



SUMMARY OF OPERATIONS

MONTEREY PENINSULA ASR PROJECT

WATER YEAR 2017

Prepared for:



MAY 2019



May 20, 2019
Project No. 12-0049

Monterey Peninsula Water Management District
Post Office Box 85
Monterey, California 93942-0085

Attention: Mr. Jonathan Lear, Senior Hydrogeologist

Subject: Monterey Peninsula ASR Project; Water Year 2017 Summary of Operations Report

Dear Jon:

We are transmitting two copies and one digital image (PDF) of the subject report documenting operations of the Monterey Peninsula ASR Project during Water Year 2017 (WY 2017). WY 2017 was classified as an "Extremely Wet" Water Year on the Monterey Peninsula, and as a result a commensurately significant volume of water totaling 2,345 acre-feet (af) was able to be diverted from the Carmel River system for recharge in the Seaside Groundwater Basin (SGB) via the ASR-1 through ASR-4 wells. To date, a total volume of approximately 7,430 af of excess Carmel River system water has been successfully injected, stored, and recovered in the SGB since the ASR project was initiated in 2001.

We appreciate the opportunity to provide ongoing assistance to the District on this important community water-supply project. Please contact us with any questions.

Sincerely,

PUEBLO WATER RESOURCES, INC.

A handwritten signature in black ink, appearing to read "R. Marks", written over the printed name and title of Robert C. Marks.

Robert C. Marks, P.G., C.Hg.
Principal Hydrogeologist

A handwritten signature in black ink, appearing to read "S.P. Tanner", written over the printed name and title of Stephen P. Tanner.

Stephen P. Tanner, P.E.
Principal Engineer

Copies submitted: 2 hard
1 digital (PDF)



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INTRODUCTION

GENERAL STATEMENT

Presented in this report is a summary of operations of the Monterey Peninsula Aquifer Storage and Recovery (ASR) Project during Water Year 2017 (WY 2017)¹. During WY 2017, approximately 2,345 acre-feet (af) of excess flows were diverted from the Carmel River system for recharge, storage, and subsequent recovery in the Seaside Groundwater Basin (SGB). This report presents a summary of the project operations during WY 2017, an assessment of ASR well performance, aquifer response and water-quality data, and provides recommendations for ongoing operation of the project.

BACKGROUND

The Monterey Peninsula ASR Project is cooperatively implemented by the Monterey Peninsula Water Management District (MPWMD or District) and California American Water (CAW) and involves the diversion of excess winter and spring time flows from the Carmel River system for recharge and storage in the Seaside Groundwater Basin (SGB). The excess water is captured by CAW wells in the Carmel Valley during periods when flows in the Carmel River exceed fisheries bypass flow requirements, treated to potable drinking water standards, and then conveyed through CAW's distribution system to ASR facilities in the SGB.

Aquifer recharge is accomplished via injection of these excess flows into specially designed ASR wells drilled in the SGB. The locations of the ASR wells and associated project monitoring wells in the SGB are shown on **Figure 1**. The recharged water is temporarily stored underground utilizing the available storage space within the aquifer system. During periods of high demand, other existing CAW production wells in the SGB and/or the ASR wells can be used to recover the previously recharged water, which in turn allows for reduced extractions from the Carmel River system during seasonal dry periods.

The District and CAW have been cooperatively developing an ASR project on the Monterey Peninsula since 1996. These efforts have evolved over time, from the performance of various technical feasibility investigations, leading to the construction and testing of pilot- and then full-scale ASR test wells to demonstrate the viability and operational parameters for ASR wells in the SGB. Based on the success of the ASR demonstration testing program, MPWMD and CAW are in the process of implementing a full-scale permanent ASR Project.

The Phase 1 ASR Project (a.k.a. Water Project 1) includes two ASR wells (ASR-1 and ASR-2) located at the Santa Margarita (SM) ASR Facility at 1910 General Jim Moore Blvd. in Seaside. The Phase 1 Project is capable of recharging up to the State Water Resources Control

¹ Water Year 2017 is the period of October 1, 2016 through September 30, 2017.



Board (SWRCB) water right² maximum annual diversion limit of 2,426 acre-feet per year (afy) at a combined permitted injection rate of approximately 3,000 gallons per minute ([gpm] maximum diversion rate of 6.7 cubic feet per second [cfs]), with an average annual yield of approximately 920 afy. ASR-1 is designed for an injection capacity of 1,000 gpm and ASR-2 is designed for an injection capacity of 1,500 gpm. As-built schematics of ASR-1 and ASR-2 are presented on **Figures 2 and 3**, respectively.

The Phase 2 ASR Project (a.k.a. Water Project 2) also includes two ASR wells (ASR-3 and ASR-4) located at the Seaside Middle School (SMS) ASR Facility at 2111 General Jim Moore Blvd. in Seaside. The Phase 2 Project is designed to be capable of recharging up to the SWRCB water right³ maximum annual diversion limit of 2,900 afy at a combined permitted injection rate of approximately 3,600 gpm (maximum diversion rate of 8.0 cfs), with an average annual yield of approximately 1,000 afy. ASR-3 and ASR-4 are both designed for injection capacities of 1,500 gpm. As-built schematics of ASR-3 and ASR-4 are presented on **Figures 4 and 5**, respectively.

A graphical summary of historical ASR operations in the SGB is shown on **Figure 6**. Shown are the annual injection and recovery volumes since the inception of injection operations at the Santa Margarita ASR Facility in WY 2001 through the current period of WY 2017. Also presented is a delineation of the various phases of project implementation, starting with the Santa Margarita Test Injection Well (SMTIW) in 2001, which became ASR-1 as the project transitioned from a testing program to a permanent project in WY 2008 (Phase 1 ASR Project), through construction and operation of the second well (ASR-2) at the facility in 2010. As shown, having the Santa Margarita Facility in full operation with both ASR-1 and ASR-2 injecting simultaneously in WY 2010 and WY 2011 (combined with above normal rainfall and Carmel River flows during those years) resulted in significant increases in the annual volume injected. During WY 2012 through WY 2015, relatively low volumes were injected due to the extended drought conditions during that period.

WY 2017 was the first year of above normal rainfall and Carmel River flows with all four ASR wells in full operation, and as shown on **Figure 6** over 2,300 af of excess river flows were captured and successfully injected into the SGB. This volume represents over twice the previous largest annual volumes injected (in WY 2010 and WY 2012), and approximately one quarter of the Monterey Peninsula's average annual water supply. Commensurate annual injection volumes are expected to occur in the future (depending on hydrologic conditions in any given year) as the project continues to operate at full capacity.

PURPOSE AND SCOPE

The overall purpose of the ongoing ASR program is to recharge the SGB with excess treated Carmel River system water when it is available during wet periods for storage and later

² SWRCB water right 20808A for the Phase 1 ASR Project is held jointly by MPWMD and CAW.

³ The SWRCB water right 20808C for the Phase 2 ASR Project is held jointly by MPWMD and CAW.



extraction (recovery) during dry periods. ASR benefits the resources of both systems by raising water levels in the SGB during the recharge and storage periods and reducing extractions from the Carmel River System during dry periods.

The scope of the ongoing data collection, analysis, and reporting program for the ASR program can be categorized into issues generally associated with:

- 1) ASR well hydraulics and performance;
- 2) Aquifer response to injection, and;
- 3) Water-quality issues associated with geochemical interaction and mixing of injected and native groundwaters.

The ongoing data collection and reporting program is intended to monitor and track ASR well performance and aquifer response to injection (both hydraulic and water quality) and to comply with the requirements of the Central Coast Regional Water Quality Control Board (RWQCB) for submitting annual technical reports for the project pursuant to Section 13267 of the California Water Code⁴ and the existing General Waiver for Specific Types of Discharges (Resolution R3-2014-0041).

FINDINGS

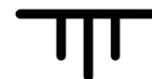
WY 2017 ASR OPERATIONS

General Recharge Procedures

Recharge of the SGB occurs via injection of diverted flows from the CAW distribution system into ASR wells during periods of available excess Carmel River system flows. The ASR recharge source water is potable (treated) water provided from the CAW distribution system. The water is currently diverted by various production well sources in Carmel Valley and (after treatment and disinfection to potable standards) then conveyed through the Segunda-Crest pipeline network to the ASR Pipeline in General Jim Moore Blvd and then to the Santa Margarita and Seaside Middle School ASR facilities.

Injection water is introduced into the ASR wells via the pump columns. Injection rates are controlled primarily by downhole flow control valves (FCV's) installed on the pump columns, and secondarily by modulating the automatic flow control valves (i.e., Cla-Vals) installed on the ASR wellhead piping. Injection flow rates and total injected volumes are measured with rate and totalizing meters at each of the wellheads. Positive gauge pressures are maintained at the wellheads during injection to prevent cascading of water into the wells (which can lead to air-binding). Continuous water-level data at each of the ASR wells are collected with submersible pressure transducer data loggers.

⁴ Letter from Roger W. Briggs, Executive Officer of the Central Coast RWQCB, to Joseph Oliver, Water Resources Manager for MPWMD, dated April 29, 2009.



Injection generally occurs at each of the ASR wells on a continuous basis when flows are available, interrupted only for periodic backflushing, which typically occurs on an approximate weekly basis. Most sources of injection water contain trace amounts of solids that slowly accumulate in the pore spaces in the well's gravel pack and adjacent aquifer materials, and the CAW source water is no exception. Periodic backflushing of the ASR wells is therefore necessary to maintain well performance by removing materials deposited/accumulated around the well bore during injection. The procedure is similar to backwashing a media filter to remove accumulated material deposited during filtration.

The trigger for backflushing is when the amount of water-level drawup during injection equals the available drawdown (as measured from the static water level to the top of the pump bowls) in the well for backflushing, or one week of continuous injection, whichever occurs first. This helps to avoid over-pressurization and compression of plugging materials, thereby maximizing the efficiency of backflushing and limiting the amount of residual plugging. This factor is the basis for the maximum recommended drawup levels referenced in the following section.

The general procedure consists of temporarily stopping injection and then pumping the wells at rates of approximately 2,000 to 3,000 gpm (i.e., at least twice the rate of injection) for a period of approximately 15 to 20 minutes and repeated as necessary to effectively remove particulates from the well screen / gravel pack / aquifer matrix. Backflush water is discharged to the Santa Margarita ASR Facility backflush pit, where it percolates back into the groundwater basin.

Injection Operations Summary

A summary of injection operations at the four ASR wells is presented in **Table 1** below. Field data collected during injection operations are presented in **Appendix A**.

Table 1. WY 2017 Injection Operations Summary

Well	Injection Season		Active Days	Injection Rate (gpm)			Total Vol (af)
	Start	End		Min	Max	Avg	
ASR-1	12/20/16	5/31/17	93	270	1,868	1,434	543.0
ASR-2	12/17/16	5/30/17	155	337	1,944	1,449	981.6
ASR-3	12/17/16	5/22/17	134	600	1,405	996	577.9
ASR-4	4/5/17	5/19/17	45	142	1,590	1,257	242.9
						Total	2345.4

As shown in **Table 1**, recharge operations were performed nearly continuously in WY 2017 during the period December 17, 2016 through May 31, 2017. WY 2017 was classified as an "Extremely Wet" Water Year⁵ on the Carmel River with up to 155 days of active injection and

⁵ Based on 196,291 af of unimpaired Carmel River flow at the Sleepy Hollow Weir in WY 2017.



a total volume of approximately 2,345 acre-feet (af) of water was available for diversion from the CAW system for recharge in the SGB. The recharge water was injected at all four ASR wells into the Santa Margarita Sandstone aquifer with per-well average injection rates ranging from approximately 140 to 1,950 gpm (approximately 0.62 to 8.6 acre-feet per day [afd]).

It is noted that the variability in injection rates at the ASR wells during the injection season is controlled by various factors, including the number of active sources to the CAW system, customer demands on the CAW system, and the ability of CAW's distribution system to maintain piping pressure at the ASR wellheads.

Water-level data collected at ASR-1 through ASR-4 during WY 2017 are presented in **Figures 7 through 10**, respectively, and briefly summarized below:

- ASR-1: The minimum injection water-level was approximately 250 feet below ground surface (bgs) on a relatively consistent basis during the injection season, corresponding to a maximum water-level drawup of approximately 110 feet, which exceeded the maximum recommended drawup level of approximately 100 by 10 feet.
- ASR-2: The minimum injection water-level was approximately 220 feet bgs on a relatively consistent basis during the injection season, corresponding to a maximum water-level drawup of approximately 160 feet, which exceeded the maximum recommended drawup level of approximately 130 by 30 feet.
- ASR-3: The minimum injection water-level was approximately 170 feet bgs on a relatively consistent basis during the injection season, corresponding to a maximum water-level drawup of approximately 190 feet, which exceeded the maximum recommended drawup level of approximately 170 feet by 20 feet.
- ASR-4: The minimum injection water-level was typically maintained approximately 200 to 300 feet bgs, corresponding to water-level drawup of approximately 60 to 160 feet, well below the maximum recommended drawup level of approximately 200 feet; however, on one occasion the injection water level reached a maximum drawup of approximately 200 feet with a minimum depth to water of approximately 160 ft bgs.

In summary, injection water levels at ASR-1 through ASR-3 frequently exceeded the respective maximum drawup levels by approximately 10 to 30 feet during WY 2017. Injection water levels at ASR-4 were generally maintained below the recommended minimum level below ground surface. The effects of these injection water levels on residual well plugging and well performance is discussed below.

Recovery Operations Summary

When the injected water is recovered via delivery through the CAW system, the recovered water is offset by reduced pumping by CAW from the Carmel River system during the low-flow, high demand periods of the year. During WY 2017, other CAW wells in the SGB were utilized for recovery of previously injected water (ASR-1 was inactive due to a failed FCV). As



shown on **Figure 6**, 1,182 af of water recharged during WY 2017 was recovered into the CAW system, with 1,163 af left in aquifer storage and carried over into WY 2018.

It is noted that in this context, ASR recovery is essentially an accounting / allocation of CAW's various water rights and pumping from the SGB and does not represent a "molecule-for-molecule" recovery of the injected water. Rather, the volume recharged in any given year increases the operational yield of the SGB by the same amount and can be "recovered" by any of CAW's wells in the SGB and / or the ASR wells themselves.

WELL PERFORMANCE

Well performance is generally measured by specific capacity (pumping) and / or specific injectivity (injection), which is the ratio of flow rate (pumping or injection) to water-level change in the well (drawdown or drawup) over a specific elapsed time. The value is typically expressed as gallons per minute per foot of water level change (gpm/ft). The value normalizes well performance by taking into account differing static water levels and flow rates. As such, specific capacity / injectivity data are useful for comparing well performance over time and at differing flow rates. Decreases in specific capacity / injectivity are indicative of decreases in the hydraulic efficiency of a well due to the effects of plugging and/or particle rearrangement.

Injection Performance

Injection performance has been tracked at ASR-1 since the inception of the ASR program in WY 2002 by measurement and comparison of 24-hour injection specific injectivities (a.k.a. injection specific capacity).

ASR-1. A summary of 24-hour specific injectivity for ASR-1 for WY 2002 through 2017 is presented in **Table 2** below:

Table 2. Injection Performance Summary - ASR-1

Water Year	Injection Rate (gpm)	24-hour DUP (feet)	Specific Injectivity (gpm/ft)	Water Year Change	Comments
WY2002					
Beginning Period	1,570	81.7	19.2	-67%	FCV not installed yet in WY2002. No recovery pumping performed.
Ending Period	1,164	199.8	6.4		
WY2003					
Beginning Period	1,070	70.0	15.5	+31%	Recovery pumping performed following WY2003 Injection
Ending Period	1,007	49.7	20.3		
WY2004					
Beginning Period	1,383	183.4	7.5	+112%	Recovery pumping performed following WY2004 Injection
Ending Period	1,072	67.4	15.9		



Water Year	Injection Rate (gpm)	24-hour DUP (feet)	Specific Injectivity (gpm/ft)	Water Year Change	Comments
WY2005					
Beginning Period	1,045	46.6	22.4	-54%	Injectate dechlorinated in WY2005. No recovery pumping performed.
Ending Period	976	94.1	10.4		
WY2006					
Beginning Period	1,039	71.5	15.0	+17%	Injection procedures consistent and performance stable in WY2006. No recovery pumping performed.
Ending Period	1,008	62.2	17.5		
WY2007					
Beginning Period	1,098	92.4	11.9	--	Only one injection period in WY2007. No recovery pumping performed.
Ending Period	--	--	--		
WY2008					
Beginning Period	979	25.5	38.4	-17%	Formal rehabilitation performed prior to WY2008 injection
Ending Period	1,063	33.4	31.8		
WY 2009					
Beginning Period	1,119	56.1	19.9	+56%	Beginning period low specific injectivity due to high plugging rate during initial injection period. No recovery pumping performed.
Ending Period	1,069	34.3	31.1		
WY 2010					
Beginning Period	1,080	35.6	30.3	-19%	Observed decline in performance due to residual plugging.
Ending Period	1,326	54.0	24.6		
WY 2011					
Beginning Period	1,367	53.0	25.8	-10%	Observed decline in performance due to residual plugging.
Ending Period	1,454	63.7	22.8		
WY 2012					
Beginning Period	NA	NA	NA	NA	No injection at this well this year.
Ending Period	NA	NA	NA		
WY 2013					
Beginning Period	NA	NA	NA	NA	No injection at this well this year.
Ending Period	NA	NA	NA		
WY 2014					
Beginning Period	NA	NA	NA	NA	No injection at this well this year.
Ending Period	NA	NA	NA		



Water Year	Injection Rate (gpm)	24-hour DUP (feet)	Specific Injectivity (gpm/ft)	Water Year Change	Comments
WY 2015					
Beginning Period	NA	NA	NA	NA	No beginning period due to datalogger malfunction.
Ending Period	1,018	40.7	25.0		
WY 2016					
Beginning Period	NA	NA	NA	NA	No beginning period due to datalogger malfunction.
Ending Period	460	14.4	31.9		
WY 2017					
Beginning Period	970	39.5	24.6	-13%	See discussion below
Ending Period	1,295	60.2	21.5		

As shown in **Table 2**, the 24-hour specific injectivity at the beginning of WY 2017 was 24.6 gpm/ft and at the end of WY 2017 it was 21.5 gpm/ft, representing a decrease of approximately 13 percent, indicating that some residual plugging occurred at ASR-1 over the course of the WY 2017 injection season (discussed further in a following section).

ASR-2. A summary of the beginning and ending injection performance at ASR-2 for WY 2010 through WY 2017 is presented in **Table 3** below:

Table 3. Injection Performance Summary - ASR-2

Water Year	Injection Rate (gpm)	24-hour DUP (feet)	Specific Injectivity (gpm/ft)	Water Year Change	Comments
WY 2010					
Beginning Period	1,017	156.5	6.5	-57%	Significant residual plugging.
Ending Period	237	85.0	2.8		
WY 2011					
Beginning Period	1,497	39.5	37.9	-0.5%	Significant improvement as a result of well rehabilitation. No residual plugging during year.
Ending Period	1,292	34.3	37.7		
WY 2012					
Beginning Period	1,830	56.1	32.6	-12%	Observed decline in performance due to residual plugging.
Ending Period	1,817	63.4	28.7		
WY 2013					
Beginning Period	1,087	32.7	33.2	+3%	No residual plugging during year.
Ending Period	1,508	44.2	34.1		



Water Year	Injection Rate (gpm)	24-hour DUP (feet)	Specific Injectivity (gpm/ft)	Water Year Change	Comments
WY 2014					
Beginning Period	NA	NA	NA	NA	No injection at this well this year.
Ending Period	NA	NA	NA		
WY 2015					
Beginning Period	1,456	38.9	37.4	-14%	Observed decline in performance due to residual plugging.
Ending Period	1,574	49.1	32.1		
WY 2016					
Beginning Period	1,270	34.9	36.4	-30%	Observed decline in performance due to residual plugging.
Ending Period	1,620	63.9	25.4		
WY 2017					
Beginning Period	822	24.2	33.9	-13%	See discussion below
Ending Period	907	30.7	29.5		

As shown in **Table 3**, the 24-hour specific injectivity at the beginning of WY 2017 was 33.9 gpm/ft and at the end of WY 2017 it was 29.5 gpm/ft, representing a decrease of approximately 13 percent, indicating that some residual plugging occurred at ASR-2 over the course of the WY 2017 injection season (discussed further in a following section).

ASR-3. A summary of the beginning and ending injection performance at ASR-3 for WY 2013 through WY 2017 is presented in **Table 4** below:

Table 4. Injection Performance Summary – ASR-3

Water Year	Injection Rate (gpm)	24-hour DUP (feet)	Specific Injectivity (gpm/ft)	Water Year Change	Comments
WY 2013					
Beginning Period	1,044	87.0	12.0	-31%	See discussion below.
Ending Period	822	99.6	8.3		
WY 2014					
Beginning Period	NA	NA	NA	NA	No injection at this well this year.
Ending Period	NA	NA	NA		
WY 2015					
Beginning Period	NA	NA	NA	NA	No beginning period data.
Ending Period	892	90.3	9.9		



Water Year	Injection Rate (gpm)	24-hour DUP (feet)	Specific Injectivity (gpm/ft)	Water Year Change	Comments
WY 2016					
Beginning Period	948	83.6	11.3	+7%	Slight increase observed.
Ending Period	897	74.1	12.1		
WY 2017					
Beginning Period	936	107.5	8.7	+8%	See discussion below.
Ending Period	986	105.2	9.4		

As shown in **Table 4**, the 24-hour specific injectivity at the beginning of WY 2017 was 8.7 gpm/ft and at the end of WY 2017 it was 9.4 gpm/ft, representing a slight increase of approximately 8 percent, indicating that no residual plugging occurred at ASR-3 over the course of the WY 2017 injection season.

ASR-4 Baseline Injection Testing

WY 2017 was the first year that ASR-4 was able to be placed in full operational mode following the injection “conditioning” conducted at the well in WY 2016 (refer to the WY 2016 Summary of Operations Report). Prior to long-term continuous injection operations in WY 2017, a baseline injection testing program was conducted. The primary purpose of the baseline injection testing was to establish the baseline injection well hydraulics and performance of the new well. Primary issues to be investigated include:

- Determination of injection well efficiency and specific injectivity;
- Evaluation of injection well plugging rates (both active and residual);
- Determination of optimal rates, frequency, and duration of backflushing in order to maintain long-term injection capacity, and;
- Determination of long-term sustainable injection rates.

The baseline testing program included the following steps:

1. Pre-injection pumping performance testing;
2. 8-hr step-rate injection testing;
3. 24-hr constant-rate injection test;
4. 6-day constant-rate injection test;
5. Backflushing between each injection test, and;
6. Post-injection pumping performance testing

Pre-Injection Pumping Performance Test. A pre-injection performance test was conducted on April 4, 2016, which consisted of a 10-minute specific capacity test. As discussed



in the following section, 10-minute specific-capacity tests are typically performed at all project ASR wells following routine backflushing operations to track well pumping performance (and evaluate residual plugging), similar to the tracking of injection performance from 24-hour specific injectivity discussed above.

The static water level in ASR-4 prior to pumping was approximately 333.7 feet bgs⁶. The discharge was maintained at an average rate of approximately 3,000 gpm during the 10-minute test. The pumping level after 10-minutes was approximately 455.5 feet bgs, corresponding to a drawdown of 121.8 feet and a 10-minute specific capacity of approximately 24.6 gpm/ft.

8-hr Step-Rate Injection Test. A variable rate injection test was performed on April 5, 2016. The primary purpose of the test was to assess variations in well specific injectivity (the converse of specific capacity) at differing injection rates and to determine a suitable rate for long-term injection testing. The test consisted of four steps, each at a successively higher rate. The duration of each step was 2 hours. The four test rates were approximately 740, 1130, 1500, and 1860 gpm (i.e., approximately 50, 75, 100 and 125 percent of the design injection capacity of 1,500 gpm). The static water level in the well prior to the test was 331.3 feet bgs. The resulting water-level drawup and specific injectivities associated with each of these steps are shown on **Figure 11** and are summarized below in **Table 5**.

24-hr Constant-Rate Injection Test. Following the step-rate injection test, backflushing (discussed below), and a period of water level recovery overnight, a 24-hour constant rate injection test was initiated on April 6, 2018. This phase of testing consisted of a continuous rate injection test performed at an average injection rate of approximately 1,506 gpm (i.e., the design injection rate). Water-level data for the 24-hour constant-rate injection test are graphically presented on **Figure 12**.

As shown, the static water level in the well prior to injection was 335.9 feet bgs. The injection water level recorded after 24 hours was 244.6 feet bgs, corresponding to a drawup of 91.3 feet and a 24-hour specific injectivity of approximately 16.5 gpm/ft. This value represents approximately 56 percent of the 24-hour pumping specific capacity of 29.4 gpm/ft⁷.

6-day Constant Rate Injection Test. A 6-day constant-rate injection was initiated on April 9 and continued until April 25, 2017. This phase of testing consisted of a continuous rate injection test performed at an average injection rate of approximately 1,490 gpm, with a total volume of approximately 38.2 af injected.

⁶ ASR-3 was actively injecting at approximately 1,000 during the ASR-4 Baseline Injection Testing program, which causes approximately 30 feet in water level interference (drawup) at ASR-4. Typical static water levels at ASR-4 are approximately 360 feet bgs.

⁷ Pueblo Water Resources, Inc. (2015), *Summary of Operations, Well Construction and Testing, Seaside Middle School ASR-4 Well*, prepared for Monterey Peninsula Water Management District.



During injection, drawup in the well was approximately 66.1, 79.8 and 115.5 feet after 100 minutes, 24 hours and 6 days of injection; respectively, corresponding to specific injectivities of approximately 22.6, 18.7 and 12.9 gpm/ft, respectively. The 24-hour value during this test (18.7 gpm/ft) was slightly greater than the specific injectivities observed during the 24-hour injection test (16.5 gpm/ft), indicating that backflushing of the well between tests (discussed below) was effective at removing plugging materials.

The resulting drawup and specific injectivities associated with each of the various ASR-4 baseline injection tests are summarized below in **Table 5**:

Table 5. ASR-4 Baseline Injection Testing Specific Injectivity Summary

Test	Duration	Rate (gpm)	Drawup (ft)	Q/s (gpm/ft)
Step-Rate				
Step 1	2 hrs	742	21.8	34.0
Step 2	2 hrs	1,133	43.7	25.9
Step 3	2 hrs	1,500	76.5	19.6
Step 4	2 hrs	1,858	124.7	14.9
24-hr Constant	1 day	1,506	91.3	16.5
6-day Constant	6 days	1,493	115.7	12.9

As presented in **Table 5**, the specific injectivity ranged between approximately 12.9 and 34.0 gpm/ft, depending on the injection rate and duration of injection. It is important to note that according to well hydraulic theory, specific injectivity is expected to generally decrease with increasing injection rate and duration of injection; therefore, it is important to consider the test duration and injection rate when comparing specific injectivity values.

Backflushing. Following each injection test, backflushing was performed on the well. Backflushing operations consisted of pumping the well to waste at a rate of approximately 3,000 for 20 minutes until discharge clarity had significantly improved. The pump was then stopped and the well allowed to recover for approximately 20 minutes, then the pump was restarted and run for another 20 minutes as described above. This process was performed a total of three times (i.e., a triple-backflush).

During backflushing after the 8-hr step- and 24-hr constant-rate injection tests, the well discharge was initially only slightly turbid (approximately 10 to 20 NTU) followed by a decrease in turbidity to less than 3 NTU after 20 minutes. Discharge water during the subsequent (second and third) pumping/surging cycles was essentially clear, indicating that the majority of particulates were removed from the well during the initial 20 minutes of backflushing. After the 6-day constant-rate injection test, however, the initial backflushing discharge was very turbid (73 NTU) but became essentially clear by the end of the third backflush cycle.



Following each backflushing event, controlled 10-minute specific capacity tests were performed to track well performance and the efficacy of backflushing. The 10-minute specific capacity results are summarized in **Table 6** below:

Table 6. ASR-4 10-Minute Specific Capacity Summary

Test	Rate (gpm)	Drawdown (ft)	Q/s (gpm/ft)	% Change ¹
Pre-Injection	3000	121.8	24.6	--
Post 8-hr Step-Rate Injection	3000	187.5	16.0	-35.0
Post 24-hr Constant-Rate Injection	3000	200.1	15.0	-39.1
Post 6-Day Constant-Rate Injection	3100	222.9	13.9	-43.5

Notes:

1 - Compared to pre-injection baseline.

As shown, the well displayed a pre-injection 10-minute specific capacity of approximately 24.6 gpm/ft. Following the initial 8-hr step-rate injection test, the 10-minute specific had declined to approximately 16.0 gpm/ft, representing a loss in performance of approximately 35 percent, indicating that that backflushing was not effective at restoring performance, despite the relatively low turbidity levels observed during backflushing (discussed above). Following the 6-day constant-rate injection test, the specific capacity had declined to 13.9 gpm, representing a total loss in performance over the course of the baseline injection testing program of approximately 44 percent. It is notable that the majority of the total performance occurred after the relatively short-duration 8-hr step-rate injection test. This observation, combined with the very low particulate levels in the injectate throughout the baseline injection testing period, suggest that the loss in performance is not due to particulate plugging, but some other mechanism, such as particle rearrangement and/or geochemical reactions (e.g., solids precipitation or clay swelling).

Plugging Rate Analysis. Experience at injection sites around the world shows that all injection wells are subject to some amount of plugging because no water source is completely free of particulates. During injection, trace amounts of suspended solids are continually being deposited in the gravel pack and aquifer pore spaces, much as a media filter captures particulates in the filter bed. The effect of plugging is to impede the flow of water from the injection well into the aquifer, causing increased injection heads in the well to maintain a given injection rate, or reduced injection rates at a given head level. Well plugging reduces injection and extraction capacity, and consequently, well life.

Plugging can occur due to poor water quality, improper system operation, or poor design practices. In general, plugging issues fall into four general categories: physical plugging (by particulate matter), chemical reaction (between the injectate and native waters or aquifer minerals), biofouling (the proliferation of bacteria in the gravel pack or aquifer), and gas binding (the vapor locking of the aquifer by entrained or evolved gasses in the injectate).

Relative measurements of the particulate matter in the injectate were made through silt density index (SDI) testing during injection. The SDI was originally developed to quantitatively



assess particulate concentrations in reverse osmosis feed waters. The SDI involves pressure filtration of source water through a 0.45 micron membrane, and observation of the decrease in flow over time; the resulting value of SDI is dimensionless, and used as a comparative value for tracking relative well plugging rates versus water quality or other parameters. SDI test results are summarized in **Table 7** below:

Table 7. ASR-4 Summary of Silt Density Index (SDI) Test Results

Injection Test	No. of Tests	Values ¹		
		High	Low	Average
8-hr Step-Rate	2	2.42	0.88	1.65
24-hr Constant-Rate	2	0.46	0.20	0.33
6-Day Constant-Rate	1	0.20	0.20	0.20

Notes:

1 - Dimensionless

As shown in **Table 7**, SDI values during injection testing consistently decreased with duration of the testing program, ranging between approximately 0.2 and 1.7. Values within this range are generally representative of source waters with a very low amount of particulates.

Plugging rate during injection testing of ASR-4 was estimated utilizing the Graphical Observed vs. Theoretical Drawup Method. Water-level rise in an injection well is a combination of both aquifer response and well losses. Theoretically, at any given constant injection rate, well losses should remain constant; therefore, in the absence of plugging, any water level rise in the well would be due only to aquifer response. The difference between the theoretical water level and the observed water can be presumed to be caused by plugging.

It is important to note that the theoretical water level rise corresponds to the water level that would occur if well losses were negligible and well efficiency was 100 percent. In order to account for well efficiency losses, the graphical method involves drawing a straight line through moderate elapsed time data points (e.g., 10 to 1,000 minutes). Assuming no plugging is occurring, the theoretical water level rise during injection would plot on along a straight line on a semi-log plot. The variance from the straight line is assumed to be indicative of the amount of plugging.

The amount of plugging, in feet of water level rise, was calculated for the 6-day constant-rate injection test and the plugging rate analysis is presented graphically on **Figure 13**. As shown, there was approximately 28 feet of plugging observed during the 6-day injection test.

ASR-4 WY 2017 Injection Performance. Following the Baseline Injection Testing Program, ASR-4 was placed into injection operational mode. WY 2017 was the first injection season when 24-hr continuous injection operations occurred at ASR-4, and a summary of the beginning and ending injection performance for WY 2017 is presented in **Table 8** below:



Table 8. Injection Performance Summary – ASR-4

Water Year	Injection Rate (gpm)	24-hour DUP (feet)	Specific Injectivity (gpm/ft)	Water Year Change	Comments
WY 2017					
Beginning Period	1,506	91.3	16.5	+58%	See discussion below.
Ending Period	1,068	41.3	25.9		

As shown in **Table 8**, the 24-hour specific injectivity at the beginning of WY 2017 was 16.4 gpm/ft and at the end of WY 2017 it was 23.8 gpm/ft, representing a significant increase of approximately 58 percent.

Injection Performance Summary. The above results indicate a pattern in ASR well performance, with ASR-1 through ASR-4 all having experienced comparably significant declines in performance following initial injection (i.e., the initial variable-rate injection tests performed at each well), followed by a period of relative stability in performance. It was hypothesized that the observed loss in performance may be due to particle rearrangement (mechanical jamming) and/or geochemical reactions (e.g., solids precipitation and/or clay swelling), as opposed to the normal and relatively slow plugging caused by particulates. This phenomenon is the reason for the well “conditioning” effort performed at ASR-4 during WY 2015 and WY 2016.

As shown in **Tables 5 and 6** previously, however, ASR-4 appeared to experience the same initial decline in performance as the other three ASR wells despite the thorough condition effort. These findings suggest that the initial and significant decline in performance consistently observed at all four ASR wells following initial injection testing is likely not due to particle rearrangement, but rather due to a geochemical reaction(s) (e.g., solids precipitation and/or clay swelling). It is also noted that while ASR-3 and ASR-4 have experienced a significant decline in performance following initial injection, (which limits their injection capacities) it is expected that rehabilitation will result in significantly improved performance as has been observed at both ASR-1 and ASR-2.

Pumping Performance and Residual Plugging

Experience at injection well sites around the world shows that all injection wells are subject to some amount of plugging, because no water source is completely free of particulates, bionutrients, or oxidants, all of which can contribute to well plugging; the CAW source water is no exception. During injection, trace amounts of suspended solids are continually being deposited in the gravel pack and aquifer pore spaces, much as a media filter captures particulates in the filter bed. The effect of plugging is to impede the flow of water from the injection well into the aquifer, causing increased injection heads in the well to maintain a given injection rate, or reduced injection rates at a given head level. Well plugging reduces injection and extraction capacity and can result in decreased useful well life if not mitigated.



Relative measurements of the particulate matter in the injectate have historically been made at the Santa Margarita site through Silt Density Index (SDI) testing during the injection season. The SDI was originally developed to quantitatively assess particulate concentrations in reverse-osmosis feed waters. The SDI test involves pressure filtration of source water through a 0.45-micron membrane, and observation of the decrease in flow rate through the membrane over time; the resulting (dimensionless) value of SDI is used as a comparative value for tracking relative declines in well plugging rates associated with particulate plugging during an injection season (i.e., plugging rates tend to increase directly with SDI). During WY 2017 injection operations, SDI values were only measured at the beginning of the injection season and was approximately 4.1 at that time. Other than the SDI testing conducted during the ASR-4 baseline injection testing discussed previously, the SDI during the remainder of the injection season is not known (was not measured).

Following routine backflushing operations and periods of water-level recovery, controlled 10-minute specific-capacity tests are typically performed to track well pumping performance, similar to the tracking of injection performance from 24-hour specific injectivity discussed above. Residual plugging is the plugging that remains following backflush pumping. Residual plugging increases drawdown during pumping and drawup during injection and is manifested as declining specific capacity / injectivity. The presence of residual plugging is indicative of incomplete removal of plugging particulates during backflushing and has the cumulative effect of reducing well performance and capacity over time.

As discussed previously, routine 10-minute specific capacity tests were performed at the ASR wells as part of backflushing events during WY 2017. Presented in **Table 9** below is a summary of the residual plugging calculations for the ASR wells during WY 2017.

Table 9. Pumping Performance and Residual Plugging Summary

Well	Test	Pumping Rate (gpm)	10-min Drawdown (ft)	10-min Q/s ¹ (gpm/ft)	Normalization Ratio ²	Normalized Drawdown ² (ft)	Residual Plugging (ft)
ASR-1	Pre-Injection	4,600	116.7	39.4	0.65	76.1	--
	Post-Injection	3,200	103.0	31.1	0.94	96.6	20.5
ASR-2	Pre-Injection	2,600	76.7	33.9	1.15	88.5	--
	Post-Injection	2,700	100.2	26.9	1.11	111.3	22.8
ASR-3	Pre-Injection	1,500	82.9	18.1	1.33	110.5	--
	Post-Injection	1,600	117.0	13.7	1.25	146.3	35.7
ASR-4	Pre-Injection	3,000	121.8	24.6	1.00	121.8	--
	Post-Injection	2,900	164.4	17.6	1.03	170.1	48.3

Notes:

1 - Specific Capacity. Ratio of pumping rate to drawdown.

2 - Normalized based on ratio of 3,000 gpm to actual test pumping rate for ASR-1, -2 and -4. Based on 2,000 gpm for ASR-3.

As shown on **Figures 7 through 9**, injection water levels were not maintained below the recommended maximum available drawup levels at ASR-1 through ASR-3 during WY 2017, and



as shown in **Table 9**, all three wells experienced residual plugging ranging between approximately 20 and 50 feet and commensurate declines in pumping specific capacity. Although as shown on **Figure 10** and discussed previously, injection water levels and performance at ASR-4 were generally maintained at acceptable levels throughout most of WY 2017, based on the pumping performance shown in **Table 9**, ASR-4 also experienced residual plugging of approximately 50 feet. These results indicate that:

1. Injection water levels should be maintained below the recommended minimum levels below ground surface during the injection season to avoid excessive drawup and over pressurization of plugging constituents. These thresholds should not be adjusted during the injection season due to apparent changes in static water levels, and;
2. More intensive backflushing (e.g., multiple backflush cycles as opposed to a single cycle) should be implemented at all four ASR wells during WY 2018 to limit residual plugging and maintain performance.

AQUIFER RESPONSE TO INJECTION

The response of the regional aquifer system to injection has been monitored since the SMTIW project was initiated in WY 2002. Submersible water-level transducer/data logger units have been installed at seven offsite monitoring well locations in the SGB as well as three onsite monitoring wells. The locations of each offsite monitoring well are shown on **Figure 1**, and water-level hydrographs for the monitoring wells during WY 2017 are graphically presented on **Figures 14 through 22**. A summary of the regional water-level observations during the WY 2017 injection season is presented in **Table 10** below.

As shown on the water-level hydrographs, water levels in the Santa Margarita Sandstone (Tsm) aquifer at the start of the WY 2017 recharge season ranged between approximately 20 to 50 feet below sea level. Positive response to injection during WY 2017 was observed at 8 of the 9 monitoring wells completed in the Santa Margarita Sandstone aquifer, with apparent water-level responses ranging between approximately 11 to 92 feet, generally decreasing with distance from the ASR wells, which is the typical and expected aquifer response to hydraulic stresses (i.e., injection or pumping). The WY 2017 responses are comparable to those observed in previous water years.

The available water-level data also continue to show that at the majority of the offsite Tsm-only monitoring wells, water levels consistently remained below sea level throughout the injection season. Notable exceptions included the Paralta Test and FO-9 wells, which showed water levels as much as approximately 10 to 8 feet above sea level, respectively. Under these overall basin water-level conditions, little to no offshore groundwater flow from the Tsm aquifer would be expected to occur and any “losses” associated with ASR project operations from water potentially migrating offshore are likely limited.



Table 10. Aquifer Response Summary

Well ID	Distance from Nearest Active ASR Well (feet)	Aquifer Monitored	Fig. No.	Pre-Injection DTW (ft. bgs)	Shallowest Injection DTW (ft. bgs)	Maximum Drawup Response (ft.)
SMS (Shallow)	25 (ASR-3)	QTp	14	No Discernable Response		
SMS (Deep)		Tsm		371.4	279.7	91.7
SM MW-1	190 (ASR-2)	Tsm	15	363.7	313.3	50.4
Paralta Test	650 (ASR-2)	QTp & Tsm	16	348.3	318.9	29.4
Ord Grove Test	1,820 (ASR-2)	QTp & Tsm	17	No Discernable Response		
Ord Terrace (Shallow)	2,550 (ASR-2)	Tsm	18	258.0	246.9	11.1
FO-7 (Shallow)	3,700 (ASR-3)	QTp	19	No Discernable Response		
FO-7 (Deep)		Tsm		496.4	472.7	23.7
FO-9 (Deep)	6,130 (ASR-3)	Tsm	20	33.8	10.0	23.8
PCA East (Shallow)	6,200 (ASR-3)	QTp	21	No Discernable Response		
PCA East (Deep)		Tsm		94.9	70.2	24.7
FO-8 (Deep)	6,450 (ASR-3)	Tsm	22	404.9	384.1	20.8

Notes:

QTp – Quaternary / Tertiary-age Paso Robles Formation aquifer
 Tsm – Tertiary-age Santa Margarita Sandstone aquifer
 DTW – Depth to Water

The limited available data for wells completed in the Paso Robles Formation (QTp) also continue to show no discernible response to injection and water levels in this aquifer remained above the water levels in the underlying Tsm aquifer during WY 2016. Under these water-level conditions, little to no flow of water from the Tsm to the QTp aquifer would be expected to occur.

It is further noted that the Ord Grove Test monitoring well (**Figure 17**) continues to show no discernible response to injection operations, as has been observed during previous injection seasons. In addition, most project monitoring wells show no discernible response to the pumping of CAW's Ord Grove production well. These observations suggest that the Ord Terrace Fault or a parallel branch of the fault may represent a hydraulic barrier in the Tsm aquifer.

WATER QUALITY

General

Source water for injection is supplied from the CAW municipal water system, primarily from Carmel River system wells, which is treated at the CAW Begonia Iron Removal Plant (BIRP) for iron and manganese removal. The BIRP product water is also disinfected and maintains a free chlorine residual. A phosphate-based corrosion inhibitor (Zinc Orthophosphate) is also added to the filtered water before entering the CAW distribution system. The finished



product water meets all California Department of Public Health (CADPH) Primary and Secondary water quality standards.

As in previous years, water quality was routinely monitored at the ASR well sites during WY 2017 injection and aquifer storage operations. Far-field water quality was also monitored at the CAW Paralta production well and at the PCE-East Deep monitoring well (PCA-E Deep). Summaries of the collected water-quality data during WY 2017 are presented in **Tables 11 through 18** below. Analytic laboratory reports are presented in **Appendix B**. A discussion of the water-quality data collected during WY 2017 is presented below.

Injection Water Quality

Injection water quality from the CAW system during WY 2017 is presented in **Table 11** below, and the data show injection water quality was typical of recent years. Levels of Trihalomethanes (THM) and Haloacetic Acid (HAA) compounds, as well as bionutrients (oxygen, nitrogen, phosphorous, and organic carbon), were all present at levels similar to previous years.

Water Quality During Aquifer Storage

Tables 12 through 15 present summaries of water-quality data collected at the four ASR wells. **Tables 16 and 17** present similar data collected at the on-site monitoring wells SM MW-1 and SMS Deep, respectively; and **Table 18** presents the water-quality data collected at the off-site monitoring wells (PCA-E Deep and Paralta). Data for the ASR wells include baseline water quality taken prior to WY 2017 injection (end of WY 2016 Storage) and stored water quality (WY 2017 Storage) collected periodically from the aquifer after WY 2017 injection operations were terminated.

Review of water-quality parameters gathered at the ASR wells, including major anions and cations, redox potential (ORP), and conductivity all showed relatively limited effects of dilution / intermixing of injected water with native groundwater (NGW) during aquifer storage compared to previous water years. The apparent lack of mixing during the WY 2017 storage period is not unexpected, given the significantly greater volume and duration of injection, and the associated relatively short storage period, compared to previous years.

Disinfection Byproducts (DBPs) parameters for the on-site wells collected during the WY 2017 storage period are graphically presented on **Figures 23 through 28** and are summarized below:

- ASR-1: One sample was collected from ASR-1 after approximately 30 days of storage, which showed significant ingrowth of THMs at 89 micrograms per liter (ug/L), exceeding the Maximum Contaminant Level (MCL) of 80 ug/L. As a result of a failure of the pump assembly FCV, no additional samples were collected from this well during WY 2017.



Table 11. Summary of WY 2017 Water Quality Data – Injectate

Parameter	Unit	PQL	MCL	Results			
				CAW Injectate			
				12/16/16	1/17/17	3/10/17	4/11/17
Sample Description			Injectate				
Major Cations							
Calcium	mg/L	0.5		49			33
Magnesium	mg/L	0.5		16			12
Potassium	mg/L	0.5		3.2			2.6
Sodium	mg/L	0.5		55			1
Major Anions							
Alkalinity, Total (as CaCO3)	mg/L	2		144			127
Chloride	mg/L	1	250	32		27	27
Sulfate	mg/L	1	250	85			66
Nitrate (as NO3)	mg/L	1	45	ND			1
Nitrite (as NO2-N)	mg/L	1	1	0.3			0.5
General Physical							
pH	Std Units			7.6			7.4
Specific Conductance (EC)	uS	1	900	555			466
Total Dissolved Solids	mg/L	10	500	348			280
Metals							
Arsenic (Total)	ug/L	1	10	ND			ND
Barium (Total)	ug/L	10	1000	0.061			57
Iron (Dissolved)	ug/L	10		ND			ND
Iron (Total)	ug/L	10	300	10			ND
Lithium	ug/L	1		10			6
Manganese (Dissolved)	ug/L	10		ND			ND
Manganese (Total)	ug/L	10	50	13			ND
Mercury	ug/L	0.5	2	ND			ND
Molybdenum	ug/L	1	1000	ND			2
Nickel	ug/L	10	100	ND			ND
Selenium	ug/L	2	50	ND			2
Strontium (Total)	ug/L	5		270			230
Uranium (by ICP/MS)	ug/L	1	30	ND			ND
Vanadium (Total)	ug/L	1	1000	ND			ND
Zinc (Total)	ug/L	10	5000	243			268
Miscellaneous							
Ammonia-N	mg/L	0.05		ND			ND
Boron	mg/L	0.05		ND			ND
Chloramines	mg/L	0.05		0.12	0.06	0.18	0.18
Gross Alpha	pCi/L		15	1.23 +/- 1.13			1.27 +/- 1.09
Kjeldahl Nitrogen (Total)	mg/L	0.5		ND			0.5
Methane	ug/L	0.1		2.7			1.3
Nitrogen (Total)	mg/L	0.5		ND			1.3
o-Phosphate-P	mg/L	0.05		0.4			0.2
Phosphorous (Total)	mg/L	0.03		0.46			0.4
Radium 226	pCi/L		3	0.295 +/- 0.246			0.066 +/- 0.129
Organic Analyses							
Haloacetic Acids (Total)	ug/L	1.0	60.0	23.0	9.0	11.9	8.0
<i>Dibromoacetic Acid</i>	ug/L	1.0		3.0	2.0	2.1	2.0
<i>Dichloroacetic Acid</i>	ug/L	1.0		10	4.0	5.5	2.0
<i>Monobromoacetic Acid</i>	ug/L	1.0		1.0	ND	ND	ND
<i>Monochloroacetic Acid</i>	ug/L	2.0		ND	ND	ND	ND
<i>Trichloroacetic Acid</i>	ug/L	1.0		9.0	3.0	4.3	4.0
Organic Carbon (Dissolved)	mg/L	0.2		1.5			1.5
Organic Carbon (Total)	mg/L	0.2		1.4			1.5
Trihalomethanes (Total)	ug/L	1.0	80.0	47.9	23.1	23.4	18.7
<i>Bromodichloromethane</i>	ug/L	0.5		15.4	8.0	7.8	6.3
<i>Bromoform</i>	ug/L	0.5		1.8	1.0	0.69	0.7
<i>Chloroform</i>	ug/L	0.5		18.8	7.2	9.2	6.9
<i>Dibromochloromethane</i>	ug/L	0.5		11.9	6.9	5.7	4.8
Field Parameters							
Temperature	° C	0.1		12.9	14.9	15.8	14.8
Specific Conductance (EC)	uS	1.0	900	491	458	450	442
pH	Std Units	0.1	6.5 - 8.5	7.4	7.0	7.1	7.4
ORP	mV	1.0		507	664	727	717
Free Chlorine Residual	mg/L	0.1	2 - 5	1.0	1.9	1.1	1.3
Dissolved Oxygen	mg/L	0.01		5.2	3.9	4.1	3.6
Silt Density Index	Std Units	0.1		4.1			
H ₂ S	mg/L	0.1		ND	ND		ND

Notes:
 Constituents exceeding MCLs denoted in **BOLD** type



Table 12. Summary of WY 2017 Water-Quality Data – ASR-1

Parameter	Unit	PQL	MCL	Results			
				SM ASR-1			
				3/21/01	9/21/16	12/2/16	6/28/17
ASR Operational Phase				NGW	WY 2016 Storage		WY 2017 Storage
Elapsed Storage Time	Days			--	170	242	29
Major Cations							
Calcium	mg/L	0.5		85	68	81	41
Magnesium	mg/L	0.5		19	17	20	13
Potassium	mg/L	0.5		5.3	4	4.6	2.8
Sodium	mg/L	0.5		88	71	72	43
Major Anions							
Alkalinity, Total (as CaCO3)	mg/L	2		224	180	228	138
Chloride	mg/L	1	250	120	72	112	28
Sulfate	mg/L	1	250	95	96	100	68
Nitrate (as NO3)	mg/L	1	45	ND	1	1.0	1
Nitrite (as NO2-N)	mg/L	1	1		0.3	0.3	0.2
General Physical							
pH	Std Units			7.1	7.4	7.2	7.5
Specific Conductance (EC)	uS	1	900	1015	763	962	496
Total Dissolved Solids	mg/L	10	500	618	471	583	320
Metals							
Arsenic (Total)	ug/L	1	10	ND	1	1	1
Barium (Total)	ug/L	10	1000	52	55	71	58
Iron (Dissolved)	ug/L	10			ND	12	ND
Iron (Total)	ug/L	10	300	120	ND	16	20
Lithium	ug/L	1			19	29	7
Manganese (Dissolved)	ug/L	10			ND	22	ND
Manganese (Total)	ug/L	10	50	40	ND	21	ND
Mercury	ug/L	0.5	2		ND	ND	ND
Molybdenum	ug/L	1	1000		6	7	3
Nickel	ug/L	10	100		ND	ND	2
Selenium	ug/L	2	50	ND	2	2	6
Strontium (Total)	ug/L	5			308	402	210
Uranium (by ICP/MS)	ug/L	1	30		1	1	ND
Vanadium (Total)	ug/L	1	1000		ND	ND	1
Zinc (Total)	ug/L	10	5000	10	87	70	202
Miscellaneous							
Ammonia-N	mg/L	0.05		0.33	ND	0.09	0.1
Boron	mg/L	0.05		0.14	0.08	0.11	ND
Chloramines	mg/L	0.05			ND	ND	ND
Gross Alpha	pCi/L		15		2.52 +/- 1.55	2.64 +/- 1.89	1.97 +/- 1.27
Kjeldahl Nitrogen (Total)	mg/L	0.5			ND	0.5	ND
Methane	ug/L	0.1			2.2	3.9	0.77
Nitrogen (Total)	mg/L	0.5			0.5	1	0.5
o-Phosphate-P	mg/L	0.05		0.46	0.1	ND	0.3
Phosphorous (Total)	mg/L	0.03			0.13	0.13	0.3
Radium 226	pCi/L		3		0.758 +/- 0.437	1.33 +/- 0.340	0.044 +/- 0.104
Organic Analyses							
Haloacetic Acids (Total)	ug/L	1.0	60.0		ND	0	6
Dibromoacetic Acid	ug/L	1.0			ND	ND	ND
Dichloroacetic Acid	ug/L	1.0			ND	ND	2
Monobromoacetic Acid	ug/L	1.0			ND	ND	ND
Monochloroacetic Acid	ug/L	2.0			ND	ND	ND
Trichloroacetic Acid	ug/L	1.0			ND	ND	4
Organic Carbon (Dissolved)	mg/L	0.2			1.0	1.4	1.8
Organic Carbon (Total)	mg/L	0.2		6.3	1.0	1.3	1.5
Trihalomethanes (Total)	ug/L	1.0	80.0		28.9	14.8	89
Bromodichloromethane	ug/L	0.5			7.6	4.0	22
Bromoform	ug/L	0.5			0.5	ND	1
Chloroform	ug/L	0.5			18.8	10.1	56
Dibromochloromethane	ug/L	0.5			2	0.7	10
Field Parameters							
Temperature	°C	0.1				19.4	16.6
Specific Conductance (EC)	uS	1.0	900	1015	667		440
pH	Std Units	0.1	6.5 - 8.5	7.1	7.03		7.3
ORP	mV	1.0			-243		220
Free Chlorine Residual	mg/L	0.1	2 - 5			ND	0.23
Dissolved Oxygen	mg/L	0.01			1.17		3.12
Silt Density Index	Std Units	0.1					
H ₂ S	mg/L	0.1		1.5	ND		ND

Notes:
 Constituents exceeding MCLs denoted in **BOLD** type



Table 13. Summary of WY 2017 Water Quality Data – ASR-2

Parameter	Unit	PQL	MCL	Results			
				SM ASR-2			
				9/27/2016	12/6/16	6/28/17	10/4/17
ASR Operational Phase				WY 2016 Storage		WY 2017 Storage	
Elapsed Storage Time	Days			176	246	29	127
Major Cations							
Calcium	mg/L	0.5		60	66	41	38
Magnesium	mg/L	0.5		19	19	13	14
Potassium	mg/L	0.5		3.8	4.5	2.9	2.8
Sodium	mg/L	0.5		64	59	44	43
Major Anions							
Alkalinity, Total (as CaCO3)	mg/L	2		180	209	134	134
Chloride	mg/L	1	250	64	102	28	28
Sulfate	mg/L	1	250	81	71	69	70
Nitrate (as NO3)	mg/L	1	45	1	ND	1	0.2
Nitrite (as NO2-N)	mg/L	1	1	0.3	0.3	0.2	ND
General Physical							
pH	Std Units			7.5	7.3	7.5	7.4
Specific Conductance (EC)	uS	1	900	707	864	488	495
Total Dissolved Solids	mg/L	10	500	431	514	308	297
Metals							
Arsenic (Total)	ug/L	1	10	1	1	ND	ND
Barium (Total)	ug/L	10	1000	83	106	59	62
Iron (Dissolved)	ug/L	10		ND	ND	ND	11
Iron (Total)	ug/L	10	300	66	67	57	66
Lithium	ug/L	1		14	26	6	7
Manganese (Dissolved)	ug/L	10		10	15	ND	ND
Manganese (Total)	ug/L	10	50	11	16	ND	ND
Mercury	ug/L	0.5	2		2	ND	ND
Molybdenum	ug/L	1	1000	6	10	4	6
Nickel	ug/L	10	100	ND	ND	2	2
Selenium	ug/L	2	50	2	2	2	3
Strontium (Total)	ug/L	5		300	374	210	208
Uranium (by ICP/MS)	ug/L	1	30	1	1	ND	2.4
Vanadium (Total)	ug/L	1	1000	ND	ND	1	ND
Zinc (Total)	ug/L	10	5000	317	360	257	272
Miscellaneous							
Ammonia-N	mg/L	0.05		ND	0.08	0.1	ND
Boron	mg/L	0.05		0.06	0.07	ND	ND
Chloramines	mg/L	0.05		ND	ND	ND	ND
Gross Alpha	pCi/L		15	2.59 +/- 2.16	2.24 +/- 1.91	0.775 +/- 0.946	2.04 +/- 1.15
Kjehidahl Nitrogen (Total)	mg/L	0.5		1	0.9	ND	ND
Methane	ug/L	0.1		1.7	1.9	1.5	0.7
Nitrogen (Total)	mg/L	0.5		1.5	1.3	ND	ND
o-Phosphate-P	mg/L	0.05		0.3	0.2	0.3	0.26
Phosphorous (Total)	mg/L	0.03		0.25	0.23	0.4	0.3
Radium 226	pCi/L		3	0.000 +/- 0.246	0.170 +/- 0.132	0.109 +/- 0.128	0.090 +/- 0.124
Organic Analyses							
Haloacetic Acids (Total)	ug/L	1.0	60.0	0.0	0.0	30.0	4.0
<i>Dibromoacetic Acid</i>	ug/L	1.0		ND	ND	2.0	ND
<i>Dichloroacetic Acid</i>	ug/L	1.0		ND	ND	14.0	ND
<i>Monobromoacetic Acid</i>	ug/L	1.0		ND	ND	ND	ND
<i>Monochloroacetic Acid</i>	ug/L	2.0		ND	ND	ND	ND
<i>Trichloroacetic Acid</i>	ug/L	1.0		ND	ND	14.0	4.0
Organic Carbon (Dissolved)	mg/L	0.2			1.2	2.0	1.4
Organic Carbon (Total)	mg/L	0.2		1.10	1.2	1.5	1.9
Trihalomethanes (Total)	ug/L	1.0	80.0	47.9	25.3	97.0	87.0
<i>Bromodichloromethane</i>	ug/L	0.5		12.0	6.7	26.0	21.0
<i>Bromoform</i>	ug/L	0.5		0.60	ND	1.0	1.00
<i>Chloroform</i>	ug/L	0.5		29.8	15.4	58.0	55.0
<i>Dibromochloromethane</i>	ug/L	0.5		5.5	3.2	12.0	10.0
Field Parameters							
Temperature	° C	0.1		18.0	20.4	16.4	19.4
Specific Conductance (EC)	uS	1.0	900	610	568	460	428.0
pH	Std Units	0.1	6.5 - 8.5	6.5	7.2	7.3	7.1
ORP	mV	1.0		-202.5	-232	470	
Free Chlorine Residual	mg/L	0.1	2 - 5	0.24	ND	0.2	
Dissolved Oxygen	mg/L	0.01		1.01	3.98	3.28	2.03
Silt Density Index	Std Units	0.1					
Fl ₂ S	mg/L	0.1		0.02	0.09	ND	

Notes:
 Constituents exceeding MCLs denoted in **BOLD** type



Table 14. Summary of WY 2017 Water Quality Data – ASR-3

Parameter	Unit	PQL	MCL	Results				
				SMS ASR-3				
				10/22/10	9/21/16	12/9/16	6/27/17	9/6/17
ASR Operational Phase				NGW	WY 2016 Storage		WY 2017 Storage	
Elapsed Storage Time	Days				170	249	28	99
Major Cations								
Calcium	mg/L	0.5		76	53	60	43	
Magnesium	mg/L	0.5		18	17	18	14	
Potassium	mg/L	0.5		5	4	4	3.0	
Sodium	mg/L	0.5		102	59	66	46	
Major Anions								
Alkalinity, Total (as CaCO3)	mg/L	2		304	171	178	134	
Chloride	mg/L	1	250	107	58	75	28	36
Sulfate	mg/L	1	250	56	72	71	71	68
Nitrate (as NO3)	mg/L	1	45	1	1	ND	1	
Nitrite (as NO2-N)	mg/L	1	1	ND	0.3	0.3	0.2	
General Physical								
pH	Std Units			7.7	7.5	7.3	7.5	
Specific Conductance (EC)	uS	1	900	954	657	740	497	507
Total Dissolved Solids	mg/L	10	500	575	426	437	314	
Metals								
Arsenic (Total)	ug/L	1	10	4	6	5	6	
Barium (Total)	ug/L	10	1000	50	78	88	61	
Iron (Dissolved)	ug/L	10		21	ND	13	ND	ND
Iron (Total)	ug/L	10	300	21	56	208	173	
Lithium	ug/L	1		36	14	22	6	
Manganese (Dissolved)	ug/L	10		27	12	15	10	ND
Manganese (Total)	ug/L	10	50	27	13	16	10	
Mercury	ug/L	0.5	2			1	ND	ND
Molybdenum	ug/L	1	1000	--	21	9	56	
Nickel	ug/L	10	100	ND	ND	ND	2	2.9
Selenium	ug/L	2	50	ND	3	3	8	
Strontium (Total)	ug/L	5		403	281	322	211	
Uranium (by ICP/MS)	ug/L	1	30	--	3	2	1	
Vanadium (Total)	ug/L	1	1000	--	ND	ND	1	
Zinc (Total)	ug/L	10	5000	--	266	241	256	250
Miscellaneous								
Ammonia-N	mg/L	0.05		249	ND	ND	0.1	
Boron	mg/L	0.05		ND	0.05	0.07	ND	
Chloramines	mg/L	0.05		0.08	ND	ND	ND	
Gross Alpha	pCi/L		15	--	4.28 +/- 1.73	4.79 +/- 1.87	0.894 +/- 0.980	
Kjeldahl Nitrogen (Total)	mg/L	0.5		ND	1	ND	ND	
Methane	ug/L	0.1		ND	1.4	0.31	1.7	
Nitrogen (Total)	mg/L	0.5		ND	1.5	ND	ND	
o-Phosphate-P	mg/L	0.05		ND	0.2	0.2	0.1	
Phosphorous (Total)	mg/L	0.03		0.03	0.27	0.19	0.37	
Radium 226	pCi/L		3	--	0.178 +/- 0.302	0.100 +/- 0.139	0.066 +/- 0.114	
Organic Analyses								
Haloacetic Acids (Total)	ug/L	1.0	60.0	ND	3	0.0	17.0	
<i>Dibromoacetic Acid</i>	ug/L	1.0		ND	1	ND	ND	
<i>Dichloroacetic Acid</i>	ug/L	1.0		ND	2	ND	2.0	
<i>Monobromoacetic Acid</i>	ug/L	1.0		ND	ND	ND	ND	
<i>Monochloroacetic Acid</i>	ug/L	2.0		ND	ND	ND	ND	
<i>Trichloroacetic Acid</i>	ug/L	1.0		ND	ND	ND	15	
Organic Carbon (Dissolved)	mg/L	0.2		0.71	0.9	1.3	2.0	
Organic Carbon (Total)	mg/L	0.2		0.70	1.00	1.4	1.6	1.0
Trihalomethanes (Total)	ug/L	1.0	80.0	ND	61.40	46.2	112.0	
<i>Bromodichloromethane</i>	ug/L	0.5		ND	15.9	12.0	28.0	
<i>Bromoform</i>	ug/L	0.5		ND	0.8	0.6	1.0	
<i>Chloroform</i>	ug/L	0.5		ND	36.7	27.3	71.0	
<i>Dibromochloromethane</i>	ug/L	0.5		ND	8	6.3	12.0	
Field Parameters								
Temperature	° C	0.1		26.2	17.3	19.9	18.1	19.4
Specific Conductance (EC)	uS	1.0	900	991	588	426	462	467
pH	Std Units	0.1	6.5 - 8.5	7.0	7.07	7.0	7.1	7.1
ORP	mV	1.0		-82	-171.0	-93	166	85
Free Chlorine Residual	mg/L	0.1	2 - 5	ND	ND	ND	0.23	0.26
Dissolved Oxygen	mg/L	0.01		--	4.67	3.74	3.26	3.58
Silt Density Index	Std Units	0.1		--				
H ₂ S	mg/L	0.1		0.60	ND	ND	ND	ND

Notes:
 Constituents exceeding MCLs denoted in **BOLD** type



Table 15. Summary of WY 2017 Water Quality Data – ASR-4

Parameter	Unit	PQL	MCL	Results				
				ASR-4				
				9/21/2016	12/2/2016	3/7/2017	6/27/2017	10/4/17
ASR Operational Phase				WY 2016 Storage			WY 2017 Storage	
Elapsed Storage Time	Days			170	242	337	28	127
Major Cations								
Calcium	mg/L	0.5		76	68	49	40	36
Magnesium	mg/L	0.5		16	14	6	13	13
Potassium	mg/L	0.5		4.6	4.0	4.2	2.8	2.7
Sodium	mg/L	0.5		103	88	76	42	39
Major Anions								
Alkalinity, Total (as CaCO3)	mg/L	2		234	231	176	134	134
Chloride	mg/L	1	250	121	123	77	27	27
Sulfate	mg/L	1	250	55	53	48	69	70
Nitrate (as NO3)	mg/L	1	45	1.0	2.0	1.0	1	0.2
Nitrite (as NO2-N)	mg/L	1	1	0.3	0.3	ND	0.2	ND
General Physical								
pH	Std Units			7.5	7.3	7.6	7.5	7.5
Specific Conductance (EC)	uS	1	900	924	937	689	497	487
Total Dissolved Solids	mg/L	10	500	563	537	437	311	297
Metals								
Arsenic (Total)	ug/L	1	10	5	5	7	22	8
Barium (Total)	ug/L	10	1000	54	52	29	58	60
Iron (Dissolved)	ug/L	10		ND	23	ND	ND	18
Iron (Total)	ug/L	10	300	144	153	135	114	201
Lithium	ug/L	1		32	34	24	7	7
Manganese (Dissolved)	ug/L	10		21	21	ND	ND	13
Manganese (Total)	ug/L	10	50	21	22	ND	ND	14
Mercury	ug/L	0.5	2		ND	0.2	ND	ND
Molybdenum	ug/L	1	1000	6	6	24	62	55
Nickel	ug/L	10	100	58	68	25	9	23
Selenium	ug/L	2	50	2	2	5	12	10
Strontium (Total)	ug/L	5		444	497	456	214	206
Uranium (by ICP/MS)	ug/L	1	30	1	1	3	1	1.7
Vanadium (Total)	ug/L	1	1000	ND	7	5	1	ND
Zinc (Total)	ug/L	10	5000	ND	ND	20	190	104
Miscellaneous								
Ammonia-N	mg/L	0.05		ND	ND	ND	0.1	ND
Boron	mg/L	0.05		0.11	0.09	0.08	ND	ND
Chloramines	mg/L	0.05		ND	ND	ND	ND	ND
Gross Alpha	pCi/L		15	3.01 +/- 2.64	3.91 +/- 2.17	1.01 +/- 1.67	5.07 +/- 1.71	2.02 +/- 1.14
Kjeldahl Nitrogen (Total)	mg/L	0.5		0.5	1.3	0.8	ND	ND
Methane	ug/L	0.1		1.7	1.20	0.51	1.5	0.98
Nitrogen (Total)	mg/L	0.5		1.00	2.1	1.1	ND	ND
o-Phosphate-P	mg/L	0.05		ND	ND	0.1	ND	0.16
Phosphorous (Total)	mg/L	0.03		ND	0.04	0.03	0.24	0.17
Radium 226	pCi/L		3	0.760 +/- 0.438	0.578 +/- 0.234	0.318 +/- 0.171	0.000 +/- 0.074	0.000 +/- .088
Organic Analyses								
Haloacetic Acids (Total)	ug/L	1.0	60.0	0.0	0.0	0.0	12.0	2.0
<i>Dibromoacetic Acid</i>	ug/L	1.0		ND	ND	ND	ND	ND
<i>Dichloroacetic Acid</i>	ug/L	1.0		ND	ND	ND	2.0	ND
<i>Monobromoacetic Acid</i>	ug/L	1.0		ND	ND	ND	ND	ND
<i>Monochloroacetic Acid</i>	ug/L	2.0		ND	ND	ND	ND	ND
<i>Trichloroacetic Acid</i>	ug/L	1.0		ND	ND	ND	10	2.0
Organic Carbon (Dissolved)	mg/L	0.2			0.9	0.9	1.6	1.7
Organic Carbon (Total)	mg/L	0.2		0.6	0.9	0.8	1.6	1.3
Trihalomethanes (Total)	ug/L	1.0	80.0	0.0	0.0	19.3	98	59
<i>Bromodichloromethane</i>	ug/L	0.5		ND	ND	5.6	23	16
<i>Bromoform</i>	ug/L	0.5		ND	ND	0.8	1.0	ND
<i>Chloroform</i>	ug/L	0.5		ND	ND	9.4	62	34
<i>Dibromochloromethane</i>	ug/L	0.5		ND	ND	3.5	12	9.0
Field Parameters								
Temperature	° C	0.1		25.1	26.0	25.6	18.5	18.5
Specific Conductance (EC)	uS	1.0	900	564	859	680	423	415
pH	Std Units	0.1	6.5 - 8.5	7.08	7.2	7.3	7.2	6.4
ORP	mV	1.0		-262.0	-297	54	159	31
Free Chlorine Residual	mg/L	0.1	2 - 5	ND	0.2		0.21	0.51
Dissolved Oxygen	mg/L	0.01		0.97	0.52		ND	1.87
Silt Density Index	Std Units	0.1						
H ₂ S	mg/L	0.1		0.01	0.14		ND	ND

Notes:
 Constituents exceeding MCLs denoted in **BOLD** type



Table 16. Summary of WY 2017 Water Quality Data – SM MW-1

Parameter	Unit	PQL	MCL	Results						
				SM MW-1						
				12/1/16	2/1/17	4/11/17	6/28/17	7/18/17	9/18/17	10/2/17
Sample Description				WY 2016 Storage	WY 2017 Injection		WY 2017 Storage			
Elapsed Storage Time	Days			241	0	0	29	49	111	125
Major Cations										
Calcium	mg/L	0.5		74		40	44			48
Magnesium	mg/L	0.5		22		10	11			13
Potassium	mg/L	0.5		4.6		2.5	2.7			3.2
Sodium	mg/L	0.5		67		41	43			48
Major Anions										
Alkalinity, Total (as CaCO3)	mg/L	2		209		134	135			137
Chloride	mg/L	1	250	109		28	28			28
Sulfate	mg/L	1	250	75		68	69			69
Nitrate (as NO3)	mg/L	1	45	ND		1	1			0.3
Nitrite (as NO2-N)	mg/L	1	45	0.3		0.5	0.2			ND
General Physical										
pH	Std Units			7.3		7.7	7.5			7.5
Specific Conductance (EC)	uS	1	900	890		493	489			491
Total Dissolved Solids	mg/L	10	500	517		288	297			326
Metals										
Arsenic (Total)	ug/L	1	10	2		2	2			2
Barium (Total)	ug/L	10	1000	66		20	21			26
Iron (Dissolved)	ug/L	10		ND		ND	ND			14
Iron (Total)	ug/L	10	300	ND		72	ND			ND
Lithium	ug/L	1		25		9	7			4
Manganese (Dissolved)	ug/L	10		16		ND	ND			ND
Manganese (Total)	ug/L	10	50	17		ND	ND			ND
Mercury	ug/L	0.5	2			0.4	ND			ND
Molybdenum	ug/L	1	1000	10		3	3			5
Nickel	ug/L	10	100	ND		ND	1			ND
Selenium	ug/L	2	50	2		2	9			3
Strontium (Total)	ug/L	5		388		282	245			213
Uranium (by ICP/MS)	ug/L	1	30	2		2	1			1
Vanadium (Total)	ug/L	1	1000	ND		ND	2			ND
Zinc (Total)	ug/L	10	5000	ND		ND	ND			40
Miscellaneous										
Ammonia-N	mg/L	0.05		ND		ND	0.1			ND
Boron	mg/L	0.05		0.08		ND	ND			ND
Chloramines	mg/L	0.05		ND	0.08	0.08	ND	ND	ND	ND
Gross Alpha	pCi/L		15	4.70 +/- 2.20		2.31 +/- 1.29	1.77 +/- 1.15			2.88 +/- 1.29
Kjeldahl Nitrogen (Total)	mg/L	0.5		ND		0.6	ND			0.8
Methane	ug/L	0.1		0.92		0.68	0.74			ND
Nitrogen (Total)	mg/L	0.5		ND		1.4	ND			ND
o-Phosphate-P	mg/L	0.05		0.1		ND	ND			ND
Phosphorous (Total)	mg/L	0.03		0.11		0.04	0.1			0.07
Radium 226	pCi/L		3	0.878 +/- 0.282		0.164 +/- 0.170	0.044 +/- 0.104			0.050 +/- 0.120
Organic Analyses										
Haloacetic Acids (Total)	ug/L	1.0	60.0	0.0	21.0	18.0	2.0	12.0	1.6	0.0
<i>Dibromoacetic Acid</i>	ug/L	1.0		ND	2.0	2.0	ND	ND	ND	ND
<i>Dichloroacetic Acid</i>	ug/L	1.0		ND	9.0	8.0	ND	3.0	1.6	ND
<i>Monobromoacetic Acid</i>	ug/L	1.0		ND	ND	ND	ND	ND	ND	ND
<i>Monochloroacetic Acid</i>	ug/L	2.0		ND	ND	ND	ND	ND	ND	ND
<i>Trichloroacetic Acid</i>	ug/L	1.0		ND	10.0	8.0	2.0	9.0	ND	ND
Organic Carbon (Dissolved)	mg/L	0.2		1.3		1.3	1.4			1.8
Organic Carbon (Total)	mg/L	0.2		1.0		1.2	1.3			1.20
Trihalomethanes (Total)	ug/L	1.0	80.0	26.7	69.6	58.0	66.0	77.0	80.8	71.0
<i>Bromodichloromethane</i>	ug/L	0.5		6.7	14.8	14	17	17	17	16
<i>Bromoform</i>	ug/L	0.5		ND	1.2	1.0	1.0	ND	0.57	ND
<i>Chloroform</i>	ug/L	0.5		16.9	45.6	35	39	52	57	50
<i>Dibromochloromethane</i>	ug/L	0.5		3.1	8.0	8.0	9.0	8.0	6.2	5.0
Field Parameters										
Temperature	° C	0.1		20	17.2	18.3	18.8	18.3	19.1	19.5
Specific Conductance (EC)	uS	1.0	900	741	469	444	426	433	426	475
pH	Std Units	0.1	6.5 - 8.5	7.0	7.5	7.5	7.3	7.5	7.4	7.27
ORP	mV	1.0		-164	35	688	265	178	55	91
Free Chlorine Residual	mg/L	0.1	2 - 5	0.2	0.37	0.21	0.1	0.43	0.29	0.39
Dissolved Oxygen	mg/L	0.01		1.99	4.23	3.94	3.08	1.2	3.99	3.19
Silt Density Index	Std Units	0.1								
H ₂ S	mg/L	0.1		ND	ND	ND	ND	ND	ND	ND

Notes:
 Constituents exceeding MCLs denoted in **BOLD** type



Table 17. Summary of WY 2017 Water Quality Data – SMS Deep

Parameter	Unit	PQL	MCL	Results				
				SMS Deep				
				1/18/17	4/11/17	7/18/17	9/18/17	10/2/17
Sample Description				WY 2017 Injection		WY 2017 Storage		
Elapsed Storage Time	Days			0	0	49	111	125
Major Cations								
Calcium	mg/L	0.5		51	41			48
Magnesium	mg/L	0.5		13	12			14
Potassium	mg/L	0.5		3.3	2.7			3.2
Sodium	mg/L	0.5		48	39			48
Major Anions								
Alkalinity, Total (as CaCO3)	mg/L	2		145	138			143
Chloride	mg/L	1	250	31	27			29
Sulfate	mg/L	1	250	82	66			70
Nitrate (as NO3)	mg/L	1	45	ND	1.0			0.3
Nitrite (as NO2-N)	mg/L	1	1	ND	0.5			ND
General Physical								
pH	Std Units			7.7	7.6			7.7
Specific Conductance (EC)	uS	1	900	533	490			505
Total Dissolved Solids	mg/L	10	500	331	300			308
Metals								
Arsenic (Total)	ug/L	1	10	1	1			6
Barium (Total)	ug/L	10	1000	45	43			56
Iron (Dissolved)	ug/L	10		ND	ND			ND
Iron (Total)	ug/L	10	300	ND	ND			ND
Lithium	ug/L	1		6	7			4
Manganese (Dissolved)	ug/L	10		ND	ND			ND
Manganese (Total)	ug/L	10	50	ND	ND			ND
Mercury	ug/L	0.5	2	ND	ND			ND
Molybdenum	ug/L	1	1000	3	3			25
Nickel	ug/L	10	100	ND	ND			ND
Selenium	ug/L	2	50	2	2			4
Strontium (Total)	ug/L	5		325	277			250
Uranium (by ICP/MS)	ug/L	1	30	1	1			1
Vanadium (Total)	ug/L	1	1000	ND	ND			ND
Zinc (Total)	ug/L	10	5000	ND	56			61
Miscellaneous								
Ammonia-N	mg/L	0.05		ND	0.05			ND
Boron	mg/L	0.05		ND	ND			ND
Chloramines	mg/L	0.05		0.19	0.14	ND	ND	ND
Gross Alpha	pCi/L		15	2.84 +/- 1.45	2.20 +/- 1.33			1.80 +/- 1.09
Kjeldahl Nitrogen (Total)	mg/L	0.5		ND	0.5			ND
Methane	ug/L	0.1		0.60	1.3			0.39
Nitrogen (Total)	mg/L	0.5		ND	1.3			ND
o-Phosphate-P	mg/L	0.05		0.2	0.2			ND
Phosphorous (Total)	mg/L	0.03		0.26	0.29			0.09
Radium 226	pCi/L		3	0.000 +/- 0.171	0.066 +/- 0.129			0.149 +/- 0.154
Organic Analyses								
Haloacetic Acids (Total)	ug/L	1.0	60.0	16.0	11.0	12.0	3.0	6.0
<i>Dibromoacetic Acid</i>	ug/L	1.0		2.0	2.0	ND	ND	ND
<i>Dichloroacetic Acid</i>	ug/L	1.0		6.0	3.0	3.0	2.0	1.0
<i>Monobromoacetic Acid</i>	ug/L	1.0		1.0	1.0	ND	ND	ND
<i>Monochloroacetic Acid</i>	ug/L	2.0		ND	ND	ND	ND	ND
<i>Trichloroacetic Acid</i>	ug/L	1.0		7.0	5.0	9.0	1.0	5
Organic Carbon (Dissolved)	mg/L	0.2		1.6	1.4			1.7
Organic Carbon (Total)	mg/L	0.2		1.5	1.4			1.3
Trihalomethanes (Total)	ug/L	1.0	80.0	41.0	27.0	81.0	81.0	86.0
<i>Bromodichloromethane</i>	ug/L	0.5		13.5	9	21	24	22
<i>Bromoform</i>	ug/L	0.5		1.2	ND	1.0	1.0	1.0
<i>Chloroform</i>	ug/L	0.5		16.5	12	49	45	52
<i>Dibromochloromethane</i>	ug/L	0.5		9.8	6	10	11	11
Field Parameters								
Temperature	° C	0.1		16.1	16.8	17.1	18.2	18.1
Specific Conductance (EC)	uS	1.0	900	490	429	437	447	444
pH	Std Units	0.1	6.5 - 8.5	7.5	7.7	7.3	7.3	7.1
ORP	mV	1.0		637	731	166	217	148
Free Chlorine Residual	mg/L	0.1	2 - 5	1.4	0.94	0.4	0.27	0.41
Dissolved Oxygen	mg/L	0.01		4.36	4.16	3.68	3.94	3.48
Silt Density Index	Std Units	0.1						
H ₂ S	mg/L	0.1		ND	ND	ND	ND	ND

Notes:
 Constituents exceeding MCLs denoted in **BOLD** type



- ASR-2: Two samples were collected from ASR-2; one after approximately 30 days and another after approximately 130 days of storage. Although some decline in THMs was observed during the period after the initial ingrowth, both samples exceeded the THM MCL with levels of 97 and 87 ug/L, respectively.
- ASR-3: One sample was collected from ASR-3 after approximately 30 days of storage, which showed significant ingrowth of THMs at 112 ug/L, exceeding the MCL of 80 ug/L. The pump was removed from ASR-3 in late September 2017 for well rehabilitation, and no additional samples were collected from this well during WY 2017.
- ASR-4: Two samples were collected from ASR-4; one after approximately 30 days and another after approximately 130 days of storage. The initial sample at 30 days showed significant ingrowth exceeding the THM MCL with a level of 98 ug/L, followed by more significant decline than observed at ASR-2 declining to below the MCL at a level of 59 ug/L.
- SM MW-1: Four samples were collected at SM MW-1 on an approximate monthly basis during the storage period, which showed steady ingrowth of THMs over a period of approximately 110 days reaching a level of 81 ug/L, followed a slight decline after 125 days of storage to a level of 71 ug/L.
- SMS Deep: Three samples were collected at SMS Deep during the storage period, which showed steady ingrowth of THMs over the period of 125 days reaching a level of 86 ug/L.

Historically, THMs at the ASR wells typically show an initial and significant ingrowth during the storage period, which is a result of free chlorine and trace levels of organic carbon in the injected water. THM ingrowth typically peaks in concentration approximately 60 to 120 days after the cessation of injection, followed by a gradual decline during the remainder of the storage period. After approximately 150 to 180 days of storage, THMs typically degrade to below the initial injection levels.

As discussed above, THMs during the WY 2017 storage period showed the above-described typical initial and significant ingrowth; however, their persistence this season differed from the typical pattern of significant degradation after several months of aquifer storage (with the possible exception of ASR-4). The lack of THM degradation observed during the WY 2017 storage period is likely attributable to the significantly greater volume and duration of injection, and the relatively short storage period, compared to previous years. Historically, THM degradation at ASR-1 appeared to have a direct relationship to intermixing with native ground waters, especially from gradient-induced mixing resulting from nearby pumping. Other ASR locations have postulated that changes in aquifer redox conditions and/or bioactivity from subsurface organisms such as Iron Dissimilatory Bacteria facilitate the degradation of the more robust THM compounds (i.e., chloroform and dichlorobromomethane). The large amount of recharge this season would thoroughly purge the proximate well bore areas with highly oxidized and oxygen-rich water, which would inhibit the above-noted degradation mechanisms; the



persistence of elevated redox potential (ORP), dissolved oxygen levels, and measurable free chlorine residuals during this year's storage period confirm the persistence of this condition.

HAA levels at the wells (where sufficient data was collected) generally showed their typical pattern of limited (if any) ingrowth during the initial storage period, followed by complete to near-complete degradation by the end of the storage season. HAA's are much less stable compounds than THM's; their auto-degradation is therefore unremarkable.

Water Quality at Off-Site Monitoring Wells

Water-quality data collected from off-site wells in WY 2017 data are presented in **Table 18**. At PCA-E Deep, the absence of DBP's, in addition to an apparent increasing trend in chloride during the period, suggest that the influence of recharge operations is negligible to date at this location. Paralta is the nearest CAW production well to the ASR wells, and the available THM data show a potential trend of an increasing contribution of injected water quality over the WY 2017 storage season with levels increasing from 4 ug/L prior to the WY 2017 injection season to 15 ug/L near the end of the storage period. These levels are well below the MCL of 80 ug/L; however, the potential for an increasing trend in THMs at Paralta should be tracked during future ASR operations.

Additional Water Quality Investigations

As discussed in the WY 2015 Summary of Operations Report (SOR), at the commencement of WY 2013 recovery pumping of ASR-1, a sample collected by CAW⁸ had a Mercury (Hg) concentration of 4 µg/L, exceeding the State MCL of 2 µg/L. Although the occurrence of Hg in surface water and groundwater has been documented elsewhere in the Monterey Bay region, the detection of Hg in SGB water was unusual. The initial Hg detection at ASR-1 was followed up with additional sampling to verify the presence of Hg, and the subsequent sampling identified detectable levels of Hg, although below the MCL. The fact that detectable Hg was identified, and at levels above historical NGW and injectate concentrations has led to the development of an ongoing investigation of Hg occurrence at the ASR wells.

As described in previous technical memoranda and reports regarding this issue, the origin of the detected Hg could be the result one or more mechanisms, including the following:

- A. Soluble or insoluble Hg present in the Carmel River System source water that could have accumulated as particulate (insoluble) compounds in the well bore area, similar to the accumulation of other particulate matter present in the Carmel River injectate and CAW conveyance system. Such accumulation would be released during routine backflushing operations and/or early stages of stored water recovery operations.

⁸ Collected on October 24, 2013.



Table 18. Summary of WY 2017 Water Quality Data – Off-Site Monitoring Wells

Parameter	Unit	PQL	MCL	Results				
				PCA-E Deep			Paralta	
				12/8/2016	4/10/2017	9/11/17	12/1/16	8/15/17
ASR Operational Phase				WY 2016 Storage	WY 2017 Injection	WY 2017 Storage	WY 2016 Storage	WY 2017 Storage
Major Cations								
Calcium	mg/L	0.5		37	46	56	73	56
Magnesium	mg/L	0.5		7	10	4.4	17	14
Potassium	mg/L	0.5		3.5	4.4	4.4	4.7	4.1
Sodium	mg/L	0.5		68	77	98	83	78
Major Anions								
Alkalinity, Total (as CaCO ₃)	mg/L	2		138	187	196	223	169
Chloride	mg/L	1	250	76	107	112	112	64
Sulfate	mg/L	1	250	22	31	32	66	71
Nitrate (as NO ₃)	mg/L	1	45	ND	ND	ND	3	1
Nitrite (as NO ₂ -N)	mg/L	1	1	0.2	ND	ND	0.3	ND
General Physical								
pH	Std Units			7.6	7.4	7.3	7.3	7.4
Specific Conductance (EC)	uS	1	900	578	760	764	912	652
Total Dissolved Solids	mg/L	10	500	291	440	463	557	403
Metals								
Arsenic (Total)	ug/L	1	10	7	7	7	3	3
Barium (Total)	ug/L	10	1000	64	86	99	64	43
Iron (Dissolved)	ug/L	10		ND	ND	ND	20	11
Iron (Total)	ug/L	10	300	ND	35	54	24	ND
Lithium	ug/L	1		21	33	37	30	22
Manganese (Dissolved)	ug/L	10		ND	121	157	30	11
Manganese (Total)	ug/L	10	50	ND	124	150	28	11
Mercury	ug/L	0.5	2	ND	ND	ND		ND
Molybdenum	ug/L	1	1000	10	10	9	12	26
Nickel	ug/L	10	100	26	ND	4	ND	ND
Selenium	ug/L	2	50	ND	ND	1	2	2
Strontium (Total)	ug/L	5		206	319	281	379	252
Uranium (by ICP/MS)	ug/L	1	30	ND	ND	ND	1	1
Vanadium (Total)	ug/L	1	1000	ND	ND	ND	5	ND
Zinc (Total)	ug/L	10	5000	24	27	ND	ND	ND
Miscellaneous								
Ammonia-N	mg/L	0.05		ND	ND	ND	0.1	ND
Boron	mg/L	0.05		0.07	0.09	0.10	0.10	0.07
Chloramines	mg/L	0.05		ND	ND	ND	ND	ND
Gross Alpha	pCi/L		15	0.489 +/- 1.42	1.38 +/- 1.51	0.986 +/- 1.93	7.19 +/- 2.50	3.77 +/- 1.77
Kjeldahl Nitrogen (Total)	mg/L	0.5		ND	ND	ND	1.2	ND
Methane	ug/L	0.1		ND	2.2	2.8	3.7	1.6
Nitrogen (Total)	mg/L	0.5		ND	ND	ND	1.7	ND
o-Phosphate-P	mg/L	0.05		ND	ND		0.2	ND
Phosphorous (Total)	mg/L	0.03		0.03	0.05	0.02	0.03	0.02
Radium 226	pCi/L		3	0.050 +/- 0.120	0.164 +/- 0.170	0.56 +/- 0.134	1.39 +/- 0.349	0.978 +/- 0.285
Organic Analyses								
Haloacetic Acids (Total)	ug/L	1.0	60.0	0.0	0.0	0.0	0.0	0.0
<i>Dibromoacetic Acid</i>	ug/L	1.0		ND	ND	ND	ND	ND
<i>Dichloroacetic Acid</i>	ug/L	1.0		ND	ND	ND	ND	ND
<i>Monobromoacetic Acid</i>	ug/L	1.0		ND	ND	ND	ND	ND
<i>Monochloroacetic Acid</i>	ug/L	2.0		ND	ND	ND	ND	ND
<i>Trichloroacetic Acid</i>	ug/L	1.0		ND	ND	ND	ND	ND
Organic Carbon (Dissolved)	mg/L	0.2		0.7	0.5	0.6	1.0	1.1
Organic Carbon (Total)	mg/L	0.2		0.8	0.5	0.6	1.0	1.0
Trihalomethanes (Total)	ug/L	1.0	80.0	0.0	0.0	0.0	4.3	15.0
<i>Bromodichloromethane</i>	ug/L	0.5		ND	ND	ND	0.6	3.0
<i>Bromoform</i>	ug/L	0.5		ND	ND	ND	ND	ND
<i>Chloroform</i>	ug/L	0.5		ND	ND	ND	3.7	12.0
<i>Dibromochloromethane</i>	ug/L	0.5		ND	ND	ND	ND	ND
Field Parameters								
Temperature	° C	0.1		27.7	27.1	28.8	24.5	22
Specific Conductance (EC)	uS	1.0	900	554	525	660	785	455
pH	Std Units	0.1	6.5 - 8.5	7.5	7.7	7.4	7.2	7.4
ORP	mV	1.0		68	75	-64	-211	-47
Free Chlorine Residual	mg/L	0.1	2 - 5	ND	ND	ND	0.2	0.27
Dissolved Oxygen	mg/L	0.01			0.46	0.55	2	6.14
Silt Density Index	Std Units	0.1						
H ₂ S	mg/L	0.1		ND	ND	ND		ND

Notes:

Constituents exceeding MCLs denoted in **BOLD** type



- B. Solubilization of naturally occurring Hg minerals present in the Tsm geologic matrix, which could result from geochemical interactions between the injection source water, NGW and aquifer minerals.
- C. Mobilization of insoluble (i.e., particulate) Hg from the Tsm matrix via the dissolution of cementitious materials and subsequent migration of particulate Hg compounds during recovery/pumping operations.
- D. Other anthropogenic sources of Hg in well components or other off-site sources.

During WY 2016, a Supplemental Sampling and Analysis Plan⁹ (SSAP) was developed for additional investigation of the Hg occurrence. In addition to the collection of Hg samples utilizing a variety of EPA-approved laboratory methods and detections limits, the suite of analytes included a variety of constituents that are known to affect (or directly react with) Hg and/or Hg compounds. The sampling performed during WY 2016 resulted in the following preliminary findings:

- The ASR wells showed Hg levels below MCL's, but there was also a positive correlation between declining turbidity and decreasing Hg levels as the duration of pumping increased during well backflushing operations.
- Injection source waters from the Begonia Iron Removal Plant (BIRP) indicated detectable Hg levels in the raw well water plant influent and in the finished product water; however, the Hg levels were all far below MCL's, and even below the detection limits of conventional EPA 200.8 analysis methods, with the Hg detections at sub-parts-per-trillion levels.

The data collected during WY 2016 suggested that there was a meaningful correlation between Hg content, Turbidity, and pumping time in the produced water from ASR-1. The possible explanation for this phenomenon is that the trace-level Hg present in the Carmel River System injection source waters was accumulating in the near-well-bore area during injection operations, and then released when reverse flows associated with backflushing or recovery operations occurred (per hypothesis (A) above).

Because the occurrence of elevated Hg levels in ASR-1 appeared to be directly correlated to elevated turbidity levels in initial well flush waters, a revised protocol consisting of a new triple-surge well flushing procedure (refer to the WY 2016 SOR for details) was recommended for all regular and special operations in WY 2017. The addition of an on-line Turbidity analyzer at ASR-1 was also recommended to serve as a safeguard against the possible conveyance of turbid (and potentially Hg-noncompliant) waters into the distribution system during ASR recovery (ie production) operations.

WY 2017 Investigation. The Hg occurrence investigation continued in WY 2017 and consisted of the following activities:

⁹ Dated September 4, 2015



- Collection of high-frequency (daily) samples of injectate during the Injection Season to monitor for the presence / absence of Hg in the injected water.
- Performance of 1-hr Cycle Tests for the collection of additional Hg data from all four of the ASR wells.
- Collection of water quality data on a monthly basis from all 4 ASR wells during the storage period to assess time- and mixing-dependant effects on the occurrence of Hg.
- “Breakthrough” sampling at ASR-4 to detect the arrival of the ASR-3 injection front and monitor for associated changes in Hg concentrations.
- Collection of ASR well backflush residue samples for evaluation by a specialty lab to establish if the samples have sufficient quantities of Hg-bearing particulates for further analysis via specialty analytical laboratory methods to determine the precise identification of Hg-bearing particulates (i.e., molecular composition and structure) to facilitate refined geochemical modeling to provide an improved understanding of the geochemical mechanism(s) responsible for Hg-occurrence.

The results to date of the WY 2017 Hg investigation activities are summarized below:

High-Frequency Injectate Sampling. High frequency sampling of the injectate during WY 2017 was performed to detect the presence of Hg in the injection source water. High frequency composite sampling of the injectate was performed to detect if high flows in the Carmel River Watershed was causing episodic releases of Hg into the river system from soil runoff in the watershed and/or stirring up sediments in the reservoir(s) or floodplains. It was assumed that if Hg was being released from the Carmel River System, the events would occur over several consecutive days when the river flows were high and sediments were being transported. Due to the assumed timing of the hypothetical Hg release mechanism, daily composite samples were used to detect if the events were occurring.

Composite samples of injectate were collected at the ASR-2 wellhead every day the project was operated in injection mode. An automated ISCO sampler was plumbed to the sample port at the ASR-2 wellhead and was programmed to pull 50 ml of water from the injectate stream at a 30-minute sample interval. An aliquot of the water collected by the ISCO was collected by operations staff and sent to the lab at roughly 24-hour intervals. A record of when the samples were collected and what time-period each of the samples represent is included in this report as **Appendix C**. In addition, a record of which Carmel River System wells were producing water to the CAW system was kept in case there was a Hg detection in the injectate. The Carmel Valley production records are also presented in **Appendix C**.

Over the WY 2017 project operation, no Hg was detected in any of the daily composite samples, indicating that the Carmel River System is likely not a source of Hg at the ASR wells as postulated in (A) above. Because no Hg was detected during this WY 2017 sampling, the District does not intend to continue composite sampling of injectate in future operational years.



1-Hr Cycle Testing. Additional Hg sampling and analysis was performed at ASR-2, and ASR-3 and ASR-4 during WY 2017 (prior to the injection season) as part of the expansion of the Hg occurrence investigation beyond ASR-1 to the other ASR project wells. The sampling consisted of 1-hr “Cycle Tests”, similar to the sampling that has been conducted at ASR-1 previously, where samples were collected from each well at elapsed pumping/purge times of 0 (initial casing flush water), 1, 2, 5, 10, 30 and 60 mins. The results are summarized in **Table 19** below:

Table 19. Hg “Cycle Test” Data Summary

Well	Sample Date	Cl- (mg/L)	% NGW ¹	Purge ET (mins) vs. Hg (ug/L) ²						
				0	1	2	5	10	30	60
ASR-2	11/3/2016	92	61	1.8	0.67	0.23	1.1	2.1	2.5	2.5
	12/6/2016	102	72	0.28	1.8	0.23	0.78	2.4	2.5	2.6
ASR-3	11/1/2016	75	45	0.01	0.01	1.5	0.01	1.3	1.4	1.5
	12/9/2016	87	58	1.5	0.35	0.2	0.19	1.1	1.5	1.5
ASR-4	11/1/2016	91	61	4.5	0.01	0.67	0.33	0.17	0.4	0.36
	12/9/2016	92	61	2.4	0.17	0.58	0.19	0.22	0.38	0.27

Notes:

Constituents exceeding MCLs denoted in **BOLD** type

1 - Percent of native groundwater (NGW) in based on Chloride (Cl-) data.

2 - Unfiltered EPA Method 200.8

The cycle test data did not show a correlation between Turbidity and Hg level as noted above during the 2016 testing program. This may be a result of the very low turbidities encountered throughout ASR operations during the 2017 year; it is possible that the Turbidity:Hg correlation is applicable only when there are substantial turbidity spikes at the wells. Because Turbidity is an indirect measurement of particulate matter in water, the correlation between possible Hg occurrence and higher Tu values would appear to be valid, at least at relatively high values, as detected occurrences of Hg have historically been predominantly in an insoluble (particulate) form.

Further analysis of the dataset does, however, suggest that the presence of Hg may have a correlation with the amount of mixing between injected and native ground waters; the magnitude of mixing is presented above in **Table 19** as a percent of NGW in the samples collected based on Chloride ion measurements. While the theory of possible Hg accumulation around the well bore opined in 2016 is not supported by the 2017 test data, the hypothesis of Hg solubilization and/or dissolution from the Tsm matrix (per (B) and (C) above) may still have merit. The data also indicate that during these testing sessions there were occasional occurrences of Hg above the EPA MCL of 2.0 ug/L. These occurrences were the only detections of Hg during WY 2017 that exceeded drinking water standards, and they occurred only at the ASR-2 and ASR-4 wells, which are not currently connected to pump recovery water into the CAW system. Although these samples were not collected during actual production operations, the data illustrate two important issues: (1) the implementation of mandatory flushing of any ASR wells before commencement of production into the Cal-Am potable system is still warranted; and (2) the ASR-2 exceedances occurred when the aquifer conditions contained predominantly older NGW that would be on the outer fringe of the recharge boundary.



Monthly Storage Testing. As described above, supplemental sampling was performed at the wells on a monthly basis during the aquifer storage period. The wells were flushed to waste and samples were collected at 4- and 20-minutes, with laboratory analyses for Hg, Cl⁻ (as an indicator of the percentage of mixing with native ground waters), and a variety of divalent metal ions which are characteristically associated with Hg mineral chemistry – especially Copper (Cu) and Zinc (Zn) ion. The data collected indicated several trends which appear to support the hypothetical mechanisms of solubilization or dissolution of Hg from Tsm aquifer minerals ((B) and (C) above) based on the following:

- In all sample events, the (minor) increase in Cl levels indicated increased mixing of injected and native ground waters over time for all wells.
- In most cases, Hg levels increased over time, although in no cases were Hg levels detected at or above Drinking Water Standards.
- In most cases, concentrations of Copper ion (Cu) showed a corresponding increase in concentration when Hg levels increased.

ASR-4 was especially characteristic in this trend, as presented in **Figure 29**. Additional sampling under this protocol is warranted to further evaluate these relationships, as well as re-assessment of historical data, if available, to further confirm these trends.

“Breakthrough” Sampling at ASR-4. Because solubilization of naturally occurring Hg present in the Tsm minerals resulting from geochemical interactions between the injection source water, NGW, and aquifer minerals was identified as one potential mechanism for the Hg occurrences, sampling for Hg was performed at ASR-4 in an effort to observe the arrival of the ASR-3 injection front and any associated changes in Hg concentrations that could be attributable to solubilization and mobilization of naturally occurring Hg present in Tsm minerals.

ASR-3 began essentially continuous injection on January 4, 2017 (there was some minor intermittent injection at this well during the period December 17 and 21, 2016). First arrival time of ASR-3 injectate at ASR-4 was roughly estimated at approximately 30 days¹⁰. Chloride concentrations were intermittently monitored at ASR-4 to detect the arrival of ASR-3 injectate (the pre-injection groundwater concentration of chloride was approximately 120 mg/L, whereas the average injectate Cl⁻ concentration was approximately 30 mg/L), after which samples were collected for Hg analysis.

The collected data are graphically presented on **Figure 30**. As shown, the chloride concentration at ASR-4 was observed to gradually decline as injectate from ASR-3 began to arrive. Samples were collected from ASR-4 for Hg analysis on March 7 and 15, 2017 (approximately 60 and 70 days after ASR-3 began injecting), with resulting Hg concentrations of 0.14 and 0.12 ug/L, respectively, which were significantly less than the pre-injection

¹⁰ Based on the Calculated Fixed Radius (CFR) equation and an average ASR-3 injection rate of 1,000 gpm.



concentration of Hg (by as much as 0.40 ug/L). These observations suggest that injection at ASR-3 and the subsequent influx of Carmel River injected waters did not result in the direct/immediate solubilization and mobilization of Hg that would impact ASR-4. This is an important finding, but it does not rule out the solubilization or dissolution/mobilization mechanisms postulated in (B and (C) above; rather it demonstrates only that the geochemical processes may not be immediate.

Injection operations were subsequently initiated at ASR-4 on April 5, 2017. Samples were collected following backflushing of ASR-4 after an 8-hr Step-Rate Injection Test (April 5 and 6, 2017) for Hg analysis. As shown on **Figure 30**, the Hg concentration at ASR-4 was observed to essentially double compared to the pre-injection baseline, with both samples at concentrations of 0.80 ug/L. Although these concentrations are below the MCL of 2.0 ug/L, these observations suggest that the initial injection at ASR-4 in WY 2017 may have resulted in solubilization or dissolution of Hg from the Tsm mineralogy. This data warrants further geochemical assessment.

Further review of **Figure 30** shows that as injection at ASR-4 continued, and then into the storage period, samples collected from the well began to display essentially the pure Carmel River injectate concentrations of chloride and Hg, reflecting the essentially complete displacement of NGW from ASR-4 during WY 2017. Again, the return of Hg levels to background level further support the displacement mechanism.

Backflush Residue Sampling. A critical factor in the assessment of the occurrence of Hg and determination of the cause(s) and mitigation of the occurrences is to establish the geochemical mechanism(s) associated with the reactions. Although the investigation thus far has been successful in establishing the presence and quantification of the levels of Hg during the various operations of the ASR program, the precise speciation of the original Hg compounds has not been achieved. The reason for this is a result of the exceptionally low levels of Hg mineral occurrence and the lack of sufficiently large quantities of mineral samples for analysis.

In an effort to obtain solid residue samples of Hg-containing materials, the WY 2017 investigation focused on the capture of granular materials ejected from the wells during routine backflush operations. The technique utilized involved the routing of a slipstream of water from each well during the first minutes of backflushing into a clean 100-gallon Nalgene container; the flush water is then isolated and allowed to settle for several days, after which the supernatant water is decanted, and the granular sludge materials are captured and isolated for laboratory analysis. The sludge samples typically amount to less than 10 grams of material and are first analyzed for total Hg content to determine their suitability for further Hg speciation analyses. Current mineralogical analysis techniques are, however, limited to detection thresholds of >10-20 mg/kg levels for Hg compounds.

A total of 6 sludge samples were collected during WY 2017; 2 each from the ASR-2, -3, and -4 wells (no samples were able to be collected from ASR-1 due to mechanical problems at this well). The results ranged from a low of 1.4 mg/kg at ASR-3 to a high of only 11 mg/kg at ASR-4. The full analytic laboratory results are provided in **Appendix D**. Note that in all sludge



sampling cases, the supernatant was analyzed after separation and Hg levels were essentially non-detect.

Unfortunately, none of the WY 2017 collected samples had a high enough concentration of Hg to warrant additional speciation analysis. It is recommended that this program be continued in WY 2018 in the hopes of obtaining a sample with a sufficiently high Hg concentration for speciation analysis.

Another alternative for obtaining granular solids samples for mineralogical analysis is the collection of cuttings from other proximate wells soon to be drilled through the Tsm formation; such samples can be obtained in large quantities, and therefore easily analyzed for bulk Hg concentrations. If the initial screening analysis for Hg is sufficiently high, additional samples can be speciated. It is our understanding that this work can be implemented in Summer 2018.

Next Steps. The investigation of the occurrence of Hg has not yet sufficiently identified the source(s), mechanism(s), and potential mitigations for this issue, and it is therefore recommended that investigation be continued during the WY 2018 program. Based on the previous work and the information gleaned from the current study, we recommend the following activities be implemented during WY2018:

1. The water quality program outlined in the SSAP, specifically the collection of monthly 4- and 20-minute samples from each of the four ASR wells, should be continued for WY 2018.
2. Collection and screening analysis of Tsm cuttings from upcoming proximate wells should be implemented, with subsequent speciation analyses performed on samples with Hg concentrations > 20 mg/kg.
3. Geochemical interaction modeling of the ASR program should be performed in the event that mineralized Hg compounds can be positively identified or inferred from other sources.
4. If possible, perform extended pumping tests of ASR-2 and ASR-4 with SSAP analytic parameters analyses to assess the long-term water quality trends at these wells.

