (AGA0582-DUP1), Source: AGA0688-03											
Conductivity @ 25C	63	1.0	umhos/cm		62			0	5	01/12/23	

SM 2540C - Quality Control

Batch: AGA0586 Prepared: 1/11/2023
Prep Method: Method Specific Preparation Analyst: EMN

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0586-BLK1)											
Total Dissolved Solids	ND	5.0	mg/L							01/11/23	
Blank Spike (AGA0586-BS1)											
Total Dissolved Solids	990		mg/L	1000		99	70-130			01/11/23	
Duplicate (AGA0586-DUP1), Source: SGA0177-01											
Total Dissolved Solids	270	5.0	mg/L		270			1	10	01/11/23	
Duplicate (AGA0586-DUP2), Source: AGA0633-01											
Total Dissolved Solids	330	5.0	mg/L		330			0	10	01/11/23	

SM 2540D - Quality Control

Batch: AGA0492 Prepared: 1/10/2023
Prep Method: Method Specific Preparation Analyst: EMN

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0492-BLK1)											
Total Suspended Solids	ND	5.0	mg/L							01/10/23	
Blank Spike (AGA0492-BS1)											
Total Suspended Solids	85		mg/L	100		85	70-130			01/10/23	
Duplicate (AGA0492-DUP1), Source: AGA0517-01											
Total Suspended Solids	85	5.0	mg/L		99			15	10	01/10/23	DP1.1
Duplicate (AGA0492-DUP2), Source: AGA0687-01											
Total Suspended Solids	80	5.0	mg/L		77			4	10	01/10/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

SM 4500-Cl G - Quality Control

Batch: AGA0385 Prepared: 1/6/2023

Prep Method: Method Specific Preparation Analyst: CMH

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0385-BLK1)											
Chlorine, Free Residual (1)	ND	0.10	mg/L							01/06/23	
Chlorine, Total Residual (1)	ND	0.10	mg/L							01/06/23	
Blank Spike (AGA0385-BS1)											
Chlorine, Free Residual (1)	0.95	0.10	mg/L	1.0	ND	95	90-110			01/06/23	
Chlorine, Total Residual (1)	0.98	0.10	mg/L	1.0	ND	98	90-110			01/06/23	
Duplicate (AGA0385-DUP1), Source: AGA0633-01											
Chlorine, Free Residual (1)	0.25	0.10	mg/L		0.34			31	20	01/06/23	DP1.1
Chlorine, Total Residual (1)	1.6	0.10	mg/L		1.7			3	20	01/06/23	

SM 4500-CN E - Quality Control

Batch: AGA0590 Prepared: 1/11/2023

Prep Method: Method Specific Preparation Analyst: ERA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0590-BLK1)											
Cyanide (total)	ND	5.0	ug/L							01/12/23	
Blank Spike (AGA0590-BS1)											
Cyanide (total)	240	5.0	ug/L	250	ND	97	80-120			01/12/23	
Blank Spike Dup (AGA0590-BSD1)											
Cyanide (total)	250	5.0	ug/L	250	ND	99	80-120	2	20	01/12/23	
Matrix Spike (AGA0590-MS1), Source: AGA0242-01											
Cyanide (total)	240	5.0	ug/L	250	ND	96	80-120			01/12/23	
Matrix Spike Dup (AGA0590-MSD1), Source: AGA0242-01											
Cyanide (total)	260	5.0	ug/L	250	ND	102	80-120	6	20	01/12/23	

SM 4500-H+ B - Quality Control

Batch: AGA0582 Prepared: 1/12/2023

Prep Method: Method Specific Preparation Analyst: CMH

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Duplicate (AGA0582-DUP1), Source: AGA0688-03											
pH (1)	6.53	0.0	pH Units		6.53			0		01/12/23	

SM 5220D - Quality Control

Batch: AGA0956 Prepared: 1/17/2023

Prep Method: Method Specific Preparation Analyst: BCB

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0956-BLK1)											
Chemical Oxygen Demand	ND	15	mg/L							01/17/23	B2.0

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

SM 5220D - Quality Control

Batch: AGA0956 Prepared: 1/17/2023

Prep Method: Method Specific Preparation Analyst: BCB

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank Spike (AGA0956-BS1)											
Chemical Oxygen Demand	100	30	mg/L	100	ND	100	80-120			01/17/23	
Blank Spike Dup (AGA0956-BSD1)											
Chemical Oxygen Demand	100	30	mg/L	100	ND	105	80-120	4	20	01/17/23	
Matrix Spike (AGA0956-MS1), Source: AGA0688-04											
Chemical Oxygen Demand	120	30	mg/L	100	ND	90	80-120			01/17/23	
Matrix Spike Dup (AGA0956-MSD1), Source: AGA0688-04											
Chemical Oxygen Demand	120	30	mg/L	100	ND	98	80-120	6	20	01/17/23	

SM 5310C - Quality Control

Batch: AGA0672 Prepared: 1/12/2023

Prep Method: Method Specific Preparation Analyst: ERA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0672-BLK1)											
Total Organic Carbon	ND	0.20	mg/L							01/12/23	
Blank Spike (AGA0672-BS1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	101	80-120			01/12/23	
Blank Spike Dup (AGA0672-BSD1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	101	80-120	1	20	01/12/23	
Matrix Spike (AGA0672-MS1), Source: AGA0551-01											
Total Organic Carbon	10	0.20	mg/L	10	ND	100	80-120			01/13/23	
Matrix Spike (AGA0672-MS2), Source: AGA0551-11											
Total Organic Carbon	10	0.20	mg/L	10	ND	101	80-120			01/13/23	
Matrix Spike Dup (AGA0672-MSD1), Source: AGA0551-01											
Total Organic Carbon	10	0.20	mg/L	10	ND	102	80-120	1	20	01/13/23	
Matrix Spike Dup (AGA0672-MSD2), Source: AGA0551-11											
Total Organic Carbon	10	0.20	mg/L	10	ND	103	80-120	2	20	01/13/23	

SM 5310C - Quality Control

Batch: AGA0759 Prepared: 1/13/2023

Prep Method: Method Specific Preparation Analyst: ERA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0759-BLK1)											
Total Organic Carbon	ND	0.20	mg/L							01/13/23	
Blank Spike (AGA0759-BS1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	101	80-120			01/13/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

SM 5310C - Quality Control

Batch: AGA0759 Prepared: 1/13/2023
Prep Method: Method Specific Preparation Analyst: ERA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank Spike Dup (AGA0759-BSD1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	101	80-120	0	20	01/13/23	
Matrix Spike (AGA0759-MS1), Source: AGA1456-04											
Total Organic Carbon	10	0.20	mg/L	10	ND	104	80-120			01/13/23	
Matrix Spike (AGA0759-MS2), Source: AGA1456-09											
Total Organic Carbon	10	0.20	mg/L	10	ND	102	80-120			01/13/23	
Matrix Spike Dup (AGA0759-MSD1), Source: AGA1456-04											
Total Organic Carbon	10	0.20	mg/L	10	ND	101	80-120	3	20	01/13/23	
Matrix Spike Dup (AGA0759-MSD2), Source: AGA1456-09											
Total Organic Carbon	10	0.20	mg/L	10	ND	103	80-120	1	20	01/13/23	

SM 5540C - Quality Control

Batch: AGA0297 Prepared: 1/5/2023
Prep Method: Method Specific Preparation Analyst: PXC

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0297-BLK1)											
MBAS, Calculated as LAS, mol wt 340	ND	0.050	mg/L							01/05/23	
Blank Spike (AGA0297-BS1)											
MBAS, Calculated as LAS, mol wt 340	0.94	0.050	mg/L	1.0	ND	94	82-112			01/05/23	
Blank Spike Dup (AGA0297-BSD1)											
MBAS, Calculated as LAS, mol wt 340	0.97	0.050	mg/L	1.0	ND	97	82-112	4	20	01/05/23	
Matrix Spike (AGA0297-MS1), Source: AGA0633-01											
MBAS, Calculated as LAS, mol wt 340	0.84	0.050	mg/L	1.0	ND	84	80-112			01/05/23	
Matrix Spike Dup (AGA0297-MSD1), Source: AGA0633-01											
MBAS, Calculated as LAS, mol wt 340	0.88	0.050	mg/L	1.0	ND	88	80-112	5	20	01/05/23	

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 200.7 - Quality Control

Batch: AGA0465 Prepared: 1/10/2023
Prep Method: EPA 200.2 - Silica Analyst: MDS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0465-BLK1)											
Silica (SiO2)	ND	0.20	mg/L							01/11/23	
Blank Spike (AGA0465-BS1)											
Silica (SiO2)	2.2	0.20	mg/L	2.1	ND	101	85-115			01/11/23	
Blank Spike Dup (AGA0465-BSD1)											
Silica (SiO2)	2.2	0.20	mg/L	2.1	ND	102	85-115	1	20	01/11/23	
Matrix Spike (AGA0465-MS1), Source: AGA0626-02											
Silica (SiO2)	20	0.20	mg/L	2.1	18	93	70-130			01/11/23	
Matrix Spike (AGA0465-MS2), Source: AGA0633-01											
Silica (SiO2)	9.5	0.20	mg/L	2.1	7.2	106	70-130			01/11/23	
Matrix Spike Dup (AGA0465-MSD1), Source: AGA0626-02											
Silica (SiO2)	20	0.20	mg/L	2.1	18	120	70-130	3	20	01/11/23	
Matrix Spike Dup (AGA0465-MSD2), Source: AGA0633-01											
Silica (SiO2)	9.4	0.20	mg/L	2.1	7.2	101	70-130	1	20	01/11/23	

EPA 200.7 - Quality Control

Batch: AGA0658 Prepared: 1/12/2023
Prep Method: EPA 200.2 - Silica Analyst: MDS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0658-BLK1)											
Silica (SiO2)	ND	0.20	mg/L							01/13/23	
Blank Spike (AGA0658-BS1)											
Silica (SiO2)	2.2	0.20	mg/L	2.1	ND	101	85-115			01/13/23	
Blank Spike Dup (AGA0658-BSD1)											
Silica (SiO2)	2.2	0.20	mg/L	2.1	ND	101	85-115	0	20	01/13/23	
Matrix Spike (AGA0658-MS1), Source: AGA0856-01											
Silica (SiO2)	22	0.20	mg/L	2.1	20	68	70-130			01/13/23	MS1.0 ***Low***
Matrix Spike (AGA0658-MS2), Source: AGA1135-01											
Silica (SiO2)	22	0.20	mg/L	2.1	18	164	70-130			01/13/23	MS1.0 ***High***
Matrix Spike Dup (AGA0658-MSD1), Source: AGA0856-01											
Silica (SiO2)	23	0.20	mg/L	2.1	20	100	70-130	3	20	01/13/23	
Matrix Spike Dup (AGA0658-MSD2), Source: AGA1135-01											
Silica (SiO2)	21	0.20	mg/L	2.1	18	153	70-130	1	20	01/13/23	MS1.0 ***High***

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 200.7 - Quality Control

Batch: AGA0839 Prepared: 1/16/2023

Prep Method: Filtration - Metals Analyst: MDS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0839-BLK2)											
Aluminum - Dissolved (1)	ND	50	ug/L							01/17/23	
Calcium - Dissolved (1)	ND	0.10	mg/L							01/17/23	
Iron - Dissolved (1)	ND	30	ug/L							01/17/23	
Potassium - Dissolved (1)	ND	2.0	mg/L							01/17/23	
Magnesium - Dissolved (1)	ND	0.10	mg/L							01/17/23	
Manganese - Dissolved (1)	ND	10	ug/L							01/17/23	
Sodium - Dissolved (1)	ND	1.0	mg/L							01/17/23	
Silica (SiO2) - Dissolved (1)	ND	0.20	mg/L							01/17/23	
Blank Spike (AGA0839-BS2)											
Aluminum - Dissolved (1)	200	50	ug/L	200	ND	98	85-115			01/17/23	
Calcium - Dissolved (1)	3.7	0.10	mg/L	4.0	ND	91	85-115			01/17/23	
Iron - Dissolved (1)	200	30	ug/L	200	ND	102	85-115			01/17/23	
Potassium - Dissolved (1)	3.9	2.0	mg/L	4.0	ND	97	85-115			01/17/23	
Magnesium - Dissolved (1)	3.9	0.10	mg/L	4.0	ND	97	85-115			01/17/23	
Manganese - Dissolved (1)	190	10	ug/L	200	ND	96	85-115			01/17/23	
Sodium - Dissolved (1)	4.0	1.0	mg/L	4.0	ND	101	85-115			01/17/23	
Silica (SiO2) - Dissolved (1)	2.2	0.20	mg/L	2.1	ND	104	85-115			01/17/23	
Blank Spike Dup (AGA0839-BSD2)											
Aluminum - Dissolved (1)	200	50	ug/L	200	ND	101	85-115	3	20	01/17/23	
Calcium - Dissolved (1)	3.6	0.10	mg/L	4.0	ND	91	85-115	0	20	01/17/23	
Iron - Dissolved (1)	200	30	ug/L	200	ND	101	85-115	1	20	01/17/23	
Potassium - Dissolved (1)	3.8	2.0	mg/L	4.0	ND	95	85-115	2	20	01/17/23	
Magnesium - Dissolved (1)	3.8	0.10	mg/L	4.0	ND	95	85-115	2	20	01/17/23	
Manganese - Dissolved (1)	190	10	ug/L	200	ND	95	85-115	1	20	01/17/23	
Sodium - Dissolved (1)	4.0	1.0	mg/L	4.0	ND	100	85-115	1	20	01/17/23	
Silica (SiO2) - Dissolved (1)	2.2	0.20	mg/L	2.1	ND	102	85-115	2	20	01/17/23	
Matrix Spike (AGA0839-MS3), Source: AGA0633-02											
Aluminum - Dissolved (1)	210	50	ug/L	200	ND	107	70-130			01/17/23	
Calcium - Dissolved (1)	25	0.10	mg/L	4.0	21	87	70-130			01/17/23	
Iron - Dissolved (1)	210	30	ug/L	200	ND	105	70-130			01/17/23	
Potassium - Dissolved (1)	5.5	2.0	mg/L	4.0	ND	96	70-130			01/17/23	
Magnesium - Dissolved (1)	24	0.10	mg/L	4.0	21	75	70-130			01/17/23	
Manganese - Dissolved (1)	200	10	ug/L	200	ND	98	70-130			01/17/23	
Sodium - Dissolved (1)	77	1.0	mg/L	4.0	77	8	70-130			01/17/23	MS1.0 ***Low***
Silica (SiO2) - Dissolved (1)	15	0.20	mg/L	2.1	13	100	70-130			01/17/23	
Matrix Spike (AGA0839-MS4), Source: SGA0177-01											
Aluminum - Dissolved (1)	210	50	ug/L	200	ND	106	70-130			01/17/23	
Calcium - Dissolved (1)	25	0.10	mg/L	4.0	21	94	70-130			01/17/23	
Iron - Dissolved (1)	200	30	ug/L	200	ND	102	70-130			01/17/23	

BSK Associates Laboratory Fresno

Metals Quality Control Report

EPA 200.7 - Quality Control

Batch: AGA0839 Prepared: 1/16/2023
Prep Method: Filtration - Metals Analyst: MDS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Matrix Spike (AGA0839-MS4), Source: SGA0177-01											
Potassium - Dissolved (1)	5.6	2.0	mg/L	4.0	ND	95	70-130			01/17/23	
Magnesium - Dissolved (1)	15	0.10	mg/L	4.0	11	97	70-130			01/17/23	
Manganese - Dissolved (1)	210	10	ug/L	200	ND	103	70-130			01/17/23	
Sodium - Dissolved (1)	48	1.0	mg/L	4.0	45	62	70-130			01/17/23	MS1.0 ***Low***
Silica (SiO2) - Dissolved (1)	62	0.20	mg/L	2.1	60	106	70-130			01/17/23	
Matrix Spike Dup (AGA0839-MSD3), Source: AGA0633-02											
Aluminum - Dissolved (1)	230	50	ug/L	200	ND	114	70-130	6	20	01/17/23	
Calcium - Dissolved (1)	25	0.10	mg/L	4.0	21	92	70-130	1	20	01/17/23	
Iron - Dissolved (1)	210	30	ug/L	200	ND	106	70-130	1	20	01/17/23	
Potassium - Dissolved (1)	5.5	2.0	mg/L	4.0	ND	95	70-130	1	20	01/17/23	
Magnesium - Dissolved (1)	24	0.10	mg/L	4.0	21	85	70-130	2	20	01/17/23	
Manganese - Dissolved (1)	200	10	ug/L	200	ND	98	70-130	0	20	01/17/23	
Sodium - Dissolved (1)	79	1.0	mg/L	4.0	77	51	70-130	2	20	01/17/23	MS1.0 ***Low***
Silica (SiO2) - Dissolved (1)	16	0.20	mg/L	2.1	13	117	70-130	2	20	01/17/23	
Matrix Spike Dup (AGA0839-MSD4), Source: SGA0177-01											
Aluminum - Dissolved (1)	200	50	ug/L	200	ND	101	70-130	5	20	01/17/23	
Calcium - Dissolved (1)	25	0.10	mg/L	4.0	21	95	70-130	0	20	01/17/23	
Iron - Dissolved (1)	200	30	ug/L	200	ND	101	70-130	2	20	01/17/23	
Potassium - Dissolved (1)	5.6	2.0	mg/L	4.0	ND	96	70-130	1	20	01/17/23	
Magnesium - Dissolved (1)	15	0.10	mg/L	4.0	11	95	70-130	1	20	01/17/23	
Manganese - Dissolved (1)	200	10	ug/L	200	ND	101	70-130	2	20	01/17/23	
Sodium - Dissolved (1)	48	1.0	mg/L	4.0	45	73	70-130	1	20	01/17/23	
Silica (SiO2) - Dissolved (1)	63	0.20	mg/L	2.1	60	128	70-130	1	20	01/17/23	

EPA 200.8 - Quality Control

Batch: AGA0839 Prepared: 1/16/2023
Prep Method: Filtration - Metals Analyst: AHS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0839-BLK1)											
Beryllium - Dissolved (1)	ND	1.0	ug/L							01/18/23	
Vanadium - Dissolved (1)	ND	10	ug/L							01/18/23	
Chromium - Dissolved (1)	ND	10	ug/L							01/18/23	B2.0
Cobalt - Dissolved (1)	ND	10	ug/L							01/18/23	
Nickel - Dissolved (1)	ND	10	ug/L							01/18/23	
Copper - Dissolved (1)	ND	5.0	ug/L							01/18/23	
Zinc - Dissolved (1)	ND	50	ug/L							01/18/23	
Arsenic - Dissolved (1)	ND	2.0	ug/L							01/18/23	
Selenium - Dissolved (1)	ND	2.0	ug/L							01/18/23	
Strontium - Dissolved (1)	ND	1.0	ug/L							01/18/23	
Molybdenum - Dissolved (1)	ND	10	ug/L							01/18/23	
Silver - Dissolved (1)	ND	10	ug/L							01/18/23	

BSK Associates Laboratory Fresno

Metals Quality Control Report

EPA 200.8 - Quality Control

Batch: AGA0839 Prepared: 1/16/2023

Prep Method: Filtration - Metals Analyst: AHS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0839-BLK1)											
Cadmium - Dissolved (1)	ND	1.0	ug/L							01/18/23	
Antimony - Dissolved (1)	ND	2.0	ug/L							01/18/23	
Barium - Dissolved (1)	ND	5.0	ug/L							01/18/23	
Thallium - Dissolved (1)	ND	1.0	ug/L							01/18/23	
Lead - Dissolved (1)	ND	1.0	ug/L							01/18/23	
Uranium - Dissolved (1)	ND	1.0	ug/L							01/18/23	
Blank Spike (AGA0839-BS1)											
Beryllium - Dissolved (1)	200	1.0	ug/L	200	ND	98	85-115			01/18/23	
Vanadium - Dissolved (1)	190	10	ug/L	200	ND	95	85-115			01/18/23	
Chromium - Dissolved (1)	190	10	ug/L	200	ND	93	85-115			01/18/23	
Cobalt - Dissolved (1)	180	10	ug/L	200	ND	92	85-115			01/18/23	
Nickel - Dissolved (1)	190	10	ug/L	200	ND	93	85-115			01/18/23	
Copper - Dissolved (1)	190	5.0	ug/L	200	ND	94	85-115			01/18/23	
Zinc - Dissolved (1)	180	50	ug/L	200	ND	90	85-115			01/18/23	
Arsenic - Dissolved (1)	190	2.0	ug/L	200	ND	95	85-115			01/18/23	
Selenium - Dissolved (1)	190	2.0	ug/L	200	ND	94	85-115			01/18/23	
Strontium - Dissolved (1)	190	1.0	ug/L	200	ND	94	85-115			01/18/23	
Molybdenum - Dissolved (1)	190	10	ug/L	200	ND	97	85-115			01/18/23	
Silver - Dissolved (1)	110	10	ug/L	100	ND	108	75-125			01/18/23	
Cadmium - Dissolved (1)	200	1.0	ug/L	200	ND	99	85-115			01/18/23	
Antimony - Dissolved (1)	210	2.0	ug/L	200	ND	103	85-115			01/18/23	
Barium - Dissolved (1)	190	5.0	ug/L	200	ND	95	85-115			01/18/23	
Thallium - Dissolved (1)	180	1.0	ug/L	200	ND	92	85-115			01/18/23	
Lead - Dissolved (1)	190	1.0	ug/L	200	ND	95	85-115			01/18/23	
Uranium - Dissolved (1)	190	1.0	ug/L	200	ND	94	85-115			01/18/23	
Blank Spike Dup (AGA0839-BSD1)											
Beryllium - Dissolved (1)	200	1.0	ug/L	200	ND	99	85-115	1	20	01/18/23	
Vanadium - Dissolved (1)	190	10	ug/L	200	ND	96	85-115	1	20	01/18/23	
Chromium - Dissolved (1)	190	10	ug/L	200	ND	94	85-115	1	20	01/18/23	
Cobalt - Dissolved (1)	190	10	ug/L	200	ND	95	85-115	3	20	01/18/23	
Nickel - Dissolved (1)	190	10	ug/L	200	ND	95	85-115	2	20	01/18/23	
Copper - Dissolved (1)	190	5.0	ug/L	200	ND	96	85-115	2	20	01/18/23	
Zinc - Dissolved (1)	180	50	ug/L	200	ND	91	85-115	1	20	01/18/23	
Arsenic - Dissolved (1)	190	2.0	ug/L	200	ND	95	85-115	0	20	01/18/23	
Selenium - Dissolved (1)	190	2.0	ug/L	200	ND	95	85-115	1	20	01/18/23	
Strontium - Dissolved (1)	190	1.0	ug/L	200	ND	95	85-115	1	20	01/18/23	
Molybdenum - Dissolved (1)	190	10	ug/L	200	ND	96	85-115	1	20	01/18/23	
Silver - Dissolved (1)	100	10	ug/L	100	ND	104	75-125	3	20	01/18/23	
Cadmium - Dissolved (1)	190	1.0	ug/L	200	ND	97	85-115	2	20	01/18/23	
Antimony - Dissolved (1)	200	2.0	ug/L	200	ND	101	85-115	2	20	01/18/23	
Barium - Dissolved (1)	190	5.0	ug/L	200	ND	95	85-115	1	20	01/18/23	

BSK ASSOCIATES

BSK Associates Laboratory Fresno

Metals Quality Control Report

EPA 200.8 - Quality Control

Batch: AGA0839 Prepared: 1/16/2023
Prep Method: Filtration - Metals Analyst: AHS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank Spike Dup (AGA0839-BSD1)											
Thallium - Dissolved (1)	180	1.0	ug/L	200	ND	91	85-115	1	20	01/18/23	
Lead - Dissolved (1)	190	1.0	ug/L	200	ND	93	85-115	2	20	01/18/23	
Uranium - Dissolved (1)	180	1.0	ug/L	200	ND	92	85-115	3	20	01/18/23	
Matrix Spike (AGA0839-MS1), Source: AGA0633-02											
Beryllium - Dissolved (1)	200	1.0	ug/L	200	ND	100	70-130			01/18/23	
Vanadium - Dissolved (1)	200	10	ug/L	200	ND	101	70-130			01/18/23	
Chromium - Dissolved (1)	190	10	ug/L	200	ND	96	70-130			01/18/23	
Cobalt - Dissolved (1)	190	10	ug/L	200	ND	97	70-130			01/18/23	
Nickel - Dissolved (1)	190	10	ug/L	200	ND	95	70-130			01/18/23	
Copper - Dissolved (1)	190	5.0	ug/L	200	ND	96	70-130			01/18/23	
Zinc - Dissolved (1)	190	50	ug/L	200	ND	93	70-130			01/18/23	
Arsenic - Dissolved (1)	200	2.0	ug/L	200	ND	101	70-130			01/18/23	
Selenium - Dissolved (1)	200	2.0	ug/L	200	ND	100	70-130			01/18/23	
Strontium - Dissolved (1)	340	1.0	ug/L	200	150	95	70-130			01/18/23	
Molybdenum - Dissolved (1)	200	10	ug/L	200	ND	102	70-130			01/18/23	
Silver - Dissolved (1)	110	10	ug/L	100	ND	107	70-130			01/18/23	
Cadmium - Dissolved (1)	200	1.0	ug/L	200	ND	101	70-130			01/18/23	
Antimony - Dissolved (1)	210	2.0	ug/L	200	ND	105	70-130			01/18/23	
Barium - Dissolved (1)	240	5.0	ug/L	200	39	98	70-130			01/18/23	
Thallium - Dissolved (1)	190	1.0	ug/L	200	ND	96	70-130			01/18/23	
Lead - Dissolved (1)	190	1.0	ug/L	200	ND	96	70-130			01/18/23	
Uranium - Dissolved (1)	200	1.0	ug/L	200	ND	98	70-130			01/18/23	
Matrix Spike (AGA0839-MS2), Source: SGA0177-01											
Beryllium - Dissolved (1)	200	1.0	ug/L	200	ND	101	70-130			01/18/23	
Vanadium - Dissolved (1)	210	10	ug/L	200	13	99	70-130			01/18/23	
Chromium - Dissolved (1)	200	10	ug/L	200	ND	95	70-130			01/18/23	
Cobalt - Dissolved (1)	190	10	ug/L	200	ND	97	70-130			01/18/23	
Nickel - Dissolved (1)	190	10	ug/L	200	ND	96	70-130			01/18/23	
Copper - Dissolved (1)	190	5.0	ug/L	200	ND	96	70-130			01/18/23	
Zinc - Dissolved (1)	190	50	ug/L	200	ND	93	70-130			01/18/23	
Arsenic - Dissolved (1)	200	2.0	ug/L	200	ND	98	70-130			01/18/23	
Selenium - Dissolved (1)	190	2.0	ug/L	200	ND	97	70-130			01/18/23	
Strontium - Dissolved (1)	400	1.0	ug/L	200	210	94	70-130			01/18/23	
Molybdenum - Dissolved (1)	200	10	ug/L	200	ND	99	70-130			01/18/23	
Silver - Dissolved (1)	100	10	ug/L	100	ND	104	70-130			01/18/23	
Cadmium - Dissolved (1)	200	1.0	ug/L	200	ND	99	70-130			01/18/23	
Antimony - Dissolved (1)	210	2.0	ug/L	200	ND	104	70-130			01/18/23	
Barium - Dissolved (1)	240	5.0	ug/L	200	47	97	70-130			01/18/23	
Thallium - Dissolved (1)	180	1.0	ug/L	200	ND	91	70-130			01/18/23	
Lead - Dissolved (1)	190	1.0	ug/L	200	ND	94	70-130			01/18/23	
Uranium - Dissolved (1)	190	1.0	ug/L	200	ND	95	70-130			01/18/23	

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 200.8 - Quality Control

Batch: AGA0839 Prepared: 1/16/2023

Prep Method: Filtration - Metals Analyst: AHS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Matrix Spike Dup (AGA0839-MSD1), Source: AGA0633-02											
Beryllium - Dissolved (1)	200	1.0	ug/L	200	ND	98	70-130	2	20	01/18/23	
Vanadium - Dissolved (1)	210	10	ug/L	200	ND	103	70-130	2	20	01/18/23	
Chromium - Dissolved (1)	190	10	ug/L	200	ND	97	70-130	1	20	01/18/23	
Cobalt - Dissolved (1)	190	10	ug/L	200	ND	96	70-130	0	20	01/18/23	
Nickel - Dissolved (1)	190	10	ug/L	200	ND	95	70-130	1	20	01/18/23	
Copper - Dissolved (1)	190	5.0	ug/L	200	ND	93	70-130	3	20	01/18/23	
Zinc - Dissolved (1)	180	50	ug/L	200	ND	92	70-130	1	20	01/18/23	
Arsenic - Dissolved (1)	200	2.0	ug/L	200	ND	99	70-130	2	20	01/18/23	
Selenium - Dissolved (1)	200	2.0	ug/L	200	ND	98	70-130	2	20	01/18/23	
Strontium - Dissolved (1)	350	1.0	ug/L	200	150	97	70-130	1	20	01/18/23	
Molybdenum - Dissolved (1)	200	10	ug/L	200	ND	102	70-130	1	20	01/18/23	
Silver - Dissolved (1)	110	10	ug/L	100	ND	105	70-130	1	20	01/18/23	
Cadmium - Dissolved (1)	190	1.0	ug/L	200	ND	97	70-130	3	20	01/18/23	
Antimony - Dissolved (1)	210	2.0	ug/L	200	ND	104	70-130	2	20	01/18/23	
Barium - Dissolved (1)	230	5.0	ug/L	200	39	94	70-130	4	20	01/18/23	
Thallium - Dissolved (1)	180	1.0	ug/L	200	ND	91	70-130	5	20	01/18/23	
Lead - Dissolved (1)	190	1.0	ug/L	200	ND	93	70-130	3	20	01/18/23	
Uranium - Dissolved (1)	190	1.0	ug/L	200	ND	95	70-130	3	20	01/18/23	
Matrix Spike Dup (AGA0839-MSD2), Source: SGA0177-01											
Beryllium - Dissolved (1)	190	1.0	ug/L	200	ND	97	70-130	4	20	01/18/23	
Vanadium - Dissolved (1)	210	10	ug/L	200	13	100	70-130	2	20	01/18/23	
Chromium - Dissolved (1)	190	10	ug/L	200	ND	94	70-130	1	20	01/18/23	
Cobalt - Dissolved (1)	190	10	ug/L	200	ND	96	70-130	1	20	01/18/23	
Nickel - Dissolved (1)	190	10	ug/L	200	ND	94	70-130	2	20	01/18/23	
Copper - Dissolved (1)	190	5.0	ug/L	200	ND	96	70-130	1	20	01/18/23	
Zinc - Dissolved (1)	190	50	ug/L	200	ND	93	70-130	0	20	01/18/23	
Arsenic - Dissolved (1)	200	2.0	ug/L	200	ND	98	70-130	0	20	01/18/23	
Selenium - Dissolved (1)	200	2.0	ug/L	200	ND	100	70-130	3	20	01/18/23	
Strontium - Dissolved (1)	410	1.0	ug/L	200	210	100	70-130	3	20	01/18/23	
Molybdenum - Dissolved (1)	200	10	ug/L	200	ND	101	70-130	1	20	01/18/23	
Silver - Dissolved (1)	100	10	ug/L	100	ND	104	70-130	0	20	01/18/23	
Cadmium - Dissolved (1)	190	1.0	ug/L	200	ND	97	70-130	3	20	01/18/23	
Antimony - Dissolved (1)	200	2.0	ug/L	200	ND	100	70-130	4	20	01/18/23	
Barium - Dissolved (1)	240	5.0	ug/L	200	47	95	70-130	1	20	01/18/23	
Thallium - Dissolved (1)	180	1.0	ug/L	200	ND	90	70-130	1	20	01/18/23	
Lead - Dissolved (1)	190	1.0	ug/L	200	ND	94	70-130	0	20	01/18/23	
Uranium - Dissolved (1)	190	1.0	ug/L	200	ND	95	70-130	0	20	01/18/23	

EPA 245.7 - Quality Control

Batch: AGA0472 Prepared: 1/10/2023

Prep Method: EPA 245.7 Analyst: TSY

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 245.7 - Quality Control											
Batch: AGA0472										Prepared: 1/10/2023	
Prep Method: EPA 245.7										Analyst: TSY	
Blank (AGA0472-BLK1)											
Mercury - Dissolved (1)	ND	0.20	ug/L							01/12/23	
Matrix Spike (AGA0472-MS1), Source: AGA0633-02											
Mercury - Dissolved (1)	0.88	0.20	ug/L	0.80	ND	110	63-111			01/12/23	
Matrix Spike Dup (AGA0472-MSD1), Source: AGA0633-02											
Mercury - Dissolved (1)	0.86	0.20	ug/L	0.80	ND	107	63-111	3	18	01/12/23	

BSK Associates Laboratory Fresno

Organics Quality Control Report

EPA 524.2 - Quality Control

Batch: AGA0373 Prepared: 1/6/2023

Prep Method: EPA 524.2 Analyst: JNG

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0373-BLK1)											
Bromodichloromethane	ND	0.50	ug/L							01/07/23	
Bromoform	ND	0.50	ug/L							01/07/23	
Chloroform	ND	0.50	ug/L							01/07/23	
Dibromochloromethane	ND	0.50	ug/L							01/07/23	
Total Trihalomethanes	ND	0.50	ug/L							01/07/23	
Surrogate: 1,2-Dichlorobenzene-d4	*51*			*50*		*102*	*70-130*			01/07/23	
Surrogate: Bromofluorobenzene	*49*			*50*		*99*	*70-130*			01/07/23	
Blank Spike (AGA0373-BS1)											
Bromodichloromethane	10	0.50	ug/L	10	ND	104	70-130			01/07/23	
Bromoform	11	0.50	ug/L	10	ND	108	70-130			01/07/23	
Chloroform	10	0.50	ug/L	10	ND	102	70-130			01/07/23	
Dibromochloromethane	11	0.50	ug/L	10	ND	107	70-130			01/07/23	
Surrogate: 1,2-Dichlorobenzene-d4	*52*			*50*		*104*	*70-130*			01/07/23	
Surrogate: Bromofluorobenzene	*51*			*50*		*101*	*70-130*			01/07/23	
Blank Spike Dup (AGA0373-BSD1)											
Bromodichloromethane	9.6	0.50	ug/L	10	ND	96	70-130	8	30	01/07/23	
Bromoform	10	0.50	ug/L	10	ND	102	70-130	6	30	01/07/23	
Chloroform	9.1	0.50	ug/L	10	ND	91	70-130	11	30	01/07/23	
Dibromochloromethane	9.4	0.50	ug/L	10	ND	94	70-130	13	30	01/07/23	
Surrogate: 1,2-Dichlorobenzene-d4	*52*			*50*		*104*	*70-130*			01/07/23	
Surrogate: Bromofluorobenzene	*51*			*50*		*102*	*70-130*			01/07/23	

EPA 552.3 - Quality Control

Batch: AGA0459 Prepared: 1/10/2023

Prep Method: EPA 552.3 Analyst: DAB

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0459-BLK1)											
Dibromoacetic Acid (DBAA)	ND	1.0	ug/L							01/10/23	
Dichloroacetic Acid (DCAA)	ND	1.0	ug/L							01/10/23	
Monobromoacetic Acid (MBAA)	ND	1.0	ug/L							01/10/23	
Monochloroacetic Acid (MCAA)	ND	2.0	ug/L							01/10/23	
Trichloroacetic Acid (TCAA)	ND	1.0	ug/L							01/10/23	
Total Haloacetic Acids	ND	2.0	ug/L							01/10/23	
Surrogate: 2-Bromobutanoic Acid	*9.8*			*10*		*98*	*70-130*			01/10/23	
Duplicate (AGA0459-DUP1), Source: SGA0052-02											
Dibromoacetic Acid (DBAA)	ND	1.0	ug/L		ND				30	01/11/23	
Dichloroacetic Acid (DCAA)	11	1.0	ug/L		10			5	30	01/11/23	
Monobromoacetic Acid (MBAA)	ND	1.0	ug/L		ND				30	01/11/23	
Monochloroacetic Acid (MCAA)	ND	2.0	ug/L		ND				30	01/11/23	
Trichloroacetic Acid (TCAA)	9.0	1.0	ug/L		8.6			5	30	01/11/23	
Total Haloacetic Acids	20	2.0	ug/L		19			5	30	01/11/23	

BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 552.3 - Quality Control

Batch: AGA0459 Prepared: 1/10/2023

Prep Method: EPA 552.3 Analyst: DAB

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Duplicate (AGA0459-DUP1), Source: SGA0052-02											
Surrogate: 2-Bromobutanoic Acid	*9.5*			*10*		*95*	*70-130*			01/11/23	
Matrix Spike (AGA0459-MS1), Source: AGA0374-01											
Dibromoacetic Acid (DBAA)	23	1.0	ug/L	10	13	102	70-130			01/10/23	
Dichloroacetic Acid (DCAA)	11	1.0	ug/L	10	2.0	93	70-130			01/10/23	
Monobromoacetic Acid (MBAA)	11	1.0	ug/L	10	1.5	91	70-130			01/10/23	
Monochloroacetic Acid (MCAA)	20	2.0	ug/L	20	ND	102	70-130			01/10/23	
Trichloroacetic Acid (TCAA)	11	1.0	ug/L	10	1.3	98	70-130			01/10/23	
Surrogate: 2-Bromobutanoic Acid	*9.8*			*10*		*98*	*70-130*			01/10/23	

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

  Unless otherwise noted, TOC results by SM 5310C method do not include purgeable organic carbon, which is removed along with the inorganic carbon interference. The POC contribution to TOC is considered to be negligible.

Certificate of Analysis

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

The following parameters are calculated values and are outside the scope of our NELAP accreditation:

Total Nitrogen　　Aggressive Index　　Trivalent Chromium

BSK is not accredited under the NELAP program for the following additional parameters:

Cobalt

Molybdenum

Oxidation/Reduction Potential

Strontium

Vanadium

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

Fresno

State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-019
State of Nevada	CA000792022-1	State of Oregon - NELAP	4021-019
EPA UCMR5	CA00079	State of Washington	C997-22a

Sacramento

State of California - ELAP	1180-S1

San Bernardino

State of California - ELAP	1180-S2	Los Angeles CSD	9254478
NELAP certified	4119-007	State of Oregon - NELAP	4119-007

Vancouver

NELAP certified	WA100008-015	State of Oregon - NELAP	WA100008-015
State of Washington	C824-22		

BSK Associates SR-FL-0002-23

AGA0633 GSIWA3956 01/05/2023

10

Sample Integrity

BSK Bottles: Yes No   Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TTHM/TCP)? TB Received? (Check Method Below)	Yes No NA / Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received — "_" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40ml VOA(V) 125ml(D)	Checks*	Passed?	1-2				
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—	3C,3B,4D				
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 DW	Cl, pH > 8	P F	1A				
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—					
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F	1B,1D/1A				
NaOH (P) Green Cap	Cl, pH >10	P F	1A				
NaOH + ZnAc (P)	pH > 9	P F	1B				
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—	1B			VCH	
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—					
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—				1-5-23	
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—					
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F					
NH_4Cl (AG) Purple Label 552	—	—	1A				
EDA (P) or (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—	3V				
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1 - **Field Blank Required**							
Other:							
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—					
Bottled Water	—	—					
Clear Glass	—	—	2V				
Solids: Brass / Steel / Plastic Bag	—	—					

Split

	Container	Preservative	Lot #	Initials	Date/Time	Preservation Check
S P						pH Lot #
S P						Cl Lot #

Comments

*Preservation check completed by lab performing analysis.

Odor received after 24 hours. VGA 1-5-23

✓ **Indicates Blanks Received**

504 ___ 524.2 ___ TTHM ___ 537.1 ___ TCP___

✓ **MS/MSD Received Method:** ________

Initial & Time

Labeled by:

Labels Checked by:

Scanned: JRB   Rush/Short HT Page: ________ Time: _______

Pace BSK 0.4 #65 GIS WI BW

ANALYTICAL SERVICES

4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.pacelabs.com

AGA0633 GSIWA3956 01/05/2023

10 Form

Page 1 of 1

Report To Client: GSI Water Sol'ns	Project #:
Attn: Nate Page	Project Name: Morro Bay IPR
Street Address: 5855 Capistrano Ave	~~BID#~~ Ste C
City, State, Zip: Atascadero CA 93422	Sampler(s) Name Printed: Nate Page
Phone: 9706923583 Fax:	
Email: npage@gsiws.com	
Work Order #:	

Analysis Requested

Please see Attached "Complete Suite"

Comments: EDD requested, NO Geotracker. Analysis = "Complete Suite" attached

Result Request **Surcharge: ☒ STD (10 Days) ☐ 5 Day** ☐ 4 Day** ☐ 3 Day** ☐ 2 Day** ☐ 1 Day**

Rush requests must be approved

Sample #	Description	Date Sampled	Time Sampled	Analysis	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Notes
Pilot Inj Well		1/4/23	1000	X				X			Shipped GLS
21P-01		1/4/23	1110	X				X			" "

Billing ☒ Same as above

Client:

Address:

City: State Zip

Attn:

P.O. #:

System # (Needed for CLIP)

GIS/Key ☐ Well Star ☐

EDF Required Geotracker ☐ Yes ☒ No Global ID

Relinquished By	Date	Time	Received By	Date	Time
1. Relinquished By [signature]	1/4/23	1200	1. Received By		
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By [signature]	1-5-23	16:30

Pace Analytical Bakersfield does not accept samples containing radioactive material above background levels. Samples containing radioactive material must be disclosed prior to receipt. Any samples suspected of containing radioactive material above background levels will not be accepted and will be returned to client.

REV 12/2021

AGA0633 GSIWA3956 01/05/2023

10

Parameter Type	Parameter	Method
Field	~~Dissolved oxygen~~	~~YSI 556 or similar~~
	~~pH~~	~~EPA 150.1~~
	~~Oxidation-Reduction Potential~~	~~SM2580B~~
	~~Specific Conductance~~	~~EPA 120.1~~
	~~Temperature~~	~~YSI 556 or similar~~
	~~Turbidity~~	~~EPA 180.1~~
Inorganics	Alkalinity	SM2320B
	Ammonia	SM4500NH3G
	Bicarbonate	SM2320B
	Carbonate	SM2320B
	Chloride	EPA 300.0
	Cyanide (HCN)	EPA 335.4
	Fluoride	EPA 300.0
	Hardness	EPA 200.8
	Nitrate+Nitrite (total N)	EPA 300.0
	Nitrate (as N)	EPA 300.0
	Nitrite-N	EPA 300.0
	Orthophosphate as P	EPA 300.0
	Total Silica (as SiO2)	EPA 200.7
	Dissolved Silica (as SiO2)	EPA 200.7
	Sulfate	EPA 300.0
	Sulfide	SM4500S2F
Metals (Dissolved)	Aluminum	EPA 200.7
	Antimony	EPA 200.8
	Arsenic	EPA 200.8
	Barium	EPA 200.8
	Beryllium	EPA 200.8
	Cadmium	EPA 200.8
	Calcium	EPA 200.7
	Chromium	EPA 200.8
	Cobalt	EPA 200.8
	Copper	EPA 200.8
	Iron	EPA 200.7
	Lead	EPA 200.8
	Magnesium	EPA 200.7
	Manganese	EPA 200.8
	Mercury	EPA 245.7
	Molybdenum	EPA 200.8
	Nickel	EPA 200.8
	Potassium	EPA 200.7
	Selenium	EPA 200.8
	Silver	EPA 200.8

	Sodium	EPA 200.7
	Strontium	EPA 200.8
	Thallium	EPA 200.8
	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 2301427

Report Created for: BSK Analytical Laboratories

550 West Locust Avenue
Fresno, CA 93650

Project Contact: Heather White
Project P.O.:
Project: AGA0633

Project Received: 01/10/2023

Analytical Report reviewed & approved for release on 01/18/2023 by:

Jennifer Lagerbom
Project Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in a case narrative.

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Glossary of Terms & Qualifier Definitions

Client: BSK Analytical Laboratories **WorkOrder:** 2301427

Project: AGA0633

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
CPT	Consumer Product Testing not NELAP Accredited
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
LQL	Lowest Quantitation Level
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	MDL is the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results. Definition and Procedure for the Determination of the Method Detection Limit, Revision 2, 40CFR, Part 136, Appendix B, EPA 821-R-16-006, December 2016.
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NA	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting limit is the lowest level that can be reliably determined within specified limits of precision and accuracy during routine laboratory operating conditions. (The RL cannot be lower than the lowest calibration standard used in the initial calibration of the instrument and must be greater than the MDL.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
TZA	TimeZone Net Adjustment for sample collected outside of MAI's UTC.
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

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http://www.mccampbell.com / E-mail: main@mccampbell.com

Analytical Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2301427
Date Received:	01/10/2023 9:42	**Extraction Method:**	RSK175
Date Prepared:	01/12/2023	**Analytical Method:**	RSK175
Project:	AGA0633	**Unit:**	µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AGA0633-01	**2301427-001A**	**Water**	**01/04/2023 10:00**	**GC26 0112231005.D**	**261786**

Analytes	Result	RL	DF	Date Analyzed
Ethane	ND	0.24	1	01/12/2023 11:31
Ethylene	ND	0.31	1	01/12/2023 11:31
Methane	**0.20**	0.12	1	01/12/2023 11:31

Analyst(s): MBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AGA0633-02	**2301427-002A**	**Water**	**01/04/2023 11:10**	**GC26 0112231006.D**	**261786**

Analytes	Result	RL	DF	Date Analyzed
Ethane	ND	0.24	1	01/12/2023 13:40
Ethylene	ND	0.31	1	01/12/2023 13:40
Methane	**0.29**	0.12	1	01/12/2023 13:40

Analyst(s): MBE

Quality Control Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2301427
Date Prepared:	01/12/2023	**BatchID:**	261786
Date Analyzed:	01/12/2023	**Extraction Method:**	RSK175
Instrument:	GC26	**Analytical Method:**	RSK175
Matrix:	Water	**Unit:**	µg/L
Project:	AGA0633	**Sample ID:**	MB/LCS/LCSD-261786

QC Summary Report for RSK175

Analyte	MB Result	MDL	RL			
Ethane	ND	0.24	0.24	-	-	-
Ethylene	ND	0.31	0.31	-	-	-
Methane	ND	0.12	0.12	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Ethane	2.3	2.3	2.38	97	96	70-130	0.902	20
Ethylene	3.1	3.0	3.08	99	99	70-130	0.878	20
Methane	1.3	1.1	1.17	107	94	70-130	13.2	20

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 2301427 **ClientCode: BSKF**

☐ WaterTrax ☐ CLIP ☐ EDF ☐ EQuIS ☐ Dry-Weight ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☐ Detection Summary ☐ Excel

Report to:
Heather White
BSK Analytical Laboratories
550 West Locust Avenue
Fresno, CA 93650
(559) 497-2888 FAX: (559) 485-6935

Email: hwhite@bskassociates.com
cc/3rd Party:
PO:
Project: AGA0633

Bill to:
Accounts Payable
BSK Analytical Laboratories
550 West Locust Avenue
Fresno, CA 93650

Requested TAT: **5 days;**

Date Received: **01/10/2023**
Date Logged: **01/10/2023**

Lab ID	ClientSampID	Matrix	Collection Date	Hold	1	2	3	4	5	6	7	8	9	10	11	12
					Requested Tests (See legend below)											
2301427-001	AGA0633-01	Water	1/4/2023 10:00	☐	A											
2301427-002	AGA0633-02	Water	1/4/2023 11:10	☐	A											

Test Legend:

1	RSK175_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Adrianna Cardoza

Comments:

NOTE: Soil samples are discarded 60 days after receipt unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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WORK ORDER SUMMARY

Client Name: BSK ANALYTICAL LABORATORIES **Project:** AGA0633 **Work Order:** 2301427
Client Contact: Heather White **QC Level:** LEVEL 2
Contact's Email: hwhite@bskassociates.com **Comments:** **Date Logged:** 1/10/2023

☐ WaterTrax ☐ CLIP ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	U**	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	Sub Out
001A	AGA0633-01	Water	RSK175 <Ethane_4, Ethylene_4, Methane_4>	1	VOA w/ HCl	☐	☐	☐	1/4/2023 10:00	5 days	1/18/2023	None	☐	☐
002A	AGA0633-02	Water	RSK175 <Ethane_4, Ethylene_4, Methane_4>	1	VOA w/ HCl	☐	☐	☐	1/4/2023 11:10	5 days	1/18/2023	None	☐	☐

NOTES: * STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- Organic extracts are held for 40 days before disposal; Inorganic extract are held for 30 days.

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

U = An unpreserved container was received for a method that suggests a preservation in order to extend hold time for analysis.**

ASSOCIATES

SUBCONTRACT ORDER

AGA0633

2301427

SENDING LABORATORY:

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Heather S. White
E-mail: hwhite@bskassociates.com

RECEIVING LABORATORY:

McCampbell Analytical, Inc.
1534 Willow Pass Road
Pittsburg, CA 94565-1701
Phone :(925) 252-9262
Fax: (925) 252-9269
Turnaround (Days): Standard
QC Deliverables: I Std III IV

Sample ID	Samp Desc	Comments		Sample Date
AGA0633-01	**Pilot Fuij Well**	**Client Matrix**	Ground Water	**01/04/2023 10:00**
		Sampled By:	Nate Page	
Lab Matrix:	Water			
	Analysis:			
	EXT-RSK-175 Methane, Ethane, Ethene	2 voa with HCL		
AGA0633-02	**ZIP-01**	**Client Matrix**	Ground Water	**01/04/2023 11:10**
		Sampled By:	Nate Page	
Lab Matrix:	Water			
	Analysis:			
	EXT-RSK-175 Methane, Ethane, Ethene	2 voa with HCL		

State Forms: **No** System Name:

Released By	Date	Received By	Date
[signature]	1.9.22	[signature]	1.10.23 9:42am
Released By	Date	Received By	Date

2.3 blue

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Sample Receipt Checklist

Client Name:	BSK Analytical Laboratories	Date and Time Received:	1/10/2023 09:42
Project:	AGA0633	Date Logged:	1/10/2023
		Received by:	
WorkOrder №:	2301427 Matrix:	Logged by:	Adrianna Cardoza
Carrier:	Golden State Overnight		

Chain of Custody (COC) Information

	Yes	No	NA
Chain of custody present?	☑	☐	
Chain of custody signed when relinquished and received?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Sample IDs noted by Client on COC?	☑	☐	
Date and Time of collection noted by Client on COC?	☑	☐	
Sampler's name noted on COC?	☑	☐	
COC agrees with Quote?	☐	☐	☑

Sample Receipt Information

	Yes	No	NA
Custody seals intact on shipping container/cooler?	☑	☐	☐
Custody seals intact on sample bottles?	☑	☐	☐
Shipping container/cooler in good condition?	☑	☐	
Samples in proper containers/bottles?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	

Sample Preservation and Hold Time (HT) Information

	Yes	No	NA
All samples received within holding time?	☑	☐	☐
Samples Received on Ice?	☑	☐	
	(Ice Type: BLUE ICE)		
Sample/Temp Blank temperature	Temp: 2.3°C		☐
ZHS conditional analyses: VOA meets zero headspace requirement (VOCs, TPHg/BTEX, RSK)?	☐	☐	☑
Sample labels checked for correct preservation?	☑	☐	
pH acceptable upon receipt (Metal: <2; Nitrate 353.2/4500NO3: <2; 522: <4; 218.7: >8)?	☐	☐	☑
UCMR Samples:			
pH tested and acceptable upon receipt (200.7: ≤2; 533: 6 - 8; 537.1: 6 - 8)?	☐	☐	☑
Free Chlorine tested and acceptable upon receipt (<0.1mg/L) [not applicable to 200.7]?	☐	☐	☑

Comments:

LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322300472
Customer ID: 32BSK50
Customer PO:
Project ID:

Attn: Heather S. White
BSK Analytical Laboratories
1414 Stanislaus St
Fresno, CA 93706

Phone:
Fax:
Received: 01/10/2023
Analyzed: 01/14/2023

Proj: AGA0633

Test Report: Determination of Asbestos Structures ≥ 0.5 µm & > 10µm in Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm²)	Area Analyzed (mm²)		ASBESTOS: Asbestos Types	Fibers Detected	Analytical Sensitivity (MFL)	Concentration (MFL)	Confidence Limits (MFL)
AGA0633-01 322300472-0001	1/11/2023 02:50 PM	5	1288	0.2580	≥ 0.5 µm	None Detected	ND	1.00	<1.00	0.00 - 3.70
					> 10 µm only	None Detected	ND	1.00	<1.00	0.00 - 3.70
AGA0633-02 322300472-0002	1/11/2023 02:50 PM	30	1288	0.2193	≥ 0.5 µm	None Detected	ND	0.20	<0.20	0.00 - 0.72
					> 10 µm only	None Detected	ND	0.20	<0.20	0.00 - 0.72

MFL (million fibers per liter)

Collection Date/Time: *01/04/2023 10:00 AM* (AGA0633-01)

Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.

Collection Date/Time: *01/04/2023 11:10 AM* (AGA0633-02)

Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.

Analyst(s)
Sherrie Ahmad (2)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 01/15/2023 09:02:10

ZALCO LABORATORIES, INC.
Analytical & Consulting Services

4309 Armour Avenue
Bakersfield, California 93308

(661) 395-0539
FAX (661) 395-3069

January 19, 2023

Heather S White
BSK Analytical Laboratories
1414 Stanislaus St.
Fresno, CA 93706

TEL: (559) 497-2888
FAX: (559) 485-6935

Project ID: AGA0633
RE: 2301147

Dear Heather S White:

Zalco Laboratories, Inc. received 2 samples on 1/10/2023 for the analyses presented in the following report.

We appreciate your business and look forward to serving you in the future. Please feel free to call our office if you have any questions regarding these test results.

Sincerely,

Juan Magana
Project Manager
CC:

NSS: Non Sufficient Sample H: Exceeds Analysis Hold Time TTLC: Total Threshold Limit Concentration STLC: Soluble Threshold Limit Concentration TCLP: Toxicity Characteristic Leaching Procedure MCL: Maximum Contaminant Level *: See Case Narrative
The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Note: Samples analyzed for regulatory purposes should be put on ice immediately after sampling and received by the laboratory at temperatures between 0-6°C. Microbiological analysis requires samples to be at least 4-10°C when received at the laboratory. For additional information regarding the limitations of the method(s) referred to, please call us at 661-395-0539.

ZALCO LABORATORIES, INC.
Analytical & Consulting Services

4309 Armour Avenue
Bakersfield, California 93308

(661) 395-0539
FAX (661) 395-3069

BSK Analytical Laboratories
1414 Stanislaus St.
Fresno, CA 93706

Project: Master Quote
Project #: AGA0633
Attention: Heather S White

Work Order No.: **2301147**
Reported: 01/19/2023
Received: 01/10/23 10:25

Lab Sample ID: **2301147-01**
Client Sample ID: AGA0633-01

Collected By: Client
Date Collected: 1/4/2023 10:00:00AM

Analyte	Results	PQL		Units	Flag	Method	Date Prepared	Date Analyzed	Init.
General Chemistry			*MCL Limits*						
Sulfide	<1.0	1.0		mg/L		SM 4500-S F	1/10/23	1/10/23	EM

NSS: Non Sufficient Sample H: Exceeds Analysis Hold Time TTLC: Total Threshold Limit Concentration STLC: Soluble Threshold Limit Concentration TCLP: Toxicity Characteristic Leaching Procedure MCL: Maximum Contaminant Level *: See Case Narrative
The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Note: Samples analyzed for regulatory purposes should be put on ice immediately after sampling and received by the laboratory at temperatures between 0-6°C. Microbiological analysis requires samples to be at least 4-10°C when received at the laboratory. For additional information regarding the limitations of the method(s) referred to, please call us at 661-395-0539.

ZALCO LABORATORIES, INC.
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4309 Armour Avenue
Bakersfield, California 93308

(661) 395-0539
FAX (661) 395-3069

BSK Analytical Laboratories	Project: Master Quote	Work Order No.: **2301147**
1414 Stanislaus St.	Project #: AGA0633	Reported: 01/19/2023
Fresno, CA 93706	Attention: Heather S White	Received: 01/10/23 10:25

Lab Sample ID: **2301147-02**	Collected By: Client
Client Sample ID: AGA0633-02	Date Collected: 1/4/2023 11:10:00AM

Analyte	Results	PQL		Units	Flag	Method	Date Prepared	Date Analyzed	Init.
General Chemistry			*MCL Limits*						
Sulfide	<1.0	1.0		mg/L		SM 4500-S F	1/10/23	1/10/23	EM

NSS: Non Sufficient Sample H: Exceeds Analysis Hold Time TTLC: Total Threshold Limit Concentration STLC: Soluble Threshold Limit Concentration TCLP: Toxicity Characteristic Leaching Procedure MCL: Maximum Contaminant Level *: See Case Narrative
The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Note: Samples analyzed for regulatory purposes should be put on ice immediately after sampling and received by the laboratory at temperatures between 0-6°C. Microbiological analysis requires samples to be at least 4-10°C when received at the laboratory. For additional information regarding the limitations of the method(s) referred to, please call us at 661-395-0539.

BSK ASSOCIATES

SUBCONTRACT ORDER

AGA0633

230147

SENDING LABORATORY:

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Heather S. White
E-mail: hwhite@bskassociates.com

RECEIVING LABORATORY:

Zalco Laboratories
4309 Armour Avenue
Bakersfield, CA 93308
Phone :(661) 395-0539
Fax: (661) 395-3069
Turnaround (Days): Standard
QC Deliverables: I Std III IV

2.0C

Sample ID	Samp Desc			Sample Date
AGA0633-01	**Pilot Fuij Well**	**Client Matrix**	Ground Water	**01/04/2023 10:00**
		Sampled By:	Nate Page	
Lab Matrix:	Water			
	Analysis: EXT-Sulfide			
AGA0633-02	**ZIP-01**	**Client Matrix**	Ground Water	**01/04/2023 11:10**
		Sampled By:	Nate Page	
Lab Matrix:	Water			
	Analysis: EXT-Sulfide			

State Forms: **No** System Name: ______

Released By	Date	Received By	Date
[signature]	1.9.22	AMG	1/10/23 1025 ~~10/25~~

eleased By Date Received By Date
eleased By Date Received By Date

Post-Injection Samples from Pilot Injection Well and 21P-01 (Second set; January 12, 2023)

Field Notes

Water Solutions, Inc.

Daily Field Report

Name: Nate Page **Date:** 1/12/23 **Activity:** WQ sample #2

Project: MB IPR **PN:** **Page** 1 **of** 1

NOTE: XD's in Pilot Inj + ZIP-01 show ~5ft rise in response to 1/9 Flood

0915 NP on site. First time here since 1/9 flooding event
Daniel here. Training me on Generator + Elec panel
operation... (original panel was inundated by flood)
Pump in Pilot Inj well not working... troubleshooting
1030 Daniel off to meet AT guy w/ replacement panel.

1025 pull XD from ZIP-01
DTW = 7.51' btoc

1040 pump on (ZIP-01)

	T	pH	SC	DO	ORP
1040	16.7	7.92	0.760	1.53	242.5
1045	16.8	7.34	0.757	0.30	244.8
1053	16.9	7.11	0.758	0.09	243.2
1100	16.9	7.09	0.758	0.08	242.0
1105	16.9	7.08	0.758	0.06	239.2

Sample collected (label says 1030)

1115 pump off
1125 NP off site to get ice
Daniel back w/ new elec. panel

1155 Pilot Inj well pump on!

	T	pH	SC	DO	ORP
1200	16.4	7.53	0.733	6.03	109.8
1205	16.3	7.53	0.722	6.49	87.2
1210	16.3	7.59	0.718	6.63	114.2
1215	16.4	7.63	0.715	6.85	135.5
1220	16.4	7.65	0.713	6.99	148.5

1230 Sample collected

Signature:

Chain-of-Custody Form(s)

Pace ANALYTICAL SERVICES 3SK

Chain of Custody Form

4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.pacelabs.com

Page ____ of ____

Report To:			
Client:	GSI Water Sol'ns	Project #:	
Attn:	Nate Page	Project Name:	Morro Bay IPR
Street Address:	6855 Capistrano Ave	BID#	SteC
City, State, Zip:	Atascadero CA 93422	Sampler(s) Name Printed:	Nate Page
Phone:	9706923593	Fax:	
Email:	npage@gsiws.com		
Work Order #:			

Analysis Requested: Please see Attached "Complete Suite"

Comments: EDD req'std, NO geotracker

Result Request **Surcharge
- [x] STD (10 Days)
- [ ] 5 Day**
- [ ] 4 Day**
- [ ] 3 Day**
- [ ] 2 Day**
- [ ] 1 Day**

Rush requests must be approved

Sample #	Description	Date Sampled	Time Sampled	Analysis Requested	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Notes
	Pilot Inj well	1/12/23	1230	X				X			
	21P-01	1/12/23	1030	X				X			

Billing [x] Same as above

Client: ____
Address: ____
City: ____ State ____ Zip ____
Attn: ____
P.O. #: ____

System # (Needed for CLIP)

GIS/Key [ ] Well Star [ ]

EDF Required Geotracker [ ] Yes [x] No Global ID

	Date	Time		Date	Time
1. Relinquished By [signature]	1/12/23	1300	1. Received By		
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Pace Analytical Bakersfield does not accept samples containing radioactive material above background levels. Samples containing radioactive material must be disclosed prior to receipt. Any samples suspected of containing radioactive material above background levels will not be accepted and will be returned to client.

REV 12/2021

Laboratory Reports

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)

AGA1769
2/06/2023
Invoice: AG02904

Nate Page
GSI Water Solutions, Inc
418 Chapala Street, Suite H
Santa Barbara, CA 93101

RE: Report for AGA1769 Morro Bay IPR - Complete Suite

Dear Nate Page,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 1/13/2023. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2016 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an “as received” basis.

This certificate of analysis shall not be reproduced except in full, without written approval of the laboratory.

If additional clarification of any information is required, please contact your Project Manager, Heather S. White , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Heather S. White, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021

Case Narrative

Project and Report Details		Invoice Details	
Client:	GSI Water Solutions, Inc	**Invoice To:**	GSI Water Solutions, Inc
Report To:	Nate Page	**Invoice Attn:**	Nate Page
Project #:	-	**Project PO#:**	-
Received:	1/13/2023 - 13:27		
Report Due:	1/27/2023		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt ºC: 0.4

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Bubble Wrap
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

DP1.1	Sample Duplicate RPD exceeded method acceptance criteria.
HT2.0	Holding time exceeded. Sample was received at the lab past recommended holding time.
MS1.0	Matrix spike recoveries exceed control limits.
MS1.2	Matrix spike recovery exceeds lower control limit. Reported results for parent matrix should be considered estimated due to matrix interferences.
MS1.4	Matrix spike recovery data unreliable due to significant parent sample concentration relative to fortification level (>4x).
OD.b	Earthy/Musty/Moldy

Report Distribution

Recipient(s)	Report Format	CC:
Nate Page	FINAL.RPT	

Certificate of Analysis

Sample ID: AGA1769-01
Sampled By: Nate Page
Sample Description: Pilot Inj Well

Sample Date - Time: 01/12/2023 - 12:30
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Alkalinity as CaCO3	SM 2320B	**100**	3.0	mg/L	1	AGA0925	01/17/23	01/17/23	
Bicarbonate as CaCO3	SM 2320B	**100**	3.0	mg/L	1	AGA0925	01/17/23	01/17/23	
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	AGA0925	01/17/23	01/17/23	
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	AGA0925	01/17/23	01/17/23	
Ammonia as N	EPA 350.1	**0.17**	0.10	mg/L	1	AGA1141	01/19/23	01/23/23	
Bromate	EPA 317.0	ND	1.0	ug/L	1	AGA0798	01/14/23	01/14/23	
Chloride	EPA 300.0	**110**	1.0	mg/L	1	AGA0793	01/14/23	01/14/23	
Chemical Oxygen Demand	SM 5220D	**21**	15	mg/L	1	AGA1748	01/31/23	01/31/23	
Color, Apparent	SM 2120B	**25**	5.0	CU	1	AGA0126	01/14/23 09:59	01/14/23	
Cyanide (total)	SM 4500-CN E	ND	5.0	ug/L	1	AGA0848	01/16/23	01/24/23	
Dissolved Organic Carbon	SM 5310C	**2.9**	0.20	mg/L	1	AGA1216	01/20/23	01/20/23	
Conductivity @ 25C	SM 2510B	**700**	1.0	umhos/cm	1	AGA0925	01/17/23	01/17/23	
Fluoride	EPA 300.0	ND	0.10	mg/L	1	AGA0793	01/14/23	01/14/23	
Hexavalent Chromium	EPA 218.6	**0.16**	0.050	ug/L	1	AGA1766	01/24/23	01/31/23	
Langelier Index	SM 2330B	**-0.26**				AGB0073	02/01/23	02/01/23	
MBAS, Calculated as LAS, mol wt 340	SM 5540C	ND	0.050	mg/L	1	AGA0813	01/13/23 18:22	01/13/23	
Nitrate + Nitrite as N	CALC	ND	0.23	mg/L					
Nitrate as N	EPA 300.0	ND	0.23	mg/L	1	AGA0793	01/14/23 03:35	01/14/23	
Nitrite as N	EPA 300.0	**0.060**	0.050	mg/L	1	AGA0793	01/14/23 03:35	01/14/23	
Threshold Odor	SM 2150B	**1.5**	1.0	T.O.N.	1	AGA0976	01/17/23 17:54	01/17/23	HT2.0, OD.b
Orthophosphate as P	EPA 300.0	ND	0.20	mg/L	1	AGA0793	01/14/23 03:35	01/14/23	
Oxidation/Reduction Potential	Hach 10228	**160**	-10000	mV	1	AGA0820	01/13/23 20:01	01/13/23	
pH (1)	SM 4500-H+ B	**7.9**	0.0	pH Units	1	AGA0925	01/17/23 15:34	01/17/23	
pH Temperature in °C		**21.1**							
Sulfate as SO4	EPA 300.0	**71**	1.0	mg/L	1	AGA0793	01/14/23	01/14/23	
Total Dissolved Solids	SM 2540C	**360**	5.0	mg/L	1	AGA1151	01/19/23	01/19/23	
Total Organic Carbon	SM 5310C	**2.9**	0.20	mg/L	1	AGA1286	01/23/23	01/23/23	
Total Suspended Solids	SM 2540D	ND	5.0	mg/L	1	AGA1037	01/18/23	01/18/23	
Turbidity	SM 2130B	**9.4**	0.10	NTU	1	AGA0126	01/14/23 10:07	01/14/23	

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Aluminum - Dissolved (1)	EPA 200.7	ND	50	ug/L	1	AGA0840	01/16/23	01/17/23	
Antimony - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Arsenic - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Barium - Dissolved (1)	EPA 200.8	**44**	5.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Beryllium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Cadmium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Calcium - Dissolved (1)	EPA 200.7	**27**	0.10	mg/L	1	AGA0840	01/16/23	01/17/23	
Chromium - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0840	01/16/23	01/23/23	
Cobalt - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0840	01/16/23	01/23/23	
Copper - Dissolved (1)	EPA 200.8	ND	5.0	ug/L	1	AGA0840	01/16/23	01/23/23	

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

BSK ASSOCIATES

Certificate of Analysis

Sample ID: AGA1769-01
Sampled By: Nate Page
Sample Description: Pilot Inj Well

Sample Date - Time: 01/12/2023 - 12:30
Matrix: Water
Sample Type: Grab

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Hardness as CaCO3, Dissolved	SM 2340B	**140**	0.41	mg/L					
Iron - Dissolved (1)	EPA 200.7	**44**	30	ug/L	1	AGA0840	01/16/23	01/17/23	
Lead - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Magnesium - Dissolved (1)	EPA 200.7	**17**	0.10	mg/L	1	AGA0840	01/16/23	01/17/23	
Manganese - Dissolved (1)	EPA 200.7	**60**	10	ug/L	1	AGA0840	01/16/23	01/17/23	
Mercury - Dissolved (1)	EPA 245.7	ND	0.20	ug/L	1	AGA0947	01/17/23	01/18/23	
Molybdenum - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0840	01/16/23	01/23/23	
Nickel - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0840	01/16/23	01/23/23	
Potassium - Dissolved (1)	EPA 200.7	**3.2**	2.0	mg/L	1	AGA0840	01/16/23	01/17/23	
Selenium - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Silica (SiO2)	EPA 200.7	**12**	0.20	mg/L	1	AGA0898	01/17/23	01/17/23	
Silica (SiO2) - Dissolved (1)	EPA 200.7	**11**	0.20	mg/L	1	AGA0840	01/16/23	01/17/23	
Silver - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0840	01/16/23	01/23/23	
Sodium - Dissolved (1)	EPA 200.7	**85**	1.0	mg/L	1	AGA0840	01/16/23	01/17/23	
Strontium - Dissolved (1)	EPA 200.8	**240**	1.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Thallium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Uranium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Vanadium - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0840	01/16/23	01/23/23	
Zinc - Dissolved (1)	EPA 200.8	ND	50	ug/L	1	AGA0840	01/16/23	01/23/23	

Organics

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Trihalomethanes by GC-MS									
Bromodichloromethane	EPA 524.2	**9.3**	0.50	ug/L	1	AGA0826	01/14/23	01/15/23	
Bromoform	EPA 524.2	**5.0**	0.50	ug/L	1	AGA0826	01/14/23	01/15/23	
Chloroform	EPA 524.2	**6.6**	0.50	ug/L	1	AGA0826	01/14/23	01/15/23	
Dibromochloromethane	EPA 524.2	**11**	0.50	ug/L	1	AGA0826	01/14/23	01/15/23	
Total Trihalomethanes		**32**	0.50	ug/L					
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	106 %	*Acceptable range: 70-130 %*						
Surrogate: Bromofluorobenzene	EPA 524.2	105 %	*Acceptable range: 70-130 %*						
Haloacetic Acids by GC-MS									
Dibromoacetic Acid (DBAA)	EPA 552.3	ND	1.0	ug/L	1	AGA1099	01/19/23	01/19/23	
Dichloroacetic Acid (DCAA)	EPA 552.3	**2.3**	1.0	ug/L	1	AGA1099	01/19/23	01/19/23	
Monobromoacetic Acid (MBAA)	EPA 552.3	ND	1.0	ug/L	1	AGA1099	01/19/23	01/19/23	
Monochloroacetic Acid (MCAA)	EPA 552.3	ND	2.0	ug/L	1	AGA1099	01/19/23	01/19/23	
Trichloroacetic Acid (TCAA)	EPA 552.3	**3.9**	1.0	ug/L	1	AGA1099	01/19/23	01/19/23	
Total Haloacetic Acids		**6.3**	2.0	ug/L					
Surrogate: 2-Bromobutanoic Acid	EPA 552.3	103 %	*Acceptable range: 70-130 %*						

Certificate of Analysis

Sample ID: AGA1769-02
Sampled By: Nate Page
Sample Description: Zip 01

Sample Date - Time: 01/12/2023 - 10:30
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Alkalinity as CaCO3	SM 2320B	**120**	3.0	mg/L	1	AGA0925	01/17/23	01/17/23	
Bicarbonate as CaCO3	SM 2320B	**120**	3.0	mg/L	1	AGA0925	01/17/23	01/17/23	
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	AGA0925	01/17/23	01/17/23	
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	AGA0925	01/17/23	01/17/23	
Ammonia as N	EPA 350.1	ND	0.10	mg/L	1	AGA1141	01/19/23	01/23/23	
Bromate	EPA 317.0	ND	1.0	ug/L	1	AGA0798	01/14/23	01/14/23	
Chloride	EPA 300.0	**120**	1.0	mg/L	1	AGA0793	01/14/23	01/14/23	
Chemical Oxygen Demand	SM 5220D	**15**	15	mg/L	1	AGA1748	01/31/23	01/31/23	MS1.2
Color, Apparent	SM 2120B	ND	5.0	CU	1	AGA0126	01/14/23 10:01	01/14/23	
Cyanide (total)	SM 4500-CN E	ND	5.0	ug/L	1	AGA0848	01/16/23	01/24/23	
Dissolved Organic Carbon	SM 5310C	**2.2**	0.20	mg/L	1	AGA1216	01/20/23	01/20/23	
Conductivity @ 25C	SM 2510B	**750**	1.0	umhos/cm	1	AGA0925	01/17/23	01/17/23	
Fluoride	EPA 300.0	**0.19**	0.10	mg/L	1	AGA0793	01/14/23	01/14/23	
Hexavalent Chromium	EPA 218.6	**0.097**	0.050	ug/L	1	AGA1766	01/24/23	01/31/23	
Langelier Index	SM 2330B	**-0.98**				AGB0073	02/01/23	02/01/23	
MBAS, Calculated as LAS, mol wt 340	SM 5540C	ND	0.050	mg/L	1	AGA0813	01/13/23 18:22	01/13/23	
Nitrate + Nitrite as N	CALC	ND	0.23	mg/L					
Nitrate as N	EPA 300.0	ND	0.23	mg/L	1	AGA0793	01/14/23 03:51	01/14/23	
Nitrite as N	EPA 300.0	ND	0.050	mg/L	1	AGA0793	01/14/23 03:51	01/14/23	
Threshold Odor	SM 2150B	**1.0**	1.0	T.O.N.	1	AGA0976	01/17/23 17:54	01/17/23	HT2.0, OD.b
Orthophosphate as P	EPA 300.0	ND	0.20	mg/L	1	AGA0793	01/14/23 03:51	01/14/23	
Oxidation/Reduction Potential	Hach 10228	**140**	-10000	mV	1	AGA0820	01/13/23 20:05	01/13/23	
pH (1)	SM 4500-H+ B	**7.1**	0.0	pH Units	1	AGA0925	01/17/23 15:40	01/17/23	
pH Temperature in °C		**21.8**							
Sulfate as SO4	EPA 300.0	**79**	1.0	mg/L	1	AGA0793	01/14/23	01/14/23	
Total Dissolved Solids	SM 2540C	**400**	5.0	mg/L	1	AGA1151	01/19/23	01/19/23	
Total Suspended Solids	SM 2540D	ND	5.0	mg/L	1	AGA1037	01/18/23	01/18/23	
Turbidity	SM 2130B	**1.1**	0.10	NTU	1	AGA0126	01/14/23 10:09	01/14/23	

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Aluminum - Dissolved (1)	EPA 200.7	ND	50	ug/L	1	AGA0840	01/16/23	01/17/23	
Antimony - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Arsenic - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Barium - Dissolved (1)	EPA 200.8	**54**	5.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Beryllium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Cadmium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Calcium - Dissolved (1)	EPA 200.7	**27**	0.10	mg/L	1	AGA0840	01/16/23	01/17/23	
Chromium - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0840	01/16/23	01/23/23	
Cobalt - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0840	01/16/23	01/23/23	
Copper - Dissolved (1)	EPA 200.8	ND	5.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Hardness as CaCO3, Dissolved	SM 2340B	**170**	0.41	mg/L					

Certificate of Analysis

Sample ID: AGA1769-02
Sampled By: Nate Page
Sample Description: Zip 01

Sample Date - Time: 01/12/2023 - 10:30
Matrix: Water
Sample Type: Grab

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Iron - Dissolved (1)	EPA 200.7	ND	30	ug/L	1	AGA0840	01/16/23	01/17/23	
Lead - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Magnesium - Dissolved (1)	EPA 200.7	**26**	0.10	mg/L	1	AGA0840	01/16/23	01/17/23	
Manganese - Dissolved (1)	EPA 200.7	**230**	10	ug/L	1	AGA0840	01/16/23	01/17/23	
Mercury - Dissolved (1)	EPA 245.7	ND	0.20	ug/L	1	AGA0947	01/17/23	01/18/23	
Molybdenum - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0840	01/16/23	01/23/23	
Nickel - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0840	01/16/23	01/23/23	
Potassium - Dissolved (1)	EPA 200.7	ND	2.0	mg/L	1	AGA0840	01/16/23	01/17/23	
Selenium - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Silica (SiO2)	EPA 200.7	**18**	0.20	mg/L	1	AGA0898	01/17/23	01/17/23	
Silica (SiO2) - Dissolved (1)	EPA 200.7	**17**	0.20	mg/L	1	AGA0840	01/16/23	01/17/23	
Silver - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0840	01/16/23	01/23/23	
Sodium - Dissolved (1)	EPA 200.7	**79**	1.0	mg/L	1	AGA0840	01/16/23	01/17/23	MS1.4
Strontium - Dissolved (1)	EPA 200.8	**200**	1.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Thallium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Uranium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA0840	01/16/23	01/23/23	
Vanadium - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA0840	01/16/23	01/23/23	
Zinc - Dissolved (1)	EPA 200.8	ND	50	ug/L	1	AGA0840	01/16/23	01/23/23	

Organics

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Trihalomethanes by GC-MS									
Bromodichloromethane	EPA 524.2	**10**	0.50	ug/L	1	AGA0826	01/14/23	01/15/23	
Bromoform	EPA 524.2	**4.1**	0.50	ug/L	1	AGA0826	01/14/23	01/15/23	
Chloroform	EPA 524.2	**5.7**	0.50	ug/L	1	AGA0826	01/14/23	01/15/23	
Dibromochloromethane	EPA 524.2	**11**	0.50	ug/L	1	AGA0826	01/14/23	01/15/23	
Total Trihalomethanes		**30**	0.50	ug/L					
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	100 %	*Acceptable range: 70-130 %*						
Surrogate: Bromofluorobenzene	EPA 524.2	98 %	*Acceptable range: 70-130 %*						
Haloacetic Acids by GC-MS									
Dibromoacetic Acid (DBAA)	EPA 552.3	ND	1.0	ug/L	1	AGA1099	01/19/23	01/19/23	
Dichloroacetic Acid (DCAA)	EPA 552.3	ND	1.0	ug/L	1	AGA1099	01/19/23	01/19/23	
Monobromoacetic Acid (MBAA)	EPA 552.3	ND	1.0	ug/L	1	AGA1099	01/19/23	01/19/23	
Monochloroacetic Acid (MCAA)	EPA 552.3	ND	2.0	ug/L	1	AGA1099	01/19/23	01/19/23	
Trichloroacetic Acid (TCAA)	EPA 552.3	ND	1.0	ug/L	1	AGA1099	01/19/23	01/19/23	
Total Haloacetic Acids		ND	2.0	ug/L					
Surrogate: 2-Bromobutanoic Acid	EPA 552.3	102 %	*Acceptable range: 70-130 %*						

Certificate of Analysis

Sample ID: AGA1769-02RE1
Sampled By: Nate Page
Sample Description: Zip 01

Sample Date - Time: 01/12/2023 - 10:30
Matrix: Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Total Organic Carbon	SM 5310C	**1.5**	0.40	mg/L	2	AGA1347	01/24/23	01/24/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 218.6 - Quality Control

Batch: AGA1766 Prepared: 1/31/2023
Prep Method: Method Specific Preparation Analyst: GJA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1766-BLK1)											
Hexavalent Chromium	ND	0.050	ug/L							01/31/23	
Blank Spike (AGA1766-BS1)											
Hexavalent Chromium	2.0	0.050	ug/L	2.0	ND	99	90-110			01/31/23	
Blank Spike Dup (AGA1766-BSD1)											
Hexavalent Chromium	2.0	0.050	ug/L	2.0	ND	99	90-110	0	10	01/31/23	
Matrix Spike (AGA1766-MS1), Source: AGA2611-01											
Hexavalent Chromium	2.2	0.050	ug/L	2.0	0.13	104	90-110			01/31/23	
Matrix Spike (AGA1766-MS2), Source: AGA2611-02											
Hexavalent Chromium	2.2	0.050	ug/L	2.0	0.093	104	90-110			01/31/23	
Matrix Spike Dup (AGA1766-MSD1), Source: AGA2611-01											
Hexavalent Chromium	2.2	0.050	ug/L	2.0	0.13	104	90-110	0	10	01/31/23	
Matrix Spike Dup (AGA1766-MSD2), Source: AGA2611-02											
Hexavalent Chromium	2.2	0.050	ug/L	2.0	0.093	105	90-110	1	10	01/31/23	

EPA 300.0 - Quality Control

Batch: AGA0793 Prepared: 1/13/2023
Prep Method: Method Specific Preparation Analyst: DXR

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0793-BLK1)											
Fluoride	ND	0.10	mg/L							01/13/23	
Nitrate as N	ND	0.23	mg/L							01/13/23	
Chloride	ND	1.0	mg/L							01/13/23	
Nitrite as N	ND	0.050	mg/L							01/13/23	
Orthophosphate as P	ND	0.20	mg/L							01/13/23	
Sulfate as SO4	ND	1.0	mg/L							01/13/23	
Blank Spike (AGA0793-BS1)											
Fluoride	1.0	0.10	mg/L	1.0	ND	105	90-110			01/13/23	
Nitrate as N	22	0.23	mg/L	23	ND	99	90-110			01/13/23	
Chloride	100	1.0	mg/L	100	ND	100	90-110			01/13/23	
Nitrite as N	1.0	0.050	mg/L	1.0	ND	103	90-110			01/13/23	
Orthophosphate as P	5.2	0.20	mg/L	5.0	ND	103	90-110			01/13/23	
Sulfate as SO4	100	1.0	mg/L	100	ND	101	90-110			01/13/23	
Matrix Spike (AGA0793-MS1), Source: AGA1581-02											
Fluoride	0.72	0.10	mg/L	0.50	0.18	109	80-120			01/13/23	
Nitrate as N	15	0.23	mg/L	11	3.9	100	80-120			01/13/23	
Chloride	62	1.0	mg/L	50	12	101	80-120			01/13/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

EPA 300.0 - Quality Control

Batch: AGA0793 Prepared: 1/13/2023
Prep Method: Method Specific Preparation Analyst: DXR

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Matrix Spike (AGA0793-MS1), Source: AGA1581-02											
Nitrite as N	0.67	0.050	mg/L	0.50	0.15	105	75-125			01/13/23	
Orthophosphate as P	2.5	0.20	mg/L	2.5	ND	101	80-120			01/13/23	
Sulfate as SO4	60	1.0	mg/L	50	9.6	102	80-120			01/13/23	
Matrix Spike (AGA0793-MS2), Source: AGA1577-01											
Fluoride	0.73	0.10	mg/L	0.50	0.18	111	80-120			01/14/23	
Nitrate as N	15	0.23	mg/L	11	3.2	101	80-120			01/14/23	
Chloride	58	1.0	mg/L	50	7.9	101	80-120			01/14/23	
Nitrite as N	0.50	0.050	mg/L	0.50	ND	100	75-125			01/14/23	
Orthophosphate as P	2.5	0.20	mg/L	2.5	ND	101	80-120			01/14/23	
Sulfate as SO4	59	1.0	mg/L	50	7.5	102	80-120			01/14/23	
Matrix Spike Dup (AGA0793-MSD1), Source: AGA1581-02											
Fluoride	0.73	0.10	mg/L	0.50	0.18	111	80-120	1	10	01/13/23	
Nitrate as N	15	0.23	mg/L	11	3.9	102	80-120	2	20	01/13/23	
Chloride	63	1.0	mg/L	50	12	103	80-120	2	20	01/13/23	
Nitrite as N	0.68	0.050	mg/L	0.50	0.15	106	75-125	1	20	01/13/23	
Orthophosphate as P	2.6	0.20	mg/L	2.5	ND	104	80-120	3	20	01/13/23	
Sulfate as SO4	61	1.0	mg/L	50	9.6	104	80-120	2	20	01/13/23	
Matrix Spike Dup (AGA0793-MSD2), Source: AGA1577-01											
Fluoride	0.74	0.10	mg/L	0.50	0.18	112	80-120	1	10	01/14/23	
Nitrate as N	15	0.23	mg/L	11	3.2	102	80-120	1	20	01/14/23	
Chloride	59	1.0	mg/L	50	7.9	102	80-120	1	20	01/14/23	
Nitrite as N	0.51	0.050	mg/L	0.50	ND	101	75-125	1	20	01/14/23	
Orthophosphate as P	2.6	0.20	mg/L	2.5	ND	103	80-120	1	20	01/14/23	
Sulfate as SO4	59	1.0	mg/L	50	7.5	103	80-120	1	20	01/14/23	

EPA 317.0 - Quality Control

Batch: AGA0798 Prepared: 1/14/2023
Prep Method: Method Specific Preparation Analyst: DXR

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0798-BLK1)											
Bromate	ND	1.0	ug/L							01/14/23	
Blank Spike (AGA0798-BS1)											
Bromate	11	1.0	ug/L	10	ND	109	85-115			01/14/23	
Blank Spike Dup (AGA0798-BSD1)											
Bromate	11	1.0	ug/L	10	ND	113	85-115	4	10	01/14/23	
Matrix Spike (AGA0798-MS1), Source: AGA1771-01											
Bromate	12	1.0	ug/L	10	ND	114	75-125			01/14/23	

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General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 317.0 - Quality Control

Batch: AGA0798 Prepared: 1/14/2023
Prep Method: Method Specific Preparation Analyst: DXR

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Matrix Spike Dup (AGA0798-MSD1), Source: AGA1771-01											
Bromate	12	1.0	ug/L	10	ND	113	75-125	1	10	01/14/23	

EPA 350.1 - Quality Control

Batch: AGA1141 Prepared: 1/19/2023
Prep Method: Method Specific Preparation Analyst: CTD

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1141-BLK1)											
Ammonia as N	ND	0.10	mg/L							01/23/23	
Blank Spike (AGA1141-BS1)											
Ammonia as N	4.0	0.10	mg/L	4.0	ND	101	90-110			01/23/23	
Blank Spike Dup (AGA1141-BSD1)											
Ammonia as N	4.1	0.10	mg/L	4.0	ND	102	90-110	1	20	01/23/23	
Matrix Spike (AGA1141-MS1), Source: AGA2224-06											
Ammonia as N	3.6	0.10	mg/L	4.0	ND	90	90-110			01/23/23	
Matrix Spike (AGA1141-MS2), Source: SGA0347-01											
Ammonia as N	3.9	0.10	mg/L	4.0	ND	97	90-110			01/23/23	

Hach 10228 - Quality Control

Batch: AGA0820 Prepared: 1/13/2023
Prep Method: Method Specific Preparation Analyst: DXR

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Duplicate (AGA0820-DUP1), Source: AGA1769-01											
Oxidation/Reduction Potential	150	-10000	mV		160			6	20	01/13/23	

SM 2120B - Quality Control

Batch: AGA0126 Prepared: 1/14/2023
Prep Method: Method Specific Preparation Analyst: BCB

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0126-BLK1)											
Color, Apparent	ND	5.0	CU							01/14/23	
Duplicate (AGA0126-DUP1), Source: AGA1769-01											
Color, Apparent	25	5.0	CU		25			0	20	01/14/23	

SM 2130B - Quality Control

Batch: AGA0126 Prepared: 1/14/2023
Prep Method: Method Specific Preparation Analyst: BCB

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0126-BLK1)											
Turbidity	ND	0.10	NTU							01/14/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

SM 2130B - Quality Control

Batch: AGA0126 Prepared: 1/14/2023
Prep Method: Method Specific Preparation Analyst: BCB

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Duplicate (AGA0126-DUP1), Source: AGA1769-01											
Turbidity	9.3	0.10	NTU		9.4			0	20	01/14/23	

SM 2150B - Quality Control

Batch: AGA0976 Prepared: 1/17/2023
Prep Method: Method Specific Preparation Analyst: BCB

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0976-BLK1)											
Threshold Odor	ND	1.0	T.O.N.							01/17/23	
Blank (AGA0976-BLK2)											
Threshold Odor	ND	1.0	T.O.N.							01/17/23	

SM 2320B - Quality Control

Batch: AGA0925 Prepared: 1/17/2023
Prep Method: Method Specific Preparation Analyst: CMH

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0925-BLK1)											
Alkalinity as CaCO3	ND	3.0	mg/L							01/17/23	
Bicarbonate as CaCO3	ND	3.0	mg/L							01/17/23	
Carbonate as CaCO3	ND	3.0	mg/L							01/17/23	
Hydroxide as CaCO3	ND	3.0	mg/L							01/17/23	
Blank Spike (AGA0925-BS1)											
Alkalinity as CaCO3	100	3.0	mg/L	100	ND	100	80-120			01/17/23	
Blank Spike Dup (AGA0925-BSD1)											
Alkalinity as CaCO3	97	3.0	mg/L	100	ND	97	80-120	3	20	01/17/23	
Duplicate (AGA0925-DUP1), Source: AGA1797-01											
Alkalinity as CaCO3	ND	3.0	mg/L		4.2				10	01/17/23	
Bicarbonate as CaCO3	ND	3.0	mg/L		4.2				10	01/17/23	
Carbonate as CaCO3	ND	3.0	mg/L		ND				10	01/17/23	
Hydroxide as CaCO3	ND	3.0	mg/L		ND				10	01/17/23	

SM 2510B - Quality Control

Batch: AGA0925 Prepared: 1/17/2023
Prep Method: Method Specific Preparation Analyst: CMH

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0925-BLK1)											
Conductivity @ 25C	ND	1.0	umhos/cm							01/17/23	
Blank Spike (AGA0925-BS1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400	ND	100	90-110			01/17/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2510B - Quality Control											
Batch: AGA0925 — Prepared: 1/17/2023											
Prep Method: Method Specific Preparation — Analyst: CMH											
Blank Spike Dup (AGA0925-BSD1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400	ND	101	90-110	1	5	01/17/23	
Duplicate (AGA0925-DUP1), Source: AGA1797-01											
Conductivity @ 25C	1.7	1.0	umhos/cm		1.7			1	5	01/17/23	
SM 2540C - Quality Control											
Batch: AGA1151 — Prepared: 1/19/2023											
Prep Method: Method Specific Preparation — Analyst: EMN											
Blank (AGA1151-BLK1)											
Total Dissolved Solids	ND	5.0	mg/L							01/19/23	
Blank Spike (AGA1151-BS1)											
Total Dissolved Solids	1000		mg/L	1000		100	70-130			01/19/23	
Duplicate (AGA1151-DUP1), Source: AGA1992-01											
Total Dissolved Solids	1600	5.0	mg/L		1600			1	10	01/19/23	
Duplicate (AGA1151-DUP2), Source: AGA1899-01											
Total Dissolved Solids	330	5.0	mg/L		320			3	10	01/19/23	
SM 2540D - Quality Control											
Batch: AGA1037 — Prepared: 1/18/2023											
Prep Method: Method Specific Preparation — Analyst: EMN											
Blank (AGA1037-BLK1)											
Total Suspended Solids	ND	5.0	mg/L							01/18/23	
Blank Spike (AGA1037-BS1)											
Total Suspended Solids	90		mg/L	100		90	70-130			01/18/23	
Duplicate (AGA1037-DUP1), Source: AGA1497-02											
Total Suspended Solids	170	5.0	mg/L		170			1	10	01/18/23	
Duplicate (AGA1037-DUP2), Source: AGA1623-01											
Total Suspended Solids	3500	5.0	mg/L		3400			1	10	01/18/23	
SM 4500-CN E - Quality Control											
Batch: AGA0848 — Prepared: 1/16/2023											
Prep Method: Method Specific Preparation — Analyst: ERA											
Blank (AGA0848-BLK1)											
Cyanide (total)	ND	5.0	ug/L							01/24/23	
Blank Spike (AGA0848-BS1)											

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 4500-CN E - Quality Control											
Batch: AGA0848 Prepared: 1/16/2023											
Prep Method: Method Specific Preparation Analyst: ERA											
Blank Spike (AGA0848-BS1)											
Cyanide (total)	240	5.0	ug/L	250	ND	95	80-120			01/24/23	
Blank Spike Dup (AGA0848-BSD1)											
Cyanide (total)	230	5.0	ug/L	250	ND	93	80-120	3	20	01/24/23	
Matrix Spike (AGA0848-MS1), Source: AGA1049-01											
Cyanide (total)	240	5.0	ug/L	250	ND	95	80-120			01/24/23	
Matrix Spike Dup (AGA0848-MSD1), Source: AGA1049-01											
Cyanide (total)	240	5.0	ug/L	250	ND	95	80-120	0	20	01/24/23	
SM 4500-H+ B - Quality Control											
Batch: AGA0925 Prepared: 1/17/2023											
Prep Method: Method Specific Preparation Analyst: CMH											
Duplicate (AGA0925-DUP1), Source: AGA1797-01											
pH (1)	5.77	0.0	pH Units		7.02			20		01/17/23	DP1.1
SM 5220D - Quality Control											
Batch: AGA1748 Prepared: 1/31/2023											
Prep Method: Method Specific Preparation Analyst: BCB											
Blank (AGA1748-BLK1)											
Chemical Oxygen Demand	ND	15	mg/L							01/31/23	
Blank Spike (AGA1748-BS1)											
Chemical Oxygen Demand	97	30	mg/L	100	ND	97	80-120			01/31/23	
Blank Spike Dup (AGA1748-BSD1)											
Chemical Oxygen Demand	100	30	mg/L	100	ND	104	80-120	7	20	01/31/23	
Matrix Spike (AGA1748-MS1), Source: AGA1769-02											
Chemical Oxygen Demand	84	30	mg/L	100	ND	69	80-120			01/31/23	MS1.0 ***Low***
Matrix Spike Dup (AGA1748-MSD1), Source: AGA1769-02											
Chemical Oxygen Demand	100	30	mg/L	100	ND	86	80-120	18	20	01/31/23	
SM 5310C - Quality Control											
Batch: AGA1216 Prepared: 1/20/2023											
Prep Method: Method Specific Preparation Analyst: ERA											
Blank (AGA1216-BLK1)											
Dissolved Organic Carbon	ND	0.20	mg/L							01/20/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 5310C - Quality Control											
Batch: AGA1216										Prepared: 1/20/2023	
Prep Method: Method Specific Preparation										Analyst: ERA	
Blank Spike (AGA1216-BS1)											
Dissolved Organic Carbon	10	0.20	mg/L	10	ND	100	80-120			01/20/23	
Blank Spike Dup (AGA1216-BSD1)											
Dissolved Organic Carbon	10	0.20	mg/L	10	ND	100	80-120	1	20	01/20/23	
Matrix Spike (AGA1216-MS1), Source: VGA0250-01											
Dissolved Organic Carbon	11	0.20	mg/L	10	0.30	104	80-120			01/20/23	
Matrix Spike Dup (AGA1216-MSD1), Source: VGA0250-01											
Dissolved Organic Carbon	11	0.20	mg/L	10	0.30	104	80-120	0	20	01/20/23	
SM 5310C - Quality Control											
Batch: AGA1286										Prepared: 1/23/2023	
Prep Method: Method Specific Preparation										Analyst: ERA	
Blank (AGA1286-BLK1)											
Total Organic Carbon	ND	0.20	mg/L							01/23/23	
Blank Spike (AGA1286-BS1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	101	80-120			01/23/23	
Blank Spike Dup (AGA1286-BSD1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	101	80-120	1	20	01/23/23	
Matrix Spike (AGA1286-MS1), Source: AGA2382-01											
Total Organic Carbon	14	0.20	mg/L	10	4.4	99	80-120			01/23/23	
Matrix Spike (AGA1286-MS2), Source: AGA1684-04											
Total Organic Carbon	3.7	0.20	mg/L	10	3.0	7	80-120			01/23/23	MS1.0 ***Low***
Matrix Spike Dup (AGA1286-MSD1), Source: AGA2382-01											
Total Organic Carbon	14	0.20	mg/L	10	4.4	100	80-120	1	20	01/23/23	
Matrix Spike Dup (AGA1286-MSD2), Source: AGA1684-04											
Total Organic Carbon	3.6	0.20	mg/L	10	3.0	6	80-120	3	20	01/23/23	MS1.0 ***Low***
SM 5310C - Quality Control											
Batch: AGA1347										Prepared: 1/24/2023	
Prep Method: Method Specific Preparation										Analyst: ERA	
Blank (AGA1347-BLK1)											
Total Organic Carbon	ND	0.20	mg/L							01/24/23	
Blank Spike (AGA1347-BS1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	101	80-120			01/24/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

SM 5310C - Quality Control

Batch: AGA1347 Prepared: 1/24/2023
Prep Method: Method Specific Preparation Analyst: ERA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank Spike Dup (AGA1347-BSD1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	101	80-120	0	20	01/24/23	
Matrix Spike (AGA1347-MS1), Source: AGA1684-02RE1											**MS1.0**
Total Organic Carbon	1.4	0.20	mg/L	10	1.1	3	80-120			01/24/23	***Low***
Matrix Spike (AGA1347-MS2), Source: SGA0347-01											
Total Organic Carbon	10	0.20	mg/L	10	ND	103	80-120			01/24/23	
Matrix Spike Dup (AGA1347-MSD1), Source: AGA1684-02RE1											**MS1.0**
Total Organic Carbon	1.4	0.20	mg/L	10	1.1	2	80-120	5	20	01/24/23	***Low***
Matrix Spike Dup (AGA1347-MSD2), Source: SGA0347-01											
Total Organic Carbon	10	0.20	mg/L	10	ND	104	80-120	1	20	01/24/23	

SM 5540C - Quality Control

Batch: AGA0813 Prepared: 1/13/2023
Prep Method: Method Specific Preparation Analyst: PXC

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0813-BLK1)											
MBAS, Calculated as LAS, mol wt 340	ND	0.050	mg/L							01/13/23	
Blank Spike (AGA0813-BS1)											
MBAS, Calculated as LAS, mol wt 340	0.95	0.050	mg/L	1.0	ND	95	82-112			01/13/23	
Blank Spike Dup (AGA0813-BSD1)											
MBAS, Calculated as LAS, mol wt 340	0.99	0.050	mg/L	1.0	ND	99	82-112	4	20	01/13/23	
Matrix Spike (AGA0813-MS1), Source: AGA1662-01											
MBAS, Calculated as LAS, mol wt 340	0.91	0.050	mg/L	1.0	ND	88	80-112			01/13/23	
Matrix Spike Dup (AGA0813-MSD1), Source: AGA1662-01											
MBAS, Calculated as LAS, mol wt 340	0.96	0.050	mg/L	1.0	ND	93	80-112	6	20	01/13/23	

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 200.7 - Quality Control											
Batch: AGA0840										Prepared: 1/16/2023	
Prep Method: Filtration - Metals										Analyst: MDS	
Blank (AGA0840-BLK2)											
Aluminum - Dissolved (1)	ND	50	ug/L							01/17/23	
Calcium - Dissolved (1)	ND	0.10	mg/L							01/17/23	
Iron - Dissolved (1)	ND	30	ug/L							01/17/23	
Potassium - Dissolved (1)	ND	2.0	mg/L							01/17/23	
Magnesium - Dissolved (1)	ND	0.10	mg/L							01/17/23	
Manganese - Dissolved (1)	ND	10	ug/L							01/17/23	
Sodium - Dissolved (1)	ND	1.0	mg/L							01/17/23	
Silica (SiO2) - Dissolved (1)	ND	0.20	mg/L							01/17/23	
Blank Spike (AGA0840-BS2)											
Aluminum - Dissolved (1)	170	50	ug/L	200	ND	87	85-115			01/17/23	
Calcium - Dissolved (1)	3.6	0.10	mg/L	4.0	ND	90	85-115			01/17/23	
Iron - Dissolved (1)	190	30	ug/L	200	ND	97	85-115			01/17/23	
Potassium - Dissolved (1)	3.7	2.0	mg/L	4.0	ND	93	85-115			01/17/23	
Magnesium - Dissolved (1)	3.7	0.10	mg/L	4.0	ND	92	85-115			01/17/23	
Manganese - Dissolved (1)	200	10	ug/L	200	ND	98	85-115			01/17/23	
Sodium - Dissolved (1)	4.0	1.0	mg/L	4.0	ND	101	85-115			01/17/23	
Silica (SiO2) - Dissolved (1)	2.1	0.20	mg/L	2.1	ND	100	85-115			01/17/23	
Blank Spike Dup (AGA0840-BSD2)											
Aluminum - Dissolved (1)	180	50	ug/L	200	ND	92	85-115	6	20	01/17/23	
Calcium - Dissolved (1)	3.6	0.10	mg/L	4.0	ND	90	85-115	0	20	01/17/23	
Iron - Dissolved (1)	200	30	ug/L	200	ND	100	85-115	3	20	01/17/23	
Potassium - Dissolved (1)	3.7	2.0	mg/L	4.0	ND	92	85-115	1	20	01/17/23	
Magnesium - Dissolved (1)	3.8	0.10	mg/L	4.0	ND	95	85-115	2	20	01/17/23	
Manganese - Dissolved (1)	200	10	ug/L	200	ND	100	85-115	2	20	01/17/23	
Sodium - Dissolved (1)	4.0	1.0	mg/L	4.0	ND	101	85-115	0	20	01/17/23	
Silica (SiO2) - Dissolved (1)	2.2	0.20	mg/L	2.1	ND	101	85-115	1	20	01/17/23	
Matrix Spike (AGA0840-MS3), Source: AGA1407-01											
Aluminum - Dissolved (1)	200	50	ug/L	200	ND	100	70-130			01/17/23	
Calcium - Dissolved (1)	33	0.10	mg/L	4.0	29	97	70-130			01/17/23	
Iron - Dissolved (1)	220	30	ug/L	200	ND	102	70-130			01/17/23	
Potassium - Dissolved (1)	6.1	2.0	mg/L	4.0	2.4	94	70-130			01/17/23	
Magnesium - Dissolved (1)	8.0	0.10	mg/L	4.0	4.2	94	70-130			01/17/23	
Manganese - Dissolved (1)	530	10	ug/L	200	330	99	70-130			01/17/23	
Sodium - Dissolved (1)	180	1.0	mg/L	4.0	170	133	70-130			01/17/23	MS1.0 ***High***
Silica (SiO2) - Dissolved (1)	51	0.20	mg/L	2.1	49	105	70-130			01/17/23	
Matrix Spike (AGA0840-MS4), Source: AGA1769-02											
Aluminum - Dissolved (1)	200	50	ug/L	200	ND	102	70-130			01/17/23	
Calcium - Dissolved (1)	30	0.10	mg/L	4.0	27	87	70-130			01/17/23	
Iron - Dissolved (1)	200	30	ug/L	200	ND	102	70-130			01/17/23	

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 200.7 - Quality Control

Batch: AGA0840 Prepared: 1/16/2023

Prep Method: Filtration - Metals Analyst: MDS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Matrix Spike (AGA0840-MS4), Source: AGA1769-02											
Potassium - Dissolved (1)	5.5	2.0	mg/L	4.0	ND	92	70-130			01/17/23	
Magnesium - Dissolved (1)	30	0.10	mg/L	4.0	26	97	70-130			01/17/23	
Manganese - Dissolved (1)	430	10	ug/L	200	230	96	70-130			01/17/23	
Sodium - Dissolved (1)	82	1.0	mg/L	4.0	79	96	70-130			01/17/23	
Silica (SiO2) - Dissolved (1)	19	0.20	mg/L	2.1	17	93	70-130			01/17/23	
Matrix Spike Dup (AGA0840-MSD3), Source: AGA1407-01											
Aluminum - Dissolved (1)	200	50	ug/L	200	ND	99	70-130	1	20	01/17/23	
Calcium - Dissolved (1)	34	0.10	mg/L	4.0	29	102	70-130	1	20	01/17/23	
Iron - Dissolved (1)	230	30	ug/L	200	ND	105	70-130	3	20	01/17/23	
Potassium - Dissolved (1)	6.2	2.0	mg/L	4.0	2.4	95	70-130	1	20	01/17/23	
Magnesium - Dissolved (1)	8.1	0.10	mg/L	4.0	4.2	98	70-130	2	20	01/17/23	
Manganese - Dissolved (1)	520	10	ug/L	200	330	96	70-130	1	20	01/17/23	
Sodium - Dissolved (1)	180	1.0	mg/L	4.0	170	230	70-130	2	20	01/17/23	MS1.0 ***High***
Silica (SiO2) - Dissolved (1)	51	0.20	mg/L	2.1	49	110	70-130	0	20	01/17/23	
Matrix Spike Dup (AGA0840-MSD4), Source: AGA1769-02											
Aluminum - Dissolved (1)	210	50	ug/L	200	ND	103	70-130	1	20	01/17/23	
Calcium - Dissolved (1)	31	0.10	mg/L	4.0	27	103	70-130	2	20	01/17/23	
Iron - Dissolved (1)	210	30	ug/L	200	ND	103	70-130	1	20	01/17/23	
Potassium - Dissolved (1)	5.6	2.0	mg/L	4.0	ND	94	70-130	2	20	01/17/23	
Magnesium - Dissolved (1)	30	0.10	mg/L	4.0	26	109	70-130	2	20	01/17/23	
Manganese - Dissolved (1)	430	10	ug/L	200	230	99	70-130	1	20	01/17/23	
Sodium - Dissolved (1)	84	1.0	mg/L	4.0	79	146	70-130	2	20	01/17/23	MS1.0 ***High***
Silica (SiO2) - Dissolved (1)	20	0.20	mg/L	2.1	17	122	70-130	3	20	01/17/23	

EPA 200.7 - Quality Control

Batch: AGA0898 Prepared: 1/17/2023

Prep Method: EPA 200.2 Analyst: MDS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0898-BLK1)											
Silica (SiO2)	ND	0.20	mg/L							01/17/23	
Blank Spike (AGA0898-BS1)											
Silica (SiO2)	2.3	0.20	mg/L	2.1	ND	106	85-115			01/17/23	
Blank Spike Dup (AGA0898-BSD1)											
Silica (SiO2)	2.3	0.20	mg/L	2.1	ND	109	85-115	3	20	01/17/23	
Matrix Spike (AGA0898-MS1), Source: AGA1802-01											
Silica (SiO2)	12	0.20	mg/L	2.1	9.1	128	70-130			01/17/23	
Matrix Spike Dup (AGA0898-MSD1), Source: AGA1802-01											
Silica (SiO2)	11	0.20	mg/L	2.1	9.1	112	70-130	3	20	01/17/23	

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 200.7 - Quality Control

Batch: AGA0898 Prepared: 1/17/2023

Prep Method: EPA 200.2 Analyst: MDS

EPA 200.8 - Quality Control

Batch: AGA0840 Prepared: 1/16/2023

Prep Method: Filtration - Metals Analyst: AHS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0840-BLK1)											
Beryllium - Dissolved (1)	ND	1.0	ug/L							01/23/23	
Vanadium - Dissolved (1)	ND	10	ug/L							01/23/23	
Chromium - Dissolved (1)	ND	10	ug/L							01/23/23	
Cobalt - Dissolved (1)	ND	10	ug/L							01/23/23	
Nickel - Dissolved (1)	ND	10	ug/L							01/23/23	
Copper - Dissolved (1)	ND	5.0	ug/L							01/23/23	
Zinc - Dissolved (1)	ND	50	ug/L							01/23/23	
Arsenic - Dissolved (1)	ND	2.0	ug/L							01/23/23	
Selenium - Dissolved (1)	ND	2.0	ug/L							01/23/23	
Strontium - Dissolved (1)	ND	1.0	ug/L							01/23/23	
Molybdenum - Dissolved (1)	ND	10	ug/L							01/23/23	
Silver - Dissolved (1)	ND	10	ug/L							01/23/23	
Cadmium - Dissolved (1)	ND	1.0	ug/L							01/23/23	
Antimony - Dissolved (1)	ND	2.0	ug/L							01/23/23	
Barium - Dissolved (1)	ND	5.0	ug/L							01/23/23	
Thallium - Dissolved (1)	ND	1.0	ug/L							01/23/23	
Lead - Dissolved (1)	ND	1.0	ug/L							01/23/23	
Uranium - Dissolved (1)	ND	1.0	ug/L							01/23/23	
Blank Spike (AGA0840-BS1)											
Beryllium - Dissolved (1)	210	1.0	ug/L	200	ND	105	85-115			01/23/23	
Vanadium - Dissolved (1)	190	10	ug/L	200	ND	97	85-115			01/23/23	
Chromium - Dissolved (1)	190	10	ug/L	200	ND	94	85-115			01/23/23	
Cobalt - Dissolved (1)	190	10	ug/L	200	ND	94	85-115			01/23/23	
Nickel - Dissolved (1)	190	10	ug/L	200	ND	96	85-115			01/23/23	
Copper - Dissolved (1)	190	5.0	ug/L	200	ND	97	85-115			01/23/23	
Zinc - Dissolved (1)	190	50	ug/L	200	ND	95	85-115			01/23/23	
Arsenic - Dissolved (1)	190	2.0	ug/L	200	ND	95	85-115			01/23/23	
Selenium - Dissolved (1)	190	2.0	ug/L	200	ND	94	85-115			01/23/23	
Strontium - Dissolved (1)	190	1.0	ug/L	200	ND	96	85-115			01/23/23	
Molybdenum - Dissolved (1)	190	10	ug/L	200	ND	95	85-115			01/23/23	
Silver - Dissolved (1)	100	10	ug/L	100	ND	103	75-125			01/23/23	
Cadmium - Dissolved (1)	190	1.0	ug/L	200	ND	93	85-115			01/23/23	
Antimony - Dissolved (1)	200	2.0	ug/L	200	ND	101	85-115			01/23/23	
Barium - Dissolved (1)	190	5.0	ug/L	200	ND	94	85-115			01/23/23	
Thallium - Dissolved (1)	190	1.0	ug/L	200	ND	94	85-115			01/23/23	
Lead - Dissolved (1)	190	1.0	ug/L	200	ND	95	85-115			01/23/23	
Uranium - Dissolved (1)	190	1.0	ug/L	200	ND	96	85-115			01/23/23	

BSK Associates Laboratory Fresno

Metals Quality Control Report

EPA 200.8 - Quality Control

Batch: AGA0840 Prepared: 1/16/2023

Prep Method: Filtration - Metals Analyst: AHS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank Spike Dup (AGA0840-BSD1)											
Beryllium - Dissolved (1)	210	1.0	ug/L	200	ND	105	85-115	0	20	01/23/23	
Vanadium - Dissolved (1)	200	10	ug/L	200	ND	99	85-115	2	20	01/23/23	
Chromium - Dissolved (1)	180	10	ug/L	200	ND	92	85-115	2	20	01/23/23	
Cobalt - Dissolved (1)	190	10	ug/L	200	ND	96	85-115	2	20	01/23/23	
Nickel - Dissolved (1)	190	10	ug/L	200	ND	96	85-115	1	20	01/23/23	
Copper - Dissolved (1)	200	5.0	ug/L	200	ND	98	85-115	0	20	01/23/23	
Zinc - Dissolved (1)	190	50	ug/L	200	ND	96	85-115	1	20	01/23/23	
Arsenic - Dissolved (1)	190	2.0	ug/L	200	ND	96	85-115	1	20	01/23/23	
Selenium - Dissolved (1)	190	2.0	ug/L	200	ND	96	85-115	2	20	01/23/23	
Strontium - Dissolved (1)	200	1.0	ug/L	200	ND	98	85-115	1	20	01/23/23	
Molybdenum - Dissolved (1)	190	10	ug/L	200	ND	93	85-115	2	20	01/23/23	
Silver - Dissolved (1)	100	10	ug/L	100	ND	105	75-125	2	20	01/23/23	
Cadmium - Dissolved (1)	190	1.0	ug/L	200	ND	95	85-115	2	20	01/23/23	
Antimony - Dissolved (1)	200	2.0	ug/L	200	ND	100	85-115	1	20	01/23/23	
Barium - Dissolved (1)	190	5.0	ug/L	200	ND	97	85-115	3	20	01/23/23	
Thallium - Dissolved (1)	190	1.0	ug/L	200	ND	97	85-115	3	20	01/23/23	
Lead - Dissolved (1)	200	1.0	ug/L	200	ND	98	85-115	3	20	01/23/23	
Uranium - Dissolved (1)	200	1.0	ug/L	200	ND	100	85-115	4	20	01/23/23	
Matrix Spike (AGA0840-MS2), Source: AGA1769-02											
Beryllium - Dissolved (1)	210	1.0	ug/L	200	ND	105	70-130			01/23/23	
Vanadium - Dissolved (1)	200	10	ug/L	200	ND	100	70-130			01/23/23	
Chromium - Dissolved (1)	180	10	ug/L	200	ND	92	70-130			01/23/23	
Cobalt - Dissolved (1)	180	10	ug/L	200	ND	91	70-130			01/23/23	
Nickel - Dissolved (1)	180	10	ug/L	200	ND	91	70-130			01/23/23	
Copper - Dissolved (1)	190	5.0	ug/L	200	ND	93	70-130			01/23/23	
Zinc - Dissolved (1)	190	50	ug/L	200	ND	96	70-130			01/23/23	
Arsenic - Dissolved (1)	190	2.0	ug/L	200	ND	96	70-130			01/23/23	
Selenium - Dissolved (1)	190	2.0	ug/L	200	ND	97	70-130			01/23/23	
Strontium - Dissolved (1)	390	1.0	ug/L	200	200	97	70-130			01/23/23	
Molybdenum - Dissolved (1)	190	10	ug/L	200	ND	97	70-130			01/23/23	
Silver - Dissolved (1)	100	10	ug/L	100	ND	100	70-130			01/23/23	
Cadmium - Dissolved (1)	190	1.0	ug/L	200	ND	95	70-130			01/23/23	
Antimony - Dissolved (1)	200	2.0	ug/L	200	ND	102	70-130			01/23/23	
Barium - Dissolved (1)	240	5.0	ug/L	200	54	95	70-130			01/23/23	
Thallium - Dissolved (1)	180	1.0	ug/L	200	ND	92	70-130			01/23/23	
Lead - Dissolved (1)	190	1.0	ug/L	200	ND	93	70-130			01/23/23	
Uranium - Dissolved (1)	180	1.0	ug/L	200	ND	92	70-130			01/23/23	
Matrix Spike Dup (AGA0840-MSD2), Source: AGA1769-02											
Beryllium - Dissolved (1)	220	1.0	ug/L	200	ND	110	70-130	4	20	01/23/23	
Vanadium - Dissolved (1)	200	10	ug/L	200	ND	102	70-130	2	20	01/23/23	
Chromium - Dissolved (1)	190	10	ug/L	200	ND	93	70-130	2	20	01/23/23	

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 200.8 - Quality Control

Batch: AGA0840 Prepared: 1/16/2023
Prep Method: Filtration - Metals Analyst: AHS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Matrix Spike Dup (AGA0840-MSD2), Source: AGA1769-02											
Cobalt - Dissolved (1)	190	10	ug/L	200	ND	93	70-130	3	20	01/23/23	
Nickel - Dissolved (1)	190	10	ug/L	200	ND	94	70-130	3	20	01/23/23	
Copper - Dissolved (1)	200	5.0	ug/L	200	ND	98	70-130	5	20	01/23/23	
Zinc - Dissolved (1)	190	50	ug/L	200	ND	96	70-130	0	20	01/23/23	
Arsenic - Dissolved (1)	200	2.0	ug/L	200	ND	99	70-130	3	20	01/23/23	
Selenium - Dissolved (1)	200	2.0	ug/L	200	ND	99	70-130	3	20	01/23/23	
Strontium - Dissolved (1)	410	1.0	ug/L	200	200	104	70-130	4	20	01/23/23	
Molybdenum - Dissolved (1)	200	10	ug/L	200	ND	101	70-130	5	20	01/23/23	
Silver - Dissolved (1)	100	10	ug/L	100	ND	100	70-130	0	20	01/23/23	
Cadmium - Dissolved (1)	190	1.0	ug/L	200	ND	93	70-130	2	20	01/23/23	
Antimony - Dissolved (1)	200	2.0	ug/L	200	ND	102	70-130	0	20	01/23/23	
Barium - Dissolved (1)	250	5.0	ug/L	200	54	97	70-130	2	20	01/23/23	
Thallium - Dissolved (1)	190	1.0	ug/L	200	ND	93	70-130	1	20	01/23/23	
Lead - Dissolved (1)	190	1.0	ug/L	200	ND	93	70-130	0	20	01/23/23	
Uranium - Dissolved (1)	190	1.0	ug/L	200	ND	93	70-130	1	20	01/23/23	

EPA 245.7 - Quality Control

Batch: AGA0947 Prepared: 1/17/2023
Prep Method: EPA 245.7 Analyst: TSY

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA0947-BLK1)											
Mercury - Dissolved (1)	ND	0.20	ug/L							01/18/23	
Matrix Spike (AGA0947-MS1), Source: AGA1769-02											
Mercury - Dissolved (1)	0.68	0.20	ug/L	0.80	ND	84	63-111			01/18/23	
Matrix Spike Dup (AGA0947-MSD1), Source: AGA1769-02											
Mercury - Dissolved (1)	0.69	0.20	ug/L	0.80	ND	86	63-111	2	18	01/18/23	

BSK Associates Laboratory Fresno

Organics Quality Control Report

EPA 524.2 - Quality Control

Batch: AGA0826 Prepared: 1/14/2023
Prep Method: EPA 524.2 Analyst: JNG

Blank (AGA0826-BLK1)

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Bromodichloromethane	ND	0.50	ug/L							01/14/23	
Bromoform	ND	0.50	ug/L							01/14/23	
Chloroform	ND	0.50	ug/L							01/14/23	
Dibromochloromethane	ND	0.50	ug/L							01/14/23	
Total Trihalomethanes	ND	0.50	ug/L							01/14/23	
Surrogate: 1,2-Dichlorobenzene-d4	*51*			*50*		*102*	*70-130*			01/14/23	
Surrogate: Bromofluorobenzene	*51*			*50*		*103*	*70-130*			01/14/23	

Blank Spike (AGA0826-BS1)

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Bromodichloromethane	10	0.50	ug/L	10	ND	103	70-130			01/14/23	
Bromoform	11	0.50	ug/L	10	ND	106	70-130			01/14/23	
Chloroform	10	0.50	ug/L	10	ND	103	70-130			01/14/23	
Dibromochloromethane	10	0.50	ug/L	10	ND	102	70-130			01/14/23	
Surrogate: 1,2-Dichlorobenzene-d4	*49*			*50*		*97*	*70-130*			01/14/23	
Surrogate: Bromofluorobenzene	*50*			*50*		*99*	*70-130*			01/14/23	

Blank Spike Dup (AGA0826-BSD1)

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Bromodichloromethane	10	0.50	ug/L	10	ND	102	70-130	1	30	01/14/23	
Bromoform	10	0.50	ug/L	10	ND	105	70-130	1	30	01/14/23	
Chloroform	10	0.50	ug/L	10	ND	102	70-130	1	30	01/14/23	
Dibromochloromethane	10	0.50	ug/L	10	ND	101	70-130	1	30	01/14/23	
Surrogate: 1,2-Dichlorobenzene-d4	*50*			*50*		*100*	*70-130*			01/14/23	
Surrogate: Bromofluorobenzene	*50*			*50*		*101*	*70-130*			01/14/23	

EPA 552.3 - Quality Control

Batch: AGA1099 Prepared: 1/19/2023
Prep Method: EPA 552.3 Analyst: DAB

Blank (AGA1099-BLK1)

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Dibromoacetic Acid (DBAA)	ND	1.0	ug/L							01/19/23	
Dichloroacetic Acid (DCAA)	ND	1.0	ug/L							01/19/23	
Monobromoacetic Acid (MBAA)	ND	1.0	ug/L							01/19/23	
Monochloroacetic Acid (MCAA)	ND	2.0	ug/L							01/19/23	
Trichloroacetic Acid (TCAA)	ND	1.0	ug/L							01/19/23	
Total Haloacetic Acids	ND	2.0	ug/L							01/19/23	
Surrogate: 2-Bromobutanoic Acid	*11*			*10*		*107*	*70-130*			01/19/23	

Duplicate (AGA1099-DUP1), Source: SGA0345-05

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Dibromoacetic Acid (DBAA)	ND	1.0	ug/L		ND				30	01/20/23	
Dichloroacetic Acid (DCAA)	9.7	1.0	ug/L		9.7			1	30	01/20/23	
Monobromoacetic Acid (MBAA)	ND	1.0	ug/L		ND				30	01/20/23	
Monochloroacetic Acid (MCAA)	2.9	2.0	ug/L		2.6			12	30	01/20/23	
Trichloroacetic Acid (TCAA)	44	1.0	ug/L		44			1	30	01/20/23	
Total Haloacetic Acids	56	2.0	ug/L		56			1	30	01/20/23	

BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 552.3 - Quality Control											
Batch: AGA1099										Prepared: 1/19/2023	
Prep Method: EPA 552.3										Analyst: DAB	
Duplicate (AGA1099-DUP1), Source: SGA0345-05											
Surrogate: 2-Bromobutanoic Acid	*10*			*10*		*102*	*70-130*			01/20/23	
Matrix Spike (AGA1099-MS1), Source: AGA1630-01											
Dibromoacetic Acid (DBAA)	11	1.0	ug/L	10	2.8	87	70-130			01/19/23	
Dichloroacetic Acid (DCAA)	12	1.0	ug/L	10	ND	118	70-130			01/19/23	
Monobromoacetic Acid (MBAA)	10	1.0	ug/L	10	ND	103	70-130			01/19/23	
Monochloroacetic Acid (MCAA)	20	2.0	ug/L	20	ND	102	70-130			01/19/23	
Trichloroacetic Acid (TCAA)	11	1.0	ug/L	10	ND	107	70-130			01/19/23	
Surrogate: 2-Bromobutanoic Acid	*10*			*10*		*104*	*70-130*			01/19/23	

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

  Unless otherwise noted, TOC results by SM 5310C method do not include purgeable organic carbon, which is removed along with the inorganic carbon interference. The POC contribution to TOC is considered to be negligible.

Certificate of Analysis

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

The following parameters are calculated values and are outside the scope of our NELAP accreditation:

Total Nitrogen   Aggressive Index   Trivalent Chromium

BSK is not accredited under the NELAP program for the following additional parameters:

Cobalt

Molybdenum

Oxidation/Reduction Potential

Strontium

Vanadium

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

Fresno

State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-020
State of Nevada	CA000792022-1	State of Oregon - NELAP	4021-020
EPA UCMR5	CA00079	State of Washington	C997-22a

Sacramento

State of California - ELAP	1180-S1

San Bernardino

State of California - ELAP	1180-S2	Los Angeles CSD	9254478
NELAP certified	4119-007	State of Oregon - NELAP	4119-007

Vancouver

NELAP certified	WA100008-015	State of Oregon - NELAP	WA100008-015
State of Washington	C824-22		

AGA1769 GSIWA3956 01/13/2023

10

BSK Associates SR-FL-0002-24

Sample Integrity

BSK Bottles: Yes No Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TTHM/TCP)? TB Received? (Check Method Below)	Yes No NA / Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received ("—" means preservation/chlorine checks are either N/A or are performed in the lab)

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?	1-2
Bacti $Na_2S_2O_3$	—	—	
None (P) White Cap	—	—	3C, 3B
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 DW	Cl, pH > 8	P F	1D
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 WW	pH 9.3-9.7	P F	
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F	
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—	
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F	1B, 1D, 1A
NaOH (P) Green Cap	Cl, pH >10	P F	1A
NaOH + ZnAc (P)	pH > 9	P F	1B
Dissolved Oxygen 300ml (g)	—	—	
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—	1B, 1A
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—	
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—	
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—	
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—	
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—	
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—	
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F	
NH_4Cl (AG) Purple Label 552	—	—	
EDA (P) or (AG) Brown Label DBPs	—	—	
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—	3V
Buffer pH 4 (CG)	—	—	
H_3PO_4 (CG) Salmon Label	—	—	
Trizma – EPA 537.1 Light Blue Label FB	---	---	
Ammonia Acetate - EPA 533 Purple Label FB	---	---	
Bottled Water	—	—	
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—	
Clear Glass	—	—	2V
OTHER:	—	—	

VCH 1-13-23

Split

	Container	Preservative	Lot #	Initials	Date/Time
S P					
S P					

Preservation Check
pH Lot # AP02643
Cl Lot # AP05599

Comments

*Preservation check completed by lab performing analysis.

Order received after 24 hours. VCH 1-13-23

✓ Indicates Blanks Received

504 ___ 524.2 ___ TTHM ___ 537/533 ___ TCP___

✓ MS/MSD Received Method: ________

Labeled by: Labels Checked by:

Scanned: CW Rush/Short HT Page: ________ Time:_______

12 Pace ANALYTICAL SERVICES 3SK 0.4 #75 GIS WBW

4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.pacelabs.com

Chai

AGA1769 GSIWA3956 01/13/2023

10

Report To Client: GSI Water Sln^s	Project #:
Attn: Nate Page	Project Name: Morro Bay IPR
Street Address: 5855 Capistrano Ave	~~BID#~~ SteC
City, State, Zip: Atascadero CA 93422	Sampler(s) Name Printed: Nate Page
Phone: 9706923593 Fax:	
Email: npage@gsiws.com	
Work Order #:	

Analysis Requested: Please see Attached "Complete Suite"

Page ___ of ___

Comments: EDD req'std, NO geotracker

Sample #	Description	Date Sampled	Time Sampled	Analysis	Sample Matrix: Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Notes
	Pilot Inj well	1/12/23	1230	X				X			
	21P-01	1/12/23	1030	X				X			

Result Request **Surcharge: [X] STD (10 Days) [ ] 5 Day** [ ] 4 Day** [ ] 3 Day** [ ] 2 Day** [ ] 1 Day**

Rush requests must be approved

Billing [X] Same as above

Client:
Address:
City: State Zip
Attn:
P.O. #:

System # (Needed for CLIP)

GIS/Key [ ] Well Star [ ]

EDF Required Geotracker [ ] Yes [X] No Global ID

Relinquished By	Date	Time	Received By	Date	Time
1. Relinquished By [signature]	1/12/23	1300	1. Received By		
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By Verona	1-13-23	13:27

Pace Analytical Bakersfield does not accept samples containing radioactive material above background levels. Samples containing radioactive material must be disclosed prior to receipt. Any samples suspected of containing radioactive material above background levels will not be accepted and will be returned to client.

REV 12/2021

	Sodium	EPA 20
	Strontium	EPA 20
	Thallium	EPA 200.8
	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

Parameter Type	Parameter	Method
Field	Dissolved oxygen	YSI 556 or similar
	pH	EPA 150.1
	Oxidation-Reduction Potential	SM2580B
	Specific Conductance	EPA 120.1
	Temperature	YSI 556 or similar
	Turbidity	EPA 180.1
Inorganics	Alkalinity	SM2320B
	Ammonia	SM4500NH3G
	Bicarbonate	SM2320B
	Carbonate	SM2320B
	Chloride	EPA 300.0
	Cyanide (HCN)	EPA 335.4
	Fluoride	EPA 300.0
	Hardness	EPA 200.8
	Nitrate+Nitrite (total N)	EPA 300.0
	Nitrate (as N)	EPA 300.0
	Nitrite-N	EPA 300.0
	Orthophosphate as P	EPA 300.0
	Total Silica (as SiO2)	EPA 200.7
	Dissolved Silica (as SiO2)	EPA 200.7
	Sulfate	EPA 300.0
	Sulfide	SM4500S2F
Metals (Dissolved)	Aluminum	EPA 200.7
	Antimony	EPA 200.8
	Arsenic	EPA 200.8
	Barium	EPA 200.8
	Beryllium	EPA 200.8
	Cadmium	EPA 200.8
	Calcium	EPA 200.7
	Chromium	EPA 200.8
	Cobalt	EPA 200.8
	Copper	EPA 200.8
	Iron	EPA 200.7
	Lead	EPA 200.8
	Magnesium	EPA 200.7
	Manganese	EPA 200.8
	Mercury	EPA 245.7
	Molybdenum	EPA 200.8
	Nickel	EPA 200.8
	Potassium	EPA 200.7
	Selenium	EPA 200.8
	Silver	EPA 200.8

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 2301923

Report Created for: BSK Analytical Laboratories

550 West Locust Avenue
Fresno, CA 93650

Project Contact: Heather White
Project P.O.:
Project: AGA1769

Project Received: 01/17/2023

Analytical Report reviewed & approved for release on 01/23/2023 by:

Jennifer Lagerbom
Project Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in a case narrative.

McCampbell Analytical, Inc.
"When Quality Counts"
1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Glossary of Terms & Qualifier Definitions

Client: BSK Analytical Laboratories **WorkOrder:** 2301923
Project: AGA1769

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
CPT	Consumer Product Testing not NELAP Accredited
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
LQL	Lowest Quantitation Level
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	MDL is the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results. Definition and Procedure for the Determination of the Method Detection Limit, Revision 2, 40CFR, Part 136, Appendix B, EPA 821-R-16-006, December 2016.
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NA	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting limit is the lowest level that can be reliably determined within specified limits of precision and accuracy during routine laboratory operating conditions. (The RL cannot be lower than the lowest calibration standard used in the initial calibration of the instrument and must be greater than the MDL.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
TZA	TimeZone Net Adjustment for sample collected outside of MAI's UTC.
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

McCampbell Analytical, Inc.
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http://www.mccampbell.com / E-mail: main@mccampbell.com

Analytical Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2301923
Date Received:	01/17/2023 10:28	**Extraction Method:**	RSK175
Date Prepared:	01/19/2023	**Analytical Method:**	RSK175
Project:	AGA1769	**Unit:**	µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AGA1769-01	**2301923-001B**	**Water**	**01/12/2023 12:30**	**GC26 0119231005.D**	**262163**

Analytes	Result	RL	DF	Date Analyzed
Ethane	ND	0.24	1	01/19/2023 11:32
Ethylene	ND	0.31	1	01/19/2023 11:32
Methane	**0.14**	0.12	1	01/19/2023 11:32

Analyst(s): MBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AGA1769-002	**2301923-002B**	**Water**	**01/12/2023 10:30**	**GC26 0119231006.D**	**262163**

Analytes	Result	RL	DF	Date Analyzed
Ethane	ND	0.24	1	01/19/2023 11:47
Ethylene	ND	0.31	1	01/19/2023 11:47
Methane	**0.24**	0.12	1	01/19/2023 11:47

Analyst(s): MBE

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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
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Analytical Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2301923
Date Received:	01/17/2023 10:28	**Extraction Method:**	SM4500-S^{-2} D-2000
Date Prepared:	01/19/2023	**Analytical Method:**	SM4500 S^{-2} D
Project:	AGA1769	**Unit:**	mg/L

Total Sulfide - S

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AGA1769-01	**2301923-001A**	**Water**	**01/12/2023 12:30**	**SPECTROPHOTOMETER2**	**262171**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.10	1	01/19/2023 09:43

Analyst(s): RB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AGA1769-002	**2301923-002A**	**Water**	**01/12/2023 10:30**	**SPECTROPHOTOMETER2**	**262171**

Analytes	Result	RL	DF	Date Analyzed
Total Sulfide	ND	0.10	1	01/19/2023 09:46

Analyst(s): RB

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Quality Control Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2301923
Date Prepared:	01/19/2023	**BatchID:**	262163
Date Analyzed:	01/19/2023	**Extraction Method:**	RSK175
Instrument:	GC26	**Analytical Method:**	RSK175
Matrix:	Water	**Unit:**	µg/L
Project:	AGA1769	**Sample ID:**	MB/LCS/LCSD-262163

QC Summary Report for RSK175

Analyte	MB Result	MDL	RL			
Acetylene	ND	1.3	1.3	-	-	-
Ethane	ND	0.24	0.24	-	-	-
Ethylene	ND	0.31	0.31	-	-	-
Methane	ND	0.12	0.12	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Acetylene	11	12	13.16	83	91	70-130	8.51	20
Ethane	2.2	2.4	2.38	92	101	70-130	8.78	20
Ethylene	2.9	3.2	3.08	94	104	70-130	9.89	20
Methane	1.1	1.2	1.17	95	99	70-130	3.88	20

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Quality Control Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2301923
Date Prepared:	01/19/2023	**BatchID:**	262171
Date Analyzed:	01/19/2023	**Extraction Method:**	SM4500-S^{-2} D-2000
Instrument:	SPECTROPHOTOMETER2	**Analytical Method:**	SM4500 S^{-2} D
Matrix:	Water	**Unit:**	mg/L
Project:	AGA1769	**Sample ID:**	MB/LCS/LCSD-262171 2301923-001AMS/MSD

QC Summary Report For SM4500 S-2D

Analyte	MB Result	MDL	RL			
Total Sulfide	ND	0.044	0.10	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Total Sulfide	0.51	0.49	0.50	102	98	80-120	4.06	20

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Total Sulfide	1	0.54	0.55	0.50	ND	109	110	80-120	1.06	20

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Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 2301923 **ClientCode: BSKF**

☐ WaterTrax ☐ CLIP ☐ EDF ☐ EQuIS ☐ Dry-Weight ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☐ Detection Summary ☐ Excel

Report to:
Heather White
BSK Analytical Laboratories
550 West Locust Avenue
Fresno, CA 93650
(559) 497-2888 FAX: (559) 485-6935

Email: hwhite@bskassociates.com
cc/3rd Party:
PO:
Project: AGA1769

Bill to:
Accounts Payable
BSK Analytical Laboratories
550 West Locust Avenue
Fresno, CA 93650

Requested TAT: **5 days;**

Date Received: **01/17/2023**
Date Logged: **01/18/2023**

Lab ID	ClientSampID	Matrix	Collection Date	Hold	1	2	3	4	5	6	7	8	9	10	11	12
					Requested Tests (See legend below)											
2301923-001	AGA1769-01	Water	1/12/2023 12:30	☐	A	B	A									
2301923-002	AGA1769-002	Water	1/12/2023 10:30	☐	A	B	A									

Test Legend:

1	PRDisposal Fee	2	RSK175_W	3	SULFIDE_W	4	
5		6		7		8	
9		10		11		12	

Prepared by: Adrianna Cardoza

Comments:

NOTE: Soil samples are discarded 60 days after receipt unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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WORK ORDER SUMMARY

Client Name: BSK ANALYTICAL LABORATORIES **Project:** AGA1769 **Work Order:** 2301923
Client Contact: Heather White **QC Level:** LEVEL 2
Contact's Email: hwhite@bskassociates.com **Comments:** **Date Logged:** 1/18/2023

☐ WaterTrax ☐ CLIP ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	U**	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	Sub Out
001A	AGA1769-01	Water	SM4500S2D (Total Sulfide)	1	500mL HDPE w/ NaOH + ZnAc	☐	☐	☐	1/12/2023 12:30	5 days	1/24/2023	Present	☐	☐
001B	AGA1769-01	Water	RSK175 <Ethane_4, Ethylene_4, Methane_4>	1	VOA	☐	☐	☐	1/12/2023 12:30	5 days	1/24/2023	Present	☐	☐
002A	AGA1769-002	Water	SM4500S2D (Total Sulfide)	1	500mL HDPE w/ NaOH + ZnAc	☐	☐	☐	1/12/2023 10:30	5 days	1/24/2023	Present	☐	☐
002B	AGA1769-002	Water	RSK175 <Ethane_4, Ethylene_4, Methane_4>	1	VOA	☐	☐	☐	1/12/2023 10:30	5 days	1/24/2023	Present	☐	☐

NOTES: * STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- Organic extracts are held for 40 days before disposal; Inorganic extract are held for 30 days.

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

U = An unpreserved container was received for a method that suggests a preservation in order to extend hold time for analysis.**

2301923

BSK ASSOCIATES

SUBCONTRACT ORDER

AGA1769

SENDING LABORATORY:

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Heather S. White
E-mail: hwhite@bskassociates.com

RECEIVING LABORATORY:

McCampbell Analytical, Inc.
1534 Willow Pass Road
Pittsburg, CA 94565-1701
Phone :(925) 252-9262
Fax: (925) 252-9269
Turnaround (Days): Standard
QC Deliverables: I Std III IV

Sample ID	Samp Desc			Sample Date
AGA1769-01	Pilot Inj Well	Client Matrix	Water	01/12/2023 12:30
		Sampled By:	Nate Page	

Lab Matrix: Water

Analysis:
EXT-RSK-175 Methane, Ethane, Ethene
EXT-Sulfide

Sample ID	Samp Desc			Sample Date
AGA1769-02	Zip 01	Client Matrix	Water	01/12/2023 10:30
		Sampled By:	Nate Page	

Lab Matrix: Water

Analysis:
EXT-RSK-175 Methane, Ethane, Ethene
EXT-Sulfide

State Forms: **No** System Name: __________

Released By	Date	Received By	Date
[signature]	1.16.23	[signature]	1.17.23 1028am
Released By	Date	Received By	Date
			2.6 wet

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Sample Receipt Checklist

Client Name:	BSK Analytical Laboratories	Date and Time Received:	1/17/2023 10:28
Project:	AGA1769	Date Logged:	1/18/2023
		Received by:	Adrianna Cardoza
WorkOrder №:	2301923 Matrix: Water	Logged by:	Adrianna Cardoza
Carrier:	Golden State Overnight		

Chain of Custody (COC) Information

	Yes	No	NA
Chain of custody present?	☑	☐	
Chain of custody signed when relinquished and received?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Sample IDs noted by Client on COC?	☑	☐	
Date and Time of collection noted by Client on COC?	☑	☐	
Sampler's name noted on COC?	☑	☐	
COC agrees with Quote?	☐	☐	☑

Sample Receipt Information

	Yes	No	NA
Custody seals intact on shipping container/cooler?	☑	☐	☐
Custody seals intact on sample bottles?	☑	☐	☐
Shipping container/cooler in good condition?	☑	☐	
Samples in proper containers/bottles?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	

Sample Preservation and Hold Time (HT) Information

	Yes	No	NA
All samples received within holding time?	☑	☐	☐
Samples Received on Ice?	☑	☐	
	(Ice Type: WET ICE)		
Sample/Temp Blank temperature	Temp: 2.6°C		☐
ZHS conditional analyses: VOA meets zero headspace requirement (VOCs, TPHg/BTEX, RSK)?	☐	☐	☑
Sample labels checked for correct preservation?	☑	☐	
pH acceptable upon receipt (Metal: <2; Nitrate 353.2/4500NO3: <2; 522: <4; 218.7: >8)?	☐	☐	☑
UCMR Samples:			
pH tested and acceptable upon receipt (200.7: ≤2; 533: 6 - 8; 537.1: 6 - 8)?	☐	☐	☑
Free Chlorine tested and acceptable upon receipt (<0.1mg/L) [not applicable to 200.7]?	☐	☐	☑

Comments:

LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322301039
Customer ID: 32BSK50
Customer PO:
Project ID:

Attn: Heather S. White
BSK Analytical Laboratories
1414 Stanislaus St
Fresno, CA 93706

Phone:
Fax:
Received: 01/17/2023
Analyzed: 01/22/2023

Proj: AGA1769

Test Report: Determination of Asbestos Structures ≥ 0.5 µm & > 10µm in Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	Sample Filtration Date/Time	Original Sample Vol. Filtered (ml)	Effective Filter Area (mm²)	Area Analyzed (mm²)		ASBESTOS Asbestos Types	Fibers Detected	Analytical Sensitivity (MFL)	Concentration (MFL)	Confidence Limits (MFL)
AGA1769-01 322301039-0001	1/17/2023 03:15 PM	1	1288	0.2580	≥ 0.5 µm	None Detected	ND	5.00	<5.00	0.00 - 18.00
					> 10 µm only	None Detected	ND	5.00	<5.00	0.00 - 18.00
AGA1769-02 322301039-0002	1/17/2023 03:15 PM	1	1288	0.2580	≥ 0.5 µm	None Detected	ND	5.00	<5.00	0.00 - 18.00
					> 10 µm only	None Detected	ND	5.00	<5.00	0.00 - 18.00

MFL (million fibers per liter)

AGA1769-01: *Collection Date/Time: 01/12/2023 12:30 PM*

Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.

AGA1769-02: *Collection Date/Time: 01/12/2023 10:30 AM*

Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.

Analyst(s)
Sherrie Ahmad (2)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 01/22/2023 10:37:09

Post-Injection Samples from Pilot Injection Well and 21P-01 (Third set; January 19, 2023)

Field Notes

Water Solutions, Inc.

Daily Field Report

Name: Nate Page **Date:** 1/19/23 **Activity:**
Project: MB IPR **PN:** **Page** of

1030 NP on site

1039 Pilot Inj well pump on

Note: flow from sample port under lots of pressure, DO may be elevated due to turbulence

	T	pH	SC	DO	ORP
1041	15.7	7.79	.771	6.69	42.4
1045	16.3	7.83	.763	7.05	49.9
1050	16.3	7.81	.758	7.16	66.7
1055	16.4	7.79	.754	7.21	89.7
1100	16.4	7.78	.752	7.24	94.9

1100 Sample collected

1110 XD out of 21P-01
DTW = 9.15' btoc

1120 21P-01 Pump on

	T	pH	SC	DO	ORP
1121	17.0	7.44	.774	1.12	190.4
1125	17.1	7.19	.813	0.17	182.4
1130	17.1	7.14	.813	0.08	177.8
1135	17.1	7.09	.813	0.05	176.6
1140	17.1	7.08	.812	0.04	176.2
1145	17.1	7.06	.811	0.04	175.7

1150 Sample collected
1200 NP off site

Signature:

Chain-of-Custody Form(s)

BSK Associates SR-FL-0002-24

AGA2611 GSIWA3956 01/20/2023

10

Sample Integrity

BSK Bottles: Yes / No   Page 1 of 1

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TTHM/TCP)? TB Received? (Check Method Below)	Yes No NA / Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received — "—" means preservation/chlorine checks are either N/A or are performed in the lab

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?	1-2					
Bacti $Na_2S_2O_3$	—	—						
None (P) White Cap	—	—	1D, 3B, 3C					
Cr6 (P) LL Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	P F						
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	P F						
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F						
HNO_3 (P) Red Cap or HCl (P) Purple Cap/LL Blue Label	—	—						
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F	1D, 1B, 1AA					
NaOH (P) Green Cap	Cl, pH >10	P F	1AB					
NaOH + ZnAc (P)	pH > 9	P F	1B					
Dissolved Oxygen 300ml (g)	—	—						
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—	1B					
HCl (AG) LL Blue Label O&G, Diesel, TCP	—	—						
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—						
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—						
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—						
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—						
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—						
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F						
NH_4Cl (AG) Purple Label 552	—	—	1A					
EDA (P) or (AG) Brown Label DBPs	—	—						
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—	3V					
Buffer pH 4 (CG)	—	—						
H_3PO_4 (CG) Salmon Label	—	—						
Trizma – EPA 537.1 Light Blue Label FB	—	—						
Ammonia Acetate - EPA 533 Purple Label FB	—	—						
Bottled Water	—	—						
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—						
Clear Glass Nonpreserve	—	—	2V					
OTHER:	—	—						

Split

	Container	Preservative	Lot #	Initials	Date/Time	Preservation Check
S P						pH Lot #
S P						Cl Lot #

Comments

*Preservation check completed by lab performing analysis.

✔ **Indicates Blanks Received**

504 ___ 524.2 ___ TTHM ___ 537/533 ___ TCP ___

✔ **MS/MSD Received Method:** ________

Labeled by: **Labels Checked by:**

Scanned: Con Rush/Short HT Page: ________ Time: ______

AGA2611 GSIWA3956 01/20/2023

Pace Analytical Services BSK 2.6 #53

Chair

4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.pacelabs.com

Page ___ of ___

Report To: Client: GSI Water Sln's	Project #:
Attn: Nate Page	Project Name: Morro Bay IPR
Street Address: 5855 Capistrano Ave Ste C	
City, State, Zip: Atascadero, CA 93422	Sampler(s) Name Printed: Nate Page
Phone: 9706723913 Fax:	
Email: npage@gsiws.com	
Work Order #:	

Analysis Requested: Please see attached "Complete Suite"

Comments: EDD requested, NO Geotracker

Result Request **Surcharge: [X] STD (10 Days) [ ] 5 Day** [ ] 4 Day** [ ] 3 Day** [ ] 2 Day** [ ] 1 Day**
Rush requests must be approved

Sample #	Description	Date Sampled	Time Sampled	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Notes
Pilot	Inj Well	1/19/23	1100				X			Shipped GLS
ZIP-01		1/19/23	1150				X			" "

NA 1-20-23

Billing [X] Same as above
Client:
Address:
City: State Zip
Attn:
P.O. #:

System # (Needed for CLIP)
GIS/Key [ ] Well Star [ ]

EDF Required Geotracker [ ] Yes [X] No Global ID

Relinquished By	Date	Time	Received By	Date	Time
1. Relinquished By	1/19/23	1300	1. Received By		
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By N Hermano	1-20-23	1612

Pace Analytical Bakersfield does not accept samples containing radioactive material above background levels. Samples containing radioactive material must be disclosed prior to receipt. Any samples suspected of containing radioactive material above background levels will not be accepted and will be returned to client.

GLS WT BW

REV 12/2021

Parameter Type	Parameter	Method
~~Field~~	~~Dissolved oxygen~~	~~YSI 556 or similar~~
	~~pH~~	~~EPA 150.1~~
	~~Oxidation-Reduction Potential~~	~~SM2580B~~
	~~Specific Conductance~~	~~EPA 120.1~~
	~~Temperature~~	~~YSI 556 or similar~~
	~~Turbidity~~	~~EPA 180.1~~
Inorganics	Alkalinity	SM2320B
	Ammonia	SM4500NH3G
	Bicarbonate	SM2320B
	Carbonate	SM2320B
	Chloride	EPA 300.0
	Cyanide (HCN)	EPA 335.4
	Fluoride	EPA 300.0
	Hardness	EPA 200.8
	Nitrate+Nitrite (total N)	EPA 300.0
	Nitrate (as N)	EPA 300.0
	Nitrite-N	EPA 300.0
	Orthophosphate as P	EPA 300.0
	Total Silica (as SiO2)	EPA 200.7
	Dissolved Silica (as SiO2)	EPA 200.7
	Sulfate	EPA 300.0
	Sulfide	SM4500S2F
Metals (Dissolved)	Aluminum	EPA 200.7
	Antimony	EPA 200.8
	Arsenic	EPA 200.8
	Barium	EPA 200.8
	Beryllium	EPA 200.8
	Cadmium	EPA 200.8
	Calcium	EPA 200.7
	Chromium	EPA 200.8
	Cobalt	EPA 200.8
	Copper	EPA 200.8
	Iron	EPA 200.7
	Lead	EPA 200.8
	Magnesium	EPA 200.7
	Manganese	EPA 200.8
	Mercury	EPA 245.7
	Molybdenum	EPA 200.8
	Nickel	EPA 200.8
	Potassium	EPA 200.7
	Selenium	EPA 200.8
	Silver	EPA 200.8

	Sodium	EPA 200.7
	Strontium	EPA 200.8
	Thallium	EPA 200.8
	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder:	2301E47
Report Created for:	BSK Analytical Laboratories
	550 West Locust Avenue Fresno, CA 93650
Project Contact:	Heather White
Project P.O.:	
Project:	AGA2611
Project Received:	01/24/2023

Analytical Report reviewed & approved for release on 01/31/2023 by:

Susan Thompson
Project Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in a case narrative.

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Glossary of Terms & Qualifier Definitions

Client: BSK Analytical Laboratories **WorkOrder:** 2301E47

Project: AGA2611

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
CPT	Consumer Product Testing not NELAP Accredited
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 μm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
LQL	Lowest Quantitation Level
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	MDL is the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results. Definition and Procedure for the Determination of the Method Detection Limit, Revision 2, 40CFR, Part 136, Appendix B, EPA 821-R-16-006, December 2016.
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NA	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting limit is the lowest level that can be reliably determined within specified limits of precision and accuracy during routine laboratory operating conditions. (The RL cannot be lower than the lowest calibration standard used in the initial calibration of the instrument and must be greater than the MDL.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
TZA	TimeZone Net Adjustment for sample collected outside of MAI's UTC.
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Glossary of Terms & Qualifier Definitions

Client: BSK Analytical Laboratories **WorkOrder:** 2301E47

Project: AGA2611

Analytical Qualifiers

H	Sample was analyzed out of hold time

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Analytical Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2301E47
Date Received:	01/24/2023 9:50	**Extraction Method:**	RSK175
Date Prepared:	01/26/2023	**Analytical Method:**	RSK175
Project:	AGA2611	**Unit:**	µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AGA2611-01	2301E47-001A	Water	01/19/2023 11:00	GC26 0126230112.D	262600

Analytes	Result	RL	DF	Date Analyzed
Ethane	ND	0.24	1	01/26/2023 16:12
Ethylene	ND	0.31	1	01/26/2023 16:12
Methane	**1.1**	0.12	1	01/26/2023 16:12

Analyst(s): MBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AGA2611-02	2301E47-002A	Water	01/19/2023 11:50	GC26 0126230113.D	262600

Analytes	Result	RL	DF	Date Analyzed
Ethane	ND	0.24	1	01/26/2023 16:26
Ethylene	ND	0.31	1	01/26/2023 16:26
Methane	**0.56**	0.12	1	01/26/2023 16:26

Analyst(s): MBE

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Analytical Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2301E47
Date Received:	01/24/2023 9:50	**Extraction Method:**	SM4500-S^{-2} D-2000
Date Prepared:	01/27/2023	**Analytical Method:**	SM4500 S^{-2} D
Project:	AGA2611	**Unit:**	mg/L

Total Sulfide - S

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AGA2611-01	2301E47-001B	Water	01/19/2023 11:00	SPECTROPHOTOMETER2	262673

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND	H	0.10	1	01/27/2023 18:07

Analyst(s): IGC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AGA2611-02	2301E47-002B	Water	01/19/2023 11:50	SPECTROPHOTOMETER2	262673

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND	H	0.10	1	01/27/2023 18:08

Analyst(s): IGC

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Quality Control Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2301E47
Date Prepared:	01/26/2023	**BatchID:**	262600
Date Analyzed:	01/26/2023	**Extraction Method:**	RSK175
Instrument:	GC26	**Analytical Method:**	RSK175
Matrix:	Water	**Unit:**	µg/L
Project:	AGA2611	**Sample ID:**	MB/LCS/LCSD-262600

QC Summary Report for RSK175

Analyte	MB Result	MDL	RL			
Ethane	ND	0.24	0.24	-	-	-
Ethylene	ND	0.31	0.31	-	-	-
Methane	ND	0.12	0.12	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Ethane	2.5	2.6	2.38	105	111	70-130	5.11	20
Ethylene	3.3	3.5	3.08	108	114	70-130	5.68	20
Methane	1.2	1.3	1.17	107	110	70-130	3.03	20

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Quality Control Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2301E47
Date Prepared:	01/27/2023	**BatchID:**	262673
Date Analyzed:	01/27/2023	**Extraction Method:**	SM4500-S^{-2} D-2000
Instrument:	SPECTROPHOTOMETER2	**Analytical Method:**	SM4500 S^{-2} D
Matrix:	Water	**Unit:**	mg/L
Project:	AGA2611	**Sample ID:**	MB/LCS/LCSD-262673 2301E47-002BMS/MSD

QC Summary Report For SM4500 S-2D

Analyte	MB Result	MDL	RL			
Total Sulfide	ND	0.044	0.10	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Total Sulfide	0.48	0.47	0.50	95	94	80-120	1.22	20

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Total Sulfide	1	0.47	0.44	0.50	ND	94	87	80-120	7.64	20

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CHAIN-OF-CUSTODY RECORD

WorkOrder: 2301E47 **ClientCode: BSKF**

☐ WaterTrax ☐ CLIP ☐ EDF ☐ EQuIS ☐ Dry-Weight ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☐ Detection Summary ☐ Excel

Report to:
Heather White
BSK Analytical Laboratories
550 West Locust Avenue
Fresno, CA 93650
(559) 497-2888 FAX: (559) 485-6935

Email: hwhite@bskassociates.com
cc/3rd Party:
PO:
Project: AGA2611

Bill to:
Accounts Payable
BSK Analytical Laboratories
550 West Locust Avenue
Fresno, CA 93650

Requested TAT: **5 days;**

Date Received: **01/24/2023**
Date Logged: **01/25/2023**

Lab ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below) 1	2	3	4	5	6	7	8	9	10	11	12
2301E47-001	AGA2611-01	Water	1/19/2023 11:00	☐	A	B										
2301E47-002	AGA2611-02	Water	1/19/2023 11:50	☐	A	B										

Test Legend:

1	RSK175_W	2	SULFIDE_W	3		4	
5		6		7		8	
9		10		11		12	

Prepared by:

Comments:

NOTE: Soil samples are discarded 60 days after receipt unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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WORK ORDER SUMMARY

Client Name: BSK ANALYTICAL LABORATORIES **Project:** AGA2611 **Work Order:** 2301E47
Client Contact: Heather White **QC Level:** LEVEL 2
Contact's Email: hwhite@bskassociates.com **Comments:** **Date Logged:** 1/25/2023

☐ WaterTrax ☐ CLIP ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	U**	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	Sub Out
001A	AGA2611-01	Water	RSK175 <Ethane_4, Ethylene_4, Methane_4>	1	VOA w/ HCl	☐	☐	☐	1/19/2023 11:00	5 days	1/31/2023		☐	☐
001B	AGA2611-01	Water	SM4500S2D (Total Sulfide)	1	500mL HDPE w/ NaOH + ZnAc	☐	☐	☐	1/19/2023 11:00	5 days	1/31/2023		☐	☐
002A	AGA2611-02	Water	RSK175 <Ethane_4, Ethylene_4, Methane_4>	1	VOA w/ HCl	☐	☐	☐	1/19/2023 11:50	5 days	1/31/2023	None	☐	☐
002B	AGA2611-02	Water	SM4500S2D (Total Sulfide)	1	500mL HDPE w/ NaOH + ZnAc	☐	☐	☐	1/19/2023 11:50	5 days	1/31/2023	None	☐	☐

NOTES: * STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- Organic extracts are held for 40 days before disposal; Inorganic extract are held for 30 days.

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

U = An unpreserved container was received for a method that suggests a preservation in order to extend hold time for analysis.**

BSK ASSOCIATES

SUBCONTRACT ORDER

AGA2611

2301E47

SENDING LABORATORY:

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
Phone: 559-497-2888
Fax: 559-485-6935
Project Manager: Heather S. White
E-mail: hwhite@bskassociates.com

RECEIVING LABORATORY:

McCampbell Analytical, Inc.
1534 Willow Pass Road
Pittsburg, CA 94565-1701
Phone :(925) 252-9262
Fax: (925) 252-9269
Turnaround (Days): Standard
QC Deliverables: I Std III IV

Sample ID	Samp Desc	Comments		Sample Date
AGA2611-01	Pilot Inj Well	Client Matrix	Ground Water	01/19/2023 11:00
		Sampled By:	Nate Page	
Lab Matrix:	Water			
	Analysis:			
	EXT-RSK-175 Methane, Ethane, Ethene	voa with HCL		
	EXT-Sulfide			
AGA2611-02	Zip 01	Client Matrix	Ground Water	01/19/2023 11:50
		Sampled By:	Nate Page	
Lab Matrix:	Water			
	Analysis:			
	EXT-RSK-175 Methane, Ethane, Ethene	voa with HCL		
	EXT-Sulfide			

State Forms: **No** System Name:

Released By	Date	Received By	Date
[signature]	1.23.23	[signature]	1/24/2023 0950

650:558665084

0.8C n24

Page 2 of 2

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Sample Receipt Checklist

Client Name:	BSK Analytical Laboratories	Date and Time Received:	1/24/2023 09:50
Project:	AGA2611	Date Logged:	1/25/2023
		Received by:	Agustina Venegas
WorkOrder №:	2301E47 Matrix: Water	Logged by:	
Carrier:	Golden State Overnight		

Chain of Custody (COC) Information

	Yes	No	NA
Chain of custody present?	☑	☐	
Chain of custody signed when relinquished and received?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Sample IDs noted by Client on COC?	☑	☐	
Date and Time of collection noted by Client on COC?	☑	☐	
Sampler's name noted on COC?	☑	☐	
COC agrees with Quote?	☐	☐	☑

Sample Receipt Information

	Yes	No	NA
Custody seals intact on shipping container/cooler?	☐	☐	☑
Custody seals intact on sample bottles?	☐	☐	☑
Shipping container/cooler in good condition?	☑	☐	
Samples in proper containers/bottles?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	

Sample Preservation and Hold Time (HT) Information

	Yes	No	NA
All samples received within holding time?	☑	☐	☐
Samples Received on Ice?	☑	☐	
	(Ice Type: WET ICE)		
Sample/Temp Blank temperature	Temp: 0.8°C		☐
ZHS conditional analyses: VOA meets zero headspace requirement (VOCs, TPHg/BTEX, RSK)?	☑	☐	☐
Sample labels checked for correct preservation?	☑	☐	
pH acceptable upon receipt (Metal: <2; Nitrate 353.2/4500NO3: <2; 522: <4; 218.7: >8)?	☐	☐	☑
UCMR Samples:			
pH tested and acceptable upon receipt (200.7: ≤2; 533: 6 - 8; 537.1: 6 - 8)?	☐	☐	☑
Free Chlorine tested and acceptable upon receipt (<0.1mg/L) [not applicable to 200.7]?	☐	☐	☑

Comments:

Pace ANALYTICAL SERVICES BSK

4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.pacelabs.com

Chain of Custody Form

Page ____ of ____

Report To:			
Client:	GSI Water Soln s	Project #:	
Attn:	Nate Page	Project Name:	Morro Bay IPR
Street Address:	5855 Capistrano Ave	BID#	Ste C
City, State, Zip:	Atascadero, CA 93422	Sampler(s) Name Printed:	Nate Page
Phone:	9706873593 Fax:		
Email:	npage@gsiws.com		
Work Order #:			

Analysis Requested: Please See Attached "Complete Suite"

Comments: EDD requested, NO Geotracker

Sample #	Description	Date Sampled	Time Sampled	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Notes
Pilot Inj Well		1/19/23	1100				X			Shipped GLS
ZIP-01		1/19/23	1150				X			" "

Result Request **Surcharge
- [x] STD (10 Days)
- [ ] 5 Day**
- [ ] 4 Day**
- [ ] 3 Day**
- [ ] 2 Day**
- [ ] 1 Day**

Rush requests must be approved

Billing [x] Same as above

Client: ____
Address: ____
City: ____ State ____ Zip ____
Attn: ____
P.O. #: ____

System # (Needed for CLIP)

GIS/Key [ ] Well Star [ ]

EDF Required Geotracker [ ] Yes [x] No Global ID

Relinquished By	Date	Time	Received By	Date	Time
1. Relinquished By [signature]	1/19/23	1300	1. Received By		
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By		

Pace Analytical Bakersfield does not accept samples containing radioactive material above background levels. Samples containing radioactive material must be disclosed prior to receipt. Any samples suspected of containing radioactive material above background levels will not be accepted and will be returned to client.

REV 12/2021

Laboratory Reports

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)

AGA2611
2/21/2023
Invoice: AG03999

Nate Page
GSI Water Solutions, Inc
418 Chapala Street, Suite H
Santa Barbara, CA 93101

RE: Report for AGA2611 Morro Bay IPR - Complete Suite

Dear Nate Page,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 1/20/2023. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2016 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an “as received” basis.

If additional clarification of any information is required, please contact your Project Manager, Heather S. White , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Heather S. White, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021

BSK ASSOCIATES

Case Narrative

Project and Report Details		Invoice Details	
Client:	GSI Water Solutions, Inc	**Invoice To:**	GSI Water Solutions, Inc
Report To:	Nate Page	**Invoice Attn:**	Accounting
Project #:	Morro Bay IPR	**Project PO#:**	-
Received:	1/20/2023 - 16:12		
Report Due:	2/03/2023		

Sample Receipt Conditions

Cooler: Default Cooler

Temperature on Receipt ºC: 2.6

Containers Intact
COC/Labels Agree
Received On Wet Ice
Packing Material - Bubble Wrap
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

DP1.1	Sample Duplicate RPD exceeded method acceptance criteria.
HT2.0	Holding time exceeded. Sample was received at the lab past recommended holding time.
MS1.0	Matrix spike recoveries exceed control limits.
MS1.2	Matrix spike recovery exceeds lower control limit. Reported results for parent matrix should be considered estimated due to matrix interferences.

Report Distribution

Recipient(s)	Report Format	CC:
Nate Page	FINAL.RPT	
David Orourke	FINAL.RPT	
Accounting	FINAL.RPT	

BSK ASSOCIATES

Certificate of Analysis

Sample ID: AGA2611-01
Sampled By: Nate Page
Sample Description: Pilot Inj Well

Sample Date - Time: 01/19/2023 - 11:00
Matrix: Ground Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Alkalinity as CaCO3	SM 2320B	**110**	3.0	mg/L	1	AGA1271	01/23/23	01/23/23	
Bicarbonate as CaCO3	SM 2320B	**110**	3.0	mg/L	1	AGA1271	01/23/23	01/23/23	
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	AGA1271	01/23/23	01/23/23	
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	AGA1271	01/23/23	01/23/23	
Ammonia as N	EPA 350.1	ND	0.10	mg/L	1	AGA1282	01/23/23	01/23/23	
Bromate	EPA 317.0	ND	1.0	ug/L	1	AGA1245	01/21/23	01/21/23	
Chloride	EPA 300.0	**110**	1.0	mg/L	1	AGA1225	01/20/23	01/20/23	
Chemical Oxygen Demand	SM 5220D	ND	15	mg/L	1	AGB0441	02/07/23	02/07/23	
Color, Apparent	SM 2120B	**5.0**	5.0	CU	1	AGA1239	01/20/23 18:47	01/20/23	
Cyanide (total)	SM 4500-CN E	ND	5.0	ug/L	1	AGA1532	01/26/23	02/01/23	
Dissolved Organic Carbon	SM 5310C	**2.8**	0.20	mg/L	1	AGA1772	02/01/23	02/01/23	
Conductivity @ 25C	SM 2510B	**750**	1.0	umhos/cm	1	AGA1271	01/23/23	01/23/23	
Fluoride	EPA 300.0	**0.14**	0.10	mg/L	1	AGA1225	01/20/23	01/20/23	
Hexavalent Chromium	EPA 218.6	**0.13**	0.050	ug/L	1	AGA1766	01/31/23	01/31/23	
Langelier Index	SM 2330B	**-0.65**				AGB0283	02/03/23	02/03/23	
MBAS, Calculated as LAS, mol wt 340	SM 5540C	ND	0.050	mg/L	1	AGA1204	01/20/23 17:35	01/20/23	
Nitrate + Nitrite as N	CALC	ND	0.23	mg/L					
Nitrate as N	EPA 300.0	ND	0.23	mg/L	1	AGA1225	01/20/23 19:59	01/20/23	
Nitrite as N	EPA 300.0	**0.052**	0.050	mg/L	1	AGA1225	01/20/23 19:59	01/20/23	
Threshold Odor	SM 2150B	ND	1.0	T.O.N.	1	AGA1202	01/20/23 17:54	01/20/23	HT2.0
Orthophosphate as P	EPA 300.0	ND	0.20	mg/L	1	AGA1225	01/20/23 19:59	01/20/23	
Oxidation/Reduction Potential	Hach 10228	**150**	-10000	mV	1	AGA1249	01/20/23 22:35	01/20/23	
pH (1)	SM 4500-H+ B	**7.5**	0.0	pH Units	1	AGA1271	01/23/23 23:14	01/23/23	
pH Temperature in °C		**20.5**							
Sulfate as SO4	EPA 300.0	**76**	1.0	mg/L	1	AGA1225	01/20/23	01/20/23	
Total Dissolved Solids	SM 2540C	**410**	5.0	mg/L	1	AGA1355	01/24/23	01/24/23	
Total Suspended Solids	SM 2540D	**9.8**	5.0	mg/L	1	AGA1357	01/24/23	01/24/23	
Turbidity	SM 2130B	**2.5**	0.10	NTU	1	AGA1239	01/20/23 18:32	01/20/23	

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Aluminum - Dissolved (1)	EPA 200.7	ND	50	ug/L	1	AGA1764	01/31/23	02/01/23	
Antimony - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Arsenic - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Barium - Dissolved (1)	EPA 200.8	**54**	5.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Beryllium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Cadmium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Calcium - Dissolved (1)	EPA 200.7	**31**	0.10	mg/L	1	AGA1764	01/31/23	02/01/23	
Chromium - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA1764	01/31/23	02/01/23	
Cobalt - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA1764	01/31/23	02/01/23	
Copper - Dissolved (1)	EPA 200.8	ND	5.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Hardness as CaCO3, Dissolved	SM 2340B	**160**	0.41	mg/L					

Certificate of Analysis

Sample ID: AGA2611-01
Sampled By: Nate Page
Sample Description: Pilot Inj Well

Sample Date - Time: 01/19/2023 - 11:00
Matrix: Ground Water
Sample Type: Grab

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Iron - Dissolved (1)	EPA 200.7	**75**	30	ug/L	1	AGA1764	01/31/23	02/01/23	
Lead - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Magnesium - Dissolved (1)	EPA 200.7	**21**	0.10	mg/L	1	AGA1764	01/31/23	02/01/23	
Manganese - Dissolved (1)	EPA 200.7	**94**	10	ug/L	1	AGA1764	01/31/23	02/01/23	
Mercury - Dissolved (1)	EPA 245.7	ND	0.20	ug/L	1	AGA1365	01/24/23	01/25/23	
Molybdenum - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA1764	01/31/23	02/01/23	
Nickel - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA1764	01/31/23	02/01/23	
Potassium - Dissolved (1)	EPA 200.7	**3.3**	2.0	mg/L	1	AGA1764	01/31/23	02/01/23	
Selenium - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Silica (SiO2)	EPA 200.7	**14**	0.20	mg/L	1	AGA1414	01/25/23	01/26/23	
Silica (SiO2) - Dissolved (1)	EPA 200.7	**13**	0.20	mg/L	1	AGA1764	01/31/23	02/01/23	
Silver - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA1764	01/31/23	02/01/23	
Sodium - Dissolved (1)	EPA 200.7	**86**	1.0	mg/L	1	AGA1764	01/31/23	02/01/23	
Strontium - Dissolved (1)	EPA 200.8	**280**	1.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Thallium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Uranium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Vanadium - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA1764	01/31/23	02/01/23	
Zinc - Dissolved (1)	EPA 200.8	ND	50	ug/L	1	AGA1764	01/31/23	02/01/23	

Organics

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Trihalomethanes by GC-MS									
Bromodichloromethane	EPA 524.2	**10**	0.50	ug/L	1	AGA1264	01/22/23	01/23/23	
Bromoform	EPA 524.2	**4.7**	0.50	ug/L	1	AGA1264	01/22/23	01/23/23	
Chloroform	EPA 524.2	**6.9**	0.50	ug/L	1	AGA1264	01/22/23	01/23/23	
Dibromochloromethane	EPA 524.2	**11**	0.50	ug/L	1	AGA1264	01/22/23	01/23/23	
Total Trihalomethanes		**33**	0.50	ug/L					
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	103 %	*Acceptable range: 70-130 %*						
Surrogate: Bromofluorobenzene	EPA 524.2	101 %	*Acceptable range: 70-130 %*						
Haloacetic Acids by GC-MS									
Dibromoacetic Acid (DBAA)	EPA 552.3	ND	1.0	ug/L	1	AGA1604	01/27/23	01/27/23	
Dichloroacetic Acid (DCAA)	EPA 552.3	**1.4**	1.0	ug/L	1	AGA1604	01/27/23	01/27/23	
Monobromoacetic Acid (MBAA)	EPA 552.3	ND	1.0	ug/L	1	AGA1604	01/27/23	01/27/23	
Monochloroacetic Acid (MCAA)	EPA 552.3	ND	2.0	ug/L	1	AGA1604	01/27/23	01/27/23	
Trichloroacetic Acid (TCAA)	EPA 552.3	**2.2**	1.0	ug/L	1	AGA1604	01/27/23	01/27/23	
Total Haloacetic Acids		**3.6**	2.0	ug/L					
Surrogate: 2-Bromobutanoic Acid	EPA 552.3	111 %	*Acceptable range: 70-130 %*						

Certificate of Analysis

Sample ID: AGA2611-01RE1
Sampled By: Nate Page
Sample Description: Pilot Inj Well

Sample Date - Time: 01/19/2023 - 11:00
Matrix: Ground Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Total Organic Carbon	SM 5310C	**2.5**	0.20	mg/L	1	AGA1617	01/27/23	01/27/23	

Certificate of Analysis

Sample ID: AGA2611-02
Sampled By: Nate Page
Sample Description: Zip 01

Sample Date - Time: 01/19/2023 - 11:50
Matrix: Ground Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Alkalinity as CaCO3	SM 2320B	**140**	3.0	mg/L	1	AGA1271	01/23/23	01/23/23	
Bicarbonate as CaCO3	SM 2320B	**140**	3.0	mg/L	1	AGA1271	01/23/23	01/23/23	
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	AGA1271	01/23/23	01/23/23	
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	AGA1271	01/23/23	01/23/23	
Ammonia as N	EPA 350.1	ND	0.10	mg/L	1	AGA1282	01/23/23	01/23/23	
Bromate	EPA 317.0	ND	1.0	ug/L	1	AGA1245	01/21/23	01/21/23	
Chloride	EPA 300.0	**120**	1.0	mg/L	1	AGA1225	01/20/23	01/20/23	
Chemical Oxygen Demand	SM 5220D	ND	15	mg/L	1	AGB0441	02/07/23	02/07/23	
Color, Apparent	SM 2120B	ND	5.0	CU	1	AGA1239	01/20/23 18:48	01/20/23	
Cyanide (total)	SM 4500-CN E	ND	5.0	ug/L	1	AGA1532	01/26/23	02/01/23	
Dissolved Organic Carbon	SM 5310C	**2.2**	0.20	mg/L	1	AGA1772	02/01/23	02/01/23	
Conductivity @ 25C	SM 2510B	**820**	1.0	umhos/cm	1	AGA1271	01/23/23	01/23/23	
Fluoride	EPA 300.0	**0.19**	0.10	mg/L	1	AGA1225	01/20/23	01/20/23	
Hexavalent Chromium	EPA 218.6	**0.093**	0.050	ug/L	1	AGA1766	01/31/23	01/31/23	
Langelier Index	SM 2330B	**-0.56**				AGB0283	02/03/23	02/03/23	
MBAS, Calculated as LAS, mol wt 340	SM 5540C	ND	0.050	mg/L	1	AGA1204	01/20/23 17:35	01/20/23	
Nitrate + Nitrite as N	CALC	ND	0.23	mg/L					
Nitrate as N	EPA 300.0	ND	0.23	mg/L	1	AGA1225	01/20/23 20:13	01/20/23	
Nitrite as N	EPA 300.0	ND	0.050	mg/L	1	AGA1225	01/20/23 20:13	01/20/23	
Threshold Odor	SM 2150B	ND	1.0	T.O.N.	1	AGA1202	01/20/23 17:54	01/20/23	HT2.0
Orthophosphate as P	EPA 300.0	ND	0.20	mg/L	1	AGA1225	01/20/23 20:13	01/20/23	
Oxidation/Reduction Potential	Hach 10228	**140**	-10000	mV	1	AGA1249	01/20/23 22:39	01/20/23	
pH (1)	SM 4500-H+ B	**7.4**	0.0	pH Units	1	AGA1271	01/23/23 23:26	01/23/23	
pH Temperature in °C		**20.8**							
Sulfate as SO4	EPA 300.0	**85**	1.0	mg/L	1	AGA1225	01/20/23	01/20/23	
Total Dissolved Solids	SM 2540C	**460**	5.0	mg/L	1	AGA1355	01/24/23	01/24/23	
Total Suspended Solids	SM 2540D	ND	5.0	mg/L	1	AGA1357	01/24/23	01/24/23	
Turbidity	SM 2130B	**0.29**	0.10	NTU	1	AGA1239	01/20/23 18:33	01/20/23	

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Aluminum - Dissolved (1)	EPA 200.7	ND	50	ug/L	1	AGA1764	01/31/23	02/01/23	
Antimony - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Arsenic - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Barium - Dissolved (1)	EPA 200.8	**68**	5.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Beryllium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Cadmium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Calcium - Dissolved (1)	EPA 200.7	**34**	0.10	mg/L	1	AGA1764	01/31/23	02/01/23	
Chromium - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA1764	01/31/23	02/01/23	
Cobalt - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA1764	01/31/23	02/01/23	
Copper - Dissolved (1)	EPA 200.8	ND	5.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Hardness as CaCO3, Dissolved	SM 2340B	**210**	0.41	mg/L					

Certificate of Analysis

Sample ID: AGA2611-02
Sampled By: Nate Page
Sample Description: Zip 01

Sample Date - Time: 01/19/2023 - 11:50
Matrix: Ground Water
Sample Type: Grab

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Iron - Dissolved (1)	EPA 200.7	ND	30	ug/L	1	AGA1764	01/31/23	02/01/23	
Lead - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Magnesium - Dissolved (1)	EPA 200.7	**32**	0.10	mg/L	1	AGA1764	01/31/23	02/01/23	
Manganese - Dissolved (1)	EPA 200.7	**270**	10	ug/L	1	AGA1764	01/31/23	02/01/23	
Mercury - Dissolved (1)	EPA 245.7	ND	0.20	ug/L	1	AGA1365	01/24/23	01/25/23	
Molybdenum - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA1764	01/31/23	02/01/23	
Nickel - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA1764	01/31/23	02/01/23	
Potassium - Dissolved (1)	EPA 200.7	ND	2.0	mg/L	1	AGA1764	01/31/23	02/01/23	
Selenium - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Silica (SiO2)	EPA 200.7	**19**	0.20	mg/L	1	AGA1414	01/25/23	01/26/23	
Silica (SiO2) - Dissolved (1)	EPA 200.7	**20**	0.20	mg/L	1	AGA1764	01/31/23	02/01/23	
Silver - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA1764	01/31/23	02/01/23	
Sodium - Dissolved (1)	EPA 200.7	**81**	1.0	mg/L	1	AGA1764	01/31/23	02/01/23	
Strontium - Dissolved (1)	EPA 200.8	**260**	1.0	ug/L	1	AGA1764	01/31/23	02/01/23	MS1.2
Thallium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Uranium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGA1764	01/31/23	02/01/23	
Vanadium - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGA1764	01/31/23	02/01/23	
Zinc - Dissolved (1)	EPA 200.8	ND	50	ug/L	1	AGA1764	01/31/23	02/01/23	

Organics

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Trihalomethanes by GC-MS									
Bromodichloromethane	EPA 524.2	**8.1**	0.50	ug/L	1	AGA1264	01/22/23	01/23/23	
Bromoform	EPA 524.2	**3.1**	0.50	ug/L	1	AGA1264	01/22/23	01/23/23	
Chloroform	EPA 524.2	**4.5**	0.50	ug/L	1	AGA1264	01/22/23	01/23/23	
Dibromochloromethane	EPA 524.2	**8.1**	0.50	ug/L	1	AGA1264	01/22/23	01/23/23	
Total Trihalomethanes		**24**	0.50	ug/L					
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	105 %	*Acceptable range: 70-130 %*						
Surrogate: Bromofluorobenzene	EPA 524.2	103 %	*Acceptable range: 70-130 %*						
Haloacetic Acids by GC-MS									
Dibromoacetic Acid (DBAA)	EPA 552.3	ND	1.0	ug/L	1	AGA1604	01/27/23	01/27/23	
Dichloroacetic Acid (DCAA)	EPA 552.3	ND	1.0	ug/L	1	AGA1604	01/27/23	01/27/23	
Monobromoacetic Acid (MBAA)	EPA 552.3	ND	1.0	ug/L	1	AGA1604	01/27/23	01/27/23	
Monochloroacetic Acid (MCAA)	EPA 552.3	ND	2.0	ug/L	1	AGA1604	01/27/23	01/27/23	
Trichloroacetic Acid (TCAA)	EPA 552.3	ND	1.0	ug/L	1	AGA1604	01/27/23	01/27/23	
Total Haloacetic Acids		ND	2.0	ug/L					
Surrogate: 2-Bromobutanoic Acid	EPA 552.3	107 %	*Acceptable range: 70-130 %*						

Certificate of Analysis

Sample ID: AGA2611-02RE1
Sampled By: Nate Page
Sample Description: Zip 01

Sample Date - Time: 01/19/2023 - 11:50
Matrix: Ground Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Total Organic Carbon	SM 5310C	**1.7**	0.20	mg/L	1	AGA1617	01/27/23	01/27/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 218.6 - Quality Control

Batch: AGA1766 Prepared: 1/31/2023

Prep Method: Method Specific Preparation Analyst: GJA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1766-BLK1)											
Hexavalent Chromium	ND	0.050	ug/L							01/31/23	
Blank Spike (AGA1766-BS1)											
Hexavalent Chromium	2.0	0.050	ug/L	2.0	ND	99	90-110			01/31/23	
Blank Spike Dup (AGA1766-BSD1)											
Hexavalent Chromium	2.0	0.050	ug/L	2.0	ND	99	90-110	0	10	01/31/23	
Matrix Spike (AGA1766-MS1), Source: AGA2611-01											
Hexavalent Chromium	2.2	0.050	ug/L	2.0	0.13	104	90-110			01/31/23	
Matrix Spike (AGA1766-MS2), Source: AGA2611-02											
Hexavalent Chromium	2.2	0.050	ug/L	2.0	0.093	104	90-110			01/31/23	
Matrix Spike Dup (AGA1766-MSD1), Source: AGA2611-01											
Hexavalent Chromium	2.2	0.050	ug/L	2.0	0.13	104	90-110	0	10	01/31/23	
Matrix Spike Dup (AGA1766-MSD2), Source: AGA2611-02											
Hexavalent Chromium	2.2	0.050	ug/L	2.0	0.093	105	90-110	1	10	01/31/23	

EPA 300.0 - Quality Control

Batch: AGA1225 Prepared: 1/20/2023

Prep Method: Method Specific Preparation Analyst: GJA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1225-BLK1)											
Fluoride	ND	0.10	mg/L							01/20/23	
Nitrate as N	ND	0.23	mg/L							01/20/23	
Chloride	ND	1.0	mg/L							01/20/23	
Nitrite as N	ND	0.050	mg/L							01/20/23	
Orthophosphate as P	ND	0.20	mg/L							01/20/23	
Sulfate as SO4	ND	1.0	mg/L							01/20/23	
Blank Spike (AGA1225-BS1)											
Fluoride	0.94	0.10	mg/L	1.0	ND	94	90-110			01/20/23	
Nitrate as N	21	0.23	mg/L	23	ND	95	90-110			01/20/23	
Chloride	95	1.0	mg/L	100	ND	95	90-110			01/20/23	
Nitrite as N	0.97	0.050	mg/L	1.0	ND	97	90-110			01/20/23	
Orthophosphate as P	4.9	0.20	mg/L	5.0	ND	97	90-110			01/20/23	
Sulfate as SO4	96	1.0	mg/L	100	ND	96	90-110			01/20/23	
Matrix Spike (AGA1225-MS1), Source: AGA1926-54											
Fluoride	0.53	0.10	mg/L	0.50	ND	95	80-120			01/20/23	
Nitrate as N	12	0.23	mg/L	11	0.96	96	80-120			01/20/23	
Chloride	150	1.0	mg/L	50	110	85	80-120			01/20/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 300.0 - Quality Control

Batch: AGA1225 Prepared: 1/20/2023
Prep Method: Method Specific Preparation Analyst: GJA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Matrix Spike (AGA1225-MS1), Source: AGA1926-54											
Nitrite as N	0.48	0.050	mg/L	0.50	ND	96	75-125			01/20/23	
Orthophosphate as P	2.5	0.20	mg/L	2.5	0.33	86	80-120			01/20/23	
Sulfate as SO4	62	1.0	mg/L	50	12	100	80-120			01/20/23	
Matrix Spike (AGA1225-MS2), Source: AGA2568-05											
Fluoride	0.64	0.10	mg/L	0.50	0.15	97	80-120			01/20/23	
Nitrate as N	14	0.23	mg/L	11	2.7	98	80-120			01/20/23	
Chloride	60	1.0	mg/L	50	12	97	80-120			01/20/23	
Nitrite as N	0.49	0.050	mg/L	0.50	ND	97	75-125			01/20/23	
Orthophosphate as P	2.3	0.20	mg/L	2.5	ND	93	80-120			01/20/23	
Sulfate as SO4	52	1.0	mg/L	50	3.3	98	80-120			01/20/23	
Matrix Spike Dup (AGA1225-MSD1), Source: AGA1926-54											
Fluoride	0.53	0.10	mg/L	0.50	ND	94	80-120	1	10	01/20/23	
Nitrate as N	12	0.23	mg/L	11	0.96	96	80-120	0	20	01/20/23	
Chloride	150	1.0	mg/L	50	110	84	80-120	0	20	01/20/23	
Nitrite as N	0.48	0.050	mg/L	0.50	ND	96	75-125	0	20	01/20/23	
Orthophosphate as P	2.5	0.20	mg/L	2.5	0.33	88	80-120	2	20	01/20/23	
Sulfate as SO4	62	1.0	mg/L	50	12	99	80-120	0	20	01/20/23	
Matrix Spike Dup (AGA1225-MSD2), Source: AGA2568-05											
Fluoride	0.63	0.10	mg/L	0.50	0.15	96	80-120	1	10	01/20/23	
Nitrate as N	14	0.23	mg/L	11	2.7	99	80-120	1	20	01/20/23	
Chloride	61	1.0	mg/L	50	12	98	80-120	1	20	01/20/23	
Nitrite as N	0.49	0.050	mg/L	0.50	ND	98	75-125	1	20	01/20/23	
Orthophosphate as P	2.4	0.20	mg/L	2.5	ND	97	80-120	4	20	01/20/23	
Sulfate as SO4	53	1.0	mg/L	50	3.3	99	80-120	1	20	01/20/23	

EPA 317.0 - Quality Control

Batch: AGA1245 Prepared: 1/21/2023
Prep Method: Method Specific Preparation Analyst: DXR

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1245-BLK1)											
Bromate	ND	1.0	ug/L							01/21/23	
Blank Spike (AGA1245-BS1)											
Bromate	9.9	1.0	ug/L	10	ND	99	85-115			01/21/23	
Blank Spike Dup (AGA1245-BSD1)											
Bromate	9.7	1.0	ug/L	10	ND	97	85-115	2	10	01/21/23	
Matrix Spike (AGA1245-MS1), Source: AGA2611-01											
Bromate	8.5	1.0	ug/L	10	ND	85	75-125			01/21/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 317.0 - Quality Control											
Batch: AGA1245										Prepared: 1/21/2023	
Prep Method: Method Specific Preparation										Analyst: DXR	
Matrix Spike Dup (AGA1245-MSD1), Source: AGA2611-01											
Bromate	8.4	1.0	ug/L	10	ND	84	75-125	1	10	01/21/23	
EPA 350.1 - Quality Control											
Batch: AGA1282										Prepared: 1/23/2023	
Prep Method: Method Specific Preparation										Analyst: CTD	
Blank (AGA1282-BLK1)											
Ammonia as N	ND	0.10	mg/L							01/23/23	
Blank Spike (AGA1282-BS1)											
Ammonia as N	4.0	0.10	mg/L	4.0	ND	100	90-110			01/23/23	
Blank Spike Dup (AGA1282-BSD1)											
Ammonia as N	4.0	0.10	mg/L	4.0	ND	100	90-110	0	20	01/23/23	
Matrix Spike (AGA1282-MS1), Source: AGA2392-01											
Ammonia as N	3.8	0.10	mg/L	4.0	ND	96	90-110			01/23/23	
Matrix Spike (AGA1282-MS2), Source: SGA0383-01											
Ammonia as N	3.9	0.10	mg/L	4.0	ND	97	90-110			01/23/23	
Hach 10228 - Quality Control											
Batch: AGA1249										Prepared: 1/20/2023	
Prep Method: Method Specific Preparation										Analyst: DXR	
Duplicate (AGA1249-DUP1), Source: AGA2611-01											
Oxidation/Reduction Potential	140	-10000	mV		150			4	20	01/20/23	
SM 2120B - Quality Control											
Batch: AGA1239										Prepared: 1/20/2023	
Prep Method: Method Specific Preparation										Analyst: BCB	
Blank (AGA1239-BLK1)											
Color, Apparent	ND	5.0	CU							01/20/23	
Duplicate (AGA1239-DUP1), Source: AGA2480-01											
Color, Apparent	ND	5.0	CU		ND				20	01/20/23	
SM 2130B - Quality Control											
Batch: AGA1239										Prepared: 1/20/2023	
Prep Method: Method Specific Preparation										Analyst: BCB	
Blank (AGA1239-BLK1)											
Turbidity	ND	0.10	NTU							01/20/23	

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BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2130B - Quality Control											
Batch: AGA1239										Prepared: 1/20/2023	
Prep Method: Method Specific Preparation										Analyst: BCB	
Duplicate (AGA1239-DUP1), Source: AGA2480-01											
Turbidity	0.20	0.10	NTU		0.31			43	20	01/20/23	DP1.1
SM 2150B - Quality Control											
Batch: AGA1202										Prepared: 1/20/2023	
Prep Method: Method Specific Preparation										Analyst: BCB	
Blank (AGA1202-BLK1)											
Threshold Odor	ND	1.0	T.O.N.							01/20/23	
Blank (AGA1202-BLK2)											
Threshold Odor	ND	1.0	T.O.N.							01/20/23	
SM 2320B - Quality Control											
Batch: AGA1271										Prepared: 1/23/2023	
Prep Method: Method Specific Preparation										Analyst: CMH	
Blank (AGA1271-BLK1)											
Alkalinity as CaCO3	ND	3.0	mg/L							01/23/23	
Bicarbonate as CaCO3	ND	3.0	mg/L							01/23/23	
Carbonate as CaCO3	ND	3.0	mg/L							01/23/23	
Hydroxide as CaCO3	ND	3.0	mg/L							01/23/23	
Blank Spike (AGA1271-BS1)											
Alkalinity as CaCO3	100	3.0	mg/L	100	ND	102	80-120			01/23/23	
Blank Spike Dup (AGA1271-BSD1)											
Alkalinity as CaCO3	100	3.0	mg/L	100	ND	100	80-120	3	20	01/23/23	
Duplicate (AGA1271-DUP1), Source: AGA2611-02											
Alkalinity as CaCO3	140	3.0	mg/L		140			0	10	01/23/23	
Bicarbonate as CaCO3	140	3.0	mg/L		140			0	10	01/23/23	
Carbonate as CaCO3	ND	3.0	mg/L		ND				10	01/23/23	
Hydroxide as CaCO3	ND	3.0	mg/L		ND				10	01/23/23	
SM 2510B - Quality Control											
Batch: AGA1271										Prepared: 1/23/2023	
Prep Method: Method Specific Preparation										Analyst: CMH	
Blank (AGA1271-BLK1)											
Conductivity @ 25C	ND	1.0	umhos/cm							01/23/23	
Blank Spike (AGA1271-BS1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400	ND	100	90-110			01/23/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2510B - Quality Control											
Batch: AGA1271 Prepared: 1/23/2023											
Prep Method: Method Specific Preparation Analyst: CMH											
Blank Spike Dup (AGA1271-BSD1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400	ND	101	90-110	1	5	01/23/23	
Duplicate (AGA1271-DUP1), Source: AGA2611-02											
Conductivity @ 25C	820	1.0	umhos/cm		820			0	5	01/23/23	
SM 2540C - Quality Control											
Batch: AGA1355 Prepared: 1/24/2023											
Prep Method: Method Specific Preparation Analyst: EMN											
Blank (AGA1355-BLK1)											
Total Dissolved Solids	ND	5.0	mg/L							01/24/23	
Blank Spike (AGA1355-BS1)											
Total Dissolved Solids	1000		mg/L	1000		100	70-130			01/24/23	
Duplicate (AGA1355-DUP1), Source: AGA2515-01											
Total Dissolved Solids	1200	5.0	mg/L		1300			8	10	01/24/23	
Duplicate (AGA1355-DUP2), Source: AGA2668-02											
Total Dissolved Solids	200	5.0	mg/L		200			1	10	01/24/23	
SM 2540D - Quality Control											
Batch: AGA1357 Prepared: 1/24/2023											
Prep Method: Method Specific Preparation Analyst: EMN											
Blank (AGA1357-BLK1)											
Total Suspended Solids	ND	5.0	mg/L							01/24/23	
Blank Spike (AGA1357-BS1)											
Total Suspended Solids	74		mg/L	100		74	70-130			01/24/23	
Duplicate (AGA1357-DUP1), Source: RGA0180-01											
Total Suspended Solids	140	5.0	mg/L		130			6	10	01/24/23	
Duplicate (AGA1357-DUP2), Source: AGA2643-01											
Total Suspended Solids	12000	5.0	mg/L		10000			19	10	01/24/23	DP1.1
SM 4500-CN E - Quality Control											
Batch: AGA1532 Prepared: 1/26/2023											
Prep Method: Method Specific Preparation Analyst: ERA											
Blank (AGA1532-BLK1)											
Cyanide (total)	ND	5.0	ug/L							02/01/23	
Blank Spike (AGA1532-BS1)											

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

SM 4500-CN E - Quality Control

Batch: AGA1532 Prepared: 1/26/2023
Prep Method: Method Specific Preparation Analyst: ERA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank Spike (AGA1532-BS1)											
Cyanide (total)	260	5.0	ug/L	250	ND	104	80-120			02/01/23	
Blank Spike Dup (AGA1532-BSD1)											
Cyanide (total)	250	5.0	ug/L	250	ND	101	80-120	2	20	02/01/23	
Matrix Spike (AGA1532-MS1), Source: AGA2611-01											
Cyanide (total)	260	5.0	ug/L	250	ND	104	80-120			02/01/23	
Matrix Spike Dup (AGA1532-MSD1), Source: AGA2611-01											
Cyanide (total)	250	5.0	ug/L	250	ND	100	80-120	4	20	02/01/23	

SM 4500-H+ B - Quality Control

Batch: AGA1271 Prepared: 1/23/2023
Prep Method: Method Specific Preparation Analyst: CMH

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Duplicate (AGA1271-DUP1), Source: AGA2611-02											
pH (1)	7.45	0.0	pH Units		7.40			1		01/23/23	
pH Temperature in °C	20.7	0.0	pH Units		20.8			0		01/23/23	

SM 5220D - Quality Control

Batch: AGB0441 Prepared: 2/7/2023
Prep Method: Method Specific Preparation Analyst: BCB

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGB0441-BLK1)											
Chemical Oxygen Demand	ND	15	mg/L							02/07/23	
Blank Spike (AGB0441-BS1)											
Chemical Oxygen Demand	100	30	mg/L	100	ND	105	80-120			02/07/23	
Blank Spike Dup (AGB0441-BSD1)											
Chemical Oxygen Demand	110	30	mg/L	100	ND	106	80-120	1	20	02/07/23	
Matrix Spike (AGB0441-MS1), Source: AGA2519-01											
Chemical Oxygen Demand	140	30	mg/L	100	35	104	80-120			02/07/23	
Matrix Spike Dup (AGB0441-MSD1), Source: AGA2519-01											
Chemical Oxygen Demand	120	30	mg/L	100	35	90	80-120	11	20	02/07/23	

SM 5310C - Quality Control

Batch: AGA1617 Prepared: 1/27/2023
Prep Method: Method Specific Preparation Analyst: ERA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1617-BLK1)											
Total Organic Carbon	ND	0.20	mg/L							01/27/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 5310C - Quality Control											
Batch: AGA1617										Prepared: 1/27/2023	
Prep Method: Method Specific Preparation										Analyst: ERA	
Blank Spike (AGA1617-BS1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	101	80-120			01/27/23	
Blank Spike Dup (AGA1617-BSD1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	100	80-120	0	20	01/27/23	
Matrix Spike (AGA1617-MS1), Source: AGA2382-01RE1											
Total Organic Carbon	14	0.20	mg/L	10	4.2	102	80-120			01/27/23	
Matrix Spike (AGA1617-MS2), Source: AGA2382-02RE1											
Total Organic Carbon	13	0.20	mg/L	10	3.4	100	80-120			01/28/23	
Matrix Spike Dup (AGA1617-MSD1), Source: AGA2382-01RE1											
Total Organic Carbon	14	0.20	mg/L	10	4.2	102	80-120	0	20	01/27/23	
Matrix Spike Dup (AGA1617-MSD2), Source: AGA2382-02RE1											
Total Organic Carbon	14	0.20	mg/L	10	3.4	102	80-120	2	20	01/28/23	
SM 5310C - Quality Control											
Batch: AGA1772										Prepared: 2/1/2023	
Prep Method: Method Specific Preparation										Analyst: ERA	
Blank (AGA1772-BLK1)											
Dissolved Organic Carbon	ND	0.20	mg/L							02/01/23	
Blank Spike (AGA1772-BS1)											
Dissolved Organic Carbon	10	0.20	mg/L	10	ND	104	80-120			02/01/23	
Blank Spike Dup (AGA1772-BSD1)											
Dissolved Organic Carbon	10	0.20	mg/L	10	ND	105	80-120	1	20	02/01/23	
Matrix Spike (AGA1772-MS1), Source: AGA3346-02											
Dissolved Organic Carbon	12	0.20	mg/L	10	2.2	101	80-120			02/01/23	
Matrix Spike Dup (AGA1772-MSD1), Source: AGA3346-02											
Dissolved Organic Carbon	12	0.20	mg/L	10	2.2	101	80-120	1	20	02/01/23	
SM 5540C - Quality Control											
Batch: AGA1204										Prepared: 1/20/2023	
Prep Method: Method Specific Preparation										Analyst: PXC	
Blank (AGA1204-BLK1)											
MBAS, Calculated as LAS, mol wt 340	ND	0.050	mg/L							01/20/23	
Blank Spike (AGA1204-BS1)											
MBAS, Calculated as LAS, mol wt 340	0.88	0.050	mg/L	1.0	ND	88	82-112			01/20/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

SM 5540C - Quality Control

Batch: AGA1204 Prepared: 1/20/2023
Prep Method: Method Specific Preparation Analyst: PXC

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank Spike Dup (AGA1204-BSD1)											
MBAS, Calculated as LAS, mol wt 340	0.93	0.050	mg/L	1.0	ND	93	82-112	5	20	01/20/23	
Matrix Spike (AGA1204-MS1), Source: AGA2480-01											
MBAS, Calculated as LAS, mol wt 340	0.93	0.050	mg/L	1.0	ND	91	80-112			01/20/23	
Matrix Spike Dup (AGA1204-MSD1), Source: AGA2480-01											
MBAS, Calculated as LAS, mol wt 340	0.97	0.050	mg/L	1.0	ND	94	80-112	4	20	01/20/23	

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 200.7 - Quality Control

Batch: AGA1414 Prepared: 1/25/2023

Prep Method: EPA 200.2 - Silica Analyst: MDS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1414-BLK1)											
Silica (SiO2)	ND	0.20	mg/L							01/26/23	
Blank Spike (AGA1414-BS1)											
Silica (SiO2)	2.1	0.20	mg/L	2.1	ND	99	85-115			01/26/23	
Blank Spike Dup (AGA1414-BSD1)											
Silica (SiO2)	2.1	0.20	mg/L	2.1	ND	98	85-115	1	20	01/26/23	
Matrix Spike (AGA1414-MS1), Source: AGA2248-01											
Silica (SiO2)	14	0.20	mg/L	2.1	11	106	70-130			01/26/23	
Matrix Spike (AGA1414-MS2), Source: AGA2611-01											
Silica (SiO2)	16	0.20	mg/L	2.1	14	107	70-130			01/26/23	
Matrix Spike Dup (AGA1414-MSD1), Source: AGA2248-01											
Silica (SiO2)	14	0.20	mg/L	2.1	11	118	70-130	2	20	01/26/23	
Matrix Spike Dup (AGA1414-MSD2), Source: AGA2611-01											
Silica (SiO2)	16	0.20	mg/L	2.1	14	119	70-130	2	20	01/26/23	

EPA 200.7 - Quality Control

Batch: AGA1764 Prepared: 1/31/2023

Prep Method: Filtration - Metals Analyst: MDS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1764-BLK2)											
Aluminum - Dissolved (1)	ND	50	ug/L							02/01/23	
Calcium - Dissolved (1)	ND	0.10	mg/L							02/01/23	
Iron - Dissolved (1)	ND	30	ug/L							02/01/23	
Potassium - Dissolved (1)	ND	2.0	mg/L							02/01/23	
Magnesium - Dissolved (1)	ND	0.10	mg/L							02/01/23	
Manganese - Dissolved (1)	ND	10	ug/L							02/01/23	
Sodium - Dissolved (1)	ND	1.0	mg/L							02/01/23	
Silica (SiO2) - Dissolved (1)	ND	0.20	mg/L							02/01/23	
Blank Spike (AGA1764-BS2)											
Aluminum - Dissolved (1)	190	50	ug/L	200	ND	97	85-115			02/01/23	
Calcium - Dissolved (1)	3.8	0.10	mg/L	4.0	ND	95	85-115			02/01/23	
Iron - Dissolved (1)	190	30	ug/L	200	ND	94	85-115			02/01/23	
Potassium - Dissolved (1)	3.8	2.0	mg/L	4.0	ND	94	85-115			02/01/23	
Magnesium - Dissolved (1)	3.7	0.10	mg/L	4.0	ND	93	85-115			02/01/23	
Manganese - Dissolved (1)	200	10	ug/L	200	ND	98	85-115			02/01/23	
Sodium - Dissolved (1)	3.8	1.0	mg/L	4.0	ND	95	85-115			02/01/23	
Silica (SiO2) - Dissolved (1)	2.1	0.20	mg/L	2.1	ND	97	85-115			02/01/23	

BSK Associates Laboratory Fresno

Metals Quality Control Report

EPA 200.7 - Quality Control

Batch: AGA1764 Prepared: 1/31/2023

Prep Method: Filtration - Metals Analyst: MDS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank Spike Dup (AGA1764-BSD2)											
Aluminum - Dissolved (1)	200	50	ug/L	200	ND	101	85-115	4	20	02/01/23	
Calcium - Dissolved (1)	3.7	0.10	mg/L	4.0	ND	92	85-115	3	20	02/01/23	
Iron - Dissolved (1)	190	30	ug/L	200	ND	95	85-115	1	20	02/01/23	
Potassium - Dissolved (1)	3.7	2.0	mg/L	4.0	ND	91	85-115	3	20	02/01/23	
Magnesium - Dissolved (1)	3.7	0.10	mg/L	4.0	ND	93	85-115	1	20	02/01/23	
Manganese - Dissolved (1)	200	10	ug/L	200	ND	98	85-115	0	20	02/01/23	
Sodium - Dissolved (1)	3.7	1.0	mg/L	4.0	ND	93	85-115	3	20	02/01/23	
Silica (SiO2) - Dissolved (1)	2.1	0.20	mg/L	2.1	ND	97	85-115	0	20	02/01/23	
Matrix Spike (AGA1764-MS3), Source: AGA2802-01											
Aluminum - Dissolved (1)	260	50	ug/L	200	ND	128	70-130			02/01/23	
Calcium - Dissolved (1)	130	0.10	mg/L	4.0	140	NR	70-130			02/01/23	MS1.0 ***Low***
Iron - Dissolved (1)	220	30	ug/L	200	ND	102	70-130			02/01/23	
Potassium - Dissolved (1)	14	2.0	mg/L	4.0	12	52	70-130			02/01/23	MS1.0 ***Low***
Magnesium - Dissolved (1)	47	0.10	mg/L	4.0	50	NR	70-130			02/01/23	MS1.0 ***Low***
Manganese - Dissolved (1)	210	10	ug/L	200	20	97	70-130			02/01/23	
Sodium - Dissolved (1)	190	1.0	mg/L	4.0	220	NR	70-130			02/01/23	MS1.0 ***Low***
Silica (SiO2) - Dissolved (1)	35	0.20	mg/L	2.1	38	NR	70-130			02/01/23	MS1.0 ***Low***
Matrix Spike (AGA1764-MS4), Source: AGA3036-01											
Aluminum - Dissolved (1)	210	50	ug/L	200	ND	107	70-130			02/01/23	
Calcium - Dissolved (1)	91	0.10	mg/L	4.0	88	64	70-130			02/01/23	MS1.0 ***Low***
Iron - Dissolved (1)	190	30	ug/L	200	ND	96	70-130			02/01/23	
Potassium - Dissolved (1)	8.5	2.0	mg/L	4.0	4.6	98	70-130			02/01/23	
Magnesium - Dissolved (1)	25	0.10	mg/L	4.0	23	47	70-130			02/01/23	MS1.0 ***Low***
Manganese - Dissolved (1)	200	10	ug/L	200	ND	99	70-130			02/01/23	
Sodium - Dissolved (1)	47	1.0	mg/L	4.0	43	81	70-130			02/01/23	
Silica (SiO2) - Dissolved (1)	31	0.20	mg/L	2.1	30	52	70-130			02/01/23	MS1.0 ***Low***
Matrix Spike Dup (AGA1764-MSD3), Source: AGA2802-01											
Aluminum - Dissolved (1)	210	50	ug/L	200	ND	106	70-130	19	20	02/01/23	
Calcium - Dissolved (1)	140	0.10	mg/L	4.0	140	41	70-130	4	20	02/01/23	MS1.0 ***Low***
Iron - Dissolved (1)	210	30	ug/L	200	ND	97	70-130	5	20	02/01/23	
Potassium - Dissolved (1)	15	2.0	mg/L	4.0	12	89	70-130	10	20	02/01/23	
Magnesium - Dissolved (1)	54	0.10	mg/L	4.0	50	86	70-130	13	20	02/01/23	
Manganese - Dissolved (1)	210	10	ug/L	200	20	96	70-130	1	20	02/01/23	
Sodium - Dissolved (1)	220	1.0	mg/L	4.0	220	NR	70-130	11	20	02/01/23	MS1.0 ***Low***
Silica (SiO2) - Dissolved (1)	39	0.20	mg/L	2.1	38	75	70-130	12	20	02/01/23	
Matrix Spike Dup (AGA1764-MSD4), Source: AGA3036-01											
Aluminum - Dissolved (1)	200	50	ug/L	200	ND	100	70-130	7	20	02/01/23	
Calcium - Dissolved (1)	88	0.10	mg/L	4.0	88	NR	70-130	3	20	02/01/23	MS1.0 ***Low***
Iron - Dissolved (1)	180	30	ug/L	200	ND	92	70-130	5	20	02/01/23	

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 200.7 - Quality Control

Batch: AGA1764 Prepared: 1/31/2023
Prep Method: Filtration - Metals Analyst: MDS

Matrix Spike Dup (AGA1764-MSD4), Source: AGA3036-01

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Potassium - Dissolved (1)	8.4	2.0	mg/L	4.0	4.6	95	70-130	1	20	02/01/23	
Magnesium - Dissolved (1)	26	0.10	mg/L	4.0	23	74	70-130	4	20	02/01/23	
Manganese - Dissolved (1)	190	10	ug/L	200	ND	96	70-130	4	20	02/01/23	
Sodium - Dissolved (1)	45	1.0	mg/L	4.0	43	38	70-130	4	20	02/01/23	MS1.0 ***Low***
Silica (SiO2) - Dissolved (1)	32	0.20	mg/L	2.1	30	59	70-130	1	20	02/01/23	MS1.0 ***Low***

EPA 200.8 - Quality Control

Batch: AGA1764 Prepared: 1/31/2023
Prep Method: Filtration - Metals Analyst: AHS

Blank (AGA1764-BLK1)

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Beryllium - Dissolved (1)	ND	1.0	ug/L							02/01/23	
Vanadium - Dissolved (1)	ND	10	ug/L							02/01/23	
Chromium - Dissolved (1)	ND	10	ug/L							02/01/23	
Cobalt - Dissolved (1)	ND	10	ug/L							02/01/23	
Nickel - Dissolved (1)	ND	10	ug/L							02/01/23	
Copper - Dissolved (1)	ND	5.0	ug/L							02/01/23	
Zinc - Dissolved (1)	ND	50	ug/L							02/01/23	
Arsenic - Dissolved (1)	ND	2.0	ug/L							02/01/23	
Selenium - Dissolved (1)	ND	2.0	ug/L							02/01/23	
Strontium - Dissolved (1)	ND	1.0	ug/L							02/01/23	
Molybdenum - Dissolved (1)	ND	10	ug/L							02/01/23	
Silver - Dissolved (1)	ND	10	ug/L							02/01/23	
Cadmium - Dissolved (1)	ND	1.0	ug/L							02/01/23	
Antimony - Dissolved (1)	ND	2.0	ug/L							02/01/23	
Barium - Dissolved (1)	ND	5.0	ug/L							02/01/23	
Thallium - Dissolved (1)	ND	1.0	ug/L							02/01/23	
Lead - Dissolved (1)	ND	1.0	ug/L							02/01/23	
Uranium - Dissolved (1)	ND	1.0	ug/L							02/01/23	

Blank Spike (AGA1764-BS1)

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Beryllium - Dissolved (1)	200	1.0	ug/L	200	ND	98	85-115			02/01/23	
Vanadium - Dissolved (1)	210	10	ug/L	200	ND	103	85-115			02/01/23	
Chromium - Dissolved (1)	200	10	ug/L	200	ND	99	85-115			02/01/23	
Cobalt - Dissolved (1)	210	10	ug/L	200	ND	103	85-115			02/01/23	
Nickel - Dissolved (1)	200	10	ug/L	200	ND	100	85-115			02/01/23	
Copper - Dissolved (1)	200	5.0	ug/L	200	ND	99	85-115			02/01/23	
Zinc - Dissolved (1)	180	50	ug/L	200	ND	90	85-115			02/01/23	
Arsenic - Dissolved (1)	190	2.0	ug/L	200	ND	96	85-115			02/01/23	
Selenium - Dissolved (1)	180	2.0	ug/L	200	ND	92	85-115			02/01/23	
Strontium - Dissolved (1)	210	1.0	ug/L	200	ND	106	85-115			02/01/23	
Molybdenum - Dissolved (1)	210	10	ug/L	200	ND	106	85-115			02/01/23	
Silver - Dissolved (1)	100	10	ug/L	100	ND	100	75-125			02/01/23	

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 200.8 - Quality Control

Batch: AGA1764 Prepared: 1/31/2023

Prep Method: Filtration - Metals Analyst: AHS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank Spike (AGA1764-BS1)											
Cadmium - Dissolved (1)	200	1.0	ug/L	200	ND	99	85-115			02/01/23	
Antimony - Dissolved (1)	210	2.0	ug/L	200	ND	105	85-115			02/01/23	
Barium - Dissolved (1)	200	5.0	ug/L	200	ND	102	85-115			02/01/23	
Thallium - Dissolved (1)	200	1.0	ug/L	200	ND	102	85-115			02/01/23	
Lead - Dissolved (1)	200	1.0	ug/L	200	ND	102	85-115			02/01/23	
Uranium - Dissolved (1)	210	1.0	ug/L	200	ND	104	85-115			02/01/23	
Blank Spike Dup (AGA1764-BSD1)											
Beryllium - Dissolved (1)	190	1.0	ug/L	200	ND	95	85-115	3	20	02/01/23	
Vanadium - Dissolved (1)	200	10	ug/L	200	ND	99	85-115	4	20	02/01/23	
Chromium - Dissolved (1)	190	10	ug/L	200	ND	94	85-115	4	20	02/01/23	
Cobalt - Dissolved (1)	200	10	ug/L	200	ND	98	85-115	5	20	02/01/23	
Nickel - Dissolved (1)	190	10	ug/L	200	ND	97	85-115	3	20	02/01/23	
Copper - Dissolved (1)	190	5.0	ug/L	200	ND	96	85-115	3	20	02/01/23	
Zinc - Dissolved (1)	170	50	ug/L	200	ND	86	85-115	4	20	02/01/23	
Arsenic - Dissolved (1)	180	2.0	ug/L	200	ND	92	85-115	4	20	02/01/23	
Selenium - Dissolved (1)	170	2.0	ug/L	200	ND	86	85-115	7	20	02/01/23	
Strontium - Dissolved (1)	210	1.0	ug/L	200	ND	104	85-115	3	20	02/01/23	
Molybdenum - Dissolved (1)	200	10	ug/L	200	ND	101	85-115	5	20	02/01/23	
Silver - Dissolved (1)	97	10	ug/L	100	ND	97	75-125	3	20	02/01/23	
Cadmium - Dissolved (1)	190	1.0	ug/L	200	ND	96	85-115	3	20	02/01/23	
Antimony - Dissolved (1)	200	2.0	ug/L	200	ND	102	85-115	4	20	02/01/23	
Barium - Dissolved (1)	200	5.0	ug/L	200	ND	100	85-115	3	20	02/01/23	
Thallium - Dissolved (1)	200	1.0	ug/L	200	ND	98	85-115	3	20	02/01/23	
Lead - Dissolved (1)	190	1.0	ug/L	200	ND	96	85-115	6	20	02/01/23	
Uranium - Dissolved (1)	200	1.0	ug/L	200	ND	100	85-115	4	20	02/01/23	
Matrix Spike (AGA1764-MS1), Source: AGA2802-01											
Beryllium - Dissolved (1)	200	1.0	ug/L	200	ND	99	70-130			02/01/23	
Vanadium - Dissolved (1)	220	10	ug/L	200	ND	106	70-130			02/01/23	
Chromium - Dissolved (1)	190	10	ug/L	200	ND	97	70-130			02/01/23	
Cobalt - Dissolved (1)	200	10	ug/L	200	ND	98	70-130			02/01/23	
Nickel - Dissolved (1)	180	10	ug/L	200	ND	91	70-130			02/01/23	
Copper - Dissolved (1)	190	5.0	ug/L	200	ND	91	70-130			02/01/23	
Zinc - Dissolved (1)	180	50	ug/L	200	ND	81	70-130			02/01/23	
Arsenic - Dissolved (1)	190	2.0	ug/L	200	2.3	95	70-130			02/01/23	
Selenium - Dissolved (1)	180	2.0	ug/L	200	ND	89	70-130			02/01/23	
Strontium - Dissolved (1)	900	1.0	ug/L	200	830	36	70-130			02/01/23	MS1.0 ***Low***
Molybdenum - Dissolved (1)	230	10	ug/L	200	11	108	70-130			02/01/23	
Silver - Dissolved (1)	88	10	ug/L	100	ND	88	70-130			02/01/23	
Cadmium - Dissolved (1)	180	1.0	ug/L	200	ND	91	70-130			02/01/23	
Antimony - Dissolved (1)	200	2.0	ug/L	200	ND	100	70-130			02/01/23	
Barium - Dissolved (1)	290	5.0	ug/L	200	110	88	70-130			02/01/23	

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 200.8 - Quality Control

Batch: AGA1764 Prepared: 1/31/2023

Prep Method: Filtration - Metals Analyst: AHS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Matrix Spike (AGA1764-MS1), Source: AGA2802-01											
Thallium - Dissolved (1)	180	1.0	ug/L	200	ND	90	70-130			02/01/23	
Lead - Dissolved (1)	170	1.0	ug/L	200	ND	87	70-130			02/01/23	
Uranium - Dissolved (1)	190	1.0	ug/L	200	3.0	96	70-130			02/01/23	
Matrix Spike Dup (AGA1764-MSD1), Source: AGA2802-01											
Beryllium - Dissolved (1)	200	1.0	ug/L	200	ND	99	70-130	0	20	02/01/23	
Vanadium - Dissolved (1)	220	10	ug/L	200	ND	106	70-130	0	20	02/01/23	
Chromium - Dissolved (1)	190	10	ug/L	200	ND	96	70-130	1	20	02/01/23	
Cobalt - Dissolved (1)	190	10	ug/L	200	ND	97	70-130	1	20	02/01/23	
Nickel - Dissolved (1)	180	10	ug/L	200	ND	92	70-130	1	20	02/01/23	
Copper - Dissolved (1)	180	5.0	ug/L	200	ND	87	70-130	5	20	02/01/23	
Zinc - Dissolved (1)	180	50	ug/L	200	ND	80	70-130	1	20	02/01/23	
Arsenic - Dissolved (1)	190	2.0	ug/L	200	2.3	94	70-130	1	20	02/01/23	
Selenium - Dissolved (1)	180	2.0	ug/L	200	ND	87	70-130	3	20	02/01/23	
Strontium - Dissolved (1)	1000	1.0	ug/L	200	830	93	70-130	12	20	02/01/23	
Molybdenum - Dissolved (1)	230	10	ug/L	200	11	107	70-130	1	20	02/01/23	
Silver - Dissolved (1)	85	10	ug/L	100	ND	85	70-130	3	20	02/01/23	
Cadmium - Dissolved (1)	180	1.0	ug/L	200	ND	88	70-130	3	20	02/01/23	
Antimony - Dissolved (1)	200	2.0	ug/L	200	ND	99	70-130	2	20	02/01/23	
Barium - Dissolved (1)	300	5.0	ug/L	200	110	93	70-130	3	20	02/01/23	
Thallium - Dissolved (1)	170	1.0	ug/L	200	ND	87	70-130	3	20	02/01/23	
Lead - Dissolved (1)	170	1.0	ug/L	200	ND	84	70-130	4	20	02/01/23	
Uranium - Dissolved (1)	190	1.0	ug/L	200	3.0	93	70-130	3	20	02/01/23	

EPA 245.7 - Quality Control

Batch: AGA1365 Prepared: 1/24/2023

Prep Method: EPA 245.7 Analyst: TSY

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1365-BLK1)											
Mercury - Dissolved (1)	ND	0.20	ug/L							01/25/23	
Matrix Spike (AGA1365-MS1), Source: AGA2611-01											
Mercury - Dissolved (1)	0.85	0.20	ug/L	0.80	ND	106	63-111			01/25/23	
Matrix Spike Dup (AGA1365-MSD1), Source: AGA2611-01											
Mercury - Dissolved (1)	0.86	0.20	ug/L	0.80	ND	107	63-111	1	18	01/25/23	

BSK Associates Laboratory Fresno

Organics Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 524.2 - Quality Control

Batch: AGA1264 Prepared: 1/22/2023
Prep Method: EPA 524.2 Analyst: JNG

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1264-BLK1)											
Bromodichloromethane	ND	0.50	ug/L							01/23/23	
Bromoform	ND	0.50	ug/L							01/23/23	
Chloroform	ND	0.50	ug/L							01/23/23	
Dibromochloromethane	ND	0.50	ug/L							01/23/23	
Total Trihalomethanes	ND	0.50	ug/L							01/23/23	
Surrogate: 1,2-Dichlorobenzene-d4	*52*			*50*		*105*	*70-130*			01/23/23	
Surrogate: Bromofluorobenzene	*52*			*50*		*104*	*70-130*			01/23/23	
Blank Spike (AGA1264-BS1)											
Bromodichloromethane	11	0.50	ug/L	10	ND	109	70-130			01/22/23	
Bromoform	10	0.50	ug/L	10	ND	102	70-130			01/22/23	
Chloroform	9.7	0.50	ug/L	10	ND	97	70-130			01/22/23	
Dibromochloromethane	10	0.50	ug/L	10	ND	103	70-130			01/22/23	
Surrogate: 1,2-Dichlorobenzene-d4	*57*			*50*		*114*	*70-130*			01/22/23	
Surrogate: Bromofluorobenzene	*60*			*50*		*119*	*70-130*			01/22/23	
Blank Spike Dup (AGA1264-BSD1)											
Bromodichloromethane	11	0.50	ug/L	10	ND	110	70-130	1	30	01/23/23	
Bromoform	9.9	0.50	ug/L	10	ND	99	70-130	3	30	01/23/23	
Chloroform	9.7	0.50	ug/L	10	ND	97	70-130	1	30	01/23/23	
Dibromochloromethane	10	0.50	ug/L	10	ND	102	70-130	1	30	01/23/23	
Surrogate: 1,2-Dichlorobenzene-d4	*56*			*50*		*113*	*70-130*			01/23/23	
Surrogate: Bromofluorobenzene	*59*			*50*		*119*	*70-130*			01/23/23	

EPA 552.3 - Quality Control

Batch: AGA1604 Prepared: 1/27/2023
Prep Method: EPA 552.3 Analyst: DAB

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1604-BLK1)											
Dibromoacetic Acid (DBAA)	ND	1.0	ug/L							01/27/23	
Dichloroacetic Acid (DCAA)	ND	1.0	ug/L							01/27/23	
Monobromoacetic Acid (MBAA)	ND	1.0	ug/L							01/27/23	
Monochloroacetic Acid (MCAA)	ND	2.0	ug/L							01/27/23	
Trichloroacetic Acid (TCAA)	ND	1.0	ug/L							01/27/23	
Total Haloacetic Acids	ND	2.0	ug/L							01/27/23	
Surrogate: 2-Bromobutanoic Acid	*10*			*10*		*104*	*70-130*			01/27/23	
Duplicate (AGA1604-DUP1), Source: SGA0384-02											
Dibromoacetic Acid (DBAA)	ND	1.0	ug/L		ND				30	01/27/23	
Dichloroacetic Acid (DCAA)	7.6	1.0	ug/L		7.6			1	30	01/27/23	
Monobromoacetic Acid (MBAA)	ND	1.0	ug/L		ND				30	01/27/23	
Monochloroacetic Acid (MCAA)	ND	2.0	ug/L		ND				30	01/27/23	
Trichloroacetic Acid (TCAA)	6.7	1.0	ug/L		6.7			0	30	01/27/23	
Total Haloacetic Acids	14	2.0	ug/L		14			0	30	01/27/23	

BSK Associates Laboratory Fresno

Organics Quality Control Report

EPA 552.3 - Quality Control

Batch: AGA1604 Prepared: 1/27/2023

Prep Method: EPA 552.3 Analyst: DAB

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Duplicate (AGA1604-DUP1), Source: SGA0384-02											
Surrogate: 2-Bromobutanoic Acid	*10*			*10*		*103*	*70-130*			01/27/23	
Matrix Spike (AGA1604-MS1), Source: AGA2180-01											
Dibromoacetic Acid (DBAA)	24	1.0	ug/L	10	13	102	70-130			01/27/23	
Dichloroacetic Acid (DCAA)	28	1.0	ug/L	10	19	87	70-130			01/27/23	
Monobromoacetic Acid (MBAA)	13	1.0	ug/L	10	2.0	106	70-130			01/27/23	
Monochloroacetic Acid (MCAA)	23	2.0	ug/L	20	2.6	103	70-130			01/27/23	
Trichloroacetic Acid (TCAA)	25	1.0	ug/L	10	15	98	70-130			01/27/23	
Surrogate: 2-Bromobutanoic Acid	*11*			*10*		*106*	*70-130*			01/27/23	

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

Unless otherwise noted, TOC results by SM 5310C method do not include purgeable organic carbon, which is removed along with the inorganic carbon interference. The POC contribution to TOC is considered to be negligible.

Certificate of Analysis

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

The following parameters are calculated values and are outside the scope of our NELAP accreditation:

Total Nitrogen   Aggressive Index   Trivalent Chromium

BSK is not accredited under the NELAP program for the following additional parameters:

Cobalt
Molybdenum
Oxidation/Reduction Potential
Strontium
Vanadium

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

Fresno

State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-020
State of Nevada	CA000792022-1	State of Oregon - NELAP	4021-020
EPA UCMR5	CA00079	State of Washington	C997-22a

Sacramento

State of California - ELAP	1180-S1

San Bernardino

State of California - ELAP	1180-S2	Los Angeles CSD	9254478
NELAP certified	4119-007	State of Oregon - NELAP	4119-007

Vancouver

NELAP certified	WA100008-015	State of Oregon - NELAP	WA100008-015
State of Washington	C824-22		

AGA2611 GSIWA3956 01/20/2023

10

Sample Integrity

BSK Bottles: Yes / No Page of

COC Info

Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TTHM/TCP)? TB Received? (Check Method Below)	Yes No NA / Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received ("—" means preservation/chlorine checks are either N/A or are performed in the lab)

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?	1-2				
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—	1D, 3B, 3C				
Cr6 (P) Lt. Green Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ DW	Cl, pH > 8	P F	1				
Cr6 (P) Pink Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap $NH_4OH(NH_4)_2SO_4$ 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—					
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F	1D, 1B, 1A				
NaOH (P) Green Cap	Cl, pH >10	P F	1B				
NaOH + ZnAc (P)	pH > 9	P F	1B				
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—	1B				
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—					
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—					
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—					
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F					
NH_4Cl (AG) Purple Label 552	—	—	1A				
EDA (P) or (AG) Brown Label DBPs	—	—					
HCL (CG) 524.2, BTEX, Gas, MTBE, 8260/624	—	—	3V				
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—					
Trizma – EPA 537.1 Light Blue Label FB	—	—					
Ammonia Acetate - EPA 533 Purple Label FB	—	—					
Bottled Water	—	—					
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—					
Clear Glass NONPRESERVED	—	—	2V				
OTHER:	—	—					

Split

	Container	Preservative	Lot #	Initials	Date/Time
S P					
S P					

Preservation Check
pH Lot #
Cl Lot #

Comments

*Preservation check completed by lab performing analysis.

✓ **Indicates Blanks Received**

504 ___ 524.2 ___ TTHM ___ 537/533 ___ TCP ___

✓ **MS/MSD Received Method:** ________

Labeled by: **Labels Checked by:**

Scanned: Co Rush/Short HT Page: ________ Time: ________

Pace ANALYTICAL SERVICES BSK

2.6 #53

4100 Atlas Ct. – Bakersfield, CA 93308 – 661.327.4911 – Fax: 661.327.1918 – www.pacelabs.com

Chair

AGA2611 GSIWA3956 01/20/2023

Page ___ of ___

Report To: Client: GSI Water Sln's	Project #:
Attn: Nate Page	Project Name: Morro Bay IPR
Street Address: 5855 Capistrano Ave Ste C	
City, State, Zip: Atascadero, CA 93422	Sampler(s) Name Printed: Nate Page
Phone: 9706923593 Fax:	
Email: npage@gsiws.com	
Work Order #:	

Analysis Requested: Please see attached "Complete Suite"

Comments: EDD requested, NO Geotracker

Result Request **Surcharge: ☒ STD (10 Days) ☐ 5 Day** ☐ 4 Day** ☐ 3 Day** ☐ 2 Day** ☐ 1 Day**
Rush requests must be approved

Sample #	Description	Date Sampled	Time Sampled	Soil	Sludge	Drinking Water	Ground Water	Waste Water	Other	Notes
Pilot Inj Well		1/19/23	1100				X			Shipped GLS
21P-01		1/19/23	1150				X			" "

NH 1-20-23

Billing ☒ Same as above

Client:
Address:
City: State Zip
Attn:
P.O. #:

System # (Needed for GLP)
GIS/Key ☐ Well Star ☐

EDF Required Geotracker ☐ Yes ☒ No Global ID

Relinquished By	Date	Time	Received By	Date	Time
1. Relinquished By: [signature]	1/19/23	1300	1. Received By		
2. Relinquished By			2. Received By		
3. Relinquished By			3. Received By: NHamoleno	1-20-23	1612

Pace Analytical Bakersfield does not accept samples containing radioactive material above background levels. Samples containing radioactive material must be disclosed prior to receipt. Any samples suspected of containing radioactive material above background levels will not be accepted and will be returned to client.

GLS WI BW

REV 12/2021

Parameter Type	Parameter	Method
Field	Dissolved oxygen	YSI 556 or similar
	pH	EPA 150.1
	Oxidation-Reduction Potential	SM2580B
	Specific Conductance	EPA 120.1
	Temperature	YSI 556 or similar
	Turbidity	EPA 180.1
Inorganics	Alkalinity	SM2320B
	Ammonia	SM4500NH3G
	Bicarbonate	SM2320B
	Carbonate	SM2320B
	Chloride	EPA 300.0
	Cyanide (HCN)	EPA 335.4
	Fluoride	EPA 300.0
	Hardness	EPA 200.8
	Nitrate+Nitrite (total N)	EPA 300.0
	Nitrate (as N)	EPA 300.0
	Nitrite-N	EPA 300.0
	Orthophosphate as P	EPA 300.0
	Total Silica (as SiO2)	EPA 200.7
	Dissolved Silica (as SiO2)	EPA 200.7
	Sulfate	EPA 300.0
	Sulfide	SM4500S2F
Metals (Dissolved)	Aluminum	EPA 200.7
	Antimony	EPA 200.8
	Arsenic	EPA 200.8
	Barium	EPA 200.8
	Beryllium	EPA 200.8
	Cadmium	EPA 200.8
	Calcium	EPA 200.7
	Chromium	EPA 200.8
	Cobalt	EPA 200.8
	Copper	EPA 200.8
	Iron	EPA 200.7
	Lead	EPA 200.8
	Magnesium	EPA 200.7
	Manganese	EPA 200.8
	Mercury	EPA 245.7
	Molybdenum	EPA 200.8
	Nickel	EPA 200.8
	Potassium	EPA 200.7
	Selenium	EPA 200.8
	Silver	EPA 200.8

	Sodium	EPA 200.7
	Strontium	EPA 200.8
	Thallium	EPA 200.8
	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 2301E47

Report Created for: BSK Analytical Laboratories

550 West Locust Avenue
Fresno, CA 93650

Project Contact: Heather White
Project P.O.:
Project: AGA2611

Project Received: 01/24/2023

Analytical Report reviewed & approved for release on 01/31/2023 by:

Susan Thompson
Project Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in a case narrative.

1534 Willow Pass Rd. Pittsburg, CA 94565 ♦ TEL: (877) 252-9262 ♦ FAX: (925) 252-9269 ♦ www.mccampbell.com
CA ELAP 1644 ♦ NELAP 4033 ORELAP

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Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

Glossary of Terms & Qualifier Definitions

Client: BSK Analytical Laboratories **WorkOrder:** 2301E47

Project: AGA2611

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
CPT	Consumer Product Testing not NELAP Accredited
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
LQL	Lowest Quantitation Level
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	MDL is the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results. Definition and Procedure for the Determination of the Method Detection Limit, Revision 2, 40CFR, Part 136, Appendix B, EPA 821-R-16-006, December 2016.
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NA	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting limit is the lowest level that can be reliably determined within specified limits of precision and accuracy during routine laboratory operating conditions. (The RL cannot be lower than the lowest calibration standard used in the initial calibration of the instrument and must be greater than the MDL.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
TZA	TimeZone Net Adjustment for sample collected outside of MAI's UTC.
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Glossary of Terms & Qualifier Definitions

Client: BSK Analytical Laboratories **WorkOrder:** 2301E47
Project: AGA2611

Analytical Qualifiers

H	Sample was analyzed out of hold time

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Analytical Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2301E47
Date Received:	01/24/2023 9:50	**Extraction Method:**	RSK175
Date Prepared:	01/26/2023	**Analytical Method:**	RSK175
Project:	AGA2611	**Unit:**	µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AGA2611-01	**2301E47-001A**	**Water**	**01/19/2023 11:00**	**GC26 0126230112.D**	**262600**

Analytes	Result	RL	DF	Date Analyzed
Ethane	ND	0.24	1	01/26/2023 16:12
Ethylene	ND	0.31	1	01/26/2023 16:12
Methane	**1.1**	0.12	1	01/26/2023 16:12

Analyst(s): MBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AGA2611-02	**2301E47-002A**	**Water**	**01/19/2023 11:50**	**GC26 0126230113.D**	**262600**

Analytes	Result	RL	DF	Date Analyzed
Ethane	ND	0.24	1	01/26/2023 16:26
Ethylene	ND	0.31	1	01/26/2023 16:26
Methane	**0.56**	0.12	1	01/26/2023 16:26

Analyst(s): MBE

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Analytical Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2301E47
Date Received:	01/24/2023 9:50	**Extraction Method:**	SM4500-S^{-2} D-2000
Date Prepared:	01/27/2023	**Analytical Method:**	SM4500 S^{-2} D
Project:	AGA2611	**Unit:**	mg/L

Total Sulfide - S

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AGA2611-01	**2301E47-001B**	**Water**	**01/19/2023 11:00**	**SPECTROPHOTOMETER2**	**262673**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND	H	0.10	1	01/27/2023 18:07

Analyst(s): IGC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AGA2611-02	**2301E47-002B**	**Water**	**01/19/2023 11:50**	**SPECTROPHOTOMETER2**	**262673**

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND	H	0.10	1	01/27/2023 18:08

Analyst(s): IGC

Quality Control Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2301E47
Date Prepared:	01/26/2023	**BatchID:**	262600
Date Analyzed:	01/26/2023	**Extraction Method:**	RSK175
Instrument:	GC26	**Analytical Method:**	RSK175
Matrix:	Water	**Unit:**	µg/L
Project:	AGA2611	**Sample ID:**	MB/LCS/LCSD-262600

QC Summary Report for RSK175

Analyte	MB Result	MDL	RL			
Ethane	ND	0.24	0.24	-	-	-
Ethylene	ND	0.31	0.31	-	-	-
Methane	ND	0.12	0.12	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Ethane	2.5	2.6	2.38	105	111	70-130	5.11	20
Ethylene	3.3	3.5	3.08	108	114	70-130	5.68	20
Methane	1.2	1.3	1.17	107	110	70-130	3.03	20

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Quality Control Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2301E47
Date Prepared:	01/27/2023	**BatchID:**	262673
Date Analyzed:	01/27/2023	**Extraction Method:**	SM4500-S^{-2} D-2000
Instrument:	SPECTROPHOTOMETER2	**Analytical Method:**	SM4500 S^{-2} D
Matrix:	Water	**Unit:**	mg/L
Project:	AGA2611	**Sample ID:**	MB/LCS/LCSD-262673 2301E47-002BMS/MSD

QC Summary Report For SM4500 S-2D

Analyte	MB Result	MDL	RL			
Total Sulfide	ND	0.044	0.10	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Total Sulfide	0.48	0.47	0.50	95	94	80-120	1.22	20

Analyte	MS DF	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Total Sulfide	1	0.47	0.44	0.50	ND	94	87	80-120	7.64	20

McCampbell Analytical, Inc.
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Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 2301E47 **ClientCode: BSKF**

☐ WaterTrax ☐ CLIP ☐ EDF ☐ EQuIS ☐ Dry-Weight ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☐ Detection Summary ☐ Excel

Report to:
Heather White
BSK Analytical Laboratories
550 West Locust Avenue
Fresno, CA 93650
(559) 497-2888 FAX: (559) 485-6935

Email: hwhite@bskassociates.com
cc/3rd Party:
PO:
Project: AGA2611

Bill to:
Accounts Payable
BSK Analytical Laboratories
550 West Locust Avenue
Fresno, CA 93650

Requested TAT: **5 days;**

Date Received: **01/24/2023**
Date Logged: **01/25/2023**

					Requested Tests (See legend below)											
Lab ID	**ClientSampID**	**Matrix**	**Collection Date**	**Hold**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
2301E47-001	AGA2611-01	Water	1/19/2023 11:00	☐	A	B										
2301E47-002	AGA2611-02	Water	1/19/2023 11:50	☐	A	B										

Test Legend:

1	RSK175_W	2	SULFIDE_W	3		4	
5		6		7		8	
9		10		11		12	

Prepared by:

Comments:

NOTE: Soil samples are discarded 60 days after receipt unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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WORK ORDER SUMMARY

Client Name: BSK ANALYTICAL LABORATORIES **Project:** AGA2611 **Work Order:** 2301E47
Client Contact: Heather White **QC Level:** LEVEL 2
Contact's Email: hwhite@bskassociates.com **Comments:** **Date Logged:** 1/25/2023

☐ WaterTrax ☐ CLIP ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	U**	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	Sub Out
001A	AGA2611-01	Water	RSK175 <Ethane_4, Ethylene_4, Methane_4>	1	VOA w/ HCl	☐	☐	☐	1/19/2023 11:00	5 days	1/31/2023		☐	☐
001B	AGA2611-01	Water	SM4500S2D (Total Sulfide)	1	500mL HDPE w/ NaOH + ZnAc	☐	☐	☐	1/19/2023 11:00	5 days	1/31/2023		☐	☐
002A	AGA2611-02	Water	RSK175 <Ethane_4, Ethylene_4, Methane_4>	1	VOA w/ HCl	☐	☐	☐	1/19/2023 11:50	5 days	1/31/2023	None	☐	☐
002B	AGA2611-02	Water	SM4500S2D (Total Sulfide)	1	500mL HDPE w/ NaOH + ZnAc	☐	☐	☐	1/19/2023 11:50	5 days	1/31/2023	None	☐	☐

NOTES: * STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- Organic extracts are held for 40 days before disposal; Inorganic extract are held for 30 days.

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

U = An unpreserved container was received for a method that suggests a preservation in order to extend hold time for analysis.**

BSK ASSOCIATES

SUBCONTRACT ORDER

AGA2611

2301E47

SENDING LABORATORY:	RECEIVING LABORATORY:
BSK Associates Laboratory Fresno	McCampbell Analytical, Inc.
1414 Stanislaus St	1534 Willow Pass Road
Fresno, CA 93706	Pittsburg, CA 94565-1701
Phone: 559-497-2888	Phone :(925) 252-9262
Fax: 559-485-6935	Fax: (925) 252-9269
Project Manager: Heather S. White	Turnaround (Days): Standard
E-mail: hwhite@bskassociates.com	QC Deliverables: I Std III IV

Sample ID	Samp Desc	Comments		Sample Date
AGA2611-01	Pilot Inj Well	Client Matrix	Ground Water	01/19/2023 11:00
		Sampled By:	Nate Page	
Lab Matrix:	Water			
	Analysis:			
	EXT-RSK-175 Methane, Ethane, Ethene	voa with HCL		
	EXT-Sulfide			
AGA2611-02	Zip 01	Client Matrix	Ground Water	01/19/2023 11:50
		Sampled By:	Nate Page	
Lab Matrix:	Water			
	Analysis:			
	EXT-RSK-175 Methane, Ethane, Ethene	voa with HCL		
	EXT-Sulfide			

State Forms: **No** System Name:

Released By	Date	Received By	Date
[signature]	1.23.23	[signature]	1/24/2023 0950
Released By	Date	Received By	Date

650:5586650884

0.8C N2A

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http://www.mccampbell.com / E-mail: main@mccampbell.com

Sample Receipt Checklist

Client Name:	BSK Analytical Laboratories	Date and Time Received:	1/24/2023 09:50
Project:	AGA2611	Date Logged:	1/25/2023
		Received by:	Agustina Venegas
WorkOrder №:	2301E47 Matrix: Water	Logged by:	
Carrier:	Golden State Overnight		

Chain of Custody (COC) Information

	Yes	No	NA
Chain of custody present?	☑	☐	
Chain of custody signed when relinquished and received?	☑	☐	
Chain of custody agrees with sample labels?	☑	☐	
Sample IDs noted by Client on COC?	☑	☐	
Date and Time of collection noted by Client on COC?	☑	☐	
Sampler's name noted on COC?	☑	☐	
COC agrees with Quote?	☐	☐	☑

Sample Receipt Information

	Yes	No	NA
Custody seals intact on shipping container/cooler?	☐	☐	☑
Custody seals intact on sample bottles?	☐	☐	☑
Shipping container/cooler in good condition?	☑	☐	
Samples in proper containers/bottles?	☑	☐	
Sample containers intact?	☑	☐	
Sufficient sample volume for indicated test?	☑	☐	

Sample Preservation and Hold Time (HT) Information

	Yes	No	NA
All samples received within holding time?	☑	☐	☐
Samples Received on Ice?	☑	☐	
	(Ice Type: WET ICE)		
Sample/Temp Blank temperature	Temp: 0.8°C		☐
ZHS conditional analyses: VOA meets zero headspace requirement (VOCs, TPHg/BTEX, RSK)?	☑	☐	☐
Sample labels checked for correct preservation?	☑	☐	
pH acceptable upon receipt (Metal: <2; Nitrate 353.2/4500NO3: <2; 522: <4; 218.7: >8)?	☐	☐	☑
UCMR Samples:			
pH tested and acceptable upon receipt (200.7: ≤2; 533: 6 - 8; 537.1: 6 - 8)?	☐	☐	☑
Free Chlorine tested and acceptable upon receipt (<0.1mg/L) [not applicable to 200.7]?	☐	☐	☑

Comments:

LA Testing

520 Mission Street South Pasadena, CA 91030

Phone/Fax: (323) 254-9960 / (323) 254-9982

http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322301776
Customer ID: 32BSK50
Customer PO:
Project ID:

Attn: Heather S. White
BSK Analytical Laboratories
1414 Stanislaus St
Fresno, CA 93706

Phone:
Fax:
Received: 01/24/2023
Analyzed: 01/30/2023

Proj: AGA2611

Test Report: Determination of Asbestos Structures ≥ 0.5 µm & > 10µm in Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	*Sample Filtration Date/Time*	*Original Sample Vol. Filtered (ml)*	*Effective Filter Area (mm²)*	*Area Analyzed (mm²)*		*ASBESTOS* Asbestos Types	Fibers Detected	Analytical Sensitivity	Concentration	Confidence Limits
								MFL (million fibers per liter)		
AGA2611-01 322301776-0001	1/24/2023 04:15 PM	5	1288	0.2580	≥ 0.5 µm	Chrysotile	3	1.00	3.00	0.62 - 8.80
					> 10 µm only	None Detected	ND	1.00	<1.00	0.00 - 3.70
Collection Date/Time:	*01/19/2023 11:00 AM*									
Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.										
AGA2611-02 322301776-0002	1/24/2023 04:15 PM	30	1288	0.2193	≥ 0.5 µm	None Detected	ND	0.20	<0.20	0.00 - 0.72
					> 10 µm only	None Detected	ND	0.20	<0.20	0.00 - 0.72
Collection Date/Time:	*01/19/2023 11:50 AM*									
Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.										

Analyst(s)
Kyeong Corbin (2)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 02/06/2023 07:54:31

Post-Injection Samples from Pilot Injection Well and 21P-01 (Fourth set; January 26, 2023)

Field Notes

Water Solutions, Inc.

Daily Field Report

Name: Nate Page **Date:** 1/26/23 **Activity:** 4th sample

Project: MB IPR **PN:** **Page** 1 **of** 1

0920 NP on site

0927 Pilot Inj well pump on

	T	pH	SC	DO mg/L	ORP
0925	15.9	7.81	.741	6.92	-16.9
0930	17.0	7.66	.820	7.13	10.1
0935	17.3	7.67	.815	7.21	14.2
0940	17.4	7.68	.811	7.28	19.8
0945	17.5	7.68	.805	7.35	24.9
0950	17.6	7.68	.797	7.39	30.2

assume elevated due to high pressure sample port

950 sample collected

945 XD out of UP-01

DTW = 9.84' btoc

1008 pump on UP-01

	T	pH	SC	DO	ORP
1010	17.3	7.46	.796	2.42	163.2
1015	17.2	7.10	.852	0.24	163.3
1020	17.2	7.04	.845	0.08	167.1
1025	17.2	7.01	.845	0.06	169.8
1030	17.2	7.00	.847	0.05	171.5
1035					

1040 sample collected

1048 XD back in UP-01

Signature:

Chain-of-Custody Form(s)

BSK ASSOCIATES
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
- ☐ Standard - 10 business days
- ☐ Rush (Surcharge may apply)

Date needed:

ANALYTICAL CHAIN OF CUSTODY

*Required Fields

Temp: Thermometer ID:

Company/Client Name*: GSI Water Solutions
Report Attention*: Nate Page
Additional cc's:
Invoice To*:
PO#:
Phone*: 9706923593 Fax:
E-mail*: npage@gsiws.com

Address*: 5855 Capistrano Ave Ste C
City*: Atascadero CA
State*:
Zip*: 93422

Project: Morro Bay IPR
Project #:

Reporting Options: ☒ Trace (J-Flag) ☐ Swamp ☐ EDD Type: excel

Sampler Name (Printed/Signature)*: Nate Page

Regulatory Carbon Copies: ☐ SWRCB (Drinking Water) ☐ Merced Co ☐ Fresno Co ☐ Madera Co ☐ Tulare Co ☐ Other:

Regulatory Compliance: ☐ EDT to California SWRCB (Drinking Water) System Number*: ☐ Geotracker #:

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Sampled* Time	Matrix*	Comments / Station Code / WTRAX	"Complete Suite" (Attached)
	Pilot Inj Well	1/26/23	950	H2O		X
	ZIP-01	1/26/23	1040	H2O		X

Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Nate Page	GSI	1/26/23	1200		
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Received for Lab by: (Signature and Printed Name)		Date	Time	Payment Received at Delivery: Check / Cash Date: Amount: PIA#: Init.	

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier: GLS

Custody Seal: Y / N

Cooling Method: Wet Blue None

Chilling Process Begun: Y / N

Laboratory Reports

BSK ASSOCIATES

BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)

AGA3346
3/03/2023
Invoice: AG04790

Nate Page
GSI Water Solutions, Inc
418 Chapala Street, Suite H
Santa Barbara, CA 93101

RE: Report for AGA3346 Morro Bay IPR - Complete Suite

Dear Nate Page,

Thank you for using BSK Associates for your analytical testing needs. In the following pages, you will find the test results for the samples submitted to our laboratory on 1/27/2023. The results have been approved for release by our Laboratory Director as indicated by the authorizing signature below.

The samples were analyzed for the test(s) indicated on the Chain of Custody (see attached) and the results relate only to the samples analyzed. BSK certifies that the testing was performed in accordance with the quality system requirements specified in the 2016 TNI Standard. Any deviations from this standard or from the method requirements for each test procedure performed will be annotated alongside the analytical result or noted in the Case Narrative. Unless otherwise noted, the sample results are reported on an “as received” basis.

If additional clarification of any information is required, please contact your Project Manager, Heather S. White , at 559-497-2888.

Thank you again for using BSK Associates. We value your business and appreciate your loyalty.

Sincerely,

Heather S. White, Project Manager

Accredited in Accordance with NELAP
ORELAP #4021

ASSOCIATES

Case Narrative

Project and Report Details		Invoice Details	
Client:	GSI Water Solutions, Inc	**Invoice To:**	GSI Water Solutions, Inc
Report To:	Nate Page	**Invoice Attn:**	Accounting
Project #:	-	**Project PO#:**	-
Received:	1/27/2023 - 14:57		
Report Due:	2/10/2023		

Sample Receipt Conditions

Cooler: Default Cooler
Temperature on Receipt ºC: 1.3

Containers Intact
COC/Labels Agree
Received On Wet Ice
Sample(s) were received in temperature range.
Initial receipt at BSK-FAL

Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

B1.0	Analyte present in method blank above reporting limit.
B1.3	Analyte detected in associated method blank. Reanalysis was not attempted because the reported result was >10x that found in the blank. Impact on sample result is considered to be insignificant.
CV0.0	CCV recovery was above method acceptance limits; no material impact on reported result as sample detection is below the reporting limit for this parameter.
DP1.1	Sample Duplicate RPD exceeded method acceptance criteria.
HT2.0	Holding time exceeded. Sample was received at the lab past recommended holding time.
MS1.0	Matrix spike recoveries exceed control limits.
MS1.4	Matrix spike recovery data unreliable due to significant parent sample concentration relative to fortification level (>4x).
MS2.1	MS/MSD RPD exceeds control limit. Reportable results in parent sample may have some degree of variability, higher than that inherent in the method.
OD.b	Earthy/Musty/Moldy

Report Distribution

Recipient(s)	Report Format	CC:
Nate Page	FINAL.RPT	
David Orourke	FINAL.RPT	
Accounting	FINAL.RPT	

ASSOCIATES

Certificate of Analysis

Sample ID: AGA3346-01
Sampled By: Nate Page
Sample Description: Pilot Inj Well

Sample Date - Time: 01/26/2023 - 09:50
Matrix: Ground Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Alkalinity as CaCO3	SM 2320B	**130**	3.0	mg/L	1	AGB0227	02/03/23	02/03/23	B1.3
Bicarbonate as CaCO3	SM 2320B	**130**	3.0	mg/L	1	AGB0227	02/03/23	02/03/23	B1.3
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	AGB0227	02/03/23	02/03/23	
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	AGB0227	02/03/23	02/03/23	
Ammonia as N	EPA 350.1	**0.15**	0.10	mg/L	1	AGB0042	02/01/23	02/01/23	
Bromate	EPA 317.0	ND	1.0	ug/L	1	AGB0066	02/01/23	02/01/23	
Chloride	EPA 300.0	**120**	1.0	mg/L	1	AGA1658	01/27/23	01/27/23	
Chemical Oxygen Demand	SM 5220D	ND	15	mg/L	1	AGB1382	02/23/23	02/23/23	
Color, Apparent	SM 2120B	**10**	5.0	CU	1	AGA1475	01/27/23 18:23	01/27/23	
Cyanide (total)	SM 4500-CN E	ND	5.0	ug/L	1	AGB0013	02/01/23	02/02/23	
Dissolved Organic Carbon	SM 5310C	**2.8**	0.20	mg/L	1	AGA1772	02/01/23	02/01/23	
Conductivity @ 25C	SM 2510B	**790**	1.0	umhos/cm	1	AGB0227	02/03/23	02/03/23	
Fluoride	EPA 300.0	**0.13**	0.10	mg/L	1	AGA1658	01/27/23	01/27/23	
Hexavalent Chromium	EPA 218.6	ND	0.050	ug/L	1	AGB0416	02/02/23	02/07/23	
Langelier Index	SM 2330B	**-0.38**				AGB0893	02/14/23	02/14/23	
MBAS, Calculated as LAS, mol wt 340	SM 5540C	ND	0.050	mg/L	1	AGA1656	01/27/23 18:10	01/27/23	
Nitrate + Nitrite as N	CALC	ND	0.23	mg/L					
Nitrate as N	EPA 300.0	ND	0.23	mg/L	1	AGA1658	01/27/23 20:39	01/27/23	
Nitrite as N	EPA 300.0	ND	0.050	mg/L	1	AGA1658	01/27/23 20:39	01/27/23	
Threshold Odor	SM 2150B	**1.5**	1.0	T.O.N.	1	AGA1655	01/27/23 19:21	01/27/23	HT2.0, OD.b
Orthophosphate as P	EPA 300.0	ND	0.20	mg/L	1	AGA1658	01/27/23 20:39	01/27/23	
Oxidation/Reduction Potential	Hach 10228	**150**	-10000	mV	1	AGA1669	01/27/23 22:31	01/27/23	
pH (1)	SM 4500-H+ B	**7.6**	0.0	pH Units	1	AGB0227	02/03/23 16:18	02/03/23	
pH Temperature in °C		**22.5**							
Sulfate as SO4	EPA 300.0	**80**	1.0	mg/L	1	AGA1658	01/27/23	01/27/23	
Total Dissolved Solids	SM 2540C	**430**	5.0	mg/L	1	AGA1706	01/30/23	01/30/23	
Total Organic Carbon	SM 5310C	**2.7**	0.20	mg/L	1	AGA1773	02/02/23	02/02/23	
Total Suspended Solids	SM 2540D	ND	5.0	mg/L	1	AGB0031	02/01/23	02/01/23	
Turbidity	SM 2130B	**7.4**	0.10	NTU	1	AGA1475	01/27/23 18:49	01/27/23	

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Aluminum - Dissolved (1)	EPA 200.7	ND	50	ug/L	1	AGB0317	02/06/23	02/07/23	
Antimony - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGB0317	02/06/23	02/07/23	
Arsenic - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGB0317	02/06/23	02/07/23	
Barium - Dissolved (1)	EPA 200.8	**60**	5.0	ug/L	1	AGB0317	02/06/23	02/07/23	
Beryllium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGB0317	02/06/23	02/07/23	CV0.0
Cadmium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGB0317	02/06/23	02/07/23	
Calcium - Dissolved (1)	EPA 200.7	**32**	0.10	mg/L	1	AGB0317	02/06/23	02/07/23	
Chromium - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGB0317	02/06/23	02/07/23	
Cobalt - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGB0317	02/06/23	02/07/23	
Copper - Dissolved (1)	EPA 200.8	ND	5.0	ug/L	1	AGB0317	02/06/23	02/07/23	

Certificate of Analysis

Sample ID: AGA3346-01
Sampled By: Nate Page
Sample Description: Pilot Inj Well

Sample Date - Time: 01/26/2023 - 09:50
Matrix: Ground Water
Sample Type: Grab

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Hardness as CaCO3, Dissolved	SM 2340B	**170**	0.41	mg/L					
Iron - Dissolved (1)	EPA 200.7	**180**	30	ug/L	1	AGB0317	02/06/23	02/07/23	
Lead - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGB0317	02/06/23	02/07/23	
Magnesium - Dissolved (1)	EPA 200.7	**22**	0.10	mg/L	1	AGB0317	02/06/23	02/07/23	
Manganese - Dissolved (1)	EPA 200.7	**130**	10	ug/L	1	AGB0317	02/06/23	02/07/23	
Mercury - Dissolved (1)	EPA 245.7	ND	0.20	ug/L	1	AGB0182	02/02/23	02/06/23	
Molybdenum - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGB0317	02/06/23	02/07/23	
Nickel - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGB0317	02/06/23	02/07/23	
Potassium - Dissolved (1)	EPA 200.7	**3.3**	2.0	mg/L	1	AGB0317	02/06/23	02/07/23	
Selenium - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGB0317	02/06/23	02/07/23	
Silica (SiO2)	EPA 200.7	**14**	0.20	mg/L	1	AGB0314	02/06/23	02/07/23	
Silica (SiO2) - Dissolved (1)	EPA 200.7	**14**	0.20	mg/L	1	AGB0317	02/06/23	02/07/23	
Silver - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGB0317	02/06/23	02/07/23	
Sodium - Dissolved (1)	EPA 200.7	**85**	1.0	mg/L	1	AGB0317	02/06/23	02/07/23	
Strontium - Dissolved (1)	EPA 200.8	**300**	1.0	ug/L	1	AGB0317	02/06/23	02/07/23	
Thallium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGB0317	02/06/23	02/07/23	
Uranium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGB0317	02/06/23	02/07/23	
Vanadium - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGB0317	02/06/23	02/07/23	
Zinc - Dissolved (1)	EPA 200.8	ND	50	ug/L	1	AGB0317	02/06/23	02/07/23	

Organics

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Trihalomethanes by GC-MS									
Bromodichloromethane	EPA 524.2	**8.1**	0.50	ug/L	1	AGA1659	01/27/23	01/28/23	
Bromoform	EPA 524.2	**4.0**	0.50	ug/L	1	AGA1659	01/27/23	01/28/23	
Chloroform	EPA 524.2	**7.4**	0.50	ug/L	1	AGA1659	01/27/23	01/28/23	
Dibromochloromethane	EPA 524.2	**9.0**	0.50	ug/L	1	AGA1659	01/27/23	01/28/23	
Total Trihalomethanes		**28**	0.50	ug/L					
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	100 %	*Acceptable range:*	*70-130 %*					
Surrogate: Bromofluorobenzene	EPA 524.2	92 %	*Acceptable range:*	*70-130 %*					
Haloacetic Acids by GC-MS									
Dibromoacetic Acid (DBAA)	EPA 552.3	ND	1.0	ug/L	1	AGA1761	01/31/23	01/31/23	
Dichloroacetic Acid (DCAA)	EPA 552.3	**1.5**	1.0	ug/L	1	AGA1761	01/31/23	01/31/23	
Monobromoacetic Acid (MBAA)	EPA 552.3	ND	1.0	ug/L	1	AGA1761	01/31/23	01/31/23	
Monochloroacetic Acid (MCAA)	EPA 552.3	ND	2.0	ug/L	1	AGA1761	01/31/23	01/31/23	
Trichloroacetic Acid (TCAA)	EPA 552.3	**1.6**	1.0	ug/L	1	AGA1761	01/31/23	01/31/23	
Total Haloacetic Acids		**3.0**	2.0	ug/L					
Surrogate: 2-Bromobutanoic Acid	EPA 552.3	96 %	*Acceptable range:*	*70-130 %*					

Certificate of Analysis

Sample ID: AGA3346-02
Sampled By: Nate Page
Sample Description: Zip 01

Sample Date - Time: 01/26/2023 - 10:40
Matrix: Ground Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Alkalinity as CaCO3	SM 2320B	**160**	3.0	mg/L	1	AGB0233	02/03/23	02/03/23	B1.3
Bicarbonate as CaCO3	SM 2320B	**160**	3.0	mg/L	1	AGB0233	02/03/23	02/03/23	B1.3
Carbonate as CaCO3	SM 2320B	ND	3.0	mg/L	1	AGB0233	02/03/23	02/03/23	
Hydroxide as CaCO3	SM 2320B	ND	3.0	mg/L	1	AGB0233	02/03/23	02/03/23	
Ammonia as N	EPA 350.1	ND	0.10	mg/L	1	AGB0042	02/01/23	02/01/23	
Bromate	EPA 317.0	ND	1.0	ug/L	1	AGB0066	02/01/23	02/01/23	
Chloride	EPA 300.0	**120**	1.0	mg/L	1	AGA1624	01/27/23	01/27/23	
Chemical Oxygen Demand	SM 5220D	ND	15	mg/L	1	AGB1382	02/23/23	02/23/23	
Color, Apparent	SM 2120B	ND	5.0	CU	1	AGA1475	01/27/23 18:24	01/27/23	
Cyanide (total)	SM 4500-CN E	ND	5.0	ug/L	1	AGB0013	02/01/23	02/02/23	
Dissolved Organic Carbon	SM 5310C	**2.2**	0.20	mg/L	1	AGA1772	02/01/23	02/01/23	
Conductivity @ 25C	SM 2510B	**850**	1.0	umhos/cm	1	AGB0233	02/03/23	02/03/23	
Fluoride	EPA 300.0	**0.19**	0.10	mg/L	1	AGA1624	01/27/23	01/27/23	
Langelier Index	SM 2330B	**0.063**				AGB0893	02/14/23	02/14/23	
MBAS, Calculated as LAS, mol wt 340	SM 5540C	ND	0.050	mg/L	1	AGA1656	01/27/23 18:10	01/27/23	
Nitrate + Nitrite as N	CALC	ND	0.23	mg/L					
Nitrate as N	EPA 300.0	ND	0.23	mg/L	1	AGA1624	01/27/23 21:52	01/27/23	
Nitrite as N	EPA 300.0	ND	0.050	mg/L	1	AGA1624	01/27/23 21:52	01/27/23	
Threshold Odor	SM 2150B	**1.0**	1.0	T.O.N.	1	AGA1655	01/27/23 19:21	01/27/23	HT2.0, OD.b
Orthophosphate as P	EPA 300.0	ND	0.20	mg/L	1	AGA1624	01/27/23 21:52	01/27/23	
Oxidation/Reduction Potential	Hach 10228	**140**	-10000	mV	1	AGA1669	01/27/23 22:35	01/27/23	
pH (1)	SM 4500-H+ B	**7.9**	0.0	pH Units	1	AGB0233	02/03/23 17:39	02/03/23	
pH Temperature in °C		**22.4**							
Sulfate as SO4	EPA 300.0	**85**	1.0	mg/L	1	AGA1624	01/27/23	01/27/23	
Total Dissolved Solids	SM 2540C	**460**	5.0	mg/L	1	AGA1706	01/30/23	01/30/23	
Total Organic Carbon	SM 5310C	**2.0**	0.20	mg/L	1	AGA1773	02/02/23	02/02/23	
Total Suspended Solids	SM 2540D	ND	5.0	mg/L	1	AGB0031	02/01/23	02/01/23	
Turbidity	SM 2130B	**0.28**	0.10	NTU	1	AGA1475	01/27/23 18:50	01/27/23	

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Aluminum - Dissolved (1)	EPA 200.7	ND	50	ug/L	1	AGB0317	02/06/23	02/07/23	
Antimony - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGB0317	02/06/23	02/07/23	
Arsenic - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGB0317	02/06/23	02/07/23	
Barium - Dissolved (1)	EPA 200.8	**67**	5.0	ug/L	1	AGB0317	02/06/23	02/07/23	
Beryllium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGB0317	02/06/23	02/07/23	CV0.0
Cadmium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGB0317	02/06/23	02/07/23	
Calcium - Dissolved (1)	EPA 200.7	**34**	0.10	mg/L	1	AGB0317	02/06/23	02/07/23	
Chromium - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGB0317	02/06/23	02/07/23	
Cobalt - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGB0317	02/06/23	02/07/23	
Copper - Dissolved (1)	EPA 200.8	ND	5.0	ug/L	1	AGB0317	02/06/23	02/07/23	
Hardness as CaCO3, Dissolved	SM 2340B	**220**	0.41	mg/L					

ASSOCIATES

Certificate of Analysis

Sample ID: AGA3346-02
Sampled By: Nate Page
Sample Description: Zip 01

Sample Date - Time: 01/26/2023 - 10:40
Matrix: Ground Water
Sample Type: Grab

Metals

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Iron - Dissolved (1)	EPA 200.7	ND	30	ug/L	1	AGB0317	02/06/23	02/07/23	
Lead - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGB0317	02/06/23	02/07/23	
Magnesium - Dissolved (1)	EPA 200.7	**32**	0.10	mg/L	1	AGB0317	02/06/23	02/07/23	
Manganese - Dissolved (1)	EPA 200.7	**310**	10	ug/L	1	AGB0317	02/06/23	02/07/23	
Mercury - Dissolved (1)	EPA 245.7	ND	0.20	ug/L	1	AGB0182	02/02/23	02/06/23	
Molybdenum - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGB0317	02/06/23	02/07/23	
Nickel - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGB0317	02/06/23	02/07/23	
Potassium - Dissolved (1)	EPA 200.7	**2.0**	2.0	mg/L	1	AGB0317	02/06/23	02/07/23	
Selenium - Dissolved (1)	EPA 200.8	ND	2.0	ug/L	1	AGB0317	02/06/23	02/07/23	
Silica (SiO2)	EPA 200.7	**20**	0.20	mg/L	1	AGB0314	02/06/23	02/07/23	
Silica (SiO2) - Dissolved (1)	EPA 200.7	**20**	0.20	mg/L	1	AGB0317	02/06/23	02/07/23	MS1.4
Silver - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGB0317	02/06/23	02/07/23	
Sodium - Dissolved (1)	EPA 200.7	**75**	1.0	mg/L	1	AGB0317	02/06/23	02/07/23	MS1.4
Strontium - Dissolved (1)	EPA 200.8	**260**	1.0	ug/L	1	AGB0317	02/06/23	02/07/23	
Thallium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGB0317	02/06/23	02/07/23	
Uranium - Dissolved (1)	EPA 200.8	ND	1.0	ug/L	1	AGB0317	02/06/23	02/07/23	
Vanadium - Dissolved (1)	EPA 200.8	ND	10	ug/L	1	AGB0317	02/06/23	02/07/23	
Zinc - Dissolved (1)	EPA 200.8	ND	50	ug/L	1	AGB0317	02/06/23	02/07/23	

Organics

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Trihalomethanes by GC-MS									
Bromodichloromethane	EPA 524.2	**6.8**	0.50	ug/L	1	AGA1659	01/27/23	01/28/23	
Bromoform	EPA 524.2	**3.2**	0.50	ug/L	1	AGA1659	01/27/23	01/28/23	
Chloroform	EPA 524.2	**4.6**	0.50	ug/L	1	AGA1659	01/27/23	01/28/23	
Dibromochloromethane	EPA 524.2	**7.7**	0.50	ug/L	1	AGA1659	01/27/23	01/28/23	
Total Trihalomethanes		**22**	0.50	ug/L					
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	103 %	*Acceptable range: 70-130 %*						
Surrogate: Bromofluorobenzene	EPA 524.2	96 %	*Acceptable range: 70-130 %*						
Haloacetic Acids by GC-MS									
Dibromoacetic Acid (DBAA)	EPA 552.3	ND	1.0	ug/L	1	AGA1761	01/31/23	02/01/23	
Dichloroacetic Acid (DCAA)	EPA 552.3	ND	1.0	ug/L	1	AGA1761	01/31/23	02/01/23	
Monobromoacetic Acid (MBAA)	EPA 552.3	ND	1.0	ug/L	1	AGA1761	01/31/23	02/01/23	
Monochloroacetic Acid (MCAA)	EPA 552.3	ND	2.0	ug/L	1	AGA1761	01/31/23	02/01/23	
Trichloroacetic Acid (TCAA)	EPA 552.3	ND	1.0	ug/L	1	AGA1761	01/31/23	02/01/23	
Total Haloacetic Acids		ND	2.0	ug/L					
Surrogate: 2-Bromobutanoic Acid	EPA 552.3	97 %	*Acceptable range: 70-130 %*						

Certificate of Analysis

Sample ID: AGA3346-02RE1
Sampled By: Nate Page
Sample Description: Zip 01

Sample Date - Time: 01/26/2023 - 10:40
Matrix: Ground Water
Sample Type: Grab

BSK Associates Laboratory Fresno

General Chemistry

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Hexavalent Chromium	EPA 218.6	ND	0.050	ug/L	1	AGB0416	02/02/23	02/07/23	

Certificate of Analysis

Sample ID: AGA3346-03
Sampled By: BSK
Sample Description: TB 0123020

Sample Date - Time: 01/26/2023 - 00:00
Matrix: Water
Sample Type: Trip Blank

BSK Associates Laboratory Fresno

Organics

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
Trihalomethanes by GC-MS									
Bromodichloromethane	EPA 524.2	ND	0.50	ug/L	1	AGA1698	01/30/23	01/30/23	
Bromoform	EPA 524.2	ND	0.50	ug/L	1	AGA1698	01/30/23	01/30/23	
Chloroform	EPA 524.2	ND	0.50	ug/L	1	AGA1698	01/30/23	01/30/23	
Dibromochloromethane	EPA 524.2	ND	0.50	ug/L	1	AGA1698	01/30/23	01/30/23	
Total Trihalomethanes		ND	0.50	ug/L					
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	96 %	*Acceptable range: 70-130 %*						
Surrogate: Bromofluorobenzene	EPA 524.2	90 %	*Acceptable range: 70-130 %*						

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 218.6 - Quality Control

Batch: AGB0162 Prepared: 2/2/2023
Prep Method: Method Specific Preparation Analyst: GJA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGB0162-BLK1)											
Hexavalent Chromium	ND	0.050	ug/L							02/02/23	
Blank Spike (AGB0162-BS1)											
Hexavalent Chromium	2.0	0.050	ug/L	2.0	ND	101	90-110			02/02/23	
Blank Spike Dup (AGB0162-BSD1)											
Hexavalent Chromium	2.0	0.050	ug/L	2.0	ND	101	90-110	0	10	02/02/23	
Matrix Spike (AGB0162-MS1), Source: RGA0217-01											
Hexavalent Chromium	2.1	0.050	ug/L	2.0	0.16	97	90-110			02/02/23	
Matrix Spike (AGB0162-MS2), Source: RGA0250-02											
Hexavalent Chromium	1.9	0.050	ug/L	2.0	ND	96	90-110			02/02/23	
Matrix Spike Dup (AGB0162-MSD1), Source: RGA0217-01											
Hexavalent Chromium	2.1	0.050	ug/L	2.0	0.16	98	90-110	1	10	02/02/23	
Matrix Spike Dup (AGB0162-MSD2), Source: RGA0250-02											
Hexavalent Chromium	1.6	0.050	ug/L	2.0	ND	81	90-110	16	10	02/02/23	MS1.0, MS2.1 ***Low***

EPA 218.6 - Quality Control

Batch: AGB0416 Prepared: 2/7/2023
Prep Method: Method Specific Preparation Analyst: GJA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGB0416-BLK1)											
Hexavalent Chromium	ND	0.050	ug/L							02/07/23	
Blank Spike Dup (AGB0416-BSD1)											
Hexavalent Chromium	2.0	0.050	ug/L	2.0	ND	101	90-110	0	10	02/07/23	
Matrix Spike Dup (AGB0416-MSD1), Source: AGA3346-02RE1											
Hexavalent Chromium	2.1	0.050	ug/L	2.0	ND	106	90-110	1	10	02/07/23	
Matrix Spike Dup (AGB0416-MSD2), Source: AGA3346-01											
Hexavalent Chromium	2.2	0.050	ug/L	2.0	ND	110	90-110	2	10	02/07/23	

EPA 300.0 - Quality Control

Batch: AGA1624 Prepared: 1/27/2023
Prep Method: Method Specific Preparation Analyst: GJA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1624-BLK1)											
Fluoride	ND	0.10	mg/L							01/27/23	
Nitrate as N	ND	0.23	mg/L							01/27/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 300.0 - Quality Control

Batch: AGA1624 Prepared: 1/27/2023

Prep Method: Method Specific Preparation Analyst: GJA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1624-BLK1)											
Chloride	ND	1.0	mg/L							01/27/23	
Nitrite as N	ND	0.050	mg/L							01/27/23	
Orthophosphate as P	ND	0.20	mg/L							01/27/23	
Sulfate as SO4	ND	1.0	mg/L							01/27/23	
Blank Spike (AGA1624-BS1)											
Fluoride	0.98	0.10	mg/L	1.0	ND	98	90-110			01/27/23	
Nitrate as N	22	0.23	mg/L	23	ND	97	90-110			01/27/23	
Chloride	97	1.0	mg/L	100	ND	97	90-110			01/27/23	
Nitrite as N	1.1	0.050	mg/L	1.0	ND	106	90-110			01/27/23	
Orthophosphate as P	5.0	0.20	mg/L	5.0	ND	99	90-110			01/27/23	
Sulfate as SO4	97	1.0	mg/L	100	ND	97	90-110			01/27/23	
Matrix Spike (AGA1624-MS1), Source: AGA3178-02											
Fluoride	0.60	0.10	mg/L	0.50	0.11	98	80-120			01/27/23	
Nitrate as N	15	0.23	mg/L	11	3.5	99	80-120			01/27/23	
Chloride	62	1.0	mg/L	50	13	98	80-120			01/27/23	
Nitrite as N	0.49	0.050	mg/L	0.50	ND	99	75-125			01/27/23	
Orthophosphate as P	2.4	0.20	mg/L	2.5	ND	97	80-120			01/27/23	
Sulfate as SO4	55	1.0	mg/L	50	5.9	99	80-120			01/27/23	
Matrix Spike (AGA1624-MS2), Source: AGA3328-01											
Fluoride	0.70	0.10	mg/L	0.50	0.20	100	80-120			01/27/23	
Nitrate as N	11	0.23	mg/L	11	ND	99	80-120			01/27/23	
Chloride	51	1.0	mg/L	50	1.3	100	80-120			01/27/23	
Nitrite as N	0.50	0.050	mg/L	0.50	ND	101	75-125			01/27/23	
Orthophosphate as P	2.7	0.20	mg/L	2.5	ND	99	80-120			01/27/23	
Sulfate as SO4	57	1.0	mg/L	50	6.6	100	80-120			01/27/23	
Matrix Spike Dup (AGA1624-MSD1), Source: AGA3178-02											
Fluoride	0.62	0.10	mg/L	0.50	0.11	100	80-120	2	10	01/27/23	
Nitrate as N	15	0.23	mg/L	11	3.5	102	80-120	2	20	01/27/23	
Chloride	63	1.0	mg/L	50	13	100	80-120	2	20	01/27/23	
Nitrite as N	0.51	0.050	mg/L	0.50	ND	101	75-125	3	20	01/27/23	
Orthophosphate as P	2.5	0.20	mg/L	2.5	ND	101	80-120	4	20	01/27/23	
Sulfate as SO4	57	1.0	mg/L	50	5.9	101	80-120	2	20	01/27/23	
Matrix Spike Dup (AGA1624-MSD2), Source: AGA3328-01											
Fluoride	0.71	0.10	mg/L	0.50	0.20	103	80-120	2	10	01/27/23	
Nitrate as N	11	0.23	mg/L	11	ND	100	80-120	1	20	01/27/23	
Chloride	51	1.0	mg/L	50	1.3	100	80-120	0	20	01/27/23	
Nitrite as N	0.51	0.050	mg/L	0.50	ND	103	75-125	2	20	01/27/23	
Orthophosphate as P	2.7	0.20	mg/L	2.5	ND	102	80-120	2	20	01/27/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 300.0 - Quality Control											
Batch: AGA1624										Prepared: 1/27/2023	
Prep Method: Method Specific Preparation										Analyst: GJA	
Matrix Spike Dup (AGA1624-MSD2), Source: AGA3328-01											
Sulfate as SO4	57	1.0	mg/L	50	6.6	101	80-120	0	20	01/27/23	
EPA 300.0 - Quality Control											
Batch: AGA1658										Prepared: 1/27/2023	
Prep Method: Method Specific Preparation										Analyst: GJA	
Blank (AGA1658-BLK1)											
Fluoride	ND	0.10	mg/L							01/27/23	
Nitrate as N	ND	0.23	mg/L							01/27/23	
Chloride	ND	1.0	mg/L							01/27/23	
Nitrite as N	ND	0.050	mg/L							01/27/23	
Orthophosphate as P	ND	0.20	mg/L							01/27/23	
Sulfate as SO4	ND	1.0	mg/L							01/27/23	
Blank Spike (AGA1658-BS1)											
Fluoride	1.0	0.10	mg/L	1.0	ND	100	90-110			01/27/23	
Nitrate as N	22	0.23	mg/L	23	ND	99	90-110			01/27/23	
Chloride	99	1.0	mg/L	100	ND	99	90-110			01/27/23	
Nitrite as N	1.0	0.050	mg/L	1.0	ND	102	90-110			01/27/23	
Orthophosphate as P	5.1	0.20	mg/L	5.0	ND	102	90-110			01/27/23	
Sulfate as SO4	100	1.0	mg/L	100	ND	100	90-110			01/27/23	
Matrix Spike (AGA1658-MS1), Source: AGA3292-01											
Fluoride	1.5	0.10	mg/L	0.50	1.0	98	80-120			01/27/23	
Nitrate as N	11	0.23	mg/L	11	ND	96	80-120			01/27/23	
Chloride	58	1.0	mg/L	50	8.9	99	80-120			01/27/23	
Nitrite as N	0.46	0.050	mg/L	0.50	ND	92	75-125			01/27/23	
Orthophosphate as P	2.4	0.20	mg/L	2.5	ND	96	80-120			01/27/23	
Sulfate as SO4	130	1.0	mg/L	50	78	98	80-120			01/27/23	
Matrix Spike (AGA1658-MS2), Source: AGA3284-01											
Fluoride	0.56	0.10	mg/L	0.50	ND	98	80-120			01/27/23	
Nitrate as N	14	0.23	mg/L	11	3.1	99	80-120			01/27/23	
Chloride	70	1.0	mg/L	50	20	99	80-120			01/27/23	
Nitrite as N	0.47	0.050	mg/L	0.50	ND	93	75-125			01/27/23	
Orthophosphate as P	2.4	0.20	mg/L	2.5	ND	98	80-120			01/27/23	
Sulfate as SO4	84	1.0	mg/L	50	34	101	80-120			01/27/23	
Matrix Spike Dup (AGA1658-MSD1), Source: AGA3292-01											
Fluoride	1.5	0.10	mg/L	0.50	1.0	100	80-120	1	10	01/27/23	
Nitrate as N	11	0.23	mg/L	11	ND	98	80-120	2	20	01/27/23	
Chloride	59	1.0	mg/L	50	8.9	100	80-120	1	20	01/27/23	
Nitrite as N	0.47	0.050	mg/L	0.50	ND	94	75-125	2	20	01/27/23	
Orthophosphate as P	2.5	0.20	mg/L	2.5	ND	98	80-120	3	20	01/27/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
EPA 300.0 - Quality Control											
Batch: AGA1658										Prepared: 1/27/2023	
Prep Method: Method Specific Preparation										Analyst: GJA	
Matrix Spike Dup (AGA1658-MSD1), Source: AGA3292-01											
Sulfate as SO4	130	1.0	mg/L	50	78	99	80-120	1	20	01/27/23	
Matrix Spike Dup (AGA1658-MSD2), Source: AGA3284-01											
Fluoride	0.57	0.10	mg/L	0.50	ND	99	80-120	1	10	01/27/23	
Nitrate as N	14	0.23	mg/L	11	3.1	101	80-120	1	20	01/27/23	
Chloride	70	1.0	mg/L	50	20	100	80-120	1	20	01/27/23	
Nitrite as N	0.47	0.050	mg/L	0.50	ND	94	75-125	1	20	01/27/23	
Orthophosphate as P	2.5	0.20	mg/L	2.5	ND	100	80-120	2	20	01/27/23	
Sulfate as SO4	85	1.0	mg/L	50	34	102	80-120	1	20	01/27/23	
EPA 317.0 - Quality Control											
Batch: AGB0066										Prepared: 2/1/2023	
Prep Method: Method Specific Preparation										Analyst: DXR	
Blank (AGB0066-BLK1)											
Bromate	ND	1.0	ug/L							02/01/23	
Blank Spike (AGB0066-BS1)											
Bromate	11	1.0	ug/L	10	ND	110	85-115			02/01/23	
Blank Spike Dup (AGB0066-BSD1)											
Bromate	10	1.0	ug/L	10	ND	101	85-115	9	10	02/01/23	
Matrix Spike (AGB0066-MS1), Source: AGA3303-02											
Bromate	8.4	1.0	ug/L	10	ND	84	75-125			02/01/23	
Matrix Spike Dup (AGB0066-MSD1), Source: AGA3303-02											
Bromate	8.7	1.0	ug/L	10	ND	87	75-125	4	10	02/01/23	
EPA 350.1 - Quality Control											
Batch: AGB0042										Prepared: 2/1/2023	
Prep Method: Method Specific Preparation										Analyst: CTD	
Blank (AGB0042-BLK1)											
Ammonia as N	ND	0.10	mg/L							02/01/23	
Blank Spike (AGB0042-BS1)											
Ammonia as N	4.0	0.10	mg/L	4.0	ND	100	90-110			02/01/23	
Blank Spike Dup (AGB0042-BSD1)											
Ammonia as N	4.0	0.10	mg/L	4.0	ND	101	90-110	1	20	02/01/23	
Matrix Spike (AGB0042-MS1), Source: AGA3332-01											
Ammonia as N	3.7	0.10	mg/L	4.0	ND	94	90-110			02/01/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 350.1 - Quality Control

Batch: AGB0042 Prepared: 2/1/2023
Prep Method: Method Specific Preparation Analyst: CTD

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Matrix Spike (AGB0042-MS2), Source: AGA3332-02											
Ammonia as N	3.8	0.10	mg/L	4.0	ND	95	90-110			02/01/23	

Hach 10228 - Quality Control

Batch: AGA1669 Prepared: 1/27/2023
Prep Method: Method Specific Preparation Analyst: DXR

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Duplicate (AGA1669-DUP1), Source: AGA3346-01											
Oxidation/Reduction Potential	140	-10000	mV		150			5	20	01/27/23	

SM 2120B - Quality Control

Batch: AGA1475 Prepared: 1/27/2023
Prep Method: Method Specific Preparation Analyst: BCB

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1475-BLK1)											
Color, Apparent	ND	5.0	CU							01/27/23	
Duplicate (AGA1475-DUP1), Source: SGA0490-01											
Color, Apparent	ND	5.0	CU		ND				20	01/27/23	
Duplicate (AGA1475-DUP2), Source: SGA0490-11											
Color, Apparent	ND	5.0	CU		ND				20	01/27/23	

SM 2130B - Quality Control

Batch: AGA1475 Prepared: 1/27/2023
Prep Method: Method Specific Preparation Analyst: BCB

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1475-BLK1)											
Turbidity	ND	0.10	NTU							01/27/23	
Duplicate (AGA1475-DUP1), Source: SGA0490-01											
Turbidity	0.23	0.10	NTU		0.18			24	20	01/27/23	DP1.1

SM 2150B - Quality Control

Batch: AGA1655 Prepared: 1/27/2023
Prep Method: Method Specific Preparation Analyst: BCB

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1655-BLK1)											
Threshold Odor	ND	1.0	T.O.N.							01/27/23	
Blank (AGA1655-BLK2)											
Threshold Odor	ND	1.0	T.O.N.							01/27/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

SM 2320B - Quality Control

Batch: AGB0227 Prepared: 2/3/2023

Prep Method: Method Specific Preparation Analyst: EFG

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGB0227-BLK1)											
Alkalinity as CaCO3	3.6	3.0	mg/L							02/03/23	B1.0
Bicarbonate as CaCO3	3.6	3.0	mg/L							02/03/23	B1.0
Carbonate as CaCO3	ND	3.0	mg/L							02/03/23	
Hydroxide as CaCO3	ND	3.0	mg/L							02/03/23	
Blank Spike (AGB0227-BS1)											
Alkalinity as CaCO3	99	3.0	mg/L	100	ND	99	80-120			02/03/23	
Blank Spike Dup (AGB0227-BSD1)											
Alkalinity as CaCO3	100	3.0	mg/L	100	ND	100	80-120	1	20	02/03/23	
Duplicate (AGB0227-DUP1), Source: AGA3346-01											
Alkalinity as CaCO3	130	3.0	mg/L		130			1	10	02/03/23	
Bicarbonate as CaCO3	130	3.0	mg/L		130			1	10	02/03/23	
Carbonate as CaCO3	ND	3.0	mg/L		ND				10	02/03/23	
Hydroxide as CaCO3	ND	3.0	mg/L		ND				10	02/03/23	

SM 2320B - Quality Control

Batch: AGB0233 Prepared: 2/3/2023

Prep Method: Method Specific Preparation Analyst: EFG

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGB0233-BLK1)											
Alkalinity as CaCO3	3.8	3.0	mg/L							02/03/23	B1.0
Bicarbonate as CaCO3	3.8	3.0	mg/L							02/03/23	B1.0
Carbonate as CaCO3	ND	3.0	mg/L							02/03/23	
Hydroxide as CaCO3	ND	3.0	mg/L							02/03/23	
Blank Spike (AGB0233-BS1)											
Alkalinity as CaCO3	95	3.0	mg/L	100	ND	95	80-120			02/03/23	
Blank Spike Dup (AGB0233-BSD1)											
Alkalinity as CaCO3	98	3.0	mg/L	100	ND	98	80-120	2	20	02/03/23	
Duplicate (AGB0233-DUP1), Source: AGA3518-01											
Alkalinity as CaCO3	3.6	3.0	mg/L		8.6			82	10	02/03/23	DP1.1
Bicarbonate as CaCO3	3.6	3.0	mg/L		8.6			82	10	02/03/23	DP1.1
Carbonate as CaCO3	ND	3.0	mg/L		ND				10	02/03/23	
Hydroxide as CaCO3	ND	3.0	mg/L		ND				10	02/03/23	

SM 2510B - Quality Control

Batch: AGB0227 Prepared: 2/3/2023

Prep Method: Method Specific Preparation Analyst: EFG

Blank (AGB0227-BLK1)

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

SM 2510B - Quality Control

Batch: AGB0227 Prepared: 2/3/2023
Prep Method: Method Specific Preparation Analyst: EFG

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGB0227-BLK1)											
Conductivity @ 25C	ND	1.0	umhos/cm							02/03/23	
Blank Spike (AGB0227-BS1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400	ND	98	90-110			02/03/23	
Blank Spike Dup (AGB0227-BSD1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400	ND	99	90-110	1	5	02/03/23	
Duplicate (AGB0227-DUP1), Source: AGA3346-01											
Conductivity @ 25C	790	1.0	umhos/cm		790			1	5	02/03/23	

SM 2510B - Quality Control

Batch: AGB0233 Prepared: 2/3/2023
Prep Method: Method Specific Preparation Analyst: EFG

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGB0233-BLK1)											
Conductivity @ 25C	ND	1.0	umhos/cm							02/03/23	
Blank Spike (AGB0233-BS1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400	ND	101	90-110			02/03/23	
Blank Spike Dup (AGB0233-BSD1)											
Conductivity @ 25C	1400	1.0	umhos/cm	1400	ND	101	90-110	1	5	02/03/23	
Duplicate (AGB0233-DUP1), Source: AGA3518-01											
Conductivity @ 25C	3.9	1.0	umhos/cm		3.9			1	5	02/03/23	

SM 2540C - Quality Control

Batch: AGA1706 Prepared: 1/30/2023
Prep Method: Method Specific Preparation Analyst: SYY

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1706-BLK1)											
Total Dissolved Solids	ND	5.0	mg/L							01/30/23	
Blank Spike (AGA1706-BS1)											
Total Dissolved Solids	1000		mg/L	1000		100	70-130			01/30/23	
Duplicate (AGA1706-DUP1), Source: AGA3332-01											
Total Dissolved Solids	260	5.0	mg/L		260			0	10	01/30/23	
Duplicate (AGA1706-DUP2), Source: AGA3293-02											
Total Dissolved Solids	250	5.0	mg/L		260			2	10	01/30/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
SM 2540D - Quality Control											
Batch: AGB0031										Prepared: 2/1/2023	
Prep Method: Method Specific Preparation										Analyst: RRV/EMN	
Blank (AGB0031-BLK1)											
Total Suspended Solids	ND	5.0	mg/L							02/01/23	
Blank Spike (AGB0031-BS1)											
Total Suspended Solids	100		mg/L	100		104	70-130			02/01/23	
Duplicate (AGB0031-DUP1), Source: AGA3469-01											
Total Suspended Solids	150	5.0	mg/L		140			0	10	02/01/23	
Duplicate (AGB0031-DUP2), Source: AGA3526-01											
Total Suspended Solids	210	5.0	mg/L		210			1	10	02/01/23	
SM 4500-CN E - Quality Control											
Batch: AGB0013										Prepared: 2/1/2023	
Prep Method: Method Specific Preparation										Analyst: ERA	
Blank (AGB0013-BLK1)											
Cyanide (total)	ND	5.0	ug/L							02/02/23	
Blank Spike (AGB0013-BS1)											
Cyanide (total)	240	5.0	ug/L	250	ND	97	80-120			02/02/23	
Blank Spike Dup (AGB0013-BSD1)											
Cyanide (total)	230	5.0	ug/L	250	ND	93	80-120	3	20	02/02/23	
Matrix Spike (AGB0013-MS1), Source: AGA3284-01											
Cyanide (total)	260	5.0	ug/L	250	ND	103	80-120			02/02/23	
Matrix Spike Dup (AGB0013-MSD1), Source: AGA3284-01											
Cyanide (total)	250	5.0	ug/L	250	ND	102	80-120	1	20	02/02/23	
SM 4500-H+ B - Quality Control											
Batch: AGB0227										Prepared: 2/3/2023	
Prep Method: Method Specific Preparation										Analyst: EFG	
Duplicate (AGB0227-DUP1), Source: AGA3346-01											
pH (1)	7.70	0.0	pH Units		7.58			2		02/03/23	
SM 4500-H+ B - Quality Control											
Batch: AGB0233										Prepared: 2/3/2023	
Prep Method: Method Specific Preparation										Analyst: EFG	
Duplicate (AGB0233-DUP1), Source: AGA3518-01											
pH (1)	6.32	0.0	pH Units		6.29			1		02/03/23	

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

SM 5220D - Quality Control

Batch: AGB1382 Prepared: 2/23/2023

Prep Method: Method Specific Preparation Analyst: BCB

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGB1382-BLK1)											
Chemical Oxygen Demand	ND	15	mg/L							02/23/23	
Blank Spike (AGB1382-BS1)											
Chemical Oxygen Demand	110	30	mg/L	100	ND	108	80-120			02/23/23	
Blank Spike Dup (AGB1382-BSD1)											
Chemical Oxygen Demand	110	30	mg/L	100	ND	106	80-120	2	20	02/23/23	
Matrix Spike (AGB1382-MS1), Source: AGA3385-01											
Chemical Oxygen Demand	110	30	mg/L	100	ND	107	80-120			02/23/23	
Matrix Spike Dup (AGB1382-MSD1), Source: AGA3385-01											
Chemical Oxygen Demand	110	30	mg/L	100	ND	113	80-120	5	20	02/23/23	

SM 5310C - Quality Control

Batch: AGA1772 Prepared: 2/1/2023

Prep Method: Method Specific Preparation Analyst: ERA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1772-BLK1)											
Dissolved Organic Carbon	ND	0.20	mg/L							02/01/23	
Blank Spike (AGA1772-BS1)											
Dissolved Organic Carbon	10	0.20	mg/L	10	ND	104	80-120			02/01/23	
Blank Spike Dup (AGA1772-BSD1)											
Dissolved Organic Carbon	10	0.20	mg/L	10	ND	105	80-120	1	20	02/01/23	
Matrix Spike (AGA1772-MS1), Source: AGA3346-02											
Dissolved Organic Carbon	12	0.20	mg/L	10	2.2	101	80-120			02/01/23	
Matrix Spike Dup (AGA1772-MSD1), Source: AGA3346-02											
Dissolved Organic Carbon	12	0.20	mg/L	10	2.2	101	80-120	1	20	02/01/23	

SM 5310C - Quality Control

Batch: AGA1773 Prepared: 2/1/2023

Prep Method: Method Specific Preparation Analyst: ERA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1773-BLK1)											
Total Organic Carbon	ND	0.20	mg/L							02/01/23	
Blank Spike (AGA1773-BS1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	104	80-120			02/01/23	
Blank Spike Dup (AGA1773-BSD1)											

BSK Associates Laboratory Fresno

General Chemistry Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

SM 5310C - Quality Control

Batch: AGA1773 Prepared: 2/1/2023
Prep Method: Method Specific Preparation Analyst: ERA

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank Spike Dup (AGA1773-BSD1)											
Total Organic Carbon	10	0.20	mg/L	10	ND	104	80-120	0	20	02/01/23	
Matrix Spike (AGA1773-MS1), Source: AGA3004-01											
Total Organic Carbon	11	0.20	mg/L	10	1.2	102	80-120			02/01/23	
Matrix Spike (AGA1773-MS2), Source: AGA3004-03											
Total Organic Carbon	13	0.20	mg/L	10	2.3	103	80-120			02/02/23	
Matrix Spike Dup (AGA1773-MSD1), Source: AGA3004-01											
Total Organic Carbon	12	0.20	mg/L	10	1.2	104	80-120	2	20	02/01/23	
Matrix Spike Dup (AGA1773-MSD2), Source: AGA3004-03											
Total Organic Carbon	13	0.20	mg/L	10	2.3	105	80-120	1	20	02/02/23	

SM 5540C - Quality Control

Batch: AGA1656 Prepared: 1/27/2023
Prep Method: Method Specific Preparation Analyst: PXC

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1656-BLK1)											
MBAS, Calculated as LAS, mol wt 340	ND	0.050	mg/L							01/27/23	
Blank Spike (AGA1656-BS1)											
MBAS, Calculated as LAS, mol wt 340	0.96	0.050	mg/L	1.0	ND	96	82-112			01/27/23	
Blank Spike Dup (AGA1656-BSD1)											
MBAS, Calculated as LAS, mol wt 340	1.0	0.050	mg/L	1.0	ND	102	82-112	6	20	01/27/23	
Matrix Spike (AGA1656-MS1), Source: AGA3284-01											
MBAS, Calculated as LAS, mol wt 340	0.92	0.050	mg/L	1.0	ND	92	80-112			01/27/23	
Matrix Spike Dup (AGA1656-MSD1), Source: AGA3284-01											
MBAS, Calculated as LAS, mol wt 340	0.98	0.050	mg/L	1.0	ND	98	80-112	6	20	01/27/23	

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 200.7 - Quality Control

Batch: AGB0314 Prepared: 2/6/2023
Prep Method: EPA 200.2 - Silica Analyst: MDS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGB0314-BLK1)											
Silica (SiO2)	ND	0.20	mg/L							02/07/23	
Blank Spike (AGB0314-BS1)											
Silica (SiO2)	2.3	0.20	mg/L	2.1	ND	107	85-115			02/07/23	
Blank Spike Dup (AGB0314-BSD1)											
Silica (SiO2)	2.1	0.20	mg/L	2.1	ND	100	85-115	7	20	02/07/23	
Matrix Spike (AGB0314-MS1), Source: AGA3284-01											
Silica (SiO2)	22	0.20	mg/L	2.1	19	154	70-130			02/07/23	MS1.0 ***High***
Matrix Spike (AGB0314-MS2), Source: AGA3332-02											
Silica (SiO2)	89	0.20	mg/L	2.1	84	245	70-130			02/07/23	MS1.0 ***High***
Matrix Spike Dup (AGB0314-MSD1), Source: AGA3284-01											
Silica (SiO2)	21	0.20	mg/L	2.1	19	120	70-130	3	20	02/07/23	
Matrix Spike Dup (AGB0314-MSD2), Source: AGA3332-02											
Silica (SiO2)	88	0.20	mg/L	2.1	84	203	70-130	1	20	02/07/23	MS1.0 ***High***

EPA 200.7 - Quality Control

Batch: AGB0317 Prepared: 2/6/2023
Prep Method: Filtration - Metals Analyst: MDS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGB0317-BLK2)											
Aluminum - Dissolved (1)	ND	50	ug/L							02/07/23	
Calcium - Dissolved (1)	ND	0.10	mg/L							02/07/23	
Iron - Dissolved (1)	ND	30	ug/L							02/07/23	
Potassium - Dissolved (1)	ND	2.0	mg/L							02/07/23	
Magnesium - Dissolved (1)	ND	0.10	mg/L							02/07/23	
Manganese - Dissolved (1)	ND	10	ug/L							02/07/23	
Sodium - Dissolved (1)	ND	1.0	mg/L							02/07/23	
Silica (SiO2) - Dissolved (1)	ND	0.20	mg/L							02/07/23	
Blank Spike (AGB0317-BS2)											
Aluminum - Dissolved (1)	180	50	ug/L	200	ND	90	85-115			02/07/23	
Calcium - Dissolved (1)	3.5	0.10	mg/L	4.0	ND	88	85-115			02/07/23	
Iron - Dissolved (1)	180	30	ug/L	200	ND	92	85-115			02/07/23	
Potassium - Dissolved (1)	4.4	2.0	mg/L	4.0	ND	110	85-115			02/07/23	
Magnesium - Dissolved (1)	3.5	0.10	mg/L	4.0	ND	88	85-115			02/07/23	
Manganese - Dissolved (1)	190	10	ug/L	200	ND	96	85-115			02/07/23	
Sodium - Dissolved (1)	3.7	1.0	mg/L	4.0	ND	93	85-115			02/07/23	
Silica (SiO2) - Dissolved (1)	2.0	0.20	mg/L	2.1	ND	95	85-115			02/07/23	

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 200.7 - Quality Control

Batch: AGB0317 Prepared: 2/6/2023

Prep Method: Filtration - Metals Analyst: MDS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank Spike Dup (AGB0317-BSD2)											
Aluminum - Dissolved (1)	200	50	ug/L	200	ND	102	85-115	12	20	02/07/23	
Calcium - Dissolved (1)	3.5	0.10	mg/L	4.0	ND	87	85-115	1	20	02/07/23	
Iron - Dissolved (1)	180	30	ug/L	200	ND	92	85-115	0	20	02/07/23	
Potassium - Dissolved (1)	4.1	2.0	mg/L	4.0	ND	102	85-115	8	20	02/07/23	
Magnesium - Dissolved (1)	3.5	0.10	mg/L	4.0	ND	87	85-115	1	20	02/07/23	
Manganese - Dissolved (1)	190	10	ug/L	200	ND	96	85-115	0	20	02/07/23	
Sodium - Dissolved (1)	3.7	1.0	mg/L	4.0	ND	93	85-115	0	20	02/07/23	
Silica (SiO2) - Dissolved (1)	2.0	0.20	mg/L	2.1	ND	94	85-115	1	20	02/07/23	
Matrix Spike (AGB0317-MS3), Source: AGA3346-02											
Aluminum - Dissolved (1)	190	50	ug/L	200	ND	96	70-130			02/07/23	
Calcium - Dissolved (1)	38	0.10	mg/L	4.0	34	98	70-130			02/07/23	
Iron - Dissolved (1)	190	30	ug/L	200	ND	94	70-130			02/07/23	
Potassium - Dissolved (1)	5.7	2.0	mg/L	4.0	2.0	91	70-130			02/07/23	
Magnesium - Dissolved (1)	36	0.10	mg/L	4.0	32	96	70-130			02/07/23	
Manganese - Dissolved (1)	500	10	ug/L	200	310	94	70-130			02/07/23	
Sodium - Dissolved (1)	83	1.0	mg/L	4.0	75	201	70-130			02/07/23	MS1.0 ***High***
Silica (SiO2) - Dissolved (1)	23	0.20	mg/L	2.1	20	135	70-130			02/07/23	MS1.0 ***High***
Matrix Spike (AGB0317-MS4), Source: AGB0184-01											
Aluminum - Dissolved (1)	200	50	ug/L	200	ND	100	70-130			02/07/23	
Calcium - Dissolved (1)	18	0.10	mg/L	4.0	15	93	70-130			02/07/23	
Iron - Dissolved (1)	180	30	ug/L	200	ND	91	70-130			02/07/23	
Potassium - Dissolved (1)	7.3	2.0	mg/L	4.0	3.5	95	70-130			02/07/23	
Magnesium - Dissolved (1)	5.8	0.10	mg/L	4.0	2.2	89	70-130			02/07/23	
Manganese - Dissolved (1)	200	10	ug/L	200	12	94	70-130			02/07/23	
Sodium - Dissolved (1)	140	1.0	mg/L	4.0	130	92	70-130			02/07/23	
Silica (SiO2) - Dissolved (1)	64	0.20	mg/L	2.1	60	173	70-130			02/07/23	MS1.0 ***High***
Matrix Spike Dup (AGB0317-MSD3), Source: AGA3346-02											
Aluminum - Dissolved (1)	170	50	ug/L	200	ND	87	70-130	11	20	02/07/23	
Calcium - Dissolved (1)	38	0.10	mg/L	4.0	34	93	70-130	1	20	02/07/23	
Iron - Dissolved (1)	180	30	ug/L	200	ND	91	70-130	3	20	02/07/23	
Potassium - Dissolved (1)	5.6	2.0	mg/L	4.0	2.0	90	70-130	1	20	02/07/23	
Magnesium - Dissolved (1)	36	0.10	mg/L	4.0	32	94	70-130	0	20	02/07/23	
Manganese - Dissolved (1)	490	10	ug/L	200	310	93	70-130	1	20	02/07/23	
Sodium - Dissolved (1)	80	1.0	mg/L	4.0	75	132	70-130	3	20	02/07/23	MS1.0 ***High***
Silica (SiO2) - Dissolved (1)	22	0.20	mg/L	2.1	20	97	70-130	4	20	02/07/23	
Matrix Spike Dup (AGB0317-MSD4), Source: AGB0184-01											
Aluminum - Dissolved (1)	200	50	ug/L	200	ND	100	70-130	0	20	02/07/23	
Calcium - Dissolved (1)	19	0.10	mg/L	4.0	15	109	70-130	4	20	02/07/23	
Iron - Dissolved (1)	190	30	ug/L	200	ND	96	70-130	6	20	02/07/23	

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 200.7 - Quality Control

Batch: AGB0317 Prepared: 2/6/2023
Prep Method: Filtration - Metals Analyst: MDS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Matrix Spike Dup (AGB0317-MSD4), Source: AGB0184-01											
Potassium - Dissolved (1)	7.6	2.0	mg/L	4.0	3.5	102	70-130	4	20	02/07/23	
Magnesium - Dissolved (1)	6.0	0.10	mg/L	4.0	2.2	94	70-130	4	20	02/07/23	
Manganese - Dissolved (1)	210	10	ug/L	200	12	98	70-130	4	20	02/07/23	
Sodium - Dissolved (1)	150	1.0	mg/L	4.0	130	309	70-130	6	20	02/07/23	MS1.0 ***High***
Silica (SiO2) - Dissolved (1)	65	0.20	mg/L	2.1	60	234	70-130	2	20	02/07/23	MS1.0 ***High***

EPA 200.8 - Quality Control

Batch: AGB0317 Prepared: 2/6/2023
Prep Method: Filtration - Metals Analyst: AHS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGB0317-BLK1)											
Beryllium - Dissolved (1)	ND	1.0	ug/L							02/07/23	
Vanadium - Dissolved (1)	ND	10	ug/L							02/07/23	
Chromium - Dissolved (1)	ND	10	ug/L							02/07/23	
Cobalt - Dissolved (1)	ND	10	ug/L							02/07/23	
Nickel - Dissolved (1)	ND	10	ug/L							02/07/23	
Copper - Dissolved (1)	ND	5.0	ug/L							02/07/23	
Zinc - Dissolved (1)	ND	50	ug/L							02/07/23	
Arsenic - Dissolved (1)	ND	2.0	ug/L							02/07/23	
Selenium - Dissolved (1)	ND	2.0	ug/L							02/07/23	
Strontium - Dissolved (1)	ND	1.0	ug/L							02/07/23	
Molybdenum - Dissolved (1)	ND	10	ug/L							02/07/23	
Silver - Dissolved (1)	ND	10	ug/L							02/07/23	
Cadmium - Dissolved (1)	ND	1.0	ug/L							02/07/23	
Antimony - Dissolved (1)	ND	2.0	ug/L							02/07/23	
Barium - Dissolved (1)	ND	5.0	ug/L							02/07/23	
Thallium - Dissolved (1)	ND	1.0	ug/L							02/07/23	
Lead - Dissolved (1)	ND	1.0	ug/L							02/07/23	
Uranium - Dissolved (1)	ND	1.0	ug/L							02/07/23	
Blank Spike (AGB0317-BS1)											
Beryllium - Dissolved (1)	220	1.0	ug/L	200	ND	108	85-115			02/07/23	
Vanadium - Dissolved (1)	200	10	ug/L	200	ND	101	85-115			02/07/23	
Chromium - Dissolved (1)	190	10	ug/L	200	ND	96	85-115			02/07/23	
Cobalt - Dissolved (1)	190	10	ug/L	200	ND	97	85-115			02/07/23	
Nickel - Dissolved (1)	190	10	ug/L	200	ND	97	85-115			02/07/23	
Copper - Dissolved (1)	200	5.0	ug/L	200	ND	98	85-115			02/07/23	
Zinc - Dissolved (1)	180	50	ug/L	200	ND	91	85-115			02/07/23	
Arsenic - Dissolved (1)	190	2.0	ug/L	200	ND	96	85-115			02/07/23	
Selenium - Dissolved (1)	190	2.0	ug/L	200	ND	93	85-115			02/07/23	
Strontium - Dissolved (1)	200	1.0	ug/L	200	ND	100	85-115			02/07/23	
Molybdenum - Dissolved (1)	200	10	ug/L	200	ND	98	85-115			02/07/23	
Silver - Dissolved (1)	98	10	ug/L	100	ND	98	75-125			02/07/23	

BSK Associates Laboratory Fresno

Metals Quality Control Report

EPA 200.8 - Quality Control

Batch: AGB0317 Prepared: 2/6/2023

Prep Method: Filtration - Metals Analyst: AHS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank Spike (AGB0317-BS1)											
Cadmium - Dissolved (1)	200	1.0	ug/L	200	ND	101	85-115			02/07/23	
Antimony - Dissolved (1)	210	2.0	ug/L	200	ND	105	85-115			02/07/23	
Barium - Dissolved (1)	200	5.0	ug/L	200	ND	100	85-115			02/07/23	
Thallium - Dissolved (1)	210	1.0	ug/L	200	ND	105	85-115			02/07/23	
Lead - Dissolved (1)	200	1.0	ug/L	200	ND	98	85-115			02/07/23	
Uranium - Dissolved (1)	210	1.0	ug/L	200	ND	104	85-115			02/07/23	
Blank Spike Dup (AGB0317-BSD1)											
Beryllium - Dissolved (1)	210	1.0	ug/L	200	ND	105	85-115	2	20	02/07/23	
Vanadium - Dissolved (1)	200	10	ug/L	200	ND	101	85-115	1	20	02/07/23	
Chromium - Dissolved (1)	190	10	ug/L	200	ND	95	85-115	1	20	02/07/23	
Cobalt - Dissolved (1)	190	10	ug/L	200	ND	96	85-115	1	20	02/07/23	
Nickel - Dissolved (1)	190	10	ug/L	200	ND	94	85-115	3	20	02/07/23	
Copper - Dissolved (1)	190	5.0	ug/L	200	ND	96	85-115	2	20	02/07/23	
Zinc - Dissolved (1)	180	50	ug/L	200	ND	90	85-115	2	20	02/07/23	
Arsenic - Dissolved (1)	190	2.0	ug/L	200	ND	95	85-115	1	20	02/07/23	
Selenium - Dissolved (1)	180	2.0	ug/L	200	ND	92	85-115	1	20	02/07/23	
Strontium - Dissolved (1)	200	1.0	ug/L	200	ND	99	85-115	1	20	02/07/23	
Molybdenum - Dissolved (1)	200	10	ug/L	200	ND	99	85-115	1	20	02/07/23	
Silver - Dissolved (1)	92	10	ug/L	100	ND	92	75-125	6	20	02/07/23	
Cadmium - Dissolved (1)	190	1.0	ug/L	200	ND	97	85-115	4	20	02/07/23	
Antimony - Dissolved (1)	200	2.0	ug/L	200	ND	101	85-115	4	20	02/07/23	
Barium - Dissolved (1)	190	5.0	ug/L	200	ND	96	85-115	4	20	02/07/23	
Thallium - Dissolved (1)	200	1.0	ug/L	200	ND	102	85-115	3	20	02/07/23	
Lead - Dissolved (1)	190	1.0	ug/L	200	ND	95	85-115	3	20	02/07/23	
Uranium - Dissolved (1)	200	1.0	ug/L	200	ND	99	85-115	5	20	02/07/23	
Matrix Spike (AGB0317-MS1), Source: AGA3346-02											
Beryllium - Dissolved (1)	220	1.0	ug/L	200	ND	108	70-130			02/07/23	
Vanadium - Dissolved (1)	220	10	ug/L	200	ND	108	70-130			02/07/23	
Chromium - Dissolved (1)	190	10	ug/L	200	ND	97	70-130			02/07/23	
Cobalt - Dissolved (1)	190	10	ug/L	200	ND	97	70-130			02/07/23	
Nickel - Dissolved (1)	190	10	ug/L	200	ND	93	70-130			02/07/23	
Copper - Dissolved (1)	190	5.0	ug/L	200	ND	93	70-130			02/07/23	
Zinc - Dissolved (1)	180	50	ug/L	200	ND	88	70-130			02/07/23	
Arsenic - Dissolved (1)	200	2.0	ug/L	200	ND	99	70-130			02/07/23	
Selenium - Dissolved (1)	190	2.0	ug/L	200	ND	96	70-130			02/07/23	
Strontium - Dissolved (1)	490	1.0	ug/L	200	260	114	70-130			02/07/23	
Molybdenum - Dissolved (1)	210	10	ug/L	200	ND	104	70-130			02/07/23	
Silver - Dissolved (1)	91	10	ug/L	100	ND	91	70-130			02/07/23	
Cadmium - Dissolved (1)	200	1.0	ug/L	200	ND	99	70-130			02/07/23	
Antimony - Dissolved (1)	210	2.0	ug/L	200	ND	106	70-130			02/07/23	
Barium - Dissolved (1)	260	5.0	ug/L	200	67	98	70-130			02/07/23	

BSK Associates Laboratory Fresno

Metals Quality Control Report

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual

EPA 200.8 - Quality Control

Batch: AGB0317 Prepared: 2/6/2023
Prep Method: Filtration - Metals Analyst: AHS

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Matrix Spike (AGB0317-MS1), Source: AGA3346-02											
Thallium - Dissolved (1)	200	1.0	ug/L	200	ND	100	70-130			02/07/23	
Lead - Dissolved (1)	180	1.0	ug/L	200	ND	92	70-130			02/07/23	
Uranium - Dissolved (1)	210	1.0	ug/L	200	ND	103	70-130			02/07/23	
Matrix Spike Dup (AGB0317-MSD1), Source: AGA3346-02											
Beryllium - Dissolved (1)	220	1.0	ug/L	200	ND	109	70-130	1	20	02/07/23	
Vanadium - Dissolved (1)	210	10	ug/L	200	ND	107	70-130	1	20	02/07/23	
Chromium - Dissolved (1)	190	10	ug/L	200	ND	97	70-130	0	20	02/07/23	
Cobalt - Dissolved (1)	190	10	ug/L	200	ND	97	70-130	1	20	02/07/23	
Nickel - Dissolved (1)	190	10	ug/L	200	ND	94	70-130	1	20	02/07/23	
Copper - Dissolved (1)	190	5.0	ug/L	200	ND	94	70-130	1	20	02/07/23	
Zinc - Dissolved (1)	180	50	ug/L	200	ND	88	70-130	1	20	02/07/23	
Arsenic - Dissolved (1)	200	2.0	ug/L	200	ND	99	70-130	1	20	02/07/23	
Selenium - Dissolved (1)	190	2.0	ug/L	200	ND	95	70-130	2	20	02/07/23	
Strontium - Dissolved (1)	490	1.0	ug/L	200	260	110	70-130	1	20	02/07/23	
Molybdenum - Dissolved (1)	210	10	ug/L	200	ND	105	70-130	1	20	02/07/23	
Silver - Dissolved (1)	91	10	ug/L	100	ND	91	70-130	0	20	02/07/23	
Cadmium - Dissolved (1)	200	1.0	ug/L	200	ND	98	70-130	1	20	02/07/23	
Antimony - Dissolved (1)	210	2.0	ug/L	200	ND	106	70-130	0	20	02/07/23	
Barium - Dissolved (1)	270	5.0	ug/L	200	67	102	70-130	3	20	02/07/23	
Thallium - Dissolved (1)	200	1.0	ug/L	200	ND	102	70-130	2	20	02/07/23	
Lead - Dissolved (1)	190	1.0	ug/L	200	ND	94	70-130	2	20	02/07/23	
Uranium - Dissolved (1)	210	1.0	ug/L	200	ND	104	70-130	1	20	02/07/23	

EPA 245.7 - Quality Control

Batch: AGB0182 Prepared: 2/2/2023
Prep Method: EPA 245.7 Analyst: SAB

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGB0182-BLK1)											
Mercury - Dissolved (1)	ND	0.20	ug/L							02/06/23	
Matrix Spike (AGB0182-MS1), Source: AGA3346-02											
Mercury - Dissolved (1)	0.72	0.20	ug/L	0.80	ND	90	63-111			02/06/23	
Matrix Spike Dup (AGB0182-MSD1), Source: AGA3346-02											
Mercury - Dissolved (1)	0.71	0.20	ug/L	0.80	ND	88	63-111	2	18	02/06/23	

BSK ASSOCIATES

BSK Associates Laboratory Fresno

Organics Quality Control Report

EPA 524.2 - Quality Control

Batch: AGA1659 Prepared: 1/27/2023
Prep Method: EPA 524.2 Analyst: JNG

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1659-BLK1)											
Bromodichloromethane	ND	0.50	ug/L							01/28/23	
Bromoform	ND	0.50	ug/L							01/28/23	
Chloroform	ND	0.50	ug/L							01/28/23	
Dibromochloromethane	ND	0.50	ug/L							01/28/23	
Total Trihalomethanes	ND	0.50	ug/L							01/28/23	
Surrogate: 1,2-Dichlorobenzene-d4	*49*			*50*		*98*	*70-130*			01/28/23	
Surrogate: Bromofluorobenzene	*46*			*50*		*92*	*70-130*			01/28/23	
Blank Spike (AGA1659-BS1)											
Bromodichloromethane	10	0.50	ug/L	10	ND	104	70-130			01/28/23	
Bromoform	10	0.50	ug/L	10	ND	105	70-130			01/28/23	
Chloroform	10	0.50	ug/L	10	ND	102	70-130			01/28/23	
Dibromochloromethane	10	0.50	ug/L	10	ND	101	70-130			01/28/23	
Surrogate: 1,2-Dichlorobenzene-d4	*52*			*50*		*103*	*70-130*			01/28/23	
Surrogate: Bromofluorobenzene	*54*			*50*		*109*	*70-130*			01/28/23	
Blank Spike Dup (AGA1659-BSD1)											
Bromodichloromethane	9.7	0.50	ug/L	10	ND	97	70-130	7	30	01/28/23	
Bromoform	10	0.50	ug/L	10	ND	102	70-130	3	30	01/28/23	
Chloroform	9.6	0.50	ug/L	10	ND	96	70-130	6	30	01/28/23	
Dibromochloromethane	9.4	0.50	ug/L	10	ND	94	70-130	7	30	01/28/23	
Surrogate: 1,2-Dichlorobenzene-d4	*52*			*50*		*104*	*70-130*			01/28/23	
Surrogate: Bromofluorobenzene	*53*			*50*		*107*	*70-130*			01/28/23	

EPA 524.2 - Quality Control

Batch: AGA1698 Prepared: 1/30/2023
Prep Method: EPA 524.2 Analyst: CMH

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1698-BLK1)											
Bromodichloromethane	ND	0.50	ug/L							01/30/23	
Bromoform	ND	0.50	ug/L							01/30/23	
Chloroform	ND	0.50	ug/L							01/30/23	
Dibromochloromethane	ND	0.50	ug/L							01/30/23	
Total Trihalomethanes	ND	0.50	ug/L							01/30/23	
Surrogate: 1,2-Dichlorobenzene-d4	*46*			*50*		*93*	*70-130*			01/30/23	
Surrogate: Bromofluorobenzene	*44*			*50*		*89*	*70-130*			01/30/23	
Blank Spike (AGA1698-BS1)											
Bromodichloromethane	9.5	0.50	ug/L	10	ND	95	70-130			01/30/23	
Bromoform	8.5	0.50	ug/L	10	ND	85	70-130			01/30/23	
Chloroform	9.9	0.50	ug/L	10	ND	99	70-130			01/30/23	
Dibromochloromethane	9.3	0.50	ug/L	10	ND	93	70-130			01/30/23	
Surrogate: 1,2-Dichlorobenzene-d4	*50*			*50*		*101*	*70-130*			01/30/23	
Surrogate: Bromofluorobenzene	*52*			*50*		*104*	*70-130*			01/30/23	

BSK Associates Laboratory Fresno

Organics Quality Control Report

EPA 524.2 - Quality Control

Batch: AGA1698 Prepared: 1/30/2023

Prep Method: EPA 524.2 Analyst: CMH

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank Spike Dup (AGA1698-BSD1)											
Bromodichloromethane	9.7	0.50	ug/L	10	ND	97	70-130	1	30	01/30/23	
Bromoform	9.0	0.50	ug/L	10	ND	90	70-130	6	30	01/30/23	
Chloroform	9.9	0.50	ug/L	10	ND	99	70-130	0	30	01/30/23	
Dibromochloromethane	9.4	0.50	ug/L	10	ND	94	70-130	1	30	01/30/23	
Surrogate: 1,2-Dichlorobenzene-d4	*51*			*50*		*103*	*70-130*			01/30/23	
Surrogate: Bromofluorobenzene	*53*			*50*		*106*	*70-130*			01/30/23	

EPA 552.3 - Quality Control

Batch: AGA1761 Prepared: 1/31/2023

Prep Method: EPA 552.3 Analyst: DAB

Analyte	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Date Analyzed	Qual
Blank (AGA1761-BLK1)											
Dibromoacetic Acid (DBAA)	ND	1.0	ug/L							01/31/23	
Dichloroacetic Acid (DCAA)	ND	1.0	ug/L							01/31/23	
Monobromoacetic Acid (MBAA)	ND	1.0	ug/L							01/31/23	
Monochloroacetic Acid (MCAA)	ND	2.0	ug/L							01/31/23	
Trichloroacetic Acid (TCAA)	ND	1.0	ug/L							01/31/23	
Total Haloacetic Acids	ND	2.0	ug/L							01/31/23	
Surrogate: 2-Bromobutanoic Acid	*9.6*			*10*		*96*	*70-130*			01/31/23	
Duplicate (AGA1761-DUP1), Source: SGA0467-02											
Dibromoacetic Acid (DBAA)	ND	1.0	ug/L		ND				30	02/01/23	
Dichloroacetic Acid (DCAA)	15	1.0	ug/L		15			1	30	02/01/23	
Monobromoacetic Acid (MBAA)	ND	1.0	ug/L		ND				30	02/01/23	
Monochloroacetic Acid (MCAA)	ND	2.0	ug/L		ND				30	02/01/23	
Trichloroacetic Acid (TCAA)	18	1.0	ug/L		17			2	30	02/01/23	
Total Haloacetic Acids	33	2.0	ug/L		33			1	30	02/01/23	
Surrogate: 2-Bromobutanoic Acid	*8.3*			*10*		*83*	*70-130*			02/01/23	
Matrix Spike (AGA1761-MS1), Source: AGA2996-02											
Dibromoacetic Acid (DBAA)	11	1.0	ug/L	10	ND	101	70-130			01/31/23	
Dichloroacetic Acid (DCAA)	29	1.0	ug/L	10	19	102	70-130			01/31/23	
Monobromoacetic Acid (MBAA)	9.8	1.0	ug/L	10	ND	98	70-130			01/31/23	
Monochloroacetic Acid (MCAA)	21	2.0	ug/L	20	ND	98	70-130			01/31/23	
Trichloroacetic Acid (TCAA)	28	1.0	ug/L	10	17	102	70-130			01/31/23	
Surrogate: 2-Bromobutanoic Acid	*9.8*			*10*		*98*	*70-130*			01/31/23	

Certificate of Analysis

Notes:

- The Chain of Custody document and Sample Integrity Sheet are part of the analytical report.
- Any remaining sample(s) for testing will be disposed of according to BSK's sample retention policy unless other arrangements are made in advance.
- All positive results for EPA Methods 504.1 and 524.2 require the analysis of a Field Reagent Blank (FRB) to confirm that the results are not a contamination error from field sampling steps. If Field Reagent Blanks were not submitted with the samples, this method requirement has not been performed.
- Samples collected by BSK Analytical Laboratories were collected in accordance with the BSK Sampling and Collection Standard Operating Procedures.
- J-value is equivalent to DNQ (Detected, not quantified) which is a trace value. A trace value is an analyte detected between the MDL and the laboratory reporting limit. This result is of an unknown data quality and is only qualitative (estimated). Baseline noise, calibration curve extrapolation below the lowest calibrator, method blank detections, and integration artifacts can all produce apparent DNQ values, which contribute to the un-reliability of these values.
- (1) - Residual chlorine and pH analysis have a 15 minute holding time for both drinking and waste water samples as defined by the EPA and 40 CFR 136. Waste water and ground water (monitoring well) samples must be field filtered to meet the 15 minute holding time for dissolved metals.
- Field tests are outside the scope of laboratory accreditation and there is no certification available for field testing.
- Summations of analytes (i.e. Total Trihalomethanes) may appear to add individual amounts incorrectly, due to rounding of analyte values occurring before or after the total value is calculated, as well as rounding of the total value.
- RL Multiplier is the factor used to adjust the reporting limit (RL) due to variations in sample preparation procedures and dilutions required for matrix interferences.
- Due to the subjective nature of the Threshold Odor Method, all characterizations of the detected odor are the opinion of the panel of analysts. The characterizations can be found in Standard Methods 2170B Figure 2170:1.
- The MCLs provided in this report (if applicable) represent the primary MCLs for that analyte.
- (2) - Formerly known as Bis(2-Chloroisopropyl) ether.

  Unless otherwise noted, TOC results by SM 5310C method do not include purgeable organic carbon, which is removed along with the inorganic carbon interference. The POC contribution to TOC is considered to be negligible.

Certificate of Analysis

Definitions

mg/L:	Milligrams/Liter (ppm)	MDL:	Method Detection Limit	MDA95:	Min. Detected Activity
mg/Kg:	Milligrams/Kilogram (ppm)	RL:	Reporting Limit: DL x Dilution	MPN:	Most Probable Number
µg/L:	Micrograms/Liter (ppb)	ND:	None Detected below MRL/MDL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	PicoCuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit	U:	The analyte was not detected at or above the reported sample quantitation limit.

Please see the individual Subcontract Lab's report for applicable certifications.

The following parameters are calculated values and are outside the scope of our NELAP accreditation:

Total Nitrogen　　Aggressive Index　　Trivalent Chromium

BSK is not accredited under the NELAP program for the following additional parameters:

Cobalt

Molybdenum

Oxidation/Reduction Potential

Strontium

Vanadium

Certifications: **Please refer to our website for a copy of our Accredited Fields of Testing under each certification.**

Fresno

State of California - ELAP	1180	State of Hawaii	4021
Los Angeles CSD	9254479	NELAP certified	4021-020
State of Nevada	CA000792022-1	State of Oregon - NELAP	4021-020
EPA UCMR5	CA00079	State of Washington	C997-22a

Sacramento

State of California - ELAP	1180-S1		

San Bernardino

State of California - ELAP	1180-S2	Los Angeles CSD	9254478
NELAP certified	4119-007	State of Oregon - NELAP	4119-007

Vancouver

NELAP certified	WA100008-015	State of Oregon - NELAP	WA100008-015
State of Washington	C824-22		

AGA3345 GSIWA3956 01/27/2023

BSK Associates SR-FL-0002-24

Sample Integrity

BSK Bottles: Yes No — All of #1 except EPA container. Page 1 of 1

COC Info				
Was temperature within range? Chemistry ≤ 6°C Micro < 8°C	Yes No NA	Were correct containers and preservatives received for the tests requested?	Yes No NA
If samples were taken today, is there evidence that chilling has begun?	Yes No NA	Bubbles Present VOAs (524.2/TTHM/TCP)? TB Received? (Check Method Below)	Yes No NA / Yes No NA
Did all bottles arrive unbroken and intact?	Yes No	Was a sufficient amount of sample received?	Yes No
Did all bottle labels agree with COC?	Yes No	Do samples have a hold time <72 hours?	Yes No
Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?	Yes NA	Was PM notified of discrepancies? PM: By/Time:	Yes No NA

Bottles Received ("—" means preservation/chlorine checks are either N/A or are performed in the lab)

250ml(A) 500ml(B) 1Liter(C) 40mlVOA(V) 125ml(D)	Checks*	Passed?	1	2	3		
Bacti $Na_2S_2O_3$	—	—					
None (P) White Cap	—	—	3C, 3B	2C, 1B, 1A			
Cr6 (P) Lt. Green Label/Blue Cap NH4OH(NH4)2SO4 DW	Cl, pH > 8	P F	1D	1A			
Cr6 (P) Pink Label/Blue Cap NH4OH(NH4)2SO4 WW	pH 9.3-9.7	P F					
Cr6 (P) Black Label/Blue Cap NH4OH(NH4)2SO4 7199 ***24 HOUR HOLD TIME***	pH 9.0-9.5	P F					
HNO_3 (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label	—	—					
H_2SO_4 (P) or (AG) Yellow Cap/Label	pH < 2	P F	1B, 1A, 1AD	1A, 1AR			
NaOH (P) Green Cap	Cl, pH >10	P F	1A	1A			
NaOH + ZnAc (P)	pH > 9	P F	1B	1A			
Dissolved Oxygen 300ml (g)	—	—					
None (AG) 608/8081/8082, 625, 632/8321, 8151, 8270	—	—	1B	1B			
HCl (AG) Lt. Blue Label O&G, Diesel, TCP	—	—					
Ascorbic, EDTA, KH_2Ct (AG) Pink Label 525	—	—					
Na_2SO_3 250mL (AG) Neon Green Label 515	—	—					VGH 1-27-23
$Na_2S_2O_3$ 1 Liter (Brown P) 549	—	—					
$Na_2S_2O_3$ (AG) Blue Label 548, THM, 524	—	—		3V	2V TB		
$Na_2S_2O_3$ (CG) Blue Label 504, 505, 547	—	—					
$Na_2S_2O_3$ + MCAA (CG) Orange Label 531	pH < 3	P F					
NH_4Cl (AG) Purple Label 552	—	—	1A	1A			
EDA (P) or (AG) Brown Label DBPs	—	—	1A	1A			
HCL (CG) 524.2,BTEX,Gas, MTBE, 8260/624	—	—	3V	3V			
Buffer pH 4 (CG)	—	—					
H_3PO_4 (CG) Salmon Label	—	—		3V			
Trizma – EPA 537.1 Light Blue Label FB	---	---					
Ammonia Acetate - EPA 533 Purple Label FB	---	---					
Bottled Water	—	—					
Asbestos 1L (P) w/ Foil / LL Metals Bottle	—	—		1C			
Clear Glass	—	—	2V				
OTHER:	—	—					

Split

	Container	Preservative	Lot #	Initials	Date/Time	Preservation Check
S P	1A	EDA	AD12350	VGH	1/27/23/1527	pH Lot #
S P						Cl Lot #

Comments

*Preservation check completed by lab performing analysis.

Cooler received after 24hours. VGH 1-27-23

✓ **Indicates Blanks Received**

504 ___ 524.2 ___ TTHM ___ 537/533 ___ TCP ___

✓ **MS/MSD Received Method:** ________

Labeled by: **Labels Checked by:**

Scanned: ________ Rush/Short HT Page: ________ Time: ______

BSK ASSOCIATES
1414 Stanislaus St., Fresno, CA 93706
(559) 497-2888 · Fax (559) 497-2893
www.bskassociates.com

Turnaround Time Request
- [ ] Standard - 10 business days
- [ ] Rush (Surcharge may apply)

Date needed:

AGA3345 GSIWA3956 01/27/2023 C 10

*Required Fields

Temp: 1.3 Thermometer ID: 75

Company/Client Name*: GSI Water Solutions	Report Attention*: Nate Page Additional cc's:	Invoice To*: PO#:	Phone*: 9706923593 Fax: E-mail*: npage@gsiws.com
Address*: 5855 Capistrano Ave Ste C	City*: Atascadero CA	State*:	Zip*: 93422
Project: Morro Bay IPR	Project #:		
Reporting Options: [X] Trace (J-Flag) [ ] Swamp [ ] EDD Type: excel	Regulatory Carbon Copies: [ ] SWRCB (Drinking Water) [ ] Merced Co [ ] Madera Co [ ] Other: [ ] Fresno Co [ ] Tulare Co	Regulatory Compliance: [ ] EDT to California SWRCB (Drinking Water) System Number*: [ ] Geotracker #:	
Sampler Name (Printed/Signature)*: Nate Page			

Matrix Types: SW=Surface Water BW=Bottled Water GW=Ground Water WW=Waste Water STW=Storm Water DW=Drinking Water SO=Solid

#	Sample Description*	Sampled* Date	Time	Matrix*	Comments / Station Code / WTRAX	"Complete Suite" (Attached)
1	Pilot Inj Well	1/26/23	950	H_2O		X
2	21P-01	1/26/23	1040	H_2O		X
3	TB # 0123020					

VCA 1-27-23

Relinquished by: (Signature and Printed Name) Nate Page	Company: GSI	Date: 1/26/23	Time: 1200	Received by: (Signature and Printed Name)	Company
Relinquished by: (Signature and Printed Name)	Company	Date	Time	Received by: (Signature and Printed Name)	Company
Received for Lab by: (Signature and Printed Name) Verna		Date: 1-27-23	Time: 14:57	Payment Received at Delivery: Amount: PIA#:	Check / Cash Init.

Shipping Method: ONTRAC UPS GSO WALK-IN FED EX Courier: GLS

Cooling Method: Wet Blue None

Custody Seal: Y N

Chilling Process Begun: Y N

Payment for services rendered as noted herein are due in full within 30 days from the date invoiced. [illegible]

SR-FL-0012-08

Parameter Type	Parameter	Method
~~Field~~	~~Dissolved oxygen~~	~~YSI 556 or similar~~
	~~pH~~	~~EPA 150.1~~
	~~Oxidation-Reduction Potential~~	~~SM2580B~~
	~~Specific Conductance~~	~~EPA 120.1~~
	~~Temperature~~	~~YSI 556 or similar~~
	~~Turbidity~~	~~EPA 180.1~~
Inorganics	Alkalinity	SM2320B
	Ammonia	SM4500NH3G
	Bicarbonate	SM2320B
	Carbonate	SM2320B
	Chloride	EPA 300.0
	Cyanide (HCN)	EPA 335.4
	Fluoride	EPA 300.0
	Hardness	EPA 200.8
	Nitrate+Nitrite (total N)	EPA 300.0
	Nitrate (as N)	EPA 300.0
	Nitrite-N	EPA 300.0
	Orthophosphate as P	EPA 300.0
	Total Silica (as SiO2)	EPA 200.7
	Dissolved Silica (as SiO2)	EPA 200.7
	Sulfate	EPA 300.0
	Sulfide	SM4500S2F
Metals (Dissolved)	Aluminum	EPA 200.7
	Antimony	EPA 200.8
	Arsenic	EPA 200.8
	Barium	EPA 200.8
	Beryllium	EPA 200.8
	Cadmium	EPA 200.8
	Calcium	EPA 200.7
	Chromium	EPA 200.8
	Cobalt	EPA 200.8
	Copper	EPA 200.8
	Iron	EPA 200.7
	Lead	EPA 200.8
	Magnesium	EPA 200.7
	Manganese	EPA 200.8
	Mercury	EPA 245.7
	Molybdenum	EPA 200.8
	Nickel	EPA 200.8
	Potassium	EPA 200.7
	Selenium	EPA 200.8
	Silver	EPA 200.8

	Sodium	EPA 200.7
	Strontium	EPA 200.8
	Thallium	EPA 200.8
	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

McCampbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 2302059

Report Created for: BSK Analytical Laboratories

550 West Locust Avenue
Fresno, CA 93650

Project Contact: Heather White
Project P.O.:
Project: AGA3346

Project Received: 02/01/2023

Analytical Report reviewed & approved for release on 02/08/2023 by:

Jena Alfaro
Project Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in a case narrative.

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http://www.mccampbell.com / E-mail: main@mccampbell.com

Glossary of Terms & Qualifier Definitions

Client: BSK Analytical Laboratories **WorkOrder:** 2302059

Project: AGA3346

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
CPT	Consumer Product Testing not NELAP Accredited
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
LQL	Lowest Quantitation Level
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	MDL is the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results. Definition and Procedure for the Determination of the Method Detection Limit, Revision 2, 40CFR, Part 136, Appendix B, EPA 821-R-16-006, December 2016.
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NA	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting limit is the lowest level that can be reliably determined within specified limits of precision and accuracy during routine laboratory operating conditions. (The RL cannot be lower than the lowest calibration standard used in the initial calibration of the instrument and must be greater than the MDL.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
TZA	TimeZone Net Adjustment for sample collected outside of MAI's UTC.
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Glossary of Terms & Qualifier Definitions

Client: BSK Analytical Laboratories **WorkOrder:** 2302059
Project: AGA3346

Analytical Qualifiers

H	Sample was analyzed out of hold time

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Analytical Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2302059
Date Received:	02/01/2023 9:55	**Extraction Method:**	RSK175
Date Prepared:	02/06/2023	**Analytical Method:**	RSK175
Project:	AGA3346	**Unit:**	µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AGA3346-01	**2302059-001A**	**Water**	**01/26/2023 09:50**	**GC26 0206230905.D**	**263234**

Analytes	Result	RL	DF	Date Analyzed
Ethane	ND	0.24	1	02/06/2023 10:57
Ethylene	ND	0.31	1	02/06/2023 10:57
Methane	**0.20**	0.12	1	02/06/2023 10:57

Analyst(s): MBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AGA3346-02	**2302059-002A**	**Water**	**01/26/2023 10:40**	**GC26 0206230906.D**	**263234**

Analytes	Result	RL	DF	Date Analyzed
Ethane	ND	0.24	1	02/06/2023 11:11
Ethylene	ND	0.31	1	02/06/2023 11:11
Methane	**0.24**	0.12	1	02/06/2023 11:11

Analyst(s): MBE

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Analytical Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2302059
Date Received:	02/01/2023 9:55	**Extraction Method:**	SM4500-S^{-2} D-2000
Date Prepared:	02/08/2023	**Analytical Method:**	SM4500 S^{-2} D
Project:	AGA3346	**Unit:**	mg/L

Total Sulfide - S

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AGA3346-01	2302059-001B	Water	01/26/2023 09:50	SPECTROPHOTOMETER2	263367

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND	H	0.10	1	02/08/2023 13:51

Analyst(s): IGC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AGA3346-02	2302059-002B	Water	01/26/2023 10:40	SPECTROPHOTOMETER2	263367

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Total Sulfide	ND	H	0.10	1	02/08/2023 13:52

Analyst(s): IGC

Quality Control Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2302059
Date Prepared:	02/06/2023	**BatchID:**	263234
Date Analyzed:	02/06/2023	**Extraction Method:**	RSK175
Instrument:	GC26	**Analytical Method:**	RSK175
Matrix:	Water	**Unit:**	µg/L
Project:	AGA3346	**Sample ID:**	MB/LCS/LCSD-263234

QC Summary Report for RSK175

Analyte	MB Result	MDL	RL			
Ethane	ND	0.24	0.24	-	-	-
Ethylene	ND	0.31	0.31	-	-	-
Methane	ND	0.12	0.12	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Ethane	2.4	2.5	2.38	102	103	70-130	0.853	20
Ethylene	3.2	3.3	3.08	105	106	70-130	0.760	20
Methane	1.2	1.2	1.17	102	103	70-130	0.395	20

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Quality Control Report

Client:	BSK Analytical Laboratories	**WorkOrder:**	2302059
Date Prepared:	02/08/2023	**BatchID:**	263367
Date Analyzed:	02/08/2023	**Extraction Method:**	SM4500-S^{-2} D-2000
Instrument:	SPECTROPHOTOMETER2	**Analytical Method:**	SM4500 S^{-2} D
Matrix:	Water	**Unit:**	mg/L
Project:	AGA3346	**Sample ID:**	MB/LCS/LCSD-263367

QC Summary Report For SM4500 S-2D

Analyte	MB Result	MDL	RL			
Total Sulfide	ND	0.044	0.10	-	-	-

Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
Total Sulfide	0.49	0.49	0.50	98	98	80-120	0	20

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CHAIN-OF-CUSTODY RECORD

WorkOrder: 2302059 **ClientCode: BSKF**

☐ WaterTrax ☐ CLIP ☐ EDF ☐ EQuIS ☐ Dry-Weight ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag
☐ Detection Summary ☐ Excel

Report to:
Heather White
BSK Analytical Laboratories
550 West Locust Avenue
Fresno, CA 93650
(559) 497-2888 FAX: (559) 485-6935

Email: hwhite@bskassociates.com
cc/3rd Party:
PO:
Project: AGA3346

Bill to:
Accounts Payable
BSK Analytical Laboratories
550 West Locust Avenue
Fresno, CA 93650

Requested TAT: **5 days;**

Date Received: **02/01/2023**
Date Logged: **02/01/2023**

Lab ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below) 1	2	3	4	5	6	7	8	9	10	11	12
2302059-001	AGA3346-01	Water	1/26/2023 09:50	☐	A	B										
2302059-002	AGA3346-02	Water	1/26/2023 10:40	☐	A	B										

Test Legend:

1	RSK175_W	2	SULFIDE_W	3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Adrianna Cardoza

Comments:

NOTE: Soil samples are discarded 60 days after receipt unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.

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WORK ORDER SUMMARY

Client Name: BSK ANALYTICAL LABORATORIES **Project:** AGA3346 **Work Order:** 2302059
Client Contact: Heather White **QC Level:** LEVEL 2
Contact's Email: hwhite@bskassociates.com **Comments:** **Date Logged:** 2/1/2023

☐ WaterTrax ☐ CLIP ☐ EDF ☐ Excel ☐ EQuIS ☑ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

LabID	ClientSampID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	U**	Head Space	Dry-Weight	Collection Date & Time	TAT	Test Due Date	Sediment Content	Hold	Sub Out
001A	AGA3346-01	Water	RSK175 <Ethane_4, Ethylene_4, Methane_4>	1	VOA w/ HCl	☐	☐	☐	1/26/2023 9:50	5 days	2/8/2023	None	☐	☐
001B	AGA3346-01	Water	SM4500S2D (Total Sulfide)	1	500L HDPE w/ NaOH+ZnAc	☐	☐	☐	1/26/2023 9:50	5 days	2/8/2023	Present	☐	☐
002A	AGA3346-02	Water	RSK175 <Ethane_4, Ethylene_4, Methane_4>	1	VOA w/ HCl	☐	☐	☐	1/26/2023 10:40	5 days	2/8/2023	None	☐	☐
002B	AGA3346-02	Water	SM4500S2D (Total Sulfide)	1	250mL HDPE w/ NaOH+ZnAc	☐	☐	☐	1/26/2023 10:40	5 days	2/8/2023	Present	☐	☐

NOTES: *** STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).**

- Organic extracts are held for 40 days before disposal; Inorganic extract are held for 30 days.

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

U = An unpreserved container was received for a method that suggests a preservation in order to extend hold time for analysis.**

2302059

BSK ASSOCIATES

SUBCONTRACT ORDER

AGA3346

SENDING LABORATORY:	RECEIVING LABORATORY:
BSK Associates Laboratory Fresno	McCampbell Analytical, Inc.
1414 Stanislaus St	1534 Willow Pass Road
Fresno, CA 93706	Pittsburg, CA 94565-1701
Phone: 559-497-2888	Phone :(925) 252-9262
Fax: 559-485-6935	Fax: (925) 252-9269
Project Manager: Heather S. White	Turnaround (Days): Standard
E-mail: hwhite@bskassociates.com	QC Deliverables: I Std III IV

Sample ID	Samp Desc	Comments		Sample Date
AGA3346-01	**Pilot Inj Well**	**Client Matrix**	Ground Water	**01/26/2023 09:50**
		Sampled By:	Nate Page	
Lab Matrix:	Water			
	Analysis: (1)			
	EXT-RSK-175 Methane, Ethane, Ethene	voa with HCL		
	EXT-Sulfide			
AGA3346-02	**Zip 01**	**Client Matrix**	Ground Water	**01/26/2023 10:40**
		Sampled By:	Nate Page	
Lab Matrix:	Water			
	Analysis: (1)			
	EXT-RSK-175 Methane, Ethane, Ethene	voa with HCL		
	EXT-Sulfide			

State Forms: **No** System Name:

Released By	Date	Received By	Date
[signature]	1.31.23	[signature]	2.1.23 9:55 am

1.1 blue

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Sample Receipt Checklist

Client Name:	BSK Analytical Laboratories	Date and Time Received:	2/1/2023 09:55
Project:	AGA3346	Date Logged:	2/1/2023
		Received by:	Adrianna Cardoza
WorkOrder №:	2302059 Matrix: Water	Logged by:	Adrianna Cardoza
Carrier:	Golden State Overnight		

Chain of Custody (COC) Information

	Yes	No	NA
Chain of custody present?	✔	☐	
Chain of custody signed when relinquished and received?	✔	☐	
Chain of custody agrees with sample labels?	✔	☐	
Sample IDs noted by Client on COC?	✔	☐	
Date and Time of collection noted by Client on COC?	✔	☐	
Sampler's name noted on COC?	✔	☐	
COC agrees with Quote?	✔	☐	☐

Sample Receipt Information

	Yes	No	NA
Custody seals intact on shipping container/cooler?	✔	☐	☐
Custody seals intact on sample bottles?	✔	☐	☐
Shipping container/cooler in good condition?	✔	☐	
Samples in proper containers/bottles?	✔	☐	
Sample containers intact?	✔	☐	
Sufficient sample volume for indicated test?	✔	☐	

Sample Preservation and Hold Time (HT) Information

	Yes	No	NA
All samples received within holding time?	✔	☐	☐
Samples Received on Ice?	✔	☐	
(Ice Type: BLUE ICE)			
Sample/Temp Blank temperature	Temp: 1.1°C		☐
ZHS conditional analyses: VOA meets zero headspace requirement (VOCs, TPHg/BTEX, RSK)?	✔	☐	☐
Sample labels checked for correct preservation?	✔	☐	
pH acceptable upon receipt (Metal: <2; Nitrate 353.2/4500NO3: <2; 522: <4; 218.7: >8)?	☐	☐	✔

UCMR Samples:

	Yes	No	NA
pH tested and acceptable upon receipt (200.7: ≤2; 533: 6 - 8; 537.1: 6 - 8)?	☐	☐	✔
Free Chlorine tested and acceptable upon receipt (<0.1mg/L) [not applicable to 200.7]?	☐	☐	✔

Comments:

LA Testing
520 Mission Street South Pasadena, CA 91030
Phone/Fax: (323) 254-9960 / (323) 254-9982
http://www.LATesting.com / pasadenalab@latesting.com

LA Testing Order ID: 322302727
Customer ID: 32BSK50
Customer PO:
Project ID:

Attn: Heather S. White
BSK Analytical Laboratories
1414 Stanislaus St
Fresno, CA 93706

Phone:
Fax:
Received: 02/01/2023
Analyzed: 02/06/2023

Proj: AGA3346

Test Report: Determination of Asbestos Structures ≥ 0.5 µm & > 10µm in Water Performed by the 100.2 Method (EPA 600/R-94/134)

Sample ID Client / EMSL	*Sample Filtration Date/Time*	*Original Sample Vol. Filtered (ml)*	*Effective Filter Area (mm²)*	*Area Analyzed (mm²)*		*ASBESTOS* Asbestos Types	Fibers Detected	Analytical Sensitivity (MFL)	Concentration (MFL)	Confidence Limits (MFL)
AGA3346-01 322302727-0001	2/2/2023 11:40 AM	5	1288	0.2580	≥ 0.5 µm	Chrysotile	11	1.00	11.00	5.50 - 20.00
					> 10 µm only	None Detected	ND	1.00	<1.00	0.00 - 3.70
AGA3346-02 322302727-0002	2/2/2023 11:40 AM	5	1288	0.2580	≥ 0.5 µm	Chrysotile	1	1.00	1.00	0.03 - 5.50
					> 10 µm only	None Detected	ND	1.00	<1.00	0.00 - 3.70

MFL (million fibers per liter)

AGA3346-01: *Collection Date/Time: 01/26/2023 09:50 AM*

Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.

AGA3346-02: *Collection Date/Time: 01/26/2023 10:40 AM*

Sample ozonated prior to analysis due to lab receipt time exceeding 48hr method hold time.

Analyst(s)
Kyeong Corbin (2)

Jerry Drapala Ph.D, Laboratory Manager
or Other Approved Signatory

Any questions please contact Jerry Drapala.

Initial report from: 02/09/2023 14:13:54

APPENDIX E

Response to California Regional Water Quality Control Board Groundwater Model Review Comments

Water Solutions, Inc.

April 28, 2023

Jennifer Epp
Matthew Keeling
Executive Officer
Central Coast Regional Water Quality Control Board
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93401

Dear Mr. Keeling and Ms. Epp:

GSI Water Solutions (GSI), is pleased to provide these responses to comments received from the RWQCB's review of the groundwater model as documented in the letter dated November 17, 2022. Modeling reports and technical memoranda, and model files were transmitted to the Board on behalf of the City of Morro Bay in support of their Indirect Potable Reuse program. We thank the Board for their thorough and timely review of the model documentation and data files.

The Board's November 2022 letter provided nine enumerated comments arising from their review. The RWQCB letter is included in the Appendix of the Basis of Design report. This letter provides responses to the comments and questions posed in that letter (without repeating the text of the letter).

1. **Groundwater modeled travel times.** Since the transmittal of the files to the Board in 2021, numerous additional work and model revisions have been conducted. Aquifer testing at the pilot injection well indicated significantly lower transmissivity (~10,000 gpd/ft) than previously estimated for that area (~60,000 gpd/ft). Aquifer testing documentation for the High School wells also indicated significantly lower transmissivity (~30,000 gpd/ft) than previously estimated (~100,000 gpd/ft). Review of historical boring log information from borings along Atascadero Road indicate no significant basal gravels in this area, so transmissivity estimates in this area were reduced. All of these revisions have made the model more accurate and reflective of field data. Additionally, reduction of modeled average injection rates were incorporated to reduce travel times for two wells in the project area and the wells along Atascadero Road result in. Although there is never 100% certainty regarding subsurface data, we feel that these revisions incorporate all available data and provide a high degree of confidence in the modeled travel times.
2. **Pumping volumes and travel times.** Recent model runs simulate anticipated buildout injection volumes, and annual City pumping volumes of 581 ac-ft/yr (their currently permitted amount), 700 ac-ft/yr, 800 ac-ft/yr, 900 ac-ft/yr, and 1,000 ac-ft/yr. Pumping at 1,000 ac-ft/yr did not appear to be feasible from these model results, but pumping at lesser quantities appears feasible. The City currently utilizes State Water for most of its supply during normal years. Recent planning documents prepared by Confluence Engineering estimate that the maximum demand upon groundwater during extended drought will be approximately 700 ac-ft/yr. The City anticipates that pumped volumes will be metered and documented, and that wells will be operated to maximize travel time between injection wells and supply wells. Additionally, required sampling at monitor wells to be located at locations approximately halfway between the injection wells and the City supply wells will be carried out to confirm that no constituents of concern are migrating from the proposed injection wells.

3. **Well capacities and travel times.** Pumping rates used in modeling conducted to date do not factor reported well yield or capacity into the assigned pumping rates. Pumping volumes in recent simulations apportion the modeled pumping annual rates (581, 700, 800, 900, and 1,000 ac-ft/yr) equally among 8 existing City wells, with a monthly seasonal peaking factor applied. These rates when converted to gallons per minute are generally below the reported well capacities, but reflect monthly pumping required to meet monthly demands. Pumping may be re-assigned on a weekly or daily basis in response to operational water levels, but the monthly stress period of the model precludes representation of that level of detail.
4. **Distribution of pumping among individual wells.** As discussed in response number three previously, variations of pumping rates among individual wells were not simulated. To the extent that pumping can be shifted away from the Highway 1 wellfield wells, it would move the center of gravity of water level declines away from the IPR wells in the Vistra easement, and result in longer travel times. The City recognizes this. This is why we utilized MB-13 (east of Highway 1 on Errol Street), and a proposed a new well location in the front parking lot of the High School, in recent pumping simulations for the Basis of Design report. Additional assessment of potential new well locations will be considered in the future, and locations farther away from the injection wells will be prioritized.
5. **Aquifer tests in the project area.** Individual well aquifer tests have now been documented at MB-13, MBMWC Well 3 (since abandoned), the pilot injection well, and HS-1 and HS-2. In addition, a combined pumping test was conducted on multiple City wells simultaneously in 2016, and this analysis is included as Appendix A in GSI 2017. (At the time, the City was constrained from performing individual well tests due to operational reasons.) To our knowledge, there is no record of aquifer testing results for Flippos, MB-1, or MB-2 (collectively referred to as the Corp yard wells). However, the Corp Yard wells have been discounted from consideration as pumping wells due to inadequate travel time between injection wells and pumping wells. Additionally, the Corp Yard wells have not been used for any significant production since the 1970s. They have been essentially replaced by the Highway 1 wells and the High School wells. It is possible that one or more of these wells will be recommended to be re-purposed as a monitor well for the implementation of the full IPR project.
6. **Flippos well transmissivity.** Response number 5 itemizes the known aquifer testing to date that yielded transmissivity calculations that were used to revise the transmissivity distribution in the model. A cross section was generated approximately along Atascadero Road parallel to the coast, which indicated only thin strata of sand and gravel; as a result transmissivity was reduced in this area to less than 5,000 gpd/ft.. As mentioned in response 5, the Flippos well is not being considered for continued use as a City supply well due to inadequate travel time.
7. **Boring log request.** As requested, all boring log and well construction information available that was reviewed during model development and revision are included in an Appendix in the Basis of Design Report.
8. **Model Calibration.** Figures 4 through 6 of “Lower Morro Valley Basin Screening-Level Groundwater Modeling for Injection Feasibility” (GSI, 2017) present calibration graphs for City wells MB-4, MB-14, and MB-15 which display a good match between observed and modeled groundwater elevations during static (non-pumping) conditions. Figures 7 and 10 of “Morro Bay Water Reclamation Facility Water Quality Groundwater Modeling Technical Memorandum” (GSI, 2019) display transport modeling calibration graphs of nitrate concentrations in the aquifer which occurred as a result of loading from upgradient agricultural areas, and TDS concentrations due to seawater intrusion from the coast. These graphs indicate that the model represents the significant water chemistry conditions of the hydrogeologic system adequately. Figure 8 of “Characterization and Selection of Project Area for Injection Testing, City of Morro Bay Technical Memorandum” displays calibration graphs simulating constant rate aquifer tests at MB-13 and MBMWC Well 3 (since abandoned) which indicate that the model simulates response to pumping stresses accurately in these areas. New transmissivity estimates for the Pilot Injection Well derived from field testing are incorporated into the model, as are transmissivity estimates for HS-1 and HS-2 from testing in the early

1990s. GSI judges that the model is adequately calibrated for use in planning and permitting activities to support the City of Morro Bay's IPR Program.

9. **Discussion of Boundary Conditions.** The primary boundary conditions represented in the model are as follows:

    a. Recharge. Percolation of precipitation is represented as a flux boundary condition using the MODFLOW Recharge Package across all the active land surface in the model. Precipitation-based recharge accounts for approximately 10% of total inflow during the historical simulation presented in Table 4 of the Screening Level Modeling Report (GSI, 2017).

    b. Percolation of Streamflow. Percolation of seasonal streamflow in Morro Creek is represented using the MODFLOW Stream Package, a head-dependent boundary condition package in which flux from the stream channel to the underlying aquifer (or vice versa) is calculated based on the difference in head between the two, and a lumped parameter that incorporates conductivity of the streambed materials and dimensions of the stream in the model cell (length, width, and thickness). Table 4 of the GSI 2017 report indicates that streambed percolation is the dominant source of recharge in the Basin, accounting for over 77% of recharge during the historical simulation period.

    c. Underflow at the Narrows. Inflow from the Narrows is represented with a constant flux boundary condition using the MODFLOW Well Package to represent underflow from the portion of the basin aquifer upgradient from the Narrows in Model Layers 2 and 3. A specified flux boundary condition is defined in the 6 cells across the Narrows. Boundary conditions 1 through 3 are not able to be directly measured for representation of quantities, volumes, and rates in the ground water model. They were estimated as documented in GSI 2017 using methods common to the modeling industry and using best professional judgement with respect to quantities, rates, and volumes that are consistent with the hydrogeologic conceptual model of the Basin. No specific hydrologic model error calculations were performed at the time of model development.

    d. Wells. The City used almost no groundwater for nearly 20 years due to implementation of importing of State Water, groundwater nitrate contamination from upgradient agricultural applications, and hydrocarbon contamination from the gas station at Highway 41 and Main Street. However, it is used currently during regularly scheduled shutdowns of State Water deliveries in November of every year, and wells will be used for supply after the implementation of the IPR program. City wells are metered, and direct representation of pumped quantities are able to be directly input into the model.

Thank you for the Board's thorough review of the City's groundwater modeling efforts to date to support implementation of the IPR project for the City of Morro Bay. If these responses do not fully address your questions, please reach out any time for additional information with respect to recent revisions since the original transmittal of information to the Board in 2021.

Sincerely,
GSI Water Solutions, Inc.

Dave O'Rourke
Principal Hydrogeologist

Central Coast Regional Water Quality Control Board

November 17, 2022

Sent Via Electronic Mail

Damaris Hanson
595 Harbor Street
Morro Bay, CA 93442
Email: dhanson@morrobayca.gov

Dear Damaris Hanson:

CITY OF MORRO BAY, 595 HARBOR STREET, MORRO BAY, SAN LUIS OBISPO COUNTY - INDIRECT POTABLE REUSE PROJECT

Central Coast Regional Water Quality Control Board (Central Coast Water Board) staff reviewed the City of Morro Bay's groundwater modeling package prepared by GSI Water Solutions, Inc. This includes the Lower Morro Valley Basin Screening-Level Groundwater Modeling for Injection Feasibility Report (2017), the Morro Bay Water Reclamation Facility Water Quality Groundwater Modeling Technical Memorandum (2019), and the Characterization and Selection of Project Area for Injection Testing, City of Morro Bay Technical Memorandum (2021). In general, we find the modeling efforts conducted to date thorough and well-executed. Please provide a response to the following question and comments:

1. Model scenarios included in the 2021 report and shown in Figure 14 indicate that two of the City's primary water supply wells, MB-3 and MB-4, are located such that travel times are narrowly greater than the four months minimum required by Title 22 of the California Code of Regulations (Title 22) for estimates from a calibrated numerical model. However, modeled travel times are subject to substantial uncertainty. Title 22 regulations require that a 0.5 credit be applied to travel times estimated using a numerical model to account for uncertainty associated with modeling. Even after applying a 0.5 credit to account for uncertainty, it is possible for actual travel times, demonstrated with tracers, to not meet the two-month minimum required by Title 22. This has occurred at other indirect potable reuse (IPR) projects in our region; modeled travel times exceeded four months, but actual travel times demonstrated through tracer studies were less than two months.

   Because travel times at MB-3 and MB-4 are so close to the minimum travel time distance from the injection wells, Central Coast Water Board staff recommend that alternative injection locations be considered. If injection wells are to remain in the Western Project Area, Central Coast Water Board staff recommend that every reasonable effort be taken to create as accurate of a groundwater model as possible to provide a high degree of confidence that minimum travel times to wells MB-3 and 4 will be achieved.

2. Permitting requirements for IPR projects require a minimum retention time of four months if a calibrated numerical model is used. The modeling results indicate that pumping volumes are quantitively sensitive variables for groundwater retention time. Is there a scenario at which the city may pump more than the baseline rate plus 75% of the maximum IPR water? How will the city cap pump volumes to ensure that residence time is achieved? In other words, how can regulators be assured that requirements for minimum travel times will not be violated by pumping volumes in excess of what is included in the model scenarios?

3. Model scenarios included in the 2021 report estimate travel times based on annual pumping volumes. Are these pumping volumes based on the maximum pump rate for each of the wells? If not, is it possible that wells could be pumped at rates greater than are included in the model and how would this affect travel time?

4. Model scenarios included in the 2021 report assume that the pumping distribution among wells is uniform throughout the entire simulation year (i.e., pumping wells are not turned off during the year). However, in reality the city may turn certain wells off and increased pumping rates at other wells based on water customer demand and the needs of the distribution system. How would changes in the distribution of pumping wells affect travel times? For example, if no pumping occurred at Flippos, HS-2, and HS-1 and all pumping was focused at MB-3 and 4, how would travel times be affected?

5. The Central Coast Water board understands that aquifer tests were conducted at MB-13 and Vistra Well 3. CPT was conducted on the eastern side of the study area. Have there been any aquifer testing near wells MB-1, MB-2, and Filippos? The Flippos well appears to not meet the minimum travel time estimates under some scenarios and it’s worthwhile to make sure that aquifer parameters are appropriately estimated/measured in proximity to this well. We recommend conducting aquifer pump testing in the vicinity of Flippos to provide higher degree of certainty regarding travel time estimates.

6. The transmissivity map included in the 2021 modeling report doesn’t seem to reflect the variability in aquifer thickness, particularly in proximity to the Flippos well. According to the interpolated transmissivity map (Figure 7), transmissivity increases in the direction of Flippos well relative to the pump testing conducted at Vistra Well 3, despite apparent aquifer thinning in the proximity of Flippos well. This suggests that the hydraulic conductivity is increasing significantly in proximity to Flippos (T=b*k). It is pertinent to understand if the estimated transmissivity/hydraulic conductivity in proximity to Flippos reflects actual

conditions because these parameters affect both the transport time and the trajectory of flow paths.

7. What data was analyzed to provide thickness estimates on the northwestern portion of the model (near wells MB-1, MB-2, and Flippos)? Are well construction logs and boring logs available for these wells? Can you please send us all boring logs and well construction logs as appendices to the modeling report?

8. Is the model fully calibrated? The 2017 screening model says that that version was “tuned” but not calibrated. The 2019 model builds on previous work by simulating observed nitrate and TDS concentrations which suggests more “tuning”. The 2021 model further simulates observed drawdown from pump tests, thereby “tuning” the model further. Is the model considered fully calibrated at this point or is additional “tuning” needed before the model can be considered calibrated?

9. Aquifer testing and calibration scenarios were conducted at Well 3 and MB-13. The modeled drawdown from these simulations was compared to the observed drawdown at the nearby piezometers. Modeled drawdown from the MB-13 aquifer test is less than the measured transducer drawdown. The report states that less than 1-foot variance is not a significant divergence. However, models may result in biased and correlated prediction errors. Can you please provide us with an updated discussion of boundary conditions used in the 2021 model and if hydrologic model error calculations were performed?

Thank you to the City of Morro Bay and GSI Water Solutions for your work on this. If you have any questions, please contact **Rachel Hohn at (805) 542-4789 or by email at Rachel.Hohn@Waterboards.ca.gov**, or Jennifer Epp at Jennifer.Epp@waterboards.ca.gov.

Sincerely,

for Matthew T. Keeling
Executive Officer

cc:

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ECM/CIWQS = CW-868768
GeoTracker No. = GT- WDR100053984
Subject Name = City of Morro Bay IPR and ASR groundwater modeling

City of Morro Bay

Analysis and Recommendations for a Water Management Plan

Appendix B

Ground Water Analysis

~~Refer~~

Prepared by

Cleath and Associates

(Under contract to Boyle Engineering Corporation)

FINAL REPORT

VT-M12-150-01

March 1994

GROUND WATER ANALYSIS

FOR

ANALYSIS AND RECOMMENDATIONS

FOR A

WATER MANAGEMENT PLAN

MARCH 1994

CLEATH & ASSOCIATES

REGISTERED GEOLOGIST
TIMOTHY S. CLEATH
No. 1102
CERTIFIED ENGINEERING GEOLOGIST
Exp 6/30/94
STATE OF CALIFORNIA

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF FIGURES
(continued)

EXECUTIVE SUMMARY

As part of the ground water studies for the Analysis and Recommendations for a Water Management Plan for the City of Morro Bay, available data on the basin characteristics and ground water flow and quality conditions in the Morro and Chorro Basins have been compiled. These data were used to determine ground water yield and assess operational alternatives for the conjunctive use of ground water and imported water.

The Morro Basin is currently oversubscribed, resulting in sea water intrusion in the coastal area where the City's wells are located. The basin ground water yield is estimated to be 1500 AFY.

The Chorro Basin has experienced sea water intrusion in drought years. Despite this, the ground water basin has been refilled in every year of record except 1990, and recharge was complete in the year following 1990. The basin ground water yield is not being exceeded based on our analysis, but there is inadequate data to determine that yield at this time. Imported water discharged to Chorro Creek comprises a significant amount of recharge to the basin during drought years.

Water quality issues currently include increasing nitrate concentrations in the City wells in the Chorro Basin and sea water intrusion in the Morro Basin. In addition, the California Department of Health Services has recently given the City direction regarding removal of organisms in water produced by wells under the influence of surface water.

A ground water model has been developed for both of these basins with this information, which has been used to perform ground water flow simulations. These simulations provide the basis for determining how much imported water is required to meet future City water demands. These determinations have been used by Boyle Engineering Corp. in the main water management plan report, to which this ground water study is attached.

Based on our analysis, the City can pump approximately 1600 acre feet per year of ground water during periods characterized by normal rainfall. During drought periods, such as that experienced during the period 1987-1991, the City's ground water extraction should be limited to 950 afy.

Ground water management issues include the impacts caused by increased agricultural water uses in both basins, and, the possible reduction or enhancement in wastewater discharge to Chorro Creek from the California Men's Colony treatment plant due to water conservation and wastewater reuse by CMC, the proposed El Chorro Regional Park golf course, the proposed San Luis Obispo Botanical

Gardens, and agriculture. The augmentation of existing water supplies to upper Chorro Valley institutions from State Water Project water may result in additional water introduced to the basin. The Chorro Flats sediment removal project could result in reduced agricultural pumpage from, and possibly increased recharge to, the Chorro Basin.

INTRODUCTION

Cleath & Associates has been assigned the task of characterizing and modeling the flow and assessing the water quality characteristics in the Morro and Chorro ground water basins (Figure 1). This work is a part of the Boyle Engineering Corp. Analysis and Recommendations for a Water Management Plan for the City of Morro Bay. This report summarizes the findings of these efforts.

Previous water management plans include a "Preliminary Water Management Plan" prepared by Brown & Caldwell in 1981 and a "Water Management Plan" prepared by the California Department of Water Resources, Southern District in 1982. Both of these plans place most of their emphasis on increasing the available water from the Chorro and Morro ground water basins, thereby allowing the City to extract additional water to meet increased demands.

Following the completion of these two previous water management plans more information on the ground water basins has accumulated, land uses have changed, a severe drought has occurred, and new water sources have been developed. Cleath & Associates has reinterpreted the ground water conditions in these basins based on the additional information and follows with an analysis of ground water management strategies.

This report is organized into four sections: Section 1 addresses the baseline conditions in the Morro and Chorro ground water basins, Section 2 addresses the water quality, Section 3 presents our analysis of ground water production scenarios for the City and Section 4 identifies management approaches.

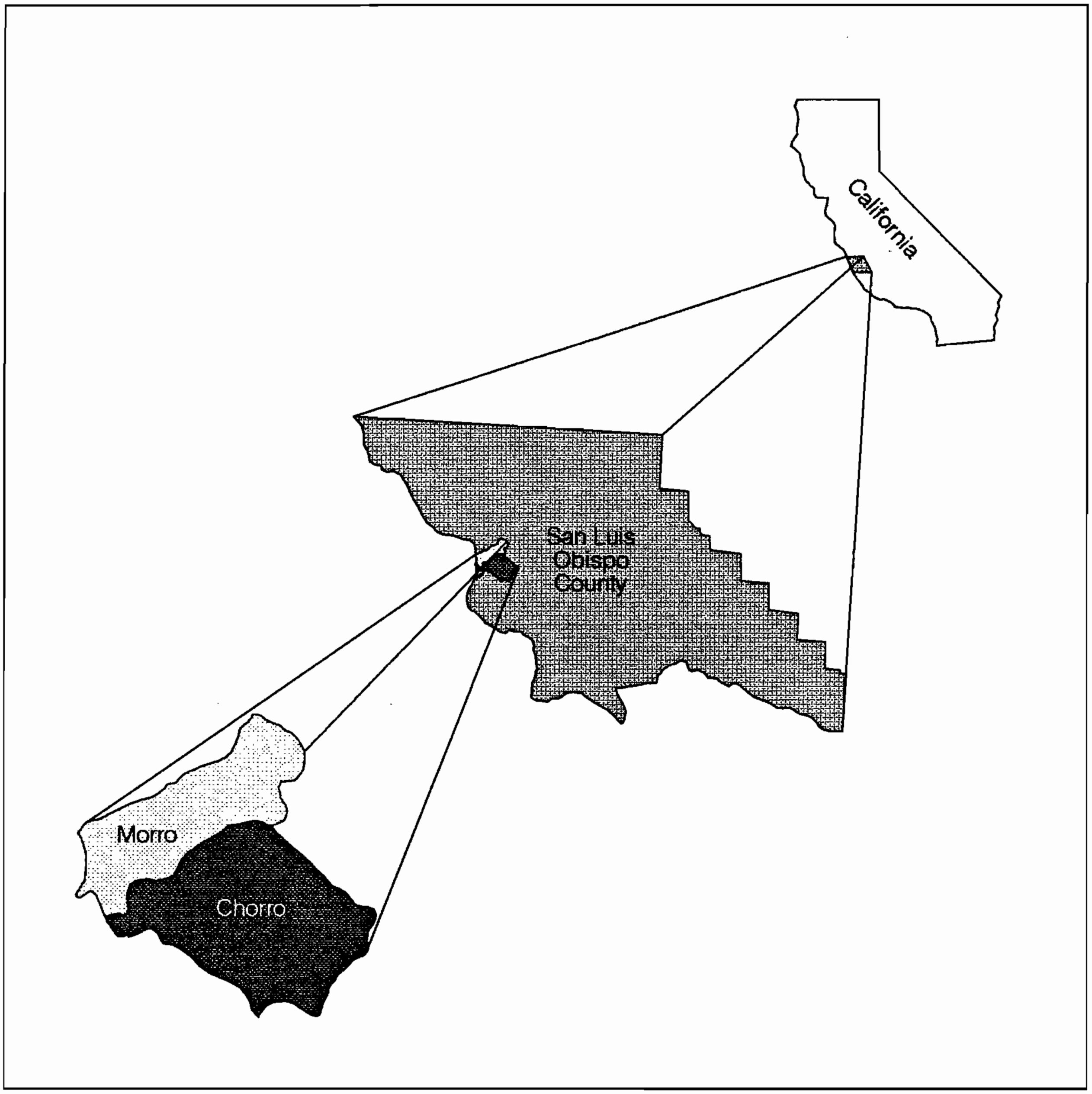


Figure 1
Watershed Areas

City of Morro Bay

Water Management Plan

Cleath & Associates
March 4, 1994

BASELINE CONDITIONS

The City has relied upon ground water resources to provide for the total water demand of the community since the City's inception. The baseline conditions in the Morro Basin and Chorro Basin are summarized in order to provide the foundation for management of these resources as well as to evaluate the need for supplemental water supplies.

GENERAL OBSERVATIONS

Chorro and Morro ground water basins, shown on Figure 2, have many similarities. The basins are in close proximity to each other and therefore have similar climatological conditions. Rainfall for the watersheds of both basins average between 24" and 25" per year. Figure 3 shows monthly rainfall records for two stations in the vicinity of the basin areas.

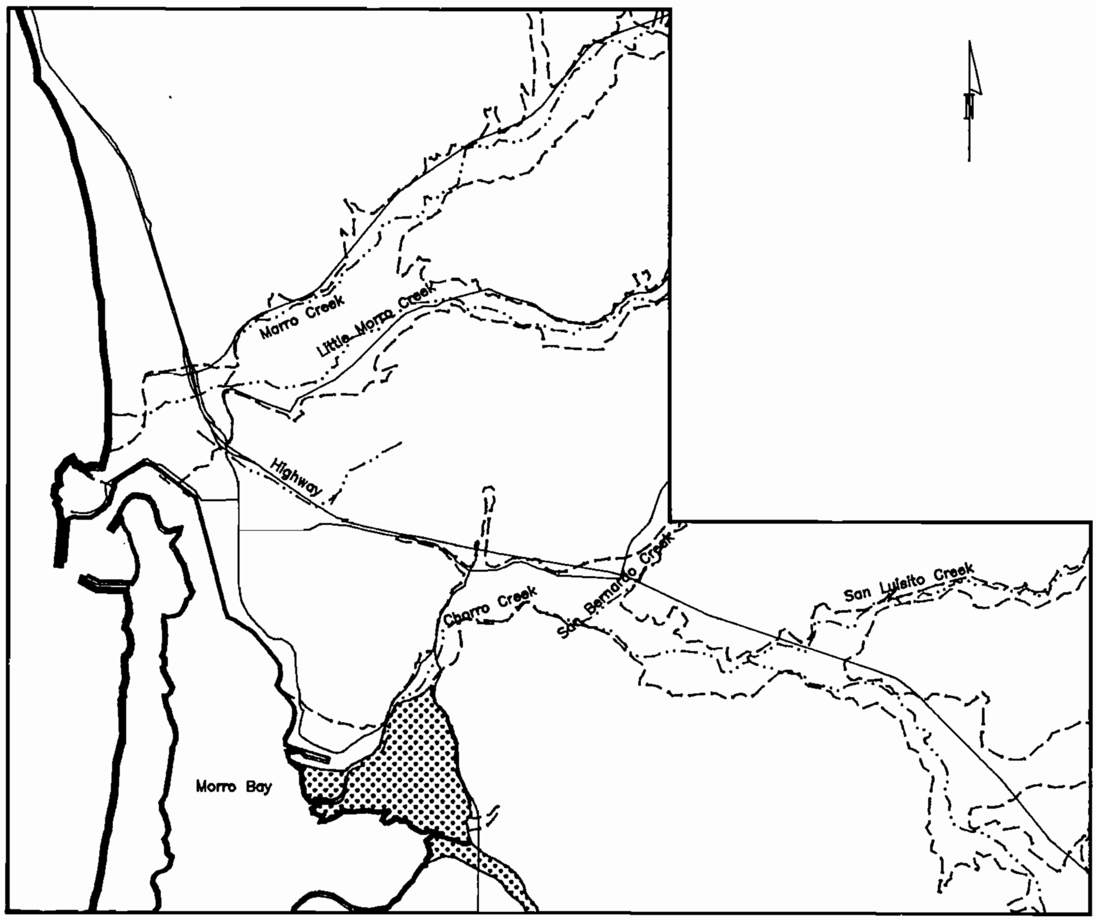
The basins are comprised of Holocene alluvial deposits resting on Franciscan Formation bedrock. The ground water basins both supply water for agricultural and domestic purposes. The ground water from both basins drain to Morro Bay and when water levels in the basins are low, some sea water intrusion has occurred.