These recommended next steps are intended to facilitate long-term operational improvement considerations for the Aquifer Storage and Recovery program. As the Hg investigation continues, additional findings, conclusions, and recommendations will be documented in the WY 2018 SOR to facilitate ongoing operation of the ASR project.



CONCLUSIONS

Based on the findings developed from operation of Monterey Peninsula ASR Project during WY 2017, we conclude the following:

WY 2017 Recharge Operations

WY 2017 was classified as an Extremely Wet Water Year on the Monterey Peninsula and a total volume of 2,345 af of water was recharged into the Seaside Groundwater Basin at the Santa Margarita and Seaside Middle Schools ASR Facilities during the WY 2016 injection season.

ASR Well Performance

ASR-1. Pertinent well performance conclusions for ASR-1 during WY 2017 are summarized below:

- Injection Rates: Ranged between approximately 270 to 1870 gpm, averaging approximately 1,435 gpm.
- Water Levels: Consistently less than 260 ft. bgs prior to backflushing, exceeding the recommended maximum drawup level of 100 ft.
- Specific Injectivity: Ranged between approximately 21 to 25 gpm/ft with an overall negative trend in 24-hr specific injectivity.
- Residual Plugging: Approximately 21 feet of residual plugging occurred.
- General Conclusions: ASR-1 performed well during WY 2017; however, the well did experience a moderate level residual plugging. The negative trend in performance at injection rates ranging up to 1,870 gpm suggests the injection rate at this well should be maintained at or below the design rate of 1,500 gpm in WY 2018.

ASR-2. Pertinent well performance conclusions for ASR-2 during WY 2017 are summarized below:

- Injection Rates: Ranged between approximately 340 to 1,940 gpm, averaging approximately 1,450 gpm.
- Water Levels: Consistently less than 250 ft. bgs prior to backflushing, exceeding the recommended maximum drawup level of 130 ft.
- Specific Injectivity: Ranged between approximately 30 to 34 gpm/ft with an overall negative trend in 24-hr specific injectivity.
- Residual Plugging: Approximately 23 feet of residual plugging occurred.



- General Conclusions: ASR-2 performed well during WY 2017; however, the well did experience a moderate level residual plugging. The negative trend in performance at injection rates ranging up to 1,940 gpm suggests the injection rate at this well should be maintained at or below the design rate of 1,500 gpm in WY 2018.

ASR-3. Pertinent well performance conclusions for ASR-3 during WY 2017 are summarized below:

- Injection Rates: Ranged between approximately 600 to 1,405 gpm, averaging approximately 995 gpm.
- Water Levels: Consistently less than 190 ft. bgs prior to backflushing, exceeding the recommended maximum drawup level of 170 ft.
- Specific Injectivity: Ranged between approximately 8.7 to 9.4 gpm/ft and overall stable trend in 24-hr specific injectivity.
- Residual Plugging: Approximately 36 feet of residual plugging occurred.
- General Conclusions: ASR-3 performance appeared to be relatively stable compared to the significant declines observed in WY 2012. The pattern of relative performance stabilization followed by the initial significant decline in well performance observed at ASR-3 is very similar to the pattern observed at both ASR-1 and ASR-2 when they were initially brought on-line. The stable performance at injection rates ranging between 700 to 1,010 gpm suggests the injection rate should be maintained at or below 1,000 gpm to maintain performance until the well is rehabilitated (planned for WY 2018).

ASR-4. Pertinent well performance conclusions for ASR-4 during WY 2017 are summarized below:

- Injection Rates: Ranged between approximately 140 to 1,860 gpm, averaging approximately 1,260 gpm.
- Water Levels: Generally maintained greater than 160 ft bgs, with approximately 50 feet of available “freeboard” remaining below the maximum recommended drawup level (when operated at the design injection rate of 1,500 gpm)
- Specific Injectivity: Ranged between approximately 16 to 26 gpm/ft with an overall increasing trend in 24-hr specific injectivity over the course of the injection season.
- Residual Plugging: Approximately 36 feet of residual plugging occurred.
- General Conclusions: ASR-4 performance appeared to decline significantly following the initial 8-hr step-rate injection test, then stabilize and actually increase during the course of the injection season, whereas the pumping performance decreased over



the course of the injection season. At this time, it is unclear why this well displayed apparent contradictory performance during WY 2017. Accordingly, these observations suggest the injection rate should be maintained at or below the design rate of 1,500 gpm until the performance trends at this well can be evaluated more fully in WY 2018.

Water Quality

Significant conclusions regarding the water-quality investigation during WY 2017 include the following:

- Consistent with previous observations, no significant ion exchange, acid-base, or precipitation reactions were observed at the ASR sites.
- THMs during the WY 2017 storage period showed the typical initial and significant ingrowth; however, they differed from the typical pattern in that significant degradation of THMs was not observed during the storage period at most wells (with the possible exception of ASR-4). The lack of THM degradation observed during the WY 2017 storage period is attributable the significantly greater volume and duration of injection, and the relatively short storage period, compared to previous years.
- HAAs at the wells with sufficient data generally showed their typical pattern of limited (if any) ingrowth during the initial storage period, followed by complete to near-complete degradation by the end of the storage season.
- The investigation of sporadic occurrences of Hg in the various wells has not conclusively identified the origins and mechanisms of the process to date; however, the following conclusions were developed based on the current years' data:
 - High frequency source sampling of Carmel River waters established that the river does not appear to be the source of Hg at the wells.
 - Source water Hg levels were all below detection limits.
 - In contrast to earlier data, Hg occurrences in WY 2017 generally consisted of soluble Hg rather than Insoluble (particulate) Hg; this was particularly evident in ASR- 2 and ASR-3; whereas ASR-4 Hg occurrences were approximately 1:1 in soluble:insoluble speciation.
 - A trend was observed in increasing Hg levels over time during aquifer storage, and a corresponding increase in the presence of Cu ion. This may represent a possible geochemical reaction mechanism related to the solubilization of Hg from Tsm minerals.



RECOMMENDATIONS

Based on the WY 2017 ASR program results and our experience with similar ASR projects, we offer the following recommendations for continued and future operations of the Monterey Peninsula ASR Project wells:

ASR-1 Well Operational Parameters

- **Injection Rate:** Based on the amount of residual plugging that occurred during WY 2017 with the well injecting up to 1,870 gpm, we recommend the injection rate be limited to approximately **1,500 gpm or less** in order to limit residual plugging and maintain long-term performance.
- **Water-Level Drawup:** Under the present local water-level conditions, the amount of water-level drawup should be limited to approximately 100 feet. This amount of water-level drawup during injection equals the typical available drawdown in the well for backflushing. This helps to avoid over-pressurization and compression of plugging materials, thereby maximizing the efficiency of backflushing and limiting the amount of residual plugging. Furthermore, the drawup calculation should not be adjusted during the injection based on apparent changes in the static water level, and injection water levels should be maintained **greater than 260 feet bgs** at all times.
- **Backflushing Frequency:** During the recharge season, routine backflushing should continue to be performed on an approximate weekly basis, or when the amount of water-level drawup in the casing reaches a depth to water level of approximately **260 feet bgs**, whichever occurs first. Backflushing should consist of the triple-flush procedure initiated in WY 2017.

ASR-2 Well Operational Parameters

- **Injection Rate:** Based on the amount of residual plugging that occurred during WY 2017 with the well injecting up to 1,945 gpm, we recommend the injection rate be limited to the design rate of approximately **1,500 gpm or less** in order to limit residual plugging and maintain long-term performance.
- **Water-Level Drawup:** Under the present local water-level conditions, the amount of water-level drawup should be limited to approximately 130 feet, which is equal to the typical amount of available drawdown in the well for backflushing. Again, this helps to avoid over-pressurization and compression of plugging materials and limiting the amount of residual plugging. Furthermore, the drawup calculation should not be adjusted during the injection based on apparent changes in the static water level, and injection water levels should be maintained **greater than 250 feet bgs** at all times.
- **Backflushing Frequency:** During the recharge season, routine backflushing should continue to be performed on an approximate weekly basis, or when the amount of



water-level drawup in the casing reaches a depth to water level of approximately **250 feet bgs**, whichever occurs first. Backflushing should consist of the triple-flush procedure initiated in WY 2017.

ASR-3 Well Operational Parameters

- Injection Rate: Based on the amount of residual plugging that occurred during WY 2017 with the well injecting up to 1,405 gpm, we recommend the injection rate continue to be limited to **1,000 gpm** in order to limit residual plugging and maintain long-term performance.
- Water-Level Drawup: Under the present local water-level conditions, the amount of water-level drawup should be limited to approximately 170 feet, which is equal to the typical amount of available drawdown in the well for backflushing. Again, this helps to avoid over-pressurization and compression of plugging materials and limiting the amount of residual plugging. Furthermore, the drawup calculation should not be adjusted during the injection based on apparent changes in the static water level, and injection water levels should be maintained **greater than 190 feet bgs** at all times.
- Backflushing Frequency: During the recharge season, routine backflushing should continue to be performed on an approximate weekly basis, or when the amount of water-level drawup in the casing reaches a depth to water level of approximately **190 feet bgs**, whichever occurs first. Backflushing should consist of the triple-flush procedure initiated in WY 2017.

ASR-3 should undergo formal rehabilitation to improve well performance and injection capacity, similar to that performed at ASR-1 and ASR-2. It is believed that following rehabilitation, the well will be able to operate at its design injection rate of 1,500 gpm (i.e., 50 percent greater than the current capacity of 1,000 gpm).

ASR-4 Well Operational Parameters

- Injection Rate: Based on the amount of residual plugging that occurred during WY 2017 with the well injecting up to 1,590 gpm, we recommend the injection rate be limited to the design rate of approximately **1,500 gpm or less** in order to limit residual plugging and maintain long-term performance.
- Water-Level Drawup: Under the present local water-level conditions, the amount of water-level drawup should be limited to approximately 200 feet, which is equal to the typical amount of available drawdown in the well for backflushing. Again, this helps to avoid over-pressurization and compression of plugging materials and limiting the amount of residual plugging. Furthermore, the drawup calculation should not be adjusted during the injection based on apparent changes in the static water level, and injection water levels should be maintained **greater than 160 feet bgs** at all times.



- **Backflushing Frequency:** During the recharge season, routine backflushing should continue to be performed on an approximate weekly basis, or when the amount of water-level drawup in the casing reaches a depth to water level of approximately **160 feet bgs**, whichever occurs first. Backflushing should consist of the triple-flush procedure initiated in WY 2017.

Supplemental Water Quality Investigations

1. The water quality program outlined in the SSAP, specifically the collection of monthly 4- and 20-minute samples from each of the four ASR wells, should be continued for WY 2018.
2. Collection and screening analysis of Tsm cuttings from upcoming proximate wells should be implemented, with subsequent speciation analyses performed on samples with Hg concentrations > 20 mg/kg.
3. Geochemical interaction modeling of the ASR program should be performed in the event that mineralized Hg compounds can be positively identified or inferred from other sources.
4. Data from the ASR-4 baseline injection testing should be further analyzed via geochemical modeling to evaluate the possible mechanism(s) associated with the anomalous spike in Hg immediately after initial injection testing.
5. If possible, perform extended pumping tests of ASR-2 and ASR-4 with SSAP analytic parameters analyses to assess the long-term water quality trends at these wells.

CLOSURE

This report has been prepared exclusively for the Monterey Peninsula Water Management District for the specific application to the ASR Project on the Monterey Peninsula. The findings and conclusions presented herein were prepared in accordance with generally accepted hydrogeologic and engineering practices. No other warranty, express or implied, is made.



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FIGURES

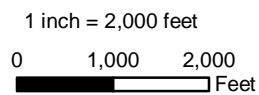
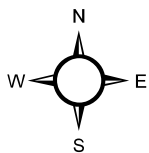
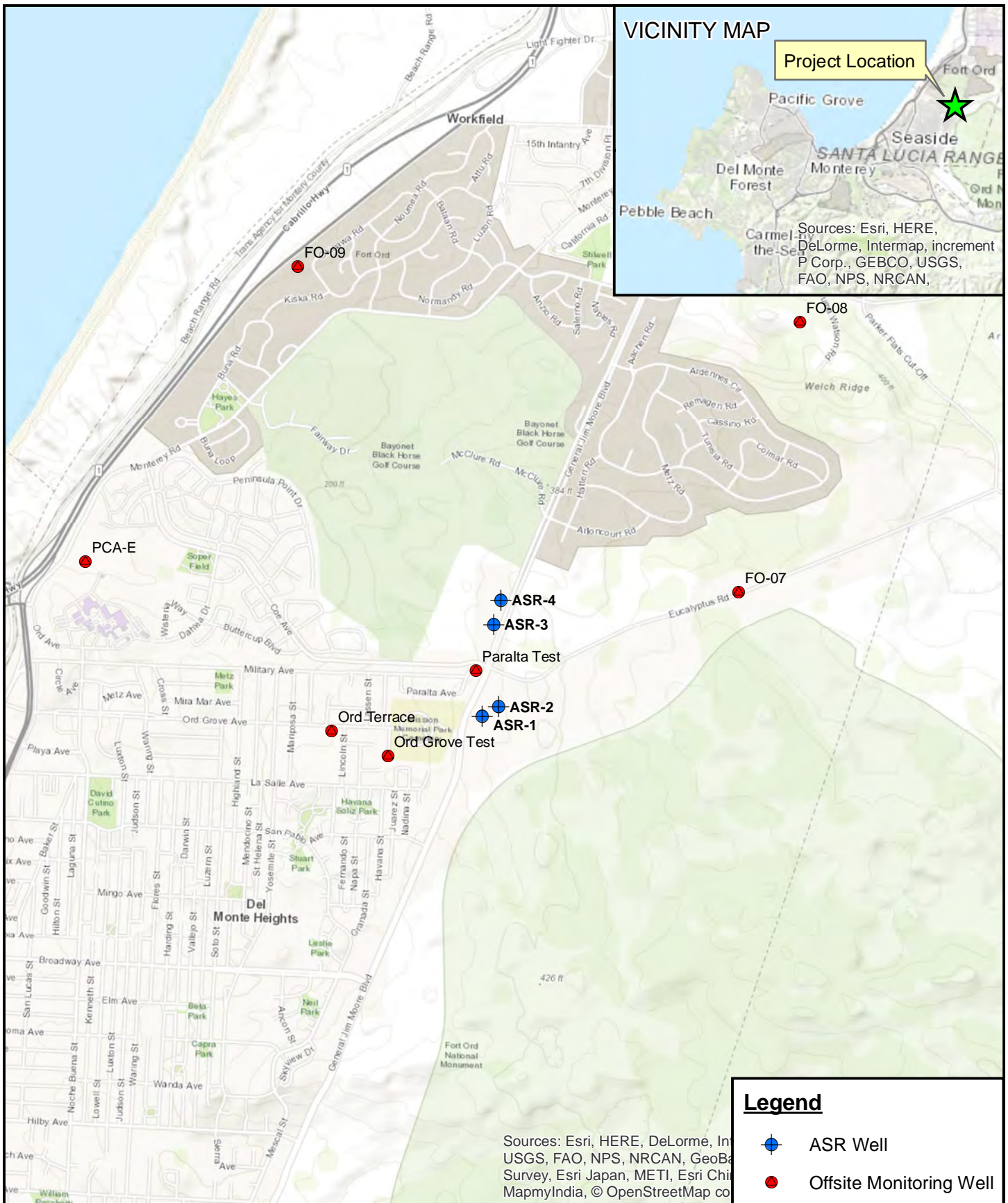
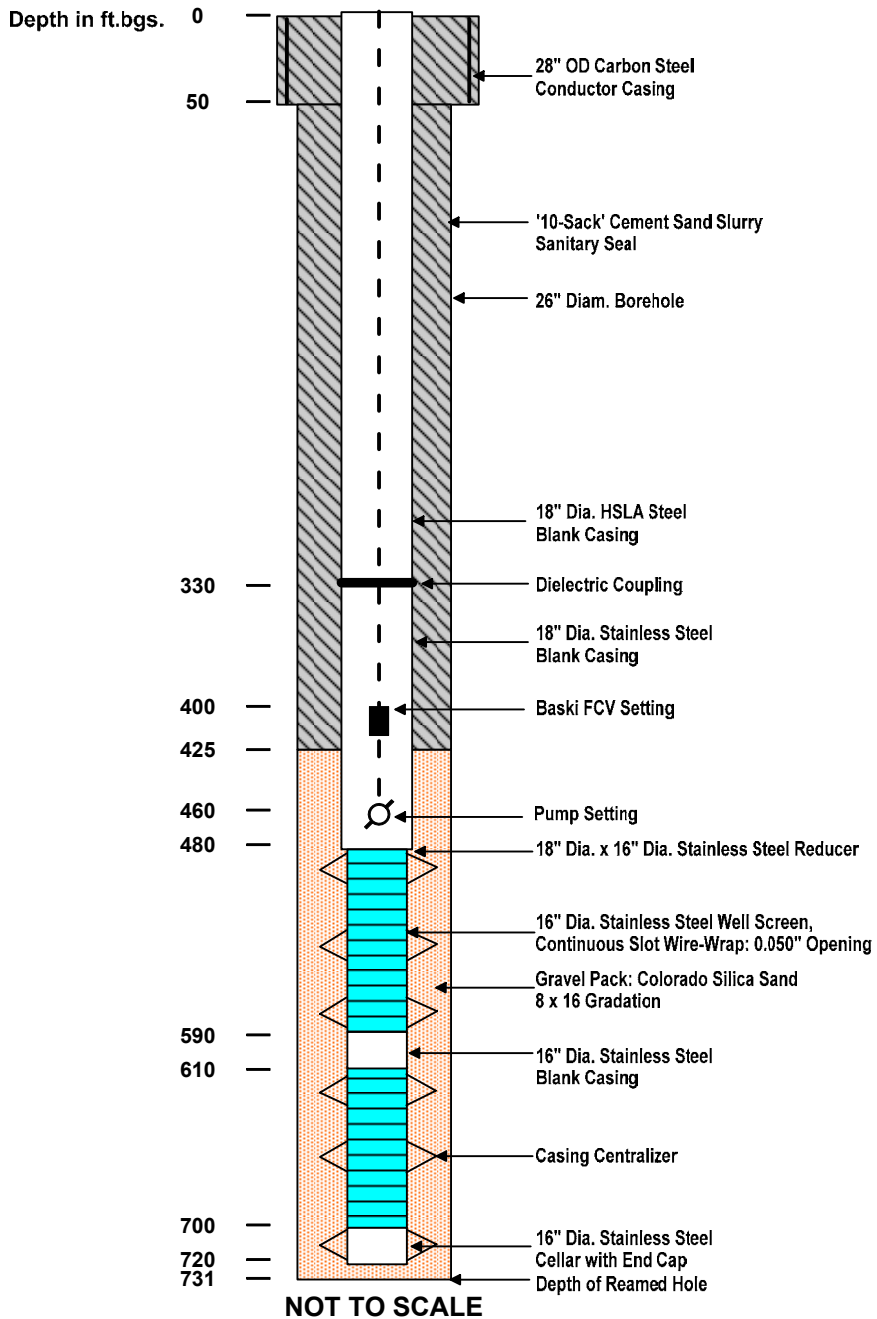


FIGURE 1. SITE LOCATION MAP
WY 2017 ASR Program
Monterey Peninsula Water Management District

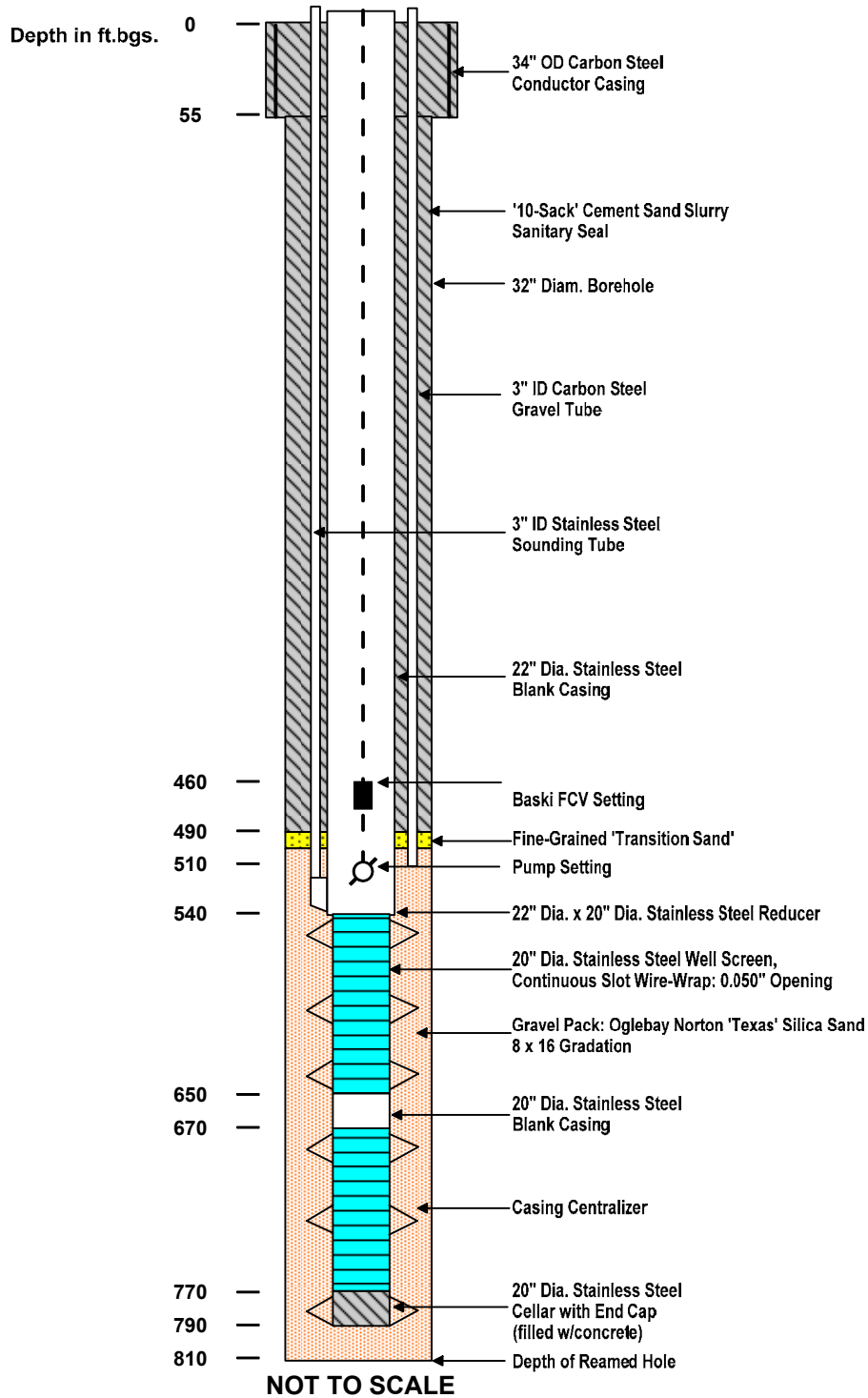


Pump Assembly Notes:

Hp: 600
 Bowls: 16ENL, 7 stage
 Col. Pipe Dia: 12"
 Col. Pipe Length: 20'
 Assy. Type: Water Lube/Open Shaft
 Baski FCV Setting: 400' - 410'
 Top of Bowls: 460'
 Bowl Length: 10.5'
 Suction Length: 10'
 Intake: 480.5'



FIGURE 2. ASR-1 AS-BUILT SCHEMATIC
 WY 2017 ASR Program
 Monterey Peninsula Water Management District



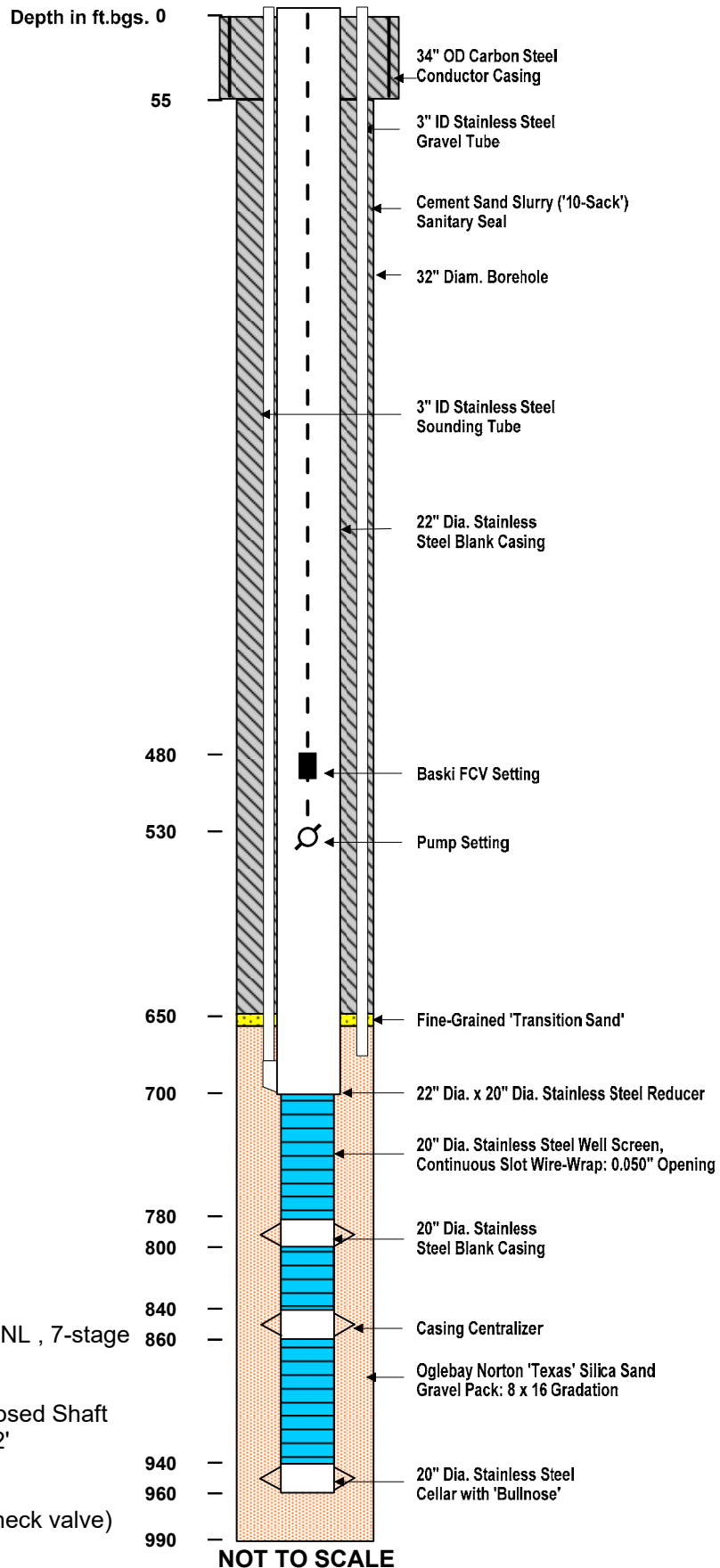
NOT TO SCALE

Pump Assembly Notes:

Hp: 600
 Bowls: 16ENL, 7 stage
 Col. Pipe Dia: 12"
 Col. Pipe Length: 20'
 Assy. Type: Water Flush/Enclosed Shaft
 Baski FCV Setting: 460' - 470'
 Top of Bowls: 510'
 Bowl Length: 10.5'
 Suction Length: 10'
 Intake: 530.5'



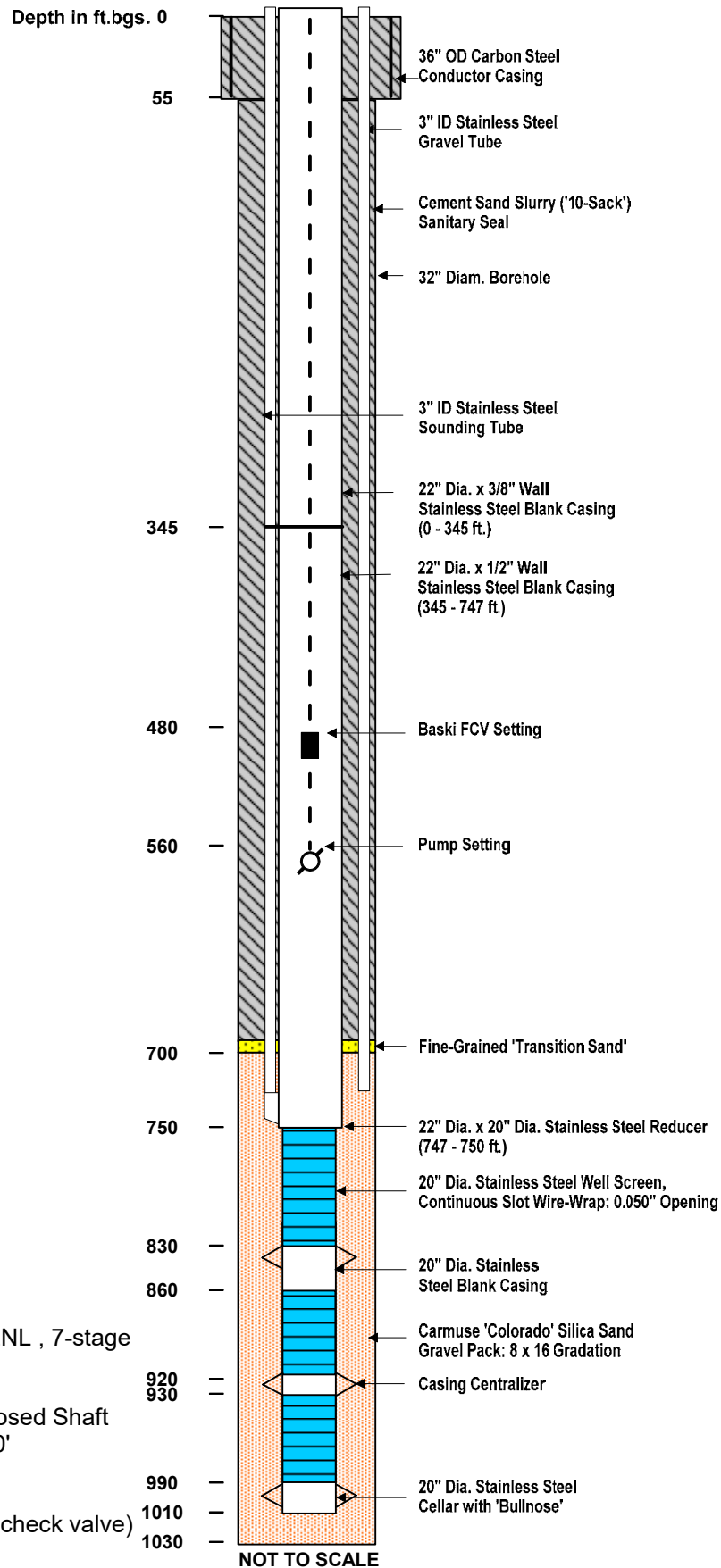
FIGURE 3. ASR-2 AS-BUILT SCHEMATIC
 WY 2017 ASR Program
 Monterey Peninsula Water Management District



Pump Assembly Notes:

Hp: 600
 Bowls: Flowserve Model 16 ENL , 7-stage
 Col. Pipe Dia: 12"
 Col. Pipe Length: 20'
 Assy. Type: Water Flush/Enclosed Shaft
 Baski FCV Setting: 482' to 492'
 Top of Bowls: 532'
 Bowl Length: 10.5'
 Suction Length: 8'(including check valve)
 Intake: 550.5'

FIGURE 4. ASR-3 AS-BUILT SCHEMATIC
 WY 2017 ASR Program
 Monterey Peninsula Water Management District



Pump Assembly Notes:

Hp: 600
 Bowls: Flowserve Model 16 ENL , 7-stage
 Col. Pipe Dia: 12"
 Col. Pipe Length: 20'
 Assy. Type: Water Flush/Enclosed Shaft
 Baski FCV Setting: 480' to 490'
 Top of Bowls: 562'
 Bowl Length: 10.4'
 Suction Length: 10' (including check valve)
 Intake: 582.4'

**FIGURE 5. ASR-4 AS-BUILT SCHEMATIC
 WY 2017 ASR Program
 Monterey Peninsula Water Management District**

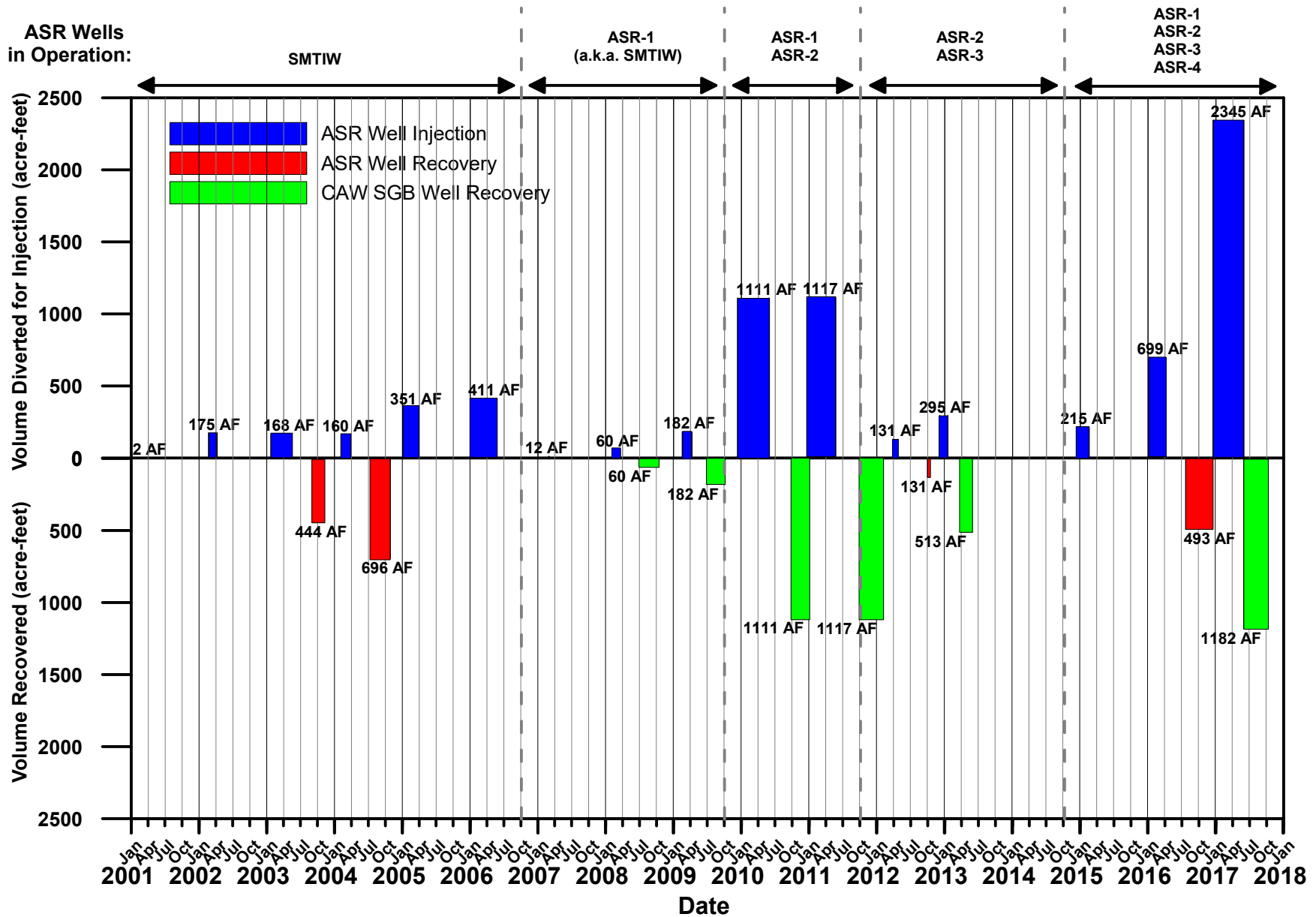


FIGURE 6. SUMMARY OF ASR OPERATIONS (WY 2001 - WY 2017)
 WY 2017 ASR Program
 Monterey Peninsula Water Management District

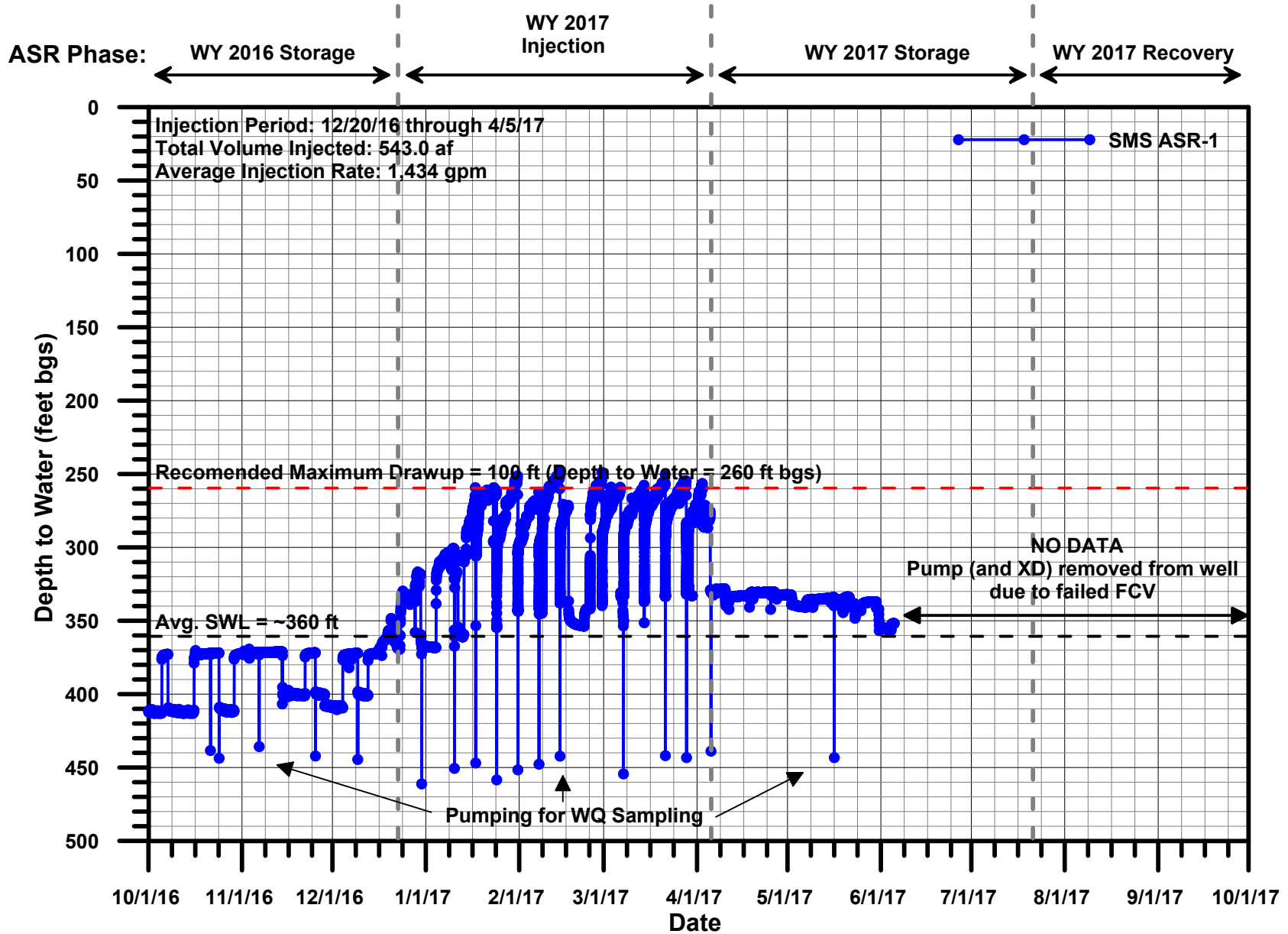


FIGURE 7. ASR-1 WATER-LEVEL DATA
WY 2017 ASR Program
Monterey Peninsula Water Management District

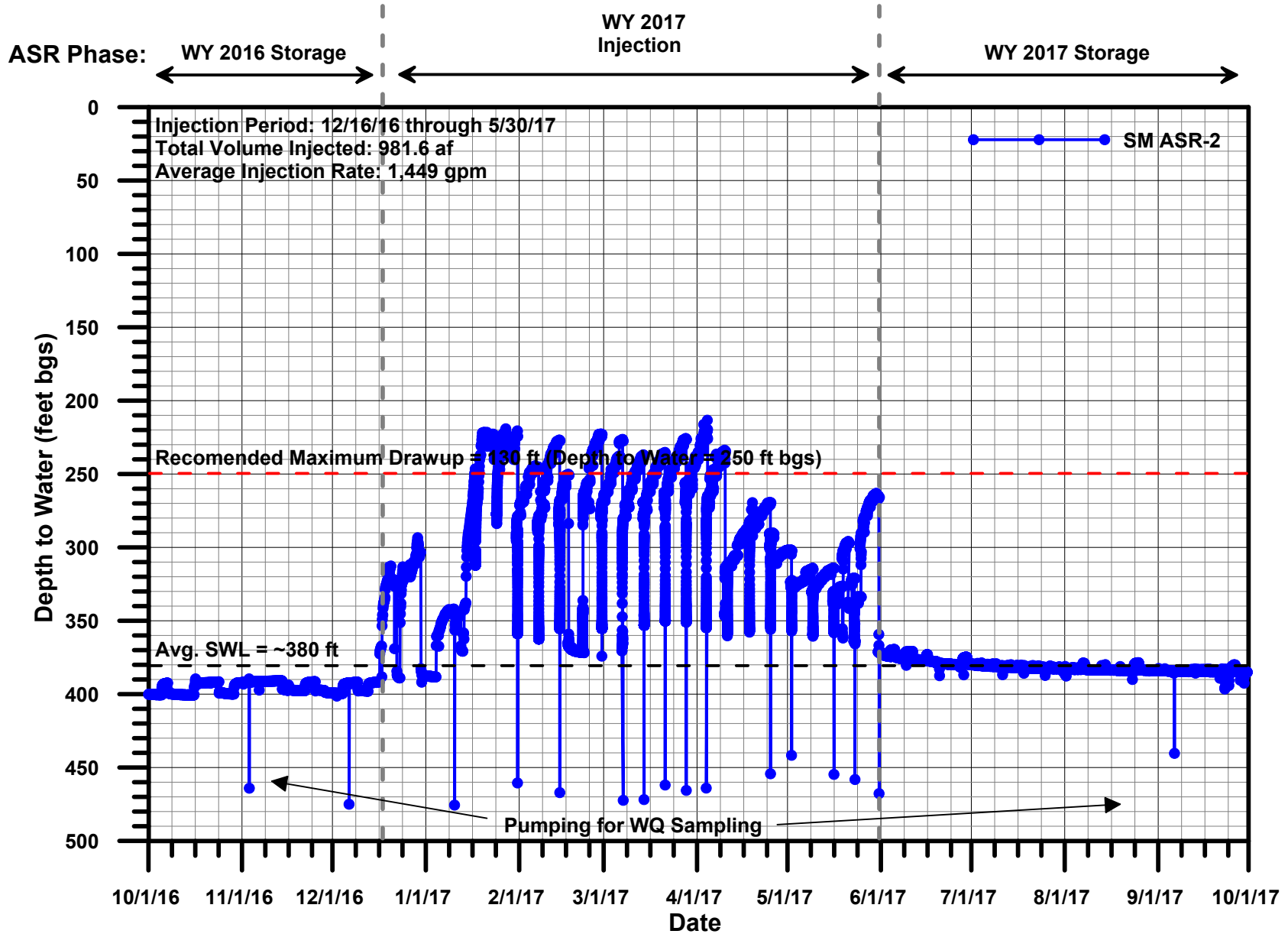


FIGURE 8. ASR-2 WATER-LEVEL DATA
WY 2017 ASR Program
Monterey Peninsula Water Management District

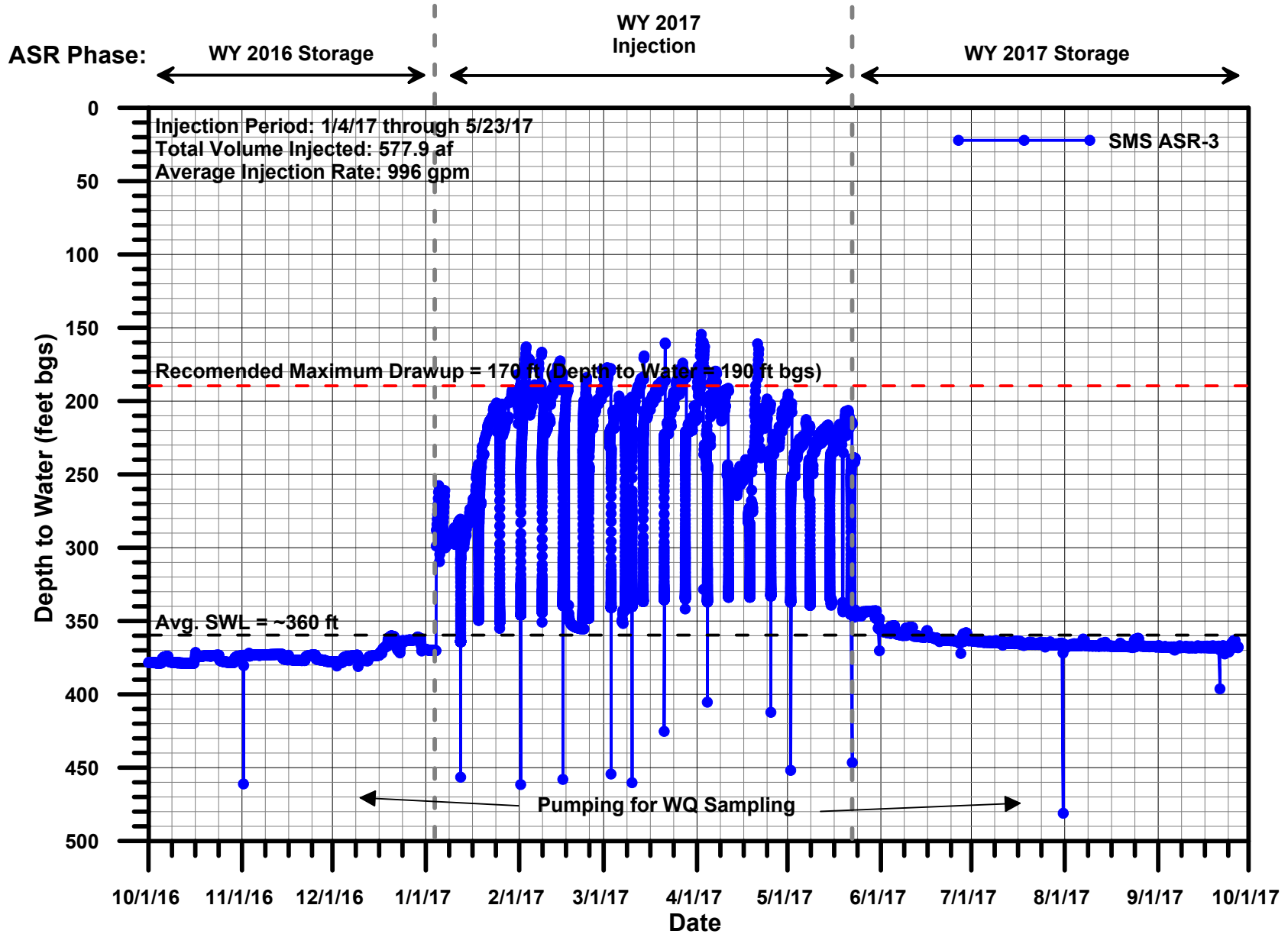


FIGURE 9. ASR-3 WATER-LEVEL DATA
WY 2017 ASR Program
Monterey Peninsula Water Management District

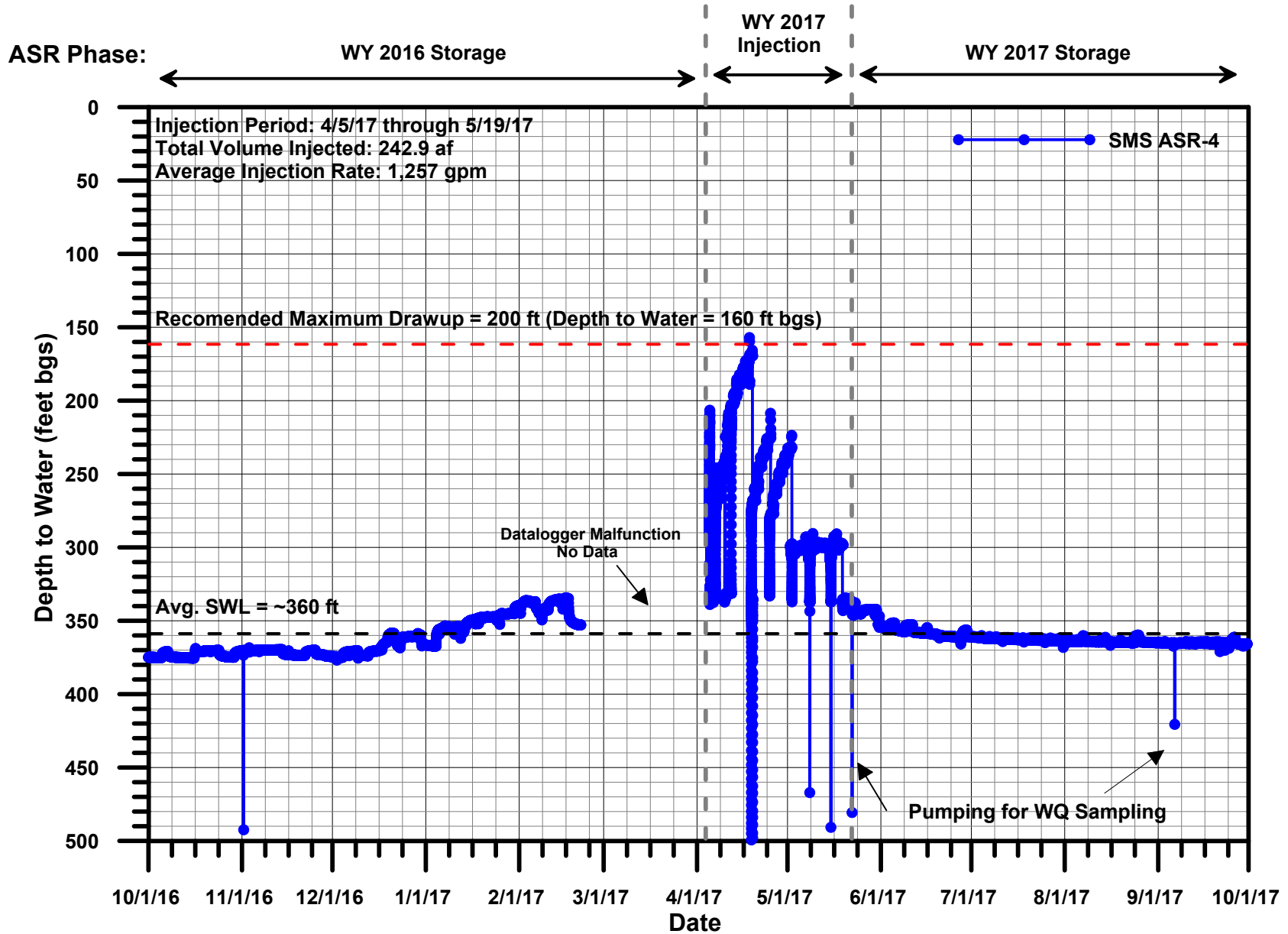


FIGURE 10. ASR-4 WATER-LEVEL DATA
WY 2017 ASR Program
Monterey Peninsula Water Management District

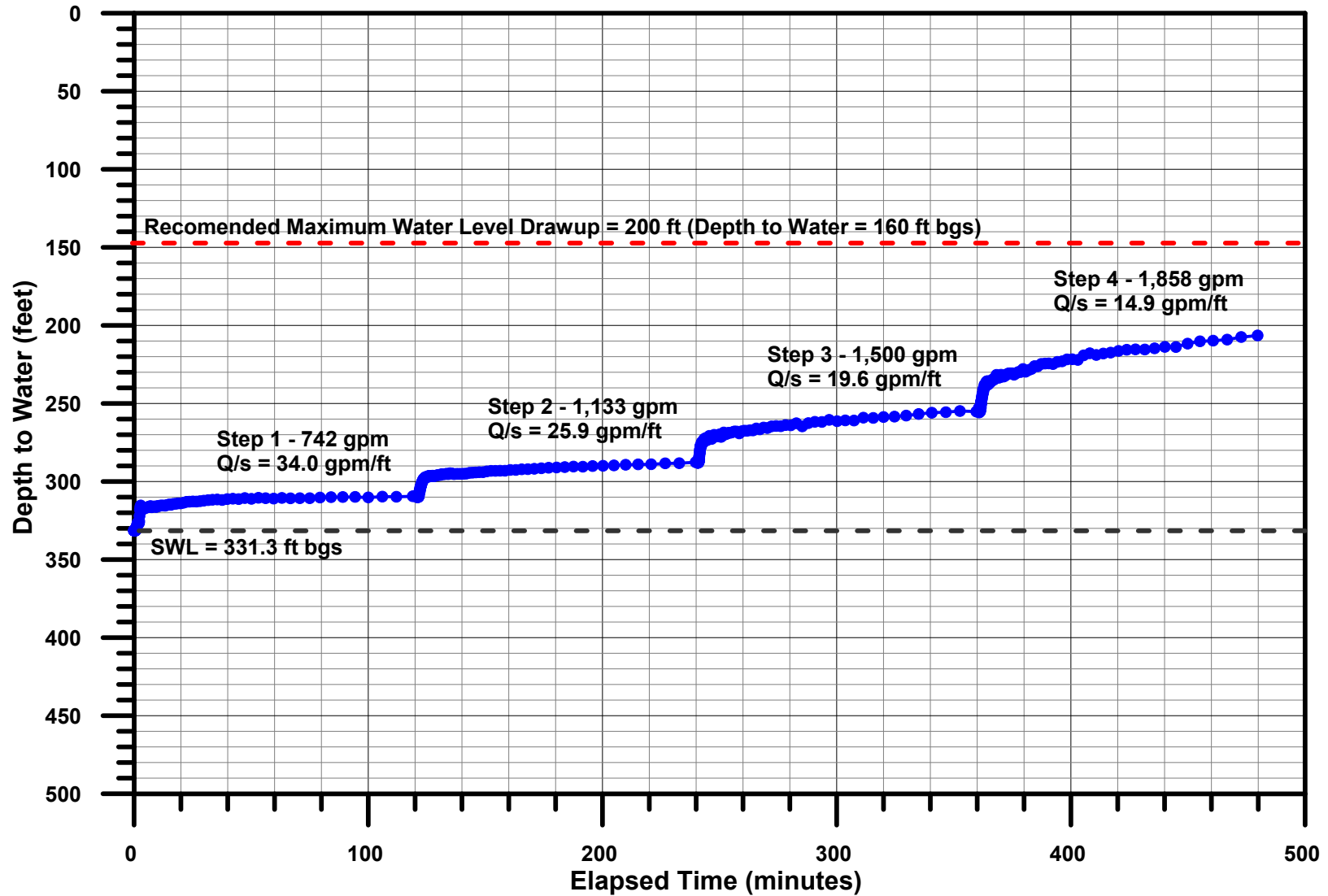
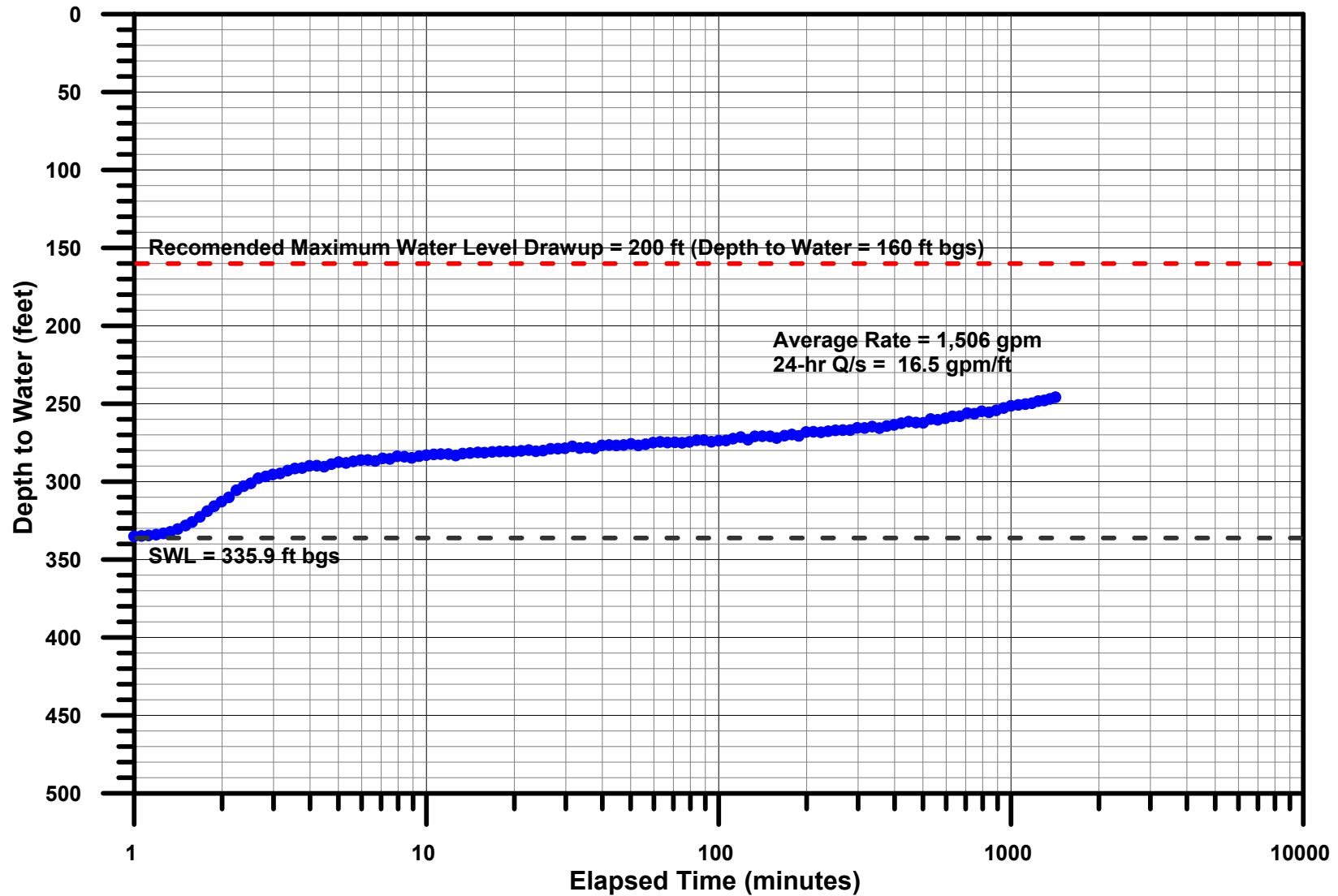


FIGURE 11. ASR-4 BASELINE INJECTION TESTING - 8-HR STEP-RATE INJECTION TEST
WY 2017 ASR Program
Monterey Peninsula Water Management District



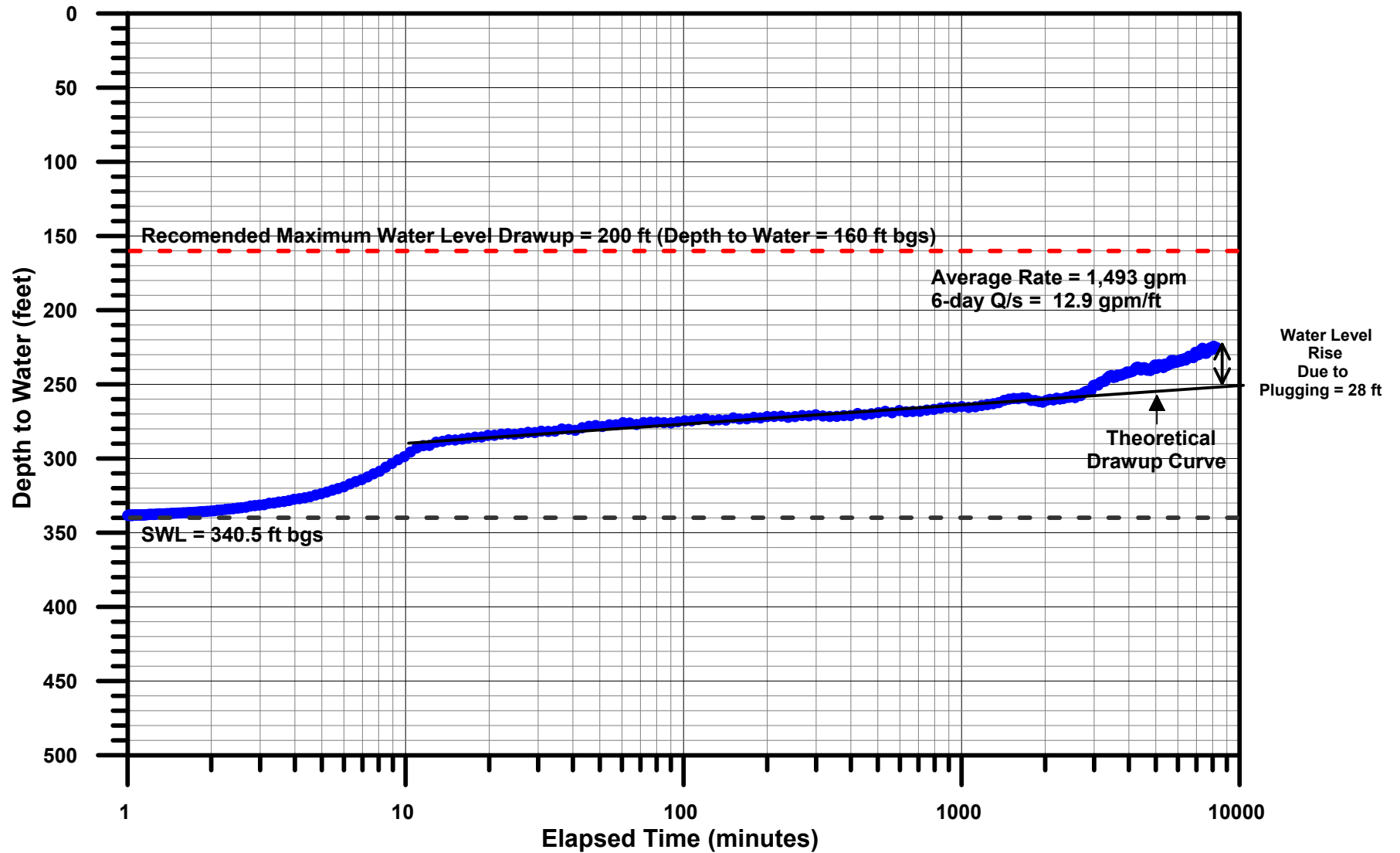


FIGURE 13. ASR-4 BASELINE INJECTION TESTING - 6-DAY CONSTANT RATE INJECTION TEST
WY 2017 ASR Program
Monterey Peninsula Water Management District

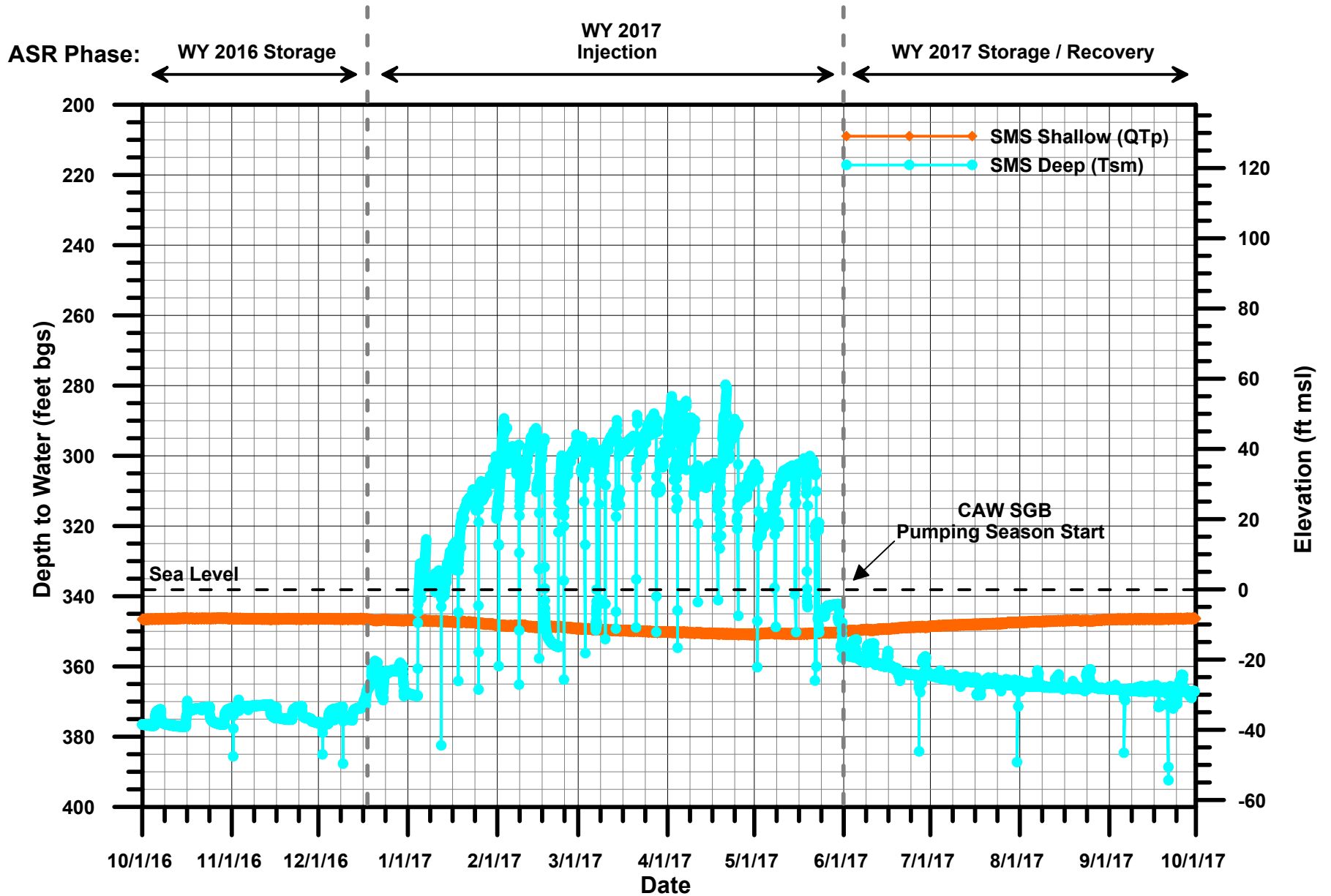


FIGURE 14. SMS MW WATER-LEVEL DATA
WY 2017 ASR Program
Monterey Peninsula Water Management District

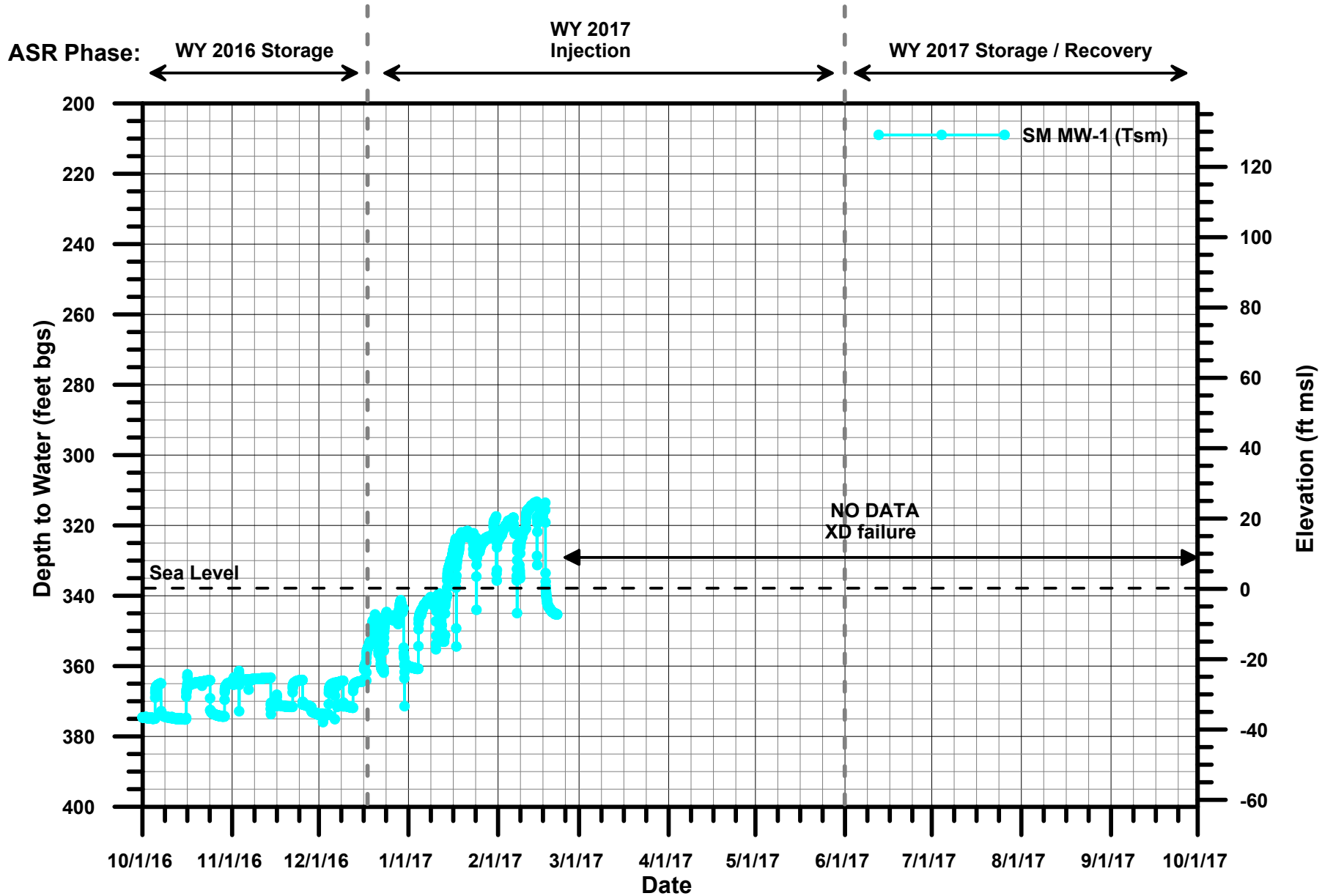


FIGURE 15. SM MW-1 WATER-LEVEL DATA
WY 2017 ASR Program
Monterey Peninsula Water Management District

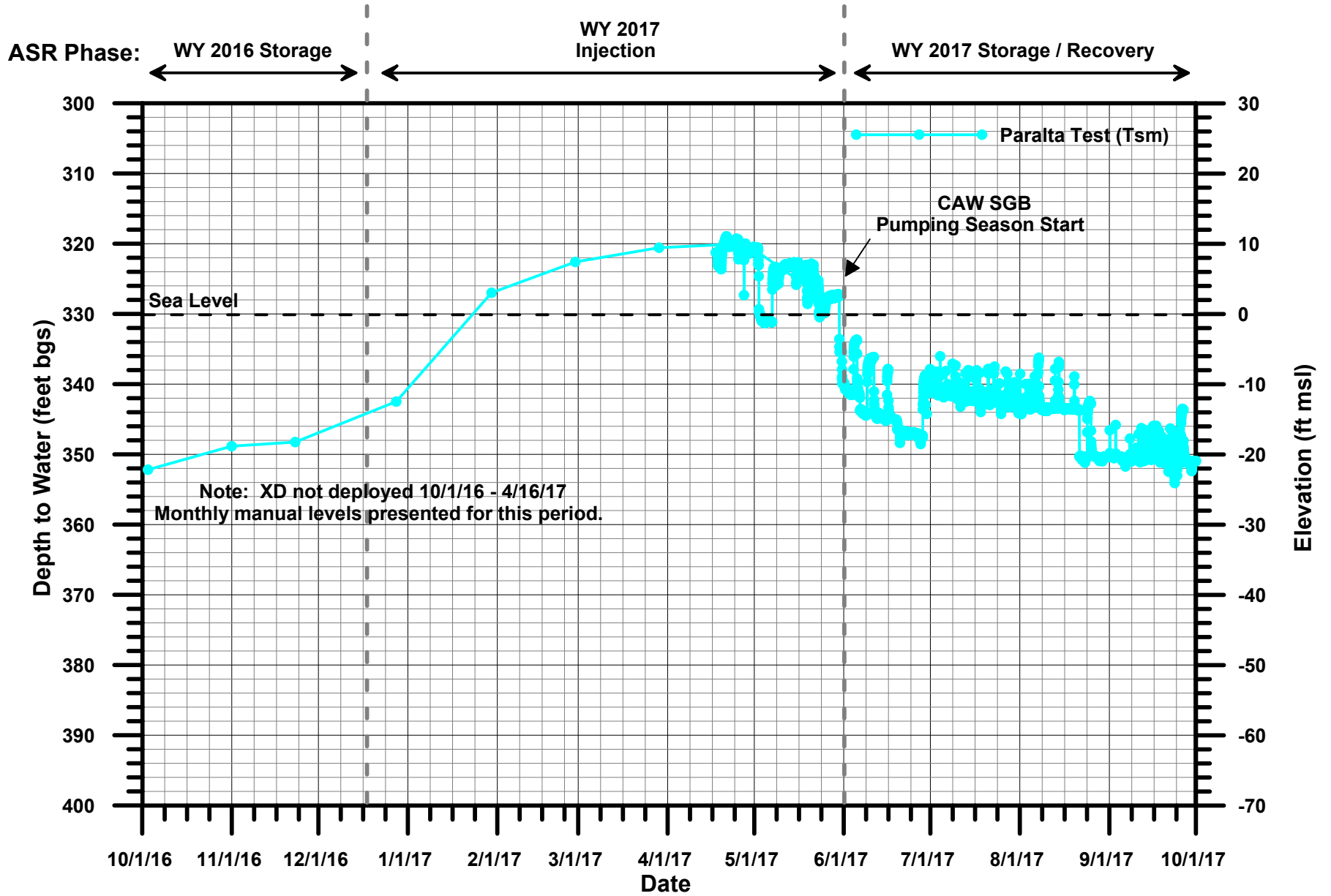


FIGURE 16. PARALTA TEST WATER-LEVEL DATA
WY 2017 ASR Program
Monterey Peninsula Water Management District

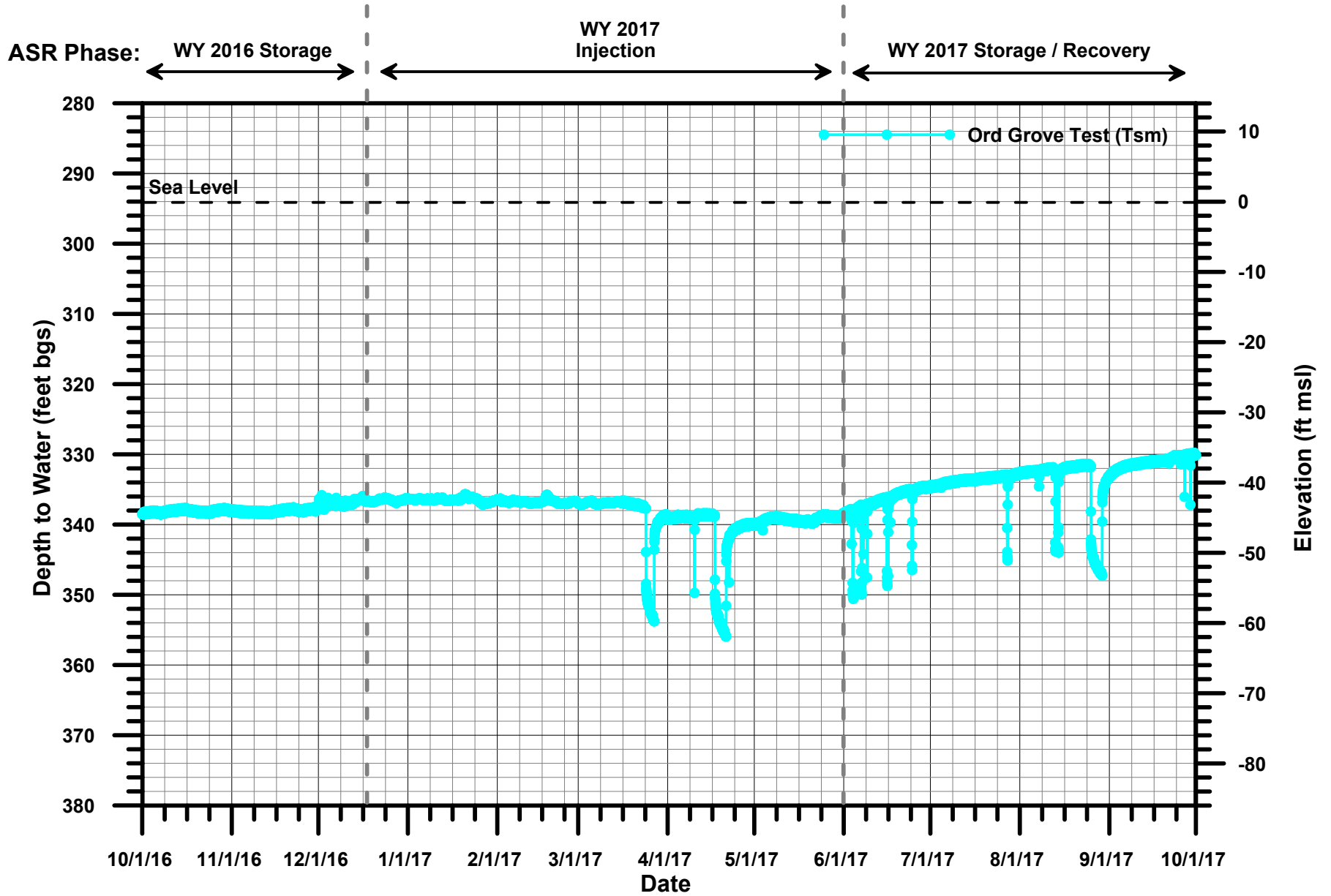


FIGURE 17. ORD GROVE TEST WATER-LEVEL DATA
WY 2017 ASR Program
Monterey Peninsula Water Management District

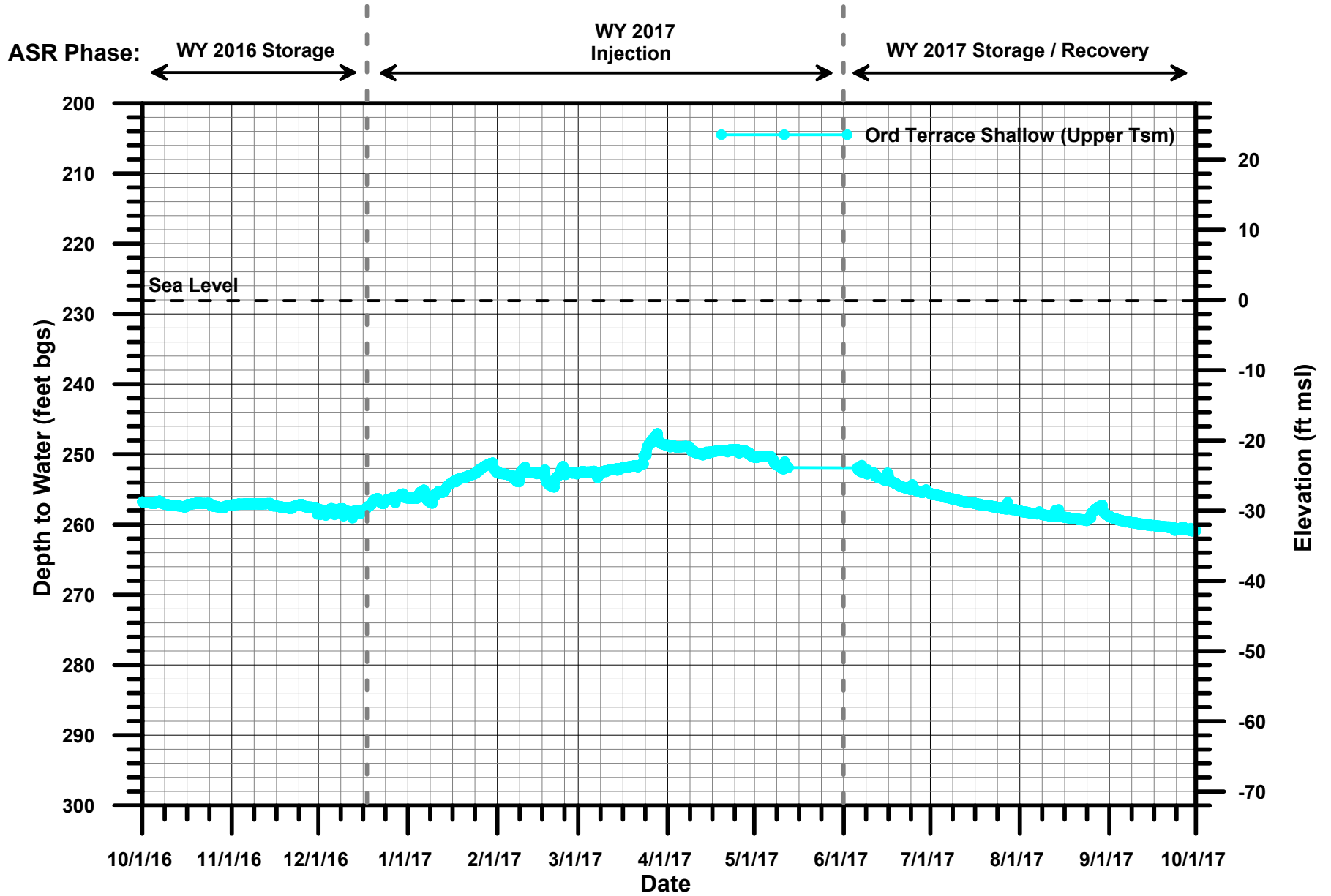


FIGURE 18. ORD TERRACE WATER-LEVEL DATA
WY 2017 ASR Program
Monterey Peninsula Water Management District

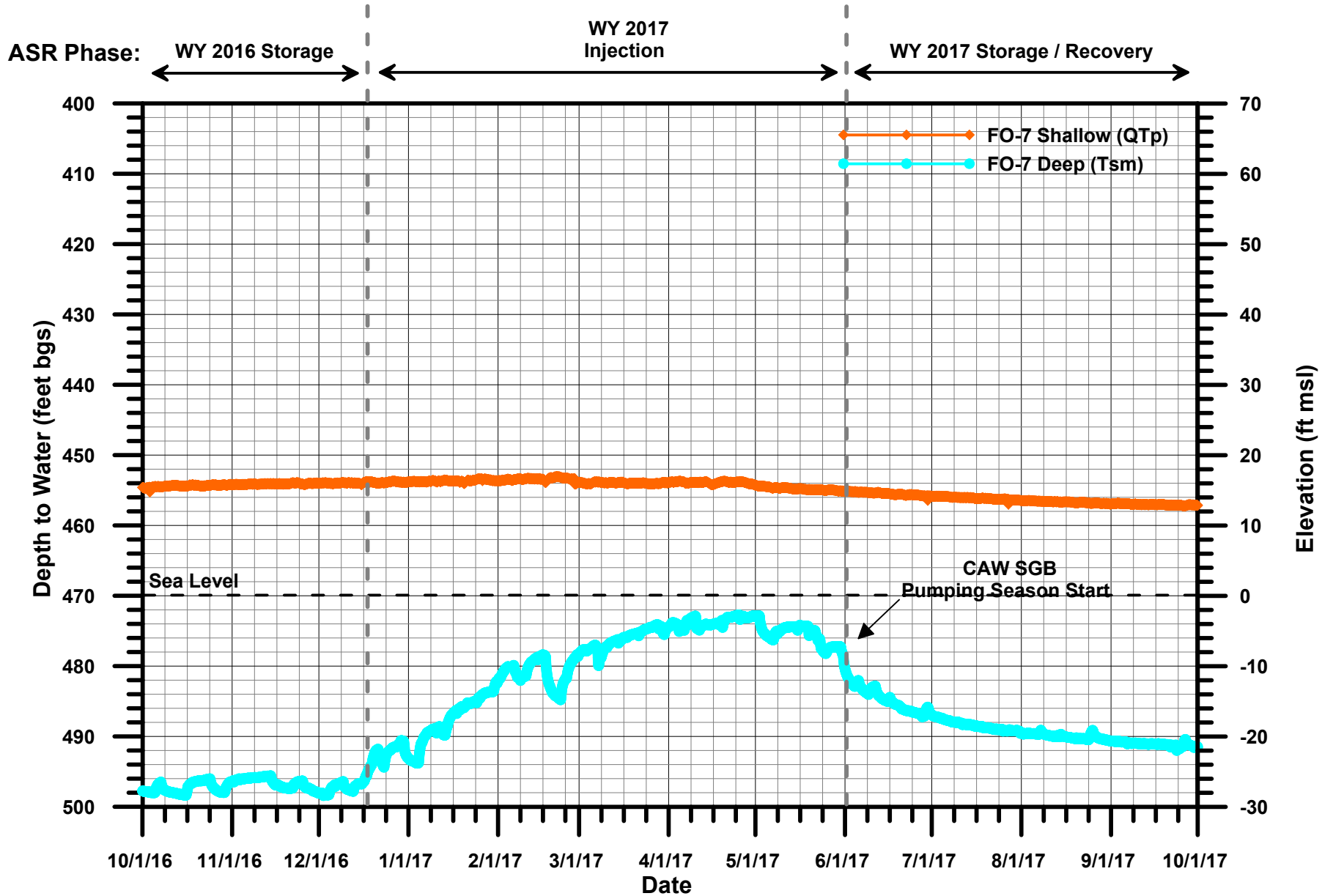


FIGURE 19. FO-7 WATER-LEVEL DATA
WY 2017 ASR Program
Monterey Peninsula Water Management District

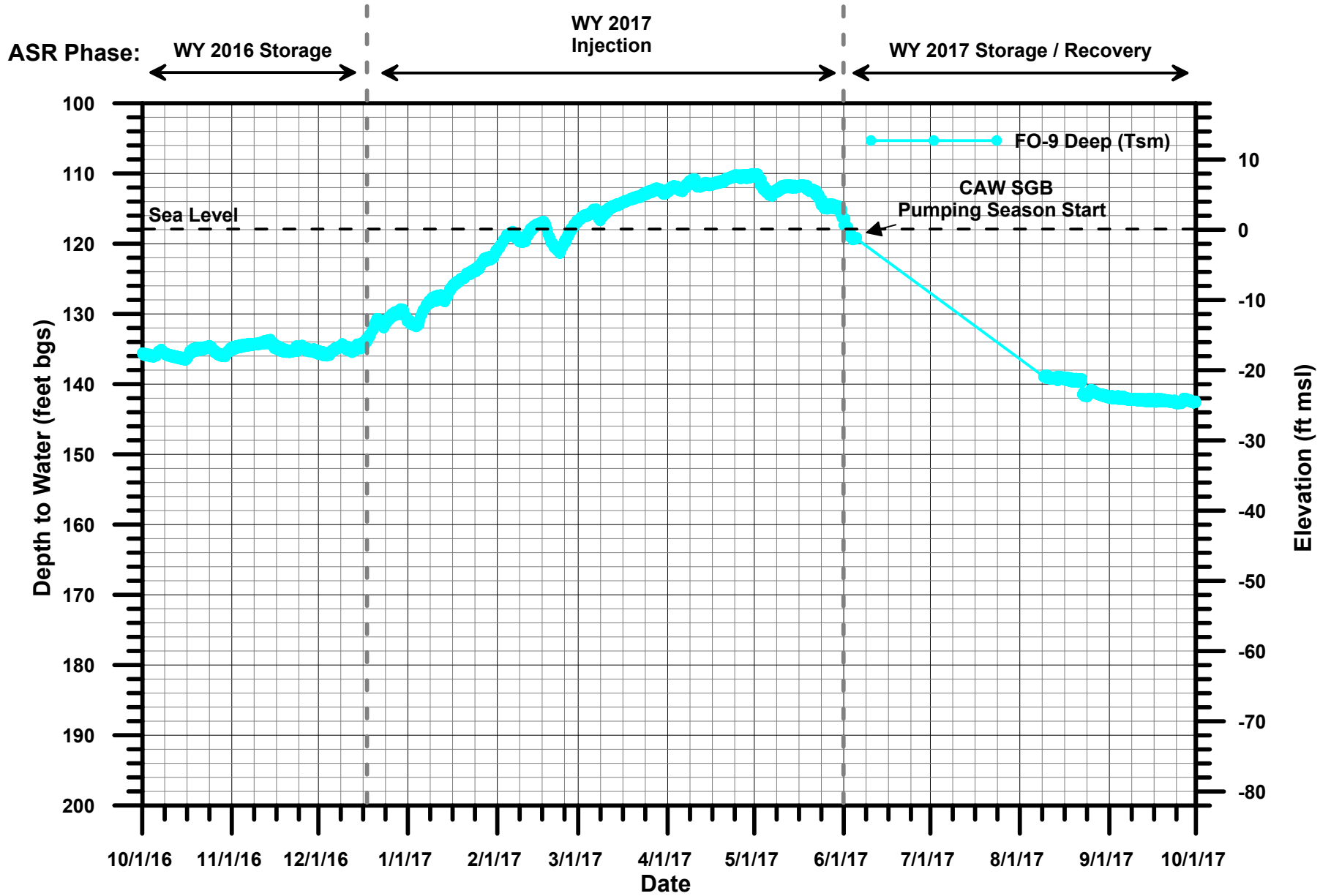


FIGURE 20. FO-9 WATER-LEVEL DATA
WY 2017 ASR Program
Monterey Peninsula Water Management District

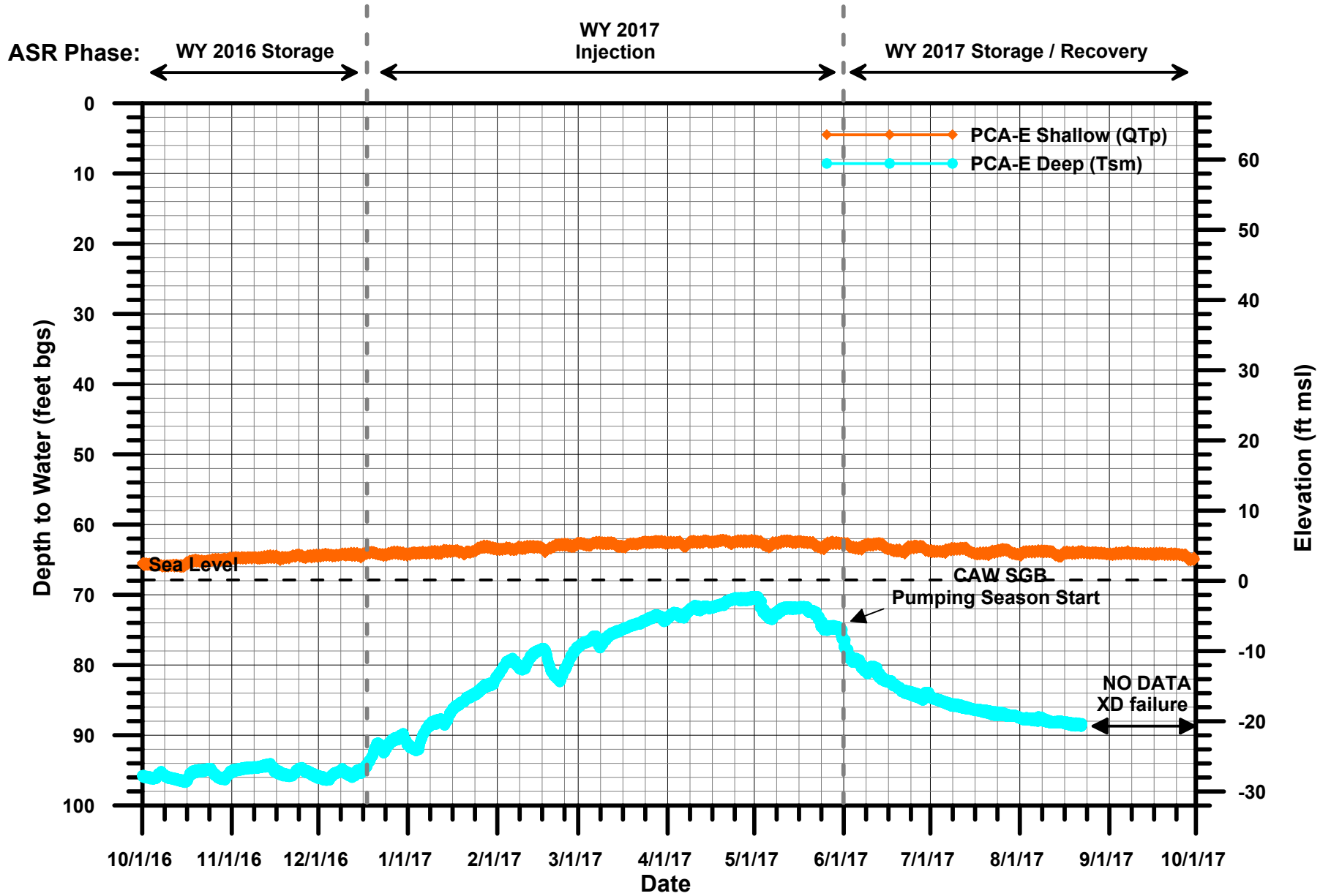


FIGURE 21. PCA-EAST WATER-LEVEL DATA
 WY 2017 ASR Program
 Monterey Peninsula Water Management District

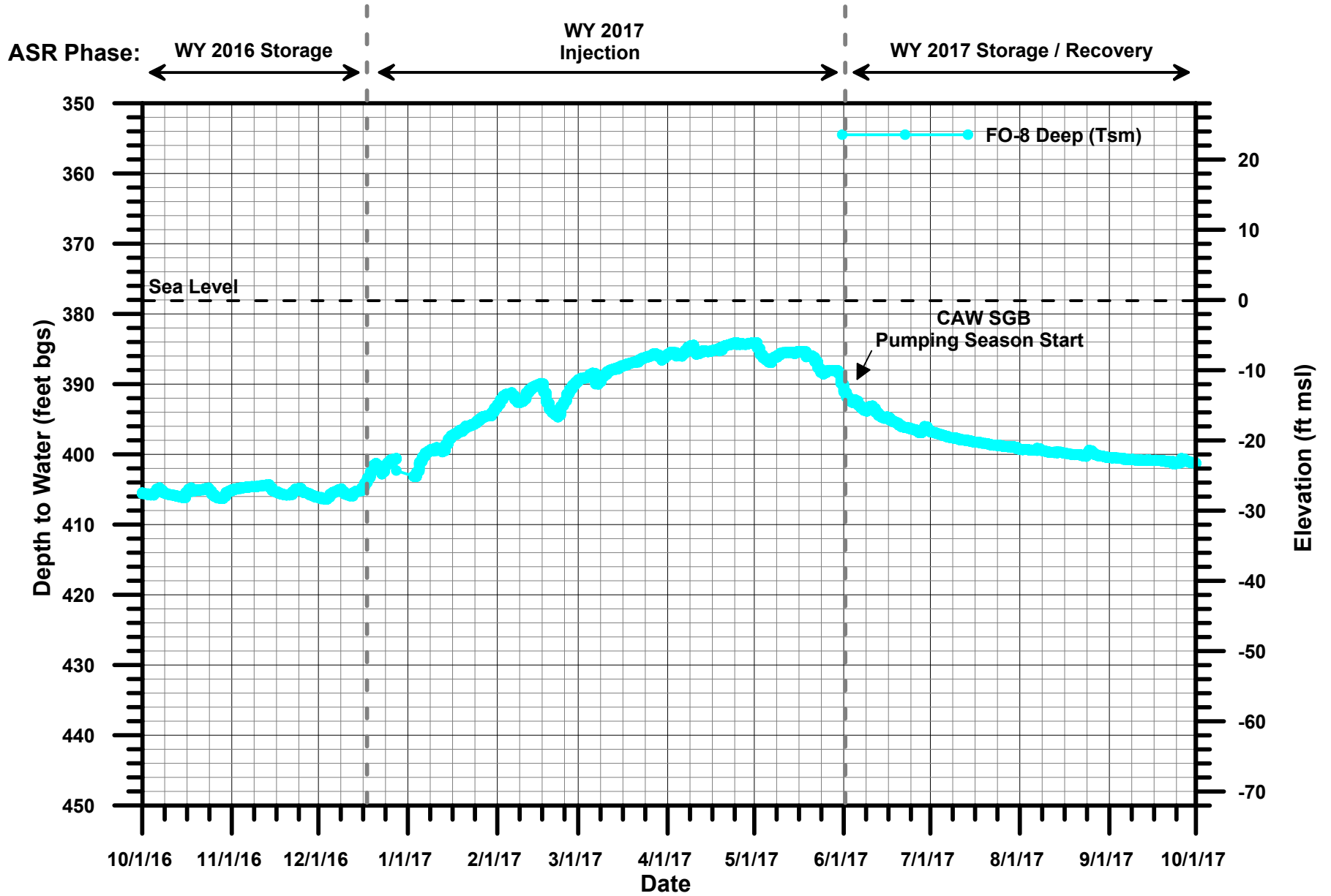


FIGURE 22. FO-8 WATER-LEVEL DATA
WY 2017 ASR Program
Monterey Peninsula Water Management District

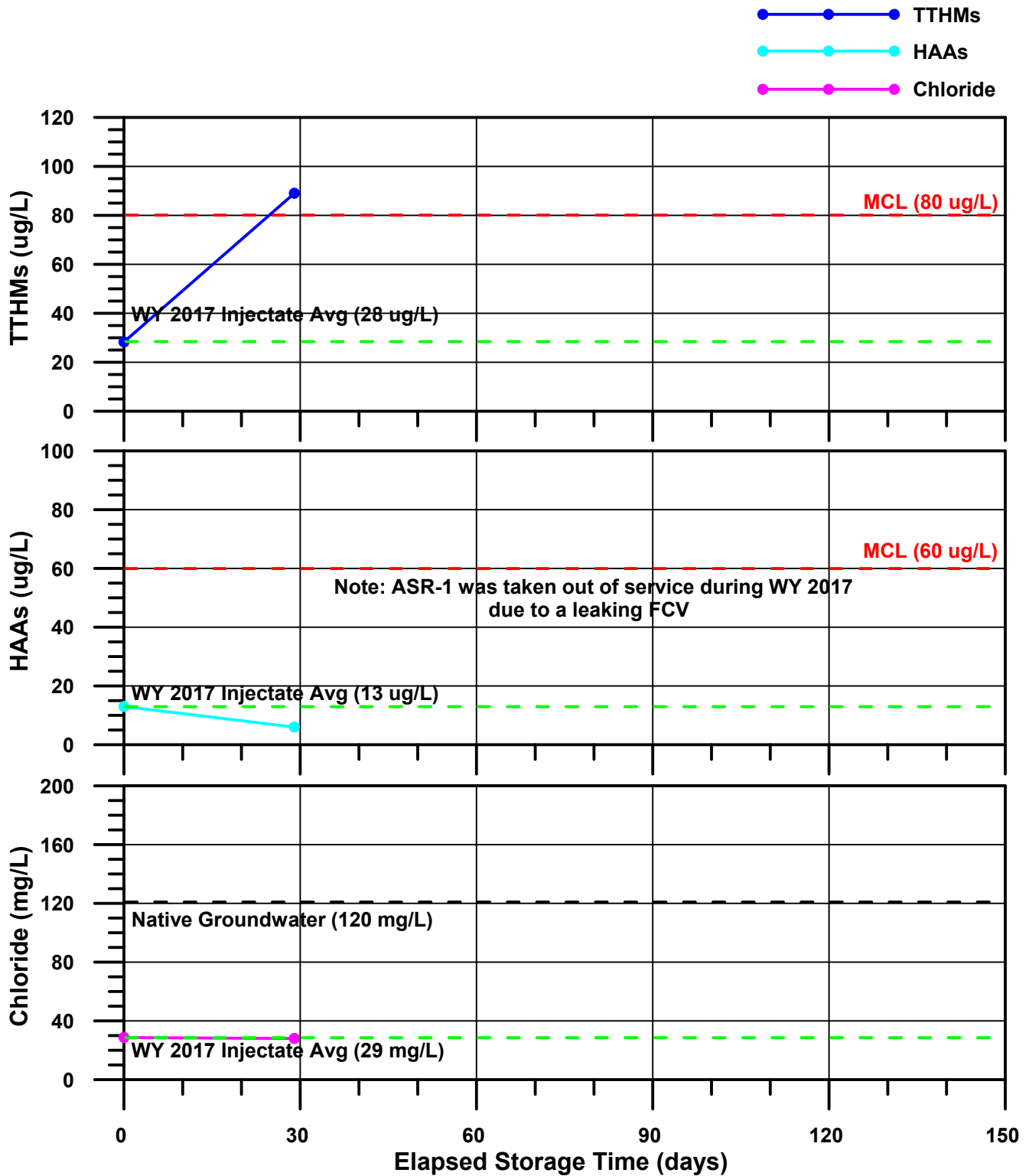


FIGURE 23. ASR-1 DISINFECTION BYPRODUCTS PARAMETERS
 WY 2017 ASR Program
 Monterey Peninsula Water Management District