MORRO GROUND WATER BASIN

The Morro Basin is an 810 acre area extending from the coast line to the confluence of the Morro and Little Morro Valleys. The ground water basin is recharged from tributary watersheds upstream on the Morro and Little Morro Creeks. The total watershed area of these creeks cover an area of 15,400 acres.

The base of the water bearing sediments is at an elevation of deeper than 60 feet below sea level at the coast line, rising to an elevation of 20 feet above sea level at the upper end of the basin area (Figure 4). The basin sediments are most permeable near the coast and along the stream course alignments.

Ground water in storage in this basin, based on the ground water modeling studies performed as a part of this study, is 3,247 acre-feet (AF) and the water in storage during drought conditions is 2,866 AF. The recoverable water that can be removed from storage is the difference between these quantities, or 381 AF.



EXPLANATION

— — — Edge of Alluvial Basin

0 2000 4000 6000 8000 FEET

Figure 2
Basin Area Map

City of Morro Bay

Water Management Plan

March 4, 1994
CLEATH & ASSOCIATES

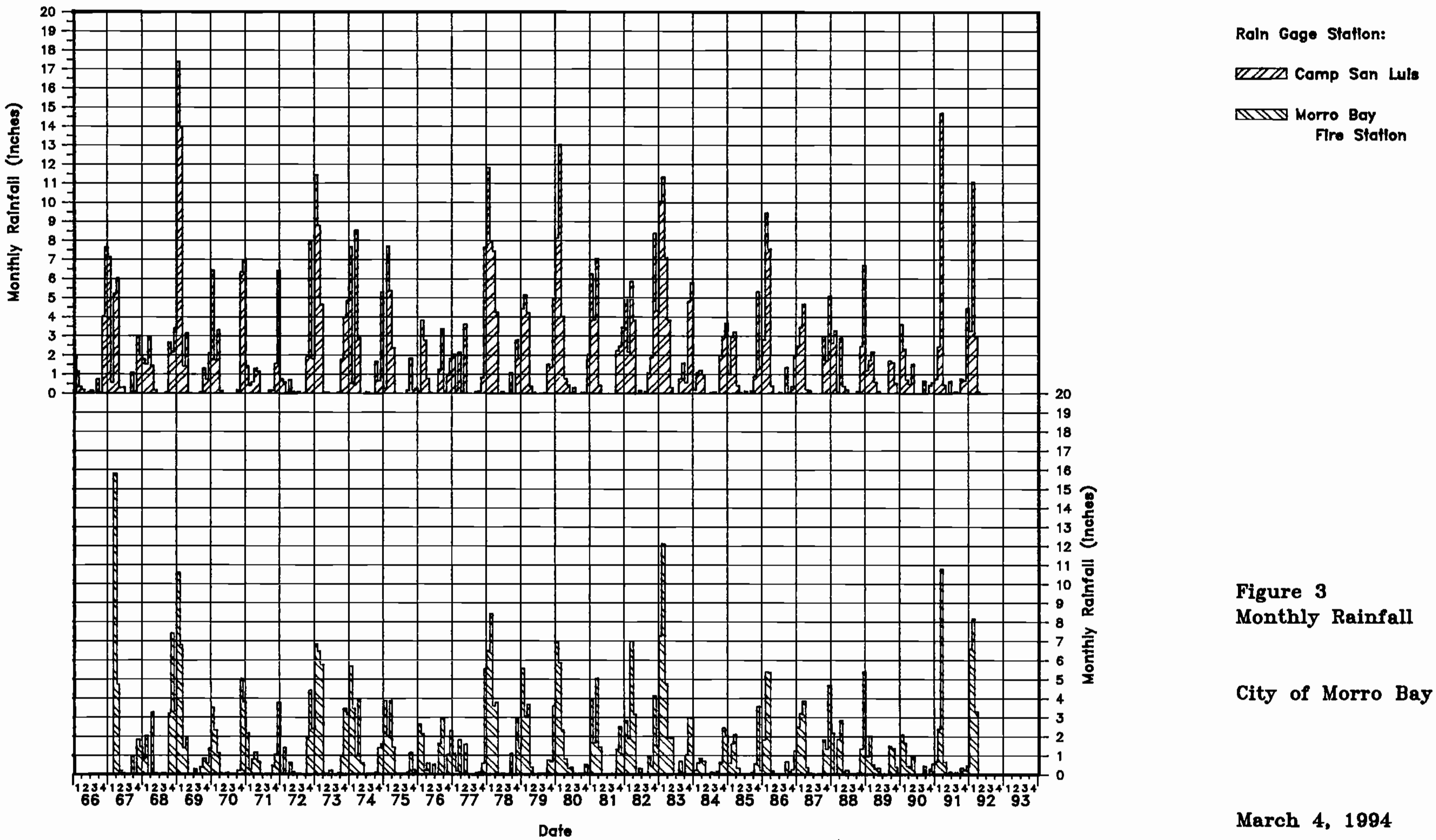


Figure 3
Monthly Rainfall

City of Morro Bay

March 4, 1994

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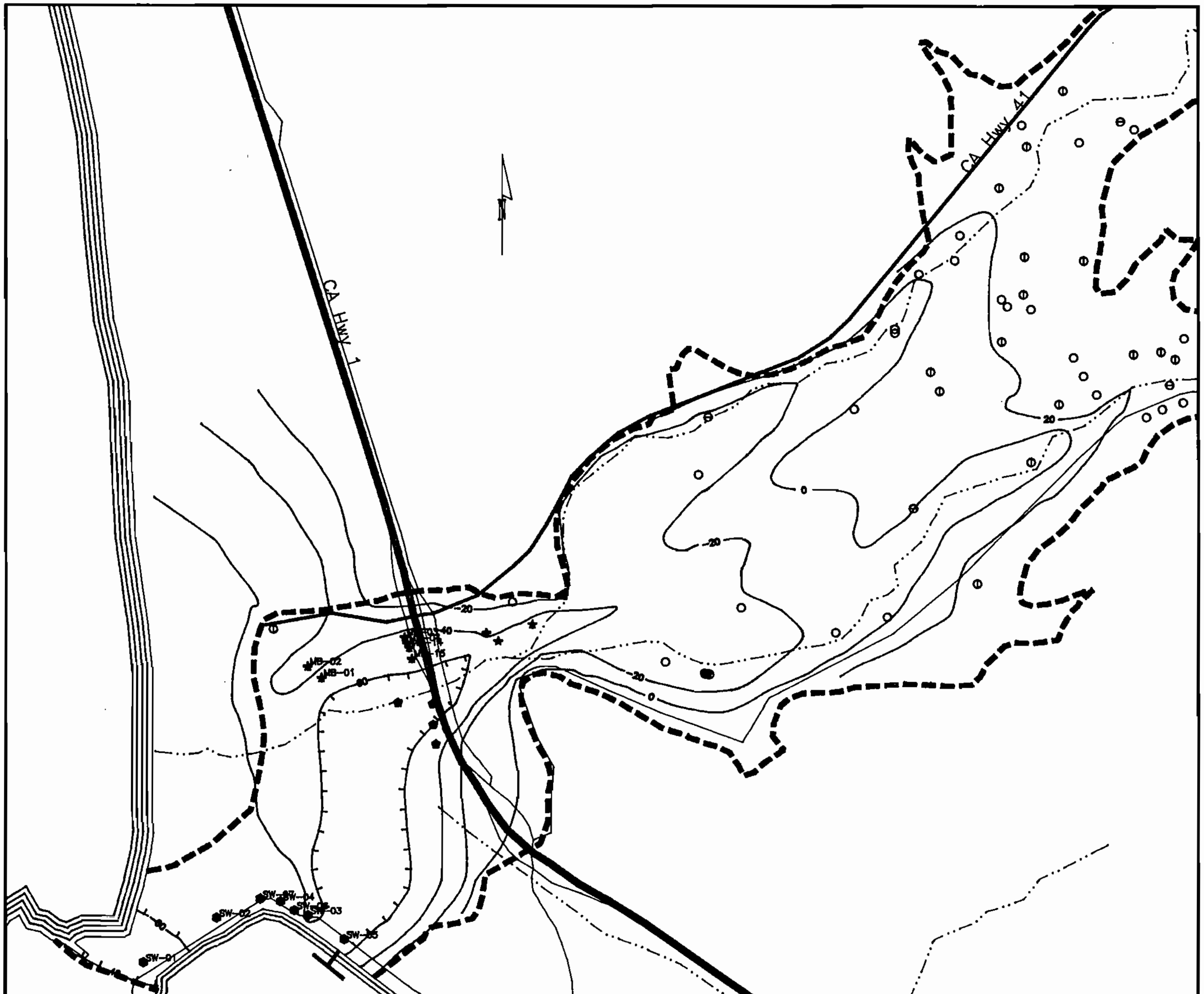

EXPLANATION

- Sea Water Wells
- Morro Bay City Wells
- PG&E Plant Wells
- Other Wells
- Edge of Alluvial Basin
- Elevation of Base of Water Bearing Sediments

0 500 1000 1500 2000 FEET

Figure 4
Morro Basin
Elevation of Base of
Water Bearing Sediments

City of Morro Bay

Water Management Plan

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Ground water recharge

Ground water stored within the Morro basin sediments is recharged by the percolation of precipitation and streamflow, return flow from domestic and agricultural uses, and when water levels are below sea level, by sea water intrusion.

Percolation of streamflow in Morro and Little Morro Creeks is the main source of fresh water recharge to the basin. Streamflow records for the stream gage on Morro Creek, located on the upstream side of the frontage road bridge north of Hwy 1, are the only information available for streamflow in this valley. The daily streamflow at this gage was recorded from November 1970 to September 1990 (Figure 5).

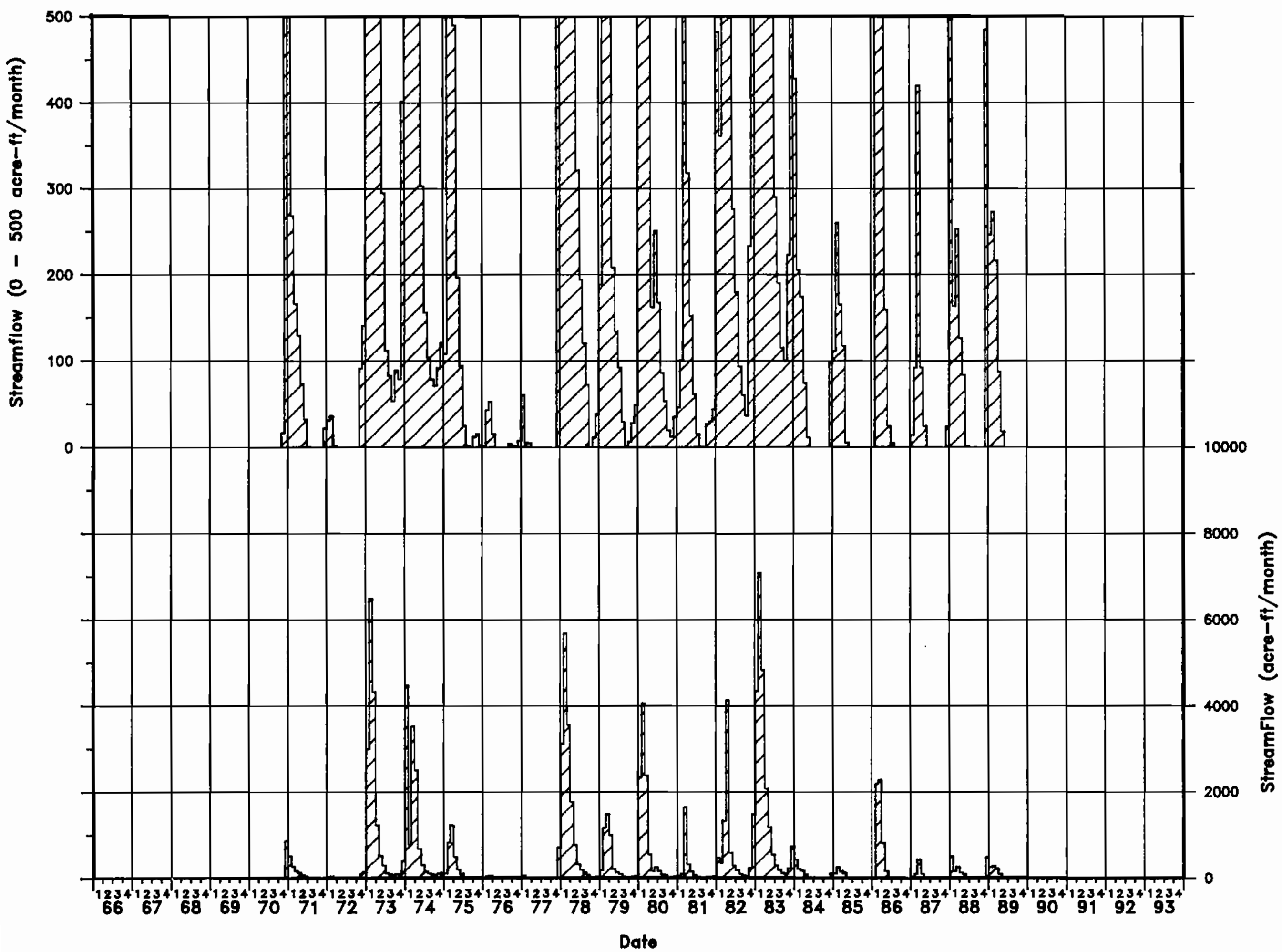
The Morro Creek gage location is downstream of all agricultural lands in the near vicinity of the City's operational wells. The measured streamflow at this gage is the net rate resulting from natural runoff which has been diminished by ground water recharge to the basin. Some additional recharge to the ground water basin probably occurs downstream of the gage as well.

The annual total volume of streamflow measured at this gage ranges from 0 AF in water year 1990 to more than 22,179 acre-feet in 1983 (when 17 days of record for high flow conditions are missing). Streamflow duration is critical to the recharge of the ground water basin. The longest period of flow less than 100 AF/month in the creek was 30 months, from June 1975 to December 1977 and the longest period of no flow in the creek on record was from June 1989 until at least October 1990 (the end of the available records for this gage). These two periods correspond to the lowest water levels recorded at the City wells.

Figure 6 illustrates the relationship of streamflow to the water levels in the City wells. When the annual streamflow at this gage is less than 1200 AF, ground water levels decline to below -15 feet elevation. When the annual streamflow at this gage is 3000 AF or more, the Morro basin water levels remain high for the full year.

Returnflow from domestic and agricultural uses is estimated to be about ten percent of irrigation and 40 percent of domestic pumpage. This amounts to about 60 acre-feet per year (0.1 x 483 AF + 0.4 x 30 AF) for the portion of the Morro Basin studied.

Percolation of precipitation amounts to about 18 percent of the precipitation which falls on the studied portion of the basin area during normal years and 13 percent of precipitation during dry years; it is estimated to average 219 acre-feet per year (0.18 x 810 acres x 1.5 feet). In a drought year, this recharge source would be about 88 AFY (assuming 10 inches of rainfall).



Based on data from SLO County Engineer's Office

Figure 5
Stream Flow
Morro Creek at
Highway 1 Bridge

City of Morro Bay

March 4, 1994

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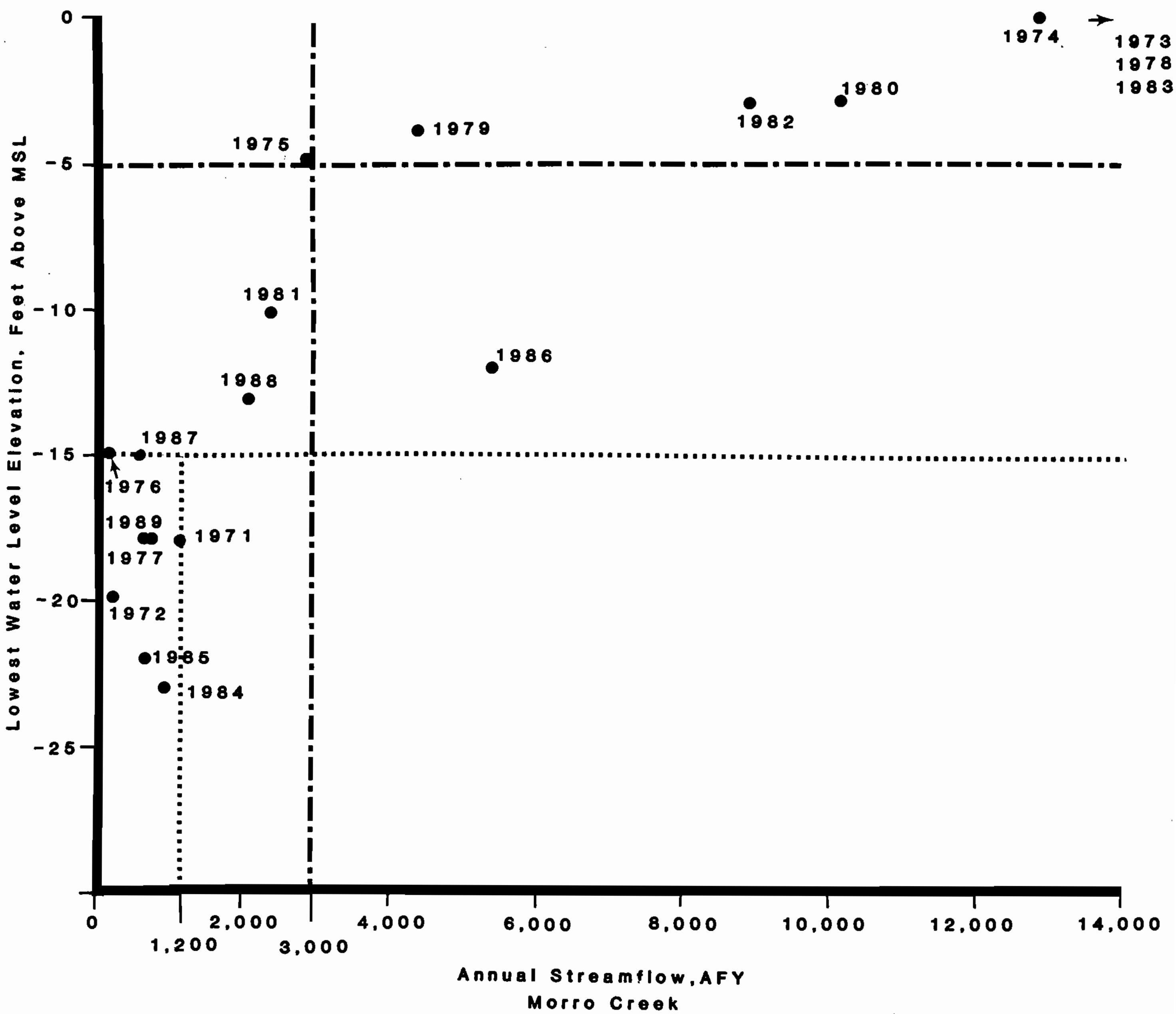

FIGURE 6

STREAM PERCOLATION CHARACTERISTICS

MORRO CREEK

Ground water outflow items

Ground water outflow items in the Morro Basin include municipal pumpage (ranging from 500 to 600 AFY over the past 25 years except during drought years), agricultural pumpage (1379 AFY for the entire watershed area in 1992), rural domestic extractions (about 30 AFY), extractions by P.G. & E. (30 AFY), and, when water levels are above sea level, to subsurface outflow to the ocean. Figure 7 presents the monthly and annual production from the City's Morro Basin wells. The City's extractions during 1992 were decreased to about 240 acre-feet in order to allow the basin to recover from the severe water levels experienced in 1990 and 1991. Table 1 presents a comparison of surface water/ground water extractions for the various uses of Morro Basin water in 1979 and 1992. P.G. & E. extractions in 1992 were estimated from verbal discussions regarding the operations of their wells.

Table 1. Surface Water/Ground Water Extractions from the Morro Watershed Area.

USE	1979[1] (AFY)	1992 (AFY)
Urban (Morro Bay)	547	240
Rural Domestic	33	30[2]
P.G.& E.	86	30
Agriculture	805	1379[2]
Total	1471	1679

[1] Brown and Caldwell, 1981.
[2] Cleath & Associates, Impact Assessment, Sea Water Desalination Well Field Operations, For The City of Morro Bay, 1993.

The estimate for subsurface outflow prepared by Brown and Caldwell in 1981 (3400 AFY) appears to be much greater than is now occurring. With a nearly flat ground water gradient due to lower water levels in the area near the coast, there is little subsurface outflow occurring. Figure 8 presents the ground water surface contours for Fall 1991.

The ground water basin has historically been filled at least every other year in the period prior to 1983. Since 1983, the durations of

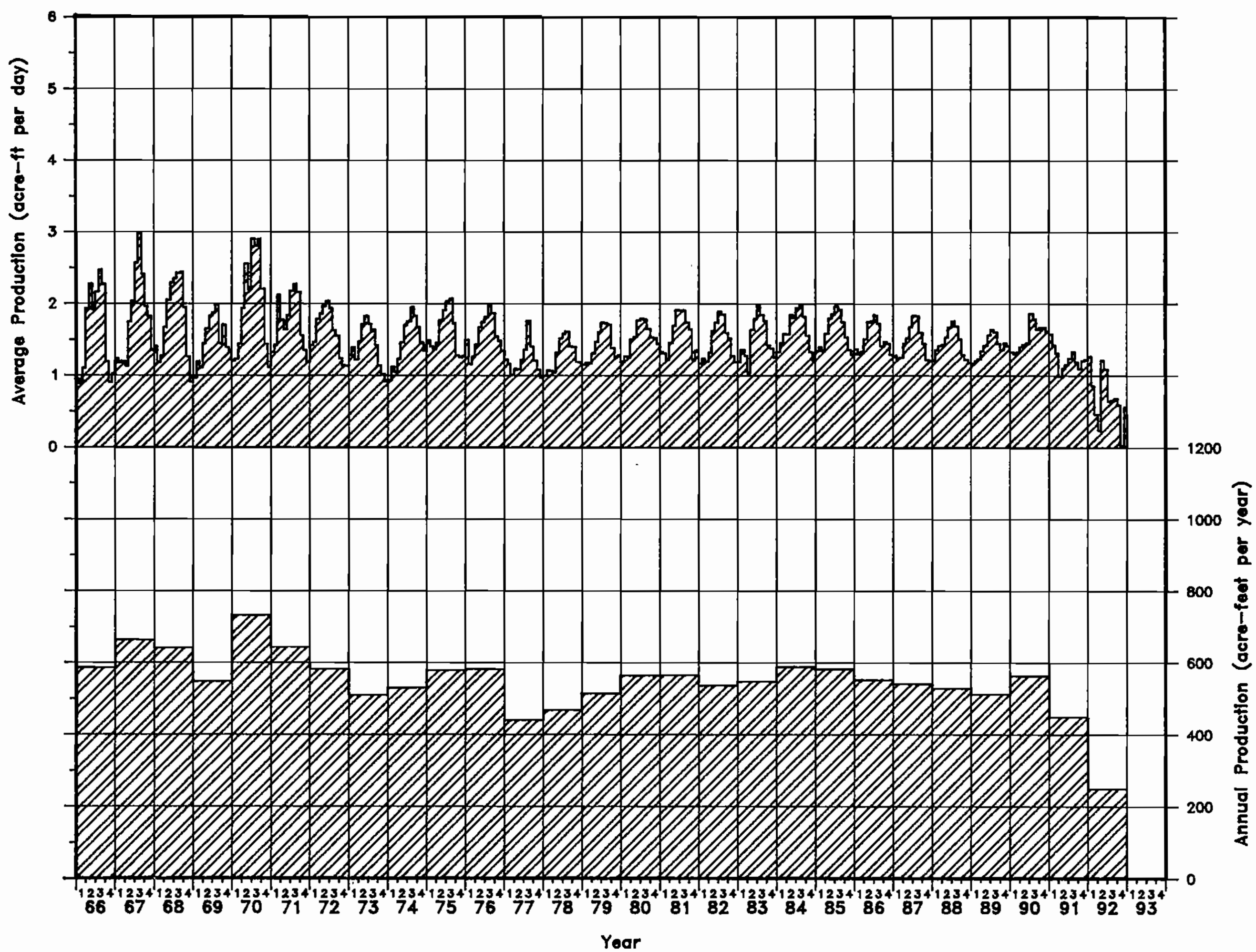

Figure 7
Average Daily
and Annual Production
Morro Basin Wells

City of Morro Bay

March 4, 1994

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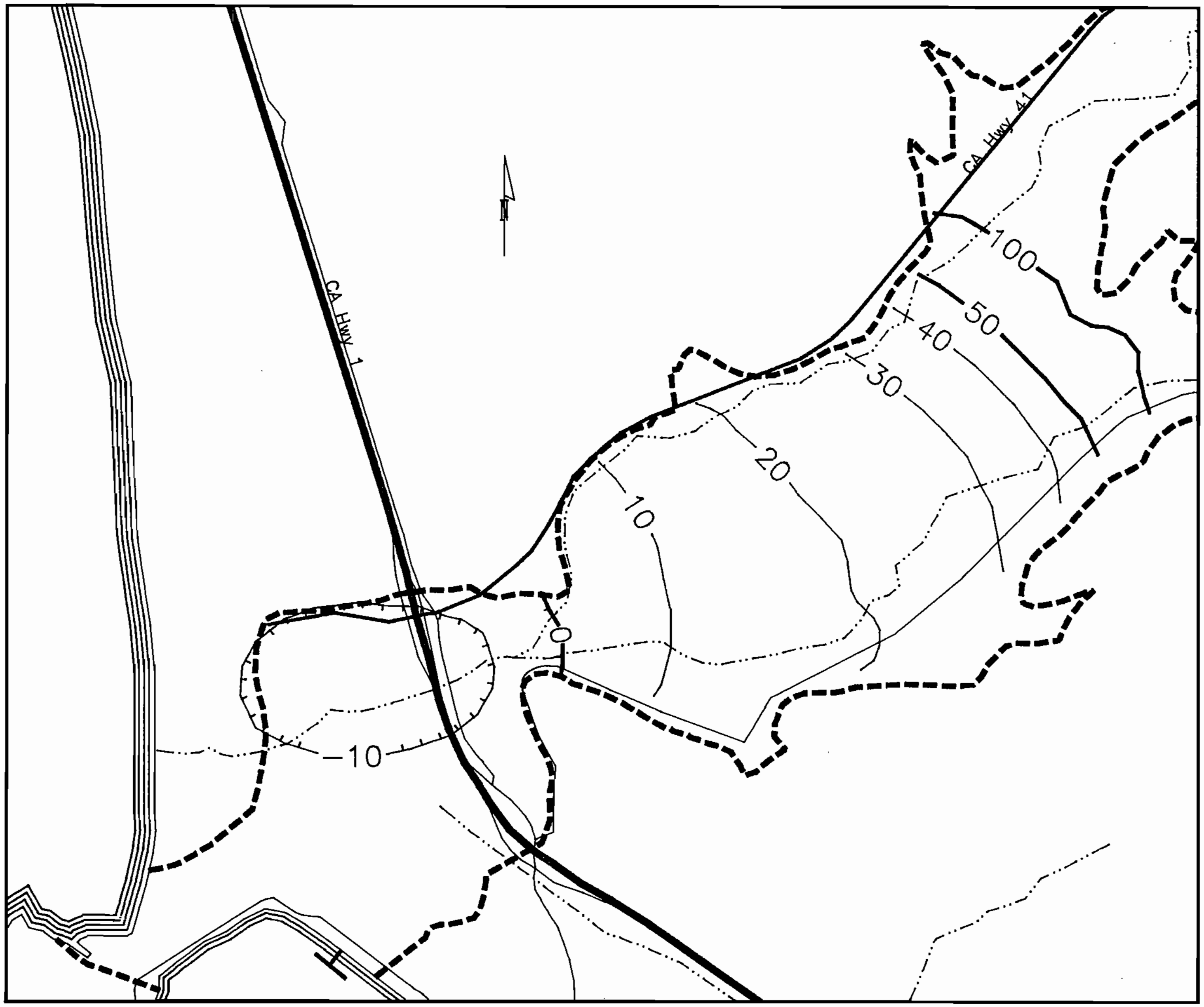


EXPLANATION

—20— Water Level Contours feet above Mean Sea Level

▬ ▬ ▬ Edge of Alluvial Basin

0 500 1000 1500 2000 FEET

Figure 8
Morro Basin
Water Level Contours
Fall 1991

City of Morro Bay

Water Management Plan

March 4, 1994
CLEATH & ASSOCIATES

time during which the basin water levels are high have become shorter and the water levels during the dry portion of some years have gotten deeper (Figure 9). We attribute this change in water level fluctuation patterns to the overall increase in ground water pumpage, most notably for irrigation of greater areas of cropland (264 acres in 1981 has increased to 646 acres in 1992) and the conversion to higher water use crops (vegetables). Table 2 provides a comparison between irrigated crop acreages as estimated for 1975-79 and 1992. The net increase in pumpage resulting from this increase in agricultural land uses is 574 AFY.

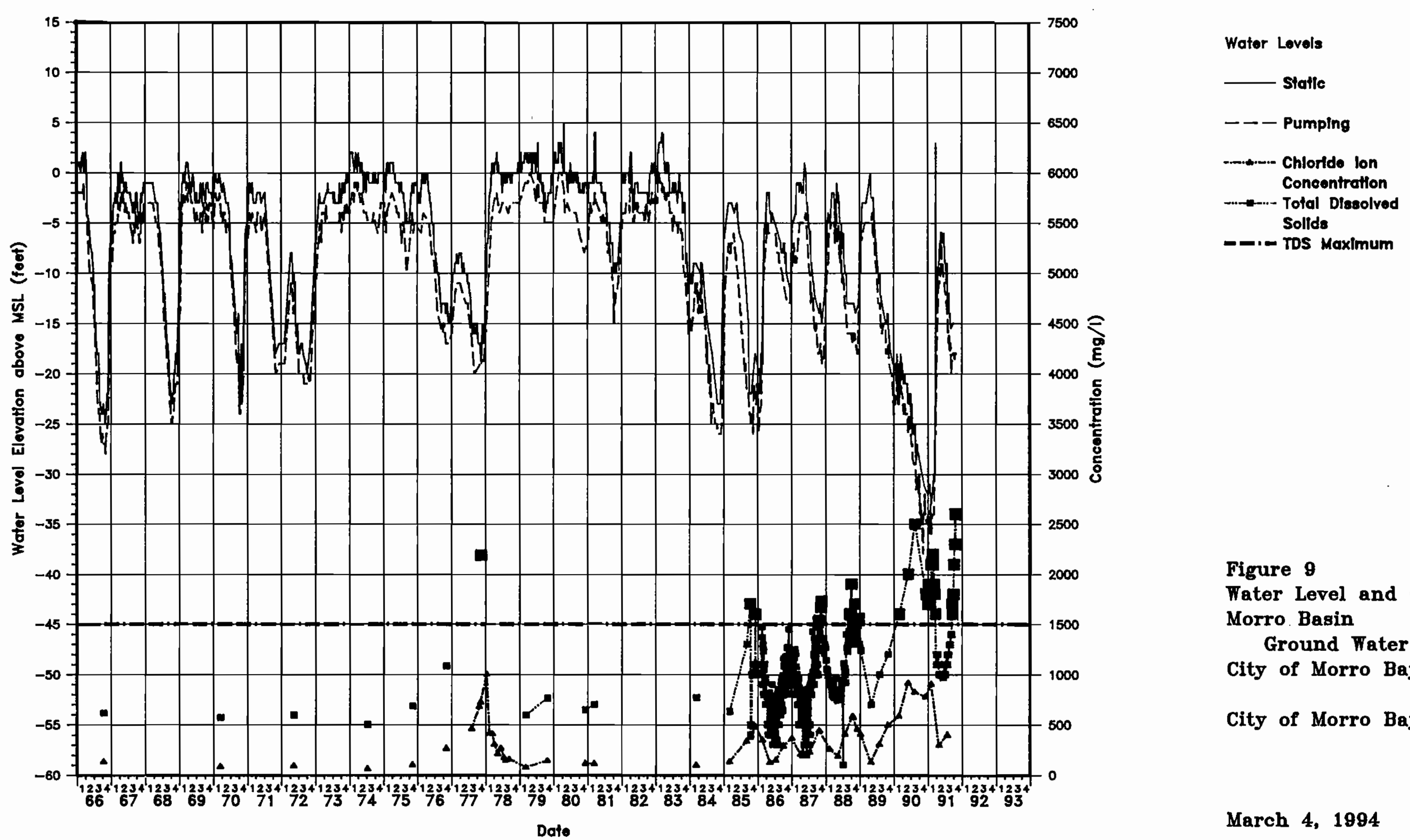
Table 2. Irrigated Crop Acreages for the Morro Watershed Area.

CROP	1975-79[1] (acres)	1992[2] (acres)
Vegetables	51	378
Orchards (Avocadoes, nuts & citrus)	67	258
Irrigated Pasture (Including alfalfa)	79	10
Irrigated Field Crops (Sudan grass)	67	-
Total	264	646

[1] Brown and Caldwell, 1981.
[2] County of San Luis Obispo, Dept. of Agriculture/Measurement Standards (rounded to nearest acre).

Ground Water Yield

Sea water intrusion has occurred in the Morro Basin over the past several years with increasing severity. Related to this is the degradation of water quality and the loss of well water production. Based on these conditions, it is our opinion that the ground water yield from Morro Basin is being exceeded. This is also indicated by a plot of the deepest water levels reached in the City wells each year versus annual precipitation (Figure 10). The lowest water levels for the years between 1970 and 1980 generally are three to five feet



Based on data from Water Well Level
and Production Reports (A.R. 257–267)

Figure 9
Water Level and Quality
Morro Basin
Ground Water Data
City of Morro Bay Well #04

City of Morro Bay

March 4, 1994

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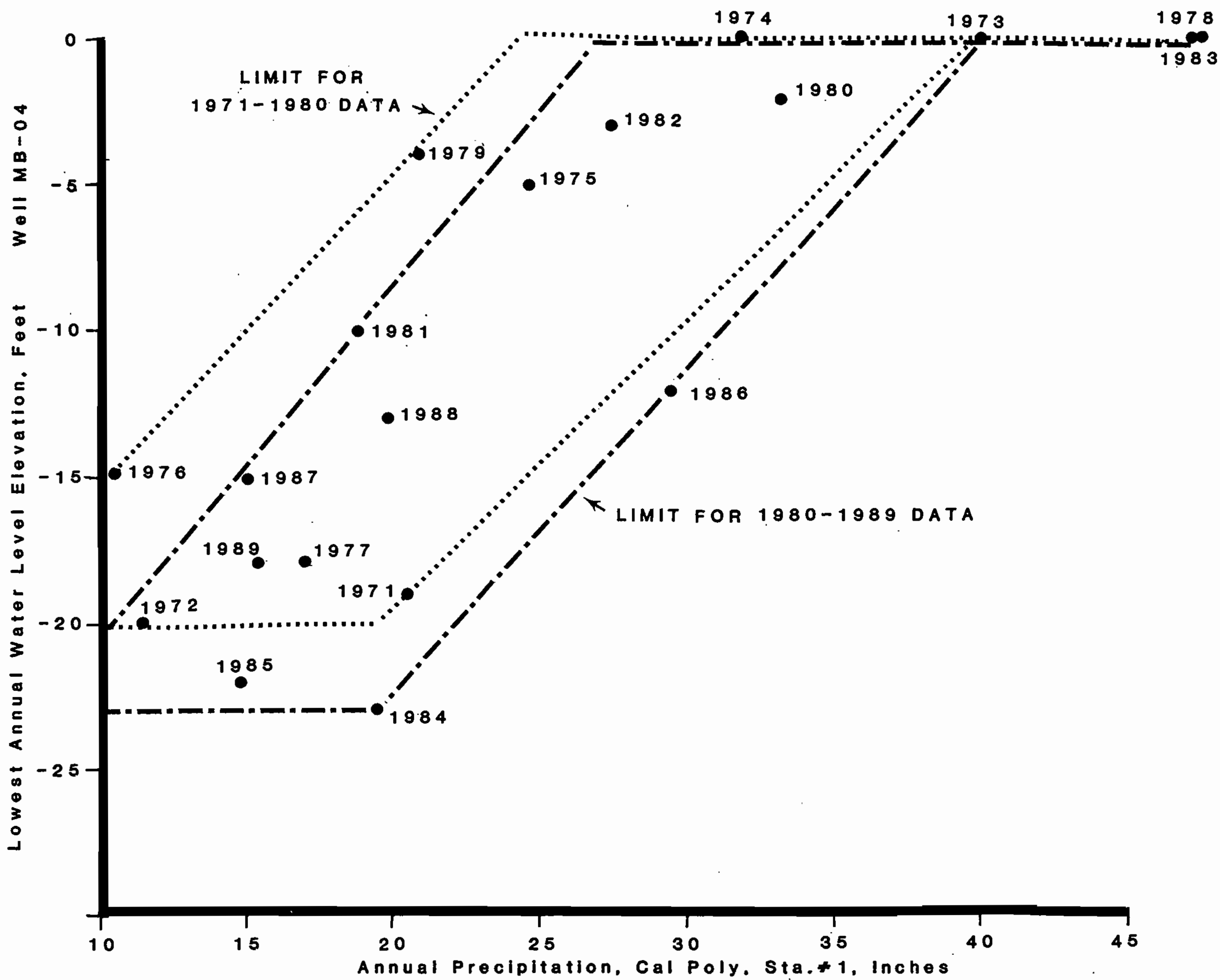


FIGURE 10

COMPARISON OF WATER LEVELS/
ANNUAL PRECIPITATION FOR 1971-1989

MORRO BASIN

higher than for those between 1980 and 1990 for equivalent precipitation amounts.

Several previous investigators have estimated the annual ground water yield from the basin. These yield estimates have ranged from 1500 acre-feet (DWR Bulletin 18, May 1958) to 1700 acre-feet (DWR, 1969). Higher yield estimates for the combined Chorro and Morro Basin have been made by Brown & Caldwell (1981) and DWR (1982), based on the assumption that municipal production facilities could be used in the area upstream of the narrows. This would allow for withdrawing more water out of storage which could be replenished during later periods of increased recharge. Our calculated ground water storage capacity of the basin is only a small percentage of what was estimated by either of these previous investigators and indicates that these higher yield estimates are not possible.

In light of the information regarding sea water intrusion, ground water levels and total pumpage estimates, we estimate that the ground water production from the Morro basin during drought years can be about 1500 acre-feet. This yield is generally what was produced during the 1970's (Table 1) without the significant adverse impacts which have occurred since the 1980's. In 1992, we estimate that about 1680 acre-feet of ground water were extracted by all users, of which about 1440 acre-feet were pumped by users other than the City.

Indications of Drought Condition

When the streamflow measurements at the Morro Creek gage are less than 1200 acre-feet per year, it can be seen that water levels in the City wells drop to critical levels, at or below -15 feet elevation (Figure 10). When streamflow measurements are more than 3000 acre-feet per year, water levels in the City wells remain at or above -5 feet elevation. There is no history of water quality degradation to date in the City wells when water levels have been above that elevation.

December through April streamflow totals generally are 90 percent of the year's flow. If the streamflow total is less than 1100 AF at the end of April, deep water levels are likely to occur later in the year in the City's wells, with the possibility of increased salinity in the produced well water at that time.

CHORRO GROUND WATER BASIN

The Chorro Creek watershed encompasses an area of 28,640 acres upstream of Chorro Creek estuary and is drained by Chorro Creek and its tributaries. Dairy, Pennington, San Luisito, and San Bernardo Creeks are the major tributaries to Chorro Creek. The Chorro ground water basin underlies portions of the flood plain of Chorro Creek and to a lesser extent the main tributaries, where a sufficient saturated thickness of alluvial deposits are present. The actual area of the ground water basin is therefore significantly less than what is shown on existing geologic maps as alluvium.

The Chorro ground water basin is divided herein into two areas: the upper basin area and the main basin area. The upper basin area extends upstream of Chorro Valley from adjacent to Hollister Peak to where Chorro Creek valley crosses Highway 1. The main basin area is downstream of the upper basin area. The main basin area is the focus of this analysis, since it is where the City's water wells are located and comprises the thickest section of the alluvial deposits.

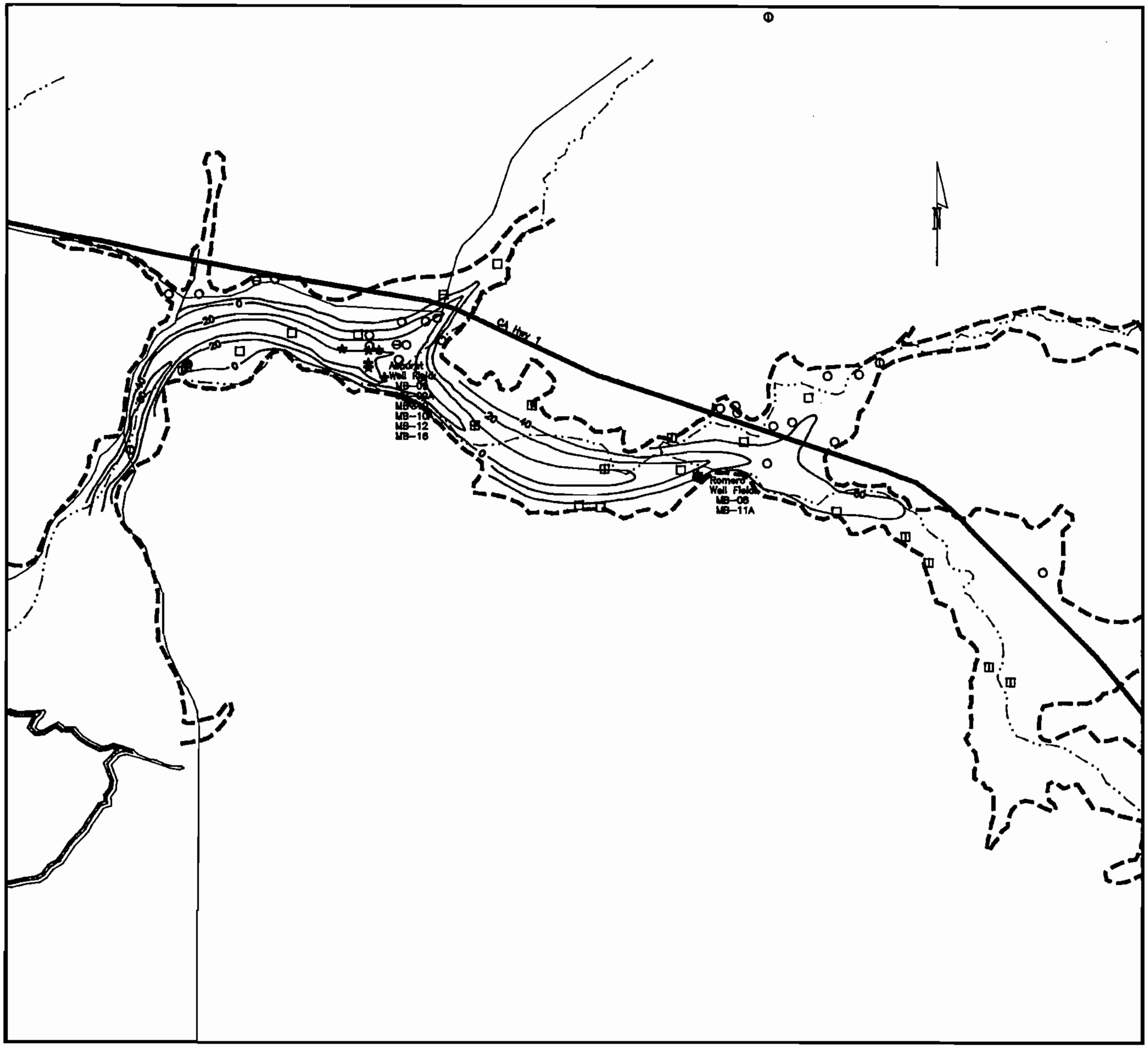
The main ground water basin area covers an area of 727 acres. The ground water basin extends a short distance up San Luisito Creek and San Bernardo Creek valleys. The downstream limit of the main basin area is at the Twin Bridges on South Bay Boulevard. The ground water basin limits and elevation of the base of the water bearing sediments are shown on Figure 11. Existing wells are also shown on this map.

The sediments comprising the Chorro ground water basin include a basal sand and gravel bed up to 30 feet in thickness overlain by clay and sand deposits with lenses of gravel. These sediments reach a total thickness of about 70 feet in the main basin area but are less than 35 feet thick in the upper valley areas. In the area downstream of the confluence of San Bernardo Creek and Chorro Creek, the sediments overlying the basal sand and gravel bed are fine grained and, as a result, act as a semi-confining layer above the ground water in the basal aquifer in this area.

The aquifer zones can be highly permeable and some wells are capable of producing several hundred gallons per minute (gpm). The City's wells produce between 200 gpm and 550 gpm each.

Ground Water Levels

The ground water levels in the Chorro Basin have been monitored over the past 30 years and provide a good baseline on which to determine the basin's response to recharge and pumpage. The ground water level fluctuations over time are best shown at individual wells (Figure 12).



EXPLANATION

- Sea Water Wells
- Morro Bay City Wells
- PG&E Plant Wells
- Irrigation Wells
- Other Wells

- Edge of Alluvial Basin
- 20 Elevation of Base of Water Bearing Sediments

0 1000 2000 3000 4000 FEET

Figure 11
Chorro Basin
Elevation of Base of
Water Bearing Sediments

City of Morro Bay

Water Management Plan

March 4, 1994
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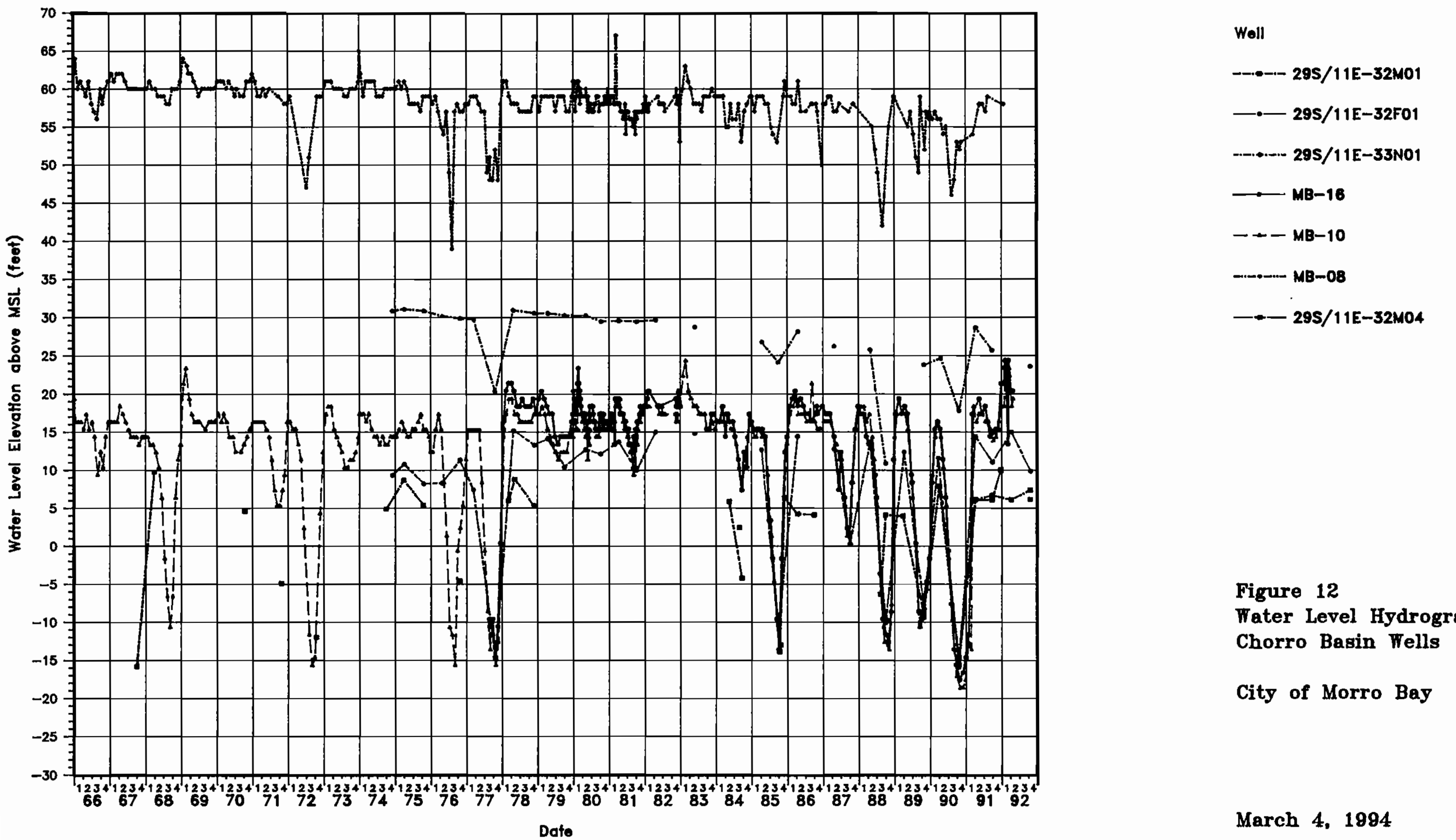


Figure 12
Water Level Hydrographs
Chorro Basin Wells

City of Morro Bay

March 4, 1994

CLEATH & ASSOCIATES

Water levels in the basin fluctuate seasonally, with shallow water levels in the wet season and declining water levels in the dry season. The ground water levels in the portion of the main basin near the Romero well field (Canet Road area) vary by about 25 feet from high water level to the deepest water level (MB-08). During most years, there is a range of less than 10 feet in these wells. In the portion of the basin downstream of San Bernardo Creek, in the vicinity of the City's Ashurst well field, the ground water levels have a much wider range from wet to dry seasons, varying from 20 feet above sea level to almost 20 feet below sea level (MB-16).

The duration of the dry season is the main factor in how deep the dry season water levels get and the extent of the sea water intrusion. For the period of record, the basin has been recharged every year to the point of being full, with the exception of 1990.

Storage

Ground water in storage in the Chorro basin is a function of the total volume of the basin and the average specific yield of the sediments. The maximum ground water in storage estimated for the Chorro Basin is 3,060 acre-feet. As water levels are lowered, the amount of water in storage decreases. The amount of water remaining in storage when the ground water levels are deep (1990) is calculated to be 2,340 acre-feet. The recoverable ground water that can be removed from storage is calculated as the difference between these two quantities or 720 AF.

Ground Water Recharge

Recharge to the main Chorro ground water basin area is grouped into two classes: inflow from tributary areas and main basin area inflow. The tributary areas include upper Chorro Creek valley, San Luisito Creek valley and San Bernardo Creek valley. Main basin area inflow includes the percolation of precipitation and the percolation of irrigation and domestic returnflow. Inflow amounts from each source have been estimated based on available information and field reconnaissance.

Tributary area inflow is the primary recharge source, with the recharge occurring in the stream beds within the main ground water basin. The water information available for upper Chorro Valley is moderately well defined, San Bernardo Creek streamflow is partially defined and San Luisito Creek streamflow has only been recorded a few times. Therefore, it is necessary to estimate the quantity of flow in San Bernardo and San Luisito Creeks.

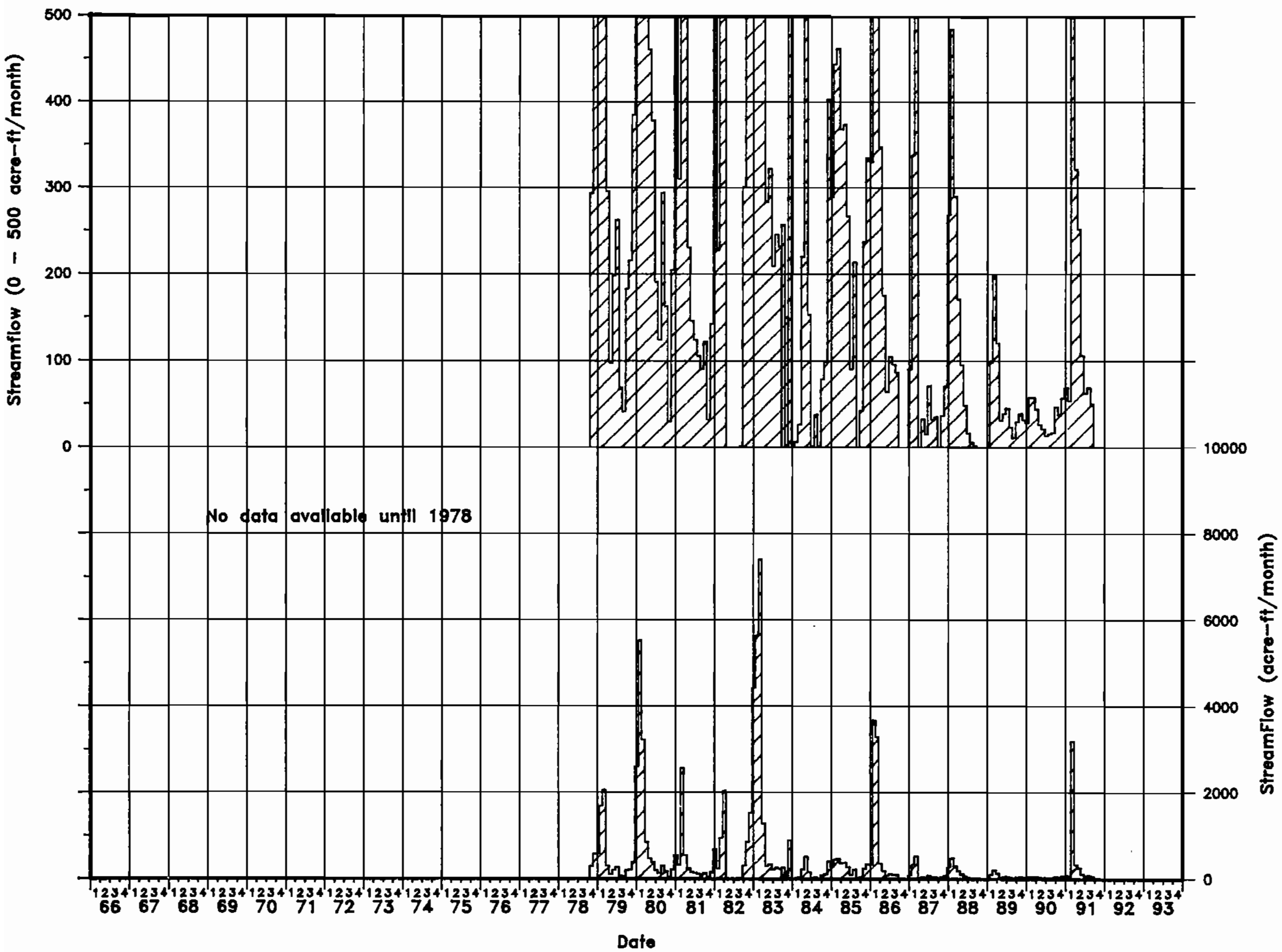
Inflow from each of these upstream valley areas is roughly proportionate to their watershed area, although the upper Chorro Valley area inflow to the main basin area is augmented by the non-consumed imported water from Whale Rock reservoir and diminished by some institutional and agricultural water uses. San Luisito and San Bernardo Creeks upstream of the main basin area have minimal losses due to domestic or agricultural activities. The upper Chorro Valley area (above Canet Road stream gage) has a watershed of about 22 square miles, San Luisito Creek watershed is about 8.5 square miles and San Bernardo Creek watershed is about 8.6 square miles. Streamflow figures for San Luisito and San Bernardo Creeks should each be about 40 percent of the natural Chorro Creek flow at Canet Road.

Upper Chorro Creek valley inflow is the net result of the natural inflow in this watershed area combined with imported water from Whale Rock reservoir delivered to the CMC water treatment plant, less the consumption from institutional and agricultural uses. The Morro Group and Tenera Environmental Services (TMG/TES) report (1990) estimated that the net inflow above the Canet Road stream gage is 52 acre-feet per year less than the natural flow from the watershed. This figure is a rough estimate, assuming 1100 acre-feet per year of water discharged from the CMC wastewater treatment plant. More recent records of discharge from the CMC facility (1989-1992) show that discharges have declined to about 1000 acre-feet per year and that Cal Poly takes about 100 acre-feet per year of this amount. Therefore, the net inflow above the Canet Road stream gage is about 152 acre-feet per year less than the natural flow from the watershed.

The annual amount of treated wastewater discharged to the creek during 1989-1992 (calculated by converting average daily flow per year values reported by the CMC wastewater treatment plant operator by 365 days) has ranged from 885 to 939 acre-feet per year (1989: 930 AFY; 1990: 885 AFY; 1991: 939 AFY; 1992: 885 AFY). Earlier records only give amounts for influent or effluent flow from the wastewater treatment plant. These earlier records could be adjusted to creek discharge amounts with the deduction of reclaimed wastewater taken by Cal Poly.

The net discharge to the stream (effluent flow less Cal Poly deliveries) varies from month to month, with the maximum month being during the summer and the minimum month usually in the fall. The variation from average monthly flows typically are between 15 percent and 30 percent. This variation is even less for the effluent flow from the wastewater treatment plant (less than 10 percent), based on quarterly reports to the Regional Water Quality Control Board (RWQCB) for the last three years. There have been years where effluent flows have fluctuated much more widely (e.g., 1985), however.

The Chorro Creek flow is monitored by a gage at the Canet Road crossing. For the purpose of this study, this location is considered the upstream edge of the main basin. Daily streamflow records show that the creek flows at this gage for most of the year, even during dry years (Figure 13). The normal year streamflow at Canet Road crossing is about 5050 AF (TMG/TES). Dry year streamflow was



Based on data from SLO County Engineer's Office

Figure 13
Stream Flow
Chorro Creek at
Canet Road Gage

City of Morro Bay

March 4, 1994

CLEATH & ASSOCIATES

estimated to be 3,059 AF (TMG/TES, based on 1985). Drought year flow, based on 1990 total streamflow at the Canet Road gage, would be 423 AF.

The distribution of this streamflow, when viewed on a monthly basis, shows that the large majority of flow occurs during the wet portion of the year. As a result, the normal year streamflow figure is misleading since most of the flow does not percolate into the ground but instead flows out to Morro Bay.

Ground water inflow from the upper Chorro Creek alluvium is estimated to be 49 AFY (normal year) based on the cross sectional area of the saturated alluvium, the permeability of the sediments, and the hydraulic grade of the ground water, as simulated in the computer model. This diminishes to 26 AFY per year in a dry year.

San Luisito Creek valley inflow is essentially the natural flow in the creek and flow in the alluvium. There is little farming done within the area upstream of the main basin area. Flow in San Luisito Creek is not measured on a regular basis. There are a few flow measurements, and previous investigators for the Coastal Streams Diversion project have simulated flow variations based on correlations with adjacent streams with streamflow records. TMG/TES estimated that the normal year flow would be approximately 90 percent of the flow in San Bernardo Creek, 1047 AFY (1,163 AF x 0.9).

Low flow conditions have not been previously determined but based on the similarity between San Bernardo and San Luisito Creek watersheds, San Luisito streamflow in dry and drought years should be roughly the same as San Bernardo streamflow (275 AF and 170 AF, respectively). Although flow rates will be very low throughout the drought year, a small flow should be present in the stream year-round.

Ground water inflow from the alluvium of San Luisito valley is estimated to be 24 AF in a normal year and 13 AF in a dry year.

San Bernardo Creek valley inflow, like San Luisito Creek valley, is essentially the natural flow in the creek and within the alluvium. Leedshill-Herkenhoff Consultants estimated the safe yield for San Bernardo Creek at 1949 AF per year. In the more recent report by TMG/TES, San Bernardo Creek flow was estimated to be 1,163 AF per year in a normal year and ranging from 275 AF per year in a dry year to 3,454 AF per year in a wet year. These figures were estimated based on the flow measurements at the Upper San Bernardo Creek gage and correlations with drainage area ratios. Inflow during a drought year such as 1991 is estimated to be 170 AF (0.4 x Canet gage flow). Although flow rates will be very low throughout the drought year, a small flow should be present in the stream year-round.

Ground water inflow from the alluvium in San Bernardo Creek valley is estimated to be about 24 AF in a normal year and 13 AF in a dry year.

The percolation of precipitation is estimated to amount to 18 percent of total rainfall during normal years and 13 percent during drought years. This was assumed to be a uniform rate over the main Chorro basin area. With an average annual rainfall of 17 inches in th portion of the basin studied, the average amount of precipitation percolated would be 164 AF. During drought years, however, the annual rainfall is about 10 inches and percolation of precipitation will be 64 AF per year.

The percolation of returnflow includes domestic wastewater and irrigation deep percolation losses. The latter item is the major component, amounting to 10 percent of the applied water, for a total of about 100 AF over the main basin area. The total acreages for each type of crop are included in Table 3.

Table 3. Irrigated Crop Acreages for the Chorro Watershed Area.

CROP	1975-79[1] (acres)	1985[2] (acres)
Vegetables	42	215
Corn	173	122
Irrigated Pasture (Including alfalfa)	0	63
Irrigated Field Crops (Sudan grass)	0	126
Total	333	525

[1] Brown and Caldwell, 1981.
[2] DWR Landuse study for 1985.

Outflow

The ground water basin outflow items include pumpage, outflow to the estuary, and riparian vegetation evapotranspiration.

Pumpage from the Chorro Basin includes ground water extractions from wells for municipal use, golf course irrigation, domestic use for individual and small water systems, and agricultural uses, cattle watering and irrigation of crops (Table 4).

Table 4. Surface Water/Ground Water Extractions from the Chorro Watershed Area.

USE	1979[1] (AFY)	1992 (AFY)
Institutional	560[2]	560[2]
Urban (Morro Bay)	1067	1075
Rural Domestic	42	22
Golf Course (Morro Bay)	400	180
Agriculture	953	1033[3]
Total	3023	2870

[1] Brown and Caldwell, 1981.

[2] CMC/Cuesta/County: Estimated total water production from wells and Chorro Reservoir based on information from John L. Wallace & Associates, 1987 and DWR Chorro Reservoir Study, 1989. Excludes delivered imported water.

[3] Determined using Chorro Basin model and adding 50 AFY for Cal Poly (Includes 100 AFY additional water taken by Cal Poly from CMC wastewater treatment plant discharge).

The municipal pumpage has averaged about 1000 AF annually for the past 25 years and monthly pumpage for 1992 ranged from 60 AF to 105 AF. Municipal pumpage per year from Chorro ground water basin is shown on Figure 14. These extractions are from wells in two areas: the Romero well field near Canet Road and the Ashurst well field near Chorro Road. Therefore the difference between the Romero well field production and the total Chorro Basin production is the Ashurst well field ground water production.

The County golf course in Morro Bay irrigates with water produced from wells near the radio towers in the "Chorro Flats" area (formerly called the Domenghini Flats). Records of pumpage from these wells are incomplete but the course manager reports that pumpage has been reduced over the past few years due to irrigation system improvements. The extractions for the golf course and the State Park are about 180

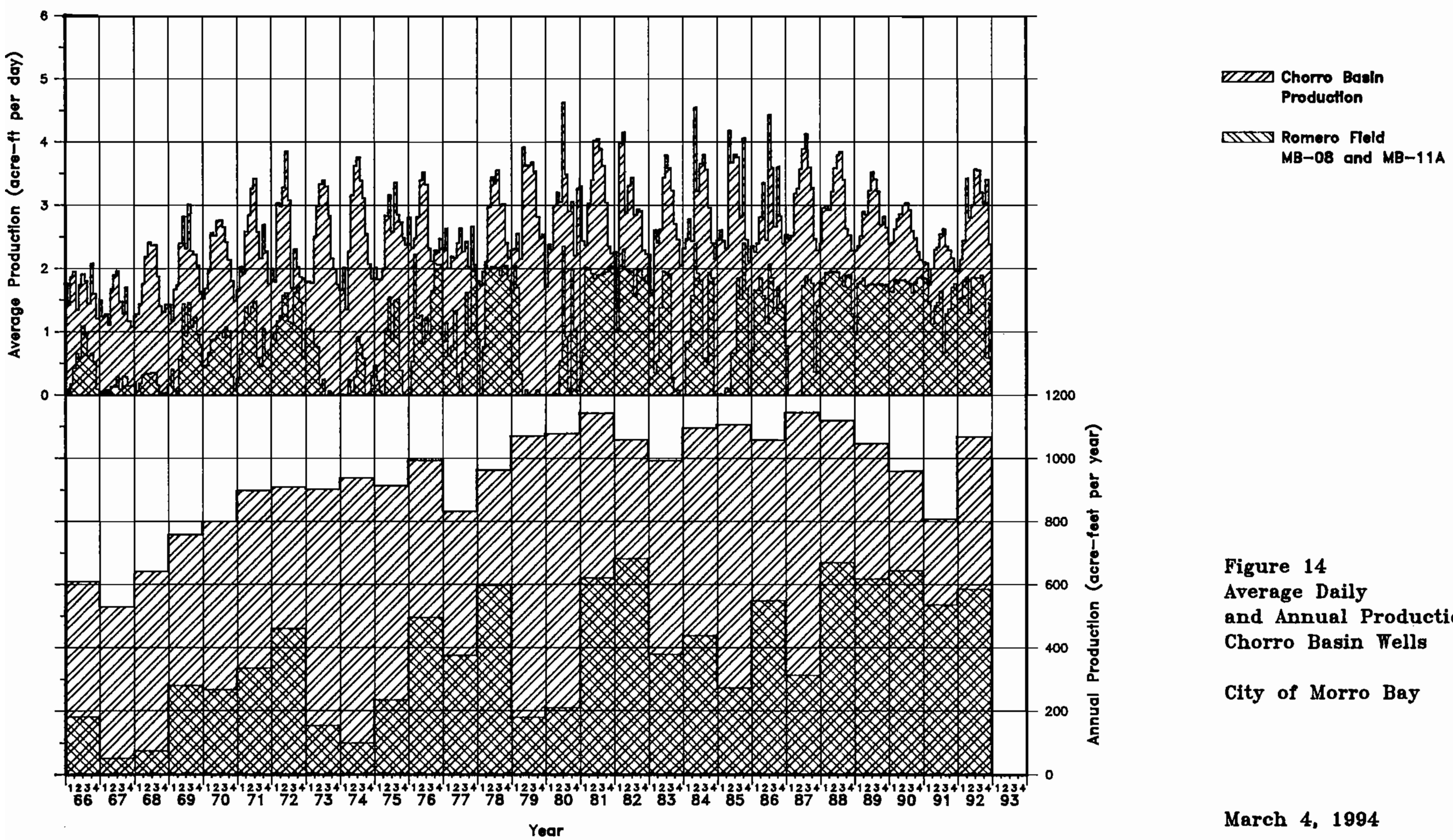


Figure 14
Average Daily
and Annual Production
Chorro Basin Wells

City of Morro Bay

March 4, 1994

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AF per year currently. Brown & Caldwell, 1981, estimated pumpage of 400 AF per year. This was affirmed by the EIR studies by Converse Consultants, 1985. The Morro Group & Tenera Environmental Services (1990) estimated the production to be 240 AF per year.

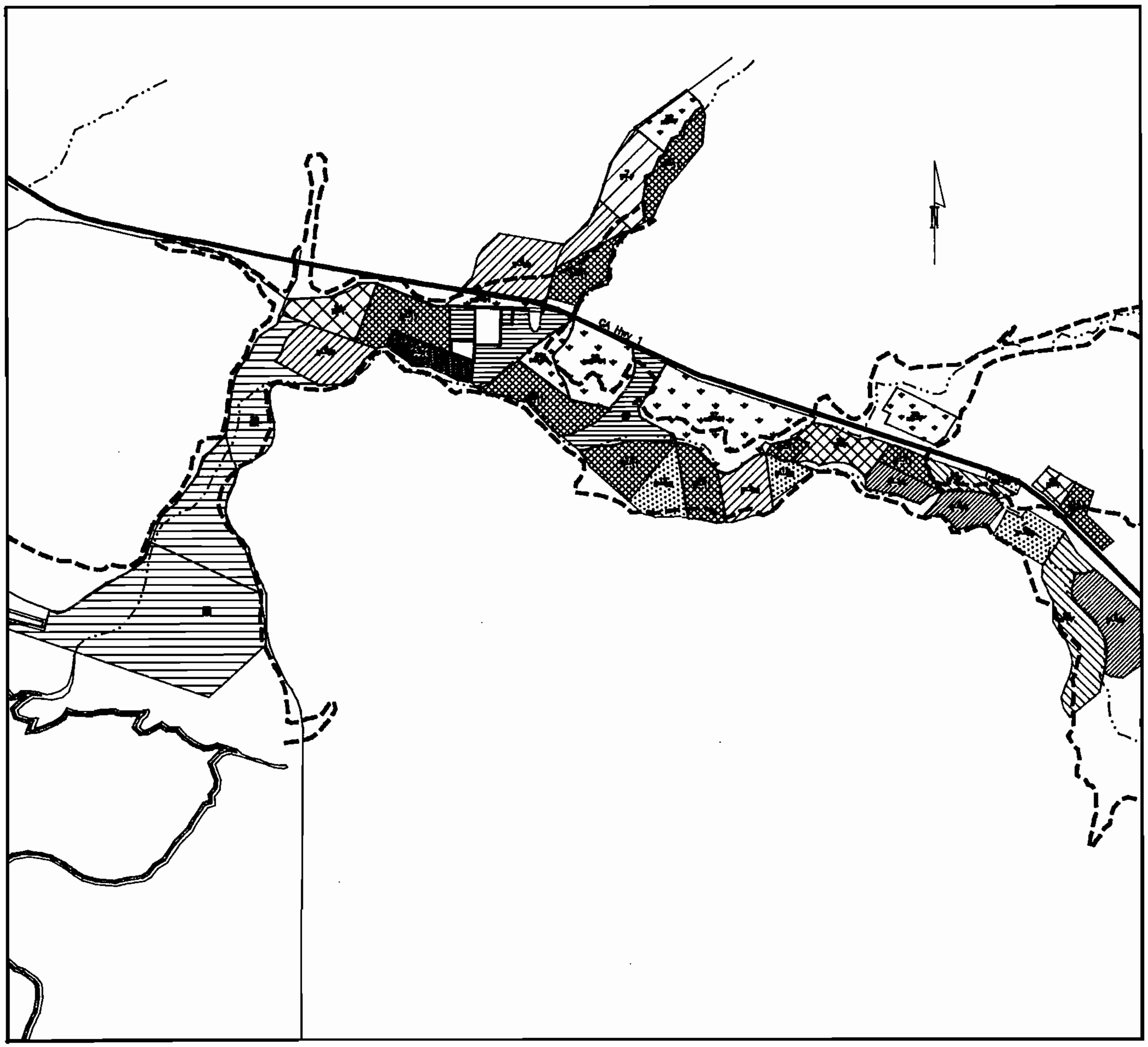
Rural domestic pumpage is estimated to amount to 22 AF per year based on average water usage per residence estimates for the City of Morro Bay.

Agricultural pumpage is mainly for irrigation, with a minor amount being produced for watering of cattle. The amount of irrigation water produced from wells or surface water diversions was estimated based upon U.C. Davis Cooperative Extension crop water use estimates, California Department of Water Resources crop water use estimates, and known irrigation water production on farms in the Chorro Valley area. Land uses for individual parcels is shown on Figure 15 and summarized in Table 5.

The total pumpage for irrigation within Chorro Valley watershed is estimated to be 1033 AF per year. The largest farmed acreages are in the Chorro Flats and the Chorro Valley Ranch and Roemer-Jones properties. The total agricultural pumpage is more than estimates made by TMG/TES in 1990 because higher applied water rates were assumed and roughly the same as the Jones & Stokes estimate prepared this year.

The irrigated acreage has increased substantially since 1979 (Table 3); the required water per acre for the crops planted has also increased as operators have switched to more intensive farming and higher water use crops. The irrigated crops in Chorro valley are seasonal and there is some land which is allowed to go fallow. TMG/TES reports that farmers have reduced the farmed acreage during drought conditions. The reduction in farmed acreage during droughts is difficult to estimate since the records of farmed land are not detailed enough. Also, changes in tenant farmers or changes in ownership of farm land result in varied cropping patterns and acreages from year to year.

For purposes of establishing long term ground water yield estimates for the Chorro Basin, it is important to have accurate ground water production figures for agriculture on a year by year basis. At this time, this data is not available on a year by year basis. This could be collected by obtaining this information from the property owners each year or by deduction, if all other hydrologic budget information is known. The other budget outflow item which could be monitored in the future, which would enable agricultural ground water production to be deduced is the surface water outflow to the estuary.



Explanation

See Table 5 for explanation of symbols and parcel areas

0 1000 2000 3000 4000 FEET

Figure 15
Land Use Map
Chorro Valley

City of Morro Bay

Water Management Plan

March 4, 1994
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Table 5. Land Use in Chorro Valley, 1985

Parcel	Crop Symbol	Crop	Acres
1	iF-06	Corn	13.3
2	iF-06	Corn	17.6
3	iF-06	Corn	44.0
4	iF-08	Sudan	22.2
5	iF-08	Sudan	55.1
6	iF-08	Sudan	32.6
7	iF-F	Field - Fallow	30.0
8	iP-01	Alfalfa	17.8
9	iP-03	Mixed Pasture	19.0
10	iP-03	Mixed Pasture	2.8
11	iP-03	Mixed Pasture	9.5
12	iP-03	Mixed Pasture	20.9
13	iT-11	Peas	11.5
14	iT-11	Peas	9.9
15	iT-11	Peas	5.1
16	iT-11	Peas	11.2
17	iT-11	Peas	26.0
18	iT-11	Peas	30.8
19	iT-11	Peas	33.7
20	iT-11	Peas	21.0
21	iT-11	Peas	21.6
22	iT-F	Truck - Fallow	23.5
23	iT-T	Truck - Tilled	7.7
24	iT-T	Truck - Tilled	25.3
25	nF-F	Field - Fallow	48.7
26	nF-F	Field - Fallow	13.3
27	nG-01	Barley	82.3
28	nG-01	Barley	41.8
29	nG-01	Barley	7.9
30	nG-F	Grain - Fallow	20.1
31	nG-F	Grain - Fallow	13.7
32	nG-F	Grain - Fallow	15.6
33	NV	Native Vegetation	33.9
34	NV	Native Vegetation	27.8
35	NV	Native Vegetation	7.2
36	UI	Urban	8.4
38	NR	Native Riparian	112.3

Outflow to the estuary from Chorro Basin includes surface water flow and subsurface flow. These have been estimated in a couple of previous reports on the basin. There are very few stream flow measurements at the Twin Bridges area. TMG/TES(1990) estimated that flow in this reach would be 19,990 AF in a wet year (1980), 5,575 AF in a normal year (1981) and 2,224 AF in a dry year (1985). Correspondingly, they estimated that the creek was dry at this location for 30 days in a wet year, 120 days in a normal year, and 126 days in a dry year. Based on our estimates of inflow and upstream outflow items during a drought year, the streamflow past Twin Bridges would be very low and days of no flow could be more than 300 days. The TMG/TES estimates are based on gross agricultural water consumption estimates and should not be used to determine actual totals for annual extractions.

Riparian vegetation evapotranspiration has been estimated using the acreage of riparian vegetation in the narrows area and the typical water consumption by riparian vegetation. There are about 80 acres of riparian vegetation and the water consumption by riparian vegetation is 2.5 feet per year, for a total of 185 AF per year.

Ground water basin yield

The California Department of Water Resources estimated that the safe yield of the Chorro Basin was 1500 AFY in Bulletin 18, and 1700 AFY in a report to the Central Coast Regional Water Quality Control Board in 1969. These same yield estimates were given to Morro Basin.

If we were to consider proportionately how much the Chorro Basin yield would be if compared to the Morro Basin yield estimate on the basis of watershed area, the yield estimate for Chorro Basin should be significantly higher. Chorro Basin has a watershed of about 44 square miles and Morro Basin watershed is about 28 square miles. Proportionately, then, the yield of Chorro Basin should be about 2350 AF per year. This approach results in a gross approximation and should not be used for a safe yield determination. It is appropriate to conclude, however, that the Chorro Basin yield should be greater than that of Morro Basin.

In addition to the natural ground water yield, there is increased ground water available in the Chorro Basin as a result of imported water and temporary sea water intrusion.

The 1969 report also recognized that sea water intrusion had occurred as far inland as 1.5 miles from the mouth of the ground water basin. Some degree of sea water intrusion has been accepted in the current yield of the basin, in that the well used by the golf course has produced more saline water during drought conditions but has continued to use the water (Festa, personal communication).

Imported water constitutes a portion of the recharge to the Chorro Basin. Given that there is about 600 acre-feet per year of imported water delivered to the basin and that 1/4 of the imported water is consumed and 1/3 of the imported water is discharged to the bay in the winter months during dry and normal years, then the remaining imported water constitutes about 240 AF of water available for recharge to the ground water basin. During drought years, the entire imported water discharged to the creek (estimated at 450 AF) would probably be recharged to the basin.

Ground water basin overdraft could be indicated by long term trends of declining water levels, as can be observed in the Morro Basin, or adverse results of low water levels such as subsidence or wells going dry. No proof of subsidence in this basin is known to exist, while it is understood that some wells experience a decline in productivity during drought conditions. Declines in productivity in some wells can be expected to occur when ground water levels decline due to conditions other than overdraft, however.

A review of the ground water level fluctuations and the historic water use in the Chorro Valley would indicate that the pumpage exceeds the "1990" drought year recharge but not "1985" dry year conditions. The ground water in storage and the movement of the fresh water/sea water interface supplied the additional water demanded during the "1990" drought year. The following year, however, the basin was fully replenished.

Based on these observations, we believe that the Chorro Basin is not in an overdraft condition at this time.

In order to reach a ground water yield value, the Chorro Creek flow should be gaged upstream of the point where the tidal lagoon waters occur, as well as at Canet Road. This would establish, by deduction, the consumptive uses within the main ground water basin area.

The basin model prepared for this study also provides a basis for determining the capacity of the ground water basin to supply water to the City of Morro Bay. Municipal pumpage variations have been evaluated for the proposed conjunctive use alternatives addressed by Boyle Engineering Corp. in a later section of this report.

GROUND WATER QUALITY

The City's wells in Chorro Basin produce water which has been of acceptable water quality for many years, while the Morro Basin wells have required treatment prior to delivery in the recent past due to the degradation of the ground water from sea water intrusion.

With the on-set of new regulations regarding surface water treatment (which reclassify shallow wells near surface water sources) and with the increasing concentrations of certain constituents in the ground water, there is a need to project how the quality of this source will vary in the future, and if and when treatment may be necessary.

The following paragraphs identify the overall quality characteristics of each ground water basin and particular constituents which are, or could be anticipated to be, in excessive amounts in the future with respect to California drinking water quality standards.

MORRO BASIN

The water quality degradation of the City wells in the Morro Basin as a result of sea water intrusion overshadows other water quality constraints to ground water development in the Morro Basin.

The City investigated placing wells upstream of the narrows in 1981 (at the Cabrillo property) and apparently found adequate well yields but also found that the nitrate concentrations were excessive, which was apparently a factor in the City's decision to not pursue water development in this area. Iron and manganese concentrations were also found to be high in two City wells which have since been abandoned in the narrows area.

The water quality issues related to the sea water intrusion include the elevated concentrations of sodium and chloride and other mobile constituents of sea water, and the overall increase in salinity. The variation of chloride and total dissolved solids with time is shown for Well #4. It appears that the water quality degradation due to the sea water intrusion has been limited to the area downstream of the narrows. The produced ground water from the City's Morro Basin wells was desalinated when the salinity of the water reached unacceptable levels. The quality of the water returns to acceptable levels when water levels return to shallower depths.

CHORRO BASIN

The Chorro Basin ground water quality is a composite of naturally occurring dissolved salts from within the watershed, naturally occurring dissolved salts imported into the watershed (imported

Whale Rock reservoir water) and anthropogenic sources of various chemical constituents. The water quality varies within Chorro Basin based on where these sources introduce dissolved salts into the ground water.
The naturally occurring dissolved salts in the ground water can best be observed in the quality of ground water/surface water flowing into the Chorro Creek valley area. This is shown by the water quality analyses for water at the Chorro reservoir and in the Dairy Creek, Pennington Creek, San Luisito Creek, and San Bernardo Creek drainages upstream of irrigated crop areas (Table 6). The quality of water from these areas is fairly stable over the long term, allowing for seasonal fluctuations.

There are some mining areas in the upper reaches of some of these drainages. It does not appear that there is significant water quality degradation occurring from the mines, which have been inactive for some time. Currently, the California Regional Water Quality Control Board (RWQCB) is studying the conditions at these mines. The sediment load in these tributary streams is also being studied by the RWQCB with respect to the mine assessments and with respect to the sedimentation in Morro Bay.

Within the Chorro Valley, there are two main land uses which contribute to the salt loading within the ground water: farming and institutional uses. In addition, there are some salt contributions from domestic wastewater returnflow and ranching operations. The intensification or diminished use of land for these purposes will result in variations in the contributions from each source of salt.

The contribution of salt from the institutional sources in Chorro Valley are permitted by the RWQCB and occur at the discharge point for the CMC wastewater treatment plant. The quality of the wastewater stream varies much more dramatically than does the native water quality due to the institutional uses and the effectivenes of the treatment process. The RWQCB requires monitoring of a few water quality parameters in the wastewater discharged from the treatment plant. Several historic analyses and one recent analysis of the treated water quality are presented in Table 7.

Farming practices which contribute salt to the ground water include excessive fertilization and agricultural chemical applications to crops which percolate to the ground water. In addition, some chemical constituents stored in the sediments above the water table may be leached into the ground water along with irrigation returnflow or percolation of precipitation. There is currently no monitoring of these chemical application rates.

Table 6. Quality of Some Surface Waters Contributing to Chorro Creek.

Parameter	Units	Dairy Creek	Pennington Creek	San Luisito Creek	San Bernardo Creek
Date Sampled		3/93[1]	3/93[1]	3/62[2]	3/64[2]
pH		8.6	8.6	7.1	8.1
EC	mmhos/cm	650	595	225	803
TDS	mg/l	483	432	200	490
Na	mg/l	19.7	13	13	28
K	mg/l	na[3]	na	3	6
Ca	mg/l	44	24	24	44
Mg	mg/l	66	78	9	75
CO_3	mg/l	22	19	0	0
HCO_3^-	mg/l	371	355	112	466
SO_4	mg/l	40	23	7	42
Cl^-	mg/l	26	28	14	42
NO_3	mg/l	1.5	2.2	2.5	3.0
B	mg/l	na	na	0.06	0.10

1 Source: RWQCB, 1969
2 Source: San Luis Obispo County, 1993
3 Data not available

The major water quality constituents in the Chorro Basin ground water have been rising as a result of the institutional, domestic, and farming practices. One of the most significant water quality concerns is the nitrate concentrations in the water produced by the City wells. As shown on Figure 16, nitrate concentrations have exceeded the drinking water standard limit in ground water produced from wells 8, 9, 10, and 16 at one time or another since 1990. We believe the nitrate is contributed to the ground water basin by the percolation of excess fertilizer applied to crops in the valley. Nitrates may also originate from the reclaimed effluent in Chorro Creek but this is not thought to be as significant as the agricultural source.

Chloride ion and total dissolved solids concentrations are good indicators along with water level measurements that sea water intrusion has occurred. Chloride levels exceeding 100 mg/l or total dissolved solids concentrations exceeding 1500 mg/l suggest that there may be some sea water intrusion. This has occurred in the well used for the County golf course several times but the water has always been of suitable quality for irrigation. Unfortunately, there is insufficient data to show the correlation of water levels to water quality in this well as could be illustrated for the Morro Basin wells.

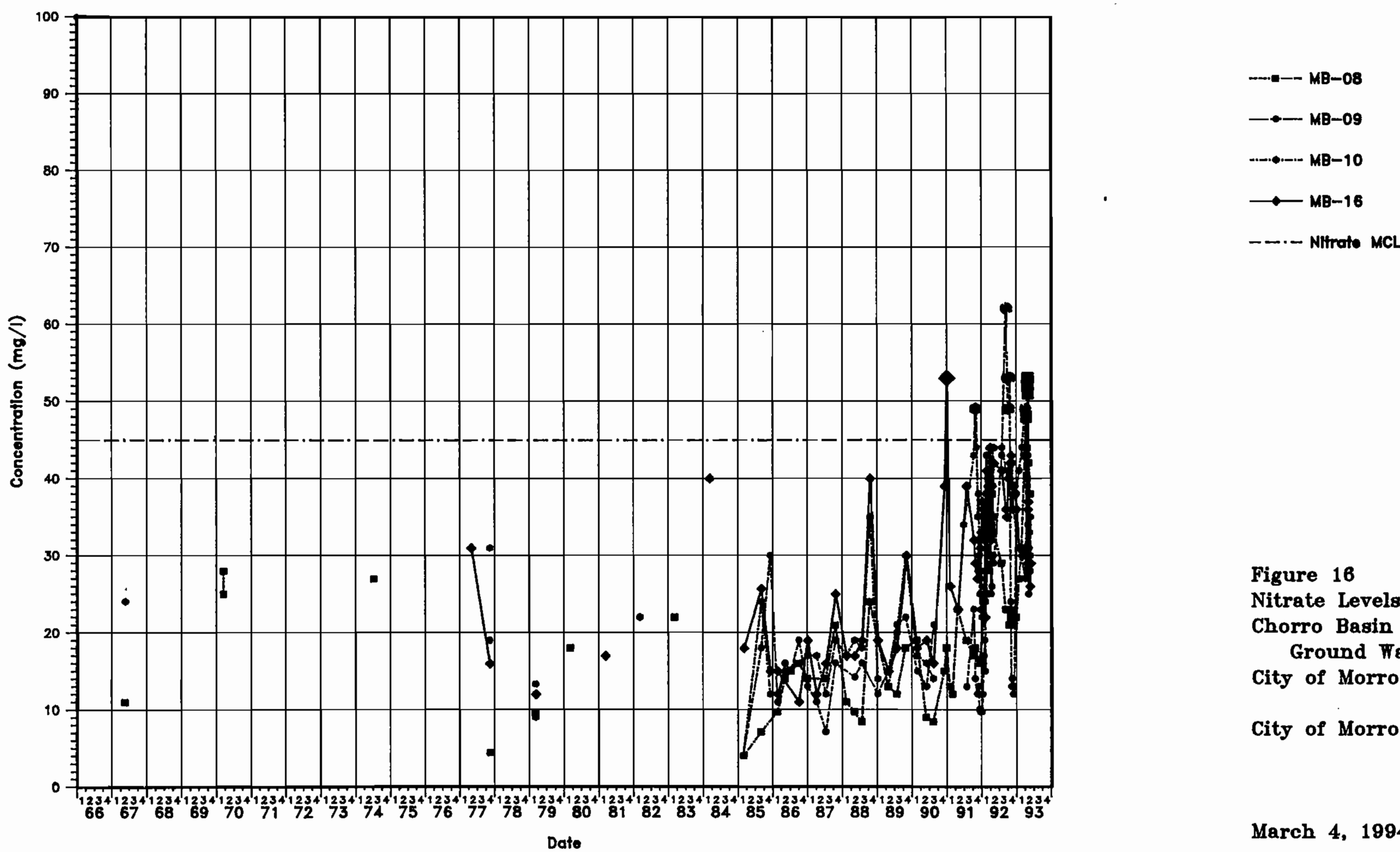
The DWR Sea Water Intrusion study in 1972 identified elevated salinity in the narrows area upstream of the Chorro Creek estuary during Spring 1970. The water levels in the area where the elevated salinity was found were lower than 10 feet below sea level. If this is typical, sea water intrusion has occurred in 1960, 1968, 1972, 1976, 1977, 1985, 1988, 1989, and 1990. The portion of the ground water basin impaired by the sea water intrusion has been within the area of the Chorro flats but the upstream limit of high salinity within this area is not known.

Table 7. Water Quality Data for Treated Water from the California Men's Colony Waste Water Treatment Plant.

Parameter	Units	Concentration				
Date Sampled		Range 1959 to 67	4/92	7/92	10/92	3/93
pH	none	7.4-8.2	7.0	7.2	7.1	7.3
EC	mmhos/cm	1162-3436[1]	na[2]	na	na	1390
TDS	mg/l	766-1997	971	956	929	973
Na	mg/l	83-540	101	102	60	142
K	mg/l	13-20	na	na	na	15
Ca	mg/l	18-136	na	na	na	39
Mg	mg/l	37-98	na	na	na	52
HCO_3	mg/l	321-571	na	na	na	na
SO_4	mg/l	29-102	97	79	37	105
Cl^-	mg/l	114-865	120	132	77	163
NO_3	mg/l	0-96.8	44	74.8	35.2	70.4
P	mg/l	0.7-9.5	7	8	8	6.5
B	mg/l	0.08-0.6	0.3	nd[3]	0.26	0.2

1 EC of 3436 and TDS of 1997 was from 5/6/67.
2 Data not available.
3 Not detected in 7/92 but Boron measured 1.6 mg/l in 7/91.

Sources: Marks, 1993; RWQCB, 1969; San Luis Obispo County, 1992



Levels exceeding MCL plotted with extra large symbol
Levels listed as less than detection limit are plotted
with smaller symbol at the listed detection limit

Figure 16
Nitrate Levels
Chorro Basin
Ground Water Data
City of Morro Bay Wells

City of Morro Bay

March 4, 1994

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GROUND WATER MODELS OF MORRO AND CHORRO BASINS

As part of our investigation, Cleath and Associates developed a finite-difference model of the Chorro Basin flow regime, and extended the model we developed during a prior study for the Morro Basin. These models were developed to assess whether the ground water production management scenarios specified by Boyle Engineering Corp. would result in adverse impacts on the two basins. The scenarios being modeled, along with the pumpage, are described elsewhere in this report.

DEVELOPMENT OF THE MODELS

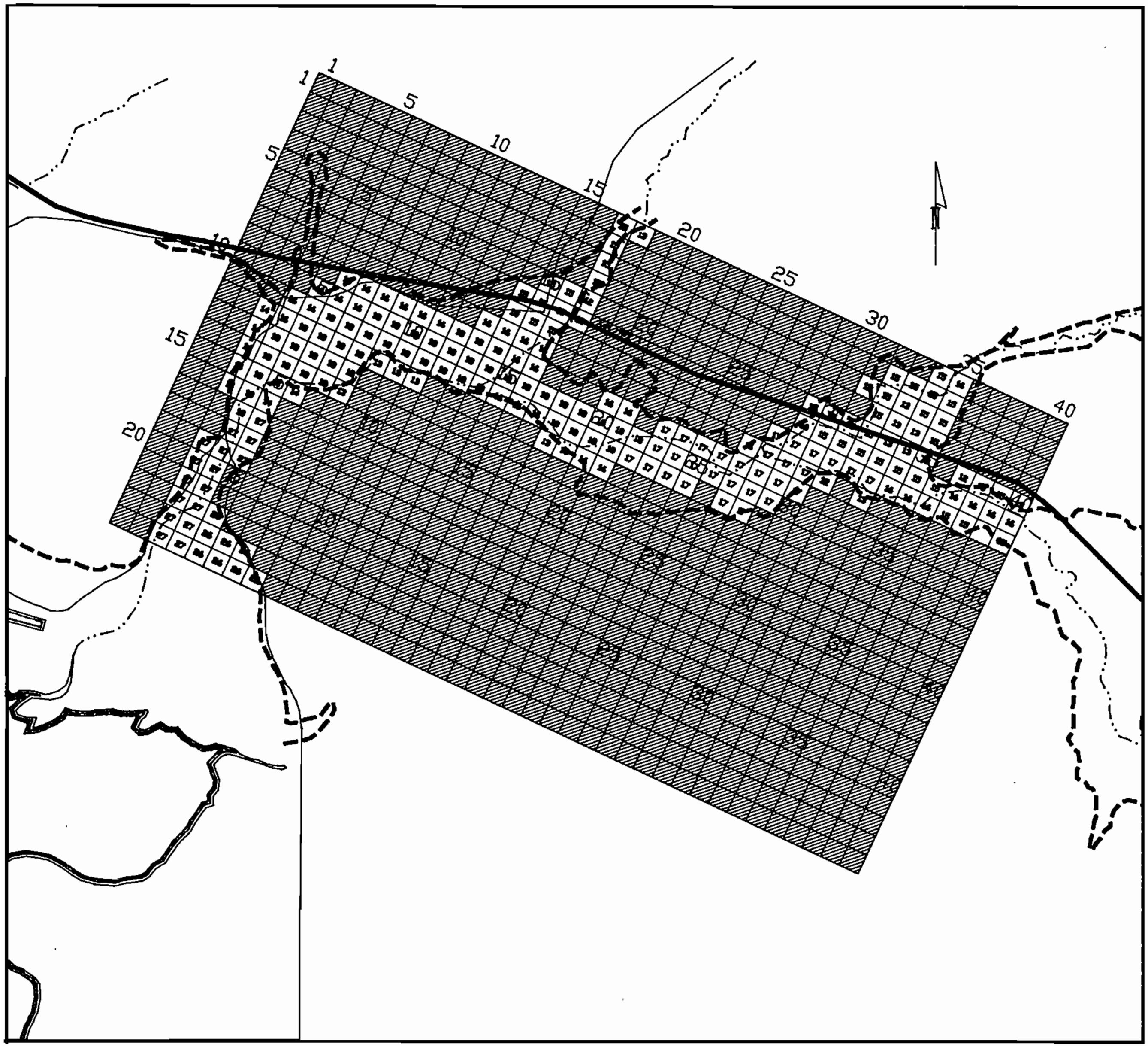
In finite-difference ground water modelling, water flowing into and out of each of the cells in a grid is represented by a partial differential equation. This equation includes terms for inflows such as recharge from rainfall, irrigation return flow, creek surface flow, underflow, and sea water intrusion, as well as for outflows, primarily well extraction. Differences between inflow and outflow result in changes in the quantities of water in storage.

The following sections describe the data compiled and the software utilized in developing the model of the Chorro Basin Ground Water System. Development of the Morro Basin model was described in a prior report; only the changes needed to extend the model for assessing the impacts of the management scenarios identified by Boyle Engineering Corp. will be described herein.

Data Development - Chorro Valley Model

The Chorro Basin area modeled extends from the uppermost portion of the Morro Bay tidal flats at the mouth of Chorro Creek to a point approximately 1 mile upstream from the confluence of Chorro and San Luisito Creeks, and includes the lowermost portions of the San Bernardo and San Luisito alluvial valleys (see Figure 17, Chorro Valley Ground Water Model Map). This area was subdivided into a grid composed of 24 rows by 40 columns; each cell comprises a 400x400 foot square. Only the areas included within the permeable portions of the alluvial fill of the valleys are included in the active model area, comprising about 727 acres within the boundaries of the permeable alluvium. The hatched pattern in Figure 17 indicates inactive cells.

The model was developed to simulate the responses of the basin to three ground water production scenarios during a sequence of ten years of "normal" rainfall, followed by a six year drought cycle. For the purposes of the model, one set of water inflow and aquifer parameters was developed, and used for all of the different scenarios; the only



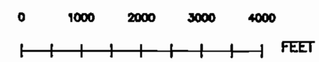


Figure 17
Chorro Valley
Ground Water Model
Permeability

City of Morro Bay

Water Management Plan

March 4, 1994
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differences between the model scenarios were those related to pumping by the City.

Data used as inputs for the model were compiled from a variety of sources. In some cases, such as for water levels and pumpage by the City, data were readily available in our database compiled during this and prior investigations. Data on agricultural pumpage throughout most of the Chorro Basin is not available; most of the irrigation wells are not metered. Creek flow at the Canet Road crossing is measured by a gage maintained by the County of San Luis Obispo Engineer's office; this data was supplemented by observations of the creek over the past several years.

The City-owned wells in the Chorro Valley are metered, with records available for pumpage for the basin and individual wells from 1966 to the present. The model was calibrated using actual production data for the years 1983 and 1984 as representative pumping rates for years of normal rainfall, and data for the years 1985 and 1987 as representative for drought year production.

Initial estimates of irrigation pumpage were derived from land use information (see Figure 15 and Table 5). Acreages planted in individual crops were noted, and applied irrigation data for each crop for Coastal Valleys in this region of California were employed to estimate the total annual quantity of water needed. Monthly irrigation demands were derived from this information by scaling the total annual water need by the monthly distribution of outdoor water use in the City of Morro Bay (The Morro Group, 1990). Based on the information contained in the 1985 DWR land use study, about 10% of the agricultural land appears to be fallow at any given time; for this reason, we adjusted the estimated irrigation demand downward by 10%. During calibration, extractions for irrigation were adjusted slightly in order to achieve closer fits to water levels measured during the years used.

Extractions of water for domestic use by residents of the Basin were considered to be small when compared to the overall agricultural pumpage; these amounted to an average annual production 100 cubic feet per day (cfd) for scattered cells in the model.

Initial estimates of the parameters affecting the flow of ground water, permeability and storage coefficient, were made on the basis of well logs from the area and reports of production capability. These estimates were adjusted during model calibration runs in order to fit measured water level hydrographs. Similar values of permeability and storage coefficient were grouped into zones; zone numbers for the cells are depicted in Figure 17, and their corresponding values are presented in Table 8.

Table 8. Permeability and storativity values for zones in Chorro Valley

	Permeability (ft/day)	Storage (dimensionless)
1	0.001	0.0000
2	0.005	0.0000
3	0.01	0.0000
4	0.02	0.0000
5	0.1	0.0000
6	0.1	0.0000
7	0.2	0.0000
8	0.5	0.0000
9	1	0.04
10	2	0.05
11	5	0.04
12	10	0.06
13	20	0.06
14	35	0.08
15	50	0.1
16	65	0.1
17	80	0.15
18	60	0.08
26	20	0.06
27	35	0.08

General recharge, or recharge applied to an area, results primarily from incident rainfall and return of excess irrigation. We simulated this by assuming that percolation of precipitation for the portion of the basin simulated amounted to approximately 18% of the average annual rainfall of 18 inches during normal years, and 13% of 10 inches of rainfall for the drought years. It was assumed that most of percolation of precipitation occurred during the winter season. Irrigation returns for each season were estimated by taking 10% of the monthly distribution of applied water, and adding this to the estimate of percolation of precipitation.

Inflow of water from upstream reaches of Chorro, San Bernardo, and San Luisito Creeks were calculated by the model based on the permeablities entered and the elevations of the surface and ground water in the boundary cells. The model results indicate that approximately 1600 cfd or 97 afy flow into the basin via the underflow of the three creeks. Inflow into the basin from Morro Bay was calculated by the model in a similar fashion.

The model was calibrated using the data and estimated parameters as detailed above to simulate the conditions prevailing during the years 1983, 1984, 1985, and 1987; City pumpage in the basin during 1986 was lower than normal, resulting in nearly normal water levels despite being part of the recent drought. Ground water flow parameters (permeability and storativity) and recharge parameters were adjusted until there was a close fit between the historic water levels and those predicted by the simulation (see Figure 12, Chorro Valley Water Level Hydrographs, and Figure 19, Simulated Water Levels, Calibration Runs, Chorro Valley Wells). Because much of the data utilized for the development of the model were estimated, the accuracy of this model should not be considered to be any greater than the accuracy of the many estimates and assumptions.

It was found that the model was extremely sensitive to flow in the creeks; model cells in the vicinity of creek beds would recharge almost fully any time there was flow. Dry vs. wet reaches of creek beds were simulated as closely as possible in order to match historic water levels while calibrating the model. The extreme drawdowns noted in the historic records during drought cycles could be achieved in the simulations only when the creek bed in nearby cells was dry, especially in Morro Bay's Well 8 (MB-08). Almost no drawdown occurred in the simulations when the creek in nearby cells was wet. This indicates that this well is recharged by Chorro Creek.

For setting up the model to test future water management scenarios, we originally assumed that Well MB-08 would no longer be used for production. For the purposes of the simulations, production at MB-08 was re-allocated to the wells in the Ashurst Ranch area (wells MB-09, MB-09A, MB-10, and MB-16). This reallocation of pumping from MB-08 to the other wells made it necessary to re-estimate levels in Chorro

Creek, since MB-08 would no longer be drying the creek bed during drought conditions. However, initial model runs showed that concentration of all of the Chorro Valley production in the Ashurst Ranch area (wells MB-09, MB-10, MB-16) resulted in the cells containing those wells going dry in the first summer of the simulated drought. For this reason, we concluded that one or more wells in the vicinity of MB-08 will be necessary to meet the ground water production levels specified by Boyle Engineering Corp. in their test scenarios. The historic pumpage at MB-08 was used to simulate production in the Romero Ranch well filed vicinity.

Data Development - Morro Valley Model

The model of the Morro Valley developed for the sea water well field impact study (1993) was extended to allow simulation of a multi-year sequence of normal and dry years. This entailed refinements to the earlier estimates of permeability and storage (see Figure 18), estimation of wet season pumpage for the irrigation and domestic wells, and development of seasonal streamflow parameters for Morro and Little Morro Creeks. The model was recalibrated using actual municipal pumping data for the years 1983, 1984, 1985, and 1987, as in the newly developed Chorro Valley model, with parameters being adjusted until simulated water levels matched historic levels as closely as possible (see Figure 9, Morro Basin Historic Water Levels and Figure 20, Simulated Water Levels, Calibration Runs, Morro Basin Wells).

The calibration runs indicated that during drought periods, pumpage at the City's wells resulted in little or no flow in Morro Creek below the Highway 1 bridge, even during the rainy season. This is confirmed by stream gage data provided by the County Engineer's office for the Morro Creek gage at the bridge.

Software Used

The modelling software used for this effort was the **ModFlow** (MODular FLOW) package developed by the United States Geological Survey. This software is documented in *A Modular Three-Dimensional Finite-Difference Ground Water Flow Model* (Techniques of Water Resources Investigations Book 6 Chapter A1). This is a standard ground water modelling program used widely throughout the United States, both in the public and private sectors.

Initial inputs for ModFlow were prepared with the aid of a graphical pre-processor tool, **ModelCAD-386**, published by Geraghty & Miller, Inc. This tool allowed for a more-rapid initial compilation and formatting of the data than would have been possible using only a text editor. This tool proved to be invaluable during the calibration phase of fine-tuning of the model data when permeability and storage parameters

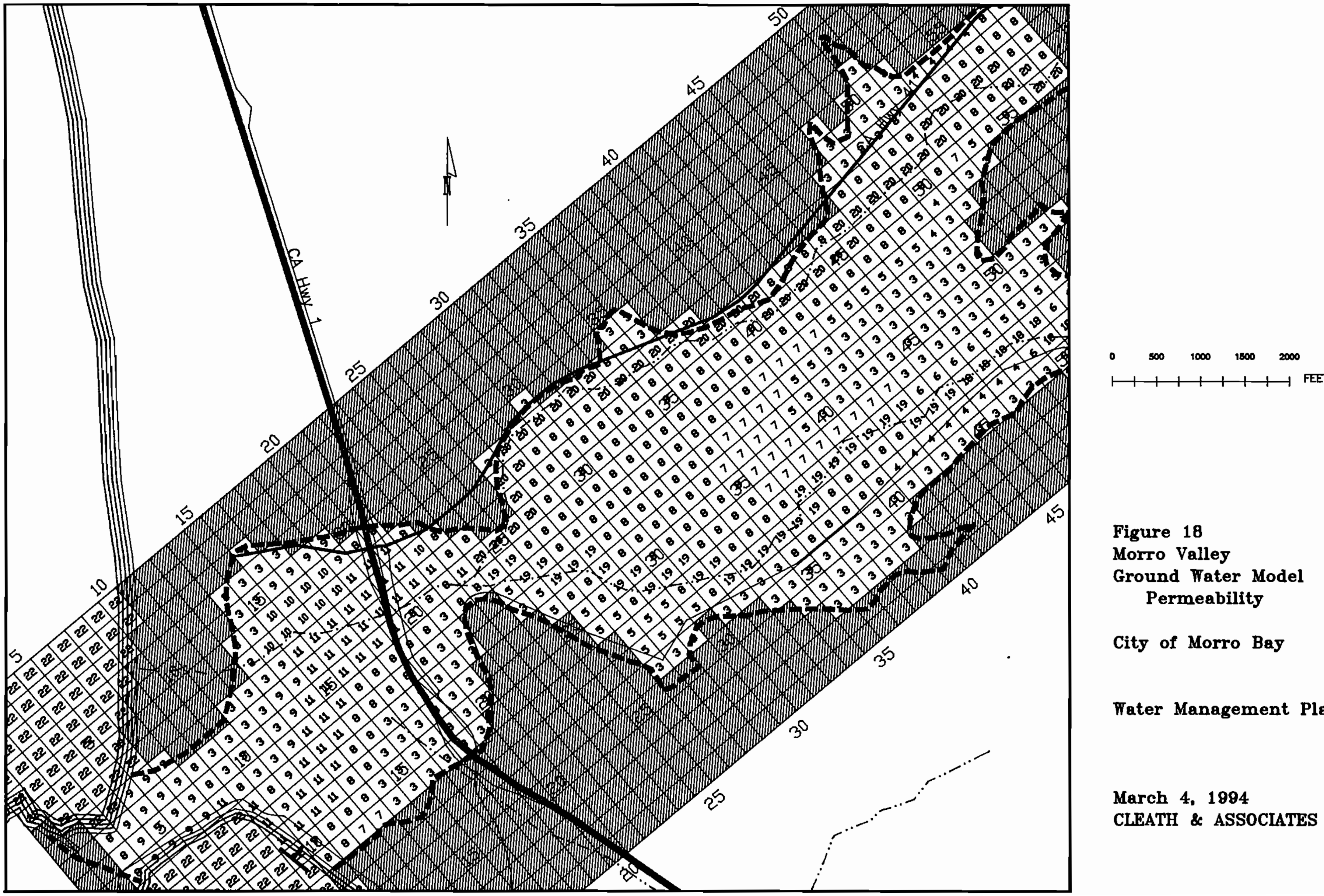

Figure 18
Morro Valley
Ground Water Model
Permeability

City of Morro Bay

Water Management Plan

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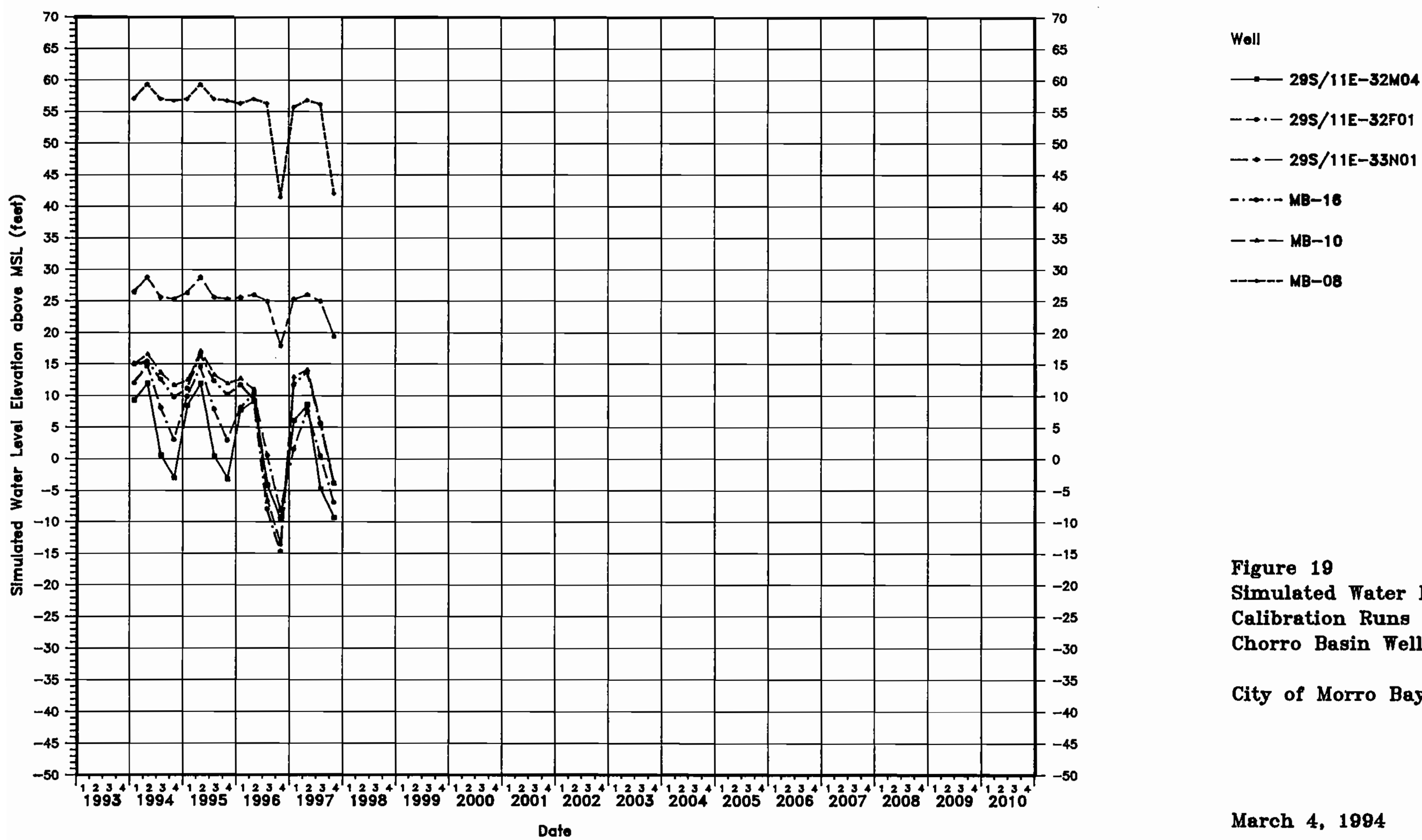

Calibration using actual city pumpage
for years 1983, 1984, 1985, and 1987

Figure 19
Simulated Water Levels
Calibration Runs
Chorro Basin Wells

City of Morro Bay

March 4, 1994

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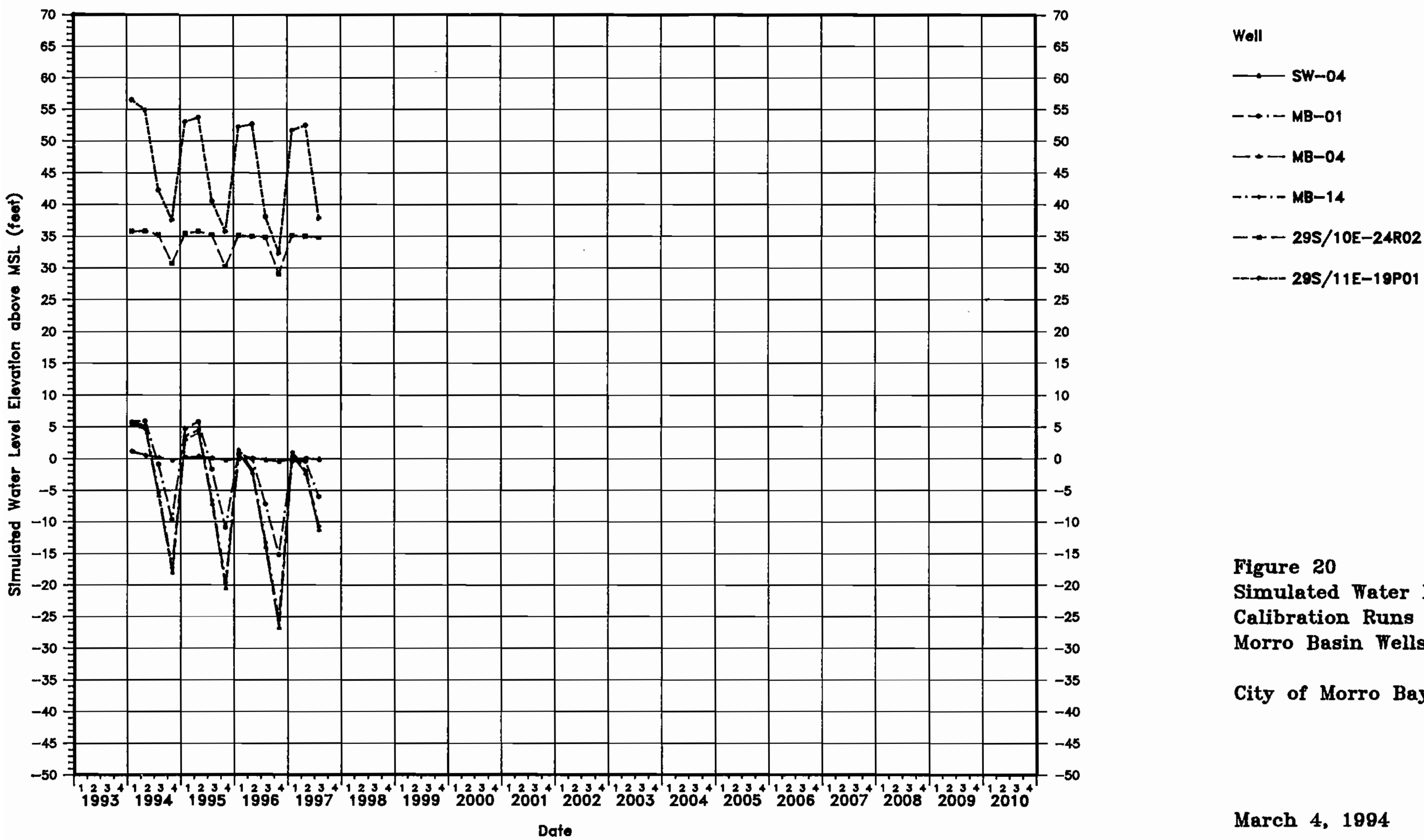

Calibration using actual city pumpage
for years 1983, 1984, 1985, and 1987

Figure 20
Simulated Water Levels
Calibration Runs
Morro Basin Wells

City of Morro Bay

March 4, 1994

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for individual cells were being adjusted in order to match known water level measurements. Additional proprietary software was developed and used to generate the stream flow, general head boundary, and pumpage data for input into **ModFlow**, and to produce the presentation graphics used in this report.

MANAGEMENT SCENARIOS BEING SIMULATED

There were three main ground water management scenarios that were simulated with the Chorro and Morro models, which are described in the Analysis and Recommendations for a Water Management Plan, Chapter 12, and summarized in Table 9. In order to run the simulations in the two models, the total ground water production specified in the Boyle Engineering Corp. scenarios needed to be allocated between the two basins. The total City pumpage, and pumpage allocated to each of the basins, is summarized for each scenario in Table 10.

Table 9. Water production under the specified scenarios

Scenario	Description	Condition	Ground Water Production (AFY)	Sea Water Production (AFY)
Alt 1B	Desalination supplemented by ground water	Normal	1201	2256
		Drought	942	2592
Alt 2A	State Water Project supplememted by ground water, with desalination during drought	Normal	1344	0
		Drought	844	1296
		Critical Drought	1172	1296
Alt 3A	Lake Nacimiento Project supplemented by ground water	Normal	1128	0
		Drought	860	0

Historically, the City's production has been split consistently with about 66% of the total pumpage in the Chorro Basin, and 34% in the Morro Basin. These allocations were initially used for simulations where the desalination intake wells were not in operation. We found, however, that this resulted in excessive drawdowns in the City's Morro Basin wells, so that water levels were consistently below sea level. For this reason, we reallocated production so that in Scenarios 2A and

3A the Chorro Basin contributed 75% of production, and the Morro Basin supplied 25%.

During prior modeling studies for the Morro Basin we found that excessive drawdowns in both the desalination and potable wells resulted when both systems were operated at or near their current capacities when there was no interference. Under the management scenario specified in Alternate 1B, production from the sea water wells would be doubled from the capacity now available from the five main wells. For this reason, the fraction of total potable water production from the Morro Basin was placed at 17% for the Alternate 1B simulations.

Table 10. Municipal pumping in Alternate 1B Scenario - Desalination supplemented by ground water

Condition: Normal

Season	Month	Total Pumpage	Chorro Pumpage @83.0%	Morro Pumpage @17.0%	Sea Water Pumpage
		ac-ft	ac-ft	ac-ft	ac-ft
Wet1	Nov	90	74.7	15.3	188.0
	Dec	81	67.2	13.8	188.0
	Jan	42	34.9	7.1	188.0
Wet2	Feb	42	34.9	7.1	188.0
	Mar	52	43.2	8.8	188.0
	Apr	90	74.7	15.3	188.0
Dry1	May	100	83.0	17.0	188.0
	Jun	139	115.4	23.6	188.0
	Jul	158	131.1	26.9	188.0
Dry2	Aug	162	134.5	27.5	188.0
	Sep	139	115.4	23.6	188.0
	Oct	106	88.0	18.0	188.0
Total		1201	997.0	204.0	2256.0

Condition: Drought

Season	Month	Total Pumpage	Chorro Pumpage @83.0%	Morro Pumpage @17.0%	Sea Water Pumpage
		ac-ft	ac-ft	ac-ft	ac-ft
Wet1	Nov	68	56.6	11.6	216.0
	Dec	58	48.4	9.9	216.0
	Jan	20	16.4	3.4	216.0
Wet2	Feb	20	16.4	3.4	216.0
	Mar	30	24.7	5.0	216.0
	Apr	68	56.6	11.6	216.0
Dry1	May	78	64.8	13.3	216.0
	Jun	118	97.7	20.0	216.0
	Jul	138	114.1	23.4	216.0
Dry2	Aug	142	117.8	24.1	216.0
	Sep	118	97.7	20.0	216.0
	Oct	85	70.3	14.4	216.0
Total		942	781.5	160.1	2592.0

Table 10. (Continued) Municipal pumping in Alternate 2A Scenario - State Water Project supplemented by ground water, with desalination during drought

Condition: Normal

Season	Month	Total Pumpage ac-ft	Chorro Pumpage @75.0% ac-ft	Morro Pumpage @25.0% ac-ft	Sea Water Pumpage ac-ft
Wet1	Nov	102	76.5	25.5	0.0
	Dec	93	69.8	23.3	0.0
	Jan	54	40.5	13.5	0.0
Wet2	Feb	54	40.5	13.5	0.0
	Mar	63	47.3	15.8	0.0
	Apr	102	76.5	25.5	0.0
Dry1	May	112	84.0	28.0	0.0
	Jun	151	113.3	37.8	0.0
	Jul	170	127.5	42.5	0.0
Dry2	Aug	174	130.5	43.5	0.0
	Sep	151	113.3	37.8	0.0
	Oct	118	88.5	29.5	0.0
Total		1344	1008.2	336.2	0.0

Condition: Drought

Season	Month	Total Pumpage ac-ft	Chorro Pumpage @75.0% ac-ft	Morro Pumpage @25.0% ac-ft	Sea Water Pumpage ac-ft
Wet1	Nov	61	45.8	15.3	108.0
	Dec	52	39.0	13.0	108.0
	Jan	17	12.8	4.3	108.0
Wet2	Feb	17	12.8	4.3	108.0
	Mar	26	19.5	6.5	108.0
	Apr	61	45.8	15.3	108.0
Dry1	May	70	52.5	17.5	108.0
	Jun	106	79.5	26.5	108.0
	Jul	124	93.0	31.0	108.0
Dry2	Aug	128	96.0	32.0	108.0
	Sep	106	79.5	26.5	108.0
	Oct	76	57.0	19.0	108.0
Total		844	633.2	211.2	1296.0

Table 10. (Continued) Municipal pumping in Alternate 2A Scenario - State Water Project supplemented by ground water, with desalination during drought

Condition: Worst

Season	Month	Total Pumpage ac-ft	Chorro Pumpage @75.0% ac-ft	Morro Pumpage @25.0% ac-ft	Sea Water Pumpage ac-ft
Wet1	Nov	89	66.8	22.3	108.0
	Dec	80	60.0	20.0	108.0
	Jan	44	33.0	11.0	108.0
Wet2	Feb	44	33.0	11.0	108.0
	Mar	53	39.8	13.3	108.0
	Apr	89	66.8	22.3	108.0
Dry1	May	98	73.5	24.5	108.0
	Jun	133	99.8	33.3	108.0
	Jul	151	113.3	37.8	108.0
Dry2	Aug	155	116.3	38.8	108.0
	Sep	133	99.8	33.3	108.0
	Oct	103	77.3	25.8	108.0
Total		1172	879.4	293.4	1296.0

Table 10. (Continued) Municipal pumping in Alternate 3A Scenario - Lake Nacimiento Project supplemented by ground water

Condition: Normal

Season	Month	Total Pumpage ac-ft	Chorro Pumpage @75.0% ac-ft	Morro Pumpage @25.0% ac-ft	Sea Water Pumpage ac-ft
Wet1	Nov	84	63.0	21.0	0.0
	Dec	75	56.3	18.8	0.0
	Jan	36	27.0	9.0	0.0
Wet2	Feb	36	27.0	9.0	0.0
	Mar	45	33.8	11.3	0.0
	Apr	84	63.0	21.0	0.0
Dry1	May	94	70.5	23.5	0.0
	Jun	133	99.8	33.3	0.0
	Jul	152	114.0	38.0	0.0
Dry2	Aug	156	117.0	39.0	0.0
	Sep	133	99.8	33.3	0.0
	Oct	100	75.0	25.0	0.0
Total		1128	846.2	282.2	0.0

Condition: Drought

Season	Month	Total Pumpage ac-ft	Chorro Pumpage @75.0% ac-ft	Morro Pumpage @25.0% ac-ft	Sea Water Pumpage ac-ft
Wet1	Nov	64	47.7	15.9	0.0
	Dec	56	41.6	13.9	0.0
	Jan	23	17.0	5.7	0.0
Wet2	Feb	23	17.0	5.7	0.0
	Mar	31	23.2	7.7	0.0
	Apr	64	47.7	15.9	0.0
Dry1	May	72	53.9	18.0	0.0
	Jun	105	78.4	26.1	0.0
	Jul	120	90.0	30.0	0.0
Dry2	Aug	124	92.7	30.9	0.0
	Sep	105	78.4	26.1	0.0
	Oct	76	57.3	19.1	0.0
Total		860	644.9	215.0	0.0

MODEL RESULTS

Each of the model scenarios was run, and the simulated water levels for a number of wells were output for use in constructing hydrographs (see Figures 21 through 26, and summarized in Table 11). These hydrographs indicate that each of the management scenarios would result in some problems for the ground water basins.

Table 11. Summary of Ground Water Model Results

Scenario	Normal Condition			Drought Condition		
Alternate	Ground Water Production	Chorro Basin Lowest Water Level Elev	Morro Basin Lowest Water Level Elev	Ground Water Production	Chorro Basin Lowest Water Level Elev	Morro Basin Lowest Water Level Elev
	(afy)	(ft above MSL)	(ft above MSL)	(afy)	(ft above MSL)	(ft above MSL)
1B	1200	-3	-3	942	-9	-5
2A	1344	-3	-7	1172	-9	-9.5
3A	1128	-3	-5	860	-8	-3

One interesting result, that occurred in all of the scenarios tested, and which is confirmed by the historic data, is that the basins are almost completely recharged, even during drought conditions, if there is any flow in the creeks, even if that flow is minimal. The only times shown in the historic data when the basins did not recharge were the year when there was no flow, 1990. Such a condition was not modeled other than during the initial calibration phase; it was found that many of the cells in the model containing wells that were major producers went dry almost immediately when there was no flow in the creek during at least some part of the rainy season.

Alternate 1B - Desalination

The management scenario in which only the desalination system was operated, supplemented by ground water from the Morro and Chorro Valleys, resulted in the least problems due to sea water intrusion in both basins. While a pumping trough would exist at the sea water intake wells along the Embarcadero, this would act as a barrier to further intrusion into the Morro Basin; in fact, the seaward gradient would help the fresh water from up-valley to flush out the brackish water already present in the zone from the Embarcadero to Highway 1. In the Chorro Basin, the water levels in the City wells would remain above sea level at all times. Levels in the wells in the Chorro Flats area would be at -6 feet during normal conditions, and dip to -12 feet during the dry seasons of a drought. These latter conditions have occurred throughout the historical record in the wells in this area and are predicted by all of the scenarios simulated. In addition, the model supports the prediction that the irrigation well in the San Bernardo Creek drainage above Highway 1 (well 29S/11E-33C01) is likely to go dry during droughts.

The main problem identified for this management scenario is that the production rate specified for the sea water intake wells is too high for the existing well system to maintain. The high production rate results in water levels in these wells low enough to cause problems with cascading water in the well casings; this causes entrained air that would degrade the operation of the reverse osmosis system. However, addition of new intake wells, possibly closer to the bay, would spread the production over wider areas, and result in lower drawdowns at individual wells.

A second problem could result if all of the wells in the sea water intake system were to be shut down at once. In such a case, it is likely that the area between the beach wells and Highway 1 could be subject to the reintroduction of sea water. The beach wells should be turned off one by one to allow the pumping depression to be refilled by fresh water flowing in from upstream, rather than by sea water from the bay.

Alternate 2A - State Water Project

In the ground water management scenario specified in Alternate 2A, water from the State Water Project would be the primary supply, supplemented by 1,015 AFY of local well water during normal years, and during droughts, 844 to 1173 AFY of local ground water with additional supplements from the desalination system of 645 AFY. Morro Basin would continue to be subject to sea water intrusion, even during normal conditions. Water levels in the City wells in Keiser Park would dip to about -14 feet. During drought conditions, the reduced pumpage in the City wells resulting from conservation measures and

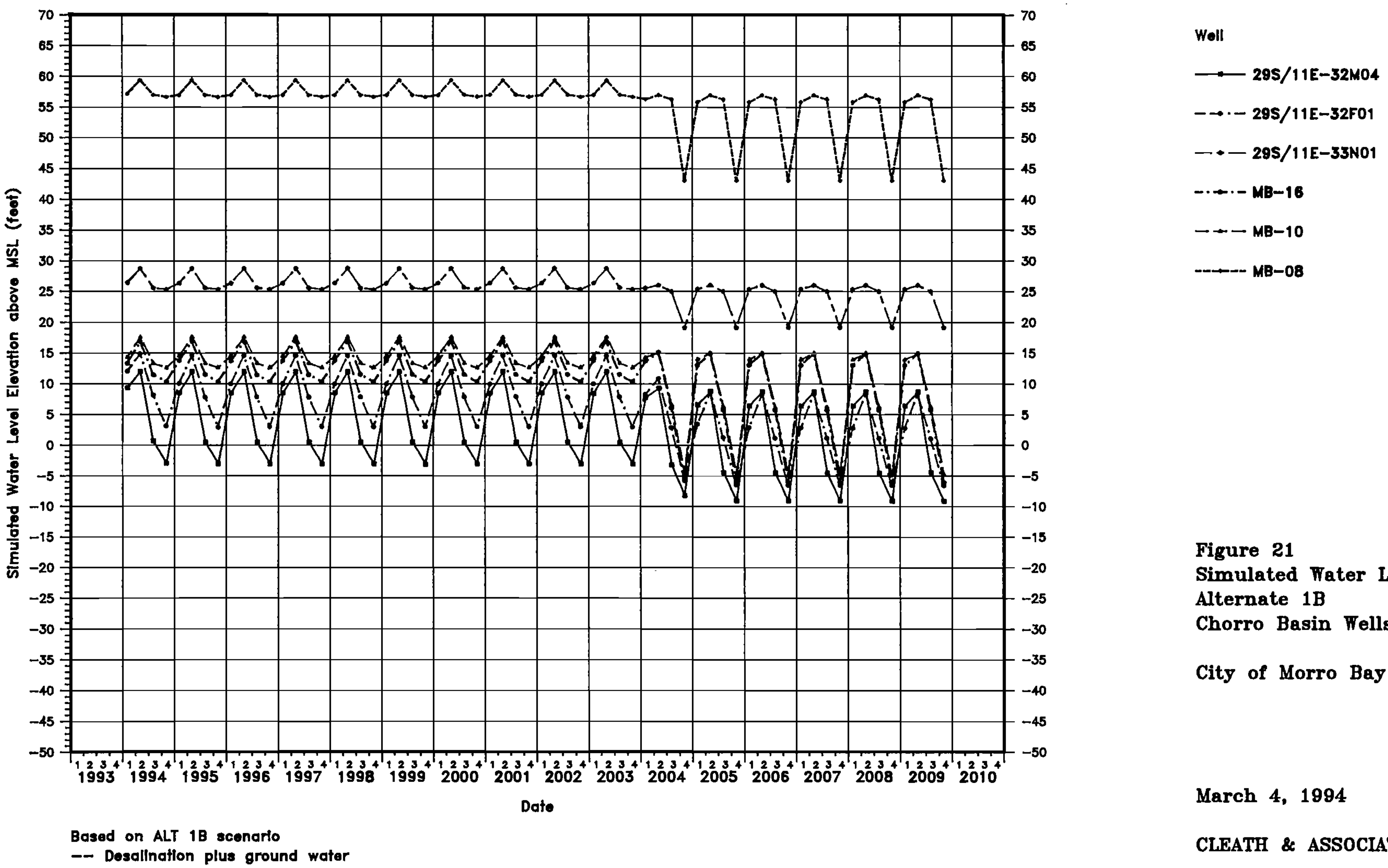

Figure 21
Simulated Water Levels
Alternate 1B
Chorro Basin Wells

City of Morro Bay

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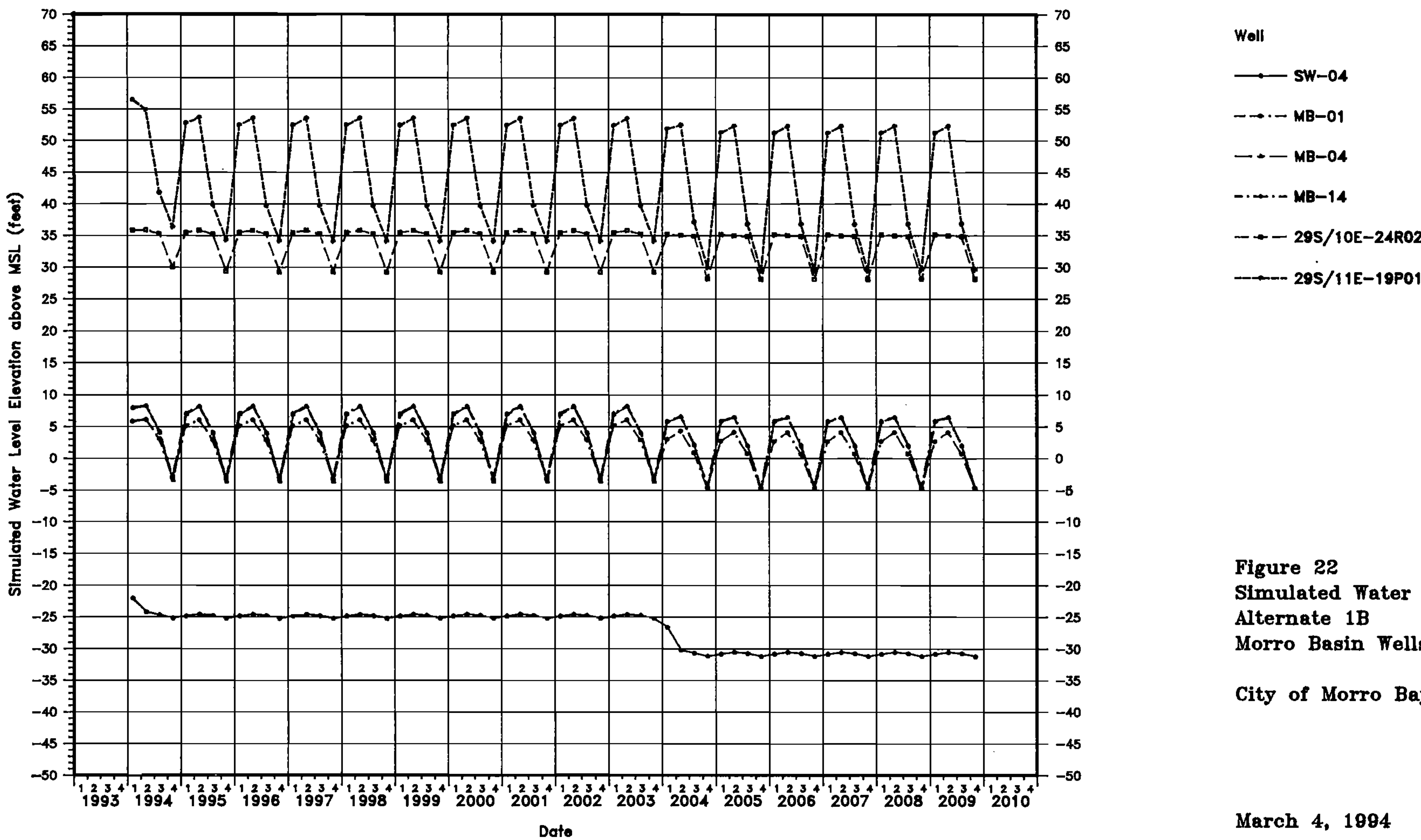

Based on ALT 1B scenario
--- Desalination plus ground water

Figure 22
Simulated Water Levels
Alternate 1B
Morro Basin Wells

City of Morro Bay

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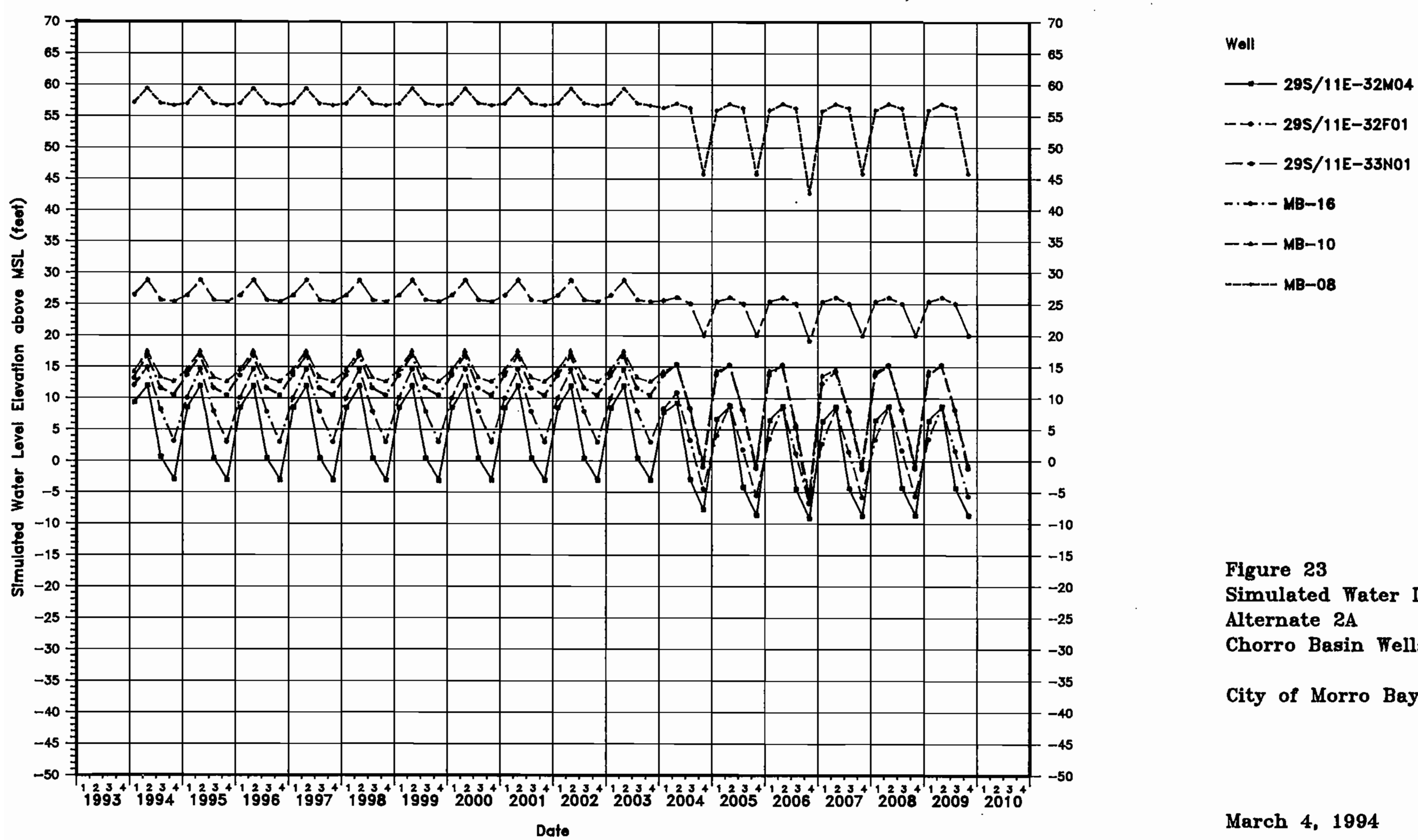

Based on ALT 2A scenario
— State Water Project
supplemented by wells during drought

Figure 23
Simulated Water Levels
Alternate 2A
Chorro Basin Wells

City of Morro Bay

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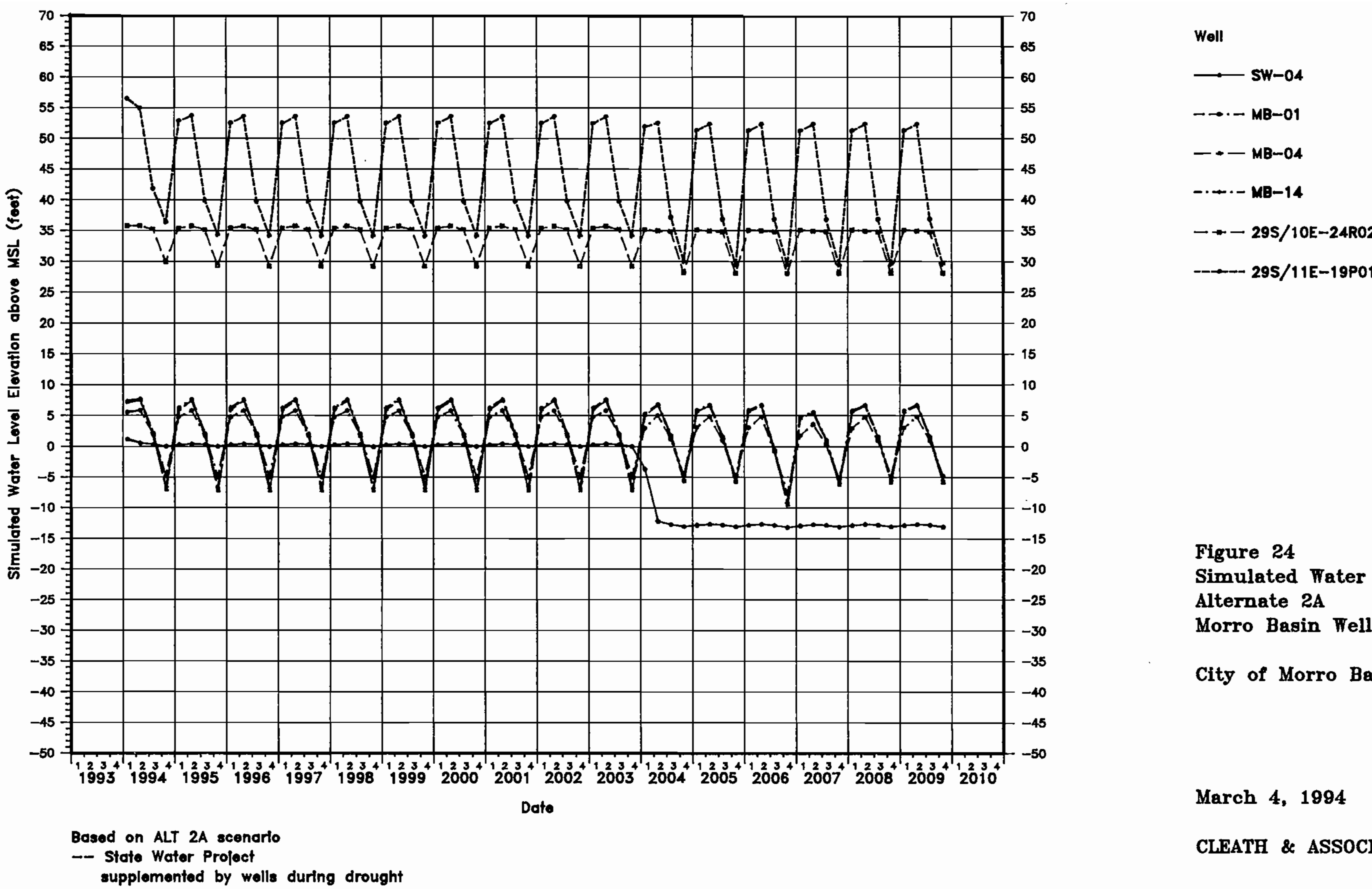

Figure 24
Simulated Water Levels
Alternate 2A
Morro Basin Wells

City of Morro Bay

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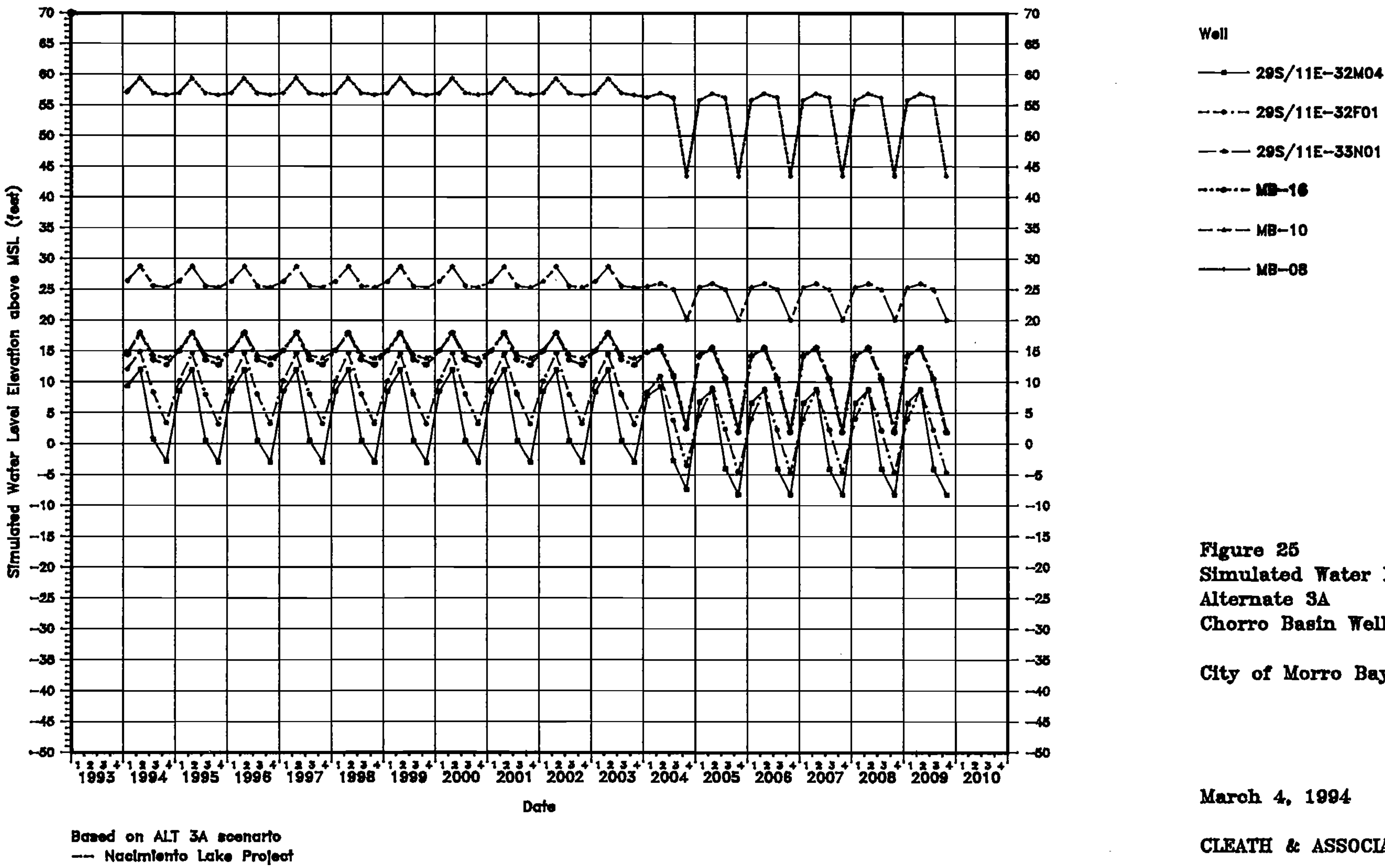

Figure 25
Simulated Water Levels
Alternate 3A
Chorro Basin Wells

City of Morro Bay

March 4, 1994

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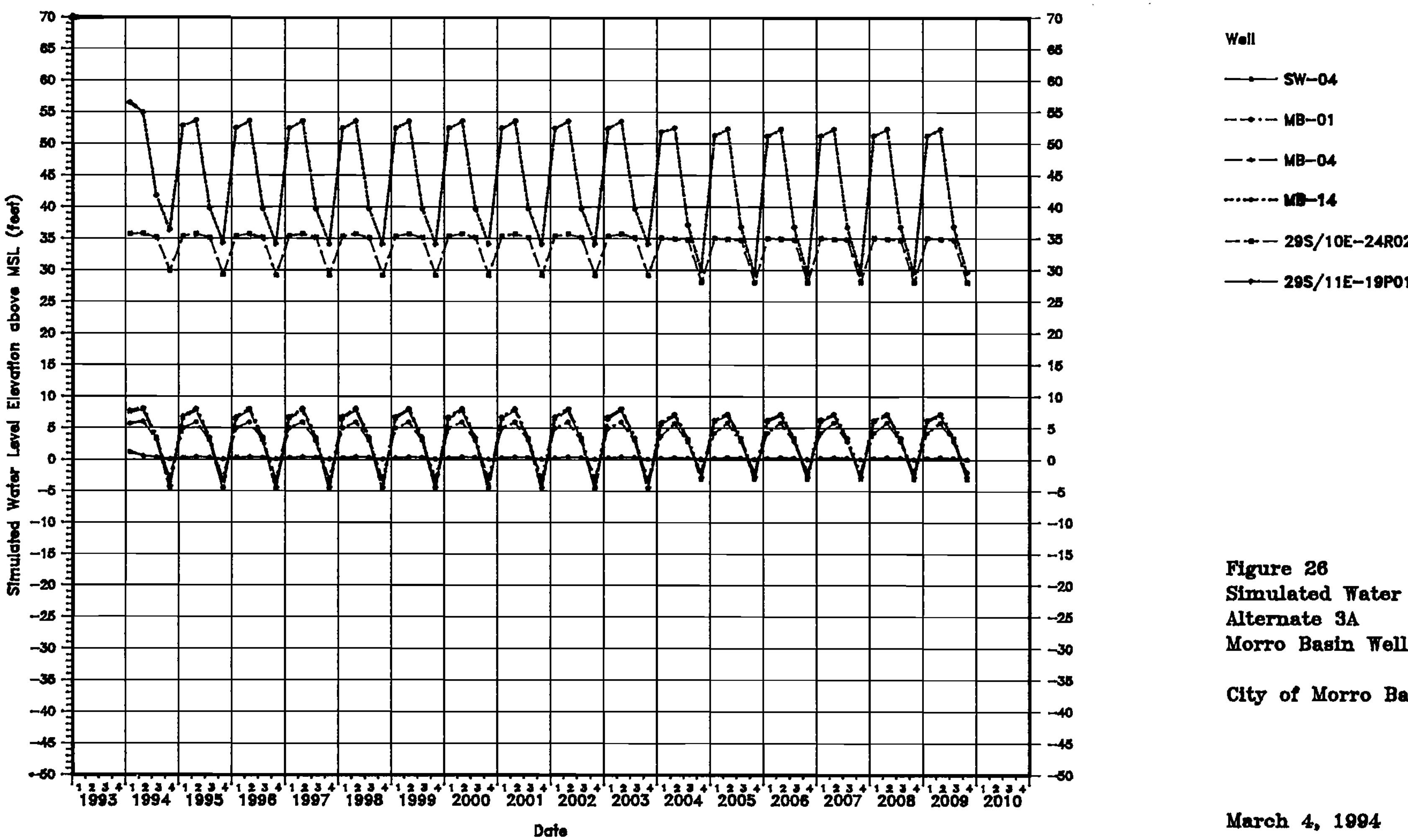

Based on ALT 3A scenario
--- Nacimiento Lake Project

Figure 26
Simulated Water Levels
Alternate 3A
Morro Basin Wells

City of Morro Bay

March 4, 1994

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shifting some of the production to Chorro Basin results in water levels only slightly below sea level; this combined with the barrier effect of the sea water wells along the Embarcadero helps to alleviate the intrusion problem under the conditions simulated. The levels in the area of the sea water wells indicate that production from these wells could actually be increased to more than that specified by Boyle Engineering Corp., perhaps by 30 to 50%; more than that would result in excessive drawdowns as noted in Alternate 1B above. Based on this, the desalination plant capacity should be in the 950 AFY range for Alternate 2A.

The shift of production from Morro to Chorro Basin wells at production rates of 293 and 879 AFY restpectively results in water levels dipping to about -7 feet in the City wells in the Ashurst Ranch area during the worst drought conditions while the desalination system is in operation. Levels in the County and State Park Wells would dip to about -9 feet. This could result in a lowering of water quality in the wells at this location if continued for long periods of time.

Alternate 3A - Lake Nacimiento Project

In Alternate 3A, water from the Lake Nacimiento Project would be the primary water supply, supplemented by 1128 AFY of local ground water production during normal times and 860 AFY druing droughts. This resulted in the greatest impact on the Morro Valley, at least under the conditions simulated. Water levels in the City's Morro Basin wells would fall to about -5 feet in the dry seasons under both normal and drought conditions. In the Chorro Valley, levels in the City's Ashurst Ranch wells would remain slightly above sea level at all times, although the County and State Park wells would still go below sea level.

The problems indicated by the Morro Valley simulation could be alleviated to some extent by shifting some of the production from that basin to Chorro. The simulations were run with the Chorro Basin 75% supplying of the ground water production, with 25% from the Morro Basin, or 846 and 282 AFY respectively in normal years and 645 and 215 AFY during droughts. Shifting this to 85% Chorro, 15% Morro production would result in extraction of 958 AFY from Chorro and 169 AFY Morro during normal years, and 731 AFY Chorro and 129 AFY Morro during droughts. The increment of added pumpage in Chorro Valley would be relatively small compared to overall pumpage, so water levels should not be lowered excessively, while conditions should be improved in Morro, since the reduction in pumping there would be a larger portion of the total pumpage. Alternatively, the existing desalination system could be used to supplement the Nacimiento Lake and local ground water.

GROUND WATER MANAGEMENT

The DWR Morro Bay Water Management Plan (1982) presented several recommendations about ways to improve ground water management in the Chorro and Morro Valleys. Since that time, the City has pursued many of the recommended actions. Unfortunately, implementation of most of the recommended actions has not been possible. The recommendations which were presented, along with the ensuing efforts by the City, are presented herein as the basis for future ground water management efforts.

Various projects are underway or are in the planning stages which will change the recharge and extractions from both basins. Agricultural land use changes will also affect ground water management. These projects and agricultural changes are discussed following the description of the City's historic ground water management efforts.

DWR RECOMMENDATIONS, 1982

The Morro Bay Area Water Management Plan presented three types of recommendations: (1) immediate, (2) interim, and (3) long term; there were also several general recommendations.

The **immediate recommendations** included the drilling of new wells upstream of the existing City wells in the Morro Basin and in selected areas of the Chorro Basin (downstream of the confluence of Chorro and San Luisito Creeks); and conduct tests of spreading basin sites and if shown to be adequate, construct one or two small scale percolation ponds.

The **interim recommendations** were to increase ground water yield by intercepting runoff as possible by use of nonstructural means or small structures for recharge at percolation pond sites (and use reclaimed water where appropriate); if still more supplies were needed, develop small-scale reservoirs on one or more of the creeks. The need for doing this in an environmentally appropriate way was noted by the DWR.

The DWR recognized that the ground water supplies would not be sufficient to meet the **long term** water demands of the City and that, should the opportunity arise, the City should participate in either the Nacimiento and/or the State Water Project importation projects.

General recommendations included installing a stream gage on Chorro Creek downstream of the Ashurst well field, evaluate the use of reclaimed water on the Morro Bay golf course, and the drilling of new wells. Another recommendations was that the City clarify its water rights position in the Chorro and Morro Basins. Drought condition actions recommended included the conservation of water by the consumers and working with farmers to obtain temporary water from them. The DWR recommended that technical advisory committees be formed in the community to provide input to the City council and staff on water issues. One recommendation that was made in the text but not in the report's formal recommendations list was to develop a well in Toro Creek valley.

CITY WATER MANAGEMENT EFFORTS: 1982-1993

The City has followed up on these recommendations by studying the potential for spreading basins in Chorro and Morro Basins, drilling and studying areas for future well sites within and outside of the main ground water basin areas, and pursuing the State Water Project. The possibility of constructing a reservoir on San Bernardo Creek was explored as was the diversion of flood flows from several streams for the Coastal Streams Diversion project. Further studies of the development of a well source in Toro Creek Valley were also performed.

The outcome of the local surface and ground water development, and ground water recharge efforts described above have been largely unsuccessful. Environmental and water quality concerns have been the most formidable constraints where adequate water has been found.

The City has applied for water rights permits for the water produced in the Chorro and Morro Basins (applications nos. 24239, 24245, 24246, 27386, 27477), totalling 1723.5 AFY. The determination by the State Water Resources Control Board has yet to be made on these applications.

Sea water intrusion has become more severe in the Morro Basin since the DWR report and has necessitated the desalination of the City's well water. Replacing these coastal wells with wells further upstream, as recommended in the DWR report, was not found to be viable due to water quality and the impacts of production from potential new City wells in the area above the narrows during drought conditions on neighboring wells. The DWR assumption that the yield of the basin could be increased through using 2/3 of the ground water in storage with the resultant lower water levels is not appropriate for the Morro Basin based on recent studies, because the upper alluvial deposits have lower specific yield values than the 12 percent estimated in the DWR report and because good well sites in the "intermediate basin" area were not found.

Water conservation efforts have proved effective during the last drought, while purchasing water from local farmers was an alternative that was pursued but not enacted.

The City's Chorro Basin water supply has been reliable, although water quality concerns have increased during the past 10 years. Good sites for percolation basins were not found during exploratory drilling and testing programs.

Going beyond the recommendations by the DWR, the City has pursued the development of water from sea water desalination. Another action taken by the City has been to install interconnections in the water system in order to transfer water from the area served by the Morro Basin wells to the area served by the Chorro Basin wells. These actions were not discussed in the DWR report.

BASIN YIELD OPTIMIZATION TO MAXIMIZE CITY EXTRACTIONS

Although there have been significant efforts to optimize Morro and Chorro Basin extractions in accordance with the prior water management plans, additional efforts could produce improved basin yields. These can be categorized into two main approaches. The first approach would be to increase ground water recharge when ground water storage capacity is available. The second approach would be to decrease other pumpage or other outflow from the basins.

The first approach requires a source of water available during dry portions of the year and a place to recharge the water. Potential sources of water for recharge have been investigated previously, namely reclaimed wastewater and stored flood flows. Both have been shown to be costly sources of water from either a treatment and delivery aspect or from a storage and environmental aspect. There may be some potential for use of CMC wastewater effluent and/or Chorro Reservoir storage due to the change in water usage resulting from the availability of State Water Project water described in the following section.

The second approach involves working with property owners within the basins to enhance irrigation efficiency and reduce pumpage during recognized drought conditions. This could be begun with providing input to the Coastal San Luis Resource Conservation District on the Chorro Flats project described in the following section. The Morro Basin, however, is where the need is greatest to modify existing pumping conditions. One other point of discussion is the nitrate and salt loading effects of using fertilizers for agriculture.

PROJECTS WHICH COULD IMPACT GROUND WATER BASIN OPERATIONS

While City well water production has generally been stable over the past 10 years, agricultural water use has increased. This is most noticeable in Morro Valley, where more acreages of truck crops and orchards have been in use. In Chorro Valley, there has also been some increases in irrigated crops. There are three types of projects currently underway in the Chorro Valley which could impact the ground water availability in the main basin area: one is to reduce sediment flow to the estuary, the second is the reuse of wastewater from the CMC wastewater treatment plant, and the third is the importation of State Water Project water to institutions in the upper Chorro Valley.

Chorro Flats

The Domenghini flats (now called Chorro Flats) area has been purchased by the Coastal San Luis Resource Conservation District (RCD), in order to allow for sediment settling facilities which would reduce sedimentation in the estuary of Chorro Creek and in Morro Bay. This effort is still in the planning stage and agricultural activities remain at pre-RCD levels. The scenarios under consideration for use of this land involve a reducing the farmed acreage from 129 acres to 74 acres (Alternative 1), to 46 acres (Alternative 2), or to 39 acres (Alternate 3).

In light of the existing estimate of water use on this land of 30 inches and allowing for fallow land to be 25 percent of the total crop area (Jones & Stokes, 1993), total water production for irrigation would decrease from 240 AFY to 140 AFY (Alternate 1), to 87 AFY (Alternate 2), or 74 AFY (Alternate 3). The end result of any of these alternates would be to reduce ground water production between 100 and 166 AFY. The consumptive usage is estimated to be 90 percent of the total usage. The net reductions in ground water consumption for the various alternatives would be 90 AFY for Alternative 1, 138 AFY for Alternative 2, or 150 AFY for Alternative 3.

Ground water recharge may also be improved to a limited extent through the retention of water on the property for sedimentation purposes. Increased consumption of water by riparian vegetation is also likely to occur, should the area be allowed to be used for isolated habitat. This would offset some of the reductions in pumpage to some extent.

The selection of an alternative is dependent in part on the available funding. One source of funds has been identified as the City of Morro Bay, which could contribute on the basis of it's interest in various aspects of the project or on the basis of some water agreement. This has yet to be discussed by the RCD and the City.

CMC Wastewater Reuse

Wastewater disposal to Chorro Creek from the CMC wastewater treatment plant currently exceeds the minimum release required under their wastewater discharge permit with the RWQCB. About 100 acre-feet of this excess water is being used by Cal Poly for irrigation of adjacent lands. Other potential customers are in line to use the excess water. These include downstream landowners, the County of San Luis Obispo (for the El Chorro Regional Park golf course), and the proposed botanical gardens project located in the El Chorro Regional Park.

If all reclaimed wastewater above the 0.75 cfs discharge requirement were to be reused (and totally consumed), the amount of water flowing into Chorro Creek and ultimately to the main ground water basin area would be reduced by 340 acre-feet per year (839 AF in 1992 less 0.75 cfs x 724 AFY/cfs, assuming that the 0.75 cfs is maintained for the entire year).

The golf course project appears to be the largest potential water user of all of these proposed reuse projects. The total water demand for the golf course is preliminarily estimated at 140 to 180 acre-feet per year for irrigation plus an unknown amount for domestic uses. The low water use projection is based on a "target style " course where the irrigated acreage is minimized.

The botanical garden plans are in the early stages and the water demands have not been estimated. The botanical garden would use on-site water to the extent possible but since this is not likely to be available in significant quantity, there is an interest to obtaining some of the reclaimed water from the CMC wastewater treatment plant discharge.

The resulting impact on water quality in the creek and the ground water from these reuse projects will need to be considered. If the water is used for irrigation purposes, it can be expected that there will be additional chemicals used on the land. If further conservation is attempted at the institutional facilities, there could be some potential for increased concentrations in the discharged reclaimed wastewater.

Imported Water

State Water Project water has been contracted for by three agencies in the upper Chorro Valley: California Men's Colony, 400 AFY; San Luis Obispo County Operational Center, 425 AFY; and Cuesta College, 200 AFY. The actual use of the water in the valley by these institutions currently involves about 560 AFY of imported water and roughly an equivalent amount of water from Chorro Reservoir and Chorro Valley ground water. The amount of additional water imported into the valley would depend on how much of the State Water offsets existing imported Whale Rock reservoir water and the future changes in water demands for the institutions. The ultimate result, however, should be an increase in imported water delivered to Chorro Valley. Since only a portion of this imported water would be consumed, the amount of water which could potentially recharge the main ground water basin should also increase.

The imported water delivered to Cuesta College would likely replace their use of Whale Rock reservoir water obtained from the City of San Luis Obispo entitlement, but this existing imported water amount is 120 AFY, so that there could be an increase in the amount of imported water resulting from the change-over to State Water Project water.

The County Operational Center currently relies on Chorro Valley ground water for roughly 50 AFY. The change-over to SWP water would probably result in a decrease in use of the ground water, at least initially. If both resources are used and demands are increased, there would be an overall increase in non-consumed imported water.

The use of imported Whale Rock reservoir water by the California Men's Colony has varied from approximately 190 AFY in 1992 to 680 AFY in 1990, depending on the available water from Chorro reservoir. The CMC allocation for Whale Rock reservoir water is 420 AFY but some water is banked from year to year and there is an arrangement also whereby CMC can provide water to Cuesta College from Chorro Reservoir in exchange for increased use of Whale Rock water.

It appears that CMC intends to use State Water Project water as the primary source when it becomes available and would reduce the water taken from Chorro Reservoir. If the State Water Project water completely replaces the Chorro Reservoir water, it would increase the amount of water imported to the Chorro watershed by more than 400 AF per year. A small portion of this would be consumptively used and another portion would flow to the bay with the high winter flows, but there still should be an overall net increase in potential recharge to the ground water basin from reclaimed water discharges.

The implementation of the importation of State Water Project water and the changes in deliveries from existing sources will change the amount of water available to recharge the ground water basin. The City should track the progress and plans for the use of this imported water by these upstream water users, since it does affect recharge to the ground water basin.

Agricultural Trends

Agricultural land uses in the two watersheds are somewhat different in that Morro Valley has more orchards than does the Chorro Valley. There has also been a trend to more water intensive crops in the flood plains of both valleys. These two trends have resulted in more water being used by agriculture. There has been some drip irrigation replacing the sprinkler irrigation practices which offset some of this increase in water use.

The orchards are in part placed on the slopes above the valley floor and therefore increase the total land area which is irrigated. The orchards require continued irrigation from year to year, in contrast to row crops and field crops which can cover different acreages from year to year and can yield one or more crops per year. These orchards have been increasing in areage over the last few years (as described previously) and will increase in water demand as the trees mature.

The agricultural changes in the future will be a function of the economy and availability of water. Land use planning in San Luis Obispo County will also influence changes from agriculture to other uses.

It is difficult to quantify the increase in water consumed by these changes in agricultural practices. The recent increase in farming on the valley slopes and the valley floor crop changes do indicate that there will be a continued increase in agricultural water uses which will depend on the ground water for supply. The Chorro Flats project is the one area where the agricultural water uses will decrease.

SUMMARY OF GROUND WATER MANAGEMENT RECOMMENDATIONS

In order to maintain and enhance reliable potable ground water supplies from the Chorro and Morro Basins for the City of Morro Bay, ground water basin management practices should include:

(1) installing a stream gage and monitoring flown in Chorro Creek at the mouth of the valley, downstream of the Ashurst well field (this would improve basin water balance estimates);

(2) clarifying water rights related to the City's usage of ground water;

(3) increasing recharge to the ground water basins, including the capture, storage and percolation of natural runoff and disposed effluent from upstream facilities and, if shown to be cost effective, the City's wastewater disposal facility. The Chorro Flats project includes sediment settlement basins which could also recharge the ground water with storm runoff. (The State Water Project water which will be imported to CMC, Cuesta, and the County Operations Facility/County Jail within Chorro Basin should result in additional wastewater discharge to Chorro Creek);

(4) during drought year, reduce City ground water pumpage from normal levels in Morro Basin and increase City ground water pumpage from normal levels in Chorro Basin;

(5) improving agricultural irrigation efficiencies (and reduce water losses) in both Chorro and Morro Valleys but particularly the Morro Valley;

(6) reducing salt and nitrate loading in both Chorro and Morro Basins.

The Chorro Basin offers more ground water management/enhancement opportunities than Morro Basin due to the importation of water into the Chorro Creek watershed. Chorro Basin ground water management will involve coordination of recharge activities and salt loading reductions with institutions served by the Camp San Luis system and the agricultural water consumers. The Morro Basin management activities will need to focus on cooperative efforts with the agricultural water consumers which could reduce ground water production and salt/nitrate loading.

FINDINGS AND CONCLUSIONS

The significant findings and conclusions of these ground water studies are featured below.

1. Morro Basin:

   810 acre area below confluence of Morro and Little Morro valleys
   Maximum ground water in storage is 3247 AF
   Recoverable ground water in storage is 380 AF
   Ground water yield estimated to be about 1500 AF
   City ground water production: between about 500 and 600 AF, except in drought.
   Agricultural production (1992): 1379 AF
   Irrigated acreage has increased significantly during the 1980's
   Sea water intrusion has occurred several years during the 1980's
   Nitrates and Iron and Manganese Concentrations high in some wells above the narrows
   Sea water intrusion results in high salinity, particularly sodium and chloride constituents, in the coastal portion of basin

2. Chorro Basin

   727 acre area extending upstream to the Cal Poly Ranch property
   Maximum ground water in storage is 3060 AF
   Recoverable ground water in storage is 720 AF
   Ground water yield (including imported water recharge and using recoverable ground water in storage) can not be accurately estimated at this time
   City ground water production: between 800 and 1100 AF, except in drought.
   Agricultural water production (1992): 1033 AF (560 AF above and 473 AF below Canet Road)
   Sea water intrusion has occurred several years during the 1980's
   Ground water recharge of the basin has been complete in every year on record except 1990

3. Combined use of ground water from Chorro and Morro Basins

   The City should be able to produce up to 1600 acre-feet per year of ground water during years of average and above average rainfall and 950 acre-feet per year of ground water during drought years as an element of their Water Management Plan. The drought conditions will result in greater reductions in Morro Basin ground water production than the Chorro Basin ground water production. This estimate is based on existing levels of production by other water consumers during average and above average years and some reductions in ground water production by landowners on the periphery of the basins during drought conditions.

4. Ground water/Imported water Alternatives

All three alternatives are capable of providing municipal water demand, although Alternates 2A and 2B may result in sea water intrusion under drought conditions

Alternate 1B - Desalination supplemented by ground water - results in reduction of existing sea water intrusion in Morro Basin; water levels above sea level in Chorro Basin

Alternate 2A - State Water Project - water levels at City wells in Chorro Basin above sea level under normal conditions, -5 feet in critical drought; Morro Basin City wells -5 to -9 feet at all times

Alternate 3A - Nacimiento Lake Project - water levels above sea level at all times in Chorro Basin City wells; Morro Basin wells at -3 to -5 feet at all times

5. Ground water management

Projects impacting City ground water operations:
- El Chorro Regional Golf Course (County of San Luis Obispo)
- San Luis Obispo Botanical Gardens (Friends of San Luis Obispo Botanical Gardens)
- Wastewater Reclamation and Reuse (California Men's Colony)
- Chorro Flats Sediment Removal (Coastal San Luis Resource Conservation District)
- Irrigated agriculture: pumpage and fertilizer use

Basin Yield Optimization to maximize City Pumpage
- Increase Recharge: Costly due to facilities required for
  - Storage and recharge of Flood Flows &/or
  - Treatment and recharge of Municipal Wastewater
  - Previous studies have not found suitable ground water recharge basin sites in Morro and Chorro Basins
- Pumpage
  - Reduce agricultural pumpage/improve irrigation efficiency
  - Adjust period when extractions occur

Water Quality Improvement
- Well relocation (surface water rule): Well #8
- Treatment: nitrates and salinity
- Improved agricultural chemicals applications: reduce deep percolation losses

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APPENDIX F

Historical Boring Logs

LOGS OF TEST BORINGS
Borings Drilled by Pacific Geoscience

Morro Bay Desalination Project
Embarcadero and Coleman Road
Morro Bay, California

December 14, 1990

Boring 1:

Depth (ft)	
0 - 12	Light brown fine sand, slightly moist to moist
12	Water level at 08:40
12 - 18	Brown fine sand
18 - 22	Mottled dark gray and brown fine to coarse sand with fine gravel and shell fragments
22 - 62	Dark gray fine sand
62 - 64	Dark gray coarse sand
64 - 67	Dark greenish gray clayey silt, stiff, with scattered root fibers
67 - 72	Greenish gray fine to coarse sand with small rounded granules and pebbles
72 - 74	Gravel
74 - 74.5	Hard dark gray sandstone (Franciscan Formation)

Boring 2:

Depth (ft)	
0 - 14	Light brown fine sand with pebbles and shell fragments
14	Water level at 14:15
14 - 22	Brown fine sand
22 - 58	Dark gray very fine to medium sand, sloughing up inside auger, difficult to get in-place sample
58 - 68	Dark greenish gray clayey silt, stiff
68 - 72	Gravel, with sand, some clay
72 - 76	Slightly clayey medium sand
76 - 78	Gravel or weathered bedrock
78 - 79	Bedrock; unable to drill further

LOGS OF TEST BORINGS
Borings Drilled by Pacific Geoscience

Morro Bay Desalination Project
Embarcadero and Coleman Road
Morro Bay, California

December 17, 1990

Boring 3:

<u>Depth (ft)</u>	
0 - 15	Light brown fine sand with scattered pebbles, thin gravel layer at 10 ft
13.5	Water level at 07:40
15 - 23	Gravel
23 - 62	Brown to gray fine sand, clean, firm
62 - 78	Dark gray clayey silt
78 - 79	Gravel or bedrock; unable to drill or sample

Boring 4: 150 ft from edge of gully of current Morro Creek channel, 20 feet away from fence line

<u>Depth (ft)</u>	
0 - 13.5	Light brown very fine sand, slightly moist, with gravel at 8-9 feet
13.5	Water level at 13:15
13.5-22	Brown to gray very fine sand
22 - 70.5	Dark greenish gray clayey to sandy silt
70.5-71	Unable to drill further; very stiff clayey silt with pebbles and cobbles

December 18, 1990

Boring 5: 15 feet southwest of jog in PG&E plan fenceline

<u>Depth (ft)</u>	
0 - 24	Light brown fine sand
19.5	Water level at 09:20
24 - 26	Dark gray clayey sand
26 - 60	Gray very fine sand, minor silt and clay, firm, heaves up into auger stem
60 - 77	Dark gray stiff clayey silt, minor sand, contains root fibers
77 - 77.5	Pebbles and cobbles in stiff clayey silt; unable to drill, difficult to sample

LOGS OF TEST BORINGS
Borings Drilled by Tierra Tech

Morro Bay Desalination Project
Embarcadero and Atascadero Road
Morro Bay, California

December 20, 1990

Boring 6: 150 ft north of southerly end of Embarcadero (210 feet north of northerly edge of Morro Creek channel), 15 feet west of western pavement edge

Depth (ft)	
0 - 17.5	Tan fine sand, gravel lense at 15
17.5	Water level at 08:46
17.5-30	Gray fine sand; A-rod stuck due to sand heaving up auger, no sample -- hole abandoned

Boring 6a: 5 feet north of Boring 6

Depth (ft)	
0 - 17.5	Tan fine sand
17.5-??	Gray fine sand; A-rod sticking due to sand heaving up auger, no sample until 65 feet
?? - ??	Uncertain thickness of stiff clayey silt and sand, unable to sample
65	Brown sand and clay with angular rock fragments

Boring 7: in Morro Dunes RV Park Space 07; 180 feet north of southerly end of Embarcadero, 200 feet east of pavement edge

Depth (ft)	
0 - 14	Tan fine sand
14 - 16	Sand and gravel
16 - 22	Fine sand
18.5	Water level at 15:20
22 - 23	Cobbles
23 - 60	Brown to dark gray sandy to clayey silt with pebbles
60 - 61	Weathered dark gray to brown sandstone (Franciscan Formation)

LOGS OF TEST BORINGS
Borings Drilled by Tierra Tech

Morro Bay Desalination Project
Embarcadero and Atascadero Road
Morro Bay, California

December 21, 1990

Boring 8: 580 feet north of Boring 6, 4 feet west of pavement edge

Depth (ft)	
0 - 28	Light brown fine sand with scattered shell fragments and zones of coarse sand
18	Water level at 08:14
28 - 29	Gravel
29 - 35	Gray brown fine sand
35 - 42	Dark gray slightly clayey very fine to fine sand
42 - 52	Brown silty to sandy clay with small pebbles
52 - 65	Brown clayey sand and gravel
65 - 66	Clayey sand and gravel, broken pieces of weathered dark gray sandstone (Franciscan Formation)

Boring 9: in extension of Atascadero Road, across from sewage treatment plant, 40 feet from pavement edge

Depth (ft)	
0 - 1	Brown sand
1 - 26	Light brown fine sand
26 - 35	Mottled gray to brown clayey fine sand
35 - 51	Yellow brown clayey sand
51 - 54	Gravel
54 - 59	Yellow brown clayey, silty fine sand
59 - 61	Weathered green and black sandstone (Franciscan Formation)

LOGS OF TEST BORINGS
Borings Drilled by Tierra Tech

Morro Bay Desalination Project
Embarcadero and Atascadero Road
Morro Bay, California

December 26, 1990

Boring 10: Southeasterly corner of Wixom Concrete yard

Depth (ft)	
0 - 0.5	Light gray sand and silt with chunks of concrete
0.5- 1	Dark brown sand and silt
1 - 2	Gray sand and silt
2 - 8	Light brown fine sand
8 - 14	Dark gray brown silty fine sand, with minor clay, gravel layer at 9 feet
14 - 25	Dark brown silty fine sand
25 - 32	Silty to clayey fine to medium sand
32 - 43	Mottled gray to brown clayey silt
42	Water level
43 - 57	Slightly clayey sand and gravel with scattered layers of clayey silt
57 - 58	Weathered dark gray sandstone (Franciscan Formation)

Boring 11: Northeasterly corner of Morro Bay city yard

Depth (ft)	
0 - 2	Red-brown silty sand with pieces of rock (fill)
2 - 3	Dark gray-brown silty fine sand
3 - 5	Brown fine sand
5 - 9	Gray brown clayey silt, slightly moist
9 - 26	Gray to brown silty fine sand
26 - 39	Mottled gray and brown clayey silt
39 - 59	Clayey sand and gravel, coarser gravel from 51 ft to 54 ft based on drilling characteristics
59 - 60	Weathered dark gray sandstone (Franciscan Formation)

LOGS OF TEST BORINGS
Borings Drilled by Tierra Tech

Morro Bay Desalination Project
Embarcadero and Atascadero Road
Morro Bay, California

December 27, 1990

Boring 12: 33 feet west of line separating city yard from treatment plant, 40 feet north of pavement edge

Depth (ft)	
0 - 1	Red rock; red-brown angular chunks of rock in sandy matrix
1 - 2	Dark red-brown sand and silt
2 - 4	Dark brown sand and silt
4 - 25	Brown silty fine sand
25 - 39	Mottled brown and gray clayey silt, moderately stiff
39	Water level
39 - 60	Slightly clayey silty sand and gravel
60 - 62	Clayey sand and gravel
62 - 63	Gray siltstone (Fanciscan Formation)

LOGS OF TEST BORINGS
Borings Drilled by Tierra Tech

Morro Bay Desalination Project
Coleman Drive
Morro Bay, California

January 7-8, 1991

Boring 13: 550 ft west of intersection of Coleman Drive and Embarcadero Road, 60 ft north of edge of pavement (log is composite of 3 holes at this location)

Depth (ft)	
0 - 15	Tan fine sand with fine gravel, scattered cobbles
15	Water level at 08:50
15 - 57	Gray fine to medium sand with fine gravel, scattered shell fragments and cobbles
57 - 63	Dark gray silty clay
63 - 77	Silty fine sand
77 - 78	Weathered sandy shale (Franciscan Formation)

January 8, 1991

Boring 14: 750 ft west of Boring 13 along Coleman Drive, 105 ft north of edge of pavement

Depth (ft)	
0 - 1	Red brown silty fine sand with red rock pieces
1 - 3	Tan fine sand
3 - 10	Dacite rubble from Morro Rock; pieces from ¼ to 3 inches coming up auger
10 - 11	Tan fine sand
11 - 57	Gray fine to coarse sand with gravel, cobbles and shell fragments
57 - 64	Brown clayey sand and gravel
64 - 65	Weathered metavolcanics (Franciscan Formation)

LOGS OF TEST BORINGS
Borings Drilled by Tierra Tech

Morro Bay Desalination Project
Coleman Drive
Morro Bay, California

January 8, 1991

Boring 15a: 15 ft north of Morro Rock monument stone, 265 ft west of Boring 14

Depth (ft)	
0 – 1	Brown silt and sand
1 – 2	Dacite rubble
2 – 3	Dry light brown sandy to clayey silt with large dacite rubble
3	Abandoned hole, moved 4 feet west

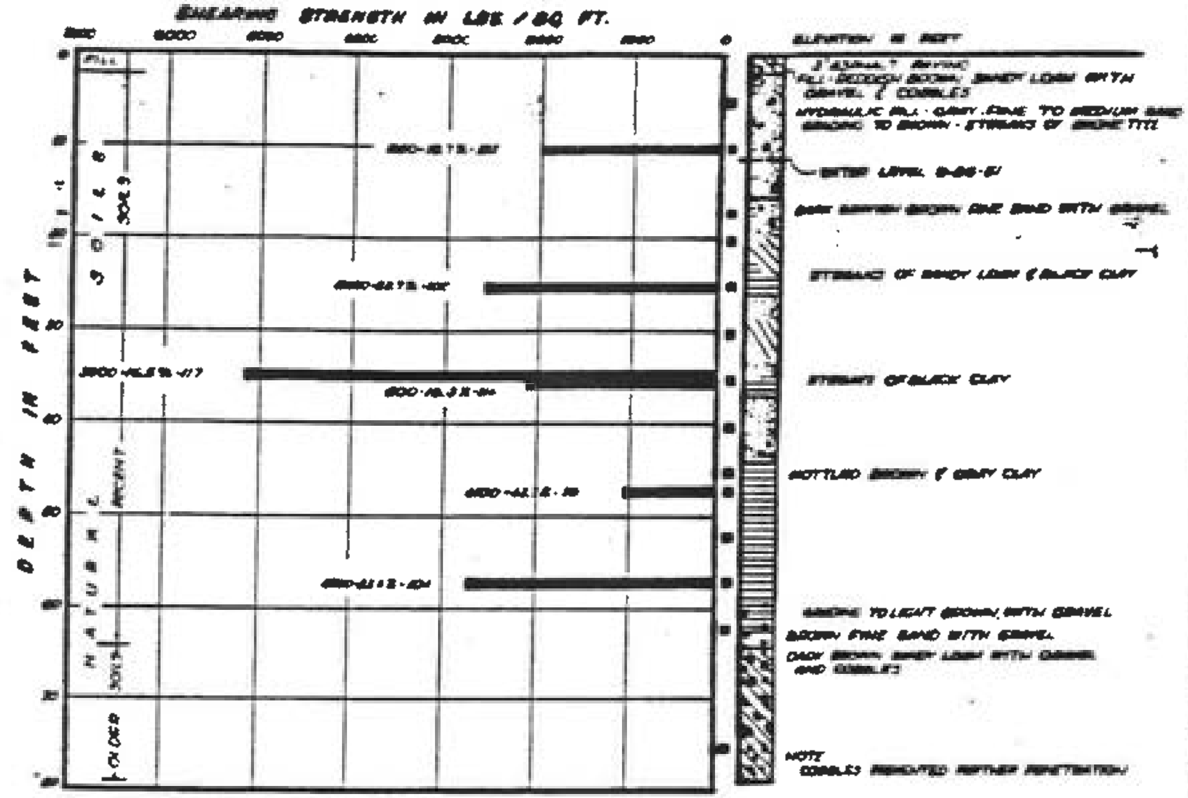
Boring 15b: 4 feet west of Boring 15a

Depth (ft)	
0 – 1	Brown silty sand and dacite rubble
1 – 4	Dacite rubble
4 – 10	Loose clean, dry, very well sorted pea gravel (fill)
10	Very hard; can't drill; move to south side of monument

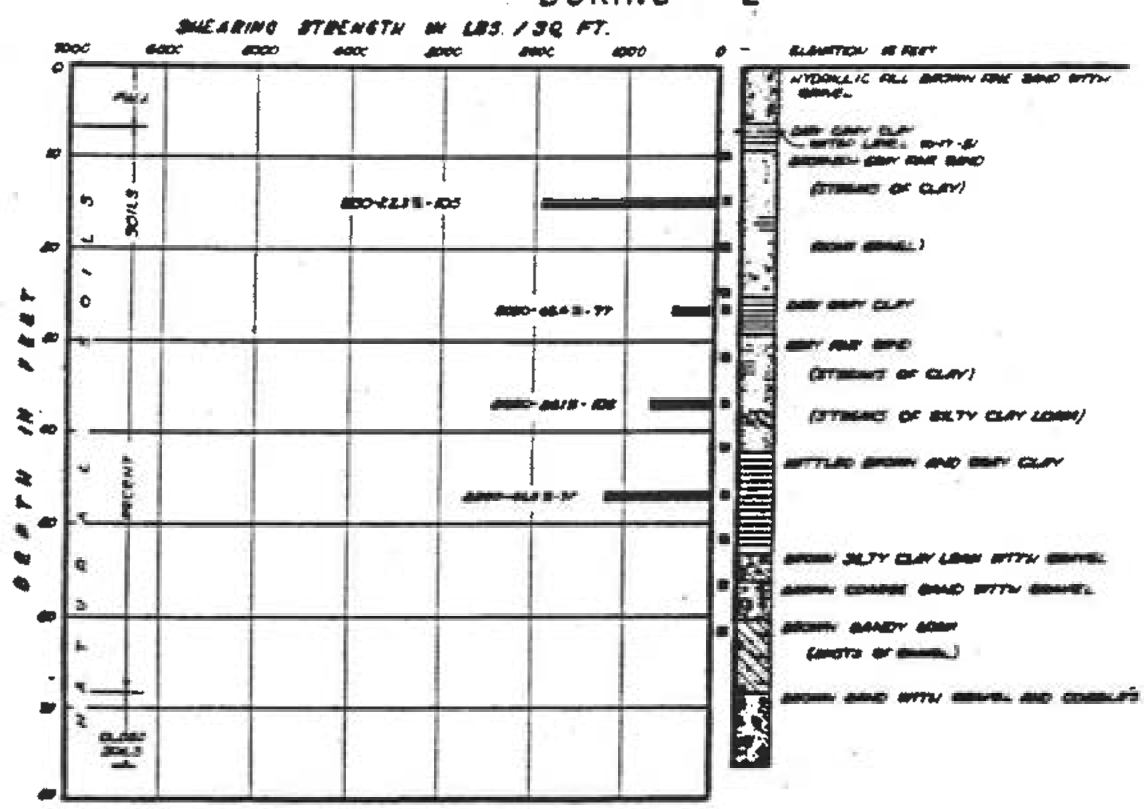
Boring 15c: 25 feet south of monument

Depth (ft)	
0 – 3	Dacite rubble with sand and silt, voids
3	Can't drill; abandon

BORING 1



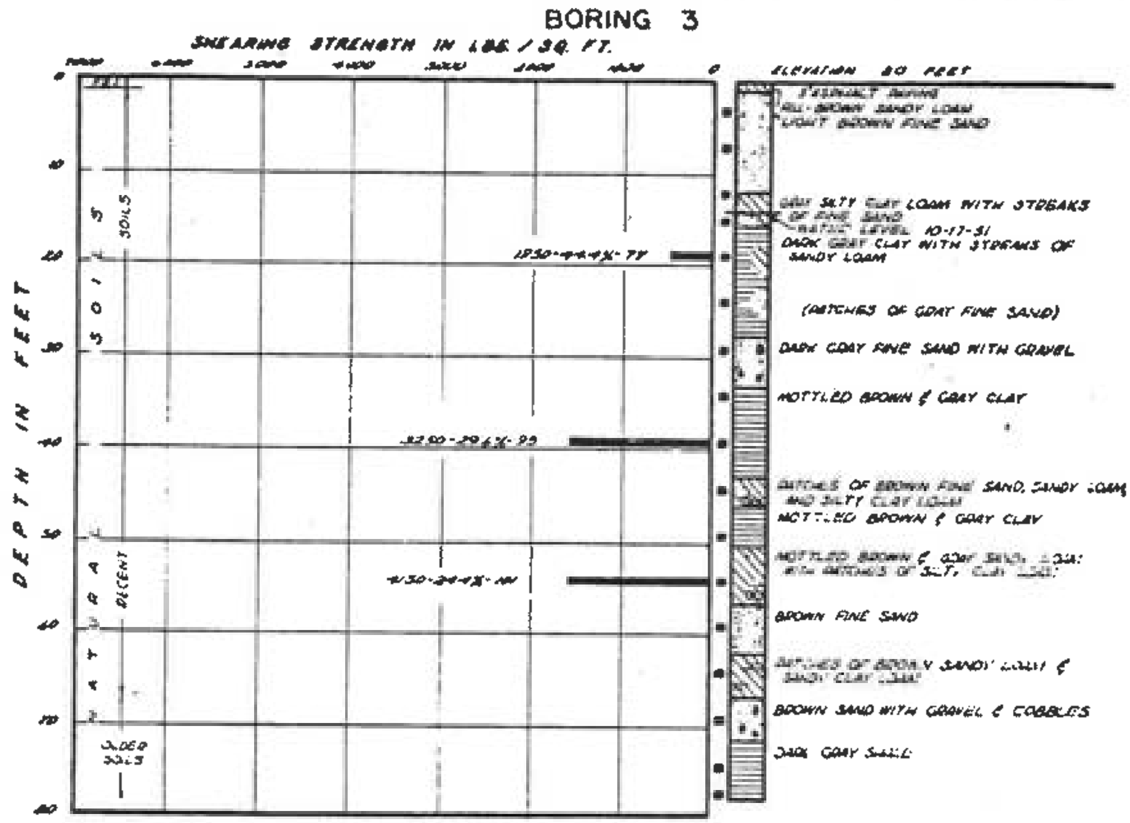
BORING 2

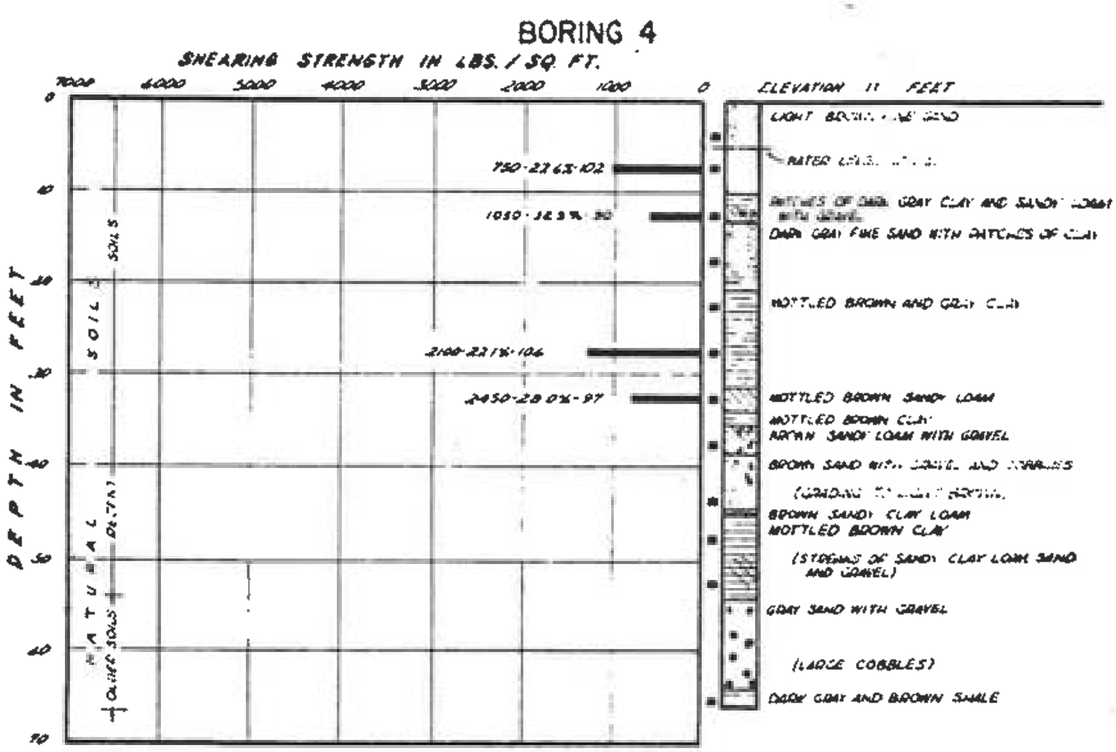


LOG OF BORINGS

NOTE
ELEVATIONS REFER TO [illegible] DATUM

DAMES & MOORE, Soil Engineers

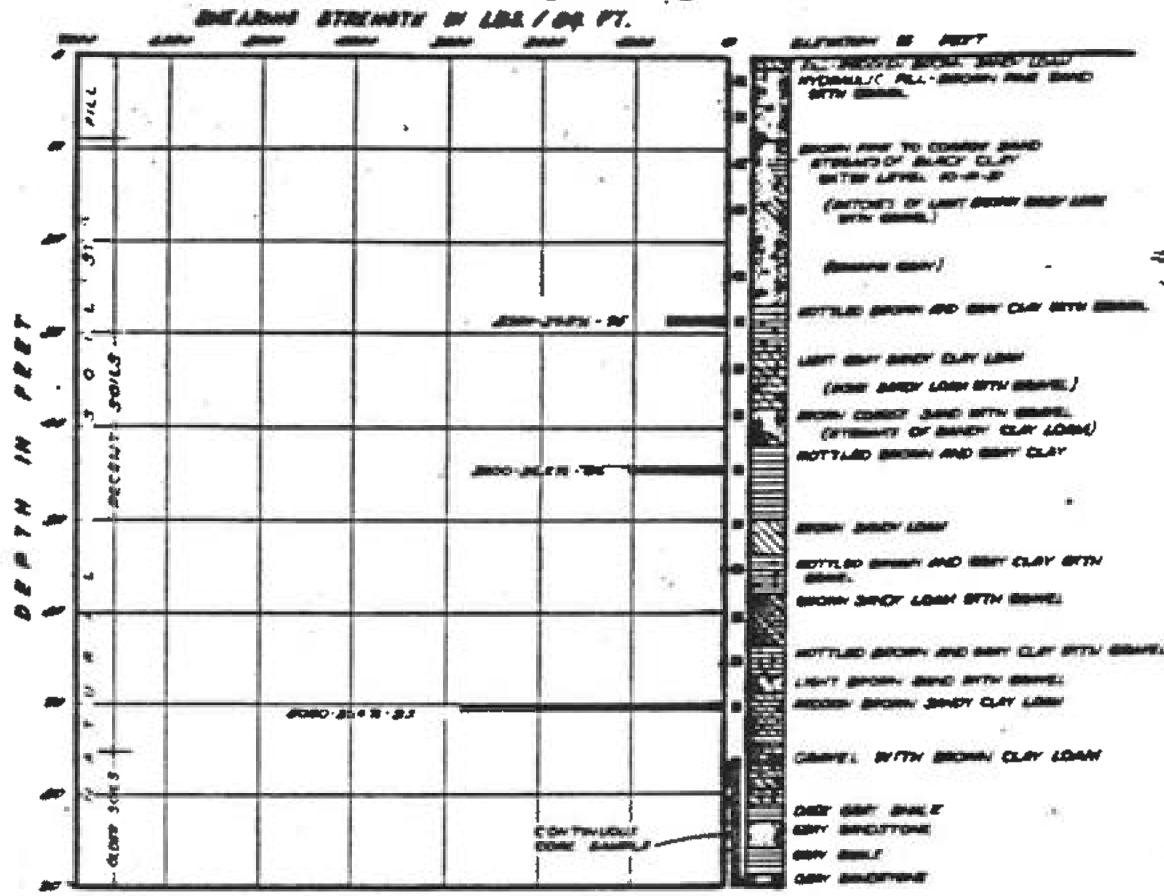




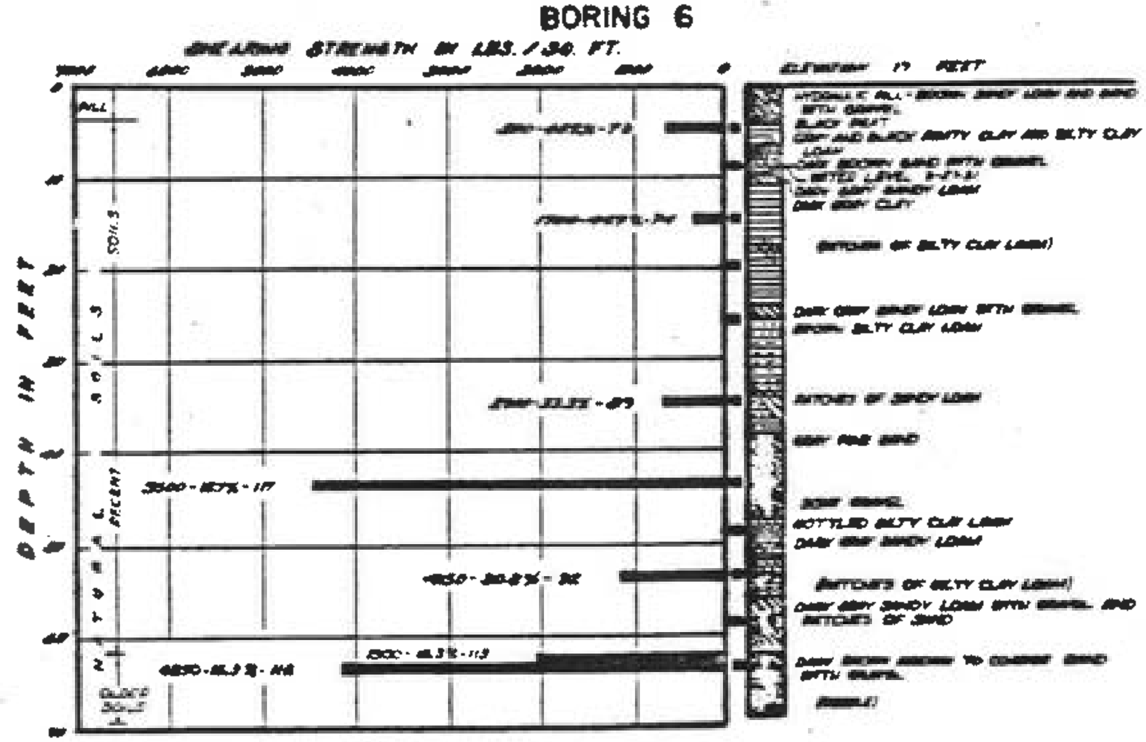
LOG OF BORINGS

DAMES & MOORE, Civil Engineers

BORING 5



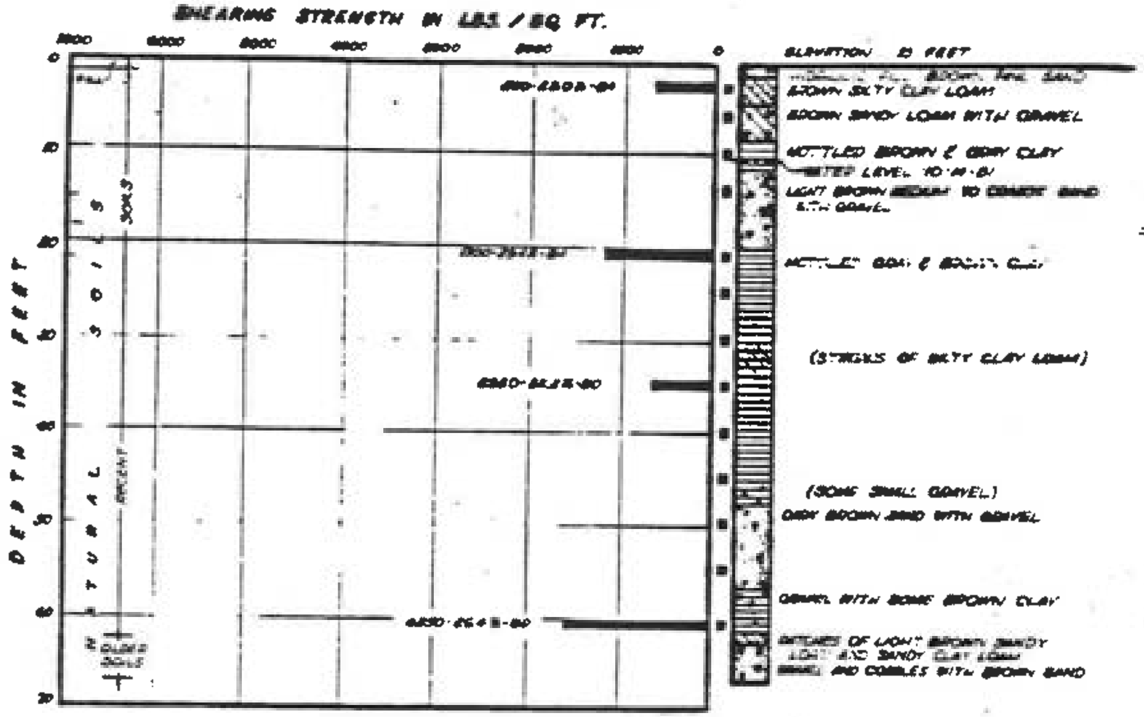
BORING 6



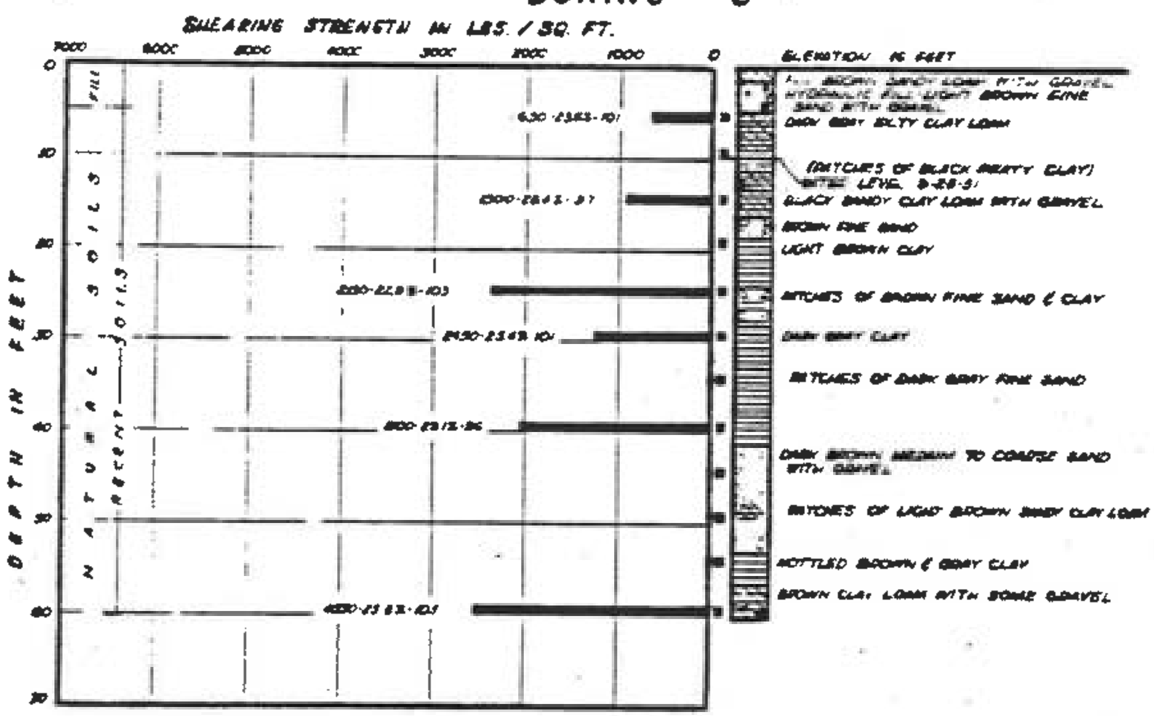
LOG OF BORINGS

DAMES & MOORE, Soil Engineers

BORING 7



BORING 8

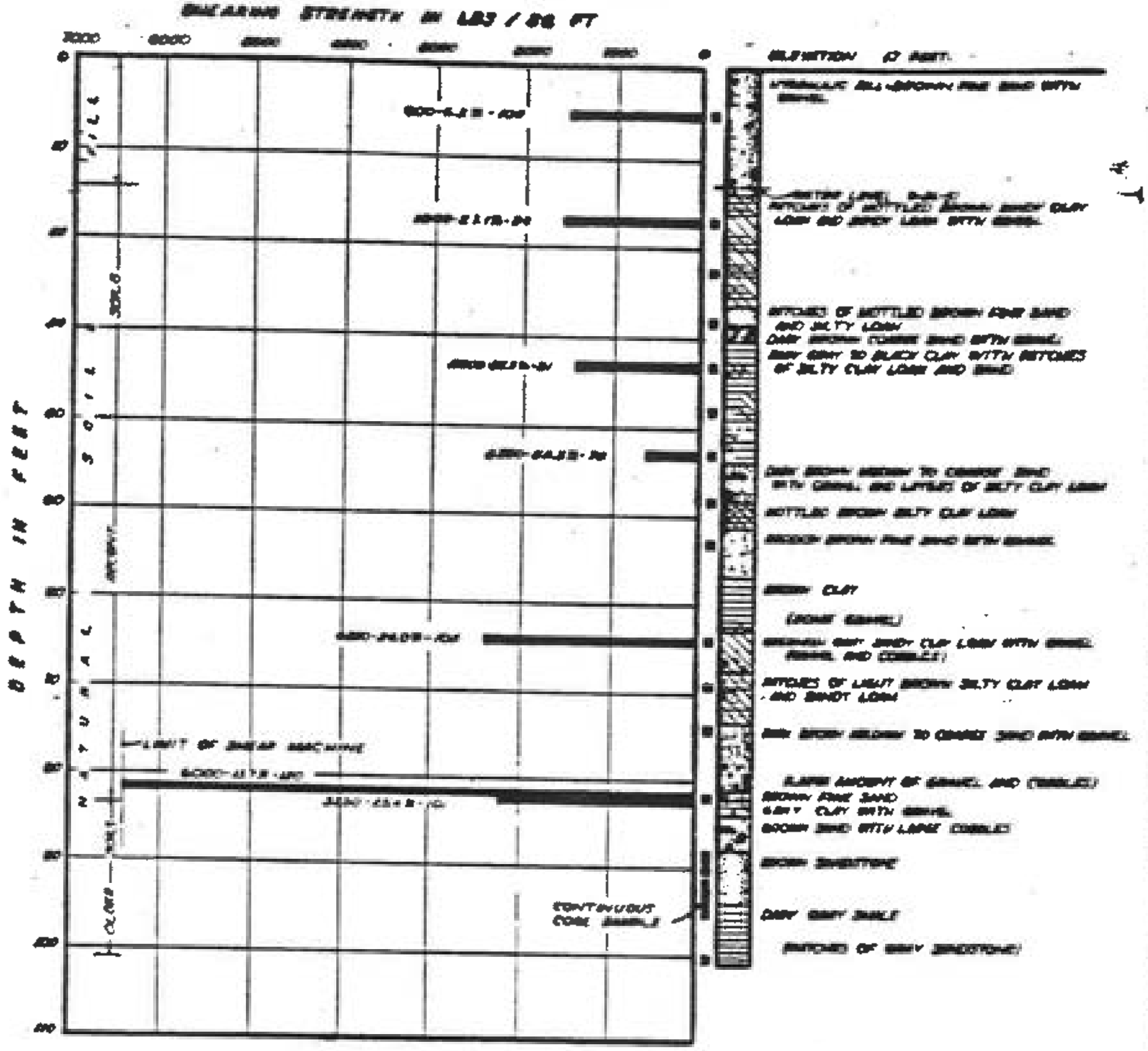


LOG OF BORINGS

DAMES & MOORE, Civil Engineers

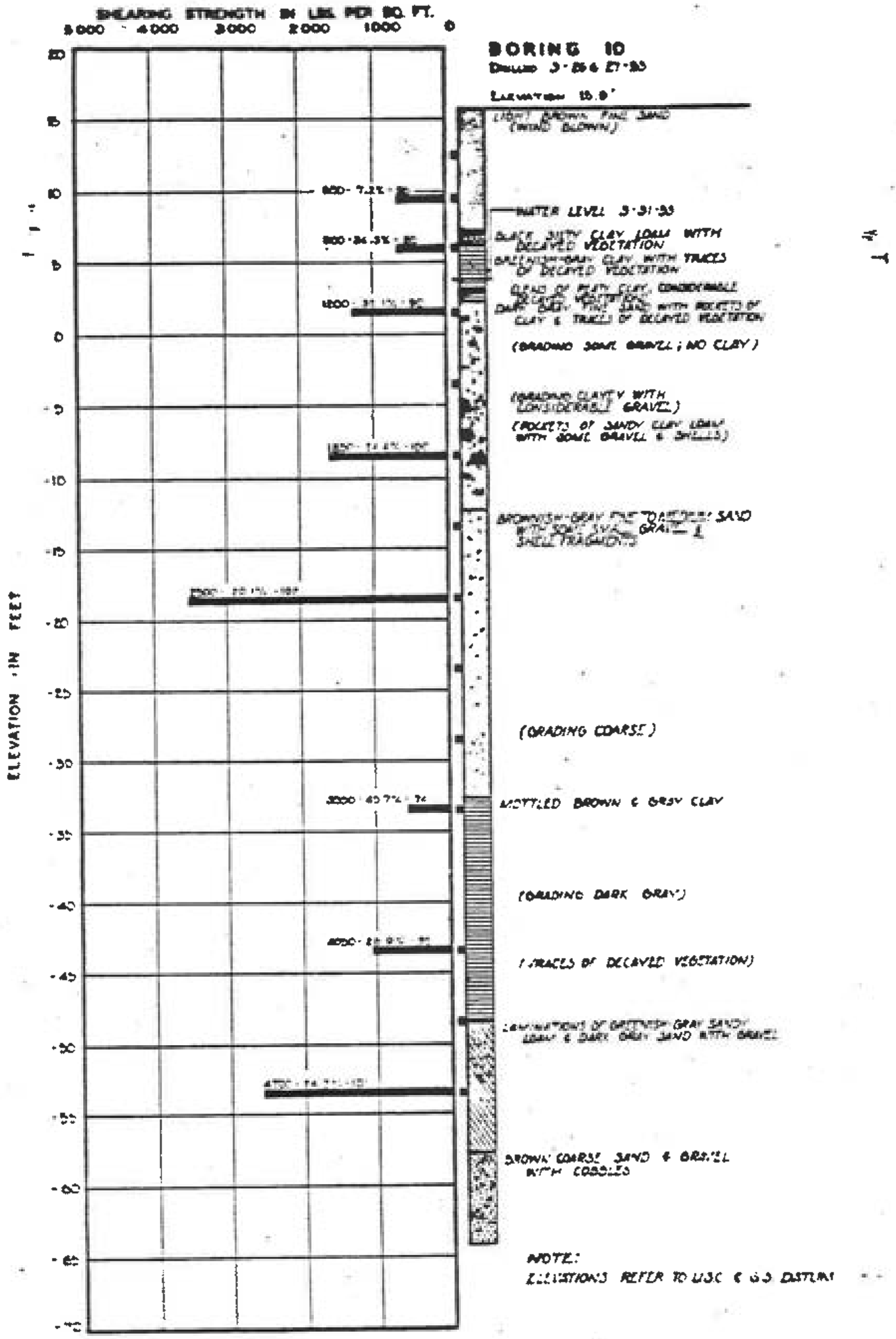
PLATE A4

BORING 9



LOG OF BORING

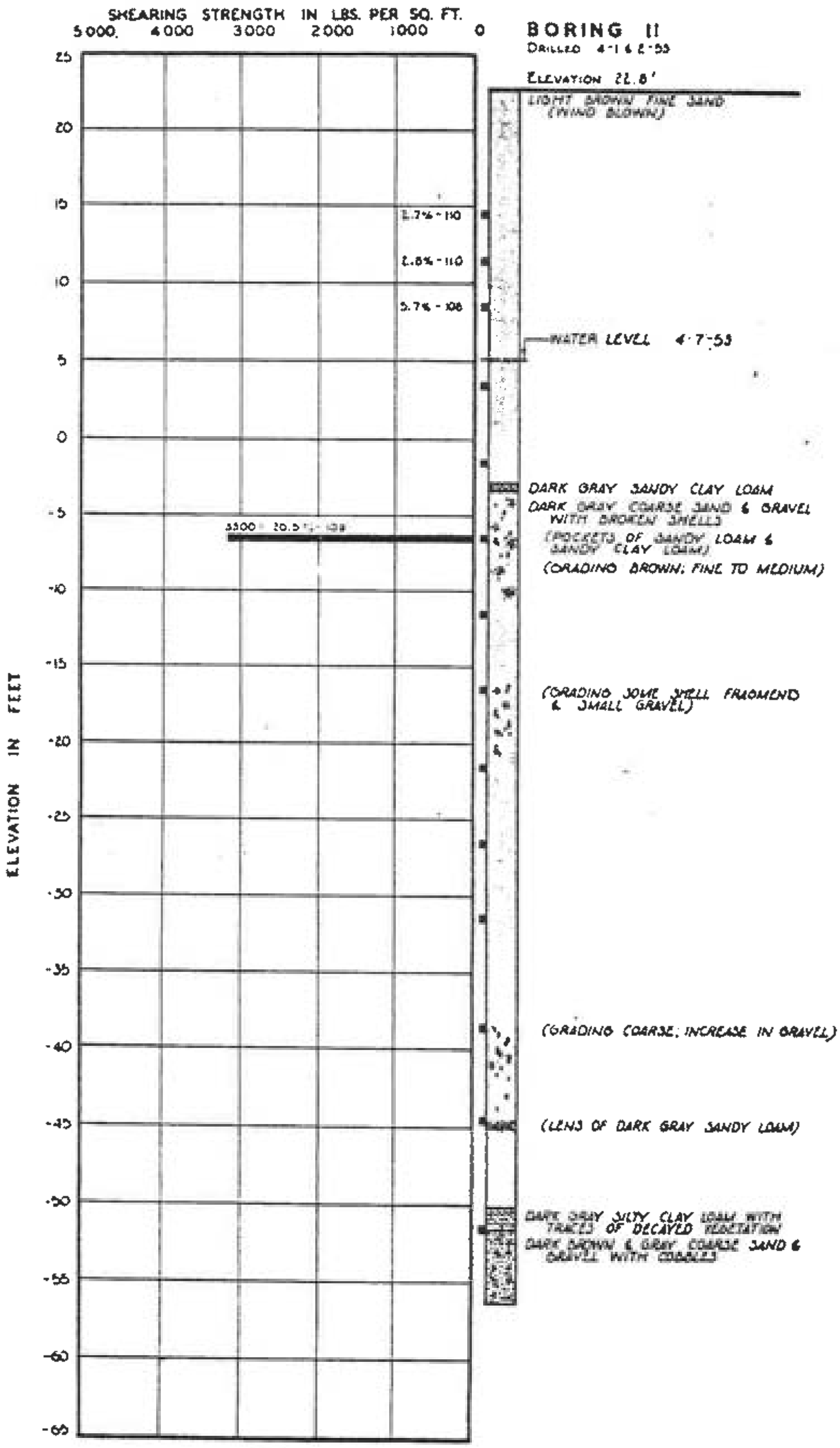
DAMES & MOORE, Civil Engineers



LOG OF BORINGS

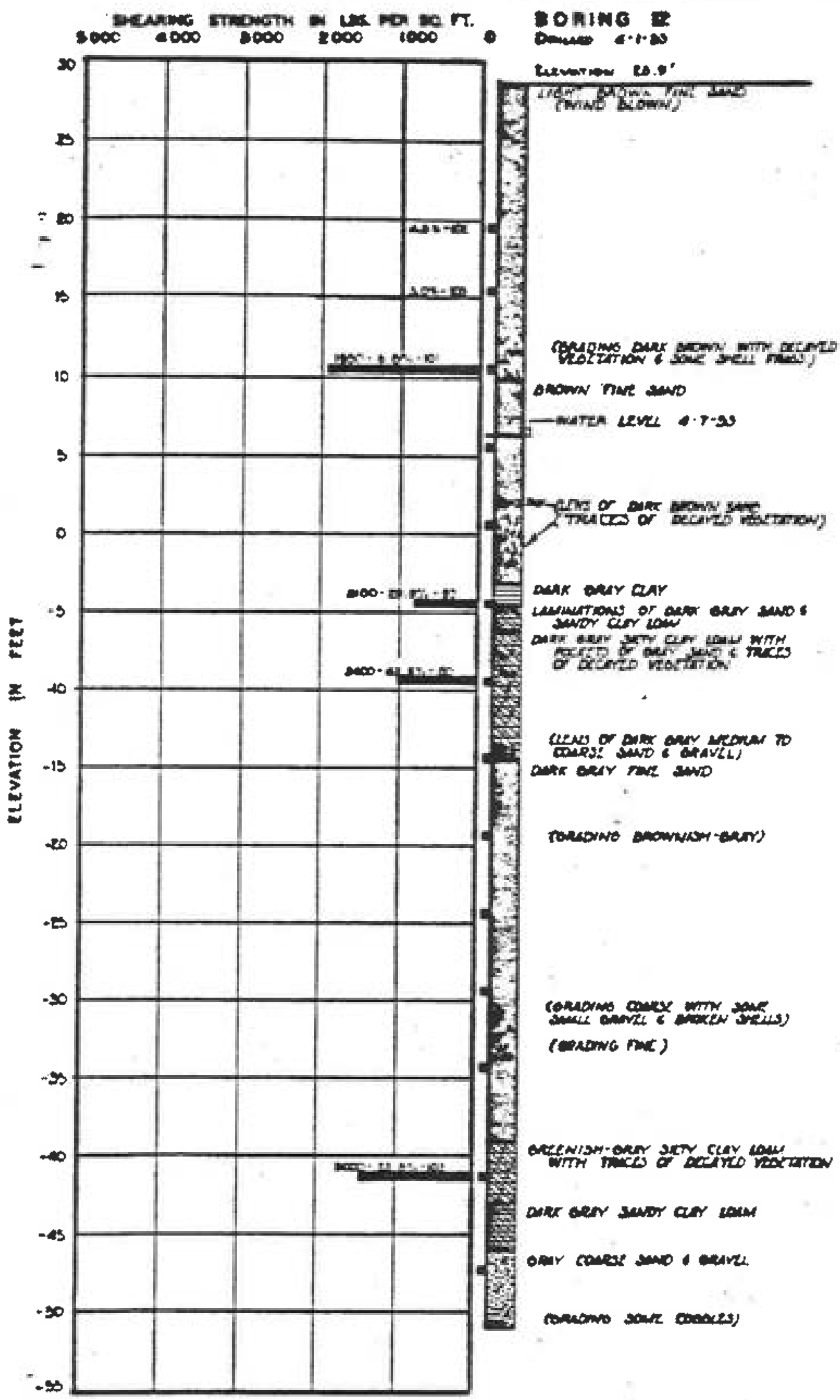
DAMES & MOORE

PLATE A6



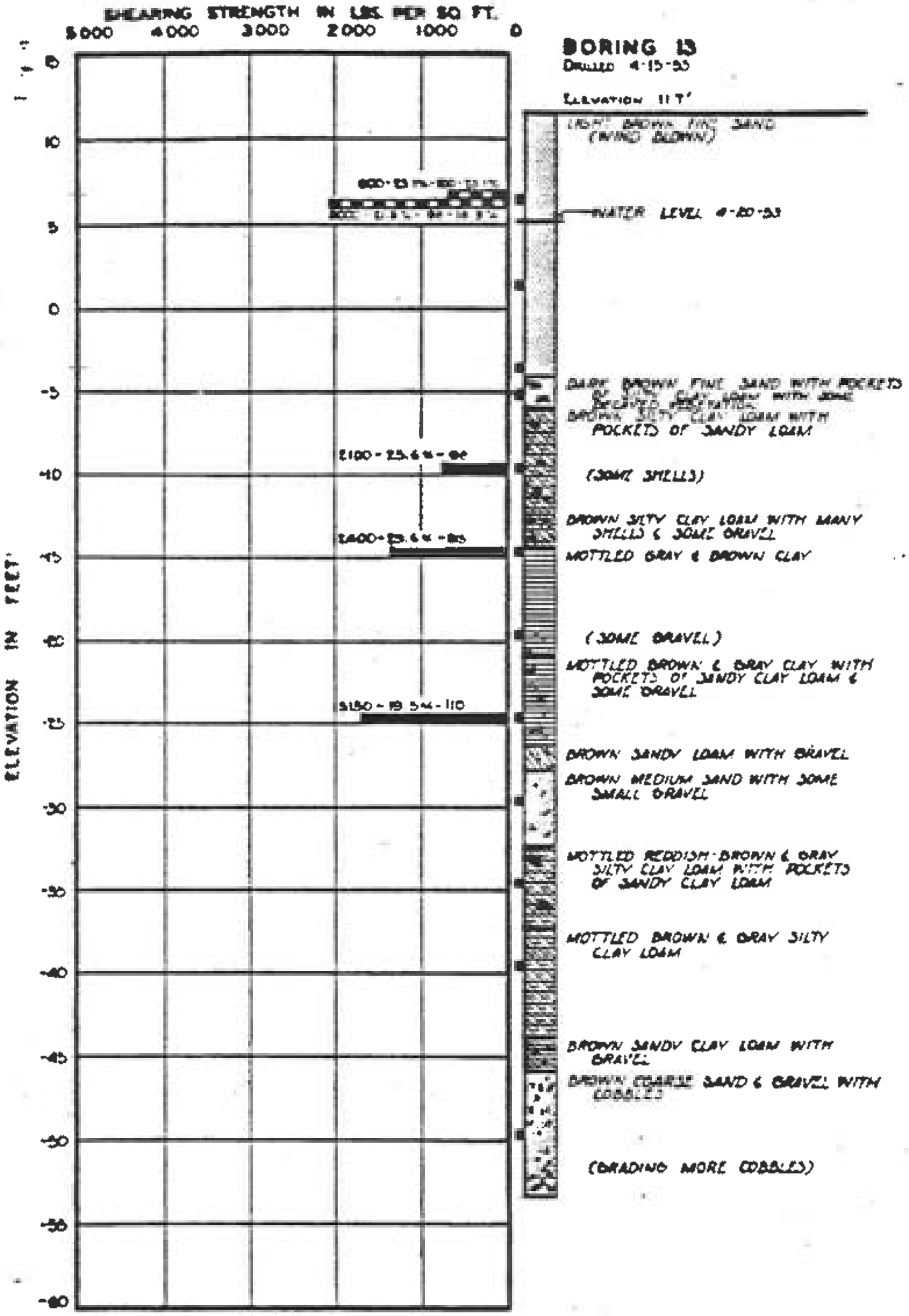
LOG OF BORINGS

DAMES & MOORE, Civil Engineers



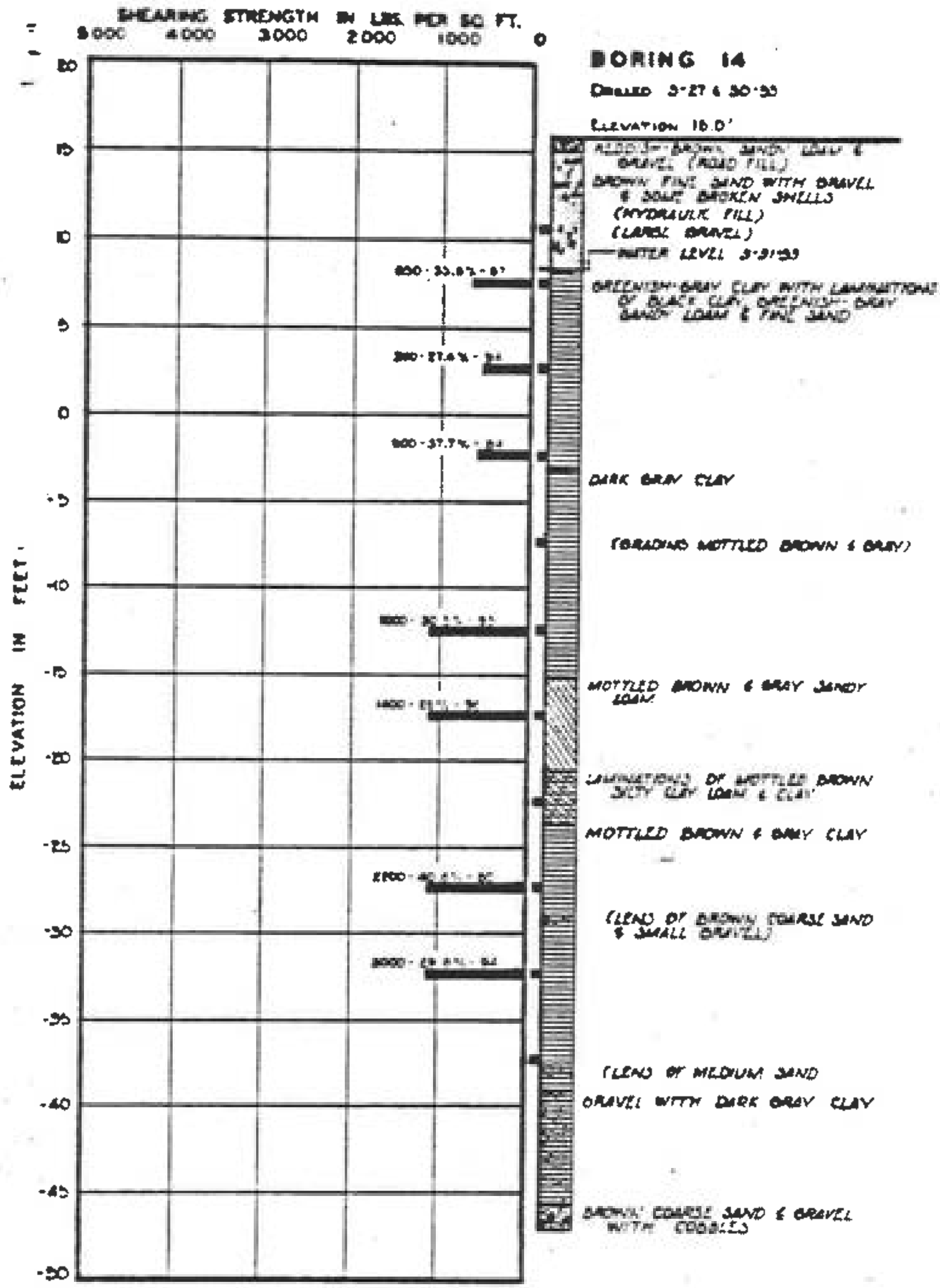
LOG OF BORINGS

DAMES & MOORE, Civil Engineers



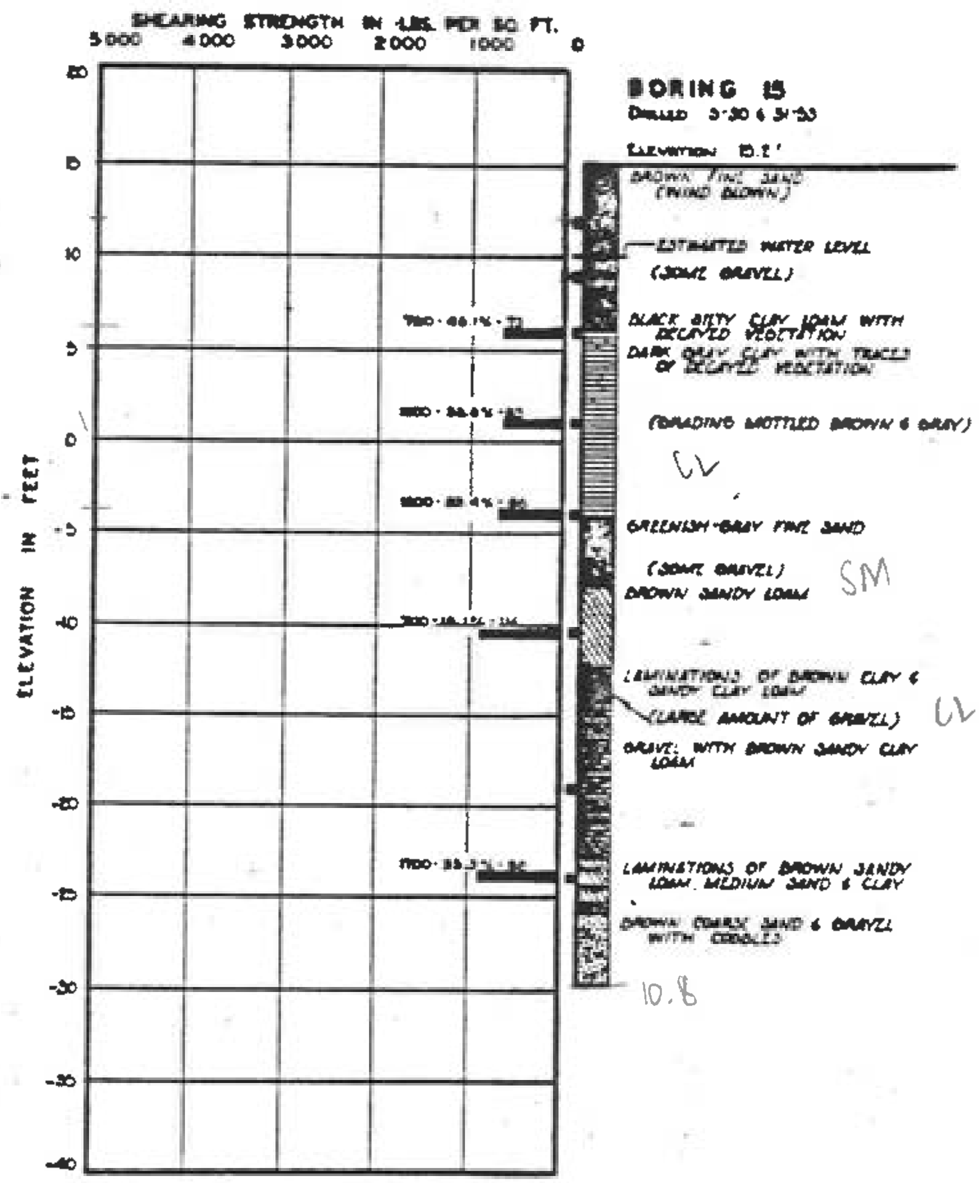
LOG OF BORINGS

DAMES & MOORE, Soil Engineers

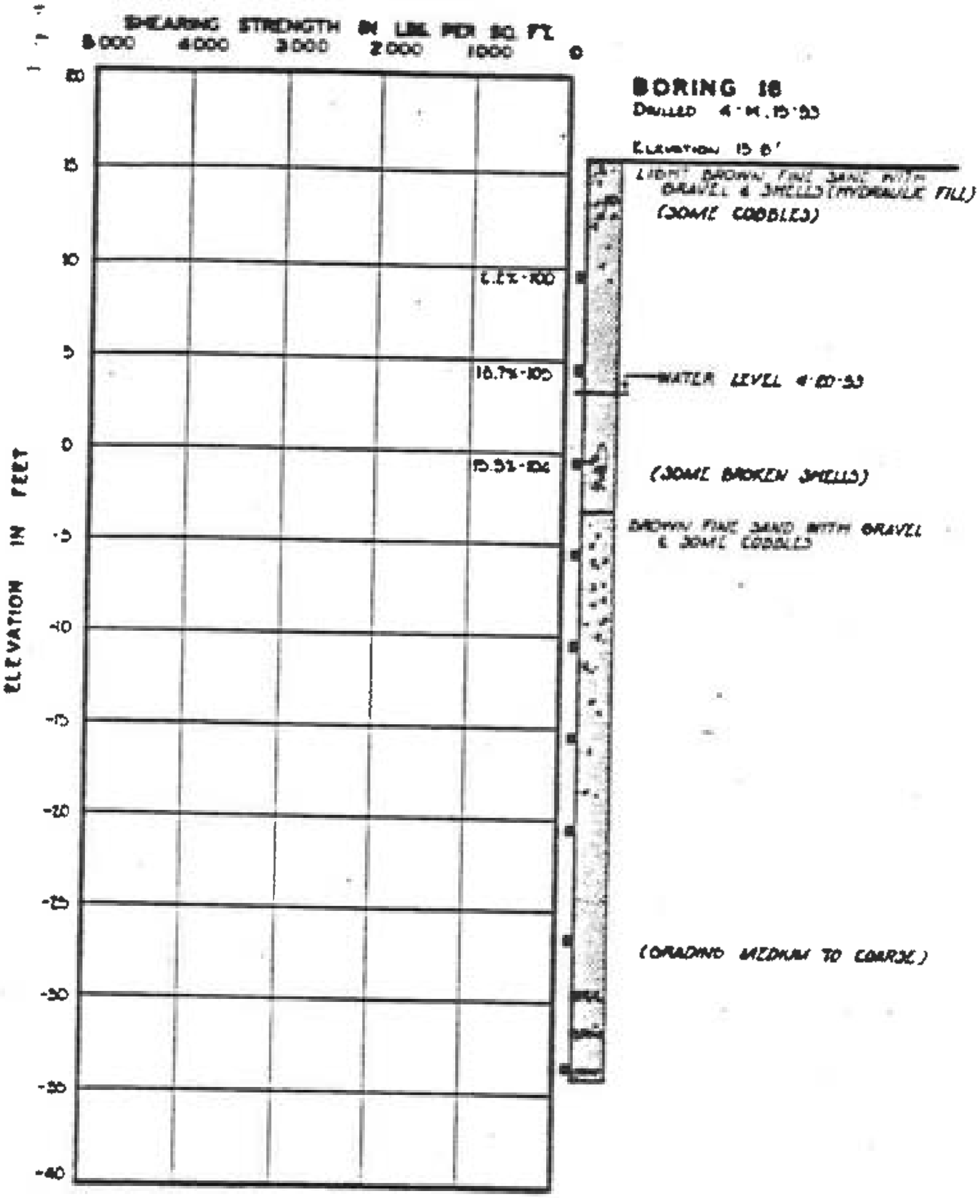


LOG OF BORINGS

DAMES & MOORE

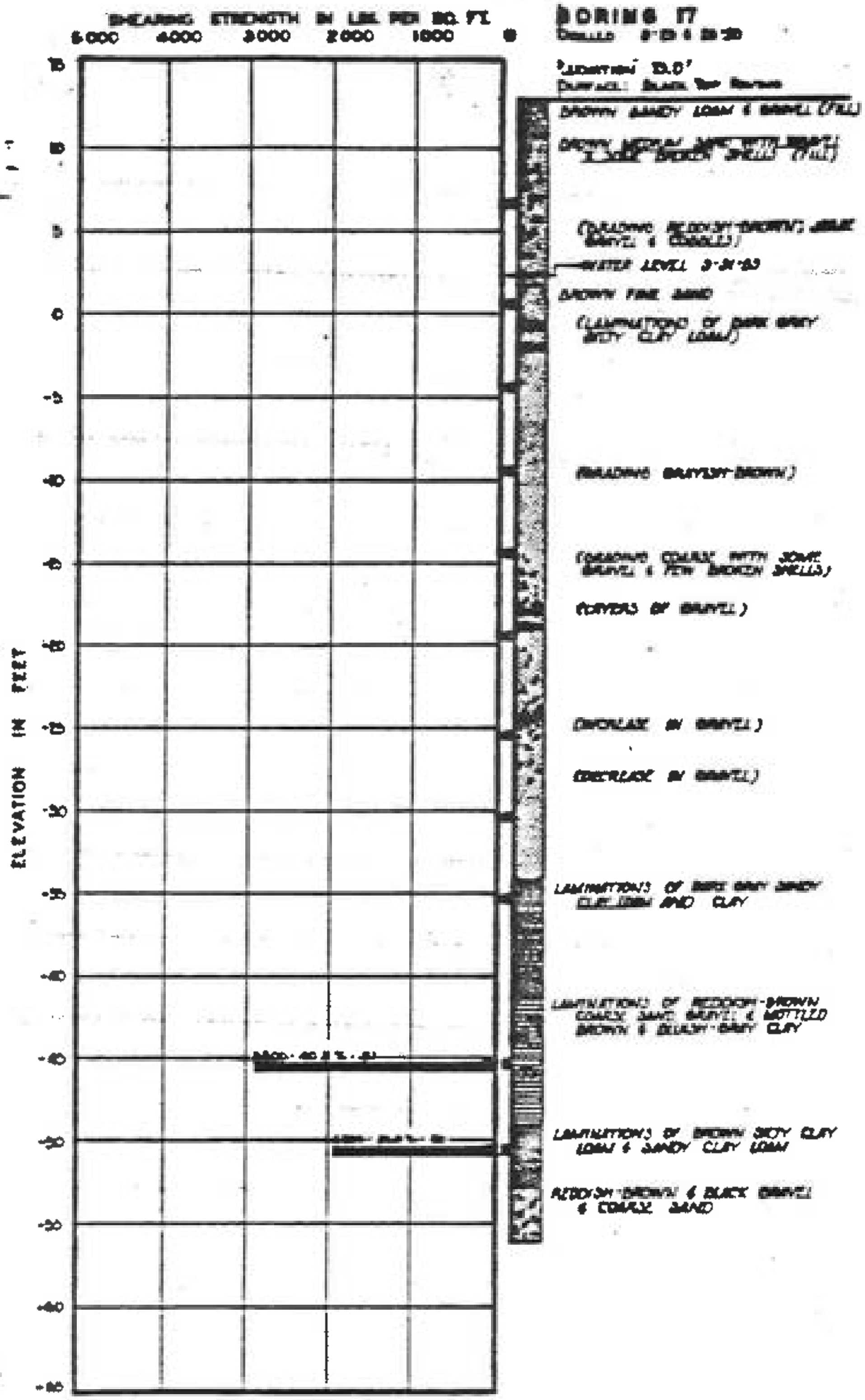


LOG OF BORINGS



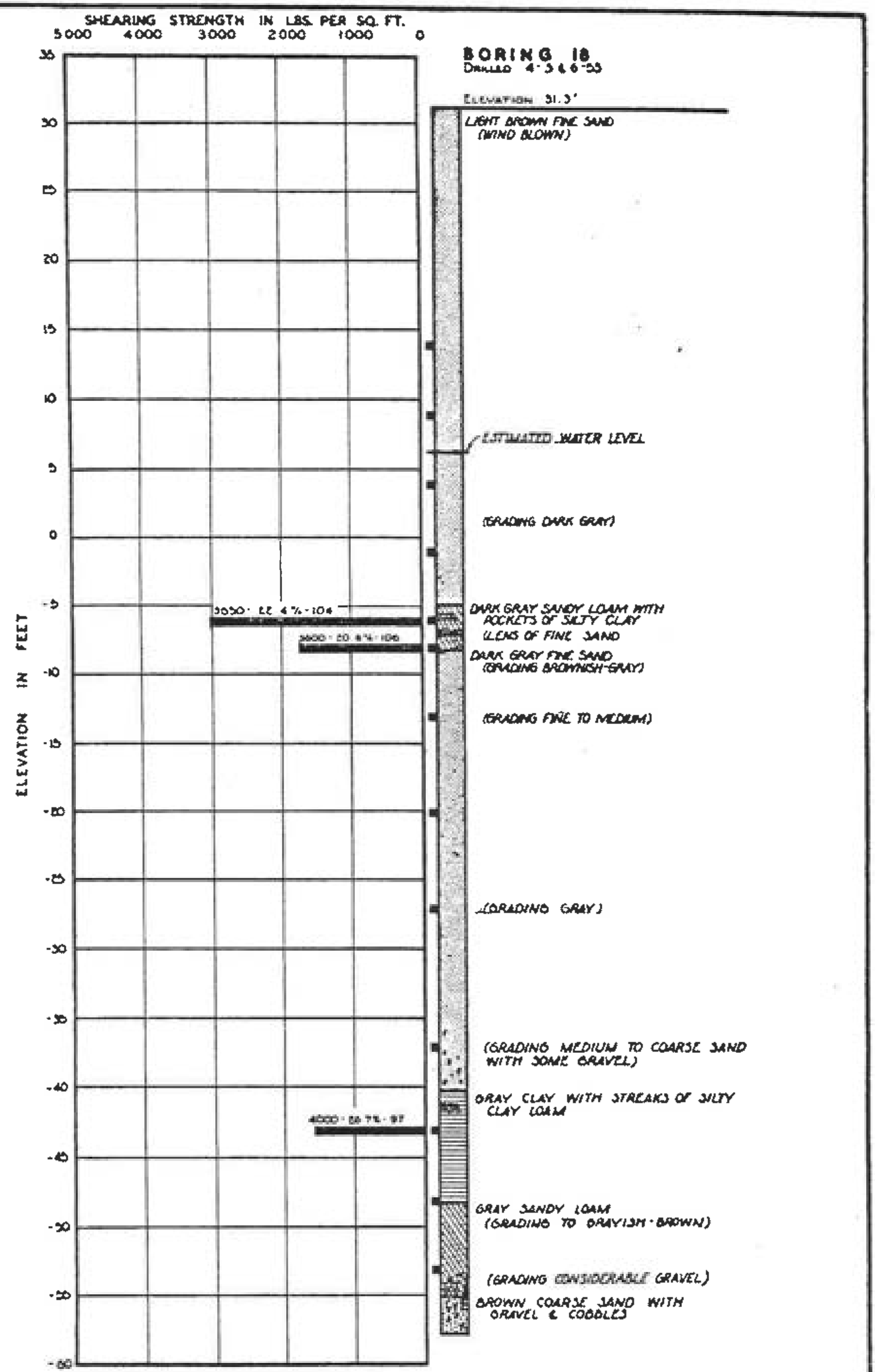
LOG OF BORINGS

DAMES & MOORE, Civil Engineers
Foundation Investigations - Soil Mechanics Engineering



LOG OF BORINGS

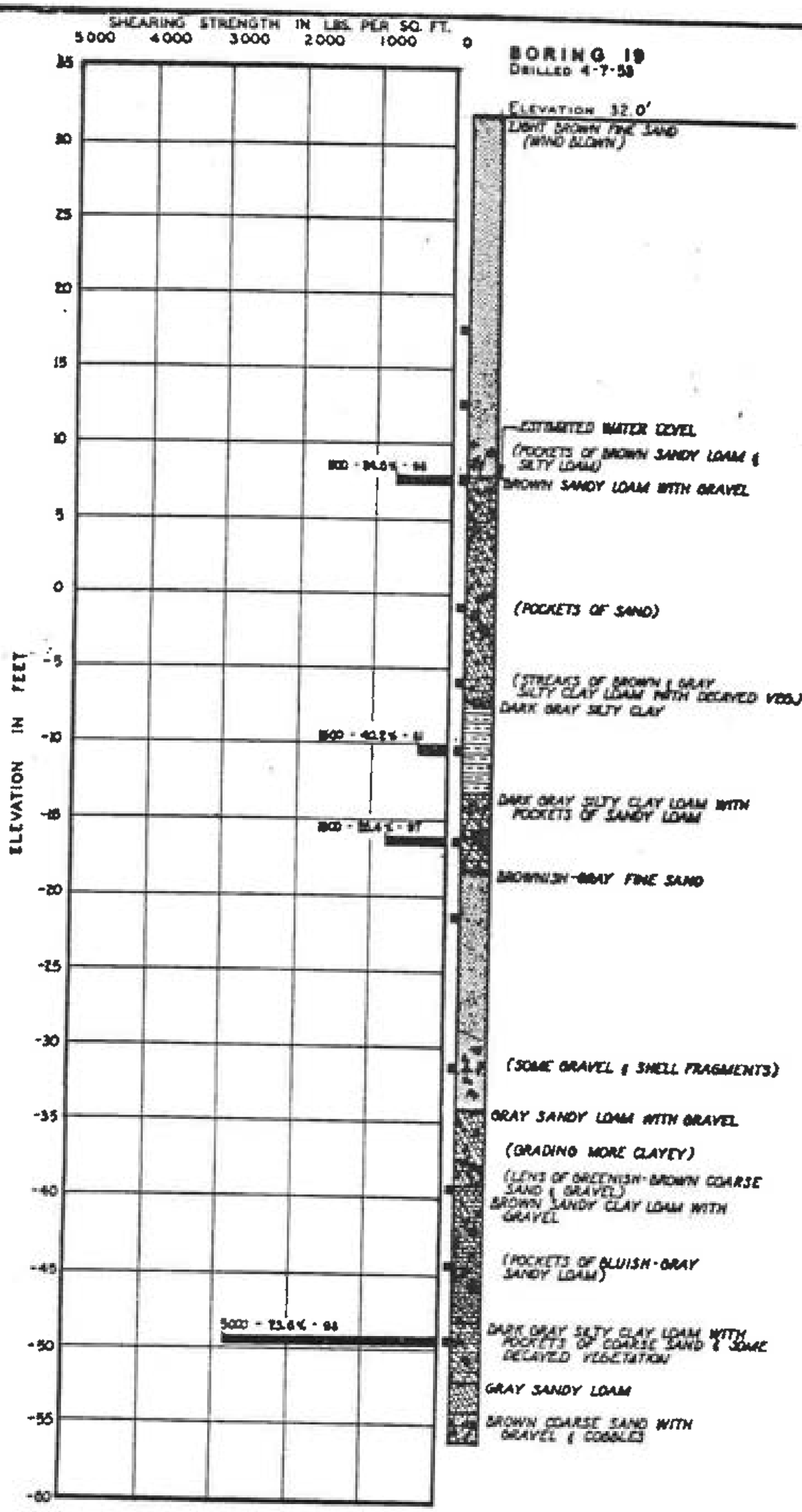
DAMES & MOORE, Soil Engineers



LOG OF BORINGS

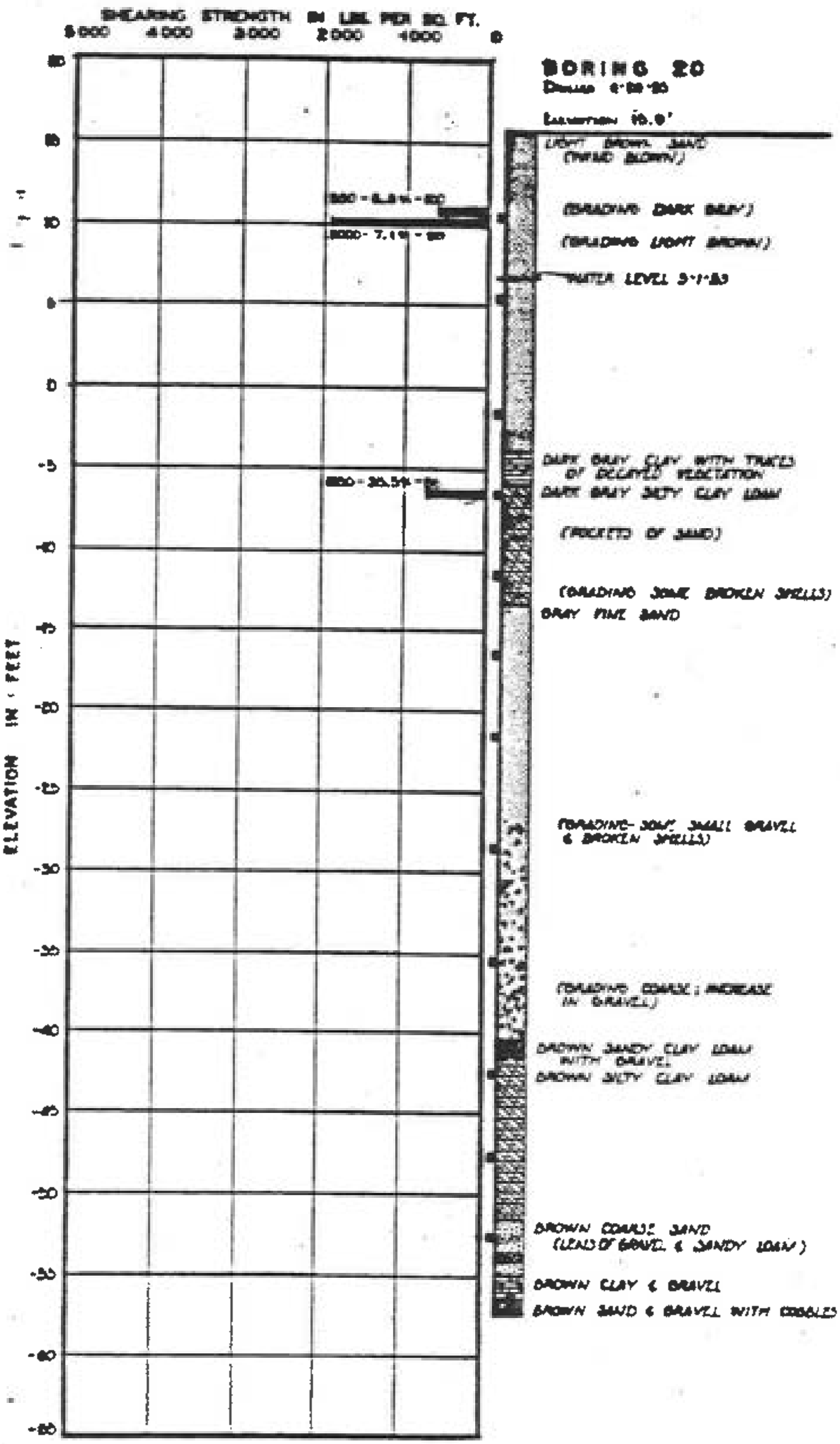
DAMES & MOORE, Civil Engineers

Foundation Investigations · Soil Mechanics Engineering



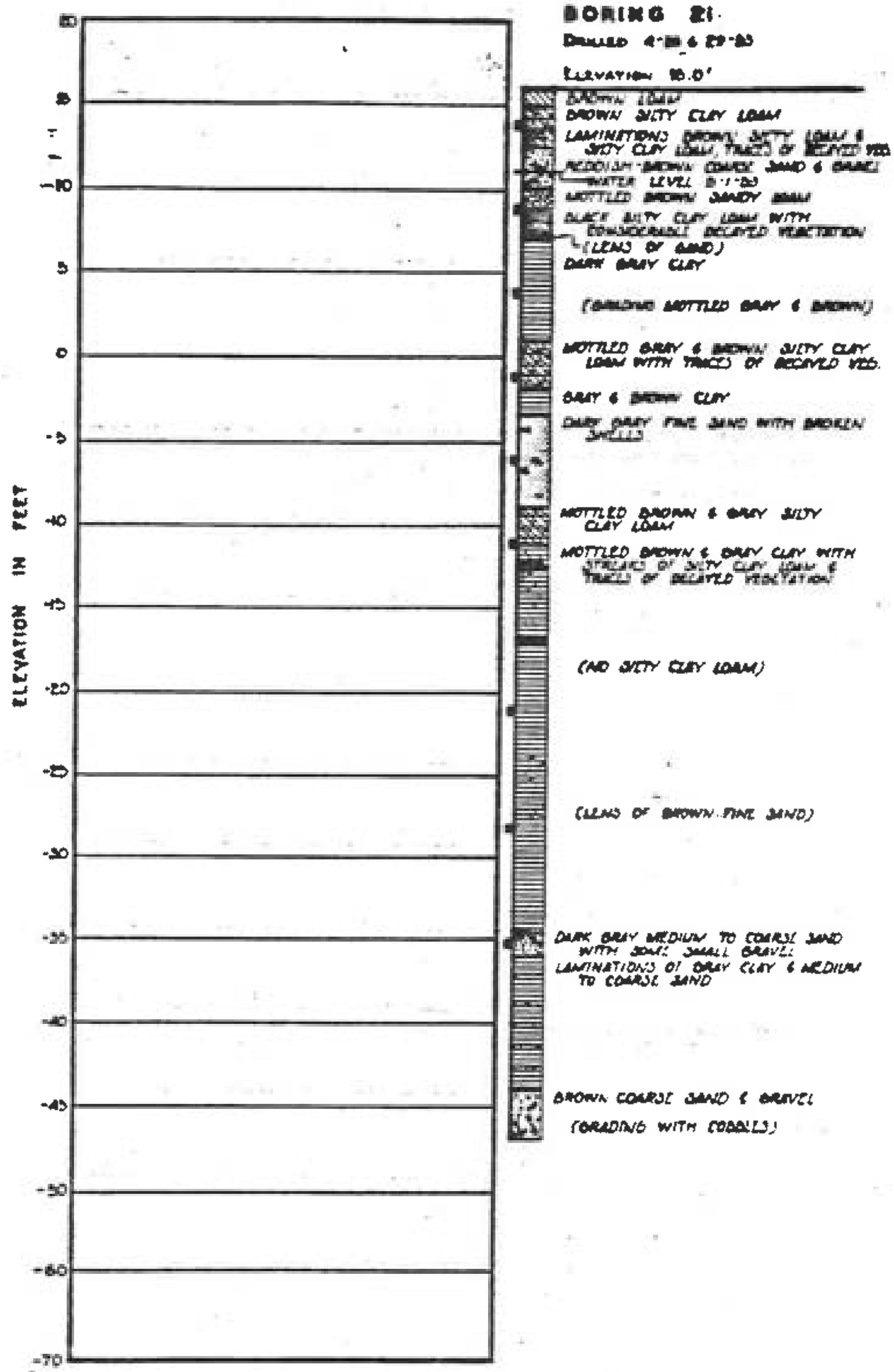
LOG OF BORINGS

DAMES & MOORE, Civil Engineers
FOUNDATION INVESTIGATIONS - SOIL MECHANICS ENGINEERING



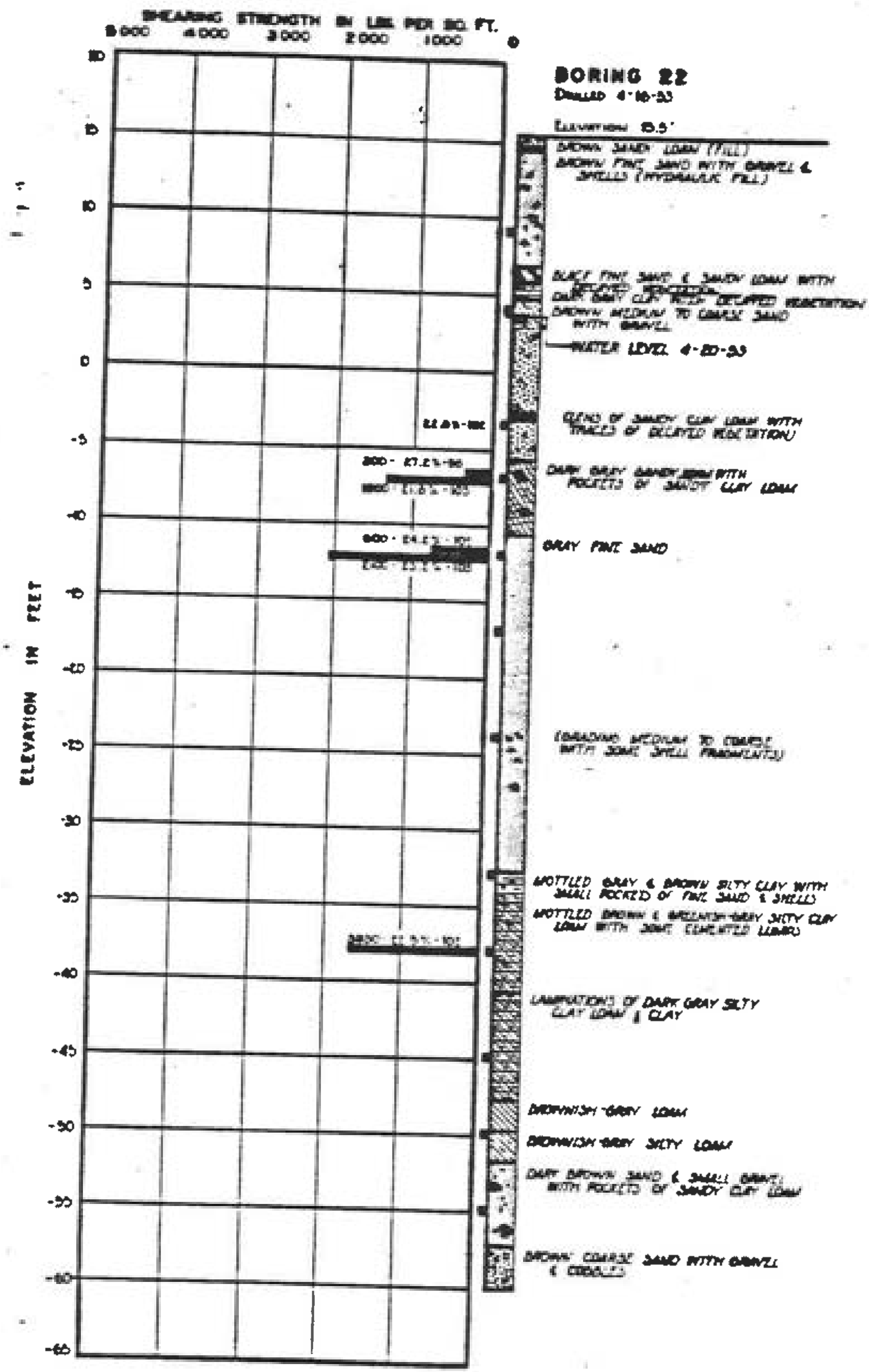
LOG OF BORINGS

DAMES & MOORE, Civil Engineers



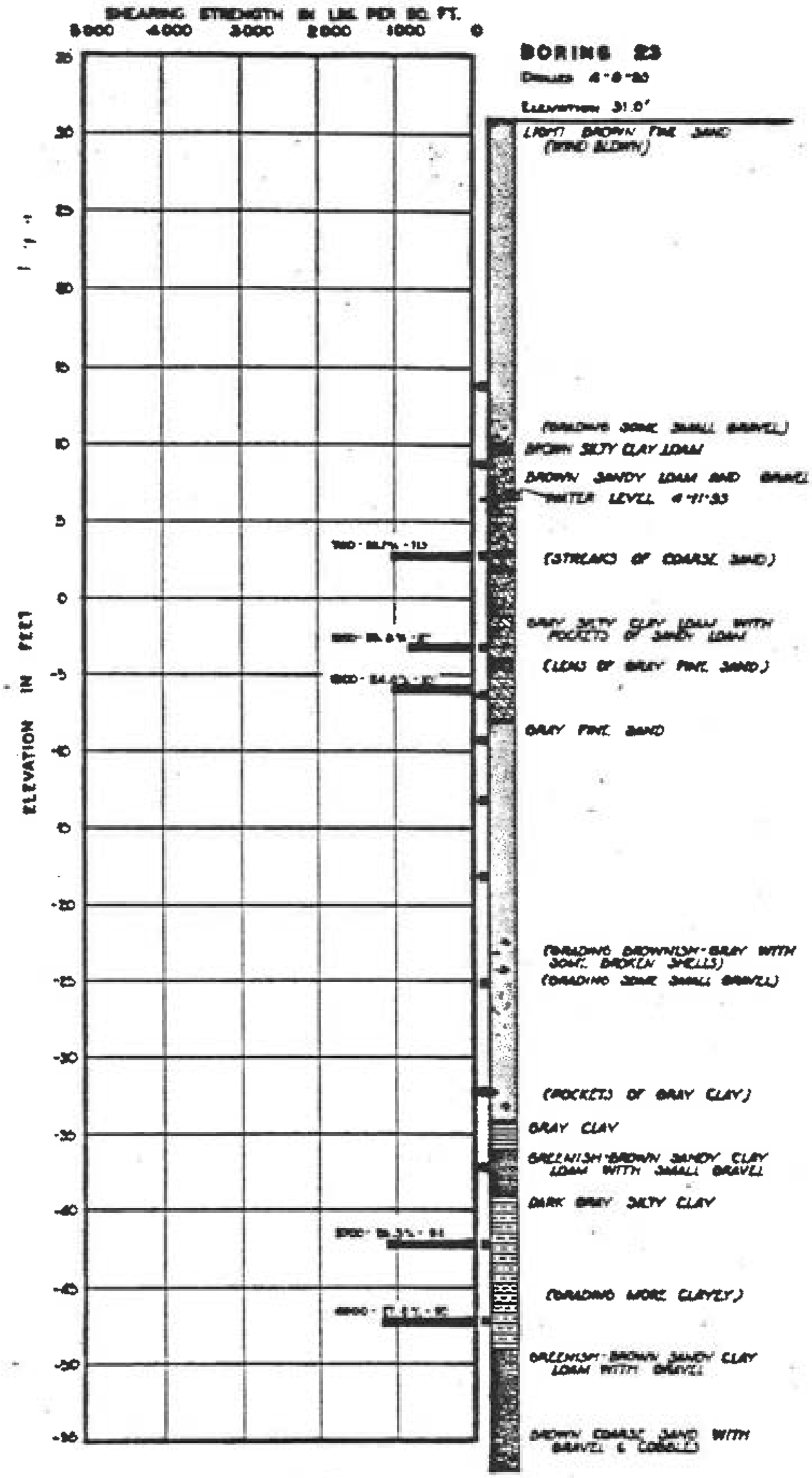
LOG OF BORINGS

DAMES & MOORE



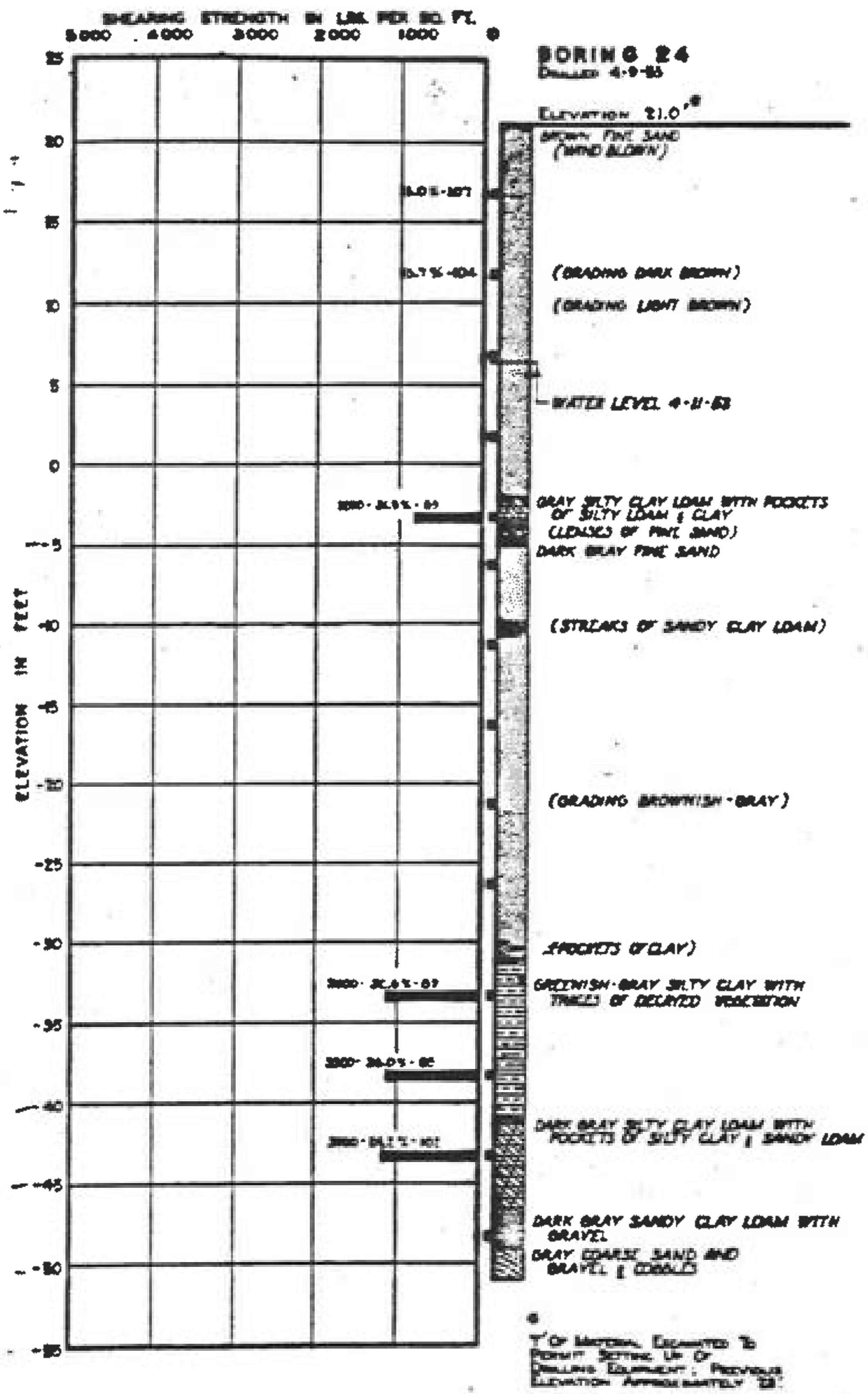
LOG OF BORINGS

DAMES & MOORE, Soil Engineers



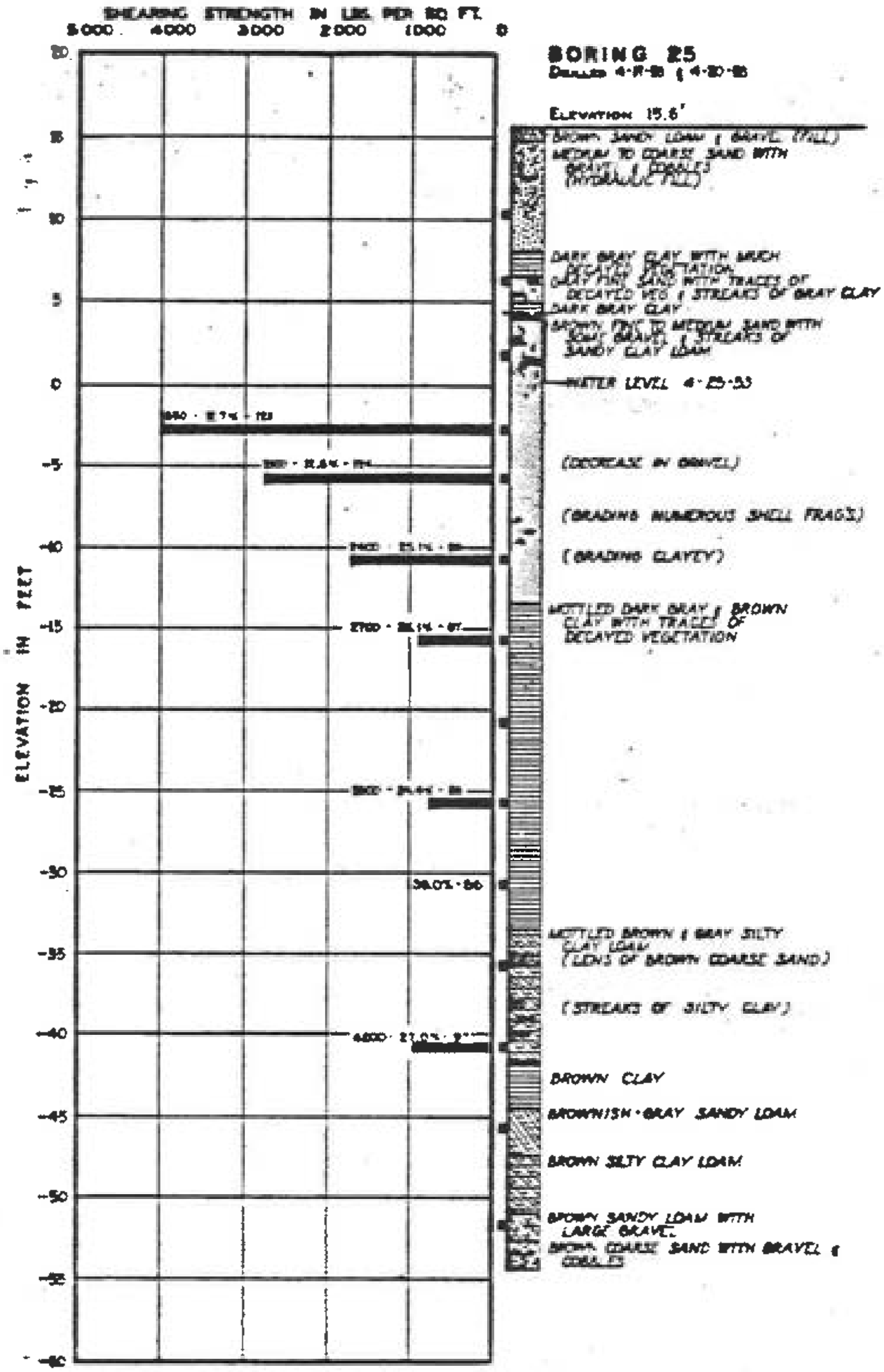
LOG OF BORINGS

DAMES & MOORE, *Civil Engineers*



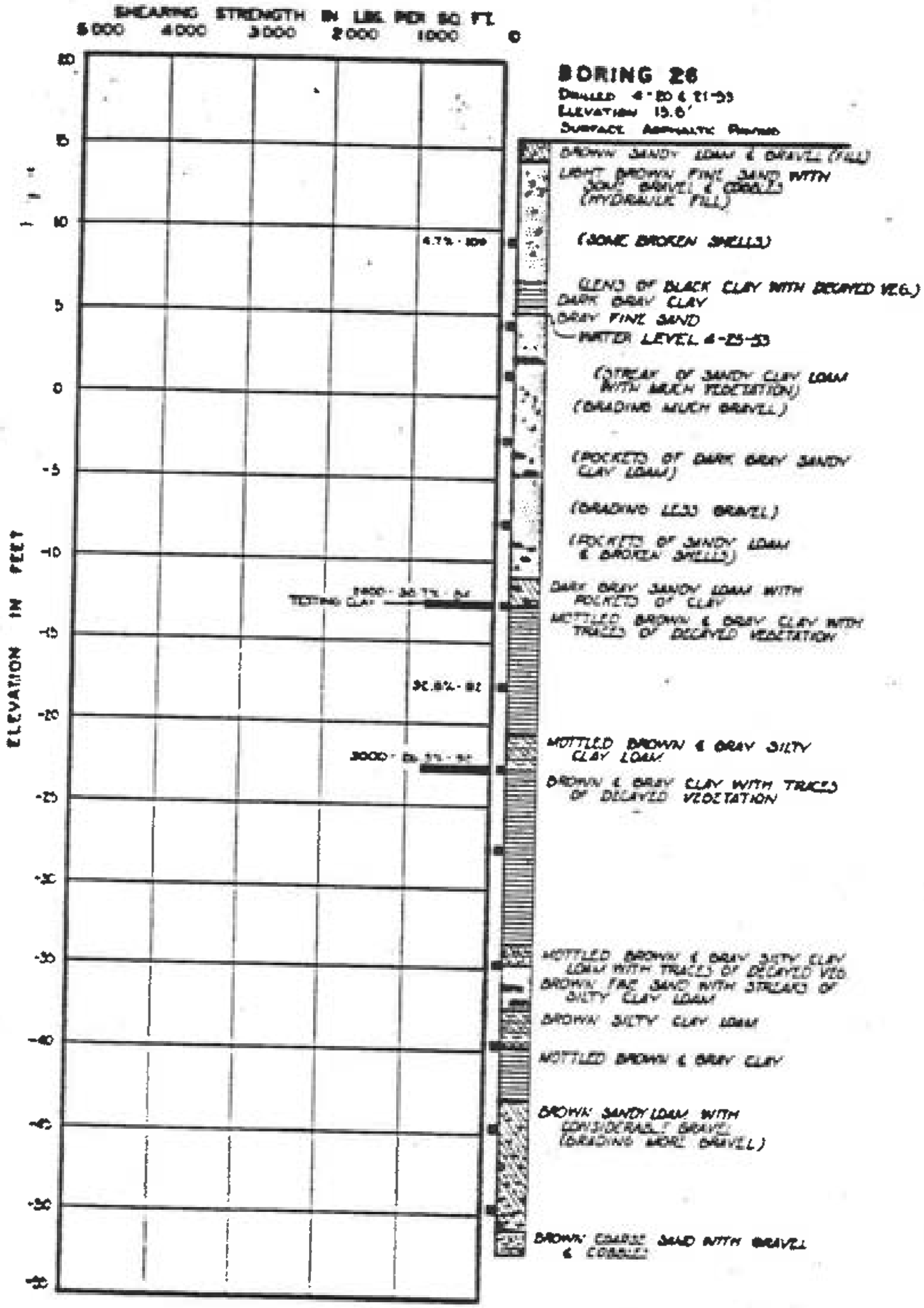
LOG OF BORINGS

DAMES & MOORE, Civil Engineers



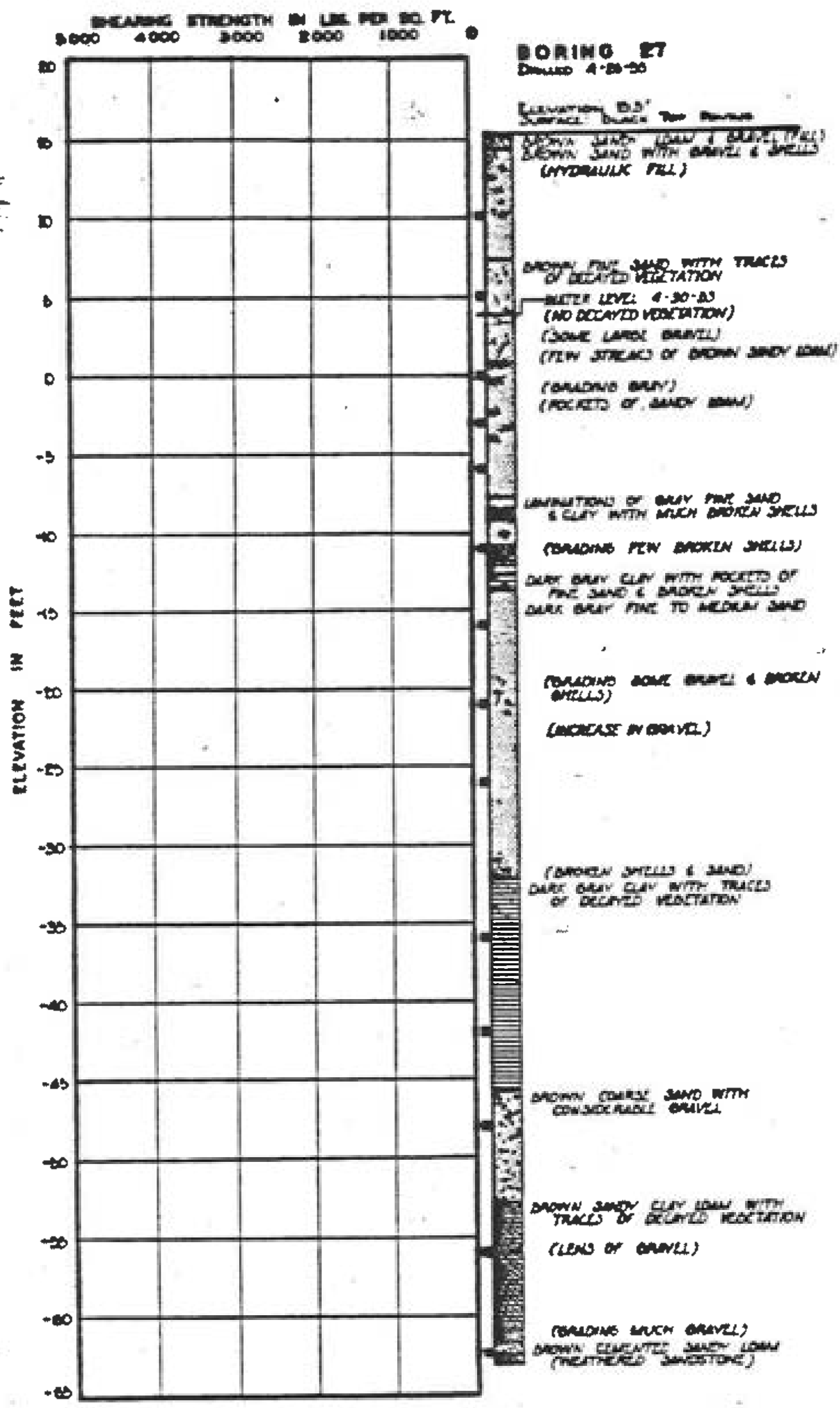
LOG OF BORINGS

DAMES & MOORE, Civil Engineers



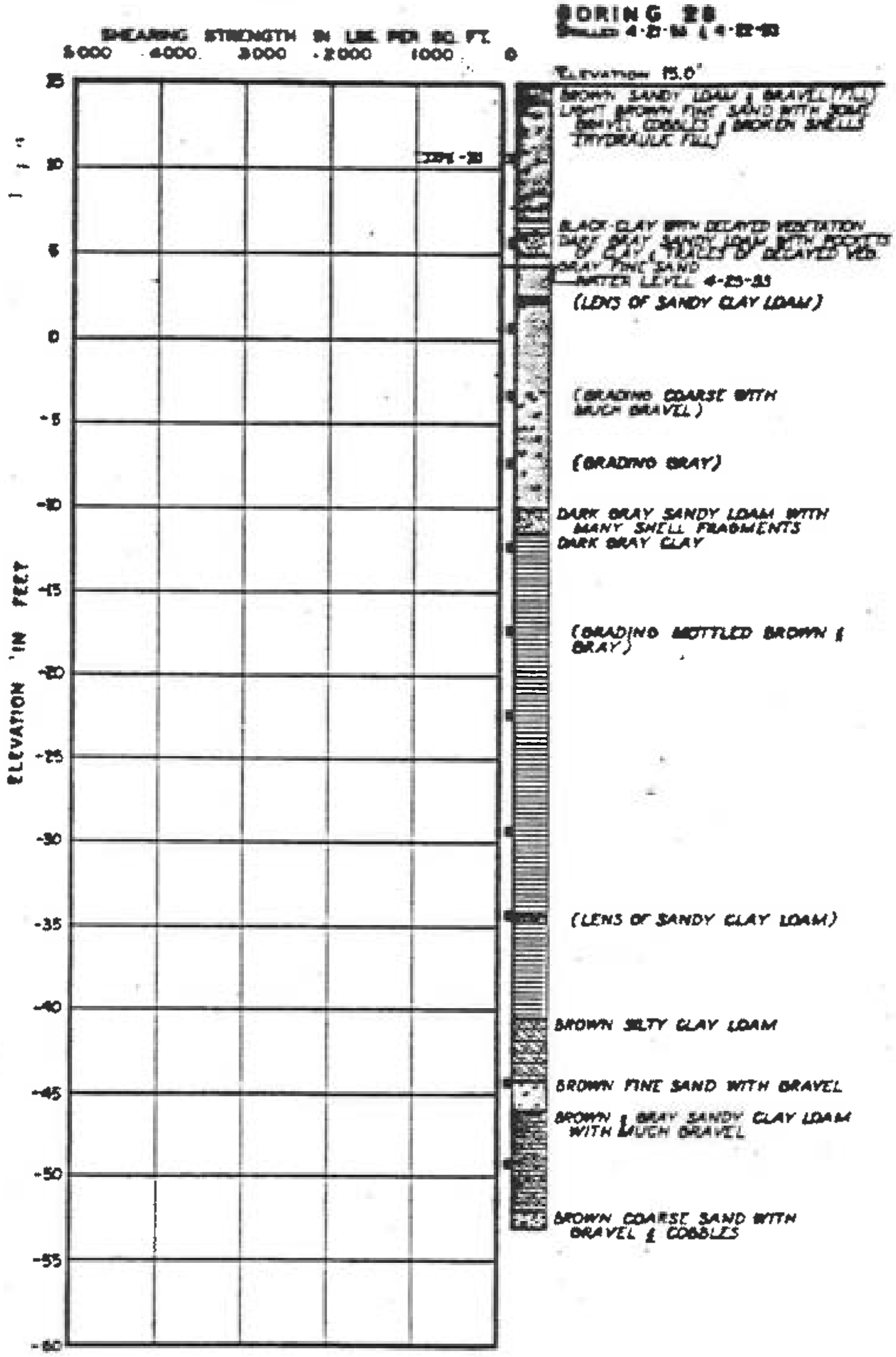
LOG OF BORINGS

DAMES & MOORE, *Civil Engineers*
Foundation Investigations · Soil Mechanics Engineering



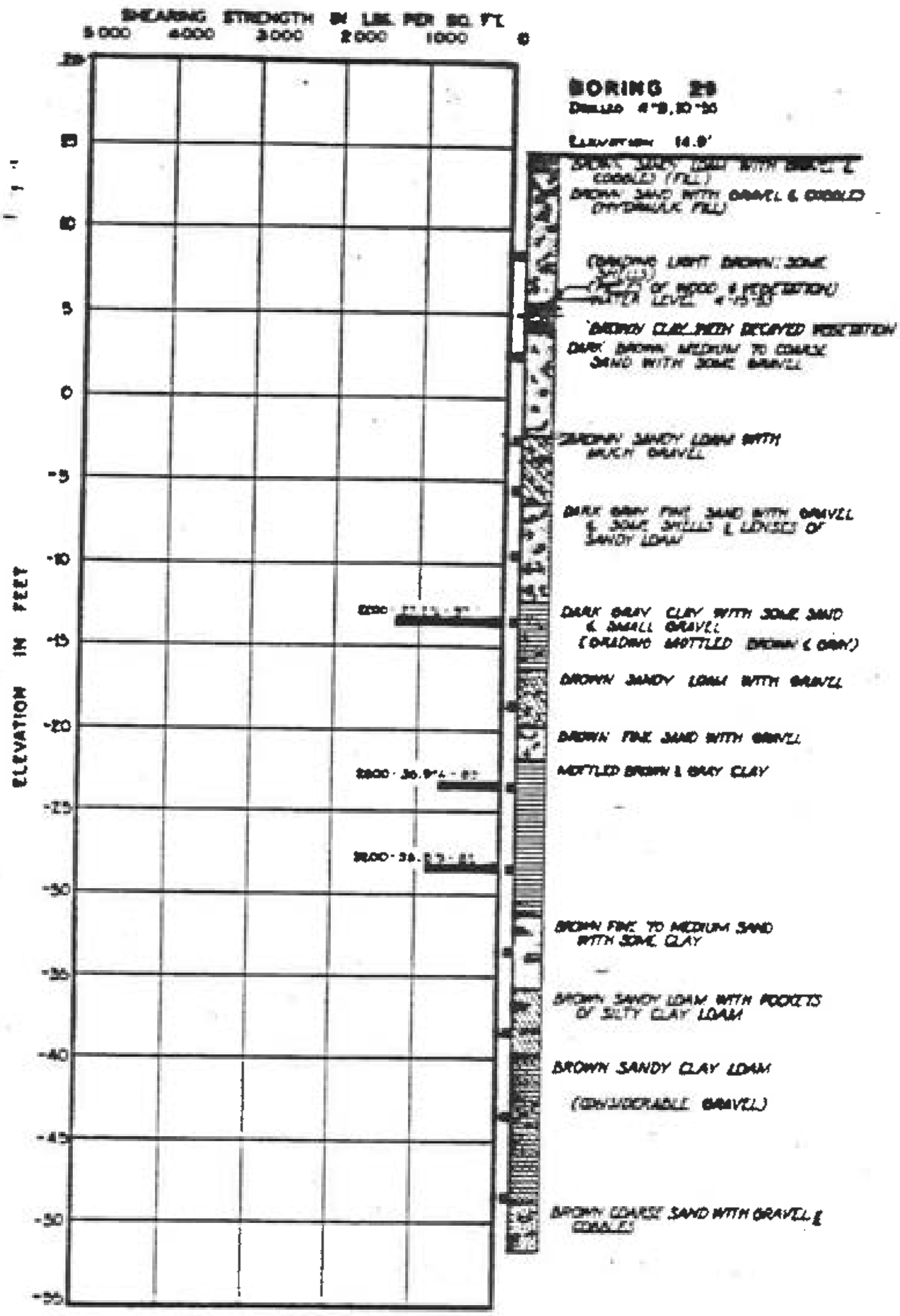
LOG OF BORINGS

DAMES & MOORE, Civil Engineers



LOG OF BORINGS

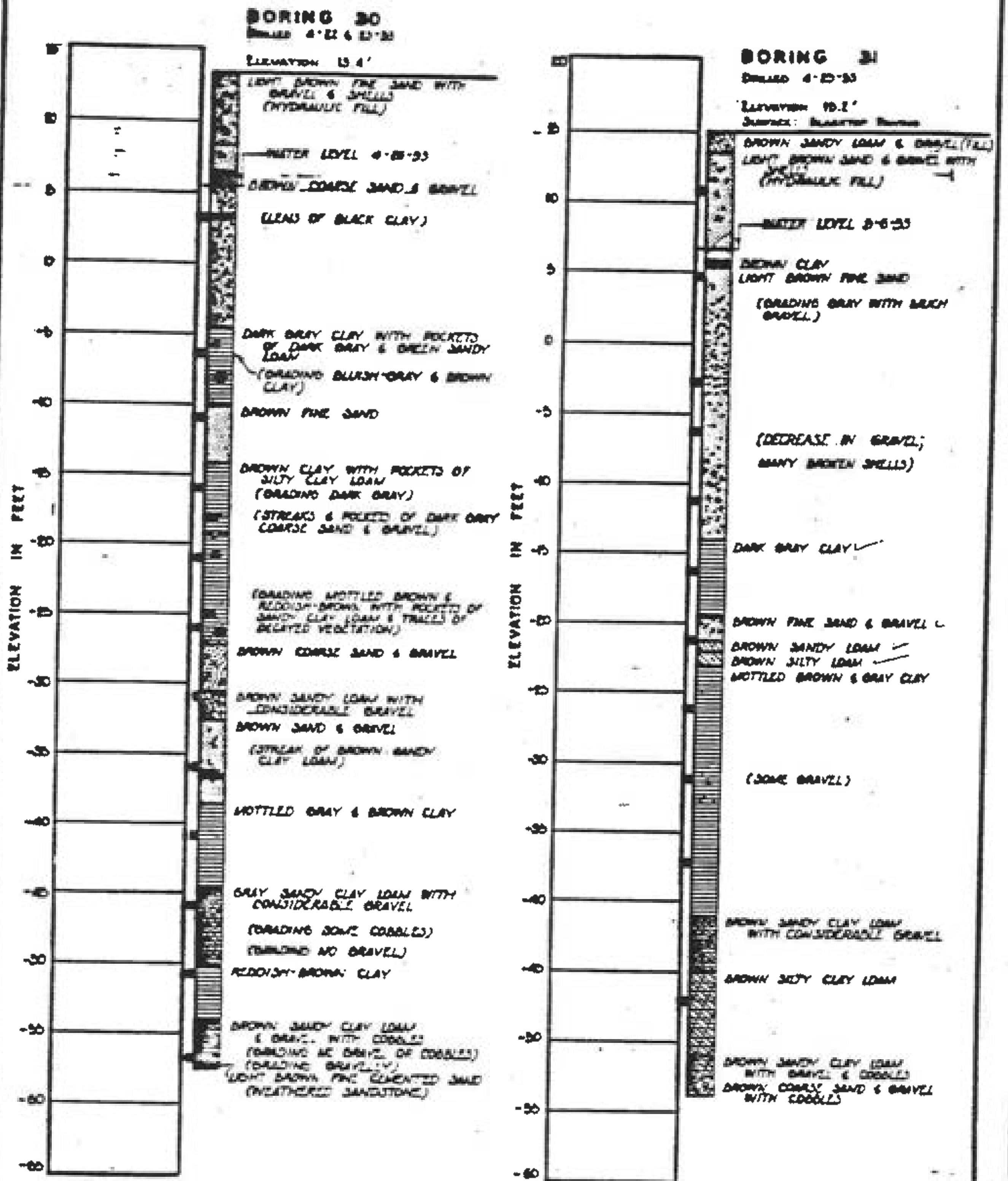
DAMES & MOORE. *Civil Engineers*



LOG OF BORINGS

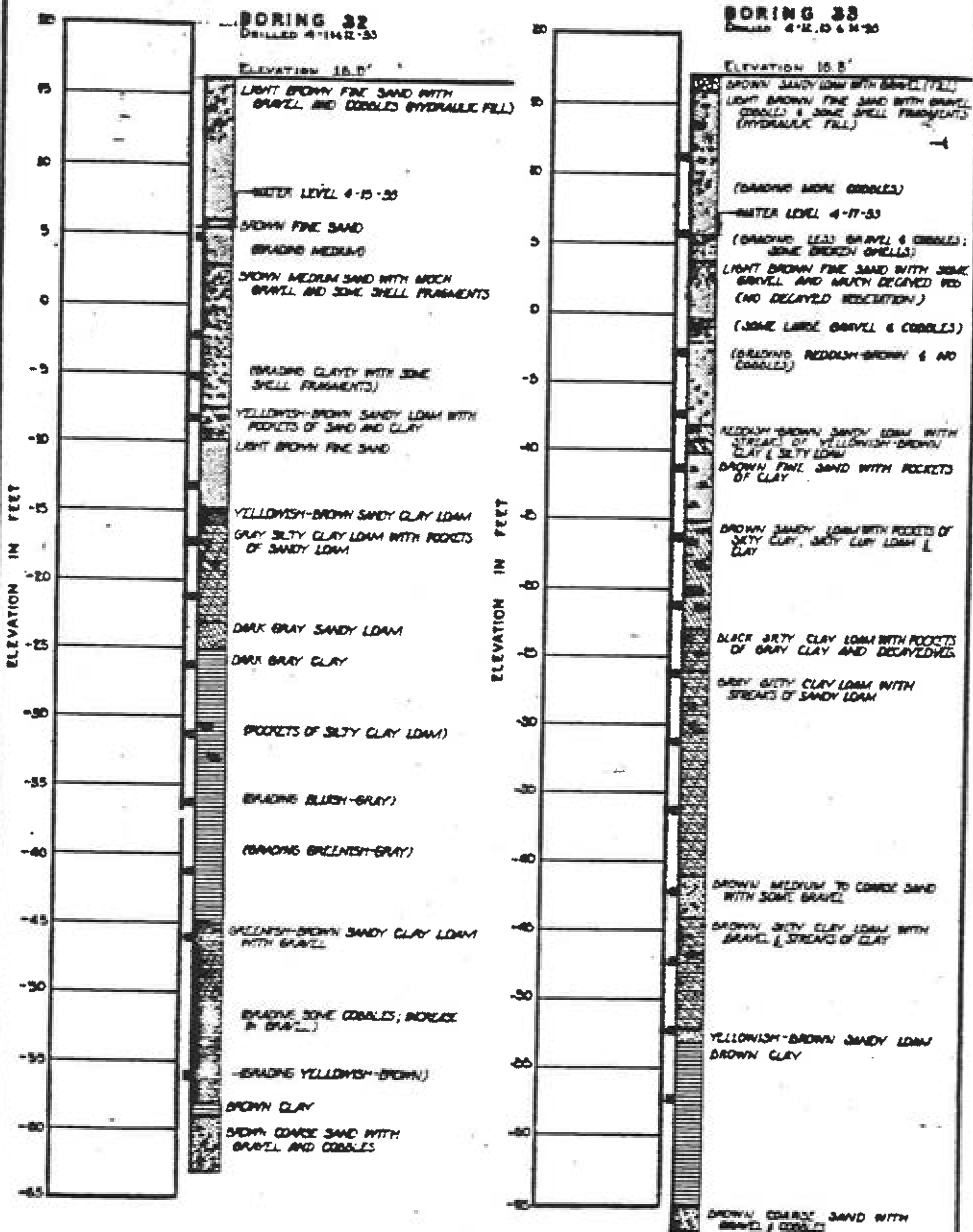
DAMES & MOORE, Civil Engineers

PLATE A-25



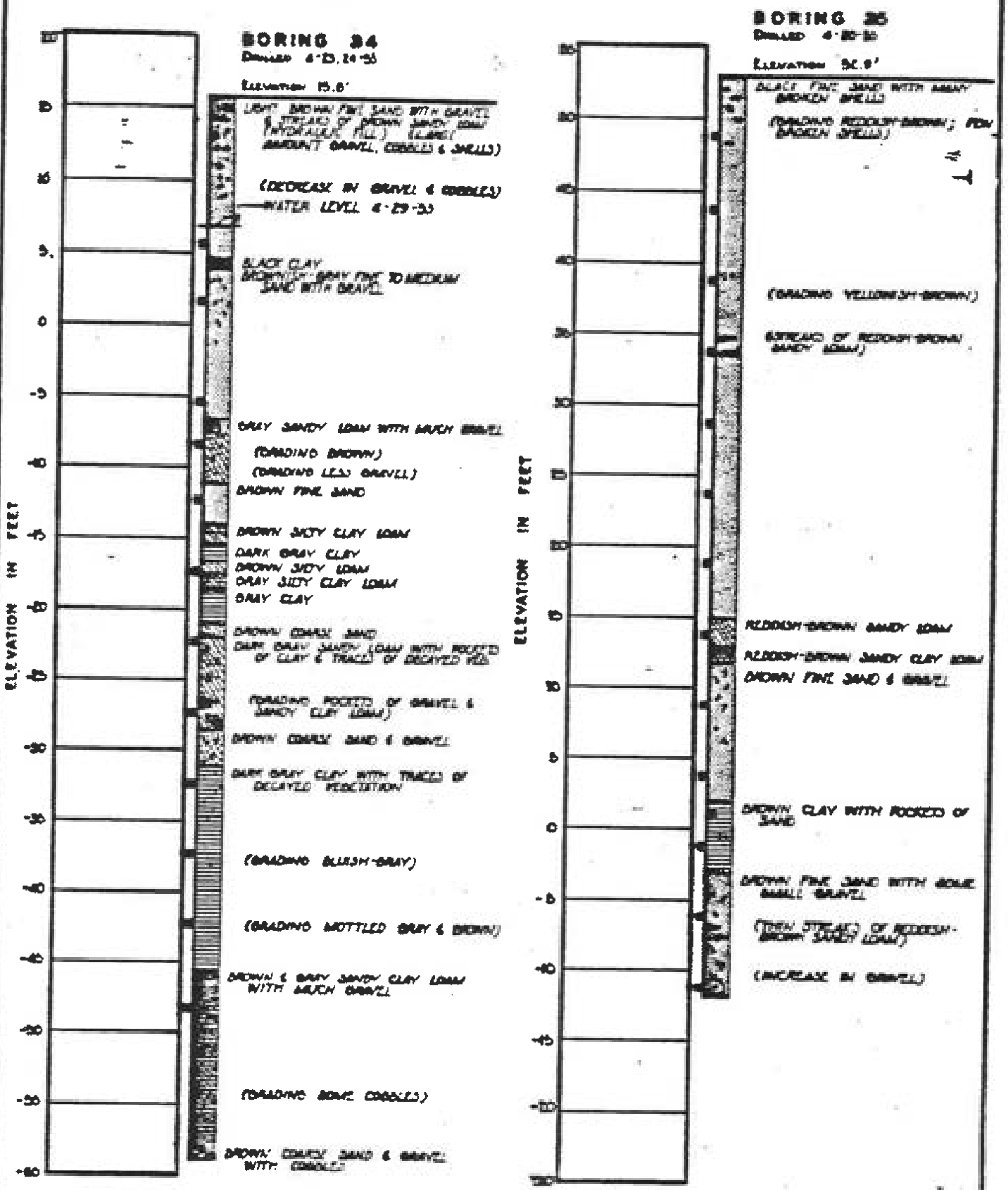
LOG OF BORINGS

DAMES & MOORE, Civil Engineers



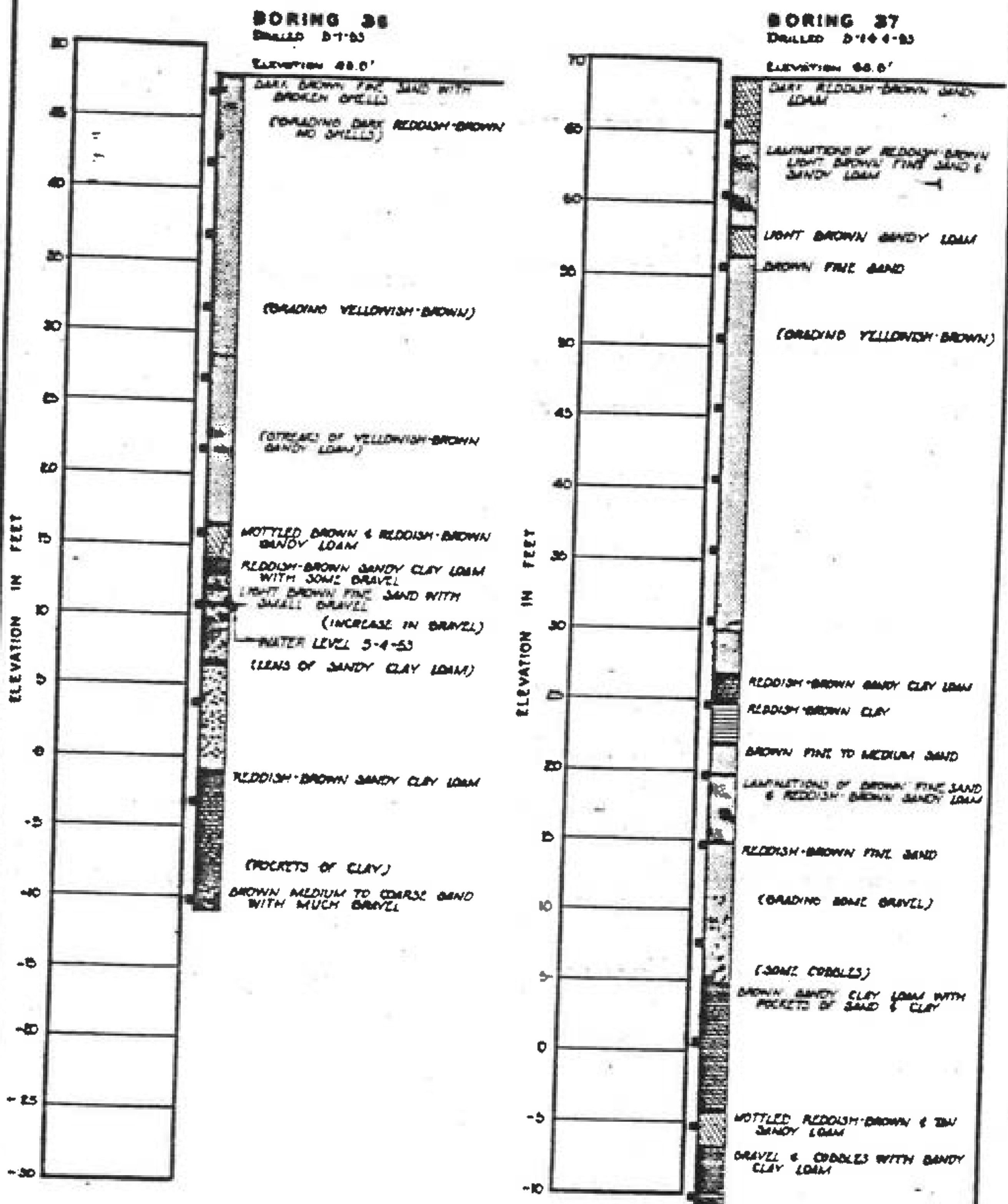
LOG OF BORINGS

DAMES & MOORE



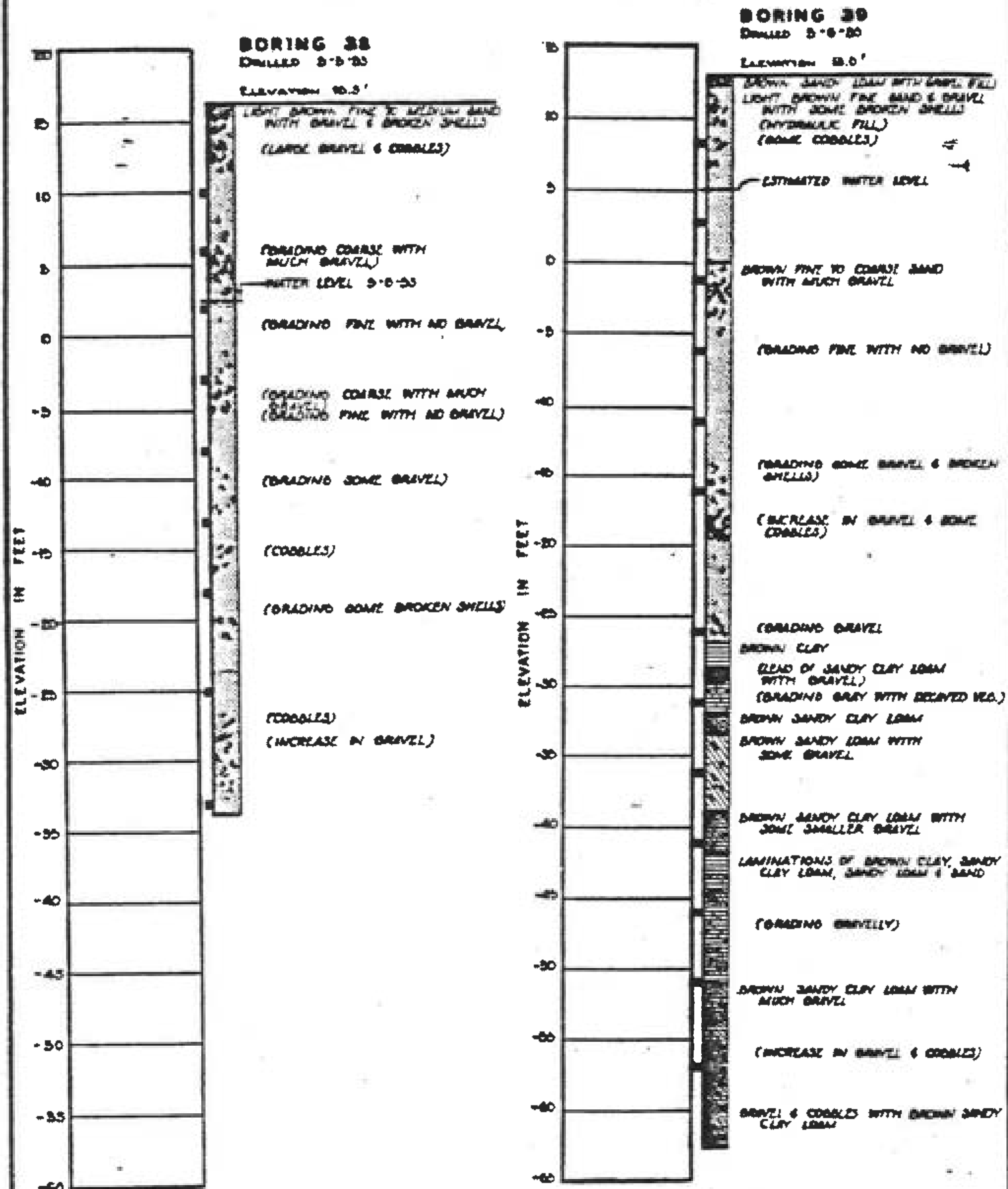
LOG OF BORINGS

DAMES & MOORE, Civil Engineers



LOG OF BORINGS

DAMES & MOORE, Civil Engineers
Foundation Investigations · Soil Mechanics Engineering

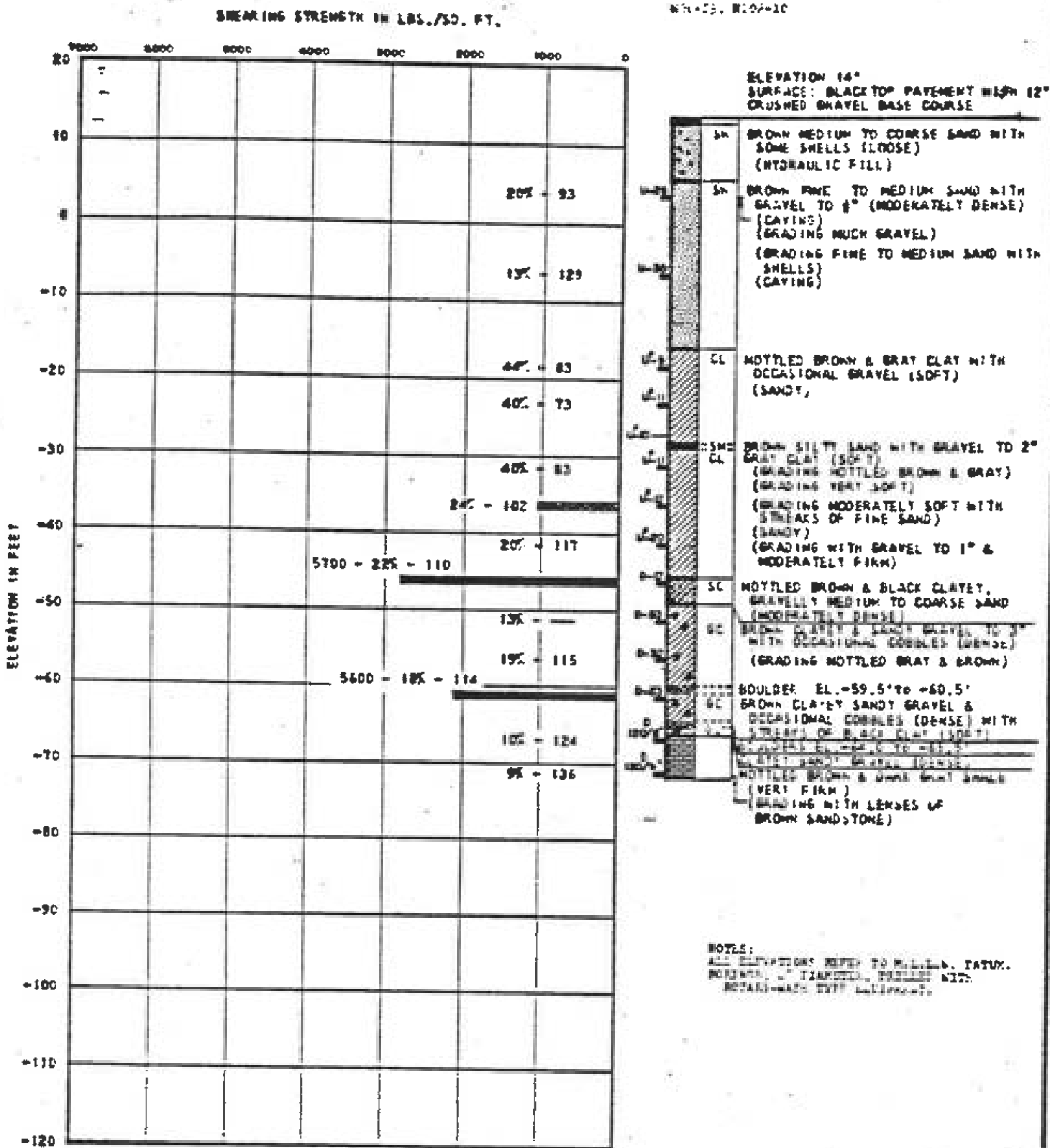


LOG OF BORINGS

DAMES & MOORE, Soil Engineers
Foundation Investigations · Soil Mechanics Laboratories

BORING 40

DRILLED 9-12-60, 9-13-60

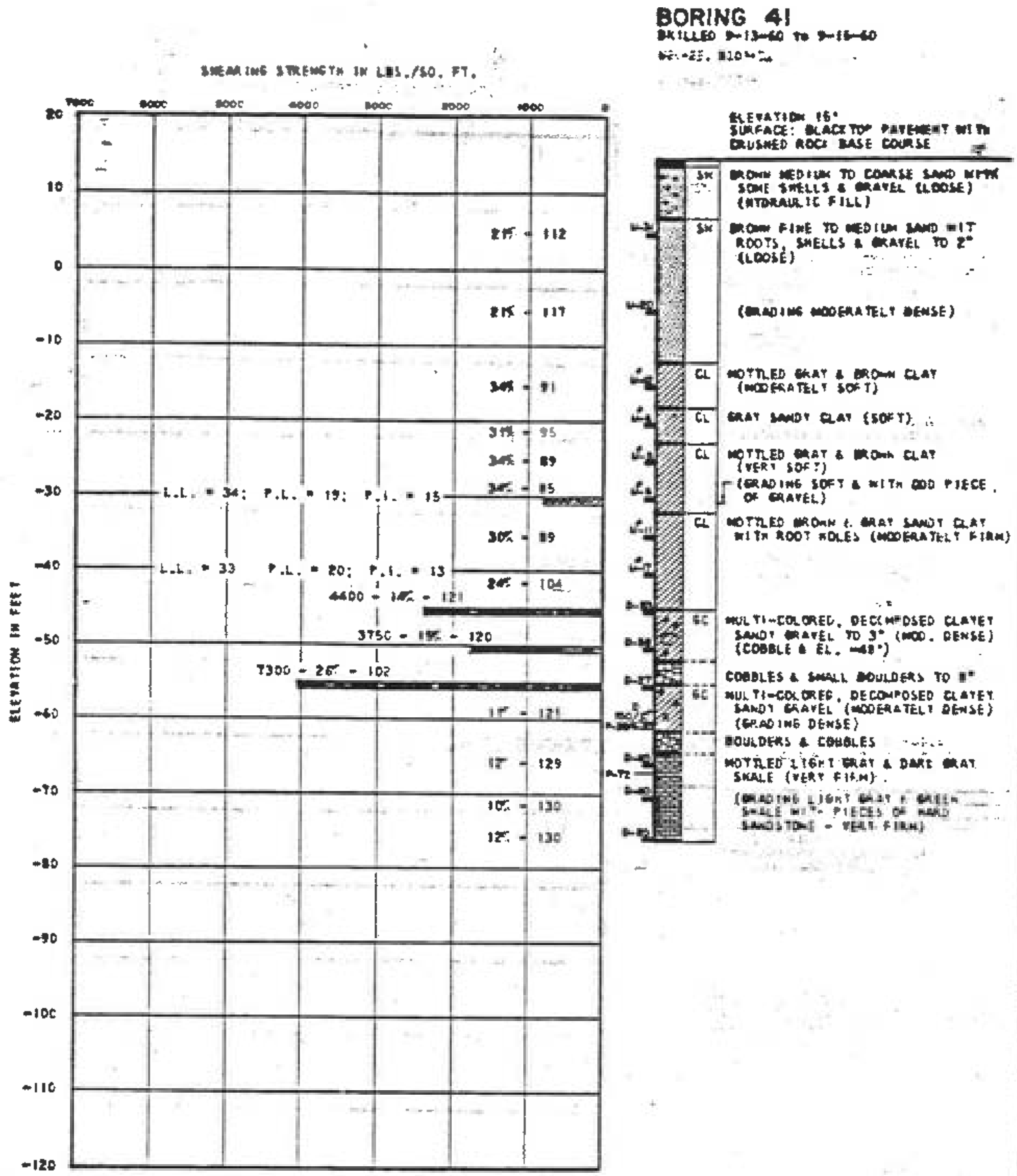


NOTES:
ALL ELEVATIONS REFER TO M.L.L.W. DATUM.
BORING ... DIAMETER, DRILLED WITH ROTARY-WASH TYPE EQUIPMENT.

LOG OF BORING

DAMES & MOORE

SOIL MECHANICS ENGINEERS

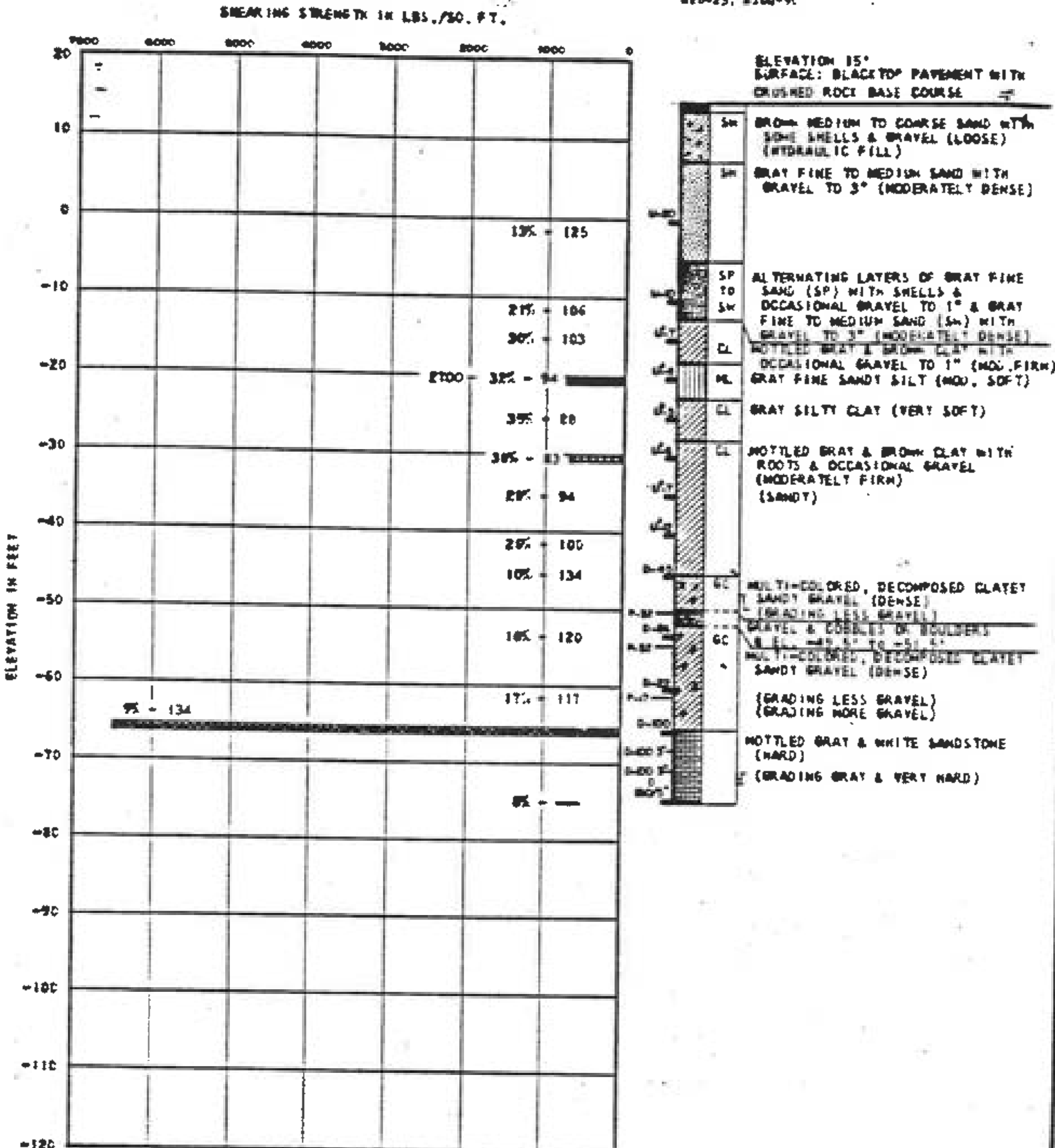


LOG OF BORING

BORING 42

DRILLED 9-15-60 & 9-16-60

N26+25, E10u+9.



LOG OF BORING

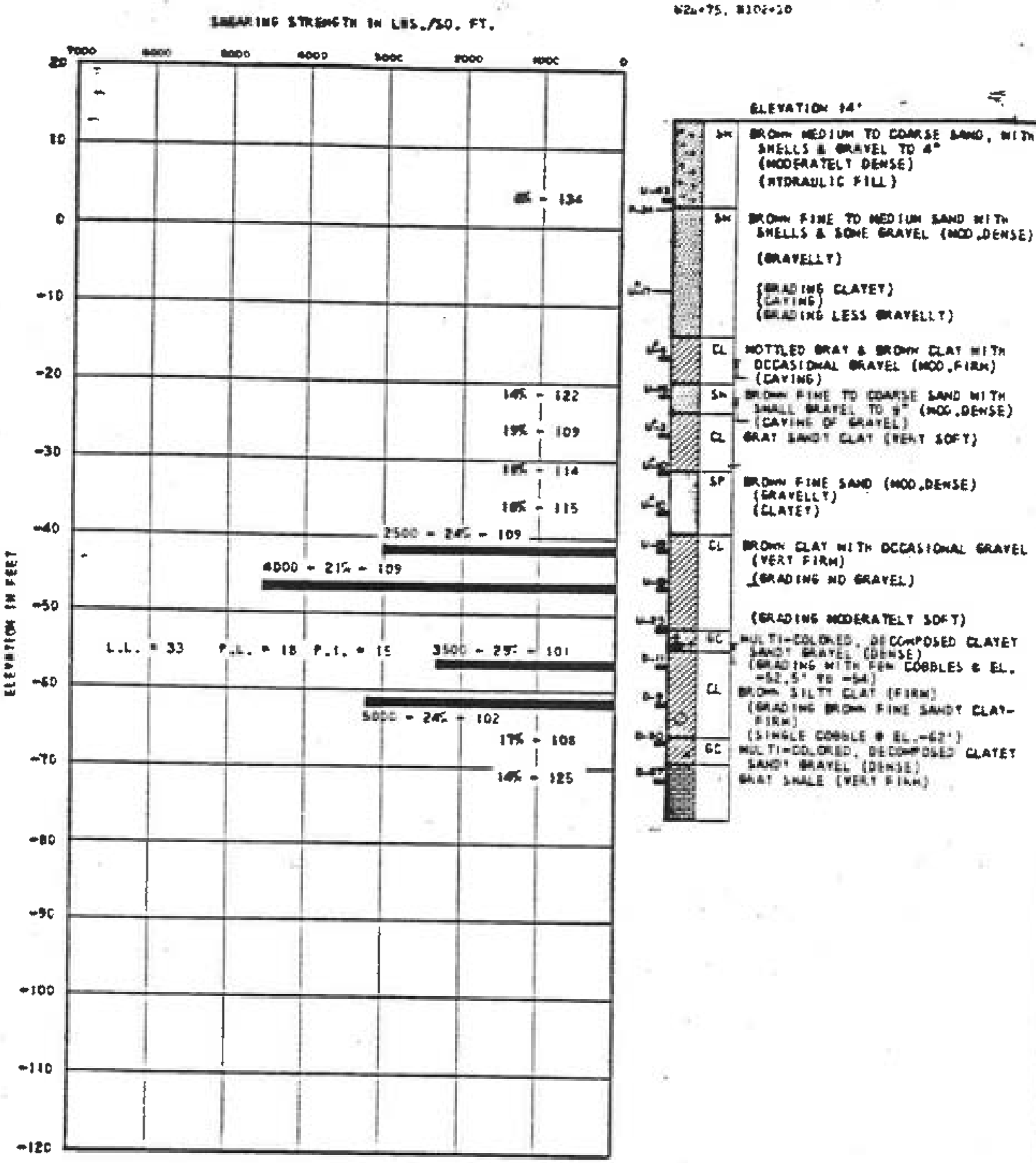
DAMES & MOORE

SOIL MECHANICS ENGINEERS

BORING 43

DRILLED 9-23-60 & 9-24-60

N24+75, E102+20



LOG OF BORING

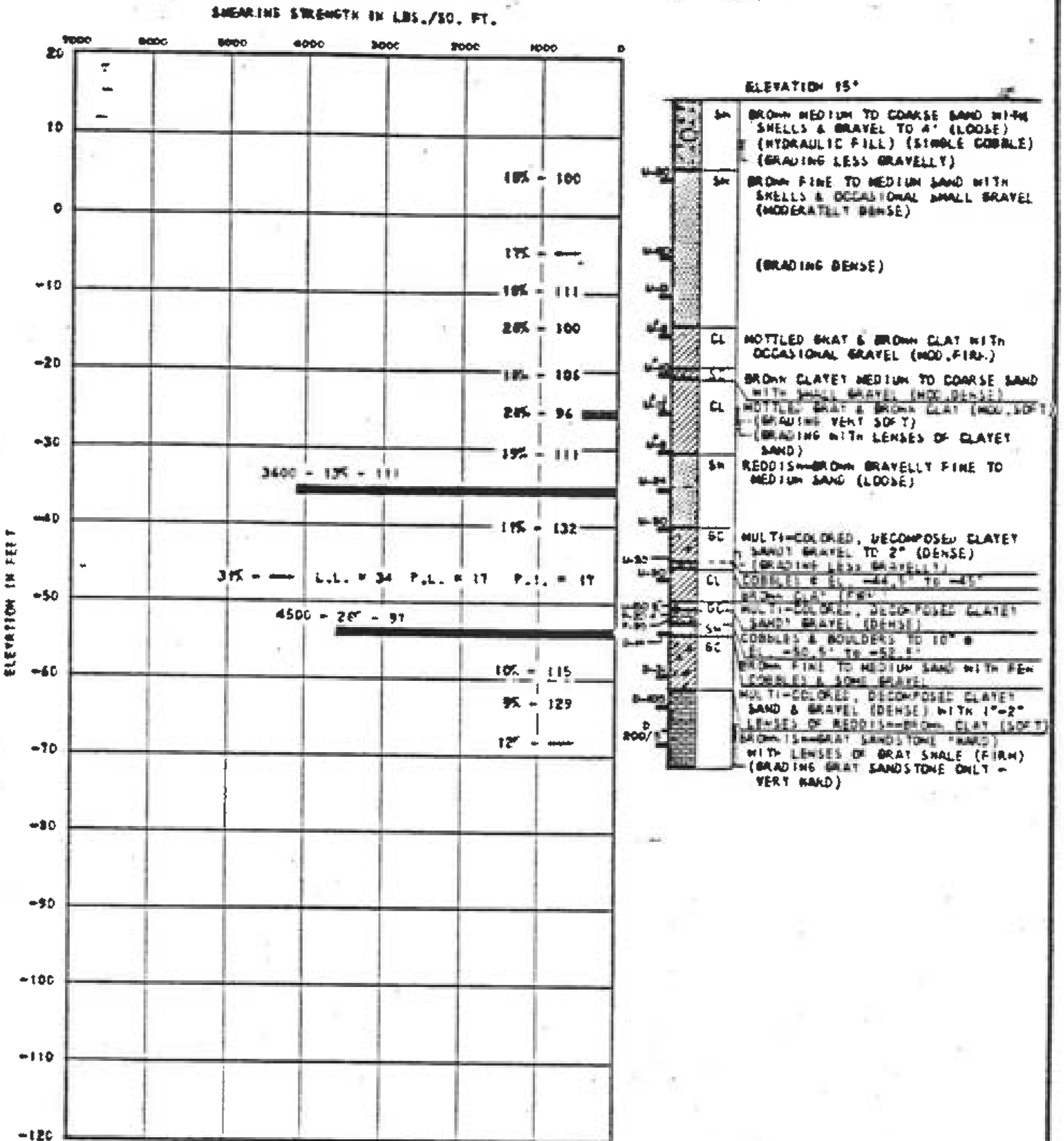
DAMES & MOORE

SOIL MECHANICS ENGINEERS

BORING 44

DRILLED 9-21-60 TO 9-23-60

N2+75, E103+7

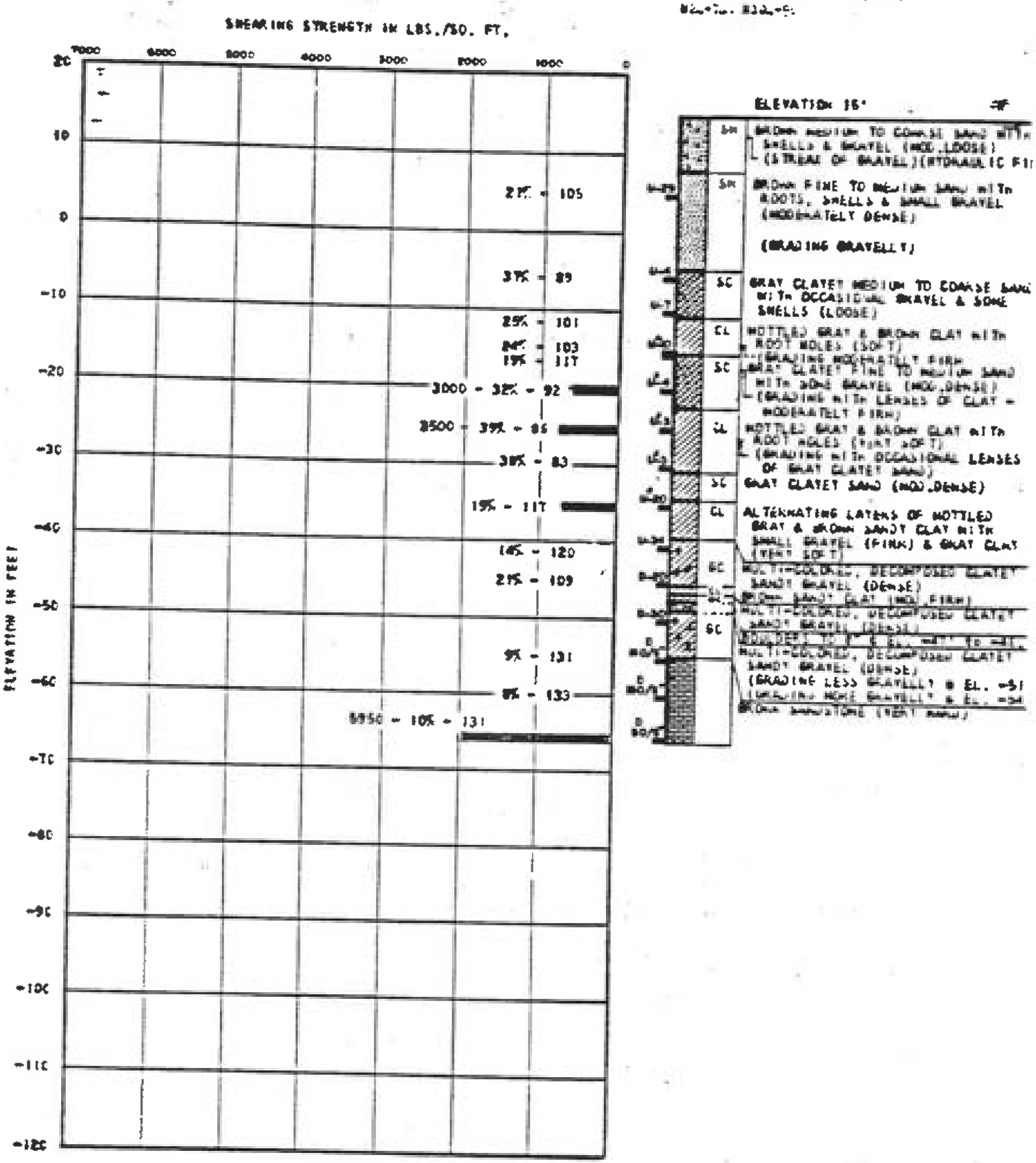


LOG OF BORING

DAMES & MOORE
SOIL MECHANICS ENGINEERS

BORING 45

DRILLED 9-19-60 TO 9-21-60



LOG OF BORING

DAMES & MOORE

PROJECT NUMBER: 00645.007.003.01A | **WELL NAME: 21P-01** | SHEET 1 OF 2

GSI Water Solutions, Inc.

SOIL BORING LOG

PROJECT : Morro Bay: GW Modeling/Injection Testing
LOCATION : Morro Bay, CA
ELEVATION : 19.21
DRILLING CONTRACTOR : ABC Drilling - Jamie M
DRILLING METHOD AND EQUIPMENT USED
COORDINATES: 35.3761 -120.8559
WATER LEVELS : 20.5' below top of 2" Casing @ 12:50
START : 7:55 END : 10:00
LOGGER : Lee Knudtson

DEPTH BELOW SURFACE (FT)	# BLOWS	LITHOLOGIC LOG	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY
5'	12-7-7		Fill Material
10'	17-20-25		Fill Material
15'	8-12-17	CL	Clay with some silt & sand Water on tip from overdrill
20'	8-15-18	GC	Gravel, sand, & some clay Water @ 20' or so Medium to coarse angular gravel
25'	15-18-25	GC	Sand with small gravel and some clay grading to coarser clay and more gravel and clay at bottom
30'	20-20-20	CL	30' to 30.5' - Clay with some sand 30.5' to 31' - Clay with some sand 31' to 31.5' - Clay with some silt and sand
35'	8-15-25	CL	35' to 35.5' - Clay with some silt and sand 35.5 to 36' - Clay with some silt and sand 36' to 36.5' - Clay with some silt and sand
40'	8-17-35	CL	40' to 40.5' - Clay with coarse sand & some gravel 40.5' to 41' - Clay with medium gravel 41' to 41.5' - Sand with some silt and clay
45'	43-45-45	GW or SW	45' to 45.5' - Small gravel 45.5' to 46' - Small gravel with some sand 46' to 46.5' - Small Gravel with some sand & clay (Geochem sample @ 46' to 46.5')
50'	35-35-30	GW or SW	50' to 50.5' - Small gravel with some sand 50.5' to 51' - Small gravel withs ome coarse sand 51' to 51.5' - Small gravel with scourse sand and minor clay

COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION)

8" Hole Diameter
2" Well Diameter
Cement Seal 0-37'
Bent Seal 37-43'
Sand 43-74
2" PVC Casing 43-74'
Screen (050) 45-70'

PROJECT NUMBER: 00845.007.003.01A	WELL NAME: 21P-01
	SHEET 2 OF 2

SOIL BORING LOG

GSI Water Solutions, Inc.

PROJECT : Morro Bay: GW Modeling/Injection Testing — LOCATION : Morro Bay, CA

ELEVATION : 19.21 — DRILLING CONTRACTOR : ABC Drilling - Jamie M

DRILLING METHOD AND EQUIPMENT USED — COORDINATES: 35.3761 -120.8559

WATER LEVELS : 20.5' below top of 2" Casing @ 12:50 — START : 7:55 — END : 10:00 — LOGGER : Lee Knudtson

DEPTH BELOW SURFACE (FT) / CONSTRUCTION	# BLOWS	LITHOLOGIC LOG	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
55'	23-50-50+	GW or SW	55' to 55.5' - Small gravel with some coarse sand 55.5' to 56' - Small gravel & sand with some clay 56' to 56.5' - Sand with some clay to gravel (Geochem sample @ 50.5' to 51')	
60'	45-55-55+	GW or SW	60' to 60.5' - Small gravel & some sand to coarse gravel 60.5' to 61' - Small to coarse angular gravel	
65'	45-50-50+	GW or SW	65' to 65.5' - Small to medium gravel 65.5' to 66' - Small to medium gravel with some clay 66' to 66.5' - Small to medium gravel with sand & some clay (Geochem sample @ 65.5' to 66')	
70'	65-65-65+	GC	70' to 70.5' - Sand with medium gravel & some clay 70.5' ot 71' - Sand with some gravel & clay 71' to 71.5' - Sand with small gravel & clay to clay with some sand	
75'			Refusal at 74'	

GSI Water Solutions, Inc.	**Boring ID:** Pilot Injection Well **DRAFT**	**Project Number** 645	**Sheet** 1 **of** 2

SOIL BORING LOG

Project: Morro Bay IPR	**Location:** Morro Bay
Drilling Contractor: Pacific Coast	**Drilling Method:** Soil Auger/Mud Rotary
Start Date: 8/17/22 **End Date:** 8/19/22	**Field Personnel:** DEO
	Water Levels:
Start Card No:	**Total Depth:** 100 feet

Depth Below Surface (ft)	Sample: Sample Interval/ Recovery	Sample: USCS Summary	Description: Relative density or consistency, color, moisture, MAJOR CONSTITUENT, trace descriptors, plasticity, grain size/shape, structure, (geologic name)	Comments: Issues Encountered, Water Levels
0–5			Jet brown/grey silty SAND with gravel, cobbles (fill)	Logged from Auger cuttings Wednesday 8/17/22.
5–15			Mottled dark grey brown CLAY, stiff, moist (10 YR 4/2)	
15–20			Very drak greyish brown sandy CLAY, wet (10 YR 3/2)	
20–25			Brown graveylly SAND, med-coarse, wet loose (10 YR 4/3)	
25–30			Brown sandy CLAY, stiff, wet (10 YR 4/3)	
30–35			Dark grey CLAY, stiff, wet (10 YR 4/1)	
35–40			Dark greyish brown CLAY, stiff (10 YR 4/2)	Stopped Auger drilling at 35'. Install conductor casing. Switch drilling method to mud rotary 4/19/22.
40–45			Dark brown sandy CLAY, wet (10 YR 3/3)	
45–50			Dark brown silty SAND, fine to medium, wet (10 YR 3/3)	

GSI Water Solutions, Inc.	**Boring ID:** Pilot Injection Well **DRAFT**	**Project Number** 645 **Sheet** 2 **of** 2

SOIL BORING LOG

Project: Morro Bay IPR	**Location:** Morro Bay
Drilling Contractor: Pacific Coast	**Drilling Method:** Soil Auger/Mud Rotary
Start Date: 8/17/22 **End Date:** 8/19/22	**Field Personnel:** DEO
	Water Levels:
Start Card No:	**Total Depth:** 100 feet

Depth Below Surface (ft)	Sample		Description	Comments
	Sample Interval/ Recovery	USCS Summary	Relative density or consistency, color, moisture, MAJOR CONSTITUENT, trace descriptors, plasticity, grain size/shape, structure, (geologic name)	Issues Encountered, Water Levels
50			Dark brown clayey SAND, fine-medium (10 YR 3/3) ✓	
55			Dark brown/bluish grey SAND, med-coarse (10 YR 3/3) ✓	Driller notes harder drilling at 58'
60			Dark greyish brown GRAVEL, med, sub-rounded (10 YR 4/2) ✓	
65			Dark greyish brown GRAVEL, med-coarse (10 YR 4/2) ✓	
70			Dark greyish brown sandy GRAVEL/gravely SAND, med-coarse sand, gravels ~ 1/2 inch with minor clay ✓	
75			Dark greyish brown sandy GRAVEL, med, sub-rounded to sub-angular (10 YR 4/2) *Gravels get larger ~ 1-2 inches ✓	
80			Blue grey angular SHALE rock fragments (likely Bedrock fragments) with clay	Hard drilling.
85				
90			Blue grey angular SHALE rock fragments with clay. Hard drilling.	Drilling gets easy, finished last 6' quickly.
95			Blue grey soft clayey SAND/sandy CLAY, fine	TD = 100'
100				

PROJECT NAME: SHELL-BRANDED SERVICE STATION		SITE LOCATION: 1840 MAIN STREET, MORRO BAY, CALIFORNIA	
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: VERSADRILL V100M	DRILL CREW: DINO, MARTIN, EDUARDO	DATE DRILLED: NOVEMBER 13/14, 2001
DRILLING METHOD: MUD ROTARY	BORING DIAMETER (IN): 16	TOTAL DEPTH OF BORING (FT): 68.0	LOGGED BY: E. FERGUSON
SAMPLING METHOD: NA	HAMMER WEIGHT (LBS): NA	HAMMER DROP (IN): NA	REVIEWED BY: E. FERGUSON

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
0							Brown SILTY SAND/SANDY SILT with trace CLAY
5							Brown SANDY SILT with little CLAY
10							
15							
20							Brown SANDY SILT with little CLAY and trace GRAVEL
25							
30							
35							
40							Brown SANDY SILT with little CLAY and little GRAVEL
							Brown GRAVELLY SILT with little CLAY

NOTES:
- ◫ = sample interval
- ▬ = laboratory sample
- ▼ = groundwater observed
- PID = photoionization detector
- NM = not measured
- NA = not applicable
- ppm = parts per million

MILLER BROOKS Environmental, Inc.

LOG OF BORING E-1

EVERETT FERGUSON JR., R.G. 7159

PROJECT NUMBER 155-0039-03

PROJECT NAME: SHELL-BRANDED SERVICE STATION			SITE LOCATION: 1840 MAIN STREET, MORRO BAY, CALIFORNIA	
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: VERSADRILL V100M		DRILL CREW: DINO, MARTIN, EDUARDO	DATE DRILLED: NOVEMBER 13/14, 2001
DRILLING METHOD: MUD ROTARY	BORING DIAMETER (IN): 16		TOTAL DEPTH OF BORING (FT): 68.0	LOGGED BY: E. FERGUSON
SAMPLING METHOD: NA	HAMMER WEIGHT (LBS): NA		HAMMER DROP (IN): NA	REVIEWED BY: E. FERGUSON

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
45							Brown SILT with little CLAY: (Hard to drill)
50							Brown SILT with little CLAY: Cobbles present (angular fragments)
55							Brown SILT with little CLAY and little well-rounded- to rounded gravel
							Olive green "Bay Mud" (SILTY CLAY) with trace angular gravel
							Bedrock (Franciscan Formation)
60							
65							
70							
75							
80							

NOTES:
- = sample interval
- = laboratory sample
- ▼ = groundwater observed
- PID = photoionization detector
- NM = not measured
- NA = not applicable
- ppm = parts per million

MILLER BROOKS Environmental, Inc.

LOG OF BORING E-1

EVERETT FERGUSON JR., R.G. 7159

PROJECT NUMBER 155-0039-03

PROJECT NAME: SHELL SERVICE STATION	SITE LOCATION: 1840 MAIN STREET MORRO BAY, CALIFORNIA		
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM, MARTIN	DATE DRILLED: AUGUST 22, 2000
DRILLING METHOD: HOLLOW STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 50.5	LOGGED BY: S. LONDON
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: J. MAXWELL

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
0							8-inch thick asphalt surface; hand-augered to 5 feet below ground surface (bgs).
						SP	SILTY SAND: dark yellowish brown (10YR 4/4), loose, moist, fine-grained, trace coarse-grained sand.
						CL	SILTY CLAY: very dark gray (10YR 3/1), very stiff, damp.
5						SC	CLAYEY SAND: olive brown (2.5Y 4/4), loose, moist, fine- to coarse-grained sand and 10% gravel, rounded, up to 10 mm long, 10% silt. Increasing silt and clay content with depth, decreasing sand content, decreasing sand grain size with depth.
			5/6/7				
			4/4/5	0.0		SM	SILTY SAND: dark brown (10YR 3/3), loose to medium dense, moist, fine-grained, trace clay, increasing silt and clay content with depth.
						CL	SILTY CLAY: very dark grayish brown (10YR 3/2), soft to medium stiff, moist, trace fine-grained sand.
			4/5/6	0.0			With 5% gravel from 9 to 9.5 feet bgs, subangular, up to 10 mm long.
10							
			5/6/6	0.0			Increasing silt and sand content.
		MW-10-11				SC	CLAYEY SAND: olive brown (2.5Y 4/3), soft, saturated at 11.25 feet bgs, 5-10% gravel (subangular to subrounded up to 15 mm long), fine- to coarse-grained sand, 10% silt.
			2/3/4				
						CL/ML	SILTY CLAY: olive brown (2.5Y 4/3), soft, saturated, no sand or gravel, medium plasticity.
			1/1/3				CLAYEY SILT/CLAYEY FINE SAND: very dark grayish brown (2.5Y 3/2), very soft, saturated, increasing sand content with depth.
15			5/6/8	0.0			
						SM	SILTY SAND: dark yellowish brown (10YR 4/4), loose, saturated, fine-grained, trace clay.
			5/5/4				
			6/10/14				
		MW-10-18.5		0.0		CL	SILTY CLAY: dark yellowish brown (10YR 4/4), very stiff, damp, with black organic fragments (5%), and up to 5% coarse-grained sand.
			7/17/21				
20							

NOTES:
☐ = sample interval
▬ = laboratory sample
▼ = groundwater observed
PID = photoionization detector
NM = not measured
NA = not applicable
ppm = parts per million

MILLER BROOKS Environmental, Inc.

SHARI A. LONDON, R.G. 6742

LOG OF BORING MW-10

PROJECT NUMBER 155-0039

PROJECT NAME: SHELL SERVICE STATION		SITE LOCATION: 1840 MAIN STREET MORRO BAY, CALIFORNIA	
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM, MARTIN	DATE DRILLED: AUGUST 22, 2000
DRILLING METHOD: HOLLOW STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 50.5	LOGGED BY: S. LONDON
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: J. MAXWELL

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
20							No organic fragments, increasing sand and silt content, decreasing clay content.
		MW-10-21	8/12/16	0.0		SP	SAND: brown (10YR 4/3), medium dense, saturated, fine-grained, trace silt.
		MW-10-23	8/12/14	0.0		GC	CLAYEY GRAVEL: dark yellowish brown (10YR 4/6), medium dense, wet to saturated, subangular to rounded gravel up to 30 mm long, 10% coarse-grained sand.
			13/9/7				
						SP	SAND: dark yellowish brown (10YR 4/4), loose, saturated, fine-grained.
25						SC	CLAYEY SAND: dark yellowish brown (10YR 4/6), medium stiff, moist to wet, medium- to coarse-grained sand, gravel 5 to 20 mm long, subrounded, some gravel is weathered and friable.
			12/18/26	0.0		SM	SILTY SAND: olive brown (2.5Y 4/3), dense, saturated, coarse-grained, well rounded sand grains.
		MW-10-26	24/27/17				
				0.0		CL	GRAVELLY CLAY: olive brown (2.5Y 4/4), stiff to very stiff, damp, gravel up to 60 mm long, generally 10 to 20 mm long, with coarse-grained sand and silt.
						SP	SAND: very dark grayish brown (10YR 3/2), dense, saturated, fine-grained.
						CL	GRAVELLY CLAY: olive brown (2.5Y 4/4), stiff to very stiff, damp, gravel up to 60 mm long, generally 10 to 20 mm long, with coarse-grained sand and silt.
		MW-10-29	7/11/16	0.0			
						ML	CLAYEY SILT: olive yellow (2.5Y 6/6), very stiff to hard, damp, trace fine-grained sand, increasing clay content with depth.
30			9/13/16				
						CL	SILTY CLAY: olive yellow (2.5Y 6/6), very stiff, damp.
			10/14/18				
						GC	CLAYEY GRAVEL: olive brown (2.5Y 4/3), very stiff, damp, with fine- to medium-grained sand and gravel up to 25 mm long in clayey matrix, some gravel very weathered and friable, subrounded to rounded gravel.
			12/19/22				
							Gravel up to 50 mm long.
			12/16/21	0.0		SP	SAND: dark yellowish brown (10YR 4/4), medium dense, saturated, coarse-grained, trace silt and clay.
35						SC	CLAYEY SAND: brown (10YR 4/3), medium dense, moist to wet, coarse-grained, 5% gravel up to 15 mm long, weathered and friable gravel.
	X		7/10/15	0.0			
						CL	GRAVELLY/SANDY CLAY: brown (10YR 4/3), very stiff, damp to moist, with fine- to medium-grained sand, gravel up to 20 mm long.
			8/11/14				
			7/11/14				
40							

NOTES:
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- PID = photoionization detector
- NM = not measured
- NA = not applicable
- ppm = parts per million

MILLER BROOKS Environmental, Inc.

SHARI A. LONDON, R.G. 6742

LOG OF BORING MW-10

PROJECT NUMBER 155-0039

PROJECT NAME: SHELL SERVICE STATION	SITE LOCATION: 1840 MAIN STREET MORRO BAY, CALIFORNIA		
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM, MARTIN	DATE DRILLED: AUGUST 22, 2000
DRILLING METHOD: HOLLOW STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 50.5	LOGGED BY: S. LONDON
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: J. MAXWELL

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
40			10/14/16				
			9/13/18			ML	CLAYEY SILT: light olive brown (2.5Y 5/3), very stiff, damp to moist, trace fine gravel.
			9/14/19			CL/GC	SANDY/GRAVELLY CLAY: dark grayish brown (2.5Y 4/2), very stiff, damp, medium- to coarse-grained sand, silt, and gravel up to 10 mm long.
45			19/25/28				
			28/60(4")				Drilled out 46 - 48.5 feet bgs: cobbles/gravel.
			40/32/36				As above, gravel 10 to 20 mm long.
			32/70(5")				Relict granular texture, with minerals weathered to clay, very dense.
50							Borehole terminated at 50.5 feet below ground surface. Refusal at weathered bedrock. Groundwater was observed at 11.25 feet below ground surface.
55							
60							

NOTES:
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= laboratory sample
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NM = not measured
NA = not applicable
ppm = parts per million

MILLER BROOKS Environmental, Inc.

Shari A. London

SHARI A. LONDON, R.G. 6742

LOG OF BORING MW-10

PROJECT NUMBER 155-0039

PROJECT NAME:	SITE LOCATION:		
SHELL SERVICE STATION	1840 MAIN STREET MORRO BAY, CALIFORNIA		
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM, MARTIN	DATE DRILLED: AUGUST 23, 2000
DRILLING METHOD: HOLLOW STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 45.3	LOGGED BY: S. LONDON
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: J. MAXWELL

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
0							Soil surface; hand-augered to 5 feet below ground surface (bgs).
						SM	SILTY SAND (artificial fill): dark grayish brown (10YR 4/2), loose to medium dense, dry to damp, with angular gravel, asphalt chunks, fine-grained sand.
						CL	SILTY CLAY: very dark brown (10YR 2/2), very stiff, damp, 5% coarse-grained sand and gravel.
5							
			6/7/8				
			4/6/10				
			3/3/4				
						CL	SANDY CLAY: olive brown (2.5Y 4/3), soft, moist, with fine- to medium-grained sand, mottled color with trace coarse-grained sand, increasing grain size with depth.
10		MW-11-10	6/7/8	0.0			
			4/3/3		▼		
						SC	CLAYEY SAND: dark grayish brown (2.5Y 4/2), loose, saturated, medium- to coarse-grained sand and gravel up to 15 mm long.
			1/1/2				Gravel up to 30 mm long.
						SM	SILTY SAND: very dark grayish brown (2.5Y 3/2), loose, saturated, fine-grained, 60% sand, 20% silt, 20% clay.
15		MW-11-15.5	2/2/3				From 15 to 16.5 feet bgs, increasing clay content.
			3/4/6				
			6/9/11				
						CL	SILTY CLAY: dark olive brown (2.5Y 3/3), stiff, damp, 5 to 10% fine gravel and coarse-grained sand.
			9/11/16				
20							

NOTES:
□ = sample interval
■ = laboratory sample
▼ = groundwater observed
PID = photoionization detector
NM = not measured
NA = not applicable
ppm = parts per million

MILLER BROOKS Environmental, Inc.

LOG OF BORING MW-11

SHARI A. LONDON, R.G. 6742

PROJECT NUMBER 155-0039

PROJECT NAME: SHELL SERVICE STATION	SITE LOCATION: 1840 MAIN STREET MORRO BAY, CALIFORNIA		
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM, MARTIN	DATE DRILLED: AUGUST 23, 2000
DRILLING METHOD: HOLLOW STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 45.3	LOGGED BY: S. LONDON
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: J. MAXWELL

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
20			8/12/12				Increasing sand content with depth.
			9/15/16			CL	SANDY CLAY: olive brown (2.5Y 4/3), very stiff, damp, fine- to medium-grained sand and silt.
			6/11/14				
25			8/10/13	0.0			Olive brown (2.5Y 4/4), fine-grained sand, no gravel.
			7/9/10				
			7/8/11			CL	CLAY: dark yellowish brown (10YR 4/4), medium stiff, moist.
30		MW-11-30.5	6/6/8	0.0			
							With up to 15% fine- to medium-grained sand and fine gravel, moist to wet.
		MW-11-32	6/7/9	0.0		SM	SILTY SAND: light olive brown (2.5Y 5/4), loose to medium dense, saturated, fine-grained, trace clay.
			8/9/11				
			10/14/18				Decreasing silt and clay content.
35							6-inch interbed of silty clay, light olive brown (2.5Y 5/3), very stiff, damp.
			7/14/16	0.0		CL	SILTY CLAY: light olive brown (2.5Y 5/3), medium stiff, damp.
			7/9/14				6-inch interbed SILTY SAND: light olive brown (2.5Y 5/3), loose to medium dense, saturated.
			8/12/16	0.0			
40		MW-11-39.5					

NOTES:
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PID = photoionization detector
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ppm = parts per million

MILLER BROOKS Environmental, Inc.

Shari London

SHARI A. LONDON, R.G. 6742

LOG OF BORING MW-11

PROJECT NUMBER 155-0039

PROJECT NAME: SHELL SERVICE STATION		SITE LOCATION: 1840 MAIN STREET MORRO BAY, CALIFORNIA	
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM, MARTIN	DATE DRILLED: AUGUST 23, 2000
DRILLING METHOD: HOLLOW STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 45.3	LOGGED BY: S. LONDON
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: J. MAXWELL

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
40			7/9/12	0.0			
						CH	CLAY: light olive brown (2.5Y 5/3), moist, high plasticity.
			6/7/17			ML	SANDY SILT: light olive brown (2.5Y 5/4), stiff, damp, fine- to medium-grained sand, 5% well-rounded coarse-grained sand, trace gravel up to 20 mm long, well rounded.
			17/26/34	0.0			Increasing gravel content and size up to 60 mm long, well rounded.
							Poor recovery; weathered bedrock in shoe of sampler.
45			50(3")				Borehole terminated at 45.25 feet below ground surface. Groundwater observed at 12 feet below ground surface.
50							
55							
60							

NOTES:
= sample interval
= laboratory sample
= groundwater observed
PID = photoionization detector
NM = not measured
NA = not applicable
ppm = parts per million

MILLER BROOKS Environmental, Inc.

SHARI A. LONDON, R.G. 6742

LOG OF BORING MW-11

PROJECT NUMBER 155-0039

PROJECT NAME: SHELL SERVICE STATION	SITE LOCATION: 1840 MAIN STREET MORRO BAY, CALIFORNIA		
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM, MARTIN	DATE DRILLED: AUGUST 24, 2000
DRILLING METHOD: HOLLOW STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 62.5	LOGGED BY: S. LONDON
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: J. MAXWELL

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
0							8-inch thick asphalt surface; hand-augered to 5 feet below ground surface (bgs).
						SM	SILTY SAND: light olive brown (2.5Y 5/3), loose, damp, with fine gravel, asphalt.
						CL	SILTY CLAY: very dark grayish brown (2.5Y 3/2), stiff to very stiff, damp, trace gravel, angular up to 15 mm.
5			5/8/11				Color change to dark olive brown (2.5Y 3/3).
			5/7/7	0.0			Color change to olive brown (2.5Y 4/4).
			7/9/11	0.0			
10			7/8/9			ML	SANDY SILT: dark yellowish brown (10YR 3/4), medium dense, damp to moist, fine-grained sand, trace clay.
			4/5/6	0.0			Increasing clay content.
		MW-12-13				ML	CLAYEY SILT: dark brown (10YR 3/3), medium stiff, moist, trace coarse-grained sand.
			4/5/5				
15			3/4/5				Very dark grayish brown (10YR 3/2), moist to wet.
			3/5/7	0.0		SC	CLAYEY SAND: dark grayish brown (2.5Y 4/2), loose, saturated, fine-grained, 5% medium- to coarse-grained sand.
			5/3/4				Poor recovery; increasing grain size (fine- to medium-grained).
			8/11/14	0.0			Increasing clay content; saturated to wet.
20							

NOTES:
▭ = sample interval
▬ = laboratory sample
▼ = groundwater observed
PID = photoionization detector
NM = not measured
NA = not applicable
ppm = parts per million

MILLER BROOKS Environmental, Inc.

SHARI A. LONDON, R.G. 6742

LOG OF BORING MW-12

PROJECT NUMBER 155-0039

PROJECT NAME: SHELL SERVICE STATION		SITE LOCATION: 1840 MAIN STREET MORRO BAY, CALIFORNIA	
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM, MARTIN	DATE DRILLED: AUGUST 24, 2000
DRILLING METHOD: HOLLOW STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 62.5	LOGGED BY: S. LONDON
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: J. MAXWELL

DEPTH (FT)	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
20		5/7/11		CL	SILTY CLAY: very dark grayish brown (2.5Y 3/2), stiff, damp, trace coarse-grained sand.
	MW-12-23	8/11/14			Decreasing silt content, damp to moist.
	MW-12-24.5	7/9/11		SP	SAND: dark yellowish brown (10YR 4/4), medium dense, saturated, fine-grained.
25		7/9/12	0.0		
		9/12/14		CL	SILTY CLAY: yellowish brown (10YR 5/6), very stiff, damp, trace coarse-grained sand, medium plasticity. With 5% fine gravel, angular, up to 10 mm long.
	MW-12-29	8/11/14			
30	MW-12-30.5	7/6/6	0.0	CL	SANDY CLAY: brown (10YR 4/3), medium dense, moist, medium- to coarse-grained sand and 5% gravel up to 15 mm long, subangular.
	MW-12-32	7/10/11		SP	SAND: very dark gray (2.5Y 3/1), medium dense, saturated, coarse-grained, 10% fine gravel, angular to subrounded grains. From 33 to 33.5 feet bgs, fining downwards from coarse- to medium-grained sand.
		9/13/16	0.0		
		9/12/15		GC	CLAYEY GRAVEL: olive brown (2.5Y 4/4), medium dense, wet to saturated, 15% medium- to coarse-grained sand. Gravel up to 70 mm long, rounded. Poor recovery; rocks/cobbles in shoe of sampler.
35		9/11/13			
		8/12/19	0.0	SP	GRAVELLY SAND: very dark gray (2.5Y 3/1), medium dense, saturated, coarse-grained sand, angular to subangular grains, gravel up to 8 mm long.
	MW-12-38	8/9/13	0.0	SP	SAND: very dark grayish brown (10YR 3/2), medium dense, saturated, fine- to medium-grained, trace silt.
40					

NOTES:
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PID = photoionization detector
NM = not measured
NA = not applicable
ppm = parts per million

MILLER BROOKS Environmental, Inc.

SHARI A. LONDON, R.G. 6742

LOG OF BORING MW-12

PROJECT NUMBER 155-0039

PROJECT NAME: SHELL SERVICE STATION	SITE LOCATION: 1840 MAIN STREET MORRO BAY, CALIFORNIA		
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM, MARTIN	DATE DRILLED: AUGUST 24, 2000
DRILLING METHOD: HOLLOW STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 62.5	LOGGED BY: S. LONDON
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: J. MAXWELL

DEPTH (FT)	BLOWS PER 6 IN	PID (ppm)	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
40			SC	CLAYEY SAND: dark yellowish brown (10YR 4/4), medium dense, medium- to coarse-grained, saturated.
	6/8/14	0.0	SW	SAND: very dark grayish brown (10YR 3/2), medium dense, saturated, fine- to coarse-grained, trace silt.
	16/18/32	0.0	GC	CLAYEY GRAVEL: dark yellowish brown (10YR 4/6), dense, wet, 15% medium- to coarse-grained sand, rounded gravel up to 40 mm long.
	10/12/15	0.0		
45			SW	SAND: very dark grayish brown (10YR 3/2), medium dense, saturated, fine- to coarse-grained, 10% gravel up to 10 mm long.
	11/7/5			
	8/12/15		CL	GRAVELLY CLAY: very dark grayish brown (10YR 3/2), medium dense, damp, with fine- to coarse-grained sand and silt.
	12/16/21			
50	14/17/21			Poor recovery, cobble > 70 mm in diameter in shoe of sampler.
	14/18/26			Poor recovery.
	45/23/25	0.0		Increasingly weathered appearance, iron-stained rings around some gravel, weathered gravel.
55	15/19/25			
	21/35/50(5")			Very dense.
	49/50(3")	0.0		Increasing gravel and cobble size up to 75 mm long, clayey matrix increasingly weathered appearance, damp, dense.
				Drilling through gravel/cobbles between samples.
60				Cobbles/gravel in shoe.

NOTES:
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- NM = not measured
- NA = not applicable
- ppm = parts per million

MILLER BROOKS Environmental, Inc.

SHARI A. LONDON, R.G. 6742

LOG OF BORING MW-12

PROJECT NUMBER 155-0039

PROJECT NAME: SHELL SERVICE STATION		SITE LOCATION: 1840 MAIN STREET MORRO BAY, CALIFORNIA	
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM, MARTIN	DATE DRILLED: AUGUST 24, 2000
DRILLING METHOD: HOLLOW STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 62.5	LOGGED BY: S. LONDON
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: J. MAXWELL

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
60			42/50(5")				
			27/37/50(4")				Poor recovery; sand, silt and gravel in clay matrix, damp.
							Boring terminated at 62.5 feet below ground surface. Groundwater observed at 16.5 feet below ground surface.
65							
70							
75							
80							

NOTES:
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= laboratory sample
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PID = photoionization detector
NM = not measured
NA = not applicable
ppm = parts per million

MILLER BROOKS Environmental, Inc.

SHARI A. LONDON, R.G. 6742

LOG OF BORING MW-12

PROJECT NUMBER 155-0039

PROJECT NAME: SHELL SERVICE STATION	SITE LOCATION: 1840 MAIN STREET MORRO BAY, CALIFORNIA		
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MST RHINO D-19	DRILL CREW: JESSE, TOM	DATE DRILLED: DECEMBER 27, 2000
DRILLING METHOD: HOLLOW-STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 50.0	LOGGED BY: H. GILL
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: K. ANDREWS-HUGHES

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
0							Fill material; hand-augered to 4.5 feet below ground surface.
				0.0			
5				0.0			
						CL	SILTY CLAY: very dark brown (10YR 2/2), very stiff, <5% coarse sand and fine gravel.
							Very dark brown (10YR 3/2), stiff.
10				1.1			
					▼		Soft, wet, minor sand and fine gravel at 11 feet.
15				15.9		SM	SILTY SAND: brown (5YR 4/4), loose, wet, fine- to medium-grained sand, subrounded sand, <10% fines, poorly graded.
				3.2		CL	SILTY CLAY: brown (5YR 4/4), very stiff, saturated, slightly plastic, 10% fine sand, very slight elasticity.
20				2.1		SC	SANDY CLAY: brown (5YR 4/2), 1/2- to 1-inch gravel, medium dense, saturated, subrounded sand and gravel, <2% gravel, poorly to moderately graded.
				4.0		CL	SILTY CLAY: brown (5YR 4/4), soft, low plasticity, low elasticity, <10% fine sand.
				NM		SM	SILTY SAND: brown (5YR 4/3), loose, fine- to medium-grained, poorly graded sand, trace clay nodules.
25				1.1		CL	SILTY CLAY with SAND: brown (5YR 4/2), stiff, saturated, trace gravel (1%), rounded sand and gravel, low plasticity, low elasticity to non-elastic.
				6.9		SP	SAND: brown (5YR 4/3), loose, coarse-grained sand, fine gravel, subrounded, very few fines, poorly graded.
30				1.9		CL	SILTY CLAY: brown (7.5YR 4/6), soft to medium stiff, trace fine sand, increasing silt with depth.
							Light brown (10YR 5/4), very stiff, <5% fine sand, high silt content, low plasticity, low elasticity at 30.5 feet.
				1.9			
35							
							Brown (5YR 5/6), very stiff, low plasticity, very low elasticity, <2% fine sand. Two coarse sand and fine gravel lenses at 36 to 36.9 and 39.8 to 40.0 feet below ground surface.
				1.6			
40							Stiff.
				0.5			Sand content increases with depth, subrounded.

NOTES:
= sample interval
= laboratory sample

▼ = groundwater observed
PID = photoionization detector

NM = not measured
NA = not applicable
ppm = parts per million

MILLER BROOKS Environmental, Inc.

LOG OF BORING MW-15

KATHLEEN M. ANDREWS-HUGHES, R.G. 6086

PROJECT NUMBER 155-0039

PROJECT NAME:	SITE LOCATION:
SHELL SERVICE STATION	1840 MAIN STREET MORRO BAY, CALIFORNIA

DRILLING COMPANY:	DRILL RIG:	DRILL CREW:	DATE DRILLED:
GREGG DRILLING	MST RHINO D-19	JESSE, TOM	DECEMBER 27, 2000

DRILLING METHOD:	BORING DIAMETER (IN):	TOTAL DEPTH OF BORING (FT):	LOGGED BY:
HOLLOW-STEM AUGER	10	50.0	H. GILL

SAMPLING METHOD:	HAMMER WEIGHT (LBS):	HAMMER DROP (IN):	REVIEWED BY:
SPLIT-SPOON	140	30	K. ANDREWS-HUGHES

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
45				1.3		SP	GRAVELLY SAND: dark brown (7.5YR 4/4), very loose, coarse-grained sand and fine gravel, angular, 5% clay nodules, poorly graded (weathered bedrock).
				NM			Weathered bedrock.
50							Boring advanced using hydraulic jack hammer; blow counts not applicable. Groundwater observed at 11 feet below ground surface. Boring terminated at 50 feet below ground surface.
55							
60							
65							
70							
75							
80							
85							

NOTES:
- = sample interval
- = laboratory sample
- = groundwater observed
- PID = photoionization detector
- NM = not measured
- NA = not applicable
- ppm = parts per million

MILLER BROOKS Environmental, Inc.

LOG OF BORING MW-15

KATHLEEN M. ANDREWS-HUGHES, R.G. 6086

PROJECT NAME: SHELL-BRANDED SERVICE STATION		SITE LOCATION: 1840 MAIN STREET, MORRO BAY, CALIFORNIA	
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM, JOSE	DATE DRILLED: APRIL 17, 2001
DRILLING METHOD: HOLLOW-STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 47.5	LOGGED BY: T. OVERTURF
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: E. FERGUSON

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
0							ASPHALT, 6" thick.
							FILL/ROAD BASE
			NA			SM	SILTY SAND: strong brown (7.5YR 4/6), loose, fine-grained sand, moist.
							Color change to olive brown (2.5YR 4/4).
5			5,6,8	3.0		CL	CLAY: very dark grayish brown (10YR 3/2), stiff, moist, medium plasticity, minor rounded gravel, 2-5 mm long.
			5,6,7				
			5,5,6				
						GC	CLAYEY GRAVEL: very dark grayish brown, loose, moist, gravel rounded, 2-5 mm long.
10			4,5,7	3.0		CL	CLAY: brown (10YR 4/3), stiff, saturated, low plasticity, slightly silty, trace root fragments.
			4,4,5				
						ML	CLAYEY SILT: very dark gray (7.5YR 3/1), soft, saturated, trace shell fragments.
			7,9,13			CL	GRAVELLY CLAY: dark yellowish brown (10YR 4/6), very stiff, moist, 25% gravel, subangular, 2-10 mm.
			13,17,17	1.7			
15						SC	CLAYEY SAND: dark yellowish brown (10YR 4/4), medium dense, medium- to fine-grained sand, trace gravelly stringers.
			6,5,5				
			6,6,5			CL	CLAY: very dark yellowish brown (10YR 4/4), medium stiff, saturated, medium to high plasticity, trace interbedded gravelly clay stringers with fine and coarse subangular gravel.
			8,8,7	2.1			Gravelly clay lens at 18.0 to 18.5 feet.
20			8,19,14				CLAY: very dark yellowish brown (10YR 4/4), medium stiff, saturated, medium to high plasticity, trace interbedded gravelly clay stringers with fine and coarse subangular gravel.
			17,4,11				
			10,11,12	0.0			
						GP	GRAVEL: very dark grayish brown (10YR 3/2), 5-10 mm, subrounded, metamorphic clasts.
25			6,9,11			GC	SANDY GRAVELLY CLAY: very dark grayish brown (10YR 3/2), very stiff, saturated.
			9,14,19			SP	GRAVELLY SAND: very dark grayish brown (10YR 3/2), dense, saturated, medium- to coarse-grained sand, gravel 1-5 mm, subrounded.
			10,7,10			GP	SANDY GRAVEL: medium dense, gravel 5-10 mm, subrounded medium- to coarse-grained sand.
						CL	CLAY: yellowish brown (10YR 5/4), mottled, hard, moist, high plasticity, with silt.
30			11,16,21	0.0			
			8,12,22				
			9,15,21				
						GC	CLAYEY GRAVEL: brown (10YR 4/3), dense, saturated, 70% gravel, 5-20 mm, subrounded, 10% coarse sand, 20% clay.
			9,15,22	0.0			
35						CL	CLAY: yellowish brown (10YR 5/4), mottled, hard, moist, high plasticity, with silt.
			14,19,27				
			12,19,26			CL	GRAVELLY CLAY: yellowish brown (10YR 5/4), hard, moist, 5-20 mm gravel, angular to subangular.
			9,16,22	0.0		CL	SILTY CLAY: dark yellowish brown (10YR 4/4), hard, moist, low plasticity, with trace fine sand.
40							

NOTES:
□ = sample interval
▬ = laboratory sample
▼ = groundwater observed
PID = photoionization detector
NM = not measured
NA = not applicable
ppm = parts per million

MILLER BROOKS *Environmental, Inc.*

LOG OF BORING MW-18

EVERETT H. FERGUSON, R.G. 7159

PROJECT NUMBER 155-0039-03

PROJECT NAME: SHELL-BRANDED SERVICE STATION		SITE LOCATION: 1840 MAIN STREET, MORRO BAY, CALIFORNIA	
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM, JOSE	DATE DRILLED: APRIL 17, 2001
DRILLING METHOD: HOLLOW-STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 47.5	LOGGED BY: T. OVERTURF
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: E. FERGUSON

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
40			16,24,25				
			65/6"				
			22,32,42				
45				0.0		GC	~~Becomes gravelly.~~ CLAYEY GRAVEL: (weathered bedrock), very dense, 70% gravel, 10 - 40 mm, 20 % clay, 10% sand-sized fragments, relict granular texture. Hard Drilling.
			32,32,50				
			60/6"				
							Hand augered to 5.0 feet below ground surface. Groundwater observed at 12.5 feet below ground surface. Boring terminated at 47.5 feet below ground surface.
50							
55							
60							
65							
70							
75							
80							

NOTES:
= sample interval
= laboratory sample
= groundwater observed
PID = photoionization detector
NM = not measured
NA = not applicable
ppm = parts per million

EVERETT H. FERGUSON, R.G. 7159

MILLER BROOKS Environmental, Inc.