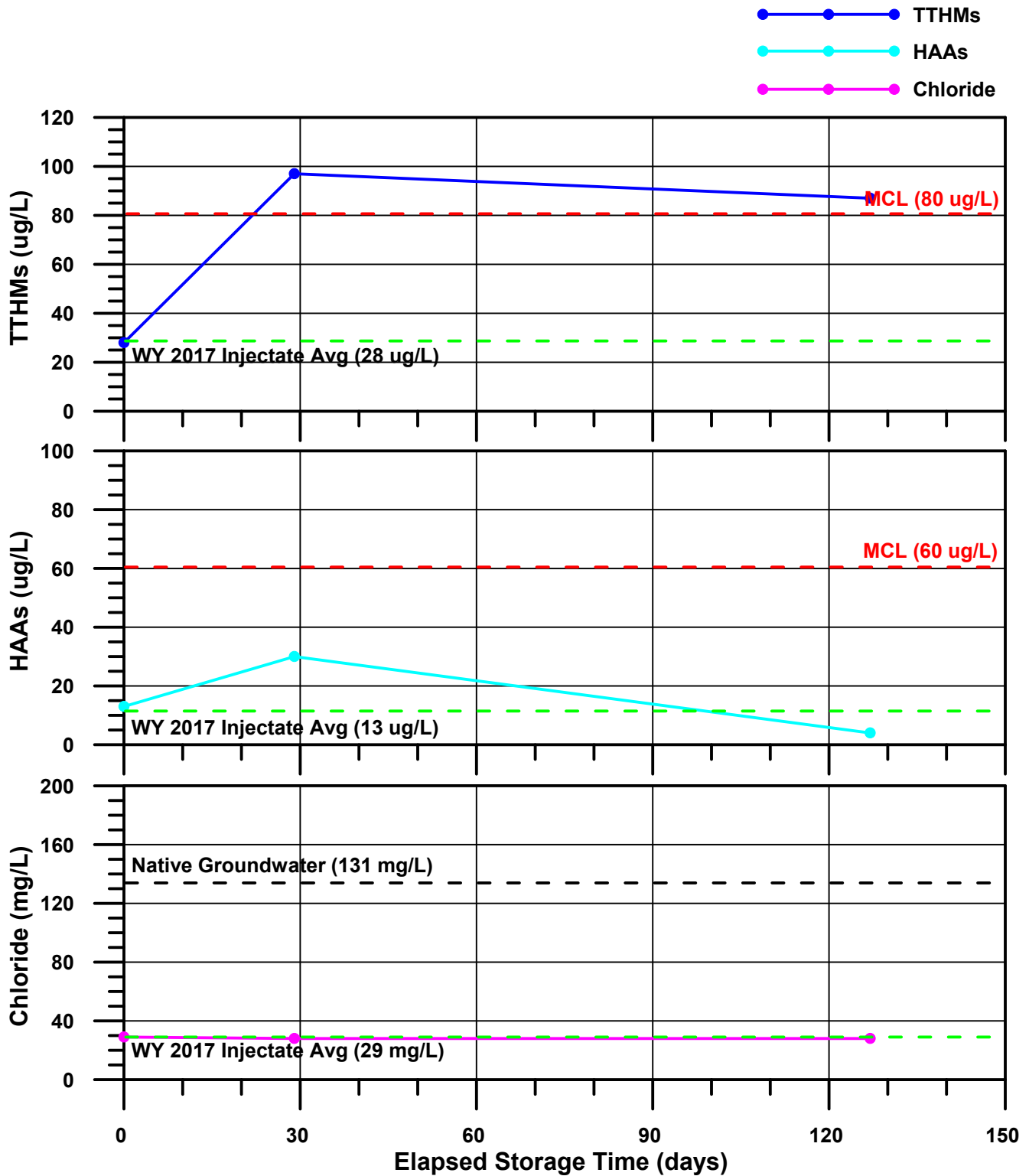


FIGURE 24. ASR-2 DISINFECTION BYPRODUCTS PARAMETERS
 WY 2017 ASR Program
 Monterey Peninsula Water Management District

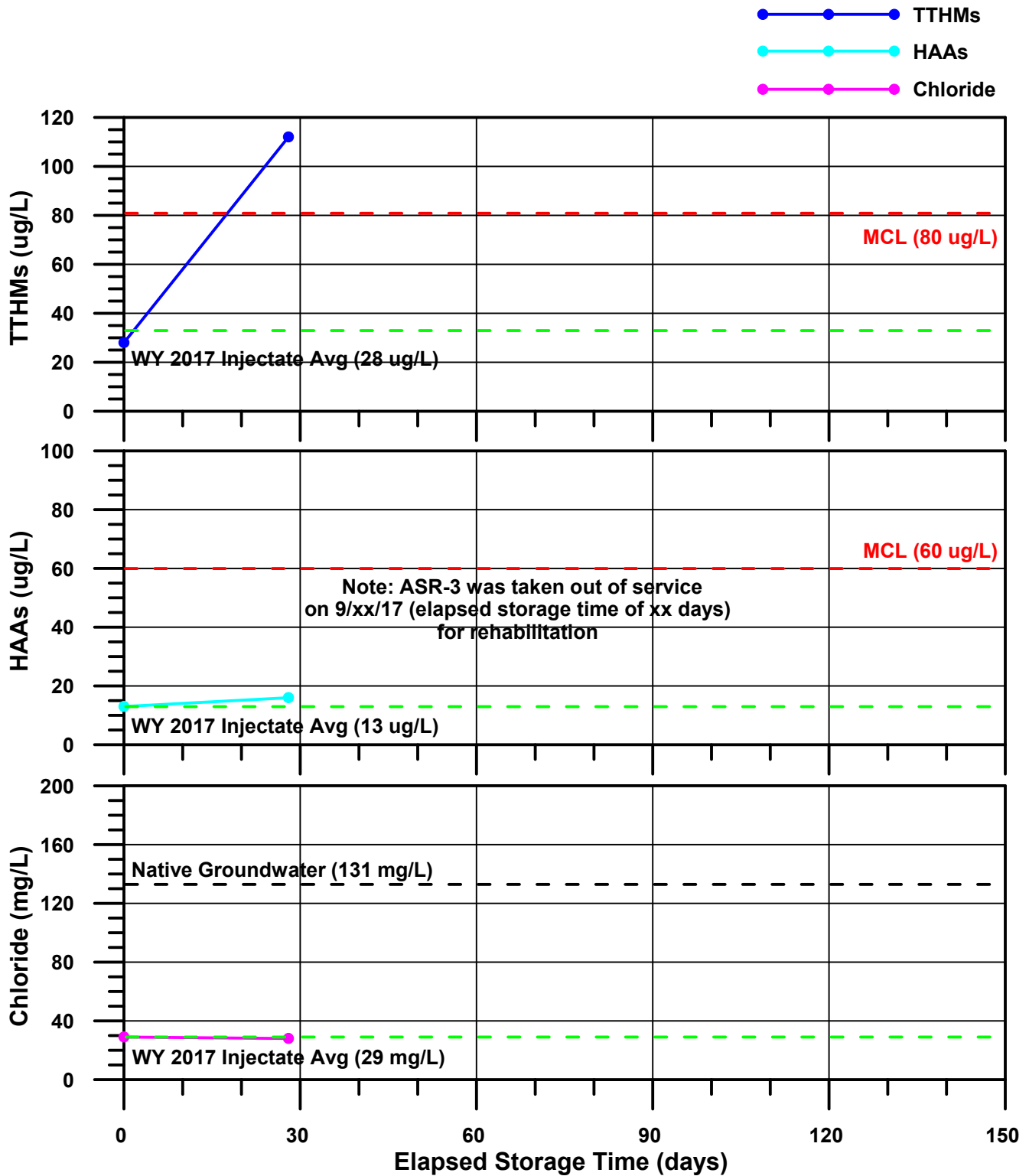


FIGURE 25. ASR-3 DISINFECTION BYPRODUCTS PARAMETERS
 WY 2017 ASR Program
 Monterey Peninsula Water Management District

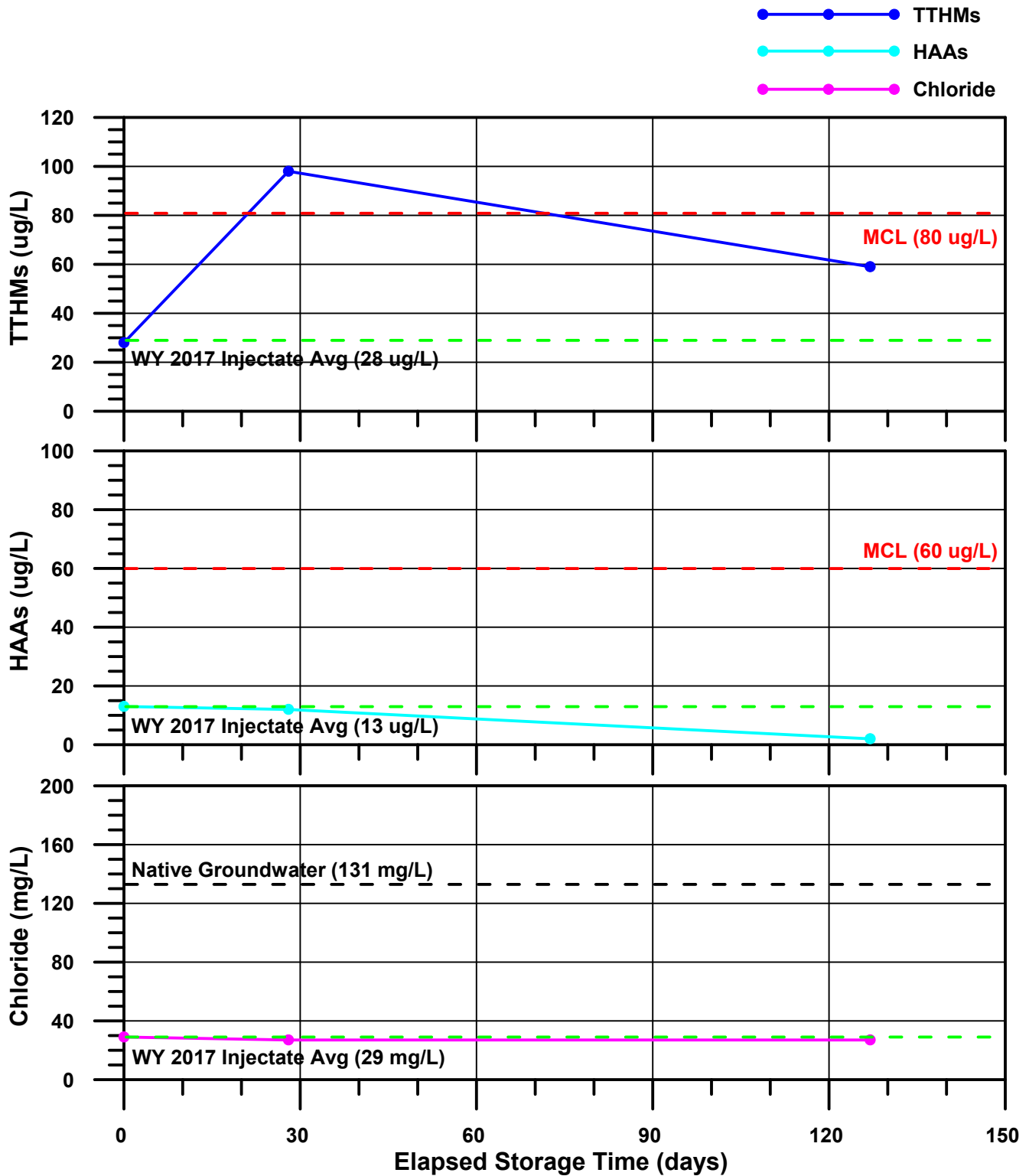


FIGURE 26. ASR-4 DISINFECTION BYPRODUCTS PARAMETERS
 WY 2017 ASR Program
 Monterey Peninsula Water Management District

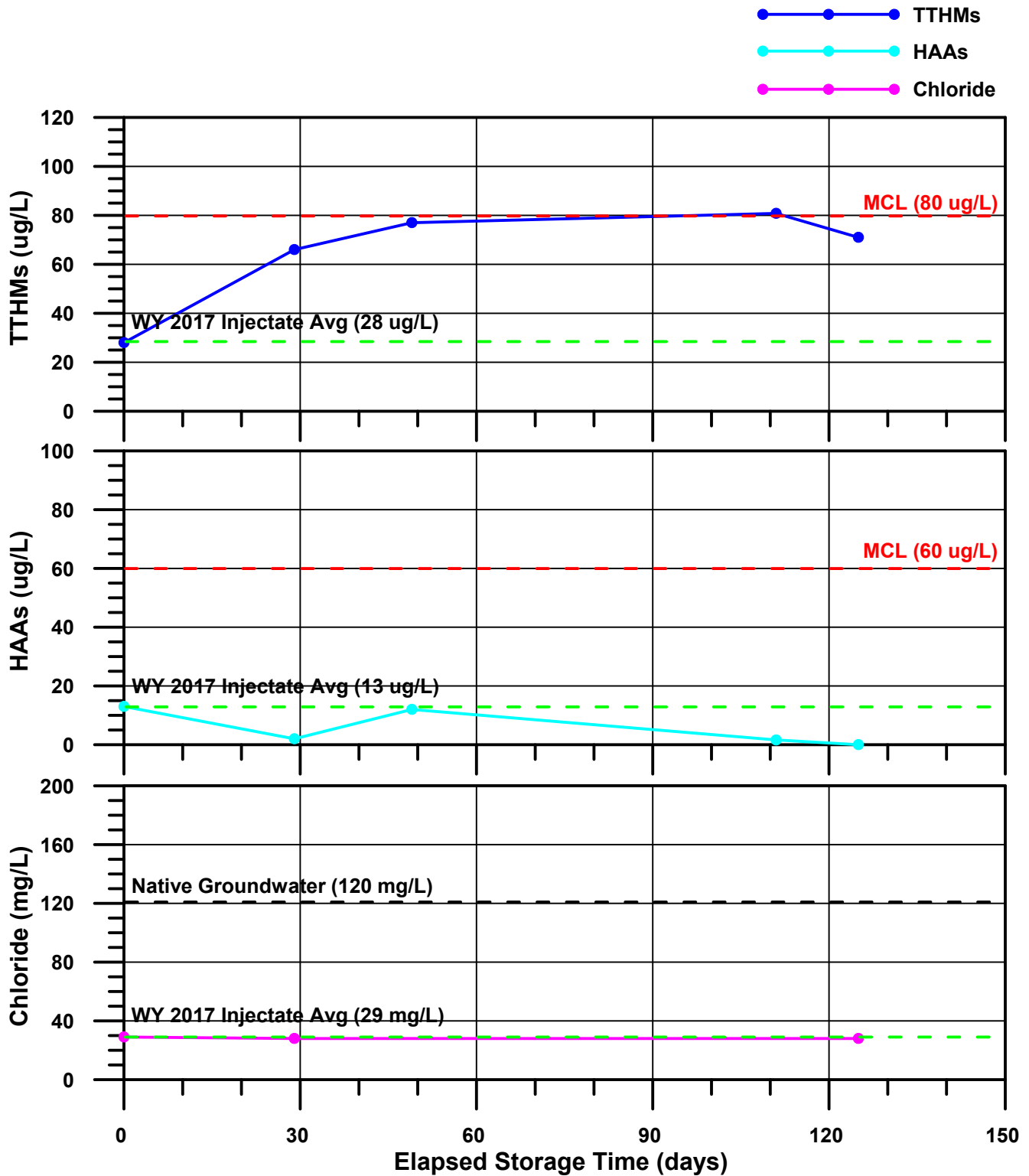


FIGURE 27. SM MW-1 DISINFECTION BYPRODUCTS PARAMETERS
 WY 2017 ASR Program
 Monterey Peninsula Water Management District

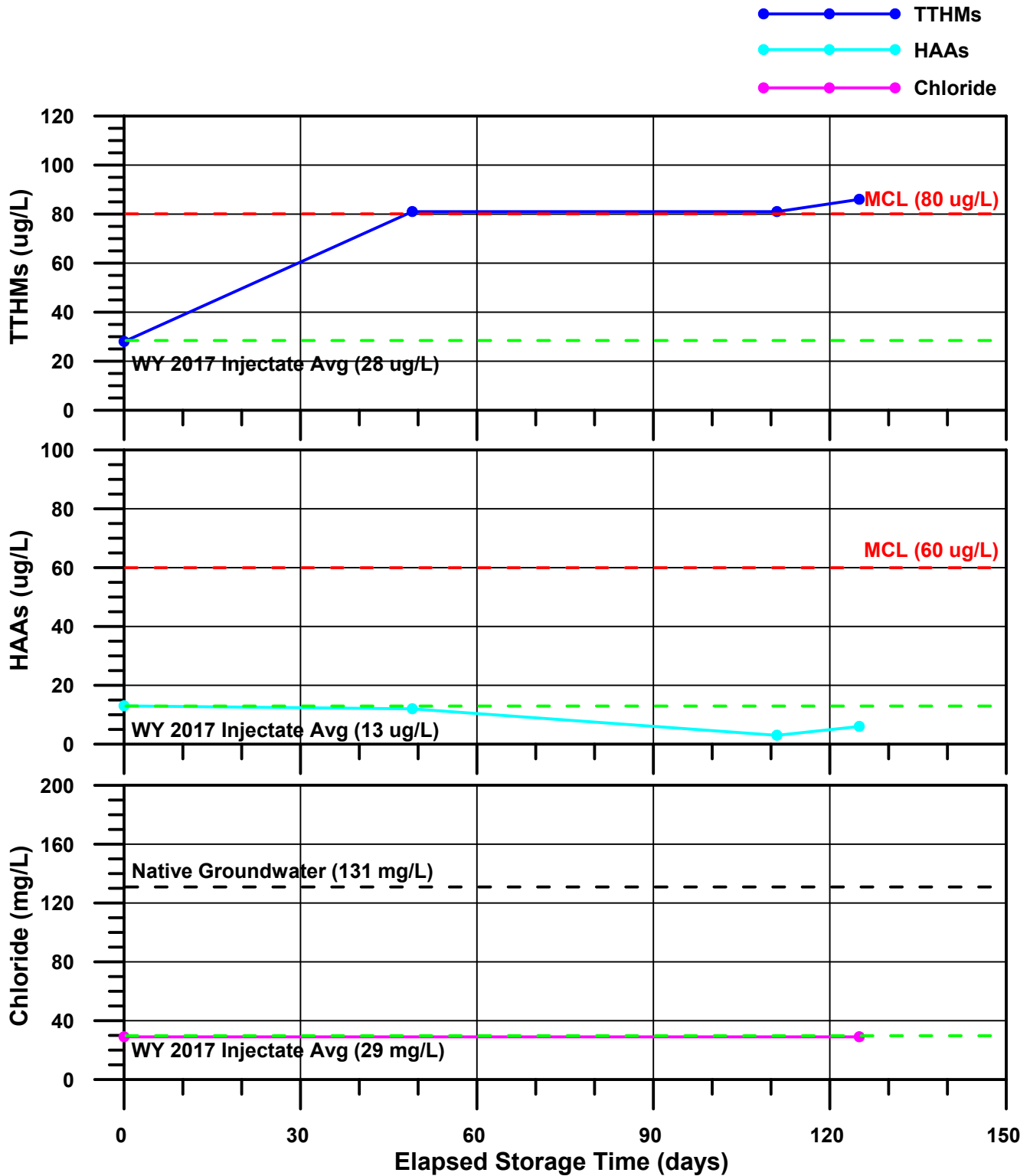


FIGURE 28. SMS DEEP DISINFECTION BYPRODUCTS PARAMETERS
 WY 2017 ASR Program
 Monterey Peninsula Water Management District

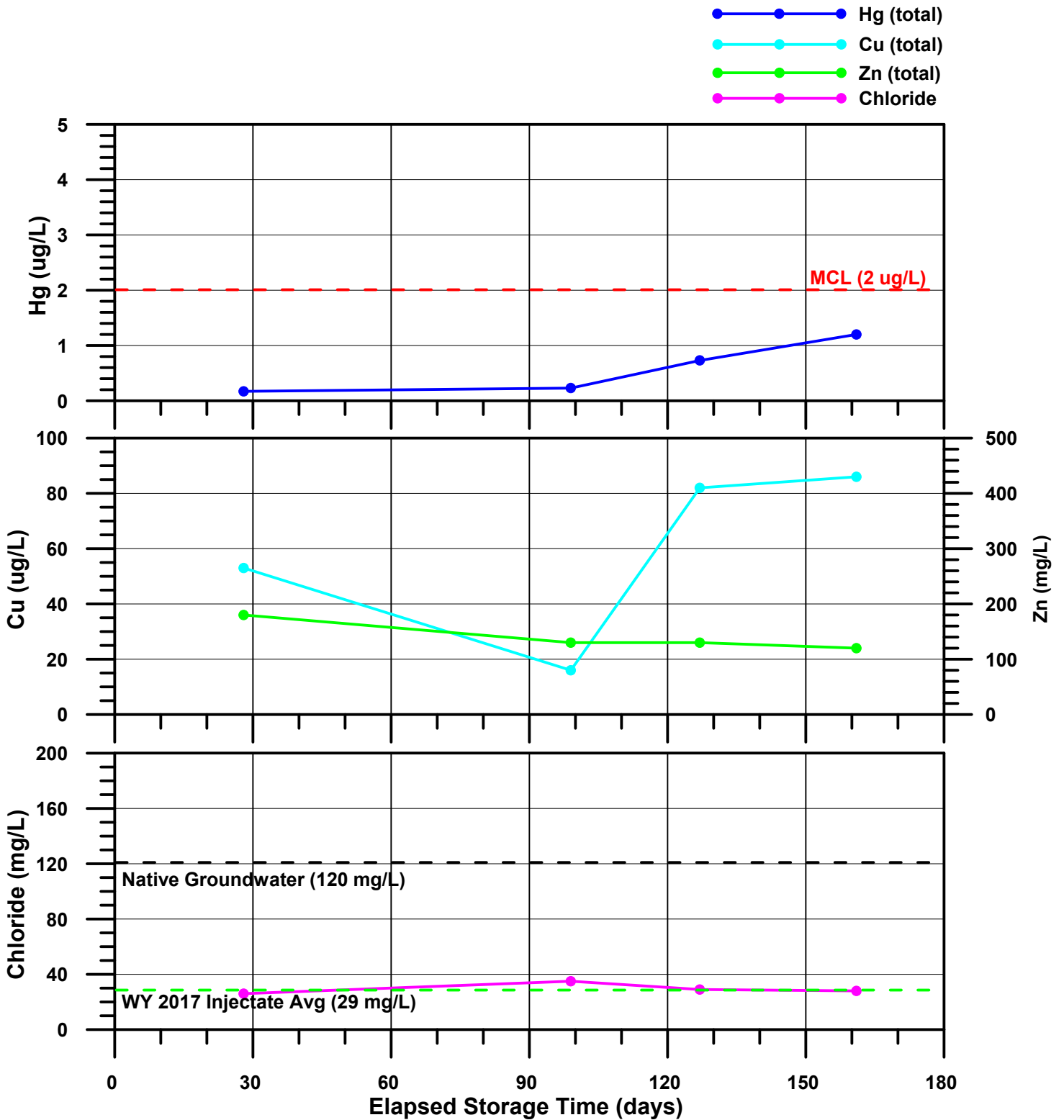


FIGURE 29. ASR-4 HG MONTHLY STORAGE DATA
 WY 2017 ASR Program
 Monterey Peninsula Water Management District

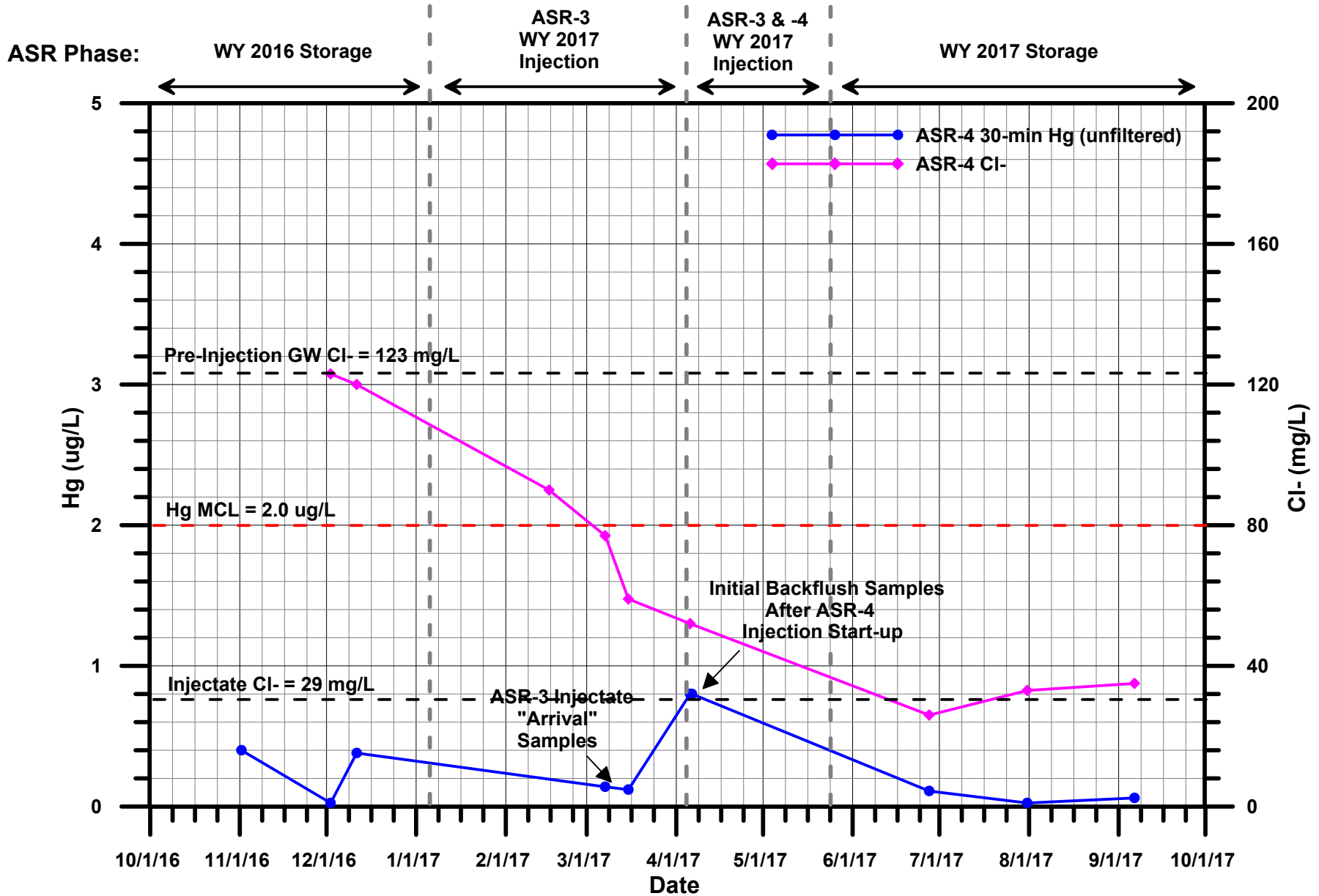


FIGURE 30. ASR-4 - ASR-3 Hg "BREAKTHROUGH" MONITORING DATA
 WY 2017 ASR Program
 Monterey Peninsula Water Management District



APPENDIX A - FIELD DATA

MPWMD ASR DATA SHEET



Well: ASR-1

ASR Period 1N

Sheet 1

Test:

Weather SUN COLD

of 1

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
1-4-17	0950	428039	1227781	071948	100 372*	100	4	1,150	368.15		-280			*Tank was closed, FCV was set 0
	1045	428039	1227811	071949	161	43	93	1,100			1560			begin inj. @ 1020, TL
											7500			
1-4-17	1200	428039	1227913	071949	160	72	42	1100			1500			
1-5-17	0900	428039	1229811	071949	160	68	40	1000	33.31		1491			LEFT SETTINGS
1-6-17	0900	428039	1231896	071949	158	74	40	1000	308.18		1467			LEFT SETTINGS
1/7/17	0830	428039	1233897	071949	157	69	36	1000	307.09		1410			
1-8-17	0900	" ↓ "	1236061	" ↓ "	157	73	36	999	303.46		1485			Adj FCV to 167, 1400gpm TL
1-9-17	0900	" ↓ "	1238032	" ↓ "	158	77	45	900	305.83		1365			left settings - JL
1-10-17	1000	" ↓ "	1240176	" ↓ "	162	75	42	875	300.91		1510	1179800		Lube on for BF low 1/10/17
	1100		1240179		320	92	∅	—			∅			
				071954					356.75			1180276		3x BACKFLUSH
				71987					447.19					
				72018										LUBE + N ₂ OFF
				72056										

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)					
													0	1	2	5	10	15
1-10-17	1200	071954	71987										22.9	31.0	11.5	14.9	8.37	
	↓	1220	071987	72018									7.38	4.92	5.79	5.57	4.09	
	↓	1240	72018	72056										4.22	3.61	2.96	2.62	1.92

10
10
10

10
10
10

13.3
13.8
13.6

MPWMD ASR DATA SHEET



Well: ASR 1

ASR Period _____

Sheet 1

Test: _____

Weather _____

90

of _____

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
1-10-17	1515	428039	124097	72056	350	95	∅	2000	367.1	—	∅			Restart Inj
					151	85	30	2000			1470			
1-11-17	0900	428039	1241765	72056	145	78	22	2000	316.12		1465			opened HV for more Q
					148	78	31				1640			TURNED HV 2TENS REV
1-11-17	1630													TURNED OFF
1-12-17	0900		1242470		355	91	∅	1900			∅			
1-14-17	1600	428039	1242532	72056	365	94	∅	1850	359.34		∅			RESTARTED INJ
					160	80	40				1420			
1-15-17			1244033		153	60	29	1700	307.8		1290			OPEN HV. TURN REV TO LOW SET PT OPEN REV TO 1700
					156	52	35	1700	293.9		1690			TURNED HV REV TO 1690
1-15-17	0810	428039	1246106	72056	156	53	37	1600	285.9		1525			JS - No change
1-17-17	0935	428039	1248431	72056	156	55	37	1600	279.72	84.19	1505	1180240	42/45	TL NO ADJ. only cu for 6 F tomorrow
1-17-17	1245	428039	1250978	72056	155	3149	30	1550	265.22		7615	118517	52/56	
	1305	428039	1250987	72056	350	74	33	1475	436.29		∅	118524	46/54	Start Backflow Run #1
run #2 12 min	1325	428039	1250987	72089	350	74	7.5	1475	350.52	∅	∅	118526	52/58	Run #2
				72118					1416.64	66.12	∅			< 10 min data
run #3	1345	428039	1250987	72125					352.32		∅			
	1425	428039	1250987	72223	350	75	∅	1450	354.93	∅	∅	118548		Restart Inj set to 1615 w/HV + FCV 165

missed
FP CAP
1st run

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP / Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU) min after start						
													0	1	2	5	10	15	20
1-17-17	1305	72056	72089	03300	—	—	—						2.3	28.5	101	20.2	3.82		
run #2	147	72089	72125	36,000	← ran over 10 min				5.01	16.5			4.99	8.67	12.2	8.68	3.10		
run #3	1-17	72125	72223	98,000	15.6	460	7.03	492	1.18	4.49	Lo-ND	TL+35	4.29	6.94	7.40	4.93	1.71		
								246.5											

run #1
run #2
run #3

2 1 3
1700 + 1375 + 970

1750 + 1900 =

1750 + 1400 => 1450 - 1690 =

2000 up
1440 + 1690 + 800 = 3930
1450 = 1600 + 1000

MPWMD ASR DATA SHEET

Well: ASR 1

ASR Period INJECTION

Sheet 2

Test:

Weather

90

of 2



Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
1-17-17	1525				154						1695			
	1530	428039	1251068	1251068	155						1590			DTW=272 after adj
1-18-17	0910	428039	1252739	72223	155	49	34	1300	284.58		1588	118549	0	No AS; - JS
1-19-17	0840	428039	1255041	72223	155	53	33	1250	259.34	95.59	1675			TL ADS FCV to 166, ~1440 gpm
1-20-17	0820	428039	1257008	72223	165	56	41	1225	265.96	89.03	1375			TL No ADS
	0915										1400			One up after adj. @ #2
1-21-17	0600	428039	1259199	72223	164	57	40	1150	259.0		1424			HV TURNED ↓
					165			1150	266.73		1345	1193590		TRENDED LUBEOFF
1-22-17	0830	428039	1260907	72223	166	57	40	1100	264.97		1291			
1-23-17	0845	428039	1262801	72223	166	60	39	1050	262.31		1294			TURNED ON LUBE.
1-24-17	0845	428039	1264549	72223	158	60	34	1000	262.28		1301			
1-24-17	1300	428039	1264809	72223	350				349.7		∅	1198500		
				72255										
				72341	350									
					155	49	34		349.7		1400	119808		restated inj & test ABT HV TO 1400

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)	min after start					
													0	1	2	5	10	15	20
1-24-17	1300	72223	72255										3.5	3.8	11.5	18.4	5.6		
	1320	72255	72323										5.4	7.8	11.7	9.45	4.31		
	1350	72323	72341										5.2	7.89	8.4	6.3	4.1	2.1	

MPWMD ASR DATA SHEET



Well: ASR 1

ASR Period INJECTION

Sheet 1

Test: _____

Weather _____

90 of MAX

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
1-24-17	1410	428039	1261809	72341	155	49	34	1000	349.7	—	1400	119868		
1-25-17	0925	428039	1266464	"	147	52	25	900	291.2		1363	"		COPIED FROM PREVIOUS SHEET JS - No Adj
1-26-17	0850	428039	1268351	"	149	59	25	875	285.06		1320	"		
1-27-17	1315	428039	1270690		150	51	21	850	276.6	73.7	1432			IL-TURNED UP 50GPM 4HV
1-28-17	1005	428039	1272651		151	51	29	800	267.3	82.39	1600			ITL - pushed back w HV - 1520
1-29-17	1045	428039	1274924		151	51	26	750	265.1	84.6	1550			
1-30-17	0845	428039	1276992	72341	149	54	27	700	261.9		1528	1198680		LUBE ON LEFT settings
1-31-17	0850	428039	1279244	72341	150	54	27	675	253.32		1563	120290	56	Prepare to BF
	1300	428039		72341	350				339.00		Ø	120382	52	BF
	1310								447.75					
	1425	428039	1279665	72446	163	55	37	650	344.13		1433	120382		Restart Inj

10 min

18mg/L [Cl-]

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP / Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)						
													0	1	2	5	10	15	20
1-31-17	1300	72341	72376										2.74	4.26	47.7	74.6	4.80		
	1322	72376	72409										3.49	4.21	6.73	7.15	2.54		
	1343	72409	72446										3.04	3.07	4.99	6.63	2.51		

ASR2 ASR1

M:PWMD ASR DATA SHEET



Well: ASR1

ASR Period Injection

Sheet 1

Test:

Weather

90' of min

ASR3

ASR4

10 min

→ 32mg/L [Cl-]

MW#1

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
1-31-17	1425	428039	1279665	72446	163	55	37	650	344.15		1433	120382		JS - Restart Inj
2-1-17	0830	428039	1281160	72446	162	52	39	575	295.44	48.66	1380	120382		
2-2-17	1030	428039	1283312	72446	162	44	22	1950	290.57		1300			TURNUED HV ↑ JL
2-3-17	0840	428039	1285235	72446	162	57	27	2010	281.23	62.87	1460			TURNED OFF
2-4-17	900	428039	1287389	72446	151	54	27	2000	273.44	71	1541			JL - NO ADJ
2-5-17	0820	428039	1289492	72446	154	53	31	1950	272.28	71.82	1510			JS - No Adj
2-6-17	0900	428039	1291724	72446	151	51	28	1850	268.51		1511	1203830		JL - LUBE ON
2-7-17	1000	428039	1294018	72446	151	51	28	1900	270.81	74	1525	1208410		BF - TODAY - JL
	1245			72446	0				3		0			Fix N ₂ leak - still leaking
	1325		72446 →	72479					342.81					Start BF
	1335			72479					449.00					
	1425	428039	1294280	72554	0				345.42		0	1209180	0	Fix N ₂ leak again
	1445	428039	1294304	72554	151	50	30	1625	345.42		1490	1209180	0	Restart Inj.
2-8-17	0900	428039	1295844	72554	330				343.15		0	1209180	0	OFF Re Bowler
2									1					* See notes in spreadsheet
2-9-17	0900	428039	1297913	72554	148	44	21		280		1400			

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)							
													0	1	2	5	10	15	20	
2/1/17	0930	0285516	0285833	317	17.2	469	7.48	34.7	0.37	4.23	ND _{LO}	JL								
2/7/17	1325	72446	72483										3.03	41.0	43.6	14.6	3.07			
	1345	72483	72518										3.74	6.06	6.69	5.87	2.17			
	1405	72518	72554										8.81	4.63	6.68	4.57	2.10			

MPWMD ASR DATA SHEET



Well: ASR 1

ASR Period INJECTION

Sheet 1

Test: _____

Weather _____

90 MAY of _____

Date	Time	Tiger [F] (gal) ×1000	Tiger [R] (gal) ×1000	BF (gal) ×1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
2-26-17	0855	428039	1318751	32659	151	48	32	550	260.7	341.32	1550			TRANSCRIBED FROM PREVIOUS SHEET
2-27-17	0845	428039	1320947	32659	150	49	29	500	257.94		1540			
2-28-17	0850	428039	1323147	72659	151	49	31	500	254.19		1547	1219400	56 52	JS - ASR rounds
	1120			72659	350	69			334.4		∅	1218860	56 52	JS - BF
	1140			72691					444.77					10 min
	1235	428039	1323427	72768	154	46	33	500	339.04		1550	1219110		JS - Restart Inj
3-1-17	0810	428039	1325226	72768	154	44	34	400	284.97		1524			
3-2-17	0840	428039	1327223	72768	142	41	24	2200	263.19		1868			TURNED DOWN - JL
					155	49	31		278.69		1500			HU & D TURN
3-3-17	0850	428039	1329880	72768	155	49	35	2100	271.01		1500	1219110		JS - No Adj
3-4-17	0900	428039	1332091	72768	154	49	31	2100	266.74		1507			JL - NO ADJ
3-5-17	0915	428039	1334275	72768	155	51	36	2050	264.46	74.28	1480			TL - NO Δ
3-6-17	0845	428039	1336367	72768	156	51	34	2050	261.57		1487			JL - NO ADJ LUBE ON
3-7-17	0858	428039	1336985	72768	330	108	82	1950	341.14		∅	1223620	54 50	JS - rounds, No inj per Cal Ant
	1345			72768					349.91		∅	1224600	56 52	JS - BF
	1405			72799					454.14					10 min SC
	1455			72871							∅	1224810		JS - No Inj, No Restart RR Logs
3-7-17	1800	428039	1336985	72871	154				346.47		1495			HU & D 17 TURNS.
3-8-17	0900	428039	1338562	72871	141	71	21		282.71		1657	1224810		

10 min

10 min

ASR1 - BF

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP / Zobell	DO (mg/L)	DO (mg/L)	Sampler / Laboratory	Turbidity (NTU) min after start					
												0	1	2	5	10	15
2-28-17	1130	72659	72694									1.32	2.75	35.8	9.96	3.26	
	1150	72694	72728									6.11	3.32	5.78	3.98	1.70	
	1210	72728	72768									3.18	2.99	5.87	2.22	2.19	
3-7-17	1355	72768	72801									3.73	24.7	30.9	8.85	2.52	
	1415	72801	72835									16.2	4.80	7.18	4.57	3.85	
	1435	72835	72871									32.0	7.77	5.54	3.33	1.48	

Chloride = 30 ppm

MPWMD ASR DATA SHEET



Well: ASR1

ASR Period INJECTION

Sheet 1

Test: _____

Weather _____

90 of MAY

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
3-9-17	0900	428039	1340713	72871	141	52	18	1950	280.18	66.29	1471			
3-10-17	0830	428039	1342868	72871	144	51	21	1900	273.56		1513	1224810	X	JS-ASR Rounds
3-11-17	0820	428039	1345042	72871	144	48	21	1875	271.04	75.43	1476	1224810	X	JS-ASR Rounds - Adj P to 1500 gpm w/14V
3-12-17	1020*	428039	1347317	72871	142	44	20	1900	266.30	80.17	1515			TL - NO ADJ
3-13-17	0850	428039	1349319	72871	143	48	20	1900	263.91		1501			TL
3-14-17	0815	428039	1351430	72871	145	49	22	1800	261.70		1482	1229980	56/52	JS-ASR Rounds → BF
	1110	428039	1351717	72871	350	69	71	1800	332.50		0	1229500	53/48	BF
	1125			72902					441.93					10 min - SC
	1230	428039	1351729	72976	156	44	36	1900	337.12		1570	1229700	X	Restart Inj - JS
3-15-17	0850	428039	1353591	72976	156	50	36	1725	279.77	57.35	1467	1229700	X	JS-Rounds, Adj up w/14V → 1525
3-16-17	0900	428039	1355911	72976	156	46	34	1725	271.52		1520	1229700		TL - LEFT SETTINGS
3-17-17	0855	428039	1358039	72976	156	48	37	1700	268.12	69	1555			TL - No Δ
3-18-17	0820	428039	1360237	72976	156	48	37	1650	265.11	72.01	1542	1229700	X	JS - No Adj
3-19-17	0930	428039	1362583	72976	155	47	37	1625	261.0	76.12	1565			No ADJ - TL
3-20-17	0915	428039	1364785	72976	155	47	38	1600	257.76		1571	1229700	56/40	LUBEON → almost 20psi
3-21-17	0835	428039	1366951	72976	155	47	36	1625	255.97	81.25	1558	1233840	56/52	JS - ASR Rounds - DF
	1120			72976	350				330.85		0	1234320	57/52	10 min BF
	1140			73007					439.14					10 min SC
	1235	428039	1367221	73082	156	44	37	1625	334.17		1555	1234530	X	JS - Restart Inj

*PST SPRUNT FWD

ASR-1 BF

FMW1

ASR-1 BF

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)							
													0	1	2	5	10	15	20	
3-14-17	1115	72871	72903									JS	2.49	5.16	29.7	11.9	3.25			
	1135	72903	72939										8.58	7.43	6.58	4.87	1.98			
	1155	72939	72976										12.2	6.79	4.07	3.63	1.68			
3-15-17	1345				18.1	461	7.11	659 @ 18.1°C	0.48	4.27	Lo	JS	1.22							
3-21-17	1130	72976	73011	35				0	21.4°C				7.26	15.0	27.2	10.2	4.15			
	1150	73011	73045	34									5.74	4.00	6.54	4.35	2.69			
	1210	73045	73082										11.9	3.14	4.11	3.01	1.35			

Chloride = 32 ppm

Chloride = 32 ppm

MPWMD ASR DATA SHEET



Well: ASR-1

ASR Period: Injection

Sheet 1

Test:

Weather

90 MAX of

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
3-21-17	1235	428039	1367221	73082	156	44	37	1625	334.17		1555	1234530	X	JS - Restart Inj
3-22-17	1130	428039	1369345	73082	157	44	35	1600	276.44	57.53	1531			JS - left settings New N ₂ TANK
3-23-17	0905	428039	1371298	73082	159	47	38	1550	272.78	61.79	1518	1234530	X	JS - Adj, up w/ HV to 1540
3-24-17	1230	428039	1373814	73082	156	44	38	1450	268.22		1526			
3-25-17	0855	428039	1375762	73082	157	46	39	1450	264.15	70.02	1517			JS - No Adj
3-26-17	0825	428039	1377758	73082	160	47	40	1425	261.33	72.84	1523	1234530	X	JS - No Adj
3-27-17	1230	428039	1380335	73082	156	42	34	1425	255.61		1585			JS - TURNED ON LUBE
3-28-17	0820	428039	1382086	73082	160	46	38	1325	255.49	78.68	1515	1238000	56	JS - Round's → BF
	1110			73082	350				330.03			1238520	57	BF
	1135			73113					437.45					10 min SC
	1230	428039	1382352	73189	156	44	37	1400	333.85		1542	1238740	X	JS - Restart Inj
3-29-17	0900	428039	1384072	73189	157	44	40	1300	281.07		1495			Temp. shut down here at call for request
3-30-17	1046		1384076		330	76	70	1250						Still off - TL
	1130		1384106		160	47	40	1200	332.95		1385			Re-start inj. - TL
	1615		1384562		160	48	39	1250			1535			No adj. TL
3-31-17	0840	428039	1385967	73189	148	46	39	1225	273.66	59.79	1525			TL - NO ADJ
4-1-17	0840	428039	1388016	73189	159	47	39	1100	270.52	63.33	1513	1238740	X	JS Adj, up w/ FCV - 155, 156
4-2-17	1020	428039	1390484	73189	154	41	33	1100	262.10	70.85	1595			TL
4-3-17	0830	428039	1391263	73189	165	50	36	1075	280.94	52.91	1129	1238740	X	JS - No Adj

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler/ Laboratory	Turbidity (NTU) min after start						
													0	1	2	5	10	15	20
3-28-17	1125	73082	73116									JS	25.6	8.18	28.4	9.87	4.72		
	1145	73116	73151										12.7	4.33	4.46	4.01	1.94		
	1205	73151	73189										9.71	2.68	3.93	2.88	2.87		
3-29-17	1500		Chlorite =	32 ppm	17.8	456	7.07	678-234	0.18	3.74	Lo	JS	0.90						

ASR BF
Fleming

MPWMD ASR DATA SHEET



Well: ASR-1

ASR Period: Injection

Sheet 1

Test: _____ Weather: _____ 90 MAX of _____

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
4.3.17	0830	428039	1392263	73189	165	50	36	1075	280.94	52.91	1129	1238740	X	JS - No Adj
4.4.17	0815	428039	1393861	73189	165	56	37	1050	277.2	56.64	1150	1238740	X	JS - No Adj
4.5.17	0810	428039	1395467	73189	165	52	37	1025	275.42	58.43	1154	1238740	X	JS - Lubline on, shutdown, BF
	0930				350						∅			JS - Shut down
	1420			73189	350				329.50		∅	1239940	54/52	JS-BF
	1435			73221					437.75					JS - 10 min SC
4.5.17	1530	428039	1395560	73297	350	47	17	1000	333.15	∅	∅	1240130	X	JS - Shut down ASR1
4-11-A	1215	428039	1395560		340	74	52	450	337.57		∅			Turn on Fer Cal Am
	1245	428039			186	69		275			420			JN sampled
	1245	428039	1395564		340			2175			∅			off D'd tank

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)							
													0	1	2	5	10	15	20	
ASR-1 BF	4.5.17	1425	73189	73225								JS	7.4	7.5	26.3	8.72	2.86			
		1444	73225	73261										3.65	3.55	4.79	4.43	2.69		
		1505	73261	73297											2.61	2.74	3.92	3.35	2.69	
MW-1 FI	4.11.17	1520			18.3	444	7.48	688	0.21	3.94	Lo	JS	3.40							

ASR-1 BF
MW-1 FI

MPWMD ASR DATA SHEET



Well: ASR-1

ASR Period: Injection

Sheet 1

Test: _____

Weather: _____

of _____

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
4.11.17	1245	428039	1395364		340		2175				∅	1240130		Transcribed from prev.
5.16.17	1215						2150							New N ₂ Tank - JS
	1235	431648	1396184	73297	350	63	∅	2150	335.92		∅	1243680	56 52	JS - BF
	1255			73330					442.99					10 min SC
	1350	431648	1396184	73406	350	64	∅	2190	339.51		∅	1243890	X	JS - End BF, No Inj
5.17.17	0815	431648	1396184	73406	350	68	∅	2050	336.62		∅	1243890		JS - Rounds
5.22.17	0810	431648	1396247	73406	350	88	∅	1625	340.48		∅	1243890	X	JS - Rounds - Tiger Drift (U.H.)
5.23.17	0815	431648	1396248	73406	353	34	∅	1625	342.60		∅	1243890	X	JS - Rounds - Tiger Drift (U.H.)
5.27.17	0815	431664	1396419	73406	354	83	∅	1250	337.49		∅	1243890	X	JS - Tiger Drift
5.30.17	0810	431664	1396574	73406	356	83	∅	1250	337.12		∅	1243890	X	JS - Rounds - Tiger Drift
5.31.17	0820	431664	1396644	73406	356	100	∅	1250	346.83		∅	1243890	X	"
6.20.17	0930	NA	NA	73524	344	99	∅	2025			∅	1251800		JS - Clay Val Repair yesterday, BF
	1000			73524			∅		360.72		∅			JS - FI samples +
	1120	NA	NA	73713							∅	1252160	X	Cal Am samples.

ASR-1 BF
MW1 FI

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)							
													0	1	2	5	10	15	20	
5.16.17	1245	73297	73333									JS	681.0	48.7	28.7	6.08	1.94			
	1305	73333	73369										2.39	18.7	4.41	1.96	1.44			
	1325	73369	73406										1.71	3.82	3.03	1.99	1.17			
5.23.17	1130		Chloride =	30 ppm	18.3	429	7.25	685 202	0.02	10.67	Lo	JS	1.51							
									@ 24.0°C											
6.20.17	1000		Chloride =	48 ppm	16.1	452	7.04	251 205	-0.05 -20	3.73	Lo	JS	311.0	33.2	9.27	5.65	1.80	1.36	1.24	1.02
	1050								@ 18.5°C				1.63							

25min

MPWMD ASR DATA SHEET

Well: ASR 1

ASR Period STORAGE

Sheet 1

Test: QUARTERLY SIGI DSP

Weather FOG

of 1



Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
6-28-17	1116			73713	344	96	0	1300	361.95					
				73745					464.92					
				73837										

10min

ASR-1 BF

mwl

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler/ Laboratory	Turbidity (NTU) min after start						
													0	1	2	5	10	15	20
												TURBIDITY	0	1	2	3	4	5	10
													175	16.6	8.60	7.83	4.44	2.92	0.99
													15	20	25	30			
													2.26	1.33	X	2.76			
												CHLORIDE	1	5	10	15	20	25	30
6/28/17		7373	73808		16.6	440	7.30	220	0.23	3.12	ND		40	30	30	30	30	X	30
6/28/17	1410		Chloride = 32 ppm		18.8	426	7.32	265 211	-0.10	3.08	Lo	JS	2.14						

@ 23.0°C

MPWMD ASR DATA SHEET



Well: ASR-1

ASR Period Storage

Sheet 1

Test:

Weather

of

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
7.11.17	0945	NA	NA	73837	360	102	∅	1200	363.27		∅	1260930	56/52	JS - BF/H ₂ /Ca/Am Samples
	1005			73870					464.05					10 min SC
	1045	NA	NA	73970	355	103	∅	1200	368.50		∅	1261140	X	JS - End BF/Sample Event
7.17.17	1035	NA	NA	73970	350	100	∅	1150	-		∅	1261140	56/50	JS - lube line on
7.18.17	1600	NA	NA	73970	177	102	∅	∅	363.94		∅	1265830	56/52	JS - BF/Sample Event
	1015			73999					461.77					10 min SC
	1100	NA	NA	74101	177	104	∅	∅	369.40		∅	1266040	X	End BF/Sample Event
7.24.17	1725	NA	NA	74101	∅	100	∅	∅	-		∅	1266040	55/48	JS - lube line on
7.25.17	1000	NA	NA	74101	∅	102	∅	∅	364.32		∅	1269400	57/53	JS - BF/Ca/Am Sample
	1015													10 min SC - No H ₂ O
	1100	NA	NA	74101	350	100	∅	875	364.83		∅			BF/Ca/Am
	1115			74131					458.39					10 min SC
	1205	NA	NA	74243	184	101	∅	200	368.19		∅	1269790	X	JS - End BF/sample

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)								
													0	1	2	5	10	15	20		
ASR-1	7.11.17	0955	73837	Chloride = 34 ppm	15.8	431	7.27	142/211	0.46 @ 18.5°C	3.04	Lo	JS	234.0	16.5	7.50	2.71	3.60	2.43	2.25		
													15	30							
													3.59	1.84							
ASR-1	7.18.17	0930		Chloride = 32 ppm	18.3	433	7.48	178/201	0.43 @ 18.0°C	1.20	Lo	JS	0.79								
ASR-1	7.18.17	1005	79370	Chloride = 34 ppm	16.0	307/433	7.43	97/190	0.35 @ 18.0°C	5.93	Lo	JS	105	8.26	6.64	3.98	1.32	2.09	1.36		
													25	30							
													4.38	1.33							
ASR-1	7.25.17	1105		Chloride = 32 ppm	16.4	298	7.30	161/214	0.40 @ 20.5°C	2.81	Lo	JS	86.1	35.4	34.3	8.74	2.74	3.16	1.78	1.28	1.41

25 | 30

* INFLATED BASKI TO 310 PSI & REMOVED BASKI FROM REGULATOR TO INSTALL PRESSURE VALVE. BY THE TIME WE OPENED THE VALVE, BASKI PRESSURE WAS @ 225 PSI @ T₀. WHEN WE ARE INJECTING, WE HOLD THE PRESSURE @ 155PSI, SLOWING THE LEAK RATE GRADUALLY.
 210 PSI @ 8 MIN 15 MIN: 205 PSI

MPWMD ASR DATA SHEET



Well: ASR-1 ASR Period Storage Sheet _____ of _____
 Test: _____ Weather _____

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
7.25.17	1205	NA	NA	74243	184	101	0	200	368.19	✓	0	1269790	X	IS - ENI BF/CalAm Sample
8.1.17	0930	NA	NA	74243	350	105	0	1650	365.50		0	1273830	57/48	SSAP/FI
					222									10 min SC
					205									leak detection
					202									
	1145	NA	NA	74243	330	99	0	2000	365.63		0	1274300	57/49	SSAP/FI
	1210			74275					460.5		2700			10 min SC
	1245	NA	NA	74337	162	101	0	400			0	1274470	X	End Sample
8.23.17	1050	NA	NA	74337	NA	102	0	NA	NA		0			Run for ZIM - IS
	1115	NA	NA	74387	NA	105	0	NA	NA		0	1276060	X	End of Test for ZIM - IS
8.23.17	1600			74387	—							1277600		LUBE ON
8.24.17	1030			74442								1278000		SAMPLE T/H/M

Well Head
 Time 0 222
 Time 15 min 205
 Time 30 min 202

□ check H₂ & subat pump notes we are at 56.7 Hz

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU) min after start						
													0	1	2	5	10	15	20
8.1.17	1206				17.0	363	7.12	155 124	0.33 @ 27.0°C	3.65	ND	Turbidity	0	1	2	3	4	5	10
													74.2	79.5	9.04	4.82	2.90	2.14	1.00
													15	20	30	132			
													1.38	1.04	1.05				
													Chloride	5	10	15	20	30	
														32	34	30	32	30	

MPWMD ASR DATA SHEET



Well: ASR-2
 Test: 11-3-16
1000

ASR Period RECOVERY

Weather Sunny

Sheet _____
 of _____

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
11-3-16	1020	31189	256689	287891	800	92	φ	335	389.45	φ	φ	22852	4896	TL/TC
11-3-16				287914					461.17					
11-3-16	1120	31339	256689	288043				338				22884		OFF
								↑ closed line to well						

10 min

5 217 542 X

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobel	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler/ Laboratory	Turbidity (NTU)						min after start		
													0	1	2	5	10	15		20	
11-3-16	1020	287891	288043		19.5	670	7.0	-142	0.24	1.12	ND	TL/TC	197	242	64.1	12.9	5.89	1.68	2.69	30	
																					2.38

19.9 °C
 16.7 °C

MPWMD ASR DATA SHEET



Well: ASR 2

ASR Period: STORAGE

Sheet 1

Test: QUARTERLY SAMPLE

Weather: SUN/COLD

of 1

Date	Time	Tiger [F] (gal) ×1000	Tiger [R] (gal) ×1000	BF (gal) ×1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
12/6/16	1200	31739	256688	288043	344	93	∅	2100	392.41	—	∅	23236	46	Hg Cycle Quarterly Sample
		31	256688	288069					469.11		∅	23267	48	
	1400	31960	31960	288267	—	—								FCV + CLOSE OFF

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)									
													0	1	2	5	10	15	20			
12/6/16	1200	288043	288267	224000	20.4	568	7.19	252.4 251.0	ND	3.98	0.09	WATERC 5509188 M. J. W. / M. J. W.	128	317	59.7	16.4	8.51	11.1	8.83	3.13		

10

30 60 3.13

> 40 cfs → CAN INJECT
 Max draw up = 140'



MPWMD ASR DATA SHEET



Well: ASR 2 12/16 - 12/21 ASR Period INJECTION

Sheet 1

Test: FIRST 24^{HR} CYCLE

Weather _____

of 1440 MAT

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
12-16-16	1605	31936	256688	288267	211	86	45	1800	391.49	—	805	23268	26/24	BG INJECTION
12-17-16	0910	31936	257530	288954	221	89	43	1800	367.29	24.2	864	23657	48/45	DURING INJECTION
12/17/16	0945	31936	257555	288954	350	90	0	11	388.27		0			SHUT DOWN INJ
				288983					475.31					
				288983					377.21					3X BACKFLUSH
				289012										
				289012										
				289042										
														→ LUBE OFF
12/17/16	1100	32049	257555	289042	350	83	46	1820	394.52			23685	0/0	START INJ
	1115				213						1480			
12/18	1325	32049	259999	289042	213	83	40	1800	333.2	58.29	1615	off		Bowen says we can go up to 1750 gpm
	1345	→ After adj. + 1500 sample			209						1740			o/s
12/19/16	0820	32049	261965	289041	209	82	42	1610	322.35	69.14	1735	off		BF don't fly backward
12/20/16	0850	32049	264484	289041	209	64	42	1610	312.90		1710			down to 1455 gpm @ 1140
	1145				216	65	39				1445			
12/21/16	0945	32049	266634	289041	218	86	42	1600	322.53		1400	9/1		reset 1500 @ sample 50 @ 915

10 min
10
10

- ①
- ②
- ③

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU) min after start					
													0	1	2	5	10	15
12-17-16	1000	288954	288983										1.26	85.3	27.5	24.9	3.35	
12-17-16		288983	289013										3.19	83.0	9.99	5.90	2.68	
12-17-16		289013	289042										2.57	83.6	6.24	4.12	1.73	
12-17-16	1130				12.9	491	7.38	506.8 259.7	0.95	5.16	ND	SL-93 DEP TL-MBAS						

INTEGRATE FIELD

MPWMD ASR DATA SHEET

Well: ASR-2

ASR Period INJECTION

Sheet 1

Test: _____

Weather AFTER RAIN

of 1



Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
1-4-17	1055	32222	283018	289217	205	76	4	1150	384.73	∅	∅			Some line flush
1-4-17	1114	32222	283018	289226	221	66	43	1150			706			Set for injection
1-5-17	0900	32222	283832	289226	238	68	48	1100	367.4		337			large change 3
1-6-17	0900	32222	284938	289226	228	68	48	1100	350.2		850			(ISOLATION VALVE CLOSED)
1-7-17	0835	32222	286142	289226	221	59	38	1100	346.79		860			
1-8-17	0815	32222	287456	289226	222	64	37	1080	343.10	41.63	925			Adj to 224 psi, 895 gpm.
1-9-17	0900	32222	288745	289226	223	68	44	1000	343.46		890			NGAOT, LUBE ON FEEL
1-10-17	1000	32222	290084	289226	223	66	43	1000	342.23		861	25988	48	42
		32222	290229	289230	340	100+	∅		380.74					STOPPED FEEL BF
				289258					461.23					
				289286										
		32306	290229	289315										FINISHED BF

1/7/17
10
10
10

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP / Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)						
													0	1	2	5	10	15	20
1-10-17	1315	289230	289258										9.74	31.3	17.7	23.1	17.2		
		289258	289286										12.9	8.3	6.67	9.11	4.38		
		289286	289315										6.55	3.97	4.49	2.03	1.19		

100

DS STOP COCK TO #CONTROLS ON PEV WILL CAUSE TO CLOSE.
 ?? * check all stop cohs on PEV prior to starting inj.

MPWMD ASR DATA SHEET



Well: A:SRZ ASR Period Injection Sheet 2
 Test: _____ Weather _____

(140) Check for leak of _____

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
1-18-17	0900	32448	304859	289457	202	40	31	1700	263.43	365.86	1670	26413	4/3	JS - No Adj
1-19-17	0830	32448	307231	289457	204	42	34	1700	233.81	150.05	1640			TL
1-20-17	0810	32448	309644	289457	204	43	34	1500	222.01	143.85	1700			N ₂ dropping faster than expected
" "	0855	ADS. uspm	HV						227.5	138.36	1625			DTW still necessary
1-21-17	1000	32448	312139	289457	206	43	31	1550	221.97	143	1560			TURND DOWN w/HV+EV
					211	45	34	↓			1465			
1-22-17	0825	32448	314090	289457	212	47	37	1200	225.60		1470			
1-23-17	0845	32448	316232	289457	212	49	39	1150	224.46		1446			TURND ON LUBE
1-24-17	0845	32448	318194	289457	216	51	35	1100	234.19		1300			
1-24-17	1100			289467 ^{LF}										
1-24-17	1130			289467	350	70	∅		363.73			26774	48/46	3X BF 10 MIN
				289491					483.46					
				289560	350	70			373.1			26786	-	LUBE OFF
1-24-17	1220		318194		204	43	34				1750			RESTART INT

10

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobel	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)					min after start		
													0	1	2	5	10	15	20	
ASR-2 14 SECT	1-18-17	0930			14.9	458	7.04	664 256	1.87	3.86	Low	TL	0.67							
MW-1	1-19-17	1000			16.9	452	7.35	176 254	10.6°C 11.8°C	3.30	Low	TL+JS								
	1-24-17	1130	289467	289491								↓	8.56	37.8	20.5	32.1	15.6			
		1150	289491	289530									13.7	7.4	5.75	10.11	5.78			
		1210	289530	289560									5.78	4.2	3.89	3.02	1.78			

MPWMD ASR DATA SHEET



Well: ASR2

ASR Period MIXED

Sheet 1

Test: _____

Weather _____

140 of _____

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
1-24-17	1230	32448	318194	289560	204	43	34	1000	373.1	—	1750			RESTARTED TEST + TSCO
1-25-17	0915	32540	320572	289560	204	41	32	925	243.27	129.83	1740	26786		JS - No adj
1-26-17	0845	32540	322993	289560	204	40	31	925	230.16		1680	26786		
1-27-17	1305	32540	325957	289560	204	41	29	700	218.54	155	1750			WILL LAST THROUGH weekend order new toner Mon
					210						1575			TURND DOWN TO
1-28-17	1000	32540	327844	289560	212	43	34	650	229.9	143.2	1795	HV Leaks		Pinched back to 1460 w/HV ^{TV}
1-29-17	1035	32540	329980	289560	212	42	33	600	227.88	145.22	1430			" " to 1375 w/HV ^{TV}
1-30-17	0845	32540	331767	289560	212	46	33	500	232	140	1330	26786 LUBRON		leak in FCV N ₂
1-31-17	0840	32540	333686	289560	209	44	31	1975	20.99		1400	27109	49 47	IL - TANK FROM ASR4 FOR OVERNIGHT
1-31-17	1005	32540	333798	289560	350	66			352.99		0			JS - Start BF
	1035			289588					972.16			27150		
	1045													
	1140	32651		289673					361.00		0	27150		Restart Inj - JS
	1150	32651	333812	289673	268	44	29	2000	359.13	1407	1407	27150		
	1435	32651	334066	289673	204	44	27	1975		15+	1540	27150		JS - Adj up

10 min
2

18 mg/L [Cl₂]

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)						
													0	1	2	5	10	15	20
1-31-17	1025	289561	289588										13.23	3.14	37.4	98.9	11.2		
	1045	289588	289616										7.57	8.39	9.67	13.1	4.69		
	1105	289616	289673										6.43	4.84	7.25	8.27	3.24	3.73	2.26

MPWMD ASR DATA SHEET



Well: ASR2

ASR Period Injection

Sheet 1

Test: _____

Weather _____

140 of 140

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
1.31.17	1435	32651	334066	289673	204	44	27	1975	359.13		1540	27150		JS - Restart Inj / Adj up
2.1.17	0825	32651	335694	289673	204	45	30	1800	277.23		1505	27150		
	1430				200						1587			JS - Adj UP
2.2.17	1630	32651	338172	289673	200	26	40	1925	266.9		1530			
2.3.17	0830	32651	340081	289673	200	38	23	1880	262.21	96.42	1450			TL - NO ADJ
2.4.17	0930	32651	342314	289673	204	41	25	2000	254.3	105	1510			JL - TURNED UP FCV 200
2.5.17	0815	32651	344436	289673	200	43	26	1850	249.3	109.83	1552			JS - NO ADJ
2.6.17	0845	32651	346736	289673	200	41	23	1850	244.42	115	1545	27151		JL - NO ADJ START LUBE
2.7.17	1000	32651	349101	289673	199	41	23	1900	245.59		1557	27500		JL - BF TADA
	1050			289673	350	69	∅		356.82		∅	27511	46/46	JS - Prep for BF → BF
	1115			289701					473.05					
	1220	32760	349179	289784	194	39	21	1810	363.24		1630	27531		Restart Inj
2.8.17	1200	32760	351582	289784	202	61	34	1850	269.16		1666			TANK AS1 DOWN R BFK Request
2.9.17	0900	32760	353570	289784					270.31		1504			

10 min

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU) min after start						
													0	1	2	5	10	15	20
2.7.17	1105	289673	289701										1.52	2.17	14.1	40.1	5.35		
	1125	289701	289729										5.50	5.92	6.62	10.3	3.31		
	1145	289729	289784										5.36	5.12	6.03	7.88	3.03	3.64	2.91

MPWMD ASR DATA SHEET



Well: ASR 2

ASR Period INJECTION

Sheet 1

Test: _____

Weather SUN

140 Max of _____

of _____

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
2.22.17	1440	32917	372581	290065	233	88	42	1708	371.33		500			RESTARTED INJ
2.23.17	0830	32917	374124	290065	226	68	49	1700	259.17		1500			NO ADJ - JL
2.24.17	1055	32917	376537	290065	225	71	49	1750	253.85		1540	27881		ASR Rounds - JS
	1525	32917	376914	290065	211	45	37	1725	246.45		1590			Adj Up per CalAm
2.25.17	0810	32917	378417	290065	211	42	36	1675	244.08	127.25	1472	27871		JS - ASR Rounds
	0825				206	40	32	1625			1595			JS - Adj Up
2.26.17	0845	32917	380781	290065	204	38	32	1700	232.38	138.95	1605			TL - No adj.
2.27.17	0845	32917	383088	290065	206	38	32	1700	227.6		1613			
2.28.17	0835	32917	385428	290065	207	39	31	1700	225.01		1605	28200	50	47 ASR - Rounds - JS
	0940			290065	350				348.95		Ø			JS - BF
	1000			290093					467.06					End 10 min
	1055	33003	385543	290152	204	39	31	1700	355.92		1615	28231		JS - Restart Inj
3.1.17	0830	33003	387658	290152	206	39	31	1700	266.9		1598			JL
3.2.17	0840	33003	389873	290152	207	36	29	1700	262.26		1490			
3.3.17	0840	33003	392116	290152	208	40	32	1700	255.73		1567	28231		JS - No Adj

10min

F-1 Inj Intake

ASR - BF

F-1 Inj Intake

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zol/ Chloride	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)							
												0	1	2	5	10	15	20	
2.24.17	1546		Chloride = 32	ppm	14.4	456	7.06	329.7	1.52	3.56	0.16	JS	1.70						
					14.2				2.11.9°C										
2.28.17	0950	290065	290094									JS	1.01	34.5	22.8	58.1	7.89		
	1010	290094	290122										9.19	7.05	9.25	11.7	4.37		
	1030	290122	290152										7.08	5.46	5.32	7.72	2.95		
3.3.17	1310		Chloride = 32	ppm	14.9	436	7.12	NA	1.06	3.56	0.18	JS	0.76						

MPWMD ASR DATA SHEET



Well: ASR-Z

ASR Period: Injection

Sheet: 1

Test:

Weather:

140 max of

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
3.3.17	0840	33003	392116	290152	208	40	32	1700	355.92	100.19	1567	28231	X	JS - No Adj
3.4.17	0900	33003	394461	290152	208	42	33	1750	248.58		1605			JK - No Adj
3.5.17	0900	33003	396205	290152	207	41	33	1650	244.32	111.6	1630			TL
3.6.17	0845	33003	399181	290152	206	33	42	1600	239.10		1650			
3.7.17	0835	33003	401759	290152	334	93	∅	1675	357.42		∅	28548	49/45	JS - Rounds, No Inj per Chart
	1225			290152					365.46		∅	28609	49/45	JS - BF
	1240			290179					478.55					10 min SC
	1330	33099	401759	290251	336	95	∅	1675	370.05		∅	28627	X	JS - No Inj, No RR reset
3.7.17	1445	33099	401759	290251	221	86	48		367.31		1550			RESUMED INJ
3.8.17	0900	33099	403309	290251	225	66	48		224.30		1600			
3.9.17	0830	33099	405461	290251	216	44	38	1700	270.46		1450			
3.10.17	0815	33099	407699	290251	207	41	33	1650	257.07		1585	28627	X	JS - ASR Rounds
3.11.17	0810	33099	409999	290251	206	40	31	1650	252.60	114.71	1591	28627	X	JS - ASR Rounds - No Adj.
3.12.17	1010	33099	412391	290251	206	38	29	1700	247.66	119.69	1605			TK - NO ADJ
3.13.17	0844	33099	414574	290251	203	39	30	1700	241.68		1621			
3.14.17	0800	33099	416847	290251	205	39	30	1650	237.24		1635	28945	49/47	JS - ASR Rounds → BF
	0920	33099	416970	290251	350	64	∅	1700	346.60		∅	28964	49/45	BF
	0940	33127		290278					464.87					10 min - SC

10 min SC

APST SPRING FWD

ASR-Z BF

ASR-Z BF

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler/ Laboratory	Turbidity (NTU) min after start						
													0	1	2	5	10	15	20
3.7.17	1230	290152	290181									JS	2.45	11.2	20.0	43.7	7.52		
	1250	290181	290208										9.75	7.57	8.24	11.8	3.51		
	1310	290208	290251											6.90	4.69	6.96	8.09	4.69	2.92
3.14.17	0930	290251	290279									JS	4.42	27.4	18.8	43.5	7.42		
	0950	290279	290308										8.10	7.69	6.89	13.0	3.82		
	1010	290308	290364											8.70	6.91	5.63	8.29	3.36	3.54

Chloride = 30 ppm

Chloride = 32 ppm

MPWMD ASR DATA SHEET

Well: ASR-2

ASR Period: Injection

Sheet 1



Test: _____

Weather: _____

140 max of

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
3-14-17	1045	33211	416970	290364	205	38	29	1725	354.32		1648	28992	X	JS - Restart Inj
3-15-17	0820	33211	419403	290364	209	42	34	1650	273.05	81.27	1525	28982	X	JS - Rouns, Adj, up FCV 203 → 1648
3-16-17	0900	33211	421541	290364	202	38	28	1625	260.09		1641			JL - LEFT SETTINGS
3-17-17	0850	33211	423838	290364	203	37	27	1600	254.72	19.6	1645			TL - NO Δ
3-18-17	0810	33211	426151	290364	203	38	29	1550	249.55	104.77	1655	28982	X	
3-19-17	0935	33211	428685	290364	202	37	28	1600	244.45	109.87	1655			TL - NO ADJ.
3-20-17	0915	33211	431055	290364	201	36	28	1663	240.52		1663			LUBE ON
3-21-17	0825	33211	433384	290364	202	37	28	1600	235.61	148.71	1679	29296	50/47	JS - ASR Rouns → BF
	0940			290365	350				346.07		∅	29314	48/46	BF
	1005			290393					461.97					10 min SC
	1055	33296	433508	290452	196	36	26	1550	350.57		1760	29332	X	JS - Restart Inj
3-22-17	1115	33296	436093	290452	199	37	26	1550	258.18		1753	29332		JL - NO ADJ
3-23-17	0840	33296	438368	290452	199	37	27	1525	250.72	99.85	1770	29332	X	JS - NO ADJ
3-24-17	1230	33296	441342	290452	199	37	25	1500	246.89	103.68	1750			JL - NO ADJ
3-25-17	0800	33296	443494	290452	199	36	24	1500	238.11	112.46	1760			JL - NO ADJ
3-26-17	0815	33296	445849	290452	202	37	28	1550	238.50	112.07	1697	29332	X	JS - Adj, up w/HU FCV 199 → 1754 gpm
3-27-17	1230	33296	448830	290452	198	34	24	1550	230.21		1743	29332		JL - LUBE ON
3-28-17	0810	33296	450878	290452	200	36	26	1500	226.00	124.57	1766	29592	49/46	JS - Rouns → BF

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP / Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)					min after start		
													0	1	2	5	10		15	20
3-15-17	1310		Chloride =	32 ppm	15.8	450	7.14	237 240	1.12 1.3°C	4.08	Lo	JS	1.42							
3-21-17	0955	290366	290394									JS	3.05	2.47	10.7	38.3	6.36			
	1015	290394	290422										6.34	6.18	6.08	9.71	2.91			
	1035	290422	290452										3.73	5.20	4.94	6.66	2.82			

FI-Inj

ASR-2
BF

MPWMD ASR DATA SHEET



Well: ASR-2

ASR Period: Injection

Sheet: 1

Test: _____

Weather: _____

140 MAX

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
3-28-17	0810	33296	450878	290452	200	36	26	1500	350.57	124.57	1766	29592	49/46	JS - Rounds → BF
	0945	33296		290452	350				344.31		0	29614	48/46	BF
	1000			290479					459.99					10 min SC
3-29-17	1105	33383	451031	290540	197	35	23	1600	351.58		1812	29629	X	JS - Restart Inj
	0850	33383	453458	290540	199	37	25	1500	255.2	96.38	1800	before start close of #1		TL
	0915				213	60	45				2070			No ADJ ⁵ this disconnects when down @ #1
3-30-17	0825	33383	455468	290540	223	67	53	1475	258.3		1800			ADJ - TL
	1135				198			1500			1850			No ADJ TL restart of #1 after adj #1, adj here TL
	1620		456817		199	38	28	1500			1740			TL - No ADJ
3-31-17	0830	33383	458539	290540	199	36	26	1550	244.25	107.33	1750			TL
4-1-17	0805	33383	461060	290540	201	37	28	1475	238.77	112.81	1794	29629	X	JS - No Adj
4-2-17	1005	33383	463754	290540	198	33	22	1500	232.37	119.21	1725			TL
4-3-17	0810	33383	466136	290540	201	40	29	1475	227.87	123.71	1832	29629	X	JS - No Adj
4-4-17	0805	33383	468854	290540	203	45	33	1450	221.50	130.08	1907	29837	54/51	JS - Rounds → BF
	1315	33383		290540	350				350.64		0	29907		BF
	1335	33412		290566					464.85					10 min SC
	1430	33471	469444	290629	200	42	30	1475	356.65		1840	29923	X	JS - Restart Inj

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)						
													0	1	2	5	10	15	20
3-28-17	0950	290452	290480									JS	2.22	1.47	11.2	40.4	6.57		
	1010	290480	290510										12.5	5.90	5.90	9.90	3.07		
	1030	290510	290540										2.99	3.57	4.63	6.67	2.56		
3-29-17	1430			Chloride = 32 ppm	15.7	431	6.81	736 @ 15.7°C 240	0.12	3.93	0.11	JS	3.46						
4-4-17	1325	290540	290568									JS	69.6	5.39	10.5	46.5	9.83		
	1345	290568	290598										9.48	10.1	6.56	12.0	3.71		
	1405	290598	290629										7.43	6.30	4.14	6.83	2.77		

ASR2 BF
 FI - Inj @ ASR2
 ASR2 BF

MPWMD ASR DATA SHEET



Well: ASR-2

ASR Period Injection

Sheet 1

Test: _____

Weather _____

140 MAX of _____

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
4.4.17	1430	33471	469444	290629	200	42	30	1475	356.05		1840	29923	X	JS - Restart Inj
4.5.17	0800	33471	471423	290629	200	42	30	1425	261.93		1890	29923	X	JS - No Adj
4.6.17	1200	33471	474742	290629	199	36	25	1400	259.15		1820	29923	X	JL - NO ADJ
4.7.17	0900	33471	477015	290629	199				249.14		1810			JL NO ADJ
4.8.17	0805	33471	479661	290629	199	40	29	1400	242.64	113.41	1865	29923	X	JS - No Adj
4.9.17	0940	33471	482535	290629	199	39	28	1500	238.12	117.93	1875			TL - NO ADJ
4.10.17	0800	33471	485019	290629	203	40	30	1400	237.96	118.09	1790	29923	X	JS, JL - Adj Down FCV, 250gpm
4.11.17	0800	33471	485778	290629	238	67	55	1400	311.00	45.05	678	30293	53	JS - Rounds → BF
	1320	33471		290629	350				355.08		Ø	30373	54	BF
	1340	33501		290658					467.79					10 min SC
	1435	33559	485993	290718	232	56	48	1425	359.06		1205	30390	X	JS - Restart Inj
4.12.17	0900	33559	487350	290718	232	59	51	1400	311.24		1206	30390		JL - left settings
4.13.17	0900	33559	488097	290718	232	60		1400	307.62		1221	30390	X	JL - left settings
4.14.17	0810	33559	490836	290718	236	60	52	1550	305.49	53.27	1215			
	1825				227	55	49	1350			1385			JS - Adj up w/FCV. Well shaker @ 7:30
	1855				230	56	51				1340			JS - Adj down out of back. Hummie
4.15.17	0750	33559	492618	290718	231	57	52	1325	296.75	62.31	1330	30390	X	JS - Rounds
	0905				225	46	46	1375			1350			JS - Adj HV + FCV see db

ASR-2
FI-Inj

ASR-2
BF

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell (mV)	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)							
												0	1	2	5	10	15	20	
4.11.17	0840		Chloride =	32 ppm	14.8	442	7.42	250	1.28	3.62	Lo	JS							
								13.00c											
4.11.17	1330	290629	290659									JS	27.0	34.8	18.4	29.9	5.12		
	1350	290659	290688										6.45	6.76	6.35	10.3	3.04		
	1410	290688	290718										3.53	3.72	5.77	6.56	2.33		

MPWMD ASR DATA SHEET



Well: ASR-2

ASR Period: Injection

Sheet 1

Test: _____

Weather: _____

140 max of _____

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
4-15-17	0750	33559	492618	290718	231	57	52	1325	296.75	62.31	1330	30390	X	JS - Rounds
	0905				225	56	46	1375			1350			JS - Adj, HU+FCV sec 2b
4-16-17	0850	33559	494634	290718	223	56	46	1350	291.9		1345			
4-17-17	0805	33559	496515	290718	225	56	46	1350	289.68	69.38	1350	30390	X	JS - No Adj
4-18-17	0830	33559	498490	290718	225	56	47	1350	287.35	71.71	1344	30634	53 57	JS - Rounds → BF
	0930			290718	350				352.63		∅	30646	32 50	13F
	0945			290746					462.05					
	1040	33646	498554	290807	209	50	39	1300	357.24		1725	30665	X	JS - Restart Inj
	1430				208	47	35	1350			1735			JS Adj up w/ FCV
4-19-17	0805	33646	500756	290807	208	47	36	1300	280.68	76.56	1700	30665	X	JS - No Adj
	1415				214						1505			JS - Adj down w/ FCV+HU
4-20-17	0800	33646	502989	290807	212		36	1300	284.41		N11			JL - OBRIGATION
4-21-17	0500	33646	505528	290807	216	42	34	1300	279.78		1406			JK - 2nd well logs
4-22-17	0940	33646	507135	290806	216	48	37	1325	277.76	79.84	1445			LAST TIME OF BF 1/2 way between 5 and 6 TL
4-23-17	0915	33646	509187	290806	213	47	35	1300	274.32		1470			
4-24-17	0835	33646	511223	290806	213	47	35	1300	272.44	84.60	1451	30665	6 34	JS - No Adj, turned on lube
4-25-17	0815	33646	513314	290806	213	46	35	1300	270.72	86.52	1457	31010	" 50	JS - Rounds → BF

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)							
													0	1	2	5	10	15	20	
4-18-17	0935	290718	290747									JS	1.64	81.4	9.39	24.0	6.20			
	0955	290747	290777										14.0	6.31	6.48	8.28	2.98			
	1015	290777	290807											16.8	4.31	4.89	5.91	2.00		

ASR2 BF

MPWMD ASR DATA SHEET



Well: ASR-2

ASR Period: Injection

Sheet 1

Test: _____

Weather _____

of _____

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
4.25.17	0815	33646	513314	290806	213	46	35	1300	357.29	140 MAX	1457	31010	11 50	IS - Rounds → BF
	0910			290806	350				349.82		Ø			BF
	0930			290834					459.41					10 min SC
	1030	33735	513388	290895	212	45	35	1300	355.60		1497	31040	X	IS - Restart Inj
4.26.17	0900	33735	515497	290895	211	48	36	1300	291.05		1550			JL - NO ADJ
4.27.17	0900	33735	517330	290895	238	55	48	1300	308.96		1104			JL - NO ADJ
4.28.17	0900	33735	518845	290895	238	59	48	1250	302.11		1103			JL - NO ADJ
4.29.17	0946	33735	520518	290895	238	52	47	1300	304.51		1092			JL - NO ADJ
4.30.17	0800	33735	521979	290895	236	54	49	1250	303.0	52.50	1097			IS - No Adj
5.1.17	0800	33735	523542	290895	236	52	47	1300	303.41	52.19	1064	31040	42 40	IS - No Adj - Injection on
	0805	33735	525074	290895	235	52	47	1300	304.50	51.10	1022	31409	53 51	IS - Rounds → BF
	0855			290895	350				351.58		Ø			BF
	0915			290924					458.10					10 min SC
	1015	33825	525122	290986	231	49	43	1300	356.00		1100	31438	X	IS - Restart Inj
	1500				235						1094			IS - Adj, Dea w/FCV
5.3.17	0900	33825	526615	290986	236	61	49	1300	327.06		1072			JL - NO ADJ
5.4.17	0900	33825	528139	290986	236	63	49	1250			1068			JL - NO ADJ

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)						
													0	1	2	5	10	15	20
4.25.17	0920	290806	290835									JS	3.79	221.0	9.87	23.9	4.77		
	0940	290835	290865										12.5	4.47	4.93	7.72	2.38		
	1000	290865	290895										2.95	3.23	3.69	5.75	2.05		
4.25.17	1535		Chlorite =	32 ppm	15.8	320	7.38	743.0	1.01	4.83	Lo	JS	0.49						
								225	20.0°C										
5.2.17	0905	290895	290926									JS	1.27	10.4	14.8	16.0	3.66		
	0925	290926	290956										6.43	4.02	4.66	6.59	2.22		
	0945	290956	290986										6.88	3.15	3.52	4.86	1.88		

ASR-2 BF
Inj ASR2 F1

MPWMD ASR DATA SHEET

Well: ASR-2

ASR Period: Injection

Sheet 1



Test: _____

Weather: _____

of _____

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	140 MAX Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
5-15-17	0805	33914	545266	291076	234	58	51	1200	315.46	44.41	1186	31715	X	JS - No Adj, Lubeline on
5-16-17	0815	33914	546967	291076	230	52	45	1200	314.60	45.27	1153	31789	47/46	JS - Rounds → BF
	0930			291076	350				354.21		0			BF
	1005			291105					455.72					10 min SC
	1100	34004	547059	291168	236	55	49	1190	358.57		1000	32029	X	JS - Restart Inj
5-17-17	0800	34004	548178	291168	237	57	49	1150	338.83	19.76	648	32029	X	JS - No Adj
	0845			291168	233	57	48	1180			938			JS - Adj up w/ FCV
5-18-17	0830	34004	549611	34004	234	58	48	1200	327.68		976			JS - NO ADJ
5-19-17		34004	550786	291168										
	1130				218	64	48				1689			JS - RESTARTED INJ
5-20-17	0908	34004	552955	291168	216	58	46	1225	300.06		1670			TL - NO ADJ.
5-21-17	0615	34004	555088	291168	217	63	47	1100	296.73		1690			TL - NO ADJ
5-22-17	0800	34004	556403	291168	242	80	51	1100	342.11	16.48	532	32029		JS - Rounds - No Adj
	0945	34004	556457		232	73	49				1010			JS - Adj up w/ FCV
5-23-17	0800	34004	557636	291168	230	22	20	1100	357.10	1.49	0	32307	50/50	JS; Inj 410gpm → BF
	0920	34004	557653	291168	350				361.01		0			BF
	0940	34034		291196					457.11					10 min SC
	1100	34106	557653	291272	350				364.51		0	32347	X	JS - No Inj
	1625	34106	557653	291272	234	87	49	1100	364.29		900	32347	X	JS - Restart Inj

1500 OFF TO MIN

ASR-2 BF

ASR-2 BF

Injectate CASR-2 FI

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP / Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU) min after start							
													0	1	2	5	10	15	20	
5-16-17	0955	291076	291106									JS	23.1	95.6	8.26	13.2	4.06			
	1015	291106	291137										20.5	5.26	5.25	5.25	2.31			
	1035	291137	291168											11.6	2.92	3.57	3.69	1.38		
5-23-17	0930	291168	291198									JS	1.75	40.3	9.93	14.2	3.85			
	0950	291198	291228											2.63	3.48	4.12	5.11	1.71		
	1010	291228	291272											2.33	3.79	2.97	3.61	2.14	1.05	
5-23-17	1035			Chloride = 32 ppm	16.0	327	7.34	763/213	1.21	10.47	6.0	JS	0.72							

18.0°C

MPWMD ASR DATA SHEET



Well: ASR-2

ASR Period Storage

Sheet 1

Test: _____

Weather _____

of _____

10 min

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
6.20.17	0925	NA	NA	291358	344	92	0	1010			0	32733		Transcribed from prev.
6.28.17	0935	NA	NA	291358	344		0	980	380.29		0	33017	45/43	35-38 / Sample event
				291385					480.5					10 min SC
				291465								33037		
8.1.17	1415	NA	NA	291465	351	91	0	2125	383.70		0	33434	51/49	BF/SSAP Sample
	1440			291485					2146.20					10 min SC
	1510	NA	NA	291526	351	92	0	2200	NA		0	33448	X	End Sample

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP / Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU) min after start						
													0	1	2	5	10	15	20
6.28.17	10:35	291358	291433		16.4	460	7.3	430	0.20	3.28	ND	Turbidity	0	1	2	3	4	5	10
														1.62	1.71	1.79			
												Chloride	X	5	10	15	20	30	
														X	30	30	30	25	30
8.1.31	1430				18.4	416	6.90	167	0.93	3.31	Lo	Turbidity	55.6	68.4	21.4	15.5	14.3	21.7	2.13
														1.89	1.71	1.46			
												Chloride	X	5	10	15	20	30	

32 30 30 32 32

160 MAX DRAW UP

MPWMD ASR DATA SHEET



Well: ASR3

ASR Period INITIATION

Sheet 2

Test:

Weather SUN/RAIN

364.30 INITIATION

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
1.6.17	0830	70682	788122	8322	225	87	45	900	300.17		680			TRASSER BGD FROM SHEET 1
1.7.17	0900	70682	79413	8321	221	65	45	900	258.24	106.06	1090			MAX DRAW UP 160
1.7.17	0925		79439		233	72	49				660			Reduced Flow too high Coast gate 25 turns
1.8.17	0921	" "	20377	8321	233	73	48	900	296.4		660			TL - LEFT SETTINGS
1.9.17	0830		81294		235	85	48	850	294.15		652			SL - LEFT SETTINGS
1.10.17	0930	70682	82297	8321	234	74	48	850	293.51		650			TURNOVER ON LUBE
1.11.17	0830	70682	83198	8321	234	73	48	800	292.16		638			LEFT SETTINGS
1.12.17	0830	70682	84192	8321	234	90	52	800	281.26		735			PRESSURE ↑ FLOW ↑
1.12.17	1315	70682	84396	8321	340	100+	∅	800	358.13		∅			STOPPED INI FOR BF
				8321					465.62					3X BF 10MIN LINE FLUSH
1.12.17	1430	70682	84396	8376	340	100+	∅	2000	364.74		∅	252220		RESET TEST REPLACE N ₂
					222	89	42	2000						TURNOVER HV TO HOLD FLOW
1.13.17	0830	70682	85287	8376	217	97	35	2000	291.79		850			
1.14.17	1040								298.2					Adj. PRV + HV + FCV
	1055	70682	86500	8376	215	51	35	2150	289.0		800			
1.15.17	0825	70682	87515	8376	215	51	38	1950	281.9		770			JS - No Change
1.16.17	0950	70682	88738	8376	215	51	38	2000	276.66	87.64	775			TL - No adj
1.17.17	1510	70682	90176	8376	214	46	38	2050	259.47		883	252220	59/55	SMS(D) = 00484
1.18.17	0905	70682	91160	8376	213	48	37	2000	244.17	120.57	930	254160	60/57	TL - prepure to BF

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler/ Laboratory	Turbidity (NTU) min after start						
													0	1	2	5	10	15	20
													4.83	274	232	40.2	35.5		
													5.51	330	332	16.1	11.8		
													3.17	7.74	8.71	11.2	5.45	2.71	

Adj.

TRANSER FLOW

10

CI- 35PM

SMS(D)

MPWMD ASR DATA SHEET



Well: ASR3

ASR Period Injection

Sheet 1

Test: _____ Weather _____ of _____

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
2-1-17	0850	70682	112106	8513	217	52	43	1850	191.58	164.03	1057	295260	59.56	Prep for BF-JS
	1100	70682	112243	8513	350	69			336.97		Ø	295470		BF
									459.03					
	1240	70682	112252	8591	211	49	40	1900	134.67		1040	259660		Restart Inj - JS
2-2-17	1100	70682	113821	8591	207	43	41	1900	197.58	148	1300			
2-3-17	0850	70682	115519	8591	209	43	40	1900	162.23	184.46	1405			Reduce FCV boundary from 12.75 TL to 20.6-20.9
2-4-17	0900	70682	117436	8591	207	45	37	1900	171.39	175.3	-1250			TURVED FCV TO 225 DTW 195.78 → DU 150.91
2-5-17	0835	70682	118827	8591	226	51	46	1800	204.56	142.13	980			ADJ to 1030, FCV=221
2-6-17	0830	70682	120337	8591	220	48	44	1875	190		1050			SL-NO ADJ
2-7-17	1025	70682	121973	8591	220	48	44	1875	191.09	155.6	1057	259660		
2-8-17	1230	70682	123729	8591	225	69	50	1900	168.46	178.46	1273			1000 GAL LINE FLUSH
									339.53	439.55				PRESSURE UP FROM 1 SHUTDOWN
2-8-17	1440	70682	123729	8648	210	80	40	1900			-1086	26920		10-15 min Backflush.
2-9-17	0930	70682	125047	8648	210	44	40	1825	195.93	150	-1235			TURVED DOWN
					215	48	40		221.52		-1089	26920		

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP / Zobe	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)							
													0	1	2	5	10	15	20	
2-1-17	1100	00609		585(D)	16.0	466	7.2	522.9	0.98	4.20	ND L0	TL/JS								
	1113	8513	8529											1.05	2.70	58.6	11.0	28.9		
	1134	8529	8546											31.8	24.0	14.6	10.5	7.23		
	1154	8546	8591											11.6	13.9	20.8	33.5	10.6	4.85	3.42
														25min	30min					
														Full	2.65					
2-1-17	1305				15.0	396	6.81	588.5 @ 15.0°C	1.21	4.68	0.05	SL/JS								
								236.1												

2-8-17	1230	8592	8605											2.84	3.73	42.7	27.8	13.4			30min	40min	45min
		8605												42.4	37.8	21.6	15.1	12.7					
			8648											12.9	23.2	18.3	18.9	14.1	12.3	9.7	3.27	2.7	

10 min

data (?)

10

Chloride = 23 ppm
[Cl⁻] => 18 mg/L

INJECTATE @ ASR3

160

MPWMD ASR DATA SHEET



Well: ASR3

ASR Period INJECTION

Sheet 1

Test: _____

Weather _____

160 MAX of 1

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
2-9-17	0900	70682	125047	8648	215	48	40	1825	220.52		1089			INITIAL DTW => 346.17
2-10-17	0920	70683	126491	808648	215	48	41	1800	218.05	128.12	990			NO ADJ. TL
2-11-17	0830	70683	127844	8648	216	47	40	1775	213.78	132.39	945			JS-Adj up FCV=213, Inj=1035
2-12-17	0922	70683	129445	8648	213	46	40	1780	192.55	153.62	1080			NO ADJ. TL
2-13-17	0900	70683	131015	8648	211	46	40	1800	188.42		1080			
2-14-17	0900	70683	132675	8648	212	45	39	1850	174.79	171.38	1166	261920		JS ASR Rounds
	1410	70683	133047	8648	214	46	40	1800	197.59	148.58	1033	261920	57	53 Adj down, Prep for BF
2-15-17	0850	70683	134217	8648	213	46	40	1750	192.70	163.47	1065	263780	59	56 Prepare to BF - JS
	1030	70683	134325	8648	350				335.50		Ø	263990		Start BF
	1115			8663					457.82					
	1230	70683	134337	8725	213	46	40	1775	342.61		1035	264170		Restart Inj
2-16-17	0830	70683	135662	8725	209	44	41	1700	205.14		1178			left settings
2-17-17	0735	70683	137315	8725	210	44	40	1700	191.21	151.40	1195	264170		JS- No Adj
	0840				350	91	40				Ø			Shut down Cal AM ↓ 1200 gpm
2-22-17	1320			289960										LINE FLUSH
2-22-17	1510			8725					355.45		Ø			
2-22-17	1530			8728										
					210	91	40				1040			

10 min

Power out

F1 SMS(D)

ASR-3 BF

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobel	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)							
												0	1	2	5	10	15	20	
2-15-17	0940		Chloride =	32 ppm	16.7	434	7.48	646.2	1.20	5.54	JS	2.64	2.42	25.7	24.5				
								252.0	13.1°C										
2-15-17	1105	8648	8664									1.39	2.42	25.7	24.5	22.4			
	1125	8664	8680									25.1	19.1	13.2	7.37	6.89			
	1145	8680	8725									9.64	9.04	10.4	12.5	13.6	17.1	11.7	
												25 min	12.2	1.37					

MPWMD ASR DATA SHEET

Well: ASR3

ASR Period Injection

Sheet 1



Test:

Weather

160 MAX

of

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
2.22.17	1530	70683	137315	8728	210	91	40	1700	355.45		1040			Restarted Inj
2.23.17	0830	70705	138543	8728	210	81	40	1700	170.39	185.06	1240	26170	28500	Started lube Some flummery on FV valve - JL
	1245				212				211.76	143.69				Turned down to 1000 used HV to limit flow
2.24.17	1245	70705	140200	8728	222	78	43	1650	218.35	137.10	910	267250	75	71 Kc - BF - JS
	1255			8728	350				341.02		∅			Stop Inj → BF
				8742					460.50					10 min
2.24.17	1430	70705	140216	8790	223	68	47	1600	349.72		1050	267440		Restart Inj - JS
2.25.17	0850	70705	141404	8790	217	46	43	1550	213.35		1101	267440		JS - ASR rounds
	0855				220	46	44	1550			1050			JS - Adj down / FCV
2.26.17	0925	70705	142985	8790	220	47	47	1625	206.49	112.90	1080			TL - work
2.27.17	0830	70705	144475	8790	220	46	44	1600	202.42		1070			
2.28.17	0900	70705	146065	8790	222	47	44	1650	197.68		1067	267440		JS - ASR rounds
3.1.17	0830	70705	147655	8790	219	46	44	1600	187.66		1097			JL
3.2.17	0830	70705	149192	8790	221	44	43	1625	191.68		1034			JL - left settings
3.3.17	0900	70705	150830	8790	220	47	44	1600	179.11		1109	269820	59	56 JS - DR → BF
	1050	70705		8790	350				351.21		∅			Stop Inj → BF 10 min
	1115			8805	215				455.05					10 min
	1125	70705	150971	8866	215	48	40	1600	341.98		1055	270190		JS - Restart Inj

10 min

10 min

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP / Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU) min after start							
													0	1	2	5	10	15	20	
2.24.17	1305	8728	8744										0.69	4.10	9.56	12.4	23.9			
	1325	8744	8759										27.2	18.4	14.0	6.13	5.15			
	1345	8759	8790										8.37	7.71	6.53	4.14	3.47	3.05	1.94	
3.3.17	1030		Chlorine >	30 ppm	16.6	433	7.22	Not Working	0.91	3.73	Lo		1.28							
3.3.17	1105	8790	8806										1.53	2.25	16.6	23.0	20.1			
	1125	8806	8822										21.3	18.0	24.6	21.5	4.93			
	1145	8822	8866										13.8	18.2	14.7	19.6	11.9	20.1	12.6	
													25 min	30 min						
													19.21	2.51						

ASR3 BF

F1 (5mskL)

MPWMD ASR DATA SHEET



Well: ASR-3

ASR Period Injection

Sheet 1

Test: _____ Weather _____

160 max of _____

6.62 6.68 5.03

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
3-3-17	1125	70705	150971	8866	215	48	40	1600	341.18		1055	270190		JS - Restart Inj
3-4-17	0845	70705	152224	8866	214	48	41	1600	215.31		1037			LEFT SETTINGS - JL
3-5-17	0925	70705	153211	8866	215	49	42	1500	209.18	132.8	1045			TL - NO Δ
3-6-17	0930	70705	155256	8866	214	48	42	1500	207.47		1036			JL - NO ADJ
3-7-17	0900	70705	156697	8866	365	100+	21	1550	340.94		∅	270190		JS - Rounds, No Inj per Cal AM
3-8-17														
3-9-17	0815	70705	157742	8866	209	52	37	1550	200.51		1060			
3-10-17	0840	70705	159235	8866	210	49	37	1475	197.82		1020	271870	58	JS - ASR Rounds → BF
	0945			8866	350				332.68		∅			Prep for BF
	1005			8880					455.82					10min SC → BF
	1110	70705	159354	8929	193	42	30	1500	341.00		1090	272140		Restart Inj
3-11-17	0840	70705	160722	8929	187	47	26	1450	202.19	138.81	1112	272140		JS - ASR Rounds, No Adj
3-12-17	1030	70705	162411	8929	188	44	24	1515	195.18	145.82	1130			TL - No Adj
									184.32					
3-14-17	0815	70705	165480	8929	187	46	26	1425	184.36		1111	274500	59	JS - ASR Rounds → BF
	1330			8929	350				333.40		∅			JS - BF
	1350			8944					455.96					10min - SC
	1510	70705	165844	9014	230	44	49	1450	341.11		1080	275190		JS - Restart Inj.