LOG OF BORING MW-18

PROJECT NUMBER 155-0039-03

PROJECT NAME: SHELL-BRANDED SERVICE STATION		SITE LOCATION: 1840 MAIN STREET, MORRO BAY, CALIFORNIA	
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM, JOSE	DATE DRILLED: APRIL 18, 2001
DRILLING METHOD: HOLLOW-STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 49.5	LOGGED BY: T. OVERTURF
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: E. FERGUSON

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
0							ASPHALT, 6" thick
							FILL
5			4,4,5	0.0		CL	CLAY: very dark grayish brown (10YR 3/2), stiff, moist, medium plasticity, trace gravel.
			7,10,4			CL	SANDY CLAY: dark grayish brown (10YR 4/2), stiff, low plasticity, 30% medium-grained sand, trace gravel, trace silt.
			3,3,4			CL	CLAY: dark brown (10YR 3/3), medium stiff to stiff, moist, minor gravel and cobbles up to 20mm, rounded.
10			6,7,8	0.0	▼		
			4,5,5			GC	CLAYEY GRAVEL: loose, saturated, 90% rounded gravel, 5% fine- to medium-grained sand, 5% clay, gravel up to 20mm.
			3,4,4			ML	SILT: dark yellowish brown (10YR 3/2), stiff, saturated.
15			10,8,5	0.0			
			3,4,5				Dark yellowish brown (10YR 3/6) at 16.5 feet.
			6,8,11				
			7,11,19	0.0		CL	CLAY: dark yellowish brown (10YR 4/4), very stiff, moist, very high plasticity.
20			7,8,9			SM	SILTY SAND: dark yellowish brown (10YR 3/4), saturated, 85% fine-grained sand, 10% gravel 2-4 mm, subrounded, 5% silt.
						CL	SILTY CLAY: very dark yellowish brown (10YR 4/4), very stiff, moist.
			7,8,6			CL	CLAY: dark yellowish brown (10YR 4/4), stiff, moist, high plasticity, trace gravel.
			6,6,7	0.0		ML	SANDY SILT: dark yellowish brown (10YR 4/4), stiff, saturated, 80% silt, 20% fine-grained sand.
25			7,8,10			GC	CLAYEY GRAVEL: color varies, medium dense, saturated, 80% gravel 5-40 mm, angular, 5% sand, medium- to coarse-grained grained, 15% clay and silt.
			7,10,15			SM	SILTY SAND: dark yellowish brown (10YR 4/4), dense, saturated, 90% fine-grained sand, grades to coarse-grained downward, 10% silt.
			17,23,15	0.0		GM	SILTY GRAVEL: color varies, dense, 90% gravel 5mm, rounded, interbeds of coarse-grained sand. Weathered serpentine clast: olive (5Y 4/4).
30			6,6,7			CL	SILTY CLAY: dark yellowish brown (10YR 4/4), very stiff, moist.
			7,8,11				Becomes sandy (30% coarse-grained sand).
			9,11,14				
			8,12,16	0.0			Becomes gravelly (20% gravel, 5 mm, 20% coarse-grained sand), saturated.
35			6,7,8			CL	CLAY: light olive brown (2.5YR 5/3), mottled, stiff, moist, medium plasticity.
			7,21,9				Becomes sandy (30% coarse-grained sand).
			Not recorded				
40							

NOTES:
☐ = sample interval
▬ = laboratory sample
▼ = groundwater observed
PID = photoionization detector
NM = not measured
NA = not applicable
ppm = parts per million

EVERETT H. FERGUSON, R.G. 7159

MILLER BROOKS Environmental, Inc.

LOG OF BORING MW-20

PROJECT NUMBER 155-0039-03

PROJECT NAME: SHELL-BRANDED SERVICE STATION		SITE LOCATION: 1840 MAIN STREET, MORRO BAY, CALIFORNIA	
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM, JOSE	DATE DRILLED: APRIL 18, 2001
DRILLING METHOD: HOLLOW-STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 49.5	LOGGED BY: T. OVERTURF
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: E. FERGUSON

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
40			10,17,10 36,50 12,14,10	0.0		CL	GRAVELLY CLAY: light olive brown (2.5YR 5/3), very stiff, saturated, 50% clay, 50% gravel, 20-40 mm, angular.
45			31,50 60 50,50/6"			GC	Weathered BEDROCK, clayey gravel, very dense, relict granular texture.
50							Hand augered to 5.0 feet below ground surface. Groundwater observed at 11.0 feet below ground surface. Boring terminated at 49.5 feet below ground surface.
55							
60							
65							
70							
75							
80							

NOTES:
= sample interval
= laboratory sample
= groundwater observed
PID = photoionization detector
NM = not measured
NA = not applicable
ppm = parts per million

EVERETT H. FERGUSON, R.G. 7159

MILLER BROOKS Environmental, Inc.

LOG OF BORING MW-20

PROJECT NUMBER 155-0039-03

PROJECT NAME: SHELL-BRANDED SERVICE STATION		SITE LOCATION: 1840 MAIN STREET, MORRO BAY, CALIFORNIA	
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM, JOSE	DATE DRILLED: APRIL 18, 2001
DRILLING METHOD: HOLLOW-STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 59.0	LOGGED BY: T. OVERTURF
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: E. FERGUSON

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
0							ASPHALT, 6" thick.
							FILL
						CL	CLAY: very dark gray (7.5YR 3/1), stiff, moist, high plasticity, trace gravel.
5			4,6,9	1.2			
			7,9,15				
			6,8,11				
10			7,8,10	1.8		CL	SILTY CLAY: brown (10YR 4/3), mottled, very stiff, moist, medium plasticity.
			5,6,8			CL	CLAY: brown (10YR 4/3), mottled, stiff, moist to saturated at 13.0 feet, high plasticity.
			4,5,5				
						SM	SAND: stringers, saturated.
15			4,5,6	1.8		GP GC	CLAYEY GRAVEL/GRAVELLY CLAY: olive brown (2.5YR 4/3), loose, saturated, 40% clay, 10% silt, 50% gravel and coarse-grained sand, subrounded.
			4,5,10			CL	SILTY CLAY: very dark grayish brown (10YR 3/2), stiff, moist, medium to high plasticity.
			4,5,5				
			11,13,17	2.9		ML	CLAYEY SILT: very dark grayish brown (10YR 3/2), very stiff, saturated, low plasticity.
20			10,11,13			SM	SILTY SAND: strong brown (7.5YR 4/2), medium dense, saturated.
			7,9,13			CL	SILTY CLAY: yellowish brown (10YR 5/4), mottled, very stiff, moist, trace sand.
			8,9,11	0.0			
25			5,6,6				
			7,9,10				Becomes more silty, saturated.
			5,5,6			CL	CLAY: dark yellowish brown (10YR 4/4), stiff, moist, very high plasticity.
30			4,5,5	0.0		CL	SILTY CLAY: dark yellowish brown (10YR 4/4), mottled, stiff, saturated, trace fine-grained sand, medium to low plasticity.
			4,5,6			SM	SILTY SAND: dark yellowish brown (10YR 4/4), medium dense, saturated, 70% fine-grained sand, 10% silt, increasing grain size with depth.
			5,7,8			SM	GRAVELLY SILTY SAND: dark yellowish brown (10YR 4/4), medium dense, saturated, 60% medium- to coarse-grained sand, 35% gravel 2-3 mm, subrounded to rounded, 5% silt.
35			5,8,9				
			5,7,7	0.0			
			5,7,9				Coarse gravel (up to 40mm), subrounded.
			7,9,11				
40							

NOTES:
= sample interval
= laboratory sample
= groundwater observed
PID = photoionization detector
NM = not measured
NA = not applicable
ppm = parts per million

EVERETT H. FERGUSON, R.G. 7109

MILLER BROOKS Environmental, Inc.

LOG OF BORING MW-21

PROJECT NUMBER 155-0039-03

PROJECT NAME: SHELL-BRANDED SERVICE STATION	SITE LOCATION: 1840 MAIN STREET, MORRO BAY, CALIFORNIA		
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM, JOSE	DATE DRILLED: APRIL 18, 2001
DRILLING METHOD: HOLLOW-STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 59.0	LOGGED BY: T. OVERTURF
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: E. FERGUSON

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
40			28,33,12	1.1			Coarse-grained sand lens from 40.5 - 41.5 feet.
			7,8,9				
			Not recorded			CL	SILTY CLAY: yellowish brown (10YR 5/4), saturated, medium plasticity, trace gravel.
			Not recorded	0.0			
45			6,6,7	0.0		SM	SAND: medium dense, coarse-grained, silty.
			27,14,9			CL	SILTY CLAY: yellowish brown (10YR 5/4), saturated, medium plasticity, trace gravel.
						SM	SAND, fine-grained, silty.
			7,9,15			CL	SILTY CLAY: olive brown (2.5YR 4/3), low plasticity, upper 6" cobbley silty clay, cobbles 40 - 60 mm, subangular to subrounded.
						SM	SILTY SAND: brown (10YR 4/3), medium dense, saturated, 70% fine- to coarse-grained sand, subrounded, 20% gravel, 10% silt.
50			9,12,15	0.0			
			10,13,16				Becomes dense.
			10,15,17				Coarse gravel lens, cobbles, 20-25 mm, subangular.
55			14,18,25				
			38,15				Gravel size and angularity increases with depth.
			48,30				
						GC	BEDROCK
60							Hand augered to 5.0 feet below ground surface. Groundwater observed at 13.0 feet below ground surface. Boring terminated at 59.0 feet below ground surface.
65							
70							
75							
80							

NOTES:
☐ = sample interval
▬ = laboratory sample
▼ = groundwater observed
PID = photoionization detector
NM = not measured
NA = not applicable
ppm = parts per million

EVERETT H. FERGUSON, R.G. 7159

MILLER BROOKS Environmental, Inc.

LOG OF BORING MW-21

PROJECT NUMBER 155-0039-03

PROJECT NAME: SHELL-BRANDED SERVICE STATION	SITE LOCATION: 1840 MAIN STREET, MORRO BAY, CALIFORNIA		
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM, GERARDO	DATE DRILLED: APRIL 23, 2001
DRILLING METHOD: HOLLOW-STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 50.5	LOGGED BY: S. LONDON
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: E. FERGUSON

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
0						SM	SILTY SAND: dark olive brown (2.5YR 3/3), loose, damp, fine-grained sand, with gravel up to 0.5-inch long.
						CL	SILTY CLAY: very dark gray (2.5YR 3/1), soft to stiff, moist, trace coarse-grained sand and fine gravel.
5			4,6,6	0			
						ML	CLAYEY SILT: very dark gray (2.5YR 3/1), medium stiff, moist to saturated, increasing sand content with depth.
			3,3,3	0			
			3,4,7	0		SC	CLAYEY SAND: very dark grayish brown (10YR 3/2), medium dense, saturated, fine-grained sand, some silt, trace coarse-grained sand and gravel.
10			5,6,6	0		CL	SILTY CLAY: very dark grayish brown (10YR 3/2), stiff, moist, medium plasticity.
			4,5,5	0		CL ML	CLAYEY SILT/SILTY CLAY: olive brown (2.5YR 4/3), stiff, moist, low to medium plasticity.
			5,5,6	0		CL	SILTY CLAY: olive brown (2.5YR 4/3), stiff, moist, medium plasticity, increasing moisture content with depth.
15			4,5,5	0			
			3,4,5	0		CL	SANDY CLAY: very dark grayish brown (2.5YR 3/2), soft, saturated, fine-grained sand, medium plasticity.
						SC	CLAYEY SAND: very dark grayish brown (2.5YR 3/2), loose, saturated, fine-grained sand, some silt.
			6,7,10	0		SM	SILTY SAND: dark olive brown (2.5YR 3/3), medium dense, saturated, fine-grained sand. Dark yellowish brown (10YR 4/1) at 18.5 feet.
			6,8,10	0			
20			5,7,10	0		ML	CLAYEY SILT: dark yellowish brown (10YR 4/4), very stiff, damp to moist.
			6,9,9	0			
			6,7,8	0			
25			6,7,7	0		GC	CLAYEY GRAVEL: olive brown (2.5YR 4/4), medium dense, moist, with fine-grained sand, subrounded gravel up to 2- inch long.
			7,9,7	0		SW	SAND: dark olive gray (5YR 3/2), medium dense, saturated, predominantly medium- to coarse-grained sand, well-graded, trace silt, subrounded grains, increasing grain size with depth.
			6,8,10	0			
30			7,9,12	0		SC	CLAYEY SAND: olive (5YR 4/3), medium dense, moist to saturated, fine- to medium-grained sand, trace subrounded gravel up to 1-inch long.
			6,8,8	0		SM	SILTY SAND: olive (5YR 4/3), medium dense, saturated, medium-grained sand.
			6,9,14	0		SW	SAND: dark olive gray (5YR 3/2), medium dense, saturated, fine- to coarse-grained sand, well graded, subrounded, flat grains, trace fine gravel. Increasing gravel content, increasing grain size, trace silt and clay.
			7,9,8	0			
35			8,10,13	0		CL ML	GRAVELLY CLAY: dark olive gray (5YR 3/2), stiff to very stiff, moist, with medium-grained sand and silt.
			4,15,29	0			
			6,7,8	0			
						ML	SILT: olive (5YR 5/4), soft, saturated.
40							

NOTES:
- [ ] = sample interval
- ▬ = laboratory sample
- ▼ = groundwater observed
- PID = photoionization detector
- NM = not measured
- NA = not applicable
- ppm = parts per million

MILLER BROOKS Environmental, Inc.

EVERETT H. FERGUSON, RG. 7159

LOG OF BORING MW-23

PROJECT NUMBER 155-0039-03

PROJECT NAME: SHELL-BRANDED SERVICE STATION		SITE LOCATION: 1840 MAIN STREET, MORRO BAY, CALIFORNIA	
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM, GERARDO	DATE DRILLED: APRIL 23, 2001
DRILLING METHOD: HOLLOW-STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 50.5	LOGGED BY: S. LONDON
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: E. FERGUSON

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
40			5,6,7	0		SC	CLAYEY SAND: olive (5YR 5/4), medium dense, saturated, fine-grained sand, trace subrounded gravel up to 0.75-inch long.
			9,14,21	0		CL	GRAVELLY CLAY: dark yellowish brown (10YR 4/4), hard, moist to saturated, with medium-to-coarse grained sand, rounded gravel up to 2-inch in diameter.
			14,17,21	0			
45			9,15,22	0		GC	CLAYEY GRAVEL: dark yellowish brown (10YR 4/4), dense, damp to moist, with medium- to coarse-grained sand, rounded gravel up to 2-inch diameter, some gravel highly weathered and friable.
			8,13,19	0			
			14,19,25	0			
			11,19,25	0			
50			50/6"			GC	Weathered BEDROCK: brown (10YR 4/3), very dense
							Hand augered to 5.0 feet below ground surface. Groundwater observed at 8 feet below ground surface. Boring terminated at 50.5 feet below ground surface.
55							
60							
65							
70							
75							
80							

NOTES:
= sample interval
= laboratory sample
= groundwater observed
PID = photoionization detector
NM = not measured
NA = not applicable
ppm = parts per million

EVERETT H. FERGUSON, R.G. 7159

MILLER BROOKS Environmental, Inc.

LOG OF BORING MW-23

PROJECT NUMBER 155-0039-03

PROJECT NAME: SHELL-BRANDED SERVICE STATION	SITE LOCATION: 1840 MAIN STREET, MORRO BAY, CALIFORNIA		
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM	DATE DRILLED: JULY 9, 2001
DRILLING METHOD: HOLLOW-STEM AUGER	BORING DIAMETER (IN): 6.5/12	TOTAL DEPTH OF BORING (FT): 53.3	LOGGED BY: S. LONDON
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 18	REVIEWED BY: E. FERGUSON

DEPTH (FT) | SAMPLE LOCATION | SAMPLE ID | BLOWS PER 6 IN | PID (ppm) | GRAPHIC LOG | USCS SOIL GROUP | DESCRIPTION OF SUBSURFACE MATERIALS

Depth scale: 0, 5, 10, 15, 20, 25, 30, 35, 40

BLOWS PER 6 IN	PID (ppm)
4,6,6	0.0
2,2,2	0.0
4,5,7	0.0
5,5,7	
5,6,8	0.0
6,9,11	0.0
7,9,11	0.0
7,11,15	0.0
7,8,8	
8,10,13	0.0
7,10,13	
9,14,17	0.0
7,9,14	
7,9,10	0.0
6,8,11	
7,9,12	
5,9,14	0.0
5,5,6	
5,6,7	0.0
6,7,9	
5,5,6	0.0
5,6,8	
6,7,7	0.0
6,7,9	

USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
SM	SILTY SAND: dark reddish brown (5YR 3/3), loose, damp to moist, fine-grained sand, with 10% gravel up to 0.5 inches long.
ML	CLAYEY SILT: very dark brown (7.5YR 2.5/2), medium stiff, moist, trace coarse-grained sand and fine gravel.
SC	CLAYEY SAND: brown (10YR 4/3), soft, saturated at 7 feet below ground surface, fine-grained sand.
CL	SANDY CLAY: brown (10YR 4/3), medium stiff, wet to moist, fine-grained sand.
CL ML	CLAYEY SILT/ SILTY CLAY: dark yellowish brown (10YR 3/6), stiff, moist, low to medium plasticity.
CL	CLAY: dark brown (10YR 3/3), medium stiff, wet, medium plasticity.
CL	SILTY CLAY: very dark grayish brown (10YR 3/2), stiff, moist, medium plasticy.
SM	SILTY SAND: very dark brown (7.5YR 2.5/2), medium dense, saturated, fine-grained sand.
ML	CLAYEY SILT: brown (7.5YR 4/3), stiff, damp to moist, low plasticity.
CL	SILTY CLAY: brown (7.5YR 4/4), very stiff, moist, medium plasticity, with 5% fine gravel.
CL	SANDY CLAY: dark yellowish brown (10YR 4/4), stiff, moist, medium plasticity.
ML	SANDY SILT: dark yellowish brown (10YR 4/4), medium stiff, moist to wet, some clay, fine-grained sand.
SM	SILTY SAND: dark brown (10YR 3/3), medium dense, saturated, fine-grained.
SP	SAND: dark yellowish brown (10YR 4/4), medium dense, saturated, fine-grained.
SM	SILTY SAND: dark yellowish brown (10YR 4/4), loose to medium dense, saturated, fine- to medium-grained sand, with clay and fine gravel from 29 to 29.5 feet below ground surface.
SP	SAND: very dark grayish brown (10YR 3/2), loose, saturated, fine- to medium-grained.
ML	SANDY SILT: dark yellowish brown (10YR 4/6), medium stiff, moist, fine-grained sand.
SM	SILTY SAND: dark brown (10YR 3/3), loose, saturated, fine-grained sand.
ML	SANDY SILT: dark yellowish (10YR 4/4), medium stiff, saturated, fine-grained sand, trace clay, increasing clay with depth.
CL	SANDY CLAY: dark yellowish brown (10YR 4/4), stiff, moist, fine-grained sand. At 38 feet below ground surface, strong brown, medium plasticity.

NOTES:
- ☐ = sample interval
- ▬ = laboratory sample
- ▼ = groundwater observed
- PID = photoionization detector
- NM = not measured
- NA = not applicable
- ppm = parts per million

EVERETT FERGUSON JR., R.G. 7159

MILLER BROOKS Environmental, Inc.

LOG OF BORING MW-24C

PROJECT NUMBER 155-0039-03

PROJECT NAME: SHELL-BRANDED SERVICE STATION	SITE LOCATION: 1840 MAIN STREET, MORRO BAY, CALIFORNIA		
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM	DATE DRILLED: JULY 9, 2001
DRILLING METHOD: HOLLOW-STEM AUGER	BORING DIAMETER (IN): 6.5/12	TOTAL DEPTH OF BORING (FT): 53.3	LOGGED BY: S. LONDON
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 18	REVIEWED BY: E. FERGUSON

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
40			5,6,6	0.0		SC	CLAYEY SAND: brown (10YR 4/3), medium dense, saturated, fine-grained sand, increasing clay content with depth.
			7,12,15			CL	SILTY CLAY: yellowish brown (10YR 5/4), very stiff, damp, with trace gravel up to 0.5 inches long.
			9,15,26	0.0		SM	SILTY SAND: dark yellowish brown (10YR 4/3), medium dense, wet to saturated, fine-grained sand.
45			13,17,18	0.0			Saturated, sand becomes medium- to coarse-grained, trace clay, trace gravel up to 0.25 inches long.
			12,16,19				Brown (10YR 4/3), sand becomes fine- to medium-grained, trace gravel up to 0.5 inches long.
							Dark yellowish brown (10YR 4/4), fine-grained sand, trace subangular gravel up to 0.75 inches long, trace clay.
			13,15,21	0.0		GC	CLAYEY GRAVEL: dark brown (10YR 3/3), dense to medium dense, moist to wet, gravel up to 1-inch long, angular to subangular, weathered gravel.
						ML	CLAYEY SILT: dark yellowish brown (10YR 4/4), stiff, moist to wet, trace fine-grained sand.
50			7,9,11			SM	SILTY SAND: dark brown (7.5YR 3/2), dense, saturated, fine-grained sand.
						ML	SILT: olive brown (2.5Y 4/4), stiff, moist, low plasticity.
			14,17,23	0.0		SM	SILTY SAND: dark yellowish brown (10YR 4/4), medium dense, wet to saturated, fine- to medium-grained sand, with 10% gravel up to 0.5 inches long.
			70(4")			GC	Weathered bedrock: grayish brown (10YR 5/2), very dense, dry.
55							Groundwater observed at 7 feet below ground surface. Boring terminated at 53.25 feet below ground surface.
60							
65							
70							
75							
80							

NOTES:
[ ] = sample interval
▬ = laboratory sample
▼ = groundwater observed
PID = photoionization detector
NM = not measured
NA = not applicable
ppm = parts per million

MILLER BROOKS Environmental, Inc.

EVERETT FERGUSON JR., R.G. 7159

LOG OF BORING MW-24C

PROJECT NUMBER 155-0039-03

LOG OF BORING LBY SHELLMB.GPJ MBE.GDT 10/18/01

PROJECT NAME: SHELL-BRANDED SERVICE STATION		SITE LOCATION: 1840 MAIN STREET, MORRO BAY, CALIFORNIA	
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM	DATE DRILLED: JULY 10, 2001
DRILLING METHOD: HOLLOW-STEM AUGER	BORING DIAMETER (IN): 6/12	TOTAL DEPTH OF BORING (FT): 47.3	LOGGED BY: S. LONDON
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN):	REVIEWED BY: E. FERGUSON

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)
0				
5				0.0
			5,5,6	
			4,5,5	0.0
			5,7,8	
10			4,5,5	0.0
			4,5,5	
			6,6,7	
15			5,6,7	0.0
			4,3,3	
			5,8,10	0.0
20			7,9,10	
			7,11,14	0.0
			7,10,12	
25			8,11,14	0.0
			10,11,12	
			9,15,16	0.0
30			14,17,21	
			10,15,19	0.0
			7,9,12	
			7,9,11	0.0
35			10,9,11	
			11,14,16	0.0
			13,16,17	
40			11,15,17	0.0

USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
	ASPHALT SURFACE
	ARTIFICIAL FILL
SC	CLAYEY SAND: dark brown (7.5YR 3/3), loose, moist, medium- to coarse-grained sand, trace fine angular gravel.
CL	SILTY CLAY: very dark brown (7.5YR 1/2), medium stiff, moist, medium plasticity.
SC	CLAYEY SAND: very dark brown (7.5YR 2.5/3), medium stiff, wet, medium- to coarse-grained sand.
SM	SILTY SAND: brown (7.5YR 4/2), loose, saturated at 9 feet below ground surface, fine- to medium-grained sand.
ML	CLAYEY SILT: brown (7.5YR 4/2), medium stiff, wet to moist, low plasticity.
SC	CLAYEY SAND: dark brown (7.5YR 3/3), loose, wet, medium- to coarse-grained sand.
CL	CLAY: very dark grayish brown (10YR 3/2), soft, medium stiff, wet.
CL	SILTY CLAY: dark grayish brown (10YR 4/2), medium stiff, moist.
CL	SANDY CLAY: very dark brown (10YR 2/2), stiff, damp to moist, fine- to medium-grained sand, trace fine gravel.
SC	CLAYEY SAND: brown (10YR 4/3), loose, saturated, fine- to medium-grained sand.
CL	SANDY CLAY: dark brown (7.5YR 3/2), soft, saturated.
SM	SILTY SAND: dark brown (7.5R 3/2), loose to medium dense, saturated, fine-grained sand. Becomes reddish brown (5YR 4/3).
ML	CLAYEY SILT: brown (7.5YR 4/3), stiff, damp, trace fine-grained sand. With black root fragments. With 10% coarse-grained sand, trace fine gravel.
SM	SILTY SAND: dark brown (7.5YR 3/3), medium dense, saturated, fine-grained sand.
GC	CLAYEY GRAVEL: dark brown (7.5YR 3/2), medium dense, moist to wet, gravel up to 1-inch long, angular, highly weathered and friable.
GM	GRAVELLY SAND: dark brown (7.5YR 3/2), medium dense, moist to wet, gravel up to 1-inch long, highly weathered and friable, medium- to coarse-grained sand, with silt and trace clay.
ML	CLAYEY SILT: brown (10YR 5/3), medium stiff, moist.
SM	SILTY SAND: dark yellowish brown (10YR 3/4), medium dense, moist to wet, fine-grained sand.
GM	GRAVELLY SAND: dark yellowish brown (10YR 3/6), medium dense, wet to saturated, fine- to coarse-grained sand (60%), silt (25%), clay (5%), and gravel up to 1-inch long (10%).
SM	SILTY SAND: dark yellowish brown (10YR 3/6), medium dense, saturated, fine- to medium-grained sand, 5% fine gravel.
CL	SILTY CLAY: dark yellowish brown (10YR 4/4), very stiff, damp to moist. With gravel up to 1-inch long, angular, weathered.

NOTES:
- ▯ = sample interval
- ▬ = laboratory sample
- ▼ = groundwater observed
- PID = photoionization detector
- NM = not measured
- NA = not applicable
- ppm = parts per million

MILLER BROOKS Environmental, Inc.

EVERETT FERGUSON JR., R.G. 7159

LOG OF BORING MW-25C

PROJECT NUMBER 155-0039-03

PROJECT NAME: SHELL-BRANDED SERVICE STATION		SITE LOCATION: 1840 MAIN STREET, MORRO BAY, CALIFORNIA	
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MOBILE B61	DRILL CREW: DON, JIM	DATE DRILLED: JULY 10, 2001
DRILLING METHOD: HOLLOW-STEM AUGER	BORING DIAMETER (IN): 6/12	TOTAL DEPTH OF BORING (FT): 47.3	LOGGED BY: S. LONDON
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN):	REVIEWED BY: E. FERGUSON

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
			10,14,16			CL	SANDY CLAY: dark yellowish brown (10YR 4/4), very stiff, moist to wet, medium coarse-grained sand, with 10% gravel, some up to 1-inch long, weathered serpentinite and chert clasts, angular.
			11,16,20	0.0		GC	GRAVELLY CLAY/CLAYEY GRAVEL: dark yellowish brown (10YR 3/4), very stiff, wet to saturated, medium- to coarse-grained sand, gravel up to 1-inch long, weathered, subangular to subrounded.
45			13,17,26				
			13,17,21	0.0			
							Weathered Bedrock - sperpentinite.
							Hand-augered to 5 feet below ground surface. Groundwater observed at 9 feet below ground surface. Boring terminated at 47.25 feet below ground surface.
50							
55							
60							
65							
70							
75							
80							

NOTES:
- = sample interval
- = laboratory sample
- = groundwater observed
- PID = photoionization detector
- NM = not measured
- NA = not applicable
- ppm = parts per million

EVERETT FERGUSON JR., R.G. 7159

MILLER BROOKS Environmental, Inc.

LOG OF BORING MW-25C

PROJECT NUMBER 155-0039-03

PROJECT NAME: SHELL-BRANDED SERVICE STATION		SITE LOCATION: 1840 MAIN STREET, MORRO BAY, CALIFORNIA	
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MARL M12	DRILL CREW: TOM, JESSE, JOSE	DATE DRILLED: NOVEMBER 1, 2001
DRILLING METHOD: HOLLOW-STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 58.0	LOGGED BY: K. ANDREWS
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: K. ANDREWS

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
0							
							SANDY SILT: olive brown (2.5Y 4/4), loose, damp, with fine gravel.
						ML	CLAYEY SILT: very dark grayish brown (10YR 3/2), very stiff, damp, trace root traces.
5			4,19,13,17,24	0.0			
						CL	SILTY CLAY: dark brown (10YR 3/3), stiff, moist, plastic.
			6,8,10,9,8	0.0			
10							With trace gravel.
			6,12,17,22,20	0.0			
						SM	CLAYEY SILTY SAND: very dark grayish brown (10YR 3/2), dense, moist, 5-10% fine rounded gravel, trace shell fragments (?), fine-grained sand.
			6,10,11,13,17	0.0			
15						ML	CLAYEY SILT: very dark grayish brown (10YR 3/2), very stiff, moist.
			5,12,16,16,16	0.0	▼		
			7,21,40,43,42	0.0		SM	CLAYEY SILTY SAND: dark grayish brown (10YR 3/2), very dense, wet, trace shell fragments.
						SM	SILTY SAND: dark brown (10YR 3/3), very dense, wet.
20	■	MW-26-20				SW	SAND: dark grayish brown (10YR 4/2), very dense, wet, fine-grained, with silt.
			5,10,27,50(5")	0.0		CL	SILTY CLAY: dark yellowish brown (10YR 4/6), hard, damp, trace coarse-grained rounded sand.
			34,55,79	0.0		SM	SILTY SAND: dark yellowish brown (10YR 4/4), very dense, moist, fine-grained sand.
25							
			21,38,47,50(6")	0.0		CL	SILTY CLAY: dark yellowish brown (10YR 4/4), very hard, moist.
						SM	GRAVELLY SILTY SAND: dark brown (10YR 4/3), medium dense, wet.
						CL	SILTY CLAY: dark yellowish brown (10YR 4/4), very hard, moist.
						SM	GRAVELLY SILTY SAND: dark brown (10YR 4/3), medium dense, wet.
			11,24,26,32,28	0.0		CL	SILTY CLAY: dark yellowish brown (10YR 5/4), hard, wet.
						SP	SAND: dark yellowish brown (10YR 4/6), dense, wet, coarse-grained, with clay.
30	■	MW-26-30				SW	CLAYEY SAND: dark yellowish brown (10YR 4/4), medium dense, wet, fine-grained sand.
			5,11,17,21,14	0.0		SP	SAND: very dark grayish brown (10YR 3/2), medium dense, wet, pancake-shaped grains.
						GM	GRAVEL with 20% SILTY SAND: brown (10YR 5/3), very loose, wet, subrounded grains, fine gravel to 1-inch diameter.
			3,5,3,6,20	0.0			
35						SM	SILTY SAND: dark yellowish brown (10YR 4/4), stiff, wet, fine-grained sand.
			3,15,26,38,33	0.0		SM	CLAYEY SAND: dark yellowish brown (10YR 3/4), dense, moist, fine-grained sand, with silt.
						SP	SAND: dark brown (10YR 3/3), loose, wet, fine-grained, with silt.
			4,4,4,17,20	0.0			
40							

NOTES:
☐ = sample interval
■ = laboratory sample
▼ = groundwater observed
PID = photoionization detector
NM = not measured
NA = not applicable
ppm = parts per million

MILLER BROOKS Environmental, Inc.

Kathleen M. Andrews Hughes
KATHLEEN M. ANDREWS HUGHES, R.G. 6086

LOG OF BORING MW-26

PROJECT NUMBER 155-0039-03

PROJECT NAME: SHELL-BRANDED SERVICE STATION	SITE LOCATION: 1840 MAIN STREET, MORRO BAY, CALIFORNIA		
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MARL M12	DRILL CREW: TOM, JESSE, JOSE	DATE DRILLED: NOVEMBER 1, 2001
DRILLING METHOD: HOLLOW-STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 58.0	LOGGED BY: K. ANDREWS
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: K. ANDREWS

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
40							
			11,27,42,50(3")	0.0		SM	SILTY SAND: dark brown (10YR 3/3), dense, wet, with clay, rare subrounded cobbles to 2-inch diameter.
						SP	SAND: dark brown (10YR 3/3), dense, wet, fine-grained, with silt.
			6,14,26,36,50(6")	0.0		CL	CLAY with 10% SILT: dark brown (10YR 4/3), hard, moist, 20% fine to coarse subrounded gravel to 1-inch diameter, some clasts weathered to clay.
45						SM	SILTY SAND: dark reddish brown (5YR 3/3), dense, moist, with clay, fine-grained sand.
			2,11,18,24,50(3")	0.0		SW	SAND with GRAVEL: very dark grayish brown (10YR 3/2), dense, moist, medium- to coarse-grained sand, fine gravel (5%), poorly graded.
				0.0			No sample recovery.
			4,67(6")	0.0		GW GC	CLAYEY GRAVEL with SAND: dark yellowish brown (10YR 4/2), dense, wet, fine- to medium-grained sand, fine and coarse gravel, trace subangular gravel to 3-inch diameter, clay iron-stained, gravel.
50						SW	SAND: dark brown (10YR 3/3), loose, wet, fine- to coarse-grained sand.
			3,11,18,25,36	0.0			
			200(5")	0.0		GW GC	CLAYEY GRAVEL: grayish brown (10YR 5/2), loose, fine subrounded gravel, trace coarse gravel.
55							
			100(6")	0.0		GW	SANDY GRAVEL: very dark grayish brown (10YR 3/2), moist, gravel clasts, highly weathered.
							Hand-augered to 5 feet below ground surface. Groundwater observed at 16 feet below ground surface. Boring terminated at 58 feet below ground surface.
60							
65							
70							
75							
80							

NOTES:
= sample interval
= laboratory sample

▼ = groundwater observed
PID = photoionization detector

NM = not measured
NA = not applicable
ppm = parts per million

MILLER BROOKS Environmental, Inc.

Kathleen M. Andrews Hughes
KATHLEEN M. ANDREWS HUGHES, R.G. 6086

LOG OF BORING MW-26

PROJECT NUMBER 155-0039-03

PROJECT NAME: SHELL-BRANDED SERVICE STATION	SITE LOCATION: 1840 MAIN STREET, MORRO BAY, CALIFORNIA		
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MARL M12	DRILL CREW: TOM, CESAR, JOSE	DATE DRILLED: SEPTEMBER 11, 2001
DRILLING METHOD: HOLLOW-STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 53.5	LOGGED BY: K. ANDREWS
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: K. ANDREWS

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)
5			2,4,8	0.0
			3,5,7	0.0
			2,3,5	0.0
10			7,7,10	0.0
			6,6,8	0.0
			6,8,10	0.0
15			4,4,6	0.0
			6,6,8	0.0
			6,8,10	0.0
			21,35,39	0.0
20			6,10,12	0.0
			10,18,30	0.0
			14,39,50	0.0
25			12,20,24	0.0
			11,17,23	0.0
			17,24,44	0.0
30			7,11,29	0.0
			8,20,23	0.0
			11,24,30	0.0
			7,13,12	0.0
35			7,7,29	0.0
			18,24,34	0.0
			10,20,25	0.0
40				

USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
	FILL
CL	CLAY: very dark grayish brown (25Y 3/2), moist, medium stiff.
	Stiff, with trace coarse-grained sand and fine gravel, rare shell fragments, plastic.
	Olive gray, mottled.
CL	SILTY CLAY: dark olive gray, very stiff, trace fine-grained sand.
SM	SILTY SAND: dark olive gray, medium stiff, moist.
	Wet.
CL	CLAY: mottled dark olive gray, dark gray, very stiff, wet, trace fine gravel.
SM	SILTY SAND: wet, trace coarse-grained sand and fine subrounded gravel.
CL ML	SILTY CLAY: very dark grayish brown (2.5Y 3/2), stiff, moist, plastic.
SM	SILTY SAND: very dark grayish brown (2.5Y 3/2), very dense, wet, rare subangular gravel, rare carbon fragments.
CL	CLAY: dark grayish brown, very stiff, damp.
CL ML	SILTY CLAY: dark grayish brown, hard, damp, up to 10% fine subangular gravel.
	Dark brown (7.5YR 3/4), up to 5% fine- to coarse-grained sand.
ML	SANDY SILT: dark brown (7.5YR 3/4), hard, moist.
SM	SILTY SAND: dark brown, dense, wet, trace coarse-grained sand.
ML	CLAYEY SILT with SAND: dark brown, hard, wet, fine-grained.
SW	SAND: dark brown (7.5YR 3/2), dense, wet, fine-grained, rare concretions to fine gravel size.
CL	Dark brown, wet.
SM	SILTY SAND: dark yellowish brown (10YR 3/4), very dense, moist.
	Dark yellowish brown (10YR 4/6), dense, saturated, 70% fine-grained sand, 20% silt, 10% clay.
GP	SANDY GRAVEL: dark brown (10YR 3/3), very dense, wet, 50% fine to coarse gravel (rounded), 40% medium- to coarse-grained sand, 10% fines.
SW	SAND: dark yellowish brown (10YR 3/4), dense, wet, fine-grained.
GW	

NOTES:
☐ = sample interval
▬ = laboratory sample
▼ = groundwater observed
PID = photoionization detector
NM = not measured
NA = not applicable
ppm = parts per million

MILLER BROOKS Environmental, Inc.

Kathleen M. Andrews Hughes
KATHLEEN M. ANDREWS HUGHES, R.G. 6086

LOG OF BORING MW-27

PROJECT NUMBER 155-0039-03

PROJECT NAME: SHELL-BRANDED SERVICE STATION		SITE LOCATION: 1840 MAIN STREET, MORRO BAY, CALIFORNIA	
DRILLING COMPANY: GREGG DRILLING	DRILL RIG: MARL M12	DRILL CREW: TOM, CESAR, JOSE	DATE DRILLED: SEPTEMBER 11, 2001
DRILLING METHOD: HOLLOW-STEM AUGER	BORING DIAMETER (IN): 10	TOTAL DEPTH OF BORING (FT): 53.5	LOGGED BY: K. ANDREWS
SAMPLING METHOD: SPLIT-SPOON	HAMMER WEIGHT (LBS): 140	HAMMER DROP (IN): 30	REVIEWED BY: K. ANDREWS

DEPTH (FT)	SAMPLE LOCATION	SAMPLE ID	BLOWS PER 6 IN	PID (ppm)	GRAPHIC LOG	USCS SOIL GROUP	DESCRIPTION OF SUBSURFACE MATERIALS
40			5,10,15	0.0		SM	SANDY GRAVEL: dark brown, very dense, wet, 70% fine to coarse gravel (rounded), 20% medium- to coarse-grained sand, 10% fines, rare 2-inch rounded cobble.
			7,7,8	0.0			SILTY SAND: dark brown (10YR 4/3), medium dense, saturated, 70% fine- to medium-grained sand, 30% silt, rare 1-inch long gneiss clast.
			18,43,50	0.0		SM	SILTY SAND with CLAY: dark yellowish brown (10YR 4/6), hard, wet, plastic, mottled, trace fine to coarse gravel.
45						CL	GRAVELLY CLAY: brown (7.5YR 5/2), hard, wet, 55% clay, 45% fine to coarse, angular gravel.
			20,50(6")	0.0			
			50(6")			GC	CLAYEY GRAVEL: dark brown (7.5R 4/2), very dense, wet, 50% coarse, rounded sand, 25% medium sand, 25% clay.
						SC	CLAYEY SAND: dark brown, very dense, saturated, coarse-grained sand, 50% coarse rounded sand, 25% medium sand, 25% clay.
50			50(6")	0.0			
			50(6")	0.0			Very dark gray fractured rock.
55							Boring terminated at 53.5 feet below ground surface. Groundwater observed at 12 feet below ground surface.
60							
65							
70							
75							
80							

NOTES:
= sample interval
= laboratory sample
▼ = groundwater observed
PID = photoionization detector
NM = not measured
NA = not applicable
ppm = parts per million

MILLER BROOKS Environmental, Inc.

Kathleen M. Andrews Hughes

KATHLEEN M. ANDREWS HUGHES, R.G. 6086

LOG OF BORING MW-27

PROJECT NUMBER 155-0039-03

MITTELHAUSER corporation

BORING NO.: B-1	PROJECT NO.: P856	PROJECT NAME: PGandE, Morro Bay	
BORING LOCATION: N 10,707 W 2,989 (Plant Coordinates)		ELEVATION AND DATUM: 15.66' MLLW	
DRILLING AGENCY: PG&E-GC Gas DRILLER: Ron Hendren		DATE & TIME STARTED: 11/13/86 09:26	DATE & TIME FINISHED: 11/14/86 07:25
DRILLING EQUIPMENT: Mobile B-80, 12" HSA, 6" Wash Boring			
COMPLETION DEPTH: 69.9 ft	BEDROCK DEPTH: N/A	LOGGED BY: Black/Stechmann	CHECKED BY: C. Collins
FIRST WATER DEPTH: 16.7 ft	NO. OF SAMPLES:		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN
	0.0-2.0' Artificial Fill. Cobbly sand with shell fragments, medium brown, dry, medium to fine sand, 40% cobbles. (Af)	Af
5	2.0-5.5' Artificial Fill. Sand with gravel, shell debris, and cobbles. (Af)	
	5.5-6.0' Artificial Fill. Sandy gravel, brown, very moist, some minor shell debris. (Af)	SP
10	6.0-6.3' Sand. Gray, very moist, clean, very fine to fine sand. (SP)	
	6.3-7.5' Silty Organic Clay. Gray, moist, plastic, vertical roots. (OH)	OH
15	7.5-9.0' Sand. Gray, slightly moist, very fine to fine sand. (SP)	
20	9.0-16.7' Organic Clay. Gray with rust mottling, moist, very soft, plastic, vertical roots, plant debris, some peat. (OH)	SM
25	16.7-26.0' Silty Sand w/ shell debris. Gray, saturated, loose, slightly cohesive, fine sand; 75% sand, <5% shell; @ 25.5', 25% shell and gravel. (SM)	ML
30	26.0-27.0' Clayey Silt w/ sand. Gray, saturated, cohesive, low plasticity, 5% fine sand. (ML)	CH
35	27.0-36.0' Silty Clay. Greenish-gray w/ rust mottling, slightly moist, stiff, highly plastic, gravelly clay lens @ 29-29.5'. (CH)	
40	36.0-43.0' Clayey Silt. Greenish-gray, firm, slightly plastic, trace very fine sand. (ML)	ML
	43.0-44.0' Silty, Sandy Gravel. Fine gravel and coarse sand, 1 cm max diameter. (GM)	GM
45	44.0-50.0' Silty Clay. Grayish-green w/ rust mottling, moist, stiff; gravel lens at 44.2'. (CH)	CH
50	50.0-55.0' Silty Gravel. Fine	

SAMPLES: NUMBER	TYPE	BLOW COUNT	REMARKS
			09:26 Begin drilling
		4/1/1	5-6.5' SPT w/ trap
		2/2/3	7-8.5' SPT w/ trap
		1/2/2	10-11.5' SPT w/ trap
		1/1/1	12-13.5' SPT w/ trap
		----	15': sampler sank in soil
		2/3/5	17-18.5' SPT w/ trap
		3/2/1	20-21.5' SPT w/ trap
		2/4/4	22-23.5' SPT w/ trap
		3/3/3	25-26.5' SPT w/ trap
		3/5/7	27-28.5' SPT w/ trap
		11/13/14	29-30.5' 2.5" S.S.
		2/2/2	30.5-32' SPT
		1/1/2	32-33.5' SPT change to wash boring @ 29'. Left 8" ID HSA for conductor
			36.5-38' SPT w/trap
		2/1/3	41.5-43' SPT w/ trap
		4/3/2	46-47.5' SPT w/ trap

MITTELHAUSER corporation

BORING NO.: B-1 PROJECT NO.: P856 PROJECT NAME: PGandE, Morro Bay

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOW COUNT	REMARKS
	gravel, subangular to subrounded, 1 cm max diameter, trace blackish-gray silty clay. (GM)	GM				1/2/3	51.5-53' SPT w/ trap
55	55.0-62.5' Clayey Silt. Gray-black, moist, firm to stiff, slightly plastic. (ML)	ML				2/2/3	56.5-58' SPT w/ trap
60						3/3/4	61.5-63' SPT w/ trap
	62.5-66.5' Clayey Silt. Greenish-brown w/ gray mottling, slightly moist, stiff, plastic. (MH)	MH					
65	66.5-69.5' Silty Sand. Greenish-brown, saturated, medium sand, trace fines. (SM)	SM				7/6/13	66.5-68' SPT w/ trap --11/14/86--
70	69.5-69.9' Cobbles w/ Clay. 60% cobbles, 40% gray, stiff clay. (GC)					50/ 5-1/2"	69.5-69.9' SPT
75							
80							
85							
90							
95							
100							

MITTELHAUSER corporation

BORING NO.: B-2 PROJECT NO.: P856 PROJECT NAME: PGandE, Morro Bay

BORING LOCATION: N 10,518 W 3,153 (Plant Coordinates) ELEVATION AND DATUM: 15.90' MLLW

DRILLING AGENCY: PG&E-GC Gas DRILLER: Ron Hendren

DRILLING EQUIPMENT: Mobile B-80, 12" HSA, 6" Wash Boring

DATE & TIME STARTED: 11/17/86 09:06 DATE & TIME FINISHED: 11/17/86 14:21

COMPLETION DEPTH: 73.3 ft BEDROCK DEPTH: N/A

FIRST WATER DEPTH: 14.5 ft NO. OF SAMPLES:

LOGGED BY: T. Black CHECKED BY: C. Collins

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOW COUNT	REMARKS
	0.0-1.5' Artificial Fill. Sand, yellow, clean, dense. (Af) 1.5-6.5' Artificial Fill. Silty sand w/ gravels/cobbles, brown, dry to moist, dense. (Af)	Af					09:06 Begin drilling
5							
	6.5-9.0' Sand. Brown, clean, very moist, fine sand. (SP)	SP				4/6/6	7-8.5' SPT w/ trap
10	9.0-12.5' Organic Silty Clay. Dark gray, very moist, vertical roots and debris. (ML)	ML				2/3/3	10-11.5' SPT w/ trap
	12.5-13.0' Sand. Black, wet, clean, medium to fine sand. (SP)					1/1/2	12-13.5' SPT w/ trap
15	13.0-15.0' Organic Silty Clay. Green-gray, moist, vertical roots, plant debris. (CL)	CL					
	15.0-27.0' Silty Sand. Fine to medium sand, 15% fines, saturated, vertical roots, plant debris; @ 22' coarsens with shell debris. (SM)	SM				1/2/2	17-18.5' SPT w/ trap
20							
						2/2/3	22-23.5' SPT w/ trap
25							
	27.0-35.0' Clay. Greenish-gray, moist, shell/clam shell debris, soft. (CH)	CH				1/2/2	27-28.5' SPT w/ trap
30						2/4/4	30-31.5' SPT Taped end
						1/2/2	32-33.5' SPT Taped end
35	35.0-45.0' Silty Sand. Dark gray, saturated, fine sand, 15% fines, shell fragments at 43-44'. (SM)	SM				4/4/10	37-38.5' SPT
40							
						6/8/6	42-43.5' SPT took grab sample from SPT
45	45.0-55.0' Silty Sand. Brown w/ rust mottling, saturated, medium sand, 20% fines; @ 50' changes to dark gray. (SM)	SM				3/3/5	47-48.5' SPT
50							

MITTELHAUSER corporation

BORING NO.: B-2 PROJECT NO.: P856 PROJECT NAME: PGandE, Morro Bay

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOW COUNT	REMARKS
		SM				6/9/10	52-53.5' 2.5" drive sampler w/ trap
55	55.0-58.0' Clay. Dark gray, moist, firm, plastic. (CH)	CH				3/3/4	57-58.5' SPT w/ trap
60	58.0-63.1' Clayey Sand. Dark gray, saturated, cohesive, 60% fine to med sand. (SC) -Gradational contact-	SC				----	62-63.5' SPT no trap, soft full recovery w/o driving sampler
65	63.1-67.8' Silty Sandy Clay. Gray, wet, low plasticity, 30% sand. (CL) -Sharp contact w/ sandy gravel-	CL				6/14/19	67-68.5' SPT no trap
70	67.8-73.25' Sandy Gravel. Tight, fine gravel, 30 mm max diameter. (GW)	GW				14/14/ 50-3"	72-73.5' SPT no trap
75							Refusal at 73.25'
80							
85							
90							
95							
100							

MITTELHAUSER corporation

BORING NO.: B-3	PROJECT NO.: P856
PROJECT NAME: PGandE, Morro Bay	
BORING LOCATION: N 10,610 W 2,355 (Plant Coordinates)	ELEVATION AND DATUM: 14.83' MLLW
DRILLING AGENCY: PG&E-GC Gas	DRILLER: Ron Hendren
DRILLING EQUIPMENT: Mobile B-80, 12" HSA, 6" Wash Boring	
DATE & TIME STARTED: 11/18/86 11:06	DATE & TIME FINISHED: 11/18/86 15:40
COMPLETION DEPTH: 64.4 ft	BEDROCK DEPTH: N/A
FIRST WATER DEPTH: 10.0 ft	NO. OF SAMPLES:
LOGGED BY: T. Black	CHECKED BY: C. Collins

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOW COUNT	REMARKS
	0.0-7.8' Fill. Gravelly sand with shells. Light brown, dry, fine sand with coarse gravel, clam shells, concrete pipe debris. (Af)	Af					11:06 Begin drilling
5							
						1/12" 1/7"	7-8.5' SPT w/ trap
	7.8-12.0' Silty Sand. Dark Gray, very moist to saturated, 75 % sand, roots and plant debris, coarsens downward. (SM)	SM					
10						2/2/5	10-11.5' SPT w/ trap
	12.0-22.5' Gravelly Sand. Dark gray, saturated, loose, fine to coarse sand, 40% gravel - 25 mm max diameter. (SW)	SW				1/2/3	12-13.5' SPT w/ trap
15							
						2/4/6	17-18.5' 2.5" sampler w/ liner
20							
						3/3/4	22-23.5' SPT w/ trap
	22.5-24.0' Clayey Sand. Greenish-brown, moist, cohesive, firm, 60-80% sand. (SC)	SC					
25	24.0-33.0' Sandy Clay. Greenish gray, firm, plastic, 15-20% very fine sand. (CH)	CH					
						2/3/5	27-28.5' SPT w/ trap; @ 27' begin drilling w/ wash bore
30							
						5/6/10	32-33.5' 2.5" sampler
35	33.0-37.2' Silty Clay. Greenish-gray w/ rust and black mottling, root structures. (CL)	CL					
						4/6/6	37-38.5' SPT w/ trap
	37.2-41.0' Clayey Sand. Brown, moist, cohesive, fine to coarse sand, trace gravel. (SC)	SC					
40	41.0-45.0' Clayey Gravel. Gray, 15 mm max diameter. (GC)	GC					
						10/13/22	42-43.5' SPT w/ trap
45	45.0-59.0' Clay. Bluish-gray w/ light gray mottling, very stiff, rootlets, trace silt. At 52.0', color changes to greenish-gray. (CH)	CH					
						4/5/8	47-48.5' SPT w/ trap (trap broke during
50							

MITTELHAUSER corporation

BORING NO.: B-3 PROJECT NO.: P856 PROJECT NAME: PGandE, Morro Bay

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOW COUNT	REMARKS
						6/9/12	sampling) 52-53.5' SPT
55		CH					
						10/15/22	57-58.5' 2.5" sampler no trap
60	59.0-64.4' Gravelly Clay. Greenish gray. (CL)	CL				Refusal	61-62.5' 2.5" sampler w/ trap
65							
70							
75							
80							
85							
90							
95							
100							

MITTELHAUSER corporation

BORING NO.: C-1-A	PROJECT NO.: P856	PROJECT NAME: PGandE, Morro Bay			
BORING LOCATION: N 10,055 W 3,320 (Plant Coordinates)		ELEVATION AND DATUM: 15.08' MLLW			
DRILLING AGENCY: PG&E-GC Gas	DRILLER: Ron Hendren		DATE & TIME STARTED: 12/2/86 14:20	DATE & TIME FINISHED: 12/2/86 15:03	
DRILLING EQUIPMENT: Mobile B-80, 12" HSA (8" ID)					
COMPLETION DEPTH: 20.0 ft	BEDROCK DEPTH: N/A		LOGGED BY: T. Black	CHECKED BY:	
FIRST WATER DEPTH: 12.1 ft	NO. OF SAMPLES:				

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOW COUNT	REMARKS
0–6	0.0-6.0' Artificial Fill. Sand, med brown, dry to slightly moist, fine sand, trace shells and gravel. (Af)	Af					14:20 Begin drilling
6–15	6.0-15.0' Sand. Brown, clean, slightly moist to saturated, fine sand. (SP)	SP					
15–19	15.0-19.0' Sandy Gravel. Clean, saturated, subangular to subrounded, fine to coarse gravel - 20 mm max diameter, 35% fine to coarse sand. (GW)	GW					
19–20	19.0-20.0' Sand. Gray, clean, loose, fine sand. (SP)	SP					15:03 Finish drilling

Depth scale: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50

MITTELHAUSER corporation

BORING NO.: C-1-B PROJECT NO.: P856 PROJECT NAME: PGandE, Morro Bay

BORING LOCATION: N 10,0555 W 3,311 (Plant Coordinates) ELEVATION AND DATUM: 15.08' MLLW

DRILLING AGENCY: PG&E-GC Gas DRILLER: Ron Hendren

DRILLING EQUIPMENT: Mobile B-80, 12" HSA (8" ID)

DATE & TIME STARTED: 12/2/86 12:17

DATE & TIME FINISHED: 12/2/86 12:53

COMPLETION DEPTH: 32.3 ft BEDROCK DEPTH: N/A

FIRST WATER DEPTH: 12.1 ft NO. OF SAMPLES:

LOGGED BY: T. Black

CHECKED BY:

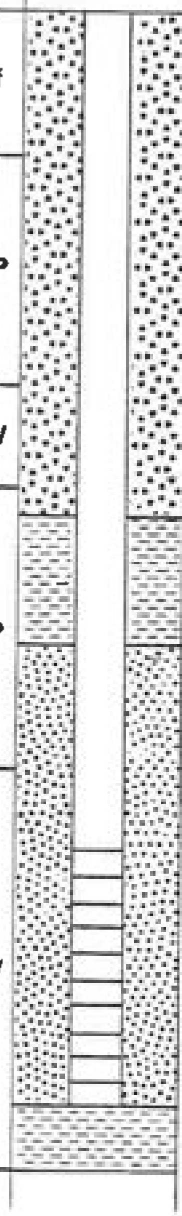
DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOW COUNT	REMARKS
0	0.0-6.0' Artificial Fill. Sand, med brown, dry to slightly moist, fine sand, trace shells and gravel. (Af)	Af					12:17 Begin drilling
5	6.0-15.0' Sand. Brown, clean, slightly moist to saturated, fine sand. (SP)	SP					
10							
15	15.0-19.0' Sandy Gravel. Clean, saturated, subangular to subrounded, fine to coarse gravel - 20 mm max diameter, 35% fine to coarse sand. (GW)	GW					
20	19.0-30.0' Sand. Gray, clean, loose, fine sand. (SP)	SP					
25							
30	30.0-32.3' Gravelly Sand. Gray, medium to coarse sand, 10% shell fragments, 5% fine gravel up to 10mm, subangular to subrounded gravel. (SW)	SW					12:53 Finished drilling
35							
40							
45							
50							

MITTELHAUSER corporation

BORING NO.: C-1-C	PROJECT NO.: P856	PROJECT NAME: PGandE, Morro Bay	
BORING LOCATION: N 10,054 W 3,303 (Plant Coordinates)		ELEVATION AND DATUM: 15.11' MLLW	
DRILLING AGENCY: PG&E-GC Gas	DRILLER: Ron Hendren	DATE & TIME STARTED: 12/1/86 15:57	DATE & TIME FINISHED: 12/2/86 10:10
DRILLING EQUIPMENT: Mobile B-80, 12" HSA (8" ID)			
COMPLETION DEPTH: 45.5 ft	BEDROCK DEPTH: N/A	LOGGED BY: T. Black	CHECKED BY:
FIRST WATER DEPTH: 12.1 ft	NO. OF SAMPLES:		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOW COUNT	REMARKS
0	0.0-6.0' Artificial Fill. Sand, med brown, dry to slightly moist, fine sand, trace shells and gravel. (Af)	Af				15:57 Begin drilling
5	6.0-15.0' Sand. Brown, clean, slightly moist to saturated, fine sand. (SP)	SP			6/8/15	7-8.5' SPT w/ trap
10					4/9/33	12-13.5' SPT
15	15.0-19.0' Sandy Gravel. Clean, saturated, subangular to subrounded, fine to coarse gravel - 20 mm max diameter, 35% fine to coarse sand. (GW)	GW			*	17-18.5' SPT w/ trap
20	19.0-30.0' Sand. Gray, clean, loose, fine sand. (SP)	SP			*	Stop for day Start 12/2/86 22-23.5' SPT (sand ran out end, use trap)
25					*	27-28.5' SPT w/ trap
30	30.0-45.5' Gravelly Sand. Gray, medium to coarse sand, 10% shell fragments, 5% fine gravel up to 10mm, subangular to subrounded gravel. (SW)	SW			*	32-33.5' SPT
35					*	37-38.5' SPT w/ trap
40						Augers stuck in hole @ 32' 09:37 Resume drilling
45					*	44-45.5' SPT w/ trap
50						

WELL CONSTRUCTION LOG



* No blow counts due to heaving and loose sands.

MITTELHAUSER corporation

BORING NO.: P-1 PROJECT NO.: P856 PROJECT NAME: PGandE, Morro Bay

BORING LOCATION: N 11,117 W 1,816 (Plant Coordinates) ELEVATION AND DATUM: 22.34' MLLW

DRILLING AGENCY: PG&E-GC Gas DRILLER: Ron Hendren

DRILLING EQUIPMENT: Mobile B-80, 12" HSA

DATE & TIME STARTED: 11/19/86 10:51

DATE & TIME FINISHED: 11/19/86 12:30

COMPLETION DEPTH: 25.0 ft BEDROCK DEPTH: N/A

FIRST WATER DEPTH: 12.5 ft NO. OF SAMPLES:

LOGGED BY: B. Stechmann

CHECKED BY:

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOW COUNT	REMARKS
0–7.0	0.0-7.0' Artificial fill. Sand, brown, dry to moist, some gravel. (Af)	Af				9/24/22	10:51 Begin drilling 2-3.5' SPT w/ trap
7.0–12.5	7.0-12.5' Silty Sand. Greenish-brown, moist to very moist, slightly cohesive, fine to med sand. (SM)	SM				29/22/43	7-8.5' SPT w/ trap
12.5–22.0	12.5-22.0' Gravelly Sand. Greenish-brown, med sand, gravel 10 mm max diameter, trace fines. (SP)	SP				13/26/26	11.5-13' SPT w/ trap
22.0–25.0	22.0-25.0' Silty Clay. Greenish-brown w/ red mottling, moist, stiff. (CL)	CL					

Depth scale: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50

MITTELHAUSER corporation

BORING NO.: P-2	PROJECT NO.: P856	PROJECT NAME: PGandE, Morro Bay	
BORING LOCATION: N 10,238 W 2,029 (Plant Coordinates)		ELEVATION AND DATUM: 16.70' MLLW	
DRILLING AGENCY: PG&E-GC Gas	DRILLER: Ron Hendren	DATE & TIME STARTED: 11/20/86 15:30	DATE & TIME FINISHED: 11/20/86 16:20
DRILLING EQUIPMENT: Mobile B-80, 12" HSA			
COMPLETION DEPTH: 20.0 ft	BEDROCK DEPTH: N/A	LOGGED BY: B. Stechmann	CHECKED BY:
FIRST WATER DEPTH: 12.5 ft	NO. OF SAMPLES:		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOW COUNT	REMARKS
	0.0-0.1' Asphalt.						15:30 Begin drilling
	0.1-0.5' Fill. Aggregate, brown, silty sand w/ gravel. (Af)						
5	0.5-7.0' Artificial Fill. Silty sand w/ gravel, brown, slightly moist, fine sand, gravel 25 mm max diameter, shell fragments. (Af)	Af					
	7.0-12.0' Sand. Tannish-brown, clean, slightly moist, fine sand. (SP)	SP				18/25/42	7-8.5' SPT no trap
10							
	12.0-18.5' Sand. Gray, saturated, fine sand, rootlets, trace fines. (SP)	SP				8/14/12	12-13.5' SPT w/ trap
15							
	18.5-20.0' Gravel. Fine gravel and sand. (GM)	GM				4/4/7	18.5-20
20							
25							
30							
35							
40							
45							
50							

MITTELHAUSER corporation

BORING NO.: P-3 PROJECT NO.: P856 PROJECT NAME: PGandE, Morro Bay

BORING LOCATION: N 10,022 W 2,816 (Plant Coordinates) ELEVATION AND DATUM: 15.09' MLLW

DRILLING AGENCY: PG&E-GC Gas DRILLER: Ron Hendren

DRILLING EQUIPMENT: Mobile B-80, 12" HSA

DATE & TIME STARTED: 11/20/86 13:17

DATE & TIME FINISHED: 11/20/86 14:12

COMPLETION DEPTH: 20.5 ft BEDROCK DEPTH: N/A

FIRST WATER DEPTH: 11.5 ft NO. OF SAMPLES:

LOGGED BY: T. Black

CHECKED BY:

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOW COUNT	REMARKS
0.0-4.0'	Artificial Fill. Sand w/ cobbles/gravel, brown to gray, dry to moist, loose, clam shell fragments. (Af)	Af					13:17 Begin drilling
4.0-12.8'	Sand. Brown, slightly moist to saturated, fine sand. (SP)	SP				11/14/32	7-8.5' SPT w/ trap
						12/18/17	12-13.5' SPT w/ trap
12.8-16.0'	Sandy Gravel. Brown, saturated, fine to coarse sand, subangular to subrounded gravel - 15 mm max diameter. (GW)	GW					
16.0-20.1'	Sand. Gray, clean, saturated, fine to coarse sand. (SW)	SW				3/27/50	19-20.5' SPT w/ trap
20.1-20.5'	Sand. Gray, clean, fine sand. (SP)						

Depth scale: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50

MITTELHAUSER corporation

BORING NO.: P-4 PROJECT NO.: P856 PROJECT NAME: PGandE, Morro Bay

BORING LOCATION: N 10,791 W 2,720 (Plant Coordinates) ELEVATION AND DATUM: 15.74' MLLW

DRILLING AGENCY: PG&E-GC Gas DRILLER: Ron Hendren

DRILLING EQUIPMENT: Mobile B-80, 12" HSA

DATE & TIME STARTED: 11/21/86 07:40

DATE & TIME FINISHED: 11/21/86 09:15

COMPLETION DEPTH: 22.0 ft BEDROCK DEPTH: N/A

FIRST WATER DEPTH: 12 ft NO. OF SAMPLES:

LOGGED BY: B. Stechmann

CHECKED BY:

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOW COUNT	REMARKS
0–7	0.0-7.0' Artificial Fill. Sand w/ gravel, lt brown, dry, loose, dry, shell fragments, trace fines. (Af)	Af					07:40 Begin drilling
7–12	7.0-12.0' Silty Organic Clay. Blackish-gray, moist, slightly to moderately firm, rootlets, trace sand. (OH)	OH				4/4/6	7-8.5' SPT w/ trap
12–15	12.0-15.0' Sand. Gray, saturated, fine sand, trace fines. (SP/SM)	SP/SM				3/3/4	12-13.5' SPT w/ trap
15–17	15.0-17.0' Organic Clay. Blackish-gray, saturated, roots, trace sand. (OH)	OH					
17–22	17.0-22.0' Silty Sand. Gray, saturated, fine sand. (SM)	SM				8/14/14	17-18.5' SPT w/ trap
						4/25/50-4"	20-21.5' SPT w/ trap

Depth scale: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50

MITTELHAUSER corporation

BORING NO.: P-5 PROJECT NO.: P856 PROJECT NAME: PGandE, Morro Bay

BORING LOCATION: N 11,413 W 2,491 (Plant Coordinates) ELEVATION AND DATUM: 16.04' MLLW

DRILLING AGENCY: PG&E-GC Gas DRILLER: Ron Hendren

DRILLING EQUIPMENT: Mobile B-80, 12" HSA

DATE & TIME STARTED: 11/24/86 12:25

DATE & TIME FINISHED: 11/24/86 12:54

COMPLETION DEPTH: 13.5 ft BEDROCK DEPTH: N/A

FIRST WATER DEPTH: 7.0 ft NO. OF SAMPLES:

LOGGED BY: T. Black

CHECKED BY:

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOW COUNT	REMARKS
0–1.0	0.0-1.0' Artificial Fill. Cobbles and sand. (Af)	SM					12:25 Begin drilling
1.0–2.5	1.0-2.5' Silty Sand w/ Shells. Gray, dry, 25% shell fragments, 60% fine to med sand. (SM)						
2.5–7.8	2.5-7.8' Silty Sand. Brown, slightly moist to wet, loose, 75% fine to coarse sand. (SM)	SM				3/2/4	7-8.5' SPT
7.8–13.5	7.8-13.5' Silty Clay. Black, wet, soft, minor plant debris. (CL)	CL				4/8/10	12-13.5' SPT

Depth scale: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50

MITTELHAUSER corporation

BORING NO.: P-6 PROJECT NO.: P856 PROJECT NAME: PGandE, Morro Bay

BORING LOCATION: N 11,117 W 3,168 (Plant Coordinates) ELEVATION AND DATUM: 16.62' MLLW

DRILLING AGENCY: PG&E-GC Gas DRILLER: Ron Hendren

DRILLING EQUIPMENT: Mobile B-80, 12" HSA

DATE & TIME STARTED: 11/24/86 09:27

DATE & TIME FINISHED: 11/24/86 11:05

COMPLETION DEPTH: 24.0 ft BEDROCK DEPTH: N/A

FIRST WATER DEPTH: 13.0 ft NO. OF SAMPLES:

LOGGED BY: T. Black

CHECKED BY:

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOW COUNT	REMARKS
	0.0-2.0' Artificial Fill. Sand w/ gravel, tan, dry, fine sand, subangular to subrounded gravel. (Af)	Af					09:27 Begin drilling
5	2.0-4.0' Sand. Brown, clean, moist, fine to med sand. (SP)	SP					
	4.0-7.7' Clayey Silt. Brown w/ gray mottling, moist, soft. (ML)	ML				3/6/6	7-8.5' SPT w/ trap
10	7.7-10.0' Silty Clay with Peat. Black, moist, loose. (OH)	OH					
	10.0-13.4' Clay. Greenish-gray w/ rust mottling, moist to wet, moderate plasticity. (CL)	CL				1/3/6	12-13.5' SPT w/ trap
15	13.4-15.0' Clayey Sand. Greenish-gray, saturated, cohesive, 60% fine to med sand. (SC)	SC					
	15.0-18.3' Sandy Silty Clay. Greenish-gray w/ rust mottling, wet, 25% fine sand. (CL)	CL				4/9/11	17-18.5' SPT w/ trap
20	18.3-24.0' Silty Sand. Greenish-gray, wet, loose, fine to med sand. (SM)	SM				8/6/4	22-23.5' SPT
25							
30							
35							
40							
45							
50							

MITTELHAUSER corporation

BORING NO.: P-7 PROJECT NO.: P856 PROJECT NAME: PGandE, Morro Bay

BORING LOCATION: N 10,711 W 3,046 (Plant Coordinates) ELEVATION AND DATUM: 15.46' MLLW

DRILLING AGENCY: PG&E-GC Gas DRILLER: Ron Hendren

DRILLING EQUIPMENT: Mobile B-80, 12" HSA

DATE & TIME STARTED: 12/1/86 13:15

DATE & TIME FINISHED: 12/1/86 14:19

COMPLETION DEPTH: 22.0 ft BEDROCK DEPTH: N/A

FIRST WATER DEPTH: 16.0 feet NO. OF SAMPLES:

LOGGED BY: T. Black

CHECKED BY:

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOW COUNT	REMARKS
0–6.5	0.0-6.5' Artificial Fill. Cobbly sand w/ shell fragments, dry to moist, fine to medium sand. (Af)	Af					13:15 Begin drilling
6.5–16.0	6.5-16.0' Organic Clay. Black, moist to wet, soft, decaying roots and reeds, peat @ 9.2'. (OH)	OH				5/3/4	8-9.5' SPT
						2/4/6	13-14.5' SPT w/ trap
16.0–24.5	16.0-24.5' Silty Sand. Black, saturated, loose, fine sand, 30% fines. (SM)	SM				4/7/4	18-19.5' SPT
						8/8/12	23-24.5' SPT w/ trap

Depth scale: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50

MITTELHAUSER corporation

BORING NO.: P-8 PROJECT NO.: P856 PROJECT NAME: PGandE, Morro Bay

BORING LOCATION: N 10,489 W 3,947 (Plant Coordinates) ELEVATION AND DATUM: 33.45' MLLW

DRILLING AGENCY: PG&E-GC Gas DRILLER: Ron Hendren

DRILLING EQUIPMENT: Mobile B-80, 12" HSA

DATE & TIME STARTED: 12/2/86 15:59

DATE & TIME FINISHED: 12/3/86 08:19

COMPLETION DEPTH: 36.0 ft BEDROCK DEPTH: N/A

FIRST WATER DEPTH: 27.9 ft NO. OF SAMPLES:

LOGGED BY: T. Black

CHECKED BY:

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOW COUNT	REMARKS
0	0.0-15.0' Artificial Fill. Silty sand with gravel and shells, lt tan, dry, very fine sand. (Af)	Af					15:59 Begin drilling
7							7'
12							12' Drilling by car lights
15	15.0-22.5' Sand. Med brown, slightly moist, very fine sand, trace silt. (SP)	SP				12/30/ 50-5"	17-18.5' SPT 17:34 Stop for day
20	-Sharp Contact-						-- 12/2/86 --
22.5	22.5-28.5' Silty Sand. Dark brown, slightly moist to wet, black laminar bedding, 80% very fine sand, trace shell debris. (SM)	SM				6/20/20	22-23.5' SPT w/ trap
28.5	28.5-36.0' Sand. Grayish-brown saturated, fine sand. (SP)	SP				15/17/25	28-29.5' SPT
33						3/11/26	33-34.5 SPT
36							08:19 Finished drilling

Depth scale: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50

MITTELHAUSER corporation

BORING NO.: P-9 PROJECT NO.: P856 PROJECT NAME: PGandE, Morro Bay

BORING LOCATION: N 10,857 W 4,075 (Plant Coordinates) ELEVATION AND DATUM: 21.21' MLLW

DRILLING AGENCY: PG&E-GC Gas DRILLER: Ron Hendren

DRILLING EQUIPMENT: Mobile B-80, 12" HSA

DATE & TIME STARTED: 11/20/86 09:24

DATE & TIME FINISHED: 11/20/86 10:41

COMPLETION DEPTH: 25.5 ft BEDROCK DEPTH: N/A

FIRST WATER DEPTH: 16.0 ft NO. OF SAMPLES:

LOGGED BY: B. Stechmann

CHECKED BY:

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOW COUNT	REMARKS
0–5	0.0-0.5' Artificial Fill. Very fine sand, brown, slightly moist. (Af) 0.5-5.0' Sand. Gray, dry, loose, fine sand. (SP)	SP					09:24 Begin drilling
5–23	5.0-23.0' Sand. Grayish-brown to gray, clean, moist, fine, micaceous sand. (SP)	SP				12/16/17	7.5-9' SPT
						11/15/16	11.5-13' SPT
						2/4/9	16.5-18' SPT w/ trap
23–25.5	23.0-25.5' Clay. Blackish-gray, very moist, highly plastic. (CH)	CH				6/8/8	25-26.5' SPT w/ trap

Depth scale: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50

MITTELHAUSER corporation

BORING NO.: P-10 PROJECT NO.: P856 PROJECT NAME: PGandE, Morro Bay

BORING LOCATION: N 11,415 W 3,832 (Plant Coordinates) ELEVATION AND DATUM: 20.37' MLLW

DRILLING AGENCY: PG&E-GC Gas DRILLER: Ron Hendren

DRILLING EQUIPMENT: Mobile B-80, 12" HSA/ 8" ID

DATE & TIME STARTED: 11/19/86 14:21

DATE & TIME FINISHED: 11/19/87 15:54

COMPLETION DEPTH: 30.5 ft BEDROCK DEPTH: N/A

FIRST WATER DEPTH: 23.0 ft NO. OF SAMPLES:

LOGGED BY: T. Black

CHECKED BY:

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES NUMBER	SAMPLES TYPE	BLOW COUNT	REMARKS
0–5	0.0-5.0' Artificial Fill. Silty sand with gravel and cobbles, tan to brown, dry to slightly moist. (Af)	Af					14:21 Begin drilling
5–7	5.0-7.0' Sand. Gray, clean, slightly moist, dense, fine sand. (SP)	SP				11/16/20	6-7.5' SPT w/ trap
7–9	7.0-9.0' Sandy Silty Clay. Black, slightly moist, odorous, 25% fine sand. (CL)	CL					
9–15	9.0-15.0' Organic Clay w/ Silty Sand. Black, moist to wet, firm, vertical roots. (OH)	OH				4/4/9	12-13.5' SPT w/ trap
15–23	15.0-23.0' Organic Clay. Blue-gray w/ rust mottling, slightly moist, soft, vertical roots. (OH)	OH				3/5/9	17-18.5' SPT w/ trap
	-Sharp Contact-					3/4/6	22-23.5' SPT w/ trap
23–27	23.0-27.0' Clayey Sand. Greenish-gray, saturated, cohesive, fine sand. (SC)	SC					
27–30.5	27.0-30.5' Sandy Clay. Greenish-gray, wet, soft, 15% coarse sand, thin shelly zones. (CH)	CH				3/5/4	29-30.5' SPT w/ trap

Depth scale: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50

MITTELHAUSER corporation

BORING NO.: P-12 PROJECT NO.: P856 PROJECT NAME: PGandE, Morro Bay

BORING LOCATION: N 11,962 W 3,737 (Plant Coordinates) ELEVATION AND DATUM: 21.86' MLLW

DRILLING AGENCY: PG&E-GC Gas DRILLER: Ron Hendren

DRILLING EQUIPMENT: Mobile B-80, 12" HSA 8" ID

DATE & TIME STARTED: 11/15/86 07:50

DATE & TIME FINISHED: 11/25/86 11:56

COMPLETION DEPTH: 31.5 ft BEDROCK DEPTH: N/A

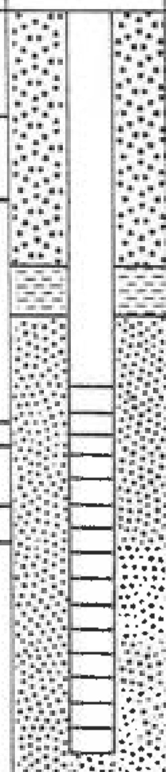
FIRST WATER DEPTH: . ft NO. OF SAMPLES:

LOGGED BY: B. Stechmann

CHECKED BY:

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: BLOW COUNT	REMARKS
0	0.0-4.5' Silty Sand. Lt brown, dry, loose, fine sand, 20% fines, trace gravel and shell fragments. (SM)	SM				07:50 Begin drilling
5	4.5-8.0' Clayey Silt. Dark brown, moist, slightly to mod cohesive, trace sand and gravel. (CL)	CL			6/6/10	7-8.5' SPT
10	8.0-17.0' Sand. Reddish-brown, clean, slightly moist, fine sand, trace silt. (SP)	SP			11/26/32	12-13.5' SPT w/ trap
15						
	17.0-18.0' Sandy Clay. Greenish-brown, slightly moist, cohesive. (CL)	CL			9/20/23	17-18.5' SPT w/ trap
20	18.0-20.5' Clay. Greenish brown w/ rust and black mottling, dry, stiff to hard, some roots. (CL)	CL				
	20.5-22.0' Gravelly Sand with Clay. Greenish-brown, fine sand, fine gravel. (SP)	SP			11/28/24	20.5-22' SPT w/ trap
25	22.0-31.5' Clay. Greenish-brown w/ rust and black mottling, stiff. (CL)	CL			10/10/15	22-23.5' SPT
					6/8/12	27-28.5' SPT
30						
					5/8/12	32-33.5' SPT
35						
40						
45						
50						

WELL CONSTRUCTION LOG



MITTELHAUSER corporation

BORING NO.: P-13	PROJECT NO.: P856	PROJECT NAME: PGandE, Morro Bay	
BORING LOCATION: N 10,844 W 1,556 (Plant Coordinates)		ELEVATION AND DATUM: 40.33' MLLW	
DRILLING AGENCY: PG&E-GC Gas DRILLER: Ron Hendren DRILLING EQUIPMENT: Mobile B-80, 12" HSA (8" ID)		DATE & TIME STARTED: 12/3/86 10:29	DATE & TIME FINISHED: 12/3/86 13:30
COMPLETION DEPTH: 38.5 ft	BEDROCK DEPTH: N/A	LOGGED BY: T. Black	CHECKED BY:
FIRST WATER DEPTH: 32.0 ft	NO. OF SAMPLES:		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOW COUNT	REMARKS
0	0.0-3.0' Artificial Fill. Silty sand with asphalt, cobbles, and shells, brown, dry. (Af)	Af					10:29 Begin drilling
3	3.0-13.1' Sand. Orange-brown, dry to slightly moist, dense, very fine sand. (SP)	SP					
7						11/31/50-5.5"	7-8.5' SPT
12						16/25/23	12-13.5' SPT w/ trap
13.1	13.1-13.3' Sandy Clay. Orange-brown, moist, 15% fine to med sand, some root hairs. (CL)						
13.3	13.3-22.5' Clayey Sand. Brownish-orange with black mottling, slightly moist, cohesive, dense, fine to med sand, carbonized roots @ 17-18.5'. (SC)	SC					
17						23/34/37	17-18.5' SPT
22						16/50-5.5"	22-23.5' SPT w/ trap
22.5	22.5-25.0' Sand. Brownish-orange, slightly moist, loose, med sand. (SP)	SP					
25	25.0-28.1' Sandy Gravel w/Silt. Olive-brown, moist, loose, sub-angular to subrounded, fine to coarse gravel - 25mm max diameter. (GW)	GW					
27						6/20/26	27-28.5' SPT
28.1	28.1-38.5' Silty Sand. Brownish-orange, moist, loose, cohesive, fine to med sand. Coarsens s/ depth. (SM)	SM					
32							@ 32', no sample, water running into hole
37						43/50-5"	37-38.5' SPT w/ trap

LOS ANGELES CHICAGO PHILADELPHIA

MITTELHAUSER corporation

BORING NO.: TW-1 PROJECT NO.: P856 PROJECT NAME: PGandE, Morro Bay

BORING LOCATION: N 10,685 W 2,988 (Plant Coordinates) ELEVATION AND DATUM: 14.26' MLLW

DRILLING AGENCY: PG&E-GC Gas DRILLER: Ron Hendren | DATE & TIME STARTED: 12/1/86 14:35 | DATE & TIME FINISHED: 12/2/86 10:39

DRILLING EQUIPMENT: Speedstar SS-15 III, Mud Rotary

COMPLETION DEPTH: 70.6 ft BEDROCK DEPTH: 70.6 ft | LOGGED BY: B. Stechmann | CHECKED BY:

FIRST WATER DEPTH: 12.0 ft NO. OF SAMPLES:

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOW COUNT	REMARKS
0	0.0-6.0' Artificial Fill. Sand, med brown, dry, fine to med sand, trace gravel and shells. (Af)	Af					14:35 Begin drilling Using 24" tri-cone to 30'; Set up 12" conductor casing to 30' and grouted in place.
6	6.0-18.0' Organic Silty Clay. Gray, trace gravel and sand, some sand and gravel lenses. (OH)	OH					
18	18.0-26.0' Silty Sand. Bluish gray, fine to medium sand, trace gravel and shells. (SM)	SM					
26	26.0-36.0' Silty Clay. Dark gray, stiff. (CH)	CH					15:10 Stop for day 09:54 Resume drilling on 12/2/86
36	36.0-44.0' Clayey Silt. Brownish-gray, trace fine sand and gravel. (ML)	ML					
44	44.0-51.0' Silty Clay. Greenish-gray, stiff, trace fine sand and gravel. (CH)	CH					Drill rig slowing at 44'

Depth scale: 5, 10, 15, 20, 25, 30, 35, 40, 45, 50

BORING NO.: TW-1 PROJECT NO.: P856 PROJECT NAME: PGandE, Morro Bay

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	WELL CONSTRUCTION LOG	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOW COUNT	REMARKS
		CH					
	51.0-70.6' Interbedded Silty Gravel and Gravelly Silt. Brownish-gray, med to fine sand, shells. (GM/ML)						
55							
60		GM/ML					
65							
70	70.6' Bedrock. Franciscan Fm. (Jf)	Jf					At 70' rig chattering; drilling very slowly
75							
40							
85							
90							
95							
100							

BOREHOLE LOGS AND WELL CONSTRUCTION RECORD
MORRO BAY POWER PLANT

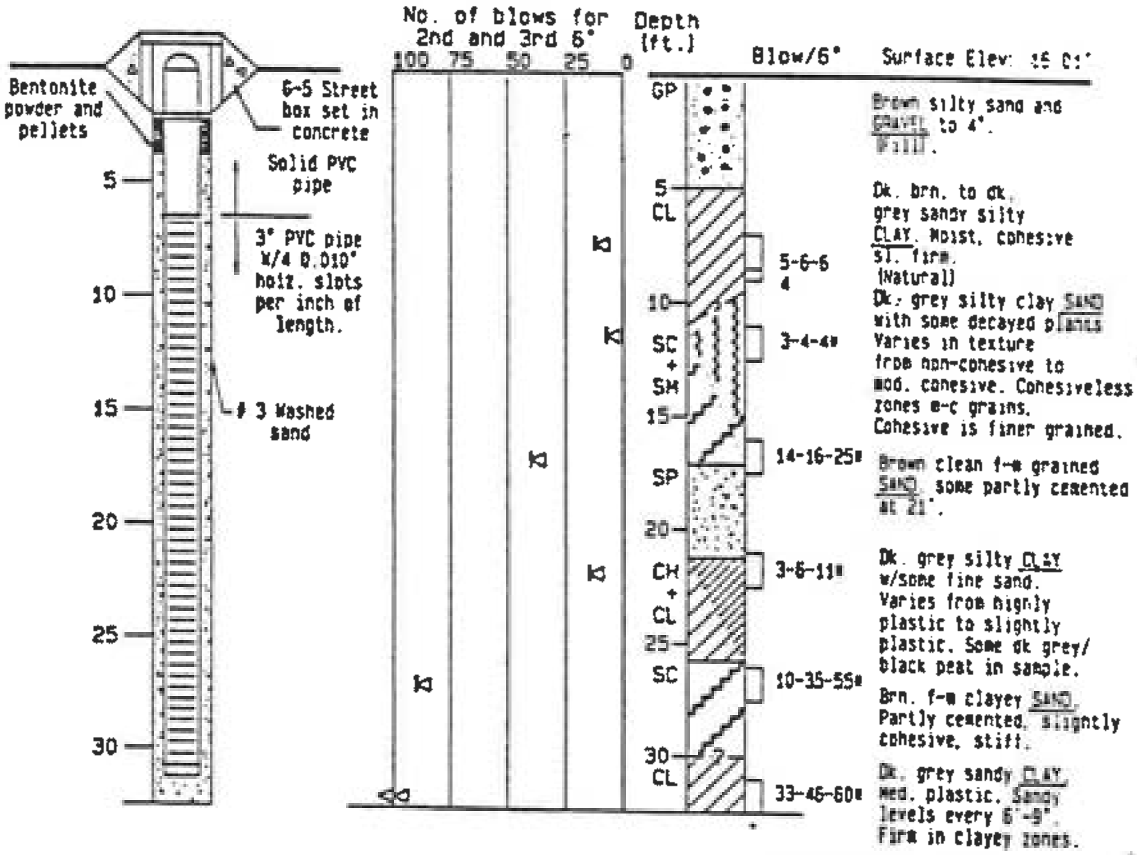
BORE HOLE 84-1

DATE STARTED 5-31-84

Well
As-built

Elev. top of casing: 15.73'

DESCRIPTION OF MATERIALS



Hole terminated at 32.5' on 6/1/84.

Notes:
1. Holes advanced by PG&E 880 using 6" casing and rock bit. R. Hendren, R. Poe drillers.
2. Bore hole logged by R.A. McManus.
3. Blows are for SPT sampler advanced by 140# hammer falling 30". * denotes hammer under water. Full energy of blow not developed.
4. Elevations referenced to BM 6 at MB PP.

BOREHOLE LOGS AND WELL CONSTRUCTION RECORD
MORRO BAY POWER PLANT

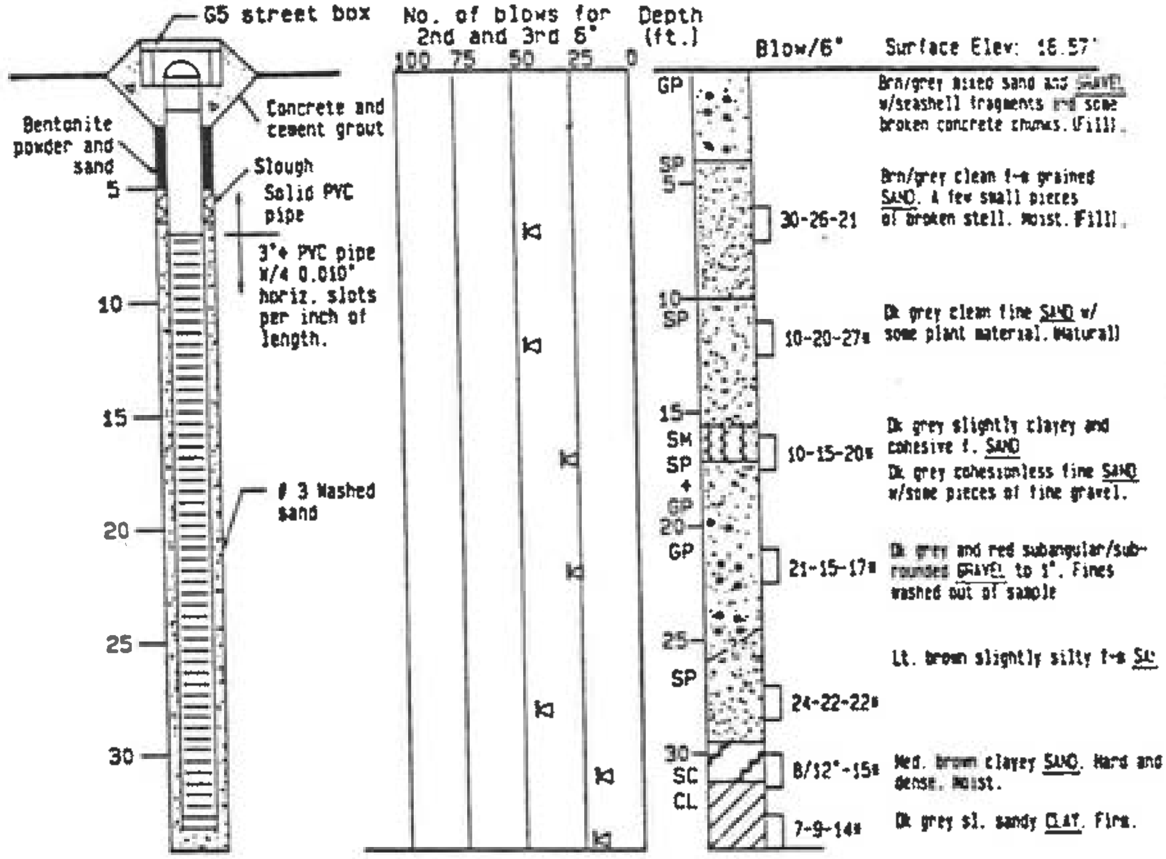
BORE HOLE (84-2)

Well
As-built

DATE STARTED 5-30-84

DESCRIPTION OF MATERIALS

Elev. top of casing: 16.30'

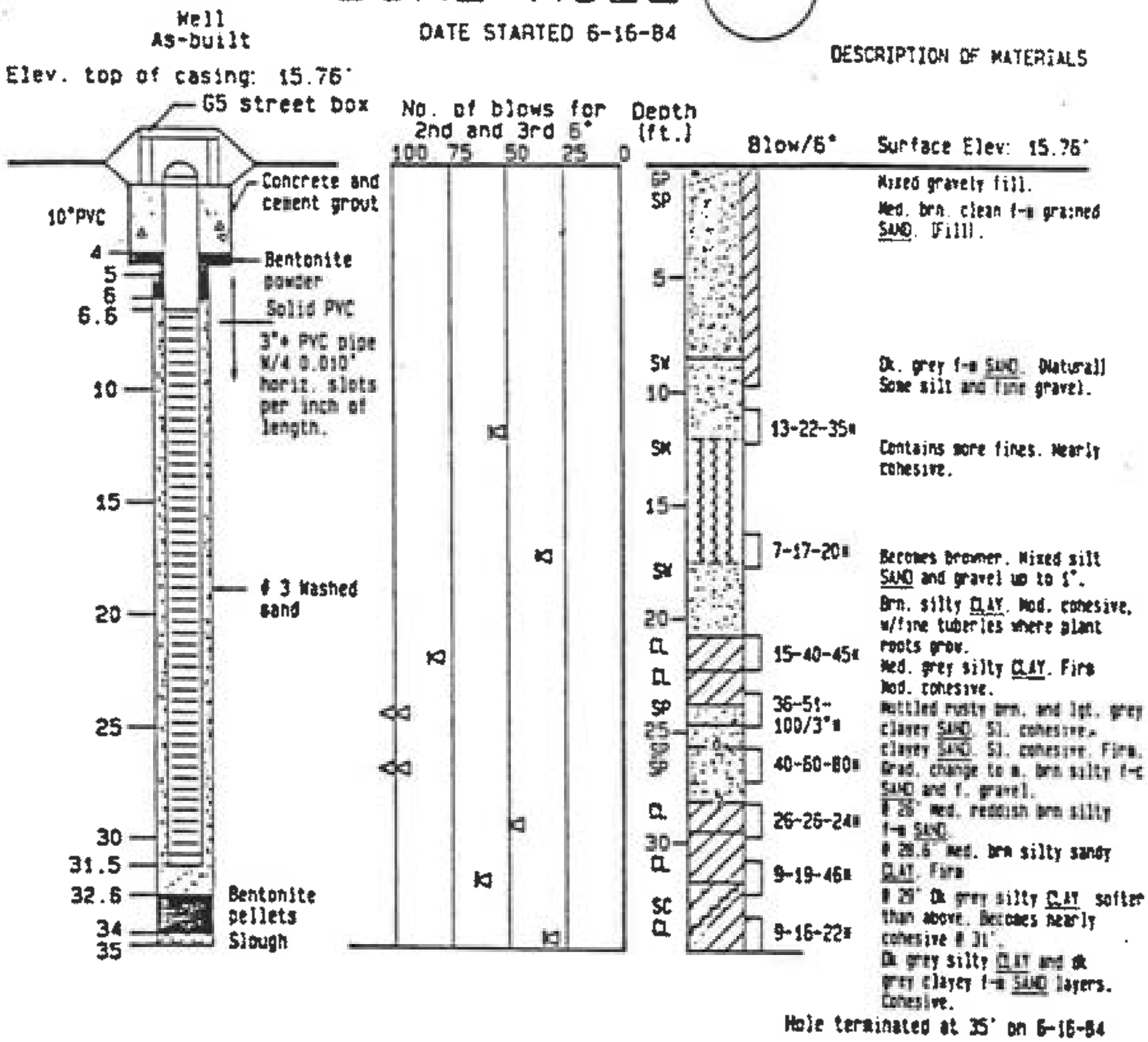


Hole terminated @ 34.5' on 5-30-84

Notes:
1. Holes advanced by PG&E 880 using 6" casing and rock bit. R. Hendren, R. Poe, drillers.
2. Bore hole logged by R.A. McManus.
3. Blows are for SPT sampler advanced by 140# hammer falling 30". * denotes hammer under water. Full energy of blow not developed.
4. Elevations referenced to BM 6 at MB PP.

BOREHOLE LOGS AND WELL CONSTRUCTION RECORD
MORRO BAY POWER PLANT

BORE HOLE 84-3

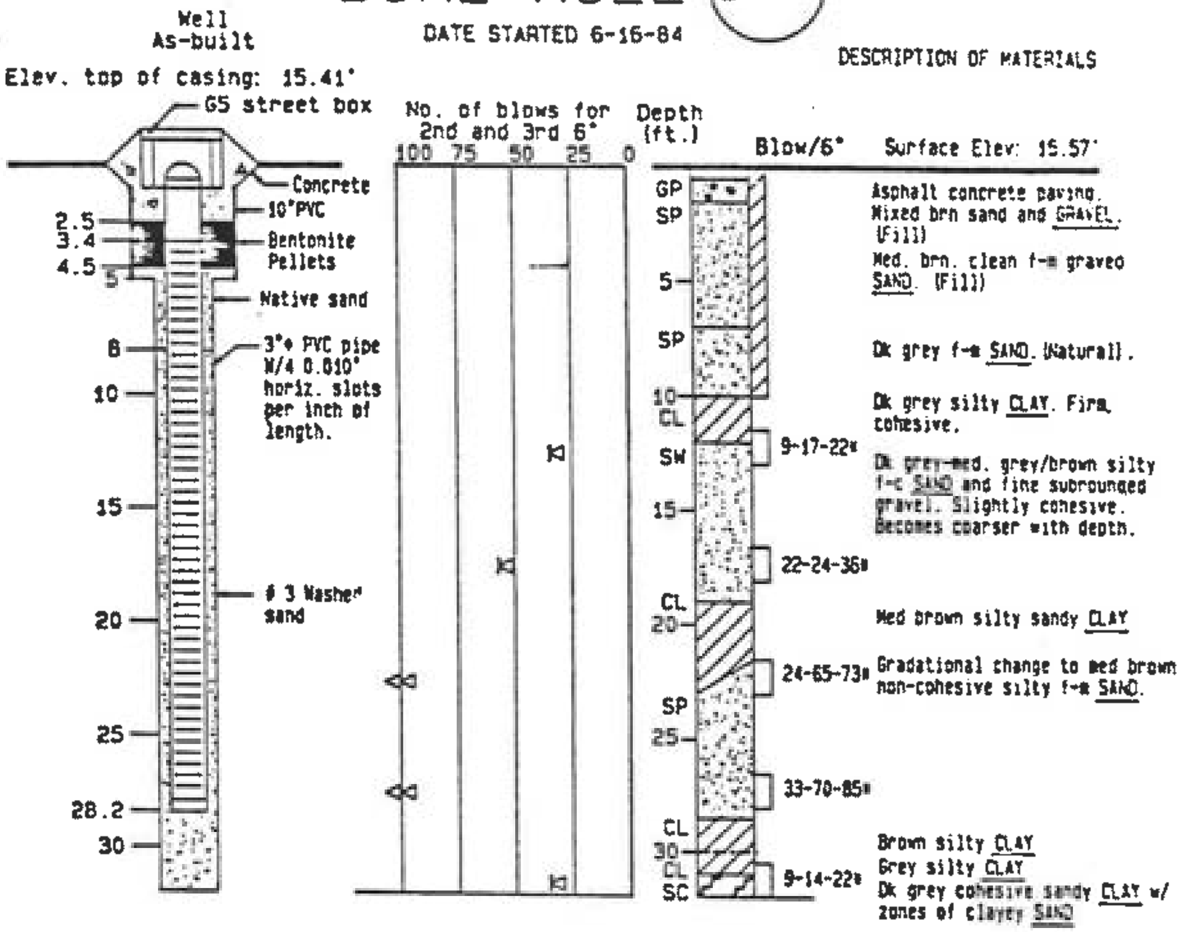


Notes:
1. Holes advanced by PG&E 880 using 6" casing and rock bit. R. Hendren, R Poe, drillers.
2. Bore hole logged by R.A. McManus.
3. Blows are for SPT sampler advanced by 140# hammer falling 30". # denotes hammer under water. Full energy blow not developed.
4. Elevations referenced to BM 6 at MB PP.

BOREHOLE LOGS AND WELL CONSTRUCTION RECORD
MORRO BAY POWER PLANT

BORE HOLE 84-4

DATE STARTED 6-16-84

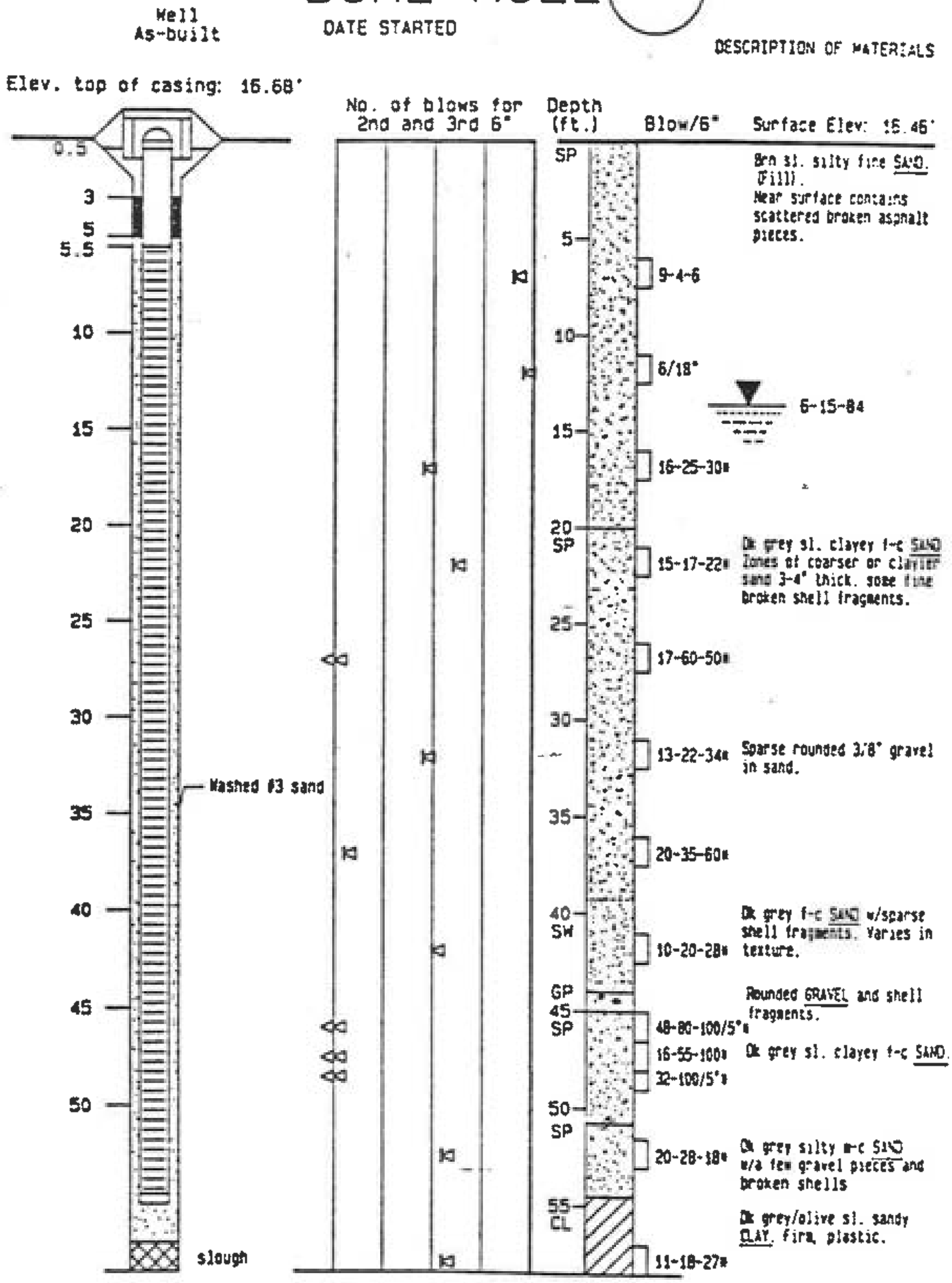


Hole terminated at 32' on 6-16-84

Notes:
1. Holes advanced by PG&E B80 using 6" casing and rock bit. R. Hendren, R Poe, drillers.
2. Bore hole logged by R.A. McManus.
3. Blows are for SPT sampler advanced by 140# hammer falling 30". * denotes hammer under water. Full energy blow not developed.
4. Elevations referenced to BH 6 at MB PP.

BOREHOLE LOGS AND WELL CONSTRUCTION RECORD
MORRO BAY POWER PLANT

BORE HOLE 84-5

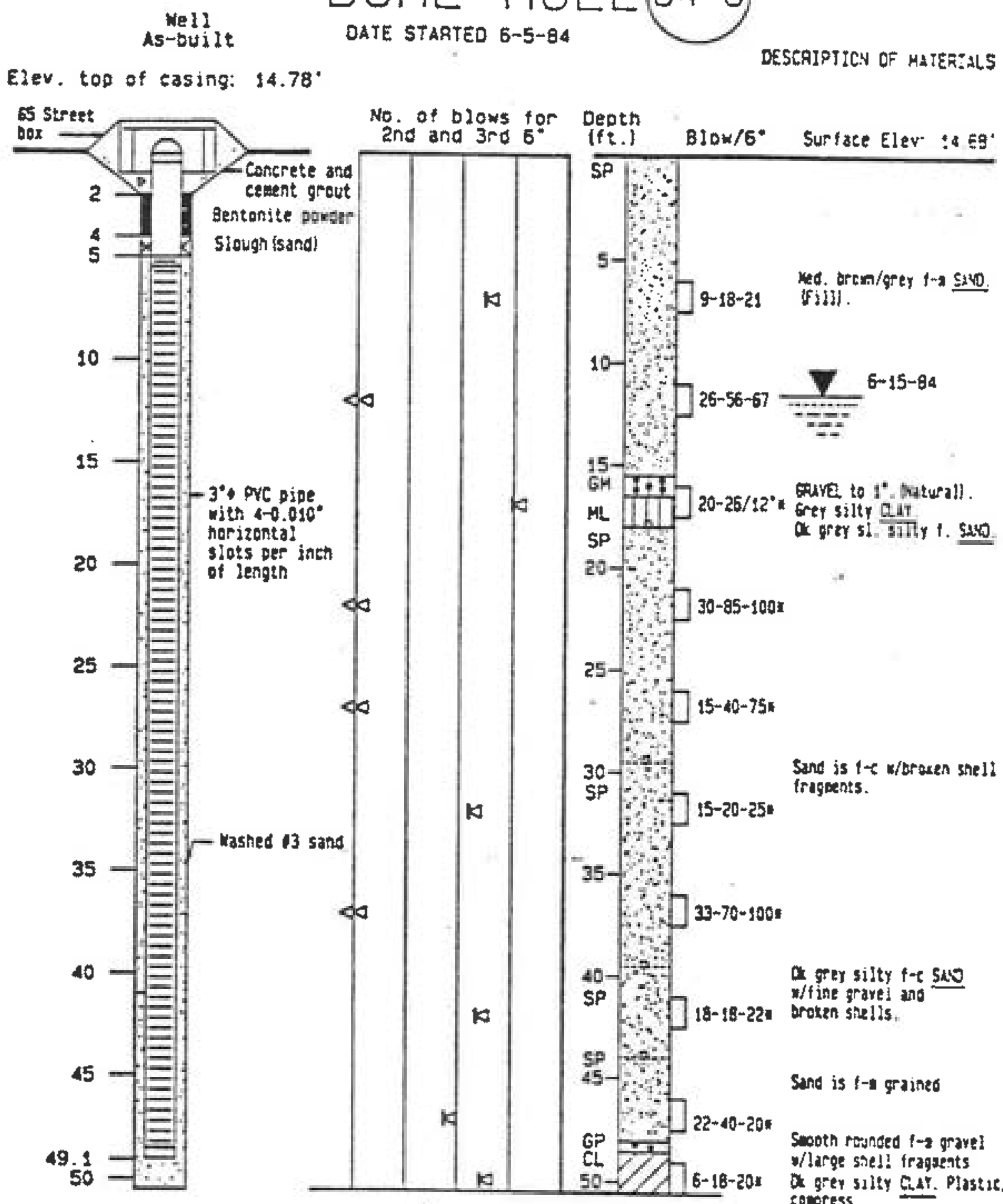


Notes:
1. Holes advanced by PG&E B80 using 6" casing and rock bit. R. Hendren, R. Poe drillers.
2. Bore hole logged by R.A. McManus.
3. Blows are for SPT sampler advanced by 140# hammer falling 30". * denotes hammer under water. Full energy

BOREHOLE LOGS AND WELL CONSTRUCTION RECORD
MORRO BAY POWER PLANT

BORE HOLE (84-6)

DATE STARTED 6-5-84



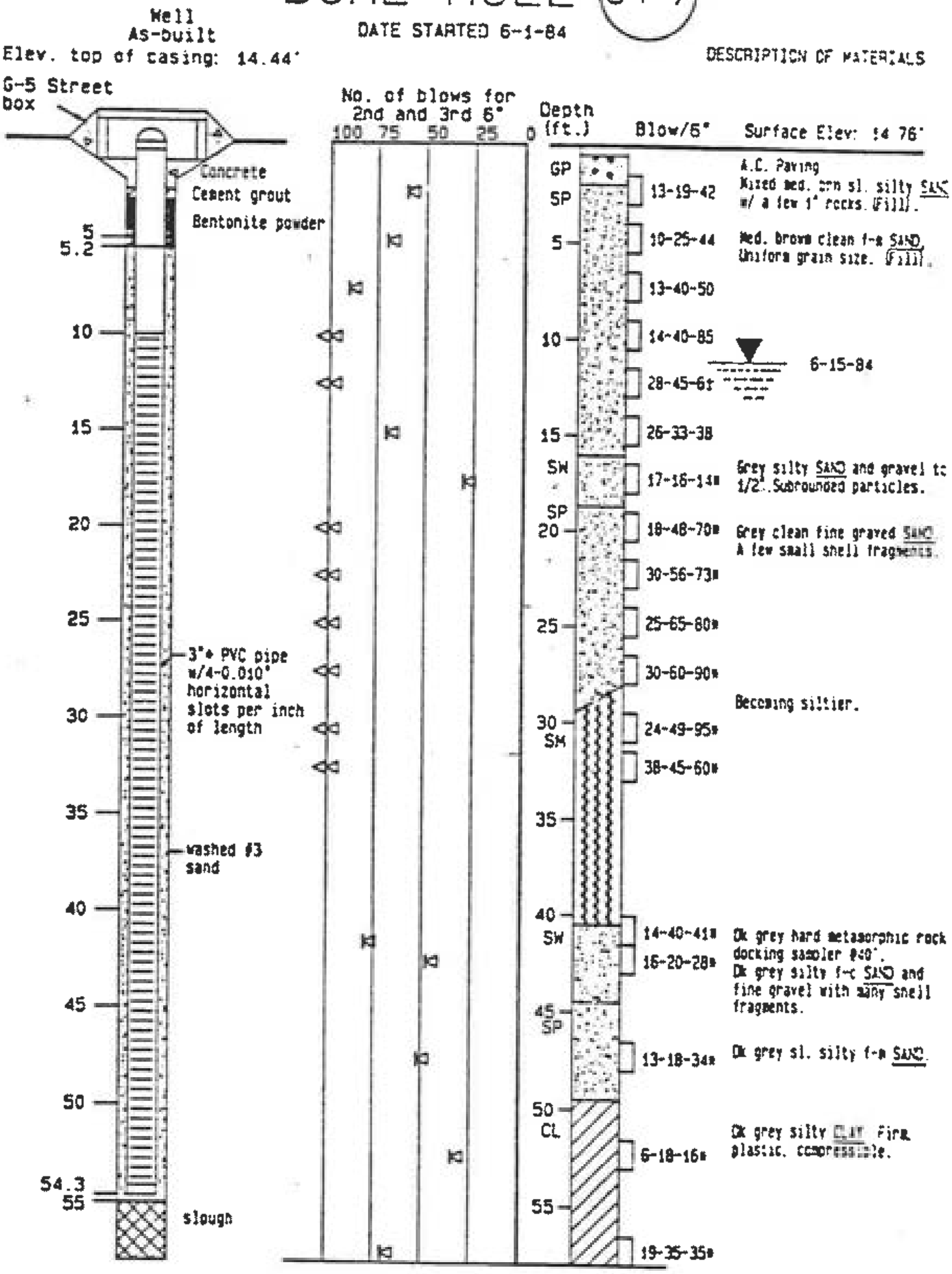
Notes:

1. Holes advanced by PG&E B&D using 6" casing and rock bit. R. Hendren, R. Poe drillers.
2. Bore hole logged by R.A. McManus.
3. Blows are for SPT sampler advanced by 140# hammer falling 30". * denotes hammer under water. Full energy of blow not developed.
4. Elevtions referenced to BM 6 at MB PP.

BOREHOLE LOGS AND WELL CONSTRUCTION RECORD
MORRO BAY POWER PLANT

BORE HOLE 84-7

DATE STARTED 6-1-84



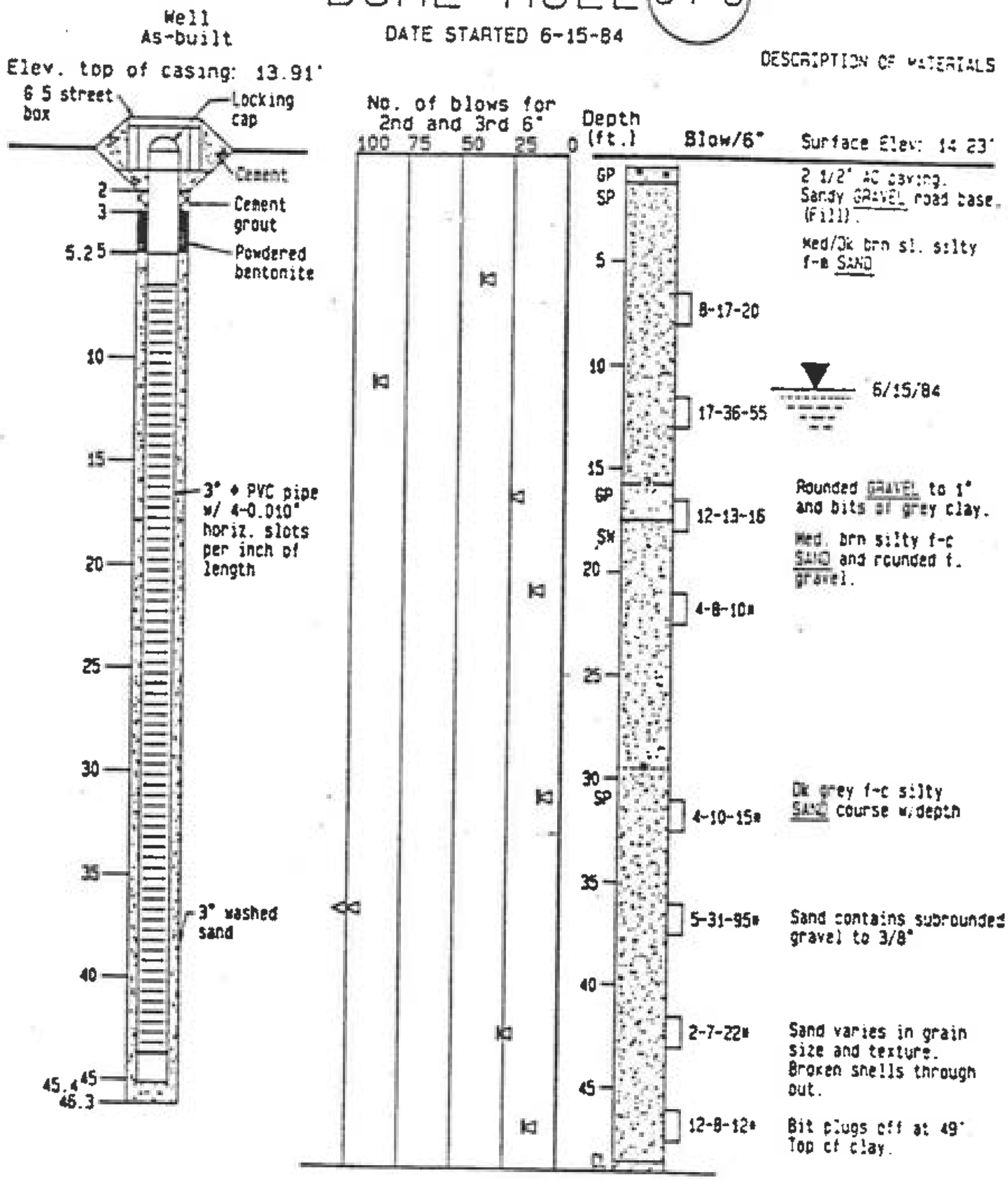
Hole terminated at 58' on 6-4-84

Notes:
1. Holes advanced by PG&E 880 using 6" casing and rock bit. R.Hendren, R Poe, drillers.
2. Bore hole logged by R.A.McManus.
3. Blows are for SPT sampler advanced by 140# hammer falling 30" * denotes hammer under water. Full energy

BOREHOLE LOGS AND WELL CONSTRUCTION RECORD
MORRO BAY POWER PLANT

BORE HOLE 84-8

DATE STARTED 6-15-84



Hole terminated at 49' on 6-15-84.

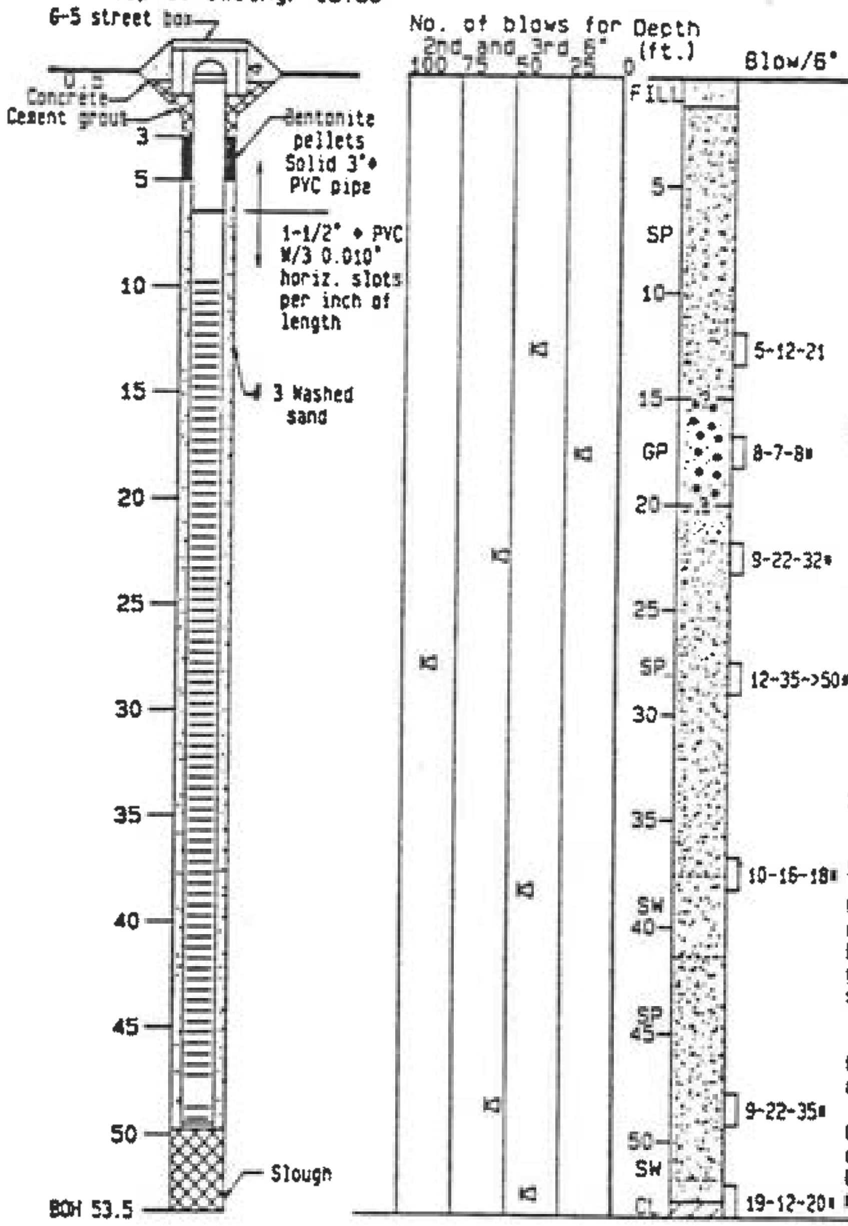
Notes:

1. Hole advanced by PG&E B80 using 12" O.D. hollow stem augers. R. Hendren, R Poe drillers.
2. Borehole logged by R. A. McManus.
3. Blows are for SPT sampler advanced by 140# hammer falling 30". * denotes hammer under water. Full energy not developed.
4. Elevations referenced to BM 6 at MB PP.

BOREHOLE LOGS AND WELL CONSTRUCTION RECORD
MORRO BAY POWER PLANT

BORE HOLE 85-9

DATE STARTED 4-2-85



DESCRIPTION OF MATERIALS

Brn, sandy/gravelly fill

Hand augered to 6'.

Dk yell brn (10YR 4/2), wet, m dense, f gr SAND w/ scattered subangular gravels.

Dk green to black, wet, m dense, GRAVEL up to 1 1/2". Limonite staining on many clasts.

Olive gray (5YR 3/2), wet, very dense, f gr SAND. Subang to subrnd gravel layer at 22'.

Sand grades to f-m gr.

Shell frags at 38'.

Olive gray (5YR 3/2), wet, dense gravelly SAND. F-m gr sand. Subrnd gravels to 3/4". Sparse shell frags.

Olive gray (5YR 3/2), wet, dense, f-m gr SAND.

Olive gray (5 YR 3/2), wet, dense, f-m gr gravelly SAND.

Olive gray (5YR 3/2) & stiff m plasticity, silty CLAY

Hole terminated at 53.5' on 4/3/85.

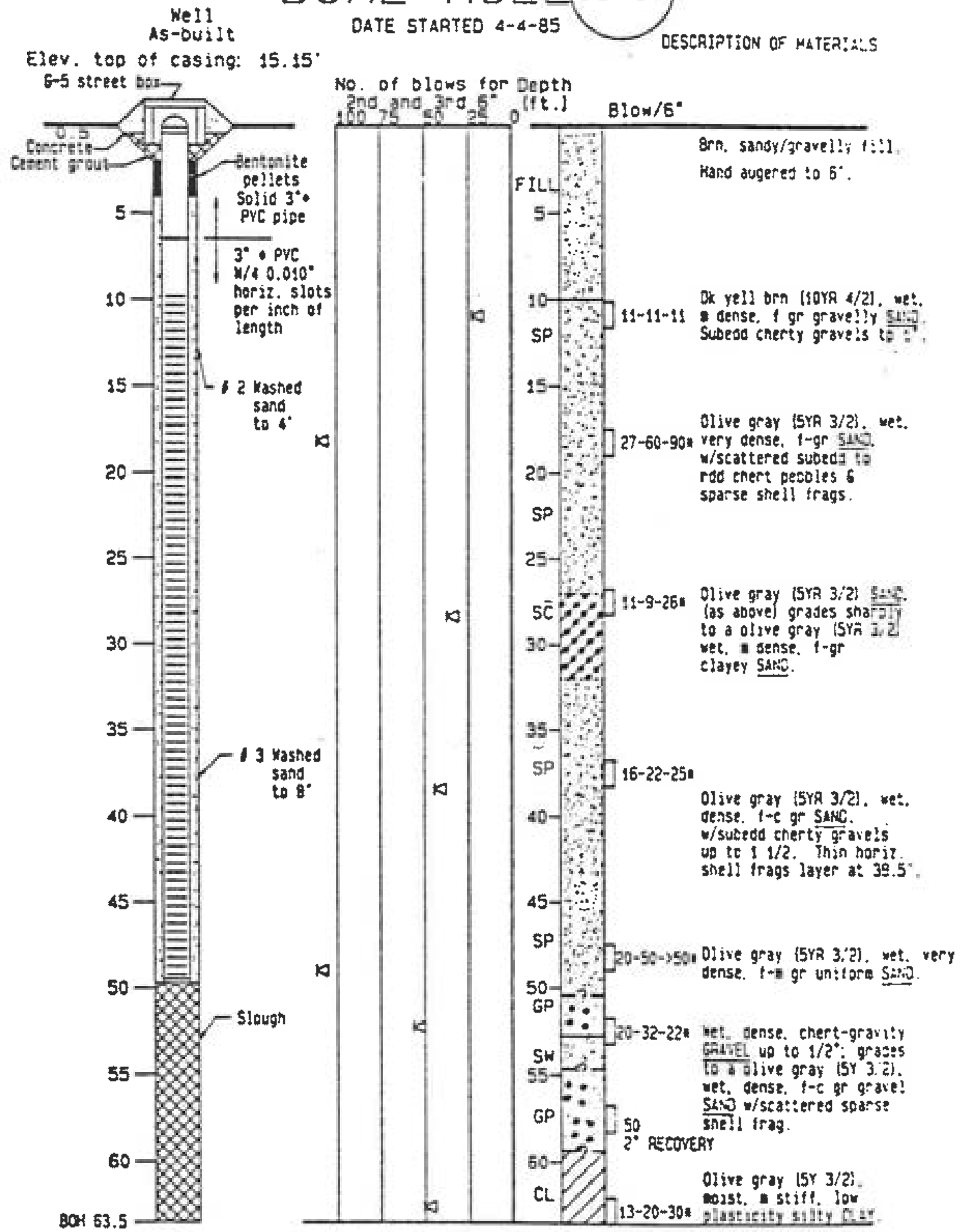
Notes:

1. Holes advanced by PG&E 880 using 6" casing and rock bit. R. Hendren, R. Poe drillers.
2. Bore hole logged by L.A. Flora.
3. Blows are for SPT sampler advanced by 140# hammer falling 30". * denotes hammer under water. Full energy of blow not developed.
4. Elevations referenced to BM 6 at M.B.P.P.

BOREHOLE LOGS AND WELL CONSTRUCTION RECORD
MORRO BAY POWER PLANT

BORE HOLE 85-10

DATE STARTED 4-4-85

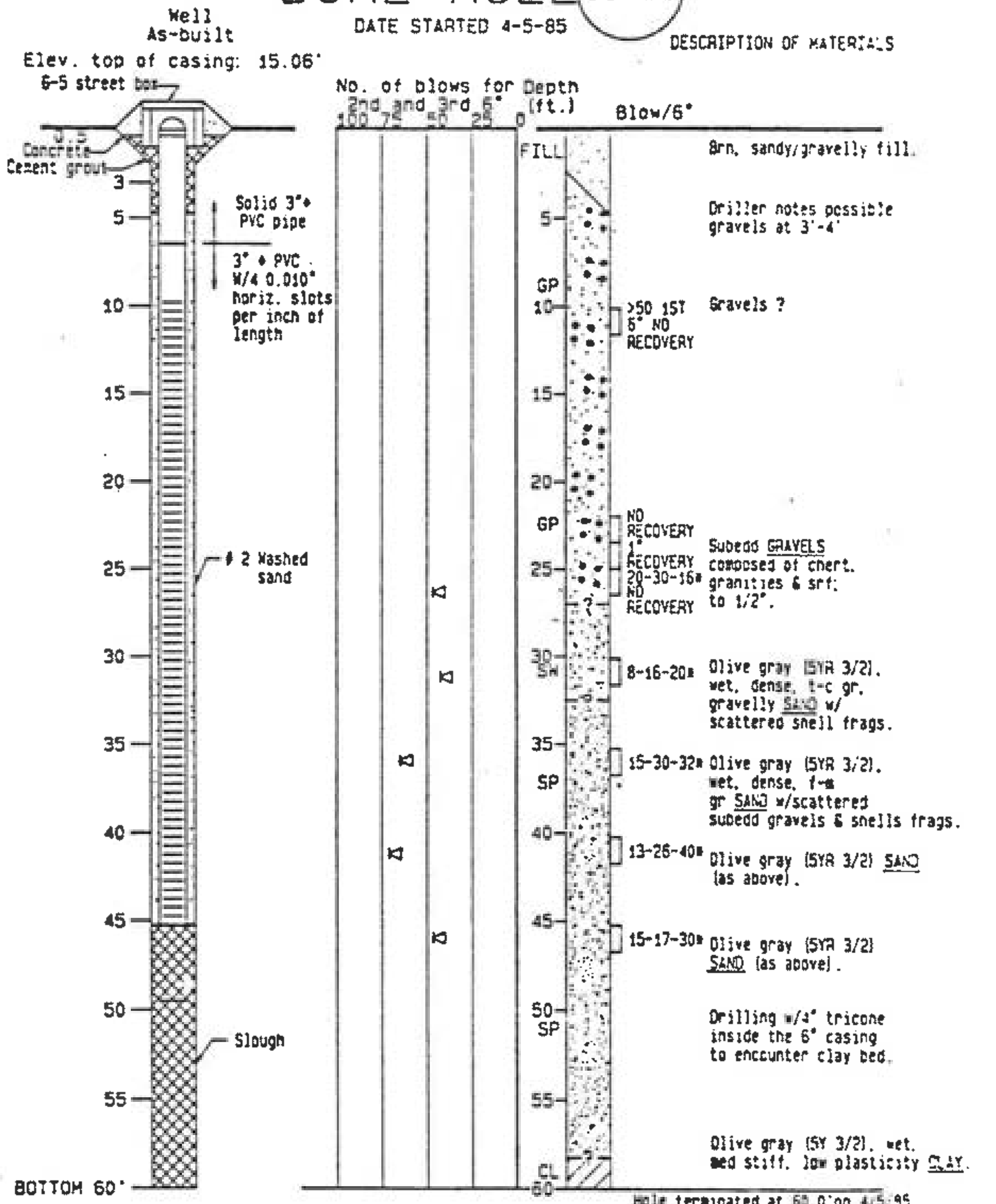


Hole terminated at 63.5' on 4/4/85.

Notes:
1. Holes advanced by PG&E BBD using 6" casing and rock bit. R. Hendren, R. Poe drillers.
2. Bore hole logged by L.A. Flora.
3. Blows are for SPT sampler advanced by 140# hammer falling 30". * denotes hammer under water. Full energ of blow not developed.

BOREHOLE LOGS AND WELL CONSTRUCTION RECORD
MORRO BAY POWER PLANT

BORE HOLE 85-11



Notes:

1. Holes advanced by PG&E BBO using 6" casing and rock bit. R. Hendren, R. Poe drillers.
2. Bore hole logged by L.A. Flora.
3. Blows are for SPT sampler advanced by 140# hammer falling 30". * denotes hammer under water. Full energy of blow not developed.
4. Elevations referenced to BM 6 at M.B.P.P.

PACIFIC GEOSCIENCE, INC.
Geotechnical Research and Engineering
Materials Testing Laboratory
4178 SANTA FE ROAD (805) 544-3276
SAN LUIS OBISPO, CA 93401

LOGGED BY: PM
DRILL: Mobile
DIAMETER: 8"

FILE: PG-5576-W01
DATE: 07/05/89

BORING NO. 2 Elevation 12.69 M.L.L.W.

COAST GUARD STATION
MORRO BAY, CALIFORNIA

Depth	SAMPLES	STANDARD PEN	MOISTURE	SOIL DESCRIPTION
				2 1/2" asphalt concrete
1			Moist	6" moderately dense, coarse gravelly SAND (SP), brown, fine to medium grained (Fill)
2			Moist	Moderately dense, goldish brown, gravelly SAND (SP), fine to medium grained (Fill)
3				
4				
5	RING 18			
6	30			
	28			
7	SPT	8		
		8		Occasional shell fragments
8		8		
9				
10	RING 8		Wet	Moderately dense to dense, grey brown SILTY SAND (SM) (Fill)
11	11			
	23			
12	SPT	7		
		13		
13		18		
14			Wet	Moderately dense, grey SAND (SW), well graded(Fill)
15	RING 16			
16	25			
	19		Wet	Moderately dense, grey brown, coarse SAND (SP/GP), fine gravel (Fill)
17	SPT	1		
		3	Wet	Loose, dark grey SAND (SW), well graded (Fill
18		6		
19				
20				

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of this excavation. Subsurface conditions may differ at other locations and times.

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4178 SANTA FE ROAD (805) 544-1276
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DRILL: Mobile
DIAMETER: 8"

FILE: PG-5576-W-01
DATE: 07/05/89

BORING NO. 2 (Continued)

COAST GUARD STATION
MORRO BAY, CALIFORNIA

Depth	SAMPLES	STANDARD PEN	MOISTURE	SOIL DESCRIPTION
	SPT	8	Wet	Very dense, grey SAND (SP), fine grained, trace of silt
21		22		
		35		
22				Occasional shell fragments
23				
24				
25				
26				
27				Dark grey
28				
29				
30	SPT	1		
		4		
31		16	Wet	Moderately dense, grey green, coarse SAND (SP), fine gravel
32				
33				Dark grey, fine grained
34				
35				
36				Occasional shell fragments and fine gravel
37				
38				
39				
40				

NOTE. This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of this excavation. Subsurface conditions may differ at other locations and times.

PACIFIC GEOSCIENCE, INC.

Geotechnical Research and Engineering
Materials Testing Laboratory

4378 SANTA FE ROAD (805) 544-3276
SAN LUIS OBISPO, CA 93401

LOGGED BY: PM
DRILL: Mobile
DIAMETER: 8"

FILE: PC-5576-W01
DATE: 07/05/89

BORING NO. 2				COAST GUARD STATION MORRO BAY, CALIFORNIA
Depth	SAMPLES	STANDARD PEN	MOISTURE	SOIL DESCRIPTION
41	SPT	5 19 35		SAND (SP), as above
42			Wet	Dense, dark grey, gravelly SAND (SW), well graded
43–48			Wet	Moderately dense, dark grey SAND (SP), fine grained
48–50			Wet	Moderately dense, grey brown CLAYEY SAND (SC), fine to medium grained
50–51	SPT	2 5 14	Wet	Stiff, reddish brown and grey SANDY CLAY (CL), fine grained, slightly sticky and medium plasticity
51			Wet	Moderately dense, reddish brown SAND (SP), fine to medium grained
52–60				End of boring @ 51.5'. Subsurface water encountered @ 10'.

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of this excavation. Subsurface conditions may differ at other locations and times.

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Materials Testing Laboratory

4378 SANTA FE ROAD (805) 544-3276
SAN LUIS OBISPO, CA 93401

LOGGED BY: DS
DRILL: B53
DIAMETER: 6" HS

FILE: PG-6359-W01
DATE: 03-28-90

BORING NO. 3				MORRO BAY, SOUTH "T" PIER
Depth	SAMPLES	STANDARD PEN	MOISTURE	SOIL DESCRIPTION
1			Wet	Medium dense, Grey, Poorly Graded SAND (SP), fine to medium grained, shell fragments
2	SPT	21 / 17 / 13		
3				
4				
5	SPT	6 / 10 / 7		Light brown, shell fragments end
6			Wet	Medium dense, light brown Clayey SAND (SC), fine grained
7				
8				
9			Wet	Very dense, light brown Poorly Graded SAND (SP), fine grained
10	SPT	39 / 50/5"		
11				
12				
13	SPT	29 / 50/5"		(No return)
14				
15				
16	SPT	19 / 35 / 38		
17				
18				
19				
20				

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of this excavation. Subsurface conditions may differ at other locations and times.

PACIFIC GEOSCIENCE, INC.

Geotechnical Research and Engineering
Materials Testing Laboratory

4378 SANTA FE ROAD (805) 544-3276
SAN LUIS OBISPO, CA 93401

LOGGED BY: DS
DRILL: B53
DIAMETER: 6" HS

FILE: PG-6359-W01
DATE: 03-28-90

BORING NO. 3 (Continued)				MORRO BAY, SOUTH "T" PIER
Depth	**SAMPLES**	**STANDARD PEN**	**MOISTURE**	**SOIL DESCRIPTION**
				As above
21–22	SPT	30 / 50		
23				
24				
25				
26–27	SPT	8 / 37 / 50/5"		
28				
29–30	SPT	40 / 50/4"		Occasional rounded gravels to 3/4" diameter
31				
32–33	SPT	16 / 17 / 20		Dense, minor clay content
34				
35			Wet	Very stiff, light brown Silty CLAY with sand (CL-ML)
36–37	SPT	11 / 16 / 18		
38				
39				Occasional large gravels
40				

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of this excavation. Subsurface conditions may differ at other locations and times.

PACIFIC GEOSCIENCE, INC.

Geotechnical Research and Engineering
Materials Testing Laboratory

4378 SANTA FE ROAD (805) 544-3276
SAN LUIS OBISPO, CA 93401

LOGGED BY: DS
DRILL: B53
DIAMETER: 6" HS

FILE: PG-6359-W01
DATE: 03-28-90

BORING NO. 3 (Continued)				MORRO BAY, SOUTH "T" PIER
Depth	SAMPLES	STANDARD PEN	MOISTURE	SOIL DESCRIPTION
40–41	Tube			As above Pocket Pen: q_u = 4.5 tsf + Torvane: S_u = 1.0 tsf +
42				Lens of large gravels or cobbles
43				Interbedded thin lenses of coarse grained Clayey SAND with gravel (SC) and Sandy Lean CLAY (CL), occasional gravels to 1.25" diameter
44–45	SPT	15 24 25		Pocket Pen: q_u = 4.5 tsf + Torvane: S_u = 1.0 tsf +
46				
47–48	Tube			
49				Abundant cobbles and gravels
50–51	SPT	14 43 50/4"		
52				
53				
54			Moist	Dense, green brown, weathered SANDSTONE
55–56	SPT	50/4"		
57				
58				
59			Moist	Dense, blue grey CLAYSTONE
59–60	SPT	24 50/5"		End of boring @60'.

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of this excavation. Subsurface conditions may differ at other locations and times.

PACIFIC GEOSCIENCE, INC.

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Materials Testing Laboratory
... BUCKLEY RD. (805) ...
SAN LUIS OBISPO, CA 93401

DRILLED BY: R.H.
GGED BY: R.M.
DRILL: B-40L
DIAMETER: 4"

FILE: G3396
DATE: 10-1 -87

BORING NO. 7				WATERMAN PROJECT
Depth	**SAMPLES**	**STANDARD PEN**	**MOISTURE**	**SOIL DESCRIPTION**
				2" Asphalt concrete over 5" base
1			Moist	Compact, grey-brown SAND (SP) non-cohesive, non-plastic, fine to coarse grained, abundant subangular to subrounded gravels to 1" diameter (Fill)
2	TUBE 12"			
3				
4				Occasional subangular to subrounded gravels to 1" diameter, occasional shell fragments
5	TUBE 10"			
6	SPT	11 / 15 / 18		
7				
8			Very Moist	
9				
10	SPT	4 / 5 / 6	∇ Wet	Moderately compact, light grey SAND (SP) non-cohesive, non-plastic, very fine to fine grained, occasional shell fragments (Native)
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of this excavation.

PACIFIC GEOSCIENCE, INC.

FILE: G3396

DATE: 10-1 -87

BORING NO. 7 (cont.) — WATERMAN PROJECT

Depth	SAMPLE/RECOVERY	STANDARD PEN	Moisture	SOIL DESCRIPTION
				SAND as above
21				
22				Dark grey, organics
23	GRAB			
24				
25				
26				
27				
28				
29				
30			Damp	Compact, rust-brown SILTY SAND (SM) slightly cohesive, non-plastic, occasional subangular to subrounded gravels to 1/2" diameter
31				
32				
33				
34			Slightly Damp	Very stiff, grey/rust mottled CLAYEY SAND (SC) moderately cohesive, slightly plastic, occasional subangular to subrounded gravels to 1/2" diameter
35				
36				
37				
38				Abundant subangular to subrounded gravels to 1" diameter
39				
40				

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of this excavation. Subsurface conditions may differ at other locations and times.

PA IFIC GEOSCIENCE. IN ..

FILE: G3396

DATE: 10-1-87

BORING NO. 7 (cont.)

WATERMAN PROJECT

Depth	Samples		Moisture	SOIL DESCRIPTION
				CLAYEY SAND as above, thin interbedded sandy lenses
41	GRAB			
42				
43				
44				
45				
				END OF BORING @ 45' Subsurface water encountered @ 10'6". Caving @ 10'6".
46				
47				
48				
49				
50				
51				
52				
53				
54				
55				
56				
57				
58				
59				
60				

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of this excavation. Subsurface conditions may differ at other locations and times.

PACIFIC GEOSCIENCE, INC.

Geotechnical Research and Engineering
Materials Testing Laboratory

396 BUCKLEY RD. (805) 544-1276
SAN LUIS OBISPO, CA 93401

Logged by: LR,RM
Boring Dia.: [illegible]"
G791-528

9-19-83

BORING NO. 9 — 273 285 274

MORRO BAY/CAYUCOS WASTEWATER TREATMENT PLANT

Depth	= Blows per ½ ft.	Relative Densities	Moisture	SOIL DESCRIPTION
1				Firm GRAVEL (GP), non-cohesive, non-plastic, 1-2" diameter
2				
3				Firm, brown SAND (SP), non-cohesive, non-plastic, very fine to fine grained, occasional medium grained
4				
5				
6				
7				
8	12 30	100%		
9				
10	7			
11	16 15	95%		
12				Rust mottling
13	2 6	77%		
14	14		GWS ▽	
15	2			
16	9 17	85%		Firm, gray CLAY SAND (SC), slightly cohesive, non-plastic, very fine to fine grained
17				
18	8 24	100%		
19	24			
20				

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of this excavation. Subsurface conditions may differ at other locations and times.

PACIFIC GEOSCIENCE, INC.

Logged by: LR/RM
Boring Dia.: 4"
G791-828

9-19-83

BORING NO. 9 (cont.)				MORRO BAY/CAYUCOS WASTEWATER TREATMENT PLANT
Depth	# Blows per ½ ft.	Relative Densities	Moisture	**SOIL DESCRIPTION**
21	2 13 14	83%		Firm, gray CLAY SAND (SC) as above
22				END OF BORING @ 21½'
23				Groundwater encountered @ 14'
24				
25				
26				
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				

jc

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of this excavation. Subsurface conditions may differ at other locations and times.

LOGS OF TEST WELLS
Wells Drilled by F. V. Wells, Inc.

Morro Bay Desalination Project
Coleman Road
Morro Bay, California

January 16, 1991

Well SW-1: Morro Rock parking lot, near Boring 14

<u>Depth (ft)</u>	
0 - 13	Conductor casing; not logged
13 - 57	Fine to coarse sand with small pebbles
57 - 63	Brown clayey sand and gravel
63 - 73	Yellow brown sandy to pebbly clay
73 - 78.5	Highly weathered blue to gray serpentine (Franciscan Formation)

Construction:	
0 - 13	24 inch steel conductor casing
0 - 15	10 inch SDR-21 PVC blank casing
15 - 65	10 inch SDR-21 PVC screened casing
65	Casing shoe
0 - 13	Cement seal outside conductor casing
0 - 65	Monterey sand

January 18, 1991

Well SW-2: West end of Coleman Park parking lot, near Boring 13

<u>Depth (ft)</u>	
0 - 13	Conductor casing; not logged
13 - 51	Silty fine to coarse sand with fine gravel
51 - 65	Gray silty to sandy clay
65 - 73	Silty fine to coarse sand
73 - 75	Clayey to silty sand
75 - 85	Highly weathered greywacke (Franciscan Formation)

Construction:	
0 - 13	24 inch steel conductor casing
0 - 15	10 inch SDR-21 PVC blank casing
15 - 80	10 inch SDR-21 PVC screened casing
80	Casing shoe
0 - 13	Cement seal outside conductor casing
0 - 80	Monterey sand

LOGS OF TEST WELLS
Wells Drilled by F. V. Wells, Inc.

Morro Bay Desalination Project
Coleman Road
Morro Bay, California

January 30, 1991

Well SW-3: In triangular area by parking lot in front of PG&E gate; plant coordinates 3170, 9910

Depth (ft)	
0 - 13	Conductor casing; not logged
13 - 16	Brown to gray medium to coarse sand with small shell fragments and granules
16 - 42	Gray medium to coarse sand with small shell fragments and granules
42 - 47	Very coarse sand to granules
47 - 64	Gray silty clay
64 - 73	Sand and pebbles
73 - 85	Clayey greywacke (Franciscan Formation)

Construction:

0 - 13	24 inch steel conductor casing
0 - 23	10 inch SDR-21 PVC blank casing
23 - 83	10 inch SDR-21 PVC screened casing
83	Casing shoe
0 - 13	Cement seal outside conductor casing
0 - 83	Monterey sand

LOGS OF TEST WELLS
Wells Drilled by F. V. Wells, Inc.

Morro Bay Desalination Project
Coleman Road
Morro Bay, California

February 1, 1991

Well SW-4: Intersection of Embarcadero Road and Coleman Drive; plant coordinates 3470, 9850

Depth (ft)	
0 - 13	Conductor casing; not logged
13 - 22	Silty fine sand
22 - 55	Gray fine to very coarse sand with small pebbles
55 - 67	Gray silty clay
67 - 80	Sand and pebbles
80 - 87	Highly weathered greywacke (Franciscan Formation)

Construction:

0 - 13	24 inch steel conductor casing
0 - 20	10 inch SDR-21 PVC blank casing
20 - 80	10 inch SDR-21 PVC screened casing
80 - 85	10 inch SDR-21 PVC blank casing
85	Casing shoe
0 - 12	Cement seal outside conductor casing
0 - 85	Monterey sand

LOGS OF TEST WELLS
Wells Drilled by F. V. Wells, Inc.

Morro Bay Desalination Project
Coleman Road
Morro Bay, California

February 5, 1991

Well SW-5: In parking lot in front of Morro Bay Harbor Director office; plant coordinates 2730, 9920

Depth (ft)	
0 - 12	Conductor casing; not logged
12 - 44	Gray fine to very coarse sand with small pebbles
44 - 51	Greenish-gray silty clay
51 - 56	Sand and fine gravel
56 - 67	Brown silty clay
67 - 80	Sand and fine gravel
80 - 90	Weathered greywacke (Franciscan Formation)

Construction:	
0 - 12	24 inch steel conductor casing
0 - 20	10 inch SDR-21 PVC blank casing
20 - 80	10 inch SDR-21 PVC screened casing
80 - 85	10 inch SDR-21 PVC blank casing
85	Casing shoe
0 - 12	Cement seal outside conductor casing
0 - 85	Monterey sand

LOGS OF TEST WELLS
Wells Drilled by F. V. Wells, Inc.

Morro Bay Desalination Project
Coleman Road
Morro Bay, California

February 12, 1991

Well SW-6: Intersection of Embarcadero Road and Coleman Drive; plant coordinates 3305, 9860

Depth (ft)	
0 - 13	Conductor casing; not logged
13 - 22	Fine to very coarse sand with shell fragments
22 - 57	Gray fine to very coarse sand and granules with small pebbles and shell fragments
57 - 68	Gray silty clay
68 - 83	Sand and pebbles
83 - 87	Highly weathered greywacke (Franciscan Formation)

Construction:

0 - 13	24 inch steel conductor casing
0 - 18	10 inch SDR-21 PVC blank casing
18 - 58	10 inch SDR-21 PVC screened casing
58 - 62	10 inch SDR-21 PVC blank casing
62 - 82	10 inch SDR-21 PVC screened casing
82 - 86	10 inch SDR-21 PVC blank casing
86	Casing shoe
0 - 12	Cement seal outside conductor casing
0 - 86	Monterey sand

LOGGED BY	BEGIN DATE	COMPLETION DATE	HAMMER TYPE	BORING NUMBER
J. Cravens	1/10/18	1/10/18	140-lb Automatic Trip	18P-01
FINAL BY			BOREHOLE LOCATION (Lat/Long or North/East and Datum)	SURFACE ELEVATION
J. King			--	17.7 ft
DRILLING METHOD			BOREHOLE LOCATION (Offset, Station, Line)	WEATHER NOTES
Hollow-Stem Auger			--	Clear, windy, cold
DRILLER			LOCATION DESCRIPTION	BACKFILLED WITH
S/G Drilling Company			Southwest corner of pedestrian bridge next to bike path intersection	Install Monitoring Well
DRILL RIG			GROUNDWATER READINGS: DURING DRILLING 15.5 ft; AFTER DRILLING (DATE) 15.5 ft on 1-11-18	TOTAL DEPTH OF BORING
CME-85				61.5 ft

ELEVATION (ft)	DEPTH (ft)	DESCRIPTION	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (ksf)	Well Description	Remarks
	0	SILTY SAND (SM); medium dense; brown; moist; with trace GRAVEL; fine SAND.	8			100					Flush mount well cover	
16	2										Backfill with native	
	3		7	7 13 14	27	100						
14	4											
	5	Poorly graded SAND with CLAY (SP-SC); medium dense; brown; moist; fine SAND with trace GRAVEL and shell fragments.	8	10 14 26	40	100		8	107			
12	6										Bentonite seal	
10	8										Slotted 2" PVC pipe	
	9	Poorly graded SAND (SP); medium dense; tan; moist; fine SAND.										
8	10		9	7 14 14	28	94						
6	12											
4	14	Well-graded SAND with GRAVEL (SW); medium dense; dark grayish brown; wet; with shell fragments.										
	15		10	6 10 11	21	100		18	116			▼
2	16											
0	18											
	19	Poorly graded SAND with CLAY (SP-SC); dense; grayish tan; wet to moist; with trace CLAY.										
-2	20		11	8 16 20	36	100		18				PA (4% G, 90% S, 6% F)
-4	22											
-6	24											
	25	Poorly graded SAND (SP); very dense; wet; graded to Well-graded SAND with GRAVEL (SW) in shoe.	12	14 50/5"	50/5"	33		22	105			
-8	26											
-10	28											
	30											

(continued)

ELEVATION (ft)	DEPTH (ft)	DESCRIPTION	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (ksf)	Well Description	Remarks
	30	SILTY, CLAYEY SAND (SC-SM); loose; gray; wet; with shells and shell fragments.	13	5 4 5	9	33		24				PA (2% G, 80% S, 18% F) CR (pH = 8.13, r = 94 ohm-cm, Sulfates = 1308 mg/kg, Chlorides = 2183 mg/kg)
	31											
-14	32											
	33											
-16	34											
	35	Lean CLAY (CL); medium stiff; dark gray; moist; with trace shell fragments.	14	4 3 4	7	89		25				
-18	36											
	37											
-20	38											
	39											
-22	40	CLAYEY SAND with GRAVEL (SC); mottled with blueish gray; with rust stains.	15	200 psi		87		30				PA (24% G, 54% S, 22% F) PI (LL = 60, PI = 40) CR (pH = 8.21, r = 94 ohm-cm, Sulfates = 914 mg/kg, Chlorides = 2294 mg/kg)
	41											
-24	42											
	43											
-26	44											
	45	Lean CLAY (CL); seam of Sandy lean CLAY (CL); very stiff; dark gray; moist; fine SAND; trace SILT.	16	5 9 8	17	100						
-28	46											
	47											
-30	48											
	49											
-32	50		17	200 psi		57		21	99			
	51											
-34	52											
	53	CLAYEY SAND (SC); medium dense; dark grayish brown; wet; fine SAND; with rust stains; trace SILTY, CLAYEY SAND (SC-SM) in shoe.										
-36	54											
	55		18	2 11 13	24	100						
-38	56											
	57											
-40	58	Fat CLAY (CH); stiff; dark gray; wet; trace SAND in shoe.										
	59											
-42	60		19	2 4 14	18	100						
	61											
-44	62	Bottom of borehole at 61.5 ft bgs										
	63											
-46	64	This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.										
	65											
	66											

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PROJECT NAME
Morro Bay WRF - Pump Station and Offsite Pipelines

PROJECT NUMBER
217-053

BORING NUMBER
18P-01

REVISION DATE
6/6/2019

LOGGED BY	BEGIN DATE	COMPLETION DATE	HAMMER TYPE	BORING NUMBER
J. Cravens	1/12/18	1/12/18	140-lb Automatic Trip	18P-02

FINAL BY J. King	BOREHOLE LOCATION (Lat/Long or North/East and Datum) --	SURFACE ELEVATION 25.0 ft
DRILLING METHOD Hollow-Stem Auger	BOREHOLE LOCATION (Offset, Station, Line) 46' Rt. Sta. 33+00	WEATHER NOTES Sunny, breezy, cool
DRILLER S/G Drilling Company	LOCATION DESCRIPTION Near southeast corner of east baseball field at Lila Keiser Park near pedestrian bridge and bike path	BACKFILLED WITH Install Monitoring Well
DRILL RIG CME-85	GROUNDWATER READINGS — DURING DRILLING: 20.0 ft; AFTER DRILLING (DATE):	TOTAL DEPTH OF BORING 61.5 ft

ELEVATION (ft)	DEPTH (ft)	DESCRIPTION	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (ksf)	Well Description	Remarks
	0	SILTY SAND (SM); medium dense; dark brown; moist; fine SAND; with trace subangular to subrounded GRAVEL and plant roots, angular cobble in shoe.	D			100					Flush mount well cover	
	1											
23	2											
	3		31	4 7 14	21	78						
21	4											
	5		32	3 5 10	15	72		34	82			
19	6	Lean CLAY (CL); very stiff; dark brown; moist; with trace dark red mottling.									#2/12 sand	
	7											
17	8											
	9											
15	10	Stiff; trace gray mottling	33	1 4 4	8	56						
	11											
13	12											
	13										Slotted 2" PVC pipe	
11	14											
	15		34	3 4 4	8	67		26	98			
9	16											
	17											
7	18											
	19	SANDY lean CLAY (CL); loose; light brown; wet.										
5	20		35			83		19	111			∇
	21											
3	22											
	23											
1	24											
	25	Medium dense; light brown; wet; fine SAND with rust stains.	36	6 13 19	32	89						
-1	26											
	27											
-3	28											
	29											
	30											

(continued)

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PROJECT NAME	Morro Bay WRF - Pump Station and Offsite Pipelines
PROJECT NUMBER	217-053
BORING NUMBER	18P-02
REVISION DATE	6/6/2019
SHEET	1 of 2

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (ksf)	Drilling Method	Well Diagram	Well Description	Remarks
	31		SANDY lean CLAY (CL) *(continued)*.		37	6 14 14	28	100		14						PA (0% G, 27% S, 73% F) PI (LL = 34, PI = 18)
-7	32		Lean CLAY (CL); very stiff; brown; moist.													
	33															
-9	34															
	35				38			53		21	108					CR (pH = 8.51, r = 628 ohm-cm, Sulfates = 192 mg/kg, Chlorides - 69 mg/kg)
-11	36															
	37															
-13	38		Well-graded SAND with CLAY and GRAVEL (SW-SC); medium dense; light brown; wet; subrounded to angular GRAVEL.													
	39															
-15	40				39	4 2 2	4	33		18						PA (37% G, 52% S, 11% F)
	41		Lean CLAY (CL); soft; light brown; wet; rust stains.													
-17	42															
	43															
-19	44		CLAYEY SAND with GRAVEL (SC); medium dense; light brown; wet; subrounded to angular GRAVEL.													
	45				40	11 18 8	26	83		14	114					CR (pH = 8.21, r = 1125 ohm-cm)
-21	46															
	47		Lean CLAY with SAND (CL); stiff; brown; moist.													
-23	48															
	49		CLAYEY SAND with GRAVEL (SC); medium dense; brown; wet; subrounded to angular, slightly weathered to decomposed GRAVEL clasts; with rust stains and dark red, orange, and gray mottling; GRAVEL has gneissic/banded texture.													
-25	50				41	7 11 11	22	67		26						PA (27% G, 53% S, 21% F)
	51															
-27	52															
	53															
-29	54															
	55		Dense; clay content greater in lower 7" of sampler.		42	12 21 25	46	72		16	119					
-31	56															
	57															
-33	58														Native	Hole caved at 57.5'
	59		Rig chatter.													
-35	60		Very dense.		43	10 20 50/4"	70/10"	67								
	61															
-37	62		Bottom of borehole at 61.5 ft bgs													
	63															
-39	64		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.													
	65															

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PROJECT NAME
Morro Bay WRF - Pump Station and Offsite Pipelines

PROJECT NUMBER
217-053

BORING NUMBER
18P-02

REVISION DATE
6/6/2019

SHEET
2 of 2

LOGGED BY	BEGIN DATE	COMPLETION DATE	HAMMER TYPE	BORING NUMBER
A. Limpert	2/25/19	2/26/19	140-lb Automatic Trip	19P-01

FINAL BY J. King	BOREHOLE LOCATION (Lat/Long or North/East and Datum) --	SURFACE ELEVATION 13.0 ft
DRILLING METHOD Hollow-Stem Auger	BOREHOLE LOCATION (Offset, Station, Line) 64' Rt. Sta. 14+65	WEATHER NOTES Sunny, cool
DRILLER S/G Drilling Company	LOCATION DESCRIPTION In Morro Bay Maintenance Yard, 5' in front of park maintenance building, 50' from fence	BACKFILLED WITH Install Monitoring Well
DRILL RIG CME-85	GROUNDWATER READINGS DURING DRILLING 12.0 ft AFTER DRILLING (DATE)	TOTAL DEPTH OF BORING 60.1 ft

ELEVATION (ft)	DEPTH (ft)	DESCRIPTION	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (ksf)	Well Description	Remarks
	0	3" ASPHALT CONCRETE.	A			100					Flush mount well cover	CP (UW = 116 pcf; W% = 13%)
	1	10" AGGREGATE BASE.										
11	2	Poorly graded SAND (SP): loose; brown; moist; fine SAND; trace silty fines.	1	5 6 5	11	78		7	69		Bentonite chips from 2-37.5'	PA (0% G, 15% S, 85% F) CR (pH = 6.89, r = 685 ohm-cm, Sulfates = 25 mg/kg, Chlorides = 50 mg/kg)
9	4	Fat CLAY with SAND (CH); stiff; dark brown; moist; trace SILT in top 6".										
7	5–6		2	3 7 8	15	89		35	80			
5	8	Poorly graded SAND (SP): medium dense; reddish brown with gray; moist to wet.										
3	10		3	3 8 10	18	100		19	107			
1	12											▽
-3	15	Brown; moist; increasing fines content.	4	4 13 17	30	100		21				PA (0% G, 96% S, 4% F) CR (pH = 6.97, r = 2602 ohm-cm)
-5	17	Flow sands encountered; added water to hole.										
-7	19	Medium dense; brown; moist to wet; fine SAND; trace CLAY.										
	20		5	3 9 18	27	100		21	101			
-11	24	Lean CLAY with SAND (CL); medium stiff; brown; moist.										
-13	25		6	4 6 6	12	86						
	29	Fat CLAY (CH); hard; brown with some red and gray staining; moist.										

(continued)

BR - STANDARD WITH MONITORING WELL 217-053 WITH MW.GPJ CALIFORNIA YEH LIBRARY (FEB 2013).GLB 6/6/19

ELEVATION (ft)	DEPTH (ft)	DESCRIPTION	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (ksf)	Well Description	Remarks
	30	Fat CLAY (CH) (continued).	7	11 23 28	51	100		25	102			
	31											
-19	32											
	33											
-21	34	Very soft; brown with red mottling; moist; trace fine SAND and trace fine black angular GRAVEL.										
	35		8	2 2 5	7	100						
-23	36											
	37											
-25	38										Bentonite pellets from 37.5-43'	
	39	CLAYEY SAND with GRAVEL (SC); medium dense; red brown with flecks of white sand; moist; 4" lense of CLAYEY SAND with GRAVEL (moist; brown with black and green subangular GRAVEL).										
-27	40		9	9 15 16	31	94		15	124			
	41											
-29	42											
	43										Slotted 2" PVC pipe with sand from 43-55'	
-31	44	Medium dense; brown with red staining and black and green GRAVEL; moist.										
	45		10	7 17 17	34	56						
-33	46											
	47	Driller notes started hitting gravel at ~47' and has been decreasing since.										
-35	48											
	49	CLAYEY GRAVEL with SAND (GC); dense; brown with black and green GRAVEL wet; medium to coarse subrounded to subangular GRAVEL.										
-37	50		11	8 17 31	48	64		18	108			
	51	CLAYEY SAND with GRAVEL (SC); dense; brown; wet; medium SAND.										
-39	52	Lean CLAY with SAND (CL); very stiff; brown with red and orange staining; moist; fine to coarse SAND.										
	53											
-41	54											
	55		12	3 6 12	18	100					Native from 55-60.1	
-43	56											
	57	(CLAYSTONE); soft; brown; wet; (FRANCISCAN MELANGE).	12A									
-45	58											
	59											
-47	60	Bottom of borehole at 60.1 ft bgs	13	50/1"	Ref/1"	100						
	61											
-49	62	This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.										
	63											
-51	64											
	65											
	66											

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PROJECT NAME: Morro Bay WRF - Pump Station and Offsite Pipelines
PROJECT NUMBER: 217-053
BORING NUMBER: 19P-01
REVISION DATE: 6/6/2019

LOGGED BY	BEGIN DATE	COMPLETION DATE	HAMMER TYPE	BORING NUMBER
J. Cravens	2-28-19	2-28-19	140-lb Automatic trip	19P-02
FINAL BY			BOREHOLE LOCATION (Lat/Long or North/East and Datum)	SURFACE ELEVATION
J. King			—°/—°	16.0 ft
DRILLING METHOD			BOREHOLE LOCATION (Offset, Station, Line)	WEATHER NOTES
8-in Hollow Stem Auger			5.2' Lt. of Sta. 20+50	Sunny, cool
DRILLER			LOCATION DESCRIPTION	BACKFILLED WITH
S/G Drilling Company			9.5 ft E of power pole, 4.1 ft S of curb of sidewalk on north side of Atascadero Rd.	Sack cement/native mix
DRILL RIG			GROUNDWATER READINGS — DURING DRILLING: 15.0 ft; AFTER DRILLING (DATE):	TOTAL DEPTH OF BORING
CME 85				21.5 ft

ELEVATION (ft)	DEPTH (ft)	DESCRIPTION	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (ksf)	Drilling Method	Casing Depth	Remarks
16	0	4.5" ASPHALT CONCRETE.											
		7" AGGREGATE BASE.											
14	1–4	Poorly graded GRAVEL (GP); (FILL).											
11	5	Lean CLAY (CL); stiff; brown; moist; trace medium subangular GRAVEL; (YOUNG ALLUVIAL DEPOSITS).	34	3 5 7	12	67		29	84	2.0pp			CR (pH = 7.30, r = 712 ohm-cm, Sulfates = 45 mg/kg, Chlorides = 170 mg/kg)
6	10	Gray mottled with brown; trace fine to medium SAND.	35	3 5 6	11	50		25	90	1.75pp			
3	13	Poorly graded SAND (SP); very loose; brown; wet; trace CLAY.											
1	15		36	1 1 0	1	44							▽
-4	20		37	2 4 7	11	72		23	104	1.75pp			
-5	21	Lean CLAY with GRAVEL (CL); stiff; gray mottled with brown; moist; fine to coarse, subangular GRAVEL.											
	21.5	Bottom of borehole at 21.5 ft bgs											

This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.

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PROJECT NAME	
Morro Bay WRF - Lift Stations and Offsite Pipelines	
PROJECT NUMBER	
217-053	
BORING NUMBER	
19P-02	
REVISION DATE	SHEET
6/6/2019	1 of 1

LOGGED BY	BEGIN DATE	COMPLETION DATE	HAMMER TYPE	BORING NUMBER
J. Cravens	5-7-19	5-7-19	140-lb Automatic trip	19P-03

FINAL BY J. King	BOREHOLE LOCATION (Lat/Long or North/East and Datum) --°/--°	SURFACE ELEVATION 26.0 ft
DRILLING METHOD 8-in Hollow Stem Auger	BOREHOLE LOCATION (Offset, Station, Line) 20' Rt. of Sta. 29+75	WEATHER NOTES Partly cloudy, warm
DRILLER S/G Drilling Company	LOCATION DESCRIPTION 2671.1' S of Intersection of Atascadero Rd. and Hwy. 1 Southboud On-ramp, 3.8' E of EP	BACKFILLED WITH 6-sack cement slurry; asphalt patch with rapid set dyed black
DRILL RIG CME 75	GROUNDWATER READINGS — DURING DRILLING: 20.0 ft; AFTER DRILLING (DATE):	TOTAL DEPTH OF BORING 31.5 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	DESCRIPTION	Sample Location	Sample Number	Blows per 6 in	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (ksf)	Drilling Method	Casing Depth	Remarks
	0		9" ASPHALT CONCRETE.		A			100							
24	1–2		CLAYEY SAND (SC); hard; dark brown; moist; fine SAND; trace fine GRAVEL; (FILL).												
22	3–4				1	3 7 10	17	67		14	114	4.5PP			PA (2% G, 63% S, 36% F) CR (pH = 8.13, r = 515 ohm-cm, Sulfates = 100 mg/kg, Chlorides = 169 mg/kg)
20	5		Very stiff; reddish brown.		2	3 8 10	18	72		19	107	4.0PP			
	6–7		SANDY fat CLAY (CH); very stiff; dark gray mottled with brown; moist; fine to coarse SAND; (YOUNG ALLUVIAL VALLEY DEPOSITS).									2.5PP			
16	10		Dark brown mottled with dark gray and dark orange.		3	3 4 4	8	31				3.5PP			
12	14–15		Fat CLAY (CH); stiff; dark brown mottled with dark gray; trace fine SAND; trace to few shell fragments and trace charcoal.												
10	15–16				4	2 3 5	8	61		29	89	2.0PP			CR (pH = 7.46, r = 487 ohm-cm, Sulfates = 97 mg/kg, Chlorides = 82 mg/kg)
8	19		CLAYEY SAND with GRAVEL (SC); loose; brown; wet; fine to coarse SAND; medium to fine subrounded GRAVEL.												▽
6	20				5	5 3 4	7	53				1.75PP			
2	24–25		Fat CLAY with SAND (CH); stiff; dark brown; moist; fine SAND.												
0	25–26				6	4 6 7	13	67		21	107	2.25PP			
-2	28–29		CLAYEY SAND with GRAVEL (SC); loose; brown; wet; medium to coarse SAND; fine to medium, subrounded to subangular GRAVEL.												
-4	30				7	3 4 5	9	50							
-6	32		Bottom of borehole at 31.5 ft bgs												
-8	34		This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.												

5 BR - STANDARD 217-053 MORRO BAY WITHOUT WELLS.GPJ CALIFORNIA YEH LIBRARY (FEB 2015).GLB 6/6/19

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PROJECT NAME Morro Bay WRF - Lift Stations and Offsite Pipelines	
PROJECT NUMBER 217-053	
BORING NUMBER 19P-03	
REVISION DATE 6/6/2019	SHEET 1 of 1

LOGGED BY	BEGIN DATE	COMPLETION DATE	HAMMER TYPE	BORING NUMBER
J. Cravens	2/27/19	2/27/19	140-lb Automatic Trip	19P-04
FINAL BY			BOREHOLE LOCATION (Lat/Long or North/East and Datum)	SURFACE ELEVATION
J. King			--	24.0 ft
DRILLING METHOD			BOREHOLE LOCATION (Offset, Station, Line)	WEATHER NOTES
Hollow-Stem Auger			31.5' Rt. Sta. 34+56	Breezy, rain
DRILLER			LOCATION DESCRIPTION	BACKFILLED WITH
S/G Drilling Company			63.3' SW of abutment of pedestrian bridge, 3.9' W of centerline of bike path	Install Monitoring Well
DRILL RIG			GROUNDWATER READINGS — DURING DRILLING: 10.0 ft; AFTER DRILLING (DATE):	TOTAL DEPTH OF BORING
CME-85				61.5 ft

ELEVATION (ft)	DEPTH (ft)	DESCRIPTION	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (ksf)	Well Description	Remarks
24	0	3" ASPHALT CONCRETE.									Flush mount well cover	
	1	4" AGGREGATE BASE.									Solid 2" PVC pipe with bentonite chips from 1-43'	
		2.5" ASPHALT CONCRETE.										
22	2	8.5" AGGREGATE BASE.	21	10 12 8	20	83		7	102			
	2–5	Poorly graded SAND with CLAY (SP-SC); medium dense; reddish brown; moist; medium to coarse SAND; fine subrounded GRAVEL. (YOUNG ALLUVIAL DEPOSITS)										
	5	Fat CLAY (CH); very stiff; dark brown; moist; some mottling of light brown and red; trace rust stains, charcoal, and tree roots.	22	4 11 12	23	72		30	82			CR (pH = 7.46, r = 630 ohm-cm, Sulfates = 45 mg/kg, Chlorides = 170 mg/kg)
	9	Lean CLAY (CL); soft; light brown; wet; trace fine SAND; rust stains.										
14	10		23	1 2 2	4	72		23	105			▽
9	15		24	4 7 6	13	89						
8	16	CLAYEY SAND with GRAVEL (SC); medium dense; brown; moist to wet; fine to coarse SAND; fine to medium, subrounded to subangular GRAVEL.										
4	20	Wet.	25	6 15 22	37	100		18	120			
-1	25		26	6 8 8	16	72						
-2	26	Poorly graded SAND with CLAY (SP-SC); medium dense; grayish brown; wet; fine SAND.										
	30											

(continued)

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PROJECT NAME	
Morro Bay WRF - Pump Station and Offsite Pipelines	
PROJECT NUMBER	
217-053	
BORING NUMBER	
19P-04	
REVISION DATE	SHEET
6/6/2019	1 of 2

ELEVATION (ft)	DEPTH (ft)	DESCRIPTION	Sample Number	Blows per 6 in	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (ksf)	Well Description	Remarks
	30	Poorly graded SAND with CLAY (SP-SC) (continued).	27	7 15 12	27	67		14	127			
-8	31–33	Well-graded SAND with CLAY and GRAVEL (SW-SC); medium dense; brown; wet; fine to medium, subrounded to subangular GRAVEL SERPENTINITE CLASTS in shoe.										
-10, -12, -14	34–38	CLAYEY SAND with GRAVEL (SC); medium dense; grayish brown; wet; fine to medium, subrounded to subangular GRAVEL.	28	4 6 7	13	28						
-16	39–40	CLAYEY SAND (SC); medium dense; brown; wet; fine SAND; trace subangular GRAVEL.	29	5 7 10	17	100		26	90			
-18	41–43	Poorly graded SAND with CLAY (SP-SC); medium dense; gray; wet; medium SAND; brown CLAY.										
-20, -22, -24	43–49	CLAYEY SAND with GRAVEL (SC); medium dense; brown; wet; fine to coarse SAND; fine to medium, subrounded to subangular GRAVEL.	30	5 5 11	16	56					Bentonite pellets from 43-48'	
-26, -28, -30	50–54	Dense; brown; wet; fine to coarse SAND; fine to medium, subrounded to subangular GRAVEL. (OLD ALLUVIAL DEPOSITS).	31	9 25 21	46	100		12	143		Slotted 2" PVC pipe from 50-60' and #3 Sand from 48-61.5'	
-32, -34	55–59	Very loose.	32	1 2 2	4	6						
-36	60–61	Very dense.	33	16 29 25	54	100		11	119			
-38, -40	62–66	Bottom of borehole at 61.5 ft bgs This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.										

BR - STANDARD WITH MONITORING WELL 217-053 WITH MW.GPJ CALIFORNIA YEH LIBRARY (FEB 2013).GLB 6/6/19

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PROJECT NAME: Morro Bay WRF - Pump Station and Offsite Pipelines
PROJECT NUMBER: 217-053
BORING NUMBER: 19P-04
REVISION DATE: 6/6/2019

LOGGED BY	BEGIN DATE	COMPLETION DATE	HAMMER TYPE	BORING NUMBER
A. Limpert	2-26-19	2-26-19	140-lb Automatic trip	19P-05
FINAL BY			BOREHOLE LOCATION (Lat/Long or North/East and Datum)	SURFACE ELEVATION
J. King			—°/—°	19.0 ft
DRILLING METHOD			BOREHOLE LOCATION (Offset, Station, Line)	WEATHER NOTES
8-in Hollow Stem Auger			Sta. 51+35	Cloudy, cool
DRILLER			LOCATION DESCRIPTION	BACKFILLED WITH
S/G Drilling Company			100 ft N from south entrance to bike path, 5 ft E of edge of bike path	Native
DRILL RIG			GROUNDWATER READINGS — DURING DRILLING: 6.5 ft; AFTER DRILLING (DATE):	TOTAL DEPTH OF BORING
CME 85				31.5 ft

ELEVATION (ft)	DEPTH (ft)	DESCRIPTION	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (ksf)	Remarks
19–15	0–4	SANDY fat CLAY with GRAVEL (CH); stiff; dark brown with yellow and red staining; moist; medium SAND; subrounded GRAVEL.	14	4 10 10	20	67		16	121	2.5pp	
15–13	4–6	CLAYEY SAND (SC); stiff; black with brown SAND; moist; lense of CLAYEY SAND (SC); brown; moist.	15	4 10 5	15	94		12	122	1.25pp	
9	10		16	8 22 19	41	78		15	114	4.5pp	PA (1% G, 60% S, 39% F) PI (LL = 28, PI = 12) CR (pH = 7.68, r = 876 ohm-cm, Sulfates = 13 mg/kg, Chlorides = 76 mg/kg)
4	15	Stiff; brown with orange mottle; trace light brown fine SAND.	17	4 8 11	19	100				2.75pp	
-1	20	Lean CLAY (CL); very stiff; brown with red and orange staining; moist.	18	6 12 15	27	89		21	111	3.0pp	
-5	24	Fat CLAY (CH); medium stiff; brown with red staining; wet.	19	4 4 5	9	100				0.5pp	
-10	29	CLAYEY SAND (SC); medium dense; red brown; wet.	20	14 17 26	43	89		22	105		

Bottom of borehole at 31.5 ft bgs

This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.

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Geotechnical • Geological • Construction Services

PROJECT NAME	Morro Bay WRF - Lift Stations and Offsite Pipelines
PROJECT NUMBER	217-053
BORING NUMBER	19P-05
REVISION DATE	6/6/2019
SHEET	1 of 1

LOGGED BY	BEGIN DATE	COMPLETION DATE	HAMMER TYPE	BORING NUMBER
J. Cravens	2/28/19	2/28/19	140-lb Automatic Trip	19P-06
FINAL BY			BOREHOLE LOCATION (Lat/Long or North/East and Datum)	SURFACE ELEVATION
J. King			--	34.0 ft
DRILLING METHOD			BOREHOLE LOCATION (Offset, Station, Line)	WEATHER NOTES
Hollow-Stem Auger			100' Lt. Sta. 58+28	Sunny, cool, breezy
DRILLER			LOCATION DESCRIPTION	BACKFILLED WITH
S/G Drilling Company			Lemos parking lot, 50.5' N of Lemos building, 56.8' E of sidewalk	Install Monitoring Well
DRILL RIG			GROUNDWATER READINGS — DURING DRILLING: 20.0 ft; AFTER DRILLING (DATE):	TOTAL DEPTH OF BORING
CME-85				40.7 ft

ELEVATION (ft)	DEPTH (ft)	DESCRIPTION	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (ksf)	Well Description	Remarks
	0	1.5" ASPHALT CONCRETE.	B			100					Flush mount well cover	
	1	12" AGGREGATE BASE (FILL).									2" solid PVC pipe from 1-9' with bentonite chips from 1-7'	
		4" ASPHALT CONCRETE.										
32	2	6.5" AGGREGATE BASE.	38	5 8 8	16	78		17	116			CR (pH = 7.73, r = 685 ohm-cm, Sulfates = 45 mg/kg, Chlorides = 110 mg/kg)
	3	Poorly graded SAND with CLAY (SP-SC); medium dense; reddish brown; wet; fine SAND. (YOUNG ALLUVIAL DEPOSITS)										
30	4	Fat CLAY (CH); very stiff; brown mottled with light brown, gray, orange, and white; fine SAND.										
	5	Dark brown.	39	6 12 16	28	86		16	114			
28	6											
	7											
26	8											
	9										2" slotted PVC pipe from 9-39' with #3 sand from 7-40.7'	
24	10	Hard; mottled with light brown, orange, red, and yellow.	40	7 14 21	35	78		16	115			
	11											
22	12											
	13	SANDY lean CLAY (CL); stiff; dark brown; moist; fine SAND.										
20	14											
	15		41	3 5 6	11	92		18				PA (2% G, 50% S, 48% F) PI (LL = 34, PI = 16) CR (pH = 7.52, r = 603 ohm-cm, Sulfates = 174 mg/kg, Chlorides = 156 mg/kg)
18	16											
	17											
16	18											
	19	CLAYEY SAND (SC); medium dense; reddish brown; wet; fine SAND.										
14	20		42	9 15 17	32	100		19	107			▽
	21											
12	22											
	23											
10	24											
	25	Light brown mottled with gray.	43	5 13 15	28	94						
8	26											
	27											
6	28											
	29											
	30											

(continued)

ELEVATION (ft)	DEPTH (ft)	DESCRIPTION	Sample Number	Blows per 6 in.	Blows per foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (ksf)	Drilling Method	Well Diagram	Well Description	Remarks
	30	Light brown (tan) mottled with orange, red, and yellow; coarse, subangular GRAVEL in shoe. CLAYEY SAND (SC) *(continued)*.	44	4 13 17	30	50		23	101					
	33	(SANDSTONE); decomposed; light brown (tan) to gray; moderately to intensely fractured; hard; fine to medium grained; some rust stains; micaceous and arkosic; (FRANCISCAN MELANGE). Minor rig chatter.												
	35		45	18 50/3"	50/3"	67								
	40	Moderately weathered to decomposed; gray.	46	21 50/2"	50/2"	63								

Bottom of borehole at 40.7 ft bgs.

This Boring Record was developed in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010) except as noted on the Soil or Rock Legend or below.

ELEVATION (ft)	DEPTH (ft)
	30
	31
2	32
	33
0	34
	35
-2	36
	37
-4	38
	39
-6	40
	41
-8	42
	43
-10	44
	45
-12	46
	47
-14	48
	49
-16	50
	51
-18	52
	53
-20	54
	55
-22	56
	57
-24	58
	59
-26	60
	61
-28	62
	63
-30	64
	65
	66

APPENDIX G

Geochemical Modeling Report and Work Plan

Appendix G Geochemical Modeling Report and Work Plan

Table of Contents

Geochemical Compatibility Modeling of Morro Bay IPR Project

To:	Dan Heimel, City of Morro Bay
Cc:	Elaine Simmons, Paul Amico, Anthony Cemo, Lydia Holmes; Carollo Engineers
From:	Tim Thompson, Dave O'Rourke; GSI Water Solutions
Date:	November 2, 2022

Background

As part of the City of Morro Bay's (City) desire to utilize highly treated recycled water to augment their water supplies, the new Water Reclamation Facility (WRF) is currently being constructed and will include the advanced treatment of the recycled water to meet water quality standards that will allow for implementation of an indirect potable reuse (IPR) project utilizing a series of dedicated injection wells. The site being considered for groundwater operations is the area of the Morro Valley Groundwater Basin between Highway 1 and the Pacific coast (Figure 1).

To support this effort and to comply with Regional Board permitting requirements, geochemical compatibility modeling was conducted to identify the potential of adverse chemical interactions that could occur as a result of the mixing of the injected (source) water and the native groundwater and aquifer sediments. This work was conducted in accordance with the Geochemical Work Plan (Attachment C) prepared by GSI and sent to the Regional Board for review in mid-2021.

Groundwater chemistry of the native groundwater in the project vicinity was characterized during four quarters of groundwater sampling and analysis performed by GSI and City staff. During the installation of Monitoring Well 21-P01 (Figure 1), undisturbed soil samples from the likely injection zone were collected and delivered to Minerology, Inc. (MI), of Tulsa Oklahoma, a laboratory that specializes in geochemical and mineralogical analysis of geologic materials using methods not common to most analytical laboratories that analyze water samples. MI's analysis is used to characterize the aquifer sediments in the project area. Geochemical modeling of mixed waters and aquifer sediments was performed by S.S. Papadopoulos & Associates, and this modeling is used to characterize expected subsurface geochemical reactions, if any, in the project area.

The following documents, which form the analytical foundation for the overall geochemical assessment are attached to this Technical Memo:

- Attachment A - Geochemical Compatibility Evaluation, S.S. Papadopulos & Associates, May 13, 2022.
- Attachment B - Morro Bay IPR Geochemistry Analysis, Minerology, Inc., December 22, 2021.
- Attachment C – Geochemical Work Plan for Groundwater Replenishment and Reuse Project, Morro Bay, California", GSI Water Solutions, March 19, 2021.

- Attachment D - Results of Groundwater Monitoring for Proposed Indirect Potable Reuse Project, City of Morro Bay, California, GSI Water Solutions, November 17, 2021.

This Technical Memo (TM) is provided to summarize the key findings of the geochemical compatibility evaluation documented in greater detail in the reports previously listed, and to provide context in terms of potential fatal flaws, the overall project sequencing, and regulatory compliance considerations.

The key objectives of the geochemical compatibility analysis are the following:

a) Evaluate if water quality changes could occur in both native groundwater and injected source water as a result of the mixing of these two water types during injection and migration thru the aquifer;
b) Evaluate if water quality changes in the recovered water could arise as a result of geochemical reactions between source water and native aquifer sediments;
c) Determine if mineral precipitation could occur which can lead to clogging in injection and recovery well screens and filter packs as well as within the aquifer sediments; and,
d) Assess the above objectives in terms of both short-term (1 year) and long-term (3 years) injection duration periods.

Based upon results of soil and groundwater sampling at City wells as collected by GSI and City staff, the geochemical modeling effort determined the following:

a) The overall geochemical compatibility evaluation does not indicate any significant issues that might be viewed as fatal flaws to the City's IPR project planning.

b) Following injection and migration through the aquifer to the City's existing production wells, the recovered water is predicted to meet all primary drinking water criteria. Recovered water is not expected to exhibit any significant adverse geochemical compatibility issues, except for secondary water quality parameters TDS and manganese as described below.

c) For TDS, the geochemical modeling indicates that the secondary MCL for TDS (500 mg/L) could be exceeded in the early weeks of the injection activity but only until the native groundwater is partially to fully replaced by the injected IPR water. (This analysis assumes constant operation of the system by the City). Because the City's groundwater production system includes treatment of all pumped groundwater at the City's Brackish Water RO facility, the TDS concentration in the recovered water will be substantially reduced prior to delivery of the water into the distribution system.

d) For manganese, the recovered water could exceed the secondary MCL of 0.05 mg/L during at least the first year of IPR operations. Manganese concentrations are naturally elevated (at or near the MCL) in native groundwater as observed from water quality monitoring. Manganese concentrations are not predicted to worsen as a result of the IPR project, and over the course of several years, manganese concentrations are predicted to decline as the oxidized treated water becomes a greater proportion of the water recovered at the production wells. Tracking water quality results from samples at monitoring wells located between the injection wells and the recovery wells will provide real-time information on the trend of manganese concentrations over time.
   Similar to the consideration of TDS concentrations discussed above, because the City's groundwater production system includes treatment of all pumped groundwater at the City's Brackish Water RO facility, the manganese concentration in the pumped groundwater will be reduced to below the secondary MCL concentration limit prior to delivery of the water into the distribution system. Additionally, the advanced treated recycled water that will be injected as part of the IPR program will have very low levels of manganese which will be helpful in regards to tracing the movement and migration of the injected water.

e) Evaluation of geochemical reactions that could lead to aquifer clogging indicates that there is a minor potential of the precipitation of manganese oxyhydroxide as a result of the increased oxidation state of the injected (source) water compared to native groundwater. Because the model prediction was that only <0.02% change in porosity per year is possible, clogging due to manganese is not expected to be significant.

Figure

FIGURE 1

Morro Bay Site Vicinity Map

Morro Bay IPR Project
Geochemical Modeling

LEGEND

- Proposed Injection Well
- City of Morro Bay Well
- Piezometer
- Potential Injection Well Location Area
- Project Easement

All Other Features

- Major Road
- Watercourse

Date: October 25, 2022
Data Sources: ESRI, USGS, NAIP Imagery (2018)

N

0 250 500
Feet

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\IPR_Project\Tech_Memo\Figure1_Morro_Bay_Vicinity_Map.mxd

Attachments

ATTACHMENT A

S.S. PAPADOPULOS & ASSOCIATES, INC.
Environmental & Water-Resource Consultants

Memorandum

Date:	May 13, 2022
From:	Brad Bessinger
To:	Tim Thompson, GSI Water Solutions, Inc.
Project:	City of Morro Bay Groundwater Replenishment and Reuse Project (GRRP)
Subject:	**Geochemical Compatibility Evaluation**

This memorandum presents the results of a geochemical compatibility evaluation in support of the permitting and installation of a planned indirect potable reuse (IPR) project for the City of Morro Bay. The proposed system will inject highly treated recycled (source) water from a forthcoming Water Reclamation Facility (WRF) into the City's water supply aquifer. The objective is to recover this source water using a separate series of wells located approximately one-quarter of a mile away. It is estimated to take approximately six months for source water to migrate through the aquifer from the injection to the recovery wells.