ASR-3 BF

ASR-3 BF

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)						
													0	1	2	5	10	15	20
3-10-17	0955	8866	8882									JS	1.03	1.99	9.44	22.5	22.1		
	1015	8882	8898										24.1	19.4	15.4	18.6	5.42		
	1035	8898	8929	Chloride = 52 ppm									8.93	8.23	7.23	13.6	4.35	7.16	2.11
3-14-17	1340	8929	8945									JS	2.96	10.3	13.8	24.3	18.9		
	1400	8945	8962										34.9	31.0	31.7	12.7	8.00		
	1420	8962	9014	Chloride = 30 ppm									9.39	16.8	9.80	17.9	16.8	8.59	9.97
														25min	30min	35min			
													7.34	3.19	1.64				

MPWMD ASR DATA SHEET

Well: ASR-3

ASR Period Injection

Sheet 1

Test: _____

Weather _____

160 max of _____

NEED TO REPLACE GAGE



Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
3-14-17	1510	70705	165844	9014	230	44	49	1450	341.11		1080	275190	X	JS - Restart Inj
3-15-17	0905	70705	167024	9014	232	46	51	1375	211.80	129.31	1080	275190	X	JS - Rounds, No Adj
3-16-17	0845	70705	168608	9014	231	43	52	1375	204.50		1075	275190	X	JL - LEFT SETTINGS
3-17-17	0905	70705	170142	9014	233	44	50	1425	200.48	140.43	1075			TL - NO Δ
3-18-17	0840	70705	171664	9014	232	44	50	1350	197.92	143.19	1057	275190	X	JS - No Adj
3-19-17	0915	70705	173247	9014	232	43	49	1350	193.87	142.74	1060			TL - NO ADJ
3-20-17	0915	70705	174774	9014	231	44	42	1300	189.54	151.57	1055			JL - NO ADJ, LUBRON
3-21-17	0845	70705	176309	9014	232	44	46	1325	186.71		1069	277540	59/56	JS - ASR Rounds, BF
	1330			9014	350				331.10		∅	278000	59/55	BF
	1350			9029					455.95		∅			10 min
	1500	70705	176652	9086	216	43	30	1350	337.45		1075	278160	X	JS Restart Inj
3-22-17	1100	70705	177890	9086	216	43	41	1350	203.78		1075			JL - NO ADJ
3-23-17	0920	70705	179253	9086	216	43	41	1300	213.76	126.19	1020	278160	X	JS - Adj up w/FCV 214 to 1055
3-24-17	0830	70705	181042	9086	216	44	42	1300	202.97	136.89	1050			JL - NO ADJ
3-25-17	0845	70705	183502	9086	214	44	41	1300	195.41	144.04	1150	278160		JL - WILL TRANSCRIBE MONDAY
3-26-17	0835	70705	183952	9086	214	44	41	1300	192.44		1078	278160	X	JS - No Adj
3-27-17	1230	70705	185385	9086	214	41	40	1400	181.64		1134	278160		JL - TURNED ON LUBE
3-28-17	0830	70705	187198	9086	215	43	41	1300	183.27	156.18	1084	280130	59/56	JS - Rounds → BF

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)							
													0	1	2	5	10	15	20	
3-15-17	1415			Chloride = 32 ppm	17.1	376	7.28	730.17V	0.83	4.22	Lo	JS	2.55							
									21.5°C											
3-21-17	1340	9014	9031											1.38	10.7	24.7	16.3	19.8		
	1400	9031	9048											26.5	25.4	16.6	10.9	9.60		
	1420	9048	9086											13.6	12.8	11.2	5.47	4.59	5.07	4.50
														25min	30min					
														2.51						

MPWMD ASR DATA SHEET



Well: ASR-3

ASR Period Injection

Sheet 1

Test: _____

Weather _____

160 MAX of _____

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
3-28-17	0830	70705	187198	9086	215	43	41	1300	<u>339.45</u> 183.27	156.18	1084	280130	59/56	JS - Rounds → BF
	1345		187539	9086	350				330.47		∅	280650	61/58	JS - BF
	1405			9101					453.09					10 min SC
	1510	70705	187539	9151	213	43	40	1300	<u>337.78</u> 219.12		1070	280800	X	JS - Restart Inj
3-29-17	0937	70705	188685	9151	216	73	39	1250	219.12		1030			↑ Adj adj ∅ #1 + #2
3-30-17	0835	70705	190112	9151	215	73	40	1250	219.49		1015			No ADJ - TL
3-31-17	0900	70705	191619	9151	215	43	39	1300	208.22	129.5	1035			No ADJ - TL
4-1-17	0850	70705	193090	9151	216	43	39	1300	208.61	129.16	999	280800	X	JS - Adj up w/ FCV-215 1095ppm
4-2-17	1020	70705	194994	9151	208	38	42	1250	154.4	183.97	1355			TL - Adj down FCV=215 1,000ppm
4-3-17	0845	70705	196468	9151	210	46	40	1200	167.68	170.09	1202	280800	X	JS - No Adj, JL - Adj down
4-4-17	0825	70705	197760	9151	216	53	40	1200	216.72	121.05	857	282550	58/56	JS Rounds → BF
	0950			9151	350				329.99		∅	282690		BF
	1010			9165					455.66					10 min SC
	1120	70705	197829	9221	214	50	40	1250	<u>338.23</u>		990	282860	X	JS - Restart Inj

ASR3
FCV
FI SWS(D)
ASR3
FCV

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)						
													0	1	2	5	10	15	20
3-28-17	1355	9086	9102									JS	6.70	17.0	21.0	24.1	21.1		
	1415	9102	9119										22.1	49.0	15.4	6.55	6.49		
	1435	9119	9151										12.9	9.39	6.63	4.77	5.11	3.51	1.83
3-29-17	1530		Chloride =	32ppm	18.1	462	7.23	732 234	18.1°C 0.78	4.47	2.0	JS	0.71						
4-4-17	1000	9151	9167									JS	5.61	3.65	11.9	22.7	25.5		
	1020	9167	9183										28.9	30.6	20.2	13.9	10.3		
	1040	9183	9221	Chloride =	32ppm								22.7	22.1	10.8	10.2	9.31	6.29	3.56

25min
2.50

1200

1993

ASR4

MPWMD ASR DATA SHEET

Well: ASR-3

ASR Period Injection

Sheet 1



Test:

Weather

160 max of

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
4.4.17	1120	70705	197829	9221	214	50	40	1250	338.23		990	282860	X	JS - Restart Inj
4.5.17	0825	70705	199097	9221	214	48	40	1200	225.88		1014	282860	X	JS - No Adj
4.6.17	1200	70705	200838	9221	214	42	40	1200	156.15		1075		X	JS - NO ADJ
4.7.17	0830	70705	202145	9221	214	40	40	1200	171.08		1050		X	PM WILL TURN DOWN AFTER ASR4 24HR TEST IS OVER
4.8.17	0830	70705	203430	9221	218	47	40	1150	207.56	130.67	835	282860	X	JS - No Adj
4.9.17	0945	70705	204720	9221	218	45	40	1180	209.79	128.45	800		X	TL - NO ADJ
4.10.17	0830	70705	205853	9221	219	72	40	1190	203.35	134.88	823	282860	X	JS - No Adj, Lubline
4.11.17	0815	70705	207120	9221	216	73	40	1120	192.03	146.20	894	285350	72/70	JS - Rounds → BF
	1020			9221	350				326.70		∅	288560	84/82	BF
	1040			9236					452.61			285730	X	10 Mix SC
	1145	70705	207228	9284	215	72	40	1150	337.123		850	285730	X	JS - Restart Inj
4.12.17	0830	70705	208215	9284	219	89	40	1150	258.1		700		X	needs ←
4.13.17	0830	70705	209217	9284	218	65	40	1150	258.84		670		X	
4.14.17	0905	70705	210173	9284	221	64	40	1125	263.26	73.86	600		X	NO ADJ - TL
4.15.17	0810	70705	211070	9284	220	64	40	1100	256.09	81.03	638	285730	X	
4.16.17	0910	70705	212086	9284	219	63	40	1090	139.66	←?	660		X	NOT SURE OF DTW NO ADJ - TL
4.17.17	0825	70705	213023	9284	218	62	40	1100	248.58	88.54	676	285730	X	JS - No Adj
4.18.17	0815	70705	214001	9284	219	63	40	1090	248.41	88.71	660	287820	62/59	JS - Rounds → BF

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)				min after start					
													0	1	2	5	10	15	20			
4.11.17	1000		Chloride =	32 ppm	16.8	429	7.70	731-16.8°C 243	0.94	4.16	Lo	JS	0.77									
4.11.17	1030	9221	9237									JS	1.66	6.78	26.5	19.6	27.7					
	1050	9237	9253										35.6	31.8	14.3	10.8	6.46					
	1110	9253	9284										17.5	17.2	8.34	8.04	12.9	4.66	2.36			

SMCD) FI

ASRB BF

MPWMD ASR DATA SHEET



Well: ASR-3

ASR Period Injection

Sheet 1

Test: _____

Weather _____

160 MAX of 1

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
4.18.17	0815	70705	214001	9284	219	63	40	1090	337.12 248.41	88.71	660	287820	62/59	JS - Rounds → BF
	1115			9284	350				329.70		0	288160	66/62	BF
	1140			9299					449.53					10 min SC
	1245	70705	214121	9348	216	57	40?	1050	334.41 1050		668	288310	X	JS - Restart Inj
	1520				218						663			JS - Adj down w/ FCV
4.19.17	0830	70705	214916	9348	217	54	40	1100	270.52	63.89	689	288310	X	JS - No Adj
	1530				213	54	40	1075			857			JS - Adj up w/ FCV
4.20.17	0830	70705	216349	9348	210	53	40	1075	220.17		1066			JL - NO ADJ
4.21.17	1500	70705	218585	9348	214	52	48	1050	198.87		980			TURNUED DOWN FROM 1372 TO 980
4.22.17	1005	70705	219556	9479	217	53	40	1100	234.06	100.35	765			turned up to 850 TL
4.23.17	0940	70705	220795	9479	217	53	40	1100	216.56	117.85	855			
4.24.17	0850	70705	222027	9479	216	53	40	1025	210.44	123.97	875	288310	56/54	JS - No Adj, Turned on lube
4.25.17	0840	70705	223317	9479	216	53	40	1080	203.36	131.05	897	290710	59/58	JS - Rounds → BF
	1100			9479	350				325.88		0			BF
	1125			9494					450.37					10 min SC
	1240	70705	223445	9559	215	50	40	1025	333.71		960	291140	X	JS - Restart Inj
4.26.17	0830	70705	224528	9559	214	55	40	950	273.18		893			JL - NO ADJ
4.27.17	0830	70705	225857	9559	216	62	40	950	210.80	229.33	900			JL - NO ADJ
4.28.17	0830	70705	227137	9559	216	61	40	1000	230.58		862			JL - NO ADJ

ASR3 BF
ASR3 BF

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP / Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU) min after start							
													0	1	2	5	10	15	20	
4.18.17	1130	9284	9301									JS	16.5	12.4	25.5	15.6	23.9			
	1150	9301	9317										26.8	17.9	24.5	14.8	10.1			
	1210	9317	9348										14.3	17.4	11.5	7.66	8.65	3.59	2.59	
4.25.17	1115	9479	9495										39.8	27.9	23.7	58.8	24.9			
	1135	9495	9512										44.3	25.0	25.0	8.05	7.83			
	1155	9512	9559										16.6	13.2	8.90	11.7	7.01	6.87	14.8	
													25min	30min						
													2.23	1.32						

MPWMD ASR DATA SHEET



Well: ASR 3

ASR Period INJECTION

Sheet 1

Test: _____

Weather _____

160 MAX of 1

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
4.28.17	0830	70705	227137	9559	216	61	40	1000	333.71 230.58		862			TRANSCRIBED FROM PREVIOUS SHEET
4.29.17	0930	70705	228547	9559	216	58	40	1000	217.10		954			IL- NO ADJ
4.30.17	0820	70705	229891	9559	215	59	40	1000	214.35	119.36	955			IS- No Adj
5.1.17	0820	70705	231325	9559	216	57	40	1000	208.24	125.47	986	291140	57 54	IS- No Adj, Lubline on
5.2.17	0825	70705	232803	9559	214	57	40	1000	202.66	131.05	1005	293570	57 57	IS- Rounds → BF
	1240			9559	350				331.60		∅			BF
	1300			9573					450.90					10 min SC
	1430	70705	233061	9629	214	67	40	950	337.74		880	294180		IS- Restart Inj
5.3.17	0830	70705	234094	9629	216	69	40	1000	215.77		953			IL- NO ADJ
5.4.17	0830	70705	235532	9629	214	69	40	900	207.41		1016			IL- NO ADJ
5.5.17	0830	70705	237039	9629	211	68	40	850	201.77		1027			IL- NO ADJ
5.6.17	1055	70705	238688	9629	212	67	40	890	226.66	111.12	1046			TL
5.7.17	1235	70705	240280	9629	213	64	39	920	216.87		1078	0294100		TL - turned lube on
5.8.17	0825	70705	241525	9629	213	67	40	890	217.89	119.85	1028	296270	66 64	IS- Rounds → BF
	1130			9629	350				333.71		∅			BF
	1150			9645					450.74					10 min SC
	1300	70705	241720	9694	214	66	39	890	340.07		1010	296770		IS- Restart Inj
														IS- Restart Inj

ASR 3
BF

ASR 3
BF

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)							
													0	1	2	5	10	15	20	
5.2.17	1250	9559	9575									IS	13.2	23.2	40.0	26.8	30.8			
	1310	9575	9592										25.7	30.4	22.3	14.7	9.87			
	1330	9592	9629										18.7	19.8	12.8	11.4	8.71	3.51	3.96	
													25 min 30m							
													1.99							
5.8.17	1140	9629	9647										4.64	331.0	20.7	23.7	15.6			
	1200	9647	9663										21.5	22.2	18.1	7.22	12.6			
	1220	9663	9694										47.8	26.5	15.4	7.23	8.04	3.70	2.66	

MPWMD ASR DATA SHEET



Well: ASR-3

ASR Period: Injection

Sheet 1

Test: _____

Weather: _____

of 1

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	160 MAX Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
5.8.17	1300	70705	241720	9694	214	66	39	890	340.07		1010	296770	X	Transcribed from prev. sheet
5.9.17	0830	70705	242819	9694	215	65	40	850	247.41	92.66	898	296770	X	JS- No Adj
5.10.17	0830	70705	244236	9694	212	68	40	800	241.32	98.75	1007			JL- NO ADJ
5.11.17	0830	70705	245717	9694	212	70	66	800	228.31		1070			JL- NO ADJ
5.12.17	0905	70705	249220	9694	214	65	39	900	226.89		1015			TL
5.13.17	0830	70705	248653	9694	214	64	39	890	224.17	115.90	1011	296770	X	JS- No Adj
5.14.17	1045	70705	250269	9694	211	64	40	800	218.47		1042	296770		JL- LUBCON @ 1045
5.15.17	0825	70705	251605	9694	212	64	40	800	218.80	121.27	1015	299050	63/61	JS- Rounds → BF
	1135			9694	350				334.71		Ø			BF
	1200			9708					450.54					10 min SC
	1305	70705	251797	9757	212	62	39	800	339.47		995	299550	X	JS- Restart Inj
5.16.17	0830	70705	253007	9757	211	57	39	800	230.68	108.79	1064	299550	X	JS- No Adj
	1615				213						1030			JS- Adj down w/ FCV
5.17.17	0830	70705	254519	9757	214	62	39	800	229.21	110.26	1035	299550	X	JS- No Adj
5.18.17	0830	70705	256045	9757	212	62	40	800	225.21		1040			JL- NO ADJ
5.19.17	1130	70705	257392	9757	213	62	40	800	—		1000			See OPERATIONAL NOTES
5.20.17	0930	70705	258823	9757	211	66	39	800	219.13		1100			TL
5.21.17	0635	70705	260237	9757	211	68	39	700	219.39		1065	299550 Toward ON		TL
5.22.17	0830	70705	261970	9757	211	86	39	700	214.35	125.12	1100	302420	85/83	JS- Rounds → BF

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)								
													0	1	2	5	10	15	20		
5.9.17	1300		Chloride =	32 ppm	17.6°	462	7.38	737/211	0.64	5.07	60	JS	2.16								
5.15.17	1150	9694	9710									JS	23.6	11.5	23.2	23.1	18.1				
	1210	9710	9726										25.6	25.0	14.0	26.6	10.1				
	1230	9726	9757										45.7	17.8	19.0	18.5	9.85	3.47	1.78		

SMS(D)
F1

ASR-3
BF

JL - Keyed IN.

MPWMD ASR DATA SHEET

Well: ASR4

ASR Period STORAGE

Sheet 1

Test: MONTHLY FIELD; Hg cycle

Weather SUN

of 1



10 -

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
11/1/16	1329	23039	114152	4502	345	105	Ø	2000	370.83	—	Ø	64570	95	Hg cycle Test 1, 2.5, 20, 30, 60
				4531					493.61				100	
				4675								64720	X	

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP / Zobell	21.6° [Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)						min after start	
													0	1	2	5	10	15		20
11/1/16	1330	4502	4675	173000	24.6	881	7.15	-129.7 249	ND	3.43	0.04	Hg - MH MILLARBELL	88	429	111	26.9	11.7	9.69	—	30 60

MPWMD ASR DATA SHEET



Well: 4 ASR Period Storage Sheet _____
 Test: _____ Weather Sunny, cold of _____

Date	Time	Tiger [F] (gal) ×1000	Tiger [R] (gal) ×1000	BF (gal) ×1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
12/2/16	9:45	23039	114664	004675	330	40	70	1900	374.4	∅		0068900	50 48	
	1002	Start back flush												
	10:11			4203					499.95					BF 2700 gpm sample
	11:10	23039	114864	004855	343			1900				0069100		

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP / Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU) min after start							
													0	1	2	5	10	15	20	30
12/2/16	1002	4675	4855	180,000	26.0	859	7.2	-297 256	0.2	0.52	1.378	TUMH	514	175	116	14.0	2.1	3.1	3.2	

@ 12.5"
0.13 H₂O₆
@ 17"

MPWMD ASR DATA SHEET



Well: ASR4

ASR Period _____

Sheet 1

Test: _____

Weather _____

of _____

1.35 L FOR 1min+6min Samples in Bucket

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
2-15-17	1505	23039	116450	4855	-	45	-	-	-		0	69110	54 52	JS - Turn on lube line
3-7-17	0909	23039	116960	4970	350	100+	-	2200	343.98		0			JL - SMALL WATER DRIFT
				5001	350				462.13					
				5101	350	100+						0073561078 end		COLLECTED Hg + SUPERNATANT
3-15-17	1000	23039	117390	5101					332.76					
				5131					452.99					COLLECTED Hg + SUPERNATANT.

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP / Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)							
													0	1	2	5	10	15	20	
3-7-17		4855	5101						ND		ND	Hg MCCAMBERK S7, S1, DBP MBAS	330	45	49.0	7.47	5.20	6.03	2.53	1.43
3-15-17		5101	5211	Chloride =					0.19 mg/L			Hg MCCAMBERK	28.0	49.8	61.0	6.20	2.12	3.89	1.32	1.07

3-15-17 550 mL ON 1min FILTER 540 mL ON 30 min FILTER TOTAL RUN TIME = 38.20 min

MPWMD ASR DATA SHEET



Well: ASR-4

ASR Period 10/1 - Hg ARRIVAL SAMPLING

Sheet 1

Test:

Weather SUN

of 1

Date	Time	Tiger [F] (gal) ×1000	Tiger [R] (gal) ×1000	BF (gal) ×1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
4-4-17	1015	23039	118312	005211	354	68	9	2100	333.73	∅	∅	007841	50/51	Before BF, sample
				5241					45552					
4-4-17	1335	23039	118312	5507	364	83	∅	2100	—	—	∅	007849	51/56	off after 101 mins BF

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP / Zobell	p (5 min) [Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)								
													0	1	2	5	10	15	20	25	30
4-4-17		5211										Hg McCampbell SUPERNATANT	314	79.0	60.6	6.78	3.00	1.78	1.34	1.47	1.60
		5241							0.22	10.17	0.06										
		1 MIN bucket = 75 ml (actual ~ 9.5 ml)																			
		6 MIN bucket = 375 ml (actual ~ 15.5 ml)																			
		30 MIN bucket = 345 ml																			

10 min →

FLOW CELL ACTIVE

Chloride: 52 ppm

MPWMD ASR DATA SHEET

Well: ASR-4

ASR Period Injection

Sheet 1

Test: Backflushing

Weather Rain

of 1



Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
4/7/17	10 ¹⁰	23039	121164	5705	364	69	0	1900	327.4	000			51	Lube ~1.6 gpm. Start 10-min a/s = 15.2 stop
	10 ²⁰			524.8					197.4	53				
	10 ³⁰			530.8										
11 ⁰⁵	11 ⁰⁵			5766					332.5					start pump 10-min a/s = 14.8 stop
	11 ¹⁵			5796					534.6	202.1				
	11 ²⁵			5827					538.5					
11 ⁴⁰	11 ⁴⁰			5827	364				335.4	000				start 10-min a/s = 15.0 stop pump
	11 ⁵⁰			5857						536.5	200.1			
	12 ⁰⁰			5888						541.2				

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)					
													0	1	2	5	10	15
4/7	10 ¹⁰												11.0	5.4	16.1	4.1	3.2	2.1
	11 ⁰⁵												3.7	3.7	2.9	1.9	2.4	1.4
	11 ⁴⁰												3.5	2.9	2.1	1.3	1.9	1.1

MPWMD ASR DATA SHEET



Well: ASR-4

ASR Period Injection

Sheet 2

Test: 7-Day Const. Rate

Weather _____

of _____

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	190 MAX	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
										Draw Up (feet)				
4.15.17	0815	23039	137076	5889	265	71	66	1800	186.42		1470	89520	X	JS - No Adj
4.16.17	0915	23039	139273	5889	253	70	64	1750	181.26		1460			TL - no adj ^{A=139273?}
4.17.17	0820	23039	141306	5889	264	71	65	1775	176.39	157.31	1472	89520	X	JS - No Adj
4.18.17	0810	23039	143420	5889	265	70	65	1780	171.81	161.89	1458	89570	X	JS - Rounds
	1300				256	63	57				1496			JS - Adj up w/ FCV
	1530				257	63	56				1490			JS - Adj down w/ FCV
4.19.17	0820	23039	145538	5889	257	54	57	1800	167.24		1449	91020	58/57	JS - Rounds → BF
	0930			5889	350				330.26		Ø	91110		BF
	0950			5920					553.11					10 min SC
	1135			6018					335.42					100 min SC start
	1315			6302					561.96					NOT ENOUGH PSI ON LINE
		23039	145626	6307										FARSDI COLLECTION
	1335	23039	145626	6307	252	60	55	1790	340.50		1485	91550	X	JS - Restart Inj
	1540				253	53	56	1800			1505			JS - Adj down w/ FCV
4.20.17	0830	23039	147276	6307	253	56	54	1800	265.01		1440			JL - NO ADJ
4.21.17	1500	23039	149824	6302	254	56	54	1800	249.08		1473			JL - NO ADJ
4.22.17	1010	23039	151622	6307	251	53	54	1800	241.70	98.6	1590			TL - NO ADJ
4.23.17	0945	23039	153798	6307	252	53	54	1750	237.41	103.89	1520			TL - NO ADJ
4.24.17	0845	23039	155902	606307	252	52	55	1700	230.40	110.10	1522	91550	50/48	

TL Δ'd from 157076 to 137076

ASR4 BF

ASR4 100min SC

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU) min after start						
													0	1	2	5	10	15	20
4.19.17	0940	5889	5923									JS	10.9	73.4	33.7	54.7	12.7		
	1000	5923	5956										13.3	22.7	16.9	15.9	6.58		
	1020	5956	6018										23.4	36.3	5.64	7.27	3.40	3.27	2.13
4.19.17	1135	6018	6307									JS/JL	9.86	12.7	4.34	5.60	3.31	3.51	2.44
													30min	40	50	60	70	80	90
													1.71	1.40	1.36	1.27	1.31	2.03	1.14
													100						
													1.64						

SDA
201

MPWMD ASR DATA SHEET

Well: ASR-4

ASR Period Injection

Sheet 1



Test: _____

Weather _____

of _____

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	190 MAX Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
4.25.17	0835	23039	158079	6307	253	52	54	1700	340.50 223.90	116.70	1511	93640	58 56	JS - Rands → BF
	1310			6307	350				331.64		∅			BF
	1335			6339					542.47					10 min SC
	1435	23039	158532	6423	255	53	56	1700	333.29 273.18		1400	94170	X	JS - Restart Inj
4.26.17	0830	23039	160025	6423	256	54	58	1525	273.18		1370			JL - NO ADJ
4.27.17	0830	23039	162216	6423	256	55	62	1700	260.80		1532			JL - NO ADJ
4.28.17	0830	23039	164338	6423	257	62	58	1625	254.91		1537			JL - NO ADJ
4.29.17	0930	23039	166693	6423	255	58	59	1700	246.74		1549			JL - NO ADJ
4.30.17	0815	23039	168804	6423	257	58	61	1650	242.12	91.17	1537			JS - No Adj
5.1.17	0815	23039	171024	6423	256	57	60	1675	237.55	95.74	1546	94170	52 48	JS - No Adj, w/line on
	0820	23039	173256	6423	255	56	58	1675	231.66	101.63	1526	96310	58 56	JS - Rands → BF
	1055			6423	350				330.85		∅			BF
	1115			6455					519.86					10 min SC
	1215	23039	173509	6540	273	66	69	1700	337.03		998	96660	X	JS - Restart Inj
	1440			278							1005			JS - Adj down w/ FCV
5.3.17	0830	23039	174707	6540	276	66	64	1700			970			JL - No ADJ.
5.4.17	0830	23039	176079	6540	276	65	71	1600			956			JL - No ADJ

ASR-4
BF

ASR-4
BF

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU) min after start						
													0	1	2	5	10	15	20
4.25.17	1325	6307	6341									JS	3.47	11.4	12.8	19.5	5.37		
	1345	6341	6374										31.1	10.8	5.83	5.34	3.26		
	1405	6374	6423										32.1	12.8	3.79	4.52	3.88	1.98	
5.2.17	1105	6423	6457									JS	2.68	14.4	15.4	21.7	5.39		
	1125	6457	6490										22.3	10.2	5.08	6.60	4.50		
	1145	6490	6540										35.0	9.53	3.94	4.37	3.83	2.62	

★ NEW [CL2] DFD 3+1

2 MIN IS SEC TO FILL DAY TANKS
Flow Cell ON @ 8MN

FILTER 4 MIN 500ML + COISA
20 MIN

MPWMD ASR DATA SHEET



Well: ASR-4

ASR Period Injection → Storage

Sheet 1

Test:

Weather

of

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	170 MAX Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
5.30.17	0820	23039	197656	6957	352	81	∅	1425	342.16		∅	107050	X	JS - Tiger DMH Note
5.31.17	0830	23039	197858	6957	352	99	∅	1425	347.93		∅	107050	X	"
6.26.17	0825	23069	201890	6957	351	100+	∅	1200			∅	107090		JS - Rounds - Crystal Repair
6.27.17	1040	23069	23101	6960	368	100	∅	1200	360.80		∅	109410	92	
				6989					525.20			2900	98	
				7088								∅109680		
7.31.17	0910	23070	207010	7088	374	100+	∅	800	363.45		∅	117500	502/160	13F/SSAP/FI
				7118					522.15					10 min SC
	1105	23070	207010	7197	357	98	∅	875	367.64		∅	11710	X	End Sample/13F

10min
10

FOR FIELD PARAM

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP/ Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU) min after start							
													0	1	2	5	10	15	20	
6.27.17	2:11:30	6960	7047		16.5	423	7.21	159	0.21	ND	ND	Turbidity	0	1	2	3	4	5	10	
			210					5.3				197	44.0	21.4	665	1.63				
								15				20	30	40						
7.31.17		7176	7088		19.2	431	7.42	69	0.41	2.80	Lo	Turbidity	3.19	3.87	2.82	15	20			
			252					1				5	10	15	20	30	60			
								X				30	40	40						
												Chloride	X	3.10	2.16	2.74	5.0	2.6	5.6	2.2

ASR-4 SSAP

MPWMD ASR DATA SHEET



Well: ASR-4

ASR Period Storage

Sheet 1

Test: _____

Weather _____

of _____

Date	Time	Tiger [F] (gal) x1000	Tiger [R] (gal) x1000	BF (gal) x1000	FCV (psi)	Line (psi)	Well Head (psi)	N ₂ (psi)	DTW (feet)	Draw Up (feet)	Inj Rate (GPM)	Lube / Skid Meter (gal)	Lube Pressure Up/Down	Comments
7.31.17	1105	23070	207010	7197	357	98	0	875	369.64		0	117710	X	Transcribed
9.6.17	1130	23070	210733	7207	350	100+	0	900	365.6		0	120680	140/100	SSAP
	1155			7219					424.77					10 min SC
	1230	23070	210737	7250	354	100+	0	925	367.46		0	120790	X	End SSAP
9.21.17	1000	23070	210737	7250	354	100+	0	950	365.27		0	123080		AMPS HZ FLOW 661 58.26 2950
				7272					350.73					DISCOVERED VALVE TO BASKI WAS NOT OPEN AND WHEN REGULATOR DISPLAYED 350+ PSI, BASKI WAS DEFLATING. OPENED VALVE + PRODUCTION INCREASED TO 3000 GPM - JL 9.21.17

10

peralta
Ord Grove

Date	Time	Pre Purge Meter Read	Post Purge Meter Read	Purge Volume	Temp (°C)	Cond (µ/cm)	pH	ORP / Zobell	[Cl ₂]	DO (mg/L)	H ₂ S (mg/L)	Sampler / Laboratory	Turbidity (NTU)					min after start				
													0	1	2	5	10	15	20			
8.15.17	1020	Chloride = 62 ppm	Zobell temp = 18.0°C		22.0	455	7.44	-47 232	0.27	6.14	Lo	JS	2.27									
8.15.17	1100	Chloride = 116 ppm	Zobell temp = 19.5°C		23.8	822	7.36	25 227	0.33	2.42	Lo	JS	0.65									
					19.4	461	6.97	28 57	ND	2.61	LO	Turbidity	0	1	2	3	4	5	10			min NTU
9.6.17	1145								24.0°C				63.1	137	57.8	32.1	26.4	15.3	6.18			min NTU
													20	30								min NTU
													3.46	5.03								min NTU
													Chloride	0	5	10	15	20	30			min ppm
													X	30	36	32	32	32				min ppm

APPENDIX B – WATER-QUALITY LABORATORY REPORTS



Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

Wednesday, November 02, 2016

MPWMD
Joe Oliver
P.O. Box 85
Monterey, CA 93442-0085

Lab Number: AB54457

Collection Date/Time: 9/21/2016 10:30

Sample Collector: LEAR J

Client Sample #:

Submittal Date/Time: 9/28/2016 15:30

Sample ID

Coliform Designation:

Sample Description: ASR4

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	234		10		9/30/2016	BS
Aluminum, Total	EPA200.8	µg/L	Not Detected	LN	10	1000	10/11/2016	SM
Ammonia-N	SM4500NH3 D	mg/L	Not Detected	IH, PH	0.05		10/3/2016	MW
Arsenic, Total	EPA200.8	µg/L	5		1	10	10/11/2016	SM
Barium, Total	EPA200.8	µg/L	54		10	1000	10/11/2016	SM
Bicarbonate (as HCO3-)	SM2320B	mg/L	285		10		9/30/2016	MP
Boron	EPA200.7	mg/L	0.11		0.05		10/5/2016	MW
Bromide	EPA300.0	mg/L	0.4		0.1		9/29/2016	HM
Calcium	EPA200.7	mg/L	76		0.5		10/5/2016	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected		10		9/30/2016	MP
Chloramines	SM4500-Cl G	mg/L	Not Detected		0.05		9/28/2016	LRH
Chloride	EPA300.0	mg/L	121		1	250	9/29/2016	HM
DOC	SM5310C	mg/L	Not Collected		0.2		9/21/2016	JL
Fluoride	EPA300.0	mg/L	0.2		0.1	2.0	9/29/2016	HM
Gross Alpha	EPA900.0	pCi/L	3.01 ± 2.64	E		15	10/7/2016	FGL
Haloacetic Acids	EPA552	µg/L	Not Detected	E		60	10/5/2016	FGL
Iron	EPA200.7	µg/L	144		10	300	10/5/2016	MW
Iron, Dissolved	EPA200.7	µg/L	Not Detected		10	300	10/5/2016	MW
Kjehldahl Nitrogen	SM4500-NH3 B,C.	mg/L	0.5		0.5		10/6/2016	BS
Lithium	EPA200.8	µg/L	32		1		10/11/2016	SM
Magnesium	EPA200.7	mg/L	16		0.5		10/5/2016	MW
Manganese, Dissolved	EPA200.7	µg/L	21		10	50	10/5/2016	MW
Manganese, Total	EPA200.7	µg/L	21		10	50	10/5/2016	MW
Mercury, Total	EPA200.8	µg/L	1		0.5	2	10/11/2016	SM
Methane	EPA174/175	µg/L	1.7	H E	0.1		10/6/2016	MCCAM
Molybdenum, Total	EPA200.8	µg/L	6		1	1000	10/11/2016	SM
Nickel, Total	EPA200.8	µg/L	58		10	100	10/11/2016	SM
Nitrate as NO3	EPA300.0	mg/L	1	H	1	45	9/29/2016	HM
Nitrate as NO3-N	EPA300.0	mg/L	0.2	H	0.1	10	9/29/2016	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	0.5	H	0.1		9/29/2016	HM
Nitrite as NO2-N	EPA300.0	mg/L	0.3	H	0.1	1.0	9/29/2016	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	Not Detected	H	0.1		9/29/2016	HM

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

D = Method deviates from standard method due to insufficient sample for MS/MSD

T = Temperature Exceedance



MPWMD
 Joe Oliver
 P.O. Box 85
 Monterey, CA 93442-0085

4 Justin Court Suite D, Monterey, CA 93940
 831.375.MBAS
 www.MBASinc.com

ELAP Certification Number: 2385
 Wednesday, November 02, 2016

Lab Number: AB54457

Collection Date/Time: 9/21/2016 10:30
 Submittal Date/Time: 9/28/2016 15:30

Sample Collector: LEAR J
 Sample ID

Client Sample #:
 Coliform Designation:

Sample Description: ASR4

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
pH (Laboratory)	SM4500-H+B	pH (H)	7.5		0.1		9/28/2016	BS
Phosphorus, Total	HACH 8190	mg/L	Not Detected	PH	0.03		10/4/2016	LRH
Potassium	EPA200.7	mg/L	4.6		0.5		10/5/2016	MW
QC Anion Sum x 100	Calculation	%	100%				9/30/2016	MP
QC Anion-Cation Balance	Calculation	%	2				10/7/2016	MW
QC Cation Sum x 100	Calculation	%	105%				10/7/2016	MW
QC Ratio TDS/SEC	Calculation		0.61				10/4/2016	MP
Selenium, Total	EPA200.8	µg/L	2		2	50	10/11/2016	SM
Silica as SiO ₂ , Total	EPA200.7	mg/L	46		0.5		10/5/2016	MW
Sodium	EPA200.7	mg/L	103		0.5		10/5/2016	MW
Specific Conductance (E.C)	SM2510B	µmhos/cm	924		1	900	9/30/2016	HM
Strontium, Total	EPA200.8	µg/L	444		5		10/11/2016	SM
Sulfate	EPA300.0	mg/L	55		1	250	9/29/2016	HM
TOC	SM5310C	mg/L	0.6		0.2		10/19/2016	MW
Total Diss. Solids	SM2540C	mg/L	563	H	10	500	9/29/2016	MP
Total Nitrogen	Calculation	mg/L	1.0		0.5		10/6/2016	MP
Total Radium 226	EPA903.0	pCi/L	0.760 ± 0.438	E		3	10/12/2016	FGL
Trihalomethanes	EPA524.2	µg/L	Not Detected	E		80	10/3/2016	FGL
Uranium by ICP/MS	EPA200.8	µg/L	1		1	30	10/11/2016	SM
Vanadium, Total	EPA200.8	µg/L	Not Detected		5	1000	10/11/2016	SM
Zinc, Total	EPA200.8	µg/L	Not Detected		20	5000	10/11/2016	SM

Sample Comments: H: Analyzed outside of holding time. (Received at 7 days/5 hours) PH: Preserved after the recommended time. (Pres at 7 days/5 hour limits) IH: IGV and/or CCV below acceptance limits

Report Approved by

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

D = Method deviates from standard method due to insufficient sample for MS/MSD

T = Temperature Exceedance



Monterey Bay Analytical Services

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www.MBASinc.com

ELAP Certification Number: 2385

Wednesday, November 02, 2016

MPWMD
Joe Oliver
P.O. Box 85
Monterey, CA 93442-0085

Lab Number: AB54458

Collection Date/Time: 9/21/2016 9:30
Submittal Date/Time: 9/28/2016 15:30

Sample Collector: LEAR J
Sample ID

Client Sample #:
Coliform Designation:

Sample Description: ASR1

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	180		10		9/30/2016	BS
Aluminum, Total	EPA200.8	µg/L	Not Detected	LN	10	1000	10/11/2016	SM
Ammonia-N	SM4500NH3 D	mg/L	Not Detected	IH, PH	0.05		10/3/2016	MW
Arsenic, Total	EPA200.8	µg/L	1		1	10	10/11/2016	SM
Barium, Total	EPA200.8	µg/L	55		10	1000	10/11/2016	SM
Bicarbonate (as HCO3-)	SM2320B	mg/L	220		10		9/30/2016	MP
Boron	EPA200.7	mg/L	0.08		0.05		10/5/2016	MW
Bromide	EPA300.0	mg/L	0.2		0.1		9/29/2016	HM
Calcium	EPA200.7	mg/L	68		0.5		10/5/2016	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected		10		9/30/2016	MP
Chloramines	SM4500-Cl G	mg/L	Not Detected		0.05		9/28/2016	LRH
Chloride	EPA300.0	mg/L	72		1	250	9/29/2016	HM
DOC	SM5310C	mg/L	1.0		0.2		10/19/2016	MW
Fluoride	EPA300.0	mg/L	0.3		0.1	2.0	9/29/2016	HM
Gross Alpha	EPA900.0	pCi/L	2.52 ± 1.55	E		15	10/10/2016	FGL
Haloacetic Acids	EPA552	µg/L	Not Detected	E		60	10/5/2016	FGL
Iron	EPA200.7	µg/L	Not Detected		10	300	10/5/2016	MW
Iron, Dissolved	EPA200.7	µg/L	Not Detected		10	300	10/5/2016	MW
Kjehldahl Nitrogen	SM4500-NH3 B,C.	mg/L	Not Detected		0.5		10/6/2016	BS
Lithium	EPA200.8	µg/L	19		1		10/11/2016	SM
Magnesium	EPA200.7	mg/L	17		0.5		10/5/2016	MW
Manganese, Dissolved	EPA200.7	µg/L	Not Detected		10	50	10/5/2016	MW
Manganese, Total	EPA200.7	µg/L	Not Detected		10	50	10/5/2016	MW
Mercury, Total	EPA200.8	µg/L	Not Detected		0.5	2	10/11/2016	SM
Methane	EPA174/175	µg/L	2.2	H E	0.1		10/6/2016	MCCAM
Molybdenum, Total	EPA200.8	µg/L	6		1	1000	10/11/2016	SM
Nickel, Total	EPA200.8	µg/L	Not Detected		10	100	10/11/2016	SM
Nitrate as NO3	EPA300.0	mg/L	1	H	1	45	9/29/2016	HM
Nitrate as NO3-N	EPA300.0	mg/L	0.2	H	0.1	10	9/29/2016	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	0.4	H	0.1		9/29/2016	HM
Nitrite as NO2-N	EPA300.0	mg/L	0.3	H	0.1	1.0	9/29/2016	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	0.1	H	0.1		9/29/2016	HM

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

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E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

D = Method deviates from standard method due to insufficient sample for MS/MSD

T = Temperature Exceedance



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ELAP Certification Number: 2385

Wednesday, November 02, 2016

MPWMD
Joe Oliver
P.O. Box 85
Monterey, CA 93442-0085

Lab Number: AB54458

Collection Date/Time: 9/21/2016 9:30
Submittal Date/Time: 9/28/2016 15:30

Sample Collector: LEAR J
Sample ID

Client Sample #:
Coliform Designation:

Sample Description: ASR1

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
pH (Laboratory)	SM4500-H+B	pH (H)	7.4		0.1		9/28/2016	BS
Phosphorus, Total	HACH 8190	mg/L	0.13	PH	0.03		10/4/2016	LRH
Potassium	EPA200.7	mg/L	4.0		0.5		10/5/2016	MW
QC Anion Sum x 100	Calculation	%	100%				9/30/2016	MP
QC Anion-Cation Balance	Calculation	%	2				10/7/2016	MW
QC Cation Sum x 100	Calculation	%	105%				10/7/2016	MW
QC Ratio TDS/SEC	Calculation		0.62				10/4/2016	MP
Selenium, Total	EPA200.8	µg/L	2		2	50	10/11/2016	SM
Silica as SiO ₂ , Total	EPA200.7	mg/L	33		0.5		10/5/2016	MW
Sodium	EPA200.7	mg/L	71		0.5		10/5/2016	MW
Specific Conductance (E.C)	SM2510B	µmhos/cm	763		1	900	9/30/2016	HM
Strontium, Total	EPA200.8	µg/L	308		5		10/11/2016	SM
Sulfate	EPA300.0	mg/L	96		1	250	9/29/2016	HM
TOC	SM5310C	mg/L	1.0		0.2		10/19/2016	MW
Total Diss. Solids	SM2540C	mg/L	471	H	10	500	9/29/2016	MP
Total Nitrogen	Calculation	mg/L	0.5		0.5		10/6/2016	MP
Total Radium 226	EPA903.0	pCi/L	0.758 ± 0.437	E		3	10/12/2016	FGL
Trihalomethanes	EPA524.2	µg/L	28.9	E		80	10/4/2016	FGL
Uranium by ICP/MS	EPA200.8	µg/L	1		1	30	10/11/2016	SM
Vanadium, Total	EPA200.8	µg/L	Not Detected		5	1000	10/11/2016	SM
Zinc, Total	EPA200.8	µg/L	87		20	5000	10/11/2016	SM

Sample Comments: H: Analyzed outside of holding time. (Received at 7 days/6 hours) PH: Preserved after the recommended time. (Pres at 7 days/6 hour limits)

Report Approved by

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

D = Method deviates from standard method due to insufficient sample for MS/MSD

T = Temperature Exceedance



Monterey Bay Analytical Services

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ELAP Certification Number: 2385

Wednesday, November 02, 2016

MPWMD
Joe Oliver
P.O. Box 85
Monterey, CA 93442-0085

Lab Number: AB54459

Collection Date/Time: 9/21/2016 13:00
Submittal Date/Time: 9/28/2016 15:30

Sample Collector: LEAR J
Sample ID

Client Sample #:
Coliform Designation:

Sample Description: ASR3

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	171		10		9/30/2016	BS
Aluminum, Total	EPA200.8	µg/L	13	LN	10	1000	10/11/2016	SM
Ammonia-N	SM4500NH3 D	mg/L	Not Detected	IH, PH	0.05		10/3/2016	MW
Arsenic, Total	EPA200.8	µg/L	6		1	10	10/11/2016	SM
Barium, Total	EPA200.8	µg/L	78		10	1000	10/11/2016	SM
Bicarbonate (as HCO3-)	SM2320B	mg/L	209		10		9/30/2016	MP
Boron	EPA200.7	mg/L	0.05		0.05		10/5/2016	MW
Bromide	EPA300.0	mg/L	0.2		0.1		9/29/2016	HM
Calcium	EPA200.7	mg/L	53		0.5		10/5/2016	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected		10		9/30/2016	MP
Chloramines	SM4500-Cl G	mg/L	Not Detected		0.05		9/28/2016	LRH
Chloride	EPA300.0	mg/L	58		1	250	9/29/2016	HM
DOC	SM5310C	mg/L	0.9*		0.2		10/19/2016	MW
Fluoride	EPA300.0	mg/L	0.3		0.1	2.0	9/29/2016	HM
Gross Alpha	EPA900.0	pCi/L	4.28 ± 1.73	E		15	10/7/2016	FGL
Haloacetic Acids	EPA552	µg/L	3	E		60	10/5/2016	FGL
Iron	EPA200.7	µg/L	56		10	300	10/5/2016	MW
Iron, Dissolved	EPA200.7	µg/L	Not Detected		10	300	10/5/2016	MW
Kjeldahl Nitrogen	SM4500-NH3 B,C.	mg/L	1		2		10/6/2016	BS
Lithium	EPA200.8	µg/L	14		1		10/11/2016	SM
Magnesium	EPA200.7	mg/L	17		0.5		10/5/2016	MW
Manganese, Dissolved	EPA200.7	µg/L	12		10	50	10/5/2016	MW
Manganese, Total	EPA200.7	µg/L	13		10	50	10/5/2016	MW
Mercury, Total	EPA200.8	µg/L	1		0.5	2	10/11/2016	SM
Methane	EPA174/175	µg/L	1.4	H E	0.1		10/6/2016	MCCAM
Molybdenum, Total	EPA200.8	µg/L	21		1	1000	10/11/2016	SM
Nickel, Total	EPA200.8	µg/L	Not Detected		10	100	10/11/2016	SM
Nitrate as NO3	EPA300.0	mg/L	1	H	1	45	9/29/2016	HM
Nitrate as NO3-N	EPA300.0	mg/L	0.2	H	0.1	10	9/29/2016	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	0.4	H	0.1		9/29/2016	HM
Nitrite as NO2-N	EPA300.0	mg/L	0.3	H	0.1	1.0	9/29/2016	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	0.2	H	0.1		9/29/2016	HM

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

D = Method deviates from standard method due to insufficient sample for MS/MSD

T = Temperature Exceedance



MPWMD
 Joe Oliver
 P.O. Box 85
 Monterey, CA 93442-0085

4 Justin Court Suite D, Monterey, CA 93940

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ELAP Certification Number: 2385

Wednesday, November 02, 2016

Lab Number: AB54459

Collection Date/Time: 9/21/2016 13:00
 Submittal Date/Time: 9/28/2016 15:30

Sample Collector: LEAR J
 Sample ID

Client Sample #:
 Coliform Designation:

Sample Description: ASR3

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
pH (Laboratory)	SM4500-H+B	pH (H)	7.5		0.1		9/28/2016	BS
Phosphorus, Total	HACH 8190	mg/L	0.27	PH	0.03		10/4/2016	LRH
Potassium	EPA200.7	mg/L	3.6		0.5		10/5/2016	MW
QC Anion Sum x 100	Calculation	%	100%				9/30/2016	MP
QC Anion-Cation Balance	Calculation	%	1				10/7/2016	MW
QC Cation Sum x 100	Calculation	%	102%				10/7/2016	MW
QC Ratio TDS/SEC	Calculation		0.65				10/4/2016	MP
Selenium, Total	EPA200.8	µg/L	3		2	50	10/11/2016	SM
Silica as SiO ₂ , Total	EPA200.7	mg/L	29		0.5		10/5/2016	MW
Sodium	EPA200.7	mg/L	59		0.5		10/5/2016	MW
Specific Conductance (E.C)	SM2510B	µmhos/cm	657		1	900	9/30/2016	HM
Strontium, Total	EPA200.8	µg/L	281		5		10/11/2016	SM
Sulfate	EPA300.0	mg/L	72		1	250	9/29/2016	HM
TOC	SM5310C	mg/L	1.0		0.2		10/19/2016	MW
Total Diss. Solids	SM2540C	mg/L	426	H	10	500	9/29/2016	MP
Total Nitrogen	Calculation	mg/L	1.5		0.5		10/6/2016	MP
Total Radium 226	EPA903.0	pCi/L	0.178 ± 0.302	E		3	10/12/2016	FGL
Trihalomethanes	EPA524.2	µg/L	61.4	E		80	10/3/2016	FGL
Uranium by ICP/MS	EPA200.8	µg/L	3		1	30	10/11/2016	SM
Vanadium, Total	EPA200.8	µg/L	Not Detected		5	1000	10/11/2016	SM
Zinc, Total	EPA200.8	µg/L	266		20	5000	10/11/2016	SM

Sample Comments: H: Analyzed outside of holding time. (Received at 7 days/2.5 hours)
 PH: Preserved after the recommended time. (Pres at 7 days/2.5 hours)
 I: ICP and/or GCV below acceptance limits

Report Approved by

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

D = Method deviates from standard method due to insufficient sample for MS/MSD

T = Temperature Exceedance



Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

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ELAP Certification Number: 2385

Wednesday, November 02, 2016

MPWMD
Joe Oliver
P.O. Box 85
Monterey, CA 93442-0085

Lab Number: AB54460

Collection Date/Time: 9/27/2016 10:00

Sample Collector: LEAR J

Client Sample #:

Submittal Date/Time: 9/28/2016 15:30

Sample ID

Coliform Designation:

Sample Description: ASR2

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	180		10		9/30/2016	BS
Aluminum, Total	EPA200.8	µg/L	Not Detected	LN	10	1000	10/11/2016	SM
Ammonia-N	SM4500NH3 D	mg/L	Not Detected	IH	0.05		10/3/2016	MW
Arsenic, Total	EPA200.8	µg/L	1		1	10	10/11/2016	SM
Barium, Total	EPA200.8	µg/L	83		10	1000	10/11/2016	SM
Bicarbonate (as HCO3-)	SM2320B	mg/L	220		10		9/30/2016	MP
Boron	EPA200.7	mg/L	0.06		0.05		10/5/2016	MW
Bromide	EPA300.0	mg/L	0.2		0.1		9/29/2016	HM
Calcium	EPA200.7	mg/L	60		0.5		10/5/2016	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected		10		9/30/2016	MP
Chloramines	SM4500-Cl G	mg/L	Not Detected		0.05		9/28/2016	LRH
Chloride	EPA300.0	mg/L	64		1	250	9/29/2016	HM
DOC	SM5310C	mg/L	Not Collected		0.2		9/27/2016	JL
Fluoride	EPA300.0	mg/L	0.3		0.1	2.0	9/29/2016	HM
Gross Alpha	EPA900.0	pCi/L	2.59 ± 2.16	E		15	10/10/2016	FGL
Haloacetic Acids	EPA552	µg/L	Not Detected	E		60	10/6/2016	FGL
Iron	EPA200.7	µg/L	66		10	300	10/5/2016	MW
Iron, Dissolved	EPA200.7	µg/L	Not Detected		10	300	10/5/2016	MW
Kjeldahl Nitrogen	SM4500-NH3 B,C.	mg/L	1		2		10/6/2016	BS
Lithium	EPA200.8	µg/L	14		1		10/11/2016	SM
Magnesium	EPA200.7	mg/L	19		0.5		10/5/2016	MW
Manganese, Dissolved	EPA200.7	µg/L	10		10	50	10/5/2016	MW
Manganese, Total	EPA200.7	µg/L	11		10	50	10/5/2016	MW
Mercury, Total	EPA200.8	µg/L	1		0.5	2	10/11/2016	SM
Methane	EPA174/175	µg/L	1.7	H E	0.1		10/6/2016	MCCAM
Molybdenum, Total	EPA200.8	µg/L	6		1	1000	10/11/2016	SM
Nickel, Total	EPA200.8	µg/L	Not Detected		10	100	10/11/2016	SM
Nitrate as NO3	EPA300.0	mg/L	1		1	45	9/29/2016	HM
Nitrate as NO3-N	EPA300.0	mg/L	0.2		0.1	10	9/29/2016	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	0.5		0.1		9/29/2016	HM
Nitrite as NO2-N	EPA300.0	mg/L	0.3		0.1	1.0	9/29/2016	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	0.3		0.1		9/29/2016	HM

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

D = Method deviates from standard method due to insufficient sample for MS/MSD

T = Temperature Exceedance



MPWMD
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ELAP Certification Number: 2385

Wednesday, November 02, 2016

Lab Number: AB54460

Collection Date/Time: 9/27/2016 10:00
 Submittal Date/Time: 9/28/2016 15:30

Sample Collector: LEAR J
 Sample ID

Client Sample #:
 Coliform Designation:

Sample Description: ASR2

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
pH (Laboratory)	SM4500-H+B	pH (H)	7.5		0.1		9/28/2016	BS
Phosphorus, Total	HACH 8190	mg/L	0.25		0.03		10/4/2016	LRH
Potassium	EPA200.7	mg/L	3.8		0.5		10/5/2016	MW
QC Anion Sum x 100	Calculation	%	101%				9/30/2016	MP
QC Anion-Cation Balance	Calculation	%	2				10/7/2016	MW
QC Cation Sum x 100	Calculation	%	105%				10/7/2016	MW
QC Ratio TDS/SEC	Calculation		0.61				10/4/2016	MP
Selenium, Total	EPA200.8	µg/L	2		2	50	10/11/2016	SM
Silica as SiO ₂ , Total	EPA200.7	mg/L	29		0.5		10/5/2016	MW
Sodium	EPA200.7	mg/L	64		0.5		10/5/2016	MW
Specific Conductance (E.C)	SM2510B	µmhos/cm	707		1	900	9/30/2016	HM
Strontium, Total	EPA200.8	µg/L	300		5		10/11/2016	SM
Sulfate	EPA300.0	mg/L	81		1	250	9/29/2016	HM
TOC	SM5310C	mg/L	1.1		0.2		10/19/2016	MW
Total Diss. Solids	SM2540C	mg/L	431		10	500	9/29/2016	MP
Total Nitrogen	Calculation	mg/L	1.5		0.5		10/6/2016	MP
Total Radium 226	EPA903.0	pCi/L	0.000 ± 0.246	E		3	10/12/2016	FGL
Trihalomethanes	EPA524.2	µg/L	47.9	E		80	10/4/2016	FGL
Uranium by ICP/MS	EPA200.8	µg/L	1		1	30	10/11/2016	SM
Vanadium, Total	EPA200.8	µg/L	Not Detected		5	1000	10/11/2016	SM
Zinc, Total	EPA200.8	µg/L	317		20	5000	10/11/2016	SM

Sample Comments: IH: ICV and/or CCV below acceptance limits. LN: MS and/or MSD below acceptance limits

Report Approved by

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

D = Method deviates from standard method due to insufficient sample for MS/MSD

T = Temperature Exceedance



Monterey Bay Analytical Services

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ELAP Certification Number: 2385

Wednesday, November 02, 2016

MPWMD
Joe Oliver
P.O. Box 85
Monterey, CA 93442-0085

Lab Number: AB54461

Collection Date/Time: 9/27/2016 11:00

Sample Collector: LEAR J

Client Sample #:

Submittal Date/Time: 9/28/2016 15:30

Sample ID

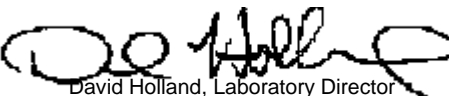
Coliform Designation:

Sample Description: MW1

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Chloramines	SM4500-Cl G	mg/L	Not Detected		0.05		9/28/2016	LRH
Chloride	EPA300.0	mg/L	47		1	250	9/29/2016	HM
Haloacetic Acids	EPA552	µg/L	Not Detected	E		60	10/6/2016	FGL
Trihalomethanes	EPA524.2	µg/L	1.9	E		80	10/3/2016	FGL

Sample Comments:

Report Approved by



David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

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E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

D = Method deviates from standard method due to insufficient sample for MS/MSD

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October 14, 2016

Monterey Bay Analytical Services
 4 Justin Court
 Monterey, CA 93940

Lab ID : SP 1611647
 Customer : 2-19144

Laboratory Report

Introduction: This report package contains total of 14 pages divided into 3 sections:

Case Narrative (2 pages) : An overview of the work performed at FGL.
 Sample Results (9 pages) : Results for each sample submitted.
 Quality Control (3 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
ASR4	09/21/2016	09/30/2016	SP 1611647-001	W
ASR1	09/21/2016	09/30/2016	SP 1611647-002	W
ASR3	09/21/2016	09/30/2016	SP 1611647-003	W
ASR2	09/27/2016	09/30/2016	SP 1611647-004	W
MW1	09/27/2016	09/30/2016	SP 1611647-005	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 6 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Organic QC

551.1	10/03/2016:214445 All analysis quality controls are within established criteria.
	10/04/2016:214446 All analysis quality controls are within established criteria.
	10/03/2016:211902 All preparation quality controls are within established criteria, except: The following note applies to Decafluorobiphenyl: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
552	10/04/2016:211980 All preparation quality controls are within established criteria, except: The following note applies to Monochloroacetic Acid: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

October 14, 2016
Monterey Bay Analytical Services

Lab ID : SP 1611647
Customer : 2-19144

Organic QC

552.2	10/05/2016:214521 All analysis quality controls are within established criteria.
	10/06/2016:214521 All analysis quality controls are within established criteria.

Radio QC

900.0	10/10/2016:214770 All analysis quality controls are within established criteria.
	10/07/2016:214771 All analysis quality controls are within established criteria.
	10/06/2016:212066 All preparation quality controls are within established criteria.
903.0	10/12/2016:214916 All analysis quality controls are within established criteria.
	10/10/2016:212044 All preparation quality controls are within established criteria.

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2016-10-14

October 14, 2016

Lab ID : SP 1611647-001
 Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
 Monterey, CA 93940

Sampled On : September 21, 2016-10:30
 Sampled By : Jonathan Lear
 Received On : September 30, 2016-12:00
 Matrix : Water

Description : ASR4
 Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1 ^{VOA:115} Decafluorobiphenyl [‡]	101	80-120	%		551.1	10/03/16:211902	551.1	10/03/16:214445
Bromodichloromethane	ND	0.5	ug/L		551.1	10/03/16:211902	551.1	10/03/16:214445
Bromoform	ND	0.5	ug/L		551.1	10/03/16:211902	551.1	10/03/16:214445
Chloroform	ND	0.5	ug/L		551.1	10/03/16:211902	551.1	10/03/16:214445
Dibromochloromethane	ND	0.5	ug/L		551.1	10/03/16:211902	551.1	10/03/16:214445
Total Trihalomethanes	ND	--	ug/L		551.1	10/03/16:211902	551.1	10/03/16:214445
EPA 552.2 ^{AGT:112} 2,3-Dibromopropionic Acid [‡]	101	70-130	%		552	10/04/16:211980	552.2	10/05/16:214521
Bromoacetic Acid	ND	1	ug/L		552	10/04/16:211980	552.2	10/05/16:214521
Chloroacetic Acid	ND	2	ug/L		552	10/04/16:211980	552.2	10/05/16:214521
Dibromoacetic Acid	ND	1	ug/L		552	10/04/16:211980	552.2	10/05/16:214521
Dichloroacetic Acid	ND	1	ug/L		552	10/04/16:211980	552.2	10/05/16:214521
Trichloroacetic Acid	ND	1	ug/L		552	10/04/16:211980	552.2	10/05/16:214521
Haloacetic acids (five)	ND	--	ug/L		552	10/04/16:211980	552.2	10/05/16:214521

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (AGT) Amber Glass TFE-Cap, (P) Plastic, (VOA) VOA Preservatives: NH4Cl, HNO3
 pH < 2, Na2SO3 ‡Surrogate. * PQL adjusted for dilution.



October 14, 2016

Lab ID : SP 1611647-001
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : September 21, 2016-10:30
Sampled By : Jonathan Lear
Received On : September 30, 2016-12:00
Matrix : Water

Description : ASR4
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry ^{P:15}								
Gross Alpha	3.01 ± 2.64	2.78	pCi/L	15/5	900.0	10/06/16-09:04 2P1612066	900.0	10/07/16-13:00 2A1614771
Total Alpha Radium (226)	0.760 ± 0.438	0.470	pCi/L	3	903.0	10/10/16-17:00 2P1612044	903.0	10/12/16-10:40 2A1614916

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (AGT) Amber Glass TFE-Cap, (P) Plastic, (VOA) VOA Preservatives: NH4Cl, HNO3
pH < 2, Na2SO3 * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



October 14, 2016

Lab ID : SP 1611647-002
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : September 21, 2016-09:30
Sampled By : Jonathan Lear
Received On : September 30, 2016-12:00
Matrix : Water

Description : ASR1
Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1 ^{VOA:115} Decafluorobiphenyl [‡]	116	80-120	%		551.1	10/03/16:211902	551.1	10/04/16:214446
Bromodichloromethane	7.6	0.5	ug/L		551.1	10/03/16:211902	551.1	10/04/16:214446
Bromoform	0.5	0.5	ug/L		551.1	10/03/16:211902	551.1	10/04/16:214446
Chloroform	18.8	0.5	ug/L		551.1	10/03/16:211902	551.1	10/04/16:214446
Dibromochloromethane	2.0	0.5	ug/L		551.1	10/03/16:211902	551.1	10/04/16:214446
Total Trihalomethanes	28.9	--	ug/L		551.1	10/03/16:211902	551.1	10/04/16:214446
EPA 552.2 ^{AGT:112} 2,3-Dibromopropionic Acid [‡]	106	70-130	%		552	10/04/16:211980	552.2	10/05/16:214521
Bromoacetic Acid	ND	1	ug/L		552	10/04/16:211980	552.2	10/05/16:214521
Chloroacetic Acid	ND	2	ug/L		552	10/04/16:211980	552.2	10/05/16:214521
Dibromoacetic Acid	ND	1	ug/L		552	10/04/16:211980	552.2	10/05/16:214521
Dichloroacetic Acid	ND	1	ug/L		552	10/04/16:211980	552.2	10/05/16:214521
Trichloroacetic Acid	ND	1	ug/L		552	10/04/16:211980	552.2	10/05/16:214521
Haloacetic acids (five)	ND	--	ug/L		552	10/04/16:211980	552.2	10/05/16:214521

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (AGT) Amber Glass TFE-Cap, (P) Plastic, (VOA) VOA Preservatives: NH4Cl, HNO3
pH < 2, Na2SO3 ‡Surrogate. * PQL adjusted for dilution.



October 14, 2016

Lab ID : SP 1611647-002
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : September 21, 2016-09:30
Sampled By : Jonathan Lear
Received On : September 30, 2016-12:00
Matrix : Water

Description : ASR1
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry ^{P:15}								
Gross Alpha	2.52 ± 1.55	1.51	pCi/L	15/5	900.0	10/06/16-09:04 2P1612066	900.0	10/10/16-07:00 2A1614770
Total Alpha Radium (226)	0.758 ± 0.437	0.470	pCi/L	3	903.0	10/10/16-17:00 2P1612044	903.0	10/12/16-11:00 2A1614916

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (AGT) Amber Glass TFE-Cap, (P) Plastic, (VOA) VOA Preservatives: NH4Cl, HNO3
pH < 2, Na2SO3 * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

October 14, 2016

Lab ID : SP 1611647-003

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
 Monterey, CA 93940

Sampled On : September 21, 2016-13:00

Sampled By : Jonathan Lear

Received On : September 30, 2016-12:00

Matrix : Water

Description : ASR3

Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1 ^{VOA:115} Decafluorobiphenyl [‡]	88.7	80-120	%		551.1	10/03/16:211902	551.1	10/03/16:214445
Bromodichloromethane	15.9	0.5	ug/L		551.1	10/03/16:211902	551.1	10/03/16:214445
Bromoform	0.8	0.5	ug/L		551.1	10/03/16:211902	551.1	10/03/16:214445
Chloroform	36.7	0.5	ug/L		551.1	10/03/16:211902	551.1	10/03/16:214445
Dibromochloromethane	8.0	0.5	ug/L		551.1	10/03/16:211902	551.1	10/03/16:214445
Total Trihalomethanes	61.4	--	ug/L		551.1	10/03/16:211902	551.1	10/03/16:214445
EPA 552.2 ^{AGT:112} 2,3-Dibromopropionic Acid [‡]	108	70-130	%		552	10/04/16:211980	552.2	10/05/16:214521
Bromoacetic Acid	ND	1	ug/L		552	10/04/16:211980	552.2	10/05/16:214521
Chloroacetic Acid	ND	2	ug/L		552	10/04/16:211980	552.2	10/05/16:214521
Dibromoacetic Acid	1	1	ug/L		552	10/04/16:211980	552.2	10/05/16:214521
Dichloroacetic Acid	2	1	ug/L		552	10/04/16:211980	552.2	10/05/16:214521
Trichloroacetic Acid	ND	1	ug/L		552	10/04/16:211980	552.2	10/05/16:214521
Haloacetic acids (five)	3	--	ug/L		552	10/04/16:211980	552.2	10/05/16:214521

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (AGT) Amber Glass TFE-Cap, (P) Plastic, (VOA) VOA Preservatives: NH4Cl, HNO3
 pH < 2, Na2SO3 ‡Surrogate. * PQL adjusted for dilution.



October 14, 2016

Lab ID : SP 1611647-003
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : September 21, 2016-13:00
Sampled By : Jonathan Lear
Received On : September 30, 2016-12:00
Matrix : Water

Description : ASR3
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry ^{P:15}								
Gross Alpha	4.28 ± 1.73	1.47	pCi/L	15/5	900.0	10/06/16-09:04 2P1612066	900.0	10/07/16-14:00 2A1614771
Total Alpha Radium (226)	0.178 ± 0.302	0.470	pCi/L	3	903.0	10/10/16-17:00 2P1612044	903.0	10/12/16-11:20 2A1614916

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (AGT) Amber Glass TFE-Cap, (P) Plastic, (VOA) VOA Preservatives: NH4Cl, HNO3
pH < 2, Na2SO3 * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



October 14, 2016

Lab ID : SP 1611647-004
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : September 27, 2016-10:00
Sampled By : Jonathan Lear
Received On : September 30, 2016-12:00
Matrix : Water

Description : ASR2
Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1 ^{VOA:115} Decafluorobiphenyl [‡]	98.0	80-120	%		551.1	10/03/16:211902	551.1	10/04/16:214446
Bromodichloromethane	12.0	0.5	ug/L		551.1	10/03/16:211902	551.1	10/04/16:214446
Bromoform	0.6	0.5	ug/L		551.1	10/03/16:211902	551.1	10/04/16:214446
Chloroform	29.8	0.5	ug/L		551.1	10/03/16:211902	551.1	10/04/16:214446
Dibromochloromethane	5.5	0.5	ug/L		551.1	10/03/16:211902	551.1	10/04/16:214446
Total Trihalomethanes	47.9	--	ug/L		551.1	10/03/16:211902	551.1	10/04/16:214446
EPA 552.2 ^{AGT:112} 2,3-Dibromopropionic Acid [‡]	102	70-130	%		552	10/04/16:211980	552.2	10/06/16:214521
Bromoacetic Acid	ND	1	ug/L		552	10/04/16:211980	552.2	10/06/16:214521
Chloroacetic Acid	ND	2	ug/L		552	10/04/16:211980	552.2	10/06/16:214521
Dibromoacetic Acid	ND	1	ug/L		552	10/04/16:211980	552.2	10/06/16:214521
Dichloroacetic Acid	ND	1	ug/L		552	10/04/16:211980	552.2	10/06/16:214521
Trichloroacetic Acid	ND	1	ug/L		552	10/04/16:211980	552.2	10/06/16:214521
Haloacetic acids (five)	ND	--	ug/L		552	10/04/16:211980	552.2	10/06/16:214521

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (AGT) Amber Glass TFE-Cap, (P) Plastic, (VOA) VOA Preservatives: NH4Cl, HNO3
pH < 2, Na2SO3 ‡Surrogate. * PQL adjusted for dilution.



October 14, 2016

Lab ID : SP 1611647-004
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : September 27, 2016-10:00
Sampled By : Jonathan Lear
Received On : September 30, 2016-12:00
Matrix : Water

Description : ASR2
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry ^{P:15}								
Gross Alpha	2.59 ± 2.16	2.05	pCi/L	15/5	900.0	10/06/16-09:04 2P1612066	900.0	10/10/16-09:00 2A1614770
Total Alpha Radium (226)	0.000 ± 0.246	0.470	pCi/L	3	903.0	10/10/16-17:00 2P1612044	903.0	10/12/16-11:40 2A1614916

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (AGT) Amber Glass TFE-Cap, (P) Plastic, (VOA) VOA Preservatives: NH4Cl, HNO3
pH < 2, Na2SO3 * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

October 14, 2016

Lab ID : SP 1611647-005

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
 Monterey, CA 93940

Sampled On : September 27, 2016-11:00

Sampled By : Jonathan Lear

Received On : September 30, 2016-12:00

Matrix : Water

Description : MW1

Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1 ^{VOA:115} Decafluorobiphenyl [‡]	94.3	80-120	%		551.1	10/03/16:211902	551.1	10/03/16:214445
Bromodichloromethane	0.7	0.5	ug/L		551.1	10/03/16:211902	551.1	10/03/16:214445
Bromoform	ND	0.5	ug/L		551.1	10/03/16:211902	551.1	10/03/16:214445
Chloroform	1.2	0.5	ug/L		551.1	10/03/16:211902	551.1	10/03/16:214445
Dibromochloromethane	ND	0.5	ug/L		551.1	10/03/16:211902	551.1	10/03/16:214445
Total Trihalomethanes	1.9	--	ug/L		551.1	10/03/16:211902	551.1	10/03/16:214445
EPA 552.2 ^{AGT:112} 2,3-Dibromopropionic Acid [‡]	105	70-130	%		552	10/04/16:211980	552.2	10/06/16:214521
Bromoacetic Acid	ND	1	ug/L		552	10/04/16:211980	552.2	10/06/16:214521
Chloroacetic Acid	ND	2	ug/L		552	10/04/16:211980	552.2	10/06/16:214521
Dibromoacetic Acid	ND	1	ug/L		552	10/04/16:211980	552.2	10/06/16:214521
Dichloroacetic Acid	ND	1	ug/L		552	10/04/16:211980	552.2	10/06/16:214521
Trichloroacetic Acid	ND	1	ug/L		552	10/04/16:211980	552.2	10/06/16:214521
Haloacetic acids (five)	ND	--	ug/L		552	10/04/16:211980	552.2	10/06/16:214521

ND=Non-Detected. PQL=Practical Quantitation Limit. Containers: (AGT) Amber Glass TFE-Cap, (P) Plastic, (VOA) VOA Preservatives: NH4Cl, HNO3
 pH < 2, Na2SO3 ‡Surrogate. * PQL adjusted for dilution.



October 14, 2016
Monterey Bay Analytical Services

Lab ID : SP 1611647
Customer : 2-19144

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic Bromodichloromethane	551.1	10/03/16:211902SBL (SP 1611385-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.706	116 %	80-120	
			MS	ug/L	9.983	104 %	80-120	
			MSD	ug/L	10.35	105 %	80-120	
			MSRPD	ug/L	10.35	4.0%	≤20	
	551.1	10/03/16:214445SBL	CCV	ug/L	83.33	90.8 %	80-120	
			CCV	ug/L	166.7	119 %	80-120	
	551.1	10/04/16:214446SBL	CCV	ug/L	83.33	90.7 %	80-120	
			CCV	ug/L	166.7	90.2 %	80-120	
Bromoform	551.1	10/03/16:211902SBL (SP 1611385-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.706	119 %	80-120	
			MS	ug/L	9.983	102 %	80-120	
			MSD	ug/L	10.35	104 %	80-120	
			MSRPD	ug/L	10.35	5.3%	≤20	
	551.1	10/03/16:214445SBL	CCV	ug/L	83.33	97.7 %	80-120	
			CCV	ug/L	166.7	120 %	80-120	
	551.1	10/04/16:214446SBL	CCV	ug/L	83.33	83.2 %	80-120	
			CCV	ug/L	166.7	94.2 %	80-120	
Chloroform	551.1	10/03/16:211902SBL (SP 1611385-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.706	116 %	80-120	
			MS	ug/L	9.983	99.1 %	80-120	
			MSD	ug/L	10.35	101 %	80-120	
			MSRPD	ug/L	10.35	4.9%	≤20	
	551.1	10/03/16:214445SBL	CCV	ug/L	83.33	94.1 %	80-120	
			CCV	ug/L	166.7	116 %	80-120	
	551.1	10/04/16:214446SBL	CCV	ug/L	83.33	86.9 %	80-120	
			CCV	ug/L	166.7	88.9 %	80-120	
Decafluorobiphenyl	551.1	10/03/16:211902SBL (SP 1611385-001)	Blank	ug/L	18.72	83.3 %	80-120	435
			LCS	ug/L	19.41	91.6 %	80-120	
			MS	ug/L	19.97	77.0 %	80-120	
			MSD	ug/L	20.70	89.0 %	80-120	
			MSRPD	ug/L	10.35	18.0%	≤20.0	
	551.1	10/03/16:214445SBL	CCV	ug/L	166.7	99.7 %	80-120	
			CCV	ug/L	333.3	93.3 %	80-120	
	551.1	10/04/16:214446SBL	CCV	ug/L	166.7	114 %	80-120	
			CCV	ug/L	333.3	80.1 %	80-120	
Dibromochloromethane	551.1	10/03/16:211902SBL (SP 1611385-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.706	120 %	80-120	
			MS	ug/L	9.983	108 %	80-120	
			MSD	ug/L	10.35	109 %	80-120	
			MSRPD	ug/L	10.35	3.9%	≤20	
	551.1	10/03/16:214445SBL	CCV	ug/L	83.33	98.2 %	80-120	
			CCV	ug/L	166.7	120 %	80-120	
	551.1	10/04/16:214446SBL	CCV	ug/L	83.33	94.8 %	80-120	
			CCV	ug/L	166.7	91.6 %	80-120	
2,3-Dibromopropionic Acid	552	10/04/16:211980sbl (SP 1611647-001)	Blank	ug/L	5.000	97.9 %	70-130	
			LCS	ug/L	5.000	117 %	70-130	
			MS	ug/L	5.000	109 %	70-130	
			MSD	ug/L	5.000	104 %	70-130	
			MSRPD	ug/L	5.000	5.0%	≤20.0	
Dibromoacetic Acid	552	10/04/16:211980sbl (SP 1611647-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	98.0 %	70-130	
			MS	ug/L	10.00	106 %	70-130	
			MSD	ug/L	10.00	111 %	70-130	
			MSRPD	ug/L	5.000	4.7%	≤20.0	

Quality Control - Organic

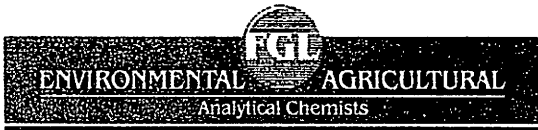
Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Dichloroacetic Acid	552	10/04/16:211980sbl (SP 1611647-001)	Blank LCS MS MSD MSRPD	ug/L ug/L ug/L ug/L ug/L	10.00 10.00 10.00 10.00 5.000	ND 103 % 111 % 119 % 6.5%	<1 70-130 70-130 70-130 ≤20.0	
Monobromoacetic Acid	552	10/04/16:211980sbl (SP 1611647-001)	Blank LCS MS MSD MSRPD	ug/L ug/L ug/L ug/L ug/L	10.00 10.00 10.00 10.00 5.000	ND 103 % 107 % 115 % 7.8%	<1 70-130 70-130 70-130 ≤20.0	
Monochloroacetic Acid	552	10/04/16:211980sbl (SP 1611647-001)	Blank LCS MS MSD MSRPD	ug/L ug/L ug/L ug/L ug/L	10.00 10.00 10.00 10.00 5.000	ND 109 % 117 % 132 % 12.5%	<2 70-130 70-130 70-130 ≤20.0	435
Trichloroacetic Acid	552	10/04/16:211980sbl (SP 1611647-001)	Blank LCS MS MSD MSRPD	ug/L ug/L ug/L ug/L ug/L	10.00 10.00 10.00 10.00 5.000	ND 73.9 % 84.6 % 92.9 % 8.8%	<1 70-130 70-130 70-130 ≤20.0	
2,3-Dibromopropionic Acid	552.2	10/05/16:214521SBL	CCV CCV CCV	ug/L ug/L ug/L	50.00 75.00 75.00	95.6 % 86.6 % 89.8 %	70-130 70-130 70-130	
Dibromoacetic Acid	552.2	10/05/16:214521SBL	CCV CCV CCV	ug/L ug/L ug/L	100.0 150.0 150.0	106 % 110 % 111 %	70-130 70-130 70-130	
Dichloroacetic Acid	552.2	10/05/16:214521SBL	CCV CCV CCV	ug/L ug/L ug/L	100.0 150.0 150.0	116 % 114 % 111 %	70-130 70-130 70-130	
Monobromoacetic Acid	552.2	10/05/16:214521SBL	CCV CCV CCV	ug/L ug/L ug/L	100.0 150.0 150.0	111 % 110 % 107 %	70-130 70-130 70-130	
Monochloroacetic Acid	552.2	10/05/16:214521SBL	CCV CCV CCV	ug/L ug/L ug/L	100.0 150.0 150.0	130 % 128 % 97.9 %	70-130 70-130 70-130	
Trichloroacetic Acid	552.2	10/05/16:214521SBL	CCV CCV CCV	ug/L ug/L ug/L	100.0 150.0 150.0	91.4 % 93.0 % 96.6 %	70-130 70-130 70-130	
Definition								
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.								
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.								
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.								
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.								
ND : Non-detect - Result was below the DQO listed for the analyte.								
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								
Explanation								
435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.								

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio Alpha	900.0	10/07/16:214771caa	CCV CCB	cpm cpm	8566	42.3 % 0.100	39 - 47 0.18	
	900.0	10/10/16:214770caa	CCV CCB	cpm cpm	8566	42.3 % 0.100	39 - 48 0.14	
Gross Alpha	900.0	10/06/16:212066RMM (SP 1611632-001)	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 107.4 107.4 107.4 107.4	1.12 105 % 113 % 127 % 11.2%	3 75-125 60-140 60-140 ≤30	
Alpha	903.0	10/12/16:214916caa	CCV CCB	cpm cpm	8562	42.3 % 0.1200	38 - 47 0.19	
Total Alpha Radium (226)	903.0	10/10/16:212044emv	RgBlk LCS BS BSD BSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 21.86 21.86 21.86 21.86	0.09 102 % 88.7 % 88.1 % 0.7%	2 52-107 43-111 43-111 ≤35.5	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.



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CHAIN OF CUSTODY AND ANALYSIS REQUEST DOCUMENT

Client: Monterey Bay Analytical Services
Customer Number: 2019144
Address: 4 Justin Court, Monterey, CA 93940
Phone: (831)375-6227 Fax: (831)641-0734
Email Address: info@mbasinc.com
Contact Person: David Holland
Project Name: MPWMD
Purchase Order Number:
Quote Number:

Rush Analysis: 5 Day 4 Day 3 Day 2 Day 24 hour
Rush pre-approval by lab (initials):
Electronic Data Transfer: No State Client Other:

Sampler(s): Jonathan Lear
Sampling Fee: Pickup Fee:
Compositor Setup Date: Time:

Table with columns for Lab Number (1011047), Method of Sampling (Composite), Number of Containers, Type of Containers, and various analytical methods like (P) Potable, (NP) Non-Potable, (SW) Surface Water, etc.

Table with columns: Samp Num, Location Description, Date Sampled, Time Sampled. Contains 5 rows of sampling data.

Remarks
AB54457, AB54458, AB54459, AB54460, AB54461
533468971

Table for Relinquished and Received signatures and dates. Includes handwritten signatures and dates like 9/29/16 and 09-30-16.

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

- 1. Number of ice chests/packages received: 1
- 2. Shipper tracking numbers 533468971
- 3. Were samples received in a chilled condition?
Temps: 6 / / / / / /
- 4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
- 5. Do the number of bottles received agree with the COC? Yes No N/A
- 6. Verify sample date, time, sampler Yes No N/A
- 7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) Yes No
- 8. Were sample custody seals intact? Yes No N/A

Sample Verification, Labeling and Distribution:

- 1. Were all requested analyses understood and acceptable? Yes No
- 2. Did bottle labels correspond with the client's ID's? Yes No
- 3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
 [Exception: Oil & Grease, VOA and CrVI verified in lab]
- 4. VOAs checked for Headspace? Yes No N/A
- 5. Were all analyses within holding times at time of receipt? Yes No
- 6. Have rush or project due dates been checked and accepted? Yes No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and Approved By Shawn Peck  Digitally signed by Shawn Peck
Title: Sample Receiving
Date: 10/04/2016-09:21:43

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2019144)
Monterey Bay Analytical Services
SP 1611647
SRP-10/04/2016-09:21:43



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1609D74

Report Created for: Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Project Contact: David Holland
Project P.O.:
Project Name: MPWMD

Project Received: 09/30/2016

Analytical Report reviewed & approved for release on 10/07/2016 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Bay Analytical
Project: MPWMD
WorkOrder: 1609D74

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Analytical Qualifiers

H samples were analyzed out of holding time



Analytical Report

Client: Monterey Bay Analytical
Date Received: 9/30/16 10:30
Date Prepared: 10/6/16
Project: MPWMD

WorkOrder: 1609D74
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR4	1609D74-001A	Water	09/21/2016 10:30	GC26	127758

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Methane	1.7	H	0.10	1	10/06/2016 15:01

Analyst(s): AK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR1	1609D74-002A	Water	09/21/2016 09:30	GC26	127758

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Methane	2.2	H	0.10	1	10/06/2016 15:12

Analyst(s): AK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR3	1609D74-003A	Water	09/21/2016 13:00	GC26	127758

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Methane	1.4	H	0.10	1	10/06/2016 15:24

Analyst(s): AK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR2	1609D74-004A	Water	09/27/2016 10:00	GC26	127758

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Methane	1.7		0.10	1	10/06/2016 15:35

Analyst(s): AK

 Angela Rydelius, Lab Manager




Quality Control Report

Client: Monterey Bay Analytical
Date Prepared: 10/6/16
Date Analyzed: 10/6/16
Instrument: GC26
Matrix: Air
Project: MPWMD

WorkOrder: 1609D74
BatchID: 127758
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µL/L
Sample ID: MB/LCS-127758

QC Summary Report for RSK175

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetylene	ND	8.61	0.50	10	-	86	70-130
Ethane	ND	11.4	0.50	10	-	114	70-130
Ethylene	ND	8.37	0.50	10	-	84	70-130
Methane	ND	9.50	0.50	10	-	95	70-130

 QA/QC Officer

1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1609D74

ClientCode: MBAS

WaterTrax
 WriteOn
 EDF
 Excel
 EQUIS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

David Holland
Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940
831-375-6227 FAX: 831-641-0734

Email: mweidner@mbasinc.com; Dholland@mbas
cc/3rd Party:
PO:
ProjectNo: MPWMD

Bill to:

Accounts Payable
Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 09/30/2016
Date Logged: 09/30/2016

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1609D74-001	ASR4	Water	9/21/2016 10:30	<input type="checkbox"/>	A												
1609D74-002	ASR1	Water	9/21/2016 09:30	<input type="checkbox"/>	A												
1609D74-003	ASR3	Water	9/21/2016 13:00	<input type="checkbox"/>	A												
1609D74-004	ASR2	Water	9/27/2016 10:00	<input type="checkbox"/>	A												

Test Legend:

1	RSK175_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Maria Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY BAY ANALYTICAL

Project: MPWMD

Work Order: 1609D74

Client Contact: David Holland

QC Level: LEVEL 2

Contact's Email: mweidner@mbasinc.com; Dholland@mbasinc.com;
4mbas@sbcglobal.net; info@mbasinc.com

Comments:

Date Logged: 9/30/2016

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1609D74-001A	ASR4	Water	RSK175 <Methane_4>	3	VOA w/ HCl	<input type="checkbox"/>	9/21/2016 10:30	5 days	None	<input type="checkbox"/>	
1609D74-002A	ASR1	Water	RSK175 <Methane_4>	3	VOA w/ HCl	<input type="checkbox"/>	9/21/2016 9:30	5 days	None	<input type="checkbox"/>	
1609D74-003A	ASR3	Water	RSK175 <Methane_4>	3	VOA w/ HCl	<input type="checkbox"/>	9/21/2016 13:00	5 days	None	<input type="checkbox"/>	
1609D74-004A	ASR2	Water	RSK175 <Methane_4>	3	VOA w/ HCl	<input type="checkbox"/>	9/27/2016 10:00	5 days	None	<input type="checkbox"/>	

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).

- 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.

11609074

McCAMPBELL ANALYTICAL, INC.

1534 WILLOW PASS ROAD
PITTSBURG, CA 94565-1701

Website: www.mccampbell.com Email: main@mccampbell.com

Telephone: (877) 252-9262 Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH 24 HR 48 HR 72 HR 5 DAY

GeoTracker EDF PDF Excel Write On (DW)

Report To: David Holland Bill To:

Company: Monterey Bay Analytical Services

4 Justin Ct. Suite D

Monterey, Ca 93940

E-Mail: info@mbasinc.com

Tele: (831) 375 - 6227

Fax: (831) 641-0734

Project #:

Project Name: MPWMD

Project Location:

Sampler Signature: Jonathan Lear

Analysis Request

Other

Comments

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				MTBE / BTEX & TPH as Gas (602 / 8021 + 8015)	MTBE / BTEX ONLY (EPA 602 / 8021)	TPH as Diesel / Motor Oil (8015)	Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 502.2 / 601 / 8010 / 8021 (HVOCs)	EPA 505/ 608 / 8081 (CI Pesticides)	EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners	EPA 507 / 8141 (NP Pesticides)	EPA 515 / 8151 (Acidic CI Herbicides)	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / FNAs)	CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)	Lead (200.7 / 200.8 / 6010 / 6020)	Methane													
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO ₃	Other																														
✓ ASR4		9/21/16	10:30	3	V	X					X	X																												X		AB54457		
✓ ASR1		9/21/16	09:30	3	V	X					X	X																														X		AB54458
✓ ASR3 *		9/21/16	13:00	3	V	X					X	X																														X		AB54459
✓ ASR2		9/27/16	10:00	3	V	X					X	X																													X		AB54460	

Relinquished By: David Holland
Date: 9/29
Time: 1600
Received By: GSO

Relinquished By: GSO
Date: 9/30/16
Time: 1030
Received By: Maria 2-6

ICE/°
GOOD CONDITION
HEAD SPACE ABSENT
DECHLORINATED IN LAB
APPROPRIATE CONTAINERS
PRESERVED IN LAB
COMMENTS: * All VOAS had headspace.
VOAS O&G METALS OTHER
PRESERVATION pH<2



Sample Receipt Checklist

Client Name: **Monterey Bay Analytical**
 Project Name: **MPWMD**

Date and Time Received: **9/30/2016 10:30**
 Date Logged: **9/30/2016**
 Received by: **Maria Venegas**
 Logged by: **Maria Venegas**

WorkOrder No: **1609D74** Matrix: Water
 Carrier: Golden State Overnight

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No
 Sample/Temp Blank temperature Temp: 10.2°C NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No
 (Ice Type: BLUE ICE)

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:



Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

Thursday, December 22, 2016

MPWMD
Jonathan Lear
P.O. Box 85
Monterey, CA 93442-0085

Lab Number: AB58007

Collection Date/Time: 12/1/2016 10:30

Sample Collector: LINDBERG T

Client Sample #:

Submittal Date/Time: 12/1/2016 14:40

Sample ID

Coliform Designation:

Sample Description: PARALTA

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	223		10		12/12/2016	BS
Aluminum, Total	EPA200.8	µg/L	Not Detected		10	1000	12/13/2016	SM
Ammonia-N	SM4500NH3 D	mg/L	0.10		0.05		12/2/2016	MW
Arsenic, Total	EPA200.8	µg/L	3		1	10	12/13/2016	SM
Barium, Total	EPA200.8	µg/L	64		10	1000	12/13/2016	SM
Bicarbonate (as HCO3-)	SM2320B	mg/L	272		10		12/12/2016	MP
Boron	EPA200.7	mg/L	0.10		0.05		12/7/2016	MW
Bromide	EPA300.0	mg/L	0.3		0.1		12/2/2016	BS
Calcium	EPA200.7	mg/L	73		0.5		12/7/2016	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected		10		12/12/2016	MP
Chloramines	SM4500-Cl G	mg/L	Not Detected		0.05		12/1/2016	MW
Chloride	EPA300.0	mg/L	112		1.0	250	12/2/2016	BS
DOC	SM5310C	mg/L	1.0		0.2		12/1/2016	MW
Fluoride	EPA300.0	mg/L	0.3		0.1	2.0	12/2/2016	BS
Gross Alpha	EPA900.0	pCi/L	7.19 ± 2.50	E		15	12/12/2016	FGL
Haloacetic Acids	EPA552	µg/L	Not Detected	E		60	12/8/2016	FGL
Iron	EPA200.7	µg/L	24		10	300	12/7/2016	MW
Iron, Dissolved	EPA200.7	µg/L	20		10	300	12/7/2016	MW
Kjehldahl Nitrogen	SM4500-NH3 B,C.	mg/L	1.2		0.5		12/8/2016	BS
Lithium	EPA200.8	µg/L	30		1		12/13/2016	SM
Magnesium	EPA200.7	mg/L	17		0.5		12/7/2016	MW
Manganese, Dissolved	EPA200.7	µg/L	30		10	50	12/7/2016	MW
Manganese, Total	EPA200.7	µg/L	28		10	50	12/7/2016	MW
Methane	EPA174/175	µg/L	3.7	E	0.1		12/12/2016	MCCAM
Molybdenum, Total	EPA200.8	µg/L	12		1	1000	12/13/2016	SM
Nickel, Total	EPA200.8	µg/L	Not Detected		10	100	12/13/2016	SM
Nitrate as NO3	EPA300.0	mg/L	3		4.0	45	12/2/2016	BS
Nitrate as NO3-N	EPA300.0	mg/L	0.2		0.1	10	12/2/2016	BS
Nitrate+Nitrite as N	EPA300.0	mg/L	0.5		0.10		12/2/2016	BS
Nitrite as NO2-N	EPA300.0	mg/L	0.3		0.1	1.0	12/2/2016	BS
o-Phosphate-P, Dissolved	EPA300.0	mg/L	0.2		0.1		12/2/2016	BS
pH (Laboratory)	SM4500-H+B	pH (H)	7.3		0.1		12/1/2016	BS

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

D = Method deviates from standard method due to insufficient sample for MS/MSD

T = Temperature Exceedance



Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

Thursday, December 22, 2016

MPWMD
Jonathan Lear
P.O. Box 85
Monterey, CA 93442-0085

Lab Number: AB58007

Collection Date/Time: 12/1/2016 10:30
Submittal Date/Time: 12/1/2016 14:40

Sample Collector: LINDBERG T
Sample ID

Client Sample #:
Coliform Designation:

Sample Description: PARALTA

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Phosphorus, Total	HACH 8190	mg/L	0.03		0.03		12/13/2016	LRH
Potassium	EPA200.7	mg/L	4.7		0.5		12/7/2016	MW
QC Anion Sum x 100	Calculation	%	99%				12/22/2016	DH
QC Anion-Cation Balance	Calculation	%	-2				12/22/2016	DH
QC Cation Sum x 100	Calculation	%	96%				12/12/2016	MW
QC Ratio TDS/SEC	Calculation		0.61				12/9/2016	MP
Selenium, Total	EPA200.8	µg/L	2		2	50	12/13/2016	SM
Silica as SiO ₂ , Total	EPA200.7	mg/L	40		0.5		12/7/2016	MW
Sodium	EPA200.7	mg/L	83		0.5		12/7/2016	MW
Specific Conductance (E.C)	SM2510B	µmhos/cm	912		1	900	12/6/2016	HM
Strontium, Total	EPA200.8	µg/L	379	BB	5		12/13/2016	SM
Sulfate	EPA300.0	mg/L	66		1.0	250	12/2/2016	BS
TOC	SM5310C	mg/L	1.0		0.2		12/1/2016	MW
Total Diss. Solids	SM2540C	mg/L	557		10	500	12/7/2016	MP
Total Nitrogen	Calculation	mg/L	1.7		0.5		12/22/2016	DH
Total Radium 226	EPA903.0	pCi/L	1.39 ± 0.349	E		3	12/15/2016	FGL
Trihalomethanes	EPA524.2	µg/L	4.3	E		80	12/6/2016	FGL
Uranium by ICP/MS	EPA200.8	µg/L	1		1	30	12/13/2016	SM
Vanadium, Total	EPA200.8	µg/L	5		5	1000	12/13/2016	SM
Zinc, Total	EPA200.8	µg/L	Not Detected		20	5000	12/13/2016	SM

Sample Comments: BB: Sample > 4x spike concentration.

Report Approved by

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

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T = Temperature Exceedance



Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

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ELAP Certification Number: 2385

Thursday, December 22, 2016

MPWMD
Jonathan Lear
P.O. Box 85
Monterey, CA 93442-0085

Lab Number: AB58008

Collection Date/Time: 12/1/2016 10:30

Sample Collector: LINDBERG T

Client Sample #:

Submittal Date/Time: 12/1/2016 14:40

Sample ID

Coliform Designation:

Sample Description: MW-1

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	209		10		12/12/2016	BS
Aluminum, Total	EPA200.8	µg/L	Not Detected		10	1000	12/13/2016	SM
Ammonia-N	SM4500NH3 D	mg/L	Not Detected		0.05		12/2/2016	MW
Arsenic, Total	EPA200.8	µg/L	2		1	10	12/13/2016	SM
Barium, Total	EPA200.8	µg/L	66		10	1000	12/13/2016	SM
Bicarbonate (as HCO3-)	SM2320B	mg/L	255		10		12/12/2016	MP
Boron	EPA200.7	mg/L	0.08		0.05		12/7/2016	MW
Bromide	EPA300.0	mg/L	0.3		0.1		12/2/2016	BS
Calcium	EPA200.7	mg/L	74		0.5		12/7/2016	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected		10		12/12/2016	MP
Chloramines	SM4500-Cl G	mg/L	Not Detected		0.05		12/1/2016	MW
Chloride	EPA300.0	mg/L	109		1	250	12/2/2016	BS
DOC	SM5310C	mg/L	1.3		0.2		12/1/2016	MW
Fluoride	EPA300.0	mg/L	0.3		0.1	2.0	12/2/2016	BS
Gross Alpha	EPA900.0	pCi/L	4.70 ± 2.20	E		15	12/12/2016	FGL
Haloacetic Acids	EPA552	µg/L	Not Detected	E		60	12/8/2016	FGL
Iron	EPA200.7	µg/L	Not Detected		10	300	12/7/2016	MW
Iron, Dissolved	EPA200.7	µg/L	Not Detected		10	300	12/7/2016	MW
Kjeldahl Nitrogen	SM4500-NH3 B,C.	mg/L	Not Detected		0.5		12/8/2016	BS
Lithium	EPA200.8	µg/L	25		1		12/13/2016	SM
Magnesium	EPA200.7	mg/L	22		0.5		12/7/2016	MW
Manganese, Dissolved	EPA200.7	µg/L	16		10	50	12/7/2016	MW
Manganese, Total	EPA200.7	µg/L	17		10	50	12/7/2016	MW
Methane	EPA174/175	µg/L	0.92	E	0.1		12/12/2016	MCCAM
Molybdenum, Total	EPA200.8	µg/L	10		1	1000	12/13/2016	SM
Nickel, Total	EPA200.8	µg/L	Not Detected		10	100	12/13/2016	SM
Nitrate as NO3	EPA300.0	mg/L	Not Detected		1	45	12/2/2016	BS
Nitrate as NO3-N	EPA300.0	mg/L	0.1		0.1	10	12/2/2016	BS
Nitrate+Nitrite as N	EPA300.0	mg/L	0.4		0.1		12/2/2016	BS
Nitrite as NO2-N	EPA300.0	mg/L	0.3		0.1	1.0	12/2/2016	BS
o-Phosphate-P, Dissolved	EPA300.0	mg/L	0.1		0.1		12/2/2016	BS
pH (Laboratory)	SM4500-H+B	pH (H)	7.3		0.1		12/1/2016	BS

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

D = Method deviates from standard method due to insufficient sample for MS/MSD

T = Temperature Exceedance



Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

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ELAP Certification Number: 2385

Thursday, December 22, 2016

MPWMD
Jonathan Lear
P.O. Box 85
Monterey, CA 93442-0085

Lab Number: AB58008

Collection Date/Time: 12/1/2016 10:30
Submittal Date/Time: 12/1/2016 14:40

Sample Collector: LINDBERG T
Sample ID

Client Sample #:
Coliform Designation:

Sample Description: MW-1

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Phosphorus, Total	HACH 8190	mg/L	0.11		0.03		12/13/2016	LRH
Potassium	EPA200.7	mg/L	4.6		0.5		12/7/2016	MW
QC Anion Sum x 100	Calculation	%	99%				12/12/2016	MP
QC Anion-Cation Balance	Calculation	%	-2				12/12/2016	MP
QC Cation Sum x 100	Calculation	%	96%				12/12/2016	MW
QC Ratio TDS/SEC	Calculation		0.58				12/9/2016	MP
Selenium, Total	EPA200.8	µg/L	2		2	50	12/13/2016	SM
Silica as SiO ₂ , Total	EPA200.7	mg/L	36		0.5		12/7/2016	MW
Sodium	EPA200.7	mg/L	67		0.5		12/7/2016	MW
Specific Conductance (E.C)	SM2510B	µmhos/cm	890		1	900	12/6/2016	HM
Strontium, Total	EPA200.8	µg/L	388	BB	5		12/13/2016	SM
Sulfate	EPA300.0	mg/L	75		1	250	12/2/2016	BS
TOC	SM5310C	mg/L	1.0		0.2		12/1/2016	MW
Total Diss. Solids	SM2540C	mg/L	517		10	500	12/7/2016	MP
Total Nitrogen	Calculation	mg/L	Not Detected		0.5		12/8/2016	MP
Total Radium 226	EPA903.0	pCi/L	0.878 ± 0.282	E		3	12/13/2016	FGL
Trihalomethanes	EPA524.2	µg/L	26.7	E		80	12/6/2016	FGL
Uranium by ICP/MS	EPA200.8	µg/L	2		1	30	12/13/2016	SM
Vanadium, Total	EPA200.8	µg/L	Not Detected		5	1000	12/13/2016	SM
Zinc, Total	EPA200.8	µg/L	Not Detected		20	5000	12/13/2016	SM

Sample Comments: BB: Sample > 4x spike concentration.

Report Approved by

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

D = Method deviates from standard method due to insufficient sample for MS/MSD

T = Temperature Exceedance

December 20, 2016

Monterey Bay Analytical Services
 4 Justin Court
 Monterey, CA 93940

Lab ID : SP 1614528
 Customer : 2-19144

Laboratory Report

Introduction: This report package contains total of 9 pages divided into 3 sections:

Case Narrative (2 pages) : An overview of the work performed at FGL.
 Sample Results (4 pages) : Results for each sample submitted.
 Quality Control (3 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
Paralta	12/01/2016	12/06/2016	SP 1614528-001	W
MW-1	12/01/2016	12/06/2016	SP 1614528-002	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 6 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Organic QC

551.1	12/06/2016:217779 All analysis quality controls are within established criteria, except: The following note applies to Decafluorobiphenyl: 362 Surrogates are qualified on Control Chart Limits, these are CCV limits. See individual sample reports.
	12/06/2016:214619 All preparation quality controls are within established criteria, except: The following note applies to Dibromochloromethane, Bromoform, Decafluorobiphenyl: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
552	12/07/2016:214679 All preparation quality controls are within established criteria, except: The following note applies to Dibromoacetic Acid, Monobromoacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid, Monochloroacetic Acid: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

December 20, 2016
Monterey Bay Analytical Services

Lab ID : SP 1614528
Customer : 2-19144

Organic QC

552.2	12/08/2016:217890 All analysis quality controls are within established criteria.
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Radio QC

900.0	12/12/2016:218169 All analysis quality controls are within established criteria.
	12/12/2016:218171 All analysis quality controls are within established criteria.
	12/08/2016:214683 All preparation quality controls are within established criteria, except: The following note applies to Gross Alpha: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
903.0	12/13/2016:218172 All analysis quality controls are within established criteria.
	12/15/2016:218172 All analysis quality controls are within established criteria.
	12/07/2016:214680 All preparation quality controls are within established criteria.

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2016-12-21



December 20, 2016

Lab ID : SP 1614528-001

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : December 1, 2016-10:30

Sampled By : T. Lindberg

Received On : December 6, 2016-13:40

Matrix : Water

Description : Paralta
Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	108	80-120	%		551.1	12/06/16:214619	551.1	12/06/16:217779
Bromodichloromethane	0.6	0.5	ug/L		551.1	12/06/16:214619	551.1	12/06/16:217779
Bromoform	ND	0.5	ug/L		551.1	12/06/16:214619	551.1	12/06/16:217779
Chloroform	3.7	0.5	ug/L		551.1	12/06/16:214619	551.1	12/06/16:217779
Dibromochloromethane	ND	0.5	ug/L		551.1	12/06/16:214619	551.1	12/06/16:217779
Total Trihalomethanes	4.3	--	ug/L		551.1	12/06/16:214619	551.1	12/06/16:217779
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	101	70-130	%		552	12/07/16:214679	552.2	12/08/16:217890
Bromoacetic Acid	ND	1	ug/L		552	12/07/16:214679	552.2	12/08/16:217890
Chloroacetic Acid	ND	2	ug/L		552	12/07/16:214679	552.2	12/08/16:217890
Dibromoacetic Acid	ND	1	ug/L		552	12/07/16:214679	552.2	12/08/16:217890
Dichloroacetic Acid	ND	1	ug/L		552	12/07/16:214679	552.2	12/08/16:217890
Trichloroacetic Acid	ND	1	ug/L		552	12/07/16:214679	552.2	12/08/16:217890
Haloacetic acids (five)	ND	--	ug/L		552	12/07/16:214679	552.2	12/08/16:217890

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



December 20, 2016

Lab ID : SP 1614528-001
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : December 1, 2016-10:30
Sampled By : T. Lindberg
Received On : December 6, 2016-13:40
Matrix : Water

Description : Paralta
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	7.19 ± 2.50	2.00	pCi/L	15/5	900.0	12/08/16-07:20 2P1614683	900.0	12/12/16-10:00 2A1618171
Total Alpha Radium (226)	1.39 ± 0.349	0.363	pCi/L	3	903.0	12/07/16-18:45 2P1614680	903.0	12/15/16-12:00 2A1618172

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



December 20, 2016

Lab ID : SP 1614528-002

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : December 1, 2016-11:00

Sampled By : T. Lindberg

Received On : December 6, 2016-13:40

Matrix : Water

Description : MW-1

Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	124	80-120	%		551.1	12/06/16:214619	551.1	12/06/16:217779
Bromodichloromethane	6.7	0.5	ug/L		551.1	12/06/16:214619	551.1	12/06/16:217779
Bromoform	ND	0.5	ug/L		551.1	12/06/16:214619	551.1	12/06/16:217779
Chloroform	16.9	0.5	ug/L		551.1	12/06/16:214619	551.1	12/06/16:217779
Dibromochloromethane	3.1	0.5	ug/L		551.1	12/06/16:214619	551.1	12/06/16:217779
Total Trihalomethanes	26.7	--	ug/L		551.1	12/06/16:214619	551.1	12/06/16:217779
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	98.8	70-130	%		552	12/07/16:214679	552.2	12/08/16:217890
Bromoacetic Acid	ND	1	ug/L		552	12/07/16:214679	552.2	12/08/16:217890
Chloroacetic Acid	ND	2	ug/L		552	12/07/16:214679	552.2	12/08/16:217890
Dibromoacetic Acid	ND	1	ug/L		552	12/07/16:214679	552.2	12/08/16:217890
Dichloroacetic Acid	ND	1	ug/L		552	12/07/16:214679	552.2	12/08/16:217890
Trichloroacetic Acid	ND	1	ug/L		552	12/07/16:214679	552.2	12/08/16:217890
Haloacetic acids (five)	ND	--	ug/L		552	12/07/16:214679	552.2	12/08/16:217890

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



December 20, 2016

Lab ID : SP 1614528-002
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : December 1, 2016-11:00
Sampled By : T. Lindberg
Received On : December 6, 2016-13:40
Matrix : Water

Description : MW-1
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	4.70 ± 2.20	1.84	pCi/L	15/5	900.0	12/08/16-07:20 2P1614683	900.0	12/12/16-09:00 2A1618169
Total Alpha Radium (226)	0.878 ± 0.282	0.363	pCi/L	3	903.0	12/07/16-18:45 2P1614680	903.0	12/13/16-12:20 2A1618172

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

December 20, 2016
Monterey Bay Analytical Services

Lab ID : SP 1614528
Customer : 2-19144

Quality Control - Organic

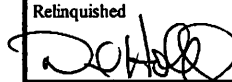



Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic Bromodichloromethane	551.1	12/06/16:214619SBL (SP 1614528-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.820	101 %	80-120	
			MS	ug/L	10.07	115 %	80-120	
			MSD	ug/L	10.01	104 %	80-120	
	MSRPD	ug/L	20.02	9.9%	≤20			
	551.1	12/06/16:217779SBL	CCV	ug/L	83.33	91.9 %	80-120	
			CCV	ug/L	166.7	109 %	80-120	
Bromoform	551.1	12/06/16:214619SBL (SP 1614528-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.820	112 %	80-120	435
			MS	ug/L	10.07	124 %	80-120	
			MSD	ug/L	10.01	114 %	80-120	
	MSRPD	ug/L	20.02	9.7%	≤20			
	551.1	12/06/16:217779SBL	CCV	ug/L	83.33	105 %	80-120	
			CCV	ug/L	166.7	118 %	80-120	
Chloroform	551.1	12/06/16:214619SBL (SP 1614528-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.820	97.8 %	80-120	
			MS	ug/L	10.07	117 %	80-120	
			MSD	ug/L	10.01	104 %	80-120	
	MSRPD	ug/L	20.02	9.0%	≤20			
	551.1	12/06/16:217779SBL	CCV	ug/L	83.33	90.4 %	80-120	
			CCV	ug/L	166.7	111 %	80-120	
Decafluorobiphenyl	551.1	12/06/16:214619SBL (SP 1614528-001)	Blank	ug/L	19.51	120 %	80-120	
			LCS	ug/L	19.64	101 %	80-120	435
			MS	ug/L	20.15	127 %	80-120	
			MSD	ug/L	20.02	119 %	80-120	
	MSRPD	ug/L	20.02	7.8%	≤20.0			
	551.1	12/06/16:217779SBL	CCV	ug/L	166.7	177 %	80-120	362
			CCV	ug/L	333.3	110 %	80-120	
Dibromochloromethane	551.1	12/06/16:214619SBL (SP 1614528-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.820	109 %	80-120	435
			MS	ug/L	10.07	123 %	80-120	
			MSD	ug/L	10.01	112 %	80-120	
	MSRPD	ug/L	20.02	10.3%	≤20			
	551.1	12/06/16:217779SBL	CCV	ug/L	83.33	102 %	80-120	
			CCV	ug/L	166.7	116 %	80-120	
2,3-Dibromopropionic Acid	552	12/07/16:214679SBL (SP 1614528-001)	Blank	ug/L	5.000	113 %	70-130	
			LCS	ug/L	5.000	95.9 %	70-130	
			MS	ug/L	5.000	125 %	70-130	
			MSD	ug/L	5.000	120 %	70-130	
			MSRPD	ug/L	5.000	3.9%	≤20.0	
Dibromoacetic Acid	552	12/07/16:214679SBL (SP 1614528-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	108 %	70-130	435
			MS	ug/L	10.00	152 %	70-130	
			MSD	ug/L	10.00	170 %	70-130	435
	MSRPD	ug/L	5.000	11.3%	≤20.0			
	552	12/07/16:214679SBL	CCV	ug/L	10.00	119 %	70-130	
			CCV	ug/L	10.00	167 %	70-130	435
Dichloroacetic Acid	552	12/07/16:214679SBL (SP 1614528-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	119 %	70-130	435
			MS	ug/L	10.00	167 %	70-130	
			MSD	ug/L	10.00	185 %	70-130	435
	MSRPD	ug/L	5.000	10.6%	≤20.0			
	552	12/07/16:214679SBL	CCV	ug/L	10.00	103 %	70-130	
			CCV	ug/L	10.00	141 %	70-130	435
Monobromoacetic Acid	552	12/07/16:214679SBL (SP 1614528-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	103 %	70-130	435
			MS	ug/L	10.00	141 %	70-130	
			MSD	ug/L	10.00	155 %	70-130	435
	MSRPD	ug/L	5.000	9.6%	≤20.0			
	552	12/07/16:214679SBL	CCV	ug/L	10.00	103 %	70-130	
			CCV	ug/L	10.00	141 %	70-130	435

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Monochloroacetic Acid	552	12/07/16:214679SBL (SP 1614528-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	10.00	105 %	70-130	
			MS	ug/L	10.00	143 %	70-130	435
			MSD	ug/L	10.00	159 %	70-130	435
			MSRPD	ug/L	5.000	10.5%	≤20.0	
Trichloroacetic Acid	552	12/07/16:214679SBL (SP 1614528-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	107 %	70-130	
			MS	ug/L	10.00	156 %	70-130	435
			MSD	ug/L	10.00	178 %	70-130	435
			MSRPD	ug/L	5.000	13.7%	≤20.0	
2,3-Dibromopropionic Acid	552.2	12/08/16:217890SBL	CCV	ug/L	75.00	85.9 %	70-130	
			CCV	ug/L	50.00	99.9 %	70-130	
Dibromoacetic Acid	552.2	12/08/16:217890SBL	CCV	ug/L	150.0	120 %	70-130	
			CCV	ug/L	100.0	116 %	70-130	
Dichloroacetic Acid	552.2	12/08/16:217890SBL	CCV	ug/L	150.0	126 %	70-130	
			CCV	ug/L	100.0	124 %	70-130	
Monobromoacetic Acid	552.2	12/08/16:217890SBL	CCV	ug/L	150.0	96.0 %	70-130	
			CCV	ug/L	100.0	107 %	70-130	
Monochloroacetic Acid	552.2	12/08/16:217890SBL	CCV	ug/L	150.0	88.4 %	70-130	
			CCV	ug/L	100.0	112 %	70-130	
Trichloroacetic Acid	552.2	12/08/16:217890SBL	CCV	ug/L	150.0	127 %	70-130	
			CCV	ug/L	100.0	110 %	70-130	
Definition								
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.							
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.							
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.							
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.							
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.							
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.							
ND	: Non-detect - Result was below the DQO listed for the analyte.							
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.							
Explanation								
362	: Surrogates are qualified on Control Chart Limits, these are CCV limits. See individual sample reports.							
435	: Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.							

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio Alpha	900.0	12/12/16:218169caa	CCV CCB	cpm cpm	8520	42.3 % 0.100	39 - 48 0.14	
	900.0	12/12/16:218171caa	CCV CCB	cpm cpm	8520	43.5 % 0.100	38 - 47 0.18	
Gross Alpha	900.0	12/08/16:214683RMM (SP 1614351-001)	Blank	pCi/L		0.93	3	
			LCS	pCi/L	107.4	117 %	75-125	
			MS	pCi/L	107.4	191 %	60-140	435
			MSD	pCi/L	107.4	178 %	60-140	435
			MSRPD	pCi/L	107.4	6.9%	≤30	
Alpha	903.0	12/13/16:218172caa	CCV	cpm	8517	39.9 %	39 - 47	
			CCB	cpm		0.0600	0.16	
Total Alpha Radium (226)	903.0	12/07/16:214680emv	RgBlk	pCi/L		0.008	2	
			LCS	pCi/L	21.86	61.6 %	52-107	
			BS	pCi/L	21.86	53.7 %	43-111	
			BSD	pCi/L	21.86	48.8 %	43-111	
			BSRPD	pCi/L	21.86	9.5%	≤35.5	
Definition								
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.								
CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.								
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.								
RgBlk : Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.								
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.								
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
BS : Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.								
BSD : Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.								
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.								
BSRPD : BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.								
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								
Explanation								
435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.								

Client: Monterey Bay Analytical Services Customer Number: 2019144 Address: 4 Justin Court Monterey, CA 93940 Phone: (831)375-6227 Fax: (831)641-0734 Email Address: info@mbasinc.com Contact Person: David Holland Project Name: MPWMD Purchase Order Number: Quote Number:				Lab Number: 164528		TEST DESCRIPTION AND ANALYSES REQUESTED																		
Rush Analysis: <input type="checkbox"/> 5 Day <input type="checkbox"/> 4 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> 24 hour Rush pre-approval by lab (initials): _____ Electronic Data Transfer: <input type="checkbox"/> No <input type="checkbox"/> State <input type="checkbox"/> Client Other: _____				Method of Sampling: Composite (C) Grab (G) Number of Containers Type of Containers: (G) Glass (P) Plastic (V) VOA (NT) Metal Tube Potable (P) Non-Potable (NP) Ag Water (AgW) (SW) Surface Water (MW) Monitoring Well (GW) Ground Water (TB) Travel Blank (WW) Waste Water (DW) Drinking Water (S) Soil (SLG) Sludge (SLD) Soda (O) Od BacT: (Sya) System (SRC) Source (W) Waste BacT: (ROUT) Routine (RPT) Repeat (OTH) Other (RPL) Replace (LT) Leaf Tissue (PET) Petiole Tissue (PRD) Produce Preservative: (1) NaOH + ZnAc, (2) NaOH, (3) HCl (4) H2SO4, (5) HNO3, (6) Na2S2O3, (7) Other: _____																				
Sampler(s): T. Lindberg Sampling Fee: _____ Pickup Fee: _____ Compositor Setup Date: _____ Time: _____																								
Samp Num	Location Description	Date Sampled	Time Sampled																					
1.	Paralta	12/1/16	10:30	G	7	Var																		
2.	MW-1	12/1/16	11:00	G	7	Var																		
Remarks AB58007, AB58008 534 2028 17				Relinquished Date: Time:  12/5 1600				Relinquished Date: Time: 				Relinquished Date: Time: _____												
Received By: 				Received By: Date: Time:  12/6/16 1340				Received By: Date: Time: _____																

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

- 1. Number of ice chests/packages received: 1
- 2. Shipper tracking numbers 534222817
- 3. Were samples received in a chilled condition?
Temps: 6 / / / / / /
- 4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
- 5. Do the number of bottles received agree with the COC? Yes No N/A
- 6. Verify sample date, time, sampler Yes No N/A
- 7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) Yes No
- 8. Were sample custody seals intact? Yes No N/A

Sample Verification, Labeling and Distribution:

- 1. Were all requested analyses understood and acceptable? Yes No
- 2. Did bottle labels correspond with the client's ID's? Yes No
- 3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
 [Exception: Oil & Grease, VOA and CrVI verified in lab]
- 4. VOAs checked for Headspace? Yes No N/A
- 5. Were all analyses within holding times at time of receipt? Yes No
- 6. Have rush or project due dates been checked and accepted? Yes No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and Approved By Shawn Peck  Digitally signed by Shawn Peck
Title: Sample Receiving
Date: 12/13/2016-09:45:19

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2019144)
Monterey Bay Analytical Services
SP 1614528
SRP-12/13/2016-09:45:19



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1612181

Report Created for: Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Project Contact: David Holland
Project P.O.:
Project Name: MPWMD

Project Received: 12/06/2016

Analytical Report reviewed & approved for release on 12/13/2016 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Bay Analytical
Project: MPWMD
WorkOrder: 1612181

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Bay Analytical
Date Received: 12/6/16 9:31
Date Prepared: 12/12/16
Project: MPWMD

WorkOrder: 1612181
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Paralta	1612181-001A	Water	12/01/2016 10:30	GC26	131178

Analytes	Result	RL	DF	Date Analyzed
Methane	3.7	0.10	1	12/12/2016 14:31

Analyst(s): AK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MW-1	1612181-002A	Water	12/01/2016 11:00	GC26	131178

Analytes	Result	RL	DF	Date Analyzed
Methane	0.92	0.10	1	12/12/2016 14:43

Analyst(s): AK

 Angela Rydelius, Lab Manager



Quality Control Report

Client: Monterey Bay Analytical
Date Prepared: 12/12/16
Date Analyzed: 12/12/16
Instrument: GC26
Matrix: Water
Project: MPWMD

WorkOrder: 1612181
BatchID: 131178
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L
Sample ID: MB/LCS-131178

QC Summary Report for RSK175

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Methane	ND	1.23	0.10	1.17	-	105	70-130

QA/QC Officer



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1612181

ClientCode: MBAS

WaterTrax
 WriteOn
 EDF
 Excel
 EQulS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

David Holland
Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940
831-375-6227 FAX: 831-641-0734

Email: mweidner@mbasinc.com; Dholland@mbas
cc/3rd Party:
PO:
ProjectNo: MPWMD

Bill to:

Accounts Payable
Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 12/06/2016

Date Logged: 12/06/2016

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1612181-001	Paralta	Water	12/1/2016 10:30	<input type="checkbox"/>	A												
1612181-002	MW-1	Water	12/1/2016 11:00	<input type="checkbox"/>	A												

Test Legend:

1	RSK175_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Maria Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY BAY ANALYTICAL

Project: MPWMD

Work Order: 1612181

Client Contact: David Holland

QC Level: LEVEL 2

Contact's Email: mweidner@mbasinc.com; Dholland@mbasinc.com;
4mbas@sbcglobal.net; info@mbasinc.com

Comments:

Date Logged: 12/6/2016

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1612181-001A	Paralta	Water	RSK175 <Methane_4>	3	VOA w/ HCl	<input type="checkbox"/>	12/1/2016 10:30	5 days	None	<input type="checkbox"/>	
1612181-002A	MW-1	Water	RSK175 <Methane_4>	3	VOA w/ HCl	<input type="checkbox"/>	12/1/2016 11:00	5 days	None	<input type="checkbox"/>	

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).

- 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.

1612181

McCAMPBELL ANALYTICAL, INC.

1534 WILLOW PASS ROAD
PITTSBURG, CA 94565-1701

Website: www.mccampbell.com Email: main@mccampbell.com
Telephone: (877) 252-9262 Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH 24 HR 48 HR 72 HR 5 DAY

GeoTracker EDF PDF Excel Write On (DW)

Report To: David Holland Bill To:
Company: Monterey Bay Analytical Services
4 Justin Ct. Suite D
Monterey, Ca 93940 E-Mail: info@mbasinc.com
Tele: (831) 375 - 6227 Fax: (831) 641-0734
Project #: Project Name: MPWMD
Project Location:
Sampler Signature: T. Lindberg

Analysis Request Other Comments

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				Methane			
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO ₃	Other				
✓ ✓	Paralta	12/1/16	10:30	3	V	X					X	X					X	AB58007
	MW-1	12/1/16	11:00	3	V	X					X	X					X	AB58008

MTBE / BTEX & TPH as Gas (602 / 8021 + 8015)	
MTBE / BTEX ONLY (EPA 602 / 8021)	
TPH as Diesel / Motor Oil (8015)	
Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	
Total Petroleum Hydrocarbons (418.1)	
EPA 502.2 / 601 / 8010 / 8021 (HVOCs)	
EPA 505 / 608 / 8081 (CI Pesticides)	
EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners	
EPA 507 / 8141 (NP Pesticides)	
EPA 815 / 8151 (Acidic CI Herbicides)	
EPA 524.2 / 624 / 8260 (VOCs)	
EPA 525.2 / 625 / 8270 (SYOCs)	
EPA 8270 SIM / 8310 (PAHs / PNAs)	
CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	
LUFF 5 Metals (200.7 / 200.8 / 6010 / 6020)	
Lead (200.7 / 200.8 / 6010 / 6020)	

Relinquished By: David Holland Date: 12/5 Time: 1600 Received By: GSO
Relinquished By: GSO Date: 12/6/16 Time: 0931 Received By: Maria T
Relinquished By: Date: Time: Received By:

ICE/t° 5.6 COMMENTS:
GOOD CONDITION _____
HEAD SPACE ABSENT _____
DECHLORINATED IN LAB _____
APPROPRIATE CONTAINERS _____
PRESERVED IN LAB _____
VOAS O&G METALS OTHER
PRESERVATION pH<2



Sample Receipt Checklist

Client Name: **Monterey Bay Analytical**
 Project Name: **MPWMD**

Date and Time Received: **12/6/2016 09:31**
 Date Logged: **12/6/2016**
 Received by: **Maria Venegas**
 Logged by: **Maria Venegas**

WorkOrder No: **1612181** Matrix: Water
 Carrier: Golden State Overnight

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No NA
 Sample/Temp Blank temperature Temp: 5.6°C NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No
 (Ice Type: BLUE ICE)

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:



MBAS

Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

Thursday, January 12, 2017

MPWMD
Jonathan Lear
P.O. Box 85
Monterey, CA 93442-0085

Lab Number: AB58027

Collection Date/Time: 12/2/2016 10:00
Submittal Date/Time: 12/2/2016 14:31

Sample Collector: LINDBERG T
Sample ID

Client Sample #:
Coliform Designation:

Sample Description: ASR-4 Back Flush

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	231		10		1/12/2017	BS
Aluminum, Total	EPA200.8	µg/L	Not Detected		10	1000	12/13/2016	SM
Ammonia-N	SM4500NH3 D	mg/L	Not Detected		0.05		12/2/2016	MW
Arsenic, Total	EPA200.8	µg/L	5		1	10	12/13/2016	SM
Barium, Total	EPA200.8	µg/L	52		10	1000	12/13/2016	SM
Bicarbonate (as HCO3-)	SM2320B	mg/L	282		10		1/12/2017	LRH
Boron	EPA200.7	mg/L	0.09		0.05		12/7/2016	MW
Bromide	EPA300.0	mg/L	0.3		0.1		12/2/2016	BS
Calcium	EPA200.7	mg/L	68		0.5		12/7/2016	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected		10		12/12/2016	MP
Chloramines	SM4500-Cl G	mg/L	Not Detected		0.05		12/2/2016	LRH
Chloride	EPA300.0	mg/L	123		1	250	12/2/2016	BS
DOC	SM5310C	mg/L	0.9		0.2		12/27/2016	MW
Fluoride	EPA300.0	mg/L	0.2		0.1	2.0	12/2/2016	BS
Gross Alpha	EPA900.0	pCi/L	3.91 ± 2.17	E		15	12/14/2016	FGL
Haloacetic Acids	EPA552	µg/L	Not Detected	E		60	12/8/2016	FGL
Iron	EPA200.7	µg/L	153		10	300	12/7/2016	MW
Iron, Dissolved	EPA200.7	µg/L	23		10	300	12/7/2016	MW
Kjehldahl Nitrogen	SM4500-NH3 B,C.	mg/L	1.3		0.5		12/8/2016	BS
Lithium	EPA200.8	µg/L	34		1		12/13/2016	SM
Magnesium	EPA200.7	mg/L	14		0.5		12/7/2016	MW
Manganese, Dissolved	EPA200.7	µg/L	21		10	50	12/7/2016	MW
Manganese, Total	EPA200.7	µg/L	22		10	50	12/7/2016	MW
Mercury, Total	EPA200.8	µg/L	Not Detected		0.5	2	12/13/2016	SM
Methane	EPA174/175	µg/L	1.2	E	0.1		12/12/2016	MCCAM
Molybdenum, Total	EPA200.8	µg/L	6		1	1000	12/13/2016	SM
Nickel, Total	EPA200.8	µg/L	68		10	100	12/13/2016	SM
Nitrate as NO3	EPA300.0	mg/L	2		1	45	12/2/2016	BS
Nitrate as NO3-N	EPA300.0	mg/L	0.5		0.1	10	12/2/2016	BS
Nitrate+Nitrite as N	EPA300.0	mg/L	0.8		0.1		12/2/2016	BS
Nitrite as NO2-N	EPA300.0	mg/L	0.3		0.1	1.0	12/2/2016	BS
o-Phosphate-P, Dissolved	EPA300.0	mg/L	Not Detected		0.1		12/2/2016	BS
pH (Laboratory)	SM4500-H+B	pH (H)	7.3		0.1		12/2/2016	BS
Phosphorus, Total	HACH 8190	mg/L	0.04		0.03		12/13/2016	LRH
Potassium	EPA200.7	mg/L	4.0		0.5		12/7/2016	MW
QC Anion Sum x 100	Calculation	%	98%				1/12/2017	LRH
QC Anion-Cation Balance	Calculation	%	-4				1/12/2017	DH
QC Cation Sum x 100	Calculation	%	90%				1/12/2017	DH
QC Ratio TDS/SEC	Calculation		0.57				12/9/2016	MP
Selenium, Total	EPA200.8	µg/L	2		2	50	12/13/2016	SM
Silica as SiO2, Total	EPA200.7	mg/L	40		0.5		12/7/2016	MW

mg/L: Milligrams per liter (=ppm)

µg/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

D = Method deviates from standard method due to insufficient sample for MS/MSD

T = Temperature Exceedance

MPWMD
 Jonathan Lear
 P.O. Box 85
 Monterey, CA 93442-0085

Client Sample #:
 Coliform Designation:

Lab Number: AB58027

Collection Date/Time: 12/2/2016 10:00
 Submittal Date/Time: 12/2/2016 14:31

Sample Collector: LINDBERG T
 Sample ID

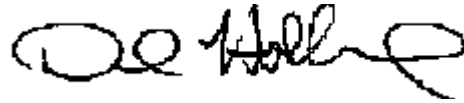
Client Sample #:
 Coliform Designation:

Sample Description: ASR-4 Back Flush

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Sodium	EPA200.7	mg/L	88		0.5		12/7/2016	MW
Specific Conductance (E.C)	SM2510B	µmhos/cm	937		1	900	12/6/2016	HM
Strontium, Total	EPA200.8	µg/L	497	BB	5		12/13/2016	SM
Sulfate	EPA300.0	mg/L	53		1	250	12/2/2016	BS
TOC	SM5310C	mg/L	0.9		0.2		12/27/2016	MW
Total Diss. Solids	SM2540C	mg/L	537		10	500	12/7/2016	MP
Total Nitrogen	Calculation	mg/L	2.1		0.5		12/8/2016	MP
Total Radium 226	EPA903.0	pCi/L	0.578 ± 0.234	E		3	12/13/2016	FGL
Trihalomethanes	EPA524.2	µg/L	Not Detected	E		80	12/6/2016	FGL
Uranium by ICP/MS	EPA200.8	µg/L	1		1	30	12/13/2016	SM
Vanadium, Total	EPA200.8	µg/L	7		5	1000	12/13/2016	SM
Zinc, Total	EPA200.8	µg/L	Not Detected		20	5000	12/13/2016	SM

Sample Comments: BB: Sample > 4x spike concentration.

Report Approved by:



David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

D = Method deviates from standard method due to insufficient sample for MS/MSD

T = Temperature Exceedance



MBAS

Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

Thursday, January 12, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB58028

Collection Date/Time: 12/2/2016 13:40

Submittal Date/Time: 12/2/2016 14:31

Sample Collector: LINDBERG T

Sample ID

Client Sample #:

Coliform Designation:

Sample Description: ASR-1

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	228		10		12/12/2016	BS
Aluminum, Total	EPA200.8	µg/L	Not Detected		10	1000	12/13/2016	SM
Ammonia-N	SM4500NH3 D	mg/L	0.09		0.05		12/2/2016	MW
Arsenic, Total	EPA200.8	µg/L	1		1	10	12/13/2016	SM
Barium, Total	EPA200.8	µg/L	71		10	1000	12/13/2016	SM
Bicarbonate (as HCO3-)	SM2320B	mg/L	278		10		12/12/2016	MP
Boron	EPA200.7	mg/L	0.11		0.05		12/7/2016	MW
Bromide	EPA300.0	mg/L	0.3		0.1		12/2/2016	BS
Calcium	EPA200.7	mg/L	81		0.5		12/7/2016	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected		10		12/12/2016	MP
Chloramines	SM4500-Cl G	mg/L	Not Detected		0.05		12/2/2016	LRH
Chloride	EPA300.0	mg/L	112		1	250	12/2/2016	BS
DOC	SM5310C	mg/L	1.4		0.2		12/27/2016	MW
Fluoride	EPA300.0	mg/L	0.3		0.1	2.0	12/2/2016	BS
Gross Alpha	EPA900.0	pCi/L	2.64 ± 1.89	E		15	12/14/2016	FGL
Haloacetic Acids	EPA552	µg/L	Not Detected	E		60	12/8/2016	FGL
Iron	EPA200.7	µg/L	16		10	300	12/7/2016	MW
Iron, Dissolved	EPA200.7	µg/L	12		10	300	12/7/2016	MW
Kjehldahl Nitrogen	SM4500-NH3 B,C.	mg/L	0.5		0.5		12/8/2016	BS
Lithium	EPA200.8	µg/L	29		1		12/13/2016	SM
Magnesium	EPA200.7	mg/L	20		0.5		12/7/2016	MW
Manganese, Dissolved	EPA200.7	µg/L	22		10	50	12/7/2016	MW
Manganese, Total	EPA200.7	µg/L	21		10	50	12/7/2016	MW
Mercury, Total	EPA200.8	µg/L	Not Detected		0.5	2	12/13/2016	SM
Methane	EPA174/175	µg/L	3.9	E	0.1		12/12/2016	MCCAM
Molybdenum, Total	EPA200.8	µg/L	7		1	1000	12/13/2016	SM
Nickel, Total	EPA200.8	µg/L	Not Detected		10	100	12/13/2016	SM
Nitrate as NO3	EPA300.0	mg/L	1		1	45	12/2/2016	BS
Nitrate as NO3-N	EPA300.0	mg/L	0.2		0.1	10	12/2/2016	BS
Nitrate+Nitrite as N	EPA300.0	mg/L	0.5		0.1		12/2/2016	BS
Nitrite as NO2-N	EPA300.0	mg/L	0.3		0.1	1.0	12/2/2016	BS
o-Phosphate-P, Dissolved	EPA300.0	mg/L	Not Detected		0.1		12/2/2016	BS
pH (Laboratory)	SM4500-H+B	pH (H)	7.2		0.1		12/2/2016	BS
Phosphorus, Total	HACH 8190	mg/L	0.13		0.03		12/13/2016	LRH
Potassium	EPA200.7	mg/L	4.6		0.5		12/7/2016	MW
QC Anion Sum x 100	Calculation	%	102%				12/12/2016	MP
QC Anion-Cation Balance	Calculation	%	-5				12/12/2016	MP
QC Cation Sum x 100	Calculation	%	93%				12/12/2016	MW
QC Ratio TDS/SEC	Calculation		0.61				12/9/2016	MP
Selenium, Total	EPA200.8	µg/L	2		2	50	12/13/2016	SM
Silica as SiO2, Total	EPA200.7	mg/L	37		0.5		12/7/2016	MW

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

D = Method deviates from standard method due to insufficient sample for MS/MSD

T = Temperature Exceedance

MPWMD
 Jonathan Lear
 P.O. Box 85
 Monterey, CA 93442-0085

Client Sample #:
 Coliform Designation:

Lab Number: AB58028
 Collection Date/Time: 12/2/2016 13:40
 Submittal Date/Time: 12/2/2016 14:31

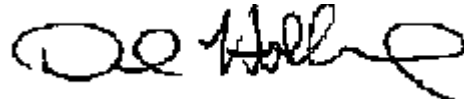
Sample Collector: LINDBERG T
 Sample ID

Sample Description: ASR-1

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Sodium	EPA200.7	mg/L	72		0.5		12/7/2016	MW
Specific Conductance (E.C)	SM2510B	µmhos/cm	962		1	900	12/6/2016	HM
Strontium, Total	EPA200.8	µg/L	402	BB	5		12/13/2016	SM
Sulfate	EPA300.0	mg/L	100		1	250	12/2/2016	BS
TOC	SM5310C	mg/L	1.3		0.2		12/27/2016	MW
Total Diss. Solids	SM2540C	mg/L	583		10	500	12/7/2016	MP
Total Nitrogen	Calculation	mg/L	1.0		0.5		12/8/2016	MP
Total Radium 226	EPA903.0	pCi/L	1.33 ± 0.340	E		3	12/15/2016	FGL
Trihalomethanes	EPA524.2	µg/L	14.8	E		80	12/6/2016	FGL
Uranium by ICP/MS	EPA200.8	µg/L	1		1	30	12/13/2016	SM
Vanadium, Total	EPA200.8	µg/L	Not Detected		5	1000	12/13/2016	SM
Zinc, Total	EPA200.8	µg/L	70		20	5000	12/13/2016	SM

Sample Comments: BB: Sample > 4x spike concentration.

Report Approved by:



David Holland, Laboratory Director

December 20, 2016

Monterey Bay Analytical Services
 4 Justin Court
 Monterey, CA 93940

Lab ID : SP 1614533
 Customer : 2-19144

Laboratory Report

Introduction: This report package contains total of 9 pages divided into 3 sections:

Case Narrative (2 pages) : An overview of the work performed at FGL.
 Sample Results (4 pages) : Results for each sample submitted.
 Quality Control (3 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
ASR-4 Backflush	12/02/2016	12/06/2016	SP 1614533-001	W
ASR-1	12/02/2016	12/06/2016	SP 1614533-002	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 6 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Organic QC

551.1	12/06/2016:217779 All analysis quality controls are within established criteria, except: The following note applies to Decafluorobiphenyl: 362 Surrogates are qualified on Control Chart Limits, these are CCV limits. See individual sample reports.
	12/06/2016:214619 All preparation quality controls are within established criteria, except: The following note applies to Dibromochloromethane, Bromoform, Decafluorobiphenyl: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
552	12/07/2016:214679 All preparation quality controls are within established criteria, except: The following note applies to Dibromoacetic Acid, Monobromoacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid, Monochloroacetic Acid: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

December 20, 2016
Monterey Bay Analytical Services

Lab ID : SP 1614533
Customer : 2-19144

Organic QC

552.2	12/08/2016:217890 All analysis quality controls are within established criteria.
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Radio QC

900.0	12/14/2016:218286 All analysis quality controls are within established criteria.
	12/14/2016:218288 All analysis quality controls are within established criteria.
	12/13/2016:214878 All preparation quality controls are within established criteria.
903.0	12/13/2016:218172 All analysis quality controls are within established criteria.
	12/15/2016:218172 All analysis quality controls are within established criteria.
	12/07/2016:214680 All preparation quality controls are within established criteria.

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2016-12-21



December 20, 2016

Lab ID : SP 1614533-001

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : December 2, 2016-10:00

Sampled By : T. Lindberg

Received On : December 6, 2016-13:40

Matrix : Water

Description : ASR-4 Backflush

Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	103	80-120	%		551.1	12/06/16:214619	551.1	12/06/16:217779
Bromodichloromethane	ND	0.5	ug/L		551.1	12/06/16:214619	551.1	12/06/16:217779
Bromoform	ND	0.5	ug/L		551.1	12/06/16:214619	551.1	12/06/16:217779
Chloroform	ND	0.5	ug/L		551.1	12/06/16:214619	551.1	12/06/16:217779
Dibromochloromethane	ND	0.5	ug/L		551.1	12/06/16:214619	551.1	12/06/16:217779
Total Trihalomethanes	ND	--	ug/L		551.1	12/06/16:214619	551.1	12/06/16:217779
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	110	70-130	%		552	12/07/16:214679	552.2	12/08/16:217890
Bromoacetic Acid	ND	1	ug/L		552	12/07/16:214679	552.2	12/08/16:217890
Chloroacetic Acid	ND	2	ug/L		552	12/07/16:214679	552.2	12/08/16:217890
Dibromoacetic Acid	ND	1	ug/L		552	12/07/16:214679	552.2	12/08/16:217890
Dichloroacetic Acid	ND	1	ug/L		552	12/07/16:214679	552.2	12/08/16:217890
Trichloroacetic Acid	ND	1	ug/L		552	12/07/16:214679	552.2	12/08/16:217890
Haloacetic acids (five)	ND	--	ug/L		552	12/07/16:214679	552.2	12/08/16:217890

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



December 20, 2016

Lab ID : SP 1614533-001
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : December 2, 2016-10:00
Sampled By : T. Lindberg
Received On : December 6, 2016-13:40
Matrix : Water

Description : ASR-4 Backflush
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	3.91 ± 2.17	2.23	pCi/L	15/5	900.0	12/13/16-07:19 2P1614878	900.0	12/14/16-09:00 2A1618288
Total Alpha Radium (226)	0.578 ± 0.234	0.363	pCi/L	3	903.0	12/07/16-18:45 2P1614680	903.0	12/13/16-12:40 2A1618172

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



December 20, 2016

Lab ID : SP 1614533-002

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : December 2, 2016-13:40

Sampled By : T. Lindberg

Received On : December 6, 2016-13:40

Matrix : Water

Description : ASR-1
Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	111	80-120	%		551.1	12/06/16:214619	551.1	12/06/16:217779
Bromodichloromethane	4.0	0.5	ug/L		551.1	12/06/16:214619	551.1	12/06/16:217779
Bromoform	ND	0.5	ug/L		551.1	12/06/16:214619	551.1	12/06/16:217779
Chloroform	10.1	0.5	ug/L		551.1	12/06/16:214619	551.1	12/06/16:217779
Dibromochloromethane	0.7	0.5	ug/L		551.1	12/06/16:214619	551.1	12/06/16:217779
Total Trihalomethanes	14.8	--	ug/L		551.1	12/06/16:214619	551.1	12/06/16:217779
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	107	70-130	%		552	12/07/16:214679	552.2	12/08/16:217890
Bromoacetic Acid	ND	1	ug/L		552	12/07/16:214679	552.2	12/08/16:217890
Chloroacetic Acid	ND	2	ug/L		552	12/07/16:214679	552.2	12/08/16:217890
Dibromoacetic Acid	ND	1	ug/L		552	12/07/16:214679	552.2	12/08/16:217890
Dichloroacetic Acid	ND	1	ug/L		552	12/07/16:214679	552.2	12/08/16:217890
Trichloroacetic Acid	ND	1	ug/L		552	12/07/16:214679	552.2	12/08/16:217890
Haloacetic acids (five)	ND	--	ug/L		552	12/07/16:214679	552.2	12/08/16:217890

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



December 20, 2016

Lab ID : SP 1614533-002
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : December 2, 2016-13:40
Sampled By : T. Lindberg
Received On : December 6, 2016-13:40
Matrix : Water

Description : ASR-1
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	2.64 ± 1.89	1.96	pCi/L	15/5	900.0	12/13/16-07:19 2P1614878	900.0	12/14/16-11:00 2A1618286
Total Alpha Radium (226)	1.33 ± 0.340	0.363	pCi/L	3	903.0	12/07/16-18:45 2P1614680	903.0	12/15/16-13:00 2A1618172

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

December 20, 2016
Monterey Bay Analytical Services

Lab ID : SP 1614533
Customer : 2-19144

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic Bromodichloromethane	551.1	12/06/16:214619SBL (SP 1614528-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.820	101 %	80-120	
			MS	ug/L	10.07	115 %	80-120	
			MSD	ug/L	10.01	104 %	80-120	
	MSRPD	ug/L	20.02	9.9%	≤20			
	551.1	12/06/16:217779SBL	CCV	ug/L	83.33	91.9 %	80-120	
			CCV	ug/L	166.7	109 %	80-120	
Bromoform	551.1	12/06/16:214619SBL (SP 1614528-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.820	112 %	80-120	435
			MS	ug/L	10.07	124 %	80-120	
			MSD	ug/L	10.01	114 %	80-120	
	MSRPD	ug/L	20.02	9.7%	≤20			
	551.1	12/06/16:217779SBL	CCV	ug/L	83.33	105 %	80-120	
			CCV	ug/L	166.7	118 %	80-120	
Chloroform	551.1	12/06/16:214619SBL (SP 1614528-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.820	97.8 %	80-120	
			MS	ug/L	10.07	117 %	80-120	
			MSD	ug/L	10.01	104 %	80-120	
	MSRPD	ug/L	20.02	9.0%	≤20			
	551.1	12/06/16:217779SBL	CCV	ug/L	83.33	90.4 %	80-120	
			CCV	ug/L	166.7	111 %	80-120	
Decafluorobiphenyl	551.1	12/06/16:214619SBL (SP 1614528-001)	Blank	ug/L	19.51	120 %	80-120	
			LCS	ug/L	19.64	101 %	80-120	435
			MS	ug/L	20.15	127 %	80-120	
			MSD	ug/L	20.02	119 %	80-120	
	MSRPD	ug/L	20.02	7.8%	≤20.0			
	551.1	12/06/16:217779SBL	CCV	ug/L	166.7	177 %	80-120	362
			CCV	ug/L	333.3	110 %	80-120	
Dibromochloromethane	551.1	12/06/16:214619SBL (SP 1614528-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.820	109 %	80-120	435
			MS	ug/L	10.07	123 %	80-120	
			MSD	ug/L	10.01	112 %	80-120	
	MSRPD	ug/L	20.02	10.3%	≤20			
	551.1	12/06/16:217779SBL	CCV	ug/L	83.33	102 %	80-120	
			CCV	ug/L	166.7	116 %	80-120	
2,3-Dibromopropionic Acid	552	12/07/16:214679SBL (SP 1614528-001)	Blank	ug/L	5.000	113 %	70-130	
			LCS	ug/L	5.000	95.9 %	70-130	
			MS	ug/L	5.000	125 %	70-130	
			MSD	ug/L	5.000	120 %	70-130	
			MSRPD	ug/L	5.000	3.9%	≤20.0	
Dibromoacetic Acid	552	12/07/16:214679SBL (SP 1614528-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	108 %	70-130	435
			MS	ug/L	10.00	152 %	70-130	
			MSD	ug/L	10.00	170 %	70-130	435
			MSRPD	ug/L	5.000	11.3%	≤20.0	
Dichloroacetic Acid	552	12/07/16:214679SBL (SP 1614528-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	119 %	70-130	435
			MS	ug/L	10.00	167 %	70-130	
			MSD	ug/L	10.00	185 %	70-130	435
			MSRPD	ug/L	5.000	10.6%	≤20.0	
Monobromoacetic Acid	552	12/07/16:214679SBL (SP 1614528-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	103 %	70-130	435
			MS	ug/L	10.00	141 %	70-130	
			MSD	ug/L	10.00	155 %	70-130	435
			MSRPD	ug/L	5.000	9.6%	≤20.0	

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Monochloroacetic Acid	552	12/07/16:214679SBL (SP 1614528-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	10.00	105 %	70-130	
			MS	ug/L	10.00	143 %	70-130	435
			MSD	ug/L	10.00	159 %	70-130	435
			MSRPD	ug/L	5.000	10.5%	≤20.0	
Trichloroacetic Acid	552	12/07/16:214679SBL (SP 1614528-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	107 %	70-130	
			MS	ug/L	10.00	156 %	70-130	435
			MSD	ug/L	10.00	178 %	70-130	435
			MSRPD	ug/L	5.000	13.7%	≤20.0	
2,3-Dibromopropionic Acid	552.2	12/08/16:217890SBL	CCV	ug/L	75.00	85.9 %	70-130	
			CCV	ug/L	50.00	99.9 %	70-130	
Dibromoacetic Acid	552.2	12/08/16:217890SBL	CCV	ug/L	150.0	120 %	70-130	
			CCV	ug/L	100.0	116 %	70-130	
Dichloroacetic Acid	552.2	12/08/16:217890SBL	CCV	ug/L	150.0	126 %	70-130	
			CCV	ug/L	100.0	124 %	70-130	
Monobromoacetic Acid	552.2	12/08/16:217890SBL	CCV	ug/L	150.0	96.0 %	70-130	
			CCV	ug/L	100.0	107 %	70-130	
Monochloroacetic Acid	552.2	12/08/16:217890SBL	CCV	ug/L	150.0	88.4 %	70-130	
			CCV	ug/L	100.0	112 %	70-130	
Trichloroacetic Acid	552.2	12/08/16:217890SBL	CCV	ug/L	150.0	127 %	70-130	
			CCV	ug/L	100.0	110 %	70-130	
Definition								
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.								
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.								
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.								
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.								
ND : Non-detect - Result was below the DQO listed for the analyte.								
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								
Explanation								
362 : Surrogates are qualified on Control Chart Limits, these are CCV limits. See individual sample reports.								
435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.								

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio Alpha	900.0	12/14/16:218286caa	CCV CCB	cpm cpm	8516	42.4 % 0.100	39 - 48 0.14	
	900.0	12/14/16:218288caa	CCV CCB	cpm cpm	8516	41.0 % 0.1200	38 - 47 0.18	
Gross Alpha	900.0	12/13/16:214878RMM (SP 1614650-001)	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 107.4 107.4 107.4 107.4	0.77 95.5 % 129 % 107 % 18.8%	3 75-125 60-140 60-140 ≤30	
Alpha	903.0	12/15/16:218172caa	CCV CCB	cpm cpm	8517	39.9 % 0.0600	39 - 47 0.16	
Total Alpha Radium (226)	903.0	12/07/16:214680emv	RgBlk LCS BS BSD BSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 21.86 21.86 21.86 21.86	0.008 61.6 % 53.7 % 48.8 % 9.5%	2 52-107 43-111 43-111 ≤35.5	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

Client: Monterey Bay Analytical Services Customer Number: 2019144 Address: 4 Justin Court Monterey, CA 93940 Phone: (831)375-6227 Fax: (831)641-0734 Email Address: info@mbasinc.com Contact Person: David Holland Project Name: MPWMD Purchase Order Number: Quote Number:				Lab Number: 1614533		TEST DESCRIPTION AND ANALYSES REQUESTED																
Rush Analysis: <input type="checkbox"/> 5 Day <input type="checkbox"/> 4 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> 24 hour Rush pre-approval by lab (initials): _____ Electronic Data Transfer: <input type="checkbox"/> No <input type="checkbox"/> State <input type="checkbox"/> Client Other: _____				Method of Sampling: Composite (C) Grab (G) Number of Containers Type of Containers: (G) Glass (P) Plastic (V) VOA (MT) Metal Tube Potable (P) Non-Potable (NP) Ag Water (AgW) (SW) Surface Water (MW) Monitoring Well (GW) Ground Water (TB) Travel Blank (YW) Waste Water (DW) Drinking Water (S) Soil (SLG) Sludge (SLD) Solid (O) Oil Bac T: (Sys) System (SRC) Source (W) Waste Bact: (ROUT) Routine (RPT) Repeat (OTH) Other (RPL) Replace (LT) Leaf Tissue (PET) Petiole Tissue (PRD) Produce Preservative: (1) NaOH + ZnAc, (2) NaOH, (3) HCl (4) H2SO4, (5) HNO3, (6) Na2S2O3, (7) Other: _____																		
Sampler(s): T. Lindberg Sampling Fee: _____ Pickup Fee: _____ Compositor Setup Date: _____ Time: _____																						
Samp Num	Location Description	Date Sampled	Time Sampled																			
1.	ASR-4 Backflush	12/2/16	10:00	G	7	Var																
2.	ASR-1	12/2/16	13:40	G	7	Var																
Remarks AB58027, AB58028 <i>534 222817</i>				Relinquished Date: Time: <i>12/5 1600</i>				Relinquished Date: Time: <i>12/2/16 1340</i>				Relinquished Date: Time: _____				Relinquished Date: Time: _____						
Received By: Date: Time: <i>[Signature]</i>				Received By: Date: Time: <i>[Signature]</i>				Received By: Date: Time: _____				Received By: Date: Time: _____										

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

- 1. Number of ice chests/packages received: 1
- 2. Shipper tracking numbers 534222817
- 3. Were samples received in a chilled condition?
Temps: 6 / / / / / /
- 4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
- 5. Do the number of bottles received agree with the COC? Yes No N/A
- 6. Verify sample date, time, sampler Yes No N/A
- 7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) Yes No
- 8. Were sample custody seals intact? Yes No N/A

Sample Verification, Labeling and Distribution:

- 1. Were all requested analyses understood and acceptable? Yes No
- 2. Did bottle labels correspond with the client's ID's? Yes No
- 3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
 [Exception: Oil & Grease, VOA and CrVI verified in lab]
- 4. VOAs checked for Headspace? Yes No N/A
- 5. Were all analyses within holding times at time of receipt? Yes No
- 6. Have rush or project due dates been checked and accepted? Yes No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and Approved By Shawn Peck  Digitally signed by Shawn Peck
Title: Sample Receiving
Date: 12/13/2016-09:42:02

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2019144)
Monterey Bay Analytical Services
SP 1614533
SRP-12/13/2016-09:42:02

MPWMD
 Jonathan Lear
 P.O. Box 85
 Monterey, CA 93442-0085



4 Justin Court Suite D, Monterey, CA 93940
 831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

Lab Number: AB58431

Collection Date/Time: 12/8/2016 13:00
 Submittal Date/Time: 12/8/2016 14:11

Sample Collector: LEAR J
 Sample ID

Client Sample #:

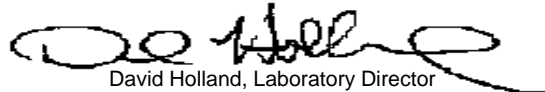
Sample Description: PCAE (D)										
Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	138	1		10	2	12/19/2016	10:00:00 AM	BS
Aluminum, Total	EPA200.8	µg/L	Not Detected	2		10	10	12/13/2016	3:42:00 PM	SM
Ammonia-N	SM4500NH3	mg/L	Not Detected	1		0.05	0.05	12/16/2016	11:00:00 AM	MW
Arsenic, Total	EPA200.8	µg/L	7	2		1	0.2	12/13/2016	3:42:00 PM	SM
Barium, Total	EPA200.8	µg/L	64	2		10	0.4	12/13/2016	3:42:00 PM	SM
Bicarbonate (as HCO3-)	SM2320B	mg/L	168	1		10	2	12/19/2016	1:04:00 PM	LRH
Boron	EPA200.7	mg/L	0.07	1		0.05	0.01	12/19/2016	2:28:00 PM	MW
Bromide	EPA300.0	mg/L	0.2	1		0.1	0.01	12/8/2016	4:21:00 PM	HM
Calcium	EPA200.7	mg/L	37	1		0.5	0.1	12/19/2016	2:28:00 PM	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected	1		10	2	12/19/2016	1:04:00 PM	LRH
Chloramines	SM4500-Cl	mg/L	Not Detected	1		0.05	0.05	12/8/2016	4:10:00 PM	SM
Chloride	EPA300.0	mg/L	76	1		1	0.25	12/8/2016	4:21:00 PM	HM
DOC	SM5310C	mg/L	0.7	1		0.2	0.03	12/27/2016	1:53:00 PM	MW
Fluoride	EPA300.0	mg/L	0.4	1		0.1	0.02	12/8/2016	4:21:00 PM	HM
Gross Alpha	EPA900.0	pCi/L	0.498 ± 1.42	1	E			12/22/2016	12:00:00 PM	FGL
Haloacetic Acids	EPA552	µg/L	Not Detected	1	E			12/16/2016	12:00:00 PM	FGL
Iron	EPA200.7	µg/L	Not Detected	1		10	4	12/19/2016	2:28:00 PM	MW
Iron, Dissolved	EPA200.7	µg/L	Not Detected	1		10	4	12/19/2016	2:26:00 PM	MW
Kjehldahl Nitrogen	SM4500-NH	mg/L	Not Detected	1		0.5	0.5	12/29/2016	11:00:00 AM	BS
Lithium	EPA200.8	µg/L	21	2		1	0.2	12/13/2016	3:42:00 PM	SM
Magnesium	EPA200.7	mg/L	7.0	1		0.5	0.2	12/19/2016	2:28:00 PM	MW
Manganese, Dissolved	EPA200.7	µg/L	Not Detected	1		10	2	12/19/2016	2:26:00 PM	MW
Manganese, Total	EPA200.7	µg/L	Not Detected	1		10	2	12/19/2016	2:28:00 PM	MW
Mercury, Total	EPA200.8	µg/L	Not Detected	2	IJ	0.5	0.08	12/13/2016	3:42:00 PM	SM
Methane	EPA174/175	µg/L	Not Detected	1	E	0.1	0.1	12/22/2016	11:22:00 AM	MCCAM
Molybdenum, Total	EPA200.8	µg/L	10	2		1	0.2	12/13/2016	3:42:00 PM	SM
Nickel, Total	EPA200.8	µg/L	26	2		10	0.2	12/13/2016	3:42:00 PM	SM
Nitrate as NO3	EPA300.0	mg/L	Not Detected	1		1	0.07	12/8/2016	4:21:00 PM	HM
Nitrate as NO3-N	EPA300.0	mg/L	Not Detected	1		0.1	0.01	12/8/2016	4:21:00 PM	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	0.3	1		0.1	0.02	12/8/2016	4:21:00 PM	HM
Nitrite as NO2-N	EPA300.0	mg/L	0.2	1		0.1	0.01	12/8/2016	4:21:00 PM	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	Not Detected	1		0.1	0.02	12/8/2016	4:21:00 PM	HM
pH (Laboratory)	SM4500-H+	pH (H)	7.6	1		0.1		12/8/2016	4:15:00 PM	BS
Phosphorus, Total	HACH 8190	mg/L	0.03	1		0.03	0.03	12/13/2016	3:57:00 PM	LRH
Potassium	EPA200.7	mg/L	3.5	1		0.5	0.3	12/19/2016	2:28:00 PM	MW
QC Anion Sum x 100	Calculation	%	93%	1				12/19/2016	1:04:00 PM	LRH
QC Anion-Cation Balance	Calculation	%	1	1				12/20/2016	8:36:00 AM	MW

mg/L: Milligrams per liter (=ppm) ug/L : Micrograms per liter (=ppb) PQL : Practical Quantitation Limit J = Result is less than PQL
 H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments.
 D = Method deviates from standard method due to insufficient sample for MS/MSD

QC Cation Sum x 100	Calculation	%	95%	1				12/20/2016	8:36:00 AM	MW
QC Ratio TDS/SEC	Calculation		0.50	1				12/21/2016	11:56:00 AM	MP
Selenium, Total	EPA200.8	µg/L	Not Detected	2	LM	2	1	12/13/2016	3:42:00 PM	SM
Silica as SiO ₂ , Total	EPA200.7	mg/L	46	1		0.5	0.3	12/19/2016	2:28:00 PM	MW
Sodium	EPA200.7	mg/L	68	1		0.5	0.2	12/19/2016	2:28:00 PM	MW
Specific Conductance (E.C)	SM2510B	µmhos/c	578	1		1	1	12/13/2016	3:25:00 PM	HM
Strontium, Total	EPA200.8	µg/L	206	2		5	1	12/13/2016	3:42:00 PM	SM
Sulfate	EPA300.0	mg/L	22	1		1	0.25	12/8/2016	4:21:00 PM	HM
TOC	SM5310C	mg/L	0.8	1		0.2	0.03	12/27/2016	1:53:00 PM	MW
Total Diss. Solids	SM2540C	mg/L	291	1		10	10	12/15/2016	10:30:00 AM	MP
Total Nitrogen	Calculation	mg/L	Not Detected	1		0.5	0.5	12/29/2016	5:09:00 PM	MP
Total Radium 226	EPA903.0	pCi/L	0.050 ± 0.120	1	E			12/28/2016	8:20:00 AM	FGL
Trihalomethanes	EPA524.2	µg/L	Not Detected	1	E			12/16/2016	12:00:00 PM	FGL
Uranium by ICP/MS	EPA200.8	µg/L	Not Detected	2		1	0.08	12/13/2016	3:42:00 PM	SM
Vanadium, Total	EPA200.8	µg/L	Not Detected	2		5	0.2	12/13/2016	3:42:00 PM	SM
Zinc, Total	EPA200.8	µg/L	24	2		20	20	12/13/2016	3:42:00 PM	SM

Sample Comments: LM: MS and/or MSD above acceptance limits. IJ: ICV and/or CCV above acceptance limits.

Report Approved by:



David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm) µg/L : Micrograms per liter (=ppb) PQL : Practical Quantitation Limit J = Result is less than PQL
 H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments.
 D = Method deviates from standard method due to insufficient sample for MS/MSD

December 29, 2016

Monterey Bay Analytical Services
 4 Justin Court
 Monterey, CA 93940

Lab ID : SP 1614903
 Customer : 2-19144

Laboratory Report

Introduction: This report package contains total of 7 pages divided into 3 sections:

Case Narrative (2 pages) : An overview of the work performed at FGL.
 Sample Results (2 pages) : Results for each sample submitted.
 Quality Control (3 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
PCAE(D)	12/08/2016	12/14/2016	SP 1614903-001	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived on ice. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Organic QC

551.1	12/16/2016:218353 All analysis quality controls are within established criteria, except: The following note applies to Decafluorobiphenyl: 362 Surrogates are qualified on Control Chart Limits, these are CCV limits. See individual sample reports.
	12/15/2016:215033 All preparation quality controls are within established criteria, except: The following note applies to Dibromochloromethane, Bromoform: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. The following note applies to Decafluorobiphenyl: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
552	12/14/2016:214954 All preparation quality controls are within established criteria, except: The following note applies to 2,3-Dibromopropionic Acid: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

December 29, 2016
Monterey Bay Analytical Services

Lab ID : SP 1614903
Customer : 2-19144

Organic QC

552.2	12/16/2016:218252 All analysis quality controls are within established criteria.
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Radio QC

900.0	12/22/2016:218740 All analysis quality controls are within established criteria.
	12/20/2016:215158 All preparation quality controls are within established criteria.
903.0	12/28/2016:218762 All analysis quality controls are within established criteria.
	12/20/2016:215191 All preparation quality controls are within established criteria.

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2016-12-29



December 29, 2016

Lab ID : SP 1614903-001
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : December 8, 2016-13:00
Sampled By : Jonathan Lear
Received On : December 14, 2016-11:20
Matrix : Water

Description : PCAE(D)
Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	101	80-120	%		551.1	12/15/16:215033	551.1	12/16/16:218353
Bromodichloromethane	ND	0.5	ug/L		551.1	12/15/16:215033	551.1	12/16/16:218353
Bromoform	ND	0.5	ug/L		551.1	12/15/16:215033	551.1	12/16/16:218353
Chloroform	ND	0.5	ug/L		551.1	12/15/16:215033	551.1	12/16/16:218353
Dibromochloromethane	ND	0.5	ug/L		551.1	12/15/16:215033	551.1	12/16/16:218353
Total Trihalomethanes	ND	--	ug/L		551.1	12/15/16:215033	551.1	12/16/16:218353
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	72.8	70-130	%		552	12/14/16:214954	552.2	12/16/16:218252
Bromoacetic Acid	ND	1	ug/L		552	12/14/16:214954	552.2	12/16/16:218252
Chloroacetic Acid	ND	2	ug/L		552	12/14/16:214954	552.2	12/16/16:218252
Dibromoacetic Acid	ND	1	ug/L		552	12/14/16:214954	552.2	12/16/16:218252
Dichloroacetic Acid	ND	1	ug/L		552	12/14/16:214954	552.2	12/16/16:218252
Trichloroacetic Acid	ND	1	ug/L		552	12/14/16:214954	552.2	12/16/16:218252
Haloacetic acids (five)	ND	--	ug/L		552	12/14/16:214954	552.2	12/16/16:218252

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



December 29, 2016

Lab ID : SP 1614903-001
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : December 8, 2016-13:00
Sampled By : Jonathan Lear
Received On : December 14, 2016-11:20
Matrix : Water

Description : PCAE(D)
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	0.498 ± 1.42	2.10	pCi/L	15/5	900.0	12/20/16-10:19 2P1615158	900.0	12/22/16-12:00 2A1618740
Total Alpha Radium (226)	0.050 ± 0.120	0.470	pCi/L	3	903.0	12/20/16-19:00 2P1615191	903.0	12/28/16-08:20 2A1618762

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



December 29, 2016
Monterey Bay Analytical Services

Lab ID : SP 1614903
Customer : 2-19144

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic Bromodichloromethane	551.1	12/15/16:215033SBL (SP 1614947-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.690	102 %	80-120	
			MS	ug/L	9.855	104 %	80-120	
			MSD	ug/L	9.937	111 %	80-120	
			MSRPD	ug/L	19.87	4.8 %	≤20	
	551.1	12/16/16:218353SBL	CCV	ug/L	83.33	85.0 %	80-120	
			CCV	ug/L	166.7	105 %	80-120	
Bromoform	551.1	12/15/16:215033SBL (SP 1614947-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.690	103 %	80-120	
			MS	ug/L	9.855	120 %	80-120	
			MSD	ug/L	9.937	130 %	80-120	435
			MSRPD	ug/L	19.87	4.2 %	≤20	
	551.1	12/16/16:218353SBL	CCV	ug/L	83.33	96.1 %	80-120	
			CCV	ug/L	166.7	116 %	80-120	
Chloroform	551.1	12/15/16:215033SBL (SP 1614947-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.690	105 %	80-120	
			MS	ug/L	9.855	114 %	80-120	
			MSD	ug/L	9.937	120 %	80-120	
			MSRPD	ug/L	19.87	4.7 %	≤20	
	551.1	12/16/16:218353SBL	CCV	ug/L	83.33	80.1 %	80-120	
			CCV	ug/L	166.7	110 %	80-120	
Decafluorobiphenyl	551.1	12/15/16:215033SBL (SP 1614947-001)	Blank	ug/L	19.34	86.9 %	80-120	
			LCS	ug/L	19.38	86.0 %	80-120	
			MS	ug/L	19.71	120 %	80-120	
			MSD	ug/L	19.87	95.6 %	80-120	
			MSRPD	ug/L	19.87	21.5 %	≤20.0	435
	551.1	12/16/16:218353SBL	CCV	ug/L	166.7	235 %	80-120	362
			CCV	ug/L	333.3	97.5 %	80-120	
Dibromochloromethane	551.1	12/15/16:215033SBL (SP 1614947-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.690	103 %	80-120	
			MS	ug/L	9.855	112 %	80-120	
			MSD	ug/L	9.937	123 %	80-120	435
			MSRPD	ug/L	19.87	5.4 %	≤20	
	551.1	12/16/16:218353SBL	CCV	ug/L	83.33	91.3 %	80-120	
			CCV	ug/L	166.7	114 %	80-120	
2,3-Dibromopropionic Acid	552	12/14/16:214954SBL (SP 1614727-001)	Blank	ug/L	5.000	78.1 %	70-130	
			LCS	ug/L	5.000	130 %	70-130	
			MS	ug/L	5.000	72.5 %	70-130	
			MSD	ug/L	5.000	68.2 %	70-130	435
			MSRPD	ug/L	5.000	0.21	≤1	
	552	12/14/16:214954SBL	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	87.8 %	70-130	
			MS	ug/L	10.00	89.3 %	70-130	
			MSD	ug/L	10.00	88.2 %	70-130	
			MSRPD	ug/L	5.000	1.3 %	≤20.0	
Dichloroacetic Acid	552	12/14/16:214954SBL (SP 1614727-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	83.7 %	70-130	
			MS	ug/L	10.00	92.7 %	70-130	
			MSD	ug/L	10.00	91.6 %	70-130	
			MSRPD	ug/L	5.000	1.2 %	≤20.0	
	552	12/14/16:214954SBL	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	87.7 %	70-130	
			MS	ug/L	10.00	88.6 %	70-130	
			MSD	ug/L	10.00	89.4 %	70-130	
			MSRPD	ug/L	5.000	1.0 %	≤20.0	

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Monochloroacetic Acid	552	12/14/16:214954SBL (SP 1614727-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	10.00	80.0 %	70-130	
			MS	ug/L	10.00	101 %	70-130	
			MSD	ug/L	10.00	97.9 %	70-130	
			MSRPD	ug/L	5.000	0.35	≤2	
Trichloroacetic Acid	552	12/14/16:214954SBL (SP 1614727-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	79.2 %	70-130	
			MS	ug/L	10.00	88.0 %	70-130	
			MSD	ug/L	10.00	89.0 %	70-130	
			MSRPD	ug/L	5.000	1.2%	≤20.0	
2,3-Dibromopropionic Acid	552.2	12/16/16:218252SBL	CCV	ug/L	50.00	117 %	70-130	
			CCV	ug/L	75.00	74.3 %	70-130	
Dibromoacetic Acid	552.2	12/16/16:218252SBL	CCV	ug/L	100.0	79.8 %	70-130	
			CCV	ug/L	150.0	91.7 %	70-130	
Dichloroacetic Acid	552.2	12/16/16:218252SBL	CCV	ug/L	100.0	78.0 %	70-130	
			CCV	ug/L	150.0	89.5 %	70-130	
Monobromoacetic Acid	552.2	12/16/16:218252SBL	CCV	ug/L	100.0	82.5 %	70-130	
			CCV	ug/L	150.0	89.9 %	70-130	
Monochloroacetic Acid	552.2	12/16/16:218252SBL	CCV	ug/L	100.0	81.6 %	70-130	
			CCV	ug/L	150.0	94.1 %	70-130	
Trichloroacetic Acid	552.2	12/16/16:218252SBL	CCV	ug/L	100.0	73.6 %	70-130	
			CCV	ug/L	150.0	85.5 %	70-130	
Definition								
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.								
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.								
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.								
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.								
ND : Non-detect - Result was below the DQO listed for the analyte.								
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								
Explanation								
362 : Surrogates are qualified on Control Chart Limits, these are CCV limits. See individual sample reports.								
435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.								

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	12/22/16:218740caa	CCV CCB	cpm cpm	8510	41.1 % 0.1400	39 - 47 0.16	
Gross Alpha	900.0	12/20/16:215158RMM (SP 1614875-001)	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 107.4 107.4 107.4 No Ref.	 0.29 113 % 82.2 % 85.6 % 3.9%	 3 75-125 60-140 60-140 ≤30	
Alpha	903.0	12/28/16:218762caa	CCV CCB	cpm cpm	8507	42.1 % 0.0800	39 - 47 0.19	
Total Alpha Radium (226)	903.0	12/20/16:215191emv	RgBlk LCS BS BSD BSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 21.86 21.86 21.86 21.86	 0.009 61.1 % 60.0 % 50.9 % 16.3%	 2 52-107 43-111 43-111 ≤35.5	

Definition	
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

- 1. Number of ice chests/packages received: 1
- 2. Shipper tracking numbers _____
- 3. Were samples received in a chilled condition?
Temps: ROI / _____ / _____ / _____ / _____ / _____ / _____
- 4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
- 5. Do the number of bottles received agree with the COC? Yes No N/A
- 6. Verify sample date, time, sampler Yes No N/A
- 7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) Yes No
- 8. Were sample custody seals intact? Yes No N/A

Sample Verification, Labeling and Distribution:

- 1. Were all requested analyses understood and acceptable? Yes No
- 2. Did bottle labels correspond with the client's ID's? Yes No
- 3. Were all bottles requiring sample preservation properly preserved? Yes No N/A **FGL**
[Exception: Oil & Grease, VOA and CrVI verified in lab]
- 4. VOAs checked for Headspace? Yes No N/A
- 5. Were all analyses within holding times at time of receipt? Yes No
- 6. Have rush or project due dates been checked and accepted? Yes No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and
Approved By

Milli A. Delgadillo



Digitally signed by Milli A. Delgadillo
Title: Sample Receiving
Date: 12/15/2016-10:12:55

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

- 1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

- 2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2019144)
Monterey Bay Analytical Services
SP 1614903
MAD-12/15/2016-10:12:55



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1612690

Report Created for: Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Project Contact: David Holland
Project P.O.:
Project Name: MPWMD

Project Received: 12/14/2016

Analytical Report reviewed & approved for release on 12/22/2016 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Bay Analytical
Project: MPWMD
WorkOrder: 1612690

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Bay Analytical
Date Received: 12/14/16 10:32
Date Prepared: 12/22/16
Project: MPWMD

WorkOrder: 1612690
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AB58431	1612690-001A	Water	12/08/2016 13:00	GC26	131730

Analytes	Result	RL	DF	Date Analyzed
Methane	ND	0.10	1	12/22/2016 11:22

Analyst(s): AK

 Angela Rydelius, Lab Manager



Quality Control Report

Client: Monterey Bay Analytical
Date Prepared: 12/21/16 - 12/22/16
Date Analyzed: 12/21/16 - 12/22/16
Instrument: GC26
Matrix: Water
Project: MPWMD

WorkOrder: 1612690
BatchID: 131730
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L
Sample ID: MB/LCS-131730

QC Summary Report for RSK175

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Methane	ND	1.26	0.10	1.17	-	108	70-130

QA/QC Officer



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1612690

ClientCode: MBAS

WaterTrax
 WriteOn
 EDF
 Excel
 EQulS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

David Holland
Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940
831-375-6227 FAX: 831-641-0734

Email: mweidner@mbasinc.com; Dholland@mbas
cc/3rd Party:
PO:
ProjectNo: MPWMD

Bill to:

Accounts Payable
Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 12/14/2016

Date Logged: 12/14/2016

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1612690-001	AB58431	Water	12/8/2016 13:00	<input type="checkbox"/>	A												

Test Legend:

1	RSK175_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Agustina Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY BAY ANALYTICAL

Project: MPWMD

Work Order: 1612690

Client Contact: David Holland

QC Level: LEVEL 2

Contact's Email: mweidner@mbasinc.com; Dholland@mbasinc.com;
4mbas@sbcglobal.net; info@mbasinc.com

Comments:

Date Logged: 12/14/2016

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1612690-001A	AB58431	Water	RSK175 <Methane_4>	3	VOA w/ HCl	<input type="checkbox"/>	12/8/2016 13:00	5 days	None	<input type="checkbox"/>	

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).

- 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.



Sample Receipt Checklist

Client Name: **Monterey Bay Analytical**
 Project Name: **MPWMD**

Date and Time Received: **12/14/2016 10:32**
 Date Logged: **12/14/2016**
 Received by: **Agustina Venegas**
 Logged by: **Agustina Venegas**

WorkOrder No: **1612690** Matrix: Water
 Carrier: Golden State Overnight

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No NA
 Sample/Temp Blank temperature Temp: 7.8°C NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No
 (Ice Type: BLUE ICE)

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:



Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

MPWMD
 Jonathan Lear
 P.O. Box 85
 Monterey, CA 93442-0085

Page 1 of 2

Tuesday, January 03, 2017

Lab Number: AB58237

Collection Date/Time: 12/6/2016 13:00 Sample Collector: LEAR J

Client Sample #:

Submittal Date/Time: 12/6/2016 14:40 Sample ID

Coliform Designation:

Sample Description: ASR2

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	209		10		12/12/2016	BS
Aluminum, Total	EPA200.8	µg/L	Not Detected		10	1000	12/13/2016	SM
Ammonia-N	SM4500NH3 D	mg/L	0.08		0.05		12/16/2016	MW
Arsenic, Total	EPA200.8	µg/L	1		1	10	12/13/2016	SM
Barium, Total	EPA200.8	µg/L	106		10	1000	12/13/2016	SM
Bicarbonate (as HCO3-)	SM2320B	mg/L	255		10		12/12/2016	MP
Boron	EPA200.7	mg/L	0.07		0.05		12/7/2016	MW
Bromide	EPA300.0	mg/L	0.3		0.1		12/7/2016	HM
Calcium	EPA200.7	mg/L	66		0.5		12/7/2016	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected		10		12/12/2016	MP
Chloramines	SM4500-Cl G	mg/L	Not Detected		0.05		12/6/2016	LRH
Chloride	EPA300.0	mg/L	102		1	250	12/7/2016	HM
DOC	SM5310C	mg/L	1.2		0.2		12/27/2016	MW
Fluoride	EPA300.0	mg/L	0.3		0.1	2.0	12/7/2016	HM
Gross Alpha	EPA900.0	pCi/L	2.24 ± 1.91	E		15	12/20/2016	FGL
Haloacetic Acids	EPA552	µg/L	Not Detected	E		60	12/16/2016	FGL
Iron	EPA200.7	µg/L	67		10	300	12/7/2016	MW
Iron, Dissolved	EPA200.7	µg/L	Not Detected		10	300	12/7/2016	MW
Kjeldahl Nitrogen	SM4500-NH3 B,	mg/L	0.9		0.5		12/22/2016	BS
Lithium	EPA200.8	µg/L	26		1		12/13/2016	SM
Magnesium	EPA200.7	mg/L	19		0.5		12/7/2016	MW
Manganese, Dissolved	EPA200.7	µg/L	15		10	50	12/7/2016	MW
Manganese, Total	EPA200.7	µg/L	16		10	50	12/7/2016	MW
Mercury, Total	EPA200.8	µg/L	2		0.5	2	12/13/2016	SM
Methane	EPA174/175	µg/L	1.9	E	0.1		12/12/2016	MCCAM
Molybdenum, Total	EPA200.8	µg/L	10		1	1000	12/13/2016	SM
Nickel, Total	EPA200.8	µg/L	Not Detected		10	100	12/13/2016	SM
Nitrate as NO3	EPA300.0	mg/L	Not Detected		1	45	12/7/2016	HM
Nitrate as NO3-N	EPA300.0	mg/L	0.1		0.1	10	12/7/2016	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	0.4		0.1		12/7/2016	HM
Nitrite as NO2-N	EPA300.0	mg/L	0.3		0.1	1.0	12/7/2016	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	0.2		0.1		12/7/2016	HM
pH (Laboratory)	SM4500-H+B	pH (H)	7.3		0.1		12/6/2016	BS

mg/L: Milligrams per liter ug/L : Micrograms per liter PQL : Practical Quantitation Limit MCL: Maximum Contamination Level

H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments. T = Temperature Exceedance

Lab Number: AB58237

Collection Date/Time: 12/6/2016 13:00 Sample Collector: LEAR J

Client Sample #:

Submittal Date/Time: 12/6/2016 14:40 Sample ID

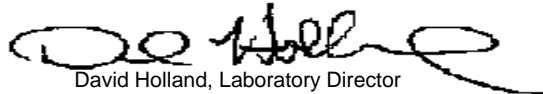
Coliform Designation:

Sample Description: ASR2

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst
Phosphorus, Total	HACH 8190	mg/L	0.23		0.03		12/13/2016	LRH
Potassium	EPA200.7	mg/L	4.5		0.5		12/7/2016	MW
QC Anion Sum x 100	Calculation	%	99%				12/12/2016	MP
QC Anion-Cation Balance	Calculation	%	-6				12/12/2016	MP
QC Cation Sum x 100	Calculation	%	87%				12/12/2016	MW
QC Ratio TDS/SEC	Calculation		0.59				12/9/2016	MP
Selenium, Total	EPA200.8	µg/L	2		2	50	12/13/2016	SM
Silica as SiO ₂ , Total	EPA200.7	mg/L	34		0.5		12/7/2016	MW
Sodium	EPA200.7	mg/L	59		0.5		12/7/2016	MW
Specific Conductance (E.C)	SM2510B	µmhos/cm	864		1	900	12/6/2016	HM
Strontium, Total	EPA200.8	µg/L	374		5		12/13/2016	SM
Sulfate	EPA300.0	mg/L	71		1	250	12/7/2016	HM
TOC	SM5310C	mg/L	1.2		0.2		12/27/2016	MW
Total Diss. Solids	SM2540C	mg/L	514		10	500	12/7/2016	MP
Total Nitrogen	Calculation	mg/L	1.3		0.5		12/22/2016	MP
Total Radium 226	EPA903.0	pCi/L	0.170 ± 0.132	E		3	12/20/2016	FGL
Trihalomethanes	EPA524.2	µg/L	25.3	E		80	12/12/2016	FGL
Uranium by ICP/MS	EPA200.8	µg/L	1		1	30	12/13/2016	SM
Vanadium, Total	EPA200.8	µg/L	Not Detected		5	1000	12/13/2016	SM
Zinc, Total	EPA200.8	µg/L	360		20	5000	12/13/2016	SM

Sample Comments: BB: Sample > 4x spike concentration.

Report Approved by:



David Holland, Laboratory Director

mg/L: Milligrams per liter µg/L : Micrograms per liter PQL : Practical Quantitation Limit MCL: Maximum Contamination Level

H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments. T = Temperature Exceedance

December 29, 2016

Monterey Bay Analytical Services
4 Justin Court
Monterey, CA 93940

Lab ID : SP 1614727
Customer : 2-19144

Laboratory Report

Introduction: This report package contains total of 7 pages divided into 3 sections:

Case Narrative (2 pages) : An overview of the work performed at FGL.
 Sample Results (2 pages) : Results for each sample submitted.
 Quality Control (3 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
ASR2	12/06/2016	12/09/2016	SP 1614727-001	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 6 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Organic QC

551.1	12/12/2016:218117 All analysis quality controls are within established criteria, except: The following note applies to Decafluorobiphenyl: 362 Surrogates are qualified on Control Chart Limits, these are CCV limits. See individual sample reports.
	12/12/2016:214855 All preparation quality controls are within established criteria.
552	12/14/2016:214954 All preparation quality controls are within established criteria, except: The following note applies to 2,3-Dibromopropionic Acid: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
552.2	12/16/2016:218252 All analysis quality controls are within established criteria.

December 29, 2016
Monterey Bay Analytical Services

Lab ID : SP 1614727
Customer : 2-19144

Radio QC

900.0	12/20/2016:218797 All analysis quality controls are within established criteria.
	12/15/2016:215013 All preparation quality controls are within established criteria.
903.0	12/20/2016:218458 All analysis quality controls are within established criteria.
	12/14/2016:214981 All preparation quality controls are within established criteria.

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2016-12-29



December 29, 2016

Lab ID : SP 1614727-001

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : December 6, 2016-13:00

Sampled By : Jonathan Lear

Received On : December 9, 2016-10:45

Matrix : Water

Description : ASR2

Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	104	80-120	%		551.1	12/12/16:214855	551.1	12/12/16:218117
Bromodichloromethane	6.7	0.5	ug/L		551.1	12/12/16:214855	551.1	12/12/16:218117
Bromoform	ND	0.5	ug/L		551.1	12/12/16:214855	551.1	12/12/16:218117
Chloroform	15.4	0.5	ug/L		551.1	12/12/16:214855	551.1	12/12/16:218117
Dibromochloromethane	3.2	0.5	ug/L		551.1	12/12/16:214855	551.1	12/12/16:218117
Total Trihalomethanes	25.3	--	ug/L		551.1	12/12/16:214855	551.1	12/12/16:218117
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	71.5	70-130	%		552	12/14/16:214954	552.2	12/16/16:218252
Bromoacetic Acid	ND	1	ug/L		552	12/14/16:214954	552.2	12/16/16:218252
Chloroacetic Acid	ND	2	ug/L		552	12/14/16:214954	552.2	12/16/16:218252
Dibromoacetic Acid	ND	1	ug/L		552	12/14/16:214954	552.2	12/16/16:218252
Dichloroacetic Acid	ND	1	ug/L		552	12/14/16:214954	552.2	12/16/16:218252
Trichloroacetic Acid	ND	1	ug/L		552	12/14/16:214954	552.2	12/16/16:218252
Haloacetic acids (five)	ND	--	ug/L		552	12/14/16:214954	552.2	12/16/16:218252

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



December 29, 2016

Lab ID : SP 1614727-001
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : December 6, 2016-13:00
Sampled By : Jonathan Lear
Received On : December 9, 2016-10:45
Matrix : Water

Description : ASR2
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	2.24 ± 1.91	2.32	pCi/L	15/5	900.0	12/15/16-10:22 2P1615013	900.0	12/20/16-09:00 2A1618797
Total Alpha Radium (226)	0.170 ± 0.132	0.363	pCi/L	3	903.0	12/14/16-19:15 2P1614981	903.0	12/20/16-16:00 2A1618458

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



December 29, 2016
Monterey Bay Analytical Services

Lab ID : SP 1614727
Customer : 2-19144

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note	
Organic Bromodichloromethane	551.1	12/12/16:214855SBL (CH 1679563-001)	Blank	ug/L		ND	<0.5		
			LCS	ug/L	9.398	113 %	80-120		
			MS	ug/L	9.944	102 %	80-120		
			MSD	ug/L	10.03	102 %	80-120		
	551.1	12/12/16:218117SBL	MSRPD	ug/L	20.05	0.7%	≤20		
			CCV	ug/L	83.33	92.2 %	80-120		
	551.1	12/12/16:218117SBL	CCV	ug/L	166.7	106 %	80-120		
			Blank	ug/L		ND	<0.5		
Bromoform	551.1	12/12/16:214855SBL (CH 1679563-001)	LCS	ug/L	9.398	120 %	80-120		
			MS	ug/L	9.944	114 %	80-120		
			MSD	ug/L	10.03	101 %	80-120		
			MSRPD	ug/L	20.05	10.3%	≤20		
	551.1	12/12/16:218117SBL	CCV	ug/L	83.33	105 %	80-120		
			CCV	ug/L	166.7	118 %	80-120		
	Chloroform	551.1	12/12/16:214855SBL (CH 1679563-001)	LCS	ug/L	9.398	111 %	80-120	
				MS	ug/L	9.944	104 %	80-120	
MSD				ug/L	10.03	97.0 %	80-120		
MSRPD				ug/L	20.05	5.9%	≤20		
551.1		12/12/16:218117SBL	CCV	ug/L	83.33	89.2 %	80-120		
			CCV	ug/L	166.7	104 %	80-120		
Decafluorobiphenyl		551.1	12/12/16:214855SBL (CH 1679563-001)	LCS	ug/L	18.80	112 %	80-120	
				MS	ug/L	19.89	108 %	80-120	
	MSD			ug/L	20.05	110 %	80-120		
	MSRPD			ug/L	20.05	3.1%	≤20.0		
	551.1	12/12/16:218117SBL	CCV	ug/L	166.7	139 %	80-120	362	
			CCV	ug/L	333.3	101 %	80-120		
	Dibromochloromethane	551.1	12/12/16:214855SBL (CH 1679563-001)	Blank	ug/L		ND	<0.5	
				LCS	ug/L	9.398	119 %	80-120	
MS				ug/L	9.944	105 %	80-120		
MSD				ug/L	10.03	101 %	80-120		
551.1		12/12/16:218117SBL	MSRPD	ug/L	20.05	3.0%	≤20		
			CCV	ug/L	83.33	99.5 %	80-120		
551.1		12/12/16:218117SBL	CCV	ug/L	166.7	114 %	80-120		
			Blank	ug/L		ND	<1		
2,3-Dibromopropionic Acid	552	12/14/16:214954SBL (SP 1614727-001)	LCS	ug/L	5.000	78.1 %	70-130		
			MS	ug/L	5.000	130 %	70-130		
			MSD	ug/L	5.000	72.5 %	70-130		
			MSRPD	ug/L	5.000	68.2 %	70-130	435	
	552	12/14/16:214954SBL	MSRPD	ug/L	5.000	0.21	≤1		
			Blank	ug/L		ND	<1		
	552	12/14/16:214954SBL	LCS	ug/L	10.00	87.8 %	70-130		
			MS	ug/L	10.00	89.3 %	70-130		
552	12/14/16:214954SBL	MSD	ug/L	10.00	88.2 %	70-130			
		MSRPD	ug/L	5.000	1.3%	≤20.0			
Dichloroacetic Acid	552	12/14/16:214954SBL (SP 1614727-001)	LCS	ug/L	10.00	83.7 %	70-130		
			MS	ug/L	10.00	92.7 %	70-130		
			MSD	ug/L	10.00	91.6 %	70-130		
			MSRPD	ug/L	5.000	1.2%	≤20.0		
	552	12/14/16:214954SBL	Blank	ug/L		ND	<1		
			LCS	ug/L	10.00	87.7 %	70-130		
	552	12/14/16:214954SBL	MS	ug/L	10.00	88.6 %	70-130		
			MSD	ug/L	10.00	89.4 %	70-130		
552	12/14/16:214954SBL	MSRPD	ug/L	5.000	1.0%	≤20.0			
		MSRPD	ug/L	5.000	1.0%	≤20.0			

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Monochloroacetic Acid	552	12/14/16:214954SBL (SP 1614727-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	10.00	80.0 %	70-130	
			MS	ug/L	10.00	101 %	70-130	
			MSD	ug/L	10.00	97.9 %	70-130	
			MSRPD	ug/L	5.000	0.35	≤2	
Trichloroacetic Acid	552	12/14/16:214954SBL (SP 1614727-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	79.2 %	70-130	
			MS	ug/L	10.00	88.0 %	70-130	
			MSD	ug/L	10.00	89.0 %	70-130	
			MSRPD	ug/L	5.000	1.2%	≤20.0	
2,3-Dibromopropionic Acid	552.2	12/16/16:218252SBL	CCV	ug/L	75.00	74.8 %	70-130	
			CCV	ug/L	50.00	117 %	70-130	
Dibromoacetic Acid	552.2	12/16/16:218252SBL	CCV	ug/L	150.0	92.6 %	70-130	
			CCV	ug/L	100.0	79.8 %	70-130	
Dichloroacetic Acid	552.2	12/16/16:218252SBL	CCV	ug/L	150.0	91.5 %	70-130	
			CCV	ug/L	100.0	78.0 %	70-130	
Monobromoacetic Acid	552.2	12/16/16:218252SBL	CCV	ug/L	150.0	93.1 %	70-130	
			CCV	ug/L	100.0	82.5 %	70-130	
Monochloroacetic Acid	552.2	12/16/16:218252SBL	CCV	ug/L	150.0	91.8 %	70-130	
			CCV	ug/L	100.0	81.6 %	70-130	
Trichloroacetic Acid	552.2	12/16/16:218252SBL	CCV	ug/L	150.0	86.8 %	70-130	
			CCV	ug/L	100.0	73.6 %	70-130	
Definition								
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.								
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.								
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.								
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.								
ND : Non-detect - Result was below the DQO listed for the analyte.								
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								
Explanation								
362 : Surrogates are qualified on Control Chart Limits, these are CCV limits. See individual sample reports.								
435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.								

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	12/20/16:218797caa	CCV CCB	cpm cpm	8515	42.1 % 0.0800	38 - 47 0.18	
Gross Alpha	900.0	12/15/16:215013RMM (SP 1614713-001)	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	107.4 107.4 107.4 107.4	1.05 106 % 106 % 111 % 4.8%	3 75-125 60-140 60-140 ≤30	
Alpha	903.0	12/20/16:218458caa	CCV CCB	cpm cpm	8512	42.1 % 0.100	39 - 47 0.16	
Total Alpha Radium (226)	903.0	12/14/16:214981emv	RgBlk LCS BS BSD BSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	21.86 21.86 21.86 21.86	-0.009 59.3 % 48.7 % 50.4 % 3.4%	2 52-107 43-111 43-111 ≤35.5	

Definition

CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
 CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
 Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
 RgBlk : Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
 LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
 MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
 MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
 BS : Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
 BSD : Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
 MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
 BSRPD : BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
 DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

1. Number of ice chests/packages received: 1
2. Shipper tracking numbers _____
3. Were samples received in a chilled condition?
Temps: 6 / _____ / _____ / _____ / _____ / _____ / _____
4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
5. Do the number of bottles received agree with the COC? Yes No N/A
6. Verify sample date, time, sampler Yes No N/A
7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) Yes No
8. Were sample custody seals intact? Yes No N/A

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? Yes No
2. Did bottle labels correspond with the client's ID's? Yes No
3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
[Exception: Oil & Grease, VOA and CrVI verified in lab]
4. VOAs checked for Headspace? Yes No N/A
5. Were all analyses within holding times at time of receipt? Yes No
6. Have rush or project due dates been checked and accepted? Yes No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and
Approved By

Alyssa P. Bavero



Digitally signed by Alyssa P. Bavero
Title: Sample Receiving
Date: 12/09/2016-12:44:11

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2019144)
Monterey Bay Analytical Services
SP 1614727
APB-12/09/2016-12:44:11



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1612431

Report Created for: Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Project Contact: David Holland
Project P.O.:
Project Name: MPWMD

Project Received: 12/09/2016

Analytical Report reviewed & approved for release on 12/15/2016 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Bay Analytical
Project: MPWMD
WorkOrder: 1612431

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Bay Analytical
Date Received: 12/9/16 10:00
Date Prepared: 12/12/16
Project: MPWMD

WorkOrder: 1612431
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR2	1612431-001A	Water	12/06/2016 13:00	GC26	131178

Analytes	Result	RL	DF	Date Analyzed
Methane	1.9	0.10	1	12/12/2016 16:50

Analyst(s): AK

 Angela Rydelius, Lab Manager



Quality Control Report

Client: Monterey Bay Analytical
Date Prepared: 12/12/16
Date Analyzed: 12/12/16
Instrument: GC26
Matrix: Water
Project: MPWMD

WorkOrder: 1612431
BatchID: 131178
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L
Sample ID: MB/LCS-131178

QC Summary Report for RSK175

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Methane	ND	1.23	0.10	1.17	-	105	70-130

 QA/QC Officer



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1612431

ClientCode: MBAS

WaterTrax
 WriteOn
 EDF
 Excel
 EQulS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

David Holland
Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940
831-375-6227 FAX: 831-641-0734

Email: mweidner@mbasinc.com; Dholland@mbas
cc/3rd Party:
PO:
ProjectNo: MPWMD

Bill to:

Accounts Payable
Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 12/09/2016

Date Logged: 12/09/2016

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1612431-001	ASR2	Water	12/6/2016 13:00	<input type="checkbox"/>	A												

Test Legend:

1	RSK175_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Briana Cutino

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY BAY ANALYTICAL

Project: MPWMD

Work Order: 1612431

Client Contact: David Holland

QC Level: LEVEL 2

Contact's Email: mweidner@mbasinc.com; Dholland@mbasinc.com;
4mbas@sbcglobal.net; info@mbasinc.com

Comments:

Date Logged: 12/9/2016

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1612431-001A	ASR2	Water	RSK175	2	VOA w/ HCl	<input type="checkbox"/>	12/6/2016 13:00	5 days	Trace	<input type="checkbox"/>	

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).

- 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.

1112431

McCAMPBELL ANALYTICAL, INC.

1534 WILLOW PASS ROAD
PITTSBURG, CA 94565-1701

Website: www.mccampbell.com Email: main@mccampbell.com

Telephone: (877) 252-9262 Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH 24 HR 48 HR 72 HR 5 DAY

GeoTracker EDF PDF Excel Write On (DW)

Report To: David Holland Bill To:

Company: Monterey Bay Analytical Services
4 Justin Ct. Suite D
Monterey, Ca 93940 E-Mail: info@mbasinc.com

Tele: (831) 375 - 6227 Fax: (831) 641-0734

Project #: Project Name: MPWMD

Project Location:

Sampler Signature: Jonathan Lear

Analysis Request

Other

Filter Samples for Metals analysis: Yes / No

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO ₃	Other	
ASR2		12/6/16	13:00	3	V	X						X	X		

MTBE / BTEX & TPH as Gas (602 / 8021 + 8015)	
MTBE / BTEX ONLY (EPA 602 / 8021)	
TPH as Diesel / Motor Oil (8015)	
Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	
Total Petroleum Hydrocarbons (418.1)	
EPA 502.2 / 601 / 8010 / 8021 (HVOCS)	
EPA 505/ 608 / 8081 (CI Pesticides)	
EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners	
EPA 507 / 8141 (NP Pesticides)	
EPA 515 / 8151 (Acidic CI Herbicides)	
EPA 524.2 / 624 / 8260 (VOCs)	
EPA 525.2 / 625 / 8270 (SVOCs)	
EPA 8270 SIM / 8310 (PAHs / PNAs)	
CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	
LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)	
Lead (200.7 / 200.8 / 6010 / 6020)	
Methane	X

Relinquished By: David Holland	Date: 12/8	Time: 1600	Received By: [Signature]
Relinquished By:	Date:	Time:	Received By: [Signature]
Relinquished By:	Date:	Time:	Received By:

ICE/° _____

GOOD CONDITION _____

HEAD SPACE ABSENT _____

DECHLORINATED IN LAB _____

APPROPRIATE CONTAINERS _____

PRESERVED IN LAB _____

VOAS O&G METALS OTHER
PRESERVATION pH<2

COMMENTS:



Sample Receipt Checklist

Client Name: **Monterey Bay Analytical**
 Project Name: **MPWMD**

Date and Time Received: **12/9/2016 10:00**
 Date Logged: **12/9/2016**
 Received by: **Briana Cutino**
 Logged by: **Briana Cutino**

WorkOrder No: **1612431** Matrix: Water
 Carrier: UPS

Chain of Custody (COC) Information

- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Sample IDs noted by Client on COC? Yes No
- Date and Time of collection noted by Client on COC? Yes No
- Sampler's name noted on COC? Yes No

Sample Receipt Information

- Custody seals intact on shipping container/cooler? Yes No NA
- Shipping container/cooler in good condition? Yes No
- Samples in proper containers/bottles? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

- All samples received within holding time? Yes No NA
 - Sample/Temp Blank temperature Temp: 2.8°C NA
 - Water - VOA vials have zero headspace / no bubbles? Yes No NA
 - Sample labels checked for correct preservation? Yes No
 - pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 - Samples Received on Ice? Yes No
- (Ice Type: WET ICE)

UCMR3 Samples:

- Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
- Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:

MPWMD
 Jonathan Lear
 P.O. Box 85
 Monterey, CA 93442-0085



Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

Lab Number: AB59025

Collection Date/Time: 12/16/2016 15:45

Sample Collector: LINDBERG T

Client Sample #:

Submittal Date/Time: 12/21/2016 13:25

Sample ID

Sample Description: ASR-2 Injectate

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	144	1		10	2	12/28/2016	9:00:00 AM	BS
Ammonia-N	SM4500NH3	mg/L	Not Detected	1		0.05	0.05	1/5/2017	10:00:00 AM	MW
Bicarbonate (as HCO3-)	SM2320B	mg/L	176	1		10	2	12/28/2016	3:07:00 PM	HM
Boron	EPA200.7	mg/L	Not Detected	1		0.05	0.01	12/28/2016	1:09:00 PM	MW
Bromide	EPA300.0	mg/L	0.1	1		0.1	0.01	12/22/2016	8:38:00 AM	HM
Calcium	EPA200.7	mg/L	49	1		0.5	0.1	12/28/2016	1:09:00 PM	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected	1		10	2	12/28/2016	3:07:00 PM	HM
Chloramines	SM4500-Cl	mg/L	0.12	1	H	0.05	0.05	12/20/2016	3:00:00 PM	LRH
Chloride	EPA300.0	mg/L	32	1		1	0.25	12/22/2016	8:38:00 AM	HM
DOC	SM5310C	mg/L	1.5	1		0.2	0.03	12/28/2016	1:00:00 AM	MW
Fluoride	EPA300.0	mg/L	0.3	1		0.1	0.02	12/22/2016	8:38:00 AM	HM
Gross Alpha	EPA900.0	pCi/L	1.23 ± 1.13	1	E			1/10/2017	9:00:00 AM	FGL
Haloacetic Acids	EPA552	µg/L	23	1	E			12/28/2016	12:00:00 PM	FGL
Iron	EPA200.7	µg/L	10	1		10	4	12/28/2016	1:09:00 PM	MW
Iron, Dissolved	EPA200.7	µg/L	Not Detected	1		10	4	12/28/2016	2:44:00 PM	MW
Kjehldahl Nitrogen	SM4500-NH	mg/L	Not Detected	1		0.5	0.5	1/5/2017	5:00:00 PM	BS
Magnesium	EPA200.7	mg/L	16	1		0.5	0.2	12/28/2016	1:09:00 PM	MW
Manganese, Dissolved	EPA200.7	µg/L	Not Detected	1		10	2	12/28/2016	2:44:00 PM	MW
Manganese, Total	EPA200.7	µg/L	13	1		10	2	12/28/2016	1:09:00 PM	MW
Methane	EPA174/175	µg/L	2.7	1	E	0.1	0.1	12/29/2016	3:39:00 PM	MCCAM
Nitrate as NO3	EPA300.0	mg/L	Not Detected	1		1	0.07	12/22/2016	8:38:00 AM	HM

mg/L: Milligrams per liter (=ppm) µg/L : Micrograms per liter (=ppb) PQL : Practical Quantitation Limit J = Result is less than PQL

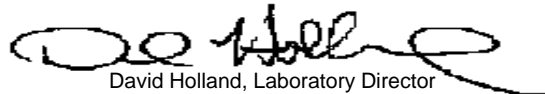
H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments.

D = Method deviates from standard method due to insufficient sample for MS/MSD

Nitrate as NO3-N	EPA300.0	mg/L	0.1	1	0.1	0.01	12/22/2016	8:38:00 AM	HM	
Nitrate+Nitrite as N	EPA300.0	mg/L	0.4	1	0.1	0.02	12/22/2016	8:38:00 AM	HM	
Nitrite as NO2-N	EPA300.0	mg/L	0.3	1	0.1	0.01	12/22/2016	8:38:00 AM	HM	
o-Phosphate-P, Dissolved	EPA300.0	mg/L	0.4	1	0.1	0.02	12/22/2016	8:38:00 AM	HM	
pH (Laboratory)	SM4500-H+	pH (H)	7.6	1	0.1		12/21/2016	4:15:00 PM	BS	
Phosphorus, Total	HACH 8190	mg/L	0.46	1	PH	0.03	0.03	1/10/2017	2:00:00 PM	LRH
Potassium	EPA200.7	mg/L	3.2	1		0.5	0.3	12/28/2016	1:09:00 PM	MW
QC Anion Sum x 100	Calculation	%	100%	1				12/28/2016	3:07:00 PM	HM
QC Anion-Cation Balance	Calculation	%	6	1				12/29/2016	8:58:00 AM	MW
QC Cation Sum x 100	Calculation	%	112%	1				12/29/2016	8:58:00 AM	MW
QC Ratio TDS/SEC	Calculation		0.63	1				12/27/2016	11:40:00 AM	LRH
Silica as SiO2, Total	EPA200.7	mg/L	25	1	0.5	0.3	12/28/2016	1:09:00 PM	MW	
Sodium	EPA200.7	mg/L	55	1	0.5	0.2	12/28/2016	1:09:00 PM	MW	
Specific Conductance (E.C)	SM2510B	µmhos/c	555	1	1	1	12/22/2016	12:35:00 PM	HM	
Sulfate	EPA300.0	mg/L	85	1	1	0.25	12/22/2016	8:38:00 AM	HM	
TOC	SM5310C	mg/L	1.4	1	0.2	0.03	12/28/2016	1:00:00 AM	MW	
Total Diss. Solids	SM2540C	mg/L	348	1	10	10	12/21/2016	4:00:00 PM	MP	
Total Nitrogen	Calculation	mg/L	Not Detected	1	0.5	0.5	1/6/2017	8:54:00 AM	SM	
Total Radium 226	EPA903.0	pCi/L	0.295 ± 0.246	1	E		1/9/2017	2:00:00 PM	FGL	
Trihalomethanes	EPA524.2	µg/L	47.9	1	E		12/28/2016	12:00:00 PM	FGL	

Sample Comments: H: Analyzed outside of holding time. (Analyzed at 5 days and 45 minutes)

Report Approved by:


David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm) µg/L : Micrograms per liter (=ppb) PQL : Practical Quantitation Limit J = Result is less than PQL
 H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments.
 D = Method deviates from standard method due to insufficient sample for MS/MSD

January 19, 2017

Monterey Bay Analytical Services
 4 Justin Court
 Monterey, CA 93940

Lab ID : SP 1615363
 Customer : 2-19144

Laboratory Report

Introduction: This report package contains total of 7 pages divided into 3 sections:

Case Narrative (2 pages) : An overview of the work performed at FGL.
 Sample Results (2 pages) : Results for each sample submitted.
 Quality Control (3 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
ASR-2 Injectate	12/16/2016	12/22/2016	SP 1615363-001	PW

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 6 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Organic QC

551.1	12/28/2016:218807 All analysis quality controls are within established criteria.
	12/27/2016:215307 All preparation quality controls are within established criteria, except: The following note applies to Bromoform, Dibromochloromethane, Bromodichloromethane: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
552	12/27/2016:215411 All preparation quality controls are within established criteria, except: The following note applies to 2,3-Dibromopropionic Acid, Dibromoacetic Acid: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
552.2	12/28/2016:218754 All analysis quality controls are within established criteria.
	12/28/2016:218816 All analysis quality controls are within established criteria.

January 19, 2017
Monterey Bay Analytical Services

Lab ID : SP 1615363
Customer : 2-19144

Radio QC

900.0	01/10/2017:200674 All analysis quality controls are within established criteria.
	01/09/2017:200271 All preparation quality controls are within established criteria.
903.0	01/09/2017:200303 All analysis quality controls are within established criteria.
	01/04/2017:215573 All preparation quality controls are within established criteria.

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2017-01-19



January 19, 2017

Lab ID : SP 1615363-001

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : December 16, 2016-15:45

Sampled By : T.Lindberg

Received On : December 22, 2016-12:20

Matrix : Potable Water

Description : ASR-2 Injectate

Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	110	80-120	%		551.1	12/27/16:215307	551.1	12/28/16:218807
Bromodichloromethane	15.4	0.5	ug/L		551.1	12/27/16:215307	551.1	12/28/16:218807
Bromoform	1.8	0.5	ug/L		551.1	12/27/16:215307	551.1	12/28/16:218807
Chloroform	18.8	0.5	ug/L		551.1	12/27/16:215307	551.1	12/28/16:218807
Dibromochloromethane	11.9	0.5	ug/L		551.1	12/27/16:215307	551.1	12/28/16:218807
Total Trihalomethanes	47.9	--	ug/L		551.1	12/27/16:215307	551.1	12/28/16:218807
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	94.6	70-130	%		552	12/27/16:215411	552.2	12/28/16:218816
Bromoacetic Acid	1	1	ug/L		552	12/27/16:215411	552.2	12/28/16:218754
Chloroacetic Acid	ND	2	ug/L		552	12/27/16:215411	552.2	12/28/16:218754
Dibromoacetic Acid	3	1	ug/L		552	12/27/16:215411	552.2	12/28/16:218816
Dichloroacetic Acid	10	1	ug/L		552	12/27/16:215411	552.2	12/28/16:218816
Trichloroacetic Acid	9	1	ug/L		552	12/27/16:215411	552.2	12/28/16:218816
Haloacetic acids (five)	23	--	ug/L		552	12/27/16:215411	552.2	12/28/16:218754

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



January 19, 2017

Lab ID : SP 1615363-001
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : December 16, 2016-15:45
Sampled By : T.Lindberg
Received On : December 22, 2016-12:20
Matrix : Potable Water

Description : ASR-2 Injectate
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	1.23 ± 1.13	1.40	pCi/L		900.0	01/09/17-10:12 2P1700271	900.0	01/10/17-09:00 2A1700674
Total Alpha Radium (226)	0.295 ± 0.246	0.470	pCi/L		903.0	01/04/17-19:00 2P1615573	903.0	01/09/17-14:00 2A1700303

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



January 19, 2017
Monterey Bay Analytical Services

Lab ID : SP 1615363
Customer : 2-19144

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic Bromodichloromethane	551.1	12/27/16:215307SBL (SP 1615278-001)	Blank	ug/L		ND	<0.5	435
			LCS	ug/L	10.00	111 %	80-120	
			MS	ug/L	9.875	97.4 %	80-120	
			MSD	ug/L	9.888	121 %	80-120	
	MSRPD	ug/L	19.78	6.3%	≤20			
	551.1	12/28/16:218807SBL	CCV	ug/L	83.33	98.8 %	80-120	
CCV	ug/L	166.7	94.3 %	80-120				
Bromoform	551.1	12/27/16:215307SBL (SP 1615278-001)	Blank	ug/L		ND	<0.5	435
			LCS	ug/L	10.00	120 %	80-120	
			MS	ug/L	9.875	128 %	80-120	
			MSD	ug/L	9.888	133 %	80-120	
	MSRPD	ug/L	19.78	1.5%	≤20			
	551.1	12/28/16:218807SBL	CCV	ug/L	83.33	114 %	80-120	
CCV	ug/L	166.7	107 %	80-120				
Chloroform	551.1	12/27/16:215307SBL (SP 1615278-001)	Blank	ug/L		ND	<0.5	435
			LCS	ug/L	10.00	111 %	80-120	
			MS	ug/L	9.875	102 %	80-120	
			MSD	ug/L	9.888	116 %	80-120	
	MSRPD	ug/L	19.78	5.4%	≤20			
	551.1	12/28/16:218807SBL	CCV	ug/L	83.33	103 %	80-120	
CCV	ug/L	166.7	97.2 %	80-120				
Decafluorobiphenyl	551.1	12/27/16:215307SBL (SP 1615278-001)	Blank	ug/L	19.34	98.5 %	80-120	435
			LCS	ug/L	20.00	116 %	80-120	
			MS	ug/L	19.75	117 %	80-120	
			MSD	ug/L	19.78	112 %	80-120	
	MSRPD	ug/L	19.78	3.9%	≤20.0			
	551.1	12/28/16:218807SBL	CCV	ug/L	166.7	110 %	80-120	
CCV	ug/L	333.3	97.8 %	80-120				
Dibromochloromethane	551.1	12/27/16:215307SBL (SP 1615278-001)	Blank	ug/L		ND	<0.5	435
			LCS	ug/L	10.00	119 %	80-120	
			MS	ug/L	9.875	104 %	80-120	
			MSD	ug/L	9.888	77.6 %	80-120	
	MSRPD	ug/L	19.78	6.4%	≤20			
	551.1	12/28/16:218807SBL	CCV	ug/L	83.33	107 %	80-120	
CCV	ug/L	166.7	103 %	80-120				
2,3-Dibromopropionic Acid	552	12/27/16:215411SBL (SP 1615363-001)	Blank	ug/L	5.000	98.8 %	70-130	435
			LCS	ug/L	5.000	86.2 %	70-130	
			MS	ug/L	5.000	134 %	70-130	
			MSD	ug/L	5.000	133 %	70-130	
	MSRPD	ug/L	5.000	0.6%	≤20.0			
	552	12/28/16:218807SBL	CCV	ug/L	83.33	107 %	80-120	
CCV	ug/L	166.7	103 %	80-120				
Dibromoacetic Acid	552	12/27/16:215411SBL (SP 1615363-001)	Blank	ug/L		ND	<1	435
			LCS	ug/L	10.00	79.3 %	70-130	
			MS	ug/L	10.00	145 %	70-130	
			MSD	ug/L	10.00	137 %	70-130	
	MSRPD	ug/L	5.000	4.5%	≤20.0			
	552	12/28/16:218807SBL	CCV	ug/L	83.33	107 %	80-120	
CCV	ug/L	166.7	103 %	80-120				
Dichloroacetic Acid	552	12/27/16:215411SBL (SP 1615363-001)	Blank	ug/L		ND	<1	435
			LCS	ug/L	10.00	85.6 %	70-130	
			MS	ug/L	10.00	109 %	70-130	
			MSD	ug/L	10.00	104 %	70-130	
	MSRPD	ug/L	5.000	2.7%	≤20.0			
	552	12/28/16:218807SBL	CCV	ug/L	83.33	107 %	80-120	
CCV	ug/L	166.7	103 %	80-120				
Monobromoacetic Acid	552	12/27/16:215411SBL (SP 1615363-001)	Blank	ug/L		ND	<1	435
			LCS	ug/L	10.00	81.6 %	70-130	
			MS	ug/L	10.00	88.8 %	70-130	
			MSD	ug/L	10.00	85.4 %	70-130	
	MSRPD	ug/L	5.000	3.3%	≤20.0			
	552	12/28/16:218807SBL	CCV	ug/L	83.33	107 %	80-120	
CCV	ug/L	166.7	103 %	80-120				

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Monochloroacetic Acid	552	12/27/16:215411SBL (SP 1615363-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	10.00	86.5 %	70-130	
			MS	ug/L	10.00	94.7 %	70-130	
			MSD	ug/L	10.00	98.1 %	70-130	
			MSRPD	ug/L	5.000	3.0%	≤20.0	
Trichloroacetic Acid	552	12/27/16:215411SBL (SP 1615363-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	77.4 %	70-130	
			MS	ug/L	10.00	88.8 %	70-130	
			MSD	ug/L	10.00	88.8 %	70-130	
			MSRPD	ug/L	5.000	0.006%	≤20.0	
2,3-Dibromopropionic Acid	552.2	12/28/16:218816SBL	CCV	ug/L	75.00	95.4 %	70-130	
			CCV	ug/L	50.00	110 %	70-130	
Dibromoacetic Acid	552.2	12/28/16:218816SBL	CCV	ug/L	150.0	84.5 %	70-130	
			CCV	ug/L	100.0	91.7 %	70-130	
Dichloroacetic Acid	552.2	12/28/16:218816SBL	CCV	ug/L	150.0	91.1 %	70-130	
			CCV	ug/L	100.0	97.2 %	70-130	
Monobromoacetic Acid	552.2	12/28/16:218754SBL	CCV	ug/L	150.0	89.9 %	70-130	
			CCV	ug/L	100.0	96.3 %	70-130	
Monochloroacetic Acid	552.2	12/28/16:218754SBL	CCV	ug/L	150.0	93.6 %	70-130	
			CCV	ug/L	100.0	105 %	70-130	
Trichloroacetic Acid	552.2	12/28/16:218816SBL	CCV	ug/L	150.0	90.6 %	70-130	
			CCV	ug/L	100.0	98.5 %	70-130	
Definition								
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.								
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.								
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.								
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.								
ND : Non-detect - Result was below the DQO listed for the analyte.								
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								
Explanation								
435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.								

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	01/10/17:200674RMM	CCV CCB	cpm cpm	8497	41.4 % 0.0400	38 - 47 0.18	
Gross Alpha	900.0	01/09/17:200271RMM (SP 1615396-001)	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 108.2 108.2 108.2 108.2	 1.12 93.4 % 107 % 136 % 24.1%	 3 75-125 60-140 60-140 ≤30	
Alpha	903.0	01/09/17:200303caa	CCV CCB	cpm cpm	8500	41.5 % 0.100	39 - 47 0.19	
Total Alpha Radium (226)	903.0	01/04/17:215573emv	RgBlk LCS BS BSD BSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 21.86 21.86 21.86 21.86	 0.06 64.7 % 54.0 % 51.0 % 5.6%	 2 52-107 43-111 43-111 ≤35.5	
Definition								
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.								
CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.								
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.								
RgBlk : Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.								
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.								
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
BS : Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.								
BSD : Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.								
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.								
BSRPD : BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.								
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								

Client: Monterey Bay Analytical Services Customer Number: 2019144 Address: 4 Justin Court Monterey, CA 93940				Lab Number: 1016303												TEST DESCRIPTION AND ANALYSES REQUESTED																																																																																																																																																																																																													
Phone: (831)375-6227 Fax: (831)641-0734 Email Address: info@mbasinc.com Contact Person: David Holland Project Name: MPWMD Purchase Order Number: Quote Number:				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Method of Sampling: Composite (C) Grab (G)</td> <td style="width: 10%;">Number of Containers</td> <td style="width: 15%;">Type of Container: (G) Glass (P) Plastic (VVOA) (MT) Metal Tube</td> <td style="width: 10%;">Potable (P) Non-Potable (NP) Ag Water (AgW)</td> <td style="width: 15%;">(SW) Surface Water (MW) Monitoring Well (GW) Ground Water (TB) Travel Blank (WW) Waste Water (DW) Drinking Water</td> <td style="width: 10%;">(S) Soil (SLG) Sludge (SLD) Sediment (O) Other</td> <td style="width: 10%;">Bact: (Sys) System (SRC) Source (W) Waste</td> <td style="width: 10%;">Bact: (ROUT) Routine (RPT) Repeat (OTH) Other (RPL) Replace</td> <td style="width: 10%;">(LT) Leaf Tissue (PET) Petiole Tissue (PRD) Produce</td> <td style="width: 10%;">Preservatives: (1) NaOH + ZnAc, (2) NaOH, (3) HCl (4) H2SO4, (5) HNO3, (6) Na2S2O3, (7) Other</td> <td style="width: 10%;">Gross Alpha</td> <td style="width: 10%;">Ra 226</td> <td style="width: 10%;">THMS</td> <td style="width: 10%;">HAA</td> </tr> </table>												Method of Sampling: Composite (C) Grab (G)	Number of Containers	Type of Container: (G) Glass (P) Plastic (VVOA) (MT) Metal Tube	Potable (P) Non-Potable (NP) Ag Water (AgW)	(SW) Surface Water (MW) Monitoring Well (GW) Ground Water (TB) Travel Blank (WW) Waste Water (DW) Drinking Water	(S) Soil (SLG) Sludge (SLD) Sediment (O) Other	Bact: (Sys) System (SRC) Source (W) Waste	Bact: (ROUT) Routine (RPT) Repeat (OTH) Other (RPL) Replace	(LT) Leaf Tissue (PET) Petiole Tissue (PRD) Produce	Preservatives: (1) NaOH + ZnAc, (2) NaOH, (3) HCl (4) H2SO4, (5) HNO3, (6) Na2S2O3, (7) Other	Gross Alpha	Ra 226	THMS	HAA																																																																																																																																																																																																
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Rush Analysis: <input type="checkbox"/> 5 Day <input type="checkbox"/> 4 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> 24 hour Rush pre-approval by lab (initials): _____ Electronic Data Transfer: <input type="checkbox"/> No <input type="checkbox"/> State <input type="checkbox"/> Client Other: _____																																																																																																																																																																																																																													
Sampler(s): T. Lindberg Sampling Fee: _____ Pickup Fee: _____ Compositor Setup Date: _____ Time: _____																																																																																																																																																																																																																													
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">Samp Num</th> <th style="width: 20%;">Location Description</th> <th style="width: 10%;">Date Sampled</th> <th style="width: 10%;">Time Sampled</th> <th style="width: 15%;">Method of Sampling</th> <th style="width: 10%;">Number of Containers</th> <th style="width: 15%;">Type of Container</th> <th style="width: 10%;">Potable</th> <th style="width: 10%;">SW</th> <th style="width: 10%;">TB</th> <th style="width: 10%;">S</th> <th style="width: 10%;">Bact</th> <th style="width: 10%;">Bact</th> <th style="width: 10%;">LT</th> <th style="width: 10%;">Pres</th> <th style="width: 10%;">Gross Alpha</th> <th style="width: 10%;">Ra 226</th> <th style="width: 10%;">THMS</th> <th style="width: 10%;">HAA</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>ASR-2 Injectate</td> <td>12/16/16</td> <td>15:45</td> <td>G</td> <td>7</td> <td>Var</td> <td>P</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> <td>X</td> <td>X</td> <td>X</td> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>				Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling	Number of Containers	Type of Container	Potable	SW	TB	S	Bact	Bact	LT	Pres	Gross Alpha	Ra 226	THMS	HAA	1.	ASR-2 Injectate	12/16/16	15:45	G	7	Var	P								X	X	X	X																																																																																																																																																																																				
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Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

1. Number of ice chests/packages received: 1
2. Shipper tracking numbers _____
3. Were samples received in a chilled condition?
Temps: 6 / _____ / _____ / _____ / _____ / _____ / _____
4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
5. Do the number of bottles received agree with the COC? Yes No N/A
6. Verify sample date, time, sampler Yes No N/A
7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) Yes No
8. Were sample custody seals intact? Yes No N/A

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? Yes No
2. Did bottle labels correspond with the client's ID's? Yes No
3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
[Exception: Oil & Grease, VOA and CrVI verified in lab]
4. VOAs checked for Headspace? Yes No N/A
5. Were all analyses within holding times at time of receipt? Yes No
6. Have rush or project due dates been checked and accepted? Yes No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and
Approved By

Alyssa P. Bavero



Digitally signed by Alyssa P. Bavero
Title: Sample Receiving
Date: 12/22/2016-12:54:28

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2019144)
Monterey Bay Analytical Services
SP 1615363
APB-12/22/2016-12:54:28



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1612B37

Report Created for: Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Project Contact: David Holland
Project P.O.:
Project Name: MPWMD

Project Received: 12/22/2016

Analytical Report reviewed & approved for release on 12/30/2016 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Bay Analytical
Project: MPWMD
WorkOrder: 1612B37

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Bay Analytical
Date Received: 12/22/16 10:17
Date Prepared: 12/29/16
Project: MPWMD

WorkOrder: 1612B37
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR-2 Injectate	1612B37-001A	Water	12/16/2016 15:45	GC26	131983

Analytes	Result	RL	DF	Date Analyzed
Methane	2.7	0.10	1	12/29/2016 15:39

Analyst(s): AK

 Angela Rydelius, Lab Manager



Quality Control Report

Client: Monterey Bay Analytical
Date Prepared: 12/29/16
Date Analyzed: 12/29/16
Instrument: GC26
Matrix: Air
Project: MPWMD

WorkOrder: 1612B37
BatchID: 131983
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L
Sample ID: MB/LCS-131983

QC Summary Report for RSK175

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Methane	ND	94.6	0.50	100	-	95	70-130

QA/QC Officer

1534 Willow Pass Rd
 Pittsburg, CA 94565-1701
 (925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1612B37

ClientCode: MBAS

WaterTrax
 WriteOn
 EDF
 Excel
 EQulS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

David Holland
 Monterey Bay Analytical
 4 Justin Court, Suite D
 Monterey, CA 93940
 831-375-6227 FAX: 831-641-0734

Email: mweidner@mbasinc.com; Dholland@mbas
 cc/3rd Party:
 PO:
 ProjectNo: MPWMD

Bill to:

Accounts Payable
 Monterey Bay Analytical
 4 Justin Court, Suite D
 Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 12/22/2016

Date Logged: 12/22/2016

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1612B37-001	ASR-2 Injectate	Water	12/16/2016 15:45	<input type="checkbox"/>	A												

Test Legend:

1	RSK175_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Jena Alfaro

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
 Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY BAY ANALYTICAL

Project: MPWMD

Work Order: 1612B37

Client Contact: David Holland

QC Level: LEVEL 2

Contact's Email: mweidner@mbasinc.com; Dholland@mbasinc.com;
4mbas@sbcglobal.net; info@mbasinc.com

Comments:

Date Logged: 12/22/2016

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1612B37-001A	ASR-2 Injectate	Water	RSK175 <Methane_4>	3	VOA w/ HCl	<input type="checkbox"/>	12/16/2016 15:45	5 days	Trace	<input type="checkbox"/>	

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).