The objective of the geochemical compatibility evaluation discussed in this memorandum was to identify potential adverse chemical interactions that could occur between the injected (source) water and aquifer. The following compatibility issues were evaluated:

1) Potential changes in groundwater and source water quality caused by mixing during injection and migration through the aquifer;
2) Potential water quality issues in recovered water caused by geochemical reactions between source water and native aquifer minerals; and,
3) Mineral precipitation, which can potentially lead to clogging in injection and recovery well screens and filter packs.

Methodology

Geochemical modeling was used to predict the effects of chemical reactions between treated (source) water, native groundwater, and aquifer sediments. First, groundwater and aquifer sediments were collected and characterized. Next, geochemical mixing modeling was used to predict the composition of groundwater-source water mixtures that could occur during IPR operations. Finally, a one-dimensional reactive transport model was used to predict the composition of recovered water and potential changes in aquifer porosity due to mineral precipitation.

Water Chemistry

The composition of groundwater used in the compatibility evaluations was primarily based on average constituent concentrations measured in City Well 20P-01 (Figure 1) during three sampling events between 2020 and 2021 (GSI 2021b). Because several major cations and anions (calcium, magnesium, potassium, sodium, and alkalinity) were not measured, the concentrations of these constituents were estimated from a groundwater sample collected from recently installed monitoring well 21P-01, which is approximately fifty feet to the north of one of the proposed injection wells[1]. In addition to these constituents, phosphate was estimated from the median concentration reported in coastal California public water supply systems (Kent et al. 2020) and dissolved silica by assuming equilibrium with SiO_2(am).

The composition of highly treated recycled (source) water used in the compatibility evaluations was based on reported constituent concentrations from the Leo J. Vander Lans Advanced Water Treatment Facility in Long Beach California (Attachment A). The Vander Lans facility treats effluent water from the Long Beach Water Reclamation Plant and supplies highly purified water for use to inject into the Alamitos Barrier that was created to prevent seawater from encroaching into groundwater supplies in Los Angeles and Orange counties. Similar to the Morro Bay recycled water treatment facilities, the Vander Lans facility employs microfiltration, reverse osmosis, ultraviolet disinfection with advance oxidation as advanced treatment processes following the primary and secondary treatment steps that occur in the wastewater treatment plant. Given the similarity of the treatment processes, the Vander Lans water quality represents an adequate surrogate for the purposes of this modeling effort.

Table 1 summarizes the concentrations used in the compatibility evaluations[2,3]. As shown in the table, the native groundwater exceeds the secondary Maximum Contaminant Levels (MCLs) for total dissolved solids (TDS) and manganese. By contrast, the source water used for modeling the injection of treated water does not exceed any primary or secondary MCL.

Aquifer Chemistry

The chemical and mineralogical composition of the aquifer used in the compatibility evaluations was based on drill cuttings collected during installation of piezometer 21P-01, which is approximately 400 feet from piezometer 20P-01. Samples from the following depth intervals were collected for analysis: 46-46.5 ft-bgs; 55.5-56 ft-bgs; and 65.5-66 ft-bgs. As discussed in the geochemical characterization work plan (GSI 2021a), testing consisted of the following analyses (Mineralogy Inc. 2021):

- X-Ray Diffraction (XRD): Determines aquifer mineralogy;

[1] Because total iron was also not measured (only ferric iron), the evaluation used the reported total iron concentration from the same nearby well (<0.030 mg/L).

[2] The calculated charge imbalance of the composite groundwater in Table 1 (expressed as the difference between cations and anions) is less than 5%, which provides justification for the values used.

[3] Dissolved oxygen was not analyzed in the treated water from the Vander Lans facility. A dissolved oxygen concentration of 7.2 mg/L was used for geochemical modeling, which represents water in equilibrium with the atmosphere.

- Acid Insoluble Residue: Determines abundance of non-carbonate minerals;
- X-Ray Fluorescence (XRF): Determines overall chemical composition;
- Total Organic Carbon (TOC): Determines organic carbon concentrations;
- Cation Exchange Capacity: Determines the abundance and composition of ion exchange sites on clay minerals;
- SEM & Thin Section Petrography: Determines mineral morphology, relationships, and occurrence of minor minerals; and,
- Particle Size Distribution: Determines grain size.

Table 2 summarizes the average mineralogical abundance used in the compatibility evaluations. As shown in the table, the aquifer primarily consists of a suite of clay matrix minerals such as smectite (32%), feldspars (23%), quartz (18%), and chrysotile (10%). Minor minerals and organic constituents include goethite (2.0%), hornblende (1.3%), magnetite (1.3%), TOC (0.9%), and augite (0.7%). Accessory amounts of titanium manganese and phosphorous were also determined to be locally significant phases (Mineralogy Inc. 2021). Due to the widespread occurrence of clay minerals, there is a significant cation exchange capacity (210 meq/kg) in the aquifer—this is important because exchange sites host reduced forms of manganese (Mn^{2+}) that buffer groundwater until enough source water is injected to oxidize and precipitate the manganese as oxyhydroxide minerals.

Geochemical Mixing Modeling

The USGS-supported geochemical model PHREEQC[4] (Parkhurst and Appelo 1999) was used to simulate geochemical mixing of recharge water and groundwater during IPR operations. Model input included the water chemistry reported in Table 1. Model output included the following: 1) concentrations of dissolved constituents in source water-groundwater mixtures; and 2) mineral saturation indices (SI), which measure the potential for mineral precipitation to occur during

[4] PHREEQC is based on chemical thermodynamics and the energetics of possible chemical reactions are supplied to the program through the thermodynamic database. PHREEQC uses this information, along with a chemical description of any solid and aqueous phases, to predict the equilibrium distribution of elements between individual dissolved (aqueous) species and solid (mineral) forms. PHREEQC simultaneously solves expressions relating the mass of each element to its distribution between different forms (mass balance equations), expressions representing the Gibbs free energy change of prescribed reactions (mass action equations), and an expression for electrical neutrality (the charge balance equation). PHREEQC can simulate several types of geochemical processes that can occur during mixing and/or aquifer interactions, including aqueous phase reactions, ion exchange reactions, surface complexation reactions, and mineral precipitation and dissolution reactions. These reactions can be represented as equilibrium or kinetically controlled.

mixing[5]. Model predictions were tabulated as a function of the percentage of treated source water in the mixture (from 0 to 100%).

Geochemical Reactive Transport (RTM) Modeling

The USGS-supported geochemical model PHREEQC was also used to simulate geochemical mixing and mineral reactions during IPR operations. Model input to the reactive transport model (RTM) included the following:

- **Aquifer Description:** The simulated aquifer consisted of a one-dimensional flow path between injection and recovery wells assumed to be approximately 1,500 ft (460 m) in distance (Table 2). An aquifer porosity of approximately 0.28 was assumed based on calculations using reported mineral abundances and molar volumes.
- **IPR Operational Data:** The model was initially run for a period of one year assuming a constant injection of treated source water at the upgradient boundary, six months of migration within the simulated aquifer, and finally, removal (i.e., recovery) at the downgradient boundary.[6] Results were first tabulated for IPR operations lasting one year to assess the composition of recovered water during groundwater removal (0-6 months) and source water recovery (6-12 months). Results were also tabulated for a period of three years to understand the time required for manganese concentrations in recovered source water to eventually be less than the secondary MCL (0.05 mg/L).
- **Water Chemistry:** The composition of waters used in the evaluation are reported in Table 1. Native groundwater chemistry from 20P-01 was used to represent the initial groundwater present in the aquifer. Vander Lans treated water was used as a proxy for the future City of Morro Bay treated source water and was simulated as being injected into the aquifer for the entire simulation period.
- **Aquifer Mineralogy:** The aquifer was assumed to initially consist of the suite of primary minerals identified by XRD—as discussed above, this included clays, quartz,

[5] As concentrations of dissolved aqueous species that comprise a particular mineral increase, the tendency for that mineral to precipitate out of groundwater is enhanced. This tendency is defined mathematically by a value called the saturation index (SI), which is expressed on a logarithmic scale as the ratio of the concentration of ions in solution to the concentration required for mineral precipitation to occur. SI values greater than or equal to zero represent groundwater that is saturated or supersaturated (under these conditions, there is a thermodynamic driving force for mineral precipitation to occur). Conversely, values less than zero imply that a mineral is unstable, and if present in aquifer soils, will dissolve into groundwater.

[6] It is important to note that model predictions would not be expected to appreciably change for a shorter (2-4 month) simulated travel time. First, mineral dissolution reactions, which affect the major ion composition of recovered water, are relatively slow and equilibrium with aquifer minerals will not be reached within either a two- or six-month time period. Second, desorption reactions, which affect the amount of manganese released from minerals such as iron oxyhydroxides, are relatively fast and will likely occur within either a two month or six-month time period.

feldspars, chrysotile, and accessory minerals (Table 2). Due to possible chemical changes in aquifer mineralogy during IPR operations a set of secondary minerals were allowed to precipitate based on whether or not they became supersaturated (SI>0). Iron and manganese oxyhydroxides are notable secondary minerals included in the model.

- **Mineral Dissolution Rates:** Chemical reactions in the aquifer, especially heterogenous reactions between minerals and water, are time-dependent and require input of reaction rates. Mineral dissolution was simulated using time-dependent kinetic rate laws that vary as a function of reactive surface area. The kinetic rate laws and constants used were from Palandri and Kharaka (2004) (Table 2). The reactive surface areas used for individual minerals were determined by calculating geometric surface areas from grain size analysis (Mineralogy, Inc. 2021) and applying age-dependent surface roughness and reactivity corrections using methods described in White and Brantley (2003) and Beckingham et al. (2016). A similar approach to modeling mineral dissolution rates has been shown to accurately predict weathering in coastal California marine terraces (Maher et al. 2009; White et al. 2008; White et al. 2009).
- **Disinfectant By-Product (DBP) Reaction Rates:** Rate constants for the formation of trihalomethanes and haloacetic acids were based on empirical equations from Clark (1998a and 1998b), which account for variability in TOC and residual chlorine concentrations, pH, and temperature (Sadiq and Rodriguez 2004). Degradation rate constants were based on the empirical rates of Pavelic et al. (2005). Although the reported rate constants used were developed specifically for trihalomethanes, the same constants were applied to haloacetic acids to understand the potential effects of IPR operations on haloacetic acid concentrations in recovered source water.

Model output included the following: 1) concentrations of dissolved constituents in recovered water; and 2) changes in aquifer mineralogy and porosity. Model predictions were tabulated as a function of time (in days) since the beginning of IPR operations. Water chemistry output for the first 180 days represents groundwater and subsequent chemistry represents recovered source water.

Model Results

Geochemical Mixing Model Results

Predicted mixtures of treated (source) water and groundwater were evaluated to identify potential adverse changes to water quality that can occur during mixing in the aquifer. Predicted mineral saturation states were also evaluated to understand the potential for mineral precipitation/clogging issues during IPR operations. Model results include the following:

- **Water Quality:** The model predicts exceedances of secondary MCLs for TDS and manganese in some source water-groundwater mixtures[7] (Table 3). This prediction is consistent with the concentrations of the individual water types as shown in Table 1. As the percentage of source water increases in a mixture, TDS concentrations decrease and eventually become less than the MCL for mixtures containing 40-50% source water; for manganese, the transition occurs in mixtures with 90-100% source water.
- **Mineral Precipitation:** The geochemical mixing model predicts SI values for different individual minerals in source water-groundwater mixtures. Minerals with SI values greater than zero are supersaturated, and therefore, have a thermodynamic potential to precipitate. Although some minerals are predicted to be saturated or supersaturated in Table 4, it is important to understand that mineral saturation indices greater than zero (SI>0) are common in nature without mineral precipitation actually occurring. This is because some minerals require SI values significantly greater than zero for crystal growth to initiate; other minerals only form slowly over time following the precipitation and ripening of more amorphous (precursor) minerals. The precipitation/clogging potential for each mineral type reported in Table 4 includes the following:
  - **Silica Minerals:** Native groundwater was assumed to be in equilibrium with amorphous silica (SI=0). Although other minerals such as quartz are supersaturated (SI>0), they are unlikely to precipitate as a result of IPR operations. This is because the precipitation kinetics of silica polymorphs such as quartz are extremely slow; furthermore, their precursor mineral is SiO_2(am), which becomes increasingly undersaturated (SI<0) as the percentage of source water in the mixture increases. In summary, silica mineral precipitation is not predicted.
  - **Carbonate Minerals:** Calcite, dolomite, magnesite, and witherite are supersaturated (SI>0) in some mixtures (Table 4); however, mixtures become increasingly undersaturated (SI<0) as the percentage of source water increases. Because carbonate supersaturation is typically required for mineral precipitation, the SI values in Table 4 do not indicate mineral precipitation will necessarily occur. For example, SI values required for calcite nucleation and crystal growth have been reported to range from 1.3 to 2.5 (Morse et al., 2007; Lebron and Suarez, 1996),

[7] Note that the calculated TDS concentration predicted by the model is slightly higher than the measured values for either groundwater or treated source water. For example, the average measured groundwater TDS was 780 mg/L (Table 1); however, the model predicted value is 879 mg/L (Table 3; 0% treated water). Part of this difference can be explained by uncertainty in the assumptions used (e.g., inclusion of dissolved silica at a concentration of 83 mg/L). Importantly, the difference in TDS concentrations (~100 mg/L or less) does not change the overall findings discussed in this memorandum.

which are higher than the SI values predicted by the model in Table 4[8]. The potential for carbonate precipitation during IPR operations was evaluated using the RTM (see below).

- **Sulfate Minerals:** Gypsum and $MgSO_4$ are undersaturated in all mixtures, and therefore, unlikely to precipitate (Table 4). By contrast, there is a potential for barite to precipitate due to its low solubility. The potential for barite precipitation during IPR operations was evaluated using the RTM (see below).
- **Clay Minerals:** Many clay minerals are predicted to be supersaturated (SI>0) in source water-groundwater mixtures, which implies a potential for clay mineral formation; however, no significant precipitation is likely to occur. This is due, in part, to relatively low aluminum concentrations available for precipitation. In addition, clay formation is typically a slow process that is preceded by other precursor minerals. For example, nontronite—the mineral with the highest SI value—forms during aging and reactions between precursor iron oxyhydroxides and other clay minerals such as amorphous halloysite and/or saponite (which are solid solutions with nontronite) (Deutsch 1982; Hearn et al. 1985; Huertas 2007; Petit et al. 2017). SI values for halloysite and/or saponite decreases as the amount of source water in the mixture increases. In summary, significant clay precipitation is unlikely.
- **Iron Minerals:** No iron oxides or oxyhydroxides are predicted to be supersaturated (SI>0). Therefore, these minerals are not predicted to precipitate during mixing with IPR water in the aquifer (Table 4). This result is consistent with the non-detect concentrations of iron in both groundwater and source water. Because some magnetite dissolution will occur during IPR operations, there is a potential for ferrous iron to dissolve, be oxidized, and precipitate as amorphous iron oxyhydroxide ($Fe(OH)_3$(am)). This potential process that could lead to clogging was evaluated using the RTM (see below).
- **Manganese Minerals:** Several manganese oxides and oxyhydroxides are predicted to be supersaturated (SI>0), and therefore, could precipitate during mixing (Table 4). Most importantly, of the minerals evaluated, manganese has the greatest potential to precipitate due to its relatively high concentration in groundwater (Table 1) and the high reactivity of dissolved manganese (as Mn^{2+}) towards oxygen in source water to produce manganese oxyhydroxides. The overall finding that

[8] Another example is seawater, which does not precipitate dolomite even for SI values that are higher than 2.4. In fact, it has been reported that dolomite precipitation in laboratory conditions typically requires temperatures between 100 and 300°C (Morse et al. 2007). Modern dolomite is only believed to be forming from high ionic strength solutions that are typically derived from the evaporation of seawater or lakes in arid regions.

manganese minerals are the most likely to precipitate is represented in Table 4 by manganese minerals being the only suite with SI values that increase between 0 and 10% source water. The potential for manganese oxyhydroxide precipitation to occur during IPR operations was evaluated using the RTM (see below).

- **Other Minerals:** Aluminum oxyhydroxides are predicted to be supersaturated (SI>0), and therefore, have the potential to precipitate during mixing in the IPR aquifer (Table 4); however, predicted SI values decrease as the amount of source water in the mixture increases, which indicates IPR operations most likely decrease the potential for mineral precipitation to occur. Aluminum oxyhydroxide precipitation during IPR operations was evaluated using the RTM (see below).

In summary, several minerals are predicted to have SI values greater than zero during mixing, which indicates there is a thermodynamic potential for the minerals to precipitate; however, because precipitation typically requires either the existence of precursor phases or high degrees of supersaturation, most minerals with SI>0 are unlikely to precipitate. The primary exceptions are manganese minerals, which likely will form during mixing as dissolved manganese (Mn^{2+}) in groundwater reacts with dissolved oxygen in source water. The effects of mineral precipitation on aquifer porosity were evaluated using the RTM (see below).

Geochemical Reactive Transport Modeling (RTM) Results

Predicted recovered source water chemistry and changes in aquifer mineralogy were evaluated to identify potential adverse water quality during source water recovery and understand the potential for mineral precipitation/clogging issues near the injection and recovery wells. Model results include the following:

- **Water Quality:** The RTM predicts that the quality of recovered treated source water will primarily be good, with the exception of potentially elevated TDS and manganese concentrations. TDS concentrations are predicted to be greater than the secondary MCL (500 mg/L) for the first 180 days (i.e., until source water becomes the primary water recovered) (Table 5). By contrast, manganese concentrations are predicted to be greater than the secondary MCL (0.050 mg/L) during at least the first year of IPR operations. This is because there are likely aquifer sources of Mn^{2+}, which could include minerals such as rhodochrosite[9] ($MnCO_3$), Mn^{2+} adsorbed to minerals and organic matter, and Mn^{2+} present on clay mineral exchange sites. As shown in Table 6, the model predicts it could take between 2-3 years to oxidize and remove the Mn^{2+} and produce recovered source water with manganese concentrations that are less than 0.050 mg/L. This time

[9] This mineral was not included as an initial mineral phase in the aquifer for modeling because it was not positively identified; however, groundwater is supersaturated with respect to rhodochrosite (SI=0.3 in Table 4 for 0% source water), which implies it could be present and buffering manganese concentrations in groundwater.

period could be longer if operations are intermittent because (1) the time required depends on the mass of oxidants (oxygen and residual chlorine) supplied to the aquifer over time, and (2) native groundwater could resupply the aquifer with dissolved and adsorbed manganese. It is not expected that manganese concentrations in recovered water will be greater than currently measured in groundwater.

- **Mineral Precipitation/Clogging:** The model predicts minor amounts of precipitated $Fe(OH)_3$(am) and pyrolusite (MnO_2) near the injection wells; however, the quantities precipitated are relatively insignificant and do not change porosity (Table 5). The model also predicts minor amounts of $Fe(OH)_3$(am) and witherite ($BaCO_3$) near the recovery wells that also do not change porosity. The most significant potential clogging issue is manganese oxyhydroxide precipitation following recovery[10] (i.e., wherever recovered source water is ultimately aerated and/or exposed to oxygen). The quantity of precipitates formed during aeration was calculated in a separate model simulation by assuming oxidation in the final grid cell in the model where recovery is occurring. The amount precipitated, expressed as the equivalent change in porosity after one year is predicted to be <0.02% and suggests that clogging due to manganese might not be significant.

In summary, manganese is the primary constituent that should be closely monitored. It could continue to be present in recovered source water at concentrations greater than the secondary MCL for a period of greater than a year; however, the City's brackish water RO treatment through which all the pumped water is filtered should largely remove this constituent. Scaling from the precipitation of manganese oxyhydroxides is not predicted to be greater than what is already occurring in the system due to RO treatment of the recovered groundwater.

Model Uncertainty

There is uncertainty in model predictions for (1) the amount of time required for manganese concentrations in recovered water to drop below the secondary MCL, and (2) the amount of manganese potentially precipitated. These uncertainties exist because the amount of chemically-reduced manganese (Mn^{2+}) associated with aquifer minerals (and thus available for oxidation and precipitation) is not precisely known. An upper estimate of the manganese available for reaction is the measured total concentration of 0.1% by weight (Mineralogy, Inc. 2021), which is 50-times greater than the model-assumed quantity of approximately 0.002%[11]. If the amount of reactive manganese is closer to 0.1% than 0.002%, then the impacts in this memorandum are

[10] Note that in the model, there is no manganese oxyhydroxide precipitation near the recovery well because dissolved oxygen in the source water is predicted to be consumed after reacting with manganese (and other reduced species) in the aquifer prior to reaching the recovery well.
[11] The RTM-assumed quantity of manganese is associated with adsorption and ion exchange sites

underestimated (i.e., the time required to achieve MCLs and the amount precipitated could be greater than predicted). However, it is hypothesized that the quantity of soluble Mn^{2+} is significantly less than 0.1% because manganese occurs in insoluble forms such as iron and titanium oxide minerals reported in Mineralogy, Inc. (2021).

Mineralogy, Inc. (2021) noted that secondary mineralization associated with the serpentine rock fragments could account for trace levels of arsenic detected by ICP-MS; however, this interpretation does not imply there will be any impacts from arsenic to either groundwater or recovered water. First of all, arsenic that is sequestered into mineral phases such as iron oxyhydroxides should be stable in the aquifer given its inferred redox state. Secondly, no sulfides (which could oxidize and release arsenic if present) were reported either by Mineralogy, Inc. (2021) or other studies on coastal California marine terraces (Maher et al. 2009; White et al. 2008; White et al. 2009). Finally, the fraction of arsenic that is adsorbed was explicitly included in the geochemical modeling discussed above, which predicted no impacts from arsenic.

Model uncertainty could be addressed using sequential extraction leaching methods to identify the soluble manganese and arsenic fractions. In addition, pilot testing and comparison of water quality with model predictions could be used to provide a greater understanding of the potential for impacts during IPR operations. Ultimately, aquifer conditioning will occur, which will result in oxidation and inhibition of impacts potentially related to manganese.

Conclusions

Recovered water could initially exceed the secondary MCL for TDS of 500 mg/L due to the partial recovery of groundwater. This impact is only predicted to occur for a couple of weeks after source water is initially recovered (i.e., until the primary type of recovered water is source water). More significantly, manganese concentrations in recovered water could be greater than the secondary MCL value of 0.050 mg/L for a period of greater than a year due to solubilization of reduced manganese (Mn^{2+}) in aquifer minerals. Because the produced groundwater is treated at the City's Brackish Water RO facility before being conveyed to the distribution system, both of these constituents will be substantially reduced to below SMCL's.

Due to the presence of dissolved manganese in groundwater, there is a potential for manganese mineral precipitation in the system. Although geochemical modeling predicts that the quantity of mineral precipitates is insignificant and will not result in clogging within the aquifer near the wells, there is uncertainty in predictions because the amount of chemically-reduced manganese (Mn^{2+}) associated with aquifer minerals is not precisely known. The effect of bacterial clogging can also not be accounted for with geochemical modeling.

There are no other identified adverse geochemical compatibility issues. Recovered water is predicted to meet other drinking water quality criteria and precipitation of other minerals is predicted to be minor and not result in clogging of injection or recovery well screens and filter packs.

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FIGURE 1

Morro Bay Site Vicinity Map

Morro Bay IPR Project
Geochemical Modeling

LEGEND

- Proposed Injection Well
- City of Morro Bay Well
- Piezometer
- Potential Injection Well Location Area
- Project Easement

All Other Features

- Major Road
- Watercourse

Date: October 25, 2022
Data Sources: ESRI, USGS, NAIP Imagery (2018)

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\IPR_Project\Tech_Memo\Figure1_Morro_Bay_Vicinity_Map.mxd

Table 1. Water Chemistry Used in Mixing Model

Type	Parameter	Units	Primary MCL	MCLG or Secondary MCL	Native Groundwater (20P-01)	City of Morro Bay Treated (Source) Water
General	Conductivity	us/cm			1240	240
	Dissolved Oxygen	mg/L			0.14	7.2
	ORP	mV			115	NA
	pH	unitless		6.5-8.5	7.4	7.9
	Temperature	degC			16	25
	Total Dissolved Solids	mg/L		500	780	130
Cations	Calcium	mg/L			100	14
	Magnesium	mg/L			95	0.0
	Potassium	mg/L			65	2.0
	Sodium	mg/L			1.9	33
Anions	Alkalinity, Total as CaCO3	mg/L			460	53
	Bicarbonate	mg/L			560	65
	Carbonate	mg/L			ND	ND
	Chloride	mg/L		250	130	37
	Sulfate	mg/L		250	143	0.4
Redox Species	Iron, Total	mg/L		0.3	ND	ND
	Manganese, Total	mg/L		0.05	1.07	0.00009
	Nitrate + Nitrite	mg/L	10		1.63	0.74
	Nitrate as N	mg/L	10		1.53	0.74
	Nitrite as N	mg/L	1		0.12	ND
Metals	Aluminum	mg/L	1	0.05 to 2	ND	ND
	Antimony	mg/L	0.006		ND	ND
	Arsenic	mg/L	0.01		0.0016	ND
	Barium	mg/L	1		0.18	0.001
	Beryllium	mg/L	0.004		ND	ND
	Boron	mg/L			0.1	0.2
	Cadmium	mg/L	0.005		ND	ND
	Chromium	mg/L	0.05		ND	0.00017
	Chromium, Hexavalent	mg/L			0.000007	0.000024
	Copper	mg/L	1.3	1	0.0016	ND
	Lead	mg/L	0.015		ND	ND
	Mercury	mg/L	0.002		0.000037	ND
	Nickel	mg/L	0.1		0.0038	0.00042
	Radium, Total	pCi/L	5		1.44	ND
	Selenium	mg/L	0.05		0.0012	0.00023
	Silver	mg/L		0.1	ND	0.000025
	Thallium	mg/L	0.002		ND	0.000028
	Zinc	mg/L		5	0.0025	ND
Other Parameters	Color	c.u.		15	2	ND
	Corrosivity	--		NC	NA	-0.58
	Cyanide	mg/L	0.15		ND	NA
	Fluoride	mg/L	2	2	0.29	0.054
	Odor	ton		3	ND	2
	Phosphate as P	mg/L			0.042	NA
	Silica	mg/L			83	NA
	Total Organic Carbon	mg/L			1.2	0.2
	Total Suspended Solids	mg/L			NA	NA
Disinfection Byproducts (DBPs)	Bromate	mg/L	0.01		ND	ND
	Chlorine as Cl2	mg/L		4	NA	0.5
	Chlorite	mg/L	1		ND	ND
	Bromodichloromethane	mg/L			ND	0.0019
	Bromoform	mg/L			ND	ND
	Chloroform	mg/L			ND	0.0073
	Dibromochloromethane	mg/L			ND	0.00007
	Total Trihalomethanes	mg/L	0.08		ND	0.0092
	Dibromoacetic Acid (DBAA)	mg/L			ND	ND
	Dichloroacetic Acid (DCAA)	mg/L			ND	0.00086
	Monobromoacetic Acid (MBAA)	mg/L			ND	0.00007
	Monochloroacetic Acid (MCAA)	mg/L			ND	ND
	Trichloroacetic Acid (TCAA)	mg/L			ND	0.00015
	Total Haloacetic Acids	mg/L	0.06		NA	ND

Notes: NA = Not Analyzed; NC = Noncorrosive; ND = Non-detect; Shaded = Value greater than MCL

Table 2. Input Parameters Used in 1D Reactive Transport Model

Parameter	Units	Value	Footnote
Model Description:			
Distance	m	460	
Storage Zone Thickness	m	10	
Transport Parameters:			
Groundwater Velocity	m/yr	914	1
Diffusion Coefficient	m^2/s	3×10^{-10}	
Dispersivity	m	8.8	2
Porosity	unitless	0.278	3
Primary (Dissolving) Minerals:			
Smectite ($Na_{0.3}(Al,Mg)_2Si_4O_{10}(OH)_2 \bullet xH_2O$)	wt-%	32	4
Anorthite ($(Ca,Na)Al_2Si_2O_8$)	wt-%	23	4
Quartz (SiO_2)	wt-%	18	4
Chrysotile ($Mg_3Si_2(OH)_4$)	wt-%	10	4
Illite ($KAl_2(Si_3AlO_{10})(OH)_2$)	wt-%	5.6	4
Chlorite ($(Mg,Al)_6(Si,Al)_4O_{10}(OH)_8$)	wt-%	5.3	4
Goethite (FeOOH)	wt-%	2.0	4
Hornblende ($Ca_2(Mg,Fe)_5(Si,Al)_8O_{22}(OH)_6$)	wt-%	1.3	4
Magnetite (Fe_3O_4)	wt-%	1.3	4
TOC	wt-%	0.9	4
Augite ($(Ca(Fe,Mg)Si_2O_6$)	wt-%	0.7	4
Secondary (Precipitating) Minerals:			
Si: SiO_2(am)	wt-%	0.0	5
Fe: $Fe(OH)_3$, Siderite	wt-%	0.0	5
Mn: MnO_2, Mn_2O_3, Mn_3O_4, MnOOH, $MnCO_3$	wt-%	0.0	5
Carbonate: Calcite, Witherite	wt-%	0.0	5
Other: $Al(OH)_3$, Gypsum	wt-%	0.0	5
Primary Mineral Kinetic Reactions:			
Mineral Disolution Rate Constants	log(mol/m^2/s)	See footnote	6,7
Surface Area	m^2/g	See footnote	8
Surface Roughness	unitless	200	9
DBP Reaction Reaction Rate Constants:			
Rate - Trihalomethane Formation	$mol^{-1}\ s^{-1}$	See footnote	10
Rate - HAA Formation	$mol^{-1}\ s^{-1}$	See footnote	11
Rate - Trihalomethane Degradation	s^{-1}	-7.4	12
Rate - HAA Degradation	s^{-1}	-7.4	13
Adsorption and Ion Exchange			
Ion Exchange Sites	meq/kg	210	14
Iron Oxyhydroxide	sites/mol	0.02 - 0.2	15

Notes: 1) Groundwater velocity assumes injected water will reach recovery well in six months; 2) Value calculated using dispersivity-distance relationship from Xu and Eckstein (1995); 3) Calculated from molar volumes of reported mineralogy; 4) Average of reported mineralogy from Morro Bay IPR Geochemistry Analysis Report (Mineralogy, Inc. 2021); 5) Secondary minerals were allowed to precipitate and dissolve at equilibrium (note: calcite precipitation for log SI = 0 allowed due to possible carbonate cement (Mineralogy, Inc. 2021)); 6) Rate constants from Palandri and Kharaka (2004) using age-corrected reduction in rates formulated in White and Brantley (2003) (see Maher et al. 2009 for similar approach of using age corrected rate for coastal California marine terrace deposits); 7) Andesine rate constant used for the anorthite minerals reported by Mineralogy, Inc. (2021) assuming the identified minerals are plagioclase (i.e., anorthite-albite solid solutions); 8) Geometric surface area calculated from reported grain size analysis (Mineralogy, Inc. 2021) using equations reported in Brantley and Mellott (2000); 9) Surface roughness from age-corrected equations from White and Brantley (2003) used to convert from surface area to specific surface area of individual minerals used in model; 10) Empirical equation from Clark 1998 and Clark and Sivaganesan 1998 (see Sadiq and Rodriguez 2004); 11) Set equal to rate of THM formation for evaluation purposes; 12) Pavelic et al. (2005); 13) Set equal to rate of THM attenuation for evaluation purposes; 14) Average of measured cation exchange capacity (Mineralogy, Inc. 2021); 15) Dixit and Hering (2003)

Table 3. Mixing Model Predicted Composition of Source Water-Groundwater Mixtures

Type	Parameter	Units	Primary MCL	MCLG or SMCL	City of Morro Bay Treated (Source) Water in Mixture										
					0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
General	Dissolved Oxygen	mg/L			0.14	0.73	1.5	2.2	2.9	3.6	4.3	5.1	5.8	6.5	7.2
	pH	unitless		6.5-8.5	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.5	7.5	7.6	7.9
	Temperature	degC			16	17	18	19	20	21	22	23	24	24	25
	Total Dissolved Solids	mg/L		500	879	803	728	652	576	500	424	348	272	197	121
Cations	Calcium	mg/L			100	92	83	74	66	57	48	40	31	23	14
	Magnesium	mg/L			95	86	76	67	57	48	38	29	19	10	0.0
	Potassium	mg/L			65	59	52	46	40	34	27	21	15	8.3	2.0
	Sodium	mg/L			2	5	8	11	14	17	21	24	27	30	33
Anions	Bicarbonate	mg/L			562	512	463	413	363	314	264	214	164	115	65
	Chloride	mg/L		250	130	121	112	102	93	84	74	65	56	46	37
	Sulfate	mg/L		250	144	129	115	101	86	72	58	43	29	15	0.4
Redox Species	Iron	mg/L		0.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Manganese	mg/L		0.05	1.07	1.0	0.85	0.75	0.64	0.53	0.43	0.32	0.21	0.11	0.00009
	Nitrate as N	mg/L	10		1.5	1.6	1.5	1.4	1.3	1.2	1.1	1.0	0.9	0.8	0.7
	Nitrite as N	mg/L	1		0.12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Metals	Aluminum	mg/L	1	0.05 to 2	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	ND
	Antimony	mg/L	0.006		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Arsenic	mg/L	0.01		0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.0005	0.0003	0.0002	ND
	Barium	mg/L	1		0.18	0.16	0.14	0.12	0.11	0.09	0.07	0.05	0.04	0.02	0.0011
	Beryllium	mg/L	0.004		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Boron	mg/L			0.1	0.1	0.1	0.1	0.1	0.1	0.04	0.03	0.02	0.01	ND
	Cadmium	mg/L	0.005		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium	mg/L	0.05		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium, Hexavalent	mg/L			ND	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.4E-05
	Copper	mg/L	1.3	1	0.002	0.001	0.001	0.001	0.001	0.001	0.001	0.0005	0.0003	0.0002	ND
	Lead	mg/L	0.015		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Mercury	mg/L	0.002		0.00004	0.00003	0.00003	0.00003	0.00002	0.00002	0.00001	0.00001	ND	ND	ND
	Nickel	mg/L	0.1		0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.001	0.001	0.0008	0.00042
	Radium, Total	pCi/L	5		1.44	1.30	1.15	1.01	0.86	0.72	0.58	0.43	0.29	0.14	ND
	Selenium	mg/L	0.05		0.001	0.001	0.001	0.001	0.001	0.001	0.0006	0.0005	0.0004	0.0003	0.00023
	Silver	mg/L		0.1	ND	ND	ND	ND	0.00	0.00	0.00	0.00	0.00	0.00	2.5E-05
	Thallium	mg/L	0.002		ND	0	0	0	0	0	0	0	0	0	0.00028
	Zinc	mg/L		5	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001	0.001	0.0003	ND
Other Parameters	Fluoride	mg/L	2	2	0.29	0.27	0.24	0.22	0.20	0.17	0.15	0.12	0.10	0.08	0.05
	Phosphate as P	mg/L			0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06
	Silica	mg/L			83	75	67	59	51	42	34	26	18	10	1.9
	Total Organic Carbon	mg/L			1.2	1.1	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2
Disinfection Byproducts (DBPs)	Chlorine as Cl2	mg/L		4	ND	0.05	0.1	0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5
	Total Trihalomethanes	mg/L	0.08		ND	0.001	0.002	0.003	0.004	0.005	0.006	0.006	0.007	0.008	0.009
	Total Haloacetic Acids	mg/L	0.06		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes: MCLG = MCL Goal; SMCL = Secondary MCL; ND = Non-detect; Shaded = Value greater than MCL

Table 4. Mixing Model Predicted Mineral Saturation Indices of Source Water-Groundwater Mixtures

Type	Parameter	SI Units	Critical Value	City of Morro Bay Treated (Source) Water in Mixture										
				0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Silica Minerals	Chalcedony	unitless	>0	1.1	1.0	0.9	0.9	0.8	0.7	0.6	0.4	0.3	0.0	-0.8
	Cristobalite-a	unitless	>0	0.8	0.7	0.7	0.6	0.5	0.4	0.3	0.2	0.0	-0.3	-1.0
	Cristobalite-b	unitless	>0	0.3	0.3	0.2	0.1	0.0	-0.1	-0.2	-0.3	-0.5	-0.7	-1.5
	Quartz	unitless	>0	1.4	1.3	1.2	1.1	1.1	1.0	0.9	0.7	0.5	0.3	-0.5
	SiO2(am)	unitless	>0	0.0	-0.1	-0.1	-0.2	-0.3	-0.4	-0.5	-0.6	-0.8	-1.0	-1.8
	Tridymite	unitless	>0	1.2	1.1	1.0	1.0	0.9	0.8	0.7	0.5	0.3	0.1	-0.7
Carbonate Minerals	Calcite	unitless	>0	0.4	0.4	0.3	0.2	0.2	0.1	0.0	-0.1	-0.2	-0.4	-0.5
	Dolomite	unitless	>0	2.1	2.0	1.9	1.8	1.7	1.5	1.3	1.0	0.7	0.2	-2.2
	Magnesite	unitless	>0	0.1	0.0	0.0	-0.1	-0.2	-0.3	-0.4	-0.5	-0.7	-1.0	-3.3
	Witherite	unitless	>0	2.2	2.1	2.1	2.0	1.8	1.7	1.6	1.4	1.2	0.9	-0.3
Sulfate Minerals	Barite	unitless	>0	0.8	0.7	0.6	0.5	0.4	0.3	0.1	-0.1	-0.4	-1.0	-3.7
	Gypsum	unitless	>0	-1.6	-1.6	-1.7	-1.8	-1.9	-2.0	-2.1	-2.2	-2.5	-2.8	-4.6
	MgSO4	unitless	>0	-11.2	-11.2	-11.2	-11.3	-11.3	-11.4	-11.5	-11.7	-11.9	-12.4	-16.3
Clay Minerals	Celadonite	unitless	>0	6.7	6.3	5.9	5.5	5.0	4.4	3.8	3.0	1.9	0.2	U
	Chamosite	unitless	>0	U	-33.5	-33.7	-34.0	-34.3	-34.6	-35.0	-35.5	-36.3	-37.7	U
	Clinochlore-14A	unitless	>0	-0.1	-0.4	-0.7	-1.0	-1.4	-1.8	-2.4	-3.2	-4.3	-6.1	U
	Clinochlore-7A	unitless	>0	-3.6	-3.8	-4.1	-4.4	-4.8	-5.2	-5.8	-6.6	-7.6	-9.5	U
	Halloysite	unitless	>0	1.9	1.6	1.3	1.0	0.6	0.2	-0.3	-0.9	-1.8	-3.1	U
	Illite	unitless	>0	6.9	6.5	6.0	5.5	4.9	4.3	3.5	2.6	1.3	-0.7	U
	Kaolinite	unitless	>0	5.0	4.7	4.3	4.0	3.6	3.2	2.6	2.0	1.1	-0.3	U
	Montmor-Ca	unitless	>0	6.9	6.5	6.1	5.6	5.1	4.5	3.8	3.0	1.9	0.0	U
	Montmor-K	unitless	>0	6.8	6.4	6.0	5.5	5.0	4.4	3.7	2.8	1.6	-0.3	U
	Montmor-Mg	unitless	>0	7.0	6.6	6.2	5.7	5.2	4.6	4.0	3.1	2.0	0.1	U
	Montmor-Na	unitless	>0	6.0	5.8	5.4	5.0	4.6	4.0	3.4	2.5	1.4	-0.3	U
	Nontronite-Ca	unitless	>0	7.8	7.5	7.2	6.8	6.4	6.0	5.4	4.7	3.8	2.2	U
	Nontronite-K	unitless	>0	7.6	7.3	7.0	6.7	6.2	5.8	5.2	4.4	3.5	1.8	U
	Nontronite-Mg	unitless	>0	7.8	7.5	7.2	6.9	6.5	6.0	5.5	4.8	3.8	2.2	U
	Nontronite-Na	unitless	>0	6.9	6.7	6.5	6.2	5.8	5.4	4.9	4.2	3.3	1.8	U
	Saponite-Ca	unitless	>0	3.6	3.4	3.2	2.9	2.6	2.3	1.8	1.3	0.5	-0.7	U
	Saponite-K	unitless	>0	3.5	3.3	3.0	2.7	2.4	2.0	1.6	1.0	0.2	-1.1	U
	Saponite-Mg	unitless	>0	3.6	3.5	3.2	3.0	2.7	2.3	1.9	1.3	0.5	-0.7	U
	Saponite-Na	unitless	>0	2.7	2.6	2.5	2.3	2.0	1.7	1.3	0.7	0.0	-1.2	U
	Sepiolite	unitless	>0	0.3	0.0	-0.4	-0.8	-1.2	-1.8	-2.4	-3.3	-4.4	-6.2	-17.8
	Smectite-high-Fe-Mg	unitless	>0	U	-5.0	-5.4	-5.7	-6.1	-6.6	-7.2	-7.9	-8.9	-10.6	U
	Smectite-low-Fe-Mg	unitless	>0	U	-0.6	-0.9	-1.3	-1.7	-2.2	-2.8	-3.6	-4.6	-6.3	U
Iron Minerals	Fe(OH)3(am)	unitless	>0	-2.6	-2.7	-2.7	-2.8	-2.8	-2.9	-3.0	-3.1	-3.2	-3.4	U
	Goethite	unitless	>0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.2	-0.3	-0.5	U
	Magnetite	unitless	>0	U	-16.8	-16.8	-16.8	-16.9	-16.9	-17.0	-17.1	-17.4	-17.9	U
	Siderite	unitless	>0	U	-16.5	-16.6	-16.7	-16.7	-16.8	-16.9	-17.1	-17.3	-17.7	U
Manganese Minerals	Birnessite	unitless	>0	-24	50	51	51	52	52	52	52	52	52	-77.1
	Bixbyite	unitless	>0	-2.7	9.6	9.8	9.8	9.9	9.9	9.8	9.8	9.8	9.6	-13.5
	Hausmannite	unitless	>0	-4.4	7.9	8.0	8.1	8.1	8.1	8.1	8.1	8.0	7.9	-17.7
	Manganite	unitless	>0	-1.1	5.0	5.0	5.0	4.9	4.9	4.8	4.7	4.6	4.5	-7.1
	Pyrolusite	unitless	>0	-3.4	8.9	9.0	9.0	9.1	9.1	9.1	9.0	9.0	8.9	-11.8
	Rhodochrosite	unitless	>0	0.3	0.2	0.2	0.1	0.0	-0.1	-0.2	-0.3	-0.5	-0.8	-3.8
Other Minerals	Al(OH)3	unitless	>0	0.0	-0.1	-0.3	-0.5	-0.6	-0.8	-1.0	-1.3	-1.6	-2.1	U
	Gibbsite	unitless	>0	0.8	0.7	0.6	0.5	0.4	0.3	0.1	-0.1	-0.3	-0.7	U

Notes: 1) Shading for mineral saturation indices shown where supersaturation indicated (SI > 0); 2) U = mineral undersaturated (SI could not be calculated due to non-detect constituent concentrations)

Table 5. Reactive Transport Model Predicted Recovered Water Quality and Aquifer Porosity (0 to 1 Year)

Type	Parameter	Units	Primary MCL	MCLG or Secondary MCL	Predicted Concentratations in Recovered Water as a Function of Days After Injection									
					Native Groundwater (20P-01)			Recovery of City of Morro Bay Treated Water						
					0	90	150	180	210	240	270	300	330	360
General	Dissolved Oxygen	mg/L			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	pH	unitless		6.5-8.5	7.3	7.3	7.3	7.3	7.3	7.4	7.4	7.4	7.4	7.4
	Temperature	degC			16	16	16	16	16	16	17	18	19	21
	Total Dissolved Solids	mg/L		500	729	729	671	535	444	393	371	358	346	334
Cations	Calcium	mg/L			76	76	71	61	54	49	46	44	42	40
	Magnesium	mg/L			73	73	69	59	51	46	44	42	40	37
	Potassium	mg/L			57	57	56	52	49	47	46	46	45	45
	Sodium	mg/L			1.7	1.7	1.7	1.6	1.5	1.4	1.4	1.4	1.3	1.3
Anions	Bicarbonate	mg/L			368	367	371	384	397	403	399	385	367	346
	Chloride	mg/L		250	130	130	111	77	54	42	38	37	37	37
	Sulfate	mg/L		250	141	141	119	70	33	11	3	1	0	0
Redox Species	Iron	mg/L		0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Manganese	mg/L		0.05	0.83	0.83	0.78	0.67	0.59	0.54	0.51	0.49	0.48	0.45
	Nitrate as N	mg/L	10		1.7	1.6	1.4	1.1	0.9	0.7	0.7	0.7	0.6	0.7
	Nitrite as N	mg/L	1		0.00008	0.04563	0.07625	0.068	0.026	0.058	0.085	0.092	0.092	0.087
Metals	Aluminum	mg/L	1	0.05 to 2	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.003	0.006
	Antimony	mg/L	0.006		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Arsenic	mg/L	0.01		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	Barium	mg/L	1		0.06	0.06	0.06	0.053	0.047	0.044	0.043	0.044	0.046	0.049
	Beryllium	mg/L	0.004		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Boron	mg/L			0.1	0.1	0.1	0.046	0.021	0.007	0.002	0.000	0.000	0.000
	Cadmium	mg/L	0.005		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium	mg/L	0.05		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium, Hexavalent	mg/L			0.000004	0.000004	0.000004	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Copper	mg/L	1.3	1	0.001	0.001	0.001	0.001	0.00092	0.00091	0.00088	0.00084	0.00079	0.00073
	Lead	mg/L	0.015		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Mercury	mg/L	0.002		0.00003	0.00003	0.00002	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Nickel	mg/L	0.1		0.004	0.004	0.004	0.003	0.003	0.003	0.002	0.002	0.002	0.002
	Radium, Total	pCi/L	5		1.44	1.44	1.15	0.611	0.264	0.080	0.020	0.004	0.001	0.000
	Selenium	mg/L	0.05		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Silver	mg/L		0.1	ND	ND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Thallium	mg/L	0.002		ND	ND	0	0	0	0	0	0	0	0.0
	Zinc	mg/L		5	0.002	0.002	0.002	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Parameters	Fluoride	mg/L	2	2	0.27	0.27	0.27	0.25	0.21	0.14	0.09	0.06	0.05	0.04
	Phosphate as P	mg/L			0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	Silica	mg/L			83	83	74	41.7	23.0	14.0	11.9	12.3	13.2	14.1
	Total Organic Carbon	mg/L			1.2	1.2	0.9	0.4	0.1	ND	ND	ND	ND	ND
Disinfection Byproducts (DBPs)	Chlorine as Cl2	mg/L		4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Total Trihalomethanes	mg/L	0.08		ND	0.00	0.00	0.0003	0.0012	0.0003	0.0001	0.0001	0.0001	0.0001
	Total Haloacetic Acids	mg/L	0.06		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aquifer Porosity	Injection Well	unitless	NA	NA	0.278	0.278	0.278	0.278	0.278	0.278	0.278	0.278	0.278	0.278
	Recovery Well	unitless	NA	NA	0.278	0.278	0.278	0.278	0.278	0.278	0.278	0.278	0.278	0.278

Notes: ND = Non-detect; Shaded = Value greater than MCL

Table 6. Reactive Transport Model Predicted Recovered Water Quality and Aquifer Porosity (0 to 3 Years)

Type	Parameter	Units	Primary MCL	MCLG or Secondary MCL	Predicted Concentratations in Recovered Water as a Function of Days After Injection									
					Recovery of City of Morro Bay Treated Water									
					180	210	240	270	300	330	360	550	730	1095
General	Dissolved Oxygen	mg/L			ND	ND	ND	ND	ND	ND	ND	ND	ND	7.2
	pH	unitless		6.5-8.5	7.3	7.3	7.4	7.4	7.4	7.4	7.4	7.5	7.5	7.4
	Temperature	degC			16	16	16	17	18	19	21	25	25	25
	Total Dissolved Solids	mg/L		500	535	444	393	371	358	346	334	216	138	142
Cations	Calcium	mg/L			61	54	49	46	44	42	40	23	12	13
	Magnesium	mg/L			59	51	46	44	42	40	37	21	11	12
	Potassium	mg/L			52	49	47	46	46	45	45	35	26	27
	Sodium	mg/L			1.6	1.5	1.4	1.4	1.4	1.3	1.3	1.0	0.7	0.8
Anions	Bicarbonate	mg/L			384	397	403	399	385	367	346	177	73	79
	Chloride	mg/L		250	77	54	42	38	37	37	37	37	37	37
	Sulfate	mg/L		250	70	33	11	3	1	0	0	0	0	0
Redox Species	Iron	mg/L		0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Manganese	mg/L		0.05	0.67	0.59	0.54	0.51	0.49	0.48	0.45	0.25	0.13	ND
	Nitrate as N	mg/L	10		1.1	0.9	0.7	0.7	0.7	0.6	0.7	0.7	0.7	0.7
	Nitrite as N	mg/L	1		0.068	0.026	0.058	0.085	0.092	0.091	0.087	0.056	0.023	ND
Metals	Aluminum	mg/L	1	0.05 to 2	0.001	0.001	0.001	0.002	0.002	0.003	0.006	0.019	0.018	0.015
	Antimony	mg/L	0.006		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Arsenic	mg/L	0.01		0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000
	Barium	mg/L	1		0.053	0.047	0.044	0.043	0.044	0.046	0.049	0.045	0.025	0.026
	Beryllium	mg/L	0.004		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Boron	mg/L			0.046	0.021	0.007	0.002	0.000	0.000	0.000	ND	ND	ND
	Cadmium	mg/L	0.005		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium	mg/L	0.05		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium, Hexavalent	mg/L			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Copper	mg/L	1.3	1	0.001	0.00092	0.00091	0.00088	0.00084	0.00079	0.00073	0.00029	0.00011	0.00009
	Lead	mg/L	0.015		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Mercury	mg/L	0.002		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Nickel	mg/L	0.1		0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001	0.001
	Radium, Total	pCi/L	5		0.611	0.264	0.080	0.020	0.004	0.001	0.000	ND	ND	ND
	Selenium	mg/L	0.05		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Silver	mg/L		0.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Thallium	mg/L	0.002		0	0	0	0	0	0	0.0	0.0	0.0	0.0
	Zinc	mg/L		5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Parameters	Fluoride	mg/L	2	2	0.25	0.21	0.14	0.09	0.06	0.05	0.04	0.04	0.05	0.06
	Phosphate as P	mg/L			0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.00	0.00
	Silica	mg/L			41.7	23.0	14.0	11.9	12.3	13.2	14.1	15.9	16.1	16.1
	Total Organic Carbon	mg/L			0.4	0.1	ND	ND	ND	ND	ND	ND	ND	ND
Disinfection Byproducts (DBPs)	Chlorine as Cl2	mg/L		4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Total Trihalomethanes	mg/L	0.08		0.0003	0.0012	0.0003	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
	Total Haloacetic Acids	mg/L	0.06		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Porosity	Recovery Well	unitless	NA	NA	0.278	0.278	0.278	0.278	0.278	0.278	0.278	0.278	0.278	0.278

Notes: ND = Non-detect; Shaded = Value greater than MCL

ATTACHMENT A

WRD ANNUAL MONITORING

WRD Site ID No.:	550013				
			Report ID:	622513	
			Sample Date:	12/14/2016	
CONSTITUENT	**ANALYTICAL METHOD**	**DETECTION LIMIT**	**MCL/NL**	**PLANT EFFLUENT RESULT**	**UNIT**
Table M3: Recycled Water Monitoring					
Total Coliform	LB/ SM 9222B	2	<1.1	<1.1	MPN/100 mL
Total Organic Carbon (TOC)	EEA/SM 5310C	0.3		**0.15J**	mg/L
Temperature	Field/SM2550B			**77.7**	^{0}F
BOD5 20oC	SM5210B 405.1	2		ND	mg/L
Total Nitrogen	EEA/EPA 353-351	0.2		**1.3**	mg/L
Table M4: Inorganic Chemicals					
Aluminum	EEA/EPA 200.8	25	1000	ND	ug/L
Antimony	EEA/EPA 200.8	1	6	ND	ug/L
Arsenic	EEA/EPA 200.8	1	10	ND	ug/L
Asbestos	EEA/EPA 100.2	0.2	7	ND	MFL
Barium	EEA/EPA 200.8	2	1000	**1.1J**	ug/L
Beryllium	EEA/EPA 200.8	1	4	ND	ug/L
Cadmium	EEA/EPA 200.8	0.5	5	ND	ug/L
Chromium (total)	EEA/EPA 200.8	1	50	**0.17J**	ug/L
Chromium VI	EEA/EPA 218.6	0.02		**0.024**	ug/l
Cyanide	SM4500CN-F	varies (DL)	0.15	**0.0090J**	mg/L
Fluoride	SM 4500F-C	0.05	2	**0.054**	mg/L
Mercury	EEA/EPA 245.1	0.2	2	ND	ug/L
Nickel	EEA/EPA 200.8	5	100	**0.42J**	ug/L
Nitrite (as Nitrogen)	EEA/SM4500-NO2	0.005	1	ND	mg/L
Nitrate as N	EEA\EPA 300.0	0.44		**0.74**	mg/L
Perchlorate	EPA 314	4	6	**6**	ug/L
Selenium	EEA/EPA 200.8	5	50	**0.23J**	ug/L
Thallium	EEA/EPA 200.8	1	2	**0.028J**	ug/L
Table M5: Secondary Maximum Contaminant Levels					
Aluminum	EEA/EPA 200.8	25	1000	ND	ug/l
Chloride	EEA/EPA 300.0	1	500	**37**	mg/L
Color	EEA/S2120B	3	15	ND	ACU
Copper	EEA/EPA 200.8	2	1300	ND	ug/l
Corrosivity	EEA/SM2330B	0		**-0.58**	None
Foam Agents (MBAS)	S 5540C/E425.1	0.05	0.5	**0.015J**	mg/l
Iron	EEA/EPA 200.7	0.02	0.3	ND	mg/l
Lead	EEA/EPA 200.8	0.5	15	ND	ug/l
Manganese	EEA/EPA 200.8	2	50	**0.090J**	ug/l
Methyl-tert-butyl-ether (MTBE)	EEA/EPA 524.2	1	13	ND	ug/l
Odor - Threshold	EEA/S2150B	1	3	**2**	TON
Silver	EEA/EPA 200.8	0.5	100	**0.025J**	ug/l
Specific Conductance	2510B/ SW9050	2	1600	**240**	umho/cm
Sulfate	EEA/EPA 300.0	0.1	500	**0.35J**	mg/l
Total Dissolved Solids (TDS)	SM 2540C	10	1000	**130**	mg/l
1,12-benzoperylene	EEA/EPA 525.2	0.05		ND	ug/l
Turbidity	EEA/EPA 180.1	0.05	5	**0.073J**	NTU
Zinc	EEA/EPA 200.8	5	5000	ND	ug/l
Table M6: Radioactivity					
Gross Alpha Particle Activity (Including Radium	EEA/EPA 900.0	3	15	<3	pCi/l
Gross Beta Particle Activity	EEA/EPA 900.0	3	***	ND	pCi/l
Radium-226	EEA/RA-226 GA	1		ND	pCi/l
Radium-226, 228 Combined	CALC	2	5	ND	pCi/l
Radium-228	EEA/RA-228 GA	1		ND	pCi/l

Strontium-90	EEA/EPA 905	2	8	<0.598	pCi/l
Tritium	EEA/EPA 906	1000	20000	<255	pCi/l
Uranium	EPA/EEA 200.8	1	20	ND	pCi/l
Table M7: Regulated Organic Chemicals					
(a) Volatile Organic Chemicals					
1,1,1-Trichloroethane	EEA/EPA 524.2	0.5	200	ND	ug/L
1,1,2,2-Tetrachloroethane	EEA/EPA 524.2	0.5	1	ND	ug/L
1,1,2-Trichloro-1,2,2-Trifluoroethane	EEA/EPA 524.2	0.5	1200	ND	ug/L
1,1,2-Trichloroethane	EEA/EPA 524.2	0.5	5	ND	ug/L
1,1-Dichloroethane	EEA/EPA 524.2	0.5	5	ND	ug/L
1,1-Dichloroethene (1,1-DCE)	EEA/EPA 524.2	0.5	6	ND	ug/L
1,2,4-Trichlorobenzene	EEA/EPA 524.2	0.5	5	ND	ug/L
1,2-Dichlorobenzene	EEA/EPA 524.2	0.5	600	ND	ug/L
1,2-Dichloroethane (1,2-DCA)	EEA/EPA 524.2	0.5	0.5	ND	ug/L
1,2-Dichloropropane	EEA/EPA 524.2	0.5	5	ND	ug/L
1,3-Dichloropropane	EEA/EPA 524.2	0.5	0.5	ND	ug/L
1,4-Dichlorobenzene	EEA/EPA 524.2	0.5	5	ND	ug/L
Benzene	EEA/EPA 524.2	0.5	1	ND	ug/L
Carbon Tetrachloride (CTC)	EEA/EPA 524.2	0.5	0.5	ND	ug/L
cis-1,2-Dichloroethylene	EEA/EPA 524.2	0.5	6	ND	ug/L
Dichloromethane	EEA/EPA 524.2	0.5	5	**0.080J**	ug/L
Endothall	EEA/EPA 548.1	45	100	ND	ug/L
Endrin	EEA/EPA 505	0.01	2	ND	ug/L
Ethylbenzene	EEA/EPA 524.2	0.5	300	ND	ug/L
Ethyl Dibromide (EDB)	EEA/EPA 504.1	0.01	0.05	ND	ug/L
Glyphosate	EEA/EPA 547	6	700	ND	ug/L
Heptachlor	EEA/EPA 505	0.01	0.01	ND	ug/L
Heptachlor Epoxide	EEA/EPA 505	0.01	0.01	ND	ug/L
1,2,4-Trichlorobenzene	EEA/EPA 625	5	330	ND	ug/L
Methyl-tert-butyl-ether (MTBE)	EEA/EPA 524.2	1	13	ND	ug/L
Monochlorobenzene	EEA/EPA 524.2	0.5	70	ND	ug/L
Styrene	EEA/EPA 524.2	0.5	100	ND	ug/L
Tetrachloroethylene (PCE)	EEA/EPA 524.2	0.5	5	ND	ug/L
Toluene	EEA/EPA 524.2	0.5	150	ND	ug/L
total-1,3-Dichloropropene	EEA/EPA 524.2	0.5	0.5	ND	ug/L
trans-1,2-Dichloroethylene	EEA/EPA 524.2	0.5	10	ND	ug/L
Trichloroethylene (TCE)	EEA/EPA 524.2	0.5	5	ND	ug/L
Trichlorofluoromethane	EEA/EPA 524.2	0.5	150	ND	ug/L
Vinyl Chloride	EEA/EPA 524.2	0.3	0.5	ND	ug/L
Xylenes (m,p)	EEA/EPA 524.2	0.5	1750	ND	ug/L
(b) Non-Volatile Synthetic Organic Chemicals					
1,2-Dibromo-3-chloropropane (DBCP)	EEA/EPA 504.1	0.01	0.2	ND	ug/L
2,3,7,8-TCDD (Dioxin)	EPA 1613	5	30	ND	pg/L
2,4,5-TP (Silvex)	EEA/EPA 515.4	0.2	50	ND	ug/L
2,4-D	EEA/EPA 515.4	0.1	70	ND	ug/L
1,2,5,6-dibenzanthracene	EEA/EPA 525.2	0.05		ND	ug/l
2,4-DDD	EEA/EPA 525.2	0.1		ND	ug/l
Bentazon	EEA/EPA 515.4	0.5	18	ND	ug/L
2,4-DDE	EEA/EPA 525.2	0.1		ND	ug/l
Carbofuran	EEA/EPA 531.2	0.5	18	ND	ug/L
Chlordane	EEA/EPA 505	0.1	0.1	ND	ug/L
Dalapon	EEA/EPA 515.4	1	200	ND	ug/L
2,4-DDT	EEA/EPA 525.2	0.1		ND	ug/l
2,4-dinitrotoluene	EEA/EPA 525.2	0.1		ND	ug/l
Dinoseb	EEA/EPA 515.4	0.2	7	**0.030J**	ug/L
Diquat	EEA/EPA 549.2	0.4	20	ND	ug/L
2,6-dinitrotoluene	EEA/EPA 525.2	0.1		ND	ug/l
Lindane	EEA/EPA 505	0.01	0.2	ND	ug/L
Methoxychlor	EEA/EPA 505	0.05	30	ND	ug/L
4,4'-DDD	EEA/EPA 525.2	0.1		ND	ug/L

Oxamyl	EEA/EPA 531.2	0.5	50	ND	ug/L
PCB - 1016	EEA/EPA 505	0.07	0.5(Total)	ND	ug/L
PCB - 1221	EEA/EPA 505	0.1		ND	ug/L
PCB - 1232	EEA/EPA 505	0.1		ND	ug/L
PCB - 1242	EEA/EPA 505	0.1		ND	ug/L
PCB - 1248	EEA/EPA 505	0.1		ND	ug/L
PCB - 1254	EEA/EPA 505	0.1		ND	ug/L
PCB - 1260	EEA/EPA 505	0.1		ND	ug/L
Pentachlorophenol	EEA/EPA 515.4	0.04	1	ND	ug/L
Picloram	EEA/EPA 515.4	0.1	500	ND	ug/L
4,4'-DDE	EEA/EPA 525.2	0.1		ND	ug/L
4,4'-DDT	EEA/EPA 525.2	0.1		ND	ug/L
Toxaphene	EEA/EPA 505	0.5	3	ND	ug/L
Table M8: Primary MCLs for Disinfection Byproducts					
Bromate	EPA 317	1	10	ND	ug/l
Bromodichloromethane	EEA/EPA 524.2	0.5		**1.9**	ug/l
Bromoform	EEA/EPA 524.2	0.5		ND	ug/l
Chlorite	EEA/EPA 300.1	0.01	1	ND	mg/l
Chloroform	EEA/EPA 524.2	0.5		**7.3**	ug/l
Dibromoacetic Acid	EEA/S6251B	1		ND	ug/l
Dibromochloromethane	EEA/EPA 524.2	0.5		**0.070J**	ug/l
Dichloroacetic Acid	EEA/S6251B	1		**0.86J**	ug/l
Haloacetic Acid (five) (HAA5)	EEA/S6251B	1	60	ND	ug/l
Monobromoacetic Acid	EEA/S6251B	1		**0.070J**	ug/l
Monochloracetic Acid	EEA/S6251B	2		ND	ug/l
Total Trihalomethanes (TTHM)	EEA/EPA 524.2	0.5	80	**9.2**	ug/l
Trichloroacetic Acid	EEA/S6251B	1		**0.15J**	ug/l
Table M9: General Physical and General Minerals					
Asbestos	EEA/EPA 100.2	0.2	7	ND	MFL
Calcium	EEA/EPA 200.7	1		**14**	mg/L
Chloride	EEA/EPA 300.0	1	500	**37**	mg/L
Color	EEA/S2120B	3	15	ND	ACU
Copper	EEA/EPA 200.8	2	1300	ND	ug/l
Corrosivity	EEA/SM2330B	0		**-0.58**	None
Foaming Agents	S 5540C/E425.1	0.05	0.5	**0.015J**	mg/l
Iron	EEA/EPA 200.7	0.02	0.3	ND	mg/l
Manganese	EEA/EPA 200.8	2	50	**0.090J**	ug/l
Odor	EEA/S2150B	1	3	**2**	TON
Potassium	EEA/EPA 200.7	1		**2.0**	mg/l
Sodium	EEA/EPA 200.7	1		**33**	mg/l
Specific Conductance	2510B/ SW9050	2	1600	**240**	umho/cm
Sulfate	EEA/EPA 300.0	0.1	500	**0.35J**	mg/l
Total Dissolved Solids (TDS)	SM 2540C	10	1000	**130**	mg/l
Total Hardness	EEA/SM2340B	3		**35**	mg/l
Lead	EEA/EPA 200.8	0.5	15	ND	ug/l
Zinc	EEA/EPA 200.8	5	5000	ND	ug/l
Tracer Constituents					
Anion Sum	EEA\SM1030E	0.001		**2.2**	meq\L
Bicarbonate Alkalinity (HCO3)	EEA\SM2330B	2		**65**	mg/L
Boron	EEA/EPA 200.7	0.05	1	**0.20**	mg/L
Bromide	EEA\EPA 300.0	5		**11**	ug/l
Calcium	EEA/EPA 200.7	1		**14**	mg/L
Carbonate as CO3	EEA\SM2330B	2		ND	mg/L
Cation Sum	EEA\SM1030E	0.001		**2.2**	meq\L
Chloride	EEA\EPA 300.0	10		**37**	mg/L
Fluoride	EEA\SM4500F-C	0.5		**0.054**	mg/L
Iodide	EEA\LC-MS-MS	1		ND	ug\L
Magnesium	EEA/EPA 200.7	0.1		**0.036J**	mg/L
Nitrate as N	EEA\EPA 300.0	0.44		**0.74**	mg/L

Nitrite (as Nitrogen)	EEA\EPA 300.0	0.05		ND	mg/L
Nitrate + Nitrite	EEA\EPA 300.0	0.44		**0.74**	mg/L
pH (Lab)	EEA\SM4500-HB			**7.9**	unit
Potassium	EEA/EPA 200.7	1		**2.0**	mg/L
Sodium	EEA/EPA 200.7	1		**33**	mg/L
Specific Conductance	EEA\SM2510B	2		**240**	umho\cm
Sulfate	EEA\EPA 300.0	0.5		**0.35J**	mg/L
Total Alkalinity (in CaCO3)	EEA\SM2330B	2		**53**	mg/L
Total Dissolved Solids (TDS)	EEA\160.1\SM2540C	10		**130**	mg/L
Total Hardness as CaCO3	EEA/SM2340B	3		**35**	mg/L
Mercury	EEA\EPA245.1	0.2		ND	ug\L
Table M10: Constituents with Notification Levels					
1,2,3-Trichloropropane (1,2,3-TCP)	CASRL 524M-TCP	0.005	0.005	ND	ug/L
1,2,4-Trimethylbenzene	EEA/EPA 524.2	0.5	330	ND	ug/L
Acenaphthene	EEA/EPA 525.2	0.1		ND	ug/l
1,3,5-Trimethylbenzene	EEA/EPA 524.2	0.5	330	ND	ug/L
2,4,6-Trinitrotoulene (TNT)	EEA/LC-MS-MS	0.1	1	ND	ug/L
1,4-Dioxane	EEA/EPA 522	1	1	ND	ug/L
2-Chlorotoluene	EEA/EPA 524.2	0.5	140	ND	ug/L
4-Chlorotoluene	EEA/EPA 524.2	0.5	140	ND	ug/L
Boron	EEA/EPA 200.7	0.05	1	**0.20**	mg/L
Carbon disulfide	EEA/EPA 624	0.5	160	ND	ug/L
Chlorate	EEA/EPA 300.1	10	800	**350**	ug/L
Acenaphthylene	EEA/EPA 525.2	0.1		ND	ug/l
Dichlorodifluoromethane (Freon 12)	EEA/EPA 524.2	0.5	1000	ND	ug/L
Ethylene glycol	EEA/EPA8270C	40	14	ND	mg/L
Formaldehyde	EEA/EPA 556	5	100	**77**	ug/L
HMX	EEA/LC-MS-MS	0.1	350	ND	ug/L
Isopropylbenzene	EEA/EPA 524.2	0.5	770	ND	ug/L
Manganese	EEA/EPA 200.8	2	500	**0.090J**	ug/L
Methyl isobutyl ketone (MIBK)	EEA/EPA 524.2	5	120	ND	ug/L
Acetochlor	EEA/EPA 525.2	0.1		ND	ug/l
n-Butylbenzene	EEA/EPA 524.2	0.5	260	ND	ug/L
n-Nitrosodiethylamine (NDEA)	EEA/EPA 521	2	10	ND	ng/L
n-Nitrosodimethlyamine (NDMA)	EEA/EPA 521	2	10	**1.5J**	ng/L
n-Nitrosodi-n-propylamine (NDPA)	EEA/EPA 521	2	10	ND	ng/L
n-Propylbenzene	EEA/EPA 524.2	0.5	260	ND	ug/L
Propachlor	EEA/EPA 525.2	0.05	90	ND	ug/L
RDX	EEA/LC-MS-MS	0.1	0.3	ND	ug/L
sec-Butylbenzene	EEA/EPA 524.2	0.5	260	ND	ug/L
tert-Butylbenzene	EEA/EPA 524.2	0.5	260	ND	ug/L
Tertiary butyl alcohol (TBA)	EEA/524.2 SIM	2	12	**1.0J**	ug/L
Vanadium	EEA/EPA 200.8	0.003	0.05	ND	mg/L
Table M11: Remaining Priority Pollutants					
Pesticides					
Alachlor	EEA/EPA 525.2	0.05	2	ND	ug/L
Alpha-BHC	EEA/EPA 525.2	0.1		ND	ug/L
Alpha-endosulfan	EEA/EPA 525.2	0.1		ND	ug/L
Aldrin	EEA/EPA 505	0.01		ND	ug/L
Anthracene	EEA/EPA 525.2	0.02		ND	ug/l
Atrazine	EEA/EPA 525.2	0.05	1	ND	ug/L
Benzo(a)anthracene	EEA/EPA 525.2	0.05		ND	ug/l
Benzo(a)pyrene	EEA/EPA 525.2	0.02	0.2	ND	ug/L
Chromium lll	CALC	1		ND	ug/L
Benzo(b)fluoranthene*	EEA/EPA 525.2	0.02		ND	ug/l
Dieldrin	EEA/EPA 505	0.01		ND	ug/L
Benzo(k)fluoranthene	EEA/EPA 525.2	0.02		ND	ug/l
Beta-BHC	EEA/EPA 525.2	0.1		ND	ug/L
Acid Extractibles					
1,2-diphenylhydrazine	EEA/EPA625/8270	10		ND	ug/l

2,3,4-Trichlorophenol	EEA/EPA625/8270	5		ND	ug/l
2,3,6-Trichlorophenol	EEA/EPA625/8270	5		ND	ug/l
2,4-dichlorophenol	EEA/EPA625/8270	5		ND	ug/l
2,4-dimethylphenol	EEA/EPA625/8270	5		ND	ug/l
2,4-dinitrophenol	EEA/EPA625/8270	50		ND	ug/l
2-chloronaphthalene	EEA/EPA625/8270	5		ND	ug/l
2-chlorophenol	EEA/EPA625/8270	5		ND	ug/l
2-Methylphenol	EEA/EPA625/8270	5		ND	ug/l
2-Nitroaniline	EEA/EPA625/8270	10		ND	ug/l
Base/Neutral Extractibles					
Beta-endosulfan	EEA/EPA 525.2	0.1		ND	ug/L
Bis(2-ethylhexyl)phthalate	EEA/EPA 525.2	0.6	4	ND	ug/l
2-nitrophenol	EEA/EPA625/8270	5		ND	ug/l
1,3-dichlorobenzene	EEA/EPA 524.2	0.5		ND	ug/l
Butachlor	EEA/EPA 525.2	0.05		ND	ug/l
Butyl benzyl phthalate	EEA/EPA 525.2	0.5		ND	ug/l
3,3'-dichlorobenzidine	EEA/EPA625/8270	50		ND	ug/l
3,4,5-Trichlorophenol	EEA/EPA625/8270	5		ND	ug/l
3-Methylnaphthalene	EEA/EPA 525.2	5		ND	ug/l
3-Nitroaniline	EEA/EPA625/8270	20		ND	ug/l
Chlorobenzilate	EEA/EPA 525.2	0.1		ND	ug/l
Chloroneb	EEA/EPA 525.2	0.1		ND	ug/l
Chlorothalonil	EEA/EPA 525.2	0.1		ND	ug/l
4,6-dinitro-o-cresol	EEA/EPA625/8270	50		ND	ug/l
Chlorpyrifos	EEA/EPA 525.2	0.05		ND	ug/l
Chrysene	EEA/EPA 525.2	0.02		ND	ug/l
Delta-BHC	EEA/EPA 525.2	0.1		ND	ug/L
4-bromophenyl phenyl ether	EEA/EPA625/8270	5		ND	ug/l
4-Chloroaniline	EEA/EPA625/8270	5		ND	ug/l
4-chlorophenyl phenyl ether	EEA/EPA625/8270	5		ND	ug/l
Di(2-ethylhexyl)adipate	EEA/EPA 525.2	0.6	400	ND	ug/L
Di(2-ethylhexyl)phthalate	EEA/EPA 525.2	0.6	4	ND	ug/L
Diazinon	EEA/EPA 525.2	0.1	1.2	ND	ug/L
Diethyl phthalate	EEA/EPA 525.2	0.5		ND	ug/l
Dimethoate	EEA/EPA 525.2	0.1		ND	ug/l
Dimethyl phthalate	EEA/EPA 525.2	0.5		ND	ug/l
di-n-butyl phthalate	EEA/EPA 525.2	1		ND	ug/l
di-n-octyl phthalate	EEA/EPA 525.2	0.1		ND	ug/l
Endosulfan Sulfate	EEA/EPA 525.2	0.1		ND	ug/L
Hexachlorobutadiene	EEA/EPA 524.2	0.5		ND	ug/l
4-Methylphenol	EEA/EPA625/8270	5		ND	ug/l
Endrin aldehyde	EEA/EPA 525.2	0.1		ND	ug/L
EPTC	EEA/EPA 525.2	0.1		ND	ug/l
4-Nitroaniline	EEA/EPA625/8270	20		ND	ug/l
n-nitrosodi-n-propylamine	EEA/CLLE	0.002	10	ND	ug/l
4-nitrophenol	EEA/EPA625/8270	10		ND	ug/l
Fluoranthene	EEA/EPA 525.2	0.1		ND	ug/l
Fluorene	EEA/EPA 525.2	0.05		ND	ug/l
Volatile Organics					
1,1-dichloroethylene	EEA/EPA 524.2	0.5	6	ND	ug/l
2-chloroethyl vinyl ether	EEA/EPA 524.2	0.5		ND	ug/l
Acrolein	EEA/EPA 624	50		ND	ug/l
Acrylonitrile	EEA/EPA 624	50		ND	ug/l
Chlorobenzene	EEA/EPA 524.2	0.5	70	ND	ug/l
Chloroethane	EEA/EPA 524.2	0.5		ND	ug/l
Methyl bromide	EEA/EPA 524.2	0.5		**0.12J**	ug/l
Methyl chloride	EEA/EPA 524.2	0.5		ND	ug/l
Pharmaceuticals CECS and other EDCs Screen					
Acetaldehyde	EEA/EPA 556	1		**1.7**	ug/l
Caffeine	EEA\LC-MS-MS	5		ND	ug/l

DEET	EEA\LC-MS-MS	2		ND	ug/l
2,4,5-T	EEA/EPA 515.4	0.2		ND	ug/l
2,4-DB	EEA/EPA 515.4	2		ND	ug/l
3,5-Dichlorobenzoic Acid	EEA/EPA 515.4	0.5		ND	ug/l
Acifluorfen	EEA/EPA 515.4	0.2		ND	ug/l
Dicamba	EEA/EPA 515.4	0.1		**0.018J**	ug/l
Dichloroprop	EEA/EPA 515.4	0.5		ND	ug/l
Tot DCPA Mono&Diacid Degradate	EEA/EPA 515.4	0.1		ND	ug/l
Bomochloroacetic Acid	EEA/S6251B	1		**0.26J**	ug/l
Acetaldehyde	EEA/EPA 556	5		ND	ug/l
Aniline	EEA/EPA625/8270	10		ND	ug/l
Benzidine	EEA/EPA625/8270	50		ND	ug/l
Benzoic Acid	EEA/EPA625/8270	50		ND	ug/l
Benzyl Alcohol	EEA/EPA625/8270	5		ND	ug/l
Bis(2-chloroethoxyl)methane	EEA/EPA625/8270	10		ND	ug/l
Bis(2-chloroethyl)ether	EEA/EPA625/8270	10		ND	ug/l
Bis(2-chloroisopropyl)ether	EEA/EPA625/8270	10		ND	ug/l
Dibenzofuran	EEA/EPA625/8270	5		ND	ug/l
Dichlorvos (DDVP)	EEA/EPA 525.2	0.05		ND	ug/l
Hexachloroethane	EEA/EPA625/8270	5		ND	ug/l
Nitrobenzene	EEA/EPA625/8270	5		ND	ug/l
n-nitrosodiphenylamine	EEA/EPA625/8270	5		ND	ug/l
p-chloro-m-cresol	EEA/EPA625/8270	5		ND	ug/l
Phenol	EEA/EPA625/8270	5		ND	ug/l
N-Nitrosopyrolidine	EEA/CLLE	2		ND	ng/L
Phenylacetic Acid	EEA\LC-MS-MS	1000		ND	ug/l
Hexachlorobenzene	EEA/EPA 525.2	0.05	1	ND	ug/L
Hexachlorocyclopentadiene	EEA/EPA 525.2	0.05	50	ND	ug/L
Indeno(1,2,3-cd)pyrene	EEA/EPA 525.2	0.05		ND	ug/l
Iodide	EEA\LC-MS-MS	1		ND	ug/l
Isophorone	EEA/EPA 525.2	0.5		ND	ug/l
Metalachlor	EEA/EPA 525.2	0.05		ND	ug/l
Metribuzin	EEA/EPA 525.2	0.05		ND	ug/l
Molinate	EEA/EPA 525.2	0.1	20	ND	ug/L
Naphthalene	EEA/EPA 525.2	0.1	17	ND	ug/L
Parathion	EEA/EPA 525.2	0.1		ND	ug/l
Pendimethalin	EEA/EPA 525.2	0.1		ND	ug/l
Estradiol-17 Beta	EEA/EPA 539	0.0004		ND	ug/l
Permethrin (mixed isomers)	EEA/EPA 525.2	0.1		ND	ug/l
Phenanthrene	EEA/EPA 525.2	0.02		ND	ug/l
Pyrene	EEA/EPA 525.2	0.05		ND	ug/l
Simazine	EEA/EPA 525.2	0.05	4	ND	ug/L
Terbacil	EEA/EPA 525.2	0.1		ND	ug/l
Terbuthylazine	EEA/EPA 525.2	0.1		ND	ug/l
Sucralose	EEA\LC-MS-MS	100		ND	ng/L
Thiobencarb	EEA/EPA 525.2	0.2	70	ND	ug/L
trans-Nonachlor	EEA/EPA 525.2	0.05		ND	ug/l
Triclosan	EEA\LC-MS-MS	10		ND	ng/L
Trifluralin	EEA/EPA 525.2	0.1		ND	ug/l
3-Hydroxycarbofuran	EEA/EPA 531.2	0.5		ND	ug/l
Aldicarb Sulfone	EEA/EPA 531.2	0.5		ND	ug/l
Aldicarb Sulfoxide	EEA/EPA 531.2	0.5		ND	ug/l
Bagon	EEA/EPA 531.2	0.5		ND	ug/l
Carbaryl	EEA/EPA 531.2	0.5		ND	ug/l
Methiocarb	EEA/EPA 531.2	0.5		ND	ug/l
Methomyl	EEA/EPA 531.2	0.5		ND	ug/l
n-Nitrosopyrrolidine	EEA/EPA 521	2		ND	ng/L
1,1,1,2-Tetrachloroethane	EEA/EPA 524.2	0.5		ND	ug/l
1,1-Dichloropropene	EEA/EPA 524.2	0.5		ND	ug/l
1,2,3-Trichlorobenzene	EEA/EPA 524.2	0.5		ND	ug/l
2,2-Dichloropropane	EEA/EPA 524.2	0.5		ND	ug/l

2-Butanone	EEA/EPA 524.2	5		ND	ug/l
Bromoethane	EEA/EPA 524.2	0.5		ND	ug/l

ATTACHMENT B

MINERALOGY-INC
WHERE SCIENCE GETS DOWN TO EARTH

Morro Bay IPR Geochemistry Analysis

Morro Bay, CA

Requested by:
Tim Nicely
GSI Water Solutions, Inc.

Mineralogy, Inc. Number 21253

Date:
December 22, 2021

Submitted by:

Timothy B. Murphy

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Table of Contents

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Sample Retention: Samples will be stored for a period of 30 days and thereafter discarded. If additional sample storage time and/or return shipping is required, appropriate charges will be billed to the client.

Introduction

Three drill cutting samples have been evaluated from the Morro Bay Monitoring Well located in Morro Bay, CA. The cutting materials are being evaluated in support of geochemical modeling and hydrogeological management efforts for this aquifer system. Test methods utilized in the study have included: x-ray diffraction (XRD) mineralogical analysis, x-ray fluorescence (XRF) chemical analysis, ICP/MS and total organic carbon analysis, cation exchange capacity (CEC) analysis, particle size distribution analysis, acid insoluble residue analysis, thin section petrography and scanning electron microscopy (SEM) analysis. Tabular summaries for the XRD, XRF, CEC, ICP/MS, particle size, & acid residue evaluations are presented in Appendix I. Thin section and SEM images for each of the Morro Bay cutting intervals are provided in Appendix II.

Sample ID	Mineralogy, Inc. ID	Testing Protocol
46.0 - 46.5 ft.	21253-01	XRD B&C, XRF, CEC, SEM, TSP, Particle Size, Acid Insoluble, ICP/MS+TOC
55.5 - 56.0 ft.	21253-02	
65.5 - 66.0 ft.	21253-03	

XRD B&C = X-ray diffraction • XRF = X-ray fluorescence • CEC = Cation exchange capacity • SEM = Scanning electron microscopy • TSP = Thin section petrography • Particle Size = Sieve analysis • Acid Insoluble = Acid insoluble residue analysis • ICP/MS = Inductively coupled plasma mass spectrometry • TOC = Total organic carbon

Summary

The principal findings of the materials analysis performed for these well cutting intervals are noted as follows:

- Based on the results of the thin section petrographic analysis and SEM study, the three drill cutting intervals from the Morro Bay aquifer are classified as unconsolidated and disaggregated, litharenitic sand and sandy pebble conglomerate intervals. Lithic fragments contained in these intervals are diverse and include a mixture of serpentine RFs (rock fragments), silty and sandy mudstone and shale RFs, litharenitic sandstone RFs, and igneous RFs. The silty mudstone and shale RFs are ductile grains that are susceptible to plastic defamation and localized disaggregation owing to burial compaction within the *in situ* aquifer. The localized disaggregation of the silty mudstone RFs has blurred the inter-granular grain boundaries & released significant amounts of pore filling smectite-rich clay as pseudomatrix.
- The results of the x-ray diffraction mineralogical analysis (XRD) are summarized in Table I. The mineralogy of these sediments is dominated by a combination of feldspar (anorthite; ~ 22 - 25%), quartz (15 - 20%), clay matrix minerals (~ 41 - 48%), and chrysotile (8 - 12%). The clay mineral suite is dominated by smectite (26 - 30%), with subordinate amounts of chlorite (4 - 7%), illite/mica (2 - 4%), mixed-layered illite/smectite (2 - 3%), and mixed-layered chlorite/smectite (2 - 8%). Minor to accessory mineral phases present within one or more of the sediment intervals include akaganeite (1 - 2%), magnetite (1 - 2%), hornblende (trace - 2%), augite (trace - 1%), and goethite (0 - 1%). The aquifer sediments contain significant amounts of serpentine rock fragment (RF) material. The serpentine RFs are comprised principally of chrysotile + chlorite + mixed-layered chlorite/smectite, with locally significant amounts of iron oxide hydroxide (including akaganeite and goethite). The serpentine RFs also contain inclusions of corroded augite.
- The results of the x-ray fluorescence (XRF) chemical analysis obtained for these sediment intervals are presented in Table II. Concentrations for selected elements are reported as oxide equivalents. The elemental composition for these sand and conglomerate intervals is dominated by variable proportions of silicon, aluminum, iron, magnesium, calcium, and sodium. Accessory amounts of titanium manganese and phosphorous are also locally significant phases. The elemental distributions noted in Table II are consistent with and complementary of the x-ray diffraction mineralogical assessments reported in Table I for crystalline mineral phases present in the sediment samples.
- Table III provides a summary of the concentration of selected monovalent and divalent cations exchanged from the Morro Bay sediments in the course of the cation exchange capacity (CEC) evaluation. The cumulative exchange capacity for these sediment intervals ranges between ~ 17.3 - 23.4 meq/100g of sediment. The cation exchange hierarchy indicates that magnesium (Mg) and calcium (Ca) amount for most of the overall ion exchange potential, with relatively minor exchange potentials indicated for potassium (K) and sodium (Na) ion exchange sites.

- Table IV provides a summary of ICP/MS chemical data obtained for selected metals within the sediment suite. The ICP/MS data has been provided by Pace Analytical and includes data for selected metals of interest including: aluminum (1.91 - 2.36%), iron (3.40 - 4.07%), magnesium (1.89 - 2.20%), and calcium (0.614 - 1.10%). Trace amounts of arsenic are locally present within these sediments, with concentrations that range from 5.39 - 9.63 ppm. Total organic carbon was also assessed, with TOC concentrations of 0.841 - 0.982%.
- A composite graph & tabular summary of the particle size data obtained via sieve analysis is presented in Table V. The sediment size distribution is reasonably uniform throughout the drill cutting depth range, with each interval characterized as coarse to very coarse-grained, granule & pebble-rich, very poorly sorted, and coarsely skewed. The particle size data reveal that granule & pebble-sized grains comprise ~ 41.5-62.2% of the sample mass. Silt and clay-sized particulates typically account for < 1.2% of the weight distribution within these sediment materials.
- The results of the acid insoluble residue analysis are summarized in Table VI. The acid-insoluble sediment fraction accounts for ~ 96.0-97.1% of the sample mass.
- The results of the thin section petrography, scanning electron microscopy, and particle size distribution analysis for individual cutting intervals are presented in Appendix II. The petrographic & SEM results include descriptive summaries of the detrital mineralogy and sedimentary fabric along with representative images of the unconsolidated grain materials, porosity types, and matrix constituents.
- Based on the relative proportions of lithic fragments to quartz and feldspar detrital grains, the Morro Bay sediment samples may be classified as unconsolidated and disaggregated litharenitic sands & sandy pebble conglomerates (Folk, 1968). The sediments are very poorly sorted & contain large proportions of silt & clay-rich mudstone & shale rock fragments (RFs) coupled with microcrystalline serpentine RFs. Scattered igneous RFs are present and include basalt, diabase and andesite RFs. Selected clay-rich mudstone, shale and serpentine RFs are characterized as ductile lithic grains that are susceptible to compressive deformation (as pseudomatrix). The grain mount thin section samples and SEM specimens locally exhibit indications of significant plastic grain deformation accompanied by the blurring of selected intergranular boundaries.
- Silty mudstone & shale rock fragments (RFs) comprise the dominant detrital grain type within the Morro Bay aquifer intervals. The mudstone RFs are commonly microporous, smectite-rich & contain (matrix-supported) feldspar & quartz-rich silt grains. These lithic grains are ductile & vulnerable to compaction & grain deformation, accounting for large portions of the (disaggregated) pore-filling matrix (& silt) distributed within the grain mount petrographic and SEM specimens.
- The serpentine rock fragments present in these aquifer intervals are characterized as densely crystallized & locally fractured RFs comprised of microcrystalline serpentine (chrysotile) + chlorite + mixed-layered chlorite/smectite + iron oxide hydroxide (specifically goethite & akaganeite). These rock fragments are distributed as sand to pebble-sized grains and locally account for > 20% of the detrital grain volume.
- Relatively minor detail grain types include: igneous rock fragments (RFs), feldspar and quartz-rich sand, litharenitic sandstone RFs, and minor amounts of magnetite,

hornblende & augite. The igneous RFs include weathered & corroded basalt, andesite, and diabase grains. Feldspar crystals and grains are predominantly comprised of anorthite (An67) feldspar. Feldspar grain corrosion is locally indicated, with common intra-granular dissolution and encrustation with authigenic clay. Quartz grains include mono-crystalline and poly-crystalline quartz varieties.

- Pore-filling matrix materials reflect the diversity of the lithic population described above. The clay matrix clusters are commonly silty & smectite-rich, with most of the pore-filling clays attributed to the localized disaggregation of silty mudstone & shale RFs.

Conclusions

Drill cutting materials from this coastal aquifer system are coarse to very coarse-grained, granule & pebble-rich, and poorly sorted. The detrital grain population is mineralogically immature & contains large amounts of ductile mudstone, shale, and serpentine RF materials. The clay-rich character of the lithic grains accounts for their susceptibility to plastic deformation & disaggregation associated with burial compaction. Compression of the mudstone RFs has contributed to the large scale production of pseudomatrix and the gradual diminishment of pore throat size and transmissivity. The magnitude of the ductile grain deformation & pseudomatrix generation is least within the poorly sorted conglomerates due to the propping effect of pebble-sized grains in the framework. Moderately sorted, sand-rich intervals (e.g., 55.5-56.0'; MI#21253-02) are characterized by relatively increased proportions of pseudomatrix & diminished concentrations of effective macro pore space (relative to the poorly sorted sandy pebble conglomerates).

The potential impact of the serpentine rock fragments on water quality has not been fully assessed in this analysis. The serpentine RFs are microcrystalline, densely crystallized, locally fractured, and exhibit variable concentrations of secondary iron mineralization. These lithic grains are susceptible to disaggregation, but generally lack the indications of ductility associated with the mudstone RFs. Secondary mineralization associated with the serpentine RFs may account for the trace levels of arsenic detected in the ICPMS chemical evaluation (see Table IV).

Appendix I

Mineralogical, Elemental, & Particle Size Analysis

X-ray Diffraction

Table I

Client:	GSI Water Solutions, Inc.	MI#:	21253
Project:	Morro Bay IPR Geochemistry Analysis	P.O.#:	N/A
Location:	Morro Bay, CA	Method:	X-ray Diffraction

	Depth (ft)	**46.0 - 46.5**	**55.5 - 56.00**	**65.5 - 66.00**
	MI#	**21253-01**	**21253-02**	**21253-03**
Mineral Constituent	**Chemical Formula**	**Relative Abundance (%)**		
Quartz	SiO_2	15	20	19
Anorthite	$(Ca,Na)Al_2Si_2O_8$	25	22	23
Augite	$(Ca(Fe,Mg)Si_2O_6$	1	1	<0.5
Hornblende	$Ca_2(Mg,Fe)_5(Si,Al)_8O_{22}(OH)_6$	2	2	<0.5
Magnetite	alpha-Fe_3O_4	2	1	1
Goethite	alpha-FeOOH	1	1	
Akaganeite	beta-FeOOH	1	2	1
Chrysotile	$Mg_3Si_2O_5(OH)_4$	12	10	8
Chlorite	$(Mg,Al)_6(Si,Al)_4O_{10}(OH)_8$	7	5	4
Illite / Mica	$KAl_2(Si_3AlO_{10})(OH)_2$	2	3	4
Mixed-Layered Illite/ Smectite	$K_{0.5}Al_2(Si,Al)_4O_{10}(OH)_2 \cdot 2H_2O$	3	3	2
Mixed-Layered Chlorite/Smectite	$(Mg,Fe)_9(Si,Al)_8O_{20}OH_{10} \cdot XH_2O$	3	2	8
Smectite	$Na_{0.3}(Al,Mg)_2Si_4O_{10}(OH)_2 \cdot xH_2O$	26	28	30
Total		**100**	**100**	**100**
% Illite in Mixed-Layered I/S		*75%*	*80%*	*60%*
% Chlorite in Mixed-Layered C/S		*70%*	*80%*	*50%*

X-ray Fluorescence

Table II

Client:	GSI Water Solutions, Inc.	MI#:	21253
Project:	Morro Bay IPR Geochemistry Analysis	P.O.#:	N/A
Location:	Morro Bay, CA	Method:	X-ray Fluorescence

Depth (ft)	46.0 - 46.5	55.5 - 56.00	65.5 - 66.00
MI#	21253-01	21253-02	21253-03
Elemental Phase	Results (Mass %)		
Na2O	2.0491	1.8096	1.745
MgO	6.6606	8.5901	6.1951
Al2O3	16.2986	14.8756	16.7367
SiO2	55.929	59.055	58.7787
P2O5	0.2186	0.2633	0.2406
S	0.0208	0.0132	0.0084
Cl	0.0127	0.0118	0.0071
K2O	1.6637	1.4888	1.8504
CaO	4.831	2.9093	2.5505
TiO2	0.861	0.8055	0.9493
V	0.0292	ND	ND
Cr	0.0694	0.1499	0.0536
MnO	0.3124	0.1465	0.1351
Fe2O3	10.6923	9.5913	10.5111
Ni	0.0299	0.0404	0.0298
Cu	ND	ND	0.0112
Zn	0.0083	0.0109	0.014
Sr	0.0178	0.0205	0.0139
Zr	0.0132	0.012	0.0166
BaO	0.1782	0.0958	0.0929

ND = Not Detected

Cation Exchange Capacity

Table III

	Calcium		Magnesium		Potassium		Sodium	
	Results	PQL**	Results	PQL**	Results	PQL**	Results	PQL**
Sample ID	(meg/100g)		(meg/100g)		(meg/100g)		(meg/100g)	
46.0 - 46.5 ft. 21082-01	6.73	0.01	9.30	0.01	0.696	0.01	0.557	0.01
55.5 - 56.00 ft. 21082-02	7.83	0.01	13.6	0.01	1.39	0.01	0.600	0.01
65.5 - 66.00 ft. 21082-03	8.08	0.01	11.7	0.01	1.14	0.01	0.557	0.01

Method Reference: 40 CFR 136, 261, Method for Chemical Analysis of Water and Waste EPA-600/4-79-020 March 1983
CEC Method Reference: Method of Soil Analysis, Chemical and Microbiological Properties, 2nd Ed.; American Society of Agronomy, Inc.
Soil Science Society of America, Inc. page 160.
**CEC analysis provided by Accurate Laboratories & Training Center; Stillwater, OK. **PQL= Practical Quantitation Limit*

ICP/MS + TOC

Table IV

Client:	GSI Water Solutions, Inc.	MI#:	21253
Project:	Morro Bay IPR Geochemistry Analysis	P.O.#:	N/A
Location:	Morro Bay, CA	Method:	ICP/MS*

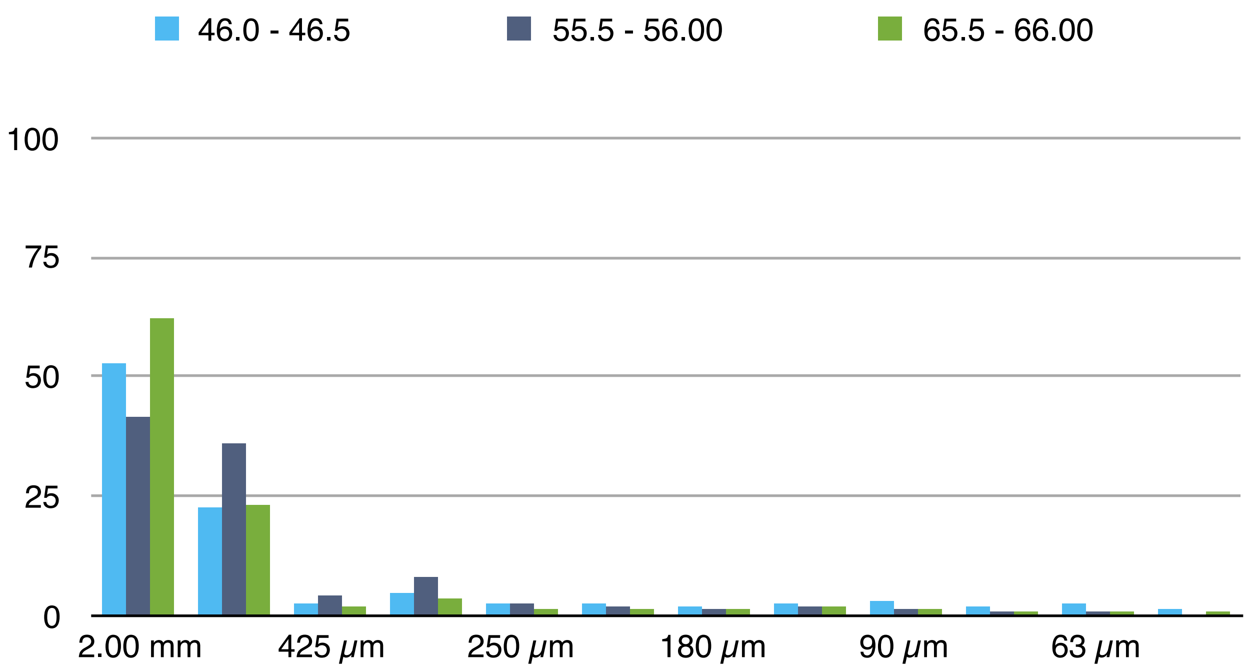
Depth (ft.)	46.0 - 46.5	55.5 - 56.00	65.5 - 66.00
MI#	21253-01	21253-02	21253-03
Elemental Phase	Results (mg/kg)		
Aluminum	23600	19100	23000
Arsenic	6.53	5.39	9.63
Calcium	11000	6140	8500
Iron	36800	34000	40700
Magnesium	20200	22000	18900
Manganese	1160	526	664
Potassium	1420	1500	1870
Sodium	ND	ND	ND
	Results (mg/kg)		
Total Organic Carbon (TOC)	9820	8410	9600

ND = Not Detected
**ICP/MS Data Provided by Pace Analytical - Mt. Juliet, TN*

Sieve Analysis

Table V

Client:	GSI Water Solutions, Inc.	MI#:	21253
Project:	Morro Bay IPR Geochemistry Analysis	P.O.#:	N/A
Location:	Morro Bay, CA	Method:	Sieve



Sample ID (ft.)	2.00 mm	500 µm	425 µm	300 µm	250 µm	212 µm	180 µm	125 µm	90 µm	75 µm	63 µm	PAN <63 µm
46.0 - 46.5	52.73	22.60	2.26	4.90	2.45	2.26	1.69	2.64	3.01	2.07	2.26	1.13
55.5 - 56.00	41.75	36.05	4.36	7.78	2.47	1.89	1.14	1.71	1.33	0.57	0.57	0.38
65.5 - 66.00	62.28	22.84	1.73	3.46	1.38	1.38	1.21	1.90	1.56	0.69	0.70	0.87

Acid Insoluble Residue

Table VI

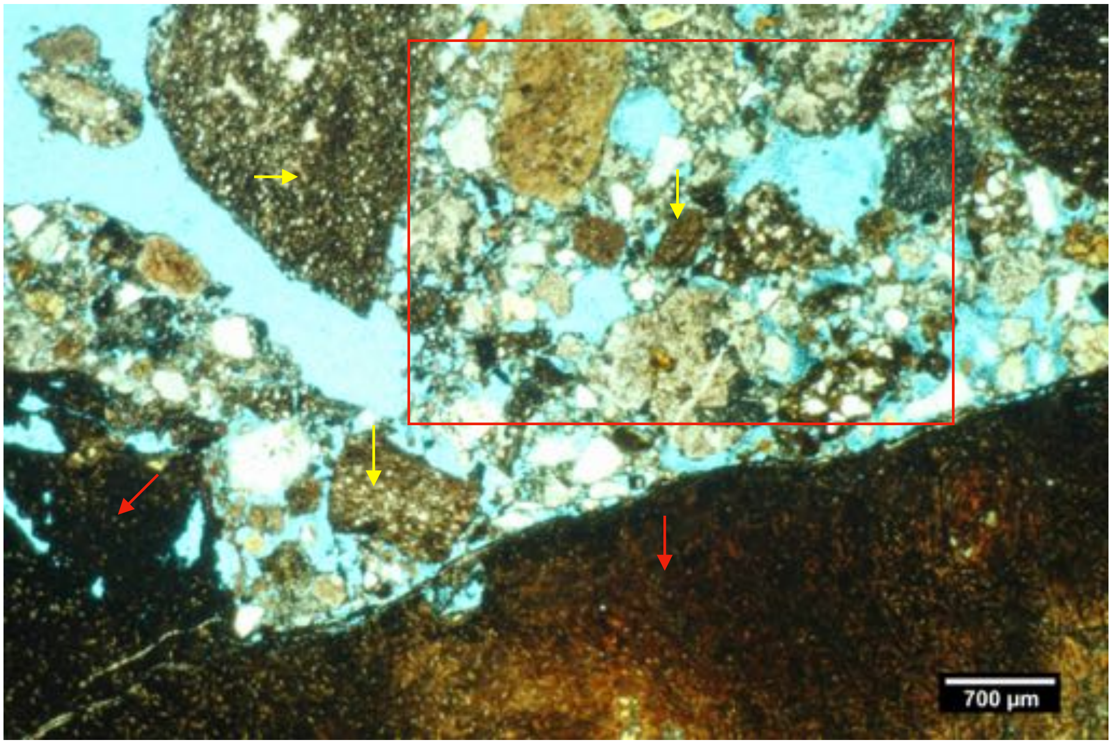
Client:	GSI Water Solutions, Inc.	MI#:	21253
Project:	Morro Bay IPR Geochemistry Analysis	P.O.#:	N/A
Location:	Morro Bay, CA	Method:	Acid Insoluble Res.

Depth (ft.)	Lab ID	Acid Insoluble Residue (%)
46.0 - 46.5	21253-01	97.1
55.5 - 56.00	21253-02	96.8
65.5 - 66.00	21253-03	96.0

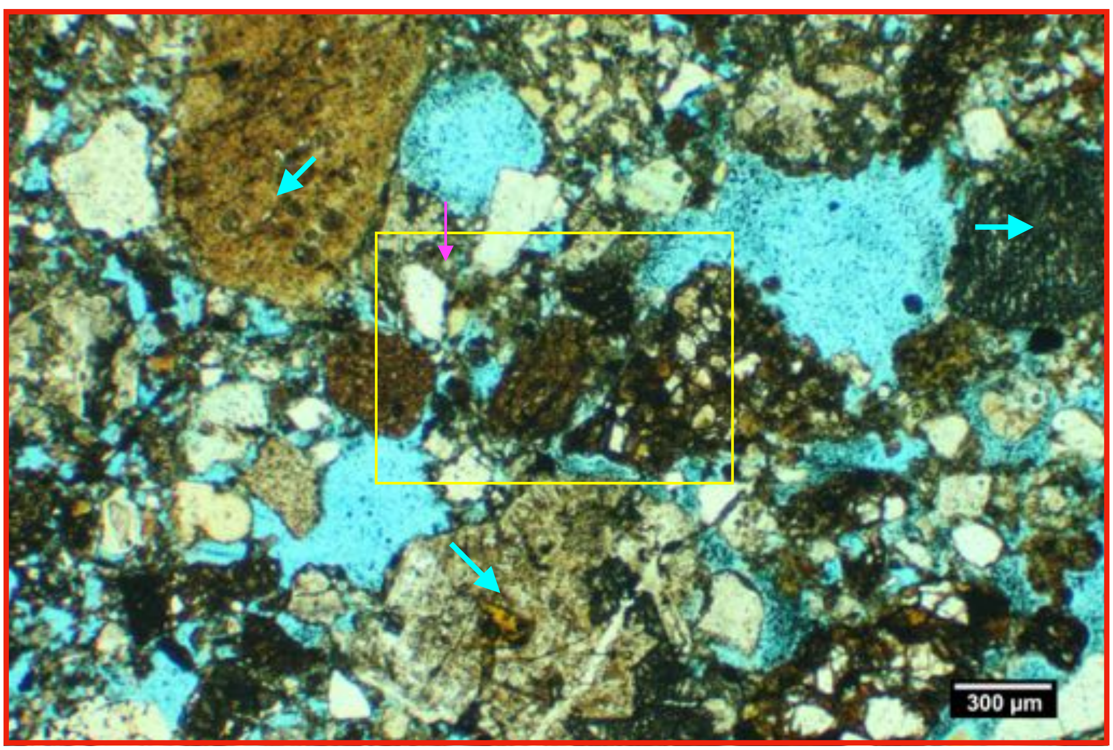
Appendix II

Petrographic & SEM Findings

46.0-46.5 ft.; MI#21253-01

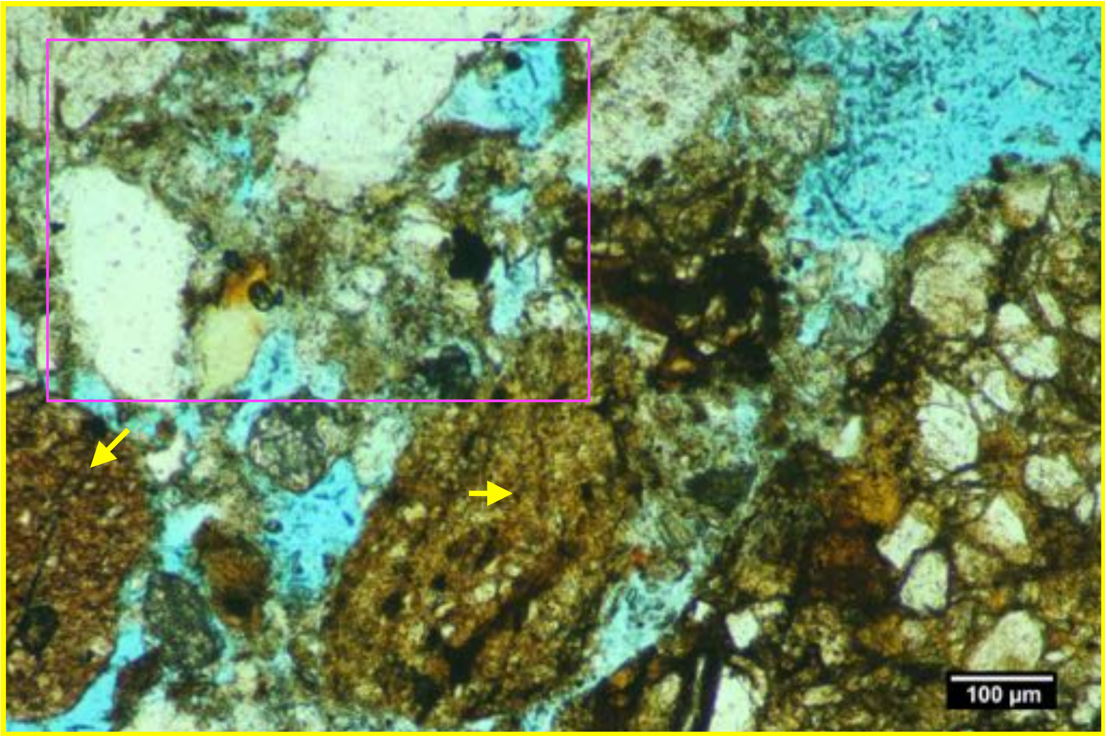


1A. Unconsolidated, litharenitic, sandy pebble conglomerate, with abundant serpentine rock fragments (RFs; red <), & matrix-rich siltstone & sandstone RFs (yellow <).

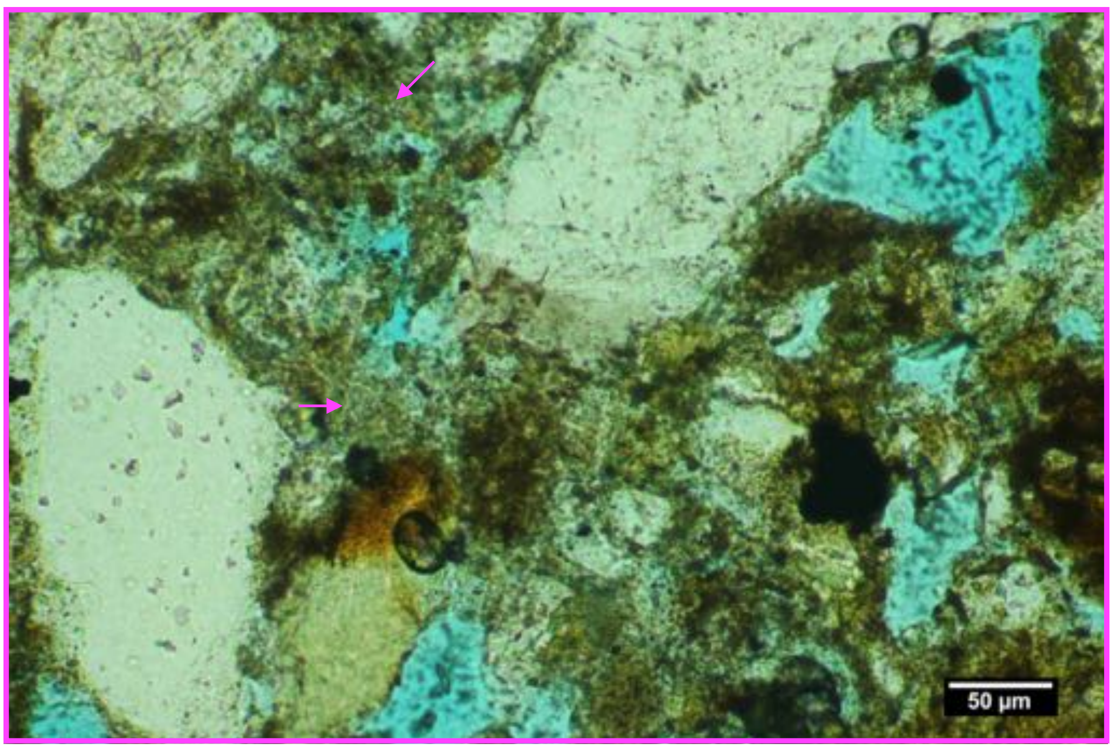


1B. Detailed view of the red highlighted area from Figure 1A. Igneous RFs (blue <) are common. The intergranular pores are locally choked with silt-sized remnants of disaggregated lithic grains &/or clusters of microporous clay (magenta <).

46.0-46.5 ft.; MI#21253-01

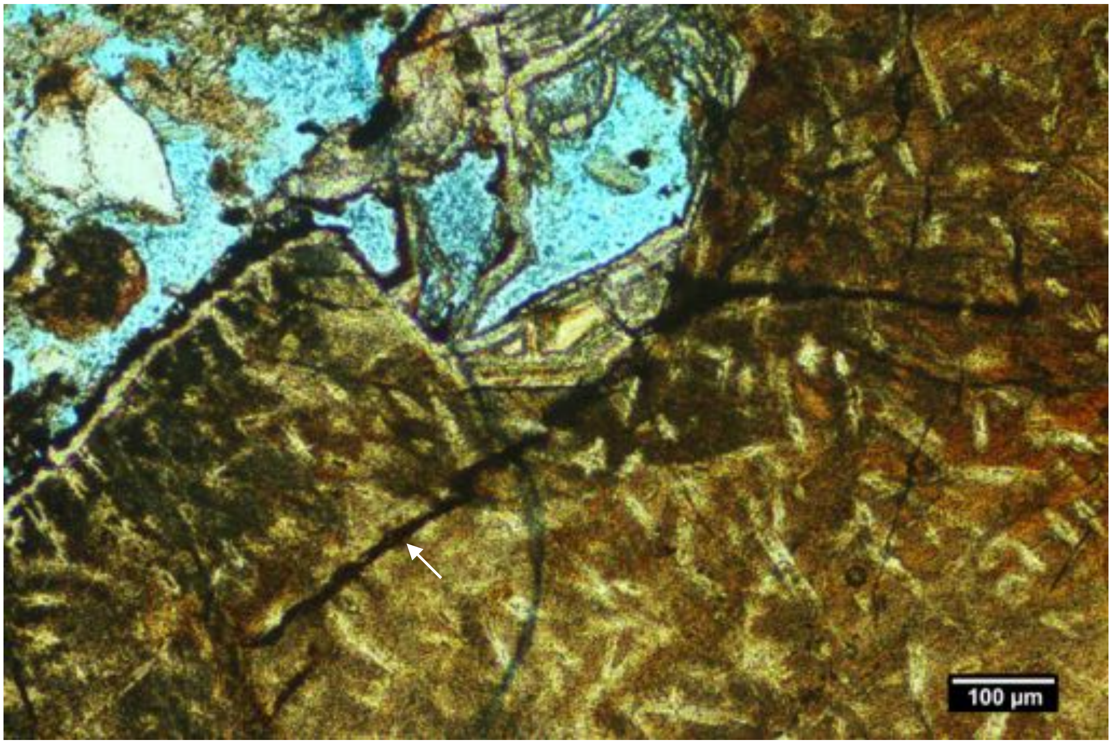


1C. Selected matrix-rich silty mudstone RFs (yellow <) are ductile & are susceptible to compaction & disaggregation. The magenta highlighted area is detailed in Figure 1D.

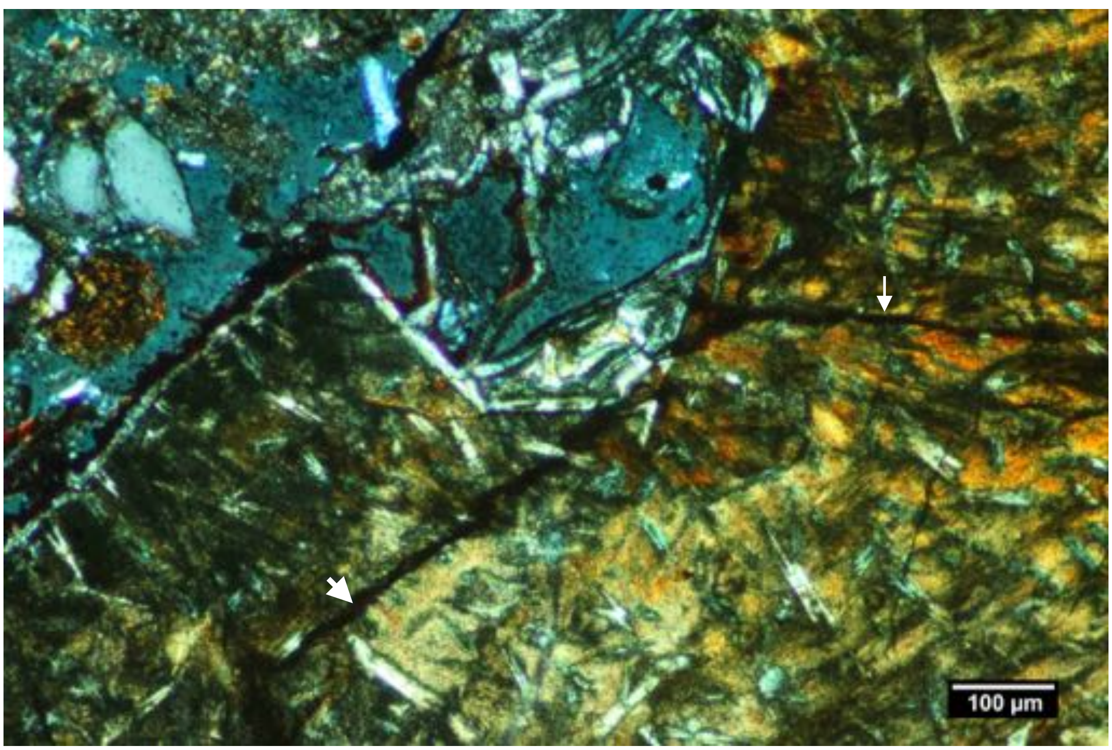


1D. The pore-filling matrix constituents (magenta <) are smectite-rich, microporous, and locally incorporate crystals of iron oxide cement (black; green <).

46.0-46.5 ft.; MI#21253-01



1E. The serpentine RFs commonly contain a mixture of mineral phases that include: chrysotile + chlorite + mixed-layered chlorite/smectite + iron oxide minerals.



1F. As in figure 1E, with cross polarized light. Note the micro-crack strain (white <) and the fibrous micro-fabric of the chrysotile-rich groundmass..

Morro Bay IPR

Morro Bay, CA

46.0 - 46.5 ft.

MI#21253-01 - SEM

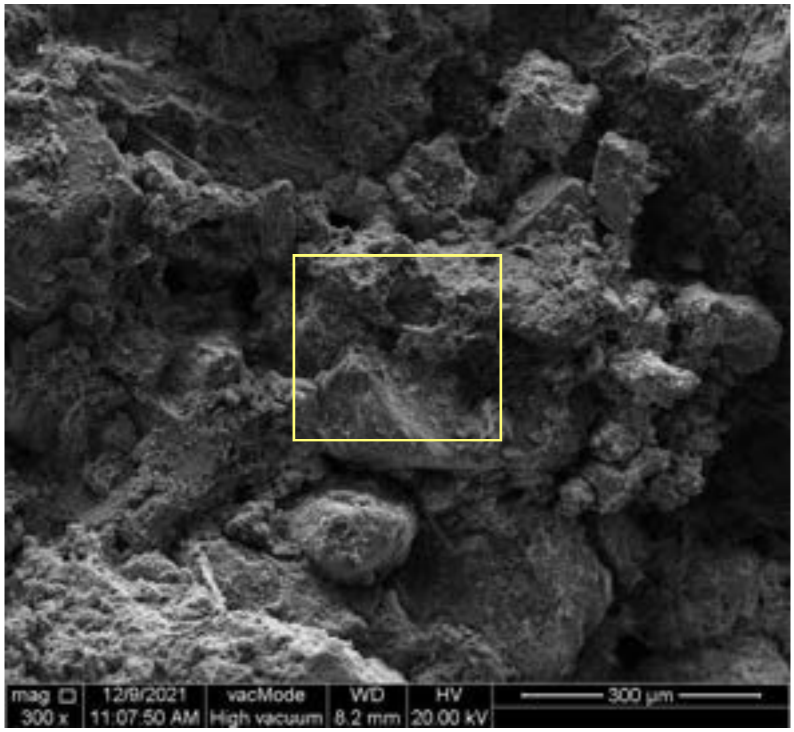
Summary: This sandy pebble conglomerate interval is unconsolidated, clay matrix-rich, and very poorly sorted. Granule to pebble-sized lithic grains comprise over 50% of the sediment materials, and a significant percentage of these grains are clay-rich, and are susceptible to compaction and disaggregation. The grain population includes a diverse mixture of rock fragment (RF) lithotypes, including: serpentine RFs, silty & sandy mudstone RFs, igneous RFs, and litharenitic sandstone RFs. The serpentine RFs are microcrystalline, compact, and exhibit a mineral composition dominated by chrysotile + chlorite + mixed-layered chlorite/smectite + iron oxide cement. The igneous RFs include diabase, basalt, and granodiorite RFs. Poorly crystallized, microporous clay encrusts the grain surfaces and is distributed throughout much of the pore system as clusters of weakly attached allogenic clay that commonly incorporates silt-sized feldspar & quartz grains + crystals of iron oxide cement. Feldspar grains are commonly corroded and are locally replaced with authigenic clay. Figures 1A - 1C illustrate a corroded feldspar grain that is extensively leached and encrusted with smectite clay. Figures 1D - 1F illustrate the densely matted character of the detrital clay attributed to partially disaggregated silty mudstone RFs.

21253-01 Photo Index: (bookmarks)

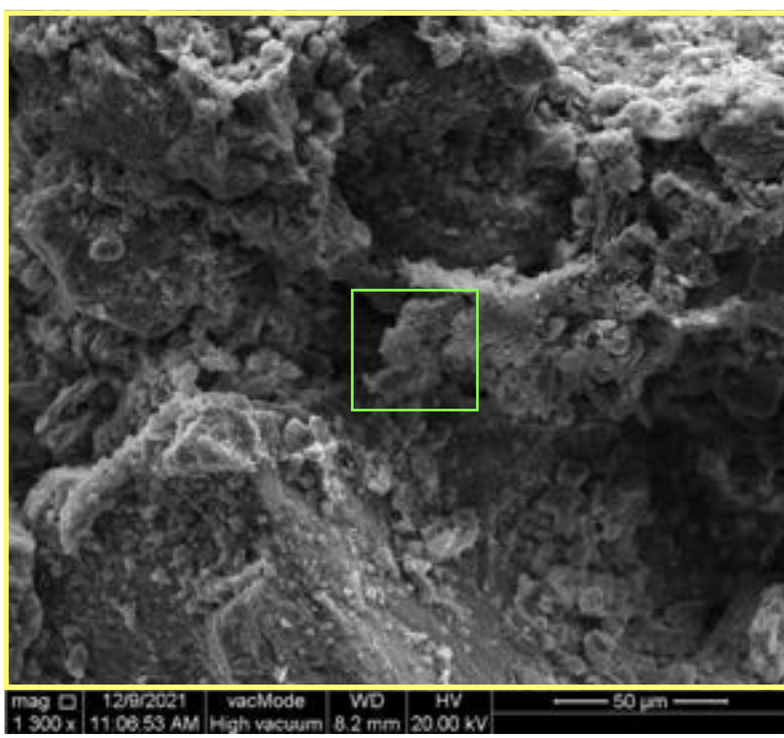
Sample ID	Magnification
21253-01A	300X
21253-01B	1300X
21253-01C	10000X
21253-01D	250X
21253-01E	1000X
21253-01F	8000X

Detrital (smectite-rich) matrix	DM
Feldspar	F
Authigenic smectite	S
Iron oxide cement	F

21253-01A 300X

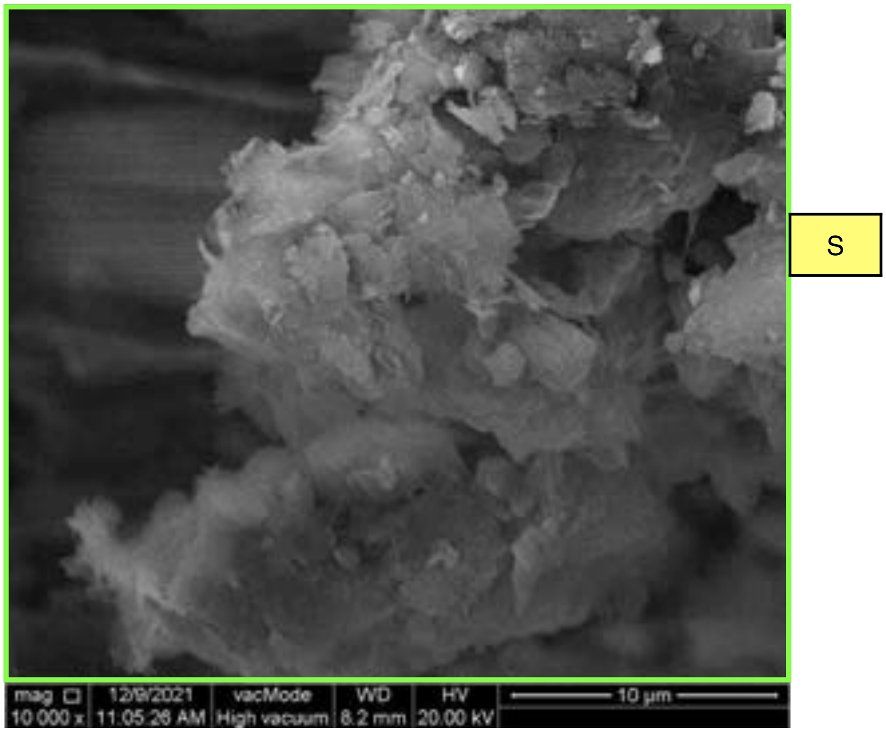


21253-01B 1300X

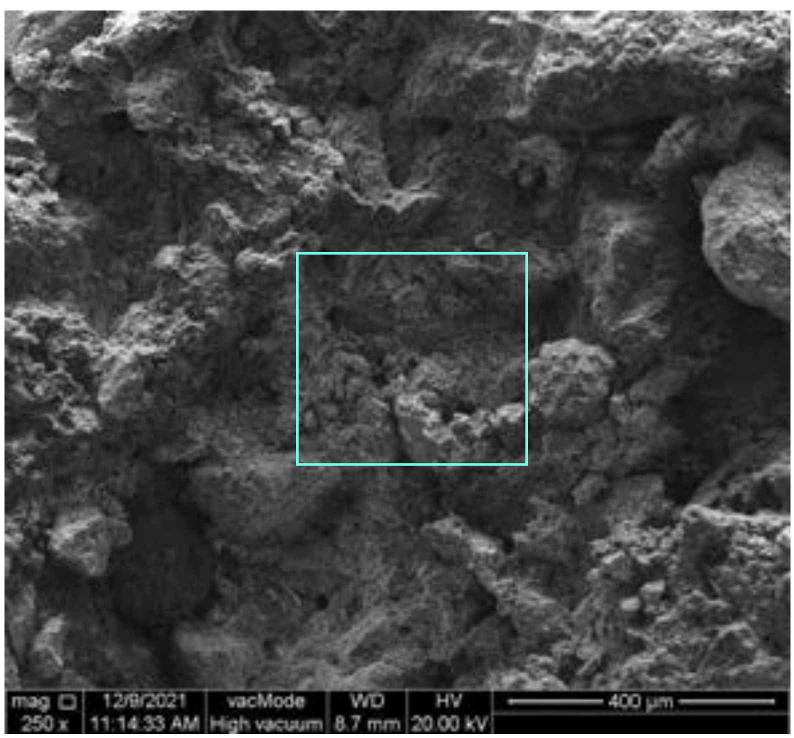


F

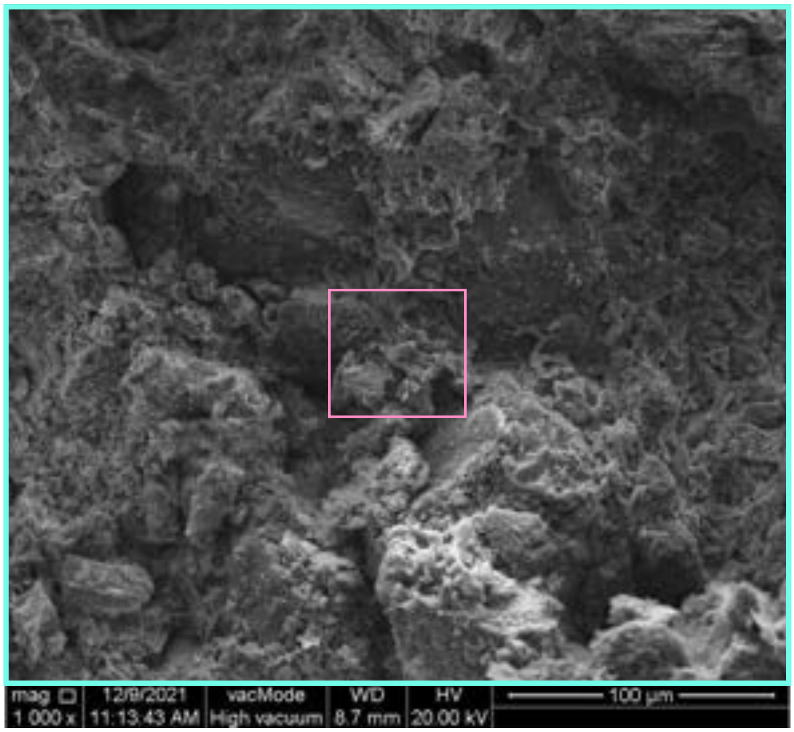
21253-01C 10000X



21253-01D 250X

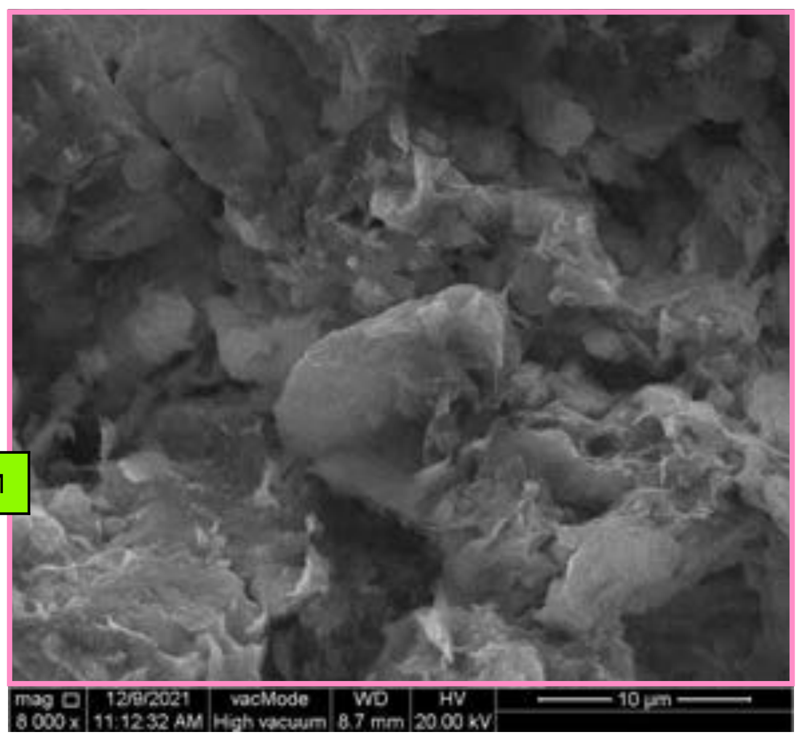


21253-01E 1000X

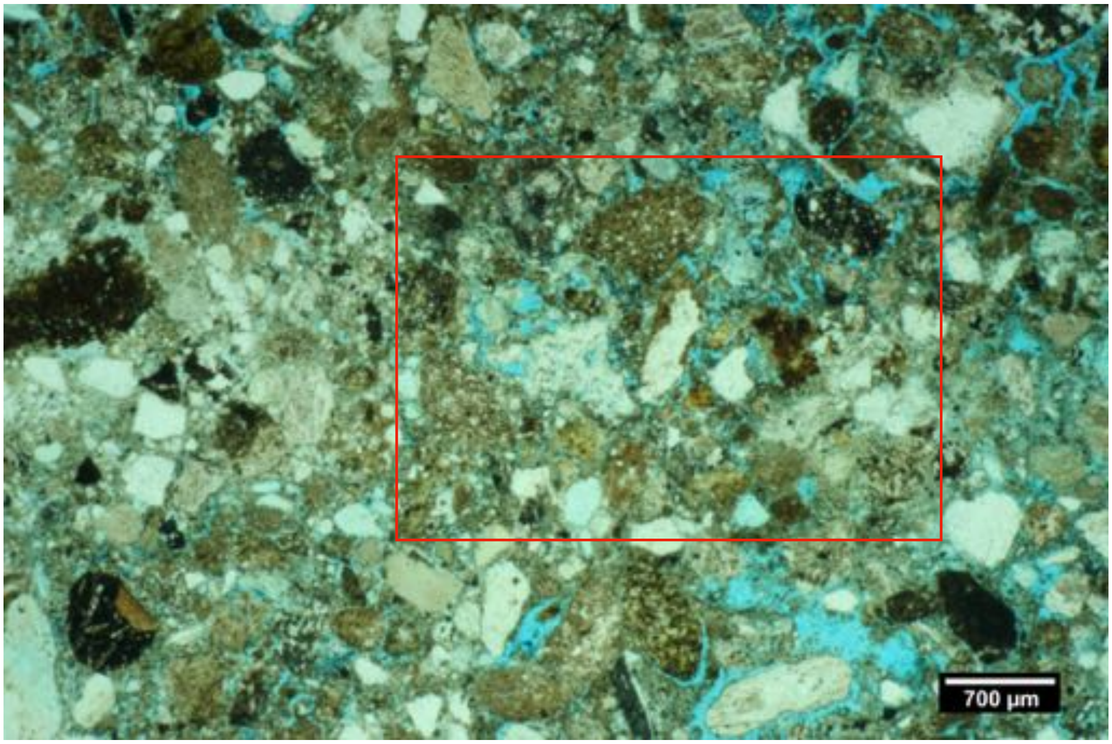


21253-01F 8000X

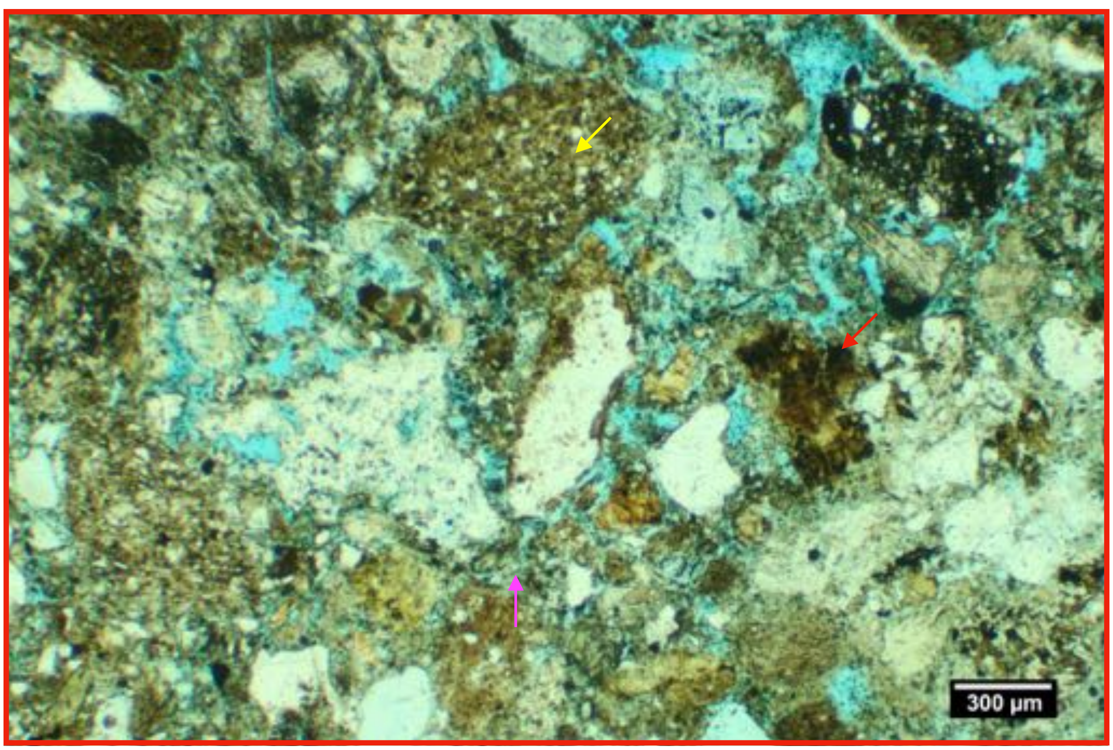
DM



55.5-56.00 ft.; MI#21253-02

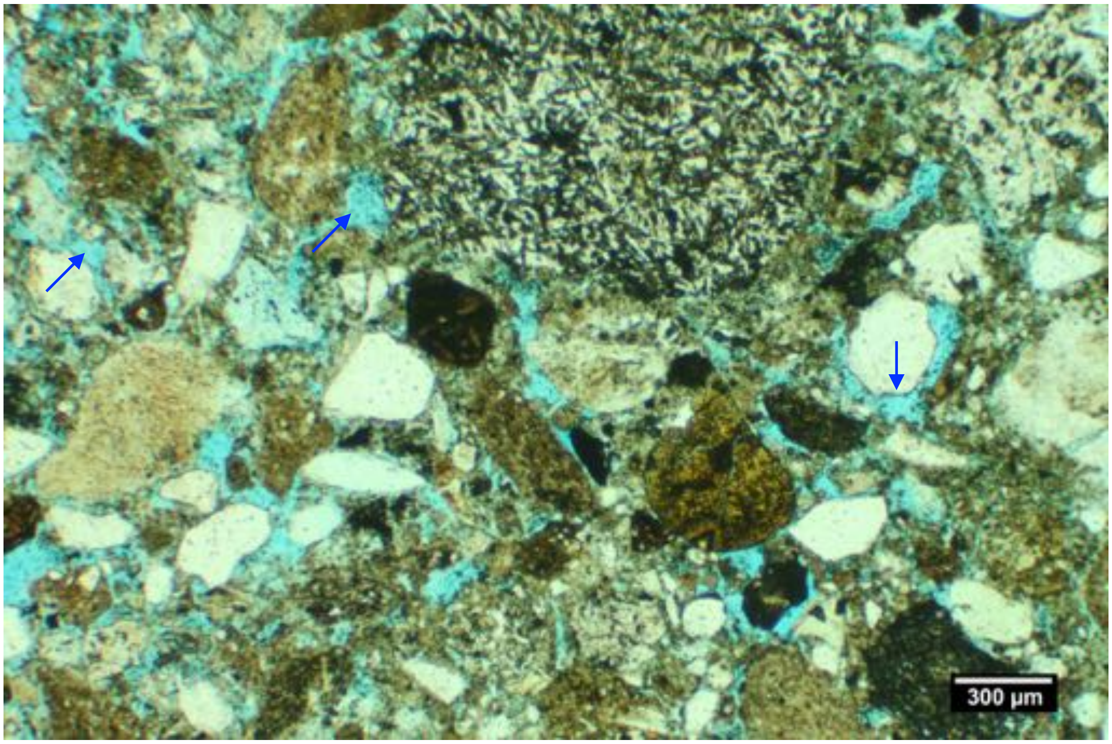


2A. The clay-rich character of the mudstone RFs makes it challenging to differentiate the original grain boundaries within portions of the detrital framework.

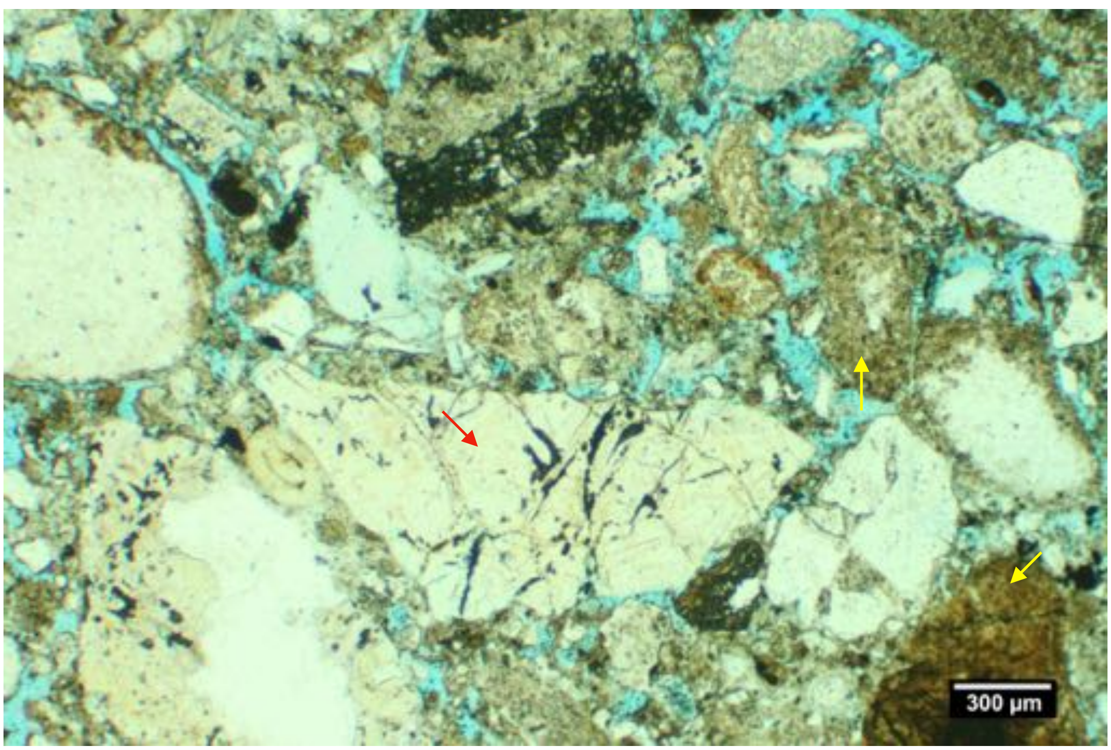


2B. Detailed view of the highlighted area from Figure 2A. This field of view is dominated by silty mudstone RFs (yellow <). Note the serpentine RFs (red <) & the ubiquitous presence of microporous, smectite-rich, pore-filling clay (magenta <).

55.5-56.00 ft.; MI#21253-02



2C. Moderately well preserved intergranular macroporosity (blue <). Note the basalt RF (blue <). XRD analysis indicates the clay fraction is dominated by smectite.



2D. A fractured serpentine RF (red <). Many of the clay-rich mudstone RFs (yellow <) exhibit diffuse & poorly defined grain boundaries owing to compaction & disaggregation.

Morro Bay IPR

Morro Bay, CA

55.5 - 56.0 ft.

MI#21253-02 - SEM

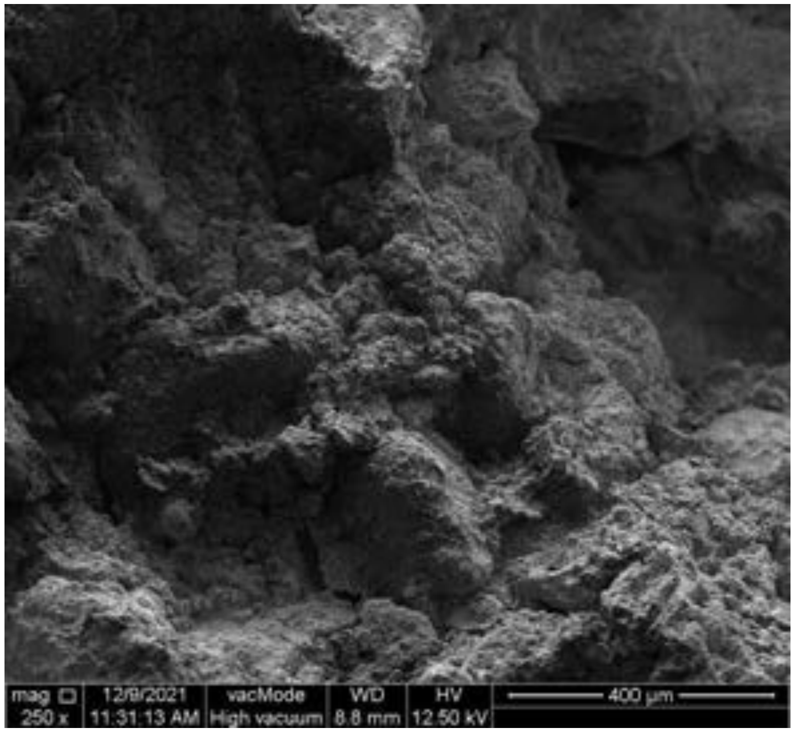
Summary: This sediment interval is comprised of smectite-rich, very poorly sorted, unconsolidated, granule & pebble-rich, litharenitic sand. Burial compaction + a large proportion of ductile silty mudstone rock fragments (RFs) has contributed to abundant pseudomatrix and blurred intergranular boundaries within the detrital framework. Based on the XRD evaluation, the detrital clays and pseudomatrix materials are comprised of smectite-rich clay. The smectite is commonly densely matted, with relatively limited & irregularly distributed preservation of intercrystalline microporosity. Residual macropores within the framework are locally isolated & are commonly framed by clusters of smectite-rich clay + silt grains (see SEM Figures 21253-02C & 21253-02F).

21253-02 Photo Index: (bookmarks)

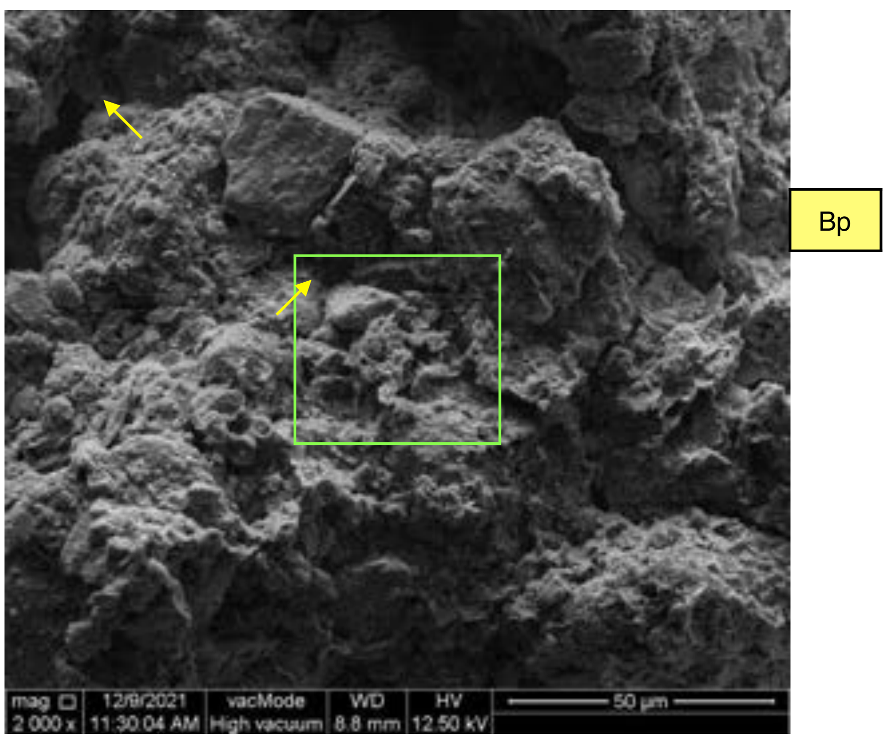
Sample ID	Magnification
21253-02A	250X
21253-02B	2000X
21253-02C	8000X
21253-02D	400X
21253-02E	1500X
21253-02F	6000X

Detrital (smectite-rich) matrix	DM
Detrital silt	Slt
Intergranular macropore	Bp
Iron oxide cement	F

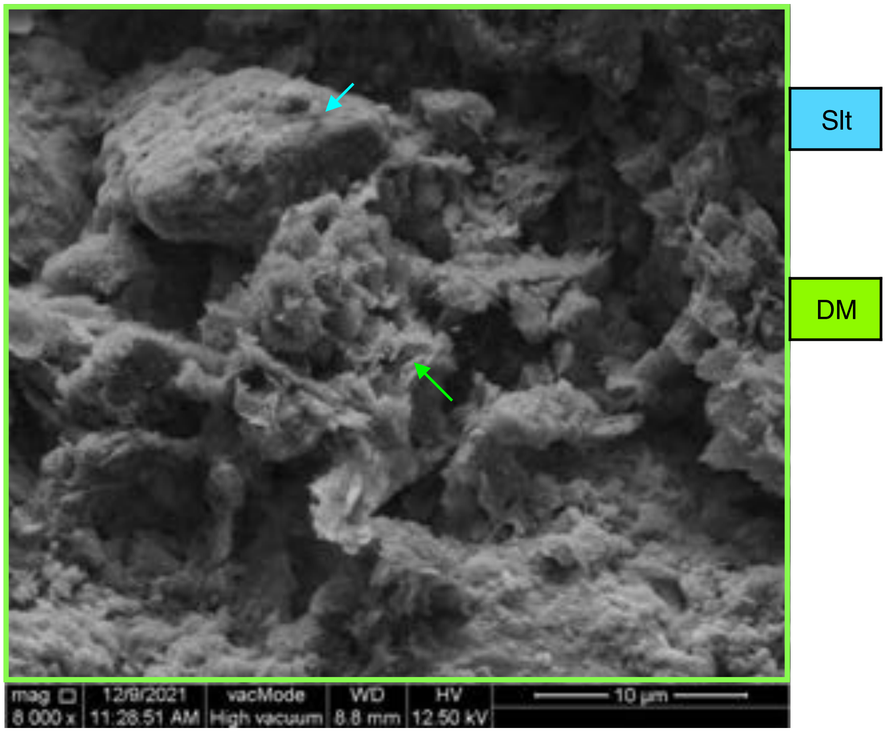
21253-02A 250X



21253-02B 2000X



21253-02C 8000X



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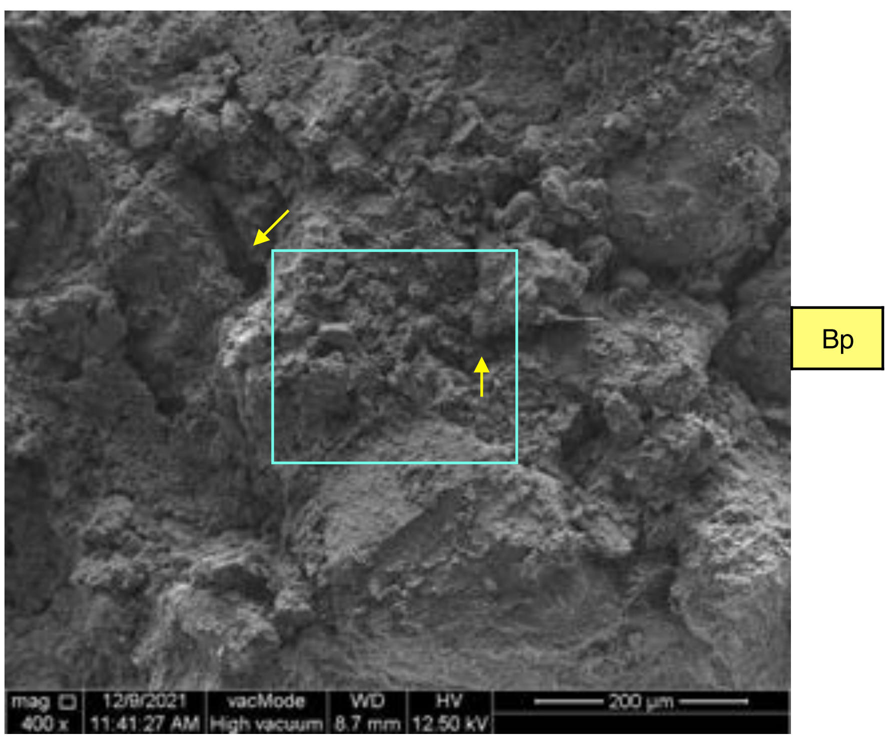

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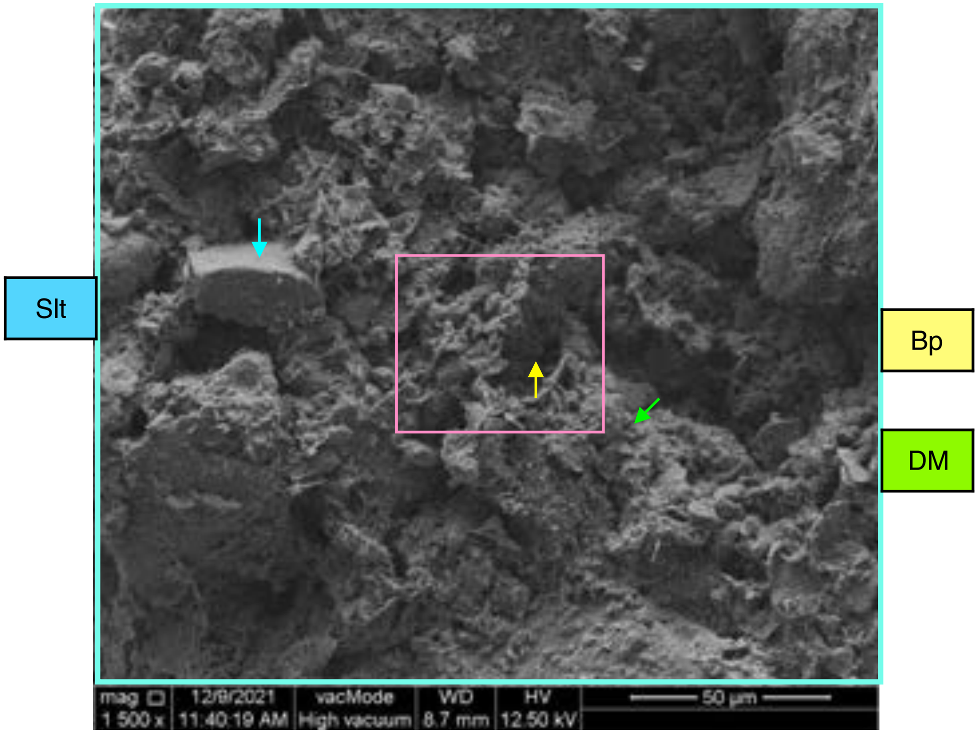

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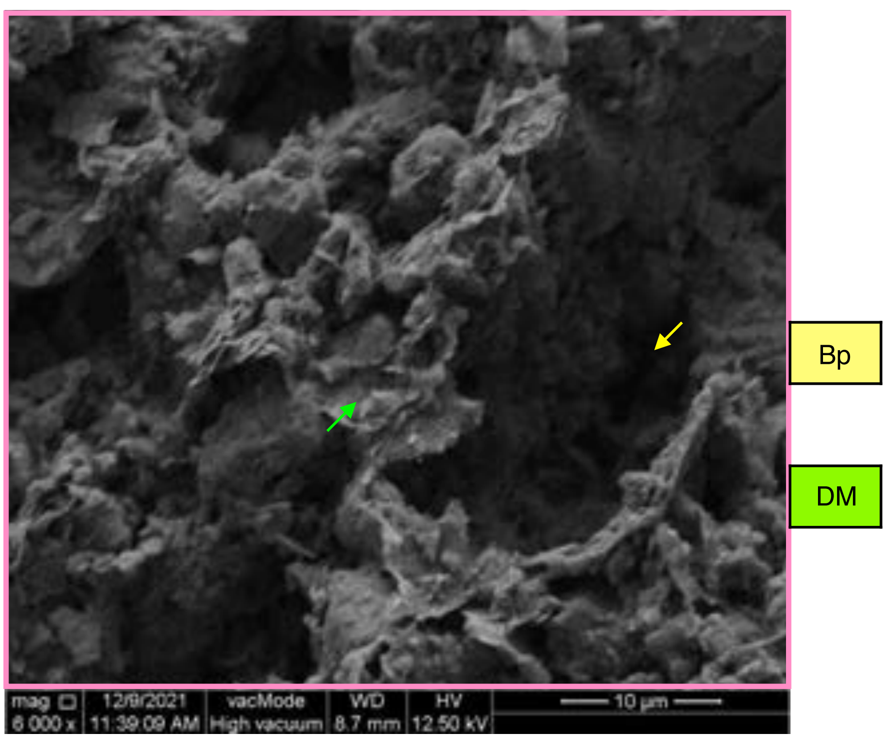
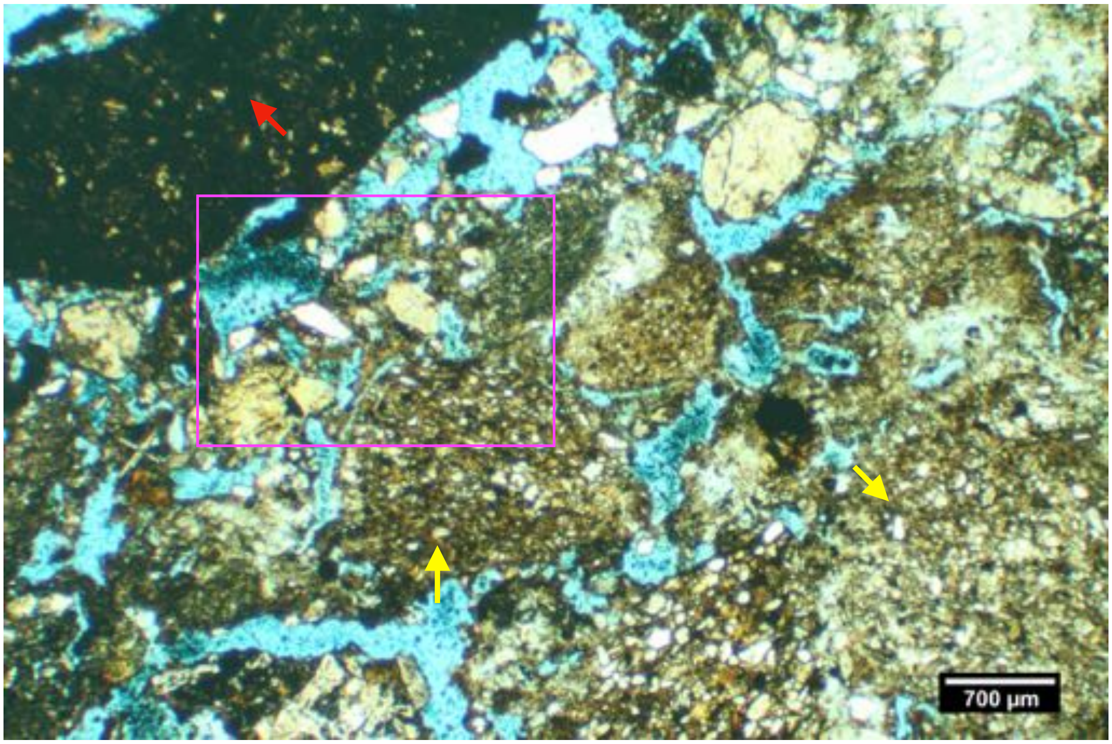
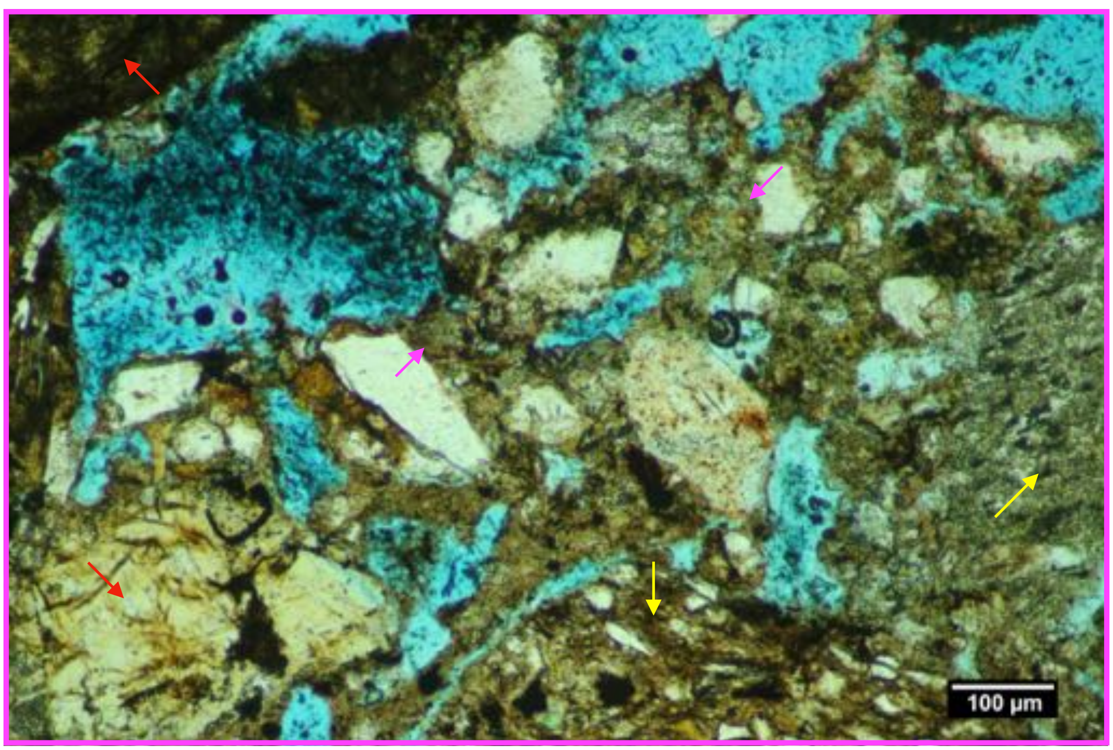


65.5-66.00 ft.; MI#21253-03

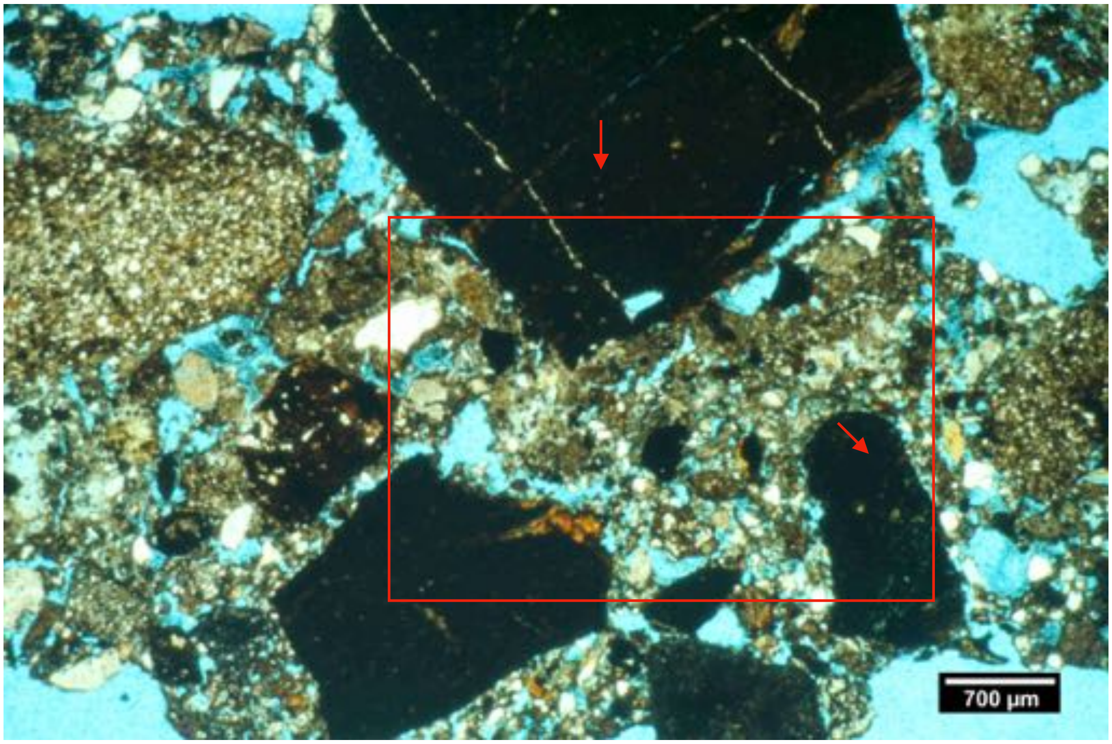


3A. A sandy pebble, litharenitic conglomerate with common serpentine RFs (red <) & silty mudstone RFs (yellow <). The highlighted area is detailed in Figure 3B.

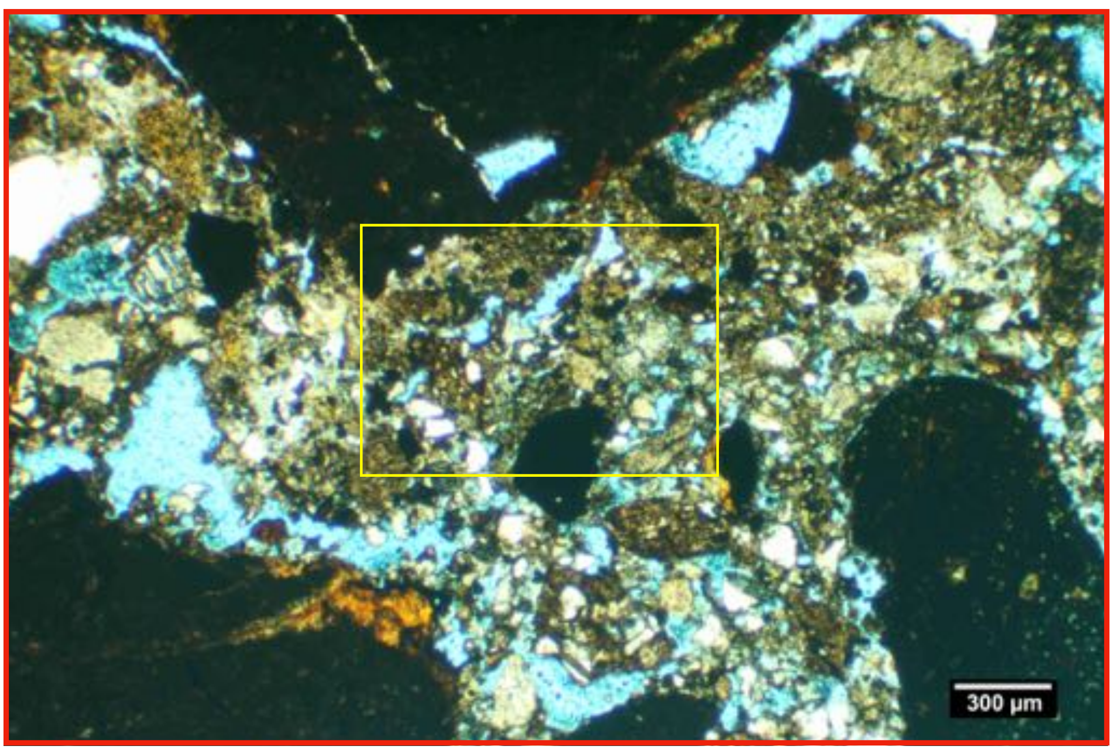


3B. Silty mudstone (yellow <) and serpentine RFs (red <) + detrital silt + smectite-rich detrital clay (magenta <).

65.5-66.00 ft.; MI#21253-03

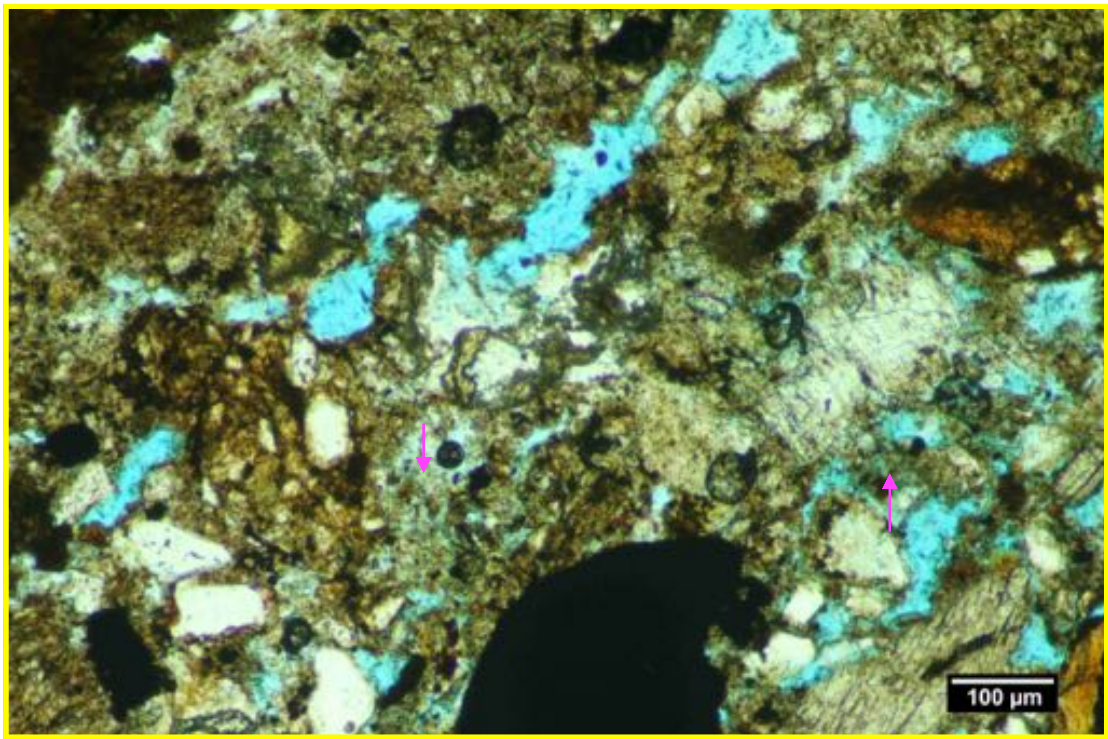


3C. Iron oxide & chrysotile-rich serpentine RFs (red <). Compaction and plastic deformation has generated significant pseudomatrix in this interval of the aquifer.



3D. Detailed view of the (red) highlighted area from Figure 3C. The yellow highlighted area is detailed in Figure 3E.

65.5-66.00 ft.; MI#21253-03



3E. Disaggregation of silty mudstone RFs accounts for much of the silt & clay-sized matrix material distributed throughout this grain-mount slide. Intercrystalline microporosity (magenta <) is locally well-preserved.

Morro Bay IPR

Morro Bay, CA

65.5 - 66.0 ft.

MI#21253-03 - SEM

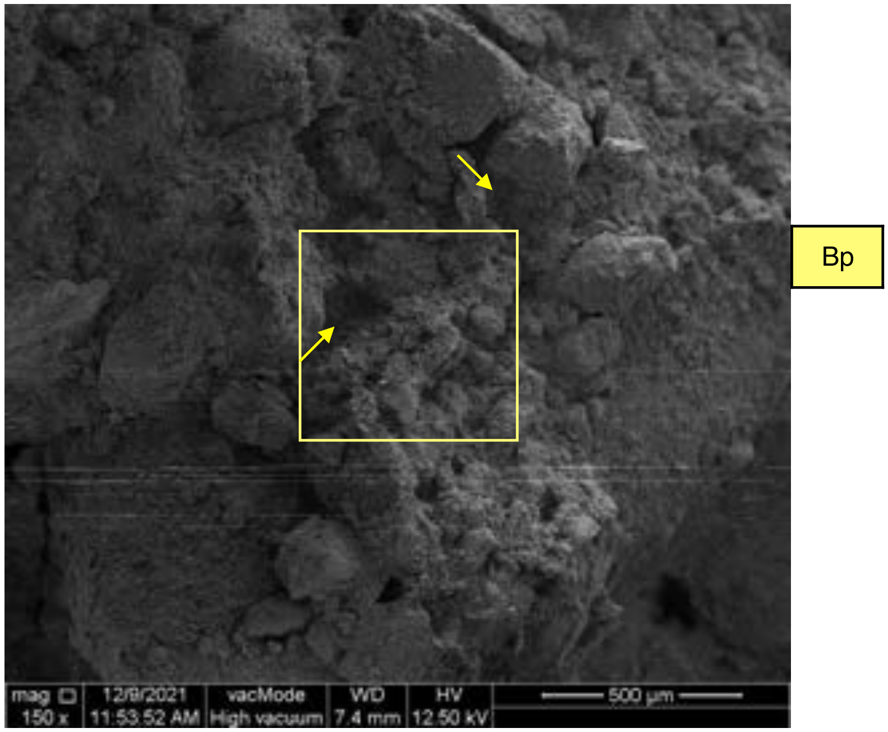
Summary: The SEM grain mount for this aquifer interval is very poorly sorted, granule-rich, and moderately porous. Coarsely textured rock fragments (RFs) include serpentine & silty mudstone RFs, with very poorly sorted, clay & silt-rich sediments locally attributed to the disaggregation of selected mudstone & shale RFs (as pseudomatrix). The pore-filing clay clusters are smectite-rich & locally microporous. Intergranular grain boundaries for the sand-sized grain materials are commonly blurred and obscured due to the weakly consolidated character of selected lithic grain materials. The most densely packed portions of this grain mount exhibit and abundance of microporous, silt-rich pseudomatrix, with scattered preservation of intergranular macroporosity.

21253-03 Photo Index: (bookmarks)

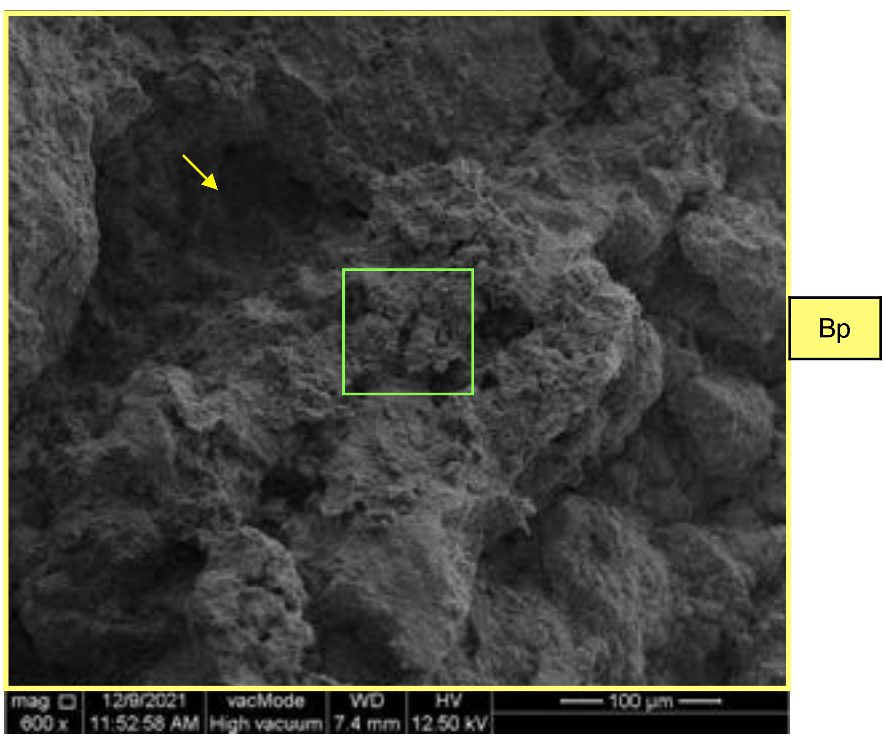
Sample ID	Magnification
21253-03A	150X
21253-03B	600X
21253-03C	5000X
21253-03D	200X
21253-03E	800X

Detrital (smectite-rich) matrix	DM
Detrital silt	Slt
Intergranular macropore	Bp
Iron oxide cement	F

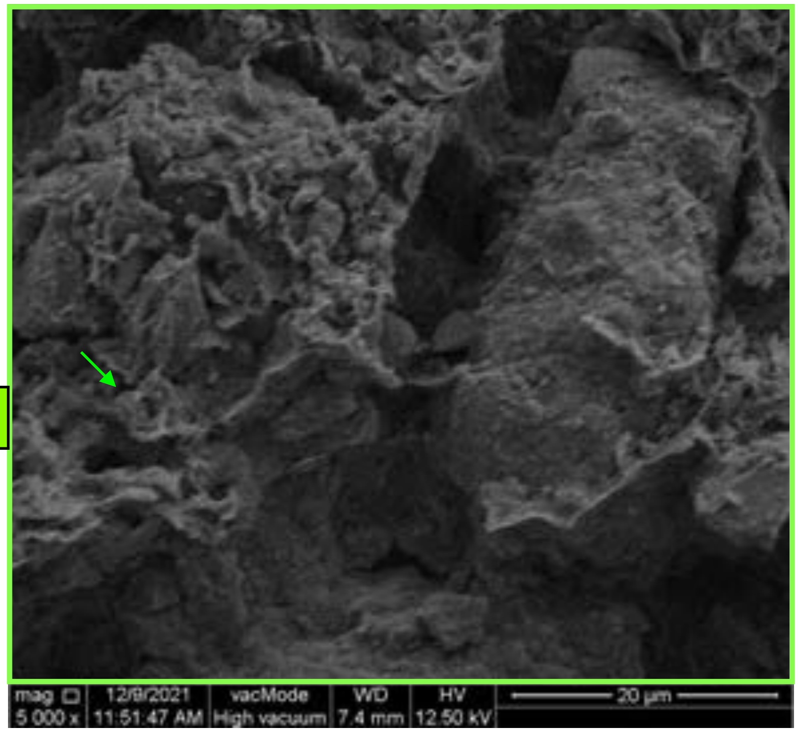
21253-03A 150X



21253-03B 600X

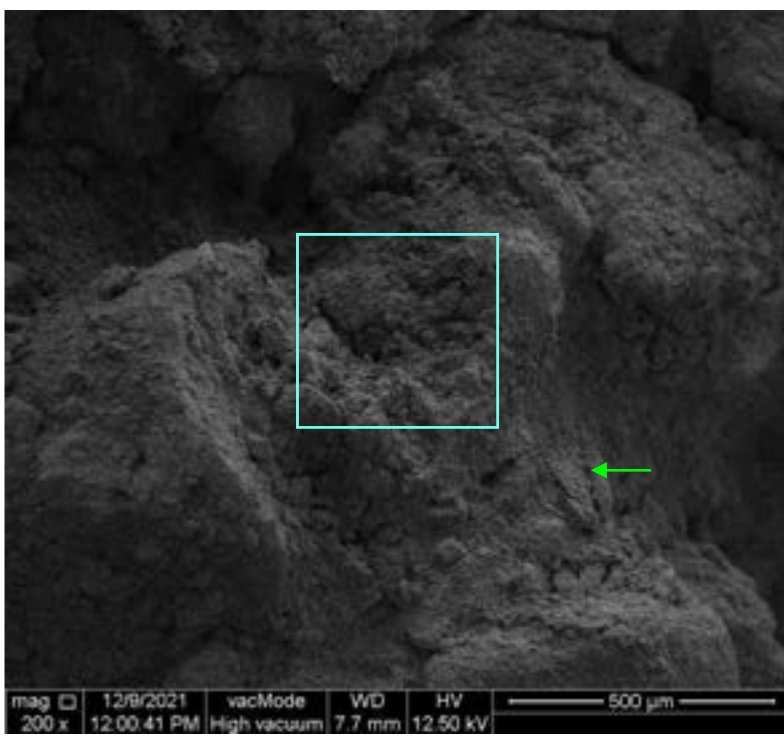


21253-03C 5000X



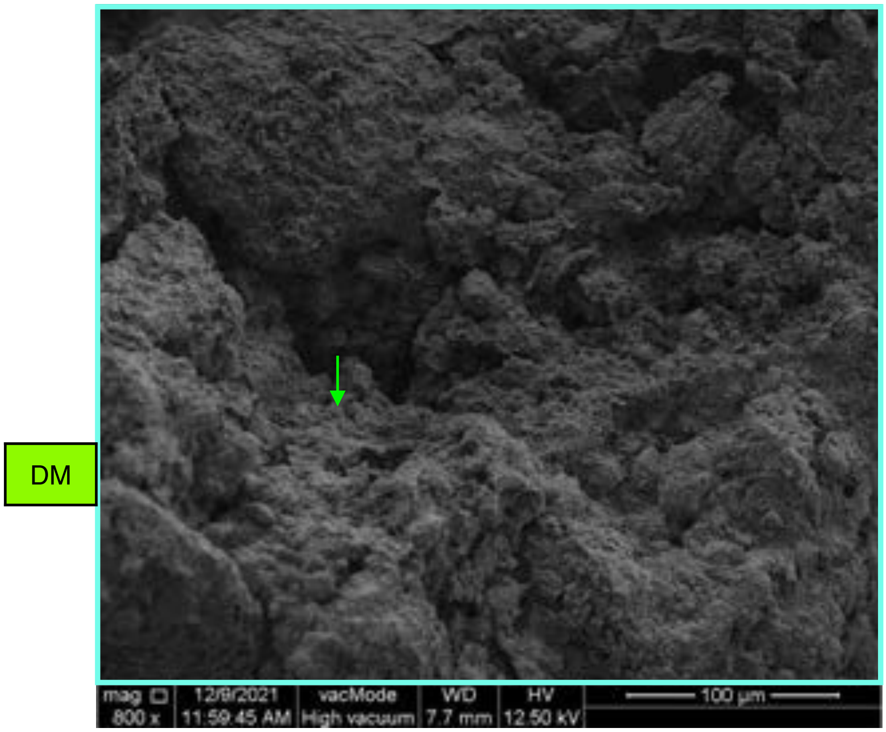
DM

21253-03D 200X



DM

21253-03E 800X



21253-03F 6000X

<u>ATTACHMENT C</u>

Water Solutions, Inc.

DRAFT TECHNICAL MEMORANDUM

DRAFT Geochemical Work Plan for Groundwater Replenishment and Reuse Project, Morro Bay, California

To: Lydia Holmes and Anthony Cemo; Carollo Engineers

From: Tim Thompson and Tim Nicely; GSI Water Solutions

CC: Brynne Weeks and Andrew Salveson; Carollo Engineers

Date: April 7, 2021

Introduction and Purpose

GSI Water Solutions (GSI) is supporting the City of Morro Bay with permitting and installation of a planned indirect potable reuse (IPR) project, which will use highly treated recycled water from the City's forthcoming Water Reclamation Facility (WRF). The installation and operation of a Groundwater Replenishment Reuse Project (GRRP) using IPR (subsurface application) is central to the overall project. As a part of this project, this memo presents our work plan to characterize significant subsurface geochemical parameters that may impact the project.

Background

As part of the installation of the monitoring well that will be installed along with the initial injection well, undisturbed physical samples of the aquifer sediments from the primary injection zone will be collected. These samples will be submitted for geochemical analysis by a specialized analytical laboratory (Minerology, Inc). Results of this analysis will be used along with native groundwater water quality and anticipated injection water quality to model the potential for geochemical reactions in the aquifer soil matrix that may occur during project operations.

Two important objectives of this work will be to assess (a) the potential for the injection well screens and filter pack to become clogged due to reactions between injected water, native groundwater, and the aquifer matrix in the vicinity of the injection wells, and (b) the potential for geochemical reactions to occur which could generate adverse groundwater quality in the recovered groundwater. These analyses will assess the potential geochemical reactions that may occur both through reactions associated with the mixing of two different waters (native groundwater and the advanced treated recycled water), and through the chemical reactions of the injected water with the sediments comprising the aquifer.

Additionally, as described in the Injection Testing Work Plan, a series of water quality samples will be collected and analyzed during the injection well testing to assess any changes in water quality following the injection. A series of sampling events will be conducted to ascertain changes in the injected water quality following residence within the aquifer for up to several weeks. The results of this analysis will be used in tandem with the analyses described below to better understand the potential for adverse geochemical reactions to occur.

Laboratory Analyses

The soil samples collected during installation of the new monitoring well to be located near the proposed injection well will be sent to a specialty laboratory (Mineralogy, Inc) for analysis by the following methods:

- X-Ray Diffraction (XRD): This method analyzes soil mineralogy, which is used to evaluate potential mineral-water reactions.
- X-Ray Fluorescence (XRF): This method analyzes soil chemical composition, which provides the abundances of elements not identified by XRD.
- SEM & Thin Section Petrography: Microscopy is used to identify mineral occurrences present below XRD detection limits; it also informs on mineral sizes, reactive coatings, and morphology.
- Particle Size Distribution: This method analyzes the clay content of soil.
- Cation Exchange Capacity: This method quantifies the abundance of reactive cation exchange sites on clay.