- 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.

1412B37

McCAMPBELL ANALYTICAL, INC.

1534 WILLOW PASS ROAD
PITTSBURG, CA 94565-1701

Website: www.mccampbell.com Email: main@mccampbell.com
Telephone: (877) 252-9262 Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH 24 HR 48 HR 72 HR 5 DAY

GeoTracker EDF PDF Excel Write On (DW)

Report To: David Holland Bill To:
Company: Monterey Bay Analytical Services
4 Justin Ct. Suite D
Monterey, Ca 93940 E-Mail: info@mbasinc.com
Tele: (831) 375 - 6227 Fax: (831) 641-0734
Project #: Project Name: MPWMD
Project Location:
Sampler Signature: T. Lindberg

Analysis Request

Other Comments

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				Methane	Filter Samples for Metals analysis: Yes / No	
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO ₃	Other			
	ASR-2 Injectate	12/16/16	15:45	3	V	X					X	X				X	AB59025

MTBE / BTEX & TPH as Gas (602 / 8021 + 8015)
MTBE / BTEX ONLY (EPA 602 / 8021)
TPH as Diesel / Motor Oil (8015)
Total Petroleum Oil & Grease (1664 / 5520 E/B&F)
Total Petroleum Hydrocarbons (418.1)
EPA 502.2 / 601 / 8010 / 8021 (HVOCs)
EPA 505 / 608 / 8081 (CI Pesticides)
EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners
EPA 507 / 8141 (NP Pesticides)
EPA 515 / 8151 (Acidic CI Herbicides)
EPA 524.2 / 624 / 8260 (VOCs)
EPA 525.2 / 625 / 8270 (SVOCs)
EPA 8270 SIM / 8310 (PAHs / PNAs)
CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)
LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)
Lead (200.7 / 200.8 / 6010 / 6020)

Relinquished By: David Holland *[Signature]* Date: 12/21 Time: 1600 Received By: *[Signature]*
Relinquished By: GSO *[Signature]* Date: 12/22 Time: 1017 Received By: *[Signature]*
Relinquished By: Date: Time: Received By:

ICE/° 5.7° COMMENTS:
GOOD CONDITION
HEAD SPACE ABSENT
DECHLORINATED IN LAB
APPROPRIATE CONTAINERS
PRESERVED IN LAB
VOAS O&G METALS OTHER
PRESERVATION pH<2



Sample Receipt Checklist

Client Name: **Monterey Bay Analytical**
 Project Name: **MPWMD**

Date and Time Received: **12/22/2016 10:17**
 Date Logged: **12/22/2016**
 Received by: **Jena Alfaro**
 Logged by: **Jena Alfaro**

WorkOrder No: **1612B37** Matrix: Water
 Carrier: Golden State Overnight

Chain of Custody (COC) Information

- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Sample IDs noted by Client on COC? Yes No
- Date and Time of collection noted by Client on COC? Yes No
- Sampler's name noted on COC? Yes No

Sample Receipt Information

- Custody seals intact on shipping container/cooler? Yes No NA
- Shipping container/cooler in good condition? Yes No
- Samples in proper containers/bottles? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

- All samples received within holding time? Yes No NA
 - Sample/Temp Blank temperature Temp: 5.7°C NA
 - Water - VOA vials have zero headspace / no bubbles? Yes No NA
 - Sample labels checked for correct preservation? Yes No
 - pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 - Samples Received on Ice? Yes No
- (Ice Type: WET ICE)

UCMR3 Samples:

- Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
- Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:

MPWMD
 Jonathan Lear
 P.O. Box 85
 Monterey, CA 93442-0085



4 Justin Court Suite D, Monterey, CA 93940
 831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

Lab Number: AB58462

Collection Date/Time: 12/9/2016 12:30
 Submittal Date/Time: 12/9/2016 14:45

Sample Collector: LEAR J
 Sample ID

Client Sample #:

Sample Description: ASR3

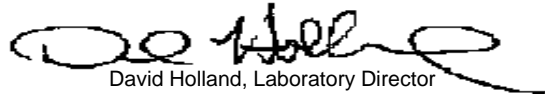
Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	178	1		10	2	12/19/2016	10:00:00 AM	BS
Aluminum, Total	EPA200.8	µg/L	Not Detected	2		10	10	12/13/2016	3:46:00 PM	SM
Ammonia-N	SM4500NH3	mg/L	Not Detected	1		0.05	0.05	12/16/2016	11:00:00 AM	MW
Arsenic, Total	EPA200.8	µg/L	5	2		1	0.2	12/13/2016	3:46:00 PM	SM
Barium, Total	EPA200.8	µg/L	88	2		10	0.4	12/13/2016	3:46:00 PM	SM
Bicarbonate (as HCO3-)	SM2320B	mg/L	217	1		10	2	12/19/2016	1:04:00 PM	LRH
Boron	EPA200.7	mg/L	0.07	1		0.05	0.01	12/19/2016	2:55:00 PM	MW
Bromide	EPA300.0	mg/L	0.2	1		0.1	0.01	12/9/2016	4:11:00 PM	HM
Calcium	EPA200.7	mg/L	60	1		0.5	0.1	12/19/2016	2:55:00 PM	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected	1		10	2	12/19/2016	1:04:00 PM	LRH
Chloramines	SM4500-Cl	mg/L	Not Detected	1		0.05	0.05	12/9/2016	3:15:00 PM	SM
Chloride	EPA300.0	mg/L	75	1		1	0.25	12/9/2016	4:11:00 PM	HM
DOC	SM5310C	mg/L	1.3	1		0.2	0.03	12/27/2016	1:53:00 PM	MW
Fluoride	EPA300.0	mg/L	0.3	1		0.1	0.02	12/9/2016	4:11:00 PM	HM
Gross Alpha	EPA900.0	pCi/L	4.79 ± 1.87	1	E			12/21/2016	2:00:00 PM	FGL
Haloacetic Acids	EPA552	µg/L	Not Detected	1	E			12/16/2016	12:00:00 PM	FGL
Iron	EPA200.7	µg/L	208	1		10	4	12/19/2016	2:55:00 PM	MW
Iron, Dissolved	EPA200.7	µg/L	13	1		10	4	12/19/2016	2:55:00 PM	MW
Kjehldahl Nitrogen	SM4500-NH	mg/L	Not Detected	1		0.5	0.5	12/29/2016	11:00:00 AM	BS
Lithium	EPA200.8	µg/L	22	2		1	0.2	12/13/2016	3:46:00 PM	SM
Magnesium	EPA200.7	mg/L	18	1		0.5	0.2	12/19/2016	2:55:00 PM	MW
Manganese, Dissolved	EPA200.7	µg/L	15	1		10	2	12/19/2016	2:55:00 PM	MW
Manganese, Total	EPA200.7	µg/L	16	1		10	2	12/19/2016	2:55:00 PM	MW
Mercury, Total	EPA200.8	µg/L	1	2	IJ	0.5	0.08	12/13/2016	3:46:00 PM	SM
Methane	EPA174/175	µg/L	0.31	1	E	0.1	0.1	12/22/2016	10:54:00 AM	MCCAM
Molybdenum, Total	EPA200.8	µg/L	9	2		1	0.2	12/13/2016	3:46:00 PM	SM
Nickel, Total	EPA200.8	µg/L	Not Detected	2		10	0.2	12/13/2016	3:46:00 PM	SM
Nitrate as NO3	EPA300.0	mg/L	Not Detected	1		1	0.07	12/9/2016	4:11:00 PM	HM
Nitrate as NO3-N	EPA300.0	mg/L	0.1	1		0.1	0.01	12/9/2016	4:11:00 PM	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	0.4	1		0.1	0.02	12/9/2016	4:11:00 PM	HM
Nitrite as NO2-N	EPA300.0	mg/L	0.3	1		0.1	0.01	12/9/2016	4:11:00 PM	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	0.2	1		0.1	0.02	12/9/2016	4:11:00 PM	HM
pH (Laboratory)	SM4500-H+	pH (H)	7.3	1		0.1		12/9/2016	3:20:00 PM	MP/BS
Phosphorus, Total	HACH 8190	mg/L	0.19	1		0.03	0.03	12/22/2016	8:58:00 AM	LRH
Potassium	EPA200.7	mg/L	4.3	1		0.5	0.3	12/19/2016	2:55:00 PM	MW
QC Anion Sum x 100	Calculation	%	97%	1				12/19/2016	1:04:00 PM	LRH
QC Anion-Cation Balance	Calculation	%	2	1				12/20/2016	8:36:00 AM	MW

mg/L: Milligrams per liter (=ppm) ug/L : Micrograms per liter (=ppb) PQL : Practical Quantitation Limit J = Result is less than PQL
 H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments.
 D = Method deviates from standard method due to insufficient sample for MS/MSD

QC Cation Sum x 100	Calculation	%	101%	1				12/20/2016	8:36:00 AM	MW
QC Ratio TDS/SEC	Calculation		0.59	1				12/21/2016	11:56:00 AM	MP
Selenium, Total	EPA200.8	µg/L	3	2	LM	2	1	12/13/2016	3:46:00 PM	SM
Silica as SiO ₂ , Total	EPA200.7	mg/L	33	1		0.5	0.3	12/19/2016	2:55:00 PM	MW
Sodium	EPA200.7	mg/L	66	1		0.5	0.2	12/19/2016	2:55:00 PM	MW
Specific Conductance (E.C)	SM2510B	µmhos/c	740	1		1	1	12/13/2016	3:25:00 PM	HM
Strontium, Total	EPA200.8	µg/L	322	2		5	1	12/13/2016	3:46:00 PM	SM
Sulfate	EPA300.0	mg/L	71	1		1	0.25	12/9/2016	4:11:00 PM	HM
TOC	SM5310C	mg/L	1.4	1		0.2	0.03	12/27/2016	1:53:00 PM	MW
Total Diss. Solids	SM2540C	mg/L	437	1		10	10	12/15/2016	10:30:00 AM	MP
Total Nitrogen	Calculation	mg/L	Not Detected	1		0.5	0.5	12/29/2016	5:10:00 PM	MP
Total Radium 226	EPA903.0	pCi/L	0.100 ± 0.139	1	E			12/28/2016	8:00:00 AM	FGL
Trihalomethanes	EPA524.2	µg/L	46.2	1	E			12/16/2016	12:00:00 PM	FGL
Uranium by ICP/MS	EPA200.8	µg/L	2	2		1	0.08	12/13/2016	3:46:00 PM	SM
Vanadium, Total	EPA200.8	µg/L	Not Detected	2		5	0.2	12/13/2016	3:46:00 PM	SM
Zinc, Total	EPA200.8	µg/L	241	2		20	20	12/13/2016	3:46:00 PM	SM

Sample Comments: LM: MS and/or MSD above acceptance limits. IJ: ICV and/or CCV above acceptance limits.

Report Approved by:



David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm) µg/L : Micrograms per liter (=ppb) PQL : Practical Quantitation Limit J = Result is less than PQL
 H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments.
 D = Method deviates from standard method due to insufficient sample for MS/MSD

December 29, 2016

Monterey Bay Analytical Services
 4 Justin Court
 Monterey, CA 93940

Lab ID : SP 1614902
 Customer : 2-19144

Laboratory Report

Introduction: This report package contains total of 7 pages divided into 3 sections:

- Case Narrative (2 pages) : An overview of the work performed at FGL.
- Sample Results (2 pages) : Results for each sample submitted.
- Quality Control (3 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
ASR3	12/09/2016	12/14/2016	SP 1614902-001	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived on ice. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Organic QC

551.1	12/16/2016:218353 All analysis quality controls are within established criteria, except: The following note applies to Decafluorobiphenyl: 362 Surrogates are qualified on Control Chart Limits, these are CCV limits. See individual sample reports.
	12/15/2016:215033 All preparation quality controls are within established criteria, except: The following note applies to Dibromochloromethane, Bromoform: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. The following note applies to Decafluorobiphenyl: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
552	12/14/2016:214954 All preparation quality controls are within established criteria, except: The following note applies to 2,3-Dibromopropionic Acid: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

December 29, 2016
Monterey Bay Analytical Services

Lab ID : SP 1614902
Customer : 2-19144

Organic QC

552.2	12/16/2016:218252 All analysis quality controls are within established criteria.
-------	--

Radio QC

900.0	12/21/2016:218742 All analysis quality controls are within established criteria.
	12/20/2016:215158 All preparation quality controls are within established criteria.
903.0	12/28/2016:218762 All analysis quality controls are within established criteria.
	12/20/2016:215191 All preparation quality controls are within established criteria.

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2016-12-29



December 29, 2016

Lab ID : SP 1614902-001

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : December 9, 2016-12:30

Sampled By : Jonathan Lear

Received On : December 14, 2016-11:20

Matrix : Water

Description : ASR3

Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	88.8	80-120	%		551.1	12/15/16:215033	551.1	12/16/16:218353
Bromodichloromethane	12.0	0.5	ug/L		551.1	12/15/16:215033	551.1	12/16/16:218353
Bromoform	0.6	0.5	ug/L		551.1	12/15/16:215033	551.1	12/16/16:218353
Chloroform	27.3	0.5	ug/L		551.1	12/15/16:215033	551.1	12/16/16:218353
Dibromochloromethane	6.3	0.5	ug/L		551.1	12/15/16:215033	551.1	12/16/16:218353
Total Trihalomethanes	46.2	--	ug/L		551.1	12/15/16:215033	551.1	12/16/16:218353
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	73.6	70-130	%		552	12/14/16:214954	552.2	12/16/16:218252
Bromoacetic Acid	ND	1	ug/L		552	12/14/16:214954	552.2	12/16/16:218252
Chloroacetic Acid	ND	2	ug/L		552	12/14/16:214954	552.2	12/16/16:218252
Dibromoacetic Acid	ND	1	ug/L		552	12/14/16:214954	552.2	12/16/16:218252
Dichloroacetic Acid	ND	1	ug/L		552	12/14/16:214954	552.2	12/16/16:218252
Trichloroacetic Acid	ND	1	ug/L		552	12/14/16:214954	552.2	12/16/16:218252
Haloacetic acids (five)	ND	--	ug/L		552	12/14/16:214954	552.2	12/16/16:218252

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



December 29, 2016

Lab ID : SP 1614902-001

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : December 9, 2016-12:30

Sampled By : Jonathan Lear

Received On : December 14, 2016-11:20

Matrix : Water

Description : ASR3

Project : MPWMD

Sample Result - Radio

Table with 7 columns: Constituent, Result ± Error, MDA, Units, MCL/AL, Sample Preparation (Method, Date/ID), Sample Analysis (Method, Date/ID). Rows include Radio Chemistry, Gross Alpha, and Total Alpha Radium (226).

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



December 29, 2016
Monterey Bay Analytical Services

Lab ID : SP 1614902
Customer : 2-19144

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic Bromodichloromethane	551.1	12/15/16:215033SBL (SP 1614947-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.690	102 %	80-120	
			MS	ug/L	9.855	104 %	80-120	
			MSD	ug/L	9.937	111 %	80-120	
			MSRPD	ug/L	19.87	4.8 %	≤20	
	551.1	12/16/16:218353SBL	CCV	ug/L	83.33	85.0 %	80-120	
			CCV	ug/L	166.7	105 %	80-120	
Bromoform	551.1	12/15/16:215033SBL (SP 1614947-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.690	103 %	80-120	
			MS	ug/L	9.855	120 %	80-120	
			MSD	ug/L	9.937	130 %	80-120	435
			MSRPD	ug/L	19.87	4.2 %	≤20	
	551.1	12/16/16:218353SBL	CCV	ug/L	83.33	96.1 %	80-120	
			CCV	ug/L	166.7	116 %	80-120	
Chloroform	551.1	12/15/16:215033SBL (SP 1614947-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.690	105 %	80-120	
			MS	ug/L	9.855	114 %	80-120	
			MSD	ug/L	9.937	120 %	80-120	
			MSRPD	ug/L	19.87	4.7 %	≤20	
	551.1	12/16/16:218353SBL	CCV	ug/L	83.33	80.1 %	80-120	
			CCV	ug/L	166.7	110 %	80-120	
Decafluorobiphenyl	551.1	12/15/16:215033SBL (SP 1614947-001)	Blank	ug/L	19.34	86.9 %	80-120	
			LCS	ug/L	19.38	86.0 %	80-120	
			MS	ug/L	19.71	120 %	80-120	
			MSD	ug/L	19.87	95.6 %	80-120	
			MSRPD	ug/L	19.87	21.5 %	≤20.0	435
	551.1	12/16/16:218353SBL	CCV	ug/L	166.7	235 %	80-120	362
			CCV	ug/L	333.3	97.5 %	80-120	
Dibromochloromethane	551.1	12/15/16:215033SBL (SP 1614947-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.690	103 %	80-120	
			MS	ug/L	9.855	112 %	80-120	
			MSD	ug/L	9.937	123 %	80-120	435
			MSRPD	ug/L	19.87	5.4 %	≤20	
	551.1	12/16/16:218353SBL	CCV	ug/L	83.33	91.3 %	80-120	
			CCV	ug/L	166.7	114 %	80-120	
2,3-Dibromopropionic Acid	552	12/14/16:214954SBL (SP 1614727-001)	Blank	ug/L	5.000	78.1 %	70-130	
			LCS	ug/L	5.000	130 %	70-130	
			MS	ug/L	5.000	72.5 %	70-130	
			MSD	ug/L	5.000	68.2 %	70-130	435
			MSRPD	ug/L	5.000	0.21	≤1	
	552	12/14/16:214954SBL	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	87.8 %	70-130	
			MS	ug/L	10.00	89.3 %	70-130	
			MSD	ug/L	10.00	88.2 %	70-130	
			MSRPD	ug/L	5.000	1.3 %	≤20.0	
Dichloroacetic Acid	552	12/14/16:214954SBL (SP 1614727-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	83.7 %	70-130	
			MS	ug/L	10.00	92.7 %	70-130	
			MSD	ug/L	10.00	91.6 %	70-130	
			MSRPD	ug/L	5.000	1.2 %	≤20.0	
	552	12/14/16:214954SBL	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	87.7 %	70-130	
			MS	ug/L	10.00	88.6 %	70-130	
			MSD	ug/L	10.00	89.4 %	70-130	
			MSRPD	ug/L	5.000	1.0 %	≤20.0	

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Monochloroacetic Acid	552	12/14/16:214954SBL (SP 1614727-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	10.00	80.0 %	70-130	
			MS	ug/L	10.00	101 %	70-130	
			MSD	ug/L	10.00	97.9 %	70-130	
			MSRPD	ug/L	5.000	0.35	≤2	
Trichloroacetic Acid	552	12/14/16:214954SBL (SP 1614727-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	79.2 %	70-130	
			MS	ug/L	10.00	88.0 %	70-130	
			MSD	ug/L	10.00	89.0 %	70-130	
			MSRPD	ug/L	5.000	1.2%	≤20.0	
2,3-Dibromopropionic Acid	552.2	12/16/16:218252SBL	CCV	ug/L	50.00	117 %	70-130	
			CCV	ug/L	75.00	74.3 %	70-130	
Dibromoacetic Acid	552.2	12/16/16:218252SBL	CCV	ug/L	100.0	79.8 %	70-130	
			CCV	ug/L	150.0	91.7 %	70-130	
Dichloroacetic Acid	552.2	12/16/16:218252SBL	CCV	ug/L	100.0	78.0 %	70-130	
			CCV	ug/L	150.0	89.5 %	70-130	
Monobromoacetic Acid	552.2	12/16/16:218252SBL	CCV	ug/L	100.0	82.5 %	70-130	
			CCV	ug/L	150.0	89.9 %	70-130	
Monochloroacetic Acid	552.2	12/16/16:218252SBL	CCV	ug/L	100.0	81.6 %	70-130	
			CCV	ug/L	150.0	94.1 %	70-130	
Trichloroacetic Acid	552.2	12/16/16:218252SBL	CCV	ug/L	100.0	73.6 %	70-130	
			CCV	ug/L	150.0	85.5 %	70-130	
Definition								
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.								
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.								
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.								
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.								
ND : Non-detect - Result was below the DQO listed for the analyte.								
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								
Explanation								
362 : Surrogates are qualified on Control Chart Limits, these are CCV limits. See individual sample reports.								
435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.								

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	12/21/16:218742caa	CCV CCB	cpm cpm	8511	41.0 % 0.0400	38 - 47 0.18	
Gross Alpha	900.0	12/20/16:215158RMM (SP 1614875-001)	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 107.4 107.4 107.4 No Ref.	0.29 113 % 82.2 % 85.6 % 3.9%	3 75-125 60-140 60-140 ≤30	
Alpha	903.0	12/28/16:218762caa	CCV CCB	cpm cpm	8507	42.1 % 0.0800	39 - 47 0.19	
Total Alpha Radium (226)	903.0	12/20/16:215191emv	RgBlk LCS BS BSD BSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 21.86 21.86 21.86 21.86	0.009 61.1 % 60.0 % 50.9 % 16.3%	2 52-107 43-111 43-111 ≤35.5	

Definition	
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

- 1. Number of ice chests/packages received: 1
- 2. Shipper tracking numbers _____
- 3. Were samples received in a chilled condition?
Temps: ROI / _____ / _____ / _____ / _____ / _____ / _____
- 4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
- 5. Do the number of bottles received agree with the COC? Yes No N/A
- 6. Verify sample date, time, sampler Yes No N/A
- 7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) Yes No
- 8. Were sample custody seals intact? Yes No N/A

Sample Verification, Labeling and Distribution:

- 1. Were all requested analyses understood and acceptable? Yes No
- 2. Did bottle labels correspond with the client's ID's? Yes No
- 3. Were all bottles requiring sample preservation properly preserved? Yes No N/A **FGL**
[Exception: Oil & Grease, VOA and CrVI verified in lab]
- 4. VOAs checked for Headspace? Yes No N/A
- 5. Were all analyses within holding times at time of receipt? Yes No
- 6. Have rush or project due dates been checked and accepted? Yes No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and
Approved By

Milli A. Delgadillo



Digitally signed by Milli A. Delgadillo
Title: Sample Receiving
Date: 12/15/2016-10:12:06

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2019144)
Monterey Bay Analytical Services
SP 1614902
MAD-12/15/2016-10:12:06



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1612689

Report Created for: Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Project Contact: David Holland
Project P.O.:
Project Name: MPWMD

Project Received: 12/14/2016

Analytical Report reviewed & approved for release on 12/22/2016 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Bay Analytical
Project: MPWMD
WorkOrder: 1612689

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Bay Analytical
Date Received: 12/14/16 10:32
Date Prepared: 12/22/16
Project: MPWMD

WorkOrder: 1612689
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
AB58462	1612689-001A	Water	12/09/2016 12:30	GC26	131730

Analytes	Result	RL	DF	Date Analyzed
Methane	0.31	0.10	1	12/22/2016 10:54

Analyst(s): AK

 Angela Rydelius, Lab Manager



Quality Control Report

Client: Monterey Bay Analytical
Date Prepared: 12/21/16 - 12/22/16
Date Analyzed: 12/21/16 - 12/22/16
Instrument: GC26
Matrix: Water
Project: MPWMD

WorkOrder: 1612689
BatchID: 131730
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L
Sample ID: MB/LCS-131730

QC Summary Report for RSK175

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Methane	ND	1.26	0.10	1.17	-	108	70-130

QA/QC Officer

1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1612689

ClientCode: MBAS

WaterTrax
 WriteOn
 EDF
 Excel
 EQulS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

David Holland
Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940
831-375-6227 FAX: 831-641-0734

Email: mweidner@mbasinc.com; Dholland@mbas
cc/3rd Party:
PO:
ProjectNo: MPWMD

Bill to:

Accounts Payable
Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 12/14/2016

Date Logged: 12/14/2016

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1612689-001	AB58462	Water	12/9/2016 12:30	<input type="checkbox"/>	A												

Test Legend:

1	RSK175_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Agustina Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY BAY ANALYTICAL

Project: MPWMD

Work Order: 1612689

Client Contact: David Holland

QC Level: LEVEL 2

Contact's Email: mweidner@mbasinc.com; Dholland@mbasinc.com;
4mbas@sbcglobal.net; info@mbasinc.com

Comments:

Date Logged: 12/14/2016

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1612689-001A	AB58462	Water	RSK175 <Methane_4>	3	VOA w/ HCl	<input type="checkbox"/>	12/9/2016 12:30	5 days	None	<input type="checkbox"/>	

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).

- 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.

11/26/89

McCAMPBELL ANALYTICAL, INC.

1534 WILLOW PASS ROAD
PITTSBURG, CA 94565-1701

Website: www.mccampbell.com Email: main@mccampbell.com

Telephone: (877) 252-9262 Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH 24 HR 48 HR 72 HR 5 DAY

GeoTracker EDF PDF Excel Write On (DW)

Report To: David Holland Bill To:

Company: Monterey Bay Analytical Services

4 Justin Ct. Suite D

Monterey, Ca 93940 E-Mail: info@mbasinc.com

Tele: (831) 375-6227 Fax: (831) 641-0734

Project #: Project Name: MPWMD

Project Location:

Sampler Signature: Jonathan Lear

Analysis Request

Other

Comments

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				Methane			
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO ₃	Other				
✓ ASR3		12/9/16	12:30	3	V	X					X	X					X	AB58462

MTBE / BTEX & TPH as Gas (602 / 8021 + 8015)	MTBE / BTEX ONLY (EPA 602 / 8021)	TPH as Diesel / Motor Oil (8015)	Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 502.2 / 601 / 8010 / 8021 (HVOCs)	EPA 505 / 608 / 8081 (CI Pesticides)	EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners	EPA 507 / 8141 (NP Pesticides)	EPA 515 / 8151 (Acidic CI Herbicides)	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / PNAs)	CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)	Lead (200.7 / 200.8 / 6010 / 6020)
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Relinquished By: David Holland *Sehelle*

Date: 12/13 Time: 1600

Relinquished By: *[Signature]*

Date: 12/14 Time: 1032

Relinquished By: *[Signature]*

Date: Time: Received By:

ICE/° 7.5

GOOD CONDITION _____

HEAD SPACE ABSENT _____

DECLORINATED IN LAB _____

APPROPRIATE CONTAINERS _____

PRESERVED IN LAB _____

COMMENTS: BLUE ICE

VOAS O&G METALS OTHER

PRESERVATION pH<2



Sample Receipt Checklist

Client Name: **Monterey Bay Analytical**
 Project Name: **MPWMD**

Date and Time Received: **12/14/2016 10:32**
 Date Logged: **12/14/2016**
 Received by: **Agustina Venegas**
 Logged by: **Agustina Venegas**

WorkOrder No: **1612689** Matrix: Water
 Carrier: Golden State Overnight

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No NA
 Sample/Temp Blank temperature Temp: 7.8°C NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No
 (Ice Type: BLUE ICE)

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:



Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

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ELAP Certification Number: 2385

Wednesday, February 08, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Page 1 of 1

Lab Number: AB60221

Collection Date/Time: 1/17/2017 9:45 Sample Collector: LINDBERG T

Client Sample #:

Submittal Date/Time: 1/17/2017 16:25 Sample ID

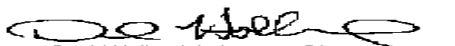
Coliform Designation:

Sample Description: ASR-2 Injectate

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Chloramines	SM4500-Cl G	mg/L	0.06		0.05		1/17/2017	LRH
Haloacetic Acids	EPA552	µg/L	9	E		60	1/26/2017	FGL
Trihalomethanes	EPA524.2	µg/L	23.1	E		80	1/23/2017	FGL

Sample Comments:

Report Approved by:



David Holland, Laboratory Director

mg/L: Milligrams per liter ug/L : Micrograms per liter PQL : Practical Quantitation Limit MCL: Maximum Contamination Level

H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments. T = Temperature Exceedance

February 8, 2017

Monterey Bay Analytical Services
 4 Justin Court
 Monterey, CA 93940

Lab ID : SP 1700853
 Customer : 2-19144

Laboratory Report

Introduction: This report package contains total of 5 pages divided into 3 sections:

Case Narrative (2 pages) : An overview of the work performed at FGL.
 Sample Results (1 page) : Results for each sample submitted.
 Quality Control (2 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
ASR-2 Injectate	01/17/2017	01/20/2017	SP 1700853-001	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 3 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Organic QC

551.1	01/23/2017:201156 All analysis quality controls are within established criteria.
	01/22/2017:200854 All preparation quality controls are within established criteria, except: The following note applies to Chloroform: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
552	01/24/2017:200967 All preparation quality controls are within established criteria.
552.2	01/26/2017:201247 All analysis quality controls are within established criteria.
	01/26/2017:201633 All analysis quality controls are within established criteria.

February 8, 2017
Monterey Bay Analytical Services

Lab ID : SP 1700853
Customer : 2-19144

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2017-02-08



February 8, 2017

Lab ID : SP 1700853-001

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : January 17, 2017-09:45

Sampled By : T. Lindberg

Received On : January 20, 2017-10:43

Matrix : Water

Description : ASR-2 Injectate

Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	103	80-120	%		551.1	01/22/17:200854	551.1	01/23/17:201156
Bromodichloromethane	8.0	0.5	ug/L		551.1	01/22/17:200854	551.1	01/23/17:201156
Bromoform	1.0	0.5	ug/L		551.1	01/22/17:200854	551.1	01/23/17:201156
Chloroform	7.2	0.5	ug/L		551.1	01/22/17:200854	551.1	01/23/17:201156
Dibromochloromethane	6.9	0.5	ug/L		551.1	01/22/17:200854	551.1	01/23/17:201156
Total Trihalomethanes	23.1	--	ug/L		551.1	01/22/17:200854	551.1	01/23/17:201156
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	101	70-130	%		552	01/24/17:200967	552.2	01/26/17:201633
Bromoacetic Acid	ND	1	ug/L		552	01/24/17:200967	552.2	01/26/17:201247
Chloroacetic Acid	ND	2	ug/L		552	01/24/17:200967	552.2	01/26/17:201247
Dibromoacetic Acid	2	1	ug/L		552	01/24/17:200967	552.2	01/26/17:201633
Dichloroacetic Acid	4	1	ug/L		552	01/24/17:200967	552.2	01/26/17:201247
Trichloroacetic Acid	3	1	ug/L		552	01/24/17:200967	552.2	01/26/17:201247
Haloacetic acids (five)	9	--	ug/L		552	01/24/17:200967	552.2	01/26/17:201247

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.

February 8, 2017
Monterey Bay Analytical Services

Lab ID : SP 1700853
Customer : 2-19144

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic Bromodichloromethane	551.1	01/22/17:200854SBL (SP 1700853-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	10.01	108 %	80-120	
			MS	ug/L	10.00	97.3 %	80-120	
			MSD	ug/L	9.881	109 %	80-120	
	MSRPD	ug/L	19.76	5.8%	≤20			
	551.1	01/23/17:201156SBL	CCV	ug/L	83.33	107 %	80-120	
			CCV	ug/L	166.7	105 %	80-120	
Bromoform	551.1	01/22/17:200854SBL (SP 1700853-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	10.01	119 %	80-120	
			MS	ug/L	10.00	111 %	80-120	
			MSD	ug/L	9.881	117 %	80-120	
	MSRPD	ug/L	19.76	3.6%	≤20			
	551.1	01/23/17:201156SBL	CCV	ug/L	83.33	118 %	80-120	
			CCV	ug/L	166.7	117 %	80-120	
Chloroform	551.1	01/22/17:200854SBL (SP 1700853-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	10.01	116 %	80-120	
			MS	ug/L	10.00	110 %	80-120	
			MSD	ug/L	9.881	126 %	80-120	435
	MSRPD	ug/L	19.76	7.7%	≤20			
	551.1	01/23/17:201156SBL	CCV	ug/L	83.33	115 %	80-120	
			CCV	ug/L	166.7	111 %	80-120	
Decafluorobiphenyl	551.1	01/22/17:200854SBL (SP 1700853-001)	Blank	ug/L	19.14	118 %	80-120	
			LCS	ug/L	20.01	118 %	80-120	
			MS	ug/L	20.00	119 %	80-120	
			MSD	ug/L	19.76	119 %	80-120	
	MSRPD	ug/L	19.76	1.3%	≤20.0			
	551.1	01/23/17:201156SBL	CCV	ug/L	166.7	118 %	80-120	
			CCV	ug/L	333.3	91.2 %	80-120	
Dibromochloromethane	551.1	01/22/17:200854SBL (SP 1700853-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	10.01	117 %	80-120	
			MS	ug/L	10.00	107 %	80-120	
			MSD	ug/L	9.881	117 %	80-120	
	MSRPD	ug/L	19.76	4.8%	≤20			
	551.1	01/23/17:201156SBL	CCV	ug/L	83.33	116 %	80-120	
			CCV	ug/L	166.7	114 %	80-120	
2,3-Dibromopropionic Acid	552	01/24/17:200967SBL (SP 1700970-001)	Blank	ug/L	5.000	116 %	70-130	
			LCS	ug/L	5.000	122 %	70-130	
			MS	ug/L	5.000	119 %	70-130	
			MSD	ug/L	5.000	118 %	70-130	
			MSRPD	ug/L	5.000	0.8%	≤20.0	
Dibromoacetic Acid	552	01/24/17:200967SBL (SP 1700970-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	74.4 %	70-130	
			MS	ug/L	10.00	94.0 %	70-130	
			MSD	ug/L	10.00	108 %	70-130	
			MSRPD	ug/L	5.000	13.7%	≤20.0	
Dichloroacetic Acid	552	01/24/17:200967SBL (SP 1700970-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	76.6 %	70-130	
			MS	ug/L	10.00	84.9 %	70-130	
			MSD	ug/L	10.00	93.9 %	70-130	
			MSRPD	ug/L	5.000	10.1%	≤20.0	
Monobromoacetic Acid	552	01/24/17:200967SBL (SP 1700970-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	78.7 %	70-130	
			MS	ug/L	10.00	90.7 %	70-130	
			MSD	ug/L	10.00	95.5 %	70-130	
			MSRPD	ug/L	5.000	4.9%	≤20.0	

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Monochloroacetic Acid	552	01/24/17:200967SBL (SP 1700970-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	10.00	78.0 %	70-130	
			MS	ug/L	10.00	95.2 %	70-130	
			MSD	ug/L	10.00	99.9 %	70-130	
			MSRPD	ug/L	5.000	0.47	≤2	
Trichloroacetic Acid	552	01/24/17:200967SBL (SP 1700970-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	80.2 %	70-130	
			MS	ug/L	10.00	84.3 %	70-130	
			MSD	ug/L	10.00	97.6 %	70-130	
			MSRPD	ug/L	5.000	14.6%	≤20.0	
2,3-Dibromopropionic Acid	552.2	01/26/17:201633SBL	CCV	ug/L	75.00	94.3 %	70-130	
			CCV	ug/L	50.00	94.8 %	70-130	
Dibromoacetic Acid	552.2	01/26/17:201633SBL	CCV	ug/L	150.0	96.5 %	70-130	
			CCV	ug/L	100.0	101 %	70-130	
Dichloroacetic Acid	552.2	01/26/17:201247SBL	CCV	ug/L	150.0	85.2 %	70-130	
			CCV	ug/L	100.0	85.5 %	70-130	
Monobromoacetic Acid	552.2	01/26/17:201247SBL	CCV	ug/L	150.0	84.5 %	70-130	
			CCV	ug/L	100.0	83.4 %	70-130	
Monochloroacetic Acid	552.2	01/26/17:201247SBL	CCV	ug/L	150.0	90.2 %	70-130	
			CCV	ug/L	100.0	80.4 %	70-130	
Trichloroacetic Acid	552.2	01/26/17:201247SBL	CCV	ug/L	150.0	90.5 %	70-130	
			CCV	ug/L	100.0	96.0 %	70-130	
Definition								
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.								
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.								
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.								
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.								
ND : Non-detect - Result was below the DQO listed for the analyte.								
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								
Explanation								
435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.								

Client: Monterey Bay Analytical Services Customer Number: 2019144 Address: 4 Justin Court Monterey, CA 93940 Phone: (831)375-6227 Fax: (831)641-0734 Email Address: info@mbasinc.com Contact Person: David Holland Project Name: MPWMD Purchase Order Number: Quote Number:				Lab Number: 170853 TEST DESCRIPTION AND ANALYSES REQUESTED																
				Method of Sampling: Composite (C) Grab (G) Number of Containers Type of Containers: (G) Glass (P) Plastic (V) VOA (MT) Metal Tube Potable (P) Non-Potable (NP) Ag Water (AgW) (SW) Surface Water (MW) Monitoring Well (GW) Ground Water (TB) Travel Blank (WW) Waste Water (DW) Drinking Water (S) Soil (SLG) Sludge (SLD) Sediment (O) Oil Bact. (S)ye System (SRC) Source (W) Waste Bact. (ROUT) Routine (RPT) Repeat (OTH) Other (RPL) Replace (LT) Lead Tissue (PET) Pesticide Tissue (PRD) Produce Preservative: (1) NaOH + ZnAc. (2) NaOH, (3) HCl (4) H2SO4, (5) HNO3, (6) Na2S2O3, (7) Other.																
Rush Analysis: <input type="checkbox"/> 5 Day <input type="checkbox"/> 4 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> 24 hour Rush pre-approval by lab (initials): _____ Electronic Data Transfer: <input type="checkbox"/> No <input type="checkbox"/> State <input type="checkbox"/> Client Other: _____ Sampler(s): T. Lindberg Sampling Fee: _____ Pickup Fee: _____ Compositor Setup Date: _____ Time: _____																				
Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling		Type of Containers		Potable	Non-Potable	Ag Water	Bact.	Bact.	(LT)	Preservative	HAA	THMS				
1.	ASR-2 Injectate	1/17/17	09:45	G	5	GV									X	X				
Remarks: AB60221 <i>5321747503</i> <i>HL</i>				Relinquished Date: Time: <i>DA 2/19/16 09</i>		Relinquished Date: Time: <i>DA 2/19/16 09</i>		Relinquished Date: Time: _____		Received By: Date: Time: <i>DA 2/17/16 13</i>		Received By: Date: Time: _____		Received By: Date: Time: _____		Received By: Date: Time: _____		Received By: Date: Time: _____		

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

- 1. Number of ice chests/packages received: 1
- 2. Shipper tracking numbers 534742563
- 3. Were samples received in a chilled condition?
Temps: 3 / / / / / /
- 4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
- 5. Do the number of bottles received agree with the COC? Yes No N/A
- 6. Verify sample date, time, sampler Yes No N/A
- 7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) Yes No
- 8. Were sample custody seals intact? Yes No N/A

Sample Verification, Labeling and Distribution:

- 1. Were all requested analyses understood and acceptable? Yes No
- 2. Did bottle labels correspond with the client's ID's? Yes No
- 3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
 [Exception: Oil & Grease, VOA and CrVI verified in lab]
- 4. VOAs checked for Headspace? Yes No N/A
- 5. Were all analyses within holding times at time of receipt? Yes No
- 6. Have rush or project due dates been checked and accepted? Yes No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and Approved By Shawn Peck  Digitally signed by Shawn Peck
Title: Sample Receiving
Date: 01/20/2017-16:26:20

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2019144)
Monterey Bay Analytical Services
SP 1700853
SRP-01/20/2017-16:26:20



Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

Wednesday, February 08, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Page 1 of 2

Lab Number: AB60297

Collection Date/Time: 1/18/2017 10:30 Sample Collector: LINDBERG, T

Client Sample #:

Submittal Date/Time: 1/18/2017 14:15 Sample ID

Coliform Designation:

Sample Description: SMS (D)

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	145		10		1/20/2017	BS
Aluminum, Total	EPA200.8	µg/L	Not Detected		10	1000	1/31/2017	SM
Ammonia-N	SM4500NH3 D	mg/L	Not Detected		0.05		1/31/2017	MW
Arsenic, Total	EPA200.8	µg/L	1	SS	1	10	1/31/2017	SM
Barium, Total	EPA200.8	µg/L	45		10	1000	1/31/2017	SM
Bicarbonate (as HCO3-)	SM2320B	mg/L	177		10		1/20/2017	LRH
Boron	EPA200.7	mg/L	Not Detected		0.05		1/19/2017	MW
Bromide	EPA300.0	mg/L	Not Detected		0.1		1/19/2017	MW
Calcium	EPA200.7	mg/L	51		0.5		1/19/2017	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected		10		1/20/2017	LRH
Chloramines	SM4500-Cl G	mg/L	0.19		0.05		1/18/2017	LRH
Chloride	EPA300.0	mg/L	31		1	250	1/19/2017	MW
DOC	SM5310C	mg/L	1.6		0.2		2/2/2017	MW
Fluoride	EPA300.0	mg/L	0.3		0.1	2.0	1/19/2017	MW
Gross Alpha	EPA900.0	pCi/L	2.84 ± 1.45	E		15	1/27/2017	FGL
Haloacetic Acids	EPA552	µg/L	16	E		60	1/26/2017	FGL
Iron	EPA200.7	µg/L	Not Detected		10	300	1/19/2017	MW
Iron, Dissolved	EPA200.7	µg/L	Not Detected		10	300	1/19/2017	MW
Kjeldahl Nitrogen	SM4500-NH3 B,	mg/L	Not Detected		0.5		2/2/2017	BS
Lithium	EPA200.8	µg/L	6		1		1/31/2017	SM
Magnesium	EPA200.7	mg/L	13		0.5		1/19/2017	MW
Manganese, Dissolved	EPA200.7	µg/L	Not Detected		10	50	1/19/2017	MW
Manganese, Total	EPA200.7	µg/L	Not Detected		10	50	1/19/2017	MW
Mercury, Total	EPA200.8	µg/L	Not Detected		0.5	2	1/31/2017	SM
Methane	EPA174/175	µg/L	0.60	E	0.1		1/25/2017	MCCAM
Molybdenum, Total	EPA200.8	µg/L	3		1	1000	1/31/2017	SM
Nickel, Total	EPA200.8	µg/L	Not Detected		10	100	1/31/2017	SM
Nitrate as NO3	EPA300.0	mg/L	Not Detected		1	45	1/19/2017	MW
Nitrate as NO3-N	EPA300.0	mg/L	Not Detected		0.1	10	1/19/2017	MW
Nitrate+Nitrite as N	EPA300.0	mg/L	Not Detected		0.1		1/19/2017	MW
Nitrite as NO2-N	EPA300.0	mg/L	Not Detected	IA	0.1	1.0	1/19/2017	MW
o-Phosphate-P, Dissolved	EPA300.0	mg/L	0.2		0.1		1/19/2017	MW
pH (Laboratory)	SM4500-H+B	pH (H)	7.7		0.1		1/18/2017	BS
Phosphorus, Total	HACH 8190	mg/L	0.26		0.03		1/25/2017	LRH
Potassium	EPA200.7	mg/L	3.3		0.5		1/19/2017	MW
QC Anion Sum x 100	Calculation	%	103%				1/20/2017	HM
QC Anion-Cation Balance	Calculation	%	3				1/24/2017	LRH
QC Cation Sum x 100	Calculation	%	109%				1/24/2017	LRH
QC Ratio TDS/SEC	Calculation		0.62				1/26/2017	MP
Selenium, Total	EPA200.8	µg/L	2		2	50	1/31/2017	SM
Silica as SiO2, Total	EPA200.7	mg/L	23		0.5		1/19/2017	MW
Sodium	EPA200.7	mg/L	48		0.5		1/19/2017	MW

mg/L: Milligrams per liter ug/L : Micrograms per liter PQL : Practical Quantitation Limit MCL: Maximum Contamination Level

H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments. T = Temperature Exceedance

Lab Number: AB60297

Collection Date/Time: 1/18/2017 10:30 Sample Collector: LINDBERG, T

Client Sample #:

Submittal Date/Time: 1/18/2017 14:15 Sample ID

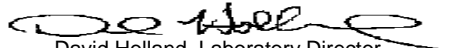
Coliform Designation:

Sample Description: SMS (D)

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Specific Conductance (E.C)	SM2510B	µmhos/cm	533		1	900	1/20/2017	BS
Strontium, Total	EPA200.8	µg/L	325		5		1/31/2017	SM
Sulfate	EPA300.0	mg/L	82		1	250	1/19/2017	MW
TOC	SM5310C	mg/L	1.5		0.2		2/2/2017	MW
Total Diss. Solids	SM2540C	mg/L	331	H	10	500	1/24/2017	MP
Total Nitrogen	Calculation	mg/L	Not Detected		0.5		2/2/2017	MP
Total Radium 226	EPA903.0	pCi/L	0.000 ± 0.171	E		3	1/26/2017	FGL
Trihalomethanes	EPA524.2	µg/L	41.0	E		80	1/24/2017	FGL
Uranium by ICP/MS	EPA200.8	µg/L	1		1	30	1/31/2017	SM
Vanadium, Total	EPA200.8	µg/L	Not Detected		5	1000	1/31/2017	SM
Zinc, Total	EPA200.8	µg/L	Not Detected		20	5000	1/31/2017	SM

Sample Comments: IA: Results are valid even though CCV recovery outside of limits. H: Analyzed outside of holding time. (analyzed at 7 days 1 hrs,10min) SS: Second Source recovery exceeds method control limit.

Report Approved by:



David Holland, Laboratory Director

mg/L: Milligrams per liter ug/L : Micrograms per liter PQL : Practical Quantitation Limit MCL: Maximum Contamination Level

H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments. T = Temperature Exceedance

February 3, 2017

Monterey Bay Analytical Services
 4 Justin Court
 Monterey, CA 93940

Lab ID : SP 1700852
 Customer : 2-19144

Laboratory Report

Introduction: This report package contains total of 7 pages divided into 3 sections:

- Case Narrative (2 pages) : An overview of the work performed at FGL.
- Sample Results (2 pages) : Results for each sample submitted.
- Quality Control (3 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
SMS (D)	01/18/2017	01/20/2017	SP 1700852-001	DW

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 3 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Organic QC

551.1	01/24/2017:201156 All analysis quality controls are within established criteria.
	01/22/2017:200854 All preparation quality controls are within established criteria, except: The following note applies to Decafluorobiphenyl, Dibromochloromethane, Bromoform, Chloroform: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
552	01/25/2017:201016 All preparation quality controls are within established criteria.
552.2	01/26/2017:201633 All analysis quality controls are within established criteria.

February 3, 2017
Monterey Bay Analytical Services

Lab ID : SP 1700852
Customer : 2-19144

Radio QC

900.0	01/27/2017:201535 All analysis quality controls are within established criteria.
	01/26/2017:201063 All preparation quality controls are within established criteria.
903.0	01/26/2017:201341 All analysis quality controls are within established criteria.
	01/23/2017:200919 All preparation quality controls are within established criteria.

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2017-02-03



February 3, 2017

Lab ID : SP 1700852-001
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : January 18, 2017-10:30
Sampled By : T. Lindberg
Received On : January 20, 2017-10:43
Matrix : Drinking Water

Description : SMS (D)
Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	107	80-120	%		551.1	01/22/17:200854	551.1	01/24/17:201156
Bromodichloromethane	13.5	0.5	ug/L		551.1	01/22/17:200854	551.1	01/24/17:201156
Bromoform	1.2	0.5	ug/L		551.1	01/22/17:200854	551.1	01/24/17:201156
Chloroform	16.5	0.5	ug/L		551.1	01/22/17:200854	551.1	01/24/17:201156
Dibromochloromethane	9.8	0.5	ug/L		551.1	01/22/17:200854	551.1	01/24/17:201156
Total Trihalomethanes	41.0	--	ug/L	80	551.1	01/22/17:200854	551.1	01/24/17:201156
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	76.6	70-130	%		552	01/25/17:201016	552.2	01/26/17:201633
Bromoacetic Acid	1	1	ug/L		552	01/25/17:201016	552.2	01/26/17:201633
Chloroacetic Acid	ND	2	ug/L		552	01/25/17:201016	552.2	01/26/17:201633
Dibromoacetic Acid	2	1	ug/L		552	01/25/17:201016	552.2	01/26/17:201633
Dichloroacetic Acid	6	1	ug/L		552	01/25/17:201016	552.2	01/26/17:201633
Trichloroacetic Acid	7	1	ug/L		552	01/25/17:201016	552.2	01/26/17:201633
Haloacetic acids (five)	16	--	ug/L	60	552	01/25/17:201016	552.2	01/26/17:201633

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.
MCL = Maximum Contamination Level. 2 - Secondary Standard. 3 - CDPH Notification Level. AL = Regulatory Action Level.



February 3, 2017

Lab ID : SP 1700852-001

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : January 18, 2017-10:30

Sampled By : T. Lindberg

Received On : January 20, 2017-10:43

Matrix : Drinking Water

Description : SMS (D)

Project : MPWMD

Sample Result - Radio

Table with 7 columns: Constituent, Result ± Error, MDA, Units, MCL/AL, Sample Preparation (Method, Date/ID), Sample Analysis (Method, Date/ID). Rows include Radio Chemistry, Gross Alpha, and Total Alpha Radium (226).

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L

Uranium is less than or equal to 20 pCi/L

Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



February 3, 2017
Monterey Bay Analytical Services

Lab ID : SP 1700852
Customer : 2-19144

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic Bromodichloromethane	551.1	01/22/17:200854SBL (SP 1700852-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.687	90.9 %	80-120	
			MS	ug/L	10.27	98.9 %	80-120	
			MSD	ug/L	9.973	120 %	80-120	
			MSRPD	ug/L	19.95	7.4%	≤20	
	551.1	01/24/17:201156SBL	CCV	ug/L	166.7	105 %	80-120	
			CCV	ug/L	83.33	103 %	80-120	
Bromoform	551.1	01/22/17:200854SBL (SP 1700852-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.687	100 %	80-120	
			MS	ug/L	10.27	119 %	80-120	
			MSD	ug/L	9.973	129 %	80-120	435
			MSRPD	ug/L	19.95	4.8%	≤20	
	551.1	01/24/17:201156SBL	CCV	ug/L	166.7	117 %	80-120	
			CCV	ug/L	83.33	115 %	80-120	
Chloroform	551.1	01/22/17:200854SBL (SP 1700852-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.687	95.9 %	80-120	
			MS	ug/L	10.27	101 %	80-120	
			MSD	ug/L	9.973	124 %	80-120	435
			MSRPD	ug/L	19.95	7.2%	≤20	
	551.1	01/24/17:201156SBL	CCV	ug/L	166.7	111 %	80-120	
			CCV	ug/L	83.33	113 %	80-120	
Decafluorobiphenyl	551.1	01/22/17:200854SBL (SP 1700852-001)	Blank	ug/L	19.35	118 %	80-120	
			LCS	ug/L	19.37	96.8 %	80-120	
			MS	ug/L	20.53	123 %	80-120	435
			MSD	ug/L	19.95	117 %	80-120	
			MSRPD	ug/L	19.95	7.7%	≤20.0	
	551.1	01/24/17:201156SBL	CCV	ug/L	333.3	91.2 %	80-120	
			CCV	ug/L	166.7	109 %	80-120	
Dibromochloromethane	551.1	01/22/17:200854SBL (SP 1700852-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.687	98.1 %	80-120	
			MS	ug/L	10.27	111 %	80-120	
			MSD	ug/L	9.973	130 %	80-120	435
			MSRPD	ug/L	19.95	7.0%	≤20	
	551.1	01/24/17:201156SBL	CCV	ug/L	166.7	114 %	80-120	
			CCV	ug/L	83.33	110 %	80-120	
2,3-Dibromopropionic Acid	552	01/25/17:201016SBL (SP 1700852-001)	Blank	ug/L	5.000	79.0 %	70-130	
			LCS	ug/L	5.000	89.7 %	70-130	
			MS	ug/L	5.000	94.1 %	70-130	
			MSD	ug/L	5.000	114 %	70-130	
			MSRPD	ug/L	5.000	19.1%	≤20.0	
Dibromoacetic Acid	552	01/25/17:201016SBL (SP 1700852-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	71.4 %	70-130	
			MS	ug/L	10.00	76.4 %	70-130	
			MSD	ug/L	10.00	93.4 %	70-130	
			MSRPD	ug/L	5.000	16.1%	≤20.0	
Dichloroacetic Acid	552	01/25/17:201016SBL (SP 1700852-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	73.5 %	70-130	
			MS	ug/L	10.00	72.9 %	70-130	
			MSD	ug/L	10.00	94.2 %	70-130	
			MSRPD	ug/L	5.000	15.1%	≤20.0	
Monobromoacetic Acid	552	01/25/17:201016SBL (SP 1700852-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	74.8 %	70-130	
			MS	ug/L	10.00	90.8 %	70-130	
			MSD	ug/L	10.00	113 %	70-130	
			MSRPD	ug/L	5.000	19.0%	≤20.0	

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Monochloroacetic Acid	552	01/25/17:201016SBL (SP 1700852-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	10.00	77.3 %	70-130	
			MS	ug/L	10.00	71.9 %	70-130	
			MSD	ug/L	10.00	83.9 %	70-130	
			MSRPD	ug/L	5.000	1.2	≤2	
Trichloroacetic Acid	552	01/25/17:201016SBL (SP 1700852-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	77.8 %	70-130	
			MS	ug/L	10.00	77.9 %	70-130	
			MSD	ug/L	10.00	99.8 %	70-130	
			MSRPD	ug/L	5.000	13.8%	≤20.0	
2,3-Dibromopropionic Acid	552.2	01/26/17:201633SBL	CCV	ug/L	75.00	94.3 %	70-130	
			CCV	ug/L	50.00	94.8 %	70-130	
Dibromoacetic Acid	552.2	01/26/17:201633SBL	CCV	ug/L	150.0	96.5 %	70-130	
			CCV	ug/L	100.0	101 %	70-130	
Dichloroacetic Acid	552.2	01/26/17:201633SBL	CCV	ug/L	150.0	98.3 %	70-130	
			CCV	ug/L	100.0	105 %	70-130	
Monobromoacetic Acid	552.2	01/26/17:201633SBL	CCV	ug/L	150.0	97.0 %	70-130	
			CCV	ug/L	100.0	101 %	70-130	
Monochloroacetic Acid	552.2	01/26/17:201633SBL	CCV	ug/L	150.0	96.4 %	70-130	
			CCV	ug/L	100.0	102 %	70-130	
Trichloroacetic Acid	552.2	01/26/17:201633SBL	CCV	ug/L	150.0	102 %	70-130	
			CCV	ug/L	100.0	117 %	70-130	
Definition								
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.								
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.								
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.								
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.								
ND : Non-detect - Result was below the DQO listed for the analyte.								
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								
Explanation								
435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.								

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	01/27/17:201535rmm	CCV CCB	cpm cpm	8484	40.6 % 0.020	37 - 45 0.2	
Gross Alpha	900.0	01/26/17:201063RMM (SP 1701039-001)	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 108.2 108.2 108.2 No Ref.	0.54 109 % 100 % 94.2 % 5.5%	3 75-125 60-140 60-140 ≤30	
Alpha	903.0	01/26/17:201341caa	CCV CCB	cpm cpm	8485	42.4 % 0.100	38 - 46 0.16	
Total Alpha Radium (226)	903.0	01/23/17:200919emv	RgBlk LCS BS BSD BSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 21.86 21.86 21.86 21.86	0.13 60.3 % 43.6 % 47.7 % 0.91	2 52-107 43-111 43-111 ≤2	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

- 1. Number of ice chests/packages received: 1
- 2. Shipper tracking numbers 534742563
- 3. Were samples received in a chilled condition?
Temps: 3 / / / / / /
- 4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
- 5. Do the number of bottles received agree with the COC? Yes No N/A
- 6. Verify sample date, time, sampler Yes No N/A
- 7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) Yes No
- 8. Were sample custody seals intact? Yes No N/A

Sample Verification, Labeling and Distribution:

- 1. Were all requested analyses understood and acceptable? Yes No
- 2. Did bottle labels correspond with the client's ID's? Yes No
- 3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
 [Exception: Oil & Grease, VOA and CrVI verified in lab]
- 4. VOAs checked for Headspace? Yes No N/A
- 5. Were all analyses within holding times at time of receipt? Yes No
- 6. Have rush or project due dates been checked and accepted? Yes No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and Approved By Shawn Peck  Digitally signed by Shawn Peck
Title: Sample Receiving
Date: 01/20/2017-16:21:09

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2019144)
Monterey Bay Analytical Services
SP 1700852
SRP-01/20/2017-16:21:09



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1701857

Report Created for: Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Project Contact: David Holland
Project P.O.:
Project Name: MPWMD

Project Received: 01/20/2017

Analytical Report reviewed & approved for release on 01/27/2017 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Bay Analytical
Project: MPWMD
WorkOrder: 1701857

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Bay Analytical
Date Received: 1/20/17 9:52
Date Prepared: 1/25/17
Project: MPWMD

WorkOrder: 1701857
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SMS (D)	1701857-001A	Water	01/18/2017 10:30	GC26	133141

Analytes	Result	RL	DF	Date Analyzed
Methane	0.60	0.10	1	01/25/2017 14:09

Analyst(s): AK

 Angela Rydelius, Lab Manager



Quality Control Report

Client: Monterey Bay Analytical
Date Prepared: 1/25/17
Date Analyzed: 1/25/17
Instrument: GC26
Matrix: Water
Project: MPWMD

WorkOrder: 1701857
BatchID: 133141
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L
Sample ID: MB/LCS-133141

QC Summary Report for RSK175

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Methane	ND	1.07	0.10	1.17	-	91	70-130

QA/QC Officer



1534 Willow Pass Rd
 Pittsburg, CA 94565-1701
 (925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1701857

ClientCode: MBAS

WaterTrax
 WriteOn
 EDF
 Excel
 EQulS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

David Holland
 Monterey Bay Analytical
 4 Justin Court, Suite D
 Monterey, CA 93940
 831-375-6227 FAX: 831-641-0734

Email: mweidner@mbasinc.com; Dholland@mbas
 cc/3rd Party:
 PO:
 ProjectNo: MPWMD

Bill to:

Accounts Payable
 Monterey Bay Analytical
 4 Justin Court, Suite D
 Monterey, CA 93940

Requested TAT: 5 days;

Date Received: **01/20/2017**

Date Logged: **01/20/2017**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1701857-001	SMS (D)	Water	1/18/2017 10:30	<input type="checkbox"/>	A												

Test Legend:

1	RSK175_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Jena Alfaro

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
 Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY BAY ANALYTICAL

Project: MPWMD

Work Order: 1701857

Client Contact: David Holland

QC Level: LEVEL 2

Contact's Email: mweidner@mbasinc.com; Dholland@mbasinc.com;
4mbas@sbcglobal.net; info@mbasinc.com

Comments:

Date Logged: 1/20/2017

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1701857-001A	SMS (D)	Water	RSK175 <Methane_4>	3	VOA w/ HCl	<input type="checkbox"/>	1/18/2017 10:30	5 days	None	<input type="checkbox"/>	

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).

- 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.



Sample Receipt Checklist

Client Name: **Monterey Bay Analytical**
 Project Name: **MPWMD**

Date and Time Received: **1/20/2017 09:52**
 Date Logged: **1/20/2017**
 Received by: **Jena Alfaro**
 Logged by: **Jena Alfaro**

WorkOrder No: **1701857** Matrix:
 Carrier: Golden State Overnight

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No NA
 Sample/Temp Blank temperature Temp: 5.2°C NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No
 (Ice Type: BLUE ICE)

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:



Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

MPWMD
Jonathan Lear
P.O. Box 85
Monterey, CA 93442-0085

Page 1 of 1

Friday, March 03, 2017

Lab Number: AB61099

Collection Date/Time: 2/1/2017 10:00 Sample Collector: J LEAR

Client Sample #:

Submittal Date/Time: 2/1/2017 15:36 Sample ID

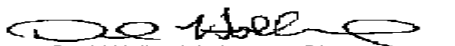
Coliform Designation:

Sample Description: MW-1

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Chloramines	SM4500-Cl G	mg/L	0.08		0.05		2/1/2017	LRH
Haloacetic Acids	EPA552	µg/L	21	E		60	2/7/2017	FGL
Trihalomethanes	EPA524.2	µg/L	69.6	E		80	2/9/2017	FGL

Sample Comments:

Report Approved by:


David Holland, Laboratory Director

March 2, 2017

Monterey Bay Analytical Services
 4 Justin Court
 Monterey, CA 93940

Lab ID : SP 1701517
 Customer : 2-19144

Laboratory Report

Introduction: This report package contains total of 5 pages divided into 3 sections:

Case Narrative (2 pages) : An overview of the work performed at FGL.
 Sample Results (1 page) : Results for each sample submitted.
 Quality Control (2 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
MW-1	02/01/2017	02/03/2017	SP 1701517-001	GW

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 3 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Organic QC

551.1	02/09/2017:202106 All analysis quality controls are within established criteria
	02/10/2017:202138 All analysis quality controls are within established criteria
	02/08/2017:201525 All preparation quality controls are within established criteria
552	02/06/2017:201474 All preparation quality controls are within established criteria
552.2	02/07/2017:201990 All analysis quality controls are within established criteria

March 2, 2017
Monterey Bay Analytical Services

Lab ID : SP 1701517
Customer : 2-19144

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2017-03-02



March 2, 2017

Lab ID : SP 1701517-001

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : February 1, 2017-10:00

Sampled By : Jonathan Lear

Received On : February 3, 2017-12:35

Matrix : Ground Water

Description : MW-1

Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	102	80-120	%		551.1	02/08/17:201525	551.1	02/09/17:202106
Bromodichloromethane	14.8	0.5	ug/L		551.1	02/08/17:201525	551.1	02/09/17:202106
Bromoform	1.2	0.5	ug/L		551.1	02/08/17:201525	551.1	02/09/17:202106
Chloroform	45.6	2.5*	ug/L		551.1	02/08/17:201525	551.1	02/10/17:202138
Dibromochloromethane	8.0	0.5	ug/L		551.1	02/08/17:201525	551.1	02/09/17:202106
Total Trihalomethanes	69.6	--	ug/L		551.1	02/08/17:201525	551.1	02/09/17:202106
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	119	70-130	%		552	02/06/17:201474	552.2	02/07/17:201990
Bromoacetic Acid	ND	1	ug/L		552	02/06/17:201474	552.2	02/07/17:201990
Chloroacetic Acid	ND	2	ug/L		552	02/06/17:201474	552.2	02/07/17:201990
Dibromoacetic Acid	2	1	ug/L		552	02/06/17:201474	552.2	02/07/17:201990
Dichloroacetic Acid	9	1	ug/L		552	02/06/17:201474	552.2	02/07/17:201990
Trichloroacetic Acid	10	1	ug/L		552	02/06/17:201474	552.2	02/07/17:201990
Haloacetic acids (five)	21	--	ug/L		552	02/06/17:201474	552.2	02/07/17:201990

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.

March 2, 2017
Monterey Bay Analytical Services

Lab ID : SP 1701517
Customer : 2-19144

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note	
Organic	551.1	02/08/17:201525SBL (SP 1701517-001)	Blank	ug/L		ND	<0.5		
			LCS	ug/L	9.464	107 %	80-120		
			MS	ug/L	9.807	110 %	80-120		
			MSD	ug/L	9.839	99.0 %	80-120		
			MSRPD	ug/L	19.68	4.2%	≤20		
	551.1	02/09/17:202106SBL	CCV	ug/L	83.33	105 %	80-120		
			CCV	ug/L	166.7	104 %	80-120		
	Bromodichloromethane	551.1	02/08/17:201525SBL (SP 1701517-001)	Blank	ug/L		ND	<0.5	
				LCS	ug/L	9.464	109 %	80-120	
				MS	ug/L	9.807	109 %	80-120	
MSD				ug/L	9.839	104 %	80-120		
MSRPD				ug/L	19.68	4.3%	≤20		
551.1		02/09/17:202106SBL	CCV	ug/L	83.33	102 %	80-120		
			CCV	ug/L	166.7	105 %	80-120		
Bromoform		551.1	02/08/17:201525SBL (SP 1701517-001)	Blank	ug/L		ND	<0.5	
				LCS	ug/L	9.464	109 %	80-120	
				MS	ug/L	9.807	161 %	<14	
	MSD			ug/L	9.839	111 %	80-120		
	MSRPD			ug/L	19.68	8.3%	≤20		
	551.1	02/10/17:202138SBL	CCV	ug/L	83.33	111 %	80-120		
			CCV	ug/L	166.7	120 %	80-120		
	Chloroform	551.1	02/08/17:201525SBL (SP 1701517-001)	Blank	ug/L		ND	<0.5	
				LCS	ug/L	9.464	109 %	80-120	
				MS	ug/L	9.807	161 %	<14	
MSD				ug/L	9.839	111 %	80-120		
MSRPD				ug/L	19.68	8.3%	≤20		
551.1		02/10/17:202138SBL	CCV	ug/L	83.33	111 %	80-120		
			CCV	ug/L	166.7	120 %	80-120		
Decafluorobiphenyl		551.1	02/08/17:201525SBL (SP 1701517-001)	Blank	ug/L	19.63	95.6 %	80-120	
				LCS	ug/L	18.93	110 %	80-120	
				MS	ug/L	19.61	117 %	80-120	
	MSD			ug/L	19.68	118 %	80-120		
	MSRPD			ug/L	19.68	0.9%	≤20.0		
	551.1	02/09/17:202106SBL	CCV	ug/L	166.7	112 %	80-120		
			CCV	ug/L	333.3	105 %	80-120		
	Dibromochloromethane	551.1	02/08/17:201525SBL (SP 1701517-001)	Blank	ug/L		ND	<0.5	
				LCS	ug/L	9.464	108 %	80-120	
				MS	ug/L	9.807	109 %	80-120	
MSD				ug/L	9.839	101 %	80-120		
MSRPD				ug/L	19.68	4.1%	≤20		
551.1		02/09/17:202106SBL	CCV	ug/L	83.33	104 %	80-120		
			CCV	ug/L	166.7	105 %	80-120		
2,3-Dibromopropionic Acid		552	02/06/17:201474SBL (CC 1780314-001)	Blank	ug/L	5.000	106 %	70-130	
				LCS	ug/L	5.000	85.0 %	70-130	
				MS	ug/L	5.000	100 %	70-130	
	MSD			ug/L	5.000	98.3 %	70-130		
	MSRPD			ug/L	5.000	0.10	≤1		
	552	02/06/17:201474SBL	Blank	ug/L		ND	<1		
			LCS	ug/L	10.00	75.0 %	70-130		
	Dibromoacetic Acid	552	02/06/17:201474SBL (CC 1780314-001)	Blank	ug/L		ND	<1	
				LCS	ug/L	10.00	75.0 %	70-130	
				MS	ug/L	10.00	79.2 %	70-130	
MSD				ug/L	10.00	84.5 %	70-130		
MSRPD				ug/L	5.000	4.6%	≤20.0		
552		02/06/17:201474SBL	Blank	ug/L		ND	<1		
			LCS	ug/L	10.00	77.0 %	70-130		
Dichloroacetic Acid		552	02/06/17:201474SBL (CC 1780314-001)	Blank	ug/L		ND	<1	
				LCS	ug/L	10.00	77.0 %	70-130	
				MS	ug/L	10.00	85.2 %	70-130	
	MSD			ug/L	10.00	90.2 %	70-130		
	MSRPD			ug/L	5.000	4.3%	≤20.0		
	552	02/06/17:201474SBL	Blank	ug/L		ND	<1		
			LCS	ug/L	10.00	78.9 %	70-130		
	Monobromoacetic Acid	552	02/06/17:201474SBL (CC 1780314-001)	Blank	ug/L		ND	<1	
				LCS	ug/L	10.00	78.9 %	70-130	
				MS	ug/L	10.00	86.8 %	70-130	
MSD				ug/L	10.00	88.1 %	70-130		
MSRPD				ug/L	5.000	1.4%	≤20.0		

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Monochloroacetic Acid	552	02/06/17:201474SBL (CC 1780314-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	10.00	87.7 %	70-130	
			MS	ug/L	10.00	130 %	70-130	
			MSD	ug/L	10.00	128 %	70-130	
			MSRPD	ug/L	5.000	1.6%	≤20.0	
Trichloroacetic Acid	552	02/06/17:201474SBL (CC 1780314-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	80.7 %	70-130	
			MS	ug/L	10.00	94.5 %	70-130	
			MSD	ug/L	10.00	101 %	70-130	
			MSRPD	ug/L	5.000	5.1%	≤20.0	
2,3-Dibromopropionic Acid	552.2	02/07/17:201990SBL	CCV	ug/L	50.00	88.8 %	70-130	
			CCV	ug/L	75.00	89.0 %	70-130	
Dibromoacetic Acid	552.2	02/07/17:201990SBL	CCV	ug/L	100.0	83.0 %	70-130	
			CCV	ug/L	150.0	88.0 %	70-130	
Dichloroacetic Acid	552.2	02/07/17:201990SBL	CCV	ug/L	100.0	79.8 %	70-130	
			CCV	ug/L	150.0	92.6 %	70-130	
Monobromoacetic Acid	552.2	02/07/17:201990SBL	CCV	ug/L	100.0	80.8 %	70-130	
			CCV	ug/L	150.0	88.2 %	70-130	
Monochloroacetic Acid	552.2	02/07/17:201990SBL	CCV	ug/L	100.0	94.8 %	70-130	
			CCV	ug/L	150.0	95.0 %	70-130	
Trichloroacetic Acid	552.2	02/07/17:201990SBL	CCV	ug/L	100.0	98.6 %	70-130	
			CCV	ug/L	150.0	103 %	70-130	
Definition								
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.								
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.								
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.								
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.								
ND : Non-detect - Result was below the DQO listed for the analyte.								
<¼ : High Sample Background - Spike concentration was less than one fourth of the sample concentration.								
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								

534907048

Client: Monterey Bay Analytical Services Customer Number: 2019144 Address: 4 Justin Court Monterey, CA 93940 Phone: (831)375-6227 Fax: (831)641-0734 Email Address: info@mbasinc.com Contact Person: David Holland Project Name: MPWMD Purchase Order Number: Quote Number:				Lab Number: 170517 TEST DESCRIPTION AND ANALYSES REQUESTED																			
Rush Analysis: <input type="checkbox"/> 5 Day <input type="checkbox"/> 4 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> 24 hour Rush pre-approval by lab (initials): _____ Electronic Data Transfer: <input type="checkbox"/> No <input type="checkbox"/> State <input type="checkbox"/> Client Other: _____				Method of Sampling: Composite (C) Grab (G) Number of Containers Type of Containers: (G) Glass (P) Plastic (M) VOA (MT) Metal Tube Potable (P) Non-Potable (NP) Ag Water (AgW) (SW) Surface Water (MW) Monitoring Well (GW) Ground Water (TB) Travel Blank (WW) Waste Water (DW) Drinking Water (S) Spill (SLG) Sludge (SLD) Sediment (O) Oil Bact. (Sys) System (SRC) Source (W) Waste Bact. (ROUT) Routine (RPT) Repeat (OTH) Other (RPL) Replace (LT) Leaf Tissue (PET) Petiole Tissue (PRD) Produce Preservatives: (1) NaOH + ZnAc, (2) NaOH, (3) HCl (4) H2SO4, (5) HNO3, (6) Na2S2O3, (7) Other: _____ HAA THMS																			
Sampler(s): Jonathan Lear Sampling Fee: _____ Pickup Fee: _____ Compositor Setup Date: _____ Time: _____																							
Samp Num	Location Description	Date Sampled	Time Sampled	G	5	G/V	P																
1.	MW-1	2/1/17	10:00	G	5	G/V	P																
Remarks: AB61099				Relinquished Date: Time: 2/2/17 1600				Relinquished Date: Time: 2/3/17 1235				Relinquished Date: Time:											
Received By:				Received By:				Received By:				Received By:											

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Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

- 1. Number of ice chests/packages received: 1
- 2. Shipper tracking numbers 534907048
- 3. Were samples received in a chilled condition?
Temps: 3 / / / / / /
- 4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
- 5. Do the number of bottles received agree with the COC? Yes No N/A
- 6. Verify sample date, time, sampler Yes No N/A
- 7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) Yes No
- 8. Were sample custody seals intact? Yes No N/A

Sample Verification, Labeling and Distribution:

- 1. Were all requested analyses understood and acceptable? Yes No
- 2. Did bottle labels correspond with the client's ID's? Yes No
- 3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
 [Exception: Oil & Grease, VOA and CrVI verified in lab]
- 4. VOAs checked for Headspace? Yes No N/A
- 5. Were all analyses within holding times at time of receipt? Yes No
- 6. Have rush or project due dates been checked and accepted? Yes No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and Approved By Shawn Peck  Digitally signed by Shawn Peck
Title: Sample Receiving
Date: 02/06/2017-10:16:54

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2019144)
Monterey Bay Analytical Services
SP 1701517
SRP-02/06/2017-10:16:54



Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

MPWMD
 Jonathan Lear
 P.O. Box 85
 Monterey, CA 93442-0085

Lab Number: AB62919

Collection Date/Time: 3/7/2017 11:00 Sample Collector: LEAR J/LINDBERG T

Client Sample #:

Submittal Date/Time: 3/7/2017 14:30 Sample ID

Coliform Designation:

Sample Description: ASR-4 Backflush

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	176		10		3/13/2017	BS
Aluminum, Total	EPA200.8	µg/L	Not Detected	LQ	10	1000	3/10/2017	SM
Ammonia-N	SM4500NH3 D	mg/L	Not Detected		0.05		3/10/2017	MW
Arsenic, Total	EPA200.8	µg/L	7		1	10	3/10/2017	SM
Barium, Total	EPA200.8	µg/L	29		10	1000	3/10/2017	SM
Bicarbonate (as HCO3-)	SM2320B	mg/L	215		10		3/13/2017	LRH
Boron	EPA200.7	mg/L	0.08		0.05		3/13/2017	MW
Bromide	EPA300.0	mg/L	0.2		0.1		3/8/2017	HM
Calcium	EPA200.7	mg/L	49		0.5		3/13/2017	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected		10		3/13/2017	LRH
Chloramines	SM4500-Cl G	mg/L	Not Detected		0.05		3/7/2017	LRH
Chloride	EPA300.0	mg/L	77		1	250	3/8/2017	HM
DOC	SM5310C	mg/L	0.9	IA	0.2		4/4/2017	MW
Fluoride	EPA300.0	mg/L	0.2		0.1	2.0	3/8/2017	HM
Gross Alpha	EPA900.0	pCi/L	1.01+/-1.67	E		15	3/15/2017	FGL
Haloacetic Acids	EPA552	µg/L	Not Detected	E		60	3/14/2017	FGL
Iron	EPA200.7	µg/L	135		10	300	3/13/2017	MW
Iron, Dissolved	EPA200.7	µg/L	Not Detected		10	300	3/13/2017	MW
Kjehldahl Nitrogen	SM4500-NH3 B,	mg/L	0.8		0.5		3/14/2017	BS
Lithium	EPA200.8	µg/L	24		1		3/10/2017	SM
Magnesium	EPA200.7	mg/L	6.0		0.5		3/13/2017	MW
Manganese, Dissolved	EPA200.7	µg/L	Not Detected		10	50	3/13/2017	MW
Manganese, Total	EPA200.7	µg/L	Not Detected		10	50	3/13/2017	MW
Mercury, Total	EPA200.8	µg/L	0.2		0.2	2	3/10/2017	SM
Methane	EPA174/175	µg/L	0.51	E	0.1		3/16/2017	MCCAM
Molybdenum, Total	EPA200.8	µg/L	24		1	1000	3/10/2017	SM
Nickel, Total	EPA200.8	µg/L	25		10	100	3/10/2017	SM
Nitrate as NO3	EPA300.0	mg/L	1		1	45	3/8/2017	HM
Nitrate as NO3-N	EPA300.0	mg/L	0.3		0.1	10	3/8/2017	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	Not Detected		0.1		3/8/2017	HM
Nitrite as NO2-N	EPA300.0	mg/L	Not Detected		0.1	1.0	3/8/2017	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	0.1		0.1		3/8/2017	HM
pH (Laboratory)	SM4500-H+B	pH (H)	7.6		0.1		3/7/2017	BS
Phosphorus, Total	HACH 8190	mg/L	0.03		0.03		3/20/2017	LRH
Potassium	EPA200.7	mg/L	4.2		0.5		3/13/2017	MW
QC Anion Sum x 100	Calculation	%	97%				3/13/2017	LRH
QC Anion-Cation Balance	Calculation	%	-3				3/15/2017	MW
QC Cation Sum x 100	Calculation	%	92%				3/15/2017	MW
QC Ratio TDS/SEC	Calculation		0.63				3/14/2017	MP
Selenium, Total	EPA200.8	µg/L	5		2	50	3/10/2017	SM
Silica as SiO2, Total	EPA200.7	mg/L	36		0.5		3/13/2017	MW
Sodium	EPA200.7	mg/L	76		0.5		3/13/2017	MW

mg/L: Milligrams per liter ug/L : Micrograms per liter PQL : Practical Quantitation Limit MCL: Maximum Contamination Level
 H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments T = Temperature Exceedance

Lab Number: AB62919

Collection Date/Time: 3/7/2017 11:00 Sample Collector: LEAR J/LINDBERG T

Client Sample #:

Submittal Date/Time: 3/7/2017 14:30 Sample ID

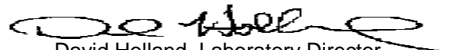
Coliform Designation:

Sample Description: ASR-4 Backflush

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Specific Conductance (E.C)	SM2510B	µmhos/cm	689		1	900	3/8/2017	HM
Strontium, Total	EPA200.8	µg/L	456		5		3/10/2017	SM
Sulfate	EPA300.0	mg/L	48		1	250	3/8/2017	HM
TOC	SM5310C	mg/L	0.8	IA	0.2		4/5/2017	MW
Total Diss. Solids	SM2540C	mg/L	437		10	500	3/9/2017	MP
Total Nitrogen	Calculation	mg/L	1.1		0.5		3/15/2017	MP
Total Radium 226	EPA903.0	pCi/L	0.318+/-0.171			3	3/11/2017	FGL
Trihalomethanes	EPA524.2	µg/L	19.3	E		80	3/9/2017	FGL
Uranium by ICP/MS	EPA200.8	µg/L	3	IJ	1	30	3/10/2017	SM
Vanadium, Total	EPA200.8	µg/L	5		5	1000	3/10/2017	SM
Zinc, Total	EPA200.8	µg/L	20	IJ	20	5000	3/10/2017	SM

Sample Comments: LQ: LCS recovery above method control limits. IJ: ICV and/or CCV above acceptance limits. IA: Results are valid even though CCV recovery outside of limits.

Report Approved by:



David Holland, Laboratory Director

mg/L: Milligrams per liter ug/L : Micrograms per liter PQL : Practical Quantitation Limit MCL: Maximum Contamination Level

H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments T = Temperature Exceedance

March 22, 2017

Monterey Bay Analytical Services
 4 Justin Court
 Monterey, CA 93940

Lab ID : SP 1702889
 Customer : 2-19144

Laboratory Report

Introduction: This report package contains total of 7 pages divided into 3 sections:

Case Narrative (2 pages) : An overview of the work performed at FGL.
 Sample Results (2 pages) : Results for each sample submitted.
 Quality Control (3 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
ASR-4 Backflush	03/07/2017	03/08/2017	SP 1702889-001	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 3 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Organic QC

551.1	03/09/2017:203607 All analysis quality controls are within established criteria.
	03/09/2017:202828 All preparation quality controls are within established criteria, except: The following note applies to Dibromochloromethane, Bromoform, Bromodichloromethane: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
552	03/13/2017:202973 All preparation quality controls are within established criteria, except: The following note applies to Monochloroacetic Acid: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
552.2	03/14/2017:203828 All analysis quality controls are within established criteria.

March 22, 2017
Monterey Bay Analytical Services

Lab ID : SP 1702889
Customer : 2-19144

Radio QC

900.0	03/16/2017:204164 All analysis quality controls are within established criteria.
	03/15/2017:203054 All preparation quality controls are within established criteria.
903.0	03/17/2017:203979 All analysis quality controls are within established criteria.
	03/11/2017:202929 All preparation quality controls are within established criteria.

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2017-03-22



March 22, 2017

Lab ID : SP 1702889-001

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : March 7, 2017-11:00

Sampled By : J.Lear/T.Lindberg

Received On : March 8, 2017-10:15

Matrix : Water

Description : ASR-4 Backflush

Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	98.9	80-120	%		551.1	03/09/17:202828	551.1	03/09/17:203607
Bromodichloromethane	5.6	0.5	ug/L		551.1	03/09/17:202828	551.1	03/09/17:203607
Bromoform	0.8	0.5	ug/L		551.1	03/09/17:202828	551.1	03/09/17:203607
Chloroform	9.4	0.5	ug/L		551.1	03/09/17:202828	551.1	03/09/17:203607
Dibromochloromethane	3.5	0.5	ug/L		551.1	03/09/17:202828	551.1	03/09/17:203607
Total Trihalomethanes	19.3	--	ug/L		551.1	03/09/17:202828	551.1	03/09/17:203607
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	84.8	70-130	%		552	03/13/17:202973	552.2	03/14/17:203828
Bromoacetic Acid	ND	1	ug/L		552	03/13/17:202973	552.2	03/14/17:203828
Chloroacetic Acid	ND	2	ug/L		552	03/13/17:202973	552.2	03/14/17:203828
Dibromoacetic Acid	ND	1	ug/L		552	03/13/17:202973	552.2	03/14/17:203828
Dichloroacetic Acid	ND	1	ug/L		552	03/13/17:202973	552.2	03/14/17:203828
Trichloroacetic Acid	ND	1	ug/L		552	03/13/17:202973	552.2	03/14/17:203828
Haloacetic acids (five)	ND	--	ug/L		552	03/13/17:202973	552.2	03/14/17:203828

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



March 22, 2017

Lab ID : SP 1702889-001

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : March 7, 2017-11:00

Sampled By : J.Lear/T.Lindberg

Received On : March 8, 2017-10:15

Matrix : Water

Description : ASR-4 Backflush

Project : MPWMD

Sample Result - Radio

Table with 7 columns: Constituent, Result ± Error, MDA, Units, MCL/AL, Sample Preparation (Method, Date/ID), Sample Analysis (Method, Date/ID). Rows include Radio Chemistry, Gross Alpha, and Total Alpha Radium (226).

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L

Uranium is less than or equal to 20 pCi/L

Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

March 22, 2017
Monterey Bay Analytical Services

Lab ID : SP 1702889
 Customer : 2-19144

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic Bromodichloromethane	551.1	03/09/17:202828SBL (SP 1702905-001)	Blank	ug/L		ND	<0.5	435
			LCS	ug/L	9.512	94.8 %	80-120	
			MS	ug/L	10.01	71.0 %	80-120	
			MSD	ug/L	9.646	79.6 %	80-120	
			MSRPD	ug/L	19.29	3.9%	≤20	
	551.1	03/09/17:203607SBL	CCV	ug/L	166.7	97.8 %	80-120	
			CCV	ug/L	83.33	88.4 %	80-120	
Bromoform	551.1	03/09/17:202828SBL (SP 1702905-001)	Blank	ug/L		ND	<0.5	435 435
			LCS	ug/L	9.512	97.0 %	80-120	
			MS	ug/L	10.01	64.5 %	80-120	
			MSD	ug/L	9.646	71.3 %	80-120	
			MSRPD	ug/L	19.29	2.1%	≤20	
	551.1	03/09/17:203607SBL	CCV	ug/L	166.7	101 %	80-120	
			CCV	ug/L	83.33	93.1 %	80-120	
Chloroform	551.1	03/09/17:202828SBL (SP 1702905-001)	Blank	ug/L		ND	<0.5	
			LCS	ug/L	9.512	95.4 %	80-120	
			MS	ug/L	10.01	83.0 %	80-120	
			MSD	ug/L	9.646	84.7 %	80-120	
			MSRPD	ug/L	19.29	1.2%	≤20	
	551.1	03/09/17:203607SBL	CCV	ug/L	166.7	95.2 %	80-120	
			CCV	ug/L	83.33	86.7 %	80-120	
Decafluorobiphenyl	551.1	03/09/17:202828SBL (SP 1702905-001)	Blank	ug/L	18.96	96.4 %	80-120	
			LCS	ug/L	19.02	109 %	80-120	
			MS	ug/L	20.01	108 %	80-120	
			MSD	ug/L	19.29	102 %	80-120	
			MSRPD	ug/L	19.29	9.5%	≤20.0	
	551.1	03/09/17:203607SBL	CCV	ug/L	333.3	93.2 %	80-120	
			CCV	ug/L	166.7	116 %	80-120	
Dibromochloromethane	551.1	03/09/17:202828SBL (SP 1702905-001)	Blank	ug/L		ND	<0.5	435 435
			LCS	ug/L	9.512	95.0 %	80-120	
			MS	ug/L	10.01	57.3 %	80-120	
			MSD	ug/L	9.646	73.9 %	80-120	
			MSRPD	ug/L	19.29	5.9%	≤20	
	551.1	03/09/17:203607SBL	CCV	ug/L	166.7	98.7 %	80-120	
			CCV	ug/L	83.33	87.8 %	80-120	
2,3-Dibromopropionic Acid	552	03/13/17:202973SBL (SP 1702889-001)	Blank	ug/L	5.000	121 %	70-130	
			LCS	ug/L	5.000	104 %	70-130	
			MS	ug/L	5.000	104 %	70-130	
			MSD	ug/L	5.000	93.5 %	70-130	
			MSRPD	ug/L	5.000	0.50	≤1	
Dibromoacetic Acid	552	03/13/17:202973SBL (SP 1702889-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	85.7 %	70-130	
			MS	ug/L	10.00	78.8 %	70-130	
			MSD	ug/L	10.00	87.3 %	70-130	
			MSRPD	ug/L	5.000	9.7%	≤20.0	
Dichloroacetic Acid	552	03/13/17:202973SBL (SP 1702889-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	91.3 %	70-130	
			MS	ug/L	10.00	83.6 %	70-130	
			MSD	ug/L	10.00	93.6 %	70-130	
			MSRPD	ug/L	5.000	10.6%	≤20.0	
Monobromoacetic Acid	552	03/13/17:202973SBL (SP 1702889-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	90.3 %	70-130	
			MS	ug/L	10.00	83.8 %	70-130	
			MSD	ug/L	10.00	91.7 %	70-130	
			MSRPD	ug/L	5.000	9.0%	≤20.0	

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Monochloroacetic Acid	552	03/13/17:202973SBL (SP 1702889-001)	Blank LCS MS MSD MSRPD	ug/L ug/L ug/L ug/L ug/L	 10.00 10.00 10.00 5.000	ND 100 % 61.9 % 69.9 % 0.80	<2 70-130 70-130 70-130 ≤2	435
Trichloroacetic Acid	552	03/13/17:202973SBL (SP 1702889-001)	Blank LCS MS MSD MSRPD	ug/L ug/L ug/L ug/L ug/L	 10.00 10.00 10.00 5.000	ND 94.4 % 104 % 117 % 11.8%	<1 70-130 70-130 70-130 ≤20.0	
2,3-Dibromopropionic Acid	552.2	03/14/17:203828SBL	CCV CCV	ug/L ug/L	75.00 50.00	88.7 % 103 %	70-130 70-130	
Dibromoacetic Acid	552.2	03/14/17:203828SBL	CCV CCV	ug/L ug/L	150.0 100.0	85.9 % 81.0 %	70-130 70-130	
Dichloroacetic Acid	552.2	03/14/17:203828SBL	CCV CCV	ug/L ug/L	150.0 100.0	89.5 % 86.0 %	70-130 70-130	
Monobromoacetic Acid	552.2	03/14/17:203828SBL	CCV CCV	ug/L ug/L	150.0 100.0	81.6 % 80.9 %	70-130 70-130	
Monochloroacetic Acid	552.2	03/14/17:203828SBL	CCV CCV	ug/L ug/L	150.0 100.0	87.2 % 91.4 %	70-130 70-130	
Trichloroacetic Acid	552.2	03/14/17:203828SBL	CCV CCV	ug/L ug/L	150.0 100.0	104 % 100 %	70-130 70-130	
Definition								
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.							
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.							
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.							
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.							
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.							
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.							
ND	: Non-detect - Result was below the DQO listed for the analyte.							
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.							
Explanation								
435	: Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.							

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	03/16/17:204164rmm	CCV CCB	cpm cpm	8450	38.4 % 0.040	37 - 45 0.2	
Gross Alpha	900.0	03/15/17:203054rmm (SP 1702879-001)	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 108.2 108.2 108.2 108.2	 0.41 107 % 106 % 117 % 9.6%	 3 75-125 60-140 60-140 ≤30	
Alpha	903.0	03/17/17:203979emv	CCV CCB	cpm cpm	8450	41.2 % 0.1200	38 - 46 0.16	
Total Alpha Radium (226)	903.0	03/11/17:202929emv	RgBlk LCS BS BSD BSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 21.85 21.85 21.85 21.85	 -0.01 59.4 % 55.0 % 52.7 % 4.2%	 2 52-107 43-111 43-111 ≤35.5	
Definition								
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.								
CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.								
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.								
RgBlk : Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.								
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.								
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
BS : Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.								
BSD : Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.								
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.								
BSRPD : BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.								
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

- 1. Number of ice chests/packages received: 1
- 2. Shipper tracking numbers 535286023
- 3. Were samples received in a chilled condition?
Temps: 3 / / / / / /
- 4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
- 5. Do the number of bottles received agree with the COC? Yes No N/A
- 6. Verify sample date, time, sampler Yes No N/A
- 7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) Yes No
- 8. Were sample custody seals intact? Yes No N/A

Sample Verification, Labeling and Distribution:

- 1. Were all requested analyses understood and acceptable? Yes No
- 2. Did bottle labels correspond with the client's ID's? Yes No
- 3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
 [Exception: Oil & Grease, VOA and CrVI verified in lab]
- 4. VOAs checked for Headspace? Yes No N/A
- 5. Were all analyses within holding times at time of receipt? Yes No
- 6. Have rush or project due dates been checked and accepted? Yes No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and Approved By Shawn Peck  Digitally signed by Shawn Peck
Title: Sample Receiving
Date: 03/08/2017-14:06:56

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2019144)
Monterey Bay Analytical Services
SP 1702889
SRP-03/08/2017-14:06:56



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1703354

Report Created for: Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Project Contact: David Holland
Project P.O.:
Project Name: MPWMD

Project Received: 03/08/2017

Analytical Report reviewed & approved for release on 03/16/2017 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Bay Analytical
Project: MPWMD
WorkOrder: 1703354

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Bay Analytical
Date Received: 3/8/17 9:32
Date Prepared: 3/16/17
Project: MPWMD

WorkOrder: 1703354
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR-4 Backflush	1703354-001A	Water	03/07/2017 11:00	GC26	135691

Analytes	Result	RL	DF	Date Analyzed
Methane	0.51	0.10	1	03/16/2017 12:00

Analyst(s): AK

 Angela Rydelius, Lab Manager



Quality Control Report

Client: Monterey Bay Analytical
Date Prepared: 3/16/17
Date Analyzed: 3/16/17
Instrument: GC26
Matrix: Water
Project: MPWMD

WorkOrder: 1703354
BatchID: 135691
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L
Sample ID: MB/LCS-135691

QC Summary Report for RSK175

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Methane	ND	1.31	0.10	1.17	-	112	70-130

QA/QC Officer

1534 Willow Pass Rd
 Pittsburg, CA 94565-1701
 (925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1703354

ClientCode: MBAS

WaterTrax
 WriteOn
 EDF
 Excel
 EQulS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

David Holland
 Monterey Bay Analytical
 4 Justin Court, Suite D
 Monterey, CA 93940
 831-375-6227 FAX: 831-641-0734

Email: mweidner@mbasinc.com; Dholland@mbas
 cc/3rd Party:
 PO:
 ProjectNo: MPWMD

Bill to:

Accounts Payable
 Monterey Bay Analytical
 4 Justin Court, Suite D
 Monterey, CA 93940

Requested TAT: 5 days;

Date Received: **03/08/2017**

Date Logged: **03/08/2017**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1703354-001	ASR-4 Backflush	Water	3/7/2017 11:00	<input type="checkbox"/>	A												

Test Legend:

1	RSK175_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Maria Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
 Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY BAY ANALYTICAL

Project: MPWMD

Work Order: 1703354

Client Contact: David Holland

QC Level: LEVEL 2

Contact's Email: mweidner@mbasinc.com; Dholland@mbasinc.com;
4mbas@sbcglobal.net; info@mbasinc.com

Comments:

Date Logged: 3/8/2017

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1703354-001A	ASR-4 Backflush	Water	RSK175 <Methane_4>	3	VOA w/ HCl	<input type="checkbox"/>	3/7/2017 11:00	5 days	None	<input type="checkbox"/>	

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).

- 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.



Sample Receipt Checklist

Client Name: Monterey Bay Analytical
Project Name: MPWMD

Date and Time Received: 3/8/2017 09:32
Date Logged: 3/8/2017
Received by: Maria Venegas
Logged by: Maria Venegas

WorkOrder No: 1703354 Matrix: Water
Carrier: Golden State Overnight

Chain of Custody (COC) Information

- Chain of custody present? Yes [checked] No []
- Chain of custody signed when relinquished and received? Yes [checked] No []
- Chain of custody agrees with sample labels? Yes [checked] No []
- Sample IDs noted by Client on COC? Yes [checked] No []
- Date and Time of collection noted by Client on COC? Yes [checked] No []
- Sampler's name noted on COC? Yes [checked] No []

Sample Receipt Information

- Custody seals intact on shipping container/cooler? Yes [] No [] NA [checked]
- Shipping container/cooler in good condition? Yes [checked] No []
- Samples in proper containers/bottles? Yes [checked] No []
- Sample containers intact? Yes [checked] No []
- Sufficient sample volume for indicated test? Yes [checked] No []

Sample Preservation and Hold Time (HT) Information

- All samples received within holding time? Yes [checked] No [] NA []
- Sample/Temp Blank temperature Temp: 6.2°C NA []
- Water - VOA vials have zero headspace / no bubbles? Yes [checked] No [] NA []
- Sample labels checked for correct preservation? Yes [checked] No []
- pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes [] No [] NA [checked]
- Samples Received on Ice? Yes [checked] No []
(Ice Type: WET ICE)

UCMR3 Samples:

- Total Chlorine tested and acceptable upon receipt for EPA 522? Yes [] No [] NA [checked]
- Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes [] No [] NA [checked]

Comments:

MPWMD
 Jonathan Lear
 P.O. Box 85
 Monterey, CA 93442-0085



Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

Lab Number: AB63163

Collection Date/Time: 3/10/2017 13:00

Sample Collector: SUWADA J

Client Sample #:

Submittal Date/Time: 3/10/2017 16:00

Sample ID

Sample Description: Injectate ASR-2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Chloramines	SM4500-Cl	mg/L	0.18	1		0.05	0.05	3/10/2017	4:00:00 PM	LRH
Chloride	EPA300.0	mg/L	27	1		1	0.25	3/14/2017	3:59:00 PM	HM
Haloacetic Acids	EPA552	µg/L	12	1	E			3/20/2017	12:00:00 PM	BSK
Trihalomethanes	EPA524.2	µg/L	23	1	E			3/17/2017	12:00:00 PM	BSK

Sample Comments:

Report Approved by:

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm) ug/L : Micrograms per liter (=ppb) PQL : Practical Quantitation Limit J = Result is less than PQL
 H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments.
 D = Method deviates from standard method due to insufficient sample for MS/MSD



BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)



A7C1272

3/22/2017

Invoice: A707151

David Holland
Monterey Bay Analytical
4 Justin Court Suite D
Monterey, CA 93940

RE: Report for A7C1272 MPWMD

Dear David Holland,

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 3/14/2017. 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 2009 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.

Thanks 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

Case Narrative

Project and Report Details	Invoice Details
----------------------------	-----------------

Client: Monterey Bay Analytical
Report To: David Holland
Project #: -
Received: 3/14/2017 - 11:10
Report Due: 3/28/2017

Invoice To: Monterey Bay Analytical
Invoice Attn: David Holland
Project PO#: -

Sample Receipt Conditions

Cooler: Default Cooler	Containers Intact
Temperature on Receipt °C: 2.9	COC/Labels Agree
	Received On Wet Ice
	Received On Blue Ice
	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:

MS1.4 Matrix spike recovery data unreliable due to significant parent sample concentration relative to fortification level (>4x).