We will also send samples to a standard analytical laboratory for analysis of the following constituents:

- Hexavalent Chromium, Total Arsenic, Total Organic Carbon (TOC), Total Selenium, Total Sulfides, and Total Solids

Results from these analyses will be used in combination with the anticipated water quality of the recycled water to be injected to identify potential geochemical reactions that may occur.

Geochemical Modeling

To assess the potential for chemical reactions that could be problematic for injection well operations, GSI's subcontractor SS Papadopoulos & Associates, Inc. will employ the USGS geochemical modeling package PHREEQC to evaluate potential aqueous geochemical calculations. PHREEQC is a widely accepted geochemical modeling tool and is based on an ion-association aqueous model and has capabilities for speciation and saturation-index calculations, reaction-path and advective-transport calculations, mixing of solutions, mineral and gas equilibria, and other geochemical calculations. If the chemistry of the injected advanced treated water and the in-situ groundwater are known, and the minerology of the aquifer is characterized, the modelling package allows a detailed chemical analysis of the expected reaction products between the mixed waters and with the minerals comprising the aquifer sediments.

The chemistry of the in-situ groundwater will be characterized using existing water quality data from the City's production wells, and chemical analysis of the newly installed test and monitoring wells. The expected chemistry of the water to be injected will be based on water quality estimates from the WRF design engineer. To characterize the aquifer materials, mineralogical analyses will be conducted on core samples collected during drilling of the monitoring wells. The results of this analysis will allow GSI to assess the potential for potential problems associated with mixing of the injected water and the aquifer materials including dissolution or precipitation of minerals through geochemical reactions, which can cause clogging in both the well screen and the pore space of the aquifer skeleton itself.

Results

Utilizing the (a) mineralogical analysis results from Minerology Inc., (b) the water quality information of the native groundwater and predicted IPR water, and (c) the water quality results collected during the Injection Well Testing, the geochemical analysis will be conducted and used to develop the assessment of any potentially deleterious conditions associated with the project activities. Recommendations will be provided for water quality treatment or operational approaches to minimize any potential adverse consequences of the proposed injection program.

Schedule

The aquifer sediment sample will be collected during monitoring well installation in late April. . Samples will be sent to Minerology, Inc. for analysis, a process that takes 2-3 weeks. Results will be received and used along with water quality data in the geochemical modeling which will occur over the following 4 weeks. A technical memorandum (TM) will be prepared documenting the work. This TM is anticipated to be complete by the end of May, if the proposed drilling and laboratory analysis schedules are met.

TECHNICAL MEMORANDUM

Results of Quarterly Groundwater Monitoring for Proposed Indirect Potable Reuse Project, City of Morro Bay, California

To:	Joe Mueller, City of Morro Bay
From:	Dave O'Rourke and Tim Thompson, GSI Water Solutions
CC:	Anthony Cemo and Lydia Holmes, Carollo Engineers
Attachments:	Figures, Tables, Groundwater Monitoring Plan (Appendix A), Field Sampling Logs (Appendix B), Analytical Laboratory Reports (Appendix C)
Date:	November 17, 2021

Introduction and Objectives

GSI Water Solutions (GSI) is supporting the City of Morro Bay with design, permitting and implementation of an indirect potable reuse (IPR) project, which will inject highly treated recycled water from the City's forthcoming Water reclamation Facility (WRF) into the Lower Morro Valley aquifer.

As per §60320.200(c) of Title 22:

> "Prior to operating a Groundwater Replenishment Reuse Project (GRRP), a project sponsor shall collect at least four samples, at least one sample each quarter, from each potentially affected aquifer. The samples shall be representative of water in each aquifer, taking into consideration seasonal variations, and be analyzed for the chemicals, contaminants, and characteristics pursuant to Sections 60320.210, 60320.212, 60320.218, and 60320.220."

In order to comply with this requirement, a series of four quarterly groundwater sampling events were conducted over the past year. This memo presents the results of that sampling along with other permit-required elements associated with the hydrogeology of the receiving aquifer. The sampling effort was presented in the Groundwater Monitoring Plan, dated November 24, 2020 and included in this memo as Attachment 1. Additionally, these water quality and hydrogeologic data will be incorporated into the Title 22 Engineering Report which is currently being prepared by Carollo Engineers with support from GSI.

The Groundwater Monitoring Plan presents a description of the IPR project, the permitting requirements for the operation of a GRRP, and the rationale of the wells included in groundwater monitoring. Briefly, the permits require collection of at least four samples from each potentially affected aquifer, which are to be analyzed for the chemicals, contaminants, and characteristics pursuant to sections 60320.210, 60320.212, 60320.218, and 60320.220. The IPR project is located within the City of Morro Bay, west of Highway 1 and south of Atascadero Road as shown on Figure 1.

Groundwater sampling was conducted at four wells to characterize the groundwater quality in the project area in the same aquifer as the City's production wells. The location of the wells included in the groundwater monitoring is presented on Figure 2 and listed below:

- 20-P01
- 19P-04
- MB-3 well
- High School (HS) wells 1 and 2

As presented in detail below, the laboratory results for samples collected during this monitoring effort indicate that neither primary nor secondary MCLs are exceeded for any of the analyzed constituents.

Schedule and Logistics

Groundwater sampling was conducted between September 2020 and July of 2021. The first groundwater monitoring samples were collected in September 2020 consisted of a composite sampling of a blend of water produced from two City production wells: MB-3 and High School Well 2. After the collection and analysis of this composite sample, the subsequent 3 quarterly sampling events collected discrete groundwater samples from each of the four individual wells (Well MB-3, High School Well 1 or 2[1], piezometer 19P-04, and the piezometer 20P-01) in December 2020, April 2021 and July 2021. (During the December event, field staff did not collect samples for PFAS analysis; when this oversight was discovered, staff re-mobilized to the field in January to address this data gap.)

During this period, groundwater levels were measured at the Morro Bay production wells, monitoring wells and the desalination[2] wells for use in producing groundwater contour maps which illustrate groundwater gradients and flow directions (Figures 3 through 6).

Samples were collected to assess the chemical concentrations of all the constituents identified in the constituent list as included in the November 2020 document “Groundwater Monitoring Plan for Groundwater Replenishment and Reuse”, which was submitted to and approved by the RWQCB (see Appendix A). Field sampling logs for each sampled well during the sampling events are included in Appendix B. Laboratory Analytical Reports and Chains of Custody are included as Appendix C.

Results and Observations

Water quality results from the four sampling events are summarized below. These results are discussed in the following sections. As required by section 60323, this memorandum also addresses the following hydrogeological topics:

- Results of the four rounds of consecutive quarterly monitoring
- Geologic and hydrogeologic setting of the basin,
- Existing hydrogeology and hydrogeology anticipated as a result of the operation of the GRRP, and
- Maps showing the quarterly groundwater elevation contours, along with vector flow directions and calculated hydraulic gradients.

[1] During the December 2020 groundwater monitoring event, samples were collected from High School Well 2. During the third and fourth sampling events, samples were collected from adjacent High School Well 1 because the well pump at High School Well 2 had failed and was being repaired.

[2] The so-called desalination wells, shown on Figure 1, were originally installed to function as seawater intake wells for a proposed desalination plant. The plant was not built and the wells are now used for monitoring purposes to track both groundwater elevations and salinity concentration over time.

Results of Groundwater Quality Sampling

Tables 1 through 6 present the results of the water quality sampling for the composite sample (MB-3 and High School-2), piezometer 20P-01, piezometer 19P-04, and City wells MB-3, High School-1, and High School-2, respectively. A summary of the analytical results for several key constituents or classes of constituents is provided below.

Total Dissolved Solids

Total Dissolved Solids (TDS) has a secondary MCL of 1,000 mg/L. Groundwater Quality in well High School-2 has the highest TDS concentration of the well sampled. TDS concentrations in samples from piezometer 20-P01 ranged from 720 mg/L in December 2020 to 860 mg/L in July 2021. TDS concentrations in samples from piezometer 19-P04 ranged from 890 mg/L in December 2020 to 990 mg/L in July 2021.TDS concentrations in well MB-3 ranged from 990 mg/L in December 2020 to 1,100 mg/L in July 2021. The sole discrete sample from well High School-2 had a concentration of 990 mg/L in December 2020. The two discrete samples from well High School-1 had TDS concentrations of 2,200 mg/L in April 2021 and 2,700 mg/L in July 2021. The sole composite sample from wells MB-3 and High School-2 had a TDS concentration of 990 mg/L.

In general, TDS concentrations appear to increase from the south to the north, with the lowest concentrations observed in the samples from piezometer 20-P01, and the highest concentrations in the samples collected from the High School-1 well. It is also noteworthy that the High School-1 and High School-wells, though only about 200 feet apart, have significant differences in TDS concentrations.

Chloride

Chloride has a secondary MCL of 500 mg/L; the High School-1 well is the only well with sample concentrations exceeding this value. Chloride concentrations in groundwater appear to follow the same general pattern as observed in the TDS data, with the lowest concentrations in the south, and increasing to the north.

Chloride concentrations in samples from piezometer 20-P01 ranged from 120 mg/L in December 2020 to 140 mg/L in July 2021. Chloride concentrations in samples from 19-P04 ranged from 160 mg/L in December 2020 to 170 mg/L in July 2021. Chloride concentrations in samples from well MB-3 ranged from 160 mg/L in December 2020 to 170 mg/L in July 2021. The sole discrete sample from the High School-2 well had a chloride concentration of 230 mg/L in December 2020. The two discrete samples from the High School-1 well had chloride concentrations of 970 mg/L in April 2021 and 1,100 mg/L in July 2021. The sole composite sample from wells MB-3 and High School-2 had a chloride concentration of 190 mg/L.

Sulfate

Sulfate has a secondary MCL of 500 mg/L; none of the samples collected had sulfate concentrations exceeding this value. Sulfate concentrations in samples from piezometer 20-P01 ranged from 140 mg/L in December 2020 to 150 mg/L in July 2021. Sulfate concentrations in samples from 19-P04 ranged from 170 mg/L to 180 mg/L. Sulfate concentrations in samples from well MB-3 ranged from 160 to 170 mg/L. The sole discrete sample from the High School-2 well had a sulfate concentration of 120 mg/L in December 2020. The two discrete samples from well High School-1 had sulfate concentrations of 140 mg/L in April 2021 and 150 mg/L in July 2021. The sole composite sample from wells MB-3 and High School-2 had a sulfate concentration of 150 mg/L.

Nitrate

Nitrate is a contaminant often associated with agricultural fertilizer application that has a primary MCL for Nitrate (as N) of 10 mg/L. The existence of a primary MCL indicates that this chemical has a documented impact on human health. The City recognizes that nitrates have been found in water from their wells over the

past several years. The source is likely fertilizer applications on agricultural land upgradient from the Highway 1 well field. This phenomenon has been discussed and modeled in the 4/19/2019 Technical Memo “Morro Bay Water Reclamation Facility Water Quality Groundwater Modeling”, which was previously transmitted to the RWQCB.

Samples from wells MB-3 and High School-2 have nitrate concentrations that exceed the MCL. None of the other wells had samples with nitrate concentrations exceeding the MCL in discrete groundwater samples. Nitrate concentrations in samples from piezometer 20-P01 were 1.5 mg/L, 1.4 mg/L, and 1.7 mg/L in the three consecutive discrete sampling events. Nitrate concentrations in samples from piezometer 19-P04 were 1.8 mg/L, 2.0 mg/L, and 2.4 mg/L in the three consecutive discrete sampling events. Nitrate concentrations in samples from well MB-3 were 26 mg/L, 22 mg/L, and 24 mg/L in the three consecutive discrete sampling events. The sole discrete sample from the High School-2 well had a nitrate concentration of 17 mg/L in December 2020. The two discrete samples from well High School-1 had nitrate concentrations of 7.9 mg/L in April 2021 and 8.7 mg/L in July 2021. The sole composite sample collected from comingled groundwater from wells MB-3 and High School-2 had a nitrate concentration of 21 mg/L.

Arsenic

Arsenic has a Primary MCL of 0.010 mg/L. One of the discrete samples (the April 2021 sample) collected from well High School-1 had an arsenic concentration 0.012 mg/L. Other samples collected had arsenic concentrations ranging from Non-Detect to 0.0033 mg/L.

Boron

Boron does not have either a primary or secondary MCL established, although it may have a negative impact on some agricultural products, depending on quantity of use, crop type, and other factors. Boron concentrations in samples collected from the monitoring wells range from 0.092 mg/L to 0.17 mg/L. These boron concentrations are not anticipated to precipitate any water quality issues in the use of groundwater in the Basin.

Other Anthropogenic Contaminant Compounds

Other significant anthropogenic compounds analyzed for in the collected samples include metals, herbicides, pesticides, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), PCBs, Disinfection By-products, and others. The full reporting of all analytes on the constituent list is provided in Tables 1 through 6, and Appendix C.

The laboratory results for samples collected during this monitoring effort indicate that neither primary nor secondary MCLs are exceeded for any of the analyzed constituents.

Seasonal Impacts

Groundwater quality results were compared to drinking water standards. As previously discussed, there were five exceedances of Nitrate (as N) in the samples from wells MB-3, High School-2, and the composite sample taken from comingled waters from MB-3 and High School-2. There was a single exceedance of Arsenic from one sample collected from the High School-1 well. Groundwater quality results are presented in table format in Tables 1 through 6. Groundwater quality was generally consistent throughout the season. However, the concentrations of some constituents were slightly greater during the dry seasonal conditions of fourth monitoring event than the previous three monitoring events. Some of the constituents that show higher concentrations during lower groundwater levels include TDS, Barium, Chloride, Chromium, Fluoride, Cobalt, EC, Molybdenum, Nickle, Sulfate, and Vanadium. However, the reported concentrations of these constituents remained below drinking water standards.

Geologic and Hydrogeologic Setting

The Morro Bay GRRP site is located within the Western, or lower, region of the Morro Valley Groundwater Basin (Basin). The aquifer in the Basin is comprised of unconsolidated alluvial gravel, sand, silt, and clay deposited by alluvial processes of Morro Creek. The Basin is bounded on the west by the Pacific Ocean and on the north and south by the relatively impermeable rocks of the Franciscan Formation. To the east of the project area, the lateral extent of the sediments thins to a small width about 200-300 feet wide, constrained by bedrock outcrops on both sides, referred to locally as the "Narrows". Precipitation in the area averages from 15 to 17 inches per year. The primary sources of recharge to the Basin in the project area are percolation of streamflow in Morro Creek, and infiltration of precipitation.

The City's interpretation of the aquifer characteristics is presented in greater detail in a series of technical memos (GSI 2017, GSI 2019, GSI 2021) documenting the development and refinement of a groundwater model of the aquifer below the Narrows. These documents have been previously transmitted to the RWQCB.

Stratigraphy

Boring logs and well completion reports for all known wells and piezometers in and around the project area were reviewed to gain an understanding of the stratigraphy in the area. In general, the aquifer is comprised of numerous non-contiguous lenses of alternating coarse-grained and fine-grained alluvial sediments. Most subsurface logs indicate that coarser materials are found near the bottom of the aquifer which reaches up to 80 feet deep in some areas of the Basin, while finer sediments are more commonly found near land surface and in the shallow portions of the aquifer. The deeper sands and gravels are the zones which are screened in the City's production wells in the project area.

Groundwater Elevation Maps

Groundwater contour maps displaying groundwater elevation contours and flow direction for four quarters between October 2020 and July 2021 are presented in Figures 3 through 6. The maps depict the direction and gradient of shallow groundwater movement beneath and immediately surrounding the GRRP during each quarter based on groundwater elevation data gathered from pressure transducers installed in wells owned and operated by the City of Morro Bay. The groundwater movement beneath the site was towards the west and southwest at a gradient of approximately 0.004 to 0.006 feet/foot during all of the year, which occurred during a relatively dry period. The groundwater elevation at the most upgradient well (MB-3), varied from 14.01 feet to 11.50 feet above mean sea level. The groundwater elevation at the most downgradient well (S-5) varied from 0.92 to 1.57 feet above mean sea level.

Existing and Anticipated Project Hydrogeology

Under current conditions documented during the prior year, groundwater flows approximately west to southwestward toward the Pacific Ocean, as displayed in the groundwater elevation maps included as Figures 3 through 6. The groundwater flow direction below the GRRP under these background conditions were determined based on measured groundwater elevations.

Under anticipated project conditions, the operation of the GRRP will cause localized mounding of groundwater under the injection site(s) and alter groundwater flow to a more generally more northerly flow direction, from the injection wells to the extraction points at the City's existing production wells. This will be described in more detail in the Basis of Design Memorandum pending completion of the pilot injection testing and associated groundwater modeling.

References

GSI Water Solutions 2017. Lower Morro Valley Basin Screening-Level Groundwater Modeling for Injection Feasibility.

GSI Water Solutions 2019. Morro Bay Water Reclamation Facility Water Quality Groundwater Modeling,

GSI Water Solutions 2021. Characterization and Selection of Project Area for Injection Testing City of Morro Bay.

FIGURE 1

Site Vicinity Map

Groundwater Replenishment
Reuse Project
Morro Bay, California

LEGEND

- Morro Bay City Well
- MBMWC Well
- Desalination Well
- Piezometer
- Model Active Area

All Other Features

- City Boundary
- Major Road
- Watercourse

NOTES:
MBMWC: Morro Bay Mutual Water Company.
Well MBMWC is inactive.

N

0 500 1,000
Feet

Date: November 15, 2021
Data Sources: USGS, ESRI,
City of Morro Bay

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\GW_Replenishment\Figure1_SiteVicinity.mxd

FIGURE 2

Sampled Groundwater Monitoring Wells

Groundwater Replenishment
Reuse Project
Morro Bay, California

LEGEND

- Sampled Groundwater Well (existing)
- Bike Path
- Project Area
- Tentative Initial Injection Well Location Area
- Major Road
- Watercourse

N

0 200 400
Feet

Date: November 15, 2021
Data Sources: USGS, ESRI

GSI Water Solutions, Inc.

FIGURE 3
October 2020, Groundwater Elevation Contour

Morro Bay
Background Groundwater
Quality Monitoring

LEGEND

- Monitoring Well
  Groundwater Elevation, feet
- Groundwater Elevation Contour, feet
- Groundwater Flow Direction
- Major Road
- Watercourse

N

0 250 500
Feet

Date: November 15, 2021
Data Sources: ESRI, USGS, NAIP 2018

FIGURE 4
January 2021, Groundwater Elevation Contour

Morro Bay
Background Groundwater
Quality Monitoring

LEGEND

- Monitoring Well
  Groundwater Elevation, feet
- Groundwater Elevation Contour, feet
- Groundwater Flow Direction
- Major Road
- Watercourse

N

0 250 500
Feet

Date: November 15, 2021
Data Sources: ESRI, USGS, NAIP 2018

GSI Water Solutions, Inc.

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FIGURE 5
April 2021, Groundwater Elevation Contour

Morro Bay
Background Groundwater
Quality Monitoring

LEGEND

- Monitoring Well
  Groundwater Elevation, feet
- Groundwater Elevation Contour, feet
- Groundwater Flow Direction
- Major Road
- Watercourse

N

0 250 500
Feet

Date: November 15, 2021
Data Sources: ESRI, USGS, NAIP 2018

GSI Water Solutions, Inc.

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FIGURE 6
July 2021, Groundwater Elevation Contour

Morro Bay
Background Groundwater
Quality Monitoring

LEGEND

- Monitoring Well
  Groundwater Elevation, feet
- Groundwater Elevation Contour, feet
- Groundwater Flow Direction
- Major Road
- Watercourse

N

0 250 500
Feet

Date: November 15, 2021
Data Sources: ESRI, USGS, NAIP 2018

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TABLE 1
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Composite Sample (MB-3 and High School-2)

Method	Analyte	9.10.2021 Results	Units	MCL	SMCL	NL
General Chemistry						
E100.2	Asbestos	ND	MFL	7	--	--
E317	Bromate	ND	ug/L	10	--	--
E300.0	Chlorate	25	ug/L	--	--	800
E300.0	Chloride	190	mg/L	--	500	--
E300.0	Chlorite	ND	mg/L	1	--	--
2120B	Color	ND	None	--	--	--
SW8015B	Ethylene Glycol	ND	mg/L	--	--	14
SM4500-F-C	Fluoride	0.22	mg/L	2	--	--
E556.1	Formaldehyde	ND	ug/L	--	--	100
5540C	MBAS	ND	mg/L	--	0.5	--
E300.0	Nitrate (as N)	**21**	mg/L	10	--	--
E300.0	Nitrate (as NO3)	92	mg/L	--	--	--
E300.0	Nitrate + Nitrite (As N)	**21**	mg/L	10	--	--
E300.0	Nitrite (as N)	ND	mg/L	1	--	--
2150B	Odor	ND	None	--	--	--
E314.0	Perchlorate	ND	ug/L	6	--	--
2510B	Specific Conductivity	1700	umhos/cm	--	1600	--
E300.0	Sulfate	150	mg/L	--	500	--
SM4500-CN-F	Total Cyanide	ND	ug/L	150	--	--
SM2540C	Total Dissolved Solids	990	mg/L	--	1000	--
E351.2	Total Kjeldahl Nitrogen	ND	mg/L	--	--	--
E351.1	Total Nitrogen	21	mg/L	--	--	--
SM5310C	Total Organic Carbon	1	mg/L	--	--	--
E180.1	Turbidity	2.5	NTU	--	--	--
Metals						
E200.8	Aluminum	ND	ug/L	1000	--	--
E200.8	Antimony	ND	ug/L	6	--	--
E200.8	Arsenic	ND	ug/L	10	--	--
E200.8	Barium	130	ug/L	1000	--	--
E200.8	Beryllium	ND	ug/L	4	--	--
E200.7	Boron	130	ug/L	--	--	1000
E200.8	Cadmium	ND	ug/L	5	--	--
E200.8	Chromium	3	ug/L	50	--	--
SM 3500CrB	Chromium, Hexavalent	ND	ug/L	--	--	--
E200.8	Cobalt	ND	ug/L	--	--	--
E200.8	Copper	ND	ug/L	--	--	--
E200.7	Iron	ND	ug/L	--	300	--
E200.8	Lead	ND	ug/L	--	--	--
E200.7	Lithium	6	ug/L	--	--	--
E200.8	Manganese	ND	ug/L	--	50	--
E200.8	Mercury	ND	ug/L	2	--	--
E200.8	Molybdenum	ND	ug/L	--	--	--
E200.8	Nickel	ND	ug/L	100	--	--
E200.8	Selenium	18	ug/L	50	--	--
E200.8	Silver	ND	ug/L	--	--	--
E200.8	Thallium	ND	ug/L	2	--	--
E200.8	Tin	ND	ug/L	--	--	--
E200.8	Titanium	80	ug/L	--	--	--
E200.8	Uranium	1.7	ug/L	20	--	--
E200.8	Vanadium	3	ug/L	--	--	50
E200.8	Zinc	ND	ug/L	--	5000	--
Herbicides/Pesticides						
E515.4	2,4,5-TP	ND	ug/L	50	--	--
E515.4	2,4-D	ND	ug/L	70	--	--
E531.2	3-Hydroxycarbofuran	ND	ug/L	--	--	--
E525.2	4,4'-DDD	ND	ug/L	--	--	--
E525.2	4,4'-DDE	ND	ug/L	--	--	--
E525.2	4,4'-DDT	ND	ug/L	--	--	--
E505	Alachlor	ND	ug/L	2	--	--
E525.2	Alachlor	ND	ug/L	2	--	--
E531.2	Aldicarb	ND	ug/L	--	--	--
E531.2	Aldicarb sulfone	ND	ug/L	--	--	--
E531.2	Aldicarb sulfoxide	ND	ug/L	--	--	--
E525.2	Alpha-BHC	ND	ug/L	--	--	--
E531.2	Baygon	ND	ug/L	--	--	--
E515.4	Bentazon	ND	ug/L	18	--	--
E525.2	Beta-BHC	ND	ug/L	--	--	--
E531.2	Carbaryl	ND	ug/L	--	--	--
E531.2	Carbofuran	ND	ug/L	18	--	--
E505	Chlordane	ND	ug/L	0.1	--	--
E515.4	Dalapon	ND	ug/L	200	--	--

MCL = Maximum Contaminant Level (Bold = exceedance)
SMCL = Secondary Maximum Contaminant Level (Bold = exceedance)
NL = Notification Limit
ND = Non-Detect
J = Estimated value.
B = The analyte was found in a method blank, as well as in the sample.

GSI Water Solutions, Inc.

TABLE 1
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Composite Sample (MB-3 and HS-2)

Method	Analyte	9.10.2021 Results	Units	MCL	SMCL	NL
E525.2	Delta-BHC	ND	ug/L	--	--	--
E525.2	Dieldrin	ND	ug/L	--	--	--
E515.4	Dinoseb	ND	ug/L	7	--	--
E549.2	Diquat	ND	ug/L	20	--	--
E525.2	Endosulfan I	ND	ug/L	--	--	--
E525.2	Endosulfan II	ND	ug/L	--	--	--
E525.2	Endosulfan Sulfate	ND	ug/L	--	--	--
E548.1	Endothal	ND	ug/L	--	--	--
E505	Endrin	ND	ug/L	2	--	--
E525.2	Endrin	ND	ug/L	2	--	--
E525.2	Endrin Aldehyde	ND	ug/L	--	--	--
E525.2	Gamma-BHC	ND	ug/L	0.2	--	--
E505	Gamma-BHC	ND	ug/L	0.2	--	--
E547	Glyphosate	ND	ug/L	700	--	--
E525.2	Heptachlor	ND	ug/L	0.01	--	--
E505	Heptachlor	ND	ug/L	0.01	--	--
E525.2	Heptachlor Epoxide	ND	ug/L	0.01	--	--
E505	Heptachlor Epoxide	ND	ug/L	0.01	--	--
E531.2	Methiocarb	ND	ug/L	--	--	--
E531.2	Methomyl	ND	ug/L	--	--	--
E505	Methoxychlor	ND	ug/L	30	--	--
E525.2	Methoxychlor	ND	ug/L	30	--	--
E531.2	Oxamyl	ND	ug/L	50	--	--
E549.2	Paraquat	ND	ug/L	--	--	--
SW8270C	Pentachlorophenol	ND	ug/L	1	--	--
E515.4	Pentachlorophenol	ND	ug/L	1	--	--
E515.4	Picloram	ND	ug/L	500	--	--
E505	Toxaphene	ND	ug/L	3	--	--
VOCs						
E524.2	1,1,1,2-Tetrachloroethane	ND	ug/L	--	--	--
SW8260B	1,1,1,2-Tetrachloroethane	ND	ug/L	--	--	--
SW8260B	1,1,1-Trichloroethane	ND	ug/L	200	--	--
E524.2	1,1,1-Trichloroethane	ND	ug/L	200	--	--
E524.2	1,1,2,2-Tetrachloroethane	ND	ug/L	1	--	--
SW8260B	1,1,2,2-Tetrachloroethane	ND	ug/L	1	--	--
SW8260B	1,1,2-Trichlor-1,2,2-trifluoroethane	ND	ug/L	1200	--	--
E524.2	1,1,2-Trichloroethane	ND	ug/L	5	--	--
SW8260B	1,1,2-Trichloroethane	ND	ug/L	5	--	--
SW8260B	1,1-Dichloroethane	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethane	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethene	ND	ug/L	6	--	--
SW8260B	1,1-Dichloroethene	ND	ug/L	6	--	--
E524.2	1,1-Dichloropropene	ND	ug/L	--	--	--
SW8260B	1,1-Dichloropropene	ND	ug/L	--	--	--
E524.2	1,2,3-Trichlorobenzene	ND	ug/L	--	--	--
SW8260B	1,2,3-Trichlorobenzene	ND	ug/L	--	--	--
E524.2	1,2,3-Trichloropropane	ND	ug/L	0.005	--	--
SW8260B	1,2,3-Trichloropropane	ND	ug/L	0.005	--	--
E524.2Mod	1,2,3-Trichloropropane	ND	ug/L	0.005	--	--
E524.2	1,2,4-Trichlorobenzene	ND	ug/L	5	--	--
SW8260B	1,2,4-Trichlorobenzene	ND	ug/L	5	--	--
E524.2	1,2,4-Trimethylbenzene	ND	ug/L	--	--	330
SW8260B	1,2,4-Trimethylbenzene	ND	ug/L	--	--	330
504.1	1,2-Dibromo-3-chloropropane	ND	ug/L	0.2	--	--
SW8260B	1,2-Dibromo-3-chloropropane	ND	ug/L	0.2	--	--
E524.2	1,2-Dichlorobenzene	ND	ug/L	600	--	--
SW8260B	1,2-Dichlorobenzene	ND	ug/L	600	--	--
SW8260B	1,2-Dichloroethane	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloroethane	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloropropane	ND	ug/L	5	--	--
SW8260B	1,2-Dichloropropane	ND	ug/L	5	--	--
E524.2	1,3,5-Trimethylbenzene	ND	ug/L	--	--	330
SW8260B	1,3,5-Trimethylbenzene	ND	ug/L	--	--	330
SW8260B	1,3-butadiene	ND	ug/L	--	--	--
E524.2	1,3-Dichlorobenzene	ND	ug/L	--	--	--
SW8260B	1,3-Dichlorobenzene	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropane	ND	ug/L	--	--	--
SW8260B	1,3-Dichloropropane	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropene	ND	ug/L	0.5	--	--
SW8260B	1,4-Dichlorobenzene	ND	ug/L	5	--	--
E524.2	1,4-Dichlorobenzene	ND	ug/L	5	--	--
SW8260B	1,4-Dioxane	ND	ug/L	--	--	1

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Composite Sample (MB-3 and HS-2)

Method	Analyte	9.10.2021 Results	Units	MCL	SMCL	NL
SW8260B	2,2-Dichloropropane	ND	ug/L	--	--	--
E524.2	2,2-Dichloropropane	ND	ug/L	--	--	--
SW8260B	2-Chloroethyl vinyl ether	ND	ug/L	--	--	--
E524.2	2-Chlorotoluene	ND	ug/L	--	--	140
SW8260B	2-Chlorotoluene	ND	ug/L	--	--	140
SW8260B	2-Hexanone	ND	ug/L	--	--	--
E524.2	4-Chlorotoluene	ND	ug/L	--	--	140
SW8260B	4-Chlorotoluene	ND	ug/L	--	--	140
E524.2	4-Methyl-2-pentanone	ND	ug/L	--	--	--
SW8260B	4-Methyl-2-pentanone	ND	ug/L	--	--	--
SW8260B	Acetone	ND	ug/L	--	--	--
SW8260B	Acetonitrile	ND	ug/L	--	--	--
SW8260B	Acrolein	ND	ug/L	--	--	--
SW8260B	Acrylonitrile	ND	ug/L	--	--	--
SW8260B	Benzene	ND	ug/L	1	--	--
E524.2	Benzene	ND	ug/L	1	--	--
E524.2	Bromobenzene	ND	ug/L	--	--	--
SW8260B	Bromobenzene	ND	ug/L	--	--	--
E524.2	Bromochloromethane	ND	ug/L	--	--	--
SW8260B	Bromochloromethane	ND	ug/L	--	--	--
E524.2	Bromodichloromethane	ND	ug/L	80	--	--
SW8260B	Bromodichloromethane	ND	ug/L	80	--	--
E524.2	Bromoethane	ND	ug/L	--	--	--
E524.2	Bromoform	0.53	ug/L	80	--	--
SW8260B	Bromoform	ND	ug/L	80	--	--
E524.2	Bromomethane	ND	ug/L	--	--	--
SW8260B	Bromomethane	ND	ug/L	--	--	--
E524.2	Carbon disulfide	ND	ug/L	--	--	160
SW8260B	Carbon disulfide	ND	ug/L	--	--	160
E524.2	Carbon tetrachloride	ND	ug/L	0.5	--	--
SW8260B	Carbon tetrachloride	ND	ug/L	0.5	--	--
E524.2	Chlorobenzene	ND	ug/L	70	--	--
SW8260B	Chlorobenzene	ND	ug/L	70	--	--
SW8260B	Chloroethane	ND	ug/L	--	--	--
E524.2	Chloroethane	ND	ug/L	--	--	--
E524.2	Chloroform	ND	ug/L	80	--	--
SW8260B	Chloroform	ND	ug/L	80	--	--
E524.2	Chloromethane	ND	ug/L	--	--	--
SW8260B	Chloromethane	ND	ug/L	--	--	--
E524.2	cis-1,2-Dichloroethene	ND	ug/L	6	--	--
SW8260B	cis-1,2-Dichloroethene	ND	ug/L	6	--	--
SW8260B	cis-1,3-Dichloropropene	ND	ug/L	--	--	--
E524.2	cis-1,3-Dichloropropene	ND	ug/L	--	--	--
E524.2	Dibromochloromethane	ND	ug/L	80	--	--
SW8260B	Dibromochloromethane	ND	ug/L	80	--	--
SW8260B	Dibromomethane	ND	ug/L	--	--	--
E524.2	Dibromomethane	ND	ug/L	--	--	--
SW8260B	Dichlorodifluoromethane	ND	ug/L	--	--	1000
E524.2	Dichlorodifluoromethane	ND	ug/L	--	--	1000
SW8260B	Diethyl Ether	ND	ug/L	--	--	--
SW8260B	Diisopropyl ether	ND	ug/L	--	--	--
E524.2	Di-isopropyl ether	ND	ug/L	--	--	--
SW8260B	Ethanol	ND	ug/L	--	--	--
E524.2	Ethyl tert-butyl ether	ND	ug/L	--	--	--
E524.2	Ethylbenzene	ND	ug/L	300	--	--
SW8260B	Ethylbenzene	ND	ug/L	300	--	--
SW8260B	Ethylene dibromide	ND	ug/L	0.05	--	--
504.1	Ethylene dibromide	ND	ug/L	0.05	--	--
SW8260B	Hexachloro-1,3-Butadiene	ND	ug/L	--	--	--
E524.2	Hexachlorobutadiene	ND	ug/L	--	--	--
SW8260B	Hexane	ND	ug/L	--	--	--
SW8260B	Iodomethane	ND	ug/L	--	--	--
SW8260B	Isobutyl alcohol	ND	ug/L	--	--	--
SW8260B	Isopropanol	ND	ug/L	--	--	--
E524.2	Isopropylbenzene	ND	ug/L	--	--	770
SW8260B	Isopropylbenzene	ND	ug/L	--	--	770
SW8260B	m,p-Xylene	ND	ug/L	--	--	--
E524.2	m,p-Xylene	ND	ug/L	--	--	--
E524.2	Methyl ethyl ketone	ND	ug/L	--	--	--
SW8260B	Methyl ethyl ketone	ND	ug/L	--	--	--
SW8260B	Methyl t-butyl ether	ND	ug/L	--	--	--
E524.2	Methyl tert-butyl ether	ND	ug/L	13	--	--

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MORRO BAY WELLS
Composite Sample (MB-3 and HS-2)

Method	Analyte	9.10.2021 Results	Units	MCL	SMCL	NL
SW8260B	Methylene chloride	ND	ug/L	5	--	--
E524.2	Methylene chloride	ND	ug/L	5	--	--
SW8260B	Naphthalene	ND	ug/L	--	--	17
E524.2	Naphthalene	ND	ug/L	--	--	17
E524.2	n-Butylbenzene	ND	ug/L	--	--	260
SW8260B	n-Butylbenzene	ND	ug/L	--	--	260
E524.2	n-Propylbenzene	ND	ug/L	--	--	260
SW8260B	n-Propylbenzene	ND	ug/L	--	--	260
E524.2	o-Xylene	ND	ug/L	--	--	--
SW8260B	o-Xylene	ND	ug/L	--	--	--
E524.2	p-Isopropyltoluene	ND	ug/L	--	--	--
SW8260B	p-Isopropyltoluene	ND	ug/L	--	--	--
SW8260B	sec-Butylbenzene	ND	ug/L	--	--	260
E524.2	sec-Butylbenzene	ND	ug/L	--	--	260
E524.2	Styrene	ND	ug/L	100	--	--
SW8260B	Styrene	ND	ug/L	100	--	--
E524.2	tert-Amyl Methyl ether	ND	ug/L	--	--	--
E524.2	tert-Butyl alcohol	ND	ug/L	--	--	12
SW8260B	tert-Butyl alcohol	ND	ug/L	--	--	12
SW8260B	tert-Butylbenzene	ND	ug/L	--	--	260
E524.2	tert-Butylbenzene	ND	ug/L	--	--	260
SW8260B	Tetrachloroethene	ND	ug/L	5	--	--
E524.2	Tetrachloroethene	ND	ug/L	5	--	--
SW8260B	Tetrahydrofuran	ND	ug/L	--	--	--
SW8260B	Thiophene	ND	ug/L	--	--	--
SW8260B	Toluene	ND	ug/L	150	--	--
E524.2	Toluene	ND	ug/L	150	--	--
SW8260B	trans-1,2-Dichloroethene	ND	ug/L	10	--	--
E524.2	trans-1,2-Dichloroethene	ND	ug/L	10	--	--
E524.2	trans-1,3-Dichloropropene	ND	ug/L	--	--	--
SW8260B	trans-1,3-Dichloropropene	ND	ug/L	--	--	--
SW8260B	trans-1,4-Dichloro-2-butene	ND	ug/L	--	--	--
E524.2	Trichloroethene	ND	ug/L	5	--	--
SW8260B	Trichloroethene	ND	ug/L	5	--	--
SW8260B	Trichlorofluoromethane	ND	ug/L	150	--	--
E524.2	Trichlorofluoromethane	ND	ug/L	150	--	--
E524.2	Trichlorotrifluoroethane	ND	ug/L	--	--	--
SW8260B	Vinyl acetate	ND	ug/L	--	--	--
E524.2	Vinyl chloride	ND	ug/L	0.5	--	--
SW8260B	Vinyl chloride	ND	ug/L	0.5	--	--
E524.2	Xylenes, Total	ND	ug/L	1750	--	--
SVOCs						
SW8270C	1,3-Dichlorobenzene	ND	ug/L	--	--	--
SW8270C	1,4-Dichlorobenzene	ND	ug/L	5	--	--
E522	1,4-Dioxane	ND	ug/L	--	--	1
SW8270C	1-Methylnaphthalene	ND	ug/L	--	--	--
SW8270C	2,4,5-Trichlorophenol	ND	ug/L	--	--	--
SW8270C	2,4,6-Trichlorophenol	ND	ug/L	--	--	--
E525.2	2,4-DDD	ND	ug/L	--	--	--
E525.2	2,4-DDE	ND	ug/L	--	--	--
E525.2	2,4-DDT	ND	ug/L	--	--	--
SW8270C	2,4-Dichlorophenol	ND	ug/L	--	--	--
SW8270C	2,4-Dimethylphenol	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrophenol	ND	ug/L	--	--	--
E525.2	2,4-Dinitrotoluene	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrotoluene	ND	ug/L	--	--	--
E525.2	2,6-Dinitrotoluene	ND	ug/L	--	--	--
SW8270C	2,6-Dinitrotoluene	ND	ug/L	--	--	--
SW8270C	2-Chloronaphthalene	ND	ug/L	--	--	--
SW8270C	2-Chlorophenol	ND	ug/L	--	--	--
SW8270C	2-Methylnaphthalene	ND	ug/L	--	--	--
SW8270C	2-Methylphenol	ND	ug/L	--	--	--
SW8270C	2-Nitroaniline	ND	ug/L	--	--	--
SW8270C	2-Nitrophenol	ND	ug/L	--	--	--
SW8270C	3,3-Dichlorobenzidine	ND	ug/L	--	--	--
SW8270C	3-4-Methylphenol	ND	ug/L	--	--	--
SW8270C	3-Nitroaniline	ND	ug/L	--	--	--
SW8270C	4,6-Dinitro-2-methylphenol	ND	ug/L	--	--	--
SW8270C	4-Bromophenyl phenyl ether	ND	ug/L	--	--	--
SW8270C	4-Chloroaniline	ND	ug/L	--	--	--
SW8270C	4-Chlorophenyl phenyl ether	ND	ug/L	--	--	--
SW8270C	4-Nitroaniline	ND	ug/L	--	--	--

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SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Composite Sample (MB-3 and HS-2)

Method	Analyte	9.10.2021 Results	Units	MCL	SMCL	NL
SW8270C	4-Nitrophenol	ND	ug/L	--	--	--
E525.2	Acenaphthene	ND	ug/L	--	--	--
SW8270C	Acenaphthene	ND	ug/L	--	--	--
SW8270C	Acenaphthylene	ND	ug/L	--	--	--
E525.2	Acenaphthylene	ND	ug/L	--	--	--
E525.2	Acetochlor	ND	ug/L	--	--	--
E525.2	alpha-Chlordane	ND	ug/L	--	--	--
SW8270C	Aniline	ND	ug/L	--	--	--
E525.2	Anthracene	ND	ug/L	--	--	--
SW8270C	Anthracene	ND	ug/L	--	--	--
E525.2	Atrazine	ND	ug/L	1	--	--
SW8270C	Azobenzene	ND	ug/L	--	--	--
E525.2	Benz(a)anthracene	ND	ug/L	--	--	--
SW8270C	Benz(a)anthracene	ND	ug/L	--	--	--
SW8270C	Benzidine	ND	ug/L	--	--	--
E525.2	Benzo(a)pyrene	ND	ug/L	0.2	--	--
SW8270C	Benzo(a)pyrene	ND	ug/L	0.2	--	--
E525.2	Benzo(b)fluoranthene	ND	ug/L	--	--	--
SW8270C	Benzo(b)fluoranthene	ND	ug/L	--	--	--
E525.2	Benzo(g,h,i)perylene	ND	ug/L	--	--	--
SW8270C	Benzo(g,h,i)perylene	ND	ug/L	--	--	--
E525.2	Benzo(k)fluoranthene	ND	ug/L	--	--	--
SW8270C	Benzo(k)fluoranthene	ND	ug/L	--	--	--
SW8270C	Benzoic acid	ND	ug/L	--	--	--
SW8270C	Benzyl alcohol	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethoxy)methane	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethyl)ether	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroisopropyl)ether	ND	ug/L	--	--	--
E525.2	bis(2-Ethylhexyl)phthalate	ND	ug/L	4	--	--
SW8270C	bis(2-Ethylhexyl)phthalate	ND	ug/L	4	--	--
E525.2	Bromacil	ND	ug/L	--	--	--
E525.2	Butachlor	ND	ug/L	--	--	--
SW8270C	Butyl benzyl phthalate	ND	ug/L	--	--	--
E525.2	Butylbenzylphthalate	ND	ug/L	--	--	--
E525.2	Caffeine	ND	ug/L	--	--	--
E525.2	Chlorobenzilate	ND	ug/L	--	--	--
E525.2	Chloroneb	ND	ug/L	--	--	--
E525.2	Chlorothalonil	ND	ug/L	--	--	--
E525.2	Chlorpyrifos	ND	ug/L	--	--	--
E525.2	Chrysene	ND	ug/L	--	--	--
SW8270C	Chrysene	ND	ug/L	--	--	--
E525.2	Di(2-ethylhexyl)adipate	ND	ug/L	400	--	--
E525.2	Diazinon	ND	ug/L	--	--	1.2
E525.2	Dibenz(a,h)anthracene	ND	ug/L	--	--	--
SW8270C	Dibenz(a,h)anthracene	ND	ug/L	--	--	--
SW8270C	Dibenzofuran	ND	ug/L	--	--	--
E525.2	Dichlorvos	ND	ug/L	--	--	--
SW8270C	Diethyl phthalate	ND	ug/L	--	--	--
E525.2	Diethylphthalate	ND	ug/L	--	--	--
E525.2	Dimethoate	ND	ug/L	--	--	--
SW8270C	Dimethyl phthalate	ND	ug/L	--	--	--
E525.2	Dimethylphthalate	ND	ug/L	--	--	--
SW8270C	Di-n-butyl phthalate	ND	ug/L	--	--	--
E525.2	Di-n-butylphthalate	ND	ug/L	--	--	--
SW8270C	Di-n-octyl phthalate	ND	ug/L	--	--	--
E525.2	Di-n-octylphthalate	ND	ug/L	--	--	--
E525.2	EPTC	ND	ug/L	--	--	--
E525.2	Fluoranthene	ND	ug/L	--	--	--
SW8270C	Fluoranthene	ND	ug/L	--	--	--
E525.2	Fluorene	ND	ug/L	--	--	--
SW8270C	Fluorene	ND	ug/L	--	--	--
E525.2	Gamma-Chlordane	ND	ug/L	--	--	--
SW8270C	Hexachloro-1,3-Butadiene	ND	ug/L	--	--	--
E525.2	Hexachlorobenzene	ND	ug/L	1	--	--
SW8270C	Hexachlorobenzene	ND	ug/L	1	--	--
E525.2	Hexachlorocyclopentadiene	ND	ug/L	50	--	--
SW8270C	Hexachlorocyclopentadiene	ND	ug/L	50	--	--
SW8270C	Hexachloroethane	ND	ug/L	--	--	--
E525.2	Indeno(1,2,3-cd)pyrene	ND	ug/L	--	--	--
SW8270C	Indeno(1,2,3-cd)pyrene	ND	ug/L	--	--	--
E525.2	Isophorone	ND	ug/L	--	--	--
SW8270C	Isophorone	ND	ug/L	--	--	--

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NL = Notification Limit
ND = Non-Detect
J = Estimated value.
B = The analyte was found in a method blank, as well as in the sample.

GSI Water Solutions, Inc.

TABLE 1
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Composite Sample (MB-3 and HS-2)

Method	Analyte	9.10.2021 Results	Units	MCL	SMCL	NL
E525.2	Malathion	ND	ug/L	--	--	--
E525.2	Metolachlor	ND	ug/L	--	--	--
E525.2	Metribuzin	ND	ug/L	--	--	--
E525.2	Molinate	ND	ug/L	20	--	--
E525.2	Naphthalene	ND	ug/L	--	--	17
SW8270C	Naphthalene	ND	ug/L	--	--	17
SW8270C	Nitrobenzene	ND	ug/L	--	--	--
SW8270C	N-Nitrosodiphenylamine	ND	ug/L	--	--	--
E525.2	Parathion	ND	ug/L	--	--	--
SW8270C	p-Chloro-m-cresol	ND	ug/L	--	--	--
E525.2	Pendimethalin	ND	ug/L	--	--	--
E525.2	Permethrin (mixed isomers)	ND	ug/L	--	--	--
E525.2	Phenanthrene	ND	ug/L	--	--	--
SW8270C	Phenanthrene	ND	ug/L	--	--	--
SW8270C	Phenol	ND	ug/L	--	--	--
E525.2	Propachlor	ND	ug/L	--	--	90
E525.2	Pyrene	ND	ug/L	--	--	--
SW8270C	Pyrene	ND	ug/L	--	--	--
SW8270C	Pyridine	ND	ug/L	--	--	--
E525.2	Simazine	ND	ug/L	4	--	--
E525.2	Terbacil	ND	ug/L	--	--	--
E525.2	Terbuthylazine	ND	ug/L	--	--	--
E525.2	Thiobencarb	ND	ug/L	70	--	--
E525.2	trans-Nonachlor	ND	ug/L	--	--	--
E525.2	Trifluralin	ND	ug/L	--	--	--
		PCBs				
E505	PCB-1016	ND	ug/L	--	--	--
E505	PCB-1221	ND	ug/L	--	--	--
E505	PCB-1232	ND	ug/L	--	--	--
E505	PCB-1242	ND	ug/L	--	--	--
E505	PCB-1248	ND	ug/L	--	--	--
E505	PCB-1254	ND	ug/L	--	--	--
E505	PCB-1260	ND	ug/L	--	--	--
E505	Total PCBs	ND	ug/L	0.5	--	--
		THAAs				
SM 6251B	Bromochloroacetic acid	ND	ug/L	--	--	--
SM 6251B	Dibromoacetic acid	ND	ug/L	--	--	--
SM 6251B	Dichloroacetic acid	ND	ug/L	--	--	--
SM 6251B	Monobromoacetic acid	ND	ug/L	--	--	--
SM 6251B	Monochloroacetic acid	ND	ug/L	--	--	--
SM 6251B	Trichloroacetic acid	ND	ug/L	--	--	--
SM 6251B	Trihalomethanes	ND	ug/L	80	--	--
E524.2	Trihalomethanes	0.53	ug/L	80	--	--
		Radiochemistry				
SM 7110C	Gross Alpha	3.1	pCi/L	15	--	--
Ra-226 GA	Radium-226	ND	pCi/L	5	--	--
RA-228 GA	Radium-228	ND	pCi/L	5	--	--
Unk_RadChem	Uranium	1.2	pCi/L	20	--	--
906	Tritium	ND	pCi/L	20000	--	--
905	Strontium-90	ND	pCi/L	8	--	--
E900	Gross Beta	ND	pCi/L	50	--	--
		Nitroaromatics and Nitrosamines				
LC-MS-MS	HMX	ND	ug/L	--	--	0.35
LC-MS-MS	RDX	ND	ug/L	--	--	0.3
LC-MS-MS	2,4,6-Trinitrotoluene	ND	ug/L	--	--	0.001
SW8270C	N-Nitrosodiethylamine	ND	ug/L	--	--	0.01
E521	N-Nitrosodiethylamine	ND	ng/L	--	--	0.01
SW8270C	N-Nitrosodimethylamine	ND	ug/L	--	--	0.01
E521	N-Nitrosodimethylamine	ND	ng/L	--	--	0.01
E521	N-Nitrosomorpholine	ND	ng/L	--	--	--
E521	N-Nitrosopyrrolidine	ND	ng/L	--	--	--
E521	N-Nitrosodi-n-propylamine	ND	ng/L	--	--	0.01
E521	N-Nitroso-di-butylamine	ND	ng/L	--	--	--
SW8270C	N-Nitrosodi-n-propylamine	ND	ug/L	--	--	0.01
E521	N-Nitrosomethylethylamine	ND	ng/L	--	--	--
E521	N-Nitrosopiperidine	ND	ng/L	--	--	--
		PFAs				
E537.1	Perfluorooctanesulfonic acid (PFOS)	ND	ng/L	--	--	6.5
E537.1	Perfluorooctanoic acid (PFOA)	ND	ng/L	--	--	5.1
		Dioxins				
EPA 1613B	2,3,7,8-TCDD	ND	ug/L	0.00003	--	--

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GSI Water Solutions, Inc.

TABLE 2
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well 20P-01

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.21 Results	Units	MCL	SMCL	NL
Field Parameters								
YSI Probe	Temp	15.5	15.9	16.4	Degrees C			
YSI Probe	pH	7.5	7.4	7.3				
YSI Probe	ORP	198	91	57	mV			
YSI Probe	DO	0.19	0.13	0.1	mg/L			
General Chemistry								
EPA 600/R-94/134	Asbestos	ND	ND	ND	MFL	7	--	--
EPA 317	Bromate	ND	ND	ND	mg/L	10	--	
EPA 300.1	Chlorate	ND	ND	ND	mg/L	--	--	800
E300.0	Chloride	120	130	140	mg/L	--	500	--
EPA 300.1	Chlorite	ND	ND	ND	mg/L	1	--	--
2120B	Color	3	2	1	None	--	--	--
SW8015B	Ethylene glycol	ND	ND	ND	mg/L	--	--	14
2510B	Electrical Conductivity @ 25 C	1210	1220	1290	umhos/cm	--	--	--
E300.0	Fluoride	0.29	0.28	0.3	mg/L	2	--	--
E556.1	Formaldehyde	ND	ND	ND	ug/L	--	--	100
5540C	MBAS	ND	ND	ND	mg/L	--	0.5	--
E300.0	Nitrate (as N)	1.5	1.4	1.7	mg/L	10	--	--
CALC	Nitrate + Nitrite (As N)	1.6	1.5	1.8	mg/L	10	--	--
E353.2	Nitrite (as N)	0.12	0.11	0.12	mg/L	1	--	--
SM5310C	Non-Volatile Organic Carbon	1.2	1.2	1.2	mg/L	--	--	--
2150B	Odor	ND	ND	ND	None	--	--	--
E314.0	Perchlorate	ND	ND	ND	ug/L	6	--	--
E300.0	Sulfate	140	140	150	mg/L	--	500	--
E335.4	Total Cyanide	ND	ND	ND	ug/L	150	--	--
SM2540C	Total Dissolved Solids	720	760	860	mg/L	--	1000	--
E351.2	Total Kjeldahl Nitrogen	0.17 J	0.13 J	ND	mg/L	--	--	--
CALC	Total Nitrogen	1.8	1.7	1.9	mg/L	--	--	--
E180.1	Turbidity	0.21	0.18	0.32	NTU	--	--	--
Metals								
E200.7	Aluminum	ND	ND	ND	mg/L	1	--	--
E200.8	Antimony	ND	ND	ND	mg/L	0.006	--	--
E200.8	Arsenic	0.0014 J	0.0017 J	ND	mg/L	0.01	--	--
E200.8	Barium	0.17	0.17	0.19	mg/L	1	--	--
E200.8	Beryllium	ND	ND	ND	mg/L	0.004	--	--
E200.7	Boron	0.1	0.094 J	0.092	mg/L	--	--	1
E200.8	Cadmium	ND	ND	ND	mg/L	0.005	--	--
E200.8	Chromium	ND	ND	ND	mg/L	0.05	--	--
E218.6	Chromium, Hexavalent	ND	0.000073 J	ND	mg/L	--	--	--
E200.8	Cobalt	0.00055 J	0.00081 J	0.0013	mg/L	--	--	--
E200.8	Copper	ND	0.0011 J	0.0016	mg/L	--	--	--
E200.7	Iron (Ferric)	ND	ND	ND	mg/L	--	--	--
E200.8	Lead	ND	ND	ND	mg/L	--	--	--
E200.7	Lithium	ND	ND	ND	mg/L	--	--	--
E200.7	Manganese	**1.1**	**1**	**1.1**	mg/L	--	0.05	--
E245.1	Mercury	ND	0.000037 J	ND	mg/L	0.002	--	--
E200.8	Molybdenum	0.0019	0.0019	0.0025	mg/L	--	--	--
E200.8	Nickel	0.0035	0.0034	0.0046	mg/L	0.1	--	--
E200.8	Selenium	0.0012 J	0.0012 J	ND	mg/L	0.05	--	--
E200.8	Silver	ND	ND	ND	mg/L	--	--	--
E200.8	Thallium	ND	ND	ND	mg/L	0.002	--	--
CALC	Trivalent Chromium	ND	ND	ND	mg/L	--	--	--
E200.8	Uranium	0.0019	0.002	0.002	mg/L	20	--	--
E200.8	Vanadium	1.7 J	1.3 J	ND	ug/L	--	--	50
E200.8	Zinc	0.0025 J	ND	ND	--	5	--	
Herbicides/Pesticides								
E531.2	1-Naphthol		ND	ND	ug/L	--	--	--
E515.1	2,4,5-T	ND	ND	ND	ug/L	--	--	--
E515.1	2,4,5-TP	ND	ND	ND	ug/L	50	--	--
E515.1	2,4-D	ND	ND	ND	ug/L	70	--	--
E515.1	2,4-DB	ND	ND	ND	ug/L	--	--	--
E531.2	3-Hydroxycarbofuran		ND	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 2
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well 20P-01

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.21 Results	Units	MCL	SMCL	NL
SW8270C	4,4'-DDD	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDD	ND	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDE	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDE	ND	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDT	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDT	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb		ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfone		ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfoxide		ND	ND	ug/L	--	--	--
SW8270C	Aldrin	ND	ND	ND	ug/L	--	--	--
E508	Aldrin	ND	ND	ND	ug/L	--	--	--
SW8270C	Alpha-BHC	ND	ND	ND	ug/L	--	--	--
E508	Alpha-BHC	ND	ND	ND	ug/L	--	--	--
E515.1	Bentazon	ND	ND	ND	ug/L	18	--	--
SW8270C	Beta-BHC	ND	ND	ND	ug/L	--	--	--
E508	Beta-BHC	ND	ND	ND	ug/L	--	--	--
E531.2	Carbaryl		ND	ND	ug/L	--	--	--
E531.2	Carbofuran		ND	ND	ug/L	18	--	--
E508	Chlordane	ND	ND	ND	ug/L	0.1	--	--
E515.1	Dalapon	ND	ND	ND	ug/L	200	--	--
SW8270C	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E525.2	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E508	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E515.1	Dicamba	ND	ND	ND	ug/L	--	--	--
E515.1	Dichlorprop	ND	ND	ND	ug/L	--	--	--
SW8270C	Dieldrin	ND	ND	ND	ug/L	--	--	--
E508	Dieldrin	ND	ND	ND	ug/L	--	--	--
E515.1	Dinoseb	ND	ND	ND	ug/L	7	--	--
E549.2	Diquat	ND	ND	ND	ug/L	20	--	--
SW8270C	Endosulfan I	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan I	ND	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan II	ND	ND	ND	ug/L	--	--	--
E548.1	Endosulfan II	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan II	ND	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan Sulfate	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan Sulfate	ND	ND	ND	ug/L	--	--	--
SW8270C	Endrin	ND	ND	ND	ug/L	2	--	--
E508	Endrin	ND	ND	ND	ug/L	2	--	--
SW8270C	Endrin Aldehyde	ND	ND	ND	ug/L	--	--	--
E508	Endrin Aldehyde	ND	ND	ND	ug/L	--	--	--
SW8270C	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E525.2	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E508	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E547	Glyphosate		ND	ND	ug/L	700	--	--
SW8270C	Heptachlor	ND	ND	ND	ug/L	0.01	--	--
E508	Heptachlor	ND	ND	ND	ug/L	0.01	--	--
SW8270C	Heptachlor Epoxide	ND	ND	ND	ug/L	0.01	--	--
E508	Heptachlor Epoxide	ND	ND	ND	ug/L	0.01	--	--
E515.1	MCPA	ND	ND	ND	ug/L	--	--	--
E515.1	MCPP	ND	ND	ND	ug/L	--	--	--
E531.2	Methiocarb		ND	ND	ug/L	--	--	--
E531.2	Methomyl		ND	ND	ug/L	--	--	--
E525.2	Methoxychlor	ND	ND	ND	ug/L	30	--	--
E508	Methoxychlor	ND	ND	ND	ug/L	30	--	--
E531.2	Oxamyl		ND	ND	ug/L	50	--	--
E531.2	Propoxur		ND	ND	ug/L	--	--	--
E508	Toxaphene	ND	ND	ND	ug/L	3	--	--
			VOCs					
E524.2	1,1,1,2-Tetrachloroethane	ND	ND	ND	ug/L	--	--	--
E524.2	1,1,1-Trichloroethane	ND	ND	ND	ug/L	200	--	--
E524.2	1,1,2,2-Tetrachloroethane	ND	ND	ND	ug/L	1	--	--
E524.2	1,1,2-Trichlor-1,2,2-trifluoroethane	ND	ND	ND	ug/L	1200	--	--

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GSI Water Solutions, Inc.

TABLE 2
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well 20P-01

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.21 Results	Units	MCL	SMCL	NL
E524.2	1,1,2-Trichloroethane	ND	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethane	ND	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethene	ND	ND	ND	ug/L	6	--	--
E524.2	1,1-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichlorobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichloropropane	ND	ND	ND	ug/L	0.005	--	--
E524	1,2,3-Trichloropropane	ND	ND	ND	ug/L	0.005	--	--
E524.2	1,2,4-Trimethylbenzene	ND	ND	ND	ug/L	--	--	330
E524.2	1,2-Dibromo-3-chloropropane	ND	ND	ND	ug/L	0.2	--	--
504.1	1,2-Dibromo-3-chloropropane	ND	ND	ND	ug/L	0.2	--	--
E524.2	1,2-Dichloroethane	ND	ND	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloropropane	ND	ND	ND	ug/L	5	--	--
E524.2	1,3,5-Trimethylbenzene	ND	ND	ND	ug/L	--	--	330
E524.2	1,3-Dichloropropane	ND	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropene	ND	ND	ND	ug/L	0.5	--	--
E524.2	2,2-Dichloropropane	ND	ND	ND	ug/L	--	--	--
SW8260B	2-Chloroethylvinylether	ND	ND	ND	ug/L	--	--	--
E524.2	2-Chlorotoluene	ND	ND	ND	ug/L	--	--	140
E524.2	4-Chlorotoluene	ND	ND	ND	ug/L	--	--	140
SW8260B	Acrolein	ND	ND	ND	ug/L	--	--	--
SW8260B	Acrylonitrile	ND	ND	ND	ug/L	--	--	--
E524.2	Benzene	ND	ND	ND	ug/L	1	--	--
E524.2	Bromobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	Bromochloromethane	ND	ND	ND	ug/L	--	--	--
E524.2	Bromodichloromethane	ND	ND	ND	ug/L	80	--	--
E524.2	Bromoform	ND	ND	ND	ug/L	80	--	--
E524.2	Bromomethane	ND	ND	ND	ug/L	--	--	--
E524.2	Carbon tetrachloride	ND	ND	ND	ug/L	0.5	--	--
E524.2	Chlorobenzene	ND	ND	ND	ug/L	70	--	--
E524.2	Chloroethane	ND	ND	ND	ug/L	--	--	--
E524.2	Chloroform	ND	ND	ND	ug/L	80	--	--
E524.2	Chloromethane	ND	ND	ND	ug/L	--	--	--
E524.2	cis-1,2-Dichloroethene	ND	ND	ND	ug/L	6	--	--
E524.2	cis-1,3-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	Dibromochloromethane	ND	ND	ND	ug/L	80	--	--
E524.2	Dibromomethane	ND	ND	ND	ug/L	--	--	--
E524.2	Dichlorodifluoromethane	ND	ND	ND	mg/L	--	--	1
E524.2	Di-isopropyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	Ethyl tert-butyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	Ethylbenzene	ND	ND	ND	ug/L	300	--	--
E524.2	Ethylene dibromide	ND	ND	ND	ug/L	--	--	--
504.1	Ethylene dibromide	ND	ND	ND	ug/L	--	--	--
8330	HMX	ND	ND	ND	ug/L	--	--	--
E524.2	Isopropylbenzene	ND	ND	ND	ug/L	--	--	770
E524.2	m,p-Xylene	ND	ND	ND	ug/L	--	--	--
E524.2	Methyl tert-butyl ether	ND	ND	ND	ug/L	13	--	--
E524.2	Methylene chloride	ND	ND	ND	ug/L	5	--	--
E524.2	n-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	n-Propylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	o-Xylene	ND	ND	ND	ug/L	--	--	--
E524.2	p-Isopropyltoluene	ND	ND	ND	ug/L	--	--	--
8330	RDX	ND	ND	ND	mg/L	--	--	0.3
E524.2	sec-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	Styrene	ND	ND	ND	ug/L	100	--	--
E524.2	tert-Amyl Methyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	tert-Butyl alcohol	ND	ND	ND	ug/L	--	--	12
E524.2	tert-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	Tetrachloroethene	ND	ND	ND	ug/L	5	--	--
E524.2	Toluene	ND	ND	ND	ug/L	150	--	--
E524.2	trans-1,2-Dichloroethene	ND	ND	ND	ug/L	10	--	--
E524.2	trans-1,3-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	Trichloroethene	ND	ND	ND	ug/L	5	--	--

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GSI Water Solutions, Inc.

TABLE 2
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well 20P-01

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.21 Results	Units	MCL	SMCL	NL
E524.2	Trichlorofluoromethane	ND	ND	ND	ug/L	150	--	--
E524.2	Vinyl chloride	ND	ND	ND	ug/L	0.5	--	--
E524.2	Xylenes, Total	ND	ND	ND	ug/L	1750	--	--
SVOCs								
SW8270C	1,2,4-Trichlorobenzene	ND	ND	ND	ug/L	5	--	--
E524.2	1,2,4-Trichlorobenzene	ND	ND	ND	ug/L	5	--	--
SW8270C	1,2-Dichlorobenzene	ND	ND	ND	ug/L	600	--	--
E524.2	1,2-Dichlorobenzene	ND	ND	ND	ug/L	600	--	--
SW8270C	1,2-Diphenylhydrazine	ND	ND	ND	ug/L	--	--	--
SW8270C	1,3-Dichlorobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichlorobenzene	ND	ND	ND	ug/L	--	--	--
SW8270C	1,4-Dichlorobenzene	ND	ND	ND	ug/L	5	--	--
E524.2	1,4-Dichlorobenzene	ND	ND	ND	ug/L	5	--	--
SW8270C	2,4,5-Trichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4,6-Trichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dimethylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrotoluene	ND	ND	ND	ug/L	--	--	--
SW8270C	2,6-Dinitrotoluene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Chloronaphthalene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Chlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Methylnaphthalene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Methylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Naphthylamine	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Nitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	3&4-Methylphenol Coelution	ND	ND	ND	ug/L	--	--	--
SW8270C	3,3'-Dichlorobenzidine	ND	ND	ND	ug/L	--	--	--
SW8270C	3-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4,6-Dinitro-2-methylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Bromophenyl phenyl ether	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Chloroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Chlorophenyl phenyl ether	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Nitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthylene	ND	ND	ND	ug/L	--	--	--
E525.2	Acenaphthylene	ND	ND	ND	ug/L	--	--	--
E525.2	Alachlor	ND	ND	ND	ug/L	2	--	--
SW8270C	Aniline	ND	ND	ND	ug/L	--	--	--
SW8270C	Anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Atraton	ND	ND	ND	ug/L	--	--	--
E525.2	Atrazine	ND	ND	ND	ug/L	1	--	--
SW8270C	Benz(a)anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Benz(a)anthracene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzidine	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(a)pyrene	ND	ND	ND	ug/L	0.2	--	--
E525.2	Benzo(a)pyrene	ND	ND	ND	ug/L	0.2	--	--
SW8270C	Benzo(b)fluoranthene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(b)fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(g,h,i)perylene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(g,h,i)perylene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(k)fluoranthene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(k)fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzoic acid	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzyl alcohol	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethoxy)methane	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethyl)ether	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroisopropyl)ether	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Ethylhexyl)phthalate	ND	ND	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 2
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well 20P-01

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.21 Results	Units	MCL	SMCL	NL
E525.2	bis(2-Ethylhexyl)phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Bromacil	ND	ND	ND	ug/L	--	--	--
SW8270C	Butyl benzyl phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Butyl benzyl phthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Chrysene	ND	ND	ND	ug/L	--	--	--
E525.2	Chrysene	ND	ND	ND	ug/L	--	--	--
E525.2	Di(2-ethylhexyl)adipate	ND	ND	ND	ug/L	400	--	--
E525.2	Diazinon	ND	ND	ND	ug/L	--	--	1.2
SW8270C	Dibenz(a,h)anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Dibenz(a,h)anthracene	ND	ND	ND	ug/L	--	--	--
SW8270C	Dibenzofuran	ND	ND	ND	ug/L	--	--	--
SW8270C	Diethylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Dimethoate	ND	ND	ND	ug/L	--	--	--
SW8270C	Dimethylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Dimethylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Di-n-butylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Di-n-butylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Di-n-octylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Fluorene	ND	ND	ND	ug/L	--	--	--
E525.2	Fluorene	ND	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorobenzene	ND	ND	ND	ug/L	1	--	--
E525.2	Hexachlorobenzene	ND	ND	ND	ug/L	1	--	--
SW8270C	Hexachlorobutadiene	ND	ND	ND	ug/L	--	--	--
E524.2	Hexachlorobutadiene	ND	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorocyclopentadiene	ND	ND	ND	ug/L	50	--	--
E525.2	Hexachlorocyclopentadiene	ND	ND	ND	ug/L	50	--	--
SW8270C	Hexachloroethane	ND	ND	ND	ug/L	--	--	--
SW8270C	Indeno(1,2,3-cd)pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Indeno(1,2,3-cd)pyrene	ND	ND	ND	ug/L	--	--	--
SW8270C	Isophorone	ND	ND	ND	ug/L	--	--	--
E525.2	Metolachlor	ND	ND	ND	ug/L	--	--	--
E525.2	Metribuzin	ND	ND	ND	ug/L	--	--	--
E525.2	Molinate	ND	ND	ND	ug/L	20	--	--
SW8270C	Naphthalene	ND	ND	ND	ug/L	--	--	17
E524.2	Naphthalene	ND	ND	ND	ug/L	--	--	17
SW8270C	Nitrobenzene	ND	ND	ND	ug/L	--	--	--
SW8270C	N-Nitrosodimethylamine	ND	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodi-n-propylamine	ND	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodiphenylamine	ND	ND	ND	ug/L	--	--	--
SW8270C	p-Chloro-m-cresol	ND	ND	ND	ug/L	--	--	--
SW8270C	Pentachlorophenol	ND	ND	ND	ug/L	1	--	--
SW8270C	Phenanthrene	ND	ND	ND	ug/L	--	--	--
E525.2	Phenanthrene	ND	ND	ND	ug/L	--	--	--
SW8270C	Phenol	ND	ND	ND	ug/L	--	--	--
E525.2	Prometon	ND	ND	ND	ug/L	--	--	--
E525.2	Prometryn	ND	ND	ND	ug/L	--	--	--
E525.2	Propachlor	ND	ND	ND	ug/L	--	--	90
SW8270C	Pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Secbumeton	ND	ND	ND	ug/L	--	--	--
E525.2	Simazine	ND	ND	ND	ug/L	4	--	--
E525.2	Terbutryn	ND	ND	ND	ug/L	--	--	--
E525.2	Thiobencarb	ND	ND	ND	ug/L	70	--	--
				PCBs				
E508	PCB-1016	ND	ND	ND	ug/L	--	--	--
E508	PCB-1221	ND	ND	ND	ug/L	--	--	--
E508	PCB-1232	ND	ND	ND	ug/L	--	--	--
E508	PCB-1242	ND	ND	ND	ug/L	--	--	--
E508	PCB-1248	ND	ND	ND	ug/L	--	--	--
E508	PCB-1254	ND	ND	ND	ug/L	--	--	--
E508	PCB-1260	ND	ND	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 2
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well 20P-01

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.21 Results	Units	MCL	SMCL	NL
E508	Total PCBs	ND	ND	ND	ug/L	0.5	--	--
				THAA				
E552.3	Dibromoacetic Acid (DBAA)	ND	ND	ND	ug/L	--	--	--
E552.3	Dichloroacetic Acid (DCA)	ND	ND	ND	ug/L	--	--	--
E552.3	Monobromoacetic acid	ND	ND	ND	ug/L	--	--	--
E552.3	Monochloroacetic Acid (MCA)	ND	ND	ND	ug/L	--	--	--
E552.3	Trichloroacetic Acid (TCAA)	ND	ND	ND	ug/L	--	--	--
E552.3	Trihalomethanes	ND	ND	ND	ug/L	80	--	--
E524.2	Trihalomethanes	ND	ND	ND	ug/L	80	--	--
				Radiochemistry				
EPA 900	Gross Alpha	2.29	2.14	2.33	pCi/L	15	--	--
EPA900	Gross Beta	1.82	1.43	2.15	pCi/L	50	--	--
EPA 903.1	Radium-226	0.724	0.551	0.636	pCi/L	3	--	--
EPA 904.0	Radium-228	0.769	0.766	0.869	pCi/L	2	--	--
ASTM D5811-95	Strontium-90	1.26	0.994	3.32	pCi/L	8	--	--
EPA 906	Tritium	260	263	238	pCi/L	20000	--	--
				Nitroaromatics and Nitrosamines				
EPA 521/SPE	N-Nitrosodiethylamine	ND	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosodimethylamine	ND	ND	ND	ug/L			0.01
EPA 521/SPE	N-Nitrosodi-n-butylamine	ND	ND	ND	ug/L	--	--	
EPA 521/SPE	N-Nitrosodi-n-propylamine	ND	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosomethylethylamine	ND	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosomorpholine	ND	ND	ND	ug/L	--	--	--
EPA 521/SPE	N-Nitrosopiperidine	ND	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosopyrrolidine	ND	ND	ND	ng/L	--	--	--
				Dioxins				
EPA 1613B	2,3,7,8-TCDD	0.00000183	0.00000306	0.00000156	ug/L	0.00003	--	--
				PFAs				
B-15	11-CL-PF3OUDS	ND	ND	ND	ng/L	--	--	--
B-15	9-CL-PF3ONS	ND	ND	ND	ng/L	--	--	--
B-15	ADONA	ND	ND	ND	ng/L	--	--	--
B-15	FTS 4:2	ND		ND	ng/L	--	--	--
B-15	FTS 6:2	ND		ND	ng/L	--	--	--
B-15	FTS 8:2	ND		ND	ng/L	--	--	--
B-15	HFPO-DA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSAA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSE	ND		ND	ng/L	--	--	--
B-15	N-MEFOSA	ND		ND	ng/L	--	--	--
B-15	N-MEFOSAA	ND		ND	ng/L	--	--	--
B-15	N-MEFOSE	ND		ND	ng/L	--	--	--
B-15	PFBA	ND		1.7 J	ng/L	--	--	--
B-15	PFBS	0.9 J	1.6 J	0.47 J	ng/L	--	--	--
B-15	PFDA	ND	ND	ND	ng/L	--	--	--
B-15	PFDOA	ND	ND	ND	ng/L	--	--	--
B-15	PFDS	ND		ND	ng/L	--	--	--
B-15	PFHPA	ND	ND	ND	ng/L	--	--	--
B-15	PFHPS	ND		ND	ng/L	--	--	--
B-15	PFHXA	ND	ND	ND	ng/L	--	--	--
B-15	PFHXS	ND	ND	ND	ng/L	--	--	--
B-15	PFNA	ND	ND	ND	ng/L	--	--	--
B-15	PFNS	ND		ND	ng/L	--	--	--
B-15	PFOA	ND	ND	ND	ng/L	--	--	--
B-15	PFOS	ND	ND	ND	ng/L	--	--	--
B-15	PFOSA	ND		2.4 B J	ng/L	--	--	--
B-15	PFPEA	ND		ND	ng/L	--	--	--
B-15	PFPES	ND		ND	ng/L	--	--	--
B-15	PFTEDA	ND	ND	ND	ng/L	--	--	--
B-15	PFTRDA	ND	ND	ND	ng/L	--	--	--
B-15	PFUDA	ND	ND	ND	ng/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 3
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well 19P-04

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
Field Parameters								
YSI Probe	Temp	15.3	15.8	15.7	Degrees C			
YSI Probe	pH	7.6	7.5	7.4				
YSI Probe	ORP	207	95	113	mV			
YSI Probe	DO	0.18	0.19	0.13	mg/L			
General Chemistry								
EPA 600/R-94/134	Asbestos	0.98	ND	ND	MFL	7	--	--
EPA 317	Bromate	ND	ND	ND	mg/L	10	--	
EPA 300.1	Chlorate	ND	ND	ND	mg/L	--	--	800
E300.0	Chloride	160	160	170	mg/L	--	500	--
EPA 300.1	Chlorite	ND	ND	ND	mg/L	1	--	--
2120B	Color	10	2	3	None	--	--	--
SW8015B	Ethylene glycol	ND	ND	ND	mg/L	--	--	14
2510B	Electrical Conductivity @ 25 C	1420	1400	1470	umhos/cm	--	--	--
E300.0	Fluoride	0.25	0.25	0.28	mg/L	2	--	--
E556.1	Formaldehyde	ND	ND	ND	ug/L	--	--	100
5540C	MBAS	ND	ND	ND	mg/L	--	0.5	--
E300.0	Nitrate (as N)	1.8	2	2.4	mg/L	10	--	--
CALC	Nitrate + Nitrite (As N)	1.9	2.1	2.5	mg/L	10	--	--
E353.2	Nitrite (as N)	0.1	0.12	0.1	mg/L	1	--	--
SM5310C	Non-Volatile Organic Carbon	1.2	1.2	1.2	mg/L	--	--	--
2150B	Odor	ND	ND	ND	None	--	--	--
E314.0	Perchlorate	ND	ND	ND	ug/L	6	--	--
E300.0	Sulfate	180	170	180	mg/L	--	500	--
E335.4	Total Cyanide	ND	ND	ND	ug/L	150	--	--
SM2540C	Total Dissolved Solids	890	910	990	mg/L	--	1000	--
E351.2	Total Kjeldahl Nitrogen	0.1 J	0.18	0.11 J	mg/L	--	--	--
CALC	Total Nitrogen	2	2.3	2.7	mg/L	--	--	--
E180.1	Turbidity	5.8	4.7	1.8	NTU	--	--	--
Metals								
E200.7	Aluminum	0.31	0.12	0.043 J	mg/L	1	--	--
E200.8	Antimony	ND	ND	ND	mg/L	0.006	--	--
E200.8	Arsenic	0.0011 J	0.0011 J	ND	mg/L	0.01	--	--
E200.8	Barium	0.21	0.2	0.23	mg/L	1	--	--
E200.8	Beryllium	ND	ND	ND	mg/L	0.004	--	--
E200.7	Boron	0.12	0.11	0.093 J	mg/L	--	--	1
E200.8	Cadmium	ND	ND	ND	mg/L	0.005	--	--
E200.8	Chromium	0.0012 J	0.00057 J	ND	mg/L	0.05	--	--
E218.6	Chromium, Hexavalent	ND	ND	ND	mg/L	--	--	--
E200.8	Cobalt	0.00051 J	0.00062 J	0.00097 J	mg/L	--	--	--
E200.8	Copper	0.0011 J	0.0012 J	0.0018 J	mg/L	--	--	--
E200.7	Iron (Ferric)	0.57	0.22	0.061	mg/L	--	--	--
E200.8	Lead	0.00017 J	ND	ND	mg/L	--	--	--
E200.7	Lithium	ND	ND	ND	mg/L	--	--	--
E200.7	Manganese	**1.3**	**1.3**	**1.3**	mg/L	--	0.05	--
E245.1	Mercury	ND	ND	ND	mg/L	0.002	--	--
E200.8	Molybdenum	0.0016	0.0017	0.0038 J	mg/L	--	--	--
E200.8	Nickel	0.0058	0.0047	0.0058	mg/L	0.1	--	--
E200.8	Selenium	0.0074	0.0081	0.0063	mg/L	0.05	--	--
E200.8	Silver	ND	ND	ND	mg/L	--	--	--
E200.8	Thallium	ND	ND	ND	mg/L	0.002	--	--
CALC	Trivalent Chromium	ND	ND	ND	mg/L	--	--	--
E200.8	Uranium	0.0021	0.0019	0.0022 J	mg/L	20	--	--
E200.8	Vanadium	1.7 J	1.1 J	ND	ug/L	--	--	50
E200.8	Zinc	0.021	0.0017 J	ND	mg/L	--	5	--
Herbicides/Pesticides								
E531.2	1-Naphthol		ND	ND	ug/L	--	--	--
E515.1	2,4,5-T	ND	ND	ND	ug/L	--	--	--
E515.1	2,4,5-TP	ND	ND	ND	ug/L	50	--	--
E515.1	2,4-D	ND	ND	ND	ug/L	70	--	--
E515.1	2,4-DB	ND	ND	ND	ug/L	--	--	--
E531.2	3-Hydroxycarbofuran	ND	ND	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 3
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MORRO BAY WELLS
Well 19P-04

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
SW8270C	4,4'-DDD	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDD	ND	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDE	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDE	ND	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDT	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDT	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfone	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfoxide	ND	ND	ND	ug/L	--	--	--
SW8270C	Aldrin	ND	ND	ND	ug/L	--	--	--
E508	Aldrin	ND	ND	ND	ug/L	--	--	--
SW8270C	Alpha-BHC	ND	ND	ND	ug/L	--	--	--
E508	Alpha-BHC	ND	ND	ND	ug/L	--	--	--
E515.1	Bentazon	ND	ND	ND	ug/L	18	--	--
SW8270C	Beta-BHC	ND	ND	ND	ug/L	--	--	--
E508	Beta-BHC	ND	ND	ND	ug/L	--	--	--
E531.2	Carbaryl	ND	ND	ND	ug/L	--	--	--
E531.2	Carbofuran	ND	ND	ND	ug/L	18	--	--
E508	Chlordane	ND	ND	ND	ug/L	0.1	--	--
E515.1	Dalapon	ND	ND	ND	ug/L	200	--	--
SW8270C	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E525.2	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E508	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E515.1	Dicamba	ND	ND	ND	ug/L	--	--	--
E515.1	Dichlorprop	ND	ND	ND	ug/L	--	--	--
SW8270C	Dieldrin	ND	ND	ND	ug/L	--	--	--
E508	Dieldrin	ND	ND	ND	ug/L	--	--	--
E515.1	Dinoseb	ND	ND	ND	ug/L	7	--	--
E549.2	Diquat	ND	ND	ND	ug/L	20	--	--
SW8270C	Endosulfan I	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan I	ND	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan II	ND	ND	ND	ug/L	--	--	--
E548.1	Endosulfan II	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan II	ND	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan Sulfate	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan Sulfate	ND	ND	ND	ug/L	--	--	--
SW8270C	Endrin	ND	ND	ND	ug/L	2	--	--
E508	Endrin	ND	ND	ND	ug/L	2	--	--
SW8270C	Endrin Aldehyde	ND	ND	ND	ug/L	--	--	--
E508	Endrin Aldehyde	ND	ND	ND	ug/L	--	--	--
SW8270C	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E525.2	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E508	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E547	Glyphosate	ND	ND	ND	ug/L	700	--	--
SW8270C	Heptachlor	ND	ND	ND	ug/L	0.01	--	--
E508	Heptachlor	ND	ND	ND	ug/L	0.01	--	--
SW8270C	Heptachlor Epoxide	ND	ND	ND	ug/L	0.01	--	--
E508	Heptachlor Epoxide	ND	ND	ND	ug/L	0.01	--	--
E515.1	MCPA	ND	ND	ND	ug/L	--	--	--
E515.1	MCPP	ND	ND	ND	ug/L	--	--	--
E531.2	Methiocarb		ND	ND	ug/L	--	--	--
E531.2	Methomyl	ND	ND	ND	ug/L	--	--	--
E525.2	Methoxychlor	ND	ND	ND	ug/L	30	--	--
E508	Methoxychlor	ND	ND	ND	ug/L	30	--	--
E531.2	Oxamyl	ND	ND	ND	ug/L	50	--	--
E531.2	Propoxur		ND	ND	ug/L	--	--	--
E508	Toxaphene	ND	ND	ND	ug/L	3	--	--
VOCs								
E524.2	1,1,1,2-Tetrachloroethane	ND	ND	ND	ug/L	--	--	--
E524.2	1,1,1-Trichloroethane	ND	ND	ND	ug/L	200	--	--
E524.2	1,1,2,2-Tetrachloroethane	ND	ND	ND	ug/L	1	--	--
E524.2	1,1,2-Trichlor-1,2,2-trifluoroethane	ND	ND	ND	ug/L	1200	--	--

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Well 19P-04

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E524.2	1,1,2-Trichloroethane	ND	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethane	ND	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethene	ND	ND	ND	ug/L	6	--	--
E524.2	1,1-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichlorobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichloropropane	ND	ND	ND	ug/L	0.005	--	--
E524	1,2,3-Trichloropropane	ND	ND	ND	ug/L	0.005	--	--
E524.2	1,2,4-Trimethylbenzene	ND	ND	ND	ug/L	--	--	330
E524.2	1,2-Dibromo-3-chloropropane	ND	ND	ND	ug/L	0.2	--	--
504.1	1,2-Dibromo-3-chloropropane	ND	ND	ND	ug/L	0.2	--	--
E524.2	1,2-Dichloroethane	ND	ND	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloropropane	ND	ND	ND	ug/L	5	--	--
E524.2	1,3,5-Trimethylbenzene	ND	ND	ND	ug/L	--	--	330
E524.2	1,3-Dichloropropane	ND	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropene	ND	ND	ND	ug/L	0.5	--	--
E524.2	2,2-Dichloropropane	ND	ND	ND	ug/L	--	--	--
SW8260B	2-Chloroethylvinylether	ND	ND	ND	ug/L	--	--	--
E524.2	2-Chlorotoluene	ND	ND	ND	ug/L	--	--	140
E524.2	4-Chlorotoluene	ND	ND	ND	ug/L	--	--	140
SW8260B	Acrolein	ND	ND	ND	ug/L	--	--	--
SW8260B	Acrylonitrile	ND	ND	ND	ug/L	--	--	--
E524.2	Benzene	ND	ND	ND	ug/L	1	--	--
E524.2	Bromobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	Bromochloromethane	ND	ND	ND	ug/L	--	--	--
E524.2	Bromodichloromethane	ND	ND	ND	ug/L	80	--	--
E524.2	Bromoform	ND	ND	ND	ug/L	80	--	--
E524.2	Bromomethane	ND	ND	ND	ug/L	--	--	--
E524.2	Carbon tetrachloride	ND	ND	ND	ug/L	0.5	--	--
E524.2	Chlorobenzene	ND	ND	ND	ug/L	70	--	--
E524.2	Chloroethane	ND	ND	ND	ug/L	--	--	--
E524.2	Chloroform	ND	ND	ND	ug/L	80	--	--
E524.2	Chloromethane	ND	ND	ND	ug/L	--	--	--
E524.2	cis-1,2-Dichloroethene	ND	ND	ND	ug/L	6	--	--
E524.2	cis-1,3-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	Dibromochloromethane	ND	ND	ND	ug/L	80	--	--
E524.2	Dibromomethane	ND	ND	ND	ug/L	--	--	--
E524.2	Dichlorodifluoromethane	ND	ND	ND	mg/L	--	--	1
E524.2	Di-isopropyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	Ethyl tert-butyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	Ethylbenzene	ND	ND	ND	ug/L	300	--	--
E524.2	Ethylene dibromide	ND	ND	ND	ug/L	--	--	--
504.1	Ethylene dibromide	ND	ND	ND	ug/L	--	--	--
8330	HMX	ND	ND	ND	ug/L	--	--	--
E524.2	Isopropylbenzene	ND	ND	ND	ug/L	--	--	770
E524.2	m,p-Xylene	ND	ND	ND	ug/L	--	--	--
E524.2	Methyl tert-butyl ether	ND	ND	ND	ug/L	13	--	--
E524.2	Methylene chloride	ND	ND	ND	ug/L	5	--	--
E524.2	n-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	n-Propylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	o-Xylene	ND	ND	ND	ug/L	--	--	--
E524.2	p-Isopropyltoluene	ND	ND	ND	ug/L	--	--	--
8330	RDX	ND	ND	ND	mg/L	--	--	0.3
E524.2	sec-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	Styrene	ND	ND	ND	ug/L	100	--	--
E524.2	tert-Amyl Methyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	tert-Butyl alcohol	ND	ND	ND	ug/L	--	--	12
E524.2	tert-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	Tetrachloroethene	ND	ND	ND	ug/L	5	--	--
E524.2	Toluene	ND	ND	ND	ug/L	150	--	--
E524.2	trans-1,2-Dichloroethene	ND	ND	ND	ug/L	10	--	--
E524.2	trans-1,3-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	Trichloroethene	ND	ND	ND	ug/L	5	--	--

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E524.2	Trichlorofluoromethane	ND	ND	ND	ug/L	150	--	--
E524.2	Vinyl chloride	ND	ND	ND	ug/L	0.5	--	--
E524.2	Xylenes, Total	ND	ND	ND	ug/L	1750	--	--
				SVOCs				
SW8270C	1,2,4-Trichlorobenzene	ND	ND	ND	ug/L	5	--	--
E524.2	1,2,4-Trichlorobenzene	ND	ND	ND	ug/L	5	--	--
SW8270C	1,2-Dichlorobenzene	ND	ND	ND	ug/L	600	--	--
E524.2	1,2-Dichlorobenzene	ND	ND	ND	ug/L	600	--	--
SW8270C	1,2-Diphenylhydrazine	ND	ND	ND	ug/L	--	--	--
SW8270C	1,3-Dichlorobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichlorobenzene	ND	ND	ND	ug/L	--	--	--
SW8270C	1,4-Dichlorobenzene	ND	ND	ND	ug/L	5	--	--
E524.2	1,4-Dichlorobenzene	ND	ND	ND	ug/L	5	--	--
E522	1,4-Dioxane	ND	ND	ND	ug/L	1	--	--
SW8270C	2,4,5-Trichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4,6-Trichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dimethylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrotoluene	ND	ND	ND	ug/L	--	--	--
SW8270C	2,6-Dinitrotoluene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Chloronaphthalene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Chlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Methylnaphthalene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Methylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Naphthylamine	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Nitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	3&4-Methylphenol Coelution	ND	ND	ND	ug/L	--	--	--
SW8270C	3,3'-Dichlorobenzidine	ND	ND	ND	ug/L	--	--	--
SW8270C	3-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4,6-Dinitro-2-methylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Bromophenyl phenyl ether	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Chloroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Chlorophenyl phenyl ether	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Nitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthylene	ND	ND	ND	ug/L	--	--	--
E525.2	Acenaphthylene	ND	ND	ND	ug/L	--	--	--
E525.2	Alachlor	ND	ND	ND	ug/L	2	--	--
SW8270C	Aniline	ND	ND	ND	ug/L	--	--	--
SW8270C	Anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Atraton	ND	ND	ND	ug/L	--	--	--
E525.2	Atrazine	ND	ND	ND	ug/L	1	--	--
SW8270C	Benz(a)anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Benz(a)anthracene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzidine	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(a)pyrene	ND	ND	ND	ug/L	0.2	--	--
E525.2	Benzo(a)pyrene	ND	ND	ND	ug/L	0.2	--	--
SW8270C	Benzo(b)fluoranthene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(b)fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(g,h,i)perylene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(g,h,i)perylene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(k)fluoranthene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(k)fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzoic acid	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzyl alcohol	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethoxy)methane	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethyl)ether	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroisopropyl)ether	ND	ND	ND	ug/L	--	--	--

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SW8270C	bis(2-Ethylhexyl)phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	bis(2-Ethylhexyl)phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Bromacil	ND	ND	ND	ug/L	--	--	--
SW8270C	Butyl benzyl phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Butyl benzyl phthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Chrysene	ND	ND	ND	ug/L	--	--	--
E525.2	Chrysene	ND	ND	ND	ug/L	--	--	--
E525.2	Di(2-ethylhexyl)adipate	ND	ND	ND	ug/L	400	--	--
E525.2	Diazinon	ND	ND	ND	ug/L	--	--	1.2
SW8270C	Dibenz(a,h)anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Dibenz(a,h)anthracene	ND	ND	ND	ug/L	--	--	--
SW8270C	Dibenzofuran	ND	ND	ND	ug/L	--	--	--
SW8270C	Diethylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Dimethoate	ND	ND	ND	ug/L	--	--	--
SW8270C	Dimethylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Dimethylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Di-n-butylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Di-n-butylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Di-n-octylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Fluorene	ND	ND	ND	ug/L	--	--	--
E525.2	Fluorene	ND	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorobenzene	ND	ND	ND	ug/L	1	--	--
E525.2	Hexachlorobenzene	ND	ND	ND	ug/L	1	--	--
SW8270C	Hexachlorobutadiene	ND	ND	ND	ug/L	--	--	--
E524.2	Hexachlorobutadiene	ND	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorocyclopentadiene	ND	ND	ND	ug/L	50	--	--
E525.2	Hexachlorocyclopentadiene	ND	ND	ND	ug/L	50	--	--
SW8270C	Hexachloroethane	ND	ND	ND	ug/L	--	--	--
SW8270C	Indeno(1,2,3-cd)pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Indeno(1,2,3-cd)pyrene	ND	ND	ND	ug/L	--	--	--
SW8270C	Isophorone	ND	ND	ND	ug/L	--	--	--
E525.2	Metolachlor	ND	ND	ND	ug/L	--	--	--
E525.2	Metribuzin	ND	ND	ND	ug/L	--	--	--
E525.2	Molinate	ND	ND	ND	ug/L	20	--	--
SW8270C	Naphthalene	ND	ND	ND	ug/L	--	--	17
E524.2	Naphthalene	ND	ND	ND	ug/L	--	--	17
SW8270C	Nitrobenzene	ND	ND	ND	ug/L	--	--	--
SW8270C	N-Nitrosodimethylamine	ND	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodi-n-propylamine	ND	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodiphenylamine	ND	ND	ND	ug/L	--	--	--
SW8270C	p-Chloro-m-cresol	ND	ND	ND	ug/L	--	--	--
SW8270C	Pentachlorophenol	ND	ND	ND	ug/L	1	--	--
SW8270C	Phenanthrene	ND	ND	ND	ug/L	--	--	--
E525.2	Phenanthrene	ND	ND	ND	ug/L	--	--	--
SW8270C	Phenol	ND	ND	ND	ug/L	--	--	--
E525.2	Prometon	ND	ND	ND	ug/L	--	--	--
E525.2	Prometryn	ND	ND	ND	ug/L	--	--	--
E525.2	Propachlor	ND	ND	ND	ug/L	--	--	90
SW8270C	Pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Secbumeton	ND	ND	ND	ug/L	--	--	--
E525.2	Simazine	ND	ND	ND	ug/L	4	--	--
E525.2	Terbutryn	ND	ND	ND	ug/L	--	--	--
E525.2	Thiobencarb	ND	ND	ND	ug/L	70	--	--
				PCBs				
E508	PCB-1016	ND	ND	ND	ug/L	--	--	--
E508	PCB-1221	ND	ND	ND	ug/L	--	--	--
E508	PCB-1232	ND	ND	ND	ug/L	--	--	--
E508	PCB-1242	ND	ND	ND	ug/L	--	--	--
E508	PCB-1248	ND	ND	ND	ug/L	--	--	--
E508	PCB-1254	ND	ND	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 3
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well 19P-04

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
E508	PCB-1260	ND	ND	ND	ug/L	--	--	--
E508	Total PCBs	ND	ND	ND	ug/L	0.5	--	--
				THAA				
E552.3	Dibromoacetic Acid (DBAA)	ND	ND	ND	ug/L	--	--	--
E552.3	Dichloroacetic Acid (DCA)	ND	ND	ND	ug/L	--	--	--
E552.3	Monobromoacetic acid	ND	ND	ND	ug/L	--	--	--
E552.3	Monochloroacetic Acid (MCA)	ND	ND	ND	ug/L	--	--	--
E552.3	Trichloroacetic Acid (TCAA)	ND	ND	ND	ug/L	--	--	--
E552.3	Trihalomethanes	ND	ND	ND	ug/L	80	--	--
E524.2	Trihalomethanes	ND	ND	ND	ug/L	80	--	--
				Radiochemistry				
EPA 900	Gross Alpha	2.54	2.66	3.72	pCi/L	15	--	--
EPA900	Gross Beta	2	1.86	2.29	pCi/L	50	--	--
EPA 903.1	Radium-226	0.402	0.401	0.498	pCi/L	3	--	--
EPA 904.0	Radium-228	0.818	0.807	0.668	pCi/L	2	--	--
ASTM D5811-95	Strontium-90	1.09	0.899	2.62	pCi/L	8	--	--
EPA 906	Tritium	261	263	264	pCi/L	20000	--	--
				Nitroaromatics and Nitrosamines				
EPA 521/SPE	N-Nitrosodiethylamine	ND	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosodimethylamine	ND	ND	ND	ug/L			0.01
EPA 521/SPE	N-Nitrosodi-n-butylamine	ND	ND	ND	ug/L	--	--	
EPA 521/SPE	N-Nitrosodi-n-propylamine	ND	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosomethylethylamine	ND	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosomorpholine	ND	ND	ND	ug/L	--	--	--
EPA 521/SPE	N-Nitrosopiperidine	ND	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosopyrrolidine	ND	ND	ND	ng/L	--	--	--
				Dioxins				
EPA 1613B	2,3,7,8-TCDD	0.00000154	0.00000264	0.00000336	ug/L	0.00003	--	--
				PFAs				
B-15	11-CL-PF3OUDS	ND	ND	ND	ng/L	--	--	--
B-15	9-CL-PF3ONS	ND	ND	ND	ng/L	--	--	--
B-15	ADONA	ND	ND	ND	ng/L	--	--	--
B-15	FTS 4:2	ND		ND	ng/L	--	--	--
B-15	FTS 6:2	ND		ND	ng/L	--	--	--
B-15	FTS 8:2	ND		ND	ng/L	--	--	--
B-15	HFPO-DA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSAA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSE	ND		ND	ng/L	--	--	--
B-15	N-MEFOSA	ND		ND	ng/L	--	--	--
B-15	N-MEFOSAA	ND		ND	ng/L	--	--	--
B-15	N-MEFOSE	ND		ND	ng/L	--	--	--
B-15	PFBA	ND		2.8 J	ng/L	--	--	--
B-15	PFBS	ND	1.4 J	0.59 J	ng/L	--	--	--
B-15	PFDA	ND	ND	ND	ng/L	--	--	--
B-15	PFDOA	ND	ND	ND	ng/L	--	--	--
B-15	PFDS	ND		ND	ng/L	--	--	--
B-15	PFHPA	ND	ND	ND	ng/L	--	--	--
B-15	PFHPS	ND		ND	ng/L	--	--	--
B-15	PFHXA	ND	ND	0.74 J	ng/L	--	--	--
B-15	PFHXS	ND	ND	ND	ng/L	--	--	--
B-15	PFNA	ND	ND	ND	ng/L	--	--	--
B-15	PFNS	ND		ND	ng/L	--	--	--
B-15	PFOA	ND	ND	ND	ng/L	--	--	--
B-15	PFOS	ND	ND	ND	ng/L	--	--	--
B-15	PFOSA	ND		2.2 B J	ng/L	--	--	--
B-15	PFPEA	ND		ND	ng/L	--	--	--
B-15	PFPES	ND		ND	ng/L	--	--	--
B-15	PFTEDA	ND	ND	ND	ng/L	--	--	--
B-15	PFTRDA	ND	ND	ND	ng/L	--	--	--
B-15	PFUDA	ND	ND	ND	ng/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 4
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well MB-3

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
Field Parameters								
YSI Probe	Temp	19	18.8	18	Degrees C			
YSI Probe	pH	7.2	7.2	7.2				
YSI Probe	ORP	199	108	103	mV			
YSI Probe	DO	0.97	0.28	0.34	mg/L			
General Chemistry								
EPA 600/R-94/134	Asbestos	ND	ND	1.3	MFL	7	--	--
EPA 317	Bromate	ND	ND	ND	mg/L	10	--	
EPA 300.1	Chlorate	ND	ND	ND	mg/L	--	--	800
E300.0	Chloride	160	160	170	mg/L	--	500	--
EPA 300.1	Chlorite	ND	ND	ND	mg/L	1	--	--
2120B	Color	4	2	1	None	--	--	--
SW8015B	Ethylene glycol	ND	ND	ND	mg/L	--	--	14
2510B	Electrical Conductivity @ 25 C	1600	1580	1650	umhos/cm	--	--	--
E300.0	Fluoride	0.26	0.21	0.25	mg/L	2	--	--
E556.1	Formaldehyde	ND	ND	ND	ug/L	--	--	100
5540C	MBAS	ND	ND	ND	mg/L	--	0.5	--
E300.0	Nitrate (as N)	**26**	**22**	**24**	mg/L	10	--	--
CALC	Nitrate + Nitrite (As N)	**26**	**22**	**24**	mg/L	10	--	--
E353.2	Nitrite (as N)	ND	ND	ND	mg/L	1	--	--
SM5310C	Non-Volatile Organic Carbon	0.92 J	1.1	1.1	mg/L	--	--	--
2150B	Odor	ND	ND	ND	None	--	--	--
E314.0	Perchlorate	ND	ND	ND	ug/L	6	--	--
E300.0	Sulfate	160	160	170	mg/L	--	500	--
E335.4	Total Cyanide	ND	2 J	ND	ug/L	150	--	--
SM2540C	Total Dissolved Solids	990	1000	**1100**	mg/L	--	1000	--
E351.2	Total Kjeldahl Nitrogen	ND	4.6	0.13 J	mg/L	--	--	--
CALC	Total Nitrogen	26	26	24	mg/L	--	--	--
E180.1	Turbidity	0.12	0.18	0.14	NTU	--	--	--
Metals								
E200.7	Aluminum	ND	0.028 J	ND	mg/L	1	--	--
E200.8	Antimony	0.00013 J	ND	ND	mg/L	0.006	--	--
E200.8	Arsenic	0.0027	0.0021	ND	mg/L	0.01	--	--
E200.8	Barium	0.12	0.13	0.13	mg/L	1	--	--
E200.8	Beryllium	ND	ND	ND	mg/L	0.004	--	--
E200.7	Boron	0.13	0.11	0.11	mg/L	--	--	1
E200.8	Cadmium	0.00015 J	0.00011 J	ND	mg/L	0.005	--	--
E200.8	Chromium	0.0012 J	0.00096 J	ND	mg/L	0.05	--	--
E218.6	Chromium, Hexavalent	0.0017	0.0013	0.0013	mg/L	--	--	--
E200.8	Cobalt	ND	0.0002 J	0.00043 J	mg/L	--	--	--
E200.8	Copper	0.00083 J	0.0041	0.0033	mg/L	--	--	--
E200.7	Iron (Ferric)	ND	ND	ND	mg/L	--	--	--
E200.8	Lead	ND	ND	ND	mg/L	--	--	--
E200.7	Lithium	ND	ND	ND	mg/L	--	--	--
E200.7	Manganese	ND	ND	ND	mg/L	--	0.05	--
E245.1	Mercury	ND	0.00013 J	0.000034 J	mg/L	0.002	--	--
E200.8	Molybdenum	0.002	0.0013	0.0013	mg/L	--	--	--
E200.8	Nickel	0.0038	0.0037 J	0.0044	mg/L	0.1	--	--
E200.8	Selenium	0.028	0.028 J	0.026	mg/L	0.05	--	--
E200.8	Silver	ND	ND	ND	mg/L	--	--	--
E200.8	Thallium	ND	ND	ND	mg/L	0.002	--	--
CALC	Trivalent Chromium	ND	ND	ND	mg/L	--	--	--
E200.8	Uranium	0.0019	0.002	0.0019	mg/L	20	--	--
E200.8	Vanadium	1.9	1.7 J	ND	ug/L	--	--	50
E200.8	Zinc	0.018 J	0.023	0.022	mg/L	--	5	--
Herbicides/Pesticides								
E531.2	1-Naphthol	0	ND	ND	ug/L	--	--	--
E515.1	2,4,5-T	ND	ND	ND	ug/L	--	--	--
E515.1	2,4,5-TP	ND	ND	ND	ug/L	50	--	--
E515.1	2,4-D	ND	ND	ND	ug/L	70	--	--
E515.1	2,4-DB	ND	ND	ND	ug/L	--	--	--
E531.2	3-Hydroxycarbofuran	ND	ND	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 4
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well MB-3

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
SW8270C	4,4'-DDD	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDD	ND	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDE	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDE	ND	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDT	ND	ND	ND	ug/L	--	--	--
E508	4,4'-DDT	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfone	ND	ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfoxide	ND	ND	ND	ug/L	--	--	--
SW8270C	Aldrin	ND	ND	ND	ug/L	--	--	--
E508	Aldrin	ND	ND	ND	ug/L	--	--	--
SW8270C	Alpha-BHC	ND	ND	ND	ug/L	--	--	--
E508	Alpha-BHC	ND	ND	ND	ug/L	--	--	--
E515.1	Bentazon	ND	ND	ND	ug/L	18	--	--
SW8270C	Beta-BHC	ND	ND	ND	ug/L	--	--	--
E508	Beta-BHC	ND	ND	ND	ug/L	--	--	--
E531.2	Carbaryl	ND	ND	ND	ug/L	--	--	--
E531.2	Carbofuran	ND	ND	ND	ug/L	18	--	--
E508	Chlordane	ND	ND	ND	ug/L	0.1	--	--
E515.1	Dalapon	ND	ND	ND	ug/L	200	--	--
SW8270C	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E525.2	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E508	Delta-BHC	ND	ND	ND	ug/L	--	--	--
E515.1	Dicamba	ND	ND	ND	ug/L	--	--	--
E515.1	Dichlorprop	ND	ND	ND	ug/L	--	--	--
SW8270C	Dieldrin	ND	ND	ND	ug/L	--	--	--
E508	Dieldrin	ND	ND	ND	ug/L	--	--	--
E515.1	Dinoseb	ND	ND	ND	ug/L	7	--	--
E549.2	Diquat	ND	ND	ND	ug/L	20	--	--
SW8270C	Endosulfan I	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan I	ND	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan II	ND	ND	ND	ug/L	--	--	--
E548.1	Endosulfan II	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan II	ND	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan Sulfate	ND	ND	ND	ug/L	--	--	--
E508	Endosulfan Sulfate	ND	ND	ND	ug/L	--	--	--
SW8270C	Endrin	ND	ND	ND	ug/L	2	--	--
E508	Endrin	ND	ND	ND	ug/L	2	--	--
SW8270C	Endrin Aldehyde	ND	ND	ND	ug/L	--	--	--
E508	Endrin Aldehyde	ND	ND	ND	ug/L	--	--	--
SW8270C	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E525.2	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E508	Gamma-BHC	ND	ND	ND	ug/L	--	--	--
E547	Glyphosate	ND	ND	ND	ug/L	700	--	--
SW8270C	Heptachlor	ND	ND	ND	ug/L	0.01	--	--
E508	Heptachlor	ND	ND	ND	ug/L	0.01	--	--
SW8270C	Heptachlor Epoxide	ND	ND	ND	ug/L	0.01	--	--
E508	Heptachlor Epoxide	ND	ND	ND	ug/L	0.01	--	--
E515.1	MCPA	ND	ND	ND	ug/L	--	--	--
E515.1	MCPP	ND	ND	ND	ug/L	--	--	--
E531.2	Methiocarb		ND	ND	ug/L	--	--	--
E531.2	Methomyl	ND	ND	ND	ug/L	--	--	--
E525.2	Methoxychlor	ND	ND	ND	ug/L	30	--	--
E508	Methoxychlor	ND	ND	ND	ug/L	30	--	--
E531.2	Oxamyl	ND	ND	ND	ug/L	50	--	--
E531.2	Propoxur		ND	ND	ug/L	--	--	--
E508	Toxaphene	ND	ND	ND	ug/L	3	--	--
VOCs								
E524.2	1,1,1,2-Tetrachloroethane	ND	ND	ND	ug/L	--	--	--
E524.2	1,1,1-Trichloroethane	ND	ND	ND	ug/L	200	--	--
E524.2	1,1,2,2-Tetrachloroethane	ND	ND	ND	ug/L	1	--	--
E524.2	1,1,2-Trichlor-1,2,2-trifluoroethane	ND	ND	ND	ug/L	1200	--	--

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GSI Water Solutions, Inc.

TABLE 4
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well MB-3

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
E524.2	1,1,2-Trichloroethane	ND	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethane	ND	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethene	ND	ND	ND	ug/L	6	--	--
E524.2	1,1-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichlorobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichloropropane	ND	ND	ND	ug/L	0.005	--	--
E524	1,2,3-Trichloropropane	ND	ND	ND	ug/L	0.005	--	--
E524.2	1,2,4-Trimethylbenzene	ND	ND	ND	ug/L	--	--	330
E524.2	1,2-Dibromo-3-chloropropane	ND	ND	ND	ug/L	0.2	--	--
504.1	1,2-Dibromo-3-chloropropane	ND	ND	ND	ug/L	0.2	--	--
E524.2	1,2-Dichloroethane	ND	ND	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloropropane	ND	ND	ND	ug/L	5	--	--
E524.2	1,3,5-Trimethylbenzene	ND	ND	ND	ug/L	--	--	330
E524.2	1,3-Dichloropropane	ND	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropene	ND	ND	ND	ug/L	0.5	--	--
E524.2	2,2-Dichloropropane	ND	ND	ND	ug/L	--	--	--
SW8260B	2-Chloroethylvinylether	ND	ND	ND	ug/L	--	--	--
E524.2	2-Chlorotoluene	ND	ND	ND	ug/L	--	--	140
E524.2	4-Chlorotoluene	ND	ND	ND	ug/L	--	--	140
SW8260B	Acrolein	ND	ND	ND	ug/L	--	--	--
SW8260B	Acrylonitrile	ND	ND	ND	ug/L	--	--	--
E524.2	Benzene	ND	ND	ND	ug/L	1	--	--
E524.2	Bromobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	Bromochloromethane	ND	ND	ND	ug/L	--	--	--
E524.2	Bromodichloromethane	ND	ND	ND	ug/L	80	--	--
E524.2	Bromoform	ND	ND	ND	ug/L	80	--	--
E524.2	Bromomethane	ND	ND	ND	ug/L	--	--	--
E524.2	Carbon tetrachloride	ND	ND	ND	ug/L	0.5	--	--
E524.2	Chlorobenzene	ND	ND	ND	ug/L	70	--	--
E524.2	Chloroethane	ND	ND	ND	ug/L	--	--	--
E524.2	Chloroform	ND	ND	ND	ug/L	80	--	--
E524.2	Chloromethane	ND	ND	ND	ug/L	--	--	--
E524.2	cis-1,2-Dichloroethene	ND	ND	ND	ug/L	6	--	--
E524.2	cis-1,3-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	Dibromochloromethane	ND	ND	ND	ug/L	80	--	--
E524.2	Dibromomethane	ND	ND	ND	ug/L	--	--	--
E524.2	Dichlorodifluoromethane	ND	ND	ND	mg/L	--	--	1
E524.2	Di-isopropyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	Ethyl tert-butyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	Ethylbenzene	ND	ND	ND	ug/L	300	--	--
E524.2	Ethylene dibromide	ND	ND	ND	ug/L	--	--	--
504.1	Ethylene dibromide	ND	ND	ND	ug/L	--	--	--
8330	HMX	ND	ND	ND	ug/L	--	--	--
E524.2	Isopropylbenzene	ND	ND	ND	ug/L	--	--	770
E524.2	m,p-Xylene	ND	ND	ND	ug/L	--	--	--
E524.2	Methyl tert-butyl ether	ND	ND	ND	ug/L	13	--	--
E524.2	Methylene chloride	ND	ND	ND	ug/L	5	--	--
E524.2	n-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	n-Propylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	o-Xylene	ND	ND	ND	ug/L	--	--	--
E524.2	p-Isopropyltoluene	ND	ND	ND	ug/L	--	--	--
8330	RDX	ND	ND	ND	mg/L	--	--	0.3
E524.2	sec-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	Styrene	ND	ND	ND	ug/L	100	--	--
E524.2	tert-Amyl Methyl ether	ND	ND	ND	ug/L	--	--	--
E524.2	tert-Butyl alcohol	ND	ND	ND	ug/L	--	--	12
E524.2	tert-Butylbenzene	ND	ND	ND	ug/L	--	--	260
E524.2	Tetrachloroethene	ND	ND	ND	ug/L	5	--	--
E524.2	Toluene	ND	ND	ND	ug/L	150	--	--
E524.2	trans-1,2-Dichloroethene	ND	ND	ND	ug/L	10	--	--
E524.2	trans-1,3-Dichloropropene	ND	ND	ND	ug/L	--	--	--
E524.2	Trichloroethene	ND	ND	ND	ug/L	5	--	--

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MORRO BAY WELLS
Well MB-3

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
E524.2	Trichlorofluoromethane	ND	ND	ND	ug/L	150	--	--
E524.2	Vinyl chloride	ND	ND	ND	ug/L	0.5	--	--
E524.2	Xylenes, Total	ND	ND	ND	ug/L	1750	--	--
				SVOCs				
SW8270C	1,2,4-Trichlorobenzene	ND	ND	ND	ug/L	5	--	--
E524.2	1,2,4-Trichlorobenzene	ND	ND	ND	ug/L	5	--	--
SW8270C	1,2-Dichlorobenzene	ND	ND	ND	ug/L	600	--	--
E524.2	1,2-Dichlorobenzene	ND	ND	ND	ug/L	600	--	--
E522	1,4-Dioxane	ND	ND	ND	ug/L	1	--	--
SW8270C	1,2-Diphenylhydrazine	ND	ND	ND	ug/L	--	--	--
SW8270C	1,3-Dichlorobenzene	ND	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichlorobenzene	ND	ND	ND	ug/L	--	--	--
SW8270C	1,4-Dichlorobenzene	ND	ND	ND	ug/L	5	--	--
E524.2	1,4-Dichlorobenzene	ND	ND	ND	ug/L	5	--	--
SW8270C	2,4,5-Trichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4,6-Trichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dichlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dimethylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrotoluene	ND	ND	ND	ug/L	--	--	--
SW8270C	2,6-Dinitrotoluene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Chloronaphthalene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Chlorophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Methylnaphthalene	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Methylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Naphthylamine	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	2-Nitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	3&4-Methylphenol Coelution	ND	ND	ND	ug/L	--	--	--
SW8270C	3,3'-Dichlorobenzidine	ND	ND	ND	ug/L	--	--	--
SW8270C	3-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4,6-Dinitro-2-methylphenol	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Bromophenyl phenyl ether	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Chloroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Chlorophenyl phenyl ether	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Nitroaniline	ND	ND	ND	ug/L	--	--	--
SW8270C	4-Nitrophenol	ND	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthylene	ND	ND	ND	ug/L	--	--	--
E525.2	Acenaphthylene	ND	ND	ND	ug/L	--	--	--
E525.2	Alachlor	ND	ND	ND	ug/L	2	--	--
SW8270C	Aniline	ND	ND	ND	ug/L	--	--	--
SW8270C	Anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Atraton	ND	ND	ND	ug/L	--	--	--
E525.2	Atrazine	ND	ND	ND	ug/L	1	--	--
SW8270C	Benz(a)anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Benz(a)anthracene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzidine	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(a)pyrene	ND	ND	ND	ug/L	0.2	--	--
E525.2	Benzo(a)pyrene	ND	ND	ND	ug/L	0.2	--	--
SW8270C	Benzo(b)fluoranthene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(b)fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(g,h,i)perylene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(g,h,i)perylene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzo(k)fluoranthene	ND	ND	ND	ug/L	--	--	--
E525.2	Benzo(k)fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzoic acid	ND	ND	ND	ug/L	--	--	--
SW8270C	Benzyl alcohol	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethoxy)methane	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethyl)ether	ND	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroisopropyl)ether	ND	ND	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 4
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well MB-3

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
SW8270C	bis(2-Ethylhexyl)phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	bis(2-Ethylhexyl)phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Bromacil	ND	ND	ND	ug/L	--	--	--
SW8270C	Butyl benzyl phthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Butyl benzyl phthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Chrysene	ND	ND	ND	ug/L	--	--	--
E525.2	Chrysene	ND	ND	ND	ug/L	--	--	--
E525.2	Di(2-ethylhexyl)adipate	ND	ND	ND	ug/L	400	--	--
E525.2	Diazinon	ND	ND	ND	ug/L	--	--	1.2
SW8270C	Dibenz(a,h)anthracene	ND	ND	ND	ug/L	--	--	--
E525.2	Dibenz(a,h)anthracene	ND	ND	ND	ug/L	--	--	--
SW8270C	Dibenzofuran	ND	ND	ND	ug/L	--	--	--
SW8270C	Diethylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Dimethoate	ND	ND	ND	ug/L	--	--	--
SW8270C	Dimethylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Dimethylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Di-n-butylphthalate	ND	ND	ND	ug/L	--	--	--
E525.2	Di-n-butylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Di-n-octylphthalate	ND	ND	ND	ug/L	--	--	--
SW8270C	Fluoranthene	ND	ND	ND	ug/L	--	--	--
SW8270C	Fluorene	ND	ND	ND	ug/L	--	--	--
E525.2	Fluorene	ND	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorobenzene	ND	ND	ND	ug/L	1	--	--
E525.2	Hexachlorobenzene	ND	ND	ND	ug/L	1	--	--
SW8270C	Hexachlorobutadiene	ND	ND	ND	ug/L	--	--	--
E524.2	Hexachlorobutadiene	ND	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorocyclopentadiene	ND	ND	ND	ug/L	50	--	--
E525.2	Hexachlorocyclopentadiene	ND	ND	ND	ug/L	50	--	--
SW8270C	Hexachloroethane	ND	ND	ND	ug/L	--	--	--
SW8270C	Indeno(1,2,3-cd)pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Indeno(1,2,3-cd)pyrene	ND	ND	ND	ug/L	--	--	--
SW8270C	Isophorone	ND	ND	ND	ug/L	--	--	--
E525.2	Metolachlor	ND	ND	ND	ug/L	--	--	--
E525.2	Metribuzin	ND	ND	ND	ug/L	--	--	--
E525.2	Molinate	ND	ND	ND	ug/L	20	--	--
SW8270C	Naphthalene	ND	ND	ND	ug/L	--	--	17
E524.2	Naphthalene	ND	ND	ND	ug/L	--	--	17
SW8270C	Nitrobenzene	ND	ND	ND	ug/L	--	--	--
SW8270C	N-Nitrosodimethylamine	ND	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodi-n-propylamine	ND	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodiphenylamine	ND	ND	ND	ug/L	--	--	--
SW8270C	p-Chloro-m-cresol	ND	ND	ND	ug/L	--	--	--
SW8270C	Pentachlorophenol	ND	ND	ND	ug/L	1	--	--
SW8270C	Phenanthrene	ND	ND	ND	ug/L	--	--	--
E525.2	Phenanthrene	ND	ND	ND	ug/L	--	--	--
SW8270C	Phenol	ND	ND	ND	ug/L	--	--	--
E525.2	Prometon	ND	ND	ND	ug/L	--	--	--
E525.2	Prometryn	ND	ND	ND	ug/L	--	--	--
E525.2	Propachlor	ND	ND	ND	ug/L	--	--	90
SW8270C	Pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Pyrene	ND	ND	ND	ug/L	--	--	--
E525.2	Secbumeton	ND	ND	ND	ug/L	--	--	--
E525.2	Simazine	ND	ND	ND	ug/L	4	--	--
E525.2	Terbutryn	ND	ND	ND	ug/L	--	--	--
E525.2	Thiobencarb	ND	ND	ND	ug/L	70	--	--
				PCBs				
E508	PCB-1016	ND	ND	ND	ug/L	--	--	--
E508	PCB-1221	ND	ND	ND	ug/L	--	--	--
E508	PCB-1232	ND	ND	ND	ug/L	--	--	--
E508	PCB-1242	ND	ND	ND	ug/L	--	--	--
E508	PCB-1248	ND	ND	ND	ug/L	--	--	--
E508	PCB-1254	ND	ND	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 4
SUMMARY OF GROUNDWATER QUALITY
MORRO BAY WELLS
Well MB-3

Method	Analyte	12.28.20 Results	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
E508	PCB-1260	ND	ND	ND	ug/L	--	--	--
E508	Total PCBs	ND	ND	ND	ug/L	0.5	--	--
THAA								
E552.3	Dibromoacetic Acid (DBAA)	ND	ND	ND	ug/L	--	--	--
E552.3	Dichloroacetic Acid (DCA)	ND	ND	ND	ug/L	--	--	--
E552.3	Monobromoacetic acid	ND	ND	ND	ug/L	--	--	--
E552.3	Monochloroacetic Acid (MCA)	ND	ND	ND	ug/L	--	--	--
E552.3	Trichloroacetic Acid (TCAA)	ND	ND	ND	ug/L	--	--	--
E552.3	Trihalomethanes	ND	ND	ND	ug/L	80	--	--
E524.2	Trihalomethanes	ND	ND	ND	ug/L	80	--	--
Radiochemistry								
EPA 900	Gross Alpha	4.8	2.94	3.54	pCi/L	15	--	--
EPA900	Gross Beta	2.42	2.17	3.3	pCi/L	50	--	--
EPA 903.1	Radium-226	0.818	0.523	0.75	pCi/L	3	--	--
EPA 904.0	Radium-228	0.702	1.3	0.753	pCi/L	2	--	--
ASTM D5811-95	Strontium-90	1.11	0.935	2.62	pCi/L	8	--	--
EPA 906	Tritium	259	262	265	pCi/L	20000	--	--
Nitroaromatics and Nitrosamines								
EPA 521/SPE	N-Nitrosodiethylamine	ND	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosodimethylamine	ND	ND	ND	ug/L			0.01
EPA 521/SPE	N-Nitrosodi-n-butylamine	ND	ND	ND	ug/L	--	--	
EPA 521/SPE	N-Nitrosodi-n-propylamine	ND	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosomethylethylamine	ND	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosomorpholine	ND	ND	ND	ug/L	--	--	--
EPA 521/SPE	N-Nitrosopiperidine	ND	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosopyrrolidine	ND	ND	ND	ng/L	--	--	--
Dioxins								
EPA 1613B	2,3,7,8-TCDD	0.00000172	0.00000178	0.00000229	ug/L	0.00003	--	--
PFAs								
B-15	11-CL-PF3OUDS	ND	ND	ND	ng/L	--	--	--
B-15	9-CL-PF3ONS	ND	ND	ND	ng/L	--	--	--
B-15	ADONA	ND	ND	ND	ng/L	--	--	--
B-15	FTS 4:2	ND		ND	ng/L	--	--	--
B-15	FTS 6:2	ND		2.2 J	ng/L	--	--	--
B-15	FTS 8:2	ND		ND	ng/L	--	--	--
B-15	HFPO-DA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSAA	ND	ND	ND	ng/L	--	--	--
B-15	N-ETFOSE	ND		ND	ng/L	--	--	--
B-15	N-MEFOSA	ND		ND	ng/L	--	--	--
B-15	N-MEFOSAA	ND		ND	ng/L	--	--	--
B-15	N-MEFOSE	ND		ND	ng/L	--	--	--
B-15	PFBA	ND		1 J	ng/L	--	--	--
B-15	PFBS	3.3 J	1.6 J	1.9 J	ng/L	--	--	--
B-15	PFDA	ND	ND	ND	ng/L	--	--	--
B-15	PFDOA	ND	ND	ND	ng/L	--	--	--
B-15	PFDS	ND		ND	ng/L	--	--	--
B-15	PFHPA	ND	ND	ND	ng/L	--	--	--
B-15	PFHPS	ND		ND	ng/L	--	--	--
B-15	PFHXA	ND	ND	ND	ng/L	--	--	--
B-15	PFHXS	ND	ND	ND	ng/L	--	--	--
B-15	PFNA	ND	ND	ND	ng/L	--	--	--
B-15	PFNS	ND		ND	ng/L	--	--	--
B-15	PFOA	ND	ND	ND	ng/L	--	--	--
B-15	PFOS	ND	ND	ND	ng/L	--	--	--
B-15	PFOSA	ND		5.4 B J	ng/L	--	--	--
B-15	PFPEA	ND		ND	ng/L	--	--	--
B-15	PFPES	ND		ND	ng/L	--	--	--
B-15	PFTEDA	ND	ND	ND	ng/L	--	--	--
B-15	PFTRDA	ND	ND	ND	ng/L	--	--	--
B-15	PFUDA	ND	ND	ND	ng/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 5
SUMMARY OF GROUNDWATER QUALITY
CITY OF MORRO BAY
High School-2 Well

Method	Analyte	12.28.20 Results	Units	MCL	SMCL	NL
		Field Parameters				
YSI Probe	Temp	18.5	Degrees C			
YSI Probe	pH	7.2				
YSI Probe	ORP	225	mV			
YSI Probe	DO	1.46	mg/L			
		General Chemistry				
A 600/R-94/1	Asbestos	0.2	MFL	7	--	--
EPA 317	Bromate	ND	mg/L	10	--	
EPA 300.1	Chlorate	ND	mg/L	--	--	800
E300.0	Chloride	230	mg/L	--	500	--
EPA 300.1	Chlorite	ND	mg/L	1	--	--
2120B	Color	2	None	--	--	--
SW8015B	Ethylene glycol	ND	mg/L	--	--	14
2510B	Electrical Conductivity @ 25 C	1730	umhos/cm	--	--	--
E300.0	Fluoride	0.25	mg/L	2	--	--
E556.1	Formaldehyde	ND	ug/L	--	--	100
5540C	MBAS	ND	mg/L	--	0.5	--
E300.0	Nitrate (as N)	**17**	mg/L	10	--	--
CALC	Nitrate + Nitrite (As N)	**17**	mg/L	10	--	--
E353.2	Nitrite (as N)	ND	mg/L	1	--	--
SM5310C	Non-Volatile Organic Carbon	1	mg/L	--	--	--
2150B	Odor	ND	None	--	--	--
E314.0	Perchlorate	ND	ug/L	6	--	--
E300.0	Sulfate	120	mg/L	--	500	--
E335.4	Total Cyanide	ND	ug/L	150	--	--
SM2540C	Total Dissolved Solids	990	mg/L	--	1000	--
E351.2	Total Kjeldahl Nitrogen	0.089 J	mg/L	--	--	--
CALC	Total Nitrogen	17	mg/L	--	--	--
E180.1	Turbidity	0.12	NTU	--	--	--
		Metals				
E200.7	Aluminum	ND	mg/L	1	--	--
E200.8	Antimony	ND	mg/L	0.006	--	--
E200.8	Arsenic	0.0016 J	mg/L	0.01	--	--
E200.8	Barium	0.13	mg/L	1	--	--
E200.8	Beryllium	ND	mg/L	0.004	--	--
E200.7	Boron	0.15	mg/L	--	--	1
E200.8	Cadmium	ND	mg/L	0.005	--	--
E200.8	Chromium	0.0022 J	mg/L	0.05	--	--
E218.6	Chromium, Hexavalent	0.0024	mg/L	--	--	--
E200.8	Cobalt	ND	mg/L	--	--	--
E200.8	Copper	0.0026	mg/L	--	--	--
E200.7	Iron (Ferric)	ND	mg/L	--	--	--
E200.8	Lead	ND	mg/L	--	--	--
E200.7	Lithium	0.0072 J	mg/L	--	--	--
E200.7	Manganese	ND	mg/L	--	0.05	--
E245.1	Mercury	ND	mg/L	0.002	--	--
E200.8	Molybdenum	0.0019	mg/L	--	--	--
E200.8	Nickel	0.0037	mg/L	0.1	--	--
E200.8	Selenium	0.018	mg/L	0.05	--	--
E200.8	Silver	ND	mg/L	--	--	--
E200.8	Thallium	ND	mg/L	0.002	--	--

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TABLE 5
SUMMARY OF GROUNDWATER QUALITY
CITY OF MORRO BAY
Well HS-2

CALC	Trivalent Chromium	ND	mg/L	--	--	--
E200.8	Uranium	0.0015	mg/L	20	--	--
E200.8	Vanadium	2 J	ug/L	--	--	50
E200.8	Zinc	0.0061 J	mg/L	--	5	--
Herbicides/Pesticides						
E531.2	1-Naphthol		ug/L	--	--	--
E515.1	2,4,5-T	ND	ug/L	--	--	--
E515.1	2,4,5-TP	ND	ug/L	50	--	--
E515.1	2,4-D	ND	ug/L	70	--	--
E515.1	2,4-DB	ND	ug/L	--	--	--
E531.2	3-Hydroxycarbofuran	ND	ug/L	--	--	--
SW8270C	4,4'-DDD	ND	ug/L	--	--	--
E508	4,4'-DDD	ND	ug/L	--	--	--
SW8270C	4,4'-DDE	ND	ug/L	--	--	--
E508	4,4'-DDE	ND	ug/L	--	--	--
SW8270C	4,4'-DDT	ND	ug/L	--	--	--
E508	4,4'-DDT		ug/L	--	--	--
E531.2	Aldicarb	ND	ug/L	--	--	--
E531.2	Aldicarb sulfone	ND	ug/L	--	--	--
E531.2	Aldicarb sulfoxide	ND	ug/L	--	--	--
SW8270C	Aldrin	ND	ug/L	--	--	--
E508	Aldrin	ND	ug/L	--	--	--
SW8270C	Alpha-BHC	ND	ug/L	--	--	--
E508	Alpha-BHC	ND	ug/L	--	--	--
E515.1	Bentazon	ND	ug/L	18	--	--
SW8270C	Beta-BHC	ND	ug/L	--	--	--
E508	Beta-BHC	ND	ug/L	--	--	--
E531.2	Carbaryl	ND	ug/L	--	--	--
E531.2	Carbofuran	ND	ug/L	18	--	--
E508	Chlordane	ND	ug/L	0.1	--	--
E515.1	Dalapon	ND	ug/L	200	--	--
SW8270C	Delta-BHC	ND	ug/L	--	--	--
E525.2	Delta-BHC	ND	ug/L	--	--	--
E508	Delta-BHC	ND	ug/L	--	--	--
E515.1	Dicamba	ND	ug/L	--	--	--
E515.1	Dichlorprop	ND	ug/L	--	--	--
SW8270C	Dieldrin	ND	ug/L	--	--	--
E508	Dieldrin	ND	ug/L	--	--	--
E515.1	Dinoseb	ND	ug/L	7	--	--
E549.2	Diquat	ND	ug/L	20	--	--
SW8270C	Endosulfan I	ND	ug/L	--	--	--
E508	Endosulfan I	ND	ug/L	--	--	--
SW8270C	Endosulfan II	ND	ug/L	--	--	--
E548.1	Endosulfan II	ND	ug/L	--	--	--
E508	Endosulfan II	ND	ug/L	--	--	--
SW8270C	Endosulfan Sulfate	ND	ug/L	--	--	--
E508	Endosulfan Sulfate	ND	ug/L	--	--	--
SW8270C	Endrin	ND	ug/L	2	--	--
E508	Endrin	ND	ug/L	2	--	--
SW8270C	Endrin Aldehyde	ND	ug/L	--	--	--
E508	Endrin Aldehyde	ND	ug/L	--	--	--
SW8270C	Gamma-BHC	ND	ug/L	--	--	--

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SMCL = Secondary Maximum Contaminant Level (Bold = exceedance)
NL = Notification Limit
ND = Non-Detect

GSI Water Solutions, Inc.

TABLE 5
SUMMARY OF GROUNDWATER QUALITY
CITY OF MORRO BAY
Well HS-2

E525.2	Gamma-BHC	ND	ug/L	--	--	--
E508	Gamma-BHC	ND	ug/L	--	--	--
E547	Glyphosate	ND	ug/L	700	--	--
SW8270C	Heptachlor	ND	ug/L	0.01	--	--
E508	Heptachlor	ND	ug/L	0.01	--	--
SW8270C	Heptachlor Epoxide	ND	ug/L	0.01	--	--
E508	Heptachlor Epoxide	ND	ug/L	0.01	--	--
E515.1	MCPA	ND	ug/L	--	--	--
E515.1	MCPP	ND	ug/L	--	--	--
E531.2	Methiocarb		ug/L	--	--	--
E531.2	Methomyl	ND	ug/L	--	--	--
E525.2	Methoxychlor	ND	ug/L	30	--	--
E508	Methoxychlor	ND	ug/L	30	--	--
E531.2	Oxamyl	ND	ug/L	50	--	--
E531.2	Propoxur		ug/L	--	--	--
E508	Toxaphene	ND	ug/L	3	--	--
		VOCs				
E524.2	1,1,1,2-Tetrachloroethane	ND	ug/L	--	--	--
E524.2	1,1,1-Trichloroethane	ND	ug/L	200	--	--
E524.2	1,1,2,2-Tetrachloroethane	ND	ug/L	1	--	--
E524.2	1,1,2-Trichlor-1,2,2-trifluoroethane	ND	ug/L	1200	--	--
E524.2	1,1,2-Trichloroethane	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethane	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethene	ND	ug/L	6	--	--
E524.2	1,1-Dichloropropene	ND	ug/L	--	--	--
E524.2	1,2,3-Trichlorobenzene	ND	ug/L	--	--	--
E524.2	1,2,3-Trichloropropane	ND	ug/L	0.005	--	--
E524	1,2,3-Trichloropropane	ND	ug/L	0.005	--	--
E524.2	1,2,4-Trimethylbenzene	ND	ug/L	--	--	330
E524.2	1,2-Dibromo-3-chloropropane	ND	ug/L	0.2	--	--
504.1	1,2-Dibromo-3-chloropropane	ND	ug/L	0.2	--	--
E524.2	1,2-Dichloroethane	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloropropane	ND	ug/L	5	--	--
E524.2	1,3,5-Trimethylbenzene	ND	ug/L	--	--	330
E524.2	1,3-Dichloropropane	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropene	ND	ug/L	0.5	--	--
E524.2	2,2-Dichloropropane	ND	ug/L	--	--	--
SW8260B	2-Chloroethylvinylether	ND	ug/L	--	--	--
E524.2	2-Chlorotoluene	ND	ug/L	--	--	140
E524.2	4-Chlorotoluene	ND	ug/L	--	--	140
SW8260B	Acrolein	ND	ug/L	--	--	--
SW8260B	Acrylonitrile	ND	ug/L	--	--	--
E524.2	Benzene	ND	ug/L	1	--	--
E524.2	Bromobenzene	ND	ug/L	--	--	--
E524.2	Bromochloromethane	ND	ug/L	--	--	--
E524.2	Bromodichloromethane	ND	ug/L	80	--	--
E524.2	Bromoform	ND	ug/L	80	--	--
E524.2	Bromomethane	ND	ug/L	--	--	--
E524.2	Carbon tetrachloride	ND	ug/L	0.5	--	--
E524.2	Chlorobenzene	ND	ug/L	70	--	--
E524.2	Chloroethane	ND	ug/L	--	--	--
E524.2	Chloroform	ND	ug/L	80	--	--

MCL = Maximum Contaminant Level (Bold = exceedance)
SMCL = Secondary Maximum Contaminant Level (Bold = exceedance)
NL = Notification Limit
ND = Non-Detect

GSI Water Solutions, Inc.

TABLE 5
SUMMARY OF GROUNDWATER QUALITY
CITY OF MORRO BAY
Well HS-2

E524.2	Chloromethane	ND	ug/L	--	--	--
E524.2	cis-1,2-Dichloroethene	ND	ug/L	6	--	--
E524.2	cis-1,3-Dichloropropene	ND	ug/L	--	--	--
E524.2	Dibromochloromethane	ND	ug/L	80	--	--
E524.2	Dibromomethane	ND	ug/L	--	--	--
E524.2	Dichlorodifluoromethane	ND	mg/L	--	--	1
E524.2	Di-isopropyl ether	ND	ug/L	--	--	--
E524.2	Ethyl tert-butyl ether	ND	ug/L	--	--	--
E524.2	Ethylbenzene	ND	ug/L	300	--	--
E524.2	Ethylene dibromide	ND	ug/L	--	--	--
504.1	Ethylene dibromide	ND	ug/L	--	--	--
8330	HMX	ND	ug/L	--	--	--
E524.2	Isopropylbenzene	ND	ug/L	--	--	770
E524.2	m,p-Xylene	ND	ug/L	--	--	--
E524.2	Methyl tert-butyl ether	ND	ug/L	13	--	--
E524.2	Methylene chloride	ND	ug/L	5	--	--
E524.2	n-Butylbenzene	ND	ug/L	--	--	260
E524.2	n-Propylbenzene	ND	ug/L	--	--	260
E524.2	o-Xylene	ND	ug/L	--	--	--
E524.2	p-Isopropyltoluene	ND	ug/L	--	--	--
8330	RDX	ND	mg/L	--	--	0.3
E524.2	sec-Butylbenzene	ND	ug/L	--	--	260
E524.2	Styrene	ND	ug/L	100	--	--
E524.2	tert-Amyl Methyl ether	ND	ug/L	--	--	--
E524.2	tert-Butyl alcohol	ND	ug/L	--	--	12
E524.2	tert-Butylbenzene	ND	ug/L	--	--	260
E524.2	Tetrachloroethene	ND	ug/L	5	--	--
E524.2	Toluene	ND	ug/L	150	--	--
E524.2	trans-1,2-Dichloroethene	ND	ug/L	10	--	--
E524.2	trans-1,3-Dichloropropene	ND	ug/L	--	--	--
E524.2	Trichloroethene	ND	ug/L	5	--	--
E524.2	Trichlorofluoromethane	ND	ug/L	150	--	--
E524.2	Vinyl chloride	ND	ug/L	0.5	--	--
E524.2	Xylenes, Total	ND	ug/L	1750	--	--
			SVOCs			
SW8270C	1,2,4-Trichlorobenzene	ND	ug/L	5	--	--
E524.2	1,2,4-Trichlorobenzene	ND	ug/L	5	--	--
SW8270C	1,2-Dichlorobenzene	ND	ug/L	600	--	--
E524.2	1,2-Dichlorobenzene	ND	ug/L	600	--	--
E522	1,4-Dioxane	ND	ug/L	1	--	--
SW8270C	1,2-Diphenylhydrazine	ND	ug/L	--	--	--
SW8270C	1,3-Dichlorobenzene	ND	ug/L	--	--	--
E524.2	1,3-Dichlorobenzene	ND	ug/L	--	--	--
SW8270C	1,4-Dichlorobenzene	ND	ug/L	5	--	--
E524.2	1,4-Dichlorobenzene	ND	ug/L	5	--	--
SW8270C	2,4,5-Trichlorophenol	ND	ug/L	--	--	--
SW8270C	2,4,6-Trichlorophenol	ND	ug/L	--	--	--
SW8270C	2,4-Dichlorophenol	ND	ug/L	--	--	--
SW8270C	2,4-Dimethylphenol	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrophenol	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrotoluene	ND	ug/L	--	--	--
SW8270C	2,6-Dinitrotoluene	ND	ug/L	--	--	--

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SMCL = Secondary Maximum Contaminant Level (Bold = exceedance)
NL = Notification Limit
ND = Non-Detect

GSI Water Solutions, Inc.

TABLE 5
SUMMARY OF GROUNDWATER QUALITY
CITY OF MORRO BAY
Well HS-2

SW8270C	2-Chloronaphthalene	ND	ug/L	--	--	--
SW8270C	2-Chlorophenol	ND	ug/L	--	--	--
SW8270C	2-Methylnaphthalene	ND	ug/L	--	--	--
SW8270C	2-Methylphenol	ND	ug/L	--	--	--
SW8270C	2-Naphthylamine	ND	ug/L	--	--	--
SW8270C	2-Nitroaniline	ND	ug/L	--	--	--
SW8270C	2-Nitrophenol	ND	ug/L	--	--	--
SW8270C	3&4-Methylphenol Coelution	ND	ug/L	--	--	--
SW8270C	3,3'-Dichlorobenzidine	ND	ug/L	--	--	--
SW8270C	3-Nitroaniline	ND	ug/L	--	--	--
SW8270C	4,6-Dinitro-2-methylphenol	ND	ug/L	--	--	--
SW8270C	4-Bromophenyl phenyl ether	ND	ug/L	--	--	--
SW8270C	4-Chloroaniline	ND	ug/L	--	--	--
SW8270C	4-Chlorophenyl phenyl ether	ND	ug/L	--	--	--
SW8270C	4-Nitroaniline	ND	ug/L	--	--	--
SW8270C	4-Nitrophenol	ND	ug/L	--	--	--
SW8270C	Acenaphthene	ND	ug/L	--	--	--
SW8270C	Acenaphthylene	ND	ug/L	--	--	--
E525.2	Acenaphthylene	ND	ug/L	--	--	--
E525.2	Alachlor	ND	ug/L	2	--	--
SW8270C	Aniline	ND	ug/L	--	--	--
SW8270C	Anthracene	ND	ug/L	--	--	--
E525.2	Anthracene	ND	ug/L	--	--	--
E525.2	Atraton	ND	ug/L	--	--	--
E525.2	Atrazine	ND	ug/L	1	--	--
SW8270C	Benz(a)anthracene	ND	ug/L	--	--	--
E525.2	Benz(a)anthracene	ND	ug/L	--	--	--
SW8270C	Benzidine	ND	ug/L	--	--	--
SW8270C	Benzo(a)pyrene	ND	ug/L	0.2	--	--
E525.2	Benzo(a)pyrene	ND	ug/L	0.2	--	--
SW8270C	Benzo(b)fluoranthene	ND	ug/L	--	--	--
E525.2	Benzo(b)fluoranthene	ND	ug/L	--	--	--
SW8270C	Benzo(g,h,i)perylene	ND	ug/L	--	--	--
E525.2	Benzo(g,h,i)perylene	ND	ug/L	--	--	--
SW8270C	Benzo(k)fluoranthene	ND	ug/L	--	--	--
E525.2	Benzo(k)fluoranthene	ND	ug/L	--	--	--
SW8270C	Benzoic acid	ND	ug/L	--	--	--
SW8270C	Benzyl alcohol	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethoxy)methane	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethyl)ether	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroisopropyl)ether	ND	ug/L	--	--	--
SW8270C	bis(2-Ethylhexyl)phthalate	ND	ug/L	--	--	--
E525.2	bis(2-Ethylhexyl)phthalate	ND	ug/L	--	--	--
E525.2	Bromacil	ND	ug/L	--	--	--
SW8270C	Butyl benzyl phthalate	ND	ug/L	--	--	--
THAA						
E552.3	Monobromoacetic acid	ND	ug/L	--	--	--
E552.3	Monochloroacetic Acid (MCA)	ND	ug/L	--	--	--
E552.3	Trichloroacetic Acid (TCAA)	ND	ug/L	--	--	--
E552.3	Trihalomethanes	ND	ug/L	80	--	--
E524.2	Trihalomethanes	ND	ug/L	80	--	--
Radiochemistry						

MCL = Maximum Contaminant Level (Bold = exceedance)
SMCL = Secondary Maximum Contaminant Level (Bold = exceedance)
NL = Notification Limit
ND = Non-Detect

GSI Water Solutions, Inc.

TABLE 5
SUMMARY OF GROUNDWATER QUALITY
CITY OF MORRO BAY
Well HS-2

EPA 900	Gross Alpha	4.15	pCi/L	15	--	--
EPA900	Gross Beta	3.43	pCi/L	50	--	--
EPA 903.1	Radium-226	0.634	pCi/L	3	--	--
EPA 904.0	Radium-228	0.992	pCi/L	2	--	--
STM D5811-	Strontium-90	0.578	pCi/L	8	--	--
EPA 906	Tritium	260	pCi/L	20000	--	--
Nitroaromatics and Nitrosamines						
EPA 521/SPE	N-Nitrosodiethylamine	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosodimethylamine	ND	ug/L		--	0.01
EPA 521/SPE	N-Nitrosodi-n-butylamine	ND	ug/L	--		
EPA 521/SPE	N-Nitrosodi-n-propylamine	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosomethylethylamine	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosomorpholine	ND	ug/L	--	--	--
EPA 521/SPE	N-Nitrosopiperidine	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosopyrrolidine	ND	ng/L	--	--	--
Dioxins						
EPA 1613B	2,3,7,8-TCDD	0.0000017	ug/L	0.00003	--	--
PFAs						
B-15	11-CL-PF3OUDS	ND	ng/L	--	--	--
B-15	9-CL-PF3ONS	ND	ng/L	--	--	--
B-15	ADONA	ND	ng/L	--	--	--
B-15	FTS 4;2	ND	ng/L	--	--	--
B-15	FTS 6:2	ND	ng/L	--	--	--
B-15	FTS 8:2	ND	ng/L	--	--	--
B-15	HFPO-DA	ND	ng/L	--	--	--
B-15	N-ETFOSA	ND	ng/L	--	--	--
B-15	N-ETFOSAA	ND	ng/L	--	--	--
B-15	N-ETFOSE	ND	ng/L	--	--	--
B-15	N-MEFOSA	ND	ng/L	--	--	--
B-15	N-MEFOSAA	ND	ng/L	--	--	--
B-15	N-MEFOSE	ND	ng/L	--	--	--
B-15	PFBA	ND	ng/L	--	--	--
B-15	PFBS	7	ng/L	--	--	--
B-15	PFDA	ND	ng/L	--	--	--
B-15	PFDOA	ND	ng/L	--	--	--
B-15	PFDS	ND	ng/L	--	--	--
B-15	PFHPA	ND	ng/L	--	--	--
B-15	PFHPS	ND	ng/L	--	--	--
B-15	PFHXA	2.8 J	ng/L	--	--	--
B-15	PFHXS	ND	ng/L	--	--	--
B-15	PFNA	ND	ng/L	--	--	--
B-15	PFNS	ND	ng/L	--	--	--
B-15	PFOA	2.5 J	ng/L	--	--	--
B-15	PFOS	ND	ng/L	--	--	--
B-15	PFOSA	ND	ng/L	--	--	--
B-15	PFPEA	3.0 J	ng/L	--	--	--
B-15	PFPES	ND	ng/L	--	--	--
B-15	PFTEDA	ND	ng/L	--	--	--
B-15	PFTRDA	ND	ng/L	--	--	--
B-15	PFUDA	ND	ng/L	--	--	--

MCL = Maximum Contaminant Level (Bold = exceedance)
SMCL = Secondary Maximum Contaminant Level (Bold = exceedance)
NL = Notification Limit
ND = Non-Detect

GSI Water Solutions, Inc.

TABLE 6 GROUNDWATER
QUALITY MORRO BAY WELLS
High School-1 Well

Method	Analyte	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
Field Parameters							
YSI Probe	Temp	19.5	19.5	Degrees C			
YSI Probe	pH	7	7				
YSI Probe	ORP	127	91	mV			
YSI Probe	DO	1.45	1.8	mg/L			
General Chemistry							
EPA 600/R-94/134	Asbestos	ND	ND	MFL	7	--	--
EPA 317	Bromate	ND	ND	mg/L	10	--	
EPA 300.1	Chlorate	ND	ND	mg/L	--	--	800
E300.0	Chloride	**970**	**1100**	mg/L	--	500	--
EPA 300.1	Chlorite	ND	ND	mg/L	1	--	--
2120B	Color	1	1	None	--	--	--
SW8015B	Ethylene glycol	ND	ND	mg/L	--	--	14
2510B	Electrical Conductivity @ 25 C	3830	4040	umhos/cm	--	--	--
E300.0	Fluoride	0.28	ND	mg/L	2	--	--
E556.1	Formaldehyde	ND	ND	ug/L	--	--	100
5540C	MBAS	ND	ND	mg/L	--	0.5	--
E300.0	Nitrate (as N)	7.9	8.7	mg/L	10	--	--
CALC	Nitrate + Nitrite (As N)	7.9	8.7	mg/L	10	--	--
E353.2	Nitrite (as N)	ND	ND	mg/L	1	--	--
SM5310C	Non-Volatile Organic Carbon	1.2	1.1	mg/L	--	--	--
2150B	Odor	ND	ND	None	--	--	--
E314.0	Perchlorate	ND	ND	ug/L	6	--	--
E300.0	Sulfate	140	150	mg/L	--	500	--
E335.4	Total Cyanide	ND	ND	ug/L	150	--	--
SM2540C	Total Dissolved Solids	**2200**	**2700**	mg/L	--	1000	--
E351.2	Total Kjeldahl Nitrogen	0.21	0.25	mg/L	--	--	--
CALC	Total Nitrogen	8.1	8.9	mg/L	--	--	--
E180.1	Turbidity	0.2	0.34	NTU	--	--	--
Metals							
E200.7	Aluminum	ND	ND	mg/L	1	--	--
E200.8	Antimony	ND	ND	mg/L	0.006	--	--
E200.8	Arsenic	**0.012**	0.0033 J	mg/L	0.01	--	--
E200.8	Barium	0.22	0.22	mg/L	1	--	--
E200.8	Beryllium	ND	ND	mg/L	0.004	--	--
E200.7	Boron	0.17	0.17	mg/L	--	--	1
E200.8	Cadmium	ND	ND	mg/L	0.005	--	--
E200.8	Chromium	ND	0.0022 J	mg/L	0.05	--	--
E218.6	Chromium, Hexavalent	0.002	0.0023	mg/L	--	--	--
E200.8	Cobalt	ND	0.00061 J	mg/L	--	--	--
E200.8	Copper	0.0072 J	0.0051	mg/L	--	--	--
E200.7	Iron (Ferric)	ND	ND	mg/L	--	--	--
E200.8	Lead	ND	ND	mg/L	--	--	--
E200.7	Lithium	0.0096 J	0.0083 J	mg/L	--	--	--
E200.7	Manganese	ND	ND	mg/L	--	0.05	--
E245.1	Mercury	ND	ND	mg/L	0.002	--	--
E200.8	Molybdenum	0.00062 J	0.001 J	mg/L	--	--	--
E200.8	Nickel	0.008 J	0.0098	mg/L	0.1	--	--
E200.8	Selenium	0.017	0.015	mg/L	0.05	--	--
E200.8	Silver	ND	ND	mg/L	--	--	--
E200.8	Thallium	ND	ND	mg/L	0.002	--	--
CALC	Trivalent Chromium	ND	ND	mg/L	--	--	--
E200.8	Uranium	0.0022 J	0.0023	mg/L	20	--	--
E200.8	Vanadium	ND	5.4 J	ug/L	--	--	50
E200.8	Zinc	0.013 J	0.11	mg/L	--	5	--
Herbicides/Pesticides							
E531.2	1-Naphthol	ND	ND	ug/L	--	--	--
E515.1	2,4,5-T	ND	ND	ug/L	--	--	--
E515.1	2,4,5-TP	ND	ND	ug/L	50	--	--
E515.1	2,4-D	ND	ND	ug/L	70	--	--
E515.1	2,4-DB	ND	ND	ug/L	--	--	--
E531.2	3-Hydroxycarbofuran	ND	ND	ug/L	--	--	--

MCL = Maximum Contaminant Level (Bold = exceedance)
SMCL = Secondary Maximum Contaminant Level (Bold = exceedance)
NL = Notification Limit
ND = Non-Detect
J = Estimated value.
B = The analyte was found in a method blank, as well as in the sample.

GSI Water Solutions, Inc.

TABLE 6
GROUNDWATER QUALITY
MORRO BAY WELLS
Well HS-1

Method	Analyte	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
SW8270C	4,4'-DDD	ND	ND	ug/L	--	--	--
E508	4,4'-DDD	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDE	ND	ND	ug/L	--	--	--
E508	4,4'-DDE	ND	ND	ug/L	--	--	--
SW8270C	4,4'-DDT	ND	ND	ug/L	--	--	--
E508	4,4'-DDT	ND	ND	ug/L	--	--	--
E531.2	Aldicarb	ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfone	ND	ND	ug/L	--	--	--
E531.2	Aldicarb sulfoxide	ND	ND	ug/L	--	--	--
SW8270C	Aldrin	ND	ND	ug/L	--	--	--
E508	Aldrin	ND	ND	ug/L	--	--	--
SW8270C	Alpha-BHC	ND	ND	ug/L	--	--	--
E508	Alpha-BHC	ND	ND	ug/L	--	--	--
E515.1	Bentazon	ND	ND	ug/L	18	--	--
SW8270C	Beta-BHC	ND	ND	ug/L	--	--	--
E508	Beta-BHC	ND	ND	ug/L	--	--	--
E531.2	Carbaryl	ND	ND	ug/L	--	--	--
E531.2	Carbofuran	ND	ND	ug/L	18	--	--
E508	Chlordane	ND	ND	ug/L	0.1	--	--
E515.1	Dalapon	ND	ND	ug/L	200	--	--
SW8270C	Delta-BHC	ND	ND	ug/L	--	--	--
E525.2	Delta-BHC	ND	ND	ug/L	--	--	--
E508	Delta-BHC	ND	ND	ug/L	--	--	--
E515.1	Dicamba	ND	ND	ug/L	--	--	--
E515.1	Dichlorprop	ND	ND	ug/L	--	--	--
SW8270C	Dieldrin	ND	ND	ug/L	--	--	--
E508	Dieldrin	ND	ND	ug/L	--	--	--
E515.1	Dinoseb	ND	ND	ug/L	7	--	--
E549.2	Diquat	ND	ND	ug/L	20	--	--
SW8270C	Endosulfan I	ND	ND	ug/L	--	--	--
E508	Endosulfan I	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan II	ND	ND	ug/L	--	--	--
E548.1	Endosulfan II	ND	ND	ug/L	--	--	--
E508	Endosulfan II	ND	ND	ug/L	--	--	--
SW8270C	Endosulfan Sulfate	ND	ND	ug/L	--	--	--
E508	Endosulfan Sulfate	ND	ND	ug/L	--	--	--
SW8270C	Endrin	ND	ND	ug/L	2	--	--
E508	Endrin	ND	ND	ug/L	2	--	--
SW8270C	Endrin Aldehyde	ND	ND	ug/L	--	--	--
E508	Endrin Aldehyde	ND	ND	ug/L	--	--	--
SW8270C	Gamma-BHC	ND	ND	ug/L	--	--	--
E525.2	Gamma-BHC	ND	ND	ug/L	--	--	--
E508	Gamma-BHC	ND	ND	ug/L	--	--	--
E547	Glyphosate	ND	ND	ug/L	700	--	--
SW8270C	Heptachlor	ND	ND	ug/L	0.01	--	--
E508	Heptachlor	ND	ND	ug/L	0.01	--	--
SW8270C	Heptachlor Epoxide	ND	ND	ug/L	0.01	--	--
E508	Heptachlor Epoxide	ND	ND	ug/L	0.01	--	--
E515.1	MCPA	ND	ND	ug/L	--	--	--
E515.1	MCPP	ND	ND	ug/L	--	--	--
E531.2	Methiocarb	ND	ND	ug/L	--	--	--
E531.2	Methomyl	ND	ND	ug/L	--	--	--
E525.2	Methoxychlor	ND	ND	ug/L	30	--	--
E508	Methoxychlor	ND	ND	ug/L	30	--	--
E531.2	Oxamyl	ND	ND	ug/L	50	--	--
E531.2	Propoxur	ND	ND	ug/L	--	--	--
E508	Toxaphene	ND	ND	ug/L	3	--	--
VOCs							
E524.2	1,1,1,2-Tetrachloroethane	ND	ND	ug/L	--	--	--
E524.2	1,1,1-Trichloroethane	ND	ND	ug/L	200	--	--
E524.2	1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1	--	--
E524.2	1,1,2-Trichlor-1,2,2-trifluoroethane	ND	ND	ug/L	1200	--	--

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GSI Water Solutions, Inc.

TABLE 6
GROUNDWATER QUALITY
MORRO BAY WELLS
Well HS-1

Method	Analyte	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
E524.2	1,1,2-Trichloroethane	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethane	ND	ND	ug/L	5	--	--
E524.2	1,1-Dichloroethene	ND	ND	ug/L	6	--	--
E524.2	1,1-Dichloropropene	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichlorobenzene	ND	ND	ug/L	--	--	--
E524.2	1,2,3-Trichloropropane	ND	ND	ug/L	0.005	--	--
E524	1,2,3-Trichloropropane	ND	ND	ug/L	0.005	--	--
E524.2	1,2,4-Trimethylbenzene	ND	ND	ug/L	--	--	330
E524.2	1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.2	--	--
504.1	1,2-Dibromo-3-chloropropane	ND	ND	ug/L	0.2	--	--
E524.2	1,2-Dichloroethane	ND	ND	ug/L	0.5	--	--
E524.2	1,2-Dichloropropane	ND	ND	ug/L	5	--	--
E524.2	1,3,5-Trimethylbenzene	ND	ND	ug/L	--	--	330
E524.2	1,3-Dichloropropane	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichloropropene	ND	ND	ug/L	0.5	--	--
E524.2	2,2-Dichloropropane	ND	ND	ug/L	--	--	--
SW8260B	2-Chloroethylvinylether	ND	ND	ug/L	--	--	--
E524.2	2-Chlorotoluene	ND	ND	ug/L	--	--	140
E524.2	4-Chlorotoluene	ND	ND	ug/L	--	--	140
SW8260B	Acrolein	ND	ND	ug/L	--	--	--
SW8260B	Acrylonitrile	ND	ND	ug/L	--	--	--
E524.2	Benzene	ND	ND	ug/L	1	--	--
E524.2	Bromobenzene	ND	ND	ug/L	--	--	--
E524.2	Bromochloromethane	ND	ND	ug/L	--	--	--
E524.2	Bromodichloromethane	ND	ND	ug/L	80	--	--
E524.2	Bromoform	ND	ND	ug/L	80	--	--
E524.2	Bromomethane	ND	ND	ug/L	--	--	--
E524.2	Carbon tetrachloride	ND	ND	ug/L	0.5	--	--
E524.2	Chlorobenzene	ND	ND	ug/L	70	--	--
E524.2	Chloroethane	ND	ND	ug/L	--	--	--
E524.2	Chloroform	ND	ND	ug/L	80	--	--
E524.2	Chloromethane	ND	ND	ug/L	--	--	--
E524.2	cis-1,2-Dichloroethene	ND	ND	ug/L	6	--	--
E524.2	cis-1,3-Dichloropropene	ND	ND	ug/L	--	--	--
E524.2	Dibromochloromethane	ND	ND	ug/L	80	--	--
E524.2	Dibromomethane	ND	ND	ug/L	--	--	--
E524.2	Dichlorodifluoromethane	ND	ND	mg/L	--	--	1
E524.2	Di-isopropyl ether	ND	ND	ug/L	--	--	--
E524.2	Ethyl tert-butyl ether	ND	ND	ug/L	--	--	--
E524.2	Ethylbenzene	ND	ND	ug/L	300	--	--
E524.2	Ethylene dibromide	ND	ND	ug/L	--	--	--
504.1	Ethylene dibromide	ND	ND	ug/L	--	--	--
8330	HMX	ND	ND	ug/L	--	--	--
E524.2	Isopropylbenzene	ND	ND	ug/L	--	--	770
E524.2	m,p-Xylene	ND	ND	ug/L	--	--	--
E524.2	Methyl tert-butyl ether	ND	ND	ug/L	13	--	--
E524.2	Methylene chloride	ND	ND	ug/L	5	--	--
E524.2	n-Butylbenzene	ND	ND	ug/L	--	--	260
E524.2	n-Propylbenzene	ND	ND	ug/L	--	--	260
E524.2	o-Xylene	ND	ND	ug/L	--	--	--
E524.2	p-Isopropyltoluene	ND	ND	ug/L	--	--	--
8330	RDX	ND	ND	mg/L	--	--	0.3
E524.2	sec-Butylbenzene	ND	ND	ug/L	--	--	260
E524.2	Styrene	ND	ND	ug/L	100	--	--
E524.2	tert-Amyl Methyl ether	ND	ND	ug/L	--	--	--
E524.2	tert-Butyl alcohol	ND	ND	ug/L	--	--	12
E524.2	tert-Butylbenzene	ND	ND	ug/L	--	--	260
E524.2	Tetrachloroethene	ND	ND	ug/L	5	--	--
E524.2	Toluene	ND	ND	ug/L	150	--	--
E524.2	trans-1,2-Dichloroethene	ND	ND	ug/L	10	--	--
E524.2	trans-1,3-Dichloropropene	ND	ND	ug/L	--	--	--
E524.2	Trichloroethene	ND	ND	ug/L	5	--	--

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GSI Water Solutions, Inc.

TABLE 6
GROUNDWATER QUALITY
MORRO BAY WELLS
Well HS-1

Method	Analyte	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
E524.2	Trichlorofluoromethane	ND	ND	ug/L	150	--	--
E524.2	Vinyl chloride	ND	ND	ug/L	0.5	--	--
E524.2	Xylenes, Total	ND	ND	ug/L	1750	--	--
		SVOCs					
SW8270C	1,2,4-Trichlorobenzene	ND	ND	ug/L	5	--	--
E524.2	1,2,4-Trichlorobenzene	ND	ND	ug/L	5	--	--
SW8270C	1,2-Dichlorobenzene	ND	ND	ug/L	600	--	--
E524.2	1,2-Dichlorobenzene	ND	ND	ug/L	600	--	--
E522	1,4-Dioxane	ND	ND	ug/L	1	--	--
SW8270C	1,2-Diphenylhydrazine	ND	ND	ug/L	--	--	--
SW8270C	1,3-Dichlorobenzene	ND	ND	ug/L	--	--	--
E524.2	1,3-Dichlorobenzene	ND	ND	ug/L	--	--	--
SW8270C	1,4-Dichlorobenzene	ND	ND	ug/L	5	--	--
E524.2	1,4-Dichlorobenzene	ND	ND	ug/L	5	--	--
SW8270C	2,4,5-Trichlorophenol	ND	ND	ug/L	--	--	--
SW8270C	2,4,6-Trichlorophenol	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dichlorophenol	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dimethylphenol	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrophenol	ND	ND	ug/L	--	--	--
SW8270C	2,4-Dinitrotoluene	ND	ND	ug/L	--	--	--
SW8270C	2,6-Dinitrotoluene	ND	ND	ug/L	--	--	--
SW8270C	2-Chloronaphthalene	ND	ND	ug/L	--	--	--
SW8270C	2-Chlorophenol	ND	ND	ug/L	--	--	--
SW8270C	2-Methylnaphthalene	ND	ND	ug/L	--	--	--
SW8270C	2-Methylphenol	ND	ND	ug/L	--	--	--
SW8270C	2-Naphthylamine	ND	ND	ug/L	--	--	--
SW8270C	2-Nitroaniline	ND	ND	ug/L	--	--	--
SW8270C	2-Nitrophenol	ND	ND	ug/L	--	--	--
SW8270C	3&4-Methylphenol Coelution	ND	ND	ug/L	--	--	--
SW8270C	3,3'-Dichlorobenzidine	ND	ND	ug/L	--	--	--
SW8270C	3-Nitroaniline	ND	ND	ug/L	--	--	--
SW8270C	4,6-Dinitro-2-methylphenol	ND	ND	ug/L	--	--	--
SW8270C	4-Bromophenyl phenyl ether	ND	ND	ug/L	--	--	--
SW8270C	4-Chloroaniline	ND	ND	ug/L	--	--	--
SW8270C	4-Chlorophenyl phenyl ether	ND	ND	ug/L	--	--	--
SW8270C	4-Nitroaniline	ND	ND	ug/L	--	--	--
SW8270C	4-Nitrophenol	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthene	ND	ND	ug/L	--	--	--
SW8270C	Acenaphthylene	ND	ND	ug/L	--	--	--
E525.2	Acenaphthylene	ND	ND	ug/L	--	--	--
E525.2	Alachlor	ND	ND	ug/L	2	--	--
SW8270C	Aniline	ND	ND	ug/L	--	--	--
SW8270C	Anthracene	ND	ND	ug/L	--	--	--
E525.2	Anthracene	ND	ND	ug/L	--	--	--
E525.2	Atraton	ND	ND	ug/L	--	--	--
E525.2	Atrazine	ND	ND	ug/L	1	--	--
SW8270C	Benz(a)anthracene	ND	ND	ug/L	--	--	--
E525.2	Benz(a)anthracene	ND	ND	ug/L	--	--	--
SW8270C	Benzidine	ND	ND	ug/L	--	--	--
SW8270C	Benzo(a)pyrene	ND	ND	ug/L	0.2	--	--
E525.2	Benzo(a)pyrene	ND	ND	ug/L	0.2	--	--
SW8270C	Benzo(b)fluoranthene	ND	ND	ug/L	--	--	--
E525.2	Benzo(b)fluoranthene	ND	ND	ug/L	--	--	--
SW8270C	Benzo(g,h,i)perylene	ND	ND	ug/L	--	--	--
E525.2	Benzo(g,h,i)perylene	ND	ND	ug/L	--	--	--
SW8270C	Benzo(k)fluoranthene	ND	ND	ug/L	--	--	--
E525.2	Benzo(k)fluoranthene	ND	ND	ug/L	--	--	--
SW8270C	Benzoic acid	ND	ND	ug/L	--	--	--
SW8270C	Benzyl alcohol	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethoxy)methane	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroethyl)ether	ND	ND	ug/L	--	--	--
SW8270C	bis(2-Chloroisopropyl)ether	ND	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 6
GROUNDWATER QUALITY
MORRO BAY WELLS
Well HS-1

Method	Analyte	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
SW8270C	bis(2-Ethylhexyl)phthalate	ND	ND	ug/L	--	--	--
E525.2	bis(2-Ethylhexyl)phthalate	ND	ND	ug/L	--	--	--
E525.2	Bromacil	ND	ND	ug/L	--	--	--
SW8270C	Butyl benzyl phthalate	ND	ND	ug/L	--	--	--
E525.2	Butyl benzyl phthalate	ND	ND	ug/L	--	--	--
SW8270C	Chrysene	ND	ND	ug/L	--	--	--
E525.2	Chrysene	ND	ND	ug/L	--	--	--
E525.2	Di(2-ethylhexyl)adipate	ND	ND	ug/L	400	--	1.2
E525.2	Diazinon	ND	ND	ug/L	--	--	--
SW8270C	Dibenz(a,h)anthracene	ND	ND	ug/L	--	--	--
E525.2	Dibenz(a,h)anthracene	ND	ND	ug/L	--	--	--
SW8270C	Dibenzofuran	ND	ND	ug/L	--	--	--
SW8270C	Diethylphthalate	ND	ND	ug/L	--	--	--
E525.2	Dimethoate	ND	ND	ug/L	--	--	--
SW8270C	Dimethylphthalate	ND	ND	ug/L	--	--	--
E525.2	Dimethylphthalate	ND	ND	ug/L	--	--	--
SW8270C	Di-n-butylphthalate	ND	ND	ug/L	--	--	--
E525.2	Di-n-butylphthalate	ND	ND	ug/L	--	--	--
SW8270C	Di-n-octylphthalate	ND	ND	ug/L	--	--	--
SW8270C	Fluoranthene	ND	ND	ug/L	--	--	--
SW8270C	Fluorene	ND	ND	ug/L	--	--	--
E525.2	Fluorene	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorobenzene	ND	ND	ug/L	1	--	--
E525.2	Hexachlorobenzene	ND	ND	ug/L	1	--	--
SW8270C	Hexachlorobutadiene	ND	ND	ug/L	--	--	--
E524.2	Hexachlorobutadiene	ND	ND	ug/L	--	--	--
SW8270C	Hexachlorocyclopentadiene	ND	ND	ug/L	50	--	--
E525.2	Hexachlorocyclopentadiene	ND	ND	ug/L	50	--	--
SW8270C	Hexachloroethane	ND	ND	ug/L	--	--	--
SW8270C	Indeno(1,2,3-cd)pyrene	ND	ND	ug/L	--	--	--
E525.2	Indeno(1,2,3-cd)pyrene	ND	ND	ug/L	--	--	--
SW8270C	Isophorone	ND	ND	ug/L	--	--	--
E525.2	Metolachlor	ND	ND	ug/L	--	--	--
E525.2	Metribuzin	ND	ND	ug/L	--	--	--
E525.2	Molinate	ND	ND	ug/L	20	--	17
SW8270C	Naphthalene	ND	ND	ug/L	--	--	17
E524.2	Naphthalene	ND	ND	ug/L	--	--	--
SW8270C	Nitrobenzene	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodimethylamine	ND	ND	ug/L	--	--	0.01
SW8270C	N-Nitrosodi-n-propylamine	ND	ND	ug/L	--	--	--
SW8270C	N-Nitrosodiphenylamine	ND	ND	ug/L	--	--	--
SW8270C	p-Chloro-m-cresol	ND	ND	ug/L	--	--	--
SW8270C	Pentachlorophenol	ND	ND	ug/L	1	--	--
SW8270C	Phenanthrene	ND	ND	ug/L	--	--	--
E525.2	Phenanthrene	ND	ND	ug/L	--	--	--
SW8270C	Phenol	ND	ND	ug/L	--	--	--
E525.2	Prometon	ND	ND	ug/L	--	--	--
E525.2	Prometryn	ND	ND	ug/L	--	--	90
E525.2	Propachlor	ND	ND	ug/L	--	--	--
SW8270C	Pyrene	ND	ND	ug/L	--	--	--
E525.2	Pyrene	ND	ND	ug/L	--	--	--
E525.2	Secbumeton	ND	ND	ug/L	--	--	--
E525.2	Simazine	ND	ND	ug/L	4	--	--
E525.2	Terbutryn	ND	ND	ug/L	--	--	--
E525.2	Thiobencarb	ND	ND	ug/L	70		
PCBs						--	--
E508	PCB-1016	ND	ND	ug/L	--	--	--
E508	PCB-1221	ND	ND	ug/L	--	--	--
E508	PCB-1232	ND	ND	ug/L	--	--	--
E508	PCB-1242	ND	ND	ug/L	--	--	--
E508	PCB-1248	ND	ND	ug/L	--	--	--
E508	PCB-1254	ND	ND	ug/L	--	--	--

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GSI Water Solutions, Inc.

TABLE 6
GROUNDWATER QUALITY
MORRO BAY WELLS
Well HS-1

Method	Analyte	4.27.21 Results	7.13.2021 Results	Units	MCL	SMCL	NL
E508	PCB-1260	ND	ND	ug/L	--	--	--
E508	Total PCBs	ND	ND	ug/L	0.5		
THAA						--	--
E552.3	Dibromoacetic Acid (DBAA)	ND	ND	ug/L	--	--	--
E552.3	Dichloroacetic Acid (DCA)	ND	ND	ug/L	--	--	--
E552.3	Monobromoacetic acid	ND	ND	ug/L	--	--	--
E552.3	Monochloroacetic Acid (MCA)	ND	ND	ug/L	--	--	--
E552.3	Trichloroacetic Acid (TCAA)	ND	ND	ug/L	--	--	--
E552.3	Trihalomethanes	ND	ND	ug/L	80	--	--
E524.2	Trihalomethanes	ND	ND	ug/L	80	--	--
Radiochemistry							
EPA 900	Gross Alpha	7.79	12.3	pCi/L	15	--	--
EPA900	Gross Beta	5.85	9.84	pCi/L	50	--	--
EPA 903.1	Radium-226	0.519	0.629	pCi/L	3	--	--
EPA 904.0	Radium-228	0.604	0.758	pCi/L	2	--	--
ASTM D5811-95	Strontium-90	0.875	2.01	pCi/L	8	--	--
EPA 906	Tritium	263	267	pCi/L	20000	--	--
Nitroaromatics and Nitrosamines							
EPA 521/SPE	N-Nitrosodiethylamine	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosodimethylamine	ND	ND	ug/L		--	0.01
EPA 521/SPE	N-Nitrosodi-n-butylamine	ND	ND	ug/L	--		
EPA 521/SPE	N-Nitrosodi-n-propylamine	ND	ND	ug/L	--	--	0.01
EPA 521/SPE	N-Nitrosomethylethylamine	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosomorpholine	ND	ND	ug/L	--	--	--
EPA 521/SPE	N-Nitrosopiperidine	ND	ND	ng/L	--	--	--
EPA 521/SPE	N-Nitrosopyrrolidine	ND	ND	ng/L	--	--	--
Dioxins							
EPA 1613B	2,3,7,8-TCDD	0.000003	0.00000217	ug/L	0.00003	--	--
PFAs							
B-15	11-CL-PF3OUDS	ND	ND	ng/L	--	--	--
B-15	9-CL-PF3ONS	ND	ND	ng/L	--	--	--
B-15	ADONA	ND	ND	ng/L	--	--	--
B-15	FTS 4;2		ND	ng/L	--	--	--
B-15	FTS 6:2		ND	ng/L	--	--	--
B-15	FTS 8:2		ND	ng/L	--	--	--
B-15	HFPO-DA	ND	ND	ng/L	--	--	--
B-15	N-ETFOSA	ND	ND	ng/L	--	--	--
B-15	N-ETFOSAA	ND	ND	ng/L	--	--	--
B-15	N-ETFOSE		ND	ng/L	--	--	--
B-15	N-MEFOSA		ND	ng/L	--	--	--
B-15	N-MEFOSAA		ND	ng/L	--	--	--
B-15	N-MEFOSE		ND	ng/L	--	--	--
B-15	PFBA		6.8 J	ng/L	--	--	--
B-15	PFBS	9.8	15	ng/L	--	--	--
B-15	PFDA	ND	ND	ng/L	--	--	--
B-15	PFDOA	ND	ND	ng/L	--	--	--
B-15	PFDS		ND	ng/L	--	--	--
B-15	PFHPA	2.9	ND	ng/L	--	--	--
B-15	PFHPS		ND	ng/L	--	--	--
B-15	PFHXA	3.3	5.4	ng/L	--	--	--
B-15	PFHXS	13	5.6	ng/L	--	--	--
B-15	PFNA	ND	ND	ng/L	--	--	--
B-15	PFNS		ND	ng/L	--	--	--
B-15	PFOA	4.5	5	ng/L	--	--	--
B-15	PFOS	ND	ND	ng/L	--	--	--
B-15	PFOSA		5.5 B J	ng/L	--	--	--
B-15	PFPEA		7.3	ng/L	--	--	--
B-15	PFPES		ND	ng/L	--	--	--
B-15	PFTEDA	ND	ND	ng/L	--	--	--
B-15	PFTRDA	ND	ND	ng/L	--	--	--
B-15	PFUDA	ND	ND	ng/L	--	--	--

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GSI Water Solutions, Inc.

APPENDIX H

Notice of Applicability for Aquifer Storage and Recovery Permit Enrollment and GSI Application Report

Appendix H Notice of Applicability for Aquifer Storage and Recovery Permit Enrollment and GSI Application Report

Table of Contents

September 24, 2021

Sent Via Electronic Mail

Joe Mueller, Utilities Division Manager
City of Morro Bay Public Works
955 Shasta Ave.
Morro Bay, CA 93442
Email: jmueller@morrobayca.gov

Dear Mr. Mueller:

NOTICE OF APPLICABILITY, ENROLLMENT OF CITY OF MORRO BAY IN WATER QUALITY ORDER 2012-0010, *GENERAL WASTE DISCHARGE REQUIREMENTS FOR AQUIFER STORAGE AND RECOVERY PROJECTS THAT INJECT DRINKING WATER INTO GROUNDWATER*, AND TRANSMITTAL OF MONITORING AND REPORTING PROGRAM NO. R3-2021-0067

Central Coast Regional Water Quality Control Board (Central Coast Water Board) staff reviewed GSI Water Solution Inc.'s April 14, 2021 *Draft Technical Report: Notice of Intent to Enroll in ASR General Order (2012-0010) For Injection Well Testing* and GSI's August 26, 2021 *Draft Injection Testing Work Plan for Groundwater Replenishment and Reuse Project*, submitted on behalf of the City of Morro Bay. According to the information provided, the proposed pilot aquifer storage and recovery (ASR) project meets the conditions of Water Quality Order 2012-0010, *General Waste Discharge Requirements for Aquifer Storage and Recovery Projects that Inject Drinking Water into Groundwater* (General Permit). This letter serves as a notice of applicability for enrollment of a **pilot** ASR project in the General Permit. This letter also includes site-specific requirements and facility information (Attachment 1), your monitoring and reporting program requirements (Attachment 2), a copy of the notice of intent with figures (Attachment 3), and a copy of the injection testing work plan (Attachment 4).

The City of Morro Bay must comply with the following:

1. **General Permit** – The City of Morro Bay must comply with all conditions and requirements of the General Permit. As described in the General Permit, ongoing

operation, maintenance, monitoring, and reporting are required. A copy of the General Permit is available electronically at the following link:

General Permit:
https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2012/wqo2012_0010_with%20signed%20mrp.pdf

2. **Monitoring and Reporting Program** – The City of Morro Bay must comply with the requirements of Monitoring and Reporting Program No. R3-2021-0067 (Attachment 2).

   Per the Monitoring and Reporting Program, you are required to submit quarterly reports for the first four quarters of operation. These quarterly reports will be due by the **first day of the third month after the quarter.** Your first quarterly report for the October-December quarter is due on **March 1, 2022**.

   In additional to the quarterly reports, annual reports are required by April 1. Your first annual report is due on **March 1, 2022,** and every year afterwards for the duration of this project.

   The City of Morro Bay is required to submit all requested information electronically in a searchable PDF format by email to RB3-WDR@Waterboards.ca.gov using the transmittal sheet found at the link below as the cover page:

   https://www.waterboards.ca.gov/centralcoast/water_issues/programs/wastewater_permitting/docs/transmittal_sheet.pdf

   Additionally, the City of Morro Bay is required to submit reports in a searchable PDF format and laboratory data in EDF format electronically via GeoTracker (see Attachment 2 for instructions). Each monitoring report must include the transmittal sheet found at the link above as the cover page.

3. **Fees** – The City of Morro Bay paid an application fee of $2,848 on May 13, 2021, for coverage in the General Permit. The application fee will be prorated according to the notice of applicability's effective date and the remainder will be applied to next year's annual fee.

   The City of Morro Bay must also pay an annual fee to maintain coverage in the General Permit. Annual fees are determined by the State Water Resources Control Board's fee program and cover the state fiscal year of July 1 through June 30. Your current annual fee is $2,848. A copy of the current state fee schedule is available electronically at the following link:

   https://www.waterboards.ca.gov/resources/fees/water_quality/

Your facility currently is assigned a threat and complexity rating of 3C.

4. **Notification** – The Central Coast Water Board will be notified of your enrollment at a regularly scheduled public meeting on December 9-10, 2021. Details about that meeting are available on our website at:

   http://www.waterboards.ca.gov/centralcoast/board_info/agendas/

5. **Future Discharge Modification** – Pursuant to California Water Code section 13260, you must inform the Central Coast Water Board at least 120 days prior to modifying your discharge. Prior to any modification of your discharge, you must submit a revised notice of intent to the Central Coast Water Board for review and approval that documents proposed changes to the potable water and injection system at the facility. If there are any significant changes in either treatment or disposal methodologies, or the volume or character of the treated wastewater, you must notify the Central Coast Water Board immediately of such changes.

6. **Regulatory Coverage Duration** – Operation of the pilot test must not extend beyond 24 months from the date this notice of applicability is issued.

7. **Responsible Party** – The City of Morro Bay is responsible for the management and disposal of the wastewater in compliance with the conditions of the General Permit. Any noncompliance with this General Permit constitutes a violation of the California Water Code and subjects the City of Morro Bay to enforcement action and/or termination of enrollment under this General Permit.

8. **Change in Ownership** – In the event of any change in control or ownership of the property, the City of Morro Bay must notify the succeeding owner or operator of the existence of this General Permit by letter. A copy of the letter must immediately be forwarded to the Central Coast Water Board so that the new owner or operatory can be enrolled in the General Permit and your enrollment in the General Permit can be terminated.

If you have any questions, please contact Monique Gaido at (805) 549-3150 or **by email at Monique.Gaido@waterboards.ca.gov** or Jennifer Epp at (805) 594-6181 or by email at Jennifer.Epp@waterboards.ca.gov.

Sincerely,

Harvey Packard

Harvey C. Packard
2021.09.24 11:15:02 -07'00'

for Matthew T. Keeling
Executive Officer

Attachments:

1. Site-specific Requirements and Facility Information
2. Monitoring and Reporting Program No. R3-2021-0067
3. Draft Technical Report: Notice of Intent to Enroll in ASR General Order (2012-0010)
4. Injection Testing Work Plan for Groundwater Replenishment and Reuse Project

cc:
Tim Nicely, GSI Water Solutions, tnicely@gsiws.com
Lydia Holmes, Carollo, lholmes@carollo.com
Brynne Weeks, Carollo, bweeks@carollo.com
Monique Gaido, Monique.Gaido@Waterboards.ca.gov
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Sharon Denker, Sharon.Denker@Waterboards.ca.gov
WDR Program, RB3-WDR@Waterboards.ca.gov

MG
ECM/CIWQS Place = 868768
GeoTracker No. = WDR100053984
Rev 4/30/20
ECM Subject Name = INJECTION WELL TESTING – ENROLLMENT IN GENERAL WDR FOR AQUIFER STORAGE AND RECOVERY PROJECTS

R:\RB3\Shared\WDR\WDR Facilities\San Luis Obispo Co\City of Morro Bay IPR and ASR\City of Morro Bay ASR pilot\NOA for ASR GO - Pilot Test\Morro_Bay_NOA_ASR_Pilot_final.docx

ATTACHMENT 1

SITE-SPECIFIC LIMITS, REQUIREMENTS, AND FACILITY INFORMATION

1. PROJECT DESCRIPTION AND FACILITY INFORMATION

A. The City of Morro Bay intends to conduct a pilot aquifer storage and recovery (ASR) project by injecting potable water into a newly constructed well, Injection Well No. 1, storing the injected water in the Lower Morro Valley groundwater basin, and monitoring changes in water quality and water table elevations at a newly installed monitoring well, 21P-01 (see NOA Attachment 3). In accordance with the requirements of the Statewide General Order 2012-0010, a pilot injection test shall not exceed a length of time of two years. The intent of this project is to assess the feasibility of a permanent groundwater recharge project that would inject advanced purified recycled water. The injectate source water of the ASR pilot will be the City's State Water Project supply, which is treated to drinking water standards at the Polonio Pass Water Treatment Plant, pursuant to the requirements in the district's State Water Resources Control Board Division of Drinking Water (DDW) permit. Facility and ownership information are shown in Table 1.

On May 11, 2021, the City submitted a draft technical report describing the proposed well installation, development and pump-testing, injectate water quality, native groundwater quality, plans for injection, and plans for water quality and sediment sample collection (NOA Attachment 3). On August 26, 2021 the City submitted its *Draft Injection Testing Work Plan for Groundwater Replenishment and Reuse Project* (NOA Attachment 4).

B. ASR Pilot Schedule: The pilot injection test will be performed to obtain site-specific, empirical data that can be used to predict long-term performance, flow rates, number of wells needed, spacing of wells, and potential impacts to water quality. First, Injection Well No. 1 and Monitoring Well 21P-01 will be drilled, installed, and developed according to the proposed workplan (NOA Attachment 3). Pressure transducers will be installed in both the monitoring and the injection wells to monitor pressure, conductivity, and temperature throughout the initial aquifer testing and pilot injection testing. An eight-hour step drawdown test will be performed at Injection Well No. 1, followed by a 24-hour constant rate aquifer test to assess aquifer properties and flow rates for injection testing. To obtain relevant site-specific data while minimizing the potential for adverse water quality impacts, the ASR pilot injection test will be conducted in a stepwise manner. Initially a step injection test will be conducted using discrete flow rates, ranging between 10 to 80 gallons per minute (GPM) for 2-hour periods. Step-test data will be used to determine the optimal injection flow rate for a seven-day constant-rate test. Additional details of the injection testing work plan are presented in NOA Attachment 4. ASR pilot test data will be used to improve the groundwater model, evaluate area of influence, recommend optimal injection rates, and determine the number of wells and spacing of wells for recharge project planning.