Report Distribution

Recipient(s)	Report Format	CC:
David Holland	FINAL.RPT	
Mason Weidner	FINAL.RPT	
Monterey Bay Analytical Services	FINAL.RPT	



Certificate of Analysis

Sample ID: A7C1272-01
Sampled By: Joseph Suwada
Sample Description: Injectate at ASR-2 // AB63163

Sample Date - Time: 03/10/17 - 13:00
Matrix: Drinking Water
Sample Type: Grab

BSK Associates Laboratory Fresno
Organics

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
<u>Trihalomethanes by GC-MS</u>									
Bromodichloromethane	EPA 524.2	7.8	0.50	ug/L	1	A703340	03/16/17	03/17/17	
Bromoform	EPA 524.2	0.69	0.50	ug/L	1	A703340	03/16/17	03/17/17	
Chloroform	EPA 524.2	9.2	0.50	ug/L	1	A703340	03/16/17	03/17/17	
Dibromochloromethane	EPA 524.2	5.7	0.50	ug/L	1	A703340	03/16/17	03/17/17	
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	104 %							Acceptable range: 70-130 %
Surrogate: Bromofluorobenzene	EPA 524.2	102 %							Acceptable range: 70-130 %
Total Trihalomethanes		23	0.50	ug/L					
<u>Haloacetic Acids by GC-ECD, GC-MS</u>									
Dibromoacetic Acid (DBAA)	EPA 552.3	2.1	1.0	ug/L	1	A703359	03/17/17	03/20/17	
Dichloroacetic Acid (DCAA)	EPA 552.3	5.5	1.0	ug/L	1	A703359	03/17/17	03/20/17	
Monobromoacetic Acid (MBAA)	EPA 552.3	ND	1.0	ug/L	1	A703359	03/17/17	03/20/17	
Monochloroacetic Acid (MCAA)	EPA 552.3	ND	2.0	ug/L	1	A703359	03/17/17	03/20/17	
Trichloroacetic Acid (TCAA)	EPA 552.3	4.3	1.0	ug/L	1	A703359	03/17/17	03/20/17	
Surrogate: 2-Bromobutanoic Acid	EPA 552.3	110 %							Acceptable range: 70-130 %
Total Haloacetic Acids		12	2.0	ug/L					

**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
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EPA 524.2 - Quality Control

Batch: A703340

Prepared: 3/16/2017

Prep Method: EPA 524.2

Analyst: ANM

Blank (A703340-BLK1)

Bromodichloromethane	ND	0.50	ug/L							03/17/17	
Bromoform	ND	0.50	ug/L							03/17/17	
Chloroform	ND	0.50	ug/L							03/17/17	
Dibromochloromethane	ND	0.50	ug/L							03/17/17	
Surrogate: 1,2-Dichlorobenzene-d4	53			50		105	70-130			03/17/17	
Surrogate: Bromofluorobenzene	50			50		100	70-130			03/17/17	

Blank Spike (A703340-BS1)

Bromodichloromethane	10	0.50	ug/L	10		102	70-130			03/17/17	
Bromoform	11	0.50	ug/L	10		111	70-130			03/17/17	
Chloroform	10	0.50	ug/L	10		102	70-130			03/17/17	
Dibromochloromethane	11	0.50	ug/L	10		107	70-130			03/17/17	
Surrogate: 1,2-Dichlorobenzene-d4	53			50		105	70-130			03/17/17	
Surrogate: Bromofluorobenzene	51			50		102	70-130			03/17/17	

Blank Spike Dup (A703340-BSD1)

Bromodichloromethane	9.8	0.50	ug/L	10		98	70-130	4	30	03/17/17	
Bromoform	10	0.50	ug/L	10		103	70-130	8	30	03/17/17	
Chloroform	9.7	0.50	ug/L	10		97	70-130	5	30	03/17/17	
Dibromochloromethane	10	0.50	ug/L	10		101	70-130	6	30	03/17/17	
Surrogate: 1,2-Dichlorobenzene-d4	51			50		102	70-130			03/17/17	
Surrogate: Bromofluorobenzene	47			50		94	70-130			03/17/17	

Matrix Spike (A703340-MS1), Source: A7C1461-02

Bromodichloromethane	12	0.50	ug/L	10	1.5	102	47-151			03/17/17	
Bromoform	10	0.50	ug/L	10	ND	104	29-162			03/17/17	
Chloroform	23	0.50	ug/L	10	13	95	52-148			03/17/17	
Dibromochloromethane	10	0.50	ug/L	10	ND	105	44-149			03/17/17	
Surrogate: 1,2-Dichlorobenzene-d4	53			50		105	70-130			03/17/17	
Surrogate: Bromofluorobenzene	51			50		102	70-130			03/17/17	

EPA 552.3 - Quality Control

Batch: A703359

Prepared: 3/17/2017

Prep Method: EPA 552.3

Analyst: KHH

Blank (A703359-BLK1)

Dibromoacetic Acid (DBAA)	ND	1.0	ug/L							03/20/17	
Dichloroacetic Acid (DCAA)	ND	1.0	ug/L							03/20/17	
Monobromoacetic Acid (MBAA)	ND	1.0	ug/L							03/20/17	
Monochloroacetic Acid (MCAA)	ND	2.0	ug/L							03/20/17	
Trichloroacetic Acid (TCAA)	ND	1.0	ug/L							03/20/17	
Surrogate: 2-Bromobutanoic Acid	11			10		110	70-130			03/20/17	

Blank Spike (A703359-BS1)

Dibromoacetic Acid (DBAA)	12	1.0	ug/L	10		119	70-130			03/20/17	
Dichloroacetic Acid (DCAA)	12	1.0	ug/L	10		120	70-130			03/20/17	

**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
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EPA 552.3 - Quality Control

Batch: A703359

Prepared: 3/17/2017

Prep Method: EPA 552.3

Analyst: KHH

Blank Spike (A703359-BS1)

Monobromoacetic Acid (MBAA)	11	1.0	ug/L	10		112	70-130			03/20/17	
Monochloroacetic Acid (MCAA)	21	2.0	ug/L	20		105	70-130			03/20/17	
Trichloroacetic Acid (TCAA)	11	1.0	ug/L	10		114	70-130			03/20/17	
Surrogate: 2-Bromobutanoic Acid	11			10		109	70-130			03/20/17	

Blank Spike Dup (A703359-BSD1)

Dibromoacetic Acid (DBAA)	13	1.0	ug/L	10		126	70-130	6	30	03/20/17	
Dichloroacetic Acid (DCAA)	13	1.0	ug/L	10		126	70-130	5	30	03/20/17	
Monobromoacetic Acid (MBAA)	11	1.0	ug/L	10		113	70-130	1	30	03/20/17	
Monochloroacetic Acid (MCAA)	22	2.0	ug/L	20		110	70-130	5	30	03/20/17	
Trichloroacetic Acid (TCAA)	12	1.0	ug/L	10		120	70-130	5	30	03/20/17	
Surrogate: 2-Bromobutanoic Acid	11			10		111	70-130			03/20/17	

Duplicate (A703359-DUP1), Source: A7C1678-02

Dibromoacetic Acid (DBAA)	1.8	1.0	ug/L		1.9			1	30	03/20/17	
Dichloroacetic Acid (DCAA)	25	1.0	ug/L		26			1	30	03/20/17	
Monobromoacetic Acid (MBAA)	ND	1.0	ug/L		ND				30	03/20/17	
Monochloroacetic Acid (MCAA)	2.9	2.0	ug/L		3.2			8	30	03/20/17	
Trichloroacetic Acid (TCAA)	22	1.0	ug/L		22			0	30	03/20/17	
Surrogate: 2-Bromobutanoic Acid	11			10		112	70-130			03/20/17	

Matrix Spike (A703359-MS1), Source: A7C1147-01

Dibromoacetic Acid (DBAA)	14	1.0	ug/L	10	1.4	128	70-130			03/20/17	
Dichloroacetic Acid (DCAA)	110	5.0	ug/L	10	94	164	70-130			03/20/17	MS1.4 High
Monobromoacetic Acid (MBAA)	12	1.0	ug/L	10	ND	116	70-130			03/20/17	
Monochloroacetic Acid (MCAA)	27	2.0	ug/L	20	5.2	110	70-130			03/20/17	
Trichloroacetic Acid (TCAA)	100	5.0	ug/L	10	89	146	70-130			03/20/17	MS1.4 High
Surrogate: 2-Bromobutanoic Acid	11			10		107	70-130			03/20/17	

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.
- 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.

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 at RL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	Picocuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent Recovered (surrogates)	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit		

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters:

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
State of Nevada	CA000792016-1	State of Oregon - NELAP	4021
EPA - UCMR3	CA00079	State of Washington	C997-16

Sacramento

State of California - ELAP	2435
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San Bernardino

State of California - ELAP	2993	State of Oregon - NELAP	4119-001
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Vancouver

State of Oregon - NELAP	WA100008-008	State of Washington	C824-16
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A7C1272



03142017

Monte6227

Turnaround: Standard

Due Date: 3/28/2017



Monterey Bay Analytical



Sample Integrity



BSK Bottles: Yes No Page 1 of 1

COC Info		Was temperature within range? Chemistry $\leq 6^{\circ}\text{C}$ Micro $< 8^{\circ}\text{C}$		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 <u>NA</u>		Were there bubbles in the VOA vials? (Volatiles Only)		Yes No <u>NA</u>	
		Did all bottles arrive unbroken and intact?		<u>Yes</u> No		Was a sufficient amount of sample received?		<u>Yes</u> No	
		Did all bottle labels agree with COC?		<u>Yes</u> No		Do samples have a hold time <72 hours?		Yes <u>No</u>	
		Was sodium thiosulfate added to CN sample(s) until chlorine was no longer present?		Yes No <u>NA</u>		Was PM notified of discrepancies? PM: _____ By/Time: _____		Yes No <u>NA</u>	
		250ml(A) 500ml(B) 1Liter(C) 40ml VOA(V)		Checks	Passed?				
		Bacti Na ₂ S ₂ O ₃		—	—				
		None (P) White Cap		—	—				
		Cr6 (P) Lt. Green Label/Blue Cap NH ₄ OH(NH ₄) ₂ SO ₄ DW		Cl, pH > 8	Y N				
		Cr6 (P) Pink Label/Blue Cap NH ₄ OH(NH ₄) ₂ SO ₄ WW		pH 9.3-9.7	Y N				
		Cr6 (P) Black Label/Blue Cap NH ₄ OH(NH ₄) ₂ SO ₄ 7199 ***24 HOUR HOLD TIME***		pH 9.0-9.5	Y N				
		HNO ₃ (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label		—	—				
		H ₂ SO ₄ (P) or (AG) Yellow Cap/Label		pH < 2	Y N				
		NaOH (P) Green Cap		Cl, pH > 10	Y N				
		NaOH + ZnAc (P)		pH > 9	Y N				
		Dissolved Oxygen 300ml (g)		—	—				
		None (AG) 608/6081/6082, 625, 632/6321, 8151, 8270		—	—				
		HCl (AG) Lt. Blue Label O&G, Diesel		—	—				
		Ascorbic, EDTA, KH ₂ Ct (AG) Pink Label 525		—	—				
		Na ₂ SO ₃ 250mL (AG) Neon Green Label 515		—	—				
		Na ₂ S ₂ O ₃ 1 Liter (Brown P) 549		—	—				
		Na ₂ S ₂ O ₃ (AG) Blue Label 548, THM, 524		—	—				
		Na ₂ S ₂ O ₃ (CG) Blue Label 504, 505, 547		—	—				
		Na ₂ S ₂ O ₃ + MCAA (CG) Orange Label 531		pH < 3	Y N				
		NH ₄ Cl (AG) Purple Label 552		—	—				
		EDA (AG) Brown Label DBPs		—	—				
		HCL (CG) 524.2, BTEX, Gas, MTBE, 8260/624		—	—				
		Buffer pH 4 (CG)		—	—				
		H ₃ PO ₄ (CG) Salmon Label		—	—				
		Other:							
		Asbestos 1Liter Plastic w/ Foil		—	—				
		Low Level Hg / Metals Double Baggie		—	—				
		Bottled Water		—	—				
		Clear Glass 250mL / 500mL / 1 Liter		—	—				
		Soil Tube Brass / Steel / Plastic		—	—				
		Tedlar Bag / Plastic Bag		—	—				
Split		Container	Preservative	Date/Time/Initials		Container	Preservative	Date/Time/Initials	
	S P					S P			
	S P					S P			
Comments									

Labeled by: AK @ 1555 Labels checked by: FAN @ lboy RUSH Paged by: _____ @ _____



Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Page 1 of 2

Tuesday, April 18, 2017

Lab Number: AB65016

Collection Date/Time: 4/5/2017 18:20 Sample Collector: RM Client Sample #:

Submittal Date/Time: 4/10/2017 10:06 Sample ID Coliform Designation:

Sample Description: ASR4 5 Min

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	0.9	IJ	0.2	2	4/14/2017	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Lab Number: AB65017

Collection Date/Time: 4/5/2017 18:25 Sample Collector: RM Client Sample #:

Submittal Date/Time: 4/10/2017 10:06 Sample ID Coliform Designation:

Sample Description: ASR4 10 Min

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	0.7	IJ	0.2	2	4/14/2017	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Lab Number: AB65018

Collection Date/Time: 4/5/2017 18:30 Sample Collector: RM Client Sample #:

Submittal Date/Time: 4/10/2017 10:06 Sample ID Coliform Designation:

Sample Description: ASR4 15 Min

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	0.8	IJ	0.2	2	4/14/2017	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Lab Number: AB65019

Collection Date/Time: 4/5/2017 18:35 Sample Collector: RM Client Sample #:

Submittal Date/Time: 4/10/2017 10:06 Sample ID Coliform Designation:

Sample Description: ASR4 20 Min

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	0.8	IJ	0.2	2	4/14/2017	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Lab Number: AB65020

Collection Date/Time: 4/6/2017 9:40 Sample Collector: RM Client Sample #:

Submittal Date/Time: 4/10/2017 10:06 Sample ID Coliform Designation:

Sample Description: ASR4 5 Min

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	0.7	IJ	0.2	2	4/14/2017	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Lab Number: AB65021

Collection Date/Time: 4/6/2017 9:45 Sample Collector: RM Client Sample #:

Submittal Date/Time: 4/10/2017 10:06 Sample ID Coliform Designation:

Sample Description: ASR4 10 Min

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	0.7	IJ	0.2	2	4/14/2017	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Lab Number: AB65022Collection Date/Time: 4/6/2017 9:50
Submittal Date/Time: 4/10/2017 10:06Sample Collector: RM
Sample IDClient Sample #:
Coliform Designation:**Sample Description: ASR4 15 Min**

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	0.7	IJ	0.2	2	4/14/2017	SM

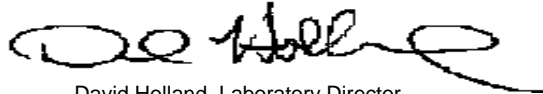
Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Lab Number: AB65023Collection Date/Time: 4/6/2017 9:55
Submittal Date/Time: 4/10/2017 10:06Sample Collector: RM
Sample IDClient Sample #:
Coliform Designation:**Sample Description: ASR4 20 Min**

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	0.8	IJ	0.2	2	4/14/2017	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Report Approved by:



David Holland, Laboratory Director

Monterey Bay Analytical Services

QC Summary for 200.8

Spiked Sample

AB65120

Date Analyzed

4/14/2017 5:41:31 PM

	ICVB	QCS	LCB	LCS	LCSD	LCS/LCSD	Sample	Spiked	MS	MSD	MS-MSD	ICV	CCV	ICV-CCV	CCVB	Qualifier
	ug/L	%Rec.	ug/L	% Rec	%Rec	%RPD	ug/L	ug/L	%Rec.	% Rec.	% RPD	% Rec	% Rec	% RPD	ug/L	Code
		85-115%		70-130%	70-130%	20%			70-130%	70-130%	20%	85-115%	85-115%	20%		
Mercury	0.03	106.1	0.02	102.7	102.8	0.16	0.02	2.5	113.40	119.18	4.94	108.6	118.5	8.74	0.02	IJ

IJ: ICV and/or CCV above acceptance limits.

ICVB = Initial Calibration Verification Blank QCS = Quality Control Sample LCB = Laboratory Control Blank LCS(D) = Laboratory Control Sample (Duplicate) MS(D) = Matrix Spike (Duplicate) ICV = Initial Calibration Verification CCV = Continuing Calibration Verification RPD = Relative Percent Difference [Note QCS contains W; Hg %Rec based on Hg201]



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ELAP Certification Number: 2385

Thursday, May 04, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB65119

Collection Date/Time: 4/11/2017 8:40

Sample Collector: LEAR J

Client Sample #:

Submittal Date/Time: 4/11/2017 9:26

Sample ID

Sample Description: ASR2 Inj

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	127	1		10	2	4/17/2017	1:00 PM	BS
Aluminum, Total	EPA200.8	µg/L	14	2		10	10	4/14/2017	5:38 PM	SM
Ammonia-N	SM4500NH3	mg/L	Not Detected	1		0.05	0.05	4/25/2017	10:59 AM	MW
Arsenic, Total	EPA200.8	µg/L	Not Detected	2		1	0.2	4/14/2017	5:38 PM	SM
Barium, Total	EPA200.8	µg/L	57	2		10	0.4	4/14/2017	5:38 PM	SM
Bicarbonate (as HCO3-)	SM2320B	mg/L	155	1		10	2	4/17/2017	4:35 PM	MP
Boron	EPA200.7	mg/L	Not Detected	1		0.05	0.01	4/12/2017	4:27 PM	HM
Bromide	EPA300.0	mg/L	0.1	1		0.1	0.01	4/11/2017	2:02 PM	HM
Calcium	EPA200.7	mg/L	33	1		0.5	0.1	4/12/2017	4:27 PM	HM
Carbonate as CaCO3	SM2320B	mg/L	Not Detected	1		10	2	4/17/2017	4:35 PM	MP
Chloramines	SM4500-Cl	mg/L	0.18	1		0.05	0.05	4/11/2017	11:30 AM	LRH
Chloride	EPA300.0	mg/L	27	1		1	0.25	4/11/2017	2:02 PM	HM
DOC	SM5310C	mg/L	1.5	1		0.2	0.03	4/24/2017	3:00 PM	MW
Fluoride	EPA300.0	mg/L	0.3	1		0.1	0.02	4/11/2017	2:02 PM	HM
Gross Alpha	EPA900.0	pCi/L	1.27 ± 1.09	1	E			4/18/2017	11:10 AM	FGL
Haloacetic Acids	EPA552	µg/L	8	1	E			4/14/2017	12:00 PM	FGL
Iron	EPA200.7	µg/L	Not Detected	1		10	4	4/12/2017	4:27 PM	HM
Iron, Dissolved	EPA200.7	µg/L	Not Detected	1		10	4	4/12/2017	4:30 PM	HM
Kjeldahl Nitrogen	SM4500-NH	mg/L	0.5	1		0.5	0.5	4/19/2017	10:00 AM	BS
Lithium	EPA200.8	µg/L	6	2		1	0.2	4/14/2017	5:38 PM	SM
Magnesium	EPA200.7	mg/L	12	1		0.5	0.2	4/12/2017	4:27 PM	HM
Manganese, Dissolved	EPA200.7	µg/L	Not Detected	1		10	2	4/12/2017	4:30 PM	HM
Manganese, Total	EPA200.7	µg/L	Not Detected	1		10	2	4/12/2017	4:27 PM	HM
Mercury, Total	EPA200.8	µg/L	Not Detected	2	IJ	0.4	0.08	4/14/2017	5:38 PM	SM
Methane	EPA174/175	µg/L	1.3	1	E	0.1	0.1	4/18/2017	2:38 PM	MCCAM
Molybdenum, Total	EPA200.8	µg/L	2	2		1	0.2	4/14/2017	5:38 PM	SM
Nickel, Total	EPA200.8	µg/L	Not Detected	2		10	0.2	4/14/2017	5:38 PM	SM
Nitrate as NO3	EPA300.0	mg/L	1	1		1	0.07	4/11/2017	2:02 PM	HM
Nitrate as NO3-N	EPA300.0	mg/L	0.3	1		0.1	0.01	4/11/2017	2:02 PM	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	1.0	1		0.1	0.025	4/11/2017	2:02 PM	HM
Nitrite as NO2-N	EPA300.0	mg/L	0.5	1		0.1	0.01	4/11/2017	2:02 PM	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	0.2	1		0.1	0.02	4/11/2017	2:02 PM	HM
pH (Laboratory)	SM4500-H+	pH (H)	7.4	1		0.1		4/11/2017	5:00 PM	BS
Phosphorus, Total	HACH 8190	mg/L	0.40	1	HP/L	0.05	0.05	4/18/2017	3:27 PM	LRH
Potassium	EPA200.7	mg/L	2.6	1		0.5	0.3	4/12/2017	4:27 PM	HM
QC Anion Sum x 100	Calculation	%	101%	1				4/17/2017	4:35 PM	MP
QC Anion-Cation Balance	Calculation	%	-4	1				4/17/2017	4:35 PM	MP
QC Cation Sum x 100	Calculation	%	92%	1				4/14/2017	9:25 AM	HM
QC Ratio TDS/SEC	Calculation		0.60	1				4/17/2017	5:17 PM	LRH
Selenium, Total	EPA200.8	µg/L	2	2		2	1	4/14/2017	5:38 PM	SM
Silica as SiO2, Total	EPA200.7	mg/L	22	1		0.5	0.3	4/12/2017	4:27 PM	HM

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

J = Result is less than PQL

T = Temperature Exceedance



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ELAP Certification Number: 2385

Thursday, May 04, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB65119

Collection Date/Time: 4/11/2017 8:40

Sample Collector: LEAR J

Client Sample #:

Submittal Date/Time: 4/11/2017 9:26

Sample ID

Sample Description: ASR2 Inj

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Sodium	EPA200.7	mg/L	37	1		0.5	0.2	4/12/2017	4:27 PM	HM
Specific Conductance (E.C)	SM2510B	µmhos/c	466	1		1	1	4/13/2017	3:30 PM	HM
Strontium, Total	EPA200.8	µg/L	230	2	BB	5	1	4/14/2017	5:38 PM	SM
Sulfate	EPA300.0	mg/L	66	1		1	0.25	4/11/2017	2:02 PM	HM
TOC	SM5310C	mg/L	1.5	1		0.2	0.03	4/24/2017	3:00 PM	MW
Total Diss. Solids	SM2540C	mg/L	280	1		10	10	4/13/2017	3:50 PM	MP
Total Nitrogen	Calculation	mg/L	1.3	1		0.5	0.5	4/19/2017	4:45 PM	MP
Total Radium 226	EPA903.0	pCi/L	0.0& ± 0.1, ,		1 E			4/27/2017	11:55 AM	FGL
Trihalomethanes	EPA524.2	µg/L	18.7	1	E			4/13/2017	12:00 PM	FGL
Uranium by ICP/MS	EPA200.8	µg/L	Not Detected	2	IJ	1	0.08	4/14/2017	5:38 PM	SM
Vanadium, Total	EPA200.8	µg/L	Not Detected	2		5	0.2	4/14/2017	5:38 PM	SM
Zinc, Total	EPA200.8	µg/L	268	2		20	20	4/14/2017	5:38 PM	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits. BB: Sample > 4x spike concentration. LQ: LCS recovery above method control limits. HP: Low concentration blank spike recovery out of limits.

Report Approved by:

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

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E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

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ELAP Certification Number: 2385

Thursday, May 04, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB65120

Collection Date/Time: 4/10/2017 13:30

Sample Collector: LEAR J

Client Sample #:

Submittal Date/Time: 4/11/2017 9:26

Sample ID

Sample Description: PCAE (D)

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	187	1		10	2	4/17/2017	1:00 PM	BS
Aluminum, Total	EPA200.8	µg/L	11	2		10	10	4/14/2017	5:41 PM	SM
Ammonia-N	SM4500NH3	mg/L	Not Detected	1		0.05	0.05	4/25/2017	10:59 AM	MW
Arsenic, Total	EPA200.8	µg/L	7	2		1	0.2	4/14/2017	5:41 PM	SM
Barium, Total	EPA200.8	µg/L	86	2		10	0.4	4/14/2017	5:41 PM	SM
Bicarbonate (as HCO3-)	SM2320B	mg/L	228	1		10	2	4/17/2017	4:35 PM	MP
Boron	EPA200.7	mg/L	0.09	1		0.05	0.01	4/12/2017	4:33 PM	HM
Bromide	EPA300.0	mg/L	0.3	1		0.1	0.01	4/11/2017	2:24 PM	HM
Calcium	EPA200.7	mg/L	46	1		0.5	0.1	4/12/2017	4:33 PM	HM
Carbonate as CaCO3	SM2320B	mg/L	Not Detected	1		10	2	4/17/2017	4:35 PM	MP
Chloramines	SM4500-Cl	mg/L	Not Detected	1		0.05	0.05	4/11/2017	11:30 AM	LRH
Chloride	EPA300.0	mg/L	107	1		1	0.25	4/11/2017	2:24 PM	HM
DOC	SM5310C	mg/L	0.5	1		0.2	0.03	4/24/2017	3:00 PM	MW
Fluoride	EPA300.0	mg/L	0.3	1		0.1	0.02	4/11/2017	2:24 PM	HM
Gross Alpha	EPA900.0	pCi/L	1.38 ± 1.51	1	E			4/18/2017	1:10 PM	FGL
Haloacetic Acids	EPA552	µg/L	Not Detected	1	E			4/15/2017	12:00 PM	FGL
Iron	EPA200.7	µg/L	35	1		10	4	4/12/2017	4:33 PM	HM
Iron, Dissolved	EPA200.7	µg/L	Not Detected	1		10	4	4/12/2017	2:36 PM	HM
Kjeldahl Nitrogen	SM4500-NH	mg/L	Not Detected	1		0.5	0.5	4/19/2017	10:00 AM	BS
Lithium	EPA200.8	µg/L	33	2		1	0.2	4/14/2017	5:41 PM	SM
Magnesium	EPA200.7	mg/L	10	1		0.5	0.2	4/12/2017	4:33 PM	HM
Manganese, Dissolved	EPA200.7	µg/L	121	1		10	2	4/12/2017	4:36 PM	HM
Manganese, Total	EPA200.7	µg/L	124	1		10	2	4/12/2017	4:33 PM	HM
Mercury, Total	EPA200.8	µg/L	Not Detected	2	IJ	0.4	0.08	4/14/2017	5:41 PM	SM
Methane	EPA174/175	µg/L	2.2	1	E	0.1	0.1	4/18/2017	2:51 PM	MCCAM
Molybdenum, Total	EPA200.8	µg/L	10	2		1	0.2	4/14/2017	5:41 PM	SM
Nickel, Total	EPA200.8	µg/L	Not Detected	2		10	0.2	4/14/2017	5:41 PM	SM
Nitrate as NO3	EPA300.0	mg/L	Not Detected	1		1	0.07	4/11/2017	2:24 PM	HM
Nitrate as NO3-N	EPA300.0	mg/L	Not Detected	1		0.1	0.01	4/11/2017	2:24 PM	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	Not Detected	1		0.1	0.025	4/11/2017	2:24 PM	HM
Nitrite as NO2-N	EPA300.0	mg/L	0.3	1		0.1	0.01	4/11/2017	2:24 PM	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	Not Detected	1		0.1	0.02	4/11/2017	2:24 PM	HM
pH (Laboratory)	SM4500-H+	pH (H)	7.4	1		0.1		4/11/2017	5:00 PM	BS
Phosphorus, Total	HACH 8190	mg/L	0.05	1		0.03	0.03	4/19/2017	12:27 PM	LRH
Potassium	EPA200.7	mg/L	4.4	1		0.5	0.3	4/12/2017	4:33 PM	HM
QC Anion Sum x 100	Calculation	%	97%	1				4/17/2017	4:35 PM	MP
QC Anion-Cation Balance	Calculation	%	-6	1				4/17/2017	4:35 PM	MP
QC Cation Sum x 100	Calculation	%	87%	1				4/14/2017	9:25 AM	HM
QC Ratio TDS/SEC	Calculation		0.58	1				4/17/2017	5:17 PM	LRH
Selenium, Total	EPA200.8	µg/L	Not Detected	2		2	1	4/14/2017	5:41 PM	SM
Silica as SiO2, Total	EPA200.7	mg/L	45	1		0.5	0.3	4/12/2017	4:33 PM	HM

mg/L: Milligrams per liter (=ppm)

µg/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

J = Result is less than PQL

T = Temperature Exceedance



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ELAP Certification Number: 2385

Thursday, May 04, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB65120

Collection Date/Time: 4/10/2017 13:30

Sample Collector: LEAR J

Client Sample #:

Submittal Date/Time: 4/11/2017 9:26

Sample ID

Sample Description: PCAE (D)

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Sodium	EPA200.7	mg/L	77	1		0.5	0.2	4/12/2017	4:33 PM	HM
Specific Conductance (E.C)	SM2510B	µmhos/c	760	1		1	1	4/13/2017	3:30 PM	HM
Strontium, Total	EPA200.8	µg/L	319	2	BB	5	1	4/14/2017	5:41 PM	SM
Sulfate	EPA300.0	mg/L	31	1		1	0.25	4/11/2017	2:24 PM	HM
TOC	SM5310C	mg/L	0.5	1		0.2	0.03	4/24/2017	3:00 PM	MW
Total Diss. Solids	SM2540C	mg/L	440	1		10	10	4/13/2017	3:50 PM	MP
Total Nitrogen	Calculation	mg/L	Not Detected	1		0.5	0.5	4/19/2017	4:45 PM	MP
Total Radium 226	EPA903.0	pCi/L	0.00 ± 0.155	1	E			4/27/2017	12:30 PM	FGL
Trihalomethanes	EPA524.2	µg/L	Not Detected	1	E			4/13/2017	12:00 PM	FGL
Uranium by ICP/MS	EPA200.8	µg/L	Not Detected	2	IJ	1	0.08	4/14/2017	5:41 PM	SM
Vanadium, Total	EPA200.8	µg/L	Not Detected	2		5	0.2	4/14/2017	5:41 PM	SM
Zinc, Total	EPA200.8	µg/L	27	2		20	20	4/14/2017	5:41 PM	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits. BB: Sample > 4x spike concentration.

Report Approved by:

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

µg/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

J = Result is less than PQL

T = Temperature Exceedance



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ELAP Certification Number: 2385

Thursday, May 04, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB65121

Collection Date/Time: 4/11/2017 8:00

Sample Collector: LEAR J

Client Sample #:

Submittal Date/Time: 4/11/2017 9:26

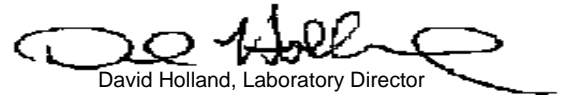
Sample ID

Sample Description: #101 ASR 2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	Not Detected	1	IJ	0.2	0.04	4/14/2017	5:48 PM	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Report Approved by:



David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

J = Result is less than PQL

T = Temperature Exceedance

May 8, 2017

Monterey Bay Analytical Services
 4 Justin Court
 Monterey, CA 93940

Lab ID : SP 1704361
 Customer : 2-19144

Laboratory Report

Introduction: This report package contains total of 9 pages divided into 3 sections:

Case Narrative (2 pages) : An overview of the work performed at FGL.
 Sample Results (4 pages) : Results for each sample submitted.
 Quality Control (3 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
ASR2 Inj	04/11/2017	04/12/2017	SP 1704361-001	W
PCAE (D)	04/10/2017	04/12/2017	SP 1704361-002	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 6 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Organic QC

551.1	04/13/2017:205459 All analysis quality controls are within established criteria
	04/13/2017:204321 All preparation quality controls are within established criteria
552	04/13/2017:204278 All preparation quality controls are within established criteria
552.2	04/14/2017:205458 All analysis quality controls are within established criteria
	04/15/2017:205458 All analysis quality controls are within established criteria
	04/14/2017:205547 All analysis quality controls are within established criteria

May 8, 2017
Monterey Bay Analytical Services

Lab ID : SP 1704361
Customer : 2-19144

Radio QC

900.0	04/18/2017:205699 All analysis quality controls are within established criteria
	04/18/2017:205701 All analysis quality controls are within established criteria
	04/17/2017:204423 All preparation quality controls are within established criteria
903.0	05/04/2017:206736 All analysis quality controls are within established criteria
	04/30/2017:205026 All preparation quality controls are within established criteria
Ra - 05	04/22/2017:205889 All analysis quality controls are within established criteria
	04/22/2017:205892 All analysis quality controls are within established criteria
	04/20/2017:204408 All preparation quality controls are within established criteria

Discussion of Analytical Results: -

Amended Report - 5/3/17 - Amended to report Radium 226.

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2017-05-08



May 8, 2017

Lab ID : SP 1704361-001

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : April 11, 2017-08:40

Sampled By : Jonathan Lear

Received On : April 12, 2017-10:20

Matrix : Water

Description : ASR2 Inj

Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	87.7	80-120	%		551.1	04/13/17:204321	551.1	04/13/17:205459
Bromodichloromethane	6.3	0.5	ug/L		551.1	04/13/17:204321	551.1	04/13/17:205459
Bromoform	0.7	0.5	ug/L		551.1	04/13/17:204321	551.1	04/13/17:205459
Chloroform	6.9	0.5	ug/L		551.1	04/13/17:204321	551.1	04/13/17:205459
Dibromochloromethane	4.8	0.5	ug/L		551.1	04/13/17:204321	551.1	04/13/17:205459
Total Trihalomethanes	18.7	--	ug/L		551.1	04/13/17:204321	551.1	04/13/17:205459
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	101	70-130	%		552	04/13/17:204278	552.2	04/14/17:205458
Bromoacetic Acid	ND	1	ug/L		552	04/13/17:204278	552.2	04/14/17:205458
Chloroacetic Acid	ND	2	ug/L		552	04/13/17:204278	552.2	04/14/17:205458
Dibromoacetic Acid	2	1	ug/L		552	04/13/17:204278	552.2	04/14/17:205457
Dichloroacetic Acid	2	1	ug/L		552	04/13/17:204278	552.2	04/14/17:205458
Trichloroacetic Acid	4	1	ug/L		552	04/13/17:204278	552.2	04/14/17:205458
Haloacetic acids (five)	8	--	ug/L		552	04/13/17:204278	552.2	04/14/17:205458

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



May 8, 2017

Lab ID : SP 1704361-001

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : April 11, 2017-08:40

Sampled By : Jonathan Lear

Received On : April 12, 2017-10:20

Matrix : Water

Description : ASR2 Inj

Project : MPWMD

Sample Result - Radio

Table with 7 columns: Constituent, Result ± Error, MDA, Units, MCL/AL, Sample Preparation (Method, Date/ID), Sample Analysis (Method, Date/ID). Rows include Radio Chemistry, Gross Alpha, Total Alpha Radium (226), and Ra 228.

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

- Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



May 8, 2017

Lab ID : SP 1704361-002
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : April 10, 2017-11:30
Sampled By : Jonathan Lear
Received On : April 12, 2017-10:20
Matrix : Water

Description : PCAE (D)
Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	81.6	80-120	%		551.1	04/13/17:204321	551.1	04/13/17:205459
Bromodichloromethane	ND	0.5	ug/L		551.1	04/13/17:204321	551.1	04/13/17:205459
Bromoform	ND	0.5	ug/L		551.1	04/13/17:204321	551.1	04/13/17:205459
Chloroform	ND	0.5	ug/L		551.1	04/13/17:204321	551.1	04/13/17:205459
Dibromochloromethane	ND	0.5	ug/L		551.1	04/13/17:204321	551.1	04/13/17:205459
Total Trihalomethanes	ND	--	ug/L		551.1	04/13/17:204321	551.1	04/13/17:205459
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	77.3	70-130	%		552	04/13/17:204278	552.2	04/15/17:205458
Bromoacetic Acid	ND	1	ug/L		552	04/13/17:204278	552.2	04/15/17:205458
Chloroacetic Acid	ND	2	ug/L		552	04/13/17:204278	552.2	04/15/17:205458
Dibromoacetic Acid	ND	1	ug/L		552	04/13/17:204278	552.2	04/15/17:205458
Dichloroacetic Acid	ND	1	ug/L		552	04/13/17:204278	552.2	04/15/17:205458
Trichloroacetic Acid	ND	1	ug/L		552	04/13/17:204278	552.2	04/15/17:205458
Haloacetic acids (five)	ND	--	ug/L		552	04/13/17:204278	552.2	04/15/17:205458

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



May 8, 2017

Lab ID : SP 1704361-002
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : April 10, 2017-11:30
Sampled By : Jonathan Lear
Received On : April 12, 2017-10:20
Matrix : Water

Description : PCAE (D)
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	1.38 ± 1.51	1.97	pCi/L	15/5	900.0	04/17/17-08:26 2P1704423	900.0	04/18/17-13:10 2A1705701
Total Alpha Radium (226)	0.000 ± 0.155	0.363	pCi/L	3	903.0	04/30/17-17:00 2P1705026	903.0	05/04/17-14:18 2A1706736
Ra 228	0.000 ± 0.264	0.200	pCi/L	2	Ra - 05	04/20/17-17:30 2P1704408	Ra - 05	04/22/17-13:40 2A1705892

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

May 8, 2017
Monterey Bay Analytical Services

Lab ID : SP 1704361
Customer : 2-19144

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note	
Organic	551.1	04/13/17:204321SBL (SP 1704357-001)	Blank	ug/L		ND	<0.5		
			LCS	ug/L	9.908	109 %	80-120		
			MS	ug/L	9.756	88.1 %	80-120		
			MSD	ug/L	9.908	85.4 %	80-120		
			MSRPD	ug/L	19.82	1.0%	≤20		
	551.1	04/13/17:205459SBL	CCV	ug/L	83.33	93.0 %	80-120		
			CCV	ug/L	166.7	102 %	80-120		
	Bromodichloromethane	551.1	04/13/17:204321SBL (SP 1704357-001)	Blank	ug/L		ND	<0.5	
				LCS	ug/L	9.908	105 %	80-120	
				MS	ug/L	9.756	91.1 %	80-120	
MSD				ug/L	9.908	88.9 %	80-120		
MSRPD				ug/L	19.82	0.8%	≤20		
551.1		04/13/17:205459SBL	CCV	ug/L	83.33	85.1 %	80-120		
			CCV	ug/L	166.7	100 %	80-120		
Bromoform		551.1	04/13/17:204321SBL (SP 1704357-001)	Blank	ug/L		ND	<0.5	
				LCS	ug/L	9.908	115 %	80-120	
				MS	ug/L	9.756	110 %	80-120	
	MSD			ug/L	9.908	98.5 %	80-120		
	MSRPD			ug/L	19.82	7.0%	≤20		
	551.1	04/13/17:205459SBL	CCV	ug/L	83.33	101 %	80-120		
			CCV	ug/L	166.7	105 %	80-120		
	Chloroform	551.1	04/13/17:204321SBL (SP 1704357-001)	Blank	ug/L		ND	<0.5	
				LCS	ug/L	9.908	115 %	80-120	
				MS	ug/L	9.756	110 %	80-120	
MSD				ug/L	9.908	98.5 %	80-120		
MSRPD				ug/L	19.82	7.0%	≤20		
551.1		04/13/17:205459SBL	CCV	ug/L	83.33	101 %	80-120		
			CCV	ug/L	166.7	105 %	80-120		
Decafluorobiphenyl		551.1	04/13/17:204321SBL (SP 1704357-001)	Blank	ug/L	19.68	91.7 %	80-120	
				LCS	ug/L	19.82	108 %	80-120	
				MS	ug/L	19.51	92.4 %	80-120	
	MSD			ug/L	19.82	83.9 %	80-120		
	MSRPD			ug/L	19.82	8.1%	≤20.0		
	551.1	04/13/17:205459SBL	CCV	ug/L	166.7	82.9 %	80-120		
			CCV	ug/L	333.3	96.5 %	80-120		
	Dibromochloromethane	551.1	04/13/17:204321SBL (SP 1704357-001)	Blank	ug/L		ND	<0.5	
				LCS	ug/L	9.908	108 %	80-120	
				MS	ug/L	9.756	90.4 %	80-120	
MSD				ug/L	9.908	89.0 %	80-120		
MSRPD				ug/L	19.82	0.06%	≤20		
551.1		04/13/17:205459SBL	CCV	ug/L	83.33	90.6 %	80-120		
			CCV	ug/L	166.7	102 %	80-120		
2,3-Dibromopropionic Acid		552	04/13/17:204278SBL (SP 1704357-001)	Blank	ug/L	5.000	117 %	70-130	
				LCS	ug/L	5.000	95.6 %	70-130	
				MS	ug/L	5.000	108 %	70-130	
	MSD			ug/L	5.000	99.7 %	70-130		
	MSRPD			ug/L	5.000	7.7%	≤20.0		
	552	04/13/17:204278SBL	CCV	ug/L	5.000	102 %	70-130		
			CCV	ug/L	10.00	103 %	70-130		
	Dibromoacetic Acid	552	04/13/17:204278SBL (SP 1704357-001)	Blank	ug/L		ND	<1	
				LCS	ug/L	10.00	93.0 %	70-130	
				MS	ug/L	10.00	103 %	70-130	
MSD				ug/L	10.00	103 %	70-130		
MSRPD				ug/L	5.000	0.07%	≤20.0		
552		04/13/17:204278SBL	CCV	ug/L	5.000	102 %	70-130		
			CCV	ug/L	10.00	103 %	70-130		
Dichloroacetic Acid		552	04/13/17:204278SBL (SP 1704357-001)	Blank	ug/L		ND	<1	
				LCS	ug/L	10.00	76.8 %	70-130	
				MS	ug/L	10.00	113 %	70-130	
	MSD			ug/L	10.00	115 %	70-130		
	MSRPD			ug/L	5.000	1.5%	≤20.0		
	552	04/13/17:204278SBL	CCV	ug/L	5.000	102 %	70-130		
			CCV	ug/L	10.00	103 %	70-130		
	Monobromoacetic Acid	552	04/13/17:204278SBL (SP 1704357-001)	Blank	ug/L		ND	<1	
				LCS	ug/L	10.00	79.6 %	70-130	
				MS	ug/L	10.00	87.6 %	70-130	
MSD				ug/L	10.00	91.5 %	70-130		
MSRPD				ug/L	5.000	4.2%	≤20.0		
552		04/13/17:204278SBL	CCV	ug/L	5.000	102 %	70-130		
			CCV	ug/L	10.00	103 %	70-130		

Amended Page 7 of 9

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Monochloroacetic Acid	552	04/13/17:204278SBL (SP 1704357-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	10.00	82.7 %	70-130	
			MS	ug/L	10.00	102 %	70-130	
			MSD	ug/L	10.00	110 %	70-130	
			MSRPD	ug/L	5.000	7.6%	≤20.0	
Trichloroacetic Acid	552	04/13/17:204278SBL (SP 1704357-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	69.6 %	70-130	
			MS	ug/L	10.00	77.5 %	70-130	
			MSD	ug/L	10.00	81.5 %	70-130	
			MSRPD	ug/L	5.000	4.1%	≤20.0	
2,3-Dibromopropionic Acid	552.2	04/14/17:205458SBL	CCV	ug/L	75.00	79.4 %	70-130	
			CCV	ug/L	50.00	99.8 %	70-130	
Dibromoacetic Acid	552.2	04/14/17:205547SBL	CCV	ug/L	100.0	97.5 %	70-130	
			CCV	ug/L	150.0	85.5 %	70-130	
	552.2	04/15/17:205458SBL	CCV	ug/L	100.0	106 %	70-130	
			CCV	ug/L	150.0	87.3 %	70-130	
Dichloroacetic Acid	552.2	04/14/17:205458SBL	CCV	ug/L	150.0	74.0 %	70-130	
			CCV	ug/L	100.0	91.3 %	70-130	
Monobromoacetic Acid	552.2	04/14/17:205458SBL	CCV	ug/L	150.0	75.8 %	70-130	
			CCV	ug/L	100.0	88.4 %	70-130	
Monochloroacetic Acid	552.2	04/14/17:205458SBL	CCV	ug/L	150.0	89.5 %	70-130	
			CCV	ug/L	100.0	98.1 %	70-130	
Trichloroacetic Acid	552.2	04/14/17:205458SBL	CCV	ug/L	150.0	74.1 %	70-130	
			CCV	ug/L	100.0	92.3 %	70-130	

Definition	
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
ND	: Non-detect - Result was below the DQO listed for the analyte.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio Alpha	900.0	04/18/17:205699rmm	CCV CCB	cpm cpm	8426	39.7 % 0.0800	37 - 45 0.14	
	900.0	04/18/17:205701rmm	CCV CCB	cpm cpm	8426	41.0 % 0.0400	37 - 46 0.17	
Gross Alpha	900.0	04/17/17:204423RMM (SP 1704354-001)	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 108.2 108.2 108.2 108.2	0.88 103 % 107 % 101 % 5.7%	3 75-125 60-140 60-140 ≤30	
Alpha	903.0	05/04/17:206736MMF	CCV CCB	cpm cpm	8415	40.9 % 0.0800	38 - 47 0.16	
Total Alpha Radium (226)	903.0	04/30/17:205026rmm	RgBlk LCS BS BSD BSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 21.85 21.85 21.85 21.85	0.07 61.8 % 44.9 % 49.1 % 8.8%	2 52-107 43-111 43-111 ≤35.5	
Beta	Ra - 05	04/22/17:205889emv	CCV CCB	cpm cpm	8802	90.1 % 0.3800	86 - 105 0.51	
	Ra - 05	04/22/17:205892emv	CCV CCB	cpm cpm	8802	88.4 % 0.3000	88 - 108 0.48	
Ra 228	Ra - 05	04/20/17:204408emv	RgBlk LRS BS BSD BSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 38.28 38.28 38.28 38.28	0.08 97.9 % 96.2 % 100 % 4.2%	3 65-108 75-125 75-125 ≤25	

Definition	
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
LRS	: Laboratory Recovery Standard - Prepared to establish the batch recovery factor used in result calculations.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

Client: Monterey Bay Analytical Services Customer Number: 2019144 Address: 4 Justin Court Monterey, CA 93940 Phone: (831)375-6227 Fax: (831)641-0734 Email Address: info@mbasinc.com Contact Person: David Holland Project Name: MPWMD Purchase Order Number: Quote Number:				Lab Number: 74301		TEST DESCRIPTION AND ANALYSES REQUESTED															
Rush Analysis: <input type="checkbox"/> 5 Day <input type="checkbox"/> 4 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> 24 hour Rush pre-approval by lab (initials): _____ Electronic Data Transfer: <input type="checkbox"/> No <input type="checkbox"/> State <input type="checkbox"/> Client Other: _____				Method of Sampling: Composite (C) Grab (G)																	
Sampler(s): Jonathan Lear Sampling Fee: _____ Pickup Fee: _____ Compositor Setup Date: _____ Time: _____				Number of Containers																	
Type of Containers: (G) Glass (P) Plastic (V) VOA (MT) Metal Tube				Potable (P) Non-Potable (NP) Ag Water (AgW)																	
(SW) Surface Water (MW) Monitoring Well (GW) Ground Water (TB) Travel Blank (WW) Waste Water (DW) Drinking Water (S) Soil (SLG) Sludge (SLD) Sediment (O) Oil				Bact: (Sya) System (SRC) Source (W) Waste Bact: (ROUT) Routine (RPT) Repeat (OTH) Other (RPL) Replace																	
(LT) Leaf Tissue (PET) Petiole Tissue (FRD) Produce Preservative: (1) NaOH + ZnAc, (2) NaOH, (3) HCl (4) H2SO4, (5) HNO3, (6) Na2S2O3, (7) Other: _____				HAA THMS Gross Alpha Ra 226																	
Samp Num	Location Description	Date Sampled	Time Sampled	Method	Containers	Potable	Bact	Bact	LT	Preservative	HAA	THMS	Gross Alpha	Ra 226							
1.	ASR2 Inj	4/11/17	08:40	G	7	Var					X	X	X	X							
	PCAE (D)	4/10/17	13:30	G	7	Var					X	X	X	X							
Remarks AB65119, AB65120 535 709 509				Relinquished Date: Time: 4/11 1600			Relinquished Date: Time: GSO 4/11/17 1020			Relinquished Date: Time:			Relinquished Date: Time:			Relinquished Date: Time:					
				Received By: Date: Time: Ulyu 4/11/17 1020			Received By: Date: Time: Ulyu 4/11/17 1020			Received By: Date: Time:			Received By: Date: Time:			Received By: Date: Time:					

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

1. Number of ice chests/packages received: 1
2. Shipper tracking numbers 535709569
3. Were samples received in a chilled condition?
Temps: 6 / / / / / /
4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
5. Do the number of bottles received agree with the COC? Yes No N/A
6. Verify sample date, time, sampler Yes No N/A
7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) Yes No
8. Were sample custody seals intact? Yes No N/A

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? Yes No
2. Did bottle labels correspond with the client's ID's? Yes No
3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
[Exception: Oil & Grease, VOA and CrVI verified in lab]
4. VOAs checked for Headspace? Yes No N/A
5. Were all analyses within holding times at time of receipt? Yes No
6. Have rush or project due dates been checked and accepted? Yes No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and
Approved By

Inez Covarrubias



Digitally signed by Inez Covarrubias
Title: Sample Receiving
Date: 04/13/2017-11:03:53

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2019144)
Monterey Bay Analytical Services
SP 1704361

IV-04/13/2017-11:03:53



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1704450

Report Created for: Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Project Contact: David Holland
Project P.O.:
Project Name: MPWMD

Project Received: 04/12/2017

Analytical Report reviewed & approved for release on 04/18/2017 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Bay Analytical
Project: MPWMD
WorkOrder: 1704450

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Bay Analytical
Date Received: 4/12/17 9:29
Date Prepared: 4/18/17
Project: MPWMD

WorkOrder: 1704450
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR2 Inj	1704450-001A	Water	04/11/2017 08:40	GC26	137500

Analytes	Result	RL	DF	Date Analyzed
Methane	1.3	0.10	1	04/18/2017 14:38

Analyst(s): AK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
PCAE (D)	1704450-002A	Water	04/10/2017 13:30	GC26	137500

Analytes	Result	RL	DF	Date Analyzed
Methane	2.2	0.10	1	04/18/2017 14:51

Analyst(s): AK

 Angela Rydelius, Lab Manager



Quality Control Report

Client: Monterey Bay Analytical
Date Prepared: 4/18/17
Date Analyzed: 4/18/17
Instrument: GC26
Matrix: Water
Project: MPWMD

WorkOrder: 1704450
BatchID: 137500
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L
Sample ID: MB/LCS-137500

QC Summary Report for RSK175

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Methane	ND	1.34	0.10	1.17	-	114	70-130

QA/QC Officer



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1704450

ClientCode: MBAS

WaterTrax
 WriteOn
 EDF
 Excel
 EQulS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

David Holland
Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940
831-375-6227 FAX: 831-641-0734

Email: mweidner@mbasinc.com; Dholland@mbas
cc/3rd Party:
PO:
ProjectNo: MPWMD

Bill to:

Accounts Payable
Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 04/12/2017

Date Logged: 04/12/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1704450-001	ASR2 Inj	Water	4/11/2017 08:40	<input type="checkbox"/>	A												
1704450-002	PCAE (D)	Water	4/10/2017 13:30	<input type="checkbox"/>	A												

Test Legend:

1	RSK175_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Jena Alfaro

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY BAY ANALYTICAL

Project: MPWMD

Work Order: 1704450

Client Contact: David Holland

QC Level: LEVEL 2

Contact's Email: mweidner@mbasinc.com; Dholland@mbasinc.com;
info@sbcglobal.net; info@mbasinc.com

Comments:

Date Logged: 4/12/2017

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1704450-001A	ASR2 Inj	Water	RSK175 <Methane_4>	3	VOA w/ HCl	<input type="checkbox"/>	4/11/2017 8:40	5 days	None	<input type="checkbox"/>	
1704450-002A	PCAE (D)	Water	RSK175 <Methane_4>	3	VOA w/ HCl	<input type="checkbox"/>	4/10/2017 13:30	5 days	None	<input type="checkbox"/>	

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).

- 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.

1704450

McCAMPBELL ANALYTICAL, INC.

1534 WILLOW PASS ROAD
PITTSBURG, CA 94565-1701

Website: www.mccampbell.com Email: main@mccampbell.com
Telephone: (877) 252-9262 Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME

GeoTracker EDF PDF Excel Write On (DW)

RUSH 24 HR 48 HR 72 HR 5 DAY

Report To: David Holland		Bill To:		Analysis Request														Other	Comments																		
Company: Monterey Bay Analytical Services		Monterey, Ca 93940		E-Mail: info@mbasinc.com		Tele: (831) 375 - 6227		Fax: (831) 641-0734		Project #: _____		Project Name: MPWMD		Project Location: _____		Sampler Signature: Jonathan Lear			Filter Samples for Metals analysis: Yes / No																		
SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				MTBE / BTEX & TPH as Gas (602 / 8021 + 8015)	MTBE / BTEX ONLY (EPA 602 / 8021)	TPH as Diesel / Motor Oil (8015)	Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 502.2 / 601 / 8010 / 8021 (HVOCs)	EPA 505/608 / 8081 (CI Pesticides)	EPA 608 / 8082 PCB'S ONLY; Aroclors / Congeners	EPA 507 / 8141 (NP Pesticides)	EPA 515 / 8151 (Acidic CI Herbicides)	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / PNAs)	CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)	Lead (200.7 / 200.8 / 6010 / 6020)	Methane						
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO ₃	Other																							
	ASR2 Inj	4/11/17	08:40	3	V	X					X	X																					X		AB65119		
	PCAE (D)	4/10/17	13:30	3	V	X					X	X																				X		AB65120			

Relinquished By: David Holland	Date: 4/11	Time: 1600	Received By: GSO	COMMENTS: ICE/PC 5.2 met GOOD CONDITION HEAD SPACE ABSENT DECHLORINATED IN LAB APPROPRIATE CONTAINERS PRESERVED IN LAB VOAS O&G METALS OTHER PRESERVATION pH<2
Relinquished By: GSO	Date: 4/12/17	Time: 929	Received By: [Signature]	
Relinquished By:	Date:	Time:	Received By:	



Sample Receipt Checklist

Client Name: **Monterey Bay Analytical**
 Project Name: **MPWMD**

Date and Time Received: **4/12/2017 09:29**
 Date Logged: **4/12/2017**
 Received by: **Jena Alfaro**
 Logged by: **Jena Alfaro**

WorkOrder No: **1704450** Matrix: Water
 Carrier: Golden State Overnight

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No NA
 Sample/Temp Blank temperature Temp: 5.2°C NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No
 (Ice Type: WET ICE)

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:



Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

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www.MBASinc.com

ELAP Certification Number: 2385

Monday, May 01, 2017

MPWMD
Jonanthan Lear
P.O. Box 85
Monterey, CA 93442-0085

Lab Number: AB65239

Collection Date/Time: 4/11/2017 15:00

Sample Collector: LEAR, J

Client Sample #:

Submittal Date/Time: 4/12/2017 10:18

Sample ID

Sample Description: SMS (D)

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	138	1		10	2	4/17/2017	1:00 PM	BS
Aluminum, Total	EPA200.8	µg/L	20	2		10	10	4/14/2017	6:29 PM	SM
Ammonia-N	SM4500NH3	mg/L	0.05	1		0.05	0.05	4/25/2017	10:59 AM	MW
Arsenic, Total	EPA200.8	µg/L	1	2		1	0.2	4/14/2017	6:29 PM	SM
Barium, Total	EPA200.8	µg/L	43	2		10	0.4	4/14/2017	6:29 PM	SM
Bicarbonate (as HCO3-)	SM2320B	mg/L	168	1		10	2	4/17/2017	4:35 PM	MP
Boron	EPA200.7	mg/L	Not detected	1		0.05	0.01	4/19/2017	10:11 AM	MW
Bromide	EPA300.0	mg/L	0.1	1		0.1	0.01	4/13/2017	1:53 AM	HM
Calcium	EPA200.7	mg/L	41	1		0.5	0.1	4/19/2017	10:11 AM	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected	1		10	2	4/17/2017	4:35 PM	MP
Chloramines	SM4500-Cl	mg/L	0.14	1	IL	0.05	0.05	4/12/2017	3:51 PM	LRH
Chloride	EPA300.0	mg/L	27	1		1	0.25	4/13/2017	1:53 AM	HM
DOC	SM5310C	mg/L	1.4	1		0.2	0.03	4/24/2017	3:00 PM	MW
Fluoride	EPA300.0	mg/L	0.2	1		0.1	0.02	4/13/2017	1:53 AM	HM
Gross Alpha	EPA900.0	pCi/L	2.20 ± 1.33	1	E			4/21/2017	12:00 PM	FGL
Haloacetic Acids	EPA552	µg/L	11	1	E			4/19/2017	12:00 PM	FGL
Iron	EPA200.7	µg/L	Not Detected	1		10	4	4/19/2017	10:11 AM	MW
Iron, Dissolved	EPA200.7	µg/L	Not Detected	1		10	4	4/19/2017	10:08 AM	MW
Kjeldahl Nitrogen	SM4500-NH	mg/L	0.5	1		0.5	0.5	4/19/2017	10:00 AM	BS
Lithium	EPA200.8	µg/L	7	2		1	0.2	4/14/2017	6:29 PM	SM
Magnesium	EPA200.7	mg/L	12	1		0.5	0.2	4/19/2017	10:11 AM	MW
Manganese, Dissolved	EPA200.7	µg/L	Not Detected	1		10	2	4/19/2017	10:08 AM	MW
Manganese, Total	EPA200.7	µg/L	Not Detected	1		10	2	4/19/2017	10:11 AM	MW
Mercury, Total	EPA200.8	µg/L	Not Detected	2	LM.IJ	0.4	0.08	4/14/2017	6:29 PM	SM
Methane	EPA174/175	µg/L	1.3	1	E	0.1	0.1	4/18/2017	3:57 PM	MCCAM
Molybdenum, Total	EPA200.8	µg/L	3	2		1	0.2	4/14/2017	6:29 PM	SM
Nickel, Total	EPA200.8	µg/L	Not Detected	2		10	0.2	4/14/2017	6:29 PM	SM
Nitrate as NO3	EPA300.0	mg/L	1	1		1	0.07	4/13/2017	1:53 AM	HM
Nitrate as NO3-N	EPA300.0	mg/L	0.3	1		0.1	0.01	4/13/2017	1:53 AM	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	0.8	1		0.1	0.025	4/13/2017	1:53 AM	HM
Nitrite as NO2-N	EPA300.0	mg/L	0.5	1		0.1	0.01	4/13/2017	1:53 AM	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	0.2	1		0.1	0.02	4/13/2017	1:53 AM	HM

mg/L: Milligrams per liter (=ppm)

µg/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

J = Result is less than PQL

T = Temperature Exceedance



4 Justin Court Suite D, Monterey, CA 93940

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ELAP Certification Number: 2385

Monday, May 01, 2017

MPWMD
 Jonathan Lear
 P.O. Box 85
 Monterey, CA 93442-0085

Lab Number: AB65239

Collection Date/Time: 4/11/2017 15:00

Sample Collector: LEAR, J

Client Sample #:

Submittal Date/Time: 4/12/2017 10:18

Sample ID

Sample Description: SMS (D)

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
pH (Laboratory)	SM4500-H+	pH (H)	7.6	1		0.1		4/12/2016	5:00 PM	BS
Phosphorus, Total	HACH 8190	mg/L	0.29	1	HP/L	0.05	0.05	4/18/2017	12:27 PM	MP/LRH
Potassium	EPA200.7	mg/L	2.7	1		0.5	0.3	4/19/2017	10:11 AM	MW
QC Anion Sum x 100	Calculation	%	100%	1				4/17/2017	4:35 PM	MP
QC Anion-Cation Balance	Calculation	%	-1	1				4/20/2017	3:59 PM	MW
QC Cation Sum x 100	Calculation	%	98%	1				4/20/2017	3:59 PM	MW
QC Ratio TDS/SEC	Calculation		0.61	1				4/17/2017	5:18 PM	LRH
Selenium, Total	EPA200.8	µg/L	2	2		2	1	4/14/2017	6:29 PM	SM
Silica as SiO ₂ , Total	EPA200.7	mg/L	22	1		0.5	0.3	4/19/2017	10:11 AM	MW
Sodium	EPA200.7	mg/L	39	1		0.5	0.2	4/19/2017	10:11 AM	MW
Specific Conductance (E.C)	SM2510B	µmhos/c	490	1		1	1	4/13/2017	3:30 PM	HM
Strontium, Total	EPA200.8	µg/L	277	2	BB	5	1	4/14/2017	6:29 PM	SM
Sulfate	EPA300.0	mg/L	66	1		1	0.25	4/13/2017	1:53 AM	HM
TOC	SM5310C	mg/L	1.4	1		0.2	0.03	4/24/2017	3:00 PM	MW
Total Diss. Solids	SM2540C	mg/L	300	1		10	10	4/13/2017	3:50 PM	MP
Total Nitrogen	Calculation	mg/L	1.3	1		0.5	0.5	4/19/2017	4:45 PM	MP
Total Radium 226	EPA903.0	pCi/L	0.066 ± 0.129	1	E			4/27/2017	11:55 AM	FGL
Trihalomethanes	EPA524.2	µg/L	27	1	E			4/22/2017	12:00 PM	FGL
Uranium by ICP/MS	EPA200.8	µg/L	1	2	IJ	1	0.08	4/14/2017	6:29 PM	SM
Vanadium, Total	EPA200.8	µg/L	Not Detected	2		5	0.2	4/14/2017	6:29 PM	SM
Zinc, Total	EPA200.8	µg/L	56	2		20	20	4/14/2017	6:29 PM	SM

Sample Comments: IL: RPD exceeds laboratory control limit IJ: ICV and/or CCV above acceptance limits. LM: MS and/or MSD above acceptance limits. BB: Sample > 4x spike concentration. LQ: LCS recovery above method control limits. HP: Low concentration blank spike recovery out of limits.

Report Approved by:

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

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Monterey Bay Analytical Services

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ELAP Certification Number: 2385

Monday, May 01, 2017

MPWMD
Jonanthan Lear
P.O. Box 85
Monterey, CA 93442-0085

Lab Number: AB65240

Collection Date/Time: 4/11/2017 9:45

Sample Collector: LEAR, J

Client Sample #:

Submittal Date/Time: 4/12/2017 10:18

Sample ID

Sample Description: MW-1

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	134	1		10	2	4/17/2017	1:00 PM	BS
Aluminum, Total	EPA200.8	µg/L	85	2		10	10	4/14/2017	6:47 PM	SM
Ammonia-N	SM4500NH3	mg/L	Not Detected	1		0.05	0.05	4/25/2017	10:59 AM	MW
Arsenic, Total	EPA200.8	µg/L	2	2		1	0.2	4/14/2017	6:47 PM	SM
Barium, Total	EPA200.8	µg/L	20	2	BB	10	0.4	4/14/2017	6:47 PM	SM
Bicarbonate (as HCO3-)	SM2320B	mg/L	163	1		10	2	4/17/2017	4:35 PM	MP
Boron	EPA200.7	mg/L	Not detected	1		0.05	0.01	4/19/2017	9:46 AM	MW
Bromide	EPA300.0	mg/L	0.1	1		0.1	0.01	4/12/2017	8:40 PM	HM
Calcium	EPA200.7	mg/L	40	1		0.5	0.1	4/19/2017	9:46 AM	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected	1		10	2	4/17/2017	4:35 PM	MP
Chloramines	SM4500-Cl	mg/L	0.08	1	IL	0.05	0.05	4/12/2017	3:51 PM	LRH
Chloride	EPA300.0	mg/L	28	1		1	0.25	4/12/2017	8:40 PM	HM
DOC	SM5310C	mg/L	1.3	1		0.2	0.03	4/24/2017	3:00 PM	MW
Fluoride	EPA300.0	mg/L	0.2	1		0.1	0.02	4/12/2017	8:40 PM	HM
Gross Alpha	EPA900.0	pCi/L	2.31 0± 1.29	1	E			4/21/2017	3:00 PM	FGL
Haloacetic Acids	EPA552	µg/L	18	1	E			4/19/2017	12:00 PM	FGL
Iron	EPA200.7	µg/L	72	1		10	4	4/19/2017	9:46 AM	MW
Iron, Dissolved	EPA200.7	µg/L	Not Detected	1		10	4	4/19/2017	9:49 AM	MW
Kjehldahl Nitrogen	SM4500-NH	mg/L	0.6	1		0.5	0.5	4/19/2017	10:00 AM	BS
Lithium	EPA200.8	µg/L	9	2	IJ,LQ	1	0.2	4/14/2017	6:47 PM	SM
Magnesium	EPA200.7	mg/L	10	1		0.5	0.2	4/19/2017	9:46 AM	MW
Manganese, Dissolved	EPA200.7	µg/L	Not Detected	1		10	2	4/19/2017	9:49 AM	MW
Manganese, Total	EPA200.7	µg/L	Not Detected	1		10	2	4/19/2017	9:46 AM	MW
Mercury, Total	EPA200.8	µg/L	0.4	2	IJ	0.4	0.08	4/14/2017	6:47 PM	SM
Methane	EPA174/175	µg/L	0.68	1	E	0.1	0.1	4/18/2017	4:08 PM	MCCAM
Molybdenum, Total	EPA200.8	µg/L	3	2		1	0.2	4/14/2017	6:47 PM	SM
Nickel, Total	EPA200.8	µg/L	Not Detected	2		10	0.2	4/14/2017	6:47 PM	SM
Nitrate as NO3	EPA300.0	mg/L	1	1		1	0.07	4/12/2017	8:40 PM	HM
Nitrate as NO3-N	EPA300.0	mg/L	0.3	1		0.1	0.01	4/12/2017	8:40 PM	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	0.8	1		0.1	0.025	4/12/2017	8:40 PM	HM
Nitrite as NO2-N	EPA300.0	mg/L	0.5	1		0.1	0.01	4/12/2017	8:40 PM	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	Not Detected	1		0.1	0.02	4/12/2017	8:40 PM	HM

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

J = Result is less than PQL

T = Temperature Exceedance



Monterey Bay Analytical Services

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831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

Monday, May 01, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB65240

Collection Date/Time: 4/11/2017 9:45

Sample Collector: LEAR, J

Client Sample #:

Submittal Date/Time: 4/12/2017 10:18

Sample ID

Sample Description: MW-1

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
pH (Laboratory)	SM4500-H+	pH (H)	7.7	1		0.1		4/12/2016	5:00 PM	BS
Phosphorus, Total	HACH 8190	mg/L	0.04	1	HP/L	0.05	0.05	4/19/2017	12:27 PM	MP/LRH
Potassium	EPA200.7	mg/L	2.5	1		0.5	0.3	4/19/2017	9:46 AM	MW
QC Anion Sum x 100	Calculation	%	99%	1				4/17/2017	4:35 PM	MP
QC Anion-Cation Balance	Calculation	%	-2	1				4/20/2017	3:59 PM	MW
QC Cation Sum x 100	Calculation	%	95%	1				4/20/2017	3:59 PM	MW
QC Ratio TDS/SEC	Calculation		0.58	1				4/17/2017	5:18 PM	LRH
Selenium, Total	EPA200.8	µg/L	2	2		2	1	4/14/2017	6:47 PM	SM
Silica as SiO ₂ , Total	EPA200.7	mg/L	22	1		0.5	0.3	4/19/2017	9:46 AM	MW
Sodium	EPA200.7	mg/L	41	1		0.5	0.2	4/19/2017	9:46 AM	MW
Specific Conductance (E.C)	SM2510B	µmhos/c	493	1		1	1	4/13/2017	3:30 PM	HM
Strontium, Total	EPA200.8	µg/L	282	2	BB	5	1	4/14/2017	6:47 PM	SM
Sulfate	EPA300.0	mg/L	68	1		1	0.25	4/12/2017	8:40 PM	HM
TOC	SM5310C	mg/L	1.2	1		0.2	0.03	4/24/2017	3:00 PM	MW
Total Diss. Solids	SM2540C	mg/L	288	1		10	10	4/13/2017	3:50 PM	MP
Total Nitrogen	Calculation	mg/L	1.4	1		0.5	0.5	4/19/2017	4:46 PM	MP
Total Radium 226	EPA903.0	pCi/L	0.164 ± 0.170	1	E			4/27/2017	12:30 PM	FGL
Trihalomethanes	EPA524.2	µg/L	58	1	E			4/22/2017	12:00 PM	FGL
Uranium by ICP/MS	EPA200.8	µg/L	2	2	IJ	1	0.08	4/14/2017	6:47 PM	SM
Vanadium, Total	EPA200.8	µg/L	Not Detected	2		5	0.2	4/14/2017	6:47 PM	SM
Zinc, Total	EPA200.8	µg/L	Not Detected	2		20	20	4/14/2017	6:47 PM	SM

Sample Comments: IL: RPD exceeds laboratory control limit LQ: LCS recovery above method control limits. BB: Sample > 4x spike concentration. IJ: ICV and/or CCV above acceptance limits. LQ: LCS recovery above method control limits. HP: Low concentration blank spike recovery out of limits.

Report Approved by:

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

J = Result is less than PQL

T = Temperature Exceedance



MBAS

Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

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ELAP Certification Number: 2385

Monday, May 01, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB65241

Collection Date/Time: 4/12/2017 9:00

Sample Collector: LEAR, J

Client Sample #:

Submittal Date/Time: 4/12/2017 10:18

Sample ID

Sample Description: #103 inj @ ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	Not Detected	1	IJ	0.2	0.04	4/14/2017	6:50 PM	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Report Approved by:

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

H = Analyzed outside of hold time

J = Result is less than PQL

ug/L : Micrograms per liter (=ppb)

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

T = Temperature Exceedance

PQL : Practical Quantitation Limit

May 1, 2017

Monterey Bay Analytical Services
 4 Justin Court
 Monterey, CA 93940

Lab ID : SP 1704527
 Customer : 2-19144

Laboratory Report

Introduction: This report package contains total of 10 pages divided into 3 sections:

Case Narrative (2 pages) : An overview of the work performed at FGL.
 Sample Results (4 pages) : Results for each sample submitted.
 Quality Control (4 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
SMS (D)	04/11/2017	04/14/2017	SP 1704527-001	W
MW-1	04/11/2017	04/14/2017	SP 1704527-002	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 4 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Organic QC

551.1	04/22/2017:205928 All analysis quality controls are within established criteria.
	04/21/2017:204675 All preparation quality controls are within established criteria, except: The following note applies to Chloroform: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. The following note applies to Decafluorobiphenyl: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
552	04/17/2017:204460 All preparation quality controls are within established criteria.
552.2	04/19/2017:205573 All analysis quality controls are within established criteria.
	04/19/2017:205687 All analysis quality controls are within established criteria.

May 1, 2017
Monterey Bay Analytical Services

Lab ID : SP 1704527
Customer : 2-19144

Radio QC

900.0	04/21/2017:205926 All analysis quality controls are within established criteria.
	04/21/2017:205929 All analysis quality controls are within established criteria.
	04/19/2017:204526 All preparation quality controls are within established criteria.
903.0	04/27/2017:206235 All analysis quality controls are within established criteria.
	04/25/2017:204712 All preparation quality controls are within established criteria, except: The following note applies to Total Alpha Radium (226): 436 Blank Spike (BS) not within Acceptance Range (AR). Data was accepted based on the LCS or CCV recovery.

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2017-05-01



May 1, 2017

Lab ID : SP 1704527-001

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : April 11, 2017-15:00

Sampled By : Jonathan Lear

Received On : April 14, 2017-11:00

Matrix : Water

Description : SMS (D)

Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	67.0	80-120	%		551.1	04/21/17:204675	551.1	04/22/17:205928
Bromodichloromethane	9	1	ug/L		551.1	04/21/17:204675	551.1	04/22/17:205928
Bromoform	ND	1	ug/L		551.1	04/21/17:204675	551.1	04/22/17:205928
Chloroform	12	1	ug/L		551.1	04/21/17:204675	551.1	04/22/17:205928
Dibromochloromethane	6	1	ug/L		551.1	04/21/17:204675	551.1	04/22/17:205928
Total Trihalomethanes	27	--	ug/L		551.1	04/21/17:204675	551.1	04/22/17:205928
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	114	70-130	%		552	04/17/17:204460	552.2	04/19/17:205573
Bromoacetic Acid	1	1	ug/L		552	04/17/17:204460	552.2	04/19/17:205573
Chloroacetic Acid	ND	2	ug/L		552	04/17/17:204460	552.2	04/19/17:205573
Dibromoacetic Acid	2	1	ug/L		552	04/17/17:204460	552.2	04/19/17:205687
Dichloroacetic Acid	3	1	ug/L		552	04/17/17:204460	552.2	04/19/17:205573
Trichloroacetic Acid	5	1	ug/L		552	04/17/17:204460	552.2	04/19/17:205573
Haloacetic acids (five)	11	--	ug/L		552	04/17/17:204460	552.2	04/19/17:205573

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



May 1, 2017

Lab ID : SP 1704527-001
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : April 11, 2017-15:00
Sampled By : Jonathan Lear
Received On : April 14, 2017-11:00
Matrix : Water

Description : SMS (D)
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	2.20 ± 1.33	1.53	pCi/L	15/5	900.0	04/19/17-08:01 2P1704526	900.0	04/21/17-12:00 2A1705926
Total Alpha Radium (226)	0.066 ± 0.129	0.363	pCi/L	3	903.0	04/25/17-12:15 2P1704712	903.0	04/27/17-11:55 2A1706235

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



May 1, 2017

Lab ID : SP 1704527-002
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : April 11, 2017-09:45
Sampled By : Jonathan Lear
Received On : April 14, 2017-11:00
Matrix : Water

Description : MW-1
Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	89.2	80-120	%		551.1	04/21/17:204675	551.1	04/22/17:205928
Bromodichloromethane	14	1	ug/L		551.1	04/21/17:204675	551.1	04/22/17:205928
Bromoform	1	1	ug/L		551.1	04/21/17:204675	551.1	04/22/17:205928
Chloroform	35	1	ug/L		551.1	04/21/17:204675	551.1	04/22/17:205928
Dibromochloromethane	8	1	ug/L		551.1	04/21/17:204675	551.1	04/22/17:205928
Total Trihalomethanes	58	--	ug/L		551.1	04/21/17:204675	551.1	04/22/17:205928
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	110	70-130	%		552	04/17/17:204460	552.2	04/19/17:205573
Bromoacetic Acid	ND	1	ug/L		552	04/17/17:204460	552.2	04/19/17:205573
Chloroacetic Acid	ND	2	ug/L		552	04/17/17:204460	552.2	04/19/17:205573
Dibromoacetic Acid	2	1	ug/L		552	04/17/17:204460	552.2	04/19/17:205687
Dichloroacetic Acid	8	1	ug/L		552	04/17/17:204460	552.2	04/19/17:205687
Trichloroacetic Acid	8	1	ug/L		552	04/17/17:204460	552.2	04/19/17:205573
Haloacetic acids (five)	18	--	ug/L		552	04/17/17:204460	552.2	04/19/17:205573

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



May 1, 2017

Lab ID : SP 1704527-002
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : April 11, 2017-09:45
Sampled By : Jonathan Lear
Received On : April 14, 2017-11:00
Matrix : Water

Description : MW-1
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	2.31 ± 1.29	1.25	pCi/L	15/5	900.0	04/19/17-08:01 2P1704526	900.0	04/21/17-15:00 2A1705929
Total Alpha Radium (226)	0.164 ± 0.170	0.363	pCi/L	3	903.0	04/25/17-12:15 2P1704712	903.0	04/27/17-12:30 2A1706235

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

May 1, 2017
Monterey Bay Analytical Services

Lab ID : SP 1704527
 Customer : 2-19144

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic Bromodichloromethane	551.1	04/21/17:204675SBL (SP 1704527-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	9.693	94.6 %	80-120	
			MS	ug/L	10.06	102 %	80-120	
			MSD	ug/L	9.846	96.8 %	80-120	
			MSRPD	ug/L	19.69	4.1 %	≤20	
			Blank	ug/L		ND	<1	
	551.1	04/22/17:205928SBL (SP 1704527-002)	LCS	ug/L	9.591	99.7 %	80-120	
			MS	ug/L	9.810	90.0 %	80-120	
			MSD	ug/L	9.849	89.7 %	80-120	
			MSRPD	ug/L	19.70	0.04 %	≤20	
			CCV	ug/L	83.33	96.8 %	80-120	
			CCV	ug/L	166.7	90.8 %	80-120	
CCV	ug/L	83.33	98.2 %	80-120				
Bromoform	551.1	04/21/17:204675SBL (SP 1704527-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	9.693	89.5 %	80-120	
			MS	ug/L	10.06	97.2 %	80-120	
			MSD	ug/L	9.846	95.9 %	80-120	
			MSRPD	ug/L	19.69	3.2 %	≤20	
			Blank	ug/L		ND	<1	
	551.1	04/22/17:205928SBL (SP 1704527-002)	LCS	ug/L	9.591	99.5 %	80-120	
			MS	ug/L	9.810	95.9 %	80-120	
			MSD	ug/L	9.849	95.8 %	80-120	
			MSRPD	ug/L	19.70	0.2 %	≤20	
			CCV	ug/L	83.33	94.4 %	80-120	
			CCV	ug/L	166.7	89.8 %	80-120	
CCV	ug/L	83.33	98.2 %	80-120				
Chloroform	551.1	04/21/17:204675SBL (SP 1704527-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	9.693	98.8 %	80-120	
			MS	ug/L	10.06	105 %	80-120	
			MSD	ug/L	9.846	112 %	80-120	
			MSRPD	ug/L	19.69	2.1 %	≤20	
			Blank	ug/L		ND	<1	
	551.1	04/22/17:205928SBL (SP 1704527-002)	LCS	ug/L	9.591	110 %	80-120	
			MS	ug/L	9.810	79.0 %	80-120	435
			MSD	ug/L	9.849	80.7 %	80-120	
			MSRPD	ug/L	19.70	0.5 %	≤20	
			CCV	ug/L	83.33	95.1 %	80-120	
			CCV	ug/L	166.7	95.2 %	80-120	
CCV	ug/L	83.33	96.9 %	80-120				
Decafluorobiphenyl	551.1	04/21/17:204675SBL (SP 1704527-001)	Blank	ug/L	18.99	84.8 %	80-120	
			LCS	ug/L	19.39	96.3 %	80-120	
			MS	ug/L	20.11	102 %	80-120	
			MSD	ug/L	19.69	80.5 %	80-120	
			MSRPD	ug/L	19.69	25.9 %	≤20.0	
			Blank	ug/L	19.21	99.6 %	80-120	
	551.1	04/22/17:205928SBL (SP 1704527-002)	LCS	ug/L	19.18	99.3 %	80-120	
			MS	ug/L	19.62	97.7 %	80-120	
			MSD	ug/L	19.70	87.7 %	80-120	
			MSRPD	ug/L	19.70	10.3 %	≤20.0	
			CCV	ug/L	166.7	83.9 %	80-120	
			CCV	ug/L	333.3	91.8 %	80-120	
CCV	ug/L	166.7	101 %	80-120				
Dibromochloromethane	551.1	04/21/17:204675SBL	Blank	ug/L		ND	<1	
			LCS	ug/L	9.693	92.8 %	80-120	
			MS	ug/L	10.06	104 %	80-120	

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note	
Organic									
Dibromochloromethane	551.1	(SP 1704527-001)	MSD	ug/L	9.846	96.9 %	80-120		
			MSRPD	ug/L	19.69	5.9%	≤20		
			Blank	ug/L		ND	<1		
			LCS	ug/L	9.591	100 %	80-120		
			MS	ug/L	9.810	94.0 %	80-120		
	(SP 1704527-002)	551.1	04/22/17:205928SBL	MSD	ug/L	9.849	93.6 %	80-120	
				MSRPD	ug/L	19.70	0.0%	≤20	
				CCV	ug/L	83.33	94.6 %	80-120	
				CCV	ug/L	166.7	91.2 %	80-120	
				CCV	ug/L	83.33	96.6 %	80-120	
2,3-Dibromopropionic Acid	552	04/17/17:204460SBL (SP 1704358-001)	Blank	ug/L	5.000	85.6 %	70-130		
			LCS	ug/L	5.000	100 %	70-130		
			MS	ug/L	5.000	112 %	70-130		
			MSD	ug/L	5.000	106 %	70-130		
			MSRPD	ug/L	5.000	5.1%	≤20.0		
Dibromoacetic Acid	552	04/17/17:204460SBL (SP 1704358-001)	Blank	ug/L		ND	<1		
			LCS	ug/L	10.00	101 %	70-130		
			MS	ug/L	10.00	101 %	70-130		
			MSD	ug/L	10.00	94.5 %	70-130		
			MSRPD	ug/L	5.000	5.6%	≤20.0		
Dichloroacetic Acid	552	04/17/17:204460SBL (SP 1704358-001)	Blank	ug/L		ND	<1		
			LCS	ug/L	10.00	100 %	70-130		
			MS	ug/L	10.00	98.7 %	70-130		
			MSD	ug/L	10.00	96.2 %	70-130		
			MSRPD	ug/L	5.000	2.5%	≤20.0		
Monobromoacetic Acid	552	04/17/17:204460SBL (SP 1704358-001)	Blank	ug/L		ND	<1		
			LCS	ug/L	10.00	98.8 %	70-130		
			MS	ug/L	10.00	99.7 %	70-130		
			MSD	ug/L	10.00	95.7 %	70-130		
			MSRPD	ug/L	5.000	4.0%	≤20.0		
Monochloroacetic Acid	552	04/17/17:204460SBL (SP 1704358-001)	Blank	ug/L		ND	<2		
			LCS	ug/L	10.00	110 %	70-130		
			MS	ug/L	10.00	117 %	70-130		
			MSD	ug/L	10.00	112 %	70-130		
			MSRPD	ug/L	5.000	4.7%	≤20.0		
Trichloroacetic Acid	552	04/17/17:204460SBL (SP 1704358-001)	Blank	ug/L		ND	<1		
			LCS	ug/L	10.00	99.6 %	70-130		
			MS	ug/L	10.00	104 %	70-130		
			MSD	ug/L	10.00	101 %	70-130		
			MSRPD	ug/L	5.000	2.4%	≤20.0		
2,3-Dibromopropionic Acid	552.2	04/19/17:205573SBL	CCV	ug/L	75.00	89.7 %	70-130		
			CCV	ug/L	50.00	90.3 %	70-130		
Dibromoacetic Acid	552.2	04/19/17:205687SBL	CCV	ug/L	150.0	96.6 %	70-130		
			CCV	ug/L	100.0	92.9 %	70-130		
Dichloroacetic Acid	552.2	04/19/17:205573SBL	CCV	ug/L	150.0	93.1 %	70-130		
			CCV	ug/L	100.0	85.4 %	70-130		
	552.2	04/19/17:205687SBL	CCV	ug/L	150.0	96.1 %	70-130		
			CCV	ug/L	100.0	92.1 %	70-130		
Monobromoacetic Acid	552.2	04/19/17:205573SBL	CCV	ug/L	150.0	90.1 %	70-130		
			CCV	ug/L	100.0	85.6 %	70-130		
Monochloroacetic Acid	552.2	04/19/17:205573SBL	CCV	ug/L	150.0	99.1 %	70-130		
			CCV	ug/L	100.0	94.9 %	70-130		
Trichloroacetic Acid	552.2	04/19/17:205573SBL	CCV	ug/L	150.0	92.0 %	70-130		
			CCV	ug/L	100.0	82.3 %	70-130		

May 1, 2017
Monterey Bay Analytical Services

Lab ID : SP 1704527
Customer : 2-19144

Quality Control - Organic

Definition	
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
ND	: Non-detect - Result was below the DQO listed for the analyte.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.
Explanation	
435	: Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio Alpha	900.0	04/21/17:205926rmm	CCV CCB	cpm cpm	8425	40.1 % 0.0800	37 - 46 0.17	
	900.0	04/21/17:205929rmm	CCV CCB	cpm cpm	8425	40.8 % 0.0200	37 - 46 0.13	
Gross Alpha	900.0	04/19/17:204526rmm (SP 1704506-001)	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 108.2 108.2 108.2 108.2	-0.07 110 % 104 % 108 % 4.0%	3 75-125 60-140 60-140 ≤30	
Alpha	903.0	04/27/17:206235rmm	CCV CCB	cpm cpm	8420	41.6 % 0.1200	38 - 46 0.16	
Total Alpha Radium (226)	903.0	04/25/17:204712emv	RgBlk LCS BS BSD BSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 21.85 21.85 21.85 21.85	-0.01 56.8 % 44.8 % 39.0 % 1.3	2 52-107 43-111 43-111 ≤2	436
Definition								
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.								
CCB : Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.								
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.								
RgBlk : Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.								
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.								
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
BS : Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.								
BSD : Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.								
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.								
BSRPD : BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.								
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								
Explanation								
436 : Blank Spike (BS) not within Acceptance Range (AR). Data was accepted based on the LCS or CCV recovery.								



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CHAIN OF CUSTODY
AND ANALYSIS REQUEST DOCUMENT

Client: **Monterey Bay Analytical Services**
Customer Number: **2019144**
Address: **4 Justin Court**
Monterey, CA 93940

Phone: **(831)375-6227** Fax: **(831)641-0734**
Email Address: **info@mbasinc.com**
Contact Person: **David Holland**
Project Name: **MPWMD**
Purchase Order Number:
Quote Number:

Rush Analysis: 5 Day 4 Day 3 Day 2 Day 24 hour
Rush pre-approval by lab (initials): _____
Electronic Data Transfer: No State Client Other: _____

Sampler(s): **Jonathan Lear**

Sampling Fee: _____ Pickup Fee: _____
Compositor Setup Date: _____ Time: _____

Lab Number: **1704527** TEST DESCRIPTION AND ANALYSES REQUESTED

Samp Num	Location Description	Date Sampled	Time Sampled	Method of Sampling: Composita (C) Grab (G)	Number of Containers	Type of Containers: (G) Glass (P) Plastic (V) VOA (MT) Metal Tube	Potable (P) Non-Potable (NP) Ag Water (AgW)	(SW) Surface Water (MW) Monitoring Well (GW) Ground Water (TB) Travel Blank (WW) Waste Water (DW) Drinking Water	(S) Soil (SLG) Sludge (SLD) Sediment (C) Od	Bac T: (Sys) System (SRC) Source (W) Waste	Bact: (ROUT) Routine (RPT) Repeat (OTH) Other (RPL) Replace	(LT) Leaf Tissue (PET) Petiole Tissue (FRD) Produce	Preservative: (1) NaOH + ZnAc, (2) NaOH, (3) HCl (4) H2SO4, (5) HNO3, (6) Na2S2O3, (7) Other	Gross Alpha	Ra 226	HAA	THMS
1.	SMS (D)	4/11/17	15:00	G	7	Var								X	X	X	X
	MW-1	4/11/17	09:45	G	7	Var								X	X	X	X

Remarks AB65239, AB65241 4C/535744173	Relinquished	Date:	Time:	Relinquished	Date:	Time:	Relinquished	Date:	Time:
	Received By:	Date:	Time:	Received By:	Date:	Time:	Received By:	Date:	Time:

[Handwritten signatures and dates: 4/13/17, 4/14/17 11:00]

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

- 1. Number of ice chests/packages received: 1
- 2. Shipper tracking numbers 535744173
- 3. Were samples received in a chilled condition?
Temps: 4 / / / / / /
- 4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
- 5. Do the number of bottles received agree with the COC? Yes No N/A
- 6. Verify sample date, time, sampler Yes No N/A
- 7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) Yes No
- 8. Were sample custody seals intact? Yes No N/A

Sample Verification, Labeling and Distribution:

- 1. Were all requested analyses understood and acceptable? Yes No
- 2. Did bottle labels correspond with the client's ID's? Yes No
- 3. Were all bottles requiring sample preservation properly preserved? Yes No N/A **FGL**
[Exception: Oil & Grease, VOA and CrVI verified in lab]
- 4. VOAs checked for Headspace? Yes No N/A
- 5. Were all analyses within holding times at time of receipt? Yes No
- 6. Have rush or project due dates been checked and accepted? Yes No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and
Approved By

Alyssa P. Bavero



Digitally signed by Alyssa P. Bavero
Title: Sample Receiving
Date: 04/14/2017-12:36:43

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2019144)
Monterey Bay Analytical Services
SP 1704527



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1704628

Report Created for: Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Project Contact: David Holland
Project P.O.:
Project Name: MPWMD

Project Received: 04/14/2017

Analytical Report reviewed & approved for release on 04/20/2017 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Bay Analytical
Project: MPWMD
WorkOrder: 1704628

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Bay Analytical
Date Received: 4/14/17 9:29
Date Prepared: 4/18/17
Project: MPWMD

WorkOrder: 1704628
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SMS (D)	1704628-001A	Water	04/11/2017 15:00	GC26	137500

Analytes	Result	RL	DF	Date Analyzed
Methane	1.3	0.10	1	04/18/2017 15:57

Analyst(s): AK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MW-1	1704628-002A	Water	04/11/2017 09:45	GC26	137500

Analytes	Result	RL	DF	Date Analyzed
Methane	0.68	0.10	1	04/18/2017 16:08

Analyst(s): AK

 Angela Rydelius, Lab Manager



Quality Control Report

Client: Monterey Bay Analytical
Date Prepared: 4/18/17
Date Analyzed: 4/18/17
Instrument: GC26
Matrix: Water
Project: MPWMD

WorkOrder: 1704628
BatchID: 137500
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L
Sample ID: MB/LCS-137500

QC Summary Report for RSK175

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Methane	ND	1.34	0.10	1.17	-	114	70-130

QA/QC Officer



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1704628

ClientCode: MBAS

WaterTrax
 WriteOn
 EDF
 Excel
 EQulS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

David Holland
Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940
831-375-6227 FAX: 831-641-0734

Email: mweidner@mbasinc.com; Dholland@mbas
cc/3rd Party:
PO:
ProjectNo: MPWMD

Bill to:

Accounts Payable
Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Requested TAT: 5 days;

Date Received: **04/14/2017**

Date Logged: **04/14/2017**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1704628-001	SMS (D)	Water	4/11/2017 15:00	<input type="checkbox"/>	A												
1704628-002	MW-1	Water	4/11/2017 09:45	<input type="checkbox"/>	A												

Test Legend:

1	RSK175_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Maria Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY BAY ANALYTICAL

Project: MPWMD

Work Order: 1704628

Client Contact: David Holland

QC Level: LEVEL 2

Contact's Email: mweidner@mbasinc.com; Dholland@mbasinc.com;
info@sbcglobal.net; info@mbasinc.com

Comments:

Date Logged: 4/14/2017

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1704628-001A	SMS (D)	Water	RSK175 <Methane_4>	3	VOA w/ HCl	<input type="checkbox"/>	4/11/2017 15:00	5 days	None	<input type="checkbox"/>	
1704628-002A	MW-1	Water	RSK175 <Methane_4>	3	VOA w/ HCl	<input type="checkbox"/>	4/11/2017 9:45	5 days	None	<input type="checkbox"/>	

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).

- 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.



Sample Receipt Checklist

Client Name: Monterey Bay Analytical
Project Name: MPWMD

Date and Time Received: 4/14/2017 09:29
Date Logged: 4/14/2017
Received by: Maria Venegas
Logged by: Maria Venegas

WorkOrder No: 1704628 Matrix: Water
Carrier: Golden State Overnight

Chain of Custody (COC) Information

- Chain of custody present? Yes [checked] No []
- Chain of custody signed when relinquished and received? Yes [checked] No []
- Chain of custody agrees with sample labels? Yes [checked] No []
- Sample IDs noted by Client on COC? Yes [checked] No []
- Date and Time of collection noted by Client on COC? Yes [checked] No []
- Sampler's name noted on COC? Yes [checked] No []

Sample Receipt Information

- Custody seals intact on shipping container/cooler? Yes [] No [] NA [checked]
- Shipping container/cooler in good condition? Yes [checked] No []
- Samples in proper containers/bottles? Yes [checked] No []
- Sample containers intact? Yes [checked] No []
- Sufficient sample volume for indicated test? Yes [checked] No []

Sample Preservation and Hold Time (HT) Information

- All samples received within holding time? Yes [checked] No [] NA []
- Sample/Temp Blank temperature Temp: 6.2°C NA []
- Water - VOA vials have zero headspace / no bubbles? Yes [] No [] NA [checked]
- Sample labels checked for correct preservation? Yes [checked] No []
- pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes [] No [] NA [checked]
- Samples Received on Ice? Yes [checked] No []
(Ice Type: BLUE ICE)

UCMR3 Samples:

- Total Chlorine tested and acceptable upon receipt for EPA 522? Yes [] No [] NA [checked]
- Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes [] No [] NA [checked]

Comments:

MPWMD
Jonathan Lear
P.O. Box 85
Monterey, CA 93442-0085



Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

Page 1 of 1

Thursday, May 04, 2017

Lab Number: AB65968

Collection Date/Time: 4/19/2017 11:30 Sample Collector: LEAR, J Client Sample #:
Submittal Date/Time: 4/25/2017 8:47 Sample ID

Sample Description: ASR4 @ 1 Min Raw

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	2		0.5	0.08	4/26/2017	2:18:00 PM	MW

Sample Comments:

Lab Number: AB65969

Collection Date/Time: 4/19/2017 11:30 Sample Collector: LEAR, J Client Sample #:
Submittal Date/Time: 4/25/2017 8:47 Sample ID

Sample Description: ASR4 @ 1 Min FF

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	2		0.5	0.08	4/26/2017	2:21:00 PM	MW

Sample Comments:

Lab Number: AB65970

Collection Date/Time: 4/19/2017 12:00 Sample Collector: LEAR, J Client Sample #:
Submittal Date/Time: 4/25/2017 8:47 Sample ID

Sample Description: ASR4 @ 30 Min Raw

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	2		0.5	0.08	4/26/2017	2:39:00 PM	MW

Sample Comments:

Lab Number: AB65971

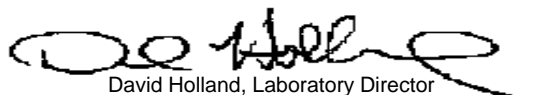
Collection Date/Time: 4/19/2017 12:00 Sample Collector: LEAR, J Client Sample #:
Submittal Date/Time: 4/25/2017 8:47 Sample ID

Sample Description: ASR4 @ 30 Min FF

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	2		0.5	0.08	4/26/2017	2:42:00 PM	MW

Sample Comments:

Report Approved by:



David Holland, Laboratory Director



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Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

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ELAP Certification Number: 2385

Tuesday, July 18, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB70271

Collection Date/Time: 6/27/2017 14:30

Sample Collector: LEAR J

Client Sample #:

Submittal Date/Time: 6/27/2017 16:35

Sample ID

Sample Description: ASR-3 Backflush

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	134	1		10	2	7/5/2017	9:11 AM	LM
Aluminum, Total	EPA200.8	µg/L	4	1		5	5	6/29/2017	2:46 PM	MW
Ammonia-N	EPA 350.1	mg/L	0.1	1		0.1	0.04	7/8/2017	11:09 AM	BS
Arsenic, Total	EPA200.8	µg/L	6	1		0.5	0.1	6/29/2017	2:46 PM	MW
Barium, Total	EPA200.8	µg/L	61	1		5	0.2	6/29/2017	2:46 PM	MW
Bicarbonate (as HCO3-)	SM2320B	mg/L	163	1		10	2	7/6/2017	5:14 PM	HM
Boron	EPA200.7	mg/L	Not detected	1		0.05	0.01	7/6/2017	12:24 PM	MW
Bromide	EPA300.0	mg/L	0.1	1		0.1	0.01	6/28/2017	8:10 AM	HM
Calcium	EPA200.7	mg/L	43	1		0.5	0.1	7/6/2017	12:24 PM	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected	1		10	2	7/6/2017	5:14 PM	HM
Chloramines	SM4500-Cl	mg/L	Not Detected	1		0.05	0.05	6/27/2017	5:00 PM	OW
Chloride	EPA300.0	mg/L	28	1		1	0.25	6/28/2017	8:10 AM	HM
DOC	SM5310C	mg/L	2.0	1	IJ	0.2	0.03	7/7/2017	4:58 PM	HM
Fluoride	EPA300.0	mg/L	0.3	1		0.1	0.02	6/28/2017	8:10 AM	HM
Gross Alpha	EPA900.0	pCi/L	0.894 ± 0.980	1	E			7/5/2017	8:20 AM	FGL
Haloacetic Acids	EPA552	µg/L	17	1	E			7/7/2017	12:00 PM	FGL
Iron	EPA200.7	µg/L	173	1		10	4	7/6/2017	12:24 PM	MW
Iron, Dissolved	EPA200.7	µg/L	Not Detected	1		10	4	7/6/2017	12:24 PM	MW
Kjeldahl Nitrogen	SM4500-NH	mg/L	Not Detected	1		0.5	0.5	7/7/2017	12:10 PM	BS
Lithium	EPA200.8	µg/L	6	1	LM	0.5	0.1	6/29/2017	2:46 PM	MW
Magnesium	EPA200.7	mg/L	14	1		0.5	0.2	7/6/2017	12:24 PM	MW
Manganese, Dissolved	EPA200.7	µg/L	10	1		10	2	7/6/2017	12:24 PM	MW
Manganese, Total	EPA200.7	µg/L	10	1		10	2	7/6/2017	12:24 PM	MW
Mercury, Total	EPA200.8	µg/L	Not Detected	1	BC	0.2	0.04	7/13/2017	12:21 PM	MW
Methane	EPA174/175	µg/L	1.7	1	E	0.1	0.1	7/5/2017	5:38 PM	MCCAM
Molybdenum, Total	EPA200.8	µg/L	56	1		0.5	0.1	6/29/2017	2:46 PM	MW
Nickel, Total	EPA200.8	µg/L	2	1		5	0.1	6/29/2017	2:46 PM	MW
Nitrate as NO3	EPA300.0	mg/L	1	1		1	0.07	6/28/2017	8:10 AM	HM
Nitrate as NO3-N	EPA300.0	mg/L	0.2	1		0.1	0.01	6/28/2017	8:10 AM	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	0.4	1		0.1	0.025	6/28/2017	8:10 AM	HM
Nitrite as NO2-N	EPA300.0	mg/L	0.2	1	LM	0.1	0.01	6/28/2017	8:10 AM	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	0.1	1		0.1	0.02	6/28/2017	8:10 AM	HM
pH (Laboratory)	SM4500-H+	pH (H)	7.5	1		0.1		6/27/2017	5:30 PM	LM/BS
Phosphorus, Total	HACH 8190	mg/L	0.37	1		0.03	0.03	7/8/2017	3:04 PM	BS
Potassium	EPA200.7	mg/L	3.0	1		0.5	0.3	7/6/2017	12:24 PM	MW
QC Anion Sum x 100	Calculation	%	100%	1				7/6/2017	5:14 PM	HM
QC Anion-Cation Balance	Calculation	%	4	1				7/7/2017	10:00 AM	MW
QC Cation Sum x 100	Calculation	%	108%	1				7/7/2017	10:00 AM	MW
QC Ratio TDS/SEC	Calculation		0.63	1				7/5/2017	4:27 PM	MP
Selenium, Total	EPA200.8	µg/L	8	1		1	0.5	6/29/2017	2:46 PM	MW
Silica as SiO2, Total	EPA200.7	mg/L	24	1		0.5	0.3	7/6/2017	12:24 PM	MW
Sodium	EPA200.7	mg/L	46	1		0.5	0.2	7/6/2017	12:24 PM	MW

mg/L: Milligrams per liter (=ppm)

µg/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

J = Result is less than PQL

T = Temperature Exceedance



MBAS

Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

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www.MBASinc.com

ELAP Certification Number: 2385

Tuesday, July 18, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB70271

Collection Date/Time: 6/27/2017 14:30

Sample Collector: LEAR J

Client Sample #:

Submittal Date/Time: 6/27/2017 16:35

Sample ID

Sample Description: ASR-3 Backflush

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Specific Conductance (E.C)	SM2510B	µmhos/c	497	1		1	1	6/28/2017	1:50 PM	HM
Strontium, Total	EPA200.8	µg/L	211	1	BB	2.5	0.5	6/29/2017	2:46 PM	MW
Sulfate	EPA300.0	mg/L	71	1		1	0.25	6/28/2017	8:10 AM	HM
TOC	SM5310C	mg/L	1.6	1	IJ	0.2	0.03	7/7/2017	5:17 PM	HM
Total Diss. Solids	SM2540C	mg/L	314	1		10	10	6/29/2017	3:35 PM	MP
Total Nitrogen	Calculation	mg/L	Not Detected	1		0.5	0.5	7/7/2017	3:21 PM	LRH
Total Radium 226	EPA903.0	pCi/L	0.066 ± 0.114	1	E			7/6/2017	5:30 PM	FGL
Trihalomethanes	EPA524.2	µg/L	112	1	E			7/5/2017	12:00 PM	FGL
Uranium by ICP/MS	EPA200.8	µg/L	1	1		0.5	0.04	6/29/2017	2:46 PM	MW
Vanadium, Total	EPA200.8	µg/L	1	1		2.5	0.1	6/29/2017	2:46 PM	MW
Zinc, Total	EPA200.8	µg/L	256	1		10	10	6/29/2017	2:46 PM	MW

Sample Comments: BC: Matrix spike out of control, lab control sample within limits. BB: Sample > 4x spike concentration. LM: MS and/or MSD above acceptance limits. IJ: LCS and/or CCV above acceptance limits.

Report Approved by:

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

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ELAP Certification Number: 2385

Tuesday, July 18, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB70272

Collection Date/Time: 6/27/2017 11:30

Sample Collector: LEAR J

Client Sample #:

Submittal Date/Time: 6/27/2017 16:35

Sample ID

Sample Description: ASR-4 Backflush

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	134	1		10	2	7/5/2017	9:11 AM	LM
Aluminum, Total	EPA200.8	µg/L	6	1		5	5	6/29/2017	2:46 PM	MW
Ammonia-N	EPA 350.1	mg/L	0.1	1		0.1	0.04	7/8/2017	11:09 AM	BS
Arsenic, Total	EPA200.8	µg/L	22	1		0.5	0.1	6/29/2017	2:46 PM	MW
Barium, Total	EPA200.8	µg/L	58	1		5	0.2	6/29/2017	2:46 PM	MW
Bicarbonate (as HCO3-)	SM2320B	mg/L	163	1		10	2	7/6/2017	5:14 PM	HM
Boron	EPA200.7	mg/L	Not detected	1		0.05	0.01	7/6/2017	12:42 PM	MW
Bromide	EPA300.0	mg/L	0.1	1		0.1	0.01	6/28/2017	8:32 AM	HM
Calcium	EPA200.7	mg/L	40	1		0.5	0.1	7/6/2017	12:42 PM	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected	1		10	2	7/6/2017	5:14 PM	HM
Chloramines	SM4500-Cl	mg/L	Not Detected	1		0.05	0.05	6/27/2017	5:00 PM	OW
Chloride	EPA300.0	mg/L	27	1		1	0.25	6/28/2017	8:32 AM	HM
DOC	SM5310C	mg/L	1.6	1	IJ	0.2	0.03	7/7/2017	6:58 PM	HM
Fluoride	EPA300.0	mg/L	0.3	1		0.1	0.02	6/28/2017	8:32 AM	HM
Gross Alpha	EPA900.0	pCi/L	5.07 ± 1.71	1	E			7/5/2017	10:20 AM	FGL
Haloacetic Acids	EPA552	µg/L	12	1	E			7/7/2017	12:00 PM	FGL
Iron	EPA200.7	µg/L	114	1		10	4	7/6/2017	12:42 PM	MW
Iron, Dissolved	EPA200.7	µg/L	Not Detected	1		10	4	7/6/2017	12:42 PM	MW
Kjeldahl Nitrogen	SM4500-NH	mg/L	Not Detected	1		0.5	0.5	7/7/2017	12:10 PM	BS
Lithium	EPA200.8	µg/L	7	1	LM	0.5	0.1	6/29/2017	2:46 PM	MW
Magnesium	EPA200.7	mg/L	13	1		0.5	0.2	7/6/2017	12:42 PM	MW
Manganese, Dissolved	EPA200.7	µg/L	Not Detected	1		10	2	7/6/2017	12:42 PM	MW
Manganese, Total	EPA200.7	µg/L	Not Detected	1		10	2	7/6/2017	12:42 PM	MW
Mercury, Total	EPA200.8	µg/L	Not Detected	1	BC	0.2	0.04	7/13/2017	12:24 PM	MW
Methane	EPA174/175	µg/L	1.5	1	E	0.1	0.1	7/5/2017	5:52 PM	MCCAM
Molybdenum, Total	EPA200.8	µg/L	62	1		0.5	0.1	6/29/2017	2:46 PM	MW
Nickel, Total	EPA200.8	µg/L	9	1		5	0.1	6/29/2017	2:46 PM	MW
Nitrate as NO3	EPA300.0	mg/L	1	1		1	0.07	6/28/2017	8:32 AM	HM
Nitrate as NO3-N	EPA300.0	mg/L	0.2	1		0.1	0.01	6/28/2017	8:32 AM	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	0.5	1		0.1	0.025	6/28/2017	8:32 AM	HM
Nitrite as NO2-N	EPA300.0	mg/L	0.2	1	LM	0.1	0.01	6/28/2017	8:32 AM	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	Not Detected	1		0.1	0.02	6/28/2017	8:32 AM	HM
pH (Laboratory)	SM4500-H+	pH (H)	7.5	1		0.1		6/27/2017	5:30 PM	LM/BS
Phosphorus, Total	HACH 8190	mg/L	0.24	1		0.03	0.03	7/8/2017	3:04 PM	BS
Potassium	EPA200.7	mg/L	2.8	1		0.5	0.3	7/6/2017	12:42 PM	MW
QC Anion Sum x 100	Calculation	%	98%	1				7/6/2017	5:14 PM	HM
QC Anion-Cation Balance	Calculation	%	1	1				7/7/2017	10:00 AM	MW
QC Cation Sum x 100	Calculation	%	100%	1				7/7/2017	10:00 AM	MW
QC Ratio TDS/SEC	Calculation		0.63	1				7/5/2017	4:27 PM	MP
Selenium, Total	EPA200.8	µg/L	12	1		1	0.5	6/29/2017	2:46 PM	MW
Silica as SiO2, Total	EPA200.7	mg/L	24	1		0.5	0.3	7/6/2017	12:42 PM	MW
Sodium	EPA200.7	mg/L	42	1		0.5	0.2	7/6/2017	12:42 PM	MW

mg/L: Milligrams per liter (=ppm)

µg/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

J = Result is less than PQL

T = Temperature Exceedance



MBAS

Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

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www.MBASinc.com

ELAP Certification Number: 2385

Tuesday, July 18, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB70272

Collection Date/Time: 6/27/2017 11:30

Sample Collector: LEAR J

Client Sample #:

Submittal Date/Time: 6/27/2017 16:35

Sample ID

Sample Description: ASR-4 Backflush

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Specific Conductance (E.C)	SM2510B	µmhos/c	497	1		1	1	6/28/2017	1:50 PM	HM
Strontium, Total	EPA200.8	µg/L	214	1	BB	2.5	0.5	6/29/2017	2:46 PM	MW
Sulfate	EPA300.0	mg/L	69	1		1	0.25	6/28/2017	8:32 AM	HM
TOC	SM5310C	mg/L	1.6	1	IJ	0.2	0.03	7/7/2017	7:17 PM	HM
Total Diss. Solids	SM2540C	mg/L	311	1		10	10	6/29/2017	3:35 PM	MP
Total Nitrogen	Calculation	mg/L	Not Detected	1		0.5	0.5	7/7/2017	3:21 PM	LRH
Total Radium 226	EPA903.0	pCi/L	0.000 ± 0.074	1	E			7/6/2017	6:45 PM	FGL
Trihalomethanes	EPA524.2	µg/L	98	1	E			7/5/2017	12:00 PM	FGL
Uranium by ICP/MS	EPA200.8	µg/L	1	1		0.5	0.04	6/29/2017	2:46 PM	MW
Vanadium, Total	EPA200.8	µg/L	1	1		2.5	0.1	6/29/2017	2:46 PM	MW
Zinc, Total	EPA200.8	µg/L	190	1		10	10	6/29/2017	2:46 PM	MW

Sample Comments: BC: Matrix spike out of control, lab control sample within limits. BB: Sample > 4x spike concentration. LM: MS and/or MSD above acceptance limits. IJ: LCS and/or CCV above acceptance limits.