Table 1. Facility and ownership information for the City of Morro Bay aquifer storage and recovery pilot project

Facility Name	City of Morro Bay Aquifer Storage and Recovery Project Pilot
Owner and Permittee	City of Morro Bay
Facility Physical Address	955 Shasta Ave, Morro Bay, CA 93442
Owner of Facility	City of Morro Bay
Operator of Facility	City of Morro Bay
Legally Responsible Official of Owner	Joe Mueller
Owner Mailing Address	955 Shasta Ave, Morro Bay, CA 93422
Employee Contact for Owner	Joe Mueller, Water System Manager
Employee Contact Phone	(805) 564-5571
Employee Contact Email	jmueller@morrobayca.gov

C. **ASR Sampling Schedule:** Prior to any injection activities, native groundwater quality samples will be collected from both Injection Well No. 1 and Monitoring Well 21P-01 on the last day of the constant-rate pumping test. During ASR pilot testing, Injection Well No. 1 will be sampled on the first and last day of the constant rate injection test to characterize injectate water quality and groundwater quality. Injection Well No. 1 will be tested weekly for the full suite of testing constituents for four weeks following injection testing to monitor changes in groundwater quality. Groundwater quality will be monitored at Monitoring Well 21P-01 using pressure, conductivity and temperature data obtained by the transducer. If transducer data indicate changes in groundwater quality, samples will be collected at Monitoring Well 21P-01 on the 3rd, 5th and 7th day of the constant-rate injection test and weekly for four weeks after the test completion for a full suite of testing constituents listed in NOA Attachment 4. If transducer data do not indicate changes in groundwater quality, samples will be collected weekly after the injection test has concluded for a reduced list of constituents. Sampling schedule and constituents are detailed in NOA Attachment 4.

D. **Geochemical Sampling and Testing:** Undisturbed sediment samples will be collected from the target aquifer zone at monitoring well 21P-01 for laboratory testing. The objectives of this testing are twofold: 1) to assess the potential for geochemical reactions that could clog the well screens and or soil pores during testing and 2) to assess the potential for adverse groundwater quality in the recovered water. Both native groundwater samples and treated injectate water will be used in the testing. The City of Morro Bay's consultant will also incorporate the USGS geochemical modeling package PHREEQC to investigate potential geochemical reactions occurring as a result of mixing water from two sources with the local aquifer sediments.

2. SITE-SPECIFIC REQUIREMENTS AND LIMITS

A. **Injection Rate Limits:** Maximum injection rate at Injection Well No. 1 must not exceed 350 GPM.

B. **Groundwater Limitations:** The City of Morro Bay must manage the operation to comply with the *Water Quality Control Plan for the Central Coastal Basin*[1] (Basin Plan). Specifically, the city must comply with section 3.3.4, Objectives for Groundwater, which currently includes:

i. General objectives for tastes and odors and radioactivity for all groundwaters.

ii. Objectives for municipal/domestic supply including organic chemicals, inorganic chemicals, and radio nucleotides, which are established at the drinking water Maximum Contaminant Levels (MCLs) as defined in California Code of Regulations, title 22, division 4, chapter 15[2].

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[1] The 2019 edition of the Water Quality Control Plan for the Central Coastal Basin can be accessed on the Internet via the following webpage:
https://www.waterboards.ca.gov/centralcoast/publications_forms/publications/basin_plan/docs/2019_basin_plan_r3_complete_webaccess.pdf

[2] Current MCLs are available at:
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/MCLsandPHGs.html

3. GROUNDWATER BASIN AND AQUIFER TARGET INJECTION ZONE

A. **Groundwater Basin:** Injection will occur into the Lower Morro Valley Groundwater Basin, basin number 3-41 per the numbering convention of the Department of Water Resources. The Basin Plan refers to this groundwater basin as the Morro Valley groundwater subbasin.

B. **Aquifer Target Injection Zone:** Treated surface water will be injected into the Lower Morro Valley Groundwater Basin (LMVGB). The LMVGB consists of two hydrostratigraphic units; both consist of unconsolidated sands and gravels. The target aquifer zone is the older, deeper alluvial aquifer, called the Lower Basin, at 60 to 80 feet below ground surface (bgs). The lower target aquifer is overlain by finer-grained deposits, creating confined conditions. Previous aquifer test results have shown the Lower Basin to have higher permeability than the shallower younger alluvial deposit. GSI's groundwater monitoring data have shown that the basin's major source of recharge is from Morro Creek streambed percolation. Water levels are also influenced by City extraction wells located north of Morro Creek (NOA Attachment 3). Injection Well No. 1 proposed construction includes a screened interval from 60-80 feet bgs, entirely within the Lower Basin. Proposed construction information for Injection Well No. 1 is shown in Table 2. Non-pumping groundwater flow direction is believed to be from northeast to southwest.

Table 2. City of Morro Bay proposed injection well location, well depth, screened intervals, and injection rate

Well name	Latitude	Longitude	Well depth (ft)	Screened interval depths (ft)	Injection Rate (GPM)
Injection Well No. 1	35.375999	-120.85584	90-100	60-80	350

4. INJECTATE WATER QUALITY AND SOURCE

A. **Water Treatment:** The City's primary water source is surface water from the State Water Project, which is sometimes blended with local groundwater. The City obtains State Water Project water from the Central Coast Water Authority's treatment plant located at 10923 Antelope Road, Shandon, San Luis Obispo County. Treatment of injectate water to drinking water standards is the responsibility of the Central Coast Water Authority. Groundwater extracted from the Lower Morro Valley Groundwater Basin will not be used in this pilot study. State Water Project water quality data is shown in Table 3.

B. **Injectate Water Quality:** According to the information provided, all of the treated water quality constituents of concern (as shown in Table 3) meet primary state and federal drinking water standards. The Basin Plan does not designate Basin-specific water quality objectives for the Lower Morro Valley Groundwater Basin.

5. AMBIENT GROUNDWATER QUALITY

Ambient groundwater quality reported for the City's well field complies with drinking water standards for all constituents except for nitrate and total dissolved solids. These constituents exceed the recommended concentrations for drinking water. The Basin Plan does not specify basin-specific water quality objectives for the Lower Morro Valley Groundwater Basin. Native groundwater quality for select constituents is shown in Table 3.

6. GROUNDWATER QUALITY MONITORING WELLS

A. To verify that injection water is not impairing groundwater quality, the City of Morro Bay will monitor groundwater quality in monitoring well 21P-01, located approximately 80 feet from Injection Well No. 1. The injection well and Monitoring Well 21P-01 will be monitored for temperature, pressure, and conductivity with dedicated transducers throughout the pilot project. Groundwater will be sampled at both locations during the constant rate aquifer test, prior to any injection activities, and weekly for four weeks after injection testing. Well 21P-01 will be drilled and screened entirely within the LMVGB with similar construction to Injection Well No. 1. The proposed location and construction details are summarized in Table 4.

Table 3. Groundwater Limitations, Anticipated Injectate Water Quality, and Native Groundwater Quality

Constituent	Units	Groundwater Limitations	Injectate Concentration[a]	Native Groundwater[b]
Arsenic	µg/L	10[c]	ND	3
Boron	mg/L	0.75[d]	ND	125
Chloride	mg/L	106[e]	73	238
Specific Conductance	µmhos /cm	900[f]	503	1,749
Iron	µg/L	300[g]	No data	No data
Manganese	µg/L	50[g]	No data	No data
Nitrate as N	mg/L	10[c]	ND	15
Sodium	mg/L	69[e]	56	94
Sulfate	mg/L	250[g]	63	127
Total Dissolved Solids	mg/L	500[g]	280	1,175
Haloacetic acids[h]	µg/L	60[c]	13	14.6
Trihalomethanes[i]	µg/L	80[c]	40	35

µg/L = micrograms per liter
mg/L = milligrams per liter
µmhos/cm = micromhos/centimeter
ND = non-detect
NA = not applicable

a. Injectate water data are reported for 2020 in the City of Morro Bay Annual Consumer Confidence Report.
b. Native groundwater data are raw water results taken from all City of Morro Bay groundwater wells as reported in the 2020 City of Morro Bay Annual Consumer Confidence Report. Note that nitrate and dissolved arsenic samples were for 2018.
c. US EPA and California Primary Maximum Contaminant Levels.
d. Central Coast Basin Plan Table 3-2 Water Quality Objectives for Agricultural Use
e. Central Coast Basin Plan Table 3-1. Guidelines for Interpretation of Quality of Water for Irrigation, Specific ion toxicity from foliar absorption.
f. California Code of Regulations, Title 22, Div 4, Chapter 15, Article 16 Recommended consumer acceptance contaminant levels
g. California Code of Regulations, Title 22, Div 4, Chapter 15, Article 16 Secondary Drinking Water Standards
h. Haloacetic acids include bromoacetic acid, chloroacetic acid, dibromoacetic acid, dichloroacetic acid, and trichloroacetic acid.

i. Trihalomethanes include bromodichloromethane, bromoform, chloroform, and dibromochloromethane.

Table 4. Aquifer Monitoring Wells for Groundwater Quality

Well Name	Latitude	Longitude	Distance from Injection Well No. 1 (ft)	Proposed Well Depth (ft)	Proposed Screened Interval (ft bgs)	Aquifer Zone Completed
21P-01	35.37621	-120.855932	80.4	90-100	60-80	LMVGB

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
895 Aerovista Place, Suite 101
San Luis Obispo, California 93401

MONITORING AND REPORTING PROGRAM NO. R3-2021-0067

for
THE CITY OF MORRO BAY'S
AQUIFER STORAGE AND RECOVERY PILOT PROJECT
SAN LUIS OBISPO COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring an aquifer storage and recovery pilot project operated by the City of Morro Bay. This MRP is issued pursuant to Water Code section 13267. The City of Morro Bay must not implement any changes to this MRP unless and until a revised MRP is issued by the Central Coast Water Quality Control Board (Central Coast Water Board) Executive Officer.

The City of Morro Bay receives State Water Project water from the Polonio Pass Water Treatment Plant (PPWTP), which is owned and operated by the Central Coast Water Authority. The City of Morro Bay is subject to the Central Coast Water Board's notice of applicability, dated September 24, 2021, for Water Quality Order 2012-0010-DWQ, *General Waste Discharge Requirements for Aquifer Storage and Recovery Projects that Inject Drinking Water Into Groundwater* (General Permit).

1. SUPPLEMENTAL MONITORING AND REPORTING FOR ASR PILOT PROJECT

On August 26, 2021, GSI Water Solutions, Inc. submitted the updated *Draft Injection Testing Work Plan for Groundwater Replenishment and Reuse Project, Morro Bay, California*, which describes a water quality monitoring and reporting program for the ASR pilot testing. The Central Coast Water Board has reviewed and approves the proposed monitoring and reporting program submitted by the City of Morro Bay. The City of Morro Bay must at all times comply with this monitoring and reporting program and to the Draft Injection Testing Work Plan.

2. SAMPLING AND ANALYSIS

Within 90 days after issuance of the notice of applicability, the City of Morro Bay must submit a Sampling and Analysis Plan (SAP) to the Central Coast Water Board for approval. All samples must be representative of the volume and nature of the injected potable water or matrix of materials sampled. The name of the sampler, sample type (grab or composite), time, date, location, bottle type, and any preservative used for each sample must be recorded on the sample chain of custody form. The chain of custody form must also contain all custody information including date, time, and to whom the samples were relinquished. If composite samples are collected, the basis for sampling (time or flow weighted) must be approved by the Central Coast Water Board. Unless otherwise specified, sampling must be performed as specified in Table 1.

Table 1. Sampling Schedule

Monitoring Period	Sample Collection Month
Monthly	Each Calendar Month
Quarterly	February, May, August, November

Field instruments (such as those used to test pH, dissolved oxygen, and electrical conductivity) may be used provided that they are operated by a State Water Board California Environmental Laboratory Accreditation Program (ELAP) certified laboratory, or each of the following requirements are met:

1. The operator is trained in the proper use of the instrument;
2. The instruments are field calibrated prior to each use;
3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

3. INJECTION WELL MONITORING

Injection wells must be monitored when water is being injected into the aquifer. Monitoring of the injection wells must include the constituents and parameters shown in Table 2. Injection wells to be monitored are shown in Table 3.

Table 2. Injection Well Monitoring

Parameter	Units	Type of Sample	Sampling Frequency
Well Operational Status	N/A	Recorded	Daily
Daily Average Injection Rate	gpd	Meter	Continuous
Injected Water, cumulative total for year to date	ac•ft/yr	Meter	Continuous
Extracted Water, cumulative total for year to date	ac•ft/yr	Meter	Continuous

Parameters must be reported for each well associated with the ASR project.
Injection activity must be recorded daily.
N/A = not applicable
gpd = gallons per day
ac•ft/yr = acre-feet per year

Table 3. Proposed Injection Well to be Monitored

Well name	State Well ID	Latitude	Longitude	Well depth (feet)	Screened interval depth (feet)
Injection Well No. 1	Not yet issued	35.375999	-120.855744	90-100	60-80

4. INJECTED WATER MONITORING

Injected water quality must be monitored at the wellhead inflow line when water is being injected into the aquifer. Monitoring of the injection well must include the constituents and frequencies shown in Tale 4. Sampling events will be timed according to injection activities as described in NOA Attachment 4. The sampling schedule includes four weekly sampling events following the injection testing at both the injection well and the monitoring well. If transducer data indicate changes in groundwater quality at the monitoring well, additional sampling during the aquifer test will occur as described in NOA Attachment 4. If transducer data do not show changes in groundwater quality at the monitoring well, weekly testing following the injection test will occur at the monitoring well for a reduced list of constituents as specified in NOA Attachment 4. If the City of Morro Bay chooses to continue injection testing activities, the City may request an alternative reduced frequency sampling schedule for injected water quality.

Table 4. Injection Water Monitoring

Constituent/Parameter	Units	Type of Sample	Sampling Frequency[a]
Dissolved Oxygen	mg/L	Meter	Quarterly
ORP	mV	Meter	Quarterly
pH	pH units	Meter	Quarterly
Specific Conductance	µmhos/cm	Meter	Quarterly
Arsenic (dissolved)	µg/L	Grab	Quarterly
Iron (dissolved)	µg/L	Grab	Quarterly
Manganese (dissolved)	µg/L	Grab	Quarterly
Nitrate (as Nitrogen)	mg/L	Grab	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly
Haloacetic acids	µg/L	Grab	Quarterly
Trihalomethanes	µg/L	Grab	Quarterly

[a] Injected water sampling is not required for any monitoring period during which injection did not occur.

mg/ L = milligrams per liter

ORP = oxidation-reduction potential

mV = millivolts
µg/L = micrograms per liter

5. EXTRACTION WELL MONITORING

The City of Morro Bay's injection well will also serve as an extraction well. An extraction well must be monitored if either of the following conditions apply:

1. An extraction well was used for injection the previous calendar year
2. An extraction well that is pumping a substantial amount of previously injected water

After four sampling events consistent with the frequencies described in this MRP, the City of Morro Bay may request annual extraction well monitoring. Monitoring of each extraction well must include the constituents and parameters shown in Table 5.

Table 5. Extraction Well Monitoring

Constituent/Parameter	Units	Type of Sample	Sampling Frequency[c]
Well Activity[a]	N/A	Recorded	Daily
Daily Average Pumping Rate	gpd	Meter	Continuous
Extracted Water/Year[b]	ac•ft/yr	Meter	Continuous
Specific Conductance	µmhos/cm	Meter	Quarterly
Arsenic (dissolved)	µg/L	Grab	Quarterly
Iron (dissolved)	µg/L	Grab	Quarterly
Manganese (dissolved)	µg/L	Grab	Quarterly
Nitrate (as Nitrogen)	mg/L	Grab	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly
Haloacetic acids	µg/L	Grab	Quarterly
Trihalomethanes	µg/L	Grab	Quarterly

[a] - Well Activity must be reported for all wells associated with the ASR project. Injection/extraction activity must be recorded on a daily basis.
[b] - Extracted Water/Year represents the total amount of water extracted from a well for the calendar year.
[c] - Extracted water sampling is not required for any quarter during which extraction did not occur.
µmhos/cm = micromhos per centimeter

6. AQUIFER MONITORING FOR GROUNDWATER QUALITY

To verify that injection water is not impairing groundwater quality, the City will monitor groundwater quality at one monitoring well before, during, and after this ASR pilot project. The installation and development of the injection and monitoring well pair will occur in the initial phase of this pilot test project. The monitoring well and corresponding injection well are shown in Table 6.

Table 6. Aquifer Monitoring Wells for Water Quality

Monitoring Well Name	Latitude	Longitude	Injection Well Name	Distance from Injection Well (ft)	Well Depth (ft)	Screened Intervals (ft bgs)
21P-01	35.37621	-120.855932	Injection Well No. 1	80.4	90-100	60-80

All aquifer monitoring samples must be collected using approved EPA methods. Groundwater elevations must be measured to determine injection-related drawup and radius of hydraulic influence for each injection well as well as regional groundwater gradient and direction of flow.

Prior to sampling, the groundwater elevations must be measured as described in section 7 below, and the wells must be purged of at least three well casing volumes until temperature, pH, and electrical conductivity have stabilized. Use of low flow or passive sampling methods that do not require well purging are acceptable if described in the approved SAP. Samples must be filtered using a 0.45-micron filter for dissolved constituents such as metals. Groundwater monitoring must include the constituents and frequencies described in Table 7. Groundwater quality monitoring must be conducted in accordance with Table 7 for each quarter that injection testing has occurred.

7. REPORTING

In reporting monitoring data, the City of Morro Bay must arrange the data in tabular form so that the date, sample type (e.g., source water, injection well, extraction well, etc.), and reported analytical result for each sample are readily discernible. The data must be summarized in such a manner to clearly illustrate compliance with the General Permit, notice of applicability (NOA), and Basin Plan. The results of any monitoring done more frequently than required at the locations specified in this MRP must be reported in the next scheduled monitoring report.

As required by the California Business and Professions Code sections 6735, 7835, and 7835.1, all groundwater monitoring reports must be prepared under the supervision of a registered professional engineer or geologist and signed by the registered professional.

Table 7. Aquifer Monitoring Parameters and Constituents for Groundwater Quality

Constituent/Parameter	Units	Type of Sample	Sampling Frequency[c]
Groundwater Depth	Feet	Measuring Tape	Quarterly
Groundwater Elevation	Feet NAVD88	Recorded	Quarterly
Specific Conductance	µmhos/cm	Meter	Quarterly
Dissolved Oxygen	mg/L	Meter	Quarterly
ORP	mV	Meter	Quarterly
pH	pH units	Meter	Quarterly
Arsenic (dissolved)	µg/L	Grab	Quarterly
Iron (dissolved)	µg/L	Grab	Quarterly
Manganese (dissolved)	µg/L	Grab	Quarterly
Nitrate (as Nitrogen)	mg/L	Grab	Quarterly
Total Dissolved Solids	mg/L	Grab	Quarterly
Haloacetic acids	µg/L	Grab	Quarterly
Trihalomethanes	µg/L	Grab	Quarterly

A letter transmitting monitoring reports must accompany each report. The letter must summarize the numbers and severity of violations found during the reporting period, and actions taken or planned to correct the violations and prevent future violations. The transmittal letter must contain the following penalty of perjury statement and must be signed by the Administrator or the Administrator's authorized agent:

> "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of the those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

The transmittal letter can be accessed via the following website:
https://www.waterboards.ca.gov/centralcoast/water_issues/programs/wastewater_permitting/docs/transmittal_sheet.pdf

A. QUARTERLY MONITORING REPORT

The City of Morro Bay must **submit quarterly monitoring reports** for the first year of operation and annually thereafter. The monitoring period and corresponding report due date are described in Table 8. Quarterly monitoring reports must be submitted to the Central Coast Water Board by the **1st day of the third month after the quarter.** Quarterly reporting must occur in accordance with Table 8.

Table 8. Quarterly Reporting Schedule

Report	Monitoring Period	Report Due Date
First Quarter	January 1 to March 31	June 1
Second Quarter	April 1 to June 30	September 1
Third Quarter	July 1 to September 31	December 1
Fourth Quarter	October 1 to December 31	March 1

The quarterly monitoring report must include the following:

1. A discussion of compliance with the general order and a description of any violations.

2. A discussion of the status (dates of injection, extraction, storage, and idle time) for all extraction/injection wells associated with the ASR project.

3. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the injection, extraction, and groundwater monitoring. The narrative must be sufficiently detailed to verify compliance with the General Permit, the NOA, this MRP, and the Standard Provisions and Reporting Requirements. The narrative must be supported by field logs for each monitoring well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged.

4. Calculation of groundwater elevations, an assessment of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends, if any.

5. Calculation of maximum groundwater drawup and maximum hydraulic radius of influence for each injection well.

6. Results of groundwater monitoring (analytical results tabulated with reporting limits for nondetectable results).

7. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal trends, with reference to summary data tables, graphs, and appended analytical reports (as applicable).

8. A comparison of monitoring data to the groundwater limitations presented in the NOA and an explanation of any violation of those requirements. Any other violation of the General Permit with explanation and corrective action to prevent future violations.

9. Summary data tables of historical and current groundwater elevations and analytical results.

10. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum.

11. Copies of laboratory analytical report(s) for groundwater monitoring.

12. The Central Coast Water Board executive officer may modify the reporting requirements by issuing a revised MRP at any time.

B. ANNUAL MONITORING REPORT

The annual monitoring report must be submitted to the Central Coast Water Board by **March 1** each year, in accordance with Table 9.

Table 9. Annual Reporting Schedule

Report	Monitoring Period	Report Due Date
Annual Report	January 1 to December 31	March 1

The first year's annual monitoring report must summarize the first four quarters of reporting. Each annual monitoring report after the first year must include all the components that are required of quarterly monitoring reports. In addition, all annual reports must include the following:

1. **Water Quality and Public Health Goal Report**
   The annual water quality report and public health goal report published during the calendar year (if required by the Division of Drinking Water).

2. **Data Tables and Graphs**
   Tabular and graphical summaries of all monitoring data collected during the year.

3. **ASR Project Activity**
   Projected ASR project activity for the next calendar year.

4. **Compliance and Performance Discussion**
   - A discussion of compliance and corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the General Permit and/or the notice of applicability.
   - An evaluation of water treatment facilities' performance, including concentration of the main pollutants (boron, chloride, sulfate, etc.) over time, nuisance conditions, system problems, etc.
   - An evaluation of treatment.
   - Note any changes or upgrades that were made over the past year (or need to be made) to the treatment plant to improve performance.
   - Groundwater elevation maps, flow direction, and concentration contours.

8. ELECTRONIC SUBMITTAL

The City of Morro Bay must submit all requested information electronically in a searchable PDF format using the transmittal sheet found in the link below as the cover page.

https://www.waterboards.ca.gov/centralcoast/water_issues/programs/wastewater_permitting/docs/transmittal_sheet.pdf

Electronic submittals should be made to the State Water Resources Control Board's GeoTracker[3] database for the City of Morro Bay's aquifer storage and recovery project in San Luis Obispo County, GeoTracker No. WDR100053984. This information must be submitted via the internet at:

http://www.waterboards.ca.gov/ust/electronic_submittal/index.shtml

Table 10 below summarizes all the electronic reporting requirements. Staff may request submittal of some documents on paper, particularly drawings or maps that require a large size to be readable, or in other electronic formats where evaluation of data is required.

[3] Information for first-time GeoTracker users is available here:
https://www.waterboards.ca.gov/ust/electronic_submittal/docs/beginnerguide2.pdf

Table 10. GeoTracker Electronic Submittal Information (ESI) Data Requirements

Electronic Submittal	Description of Action	Action	Frequency
Reports and Documents	Complete copy of all documents including monitoring reports (in searchable PDF format) and any other associated documents related to the facility.	Upload directly to GeoTracker all monitoring reports (in searchable PDF format) and any other associated documents.	On or before the due dates required by this General Permit and for other documents when requested by Central Coast Water Board staff.
Laboratory Data	All analytical data (including geochemical data) in electronic deliverable format (EDF). This includes all water samples collected when monitoring.	Direct your State Certified Laboratory staff to upload all laboratory data directly to GeoTracker.	On or before the due date of the required monitoring report.
Location Data (Geo XY)	Survey and mark all permanent sampling locations (i.e., monitoring wells, drinking water wells, and permanent injection source water sampling locations). These data points are required prior to laboratory data uploads.	Upload the survey data to the GeoTracker Geo_XY file.	Every time a permanent monitoring point is established.
Depth to groundwater	Monitoring wells must have the depth-to-water information reported.	Upload depth-two-water information to the GeoTracker GEO_WELL file.	On or before the due date of the required monitoring report.
Elevation data (Geo Z)	Survey and mark the elevation at the top of the groundwater well casing for all permanent groundwater wells. These points are required prior to depth-two-water data uploads.	Upload the survey data to the GeoTracker GEO_Z file.	One-time, for all groundwater monitoring wells.
Geo Map	Site layout, map of facilities, potable water treatment system, and disposal area(s).	Upload the Site layout PDF to the GeoTracker site plan file.	Year one and every five years thereafter and when the facilities are modified.

9. LEGAL REQUIREMENTS

Water Code section 13267 states, in part:

> "In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."

Water Code section 13268 states, in part:

> "(a) Any person failing or refusing to furnish technical or monitoring program reports as required by subdivision (b) of section 13267, or failing or refusing to furnish a statement of compliance as required by subdivision (b) of section 13399.2, or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in accordance with subdivision (b).
>
> (b)(1) Civil liability may be administratively imposed by a regional board in accordance with article 2.5 (commencing with section 13323) of chapter 5 for a violation of subdivision (a) in an amount which shall not exceed one thousand dollars ($1,000) for each day in which the violation occurs."

The burden and cost of preparing the reports is reasonable and consistent with the intent of the state in maintaining water quality. These reports are necessary to ensure that the City of Morro Bay complies with the NOA and General Permit. Pursuant to Water Code section 13267, the City of Morro Bay must implement this MRP and must submit the monitoring reports described herein.

The City of Morro Bay must implement the above monitoring program as of the effective date of enrollment in the General Permit.

Ordered by:

Harvey Packard

Harvey C. Packard
2021.09.24 11:16:42 -07'00'

for Matthew T. Keeling
Executive Officer

MG
ECM/CIWQS Place = 868768
GeoTracker No. = GT-WDR100053984
ECM Subject Name = City of Morro Bay NOA Order WQ 2012-0010 pilot

R:\RB3\Shared\WDR\WDR Facilities\San Luis Obispo Co\City of Morro Bay IPR and ASR\City of Morro Bay ASR pilot\NOA for ASR GO - Pilot Test\Morro_Bay_NOA_ASR_Pilot_final.docx

ATTACHMENT 3

DRAFT TECHNICAL REPORT

City of Morro Bay

Notice of Intent to Enroll in ASR General Order (2012-0010) for Injection Well Testing

City of Morro Bay Groundwater Replenishment and Reuse Project

April 14, 2021

Prepared by:
GSI Water Solutions, Inc.
418 Chapala Street, Suite H, Santa Barbara, CA 93101

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Contents

Tables

Figures

Appendices

Abbreviations and Acronyms

µg/L	microgram per liter
AFY	acre-feet per year
Basin	Morro Valley Groundwater Basin
bgs	below ground surface
BWRO	Brackish Water Reverse Osmosis
CCRWQCB	Central Coast Regional Water Quality Control Board
CEQA	California Environmental Quality Act
COC	chemical of concern
DDW	California Department of Drinking Water
DTSC	California Department of Toxic Substances Control
EIR	environmental impact report
ft	feet
GRRP	Groundwater Replenishment Reuse Project
GSI	GSI Water Solutions, Inc.
in	inches
IPR	indirect potable use
LUC	land use covenant
LUST	leaking underground storage tank
MBMWC	Morro Bay Mutual Water Company
MBTE	methyl tertiary butyl ether
MCL	maximum contaminant level
mg/L	milligram per liter
NAVD88	North American Vertical Datum of 1988
PCA	potentially contaminating activity
PG&E	Pacific Gas and Electric
PHG	public health goal
ROWD	Report of Waste Discharge
RWQCB	California Regional Water Quality Control Board
SMP	soil management plan
SWRCB	California State Water Resources Board
TDS	total dissolved solids
THM	trihalomethanes
TPH	petroleum hydrocarbon
UST	underground storage tank
WQ	water quality
WRF	water recycling facility

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SECTION 1: **Project Overview**

1.1 Background

The City of Morro Bay (City) is seeking permitting compliance from the California Regional Water Quality Control Board (RWQCB) for injection testing at a new injection well proposed to be installed on City-owned property within the Lower Morro Groundwater Basin in the vicinity of the City's existing production wells. GSI Groundwater Solutions, Inc. (GSI), is supporting the City with permitting and installation of the planned indirect potable use (IPR) project. The installation and operation of a series of injection wells is planned and will comply with the Groundwater Replenishment Reuse Project (GRRP) regulations for subsurface application.

Results of injection testing will provide diagnostic information of injection rates at the first injection well currently planned for this project. The installation of a nearby monitoring well (21P-01) will also be conducted as part of this effort. Injection testing will be conducted at the proposed Injection Well No. 1 site, located on vacant property along the west side of Highway 1, as shown on Figure 1.

To date, GSI has conducted hydrogeologic evaluations and modeling in support of the City's goal of establishing an IPR project. After consideration of cost-effective alternative uses of the highly treated recycled water to enhance the City's water supply from the new water recycling facility (WRF) currently under construction, two areas were evaluated for the planned IPR project. These areas are referred to as the Narrows Project Area (east of Highway 1, along Morro Creek), and the Western Project Area (west of Highway 1, also along Morro Creek). Both are located within the lower Morro Valley Groundwater Basin. The Western Project Area was selected as the preferred location.

Subsequent hydrogeologic assessments, including field characterization and groundwater modeling, support the selection of the Western Project Area (Figure 1). The water supply for the IPR project will be highly treated recycled water from the WRF, which will include the advanced treatment steps of microfiltration, reverse osmosis, and ultraviolet light advanced oxidation to produce purified effluent that meets the California State Water Resources Board's (SWRCB's) GRRP regulations. The water from the WRF will be conveyed to the several planned injection wells for subsurface application. Preliminary modeling has indicated that the requirement for adequate retention time, in compliance with the GRRP requirements, can be met prior to extraction at the City's production wells. Geochemical mixing analysis will also be conducted to assess the potential for any adverse reactions associated with the proposed injection.

The proposed WRF will be completed in 2023. The source water for injection testing at Injection Well No. 1 will be supplied from the City of Morro Bay's treated drinking water supply system, using the City's State Water supply (rather than groundwater pumped from the City's groundwater wells. Using the City's State Water Project water will more closely represent the conditions expected under full-scale IPR operations.

1.2 Statement of Intent

As part of this project, this technical report provides the data and information necessary to complete the Notice of Intent to comply with the terms and conditions of the SWRCB Water Quality (WQ) Order 2012-0010 (General Waste Discharge Requirements for Aquifer Storage and Recovery Projects that Inject Drinking Water into Groundwater). The purpose of this report is to demonstrate the compliance by the City of Morro Bay with the General Waste Discharge Requirements in WQ Order 2012-0010 to test a single injection well (Injection Well No. 1) in the lower portion of the Morro Valley Groundwater

Basin in the vicinity of the City's existing production wells. This report also provides additional information needed to describe and characterize the IPR project and anticipated effects on groundwater quality (Attachment C of the Order).

1.3 Public Outreach and Coordination

As part of the permitting required for a GRRP, there will be a Report of Waste Discharge (ROWD) prepared for submittal to RWQCB.

As part of the ROWD and GRRP approval process, there are public outreach and notification requirements to be followed. In compliance with the anticipated ROWD, the City will (1) provide notification via U.S. Postal Service mail to the owners of record for properties adjacent to injection well site and area, (2) include notification of the project via the City monthly newsletter to its customers, and (3) give two presentations at City Council meetings. The City will use the newsletters and meetings to provide project updates and notify interested parties of changes in operation. Newsletters are also available online and via free subscription. The City's community outreach activities include updates to its website to provide information on water quality, water supply, and relevant topics that may affect customers.

SECTION 2: Hydrogeologic Setting

2.1 Morro Valley Groundwater Basin

The Morro Valley Groundwater Basin (Basin) (DWR Bulletin 118 basin 3-41) is a shallow alluvial basin that encompasses approximately 1.9 square miles and is bounded on the west by the Pacific Ocean and surrounded and underlain on all other sides by consolidated and impermeable rocks of the Franciscan Complex (Jurassic to Cretaceous age). The Basin is further divided into lower and upper parts by a restriction in the valley commonly referred to as the Narrows, located approximately 1,000 feet (ft) east of Highway 1, where the alluvium underlying Morro Creek is constrained by the bedrock to a narrow corridor about 300 ft wide. The principal water-bearing units in the Lower Basin are younger alluvium, dunes sand, and Holocene- and Pleistocene-aged terrace deposits that extend approximately 60 to 80 ft beneath the valley floor. Two aquifer zones (shallow and deep) have been identified within the Lower Basin sediments (Brown and Caldwell, 1981; Cleath, 1993).

Groundwater monitoring conducted by GSI for the proposed project refined the inflow and outflow of the existing water conditions in the groundwater basin (GSI, 2017). The primary source of recharge to the Lower Basin is mostly from Morro Creek streambed percolation. Morro Creek is predominantly a losing stream (i.e., water in the creek is usually percolating down into and recharging the underlying aquifer). However, during wet periods, portions of Morro Creek can become a gaining stream (i.e., water from the underlying aquifer rises up enough to discharge into the stream and support its flow). The volume of Morro Creek percolation is believed to be partly affected by City pumping from its existing wells. The higher the rate of pumping, the more water Morro Creek loses to the aquifer, because groundwater levels decrease and do not support the creek flow.

Aquifer testing on existing wells conducted during GSI modeling studies for the GRRP revealed that the aquifer has a large contrast in permeability between the upper (shallow) and lower (deep) aquifers, with the lower aquifer being more permeable than the upper aquifer.

2.2 Target Aquifer Zones

Recent alluvial deposits are the primary water-bearing unit in the Lower Morro Valley Basin and are composed primarily of unconsolidated sand, silt, and clay. The hydrostratigraphy of the Lower Basin has been divided into hydrostratigraphic zones based on data from geologic and geophysical logs. The zones that produce meaningful amounts of groundwater include a younger shallow alluvial aquifer and an older deep alluvial aquifer, both of which consist of well-graded sand and gravels. The deep alluvial aquifer is typically overlain by finer sediments ranging from clayey silt to silty clay, creating confining conditions in the Lower Basin area (B&C, 1981). The target aquifer zone (approximately 60 to 80 ft below ground surface [bgs]) for the injection testing of Injection Well No. 1 (and for future injection wells will be the deep alluvial aquifer. As discussed above, modeling of these two sub-aquifer units favors the deep alluvial aquifer for injection purposes (because of its higher permeability and higher hydraulic conductivity values).

2.3 Area of Hydrologic Influence

Planned injection wells for the proposed IPR project will be distributed along the southern boundary of the Western Project Area. Predictive numerical modeling scenarios performed by GSI suggest the area of hydrologic influence during full-scale injection operations will predominantly cover the areas between the planned injection wells and the City's existing wells to the north. Figures 2a and 2b were adapted from GSI's January 2021 technical memorandum, *Characterization and Selection of Project Area for Injection Testing*, and show the modeled heads and particle tracking results for the pumping scenario of baseline pumping (pumping 581 AFY from the City's 7 existing production wells) plus 75 percent of total injection volume (1,200 acre-feet per year [AFY]) from planned injection wells during dry and wet conditions. The extent of hydrologic influence will depend on the duration, volume, and frequency of future injection. For injection testing, the area of hydrologic influence is anticipated to be much smaller than the full-scale project, and will likely not extend outside those areas of influence at full-scale injection operations, as shown on Figures 2a and 2b.

2.4 Land Use

Current land use in the Western Project Area (area of planned injection for the initial injection well and testing) of the Lower Basin is undeveloped and covers an area of approximately 17 acres. The Western Project Area is essentially flat and centrally located relative to the City's infrastructure. The Western Project Area is adjacent to the currently planned alignment of the forthcoming recycled water pipeline. The Western Project Area is also adjacent to (north of) the former Morro Bay Power Plant (Power Plant) site (shown by a light blue triangle on Figure 4). Portions of the adjacent former Power Plant site are going through land use covenant (LUC) procedures associated with its closure by the California Department of Toxic Substances Control (DTSC). This proposed LUC procedure would restrict some areas of the former Power Plant site outside of the project area to future commercial/industrial uses. The Western Project Area is not located within these areas and therefore is not subject to the forthcoming LUC. This is discussed in more detail in Section 3.3.

The existing land use designations for the proposed injection well area (i.e., the Western Project Area) and surrounding areas are depicted in Figure 3.

SECTION 3: **Regional Groundwater Conditions**

3.1 Groundwater Elevations

Groundwater elevation data for three of the City's existing production wells (Well MB-4, Well MB-14, and Well MB-15) located near the proposed injection area reveal that static (non-pumping) water elevations for these three wells have fluctuated between a high of about 20 ft above mean sea level to a low of about 15 ft below mean sea level (GSI, 2017) during the period of observed data between 1994 and 2016. Water levels tend to be at their highest each year during the wet winter months when rainfall recharge is higher, and deepest during the dry summer months when rainfall recharge is limited. Water levels generally appear to recover each year; no significant declines in water level were apparent.

Groundwater movement in the Lower Basin is largely controlled by the City wells. Pumping from the City wells develops a water level depression that slopes radially towards the City wells, and can include seawater during drought (Cleath, 2007). The regional groundwater gradient is generally from northeast to southwest. During non-pumping periods, groundwater flows below the Narrows toward the coast at a nominal hydraulic gradient of 0.005 ft/ft (Aqui-Ver, 2005). This gradient reflects the migration of water from the recharge areas mostly in the areas above the Narrows toward the areas where significant pumping occurs in the Lower Basin.

In December 2018, GSI installed 11 pressure transducers in existing City production and desalination wells for the purpose of long-term groundwater elevation monitoring. This work was completed in support of the IPR project proposed for the City. The transducers are programmed to measure water pressure (convertible to water level), temperature, and specific conductivity (convertible to chloride concentration) every 4 hours to document aquifer water levels and quality. The data will also provide warning of any potential seawater intrusion.

3.2 Groundwater Quality Trends and Constituents of Concern

General water quality data collected from City water supply production wells between 2011 and 2015 are summarized in Table 1, along with California Department of Drinking Water (DDW) maximum contaminant levels (MCLs), including primary and secondary drinking water standards; and public health goals (PHGs) (MKN, 2017)[10]. More recent water quality results for the City's existing wells (i.e., the average and range of detections) as presented in the City's *Annual Water Quality Report 2019* (City of Morro Bay, 2020) are also shown on Table 1. The data indicate nitrates and seawater intrusion are the predominant concerns for water quality (MKN, 2017; MNS, 2016).

Nitrate levels are elevated due to agricultural application of nitrogen fertilizers in the watershed, which is restricting the City's ability to use groundwater as a potable water supply. In the past 20 to 30 years, pumpage has been significantly reduced from its permitted amount due in part to elevated nitrate concentrations observed in groundwater pumped from City wells. Historically, Basin wells have experienced elevated nitrate concentrations as high as 110 milligrams per liter (mg/L) as nitrate (MKN, 2017). The current primary MCL for nitrate (as nitrogen) is 10 mg/L for potable domestic use; nitrate also has a PHG of 10 mg/L. Periodically, high iron (which has a secondary MCL of 300 micrograms per liter [µg/L]) and manganese (with a secondary MCL of 50 µg/L) levels have

[10] Table 1 has been adapted from the *Morro Bay Water Reclamation Facility Draft Environmental Impact Report* (ESA, 2018) and from the *Annual Water Quality Report 2019* (City of Morro Bay, 2020).

also been detected. To meet MCLs, the City operates a brackish water reverse osmosis facility that treats water pumped for potable use from the City's Well Field.

In general, under natural conditions, the seaward movement of freshwater prevents seawater from encroaching on coastal aquifers (USGS, 2018). An interface between freshwater and seawater is maintained with denser seawater underlying freshwater. When groundwater is pumped from a coastal aquifer, lowered water levels can cause seawater to be drawn toward the freshwater zones of the aquifer. The intruding seawater decreases the freshwater storage in the aquifers. In the mid-1980s, total dissolved solids (TDS) concentrations in groundwater downstream of the Narrows near Highway 1 began to exceed 1,000 mg/L seasonally due to seawater intrusion and tidal influences (MNS, 2016).

In 2007, TDS concentrations in the Basin were typically between 400 and 800 mg/L and increasing toward the coast, except for an area beneath agricultural fields in the lower valley where TDS concentrations reached 1,000 mg/L, and nitrate concentrations reached 220 mg/L as nitrate (MNS, 2016). Groundwater wells in the Basin have experienced elevated levels of salinity during dry periods, with TDS levels as high as 4,000 mg/L, exceeding the secondary MCL of 1,000 mg/L by factor of four.

Historical data and groundwater modeling indicate that the City's wells are at risk of seawater intrusion if the full permitted pumpage is produced with no corresponding injection. Predictive modeling scenarios indicate that an injection well layout in the Western Project Area would mitigate against seawater intrusion during pumping of City wells. Predictive nitrate modeling scenarios indicate that, during combined IPR injection and City pumping, all City wells will have improved water quality over time with significantly lower nitrate concentrations.

3.3 Contamination

A preliminary inventory of past and current potentially contaminating activities (PCAs) was compiled using readily available data for the proposed injection well field. An initial assessment was performed using the RWQCB GeoTracker website, which provides a compilation of environmentally impacted sites, and is also linked to the DTSC EnviroStor website that shows sites for cleanup, land disposal, waste permits, permitting underground storage tanks (USTs), and leaking underground storage tanks (LUSTs).

Figure 4, Potentially Contaminating Activity Sites, shows the locations of PCAs in the general area of the proposed injection area. The GeoTracker and EnviroStor websites show there are four closed LUST sites with a half-mile radius of the Western Project Area. The sites listed gasoline and/or diesel as the "potential contaminant of concern" and generally listed groundwater as the "potential media of concern." At these four closed LUST sites, cleanup actions have been completed and the case has been closed by that lead agency. All four sites, delineated by red squares with an "X" through them, are located east of Highway 1, as shown on Figure 4.

In 1999, methyl tertiary butyl ether (MTBE) was discovered in groundwater in the Basin, and in 2000, SWRCB issued an order prohibiting the use of the City's five Lower Basin wells. The source of the MTBE was found to be the Shell gasoline service station on Main Street at Highway 41; this site is more than 1,500 ft northeast of the proposed injection area, as well as northeast of the City's wells that will recover the injected water. The Central Coast Regional Water Quality Control Board (CCRWQCB) required the Shell service station owner to install monitoring wells and to conduct groundwater and soil sampling. Subsequent investigations confirmed the MTBE contamination originated from this Shell service station. The USTs and gasoline-impacted soils beneath the USTs were removed from the location in January 2002. The owner implemented extensive remedial actions after the discovery of the contamination, which included the excavation of contaminated soil, addition of an oxygen-releasing compound to the UST excavation backfill, soil vapor extraction, and onsite and offsite groundwater extraction and treatment. Extensive monitoring conclusively demonstrated that the City's Well Field was never impacted, even prior to MTBE plume stabilization. On September 26, 2008, RWQCB sent a case closure letter to Shell Oil Company and the City's municipal water supply wells were reinstated for use as a safe water supply for Morro Bay residents.

The Morro Bay Power Plant, located on property south and adjacent to the proposed injection area (Figure 4) was a power generation facility that started producing power in the 1950s under the ownership of Pacific Gas and Electric (PG&E), and was subsequently acquired by Duke Energy in 1998, LS Power in 2006, and Dynegy in 2007. In 2014, operations at the Power Plant ceased, and the plant was shut down. The site was sold in 2018 to Vistra Energy, which currently owns the approximately 90-acre property.

Various environmental investigations have been conducted at the Power Plant since the 1990s. Human health and ecological risk assessments initially identified the chemicals of concern (COCs) in soil and shallow groundwater as petroleum hydrocarbons (TPH) and arsenic, concentrations of which were above commercial screening levels. Subsequent groundwater monitoring evaluations were performed on the Power Plant via sampling from several monitoring wells. The DTSC-approved human health and ecological risk assessment concluded that constituents in groundwater at the site do not pose unacceptable risks to ecological or human health receptors and further evaluation was not warranted (Jacobs, 2018). A request for termination of the groundwater monitoring program on the Vistra site was approved by DTSC in January 2019.

The corrective action objectives and proposed final remedy for the Vistra site recommends that LUC be recorded to address total petroleum hydrocarbons and arsenic at the site in soil and groundwater. The LUC would restrict land use and groundwater uses on the Vistra site and would require a soil management plan (SMP) to verify soil at the site will be managed in the manner protective of human health and the environment. In addition, annual inspections would occur to verify the protectiveness of the remedy over time (DTSC, 2020).

Groundwater flow is generally from northeast to southwest across the site, and thus away from the proposed injection area for the City towards the Pacific Ocean.

3.4 Basin Plan Management Goals and Objectives

The RWQCB regulates GRRPs under numerous state laws and regulations, including the *Water Quality Control Plan for the Central Coast Basin* (Basin Plan) (Central Coast RWQCB, 2019) and SWRCB policies. The Basin Plan includes water quality objectives for municipal and domestic supply groundwater supplies, including the following:

- **Taste and odors:** shall not adversely affect beneficial uses
- **Bacteria:** <2.2/100 milliliter median concentration over any 7-day period
- **Organic chemicals:** shall not exceed MCLs
- **Inorganic chemicals (trace metals):** shall not exceed MCLs
- **Radioactivity:** shall not exceed MCLs

There are no additional water quality objectives for the Basin.

The Basin Plan also applies the SWRCB Antidegradation Policy,[11] which has been further interpreted pursuant to the 2019 SWRCB Water Quality Control Policy for Recycled Water (SWRCB, 2019). Per the Anti-degradation Policy, if the existing water quality of a water body is better than the objectives defined in the Basin Plan, the existing quality shall be maintained. Pertaining to this particular project for the City, the modeling results and the simple basics of reverse osmosis-based purification allow the team to conclude that improvements in groundwater quality will occur due to the very low levels of TDS and nitrogen (including nitrate) in the purified water (compared to the Basin groundwater). An assessment of anti-degradation aspects is provided in Table 2.

Drinking water from the City's existing water supply system will be the source water for injection testing; therefore, it is not anticipated that injection water will be of lesser quality than the existing quality of the Basin groundwater.

[11] Available at https://www.waterboards.ca.gov/plans_policies/antidegradation.html. (Accessed April 13, 2021.)

SECTION 4: Injection Well Initial Testing

4.1 Background

Injection testing will be performed to support the assessment of the potential viability of the proposed IPR project that would use highly treated recycled water from the City's planned WRF for groundwater supply augmentation. Injection testing will provide diagnostic information of injection rates and capacity of the first full-scale injection well as part of this project. Initial injection testing will consist of constructing an initial injection well, performing baseline monitoring, and long-term injection tests. The proposed location of the initial injection well is shown on Figure 1. Additionally, the installation of a dedicated monitoring well (21P-01) will also be conducted as part of this effort to support DDW permit requirements.

4.2 Injection Well Construction and Initial Testing

One complete and fully operational, injection well will be installed for this early phase of the overall project. The installation effort will include drilling, construction, development, testing, and completion of the injection well. This work is proposed to begin in May 2021. The new injection well will be located on a vacant property owned by Vistra along the west side of Highway 1 as shown on Figure 1. The location of the site, including the temporary construction areas and temporary discharge hose alignment, are also presented on Figure 1.

The injection well will be drilled by mud-rotary drilling methods to an estimated depth of 90 to100 ft bgs. Following pilot hole drilling, geophysical logging of the well will be conducted, consisting of a spontaneous potential, resistivity, and caliper surveys in the pilot hole. The pilot hole will then be enlarged to 18-inch diameter, followed by installation of 12-inch diameter Type 316 stainless steel casing and wire-wrapped screen. The annulus within the screened interval will be filled with gravel pack gradation consisting of 1.7-to-2.5-millimeter SiLibeads. A concrete sanitary seal will be installed in compliance with state and local standards. The design of the proposed injection well is presented on Figure 5.

Following well construction, the injection well will be developed to remove accumulated drilling fluids. A test pump, drop pipe for conveyance of injection water, and sounding tube for water level measurements will be installed. The pump will be capable of discharging up to 350 gallons per minute. A pair of pumping tests will be conducted, including an 8-hour step drawdown test, and a 24-hour constant rate test to assess pumping performance characteristics of the wells.

4.3 Injection Testing Program

Following completion of the initial pumping tests, a series of injection tests will be conducted by injecting treated potable drinking water from the City's existing municipal supply system into the well for a series of short- and long-term periods for a total duration of up to 4 weeks. During the injection tests, the injection rates will be varied to assess the acceptance rates and variability of the specific capacity during injection. All testing and monitoring will be conducted in compliance with permitting requirements. Details regarding the planned injection testing is included in the *Injection Testing Work Plan for Groundwater Management Replenishment and Reuse Project, Morro Bay, California* (*Injection Testing Work Plan*) (Appendix A of this report).

Results from these analyses will be used to identify potential injection rates, which will be used to estimate the anticipated yield of the full-scale injection wellfield and the ultimate the number of wells needed for the full-scale project. Recommendations will be provided for anticipated operational scheduling and for an approach to minimize adverse consequences while maximizing the benefits of the proposed injection program.

4.4 Geochemical Modeling

The geochemical analysis will use the mineralogical analysis results from a specialized analytical laboratory and the water quality data from the native groundwater and predicted IPR water to assess any potential deleterious conditions associated with the project activities. To obtain these data, the following will be conducted:

1. The chemistry of the in-situ groundwater will be characterized using existing water quality data from the City's production wells, and chemical analysis of water samples collected from the newly installed injection and monitoring wells.
2. The expected chemistry of the water to be injected will be based on water quality estimates from the WRF design engineer/program manager.
3. To characterize the aquifer materials, mineralogical analyses will be conducted on sediment samples collected during drilling of the monitoring well.
4. The data will be used in a geochemical mixing model analyses to assess whether potential deleterious effects may occur.

The results of this analysis will allow GSI to assess potential problems associated with mixing of the injected water and the aquifer materials, including dissolution or precipitation of minerals through geochemical reactions, which can cause clogging in the both the well screen and the pore space of the aquifer. Recommendations will be provided for water quality treatment or operational approaches, if needed, to minimize any potential adverse consequences of the proposed injection program. Additional details of this effort are included in the attached *Geochemical Work Plan for Groundwater Management Replenishment and Reuse Project, Morro Bay, California* (*Geochemical Work Plan*) (Appendix B).

4.5 Injection Testing and Reporting Schedule

The injection testing will be conducted following the completion of the well installation and pumping tests. It is anticipated that injection will begin late May 2021 and require approximately 6 weeks to complete. The results will be provided in a technical memorandum, anticipated to be completed approximately 1 month after completion of the field work (by the end of July), if the proposed drilling and injection testing schedules are met.

The results of this injection testing plan will be incorporated into the Title 22 Engineering Report being prepared by the City. Additionally, the results of the pilot injection testing will be provided in an addendum to this report to complete the information needs of the Notice of Intent.

SECTION 5: Injection Water and Groundwater Quality

Source water for planned injection purposes will ultimately come from the proposed WRF, which is under construction until 2023. For the purposes of injection testing at the initial injection well, treated potable drinking water from the City's municipal supply system will be used as the injection water source.

The City's primary source of municipal supply water is surface water from the State Water Project, which is administered locally by the Central Coast Water Authority. The water is treated at the Polonio Pass Water Treatment Plant near Highways 41 and 46 and then conveyed via the Chorro Valley pipeline for use by the City. The State Water Project supply can be augmented by and blended with water pumped from existing City production wells in the Basin.

Some of the well water has nitrate contaminant levels that require treatment through blending or filtration. The City uses its Brackish Water Reverse Osmosis (BWRO) plant to remove nitrates from groundwater and all well water has a disinfectant added prior to distribution. During 2019, State Water Project water made up 90 percent of the City's drinking water and the wells provided the remaining 10 percent with all of this well water being treated by the Brackish Water Reverse Osmosis (BWRO) plant (Morro Bay, 2019).

In accordance with State of California Division of Drinking Water (DDW) requirements, the City regularly collects water samples to determine the presence of radioactive, biological, inorganic (trace metals), volatile organic compound (VOC), or synthetic volatile organic compound (SVOC) contaminants. The range of contamination in the raw well water, at times, has exceeded the drinking water standards, but drinking water served to the public had contaminant levels reduced through either blending or treatment. Detections of constituents from the most recent drinking water samples collected by the City are presented in the *Annual Water Quality Report 2019* (City of Morro Bay, 2019); Table 1 has been adapted from this report and shows a comparison of water quality data results from both City groundwater wells and State Water Project supply for 2019. The presence of these constituents in the water does not necessarily pose a health risk, as DDW allows the City to monitor for certain contaminants less frequently than once per year because the concentration of these contaminants do not change frequently. As shown on this table, municipal supply water for the City meets or exceeds all DDW drinking water MCLs and PHGs.

SECTION 6: Groundwater Degradation Assessment

6.1 Constituents of Concern

As discussed in Section 3.2 of this technical report, the primary chemical constituents of concern for the proposed injection testing are nitrate and TDS. Recent and historical measured concentrations of these chemical constituents from existing City wells in the Basin were compiled and used to establish the baseline conditions. Table 1 shows the applicable water quality objectives and the median and range of concentrations for both City well water and State Water Project water sources. None of the listed constituents for State Water Project water are shown to exceed Basin water quality objectives. As discussed in Section 5 above, State Water Project water is a primary water source for the City and will be the source water for initial injection testing purposes for Injection Well No. 1. Thus, injection testing is not anticipated to have any potential impact on the basin groundwater quality and is expected to meet all Basin water quality objectives.

6.2 Impact on Assimilative Capacity

The expected quality of the City water used for injection is discussed in Section 5 and summarized in Table 1. Injection water will meet or exceed all primary and secondary MCLs, state Notification Levels (NLs), and Basin Plan Objectives (BPOs). Using these water quality data, groundwater quality impacts relative to assimilative capacity are not expected to occur as a result of injection of City product water at Injection Well No. 1 during initial injection testing. The results of geochemical modeling analysis from samples collected during injection testing (described in Section 4.4) will allow an assessment of the potential for problems associated with mixing of the injected IPR water, native groundwater, and the aquifer sediments, including dissolution or precipitation of minerals through geochemical reactions, which can cause clogging in the both the well screen and the pore spaces immediately adjacent to the well.

6.3 Impact on Seawater Intrusion and Nitrates

The City's existing wells are approximately one-half mile from the Pacific Ocean. As such, they are at risk of seawater intrusion in times of severe drought, or if the groundwater flow gradient reverses from its natural direction for a significant period of time. Water quality sampling documented in the *Seawater Intake Evaluation Report* (GSI, 2017b) indicates that the nearby seawater intake wells along the Embarcadero boundary show TDS concentrations that range from about 5,000 mg/L to 17,000 mg/L. Evaluation of sampling records from wells on the adjacent Vistra site indicate that that wells have a concentration of about 1,000 mg/L on the northern edge of the site. Baseline TDS concentrations in the City's Highway 1 wells are in the 600 to 800 mg/L range. Groundwater modeling indicates that, under full permitted pumping scenarios, the City wells are susceptible to degradation of water quality due to seawater intrusion. Injection scenarios input into the groundwater model resulted in reducing all the instances of elevated TDS concentrations that had been evident in baseline modeling concentrations (i.e., in scenarios with no injection). Injection conducted at wells located in the Western Project Area would provide benefits to preventing seawater intrusion for the nearby City wells.

Nitrate concentrations have also increased in City wells due in part to the decades-long use of land upstream for agriculture and the growth in that land use. A few years after the establishment of upgradient vegetable fields, significant concentrations of nitrates began to be detected in the City's wellfield. Groundwater modeling scenarios performed by GSI using injection wells in the Western Project Area results in significant reductions in nitrate concentrations at the Highway 1 well field.

6.4 Impact on Existing Contaminant Plumes

As discussed in Section 3.3, groundwater quality in some parts of the Basin has been affected by PCAs in some areas, including the at Vistra property to the southwest of the injection site. In discussions with the City, DTSC determined that it was unlikely that contamination from the Vistra property would affect the planned injection by the City (DTSC, 2020).

As stated in the DTSC (2020) letter, based on groundwater sampling performed at the Vistra property over 9 years and documented in investigative reports, no significant plume of contaminants in groundwater has been found (DTSC, 2020). While there were a few Vistra property wells that when sampled, groundwater contaminants were found above unrestricted use screening levels, these wells were not near proposed Injection Well No. 1 or other planned injection sites on the Vistra property, and nearby wells surrounding these historically sampled wells were free from contaminants.

Vistra is proposing to evaluate groundwater at the site. Vistra submitted an evaluation to DTSC on September 24, 2020, but DTSC has not yet provided a response or comment as of the writing of this report. Continued review of relevant groundwater monitoring investigative reports for the Vistra property will be conducted as they are published by DTSC and/or others.

6.5 Disinfection

In compliance with the DDW, State Water Project water is treated at the Polonio Pass Water Treatment Plant before it conveyed to the City. During groundwater pumping, disinfectant (chlorination) is added to pumped water at the City's BWRO plant prior to distribution to the City's public system. Total residual chlorine has a DDW MCL and PHG of 4 mg/L. Total residual chlorine and total coliform bacteria are measured at the plant before distribution to the City's public system.

6.6 Disinfection By-Products

The City's potable water meets all primary state and federal drinking water standards, including standards for disinfection by-products such as haloacetic acids and trihalomethanes that form when chlorine reacts with naturally occurring organic matter in the surface water supply and/or with organic carbon compounds that may be naturally present in the aquifer. These disinfection by-products continue to remain well below state and federal drinking water standards (see Table 1). These constituents will be monitored during and after the injection testing, as stated in the *Injection Testing Work Plan* (Appendix A).

6.7 Metals Mobilization

In an effort to assess the potential of metals mobilization in response to the IPR project, geochemical analyses as stated in the *Geochemical Work Plan* will be conducted (see Appendix B). A key element of this will be the retrieval of injected water over a period of 4 weeks following the injection test to assess the geochemical changes that have occurred to the injected water. The procedure and suggested analytes for this sampling are provided in the *Injection Testing Work Plan* (Appendix A).

SECTION 7: Proposed Changes to Monitoring and Reporting Program

Injection operations at full-scale of the proposed IPR project will adhere to the Monitoring and Reporting Program outlined in Order WQ 2012-0010. For initial pilot injection testing, a work plan that includes monitoring and reporting protocols for the initial injection testing is attached to this report as Appendix A.

SECTION 8: State and Federal Requirements for Groundwater Replenishment Projects

8.1 California Environmental Quality Act

Per the California Environmental Quality Act (CEQA), a Draft Environmental Impact Report (EIR) was prepared and issued for comment in March 2018 for the proposed Morro Bay WRF. The Draft EIR found the following:

> "operation of the proposed project would implement the beneficial reuse of a renewable resource – recycled water. This renewable resource would provide a benefit to the City of Morro Bay in the form of a new water supply, improving reliability of the City's water supply portfolio through the use of local resource and decreasing the degree of dependency on imported water through the State Water Project."

The draft EIR was available for public and agency comment and received 35 comment letters that don't significantly change the findings. The Final EIR was published in June 2018 and was certified and adopted by the Morro Bay City Council in August 2018. Injection well construction and operation are included in the proposed IPR project discussed above, and therefore, this injection well construction and testing meet CEQA requirements.

Based on initial studies and modeling scenarios performed by GSI, this initial injection testing would cause no significant impacts to hydrology or water quality in the project area; therefore, mitigation measures are not required.

8.2 Division of Drinking Water Permits

The City currently holds a DDW permit for the City water system and its wells. The City's Public Water Supply ID is CA4010011. The California Division of Drinking Water Permit is provided in Appendix C.

8.3 Underground Injection Well Registration (EPA Region 9)

The City has submitted a registration with the U.S. Environmental Protection Agency Region 9 for the initial injection well as a Class V well. The Class V Injection Well Notification Documentation is attached to this report as Appendix D.

SECTION 9: Conclusions

The City of Morro Bay's planned IPR project has been carefully evaluated and modeled. The next key step in the development process is to install and test the first injection well. Approval for this effort through this permitting process will support moving forward with the project.

Careful monitoring during the injection testing will track water level and water quality responses to the injection. Results from the monitoring will be used to plan for the installation of the additional wells needed for the overall project. Information developed as part of the geochemical analyses will be used to refine the project operations, if necessary.

SECTION 10: **References**

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USGS. 2018. Groundwater Resources Program, Saltwater Intrusion. Available at: https://water.usgs.gov/ogw/gwrp/saltwater/salt.html. Accessed: March 30, 2018.

Tables

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Table 1

City Groundwater and Surface Water Quality (2019)

CONSTITUENT	Units	MCL	PHG	YEAR SAMPLED	STATE WATER		GROUNDWATER		
					AVERAGE AMOUNT[1]	RANGE LOW-HIGH[1]	AVERAGE AMOUNT[1,2]	RANGE LOW-HIGH[1,2]	MAXIMUM ANNUAL DETECTED RANGE (All Wells)[3] 2011 to 2015
Primary Drinking Water Standards									
Aluminum	mg/L	1	0.6	2019	0.056	ND - 0.094	ND	ND	ND-0.01
Arsenic	µg/L	10	0.004	2018	ND	ND	3	ND-4	–
Barium	mg/L	1	2	2018	ND	ND	0.135	0.107-0.198	0.0128-100
Total Chromium	µg/L	50	100	2018	ND	ND	15	13-18	–
Fluoride	mg/L	2	1	2018	ND	ND	0.2	0.2	0.2-0.3
Nickel	µg/L	100	12	2018	–	–	–	–	ND-10
Nitrate (as Nitrogen)	mg/L	10	10	2018	ND	ND	15	2-22.8	20.34-37.41
Selenium	µg/L	50	30	2016	ND	ND	20	ND-27	ND-19
Secondary Drinking Water Standards									
Chloride	mg/L	500		2019	59	13-146	238	71-729	64-1480
Color	color units	300		–	–	–	–	–	ND-20
Corrosivity	Aggressivity Index	NA		2019	12	12	12.3	11.6-12.4	–
Manganese	µg/L	50		–	–	–	–	–	ND-30
Specific Conductance	µmhos/cm	1600		2019	403	138-762	1749	1030-3370	715-5050
Sulfate	mg/L	500		2019	46	46	127	63.6-163	36-149
Total Dissolved Solids	mg/L	1000		2019	260	260	–	–	423-2870
Turbidity	NTU	5		2019	0.05	ND-0.12	1.2	0.2-6.8	0.11-11.7
Unregulated and Other Constituents									
2-Methylisborneol	ng/L			2019	0.2	ND-1	–	–	–
Alkalinity	mg/L			2019	56	30-80	393	370-430	–
Boron	µg/L			2019	ND	ND	125	100-200	–
Calcium	mg/L			2019	19	19	107	172	–
Geosmin	mg/L			2019	2.8	ND-6	–	–	–
Hardness (as CaCO3)	mg/L			2019	82	26-144	706	464-1090	533-1800
Heterorophic Plate Count (HPC)	cfu/ml			2019	0	0-2	3.9	1-65	–
Potassium	mg/L			2019	3.1	3.1	0	ND-1	–
pH	Units			2019	8.4	7.7-8.7	7.3	6.7-7.7	–
Sodium	mg/L			2019	58	58	94	53-239	42-317
Total Organic Carbon	mg/L			2019	1.9	1.5-3	NA	NA	–
Vanadium	µg/L			2019	ND	ND	8	6-19	–
Disinfection By-Products and Residual Disinfectants									
Haloacetic Acids	µg/L	60	NA	2019	15 (highest LRAA 15.5)	7.4-25	14	4-21	–
Total Trihalomethanes (TTHMs)	µg/L	80	NA	2019	45 (highest LRAA 47.8)	27-75	30	18-52	–
Total Residual Chlorine	mg/L	4	4	2019	2.47	0.33-3.5	2	0.03-3.95	–
Total Coliform Bacteria	# of positive samples	0	0	2019	0	0	0	0	–

Notes:

1. From City of Morro Bay. 2019. Annual Water Quality Report 2019. Prepared by the City of Morro Bay. PWS ID# CA4010011
2. Sampling from well water is for raw water results. Samples are taken prior to either treatment or blending. Sample dates are from 2018.
3. Adapted from Table 3.9-1 General Groundwater Quality from Morro Bay Reclamation Facility Draft Environmental Impact Report. 2018. and MKN. 2017.

mg/l - milligrams per liter
µg/L - micrograms per liter
ng/L - nanograms per liter
cfu/ml - colony forming units per ml
µmhos/cm - micromhos per cm
NTU - nepheloid turbidity units
MCL - maximum contaminant level
PHG - public health goal
AL - action level
ND - Not Detected

Table 2
Anti-Degradation Assessment

SWRCB Resolution No. 68-16 Component	Anti-Degradation Assessment Result
Water quality changes associated with proposed project are consistent with the maximum benefit of the people of the State.	Water quality changes associated with proposed project in the Lower Morro Basin are consistent with the maximum benefit of the people of the State.
The water quality changes associated with proposed project will not unreasonably affect present and anticipated beneficial uses.	The water quality changes associated with injection will not unreasonably affect present and anticipated beneficial uses.
The water quality changes will not result in water quality less than prescribed in the Basin Plan.	The water quality changes associated with injection will not result in water quality less than prescribed in the Basin Plan. Per the Basin Plan's Anti-degradation Policy, if existing water quality of a water is better than the objectives defined in the Basin Plan, the existing quality shall be maintained. For this project, drinking water from the City's existing water supply system will be the source water for injection testing, so it is not anticipated that injection water will be of lesser quality than existing groundwater quality of the Basin.
The projects are consistent with the use of best practicable treatment or control to avoid pollution or nuisance and maintain the highest water quality consistent with the maximum benefit to the people of the State.	The City project is consistent with the use of the best practicable treatment or control to avoid pollution or nuisance and maintain the highest water quality consistent with the maximum benefit to the people of the State.
The proposed project is necessary to accommodate important economic or social development.	The City project is necessary to accommodate important economic and social development. Given the reliability uncertainties and increasing costs of imported water, increasing use of groundwater storage ensures a diversified and more reliable water supply. The City project provides a sustainable and reliable water source to replenish the groundwater basin, maintains high-quality groundwater, complies with pertinent regulatory requirements by employing an institutionally feasible approach, minimizes costs to customers using groundwater, and engages stakeholders in the decision-making process.
Implementation measures are being or will be implemented to help achieve Basin Plan Objectives in the future.	Injection water will meet drinking water quality standards, thus ensuring Basin Plan Objectives are being met during injection testing.

Figures

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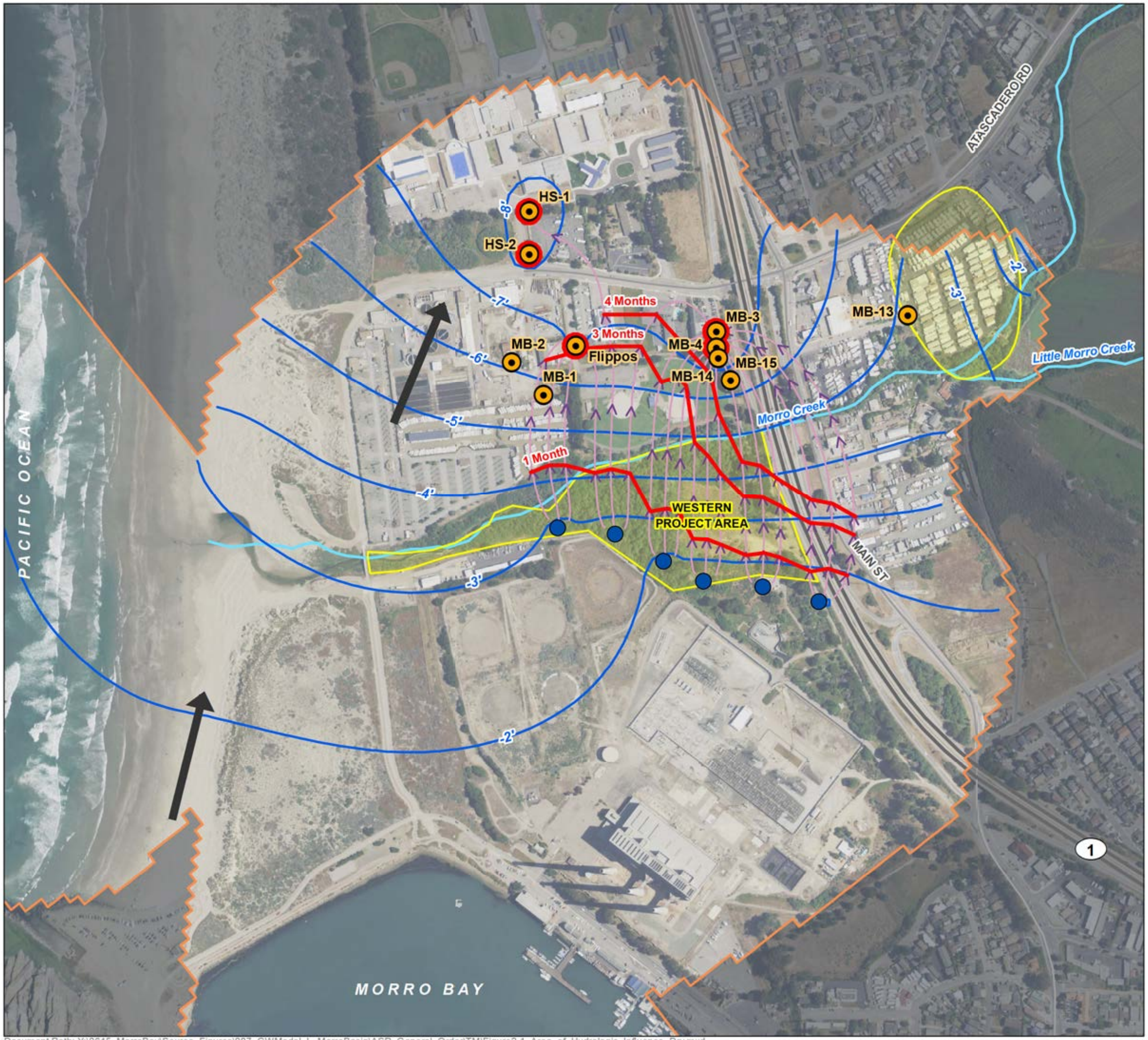

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FIGURE 2a

Area of Hydrologic Influence - Dry Conditions

Morro Bay
Indirect Potable Reuse
Program Injection Testing

LEGEND

- City of Morro Bay Well
- Pumping Well
- Simulated Injection Well Location
- Particle Track Arrow (1 month)
- Particle Track
- Month Indicator
- Groundwater Elevation Contour (ft)
- Modeled Groundwater Flow Direction
- Active Area
- Potential Project Area
- Major Road
- Watercourse

NOTES

AFY: acre feet per year
Each travel time arrow along particle track represents 1 month.

Figure is adapted from Figure 14 of GSI "Characterization of Selection of Project Area for Injection Testing, City of Morro Bay" (GSI. 2021).

N

0 350 700
Feet

GSI Water Solutions, Inc.

Date: March 23, 2021
Data Sources: NAIP Imagery, ESRI

FIGURE 2b

Area of Hydrologic Influence - Wet Conditions

Morro Bay
Indirect Potable Reuse
Program Injection Testing

LEGEND

- City of Morro Bay Well
- Pumping Well
- Simulated Injection Well Location
- Particle Track Arrow (1 month)
- Particle Track
- Month Indicator
- Groundwater Elevation Contour (ft)
- Modeled Groundwater Flow Direction
- Active Area
- Potential Project Area
- Major Road
- Watercourse

NOTES

AFY: acre feet per year
Each travel time arrow along particle track represents 1 month.

Figure is adapted from Figure 15 of GSI "Characterization of Selection of Project Area for Injection Testing, City of Morro Bay" (GSI, 2021).

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Feet

GSI Water Solutions, Inc.

Date: March 23, 2021
Data Sources: NAIP Imagery, ESRI

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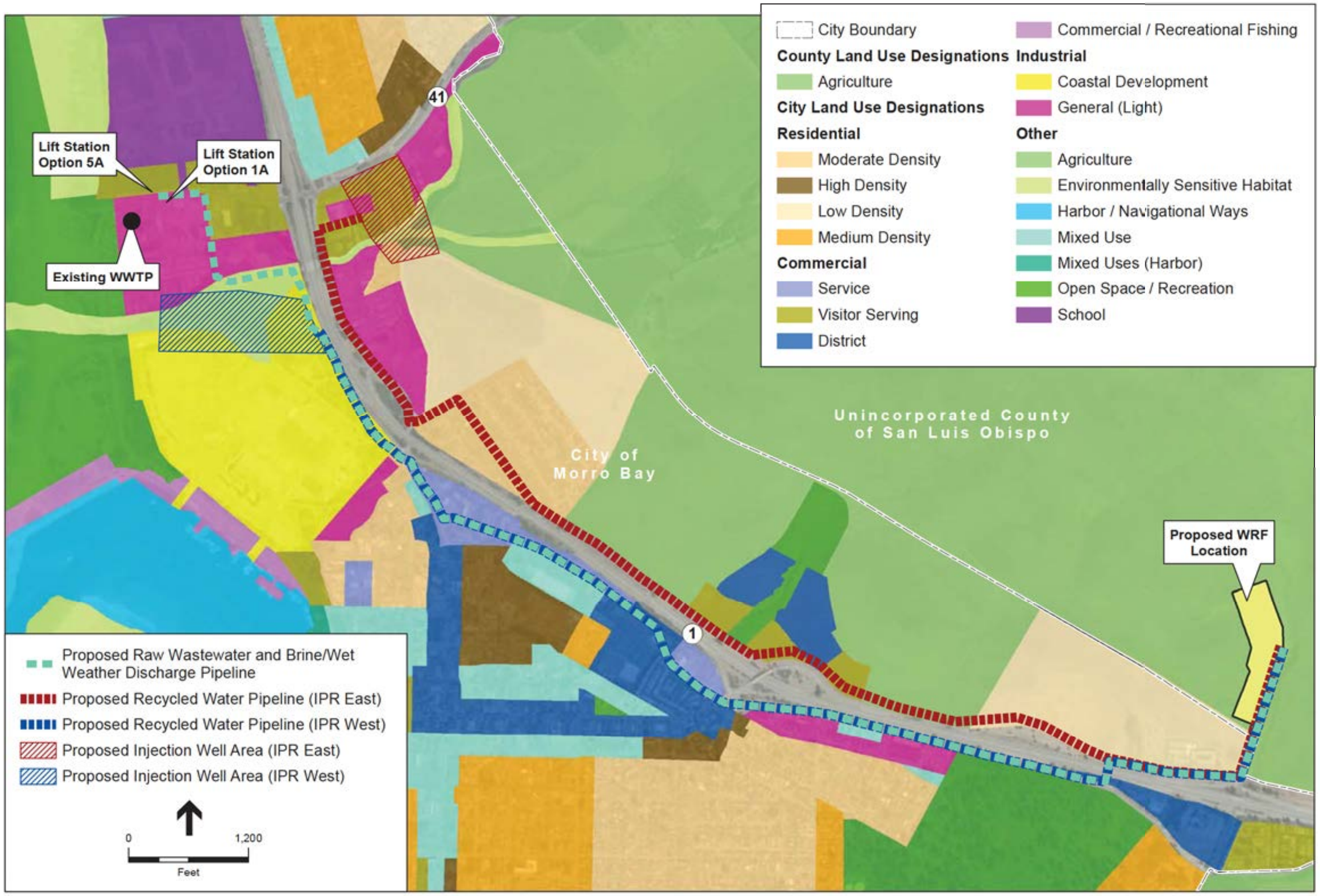

FIGURE 3

City and County Land Use Designation

Morro Bay
Indirect Potable Reuse
Program Injection Testing

NOTES
WRF: Water Reclamation Facility
WWTP: Waste Water Treatment Plant

Adapted from Figure 3.10-1 of "Morro Bay WRF Draft Environmental Impact Report" (ESA 2018)

Data Sources: City of Morro Bay, San Luis Obispo County, ESRI 2016

GSI Water Solutions, Inc.

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FIGURE 4

Potentially Contaminating Activity Sites

Morro Bay
Indirect Potable Reuse Program
Injection Testing

LEGEND

- Injection Well No. 1
- DTSC Cleanup Site
- Closed LUST Cleanup Site
- Western Project Area
- Major Road
- Watercourse

NOTES

DTSC: Department of Toxic Substances Control
LUST: Leaking Underground Storage Tank

N

0 350 700
Feet

Date: April 1, 2021
Data Sources: NAIP Imagery, ESRI, GeoTracker

GSI Water Solutions, Inc.

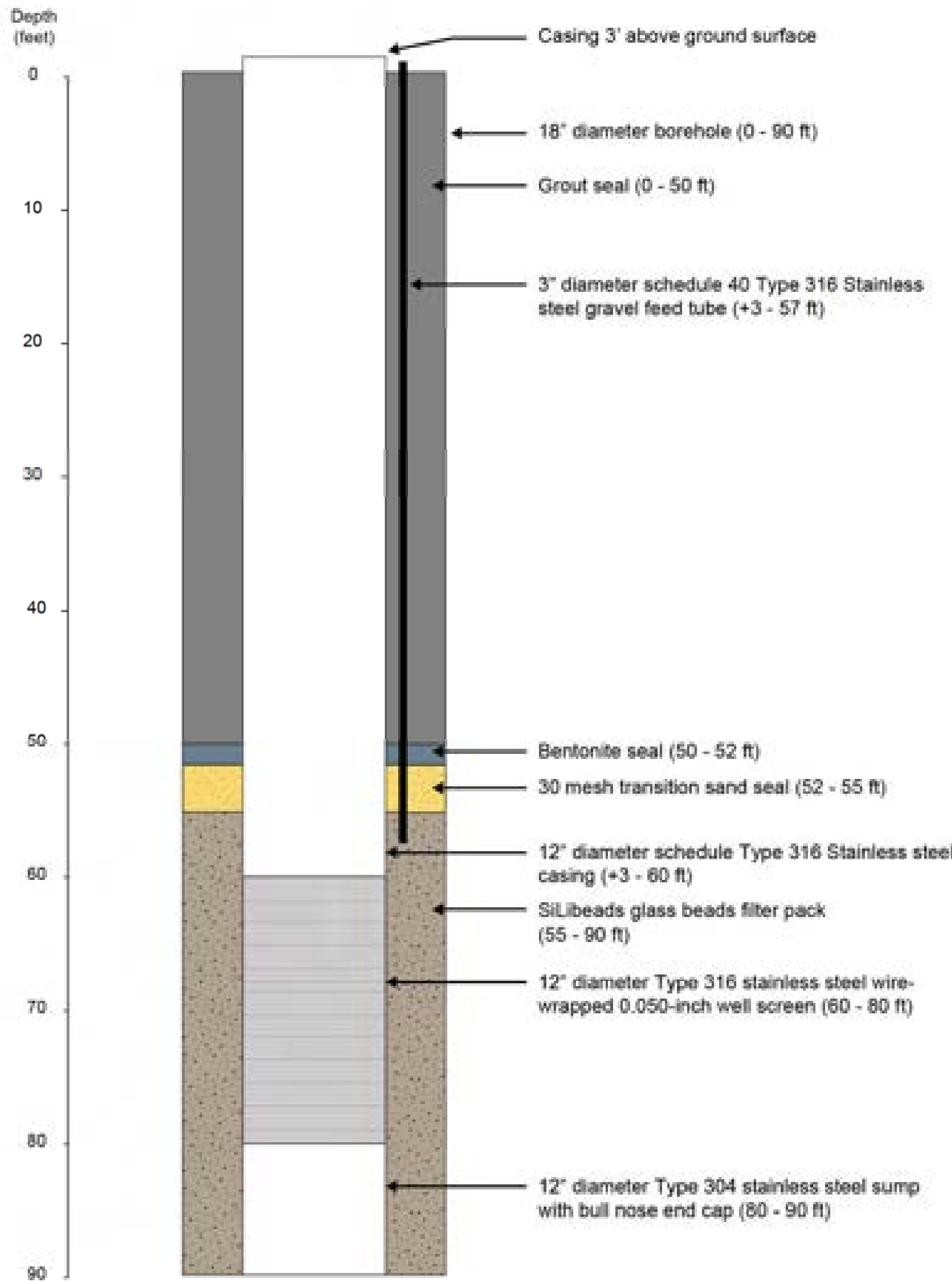

FIGURE 5

Proposed Injection Well Design

Indirect Potable Reuse Program Injection Testing
Morro Bay, CA

GSI Water Solutions, Inc.

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Appendices

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APPENDIX A

Injection Testing Work Plan for Groundwater Management Replenishment and Reuse Project, Morro Bay, California

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GSI Water Solutions, Inc.

DRAFT TECHNICAL MEMORANDUM

DRAFT Injection Testing Work Plan for Groundwater Replenishment and Reuse Project, Morro Bay, California

To:	Lydia Holmes and Anthony Cemo, Carollo Engineers
From:	Tim Thompson and Tim Nicely, GSI Water Solutions
CC:	Brynne Weeks and Andrew Salveson, Carollo Engineers
Attachments:	Figure Water Quality Sampling Constituents Table
Date:	April 9, 2021

Introduction and Purpose

GSI Water Solutions (GSI) is supporting the City of Morro Bay with the implementation of a planned indirect potable reuse (IPR) project, which will use highly treated recycled water from the City's forthcoming Water Reclamation Facility (WRF). The installation and operation of a Groundwater Replenishment Reuse Project (GRRP) using injection wells is a key part of the overall project. This memorandum presents the work plan for testing at a new injection well proposed to be installed in Spring 2021.

The injection testing presented in this work plan is a portion of work being performed by GSI for the City of Morro Bay in the lower portion of the Morro Valley Groundwater Basin, which also includes injection well design and installation, groundwater monitoring, permitting support, and groundwater flow modeling.

Injection Work Plan

The injection testing presented in this work plan provides diagnostic information regarding injection rates, aquifer response, and water quality at anticipated injection rates for a single well. Injection testing will be conducted at a newly constructed injection well located as shown on Figure 1.

Injection Testing

A series of injection tests will be conducted by conveying water from the City's municipal water supply distribution system into the new injection well. The injection tests will consist of an 8-hour injection step test and a 7-day injection constant rate test, operated by the Contractor. The wellhead will be sealed and capable of maintaining injection pressures up to 20 psi with anticipated injection pressures of up to 10 psi during testing in order to observe and maintain a range of injection rates. The injected water will consist of chlorinated water provided by the City from their State Water Project source.

City staff will install an outlet fitting and backflow prevention device onto the nearby City distribution pipeline located east of the nearby bike path for the purposes of this project. City staff will also construct a trench across the bike path and install a short section of piping that daylights west of the bike path and, for security purposes, west of the fence within the Dynegy/Vistra property. The drilling Contractor will connect to this fitting, the location of which is shown approximately on Figure 1 and run a temporary pipeline that will convey

the water to the injection well for the testing. The pipeline conveying the injection water to the well will be equipped by the Contractor with a flow control valve, flow meter, sampling port, pressure gauge, and a bypass filter. The bypass filter allows for monitoring of the turbidity of the injected water and will verify if turbid water is being injected (which is undesirable because of clogging potential) -- GSI will provide guidance to the Contractor for the materials and setup of this filter. A pressure transducer will be installed by the Contractor in the well to collect continuous water level data, and manual water level (and wellhead pressure) measurements will also be collected. All conveyance piping, measurement devices, and downhole equipment will be installed, maintained, and operated by the Contractor. GSI staff will be onsite to oversee the installation of the equipment. The Contractor will be required to provide temporary fencing around the immediate wellhead, which is assumed to require a 12- by 20-foot fenced area.

The following sections provide details for each phase of the injection testing program. The injection testing activities will be conducted following the drilling, construction, and pump testing of the injection well. The pump testing component will consist of both a step test and a constant rate test using a temporary pump installed and operated by the drilling contractor. The step test will involve pumping the well at 4 successively higher flow rates for 1 to 2 hours each while carefully monitoring water level drawdowns in the injection well and at the nearby monitoring well. The drawdown results of the step test will be used to establish the pumping rate used in the 24-hour constant rate pumping test.

Injection Step Test

The data collected during the pumping tests will be used by GSI to select the injection rates for the injection step test. This initial injection test will consist of four steps conducted at a series of discrete flow rates that will each last approximately 2 hours. The steps for the injection rates will be selected based on the drawdown results of the constant rate aquifer pumping test performed as part of the injection well installation. They will likely vary from approximately 10 to 80 gpm, but final rates will be determined after installation and testing of the injection well. The injection rate will be increased incrementally for each of the steps while simultaneously monitoring the water level in the well. Water level measurements will be recorded both at the injection well and at the nearby monitoring well with transducer and manual measurements. The results of the injection step test will be analyzed to determine appropriate injection rate for the constant rate injection test.

Injection Constant Rate Test

After the well has fully recovered from the injection step test, the constant rate injection test will be run at a continuous injection rate for various durations and ultimately for a continuous period of up to 7 days. During the tests, measurements of the flow rate, and corresponding water level shall be made at both the injection well and the nearby monitoring well. During the injection tests, a pressure transducer will record continuous water level data throughout the test. Manual measurement of water levels will also be collected at the following times relative to the start of the test:

- Every 5 minutes until 30 minutes have elapsed.
- Every 10 minutes until one hour has elapsed.
- Every 20 minutes until two hours have elapsed.
- Every hour until 24 hours have elapsed.
- Every two hours until 48 hours have elapsed.
- Every 4 to 6 hours until the end of the 7-day test.

Immediately after termination of the test, the rate of recovery of the water level shall be monitored for a period of 48 hours at both the injection and monitoring wells. The water levels will be recorded at the same time intervals (logarithmic) as the start of the constant rate injection test.

Analysis of Injection Testing Results

Following the completion of injection testing, data will be analyzed to estimate aquifer properties and provide a range of operational injection rates for the well. This information will also be used to update the groundwater model to evaluate project build out options.

Following updates to groundwater model, a series of scenarios will be developed in coordination with the City and Carollo Engineers to assess the ultimate number and location of wells required for the full project. Additional information from the modeling scenarios will include assessment of retention time within the aquifer, water level changes during and following injection periods and identification of any potential adverse conditions.

Recommendations will be provided for anticipated operational scheduling and approaches to minimize any potential adverse consequences and maximize the benefits of the proposed injection program.

Water Quality Sampling and Geochemical Evaluation

In addition to the collection of aquifer data collected during the tests, water quality samples will be collected at both the Injection well and/or the nearby monitoring well at the following times and analyzed for the list of constituents identified in the attached table:

- Collect samples at both the Injection and monitoring well just prior to the end of the constant rate pumping test (to establish the baseline aquifer water quality)
- Collect a sample at the Injection well during the early phase of injection to document water quality of source water (at the end of the first day of the constant rate injection test)
- Collect a sample at the Injection well during the late phase injection source water (during the final day of the constant rate injection test)
- Samples will be collected from the monitoring well during the constant rate injection test during day 3, day 5, and day 7 (three sampling events). Results from these analyses will be used to assess if water quality changes indicate if injected water has reached the monitor well during the duration of the test.
- After completion of the constant rate injection test, groundwater samples will be collected once a week at the Injection well for four consecutive weeks. For each sampling episode, the well will be pumped to waste until parameters stabilize prior to sampling.

Water quality results for key constituents will be evaluated to identify mixing relationships and/or the presence of geochemical reactions. These field results will be used to verify the findings of the geochemical modeling described in the Geochemical Work Plan for Groundwater Replenishment and Reuse Project (GSI, 2021).

Injection Testing Schedule and Reporting

The injection testing will be conducted following the completion of the well installation and constant rate aquifer test. It is anticipated that the injection testing will begin by late May 2021 and require approximately 6 to 7 weeks to complete, including the 4 weeks of post-testing water quality sampling. Following the completion of the injection testing program, the Contractor will be responsible for removing all equipment and conveyance pipelines. The Contractor will not be provided final payment until the site condition is deemed satisfactory by the City and the terms of the project Technical Specifications are met.

The testing results will be provided in a technical memorandum (TM). This TM is anticipated to be completed by the end of July, approximately one month following the completion of the field work if the proposed drilling and injection testing schedules are met.

Figure

FIGURE 1

Site and Well Location Map

Morro Bay
Indirect Potable Reuse Program
Injection Testing

LEGEND

InjWell

- Injection Well No. 1
- Well Construction Site
- Cuttings and Drilling Fluids Disposal
- Bike Path
- Piezometer
- Temporary Hose
- MBMWC Well
- Yeh Piezometer
- PG&E Property Boundary
- Western Project Area, 17 Acres
- Watercourse

NOTE

MBMWC: Morro Bay Mutual Water Company

N

0 150 300
Feet

Date: March 19, 2021
Data Sources: NAIP Imagery, ESRI

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Pilot_Inject_Well\Figure1_Western_Project_Site_Injection_Well_2021.mxd

Water Quality Sampling Constituents

Parameter Type	Parameter	Method
Field	Dissolved oxygen	YSI 556 or similar
	pH	EPA 150.1
	Oxidation-Reduction Potential	SM2580B
	Specific Conductance	EPA 120.1
	Temperature	YSI 556 or similar
	Turbidity	EPA 180.1
Inorganics	Alkalinity	SM2320B
	Ammonia	SM4500NH3G
	Bicarbonate	SM2320B
	Carbonate	SM2320B
	Chloride	EPA 300.0
	Cyanide (HCN)	EPA 335.4
	Fluoride	EPA 300.0
	Hardness	EPA 200.8
	Nitrate+Nitrite (total N)	EPA 300.0
	Nitrate (as N)	EPA 300.0
	Nitrite-N	EPA 300.0
	Orthophosphate as P	EPA 300.0
	Total Silica (as SiO2)	EPA 200.7
	Dissolved Silica (as SiO2)	EPA 200.7
	Sulfate	EPA 300.0
	Sulfide	SM4500S2F
Metals (Dissolved)	Aluminum	EPA 200.7
	Antimony	EPA 200.8
	Arsenic	EPA 200.8
	Barium	EPA 200.8
	Beryllium	EPA 200.8
	Cadmium	EPA 200.8
	Calcium	EPA 200.7
	Chromium	EPA 200.8
	Cobalt	EPA 200.8
	Copper	EPA 200.8
	Iron	EPA 200.7
	Lead	EPA 200.8
	Lithium	EPA 200.8
	Magnesium	EPA 200.7
	Manganese	EPA 200.8
	Mercury	EPA 245.7
	Molybdenum	EPA 200.8
	Nickel	EPA 200.8
	Potassium	EPA 200.7
	Selenium	EPA 200.8
	Silver	EPA 200.8
	Sodium	EPA 200.7
	Strontium	EPA 200.8
	Thallium	EPA 200.8

	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
	Chlorite	EPA 300
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

APPENDIX B

Geochemical Work Plan for Groundwater Management Replenishment and Reuse Project, Morro Bay, California

GSI Water Solutions, Inc.

DRAFT TECHNICAL MEMORANDUM

DRAFT Geochemical Work Plan for Groundwater Replenishment and Reuse Project, Morro Bay, California

To:	Lydia Holmes and Anthony Cemo; Carollo Engineers
From:	Tim Thompson and Tim Nicely; GSI Water Solutions
CC:	Brynne Weeks and Andrew Salveson; Carollo Engineers
Date:	April 7, 2021

Introduction and Purpose

GSI Water Solutions (GSI) is supporting the City of Morro Bay with permitting and installation of a planned indirect potable reuse (IPR) project, which will use highly treated recycled water from the City's forthcoming Water Reclamation Facility (WRF). The installation and operation of a Groundwater Replenishment Reuse Project (GRRP) using IPR (subsurface application) is central to the overall project. As a part of this project, this memo presents our work plan to characterize significant subsurface geochemical parameters that may impact the project.

Background

As part of the installation of the monitoring well that will be installed along with the initial injection well, undisturbed physical samples of the aquifer sediments from the primary injection zone will be collected. These samples will be submitted for geochemical analysis by a specialized analytical laboratory (Minerology, Inc). Results of this analysis will be used along with native groundwater water quality and anticipated injection water quality to model the potential for geochemical reactions in the aquifer soil matrix that may occur during project operations.

Two important objectives of this work will be to assess (a) the potential for the injection well screens and filter pack to become clogged due to reactions between injected water, native groundwater, and the aquifer matrix in the vicinity of the injection wells, and (b) the potential for geochemical reactions to occur which could generate adverse groundwater quality in the recovered groundwater. These analyses will assess the potential geochemical reactions that may occur both through reactions associated with the mixing of two different waters (native groundwater and the advanced treated recycled water), and through the chemical reactions of the injected water with the sediments comprising the aquifer.

Additionally, as described in the Injection Testing Work Plan, a series of water quality samples will be collected and analyzed during the injection well testing to assess any changes in water quality following the injection. A series of sampling events will be conducted to ascertain changes in the injected water quality following residence within the aquifer for up to several weeks. The results of this analysis will be used in tandem with the analyses described below to better understand the potential for adverse geochemical reactions to occur.

Laboratory Analyses

The soil samples collected during installation of the new monitoring well to be located near the proposed injection well will be sent to a specialty laboratory (Mineralogy, Inc) for analysis by the following methods:

- X-Ray Diffraction (XRD): This method analyzes soil mineralogy, which is used to evaluate potential mineral-water reactions.
- X-Ray Fluorescence (XRF): This method analyzes soil chemical composition, which provides the abundances of elements not identified by XRD.
- SEM & Thin Section Petrography: Microscopy is used to identify mineral occurrences present below XRD detection limits; it also informs on mineral sizes, reactive coatings, and morphology.
- Particle Size Distribution: This method analyzes the clay content of soil.
- Cation Exchange Capacity: This method quantifies the abundance of reactive cation exchange sites on clay.

We will also send samples to a standard analytical laboratory for analysis of the following constituents:

- Hexavalent Chromium, Total Arsenic, Total Organic Carbon (TOC), Total Selenium, Total Sulfides, and Total Solids

Results from these analyses will be used in combination with the anticipated water quality of the recycled water to be injected to identify potential geochemical reactions that may occur.

Geochemical Modeling

To assess the potential for chemical reactions that could be problematic for injection well operations, GSI's subcontractor SS Papadopoulos & Associates, Inc. will employ the USGS geochemical modeling package PHREEQC to evaluate potential aqueous geochemical calculations. PHREEQC is a widely accepted geochemical modeling tool and is based on an ion-association aqueous model and has capabilities for speciation and saturation-index calculations, reaction-path and advective-transport calculations, mixing of solutions, mineral and gas equilibria, and other geochemical calculations. If the chemistry of the injected advanced treated water and the in-situ groundwater are known, and the minerology of the aquifer is characterized, the modelling package allows a detailed chemical analysis of the expected reaction products between the mixed waters and with the minerals comprising the aquifer sediments.

The chemistry of the in-situ groundwater will be characterized using existing water quality data from the City's production wells, and chemical analysis of the newly installed test and monitoring wells. The expected chemistry of the water to be injected will be based on water quality estimates from the WRF design engineer. To characterize the aquifer materials, mineralogical analyses will be conducted on core samples collected during drilling of the monitoring wells. The results of this analysis will allow GSI to assess the potential for potential problems associated with mixing of the injected water and the aquifer materials including dissolution or precipitation of minerals through geochemical reactions, which can cause clogging in both the well screen and the pore space of the aquifer skeleton itself.

Results

Utilizing the (a) mineralogical analysis results from Minerology Inc., (b) the water quality information of the native groundwater and predicted IPR water, and (c) the water quality results collected during the Injection Well Testing, the geochemical analysis will be conducted and used to develop the assessment of any potentially deleterious conditions associated with the project activities. Recommendations will be provided for water quality treatment or operational approaches to minimize any potential adverse consequences of the proposed injection program.

Schedule

The aquifer sediment sample will be collected during monitoring well installation in late April. . Samples will be sent to Minerology, Inc. for analysis, a process that takes 2-3 weeks. Results will be received and used along with water quality data in the geochemical modeling which will occur over the following 4 weeks. A technical memorandum (TM) will be prepared documenting the work. This TM is anticipated to be complete by the end of May, if the proposed drilling and laboratory analysis schedules are met.

APPENDIX C

California Division of Drinking Water Permit

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CA Drinking Water Watch

Links

PS Code Transition

Water System Details

Water System Facilities

Monitoring Schedules

- Old Format
- New Format

Monitoring Results

Monitoring Results By Analyte

Lead And Copper Sampling

- Summaries
- Next Sampling Due Dates
- All Lead Sampling Results
- All Copper Sampling Results

Violations/Enforcement Actions

Site Visits

Consumer Confidence Reports

- 2019
- 2018
- 2017
- 2016

Lead Service Line Documents

- Certified Form

Water System Details

Water System No. :	CA4010011	**Federal Type :**	C
Water System Name :	MORRO BAY PW DEPT - WATER DIVISION	**State Type :**	C
Principal County Served :	SAN LUIS OBISPO	**Primary Source :**	SWP
Status :	A	**Activity Date :**	03-22-1979
Distribution System Classification :	D3	**Max Treatment Plant Classification :**	T2

Water System Contacts

Type	Address	Phone	Email - Web Address
Physical Location Contact	CA4010011-MORRO BAY PW DEPT - WATER DIV 955 SHASTA AVENUE MORRO BAY,CA 93442	805-772-6261	www.morrobayca.gov There is no web address
Administrative Contact	955 Shasta Avenue MORRO BAY,CA 93442		

Division of Drinking Water District / County Health Dept. Info

Name	Phone	Email	Address
DISTRICT 06 - SANTA BARBARA	805-566-1326	dwpdist06@waterboards.ca.gov	1180 EUGENIA PLACE SUITE 200 CARPENTERIA CA 93013

Annual Operating Periods & Population Served

Start Month	Start Day	End Month	End Day	Population Type	Population Served
1	1	12	31	R	10234

Service Connections

Type	Count	Meter Type	Meter Size Measure
CB	5532	ME	0

Sources of Water

Service Areas

Return Links

Water System Search

County Map

Glossary

Contact Info

Name	Type Code	Status
CALIFORNIA MENS COLONY	CC	A
CCWA - TREATED	CC	A
FLIPPOS WELL	WL	A
HIGH SCHOOL WELL 01	WL	A
HIGH SCHOOL WELL 02	WL	A
WELL 03	WL	A
WELL 04	WL	A
WELL 11A	WL	A
WELL 14	WL	A
WELL 15	WL	A
DESAL RAW - SEAWATER - STANDBY-INACTIVE	IN	I
GOLF COURSE WELL - INACTIVE	WL	I
PG&E WELL 02 - INACTIVE	WL	I
WELL 01 - INACTIVE	WL	I
WELL 02 - INACTIVE	WL	I
WELL 05 - ABANDONED	WL	I
WELL 06 - ABANDONED	WL	I
WELL 07 - ABANDONED	WL	I
WELL 08 - ABANDONED	WL	I
WELL 09 - INACTIVE	WL	I
WELL 09A - INACTIVE	WL	I
WELL 10 - INACTIVE	WL	I
WELL 10A - INACTIVE	WL	I
WELL 11 - DESTROYED	WL	I
WELL 12 -	WL	I

Code	Name
R	RESIDENTIAL AREA

ABANDONED		
WELL 13 - INACTIVE	WL	I
WELL 16 - INACTIVE	WL	I

Water Purchases

Seller Water System No.	Water System Name	Seller Facility Type	Seller State Asgn ID No.	Buyer Facility Type	Buyer State Asgn ID No.
CA4010830	CALIFORNIA MENS COLONY	IN	001	CC	033
CA4210030	CENTRAL COAST WATER AUTHORITY			CC	024

APPENDIX D

Class V Injection Well Notification Documentation

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Underground Injection Well Registration for the Pacific Southwest (Region 9)

Resources

- Underground Injection Control in Region 9
- General Inquiries or send email to R9iWells@epa.gov
  (Be sure to include your e-mail address if you'd like a response)

Register any class of injection well using the inventory form below.

On this page:

- How to Register Injection Wells
- Frequently Asked Questions
- Injection Well Inventory Form

How to Register Injection Wells

If you own, operate or plan to construct one or more injection wells, you are required to register those features, also known as injection wells, with the Underground Injection Control program. This requirement applies to deep and shallow subsurface disposal systems as defined in 40 CFR part 144. Compliance with the federal Underground Injection Control (UIC) regulations includes fulfilling two basic requirements: (1) - register injection well(s) and (2) - do not use injection wells in a manner that will contaminate underground sources of drinking water.

These instructions and e-Form were developed to assist injection well owners in Arizona, California, Hawaii, and Indian Tribes of the desert southwest comply with the federal UIC regulations. Other state and local regulations may apply. See the regulations at 40 CFR part 144 for more information, at the U.S. Government Printing Office.

Frequently Asked Questions

My runoff discharges to a swale, pond or ditch. Is this injection?

If there is no subsurface (buried) discharge component to the system, then it is not subject to UIC requirements, however it may be subject to Clean Water Act requirements or other water protection regulations.

The injection well serves a single family home. Do I have to register the well?

Injection wells serving single family homes do not have to submit inventory information unless they are used by a home-based business, such as car repair, pet boarding, medical services or other businesses that generate a liquid waste stream that is to be disposed underground.

I have a septic system with multiple leachfield lines. Does each leachfield pipe count as a different injection well?

No, if all of the leachfields receive effluent from the same septic tank or other treatment device, they count as components of one injection well or subsurface fluid distribution system.

Is registering the injection well my only obligation?

Some injection activities are subject to state and local requirements and/or permits. Single-family onsite sewage systems are generally regulated by county environmental health agencies. Large capacity sanitary waste disposal and industrial discharges may be regulated by local or state water quality agencies. If your injection well(s) are subject to a discharge permit from the state, please list that permit number in the comments box to help reduce duplicative requirements.

Depending on multiple factors, such as your location in relation to drinking water supply wells or the type of injectate, your injection well(s) may be subject to additional federal requirements. These requirements may include sampling, characterization, permitting or closure of injection wells. Shallow injection of hazardous waste, untreated sewage and motor vehicle repair fluids is **prohibited** except in ongoing remedial actions overseen by regulatory agencies. See the regulations for more information. **IMPORTANT:** You must notify EPA if the ownership, well operating status or injectate changes.

How does EPA use the information?

EPA will use this information to notify you of applicable regulatory requirements or best management practices to prevent contamination. EPA shares the data with other water quality agencies, public water supply agencies, and in response to Freedom of Information Act requests for the data.

For more information, contact your EPA or state UIC program or email R9iWells@epa.gov.

Injection Well Inventory Form

After submitting this form, a confirmation email with the submitted form data will be sent to the Email address provided.

Transaction Type (choose one): ○ First time entry ○ Change

---------- Facility Information ----------

Facility Name: (Required)

City of Morro Bay

This is a private residence ○ true ○ false

Street:

955 Shasta Ave

Street 2:

City: (Required)

Morro Bay

State: (Required) CA

Zip: (Required) 93442

Facility Phone: 805-772-6261

---------- Facility Location ----------

County CA-San Luis Obispo

Land ID:
RCRA ID, APN, or TMK or leave blank

066-331-046

Indicate the land ownership of the property: (Required)

○ Private
○ Government-local, state
○ Government-federal
○ Government-tribal
○ Non-Profit

If Tribal select Tribe name: - None -

NAICS Code
Numbers only, please. For industry/business, find NAICS code at www.census.gov

Latitude
Latitudes in American Samoa should be entered as *negative* numbers. Free lat/long finder is latlong.net

35.376036 °N

Longitude

Enter positive numbers for degrees longitude east or negative numbers for longitude west, in this field.

120.856095

Longitude (W or E)

Specify "W" for longitudes in the U.S., or "E" for longitudes in Guam & the Northern Mariana Islands.

W

---- Legal Contact Information: Owner or Other Responsible Party ----

Owner Contact Name:

Joe Mueller

Email: (Required)

jmueller@morrobayca.gov

Organization: (Required)

City of Morro Bay

Street:

955 Shasta Ave

Street 2:

City: (Required)

Morro Bay

State: CA

Zip: (Required) 93442

---------- Well Details ----------

Total number of injection wells at this site: (Required)

If you would like to report other types of wells at this site, please submit this form, then use the back button to modify this entry or start over.

1

Number of identical wells reported below (Required)

Well Operating Status of your well(s):

- Planned/under construction
- Active
- Inactive/not plugged
- Plugged and approved by regulator
- Plugged and abandoned without approval

Plugged & Abandoned?

If well(s) have been plugged and abandoned enter the *numerical* year only.

Injection Well Depth
(# of feet below ground surface)

- < 50
- 50 - 500
- > 500

Injection Purpose

- Disposal
- Energy production
- Hydraulic barrier
- Oil or mineral recovery
- Remediation
- Recharge
- Water supply storage and withdrawal

Injectate
Select the primary constituent of injected fluids.

- Storm drainage
- Irrigation runoff
- Non-contact cooling water
- Brine
- Combined industrial/sanitary
- Disinfected Tertiary Effluent (CA Title 22)
- Geothermal fluids
- Industrial Non-hazardous (describe in comments)
- Mine lixiviant
- Potable water
- Remedial fluids/air
- Septic tank effluent
- Untreated sewage

Dispersal Direction
Select the predominant plumbing orientation of the injection well(s): horizontal such as a leachfield; vertical such as a drywell or seepage pit

- horizontal
- vertical

Injectate Sources
Please select one.

- From this site only
- This site and others

Comments
Please list any local or state permits that authorize, monitor, or otherwise affect the reported injection well(s). If this site is subject to any relevant local or state permits, or if you have any operational considerations for the injection well(s) that you would like to note, please list them here.

Your Name
If you are NOT the owner listed above, please enter your name here.

Chris Wick

Your Email (Required)

cwick@gsiws.com

Your Organization
Your organization if other than the contact above.

GSI Water Solutions, Inc.

Submit Registration

LAST UPDATED ON AUGUST 21, 2020

ATTACHMENT 4

Water Solutions, Inc.

DRAFT TECHNICAL MEMORANDUM

DRAFT Injection Testing Work Plan for Groundwater Replenishment and Reuse Project, Morro Bay, California

To:	Lydia Holmes and Anthony Cemo, Carollo Engineers
From:	Tim Thompson and Tim Nicely, GSI Water Solutions
CC:	Brynne Weeks and Andrew Salveson, Carollo Engineers
Attachments:	Figure Water Quality Sampling Constituents Table
Date:	August 26, 2021

Introduction and Purpose

GSI Water Solutions (GSI) is supporting the City of Morro Bay with the implementation of a planned indirect potable reuse (IPR) project, which will use highly treated recycled water from the City's forthcoming Water Reclamation Facility (WRF). The installation and operation of a Groundwater Replenishment Reuse Project (GRRP) using injection wells is a key part of the overall project. This memorandum presents the work plan for testing at a new injection well proposed to be installed in Spring 2021.

The injection testing presented in this work plan is a portion of work being performed by GSI for the City of Morro Bay in the lower portion of the Morro Valley Groundwater Basin, which also includes injection well design and installation, groundwater monitoring, permitting support, and groundwater flow modeling.

Injection Work Plan

The injection testing presented in this work plan provides diagnostic information regarding injection rates, aquifer response, and water quality at anticipated injection rates for a single well. Injection testing will be conducted at a newly constructed injection well located as shown on Figure 1.

Injection Testing

A series of injection tests will be conducted by conveying water from the City's municipal water supply distribution system into the new injection well. The injection tests will consist of an 8-hour injection step test and a 7-day injection constant rate test, operated by the Contractor. The wellhead will be sealed and capable of maintaining injection pressures up to 20 psi with anticipated injection pressures of up to 10 psi during testing in order to observe and maintain a range of injection rates. The injected water will consist of chlorinated water provided by the City from their State Water Project source.

City staff will install an outlet fitting and backflow prevention device onto the nearby City distribution pipeline located east of the nearby bike path for the purposes of this project. City staff will also construct a trench across the bike path and install a short section of piping that daylights west of the bike path and, for security purposes, west of the fence within the Dynegy/Vistra property. The drilling Contractor will connect to this fitting, the location of which is shown approximately on Figure 1 and run a temporary pipeline that will convey

the water to the injection well for the testing. The pipeline conveying the injection water to the well will be equipped by the Contractor with a flow control valve, flow meter, sampling port, pressure gauge, and a bypass filter. The bypass filter allows for monitoring of the turbidity of the injected water and will verify if turbid water is being injected (which is undesirable because of clogging potential) – GSI will provide guidance to the Contractor for the materials and setup of this filter. A pressure transducer will be installed by the Contractor in the well to collect continuous water level data, and manual water level (and wellhead pressure) measurements will also be collected. All conveyance piping, measurement devices, and downhole equipment will be installed, maintained, and operated by the Contractor. GSI staff will be onsite to oversee the installation of the equipment. The Contractor will be required to provide temporary fencing around the immediate wellhead, which is assumed to require a 12- by 20-foot fenced area.

The following sections provide details for each phase of the injection testing program. The injection testing activities will be conducted following the drilling, construction, and pump testing of the injection well. The pump testing component will consist of both a step test and a constant rate test using a temporary pump installed and operated by the drilling contractor. The step test will involve pumping the well at 4 successively higher flow rates for 1 to 2 hours each while carefully monitoring water level drawdowns in the injection well and at the nearby monitoring well. The drawdown results of the step test will be used to establish the pumping rate used in the 24-hour constant rate pumping test.

Injection Step Test

The data collected during the pumping tests will be used by GSI to select the injection rates for the injection step test. This initial injection test will consist of four steps conducted at a series of discrete flow rates that will each last approximately 2 hours. The steps for the injection rates will be selected based on the drawdown results of the constant rate aquifer pumping test performed as part of the injection well installation. They will likely vary from approximately 10 to 80 gpm, but final rates will be determined after installation and testing of the injection well. The injection rate will be increased incrementally for each of the steps while simultaneously monitoring the water level in the well. Water level measurements will be recorded both at the injection well and at the nearby monitoring well with transducer and manual measurements. The results of the injection step test will be analyzed to determine appropriate injection rate for the constant rate injection test.

Injection Constant Rate Test

After the well has fully recovered from the injection step test, the constant rate injection test will be run at a continuous injection rate for various durations and ultimately for a continuous period of up to 7 days. During the tests, measurements of the flow rate, and corresponding water level shall be made at both the injection well and the nearby monitoring well. During the injection tests, a pressure transducer will record continuous water level data throughout the test. Manual measurement of water levels will also be collected at the following times relative to the start of the test:

- Every 5 minutes until 30 minutes have elapsed.
- Every 10 minutes until one hour has elapsed.
- Every 20 minutes until two hours have elapsed.
- Every hour until 24 hours have elapsed.
- Every two hours until 48 hours have elapsed.
- Every 4 to 6 hours until the end of the 7-day test.

Immediately after termination of the test, the rate of recovery of the water level shall be monitored for a period of 48 hours at both the injection and monitoring wells. The water levels will be recorded at the same time intervals (logarithmic) as the start of the constant rate injection test.

Analysis of Injection Testing Results

Following the completion of injection testing, data will be analyzed to estimate aquifer properties and provide a range of operational injection rates for the well. This information will also be used to update the groundwater model to evaluate project build out options.

Following updates to groundwater model, a series of scenarios will be developed in coordination with the City and Carollo Engineers to assess the ultimate number and location of wells required for the full project. Additional information from the modeling scenarios will include assessment of retention time within the aquifer, water level changes during and following injection periods and identification of any potential adverse conditions.

Recommendations will be provided for anticipated operational scheduling and approaches to minimize any potential adverse consequences and maximize the benefits of the proposed injection program.

Water Quality Sampling and Geochemical Evaluation

In addition to the collection of aquifer data collected during the tests, water quality samples will be collected at both the Injection well and/or the nearby monitoring well at the following times and analyzed for the list of constituents identified in the attached table:

- Collect samples at both the Injection and monitoring well on the last day of the constant rate pumping test (to establish the baseline aquifer water quality)
- Collect a sample at the Injection well at the end of the first and last day of contestant rate injection to document water quality of source water
- Samples will be collected from the monitoring well during the constant rate injection test during day 3, day 5, and day 7 (three sampling events). If groundwater quality changes occur based on field parameters (indicating that the injected water has reached the monitor well), the samples will be analyzed for a reduced suite of parameters.
- After completion of the constant rate injection test, groundwater samples will be collected once a week at the Injection well and monitoring well for four consecutive weeks. For each sampling episode, the well will be pumped to waste until parameters stabilize prior to sampling.

Water quality results for key constituents will be evaluated to identify mixing relationships and/or the presence of geochemical reactions. These field results will be used to verify the findings of the geochemical modeling described in the Geochemical Work Plan for Groundwater Replenishment and Reuse Project (GSI, 2021).

Table 1. Sampling Schedule

Stage	Purpose	Injection Well	Monitoring Well 21P-01
		Constituents	**Constituents**
Pumping constant rate (end)	Baseline groundwater quality	Complete suite	Complete suite
Injection Day 1 (end of day)	Source water quality	Complete suite	Field parameters [2]
Injection Day 3	Source water quality changes	--	Field parameters [2]
Injection Day 5	Source water quality changes	--	Field parameters [2]
Injection Day 7	Residence time	Complete suite	Complete suite
Post-Injection Weeks 1, 2, 3 and 4	Geochemical reactions	Complete suite [1]	Reduced / Complete suite [3]

Notes:
Complete and reduced suite defined in Water Quality Testing Constituents attached.
[1] If any trends are evident, a further complete sample will be collected at 6 weeks.
[2] Water quality samples will be collected for reduced suite if field-measured groundwater quality parameters changes.
[2] The monitoring well will be analyzed for the reduced suite (except DPBs) unless the field parameters indicate a change, which would trigger complete suite,

Injection Testing Schedule and Reporting

The injection testing will be conducted following the completion of the well installation and constant rate aquifer test. It is anticipated that the injection testing will begin by late May 2021 and require approximately 6 to 7 weeks to complete, including the 4 weeks of post-testing water quality sampling. Following the completion of the injection testing program, the Contractor will be responsible for removing all equipment and conveyance pipelines. The Contractor will not be provided final payment until the site condition is deemed satisfactory by the City and the terms of the project Technical Specifications are met.

The testing results will be provided in a technical memorandum (TM). This TM is anticipated to be completed by the end of July, approximately one month following the completion of the field work if the proposed drilling and injection testing schedules are met.

Figure

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\Pilot_Inject_Well\Figure1_Western_Project_Site_Injection_Well_2021.mxd

FIGURE 1

Site and Well Location Map

Morro Bay
Indirect Potable Reuse Program
Injection Testing

LEGEND

- Injection Well No. 1
- Well Construction Site
- Cuttings and Drilling Fluids Disposal
- Bike Path
- Piezometer
- Temporary Hose
- MBMWC Well
- Yeh Piezometer
- PG&E Property Boundary
- Western Project Area, 17 Acres
- Watercourse

NOTE

MBMWC: Morro Bay Mutual Water Company

N

0 150 300
Feet

Date: August 26, 2021
Data Sources: NAIP Imagery, ESRI

GSI Water Solutions, Inc.

Water Quality Sampling Constituents

Parameter Type	Parameter	Method
Field	Dissolved oxygen	YSI 556 or similar
	pH	EPA 150.1
	Oxidation-Reduction Potential	SM2580B
	Specific Conductance	EPA 120.1
	Temperature	YSI 556 or similar
	Turbidity	EPA 180.1
Inorganics	Alkalinity	SM2320B
	Ammonia	SM4500NH3G
	Bicarbonate	SM2320B
	Carbonate	SM2320B
	Chloride	EPA 300.0
	Cyanide (HCN)	EPA 335.4
	Fluoride	EPA 300.0
	Hardness	EPA 200.8
	Nitrate+Nitrite (total N)	EPA 300.0
	Nitrate (as N)	EPA 300.0
	Nitrite-N	EPA 300.0
	Orthophosphate as P	EPA 300.0
	Total Silica (as SiO2)	EPA 200.7
	Dissolved Silica (as SiO2)	EPA 200.7
	Sulfate	EPA 300.0
	Sulfide	SM4500S2F
Metals (Dissolved)	Aluminum	EPA 200.7
	Antimony	EPA 200.8
	Arsenic	EPA 200.8
	Barium	EPA 200.8
	Beryllium	EPA 200.8
	Cadmium	EPA 200.8
	Calcium	EPA 200.7
	Chromium	EPA 200.8
	Cobalt	EPA 200.8
	Copper	EPA 200.8
	Iron	EPA 200.7
	Lead	EPA 200.8
	Magnesium	EPA 200.7
	Manganese	EPA 200.8
	Mercury	EPA 245.7
	Molybdenum	EPA 200.8
	Nickel	EPA 200.8
	Potassium	EPA 200.7
	Selenium	EPA 200.8
	Silver	EPA 200.8

	Sodium	EPA 200.7
	Strontium	EPA 200.8
	Thallium	EPA 200.8
	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

Parameter Type	Parameter	Method
Field	Dissolved oxygen	YSI 556 or similar
	pH	EPA 150.1
	Oxidation-Reduction Potential	SM2580B
	Specific Conductance	EPA 120.1
	Temperature	YSI 556 or similar
	Turbidity	EPA 180.1
Inorganics	Chloride	EPA 300.0
Metals (Dissolved)	Arsenic	EPA 200.8

Miscellaneous		
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other		
	Hexavalent Chromium	EPA 218.7

APPENDIX I

Injection Well #1 Technical Specifications

CITY OF MORRO BAY

INJECTION WELL DRILLING AND INSTALLATION

TECHNICAL PROVISIONS AND DRILLING SPECIFICATIONS

GENERAL

- It is the intent of these Contract Documents to provide the City of Morro Bay (City) with one complete and fully-operational injection well casing as specified herein. The purpose of the proposed well is to perform injection testing to better understand aquifer characteristics and to inform the design of additional injection wells in the future. The drilling site (Site is presented in Appendix A, Figure 1).

- For a bid to be deemed qualified, the bidder must hold a valid Class C-57 California Contractor's License.

- The site is located near the bike path easement along the west side Highway 1 between Atascadero Road and Main Street (Appendix A, Figure 1). The site will be staked for contractor inspection prior to drilling.

- For bidding purposes, the borehole and well design depths are presented in Appendix A, Figure 2. The well completion logs for nearby wells are also attached in Appendix A

- It will be the responsibility of the Contractor to have inspected the drilling site and to make provisions for physically moving onto and off the site with personnel, equipment and supplies. It is strongly recommended that the site be inspected prior to submitting a bid. A mandatory pre-bid meeting will be held to provide the opportunity to visit the site as stated in Section 00111 – Advertisement for Bids in the Contract and Bidding Documents

- A minimum of seven days advance notice is required before move-on. Contractor shall inform the City Engineer and Project Geologist prior to any activities on site.

- The Contractor shall provide as continuous an operation as is feasible from the time pilot hole drilling commences to well completion. Once work resumes following pilot hole drilling, operations shall be conducted on a continuous daily basis until well development is complete. The Contractor shall work continuously (24/7) only during drilling and installation activities. All activities outside of drilling and well installation shall be performed during normal working hours. All other work may only be conducted between the hours of 7 am and 9 pm Monday through Friday and between the hours of 8 am and 5 pm Saturday and Sunday. To the extent possible, it is recommended that work on this project begin on a Monday.

- Noise Abatement – The work shall be carried out as quietly as possible to prevent possible annoyance to adjacent residents. Unnecessary noise shall be avoided at all times. The Contractor shall comply with the requirements of any and all local ordinances and the instructions of the City Engineer and Project Geologist (GSI Water Solutions).

PROJECT SUMMARY

- The work includes the furnishing of all materials, labor, equipment, fuel, tools, transportation, and services for drilling, construction, development, testing, and completion of the well as described in these specifications. The general work required to complete the project includes:

  1) The Contractor shall obtain the necessary well drilling permit from San Luis Obispo County and shall coordinate any well construction variances with San Luis Obispo County EHS based upon the geologic conditions that are determined during well drilling and the final well design.

  2) The Contractor shall mark the drilling site and notify DigAlert prior to breaking ground.

  3) Move equipment on (and off) the site.

  4) Drill by mud-rotary methods a 9 7/8-inch diameter pilot borehole to an estimated depth of 90 feet. Collect drill cuttings, and maintain a detailed drilling time log, drilling fluid log and drill cuttings log. The use of the bucket auger method will not be accepted for the installation of this injection well.

  5) Provide for and assist with conducting geophysical borehole logs using spontaneous potential (SP), resistivity, and caliper surveys of the pilot hole.

  6) Upon satisfactory analysis of the drill cuttings and electric log, and following a decision to complete the injection well, the borehole shall be reamed to a final diameter of 18 inches. The Project Geologist will provide a final well design within 72 hours of receiving the results of the sieve analysis.

  7) The anticipated well design consists of 316 stainless steel casing and wire-wrap screen. The well design is shown in Figures 2.

8) The annulus within the screened interval will be filled with a gravel pack gradation consisting of 1.7-2.5 mm SiLibeads (450708).

9) Install concrete sanitary seals according to Figure 2 and to State and local standards. If the Contractor believes that conductor casings are necessary for completion of the job, then it should be so stated in submittal of the bid package, and a price provided. Arrange for inspection of the seal by the County.

10) Perform well development.

11) Install test pump, sounding tube, and water level transducer for final development and well performance aquifer testing, and conduct development and testing procedures. The drop pipe for injection testing should also be installed at this time.

12) Perform injection testing, including the installation of source water conveyance. Remove test pump upon completion of testing. TheInjection Testing Plan is included in Appedix B of these technical specifications.

13) Clean up the sites, and demobilize.

14) Conduct a post-construction video of the completed injection well.

15) Disinfect well fully.

- A copy of these specifications shall be kept on site at all times.
- As used herein, "Geologist" or "Project Geologist" means a staff member of GSI, Water Solutions, 5855 Capistrano Ave, Suite C Atascadero, CA 93422. Questions can be directed to Tim Nicely at tnicely@gsiws.com, phone (805) 701-1245.

WORK RESTRICTIONS

This section includes requirements for sequencing and scheduling the work affected by existing site conditions and facilities, and the necessary coordination between Contractor and the City.

GENERAL CONSTRAINTS ON WORK

1) Soil Cuttings and Drilling Fluid Disposal

   a. The Contractor shall handle and dispose of soil cuttings and drilling fluids from the entire drilling process by containing within the designated easement, drying, and spreading on site (Figure 1).

2) Temporary Construction Water

   a. The Contractor shall coordinate with City staff to provide access to the temporary water supply to the site. The Contractor is responsible for supplying and maintaining temporary water facilities from the meter to the construction site. The Contractor shall meter water in accordance with City standard practice. The Contractor shall provide a 2.5-inch construction backflow preventer on the discharge side of the meter. The location of the water supply is shown in Figure 1. The water pressure from the temporary water supply is approximately 120 psi. The Contractor shall be responsible for regulating pressure as necessary.

   b. Temporary water supply facilities shall not disrupt bike path through access along throughout the entirety of construction and injection testing.

3) Temporary Power

   a. The Contractor shall provide temporary power as necessary to facilitate well drilling activities and injection testing as required in these specifications. The Contractor shall provide San Luis Obispo County Air Pollution control board permit as required for any temporary generators used during construction and injection testing activities.

4) Access to Site

   a. The Contractor shall provide their own lock that is daisy chained to the existing access gate to the site. The Contractor shall coordinate with City Program Manager (Carollo) and Water Reclamation Facilities Lift Stations and Offsite Pipelines Project Construction Manager (Carollo).

   b. Contractor to notify Project Construction Manager a minimum of five days prior to entering site.

c. At all times, the Contractor shall maintain access to or along bike path and the Temporary Construction Easement to Anvil Builders and not disrupt traveled ways 24/7. The Contractor shall install traffic-rated protection for the water supply and discharge pipeline within the temporary utility trench for a length of approximately 90 feet at the access point to the Anvil soil stockpile area (Figure 1). Following completion of the project, the Contractor shall fully remove the trench and piping and restore the site to the original grade. The Contractor shall notify Dig Alert and clear all existing utilities prior to trenching.

5) Biological Clearance

a. The Contractor shall coordinate with the City to have Project Biologist perform biological pre-construction survey 48 hours prior to the work in order to confirm no special status species are in the area. Additionally, project biologist shall be onsite to monitor vegetation clearance within beyond the existing project area prior to excavation efforts and/or drilling activities.

6) Discharge of Construction Water

a. The Contractor shall dispose of construction water, well development water, and pumping test water as indicated on Figure 1 of these specifications. The Contractor shall coordinate with the City to confirm the discharge location within the existing wastewater treatment plant. The Contractor shall provide temporary settling tank(s) and supporting appurtances prior to discharging into the City sewer system to meet the WWTP turbidity requirements. The Contractor shall not dispose of any water with a turbidity reading greater than 225 NTU or at a rate greater than 150 gpm to the City's WWTP. Additionally, the Contractor shall monitor the discharge hose during well development to ensure that there are no significant leaks that could impact the surrounding areas. Damage or flooding as a result of leaking discharge lines shall be the responsibility of the Contractor to restore to the original condition.

b. The Contractor shall discharge groundwater under **Additional Well Development and Production Testing** as an overland discharge within the City's right-of-way. All overland discharges during the pumping test shall follow the City's NPDES Permit for Drinking Water System Discharges to Waters of the US. (Order WQ 2014-0194-DWQ; NPDES NO. CAG140001). Contractor shall maintain all BMPs and ensure overland discharge of groundwater is non-erosive to surrounding environments during the well development and production testing.

7) Existing Utility Verification

   a. The Contractor shall confirm location of all existing utilities within the construction area prior to any well drilling activities or temporary trenching. The Contractor shall "Call 811 Before You Dig" for utility location services.

   b. The Contractor shall dig three auger holes in the vicinity of the pilot injection well site at varying depths to confirm that existing utilities are not located within the vicinity of the drilling footprint.

TECHNICAL PROVISIONS

Mobilization and Demobilization: The mobilization and demobilization shall be included in the overall costing and shall include the transportation of personnel, equipment, and operating supplies to and from the site, site preparation, provision for the installation and removal of pumping equipment and discharge lines, and other preparatory work at the site for work required by the Contractor. It will be the Contractors responsibility to prepare the drilling pad to their needs. Additionally, the Contractor shall place crushed rock at the entrance and exit of the site to prevent the speading of dirt onto the bikepath and adjacent roads.

Prior to any construction, the Contractor shall notify the Underground Service Alert agency and the authorized representatives of such utility owners or agencies not less than 3 days nor more than 7 days prior to construction. The Contractor shall verify the exact location, depth, alignment, and grade of all utilities shown and the Contractor shall make exploratory excavations of all utilities that may interfere with the Work.

The Contractor will be responsible for ensuring that drilling fluids, production and discharge water, and other effluent is disposed of at a location and in a manner approved by the City Engineer. Drilling fluids shall be contained in above ground mud tanks. It is not acceptable for fluids or cuttings to flow into storm drains or onto nearby streets or creeks. The Contractor will be responsible for final disposal of the drill cuttings and fluids, and for spreading the drill cuttings. Drill cuttings and fluids can be spread at the cuttings disposal area on the City's property (Figure 1) in an area designated by the City Project Manager.

Drilling water will be provided by the City at a nearby location next to the bike path per the City standard practices.. The City will provide the meter to the existing water source. The Contractor shall provide all temporary piping and facilities as necessary to supply temporary water to the site. See Work Restriction No. 2 – Temporary Construction Water.

Contractor shall be responsible to for providing temporary power as necessary to the site for means of completing the work as outlined in these technical specifications and in accordance with the San Luis Obispo County Air Pollution Control District.

A locking cap is to be placed over the exposed casing to protect the well and aquifer against entry of foreign material. The well shall also be covered during temporary cessation of drilling operations (such as overnight) and after drilling and before test pumping, so that the well bore is protected against vandalism.

The gate to the site shall remain closed to the extent possible to restrict access to the well site area by the public. Except for offsite disposal of the cuttings, the drill site is to be left neat, clean, and sanitary before final demobilization.

Pilot Hole Drilling: The pilot borehole shall be drilled to a depth of approximately 90 feet. The actual drilled depth may vary based on subsurface conditions encountered during drilling. Determination of the actual drilled depth will be made by the Project Geologist. The successful completion of the borehole is responsibility of the contractor. In the event of failure to meet borehole specifications or a borehole collapse, the contractor shall abandon and re-drill at their own expense.

Upon completion of the pilot borehole and e-log, the Contractor shall backfill the pilot hole with clean pea-gravel. When the well design and materials become available, the Contractor shall clean out the pilot hole and proceed according to the Technical Specifications.

Nearby well logs are provided for review in Appendix A.

Only fresh water shall be used in the drilling fluid, whether employed alone or in combination with drilling additives. The drilling fluid shall possess such characteristics as are required to adequately maintain the walls of the hole to prevent caving of the wall as drilling progresses and to permit recovery of representative samples of cuttings. The drilling fluid shall possess such characteristics that it can be readily removed from the hole during the placement of the gravel pack and during development of the well.

The drilling mud during drilling shall have the following properties in accordance with API Code RP "Recommended Standard Field Procedure for Testing Drilling Fluid." Water and QuikGel or Supergel bentonite drilling mud shall be employed as drilling fluid. Cement and lime are prohibited as additives. Biodegradable, polymer systems such as Drispac (or equivalent) may be used as an additive if a bentonite-based mud is used. Any additional mud additives shall be approved by the Project Geologist.

The drill rig must be provided at all times with the following Standard API drilling fluid devices to measure the following properties: drilling fluid weight, drilling fluid viscosity, and drilling fluid sand content.

The Contractor must have equipment onsite and be able to demonstrate that the drilling fluids have a viscosity in the range of 36-42 seconds through a Marsh funnel. Mud density should be maintained at approximately 68-72 pounds per cubic foot (9-9.6 pounds per gallon). The sand content of the down hole mud shall be less than 3 percent at all times during drilling.

During each pilot hole drilling, the Contractor must keep the following records and be able to provide copies to the City upon completion of the project:

a) A log of drilling bit types and depths at which drill bit changes are made.

b) A log of the drilling mud properties measured at no more than 2-hour or 20 foot intervals during the course of the drilling. The record shall show mud weights, Marsh funnel viscosity, sand content, and any mud additives used.

c) A log recording penetration rates for each joint of drill rod.

d) A log of the cuttings, providing the depths and descriptions of the earth materials encountered during the pilot boring. The Contractor shall collect cutting samples at 10-foot intervals during the drilling of the pilot boring. Samples shall be placed in zip-loc baggies or containers suitable for long-term storage, provided by the contractor, with the depth of the sample clearly marked both on the container and on the container lid. Upon review of the cuttings, the Project Geologist will designate which sample bags should be sent for sieve analysis. The Contractor shall deliver the sieve samples for analysis to Roscoe Moss.

Geophysical Logging: At the completion of the pilot hole, an electric geophysical log and caliper log shall be run at the discretion of the Project Geologist, consisting of an SP, 16" and 64" normal logs, and 6' lateral logs. The Contractor shall be responsible for contracting and scheduling the electric geophysical log contractor. The Contractor shall furnish and provide assistance for geophysical logging of the pilot hole. If the logging probe fails to descend to the desired depth, the Contractor, at his own expense, shall condition the hole to permit the logging probe to descend to the bottom of the hole. Standby time will not be paid for additional cleaning and conditioning of the hole to enable logging operations to proceed. The plumbness and alignment fo the hole shall not exceed 6-inches per 100 feet.

Upon completion of logging, five (5) field prints and a digital copy of the geophysical log shall be delivered to the Project Geologist or his representative.

The Project Geologist will provide a final well design within 72 hours of receiving the results of the sieve analysis. There shall be no standby time charged by the Contractor for the time to design the well and to procure materials.

Final Well Bore Drilling: The final borehole diameter prior to setting casing shall be 18 inches (nominal) from ground surface to 90 feet below ground surface. The Contractor may choose to drill a "rat hole" to allow space for sluffing material during well installation. The Contractor is reminded that drilling fluid properties during the pilot hole ream must conform to those specified in the section on pilot hole drilling, above. The successful completion of the borehole is responsibility of the contractor. In the event of failure to meet borehole specifications or a borehole collapse, the contractor shall abandon and re-drill the borehole at their own expense.

During the reaming, the Contractor must keep the following records and be able to provide copies to the City upon completion of the project:

a) A log of drilling bit types and depths at which drill bit changes are made.

b) A log of the drilling mud properties measured at regular intervals (no more than 2-hours or 20 foot intervals) during the course of the drilling.

c) A log of the types and amounts of mud and additives added to the borehole during drilling.

Well Casing, Wire-Wrap Screen, and Well Construction: This item consists of providing and installing casing, well screen, and cap as specified. All casing materials shall be new. The injection well designs consist of a type 316 stainless steel blank casing and type 316 stainless steel wire-wrap screen. The well design is shown in Figure 2.

All casing, screens, and fittings shall be new and shall be approved in advance by the Project Geologist. The casing and screen shall be furnished with welding collars, alignment holes, and sufficient non-wire-wrapped area at each joint to fit centralizers. Stainless steel centralizers will be placed every 60 feet and/or at the top and bottom of each screen.

Casing welding shall conform to the following requirements:

- Welder Qualifications: Welders shall be certified in accordance with ASME Section IX and AWS 10.8-80 for level AR-1 or AR-3 and shall be qualified to position 2G for stainless steel. Welder qualifications shall be provided to the Project Geologist 24 hours prior to well installation. Welders shall be noted as trained and qualified based upon submitted data for the weld procedures specified below.

- Weld Procedures:

    - Use stick welding procedure, or a flux core wire welding procedure. At a minimum, inspect first 3 welds at the start of of each shift to verify burn-through on the first pass to the pipe or screen interior has not occurred. All joints shall fully penetrate and shall be watertight. All stainless joints shall be properly wrap welded with a minimum of two passes Special care shall be exercised to ensure that the casing is plumb and straight.

    - Welds shall be full penetration, free of cracks, overlaps, and cold laps.

    - Misalignment shall be limited to 1/16th-inch or half the wall thickness.

- Weld reinforcement and root convexity shall be limited to 1/16th-inch.
- Undercut shall be limited to 1/32-inch or 10 percent of the base metal thickness.
- Descale weld exterior by grinding in accordance with ASTM A380.

The casing shall be hung plumb and true such that a plumbness and alignment test can be performed with an 9-inch diameter, 10 foot long dummy pipe and may be freely lowered and raised within the casing and screen interval. The casing must be suspended from the surface, rather than set on the bottom of the borehole.

Gravel Pack: The annular space within the screened intervals will be filled with a SiLibead gravel pack with gradation of 1.7-2.5 mm (450708). Gravel pack materials shall meet AWWA-B100-89 standards. Gravel pack is subject to the approval of the Project Geologist prior to delivery. All gravel used for the filter pack shall be well-rounded, hard, and washed clean of silt, fine sand, dirt, and foreign matter. Damaged or contaminated gravel will not be accepted.

Prior to placement of the gravel pack in the well, the drilling fluid shall be thinned with clean water. The drilling fluid viscosity must be below 30 sec/qt before gravel packing commences. Care must be exercised by the Contractor to avoid unbalancing the mud system. Gravel packing shall be done slowly and continuously so that segregation will not occur. The filter pack material shall be sterilized by continuously mixing at least one gallon of liquid five and one-half percent (5.5 percent) sodium hypochlorite per 100 cubic feet of filter pack as it is placed in the well.

After the filter pack envelope has been placed to the design depth specified, a swab shall be carefully worked opposite the screened section. As the filter pack settles, more shall be added to bring the top of the filter pack to the specified elevation. This operation shall continue until there is no further measurable settlement of the filter pack envelope.

Once the Project Geologist has approved the installation of the filterpack, the contractor shall place a transition sand and bentionite chip seal in accordance with the selected well design.

Annular Sanitary Seal: Following casing and filter pack installation, a sand cement seal shall be pumped via tremie pipe into the annular space of the upper portion of the well. The tremie pipe shall be placed within five (5) feet of the bottom of the hole before sealing material is introduced to the hole, and raised slowly as the material is placed. The sealing material shall not be installed by freefall. The sealing material shall meet the requirements as described by the California Well Standards (DWR Bulletins 74-81 and 74-90).

The sealing material shall set for 24 hours prior to developement, as directed by DWR Bulletin 74-90.

Well Development: Following well completion, initial well development shall consist of wall cake removal through a combination of surge block/air lift, swabbing, or horizontal air jetting. The surge block/air lift tool shall consist of a dual swab with perforations between the swabs capable of airlifting descrete sections of the well screen. The well screen should be worked until successive work produces little change in color and discharge is relatively clear. On completion of development of all sections of the screen, the wells shall be cleaned to bottom.

After reaching the bottom, the development tools shall be utilized to inject into the well a solution of NuWell-220 or equivalent as approved by the Project Geologist. The NW-220 solution must be completely mixed at ground surface prior to introduction to the casing and bore, and must be pumped into the screened interval via tremie or by use of the drill string.

After a period of 12 to 16 hours, the NW-220 solution shall be removed from the well, and further development shall be performed with either a combination surge block/air lift, or air jetting with a horizontal jetting tool. Well development shall begin at the top of the perforations interval and proceed incrementally to the bottom of the perforations. Each section of well screen shall be adequately developed until the produced water is clear and free of formation sand, drilling mud, and other material. The full section of well screen will be developed. Development pumping shall be continued until the specific capacity has been maximized, there is no appreciable settlement of the filter pack envelope and turbidity is less than 1 NTU. Well development water shall be discharged to a nearby sewer manhole located in Figure 1.

Additional Well Development and Production Testing: Test pumping is to begin within 5 days of well completion. If a subcontractor is used for test pumping, the Drilling Contractor is responsible for assuring the promptness of the Test Pumping Contractor, as well as license and insurance, and the integrity of the well.

Following well development, the Contractor shall install a test pump for purposes of additional well development and for production testing. For bidding purposes, the size of the pump is estimated as one capable of discharging up to 350 gpm with a pump setting of 85 feet. These pump specifications are estimates only.

The discharge line must be provided with a gate valve, flow meter, sample port, and suitable equipment for sand testing such as the Rossum Centrifugal Sand Sampler (refer to Journal of the American Water Works Association, Vol. 46, No. 2, February 1954).

The additional well development work conducted with the pump shall consist of initial, intermittent pumping, starting at relatively low discharge rates, with gradually increasing discharge. The final well development procedures shall be discussed and confirmed with the Project Geologist prior to the work.

Test pumping procedures, flow measurement methods, and water level measurement time intervals are to be approved by the Project Geologist prior to the start of any test. The contractor shall man the test pump and assist with data collection during the entire duration of the testing. Water will be discharged to the sewer manhole location shown in Figure 1. Testing procedures shall not be altered without approval of the Project Geologist. Water level readings shall be obtained using an electric sounder in the injection well and adjacent monitoring well.

Following well development, the pumping tests shall consist of a 8-hour step-drawdown test, a 24 hour constant discharge test, and a 4-hour recovery test. If any data from these tests are lost, then the test shall be repeated at the Contractor's expense.

The Contractor shall install a temporary access tube in the injection well during pumping tests for the purpose of a water level transducer which will be installed by the Project Geologist . The access tube shall have a 1-inch minimum ID and be set deep enough as to remain submerged by no less than 20 feet for the duration of the pump test.

Full recovery of the water level in the well must be attained before the start of the step-drawdown test. The step-drawdown test shall consist of a sequence of separate 1 hour-long pumping intervals at 4 separate pumping rates, beginning with the lowest rate. Each step pumping rate shall be held as nearly constant as possible during the step, and pumping of each step shall be at a progressively higher rate. Data recording intervals during each of the steps shall be no more than 5 minutes.

After the well has fully recovered from the step-drawdown test, the Contractor shall conduct a constant discharge test at a continuous flow rate as specified by the Project Geologist for a period of 7 days. During the constant rate test, measurements of the flow rate and corresponding water level shall be made in the injection well and adjacent monitoring well (21P-01) at the following times after the start of the test: 1, 2, 3, 4, 5, 7, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, and 120 minutes, and every hour thereafter for the remainder of the test. If the water level monitoring equipment or pump fail to operate continuously during this test, or if data are lost, the Project Geologist may request the Contractor to start the test over after the well has recovered. Pumping test water shall be discharged to the sewer manhole shown in Figure 1.

Prior to the termination of the constant rate test, the Project Geologist will collect a water quality sample.

Immediately after termination of the constant rate test, the rate of recovery of the water level shall be monitored for a period of 4 hours. The water shall be read at the same time intervals as the constant discharge test monitoring intervals.

Injection Testing: Injection testing shall begin following the constant rate test once the static water level has recovered. If a subcontractor is used for the injection testing, the Drilling Contractor is responsible for assuring the promptness of the Pump Contractor, as well as license and insurance, and the integrity of the well. The injection plan is included in Appendix B of these technical specifications.

The well head must be sealed and capable of maintaining injection pressures up to 20 psi with an anticipated injection pressure of 10 psi during testing.

The injection line must be provided with a gate valve, flow meter, sample port, bypass filter and pressure gauges.The Contractor shall install a bypass filter for monitoring the turbidity of injected water during the injection test. A materials list for the bypass filter is included in Appendix B. The filter shall be changed daily or when filter becomes brown, and individually saved and labeled within a large clear zip lock bag. The Contractor shall visually monitor and record the condition of the bypass filter:

- Every hour until 24 hours have elapsed.
- Every two hours until 48 hours have elapsed.
- Every 4 to 6 hours until the end of the 7-day test.

The Contractor shall install an injection drop pipe into the well that extends below the static waterlevel to 20 feet above the top of the well screen. The injection drop pipe is separate from the pump column. It is recommended that the drop pipe is installed during the installation of the test pump.

The temporary access tube, transducer, and test pump shall remain in the well until injection testing is complete.

The injection tests shall consist of an 8-hour injection step test, a 7 day injection constant rate test, and a 4-hour recovery test. If any data from these tests are lost or interupted, then the test shall be repeated at the Contractor's expense.

Full recovery of the water level in the well must be attained before the start of the injection tests. The injection step test shall consist of a sequence of separate 2 hour-long pumping intervals at 4 separate pumping rates, beginning with the lowest rate. Each step pumping rate shall be held as nearly constant as possible during the step, and each step shall be at a progressively higher injection rate. Data recording intervals during each of the steps shall be no more than 5 minutes.

After the well has fully recovered from the injection step test, the Contractor shall conduct a constant rate injection test at a continuous flow rate as specified by the Project Geologist for a period of 7 days. During the injection constant rate test, measurements of the flow rate, pressure readings at the well head and injection line, and corresponding water level shall be made in the injection well and adjacent monitoring well (21P-01) at the following times after the start of the test: 1, 2, 3, 4, 5, 7, 10, 15, 20, 25, 30, 40, 50, 60, 80, 100, and 120 minutes, and every hour thereafter for the first 24 hours and every 12 hours for the remainder of the test. If the water level monitoring equipment or pump fail to operate continuously during this test, or if data are lost, the Project Geologist may request the Contractor to start the test over after the well has recovered.

Immediately after termination of the injection constant rate test, the rate of recovery of the water level shall be monitored for a period of 4 hours. The water shall be read at the same time intervals as the constant rate test monitoring intervals.

Video Survey: After final cleanup of the well, and before disinfection of the well and placement of a cap or plate on the top of the casing, the Contractor shall conduct a color video survey of the entire casing and screen assembly. The video survey shall be conducted with a downhole camera assembly with both downhole view and side scan capabilities. The side scan camera must be housed in a rotating housing assembly to avoid the fish eye effect of an internal rotating camera.

The record of the survey shall be recorded on DVD or commercial tape in the VHS format and shall be delivered to the Project Geologist for review and storage. Upon review of the tape, if the Project Geologist determines that any portion of the video record is incomplete or of inadequate quality, i.e. clarity, to allow visual inspection of the inside of the well, the Contractor shall rerun the survey at his expense. The video should be of sufficient quality to evaluate the integrity of all joints, screen openings, and the entire inside surface of the casing assembly. For this reason, the Contractor may run potable water into the well prior to conducting the video.

Disinfection Procedures

At the conclusion of all work to be conducted in the well structure, the Contractor shall perform a final disinfection. The disinfecting agent shall be furnished or prepared in liquid form and placed in the well through a hose or tremie of sufficient length to extend to the bottom of the well. The disinfecting agent shall be applied through the hose, which is to be raised and lowered to achieve uniform distribution of the solution throughout the well. A residual chlorine level of not less than 2 parts per million shall remain in the wells and shall be verified by the Contractor to the satisfaction of the City Engineer and Project Geologist.

Surface Completion

The injection well shall be completed to 4 feet above ground surface and cemented within a concrete apron at least 12 inches thick, extend at least three feel laterally in all directions from the vault, and slope away from the well. The completion of this well shall conform to the standards listed in Bulletin 74-90. The inner diameter of the well head shall be fitted with a locking watertight cap.

Borehole Abandonment (Optional)

Following the completion of pilot borehole, the injection well may be abandoned at the direction of the Project Geologist. It is the intent of the City to complete the well for testing and future use however, in the event that the borehole conditions are detertermined to be unfavorable or unacceptable, the Contractor shall abandon the borehole in accordance with applicable State and County standards.

Appendix A

FIGURE 1

Proposed Initial Injection Well Location Map

Morro Bay
Indirect Potable Reuse Program
Injection Testing

LEGEND

- Proposed Pilot Injection Well
- MBMWC Well
- Piezometer
- Yeh Piezometer
- Bike Path
- Temporary Hose
- ~90' Temporary Utility Trench for Water Supply and Discharge Line
- Well Construction Site
- PG&E Property Boundary
- Western Project Area, 17

NOTE

MBMWC: Morro Bay Mutual Water Company

N

0 150 300
Feet

Date: December 3, 2021
Data Sources: NAIP Imagery, ESRI

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\ASR_General_Order\TM\Figure1_Proposed_Initial_Inj_Well.mxd

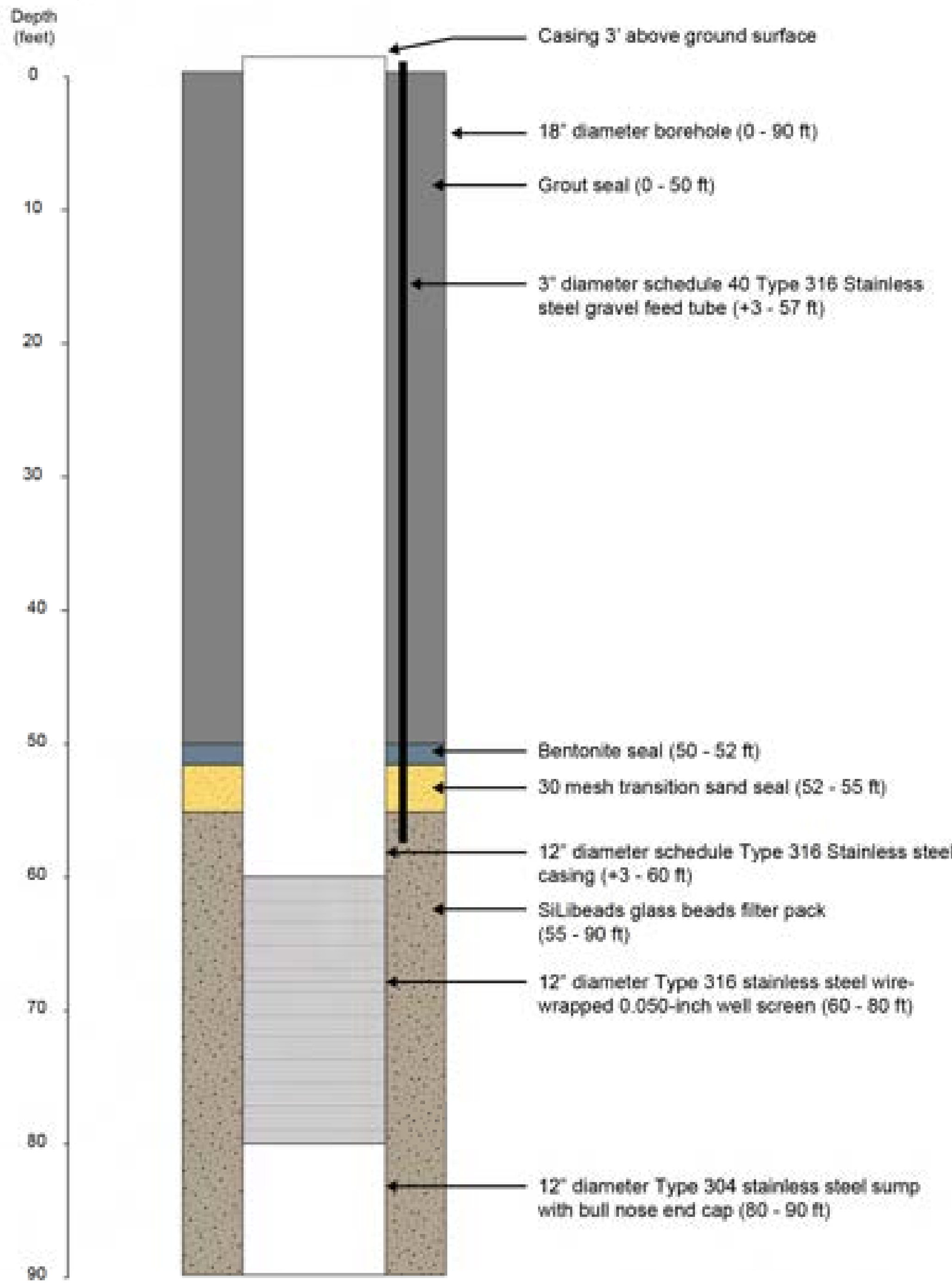


FIGURE 2

Injection Well Design

Indirect Potable Reuse Program Injection Testing
Morro Bay, CA

GSI Water Solutions, Inc.

*The free Adobe Reader may be used to view and complete this form. However, software must be purchased to complete, save, and reuse a saved form. SC 1/22/14

File Original with DWR

State of California

Well Completion Report

Refer to Instruction Pamphlet

No. e0113012

Owner's Well Number 3

Date Work Began 08/23/2010 Date Work Ended 8/25/2010

Local Permit Agency San Luis Obispo County

Permit Number 2010-064 Permit Date 7/2/10

DWR Use Only – Do Not Fill In

2 9 S 1 0 E 2 5 F 008 M

State Well Number/Site Number

N Latitude W Longitude

APN/TRS/Other

Geologic Log

Orientation ⦿ Vertical ○ Horizontal ○ Angle Specify

Drilling Method ROTARY Drilling Fluid BENTONITE

Depth from Surface Feet	to Feet	Description (Describe material, grain size, color, etc.)
0	3	TOP SOIL
3	5	BROWN CLAY
5	12	DARK BROWN SILTY CLAY
12	32	SAND & GRAVEL
32	40	BROWN CLAY
40	46	GREEN SAND
46	54	GREEN SILTY CLAY
54	71	SAND & GRAVEL
71	86	BROWN SHALE
86	105	BLUE SERPENTINE (HARD)
		THE AIR LIFT TEST IS ONLY APPROXIMATE.
		A TEST PUMP IS RECOMMENDED FOR AN
		ACCURATE ACCOUNT. (GM)

Total Depth of Boring 105 Feet

Total Depth of Completed Well 100 Feet

Well Owner

MBMWC Well No. 3

Well Location

Address 1290 Embarcadero Road - Well #3

City Morro Bay County San Luis Obispo

Latitude 35 Deg. 22 Min. 372 Sec. N Longitude 120 Deg. 51 Min. 196 Sec. W

Datum Decimal Lat. Decimal Long.

APN Book 066 Page 331 Parcel 037

Township 29 S Range 10 E Section 25 F

Location Sketch

(Sketch must be drawn by hand after form is printed.)

North

West East

South

Illustrate or describe distance of well from roads, buildings, fences, rivers, etc. and attach a map. Use additional paper if necessary. Please be accurate and complete.

Activity

⦿ New Well

○ Modification/Repair

○ Deepen

○ Other

○ Destroy

Describe procedures and materials under "GEOLOGIC LOG"

Planned Uses

⦿ Water Supply

☐ Domestic ☑ Public

☐ Irrigation ☐ Industrial

○ Cathodic Protection

○ Dewatering

○ Heat Exchange

○ Injection

○ Monitoring

○ Remediation

○ Sparging

○ Test Well

○ Vapor Extraction

○ Other

Water Level and Yield of Completed Well

Depth to first water (Feet below surface)

Depth to Static Water Level 15 (Feet) Date Measured 08/25/2010

Estimated Yield * 75 (GPM) Test Type Air Lift

Test Length 2.5 (Hours) Total Drawdown (Feet)

*May not be representative of a well's long term yield.

Casings

Depth from Surface Feet	to Feet	Borehole Diameter (Inches)	Type	Material	Wall Thickness (Inches)	Outside Diameter (Inches)	Screen Type	Slot Size if Any (Inches)
0	30	16"	Blank	PVC	SDR-21	8"		
30	100	16"	Screen	PVC	SDR-21	8"		0.040

Annular Material

Depth from Surface Feet	to Feet	Fill	Description
0	25	Cement	
25	100	Fill	Monterey Sand

Attachments

☐ Geologic Log

☐ Well Construction Diagram

☐ Geophysical Log(s)

☐ Soil/Water Chemical Analyses

☐ Other

Attach additional information, if it exists.

Certification Statement

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief

Name FILIPPONI & THOMPSON DRILLING, INC.

Person, Firm or Corporation

P.O. Box 845 Atascadero CA 93423

Address City State Zip

Signed [signature] 9/10/10 432680

C-57 Licensed Water Well Contractor Date Signed C-57 License Number

DWR 188 REV. 1/2006

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

10/18/10

20P-01

GSI Water Solutions, Inc.

PROJECT NUMBER:	BORING NUMBER	
0645.007.002	Western Site Piezometer	SHEET 1 OF 2

SOIL BORING LOG

PROJECT : Morro Bay Pilot Injection Testing/Monitoring LOCATION : 35.377327, -120.855561
ELEVATION : 23 ft amsl (approx) DRILLING CONTRACTOR : S/G Drilling - Randy Glaze
DRILLING METHOD AND EQUIPMENT USED : CME 85 Hollow Stem
WATER LEVELS : encountered at 10' ; 8' static START : 1/20/2020 END : 1/22/2020 LOGGER : AL

DEPTH BELOW SURFACE (FT)	# BLOWS	LITHOLOGIC LOG	CORE DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY)	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION)
0–5	SPT 4/6/6	SC	clayey sand, dark brown, fg-mg, trace gravel; 3' - inc. clay content	
5–10	SPT 1/3/4	CL	5' - sandy clay, dark brown, fg-mg sand, mottled colors	
10–15	SPT 4/5/4	SW	10' - Sand, well-graded, brown, loose, moist to wet, some fines.	Construction: 0-41 : 2" PVC Blank Casing; 41-66 : screen
15–20	SPT 2/3/10		15' - wet. fine to coarse gravels, brown to reddish brown.	Annular space: 0-38 : Bentonite chips
20–25	RINGS 3/6/8		20' - decrease in fines (<10%); 25' - alternating lenses of SP and SW. fg-cg	38-66 : No.3 Sand
25–30	RINGS 1/6/14	CL	27.5' - silty clay, gray, plastic	
30–35	RINGS 3/3/5	SW	30' - sand, well-graded, brown to reddish brown, fg-cg, fg-cg gravel, some fines.	
35–40	RINGS 3/3/5	ML	33' - Clayey silt, reddish brown with gray mottling, soft, v. plastic. Trace lenses of fg sand	
40–45	RINGS 1/1/1			
45–50	Rings 6/14/17	SW	43' - Sand, poorly-graded to well-graded, fg-mg. Some fg-mg gravel ~5-10% fines	

Western_Site_Piezometer_Log.xlsx

GSI Water Solutions, Inc.

PROJECT NUMBER:	BORING NUMBER:
0645.007.002	Western Site Piezometer SHEET 2 OF 2

SOIL BORING LOG

PROJECT : Morro Bay Pilot Injection Testing/Monitoring LOCATION : 35.377327, -120.855561
ELEVATION : 23 ft amsl (approx) DRILLING CONTRACTOR : S/G Drilling - Randy Glaze
DRILLING METHOD AND EQUIPMENT USED : CME 85 Hollow Stem
WATER LEVELS : encountered at 10' ; 8' static START : 1/20/2020 END : 1/22/2020 LOGGER : AL

DEPTH BELOW SURFACE (FT)	# BLOWS	LITHOLOGIC LOG	CORE DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
	RINGS		Same as previous	
55	3/7/6			
	RINGS	CL	54' - Clay, gray, soft, plastic. Some thin lenses of fine sand/silt	
60	5/10/14		60' - increasing sand content	
	RINGS	SW	62' - Sand, well-graded, fg-cg, fine to coarse gravel + cobbles. 5-10% fines	
65	11/37/50/5"			
			TD: 66' bgs	
70			Rig Refusal / Broken teeth on bit	

Yeh and Associates, Inc.
Geotechnical Consulting

FIELD BORING LOG

Hole No.[3]:	19P- 04
Page 1 of 2	
Project Number:	217-053
Project Name:	Morro Bay WRF - Lift Station and Offsite Pipelines
Client Name:	Water Works Engineers/City of Morro Bay
City/County, State:	Morro Bay, CA
Station, Offset:	31.5' Rt. Sta. 34+56
Describe Location:	63.3' W of ABUT. OF PED. BRIDGE, 3.9' W OF ℄ OF BIKE PATH
Weather Conditions:	BREEZY, RAIN
Start Date/Time:	2/27/19 8:10 AM
End Date/Time:	2/27/19 12:11 AM
Driller:	S/G Drilling Company
Method:	8-inch hollow stem auger
Drill Rig:	CME - 75
Hammer:	140-lb Automatic trip
Logged by:	J.Cravens
Drilling Operation Notes:	ONSITE @ 7:30 w/ S/G

Sketch Surface Conditions and Relative Features:

Ground Water
Date: 2/27/19
Time:
Depth: 10.0'

GPS Coordinates:
lat. N°
long. W°
Elevation: feet

Depth (feet)	Sample Type [1]	Sample Number	Blow Count #/#/# (N in bpf)	Recovery / Length Driven (inches)	Shear (tsf) or RQD (%>4") [2]	Graphic Log	SOIL (USC/AASHTO symbol), color, moisture, consistency, other etc. (Geologic Unit/Formation) **VERY IMPORTANT!! MARK CHANGE IN SOIL/Rock on GRAPHIC LOG**	Well Log
1–2							5" AC OVER 4" AB OVER 6.5" AC OVER 3.5" AB	
3–5	MC	21	10/12/8 (20)	15/18"			Poorly graded SAND with CLAY and GRAVEL (SP-SC), medium dense; reddish brown; moist; medium to coarse SAND; fine subrounded GRAVEL (YOUNG ALLUVIAL DEPOSITS)	
6–10	MC	22	4/11/12 (23)	13/18"	3.0pp		Fat CLAY (CH), very stiff, dark brown; moist, some mottling of light brown and red; trace rust stains, charcoal, and tree roots	
11–15	MC	23	1/2/2 (4)	13/18"	<1.0pp		Lean CLAY (CL), soft, light brown; wet, trace fine SAND; rust stains	▽
16–20	SS	24	4/7/6 (13)	16/18"	1.0pp		medium stiff Clayey SAND with GRAVEL (SC), medium dense; brown; moist to wet, fine to coarse SAND; fine to medium, subrounded to subangular GRAVEL	
21–25	MC	25	6/15/22 (37)	18/18"			wet	
26–30	SS	26	6/8/8 (16)	13/18"			same; Poorly graded SAND with CLAY (SP-SC), medium dense; grayish brown; wet, fine SAND	
31–33	MC	27 HOWER	7/15/12 (27)	12/18"			Well-graded SAND with CLAY and GRAVEL (SW-SC), medium dense; brown; wet, fine to medium, subrounded to subangular GRAVEL	

SERPENTINITE CLASTS IN SHOE

1. SS= SPT Split Spoon (2" OD), CA= California (2.5" OD), MC=modified California (3"OD), ST=Shelby Tube, CO=Core (Size), GB=Grab, BS=Bulk Sample
Number each drive/tube/grab sample unique 1, 2, 3, ... each bulk sample unique A, B, C... each core run unique Run 1, Run 2, ... with any grab samples from core indicated.
2. Perform pocket penetrometer or torvane test on trimmed end of cohesive samples
3. Hole number is designated as year, type-instrumentation, number. Types are B=bridge or box culvert, W=retaining wall, P=pavement, S=slope, M=material source, E=general earthwork. Add instrumenation before bore hole type: PZ=piezometer, MW=monitoring well, SI=slope inclinometer) i.e. 15P-01

Job No. 217-053 Hole No. 19P- 04 Page 2 of 2

Depth (feet)	Sample Type [1]	Sample Number	Blow Count #/#/# (N in bpf)	Recovery / Length Driven (inches)	Shear (tsf) or RQD (%>4") [2]	Graphic Log	SOIL (USC/AASHTO symbol), color, moisture, consistency, other etc. (Geologic Unit/Formation) VERY IMPORTANT!! MARK CHANGE IN SOIL/Rock on GRAPHIC LOG	Well Log
34								
35								
36	SS	28	4/6/7 (13)	5/18"			Clayey SAND with GRAVEL (SC); medium dense; grayish brown, wet, fine to medium, subrounded to subangular GRAVEL	
37								
38								
39								
40								
41	MC	29	5/7/10 (17)	18/18"		wet 2-4 sample	Clayey SAND (SC); medium dense; brown, wet, fine SAND, trace subangular GRAVEL	
42								
43							Poorly graded SAND with CLAY (SP-SC); medium dense; gray; wet, medium SAND, brown CLAY	
44								
45								
46	SS	30	5/5/11 (16)	10/18"			Clayey SAND with GRAVEL (SC), medium dense; brown wet; fine to coarse SAND; fine to medium, subrounded to subangular GRAVEL	
47								
48								
49								
50								
51	MC	31	9/25/21 (46)	18/18"			Clayey SAND with GRAVEL (SC), dense; brown, wet, fine to coarse SAND; fine to medium, subrounded to subangular GRAVEL, (OLD ALLUVIAL DEPOSITS)	
52								
53								
54								
55								
56	SS	32	1/2/2 (4)	1/18"			very loose	
57								
58								
59								
60								
	MC	33	16/29/25 (54)	18/18"			very dense	
							Boring terminated @ ~64.5'	
							Monitoring well construction start: 12:11PM → ~5:10 PM	
65							(Randy took a break 12:50 - 1:20)	
							Monitoring well Details:	
							- 2"ø slotted PVC pipe from 60' bgs to 50' bgs	
							- 2" solid PVC pipe from 50 bgs to ground surface	
							Bags - #3 SAND from 60' bgs to 48' bgs	
70							3 buckets - Bentonite pellets 48' bgs to 43' bgs	
							11 bags - bentonite chips 43' bgs to 1' bgs; then native 1' - 0'	
							- flush mount well cover w/ quickcrete plug	
75								

1. SS= SPT Split Spoon (2" OD), CA= California (2.5" OD), MC=modified California (3"OD), ST=Shelby Tube, CO=Core (Size), GB=Grab, BS=Bulk Sample

2. Perform pocket penetrometer or torvane test on trimmed end of cohesive samples

Appendix B

GSI Water Solutions, Inc.

DRAFT TECHNICAL MEMORANDUM

DRAFT Injection Testing Work Plan for Groundwater Replenishment and Reuse Project, Morro Bay, California

To:	Lydia Holmes and Anthony Cemo, Carollo Engineers
From:	Tim Thompson and Tim Nicely, GSI Water Solutions
CC:	Brynne Weeks and Andrew Salveson, Carollo Engineers
Attachments:	Figure Water Quality Sampling Constituents Table
Date:	August 26, 2021

Introduction and Purpose

GSI Water Solutions (GSI) is supporting the City of Morro Bay with the implementation of a planned indirect potable reuse (IPR) project, which will use highly treated recycled water from the City's forthcoming Water Reclamation Facility (WRF). The installation and operation of a Groundwater Replenishment Reuse Project (GRRP) using injection wells is a key part of the overall project. This memorandum presents the work plan for testing at a new injection well proposed to be installed in Spring 2021.

The injection testing presented in this work plan is a portion of work being performed by GSI for the City of Morro Bay in the lower portion of the Morro Valley Groundwater Basin, which also includes injection well design and installation, groundwater monitoring, permitting support, and groundwater flow modeling.

Injection Work Plan

The injection testing presented in this work plan provides diagnostic information regarding injection rates, aquifer response, and water quality at anticipated injection rates for a single well. Injection testing will be conducted at a newly constructed injection well located as shown on Figure 1.

Injection Testing

A series of injection tests will be conducted by conveying water from the City's municipal water supply distribution system into the new injection well. The injection tests will consist of an 8-hour injection step test and a 7-day injection constant rate test, operated by the Contractor. The wellhead will be sealed and capable of maintaining injection pressures up to 20 psi with anticipated injection pressures of up to 10 psi during testing in order to observe and maintain a range of injection rates. The injected water will consist of chlorinated water provided by the City from their State Water Project source.

City staff will install an outlet fitting and backflow prevention device onto the nearby City distribution pipeline located east of the nearby bike path for the purposes of this project. City staff will also construct a trench across the bike path and install a short section of piping that daylights west of the bike path and, for security purposes, west of the fence within the Dynegy/Vistra property. The drilling Contractor will connect to this fitting, the location of which is shown approximately on Figure 1 and run a temporary pipeline that will convey

the water to the injection well for the testing. The pipeline conveying the injection water to the well will be equipped by the Contractor with a flow control valve, flow meter, sampling port, pressure gauge, and a bypass filter. The bypass filter allows for monitoring of the turbidity of the injected water and will verify if turbid water is being injected (which is undesirable because of clogging potential) – GSI will provide guidance to the Contractor for the materials and setup of this filter. A pressure transducer will be installed by the Contractor in the well to collect continuous water level data, and manual water level (and wellhead pressure) measurements will also be collected. All conveyance piping, measurement devices, and downhole equipment will be installed, maintained, and operated by the Contractor. GSI staff will be onsite to oversee the installation of the equipment. The Contractor will be required to provide temporary fencing around the immediate wellhead, which is assumed to require a 12- by 20-foot fenced area.

The following sections provide details for each phase of the injection testing program. The injection testing activities will be conducted following the drilling, construction, and pump testing of the injection well. The pump testing component will consist of both a step test and a constant rate test using a temporary pump installed and operated by the drilling contractor. The step test will involve pumping the well at 4 successively higher flow rates for 1 to 2 hours each while carefully monitoring water level drawdowns in the injection well and at the nearby monitoring well. The drawdown results of the step test will be used to establish the pumping rate used in the 24-hour constant rate pumping test.

Injection Step Test

The data collected during the pumping tests will be used by GSI to select the injection rates for the injection step test. This initial injection test will consist of four steps conducted at a series of discrete flow rates that will each last approximately 2 hours. The steps for the injection rates will be selected based on the drawdown results of the constant rate aquifer pumping test performed as part of the injection well installation. They will likely vary from approximately 10 to 80 gpm, but final rates will be determined after installation and testing of the injection well. The injection rate will be increased incrementally for each of the steps while simultaneously monitoring the water level in the well. Water level measurements will be recorded both at the injection well and at the nearby monitoring well with transducer and manual measurements. The results of the injection step test will be analyzed to determine appropriate injection rate for the constant rate injection test.

Injection Constant Rate Test

After the well has fully recovered from the injection step test, the constant rate injection test will be run at a continuous injection rate for various durations and ultimately for a continuous period of up to 7 days. During the tests, measurements of the flow rate, and corresponding water level shall be made at both the injection well and the nearby monitoring well. During the injection tests, a pressure transducer will record continuous water level data throughout the test. Manual measurement of water levels will also be collected at the following times relative to the start of the test:

- Every 5 minutes until 30 minutes have elapsed.
- Every 10 minutes until one hour has elapsed.
- Every 20 minutes until two hours have elapsed.
- Every hour until 24 hours have elapsed.
- Every two hours until 48 hours have elapsed.
- Every 4 to 6 hours until the end of the 7-day test.

Immediately after termination of the test, the rate of recovery of the water level shall be monitored for a period of 48 hours at both the injection and monitoring wells. The water levels will be recorded at the same time intervals (logarithmic) as the start of the constant rate injection test.

Analysis of Injection Testing Results

Following the completion of injection testing, data will be analyzed to estimate aquifer properties and provide a range of operational injection rates for the well. This information will also be used to update the groundwater model to evaluate project build out options.

Following updates to groundwater model, a series of scenarios will be developed in coordination with the City and Carollo Engineers to assess the ultimate number and location of wells required for the full project. Additional information from the modeling scenarios will include assessment of retention time within the aquifer, water level changes during and following injection periods and identification of any potential adverse conditions.

Recommendations will be provided for anticipated operational scheduling and approaches to minimize any potential adverse consequences and maximize the benefits of the proposed injection program.

Water Quality Sampling and Geochemical Evaluation

In addition to the collection of aquifer data collected during the tests, water quality samples will be collected at both the Injection well and/or the nearby monitoring well at the following times and analyzed for the list of constituents identified in the attached table:

- Collect samples at both the Injection and monitoring well on the last day of the constant rate pumping test (to establish the baseline aquifer water quality)
- Collect a sample at the Injection well at the end of the first and last day of contestant rate injection to document water quality of source water
- Samples will be collected from the monitoring well during the constant rate injection test during day 3, day 5, and day 7 (three sampling events). If groundwater quality changes occur based on field parameters (indicating that the injected water has reached the monitor well), the samples will be analyzed for a reduced suite of parameters.
- After completion of the constant rate injection test, groundwater samples will be collected once a week at the Injection well and monitoring well for four consecutive weeks. For each sampling episode, the well will be pumped to waste until parameters stabilize prior to sampling.

Water quality results for key constituents will be evaluated to identify mixing relationships and/or the presence of geochemical reactions. These field results will be used to verify the findings of the geochemical modeling described in the Geochemical Work Plan for Groundwater Replenishment and Reuse Project (GSI, 2021).

Table 1. Sampling Schedule

Stage	Purpose	Injection Well	Monitoring Well 21P-01
		Constituents	**Constituents**
Pumping constant rate (end)	Baseline groundwater quality	Complete suite	Complete suite
Injection Day 1 (end of day)	Source water quality	Complete suite	Field parameters [2]
Injection Day 3	Source water quality changes	--	Field parameters [2]
Injection Day 5	Source water quality changes	--	Field parameters [2]
Injection Day 7	Residence time	Complete suite	Complete suite
Post-Injection Weeks 1, 2, 3 and 4	Geochemical reactions	Complete suite [1]	Reduced / Complete suite [3]

Notes:

Complete and reduced suite defined in Water Quality Testing Constituents attached.

[1] If any trends are evident, a further complete sample will be collected at 6 weeks.

[2] Water quality samples will be collected for reduced suite if field-measured groundwater quality parameters changes.

[2] The monitoring well will be analyzed for the reduced suite (except DPBs) unless the field parameters indicate a change, which would trigger complete suite.

Injection Testing Schedule and Reporting

The injection testing will be conducted following the completion of the well installation and constant rate aquifer test. It is anticipated that the injection testing will begin by late May 2021 and require approximately 6 to 7 weeks to complete, including the 4 weeks of post-testing water quality sampling. Following the completion of the injection testing program, the Contractor will be responsible for removing all equipment and conveyance pipelines. The Contractor will not be provided final payment until the site condition is deemed satisfactory by the City and the terms of the project Technical Specifications are met.

The testing results will be provided in a technical memorandum (TM). This TM is anticipated to be completed by the end of July, approximately one month following the completion of the field work if the proposed drilling and injection testing schedules are met.

Water Solutions, Inc.

Bypass Filter Supply List

Filter testing apparatus can be constructed of readily available materials. All connections are threaded to allow easy assembly, disassembly, or modification. Materials are high grade to withstand repeated use and storage between uses. Costs to be reasonable.

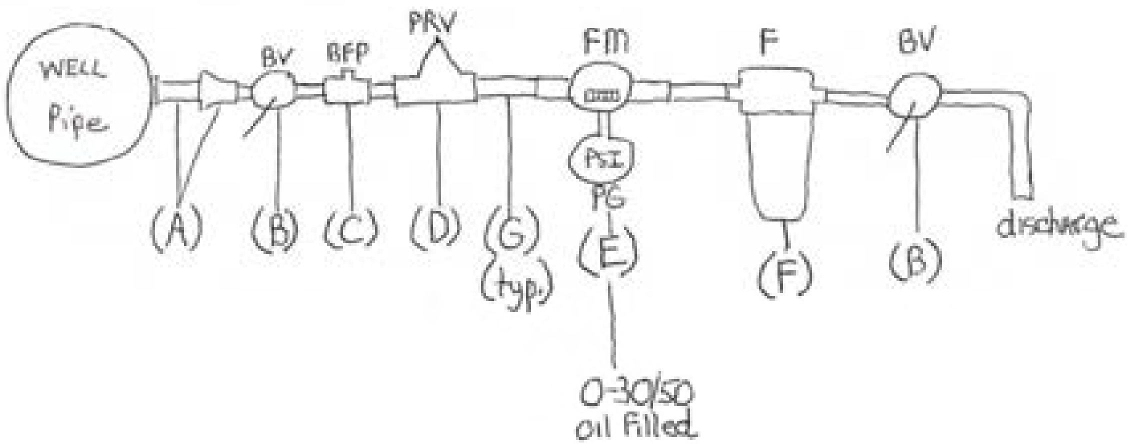
A. Bushings and reducers as required at existing plumbing to mate with ¾-inch NPT testing apparatus, galvanized
B. ¾-inch ball valve
   - Allows removal, isolation, or reinstallation of testing apparatus
   - On the shelf at Home Depot
   - http://www.supplyhouse.com/Watts-0547103-3-4-Full-Port-Threaded-Ball-Valve
C. ¾" Backflow preventer
   - On the shelf at Home Depot. May be required by some codes. Included here because I don't know the fate of the wastewater (tank, ground, re-circ. etc)
   - http://www.supplyhouse.com/Hydrovalve-SC075TLF-3-4-Threaded-Swing-Check-Valve-Lead-Free
D. Honeywell ¾" Double Union NPT Dial-Set Pressure Regulating Valve
   - DS06-101-DUT-LF
   - 250 psi in, 25-90 psi adjust, ¼" taps for pressure gauge, no lead
   - http://www.supplyhouse.com/Honeywell-DS06-101-DUT-LF-3-4-Double-Union-NPT-DialSet-Pressure-Regulating-Valve-Lead-Free
E. Water Meter; Bager Recordall Model 25 ¾-inch
   - Lead-free bronze alloy mechanical flow meter; reliable, no batteries or electricity
   - 150 psi rated; ½ to 30 gpm at 1.5% accuracy
   - Available in gallons or cubic feet
   - Item # M25-625LNSX-HL-GAXX, Recordall® Disc Meters On Badger Meter
     - Meters have unique threading; need two ¾-inch tailpieces for standard NPT plumbing into the system
     - Can calculate gpm over time but no digital flow output with gpm
F. ¾-inch NPT Clear Plastic Water Filter; with wrench and standard industrial cartridges
   - Cartridges are 2 1/2 to 3-inch diameter x 9 ¾-inch in length
   - ¾-inch threads in and out rated 120 psi
   - 6 cartridges available including 4 different types rated at 5 micron
   - http://www.supplyhouse.com/Aqua-Pure-5529902-Aqua-Pure-AP11T-Whole-House-Water-Filter-for-1-to-2-Bathroom-Homes
   - Typical filter: http://www.supplyhouse.com/Aqua-Pure-5620404-Aqua-Pure-AP110-Whole-House-Filter-Replacement-Cartridge-Fine-Normal-Sediment-Standard-Pack

- Similar also available off the shelf at Home Depot but available filters should be examined first to see that they meet project goals.

G. Gray, Schedule 80 PVC Riser pipe, nipples, and couplers

- All piping in the test apparatus is made from ¾-inch gray PVC riser pipe available at the Home Depot. It's available in many sizes from 2-inch to 4-feet with NPT threads on both ends to provide quick and easy assembly. (Teflon tape allows for easier assembly and disassembly and leak protection but is not required)
- This link illustrates the type and one of the sizes (3/4-inch not in online store)
- http://www.homedepot.com/p/Orbit-1-2-X-12-PVC-Riser-38091/100035148
- Cost is very inexpensive and pipe is very durable and easy to work with.

Schematic Diagram of Bypass Filter



Example Bypass Filter Construction

Figure

FIGURE 1

Proposed Initial Injection Well Location Map

Morro Bay
Indirect Potable Reuse Program
Injection Testing

LEGEND

- Proposed Pilot Injection Well
- MBMWC Well
- Piezometer
- Yeh Piezometer
- Bike Path
- Temporary Hose
- ~90' Temporary Utility Trench for Water Supply and Discharge Line
- Well Construction Site
- PG&E Property Boundary
- Western Project Area, 17

NOTE

MBMWC: Morro Bay Mutual Water Company

N

0 150 300
Feet

Date: December 3, 2021
Data Sources: NAIP Imagery, ESRI

GSI Water Solutions, Inc.

Document Path: Y:\0645_MorroBay\Source_Figures\007_GWModel_L_MorroBasin\ASR_General_Order\TM\Figure1_Proposed_Initial_Inj_Well.mxd

Water Quality Sampling Constituents

Parameter Type	Parameter	Method
Field	Dissolved oxygen	YSI 556 or similar
	pH	EPA 150.1
	Oxidation-Reduction Potential	SM2580B
	Specific Conductance	EPA 120.1
	Temperature	YSI 556 or similar
	Turbidity	EPA 180.1
Inorganics	Alkalinity	SM2320B
	Ammonia	SM4500NH3G
	Bicarbonate	SM2320B
	Carbonate	SM2320B
	Chloride	EPA 300.0
	Cyanide (HCN)	EPA 335.4
	Fluoride	EPA 300.0
	Hardness	EPA 200.8
	Nitrate+Nitrite (total N)	EPA 300.0
	Nitrate (as N)	EPA 300.0
	Nitrite-N	EPA 300.0
	Orthophosphate as P	EPA 300.0
	Total Silica (as SiO2)	EPA 200.7
	Dissolved Silica (as SiO2)	EPA 200.7
	Sulfate	EPA 300.0
	Sulfide	SM4500S2F
Metals (Dissolved)	Aluminum	EPA 200.7
	Antimony	EPA 200.8
	Arsenic	EPA 200.8
	Barium	EPA 200.8
	Beryllium	EPA 200.8
	Cadmium	EPA 200.8
	Calcium	EPA 200.7
	Chromium	EPA 200.8
	Cobalt	EPA 200.8
	Copper	EPA 200.8
	Iron	EPA 200.7
	Lead	EPA 200.8
	Magnesium	EPA 200.7
	Manganese	EPA 200.8
	Mercury	EPA 245.7
	Molybdenum	EPA 200.8
	Nickel	EPA 200.8
	Potassium	EPA 200.7
	Selenium	EPA 200.8
	Silver	EPA 200.8

	Sodium	EPA 200.7
	Strontium	EPA 200.8
	Thallium	EPA 200.8
	Uranium	EPA 200.8
	Vanadium	EPA 200.8
	Zinc	EPA 200.8
Miscellaneous	Chemical Oxygen Demand	EPA 410.4
	Color	SM 2120B
	Corrosivity	Langelier Index
	Dissolved Organic Carbon	SM 5310C
	Foaming Agents (MBAs)	SM5540C
	Methane	RSK175
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
	Asbestos	Microscope: Hitachi 7000FA
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other	Bromate	EPA 317
	Hexavalent Chromium	EPA 218.7

Parameter Type	Parameter	Method
Field	Dissolved oxygen	YSI 556 or similar
	pH	EPA 150.1
	Oxidation-Reduction Potential	SM2580B
	Specific Conductance	EPA 120.1
	Temperature	YSI 556 or similar
	Turbidity	EPA 180.1
Inorganics	Chloride	EPA 300.0
Metals (Dissolved)	Arsenic	EPA 200.8

Miscellaneous		
	Odor	2150B
	Oxidation-Reduction Potential	SM2580B
	pH	EPA 150.1
	Specific Conductance	EPA 120.1
	Total Dissolved Solids	SM 2540C
	Total Organic Carbon	SM5310C
	Total Suspended Solids	SM 2540D
	Turbidity	EPA 180.1
DBPs	Residual Chlorine	SM 4500CL-G
	Dibromoacetic Acid (HAA)	SM6251B
	Dichloroacetic Acid (HAA)	SM6251B
	Monobromoacetic Acid (Bromoacetic acid) (HAA)	SM6251B
	Monochloroacetic Acid (HAA)	SM6251B
	Trichloroacetic Acid (HAA)	SM6251B
	Total Haloacetic Acids (Total HAA's)	SM6251B
	Bromodichloromethane (THM)	EPA 524.3
	Bromoform (THM)	EPA 524.3
	Chloroform (THM)	EPA 524.3
	Dibromochloromethane (THM)	EPA 524.3
	Total Trihalomethane (TTHM)	EPA 524.3
Other		
	Hexavalent Chromium	EPA 218.7