Report Approved by:

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

J = Result is less than PQL

T = Temperature Exceedance

July 12, 2017

Monterey Bay Analytical Services
 4 Justin Court
 Monterey, CA 93940

Lab ID : SP 1707849
 Customer : 2-19144

Laboratory Report

Introduction: This report package contains total of 9 pages divided into 3 sections:

Case Narrative (2 pages) : An overview of the work performed at FGL.
 Sample Results (4 pages) : Results for each sample submitted.
 Quality Control (3 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
ASR-3 Backflush	06/27/2017	06/30/2017	SP 1707849-001	PW
ASR-4 Backflush	06/27/2017	06/30/2017	SP 1707849-002	PW

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 6 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Organic QC

551.1	07/05/2017:209924 All analysis quality controls are within established criteria.
	07/06/2017:209946 All analysis quality controls are within established criteria.
	07/05/2017:207904 All preparation quality controls are within established criteria, except: The following note applies to Bromoform: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
552	07/06/2017:207957 All preparation quality controls are within established criteria, except: The following note applies to Trichloroacetic Acid: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
552.2	07/07/2017:209990 All analysis quality controls are within established criteria.

July 12, 2017
Monterey Bay Analytical Services

Lab ID : SP 1707849
Customer : 2-19144

Organic QC

552.2	07/07/2017:210122 All analysis quality controls are within established criteria.
-------	--

Radio QC

900.0	07/05/2017:209904 All analysis quality controls are within established criteria.
	07/05/2017:209906 All analysis quality controls are within established criteria.
	07/03/2017:207820 All preparation quality controls are within established criteria.
903.0	07/06/2017:209977 All analysis quality controls are within established criteria.
	07/01/2017:207798 All preparation quality controls are within established criteria.

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2017-07-12



July 12, 2017

Lab ID : SP 1707849-001

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : June 27, 2017-14:30

Sampled By : John Lear

Received On : June 30, 2017-09:40

Matrix : Potable Water

Description : ASR-3 Backflush

Project : ASR-#4+ Backflush + Sampling Event

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	89.1	80-120	%		551.1	07/05/17:207904	551.1	07/05/17:209924
Bromodichloromethane	28	1	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
Bromoform	1	1	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
Chloroform	71	5*	ug/L		551.1	07/05/17:207904	551.1	07/06/17:209946
Dibromochloromethane	12	1	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
Total Trihalomethanes	112	--	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	100	70-130	%		552	07/06/17:207957	552.2	07/07/17:209990
Bromoacetic Acid	ND	1	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Chloroacetic Acid	ND	2	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Dibromoacetic Acid	ND	1	ug/L		552	07/06/17:207957	552.2	07/07/17:210122
Dichloroacetic Acid	2	1	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Trichloroacetic Acid	15	1	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Haloacetic acids (five)	17	--	ug/L		552	07/06/17:207957	552.2	07/07/17:209990

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



July 12, 2017

Lab ID : SP 1707849-001

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : June 27, 2017-14:30

Sampled By : John Lear

Received On : June 30, 2017-09:40

Matrix : Potable Water

Description : ASR-3 Backflush

Project : ASR-#4+ Backflush + Sampling Event

Sample Result - Radio

Table with 7 columns: Constituent, Result ± Error, MDA, Units, MCL/AL, Sample Preparation (Method, Date/ID), Sample Analysis (Method, Date/ID). Rows include Radio Chemistry, Gross Alpha, and Total Alpha Radium (226).

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L

Uranium is less than or equal to 20 pCi/L

Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



July 12, 2017

Lab ID : SP 1707849-002

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : June 27, 2017-11:30

Sampled By : John Lear

Received On : June 30, 2017-09:40

Matrix : Potable Water

Description : ASR-4 Backflush

Project : ASR-#4+ Backflush + Sampling Event

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	86.5	80-120	%		551.1	07/05/17:207904	551.1	07/05/17:209924
Bromodichloromethane	23	1	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
Bromoform	1	1	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
Chloroform	62	5*	ug/L		551.1	07/05/17:207904	551.1	07/06/17:209946
Dibromochloromethane	12	1	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
Total Trihalomethanes	98	--	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	93.5	70-130	%		552	07/06/17:207957	552.2	07/07/17:209990
Bromoacetic Acid	ND	1	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Chloroacetic Acid	ND	2	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Dibromoacetic Acid	ND	1	ug/L		552	07/06/17:207957	552.2	07/07/17:210122
Dichloroacetic Acid	2	1	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Trichloroacetic Acid	10	1	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Haloacetic acids (five)	12	--	ug/L		552	07/06/17:207957	552.2	07/07/17:209990

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



July 12, 2017

Lab ID : SP 1707849-002

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : June 27, 2017-11:30

Sampled By : John Lear

Received On : June 30, 2017-09:40

Matrix : Potable Water

Description : ASR-4 Backflush

Project : ASR-#4+ Backflush + Sampling Event

Sample Result - Radio

Table with 7 columns: Constituent, Result ± Error, MDA, Units, MCL/AL, Sample Preparation (Method, Date/ID), Sample Analysis (Method, Date/ID). Rows include Radio Chemistry, Gross Alpha, and Total Alpha Radium (226).

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



July 12, 2017
Monterey Bay Analytical Services

Lab ID : SP 1707849
Customer : 2-19144

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio Alpha	900.0	07/05/17:209904aat	CCV CCB	cpm cpm	8372	40.9 % 0.100	35-47 0.14	
	900.0	07/05/17:209906aat	CCV CCB	cpm cpm	8372	41.6 % 0.0600	35-47 0.17	
Gross Alpha	900.0	07/03/17:207820aat (SP 1707758-002)	Blank	pCi/L		0.32	3	
			LCS	pCi/L	108.2	93.8 %	75-125	
			MS	pCi/L	108.2	74.2 %	60-140	
			MSD	pCi/L	108.2	85.9 %	60-140	
			MSRPD	pCi/L	108.2	14.0%	≤30	
Alpha	903.0	07/06/17:209977rmm	CCV	cpm	8370	41.3 %	37-46	
			CCB	cpm		0.100	0.16	
Total Alpha Radium (226)	903.0	07/01/17:207798ELC	RgBlk	pCi/L		0.008	2	
			LCS	pCi/L	21.85	64.0 %	52-107	
			BS	pCi/L	21.85	62.0 %	43-111	
			BSD	pCi/L	21.85	53.1 %	43-111	
			BSRPD	pCi/L	21.85	15.6%	≤35.5	

Definition	
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic Bromodichloromethane	551.1	07/05/17:207904SBL (SP 1707929-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.02	98.8 %	80-120	
			MS	ug/L	9.852	91.0 %	80-120	
			MSD	ug/L	10.12	88.5 %	80-120	
			MSRPD	ug/L	20.24	0.08%	≤20	
	551.1	07/05/17:209924SBL	CCV	ug/L	83.33	97.7 %	80-120	
			CCV	ug/L	166.7	92.3 %	80-120	
Bromoform	551.1	07/05/17:207904SBL (SP 1707929-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.02	88.0 %	80-120	
			MS	ug/L	9.852	76.0 %	80-120	435
			MSD	ug/L	10.12	73.9 %	80-120	435
			MSRPD	ug/L	20.24	0.02%	≤20	
	551.1	07/05/17:209924SBL	CCV	ug/L	83.33	85.2 %	80-120	
			CCV	ug/L	166.7	84.8 %	80-120	
Chloroform	551.1	07/05/17:207904SBL (SP 1707929-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.02	113 %	80-120	
			MS	ug/L	9.852	112 %	80-120	
			MSD	ug/L	10.12	98.5 %	80-120	
			MSRPD	ug/L	20.24	9.4%	≤20	
	551.1	07/06/17:209946SBL	CCV	ug/L	83.33	117 %	80-120	
			CCV	ug/L	166.7	113 %	80-120	
Decafluorobiphenyl	551.1	07/05/17:207904SBL (SP 1707929-001)	Blank	ug/L	20.22	83.0 %	80-120	
			LCS	ug/L	20.04	101 %	80-120	
			MS	ug/L	19.70	100 %	80-120	
			MSD	ug/L	20.24	96.1 %	80-120	
			MSRPD	ug/L	20.24	1.6%	≤20.0	
	551.1	07/05/17:209924SBL	CCV	ug/L	166.7	106 %	80-120	
			CCV	ug/L	333.3	101 %	80-120	
Dibromochloromethane	551.1	07/05/17:207904SBL (SP 1707929-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.02	93.1 %	80-120	
			MS	ug/L	9.852	85.8 %	80-120	
			MSD	ug/L	10.12	84.4 %	80-120	
			MSRPD	ug/L	20.24	0.5%	≤20	
	551.1	07/05/17:209924SBL	CCV	ug/L	83.33	90.5 %	80-120	
			CCV	ug/L	166.7	87.8 %	80-120	
2,3-Dibromopropionic Acid	552	07/06/17:207957SBL (SP 1707849-001)	Blank	ug/L	5.000	113 %	70-130	
			LCS	ug/L	5.000	128 %	70-130	
			MS	ug/L	5.000	97.2 %	70-130	
			MSD	ug/L	5.000	102 %	70-130	
			MSRPD	ug/L	5.000	0.22	≤1	
Dibromoacetic Acid	552	07/06/17:207957SBL (SP 1707849-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	71.6 %	70-130	
			MS	ug/L	10.00	126 %	70-130	
			MSD	ug/L	10.00	119 %	70-130	
			MSRPD	ug/L	5.000	5.5%	≤20.0	
Dichloroacetic Acid	552	07/06/17:207957SBL (SP 1707849-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	80.1 %	70-130	
			MS	ug/L	10.00	118 %	70-130	
			MSD	ug/L	10.00	111 %	70-130	
			MSRPD	ug/L	5.000	5.1%	≤20.0	
Monobromoacetic Acid	552	07/06/17:207957SBL (SP 1707849-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	88.3 %	70-130	
			MS	ug/L	10.00	84.3 %	70-130	
			MSD	ug/L	10.00	83.6 %	70-130	
			MSRPD	ug/L	5.000	0.8%	≤20.0	

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Monochloroacetic Acid	552	07/06/17:207957SBL (SP 1707849-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	10.00	90.3 %	70-130	
			MS	ug/L	10.00	83.9 %	70-130	
			MSD	ug/L	10.00	85.3 %	70-130	
			MSRPD	ug/L	5.000	0.14	≤2	
Trichloroacetic Acid	552	07/06/17:207957SBL (SP 1707849-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	71.6 %	70-130	
			MS	ug/L	10.00	74.3 %	70-130	
			MSD	ug/L	10.00	64.0 %	70-130	435
			MSRPD	ug/L	5.000	4.7%	≤20.0	
2,3-Dibromopropionic Acid	552.2	07/07/17:209990SBL	CCV	ug/L	75.00	93.8 %	70-130	
			CCV	ug/L	50.00	96.5 %	70-130	
Dibromoacetic Acid	552.2	07/07/17:210122SBL	CCV	ug/L	150.0	88.0 %	70-130	
			CCV	ug/L	100.0	93.2 %	70-130	
Dichloroacetic Acid	552.2	07/07/17:209990SBL	CCV	ug/L	150.0	89.4 %	70-130	
			CCV	ug/L	100.0	92.1 %	70-130	
Monobromoacetic Acid	552.2	07/07/17:209990SBL	CCV	ug/L	150.0	88.5 %	70-130	
			CCV	ug/L	100.0	94.2 %	70-130	
Monochloroacetic Acid	552.2	07/07/17:209990SBL	CCV	ug/L	150.0	90.0 %	70-130	
			CCV	ug/L	100.0	99.8 %	70-130	
Trichloroacetic Acid	552.2	07/07/17:209990SBL	CCV	ug/L	150.0	89.9 %	70-130	
			CCV	ug/L	100.0	92.6 %	70-130	
Definition								
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.							
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.							
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.							
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.							
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.							
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.							
ND	: Non-detect - Result was below the DQO listed for the analyte.							
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.							
Explanation								
435	: Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.							

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

1. Number of ice chests/packages received: 1
2. Shipper tracking numbers 536693125
3. Were samples received in a chilled condition?
Temps: 6 / / / / / /
4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
5. Do the number of bottles received agree with the COC? Yes No N/A
6. Verify sample date, time, sampler Yes No N/A
7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) Yes No
8. Were sample custody seals intact? Yes No N/A

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? Yes No
2. Did bottle labels correspond with the client's ID's? Yes No
3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
 [Exception: Oil & Grease, VOA and CrVI verified in lab]
4. VOAs checked for Headspace? Yes No N/A
5. Were all analyses within holding times at time of receipt? Yes No
6. Have rush or project due dates been checked and accepted? Yes No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and
Approved By

Inez Covarrubias



Digitally signed by Inez Covarrubias
Title: Sample Receiving
Date: 06/30/2017-11:57:36

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2019144)
Monterey Bay Analytical Services
SP 1707849

IV-06/30/2017-11:57:36



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1707002

Report Created for: Monterey Bay Analytical

4 Justin Court, Suite D
Monterey, CA 93940

Project Contact: David Holland

Project P.O.:

Project Name: ASR-3+4 Backflush+Sampling Event

Project Received: 06/30/2017

Analytical Report reviewed & approved for release on 07/07/2017 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Bay Analytical
Project: ASR-3+4 Backflush+Sampling Event
WorkOrder: 1707002

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Bay Analytical
Date Received: 6/30/17 10:00
Date Prepared: 7/5/17
Project: ASR-3+4 Backflush+Sampling Event

WorkOrder: 1707002
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR-3 Backflush	1707002-001A	Water	06/27/2017 14:30	GC26	141578

Analytes	Result	RL	DF	Date Analyzed
Methane	1.7	0.10	1	07/05/2017 17:38

Analyst(s): AK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR-4 Backflush	1707002-002A	Water	06/27/2017 11:30	GC26	141578

Analytes	Result	RL	DF	Date Analyzed
Methane	1.5	0.10	1	07/05/2017 17:52

Analyst(s): AK

 Angela Rydelius, Lab Manager



Quality Control Report

Client: Monterey Bay Analytical	WorkOrder: 1707002
Date Prepared: 7/5/17	BatchID: 141578
Date Analyzed: 7/5/17	Extraction Method: RSK175
Instrument: GC26	Analytical Method: RSK175
Matrix: Water	Unit: µg/L
Project: ASR-3+4 Backflush+Sampling Event	Sample ID: MB/LCS-141578

QC Summary Report for RSK175

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Methane	ND	1.29	0.10	1.17	-	110	70-130

QA/QC Officer



1534 Willow Pass Rd
 Pittsburg, CA 94565-1701
 (925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1707002

ClientCode: MBAS

- WaterTrax
 WriteOn
 EDF
 Excel
 EQulS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

David Holland
 Monterey Bay Analytical
 4 Justin Court, Suite D
 Monterey, CA 93940
 831-375-6227 FAX: 831-641-0734

Email: mweidner@mbasinc.com; Dholland@mbas
 cc/3rd Party:
 PO:
 ProjectNo: ASR-3+4 Backflush+Sampling Event

Bill to:

Accounts Payable
 Monterey Bay Analytical
 4 Justin Court, Suite D
 Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 06/30/2017

Date Logged: 07/03/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1707002-001	ASR-3 Backflush	Water	6/27/2017 14:30	<input type="checkbox"/>	A												
1707002-002	ASR-4 Backflush	Water	6/27/2017 11:30	<input type="checkbox"/>	A												

Test Legend:

1	RSK175_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Agustina Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
 Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY BAY ANALYTICAL

Project: ASR-3+4 Backflush+Sampling Event

Work Order: 1707002

Client Contact: David Holland

QC Level: LEVEL 2

Contact's Email: mweidner@mbasinc.com; Dholland@mbasinc.com;
info@sbcglobal.net; info@mbasinc.com

Comments:

Date Logged: 7/3/2017

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1707002-001A	ASR-3 Backflush	Water	RSK175 <Methane_4>	2	VOA w/ HCl	<input type="checkbox"/>	6/27/2017 14:30	5 days	None	<input type="checkbox"/>	
1707002-002A	ASR-4 Backflush	Water	RSK175 <Methane_4>	2	VOA w/ HCl	<input type="checkbox"/>	6/27/2017 11:30	5 days	None	<input type="checkbox"/>	

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).

- 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.

1707002

McCAMPBELL ANALYTICAL, INC.
 1534 WILLOW PASS ROAD
 PITTSBURG, CA 94565-1701
 Website: www.mccampbell.com Email: main@mccampbell.com
 Telephone: (877) 252-9262 Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD
 TURN AROUND TIME RUSH 24 HR 48 HR 72 HR 5 DAY
 GeoTracker EDF PDF Excel Write On (DW)

Report To: David Holland Bill To:
 Company: Monterey Bay Analytical Services
 4 Justin Ct. Suite D
 Monterey, Ca 93940 E-Mail: info@mbasinc.com
 Tele: (831) 375 - 6227 Fax: (831) 641-0734
 Project #: Project Name: ASR-3+4 Backflush
 +Sampling Event
 Project Location:
 Sampler Signature: John Lear

Analysis Request Other Comments

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED			
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO ₃	Other
ASR-3 Backflush		6/27/17	14:30	3	V	X					X	X		
ASR-4 Backflush		6/27/17	11:30	3	V	X					X	X		

MTBE / BTEX & TPH as Gas (602 / 8021 + 8015)																			
MTBE / BTEX ONLY (EPA 602 / 8021)																			
TPH as Diesel / Motor Oil (8015)																			
Total Petroleum Oil & Grease (1664 / 5520 E/B&F)																			
Total Petroleum Hydrocarbons (418.1)																			
EPA 502.2 / 601 / 8010 / 8021 (HVOCs)																			
EPA 505/ 608 / 8081 (CI Pesticides)																			
EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners																			
EPA 507 / 8141 (NP Pesticides)																			
EPA 515 / 8151 (Acidic CI Herbicides)																			
EPA 524.2 / 624 / 8260 (VOCs)																			
EPA 525.2 / 625 / 8270 (SVOCs)																			
EPA 8270 SIM / 8310 (PAHs / PNAS)																			
CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)																			
LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)																			
Lead (200.7 / 200.8 / 6010 / 6020)																			
Methane																			

Relinquished By: David Holland Date: 6/27 Time: 1600 Received By: _____
Ben Archer
 Relinquished By: _____ Date: 6/30 Time: 1000 Received By: [Signature]
 Relinquished By: _____ Date: _____ Time: _____ Received By: _____

ICE/T° 2.6 Blue COMMENTS:
 GOOD CONDITION _____
 HEAD SPACE ABSENT _____
 DECHLORINATED IN LAB _____
 APPROPRIATE CONTAINERS _____
 PRESERVED IN LAB _____
 VOAS O&G METALS OTHER
 PRESERVATION pH<2 _____

Tracking #: 536693152

G50



Sample Receipt Checklist

Client Name: **Monterey Bay Analytical**
 Project Name: **ASR-3+4 Backflush+Sampling Event**
 WorkOrder No: **1707002** Matrix: Water
 Carrier: Golden State Overnight

Date and Time Received: **6/30/2017 10:00**
 Date Logged: **7/3/2017**
 Received by: Agustina Venegas
 Logged by: Agustina Venegas

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No NA
 Sample/Temp Blank temperature Temp: 5.6°C NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No
 (Ice Type: BLUE ICE)

UCMR Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:



MBAS

Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

Tuesday, July 18, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB70395

Collection Date/Time: 6/28/2017 11:20

Sample Collector: LEAR J, SUWADA J

Client Sample #:

Submittal Date/Time: 6/28/2017 16:53

Sample ID

Sample Description: ASR-2 Backflush

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	134	1		10	2	7/6/2017	9:11 AM	LM
Aluminum, Total	EPA200.8	µg/L	Not Detected	1		5	5	6/29/2017	2:46 PM	MW
Ammonia-N	EPA 350.1	mg/L	0.1	1		0.1	0.04	7/8/2017	11:09 AM	BS
Arsenic, Total	EPA200.8	µg/L	Not Detected	1		0.5	0.1	6/29/2017	2:46 PM	MW
Barium, Total	EPA200.8	µg/L	59	1		5	0.2	6/29/2017	2:46 PM	MW
Bicarbonate (as HCO3-)	SM2320B	mg/L	163	1		10	2	7/6/2017	5:02 PM	HM
Boron	EPA200.7	mg/L	Not detected	1		0.05	0.01	7/6/2017	1:48 PM	MW
Bromide	EPA300.0	mg/L	0.1	1		0.1	0.01	6/29/2017	5:01 AM	HM
Calcium	EPA200.7	mg/L	41	1		0.5	0.1	7/6/2017	1:48 PM	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected	1		10	2	7/6/2017	5:02 PM	HM
Chloramines	SM4500-Cl	mg/L	Not Detected	1		0.05	0.05	6/28/2017	5:06 PM	OW
Chloride	EPA300.0	mg/L	28	1		1	0.25	6/29/2017	5:01 AM	HM
DOC	SM5310C	mg/L	2.0	1	IJ	0.2	0.03	7/7/2017	7:37 PM	HM
Fluoride	EPA300.0	mg/L	0.3	1		0.1	0.02	6/29/2017	5:01 AM	HM
Gross Alpha	EPA900.0	pCi/L	0.775 ± 0.946	1	E			7/5/2017	10:20 AM	FGL
Haloacetic Acids	EPA552	µg/L	30	1	E			7/7/2017	12:00 PM	FGL
Iron	EPA200.7	µg/L	57	1		10	4	7/6/2017	1:48 PM	MW
Iron, Dissolved	EPA200.7	µg/L	Not Detected	1		10	4	7/6/2017	1:48 PM	MW
Kjeldahl Nitrogen	SM4500-NH	mg/L	Not Detected	1		0.5	0.5	7/7/2017	12:10 PM	BS
Lithium	EPA200.8	µg/L	6	1		0.5	0.1	6/29/2017	2:46 PM	MW
Magnesium	EPA200.7	mg/L	13	1		0.5	0.2	7/6/2017	1:48 PM	MW
Manganese, Dissolved	EPA200.7	µg/L	Not Detected	1		10	2	7/6/2017	1:48 PM	MW
Manganese, Total	EPA200.7	µg/L	Not Detected	1		10	2	7/6/2017	1:48 PM	MW
Mercury, Total	EPA200.8	µg/L	Not Detected	1	BC	0.2	0.04	7/13/2017	12:36 PM	MW
Methane	EPA174/175	µg/L	1.5	1	E	0.1	0.1	7/5/2017	6:09 PM	MCCAM
Molybdenum, Total	EPA200.8	µg/L	4	1		0.5	0.1	6/29/2017	2:46 PM	MW
Nickel, Total	EPA200.8	µg/L	2	1		5	0.1	6/29/2017	2:46 PM	MW
Nitrate as NO3	EPA300.0	mg/L	1	1		1	0.07	6/29/2017	5:01 AM	HM
Nitrate as NO3-N	EPA300.0	mg/L	0.2	1		0.1	0.01	6/29/2017	5:01 AM	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	0.4	1		0.1	0.025	6/29/2017	5:01 AM	HM
Nitrite as NO2-N	EPA300.0	mg/L	0.2	1		0.1	0.01	6/29/2017	5:01 AM	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	0.3	1		0.1	0.02	6/29/2017	5:01 AM	HM
pH (Laboratory)	SM4500-H+	pH (H)	7.5	1		0.1		6/28/2017	4:00 PM	MB
Phosphorus, Total	HACH 8190	mg/L	0.40	1		0.03	0.03	7/8/2017	3:04 PM	BS
Potassium	EPA200.7	mg/L	2.9	1		0.5	0.3	7/6/2017	1:48 PM	MW
QC Anion Sum x 100	Calculation	%	101%	1				7/6/2017	5:02 PM	HM
QC Anion-Cation Balance	Calculation	%	2	1				7/7/2017	10:01 AM	MW
QC Cation Sum x 100	Calculation	%	105%	1				7/7/2017	10:01 AM	MW
QC Ratio TDS/SEC	Calculation		0.63	1				7/7/2017	11:41 AM	MP
Selenium, Total	EPA200.8	µg/L	2	1		1	0.5	6/29/2017	2:46 PM	MW
Silica as SiO2, Total	EPA200.7	mg/L	24	1		0.5	0.3	7/6/2017	1:48 PM	MW
Sodium	EPA200.7	mg/L	44	1		0.5	0.2	7/6/2017	1:48 PM	MW

mg/L: Milligrams per liter (=ppm)

µg/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

J = Result is less than PQL

T = Temperature Exceedance



MBAS

Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

Tuesday, July 18, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB70395

Collection Date/Time: 6/28/2017 11:20

Sample Collector: LEAR J, SUWADA J

Client Sample #:

Submittal Date/Time: 6/28/2017 16:53

Sample ID

Sample Description: ASR-2 Backflush

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Specific Conductance (E.C)	SM2510B	µmhos/c	488	1		1	1	6/30/2017	10:15 AM	HM
Strontium, Total	EPA200.8	µg/L	210	1		2.5	0.5	6/29/2017	2:46 PM	MW
Sulfate	EPA300.0	mg/L	69	1		1	0.25	6/29/2017	5:01 AM	HM
TOC	SM5310C	mg/L	1.5	1	IJ	0.2	0.03	7/7/2017	7:56 PM	HM
Total Diss. Solids	SM2540C	mg/L	308	1		10	10	7/5/2017	9:50 AM	MP
Total Nitrogen	Calculation	mg/L	Not Detected	1		0.5	0.5	7/7/2017	3:21 PM	LRH
Total Radium 226	EPA903.0	pCi/L	0.109 ± 0.128	1	E			7/6/2017	7:35 PM	FGL
Trihalomethanes	EPA524.2	µg/L	97	1	E			7/5/2017	12:00 PM	FGL
Uranium by ICP/MS	EPA200.8	µg/L	Not Detected	1		0.5	0.04	6/29/2017	2:46 PM	MW
Vanadium, Total	EPA200.8	µg/L	1	1		2.5	0.1	6/29/2017	2:46 PM	MW
Zinc, Total	EPA200.8	µg/L	257	1		10	10	6/29/2017	2:46 PM	MW

Sample Comments: BC: Matrix spike out of control, lab control sample within limits. IJ: LCS and/or CCV above acceptance limits.

Report Approved by:

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

J = Result is less than PQL

T = Temperature Exceedance



MBAS

Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

Tuesday, July 18, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB70396

Collection Date/Time: 6/28/2017 13:30

Sample Collector: LEAR J, SUWADA J

Client Sample #:

Submittal Date/Time: 6/28/2017 16:53

Sample ID

Sample Description: ASR-1 Backflush

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	138	1		10	2	7/6/2017	9:11 AM	LM
Aluminum, Total	EPA200.8	µg/L	Not Detected	1		5	5	6/29/2017	2:46 PM	MW
Ammonia-N	EPA 350.1	mg/L	0.1	1		0.1	0.04	7/8/2017	11:09 AM	BS
Arsenic, Total	EPA200.8	µg/L	1	1		0.5	0.1	6/29/2017	2:46 PM	MW
Barium, Total	EPA200.8	µg/L	58	1		5	0.2	6/29/2017	2:46 PM	MW
Bicarbonate (as HCO3-)	SM2320B	mg/L	168	1		10	2	7/6/2017	5:02 PM	HM
Boron	EPA200.7	mg/L	Not detected	1		0.05	0.01	7/6/2017	2:06 PM	MW
Bromide	EPA300.0	mg/L	Not Detected	1		0.1	0.01	6/29/2017	5:24 AM	HM
Calcium	EPA200.7	mg/L	41	1		0.5	0.1	7/6/2017	2:06 PM	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected	1		10	2	7/6/2017	5:02 PM	HM
Chloramines	SM4500-Cl	mg/L	Not Detected	1		0.05	0.05	6/28/2017	5:06 PM	OW
Chloride	EPA300.0	mg/L	28	1		1	0.25	6/29/2017	5:24 AM	HM
DOC	SM5310C	mg/L	1.8	1	IJ	0.2	0.03	7/7/2017	8:15 PM	HM
Fluoride	EPA300.0	mg/L	0.3	1		0.1	0.02	6/29/2017	5:24 AM	HM
Gross Alpha	EPA900.0	pCi/L	1.97 ± 1.27	1	E			7/5/2017	11:35 AM	FGL
Haloacetic Acids	EPA552	µg/L	6	1	E			7/7/2017	12:00 PM	FGL
Iron	EPA200.7	µg/L	20	1		10	4	7/6/2017	2:06 PM	MW
Iron, Dissolved	EPA200.7	µg/L	Not Detected	1		10	4	7/6/2017	2:06 PM	MW
Kjeldahl Nitrogen	SM4500-NH	mg/L	Not Detected	1		0.5	0.5	7/7/2017	12:10 PM	BS
Lithium	EPA200.8	µg/L	7	1		0.5	0.1	6/29/2017	2:46 PM	MW
Magnesium	EPA200.7	mg/L	13	1		0.5	0.2	7/6/2017	2:06 PM	MW
Manganese, Dissolved	EPA200.7	µg/L	Not Detected	1		10	2	7/6/2017	2:06 PM	MW
Manganese, Total	EPA200.7	µg/L	Not Detected	1		10	2	7/6/2017	2:06 PM	MW
Mercury, Total	EPA200.8	µg/L	Not Detected	1	BC	0.2	0.04	7/13/2017	12:36 PM	MW
Methane	EPA174/175	µg/L	0.77	1	E	0.1	0.1	7/6/2017	10:18 AM	MCCAM
Molybdenum, Total	EPA200.8	µg/L	3	1		0.5	0.1	6/29/2017	2:46 PM	MW
Nickel, Total	EPA200.8	µg/L	2	1		5	0.1	6/29/2017	2:46 PM	MW
Nitrate as NO3	EPA300.0	mg/L	1	1		1	0.07	6/29/2017	5:24 AM	HM
Nitrate as NO3-N	EPA300.0	mg/L	0.3	1		0.1	0.01	6/29/2017	5:24 AM	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	0.5	1		0.1	0.025	6/29/2017	5:24 AM	HM
Nitrite as NO2-N	EPA300.0	mg/L	0.2	1		0.1	0.01	6/29/2017	5:24 AM	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	0.3	1		0.1	0.02	6/29/2017	5:24 AM	HM
pH (Laboratory)	SM4500-H+	pH (H)	7.5	1		0.1		6/28/2017	4:00 PM	MB
Phosphorus, Total	HACH 8190	mg/L	0.30	1		0.03	0.03	7/8/2017	3:04 PM	BS
Potassium	EPA200.7	mg/L	2.8	1		0.5	0.3	7/6/2017	2:06 PM	MW
QC Anion Sum x 100	Calculation	%	100%	1				7/6/2017	5:02 PM	HM
QC Anion-Cation Balance	Calculation	%	1	1				7/7/2017	10:01 AM	MW
QC Cation Sum x 100	Calculation	%	102%	1				7/7/2017	10:01 AM	MW
QC Ratio TDS/SEC	Calculation		0.65	1				7/7/2017	11:41 AM	MP
Selenium, Total	EPA200.8	µg/L	6	1		1	0.5	6/29/2017	2:46 PM	MW
Silica as SiO2, Total	EPA200.7	mg/L	24	1		0.5	0.3	7/6/2017	2:06 PM	MW
Sodium	EPA200.7	mg/L	43	1		0.5	0.2	7/6/2017	2:06 PM	MW

mg/L: Milligrams per liter (=ppm)

µg/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

J = Result is less than PQL

T = Temperature Exceedance



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ELAP Certification Number: 2385

Tuesday, July 18, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB70396

Collection Date/Time: 6/28/2017 13:30

Sample Collector: LEAR J, SUWADA J

Client Sample #:

Submittal Date/Time: 6/28/2017 16:53

Sample ID

Sample Description: ASR-1 Backflush

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Specific Conductance (E.C)	SM2510B	µmhos/c	496	1		1	1	6/30/2017	10:15 AM	HM
Strontium, Total	EPA200.8	µg/L	210	1		2.5	0.5	6/29/2017	2:46 PM	MW
Sulfate	EPA300.0	mg/L	68	1		1	0.25	6/29/2017	5:24 AM	HM
TOC	SM5310C	mg/L	1.5	1	IJ	0.2	0.03	7/7/2017	8:40 PM	HM
Total Diss. Solids	SM2540C	mg/L	320	1		10	10	7/5/2017	9:50 AM	MP
Total Nitrogen	Calculation	mg/L	0.5	1		0.5	0.5	7/7/2017	3:21 PM	LRH
Total Radium 226	EPA903.0	pCi/L	0.044 ± 0.104	1				7/6/2017	8:00 PM	FGL
Trihalomethanes	EPA524.2	µg/L	89	1	E			7/5/2017	12:00 PM	FGL
Uranium by ICP/MS	EPA200.8	µg/L	Not Detected	1		0.5	0.04	6/29/2017	2:46 PM	MW
Vanadium, Total	EPA200.8	µg/L	1	1		2.5	0.1	6/29/2017	2:46 PM	MW
Zinc, Total	EPA200.8	µg/L	202	1		10	10	6/29/2017	2:46 PM	MW

Sample Comments: BC: Matrix spike out of control, lab control sample within limits. IJ: LCS and/or CCV above acceptance limits.

Report Approved by:

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

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Tuesday, July 18, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB70397

Collection Date/Time: 6/28/2017 14:30

Sample Collector: LEAR J, SUWADA J

Client Sample #:

Submittal Date/Time: 6/28/2017 16:53

Sample ID

Sample Description: MW #1

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	135	1		10	2	7/6/2017	9:11 AM	LM
Aluminum, Total	EPA200.8	µg/L	11	1		5	5	6/29/2017	2:46 PM	MW
Ammonia-N	EPA 350.1	mg/L	0.1	1		0.1	0.04	7/8/2017	11:09 AM	BS
Arsenic, Total	EPA200.8	µg/L	2	1		0.5	0.1	6/29/2017	2:46 PM	MW
Barium, Total	EPA200.8	µg/L	21	1		5	0.2	6/29/2017	2:46 PM	MW
Bicarbonate (as HCO3-)	SM2320B	mg/L	165	1		10	2	7/6/2017	5:02 PM	HM
Boron	EPA200.7	mg/L	Not detected	1		0.05	0.01	7/6/2017	2:12 PM	MW
Bromide	EPA300.0	mg/L	Not Detected	1		0.1	0.01	6/29/2017	5:46 AM	HM
Calcium	EPA200.7	mg/L	44	1		0.5	0.1	7/6/2017	2:12 PM	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected	1		10	2	7/6/2017	5:02 PM	HM
Chloramines	SM4500-Cl	mg/L	Not Detected	1		0.05	0.05	6/28/2017	5:06 PM	OW
Chloride	EPA300.0	mg/L	28	1		1	0.25	6/29/2017	5:46 AM	HM
DOC	SM5310C	mg/L	1.4	1	IJ	0.2	0.03	7/7/2017	8:59 PM	HM
Fluoride	EPA300.0	mg/L	0.2	1		0.1	0.02	6/29/2017	5:46 AM	HM
Gross Alpha	EPA900.0	pCi/L	1.77 ± 1.15	1	E			7/10/2017	9:20 AM	FGL
Haloacetic Acids	EPA552	µg/L	2	1	E			7/7/2017	12:00 PM	FGL
Iron	EPA200.7	µg/L	Not Detected	1		10	4	7/6/2017	2:12 PM	MW
Iron, Dissolved	EPA200.7	µg/L	Not Detected	1		10	4	7/6/2017	2:12 PM	MW
Kjeldahl Nitrogen	SM4500-NH	mg/L	Not Detected	1		0.5	0.5	7/7/2017	12:10 PM	BS
Lithium	EPA200.8	µg/L	7	1		0.5	0.1	6/29/2017	2:46 PM	MW
Magnesium	EPA200.7	mg/L	11	1		0.5	0.2	7/6/2017	2:12 PM	MW
Manganese, Dissolved	EPA200.7	µg/L	Not Detected	1		10	2	7/6/2017	2:12 PM	MW
Manganese, Total	EPA200.7	µg/L	Not Detected	1		10	2	7/6/2017	2:12 PM	MW
Mercury, Total	EPA200.8	µg/L	Not Detected	1	BC	0.2	0.04	7/13/2017	12:53 PM	MW
Methane	EPA174/175	µg/L	0.74	1	E	0.1	0.1	7/6/2017	10:47 AM	MCCAM
Molybdenum, Total	EPA200.8	µg/L	3	1		0.5	0.1	6/29/2017	2:46 PM	MW
Nickel, Total	EPA200.8	µg/L	1	1		5	0.1	6/29/2017	2:46 PM	MW
Nitrate as NO3	EPA300.0	mg/L	1	1		1	0.07	6/29/2017	5:46 AM	HM
Nitrate as NO3-N	EPA300.0	mg/L	0.2	1		0.1	0.01	6/29/2017	5:46 AM	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	0.4	1		0.1	0.025	6/29/2017	5:46 AM	HM
Nitrite as NO2-N	EPA300.0	mg/L	0.2	1		0.1	0.01	6/29/2017	5:46 AM	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	Not Detected	1		0.1	0.02	6/29/2017	5:46 AM	HM
pH (Laboratory)	SM4500-H+	pH (H)	7.5	1		0.1		6/28/2017	4:00 PM	MB
Phosphorus, Total	HACH 8190	mg/L	0.10	1		0.03	0.03	7/8/2017	3:04 PM	BS
Potassium	EPA200.7	mg/L	2.7	1		0.5	0.3	7/6/2017	2:12 PM	MW
QC Anion Sum x 100	Calculation	%	101%	1				7/6/2017	5:02 PM	HM
QC Anion-Cation Balance	Calculation	%	1	1				7/7/2017	10:01 AM	MW
QC Cation Sum x 100	Calculation	%	103%	1				7/7/2017	10:01 AM	MW
QC Ratio TDS/SEC	Calculation		0.61	1				7/7/2017	11:41 AM	MP
Selenium, Total	EPA200.8	µg/L	9	1		1	0.5	6/29/2017	2:46 PM	MW
Silica as SiO2, Total	EPA200.7	mg/L	24	1		0.5	0.3	7/6/2017	2:12 PM	MW
Sodium	EPA200.7	mg/L	43	1		0.5	0.2	7/6/2017	2:12 PM	MW

mg/L: Milligrams per liter (=ppm)

µg/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

J = Result is less than PQL

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ELAP Certification Number: 2385

Tuesday, July 18, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB70397

Collection Date/Time: 6/28/2017 14:30

Sample Collector: LEAR J, SUWADA J

Client Sample #:

Submittal Date/Time: 6/28/2017 16:53

Sample ID

Sample Description: MW #1

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Specific Conductance (E.C)	SM2510B	µmhos/c	489	1		1	1	6/30/2017	10:15 AM	HM
Strontium, Total	EPA200.8	µg/L	245	1		2.5	0.5	6/29/2017	2:46 PM	MW
Sulfate	EPA300.0	mg/L	69	1		1	0.25	6/29/2017	5:46 AM	HM
TOC	SM5310C	mg/L	1.3	1	IJ	0.2	0.03	7/7/2017	9:18 PM	HM
Total Diss. Solids	SM2540C	mg/L	297	1		10	10	7/5/2017	9:50 AM	MP
Total Nitrogen	Calculation	mg/L	Not Detected	1		0.5	0.5	7/7/2017	3:21 PM	LRH
Total Radium 226	EPA903.0	pCi/L	0.044 ± 0.104	1	E			7/6/2017	8:20 PM	FGL
Trihalomethanes	EPA524.2	µg/L	66	1	E			7/5/2017	12:00 PM	FGL
Uranium by ICP/MS	EPA200.8	µg/L	1	1		0.5	0.04	6/29/2017	2:46 PM	MW
Vanadium, Total	EPA200.8	µg/L	2	1		2.5	0.1	6/29/2017	2:46 PM	MW
Zinc, Total	EPA200.8	µg/L	Not Detected	1		10	10	6/29/2017	2:46 PM	MW

Sample Comments: BC: Matrix spike out of control, lab control sample within limits. IJ: LCS and/or CCV above acceptance limits.

Report Approved by:

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

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Tuesday, July 18, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB70398

Collection Date/Time: 6/28/2017 15:30

Sample Collector: LEAR J, SUWADA J

Client Sample #:

Submittal Date/Time: 6/28/2017 16:53

Sample ID

Sample Description: SMS (D)

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	141	1		10	2	7/6/2017	9:11 AM	LM
Aluminum, Total	EPA200.8	µg/L	Not Detected	1		5	5	6/29/2017	2:46 PM	MW
Ammonia-N	EPA 350.1	mg/L	0.1	1		0.1	0.04	7/8/2017	11:09 AM	BS
Arsenic, Total	EPA200.8	µg/L	7	1		0.5	0.1	6/29/2017	2:46 PM	MW
Barium, Total	EPA200.8	µg/L	47	1		5	0.2	6/29/2017	2:46 PM	MW
Bicarbonate (as HCO3-)	SM2320B	mg/L	172	1		10	2	7/6/2017	5:02 PM	HM
Boron	EPA200.7	mg/L	Not detected	1		0.05	0.01	7/6/2017	2:18 PM	MW
Bromide	EPA300.0	mg/L	Not Detected	1		0.1	0.01	6/29/2017	6:08 AM	HM
Calcium	EPA200.7	mg/L	45	1		0.5	0.1	7/6/2017	2:18 PM	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected	1		10	2	7/6/2017	5:02 PM	HM
Chloramines	SM4500-Cl	mg/L	Not Detected	1		0.05	0.05	6/28/2017	5:06 PM	OW
Chloride	EPA300.0	mg/L	27	1		1	0.25	6/29/2017	6:08 AM	HM
DOC	SM5310C	mg/L	1.5	1	IJ	0.2	0.03	7/7/2017	9:37 PM	HM
Fluoride	EPA300.0	mg/L	0.3	1		0.1	0.02	6/29/2017	6:08 AM	HM
Gross Alpha	EPA900.0	pCi/L	1.94 ± 1.20	1	E			7/5/2017	12:30 PM	FGL
Haloacetic Acids	EPA552	µg/L	17	1	E			7/7/2017	12:00 PM	FGL
Iron	EPA200.7	µg/L	Not Detected	1		10	4	7/6/2017	2:18 PM	MW
Iron, Dissolved	EPA200.7	µg/L	Not Detected	1		10	4	7/6/2017	2:18 PM	MW
Kjeldahl Nitrogen	SM4500-NH	mg/L	Not Detected	1		0.5	0.5	7/10/2017	10:00 AM	BS
Lithium	EPA200.8	µg/L	6	1		0.5	0.1	6/29/2017	2:46 PM	MW
Magnesium	EPA200.7	mg/L	12	1		0.5	0.2	7/6/2017	2:18 PM	MW
Manganese, Dissolved	EPA200.7	µg/L	Not Detected	1		10	2	7/6/2017	2:18 PM	MW
Manganese, Total	EPA200.7	µg/L	Not Detected	1		10	2	7/6/2017	2:18 PM	MW
Mercury, Total	EPA200.8	µg/L	Not Detected	1	BC	0.2	0.04	7/13/2017	12:55 PM	MW
Methane	EPA174/175	µg/L	1.4	1	E	0.1	0.1	7/6/2017	11:13 AM	MCCAM
Molybdenum, Total	EPA200.8	µg/L	58	1		0.5	0.1	6/29/2017	2:46 PM	MW
Nickel, Total	EPA200.8	µg/L	2	1		5	0.1	6/29/2017	2:46 PM	MW
Nitrate as NO3	EPA300.0	mg/L	1	1		1	0.07	6/29/2017	6:08 AM	HM
Nitrate as NO3-N	EPA300.0	mg/L	0.2	1		0.1	0.01	6/29/2017	6:08 AM	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	0.4	1		0.1	0.025	6/29/2017	6:08 AM	HM
Nitrite as NO2-N	EPA300.0	mg/L	0.2	1		0.1	0.01	6/29/2017	6:08 AM	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	0.1	1		0.1	0.02	6/29/2017	6:08 AM	HM
pH (Laboratory)	SM4500-H+	pH (H)	7.7	1		0.1		6/28/2017	4:00 PM	MB
Phosphorus, Total	HACH 8190	mg/L	0.27	1		0.03	0.03	7/8/2017	3:04 PM	BS
Potassium	EPA200.7	mg/L	2.9	1		0.5	0.3	7/6/2017	2:18 PM	MW
QC Anion Sum x 100	Calculation	%	101%	1				7/6/2017	5:02 PM	HM
QC Anion-Cation Balance	Calculation	%	2	1				7/7/2017	10:01 AM	MW
QC Cation Sum x 100	Calculation	%	105%	1				7/7/2017	10:01 AM	MW
QC Ratio TDS/SEC	Calculation		0.58	1				7/7/2017	11:41 AM	MP
Selenium, Total	EPA200.8	µg/L	10	1		1	0.5	6/29/2017	2:46 PM	MW
Silica as SiO2, Total	EPA200.7	mg/L	24	1		0.5	0.3	7/6/2017	2:18 PM	MW
Sodium	EPA200.7	mg/L	45	1		0.5	0.2	7/6/2017	2:18 PM	MW

mg/L: Milligrams per liter (=ppm)

µg/L : Micrograms per liter (=ppb)

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E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

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T = Temperature Exceedance



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Tuesday, July 18, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB70398

Collection Date/Time: 6/28/2017 15:30

Sample Collector: LEAR J, SUWADA J

Client Sample #:

Submittal Date/Time: 6/28/2017 16:53

Sample ID

Sample Description: SMS (D)

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Specific Conductance (E.C)	SM2510B	µmhos/c	500	1		1	1	6/30/2017	10:15 AM	HM
Strontium, Total	EPA200.8	µg/L	248	1		2.5	0.5	6/29/2017	2:46 PM	MW
Sulfate	EPA300.0	mg/L	69	1		1	0.25	6/29/2017	6:08 AM	HM
TOC	SM5310C	mg/L	1.5	1	IJ	0.2	0.03	7/7/2017	9:56 PM	HM
Total Diss. Solids	SM2540C	mg/L	291	1		10	10	7/5/2017	9:50 AM	MP
Total Nitrogen	Calculation	mg/L	Not Detected	1		0.5	0.5	7/11/2017	9:38 AM	LRH
Total Radium 226	EPA903.0	pCi/L	0.195 ± 0.153	1	E			7/6/2017	8:45 PM	FGL
Trihalomethanes	EPA524.2	µg/L	88	1	E			7/5/2017	12:00 PM	FGL
Uranium by ICP/MS	EPA200.8	µg/L	1	1		0.5	0.04	6/29/2017	2:46 PM	MW
Vanadium, Total	EPA200.8	µg/L	1	1		2.5	0.1	6/29/2017	2:46 PM	MW
Zinc, Total	EPA200.8	µg/L	79	1		10	10	6/29/2017	2:46 PM	MW

Sample Comments: BC: Matrix spike out of control, lab control sample within limits. IJ: LCS and/or CCV above acceptance limits.

Report Approved by:

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

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July 13, 2017

Monterey Bay Analytical Services
 4 Justin Court
 Monterey, CA 93940

Lab ID : SP 1707852
 Customer : 2-19144

Laboratory Report

Introduction: This report package contains total of 13 pages divided into 3 sections:

Case Narrative (2 pages) : An overview of the work performed at FGL.
 Sample Results (8 pages) : Results for each sample submitted.
 Quality Control (3 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
ASR-2 Backflush	06/28/2017	06/30/2017	SP 1707852-001	PW
ASR-1 Backflush	06/28/2017	06/30/2017	SP 1707852-002	PW
MW#1	06/28/2017	06/30/2017	SP 1707852-003	PW
SMS (D)	06/28/2017	06/30/2017	SP 1707852-004	PW

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 6 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Organic QC

551.1	07/05/2017:209924 All analysis quality controls are within established criteria.
	07/06/2017:209946 All analysis quality controls are within established criteria.
	07/05/2017:207904 All preparation quality controls are within established criteria, except: The following note applies to Bromoform: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
552	07/06/2017:207957 All preparation quality controls are within established criteria, except: The following note applies to Trichloroacetic Acid: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

July 13, 2017
Monterey Bay Analytical Services

Lab ID : SP 1707852
Customer : 2-19144

Organic QC

552.2	07/07/2017:209990 All analysis quality controls are within established criteria.
	07/07/2017:210122 All analysis quality controls are within established criteria.

Radio QC

900.0	07/05/2017:209903 All analysis quality controls are within established criteria.
	07/05/2017:209906 All analysis quality controls are within established criteria.
	07/10/2017:210172 All analysis quality controls are within established criteria.
	07/03/2017:207820 All preparation quality controls are within established criteria.
	07/07/2017:208001 All preparation quality controls are within established criteria.
903.0	07/06/2017:209977 All analysis quality controls are within established criteria.
	07/01/2017:207798 All preparation quality controls are within established criteria.

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2017-07-13



July 13, 2017

Lab ID : SP 1707852-001

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : June 28, 2017-11:20

Sampled By : John Lear/ Joseph Su

Received On : June 30, 2017-09:40

Matrix : Potable Water

Description : ASR-2 Backflush

Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	79.3	80-120	%		551.1	07/05/17:207904	551.1	07/05/17:209924
Bromodichloromethane	26	1	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
Bromoform	1	1	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
Chloroform	58	5*	ug/L		551.1	07/05/17:207904	551.1	07/06/17:209946
Dibromochloromethane	12	1	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
Total Trihalomethanes	97	--	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	108	70-130	%		552	07/06/17:207957	552.2	07/07/17:209990
Bromoacetic Acid	ND	1	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Chloroacetic Acid	ND	2	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Dibromoacetic Acid	2	1	ug/L		552	07/06/17:207957	552.2	07/07/17:210122
Dichloroacetic Acid	14	1	ug/L		552	07/06/17:207957	552.2	07/07/17:210122
Trichloroacetic Acid	14	1	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Haloacetic acids (five)	30	--	ug/L		552	07/06/17:207957	552.2	07/07/17:209990

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



July 13, 2017

Lab ID : SP 1707852-001
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : June 28, 2017-11:20
Sampled By : John Lear/ Joseph Su
Received On : June 30, 2017-09:40
Matrix : Potable Water

Description : ASR-2 Backflush
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	0.775 ± 0.946	1.26	pCi/L		900.0	07/03/17-09:20 2P1707820	900.0	07/05/17-10:20 2A1709906
Total Alpha Radium (226)	0.109 ± 0.128	0.363	pCi/L		903.0	07/01/17-08:00 2P1707798	903.0	07/06/17-19:35 2A1709977

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



July 13, 2017

Lab ID : SP 1707852-002
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : June 28, 2017-13:30
Sampled By : John Lear/ Joseph Su
Received On : June 30, 2017-09:40
Matrix : Potable Water

Description : ASR-1 Backflush
Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	87.5	80-120	%		551.1	07/05/17:207904	551.1	07/05/17:209924
Bromodichloromethane	22	1	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
Bromoform	1	1	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
Chloroform	56	5*	ug/L		551.1	07/05/17:207904	551.1	07/06/17:209946
Dibromochloromethane	10	1	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
Total Trihalomethanes	89	--	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	88.1	70-130	%		552	07/06/17:207957	552.2	07/07/17:209990
Bromoacetic Acid	ND	1	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Chloroacetic Acid	ND	2	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Dibromoacetic Acid	ND	1	ug/L		552	07/06/17:207957	552.2	07/07/17:210122
Dichloroacetic Acid	2	1	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Trichloroacetic Acid	4	1	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Haloacetic acids (five)	6	--	ug/L		552	07/06/17:207957	552.2	07/07/17:209990

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



July 13, 2017

Lab ID : SP 1707852-002

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : June 28, 2017-13:30
Sampled By : John Lear/ Joseph Su
Received On : June 30, 2017-09:40
Matrix : Potable Water

Description : ASR-1 Backflush
Project : MPWMD

Sample Result - Radio

Table with 7 columns: Constituent, Result ± Error, MDA, Units, MCL/AL, Sample Preparation (Method, Date/ID), Sample Analysis (Method, Date/ID). Rows include Radio Chemistry, Gross Alpha, and Total Alpha Radium (226).

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



July 13, 2017

Lab ID : SP 1707852-003
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : June 28, 2017-14:30
Sampled By : John Lear/ Joseph Su
Received On : June 30, 2017-09:40
Matrix : Potable Water

Description : MW#1
Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	90.2	80-120	%		551.1	07/05/17:207904	551.1	07/05/17:209924
Bromodichloromethane	17	1	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
Bromoform	1	1	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
Chloroform	39	1	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
Dibromochloromethane	9	1	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
Total Trihalomethanes	66	--	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	79.6	70-130	%		552	07/06/17:207957	552.2	07/07/17:209990
Bromoacetic Acid	ND	1	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Chloroacetic Acid	ND	2	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Dibromoacetic Acid	ND	1	ug/L		552	07/06/17:207957	552.2	07/07/17:210122
Dichloroacetic Acid	ND	1	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Trichloroacetic Acid	2	1	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Haloacetic acids (five)	2	--	ug/L		552	07/06/17:207957	552.2	07/07/17:209990

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



July 13, 2017

Lab ID : SP 1707852-003
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : June 28, 2017-14:30
Sampled By : John Lear/ Joseph Su
Received On : June 30, 2017-09:40
Matrix : Potable Water

Description : MW#1
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	1.77 ± 1.15	1.23	pCi/L		900.0	07/07/17-10:00 2P1708001	900.0	07/10/17-09:20 2A1710172
Total Alpha Radium (226)	0.044 ± 0.104	0.363	pCi/L		903.0	07/01/17-08:00 2P1707798	903.0	07/06/17-20:20 2A1709977

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



July 13, 2017

Lab ID : SP 1707852-004

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : June 28, 2017-15:30

Sampled By : John Lear/ Joseph Su

Received On : June 30, 2017-09:40

Matrix : Potable Water

Description : SMS (D)

Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	80.8	80-120	%		551.1	07/05/17:207904	551.1	07/05/17:209924
Bromodichloromethane	25	1	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
Bromoform	1	1	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
Chloroform	50	5*	ug/L		551.1	07/05/17:207904	551.1	07/06/17:209946
Dibromochloromethane	12	1	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
Total Trihalomethanes	88	--	ug/L		551.1	07/05/17:207904	551.1	07/05/17:209924
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	96.2	70-130	%		552	07/06/17:207957	552.2	07/07/17:209990
Bromoacetic Acid	ND	1	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Chloroacetic Acid	ND	2	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Dibromoacetic Acid	ND	1	ug/L		552	07/06/17:207957	552.2	07/07/17:210122
Dichloroacetic Acid	4	1	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Trichloroacetic Acid	13	1	ug/L		552	07/06/17:207957	552.2	07/07/17:209990
Haloacetic acids (five)	17	--	ug/L		552	07/06/17:207957	552.2	07/07/17:209990

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



July 13, 2017

Lab ID : SP 1707852-004
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : June 28, 2017-15:30
Sampled By : John Lear/ Joseph Su
Received On : June 30, 2017-09:40
Matrix : Potable Water

Description : SMS (D)
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	1.94 ± 1.20	1.30	pCi/L		900.0	07/03/17-09:20 2P1707820	900.0	07/05/17-12:30 2A1709906
Total Alpha Radium (226)	0.195 ± 0.153	0.363	pCi/L		903.0	07/01/17-08:00 2P1707798	903.0	07/06/17-20:45 2A1709977

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



July 13, 2017
Monterey Bay Analytical Services

Lab ID : SP 1707852
Customer : 2-19144

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note			
Organic Bromodichloromethane	551.1	07/05/17:207904SBL (SP 1707929-001)	Blank	ug/L		ND	<1				
			LCS	ug/L	10.02	98.8 %	80-120				
			MS	ug/L	9.852	91.0 %	80-120				
			MSD	ug/L	10.12	88.5 %	80-120				
	MSRPD	ug/L	20.24	0.08%	≤20						
	551.1	07/05/17:209924SBL	CCV	ug/L	83.33	97.7 %	80-120				
			CCV	ug/L	166.7	92.3 %	80-120				
Bromoform	551.1	07/05/17:207904SBL (SP 1707929-001)	Blank	ug/L		ND	<1				
			LCS	ug/L	10.02	88.0 %	80-120				
			MS	ug/L	9.852	76.0 %	80-120	435			
			MSD	ug/L	10.12	73.9 %	80-120	435			
	MSRPD	ug/L	20.24	0.02%	≤20						
	551.1	07/05/17:209924SBL	CCV	ug/L	83.33	85.2 %	80-120				
			CCV	ug/L	166.7	84.8 %	80-120				
Chloroform	551.1	07/05/17:207904SBL (SP 1707929-001)	Blank	ug/L		ND	<1				
			LCS	ug/L	10.02	113 %	80-120				
			MS	ug/L	9.852	112 %	80-120				
			MSD	ug/L	10.12	98.5 %	80-120				
	MSRPD	ug/L	20.24	9.4%	≤20						
	551.1	07/05/17:209924SBL	CCV	ug/L	83.33	109 %	80-120				
			CCV	ug/L	166.7	111 %	80-120				
551.1	07/06/17:209946SBL		CCV	ug/L	83.33	117 %	80-120				
			CCV	ug/L	166.7	113 %	80-120				
			Decafluorobiphenyl	551.1	07/05/17:207904SBL (SP 1707929-001)	Blank	ug/L	20.22	83.0 %	80-120	
						LCS	ug/L	20.04	101 %	80-120	
MS	ug/L	19.70	100 %			80-120					
MSD	ug/L	20.24	96.1 %			80-120					
MSRPD	ug/L	20.24	1.6%	≤20.0							
551.1	07/05/17:209924SBL	CCV	ug/L	166.7	106 %	80-120					
			CCV	ug/L	333.3	101 %	80-120				
Dibromochloromethane	551.1	07/05/17:207904SBL (SP 1707929-001)	Blank	ug/L		ND	<1				
			LCS	ug/L	10.02	93.1 %	80-120				
			MS	ug/L	9.852	85.8 %	80-120				
			MSD	ug/L	10.12	84.4 %	80-120				
	MSRPD	ug/L	20.24	0.5%	≤20						
	551.1	07/05/17:209924SBL	CCV	ug/L	83.33	90.5 %	80-120				
			CCV	ug/L	166.7	87.8 %	80-120				
2,3-Dibromopropionic Acid	552	07/06/17:207957SBL (SP 1707849-001)	Blank	ug/L	5.000	113 %	70-130				
			LCS	ug/L	5.000	128 %	70-130				
			MS	ug/L	5.000	97.2 %	70-130				
			MSD	ug/L	5.000	102 %	70-130				
	MSRPD	ug/L	5.000	0.22	≤1						
	552	07/06/17:207957SBL	Blank	ug/L		ND	<1				
			LCS	ug/L	10.00	71.6 %	70-130				
			MS	ug/L	10.00	126 %	70-130				
			MSD	ug/L	10.00	119 %	70-130				
			MSRPD	ug/L	5.000	5.5%	≤20.0				
Dichloroacetic Acid	552	07/06/17:207957SBL (SP 1707849-001)	Blank	ug/L		ND	<1				
			LCS	ug/L	10.00	80.1 %	70-130				
			MS	ug/L	10.00	118 %	70-130				
			MSD	ug/L	10.00	111 %	70-130				
	MSRPD	ug/L	5.000	5.1%	≤20.0						
	552	07/06/17:207957SBL	Blank	ug/L		ND	<1				
			LCS	ug/L	10.00	88.3 %	70-130				
			MS	ug/L	10.00	84.3 %	70-130				

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Monobromoacetic Acid	552	(SP 1707849-001)	MSD MSRPD	ug/L ug/L	10.00 5.000	83.6 % 0.8%	70-130 ≤20.0	
Monochloroacetic Acid	552	07/06/17:207957SBL (SP 1707849-001)	Blank LCS MS MSD MSRPD	ug/L ug/L ug/L ug/L ug/L	 10.00 10.00 10.00 5.000	ND 90.3 % 83.9 % 85.3 % 0.14	<2 70-130 70-130 70-130 ≤2	
Trichloroacetic Acid	552	07/06/17:207957SBL (SP 1707849-001)	Blank LCS MS MSD MSRPD	ug/L ug/L ug/L ug/L ug/L	 10.00 10.00 10.00 5.000	ND 71.6 % 74.3 % 64.0 % 4.7%	<1 70-130 70-130 70-130 ≤20.0	435
2,3-Dibromopropionic Acid	552.2	07/07/17:209990SBL	CCV CCV	ug/L ug/L	75.00 50.00	93.8 % 96.5 %	70-130 70-130	
Dibromoacetic Acid	552.2	07/07/17:210122SBL	CCV CCV	ug/L ug/L	150.0 100.0	88.0 % 93.2 %	70-130 70-130	
Dichloroacetic Acid	552.2	07/07/17:209990SBL	CCV CCV	ug/L ug/L	150.0 100.0	89.4 % 92.1 %	70-130 70-130	
	552.2	07/07/17:210122SBL	CCV CCV	ug/L ug/L	150.0 100.0	88.2 % 96.9 %	70-130 70-130	
Monobromoacetic Acid	552.2	07/07/17:209990SBL	CCV CCV	ug/L ug/L	150.0 100.0	88.5 % 94.2 %	70-130 70-130	
Monochloroacetic Acid	552.2	07/07/17:209990SBL	CCV CCV	ug/L ug/L	150.0 100.0	90.0 % 99.8 %	70-130 70-130	
Trichloroacetic Acid	552.2	07/07/17:209990SBL	CCV CCV	ug/L ug/L	150.0 100.0	89.9 % 92.6 %	70-130 70-130	
Definition								
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.								
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.								
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.								
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.								
ND : Non-detect - Result was below the DQO listed for the analyte.								
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								
Explanation								
435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.								

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio Alpha	900.0	07/05/17:209903aat	CCV CCB	cpm cpm	8372	37.2 % 0.040	35-47 0.2	
	900.0	07/05/17:209906aat	CCV CCB	cpm cpm	8372	41.6 % 0.0600	35-47 0.17	
	900.0	07/10/17:210172aat	CCV CCB	cpm cpm	8369	40.9 % 0.100	35-47 0.14	
Gross Alpha	900.0	07/03/17:207820aat	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	108.2 108.2 108.2 108.2	0.32 93.8 % 74.2 % 85.9 % 14.0%	3 75-125 60-140 60-140 ≤30	
		(SP 1707758-002)						
Gross Alpha	900.0	07/07/17:208001aat	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	108.2 108.2 108.2 108.2	0.29 88.8 % 103 % 107 % 4.2%	3 75-125 60-140 60-140 ≤30	
		(SP 1707862-001)						
Alpha	903.0	07/06/17:209977rmm	CCV CCB	cpm cpm	8370	41.3 % 0.100	37-46 0.16	
Total Alpha Radium (226)	903.0	07/01/17:207798ELC	RgBlk LCS BS BSD BSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	21.85 21.85 21.85 21.85	0.008 64.0 % 62.0 % 53.1 % 15.6%	2 52-107 43-111 43-111 ≤35.5	

Definition	
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

1. Number of ice chests/packages received: 1
2. Shipper tracking numbers 536693125
3. Were samples received in a chilled condition?
Temps: 6 / / / / / /
4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
5. Do the number of bottles received agree with the COC? Yes No N/A
6. Verify sample date, time, sampler Yes No N/A
7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) Yes No
8. Were sample custody seals intact? Yes No N/A

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? Yes No
2. Did bottle labels correspond with the client's ID's? Yes No
3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
 [Exception: Oil & Grease, VOA and CrVI verified in lab]
4. VOAs checked for Headspace? Yes No N/A
5. Were all analyses within holding times at time of receipt? Yes No
6. Have rush or project due dates been checked and accepted? Yes No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and
Approved By

Inez Covarrubias



Digitally signed by Inez Covarrubias
Title: Sample Receiving
Date: 06/30/2017-11:59:31

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2019144)
Monterey Bay Analytical Services
SP 1707852

IV-06/30/2017-11:59:31



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1707003

Report Created for: Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Project Contact: David Holland
Project P.O.:
Project Name: MPWMD

Project Received: 06/30/2017

Analytical Report reviewed & approved for release on 07/07/2017 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Bay Analytical
Project: MPWMD
WorkOrder: 1707003

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Bay Analytical
Date Received: 6/30/17 10:00
Date Prepared: 7/5/17-7/6/17
Project: MPWMD

WorkOrder: 1707003
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR-2 Backflush	1707003-001A	Water	06/28/2017 11:20	GC26	141578

Analytes	Result	RL	DF	Date Analyzed
Methane	1.5	0.10	1	07/05/2017 18:09

Analyst(s): AK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR-1 Backflush	1707003-002A	Water	06/28/2017 13:30	GC26	141578

Analytes	Result	RL	DF	Date Analyzed
Methane	0.77	0.10	1	07/06/2017 10:18

Analyst(s): AK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MW #1	1707003-003A	Water	06/28/2017 14:30	GC26	141578

Analytes	Result	RL	DF	Date Analyzed
Methane	0.74	0.10	1	07/06/2017 10:47

Analyst(s): AK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SMS (D)	1707003-004A	Water	06/28/2017 15:30	GC26	141578

Analytes	Result	RL	DF	Date Analyzed
Methane	1.4	0.10	1	07/06/2017 11:13

Analyst(s): AK

 Angela Rydelius, Lab Manager




Quality Control Report

Client: Monterey Bay Analytical
Date Prepared: 7/5/17
Date Analyzed: 7/5/17
Instrument: GC26
Matrix: Water
Project: MPWMD

WorkOrder: 1707003
BatchID: 141578
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L
Sample ID: MB/LCS-141578

QC Summary Report for RSK175

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Methane	ND	1.29	0.10	1.17	-	110	70-130

 QA/QC Officer

1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1707003

ClientCode: MBAS

WaterTrax
 WriteOn
 EDF
 Excel
 EQulS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

David Holland
Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940
831-375-6227 FAX: 831-641-0734

Email: mweidner@mbasinc.com; Dholland@mbas
cc/3rd Party:
PO:
ProjectNo: MPWMD

Bill to:

Accounts Payable
Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 06/30/2017

Date Logged: 07/03/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1707003-001	ASR-2 Backflush	Water	6/28/2017 11:20	<input type="checkbox"/>	A												
1707003-002	ASR-1 Backflush	Water	6/28/2017 13:30	<input type="checkbox"/>	A												
1707003-003	MW #1	Water	6/28/2017 14:30	<input type="checkbox"/>	A												
1707003-004	SMS (D)	Water	6/28/2017 15:30	<input type="checkbox"/>	A												

Test Legend:

1	RSK175_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Agustina Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY BAY ANALYTICAL

Project: MPWMD

Work Order: 1707003

Client Contact: David Holland

QC Level: LEVEL 2

Contact's Email: mweidner@mbasinc.com; Dholland@mbasinc.com;
info@sbcglobal.net; info@mbasinc.com

Comments:

Date Logged: 7/3/2017

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1707003-001A	ASR-2 Backflush	Water	RSK175 <Methane_4>	2	VOA w/ HCl	<input type="checkbox"/>	6/28/2017 11:20	5 days	None	<input type="checkbox"/>	
1707003-002A	ASR-1 Backflush	Water	RSK175 <Methane_4>	2	VOA w/ HCl	<input type="checkbox"/>	6/28/2017 13:30	5 days	None	<input type="checkbox"/>	
1707003-003A	MW #1	Water	RSK175 <Methane_4>	2	VOA w/ HCl	<input type="checkbox"/>	6/28/2017 14:30	5 days	Present	<input type="checkbox"/>	
1707003-004A	SMS (D)	Water	RSK175 <Methane_4>	2	VOA w/ HCl	<input type="checkbox"/>	6/28/2017 15:30	5 days	None	<input type="checkbox"/>	

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).

- 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.

1707003

McCAMPBELL ANALYTICAL, INC.

1534 WILLOW PASS ROAD
PITTSBURG, CA 94565-1701

Website: www.mccampbell.com Email: main@mccampbell.com

Telephone: (877) 252-9262 Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH 24 HR 48 HR 72 HR 5 DAY

GeoTracker EDF PDF Excel Write On (DW)

Report To: David Holland	Bill To:	Analysis Request	Other	Comments
Company: Monterey Bay Analytical Services				
4 Justin Ct. Suite D				
Monterey, Ca 93940				
E-Mail: info@mbasinc.com				
Tele: (831) 375 - 6227 Fax: (831) 641-0734				
Project #: Project Name: MPWMD				
Project Location:				
Sampler Signature: Jon Lear/Joseph Suwada				

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				MTBE / BTEX & TPH as Gas (602 / 8021 + 8015)	MTBE / BTEX ONLY (EPA 602 / 8021)	TPH as Diesel / Motor Oil (8015)	Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 502.2 / 601 / 8010 / 8021 (HVOCs)	EPA 505 / 608 / 8081 (CI Pesticides)	EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners	EPA 507 / 8141 (NP Pesticides)	EPA 515 / 8151 (Acidic Cl Herbicides)	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / PNAs)	CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)	Lead (200.7 / 200.8 / 6010 / 6020)	Methane			
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO ₃	Other																				
	ASR -2 Backflush	6/28/17	11:20	3	V	X					X	X																				X		AB70395
	ASR-1 Backflush	6/28/17	13:30	3	V	X					X	X																			X		AB70396	
	MW #1	6/28/17	14:30	3	V	X					X	X																		X		AB70397 AB70398		
	SMS (D)	6/28/17	15:30	3	V	X					X	X																	X					

Relinquished By: David Holland <i>[Signature]</i>	Date: 6/29	Time: 1600	Received By:	ICE/° <i>5.6</i>	COMMENTS:
Relinquished By:	Date: 6/30	Time: 1000	Received By: <i>[Signature]</i>	GOOD CONDITION _____	
Relinquished By:	Date:	Time:	Received By:	HEAD SPACE ABSENT _____	
Relinquished By:	Date:	Time:	Received By:	DECHLORINATED IN LAB _____	
Relinquished By:	Date:	Time:	Received By:	APPROPRIATE CONTAINERS _____	
Relinquished By:	Date:	Time:	Received By:	PRESERVED IN LAB _____	
				VOAS O&G METALS OTHER	
				PRESERVATION pH<2	



Sample Receipt Checklist

Client Name: **Monterey Bay Analytical**
 Project Name: **MPWMD**

Date and Time Received: **6/30/2017 10:00**
 Date Logged: **7/3/2017**
 Received by: **Agustina Venegas**
 Logged by: **Agustina Venegas**

WorkOrder No: **1707003** Matrix: Water
 Carrier: Golden State Overnight

Chain of Custody (COC) Information

- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Sample IDs noted by Client on COC? Yes No
- Date and Time of collection noted by Client on COC? Yes No
- Sampler's name noted on COC? Yes No

Sample Receipt Information

- Custody seals intact on shipping container/cooler? Yes No NA
- Shipping container/cooler in good condition? Yes No
- Samples in proper containers/bottles? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

- All samples received within holding time? Yes No NA
 - Sample/Temp Blank temperature Temp: 5.6°C NA
 - Water - VOA vials have zero headspace / no bubbles? Yes No NA
 - Sample labels checked for correct preservation? Yes No
 - pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 - Samples Received on Ice? Yes No
- (Ice Type: BLUE ICE)

UCMR Samples:

- Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
- Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:

MPWMD
Jonathan Lear
P.O. Box 85
Monterey, CA 93442-0085



Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

Page 1 of 1

Thursday, August 03, 2017

Lab Number: AB71592

Collection Date/Time: 7/18/2017 8:45 Sample Collector: SUWADA J Client Sample #:
Submittal Date/Time: 7/18/2017 16:45 Sample ID

Sample Description: SMS (D)

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Chloramines	SM4500-Cl	mg/L	Not Detected	1		0.05	0.05	7/18/2017	5:00:00 PM	OW
Haloacetic Acids	EPA552	µg/L	12	1	E			7/26/2017	12:00:00 PM	FGL
Trihalomethanes	EPA524.2	µg/L	81	1	E			7/26/2017	12:00:00 PM	FGL

Sample Comments:

Lab Number: AB71593

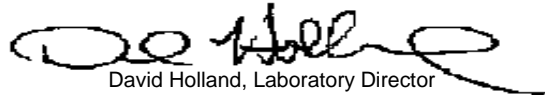
Collection Date/Time: 7/18/2017 9:30 Sample Collector: SUWADA J Client Sample #:
Submittal Date/Time: 7/18/2017 16:45 Sample ID

Sample Description: MW (1)

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Chloramines	SM4500-Cl	mg/L	Not Detected	1		0.05	0.05	7/18/2017	5:00:00 PM	OW
Haloacetic Acids	EPA552	µg/L	12	1	E			7/26/2017	12:00:00 PM	FGL
Trihalomethanes	EPA524.2	µg/L	77	1	E			7/26/2017	12:00:00 PM	FGL

Sample Comments:

Report Approved by:



David Holland, Laboratory Director

August 2, 2017

Monterey Bay Analytical Services
 4 Justin Court
 Monterey, CA 93940

Lab ID : SP 1708753
 Customer : 2-19144

Laboratory Report

Introduction: This report package contains total of 6 pages divided into 3 sections:

Case Narrative (2 pages) : An overview of the work performed at FGL.
 Sample Results (2 pages) : Results for each sample submitted.
 Quality Control (2 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
SMS (D)	07/18/2017	07/21/2017	SP 1708753-001	W
MW1	07/18/2017	07/21/2017	SP 1708753-002	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 5 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Organic QC

551.1	07/25/2017:211023 All analysis quality controls are within established criteria.
	07/26/2017:211055 All analysis quality controls are within established criteria.
	07/25/2017:208784 All preparation quality controls are within established criteria, except: The following note applies to Dibromochloromethane, Bromoform, Bromodichloromethane, Decafluorobiphenyl: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. The following note applies to Decafluorobiphenyl: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
552	07/25/2017:208789 All preparation quality controls are within established criteria, except: The following note applies to 2,3-Dibromopropionic Acid: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

August 2, 2017
Monterey Bay Analytical Services

Lab ID : SP 1708753
Customer : 2-19144

Organic QC

552.2	07/26/2017:211063 All analysis quality controls are within established criteria.
	07/26/2017:211120 All analysis quality controls are within established criteria.

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:SB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2017-08-02



August 2, 2017

Lab ID : SP 1708753-001
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : July 18, 2017-08:45
Sampled By : Joseph Suwada
Received On : July 21, 2017-10:15
Matrix : Water

Description : SMS (D)
Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	84.6	80-120	%		551.1	07/25/17:208784	551.1	07/25/17:211023
Bromodichloromethane	21	1	ug/L		551.1	07/25/17:208784	551.1	07/25/17:211023
Bromoform	1	1	ug/L		551.1	07/25/17:208784	551.1	07/25/17:211023
Chloroform	49	5*	ug/L		551.1	07/25/17:208784	551.1	07/26/17:211055
Dibromochloromethane	10	1	ug/L		551.1	07/25/17:208784	551.1	07/25/17:211023
Total Trihalomethanes	81	--	ug/L		551.1	07/25/17:208784	551.1	07/25/17:211023
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	71.8	70-130	%		552	07/25/17:208789	552.2	07/26/17:211120
Bromoacetic Acid	ND	1	ug/L		552	07/25/17:208789	552.2	07/26/17:211063
Chloroacetic Acid	ND	2	ug/L		552	07/25/17:208789	552.2	07/26/17:211063
Dibromoacetic Acid	ND	1	ug/L		552	07/25/17:208789	552.2	07/26/17:211063
Dichloroacetic Acid	3	1	ug/L		552	07/25/17:208789	552.2	07/26/17:211063
Trichloroacetic Acid	9	1	ug/L		552	07/25/17:208789	552.2	07/26/17:211063
Haloacetic acids (five)	12	--	ug/L		552	07/25/17:208789	552.2	07/26/17:211063

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



August 2, 2017

Lab ID : SP 1708753-002

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : July 18, 2017-09:30

Sampled By : Joseph Suwada

Received On : July 21, 2017-10:15

Matrix : Water

Description : MW1

Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	93.4	80-120	%		551.1	07/25/17:208784	551.1	07/25/17:211023
Bromodichloromethane	17	1	ug/L		551.1	07/25/17:208784	551.1	07/25/17:211023
Bromoform	ND	1	ug/L		551.1	07/25/17:208784	551.1	07/25/17:211023
Chloroform	52	5*	ug/L		551.1	07/25/17:208784	551.1	07/26/17:211055
Dibromochloromethane	8	1	ug/L		551.1	07/25/17:208784	551.1	07/25/17:211023
Total Trihalomethanes	77	--	ug/L		551.1	07/25/17:208784	551.1	07/25/17:211023
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	77.9	70-130	%		552	07/25/17:208789	552.2	07/26/17:211120
Bromoacetic Acid	ND	1	ug/L		552	07/25/17:208789	552.2	07/26/17:211063
Chloroacetic Acid	ND	2	ug/L		552	07/25/17:208789	552.2	07/26/17:211063
Dibromoacetic Acid	ND	1	ug/L		552	07/25/17:208789	552.2	07/26/17:211063
Dichloroacetic Acid	3	1	ug/L		552	07/25/17:208789	552.2	07/26/17:211063
Trichloroacetic Acid	9	1	ug/L		552	07/25/17:208789	552.2	07/26/17:211063
Haloacetic acids (five)	12	--	ug/L		552	07/25/17:208789	552.2	07/26/17:211063

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



August 2, 2017
Monterey Bay Analytical Services

Lab ID : SP 1708753
Customer : 2-19144

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic Bromodichloromethane	551.1	07/25/17:208784SBL (SP 1708753-001)	Blank	ug/L		ND	<1	435
			LCS	ug/L	9.849	98.5 %	80-120	
			MS	ug/L	9.973	94.3 %	80-120	
			MSD	ug/L	9.983	43.9 %	80-120	
			MSRPD	ug/L	19.97	18.1 %	≤20	
	551.1	07/25/17:211023SBL	CCV	ug/L	83.33	99.2 %	80-120	
			CCV	ug/L	166.7	97.7 %	80-120	
Bromoform	551.1	07/25/17:208784SBL (SP 1708753-001)	Blank	ug/L		ND	<1	435
			LCS	ug/L	9.849	91.9 %	80-120	
			MS	ug/L	9.973	89.5 %	80-120	
			MSD	ug/L	9.983	73.8 %	80-120	
			MSRPD	ug/L	19.97	16.9 %	≤20	
	551.1	07/25/17:211023SBL	CCV	ug/L	83.33	88.6 %	80-120	
			CCV	ug/L	166.7	91.6 %	80-120	
Chloroform	551.1	07/25/17:208784SBL (SP 1708753-001)	Blank	ug/L		ND	<1	435
			LCS	ug/L	9.849	109 %	80-120	
			MS	ug/L	9.973	137 %	<1/4	
			MSD	ug/L	9.983	56.0 %	<1/4	
			MSRPD	ug/L	19.97	13.8 %	≤20	
	551.1	07/26/17:211055SBL	CCV	ug/L	83.33	114 %	80-120	
			CCV	ug/L	166.7	112 %	80-120	
Decafluorobiphenyl	551.1	07/25/17:208784SBL (SP 1708753-001)	Blank	ug/L	19.56	102 %	80-120	435
			LCS	ug/L	19.70	109 %	80-120	
			MS	ug/L	19.95	103 %	80-120	
			MSD	ug/L	19.97	76.7 %	80-120	
			MSRPD	ug/L	19.97	29.4 %	≤20.0	435
	551.1	07/25/17:211023SBL	CCV	ug/L	166.7	114 %	80-120	
			CCV	ug/L	333.3	104 %	80-120	
Dibromochloromethane	551.1	07/25/17:208784SBL (SP 1708753-001)	Blank	ug/L		ND	<1	435
			LCS	ug/L	9.849	94.0 %	80-120	
			MS	ug/L	9.973	88.0 %	80-120	
			MSD	ug/L	9.983	58.8 %	80-120	
			MSRPD	ug/L	19.97	16.4 %	≤20	
	551.1	07/25/17:211023SBL	CCV	ug/L	83.33	92.3 %	80-120	
			CCV	ug/L	166.7	94.1 %	80-120	
2,3-Dibromopropionic Acid	552	07/25/17:208789SBL (SP 1708753-001)	Blank	ug/L	5.000	96.5 %	70-130	435
			LCS	ug/L	5.000	129 %	70-130	
			MS	ug/L	5.000	119 %	70-130	
			MSD	ug/L	5.000	96.7 %	70-130	
			MSRPD	ug/L	5.000	20.5 %	≤20.0	
Dibromoacetic Acid	552	07/25/17:208789SBL (SP 1708753-001)	Blank	ug/L		ND	<1	435
			LCS	ug/L	10.00	81.8 %	70-130	
			MS	ug/L	10.00	126 %	70-130	
			MSD	ug/L	10.00	118 %	70-130	
			MSRPD	ug/L	5.000	7.2 %	≤20.0	
Dichloroacetic Acid	552	07/25/17:208789SBL (SP 1708753-001)	Blank	ug/L		ND	<1	435
			LCS	ug/L	10.00	91.8 %	70-130	
			MS	ug/L	10.00	107 %	70-130	
			MSD	ug/L	10.00	97.8 %	70-130	
			MSRPD	ug/L	5.000	7.3 %	≤20.0	
Monobromoacetic Acid	552	07/25/17:208789SBL (SP 1708753-001)	Blank	ug/L		ND	<1	435
			LCS	ug/L	10.00	90.8 %	70-130	
			MS	ug/L	10.00	115 %	70-130	
			MSD	ug/L	10.00	110 %	70-130	
			MSRPD	ug/L	5.000	4.5 %	≤20.0	

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Monochloroacetic Acid	552	07/25/17:208789SBL (SP 1708753-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	10.00	91.8 %	70-130	
			MS	ug/L	10.00	119 %	70-130	
			MSD	ug/L	10.00	116 %	70-130	
			MSRPD	ug/L	5.000	2.6%	≤20.0	
Trichloroacetic Acid	552	07/25/17:208789SBL (SP 1708753-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	78.0 %	70-130	
			MS	ug/L	10.00	110 %	70-130	
			MSD	ug/L	10.00	91.8 %	70-130	
			MSRPD	ug/L	5.000	9.4%	≤20.0	
2,3-Dibromopropionic Acid	552.2	07/26/17:211120SBL	CCV	ug/L	50.00	93.1 %	70-130	
			CCV	ug/L	50.00	72.6 %	70-130	
Dibromoacetic Acid	552.2	07/26/17:211063SBL	CCV	ug/L	100.0	109 %	70-130	
			CCV	ug/L	100.0	78.8 %	70-130	
Dichloroacetic Acid	552.2	07/26/17:211063SBL	CCV	ug/L	100.0	126 %	70-130	
			CCV	ug/L	100.0	89.5 %	70-130	
Monobromoacetic Acid	552.2	07/26/17:211063SBL	CCV	ug/L	100.0	127 %	70-130	
			CCV	ug/L	100.0	87.6 %	70-130	
Monochloroacetic Acid	552.2	07/26/17:211063SBL	CCV	ug/L	100.0	127 %	70-130	
			CCV	ug/L	100.0	93.4 %	70-130	
Trichloroacetic Acid	552.2	07/26/17:211063SBL	CCV	ug/L	100.0	121 %	70-130	
			CCV	ug/L	100.0	84.2 %	70-130	
Definition								
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.								
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.								
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.								
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.								
ND : Non-detect - Result was below the DQO listed for the analyte.								
<¼ : High Sample Background - Spike concentration was less than one fourth of the sample concentration.								
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								
Explanation								
435 : Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.								

Client: Monterey Bay Analytical Services Customer Number: 2019144 Address: 4 Justin Court Monterey, CA 93940 Phone: (831)375-6227 Fax: (831)641-0734 Email Address: info@mbasinc.com Contact Person: David Holland Project Name: MPWMD Purchase Order Number: Quote Number:				Lab Number: 1708753		TEST DESCRIPTION AND ANALYSES REQUESTED																																																																																																																																																																																																																																																						
Rush Analysis: <input type="checkbox"/> 5 Day <input type="checkbox"/> 4 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> 24 hour Rush pre-approval by lab (initials): _____ Electronic Data Transfer: <input type="checkbox"/> No <input type="checkbox"/> State <input type="checkbox"/> Client Other: _____				Method of Sampling: Composite (C) Grab (G) Number of Containers Type of Containers: (G) Glass (P) Plastic (V) VOA (M) Metal Tube Potable (P) Non-Potable (NP) Ag Water (AgW) (SW) Surface Water (MW) Monitoring Well (GW) Ground Water (TB) Travel Blank (WW) Waste Water (DW) Drinking Water (S) Soil (SLG) Sludge (SLD) Seed (O) Oil Bact. (Sys) System (SRC) Source (W) Waste Bact. (ROUT) Routine (RPT) Repeat (OTH) Other (RPL) Replace (LT) Leaf Tissue (PET) Petiole Tissue (PRD) Produce Preservative: (1) NaOH + ZnAc. (2) NaOH, (3) HCl (4) H2SO4, (5) HNO3, (6) Na2S2O3, (7) Other _____ HAA THMS																																																																																																																																																																																																																																																								
Sampler(s): Joseph Suwada Sampling Fee: _____ Pickup Fee: _____ Compositor Setup Date: _____ Time: _____																																																																																																																																																																																																																																																												
<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">Samp Num</th> <th style="width: 20%;">Location Description</th> <th style="width: 10%;">Date Sampled</th> <th style="width: 10%;">Time Sampled</th> <th style="width: 5%;">G</th> <th style="width: 5%;">5</th> <th style="width: 5%;">Var</th> <th style="width: 5%;"></th> <th style="width: 5%;"></th> <th style="width: 5%;"></th> <th style="width: 5%;"></th> <th style="width: 5%;"></th> <th style="width: 5%;"></th> <th style="width: 5%;"></th> <th style="width: 5%;"></th> <th style="width: 5%;"></th> <th style="width: 5%;"></th> <th style="width: 5%;"></th> <th style="width: 5%;"></th> <th style="width: 5%;"></th> <th style="width: 5%;"></th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>SMS (D)</td> <td>7/18/17</td> <td>08:45</td> <td>G</td> <td>5</td> <td>Var</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2.</td> <td>MW1</td> <td>7/18/17</td> <td>09:30</td> <td>G</td> <td>5</td> <td>Var</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr><td> </td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td> </td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>																		Samp Num	Location Description	Date Sampled	Time Sampled	G	5	Var															1.	SMS (D)	7/18/17	08:45	G	5	Var																2.	MW1	7/18/17	09:30	G	5	Var																																																																																																																																																																																									
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Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

- 1. Number of ice chests/packages received: 1
- 2. Shipper tracking numbers 536933220
- 3. Were samples received in a chilled condition?
Temps: 5 / / / / / /
- 4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
- 5. Do the number of bottles received agree with the COC? Yes No N/A
- 6. Verify sample date, time, sampler Yes No N/A
- 7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) Yes No
- 8. Were sample custody seals intact? Yes No N/A

Sample Verification, Labeling and Distribution:

- 1. Were all requested analyses understood and acceptable? Yes No
- 2. Did bottle labels correspond with the client's ID's? Yes No
- 3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
 [Exception: Oil & Grease, VOA and CrVI verified in lab]
- 4. VOAs checked for Headspace? Yes No N/A
- 5. Were all analyses within holding times at time of receipt? Yes No
- 6. Have rush or project due dates been checked and accepted? Yes No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and
Approved By

Cynthia T Casarez



Digitally signed by Cynthia T Casarez
Title: Sample Receiving
Date: 07/21/2017-12:17:42

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2019144)
Monterey Bay Analytical Services
SP 1708753
CTC-07/21/2017-12:17:42

Monterey Bay Analytical Services Chain Of Custody / Analysis Request

4 Justin Ct. Suite D • Monterey, Ca 93940 • (831) 375-MBAS (6227) • (831) 641-0734 (Fax)



Client/Company Name: MPWMD	Attention: Jon hear	Analysis Requested				
--------------------------------------	-------------------------------	--------------------	--	--	--	--

Billing Address:					
------------------	--	--	--	--	--

E-Mail Address(es): jhear@mpwmd.net	Contract/P.O. #:	DBP Chloramines			
---	------------------	----------------------------------	--	--	--

Turn Around Time: STD (7-14 Days) <input type="checkbox"/> 48-Hour <input type="checkbox"/> 5-Day <input type="checkbox"/> 24-Hour <input type="checkbox"/>	Phone # 831-727-6001				
Fax #					

Drinking water Wastewater Monitoring Well Soil Sludge Other

Project/System Information:

For Regulatory Compliance? YES NO

For State or Local Health Department reporting:
Electronic Data Transfer (EDT)? YES NO

System ID Number: _____

MBAS Lab #	Project ID or Source Code #	Sample Site / Description (Well Name, APN#, Address, Stormdrain #)	Sampling		Receiving Temp.	CL2 Residual	Coliform Analysis					# Cont.	Container							
			Date	Time			Routine	Other	Repeat	Special	Type		Size							
71592		SMS(D)	7/17/17	0845	18.7							6			/	/				
71593		MW1	7/18/17	0930	18.5							6			/	/				

	Printed Name	Signature	Date	Time	Comments or Special Instructions:
Sampled by:	JOSEPH SUWADA				
Relinquished by:	JOSEPH SUWADA		7/18/17	1645	
Received by:					
Relinquished by:					
Received by:	Monterey Bay Analytical Services		7/18/17	1645	

Payment received Check # _____ Amount: _____ Receipt # _____ Date: _____

Z Ad

Sample Condition Upon Receipt

COC Info

Was temp acceptable? Chemistry $\leq 6^{\circ}\text{C}$ Micro $\leq 10^{\circ}\text{C}$

YES

NO

NA <2 Hr

Is there evidence of chilling?

YES

NO

NA

Did bottles arrive intact?

YES

NO

NA

Did bottle labels agree with COC?

YES

NO

NA

Discrepancy Documentation:

Person Contacted: _____ Method: In Person/Phone/Email _____

Problem _____

Resolution _____

Person Contacted: _____ Method: In Person/Phone/Email _____

Problem _____

Resolution _____

Sample Split/Filtration

Lab ID	Cont. Size	Pres	Date/Initials

Lab ID	Cont. Size	Pres	Date/Initials

Comments



MBAS

Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

Tuesday, September 12, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB73117

Collection Date/Time: 8/15/2017 10:00

Sample Collector: SUWADA, J

Client Sample #:

Submittal Date/Time: 8/15/2017 11:52

Sample ID

Sample Description: Paralta

Analyte	Method	Unit	Result	Qual	PQL	Date Analyzed	Analyst:
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	169		10	8/17/2017	LM
Aluminum, Total	EPA200.8	µg/L	Not Detected		5	8/17/2017	MW
Ammonia-N	EPA 350.1	mg/L	Not Detected		0.1	8/24/2017	BS
Arsenic, Total	EPA200.8	µg/L	3		0.5	8/17/2017	MW
Barium, Total	EPA200.8	µg/L	43		5	8/17/2017	MW
Bicarbonate (as HCO3-)	SM2320B	mg/L	206		10	8/17/2017	HM
Boron	EPA200.7	mg/L	0.07		0.05	8/17/2017	MW
Bromide	EPA300.0	mg/L	0.2		0.1	8/16/2017	HM
Calcium	EPA200.7	mg/L	56		0.5	8/18/2017	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected		10	8/17/2017	HM
Chloramines	SM4500-Cl G	mg/L	Not Detected		0.05	8/16/2017	OW
Chloride	EPA300.0	mg/L	64		1	8/16/2017	HM
DOC	SM5310C	mg/L	1.1		0.2	8/23/2017	HM
Fluoride	EPA300.0	mg/L	0.4		0.1	8/16/2017	HM
Gross Alpha	EPA900.0	pCi/L	3.77 ± 1.77	E		9/1/2017	FGL
Haloacetic Acids	EPA552	µg/L	Not Detected	E		8/24/2017	FGL
Iron	EPA200.7	µg/L	Not Detected		10	8/17/2017	MW
Iron, Dissolved	EPA200.7	µg/L	11		10	8/24/2017	MW
Kjeldahl Nitrogen	SM4500-NH3 B,C	mg/L	Not Detected		0.5	8/23/2017	BS
Lithium	EPA200.8	µg/L	22		0.5	8/17/2017	MW
Magnesium	EPA200.7	mg/L	14		0.5	8/17/2017	MW
Manganese, Dissolved	EPA200.7	µg/L	11		10	8/24/2017	MW
Manganese, Total	EPA200.7	µg/L	11		10	8/17/2017	MW
Mercury, Total	EPA200.8	µg/L	Not Detected		0.2	8/17/2017	MW
Methane	EPA174/175	µg/L	1.6	E	0.1	8/22/2017	MCCAM
Molybdenum, Total	EPA200.8	µg/L	26		0.5	8/17/2017	MW
Nickel, Total	EPA200.8	µg/L	Not Detected		5	8/17/2017	MW
Nitrate as NO3	EPA300.0	mg/L	1		1	8/16/2017	HM
Nitrate as NO3-N	EPA300.0	mg/L	0.3		0.1	8/16/2017	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	0.3		0.1	8/16/2017	HM
Nitrite as NO2-N	EPA300.0	mg/L	Not Detected		0.1	8/16/2017	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	Not Detected		0.1	8/16/2017	HM
pH (Laboratory)	SM4500-H+B	pH (H)	7.4		0.1	8/15/2017	LM
Phosphorus, Total	EPA 365.1	mg/L	0.02		0.02	8/16/2017	BS
Potassium	EPA200.7	mg/L	4.1		0.5	8/17/2017	MW
QC Anion Sum x 100	Calculation	%	102%			8/17/2017	HM
QC Anion-Cation Balance	Calculation	%	5			8/25/2017	MW
QC Cation Sum x 100	Calculation	%	114%			8/25/2017	MW
QC Ratio TDS/SEC	Calculation		0.62			8/18/2017	HM
Selenium, Total	EPA200.8	µg/L	2		1	8/17/2017	MW
Silica as SiO2, Total	EPA200.7	mg/L	40		0.5	8/17/2017	MW
Sodium	EPA200.7	mg/L	78		0.5	8/18/2017	MW

mg/L: Milligrams per liter (=ppm) µg/L : Micrograms per liter (=ppb) PQL: Practical Quantitation Limit J = Result is less than PQL
H = Analyzed outside of hold time E = Analysis performed by External Laboratory; see External Laboratory Report attachments.



MBAS

Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

831.375.MBAS

www.MBASinc.com

ELAP Certification Number: 2385

Tuesday, September 12, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB73117

Collection Date/Time: 8/15/2017 10:00

Sample Collector: SUWADA, J

Client Sample #:

Submittal Date/Time: 8/15/2017 11:52

Sample ID

Sample Description: Paralta

Analyte	Method	Unit	Result	Qual	PQL	Date Analyzed	Analyst:
Specific Conductance (E.C)	SM2510B	µmhos/cm	652		1	8/16/2017	HM
Strontium, Total	EPA200.8	µg/L	252		2.5	8/17/2017	MW
Sulfate	EPA300.0	mg/L	71		1	8/16/2017	HM
TOC	SM5310C	mg/L	1.0		0.2	8/23/2017	HM
Total Diss. Solids	SM2540C	mg/L	403		10	8/16/2017	HM
Total Nitrogen	Calculation	mg/L	Not Detected		0.5	8/23/2017	HM
Total Radium 226	EPA903.0	pCi/L	0.978 ± 0.285	E		8/29/2017	FGL
Trihalomethanes		µg/L	15	E		8/21/2017	FGL
Uranium by ICP/MS	EPA200.8	µg/L	1		0.5	8/17/2017	MW
Vanadium, Total	EPA200.8	µg/L	Not Detected		2.5	8/17/2017	MW
Zinc, Total	EPA200.8	µg/L	Not Detected		10	8/17/2017	MW

Sample Comments:

Report Approved by:

David Holland, Laboratory Director



MBAS

Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 93940

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www.MBASinc.com

ELAP Certification Number: 2385

Tuesday, September 12, 2017

MPWMD

Jonathan Lear

P.O. Box 85

Monterey, CA 93442-0085

Lab Number: AB73118

Collection Date/Time: 8/15/2017 10:30

Sample Collector: SUWADA, J

Client Sample #:

Submittal Date/Time: 8/15/2017 11:52

Sample ID

Sample Description: Ord Grove

Analyte	Method	Unit	Result	Qual	PQL	Date Analyzed	Analyst
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	178		10	8/17/2017	LM
Aluminum, Total	EPA200.8	µg/L	Not Detected		5	8/17/2017	MW
Ammonia-N	EPA 350.1	mg/L	Not Detected		0.1	8/24/2017	BS
Arsenic, Total	EPA200.8	µg/L	2		0.5	8/17/2017	MW
Barium, Total	EPA200.8	µg/L	51		5	8/17/2017	MW
Bicarbonate (as HCO3-)	SM2320B	mg/L	217		10	8/17/2017	HM
Boron	EPA200.7	mg/L	0.20		0.05	8/17/2017	MW
Bromide	EPA300.0	mg/L	0.4		0.1	8/16/2017	HM
Calcium	EPA200.7	mg/L	60		0.5	8/24/2017	MW
Carbonate as CaCO3	SM2320B	mg/L	Not Detected		10	8/17/2017	HM
Chloramines	SM4500-Cl G	mg/L	Not Detected		0.05	8/16/2017	OW
Chloride	EPA300.0	mg/L	126		1	8/16/2017	HM
DOC	SM5310C	mg/L	1.1		0.2	8/23/2017	HM
Fluoride	EPA300.0	mg/L	0.2		0.1	8/16/2017	HM
Gross Alpha	EPA900.0	pCi/L	11.7 ± 3.21	E		9/5/2017	FGL
Haloacetic Acids	EPA552	µg/L	Not Detected	E		8/24/2017	FGL
Iron	EPA200.7	µg/L	135		10	8/17/2017	MW
Iron, Dissolved	EPA200.7	µg/L	15		10	8/17/2017	MW
Kjehldahl Nitrogen	SM4500-NH3 B,C	mg/L	0.5		0.5	8/23/2017	BS
Lithium	EPA200.8	µg/L	25		0.5	8/17/2017	MW
Magnesium	EPA200.7	mg/L	12		0.5	8/17/2017	MW
Manganese, Dissolved	EPA200.7	µg/L	13		10	8/17/2017	MW
Manganese, Total	EPA200.7	µg/L	130		10	8/17/2017	MW
Mercury, Total	EPA200.8	µg/L	Not Detected		0.2	8/17/2017	MW
Methane	EPA174/175	µg/L	2.3	E	0.1	8/22/2017	MCCAM
Molybdenum, Total	EPA200.8	µg/L	6		0.5	8/17/2017	MW
Nickel, Total	EPA200.8	µg/L	Not Detected		5	8/17/2017	MW
Nitrate as NO3	EPA300.0	mg/L	9		1	8/16/2017	HM
Nitrate as NO3-N	EPA300.0	mg/L	2.1		0.1	8/16/2017	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	2.1		0.1	8/16/2017	HM
Nitrite as NO2-N	EPA300.0	mg/L	Not Detected		0.1	8/16/2017	HM
o-Phosphate-P, Dissolved	EPA300.0	mg/L	Not Detected		0.1	8/16/2017	HM
pH (Laboratory)	SM4500-H+B	pH (H)	7.1		0.1	8/15/2017	LM
Phosphorus, Total	EPA 365.1	mg/L	Not Detected		0.02	8/16/2017	BS
Potassium	EPA200.7	mg/L	2.0		0.5	8/17/2017	MW
QC Anion Sum x 100	Calculation	%	101%			8/17/2017	HM
QC Anion-Cation Balance	Calculation	%	-6			8/25/2017	MW
QC Cation Sum x 100	Calculation	%	89%			8/25/2017	MW
QC Ratio TDS/SEC	Calculation		0.61			8/18/2017	HM
Selenium, Total	EPA200.8	µg/L	6		1	8/17/2017	MW
Silica as SiO2, Total	EPA200.7	mg/L	36		0.5	8/17/2017	MW
Sodium	EPA200.7	mg/L	81		0.5	8/24/2017	MW

mg/L: Milligrams per liter (=ppm) µg/L : Micrograms per liter (=ppb) PQL: Practical Quantitation Limit J = Result is less than PQL
H = Analyzed outside of hold time E = Analysis performed by External Laboratory; see External Laboratory Report attachments.



MPWMD
 Jonathan Lear
 P.O. Box 85
 Monterey, CA 93442-0085

4 Justin Court Suite D, Monterey, CA 93940
 831.375.MBAS
 www.MBASinc.com
 ELAP Certification Number: 2385
 Tuesday, September 12, 2017

Lab Number: AB73118

Collection Date/Time: 8/15/2017 10:30 Sample Collector: SUWADA, J Client Sample #:
 Submittal Date/Time: 8/15/2017 11:52 Sample ID

Sample Description: Ord Grove

Analyte	Method	Unit	Result	Qual	PQL	Date Analyzed	Analyst:
Specific Conductance (E.C)	SM2510B	µmhos/cm	853		1	8/16/2017	HM
Strontium, Total	EPA200.8	µg/L	343		2.5	8/17/2017	MW
Sulfate	EPA300.0	mg/L	64		1	8/16/2017	HM
TOC	SM5310C	mg/L	0.8		0.2	8/23/2017	HM
Total Diss. Solids	SM2540C	mg/L	517		10	8/16/2017	HM
Total Nitrogen	Calculation	mg/L	2.6		0.5	8/23/2017	HM
Total Radium 226	EPA903.0	pCi/L	1.38 ± 0.334	E		8/29/2017	FGL
Trihalomethanes		µg/L	2	E		8/22/2017	FGL
Uranium by ICP/MS	EPA200.8	µg/L	1		0.5	8/17/2017	MW
Vanadium, Total	EPA200.8	µg/L	Not Detected		2.5	8/17/2017	MW
Zinc, Total	EPA200.8	µg/L	Not Detected		10	8/17/2017	MW

Sample Comments:

Report Approved by:

David Holland, Laboratory Director

Monterey Bay Analytical Services Chain Of Custody / Analysis Request

4 Justin Ct. Suite D • Monterey, Ca 93940 • (831) 375-MBAS (6227) • (831) 641-0734 (Fax)



Client/Company Name: <div style="font-size: 1.2em; font-family: cursive;">MPWMD</div>		Attention: <div style="font-size: 1.2em; font-family: cursive;">Jon hear</div>		Analysis Requested				S-1, 6-1, DBP										
Billing Address:		E-Mail Address(es): <div style="font-size: 1.2em; font-family: cursive;">jhear@mpwmd.net</div>		Contract/P.O. #:		Turn Around Time: STD (7-14 Days) <input checked="" type="checkbox"/> 48-Hour <input type="checkbox"/> 5-Day <input type="checkbox"/> 24-Hour <input type="checkbox"/>						Phone # <div style="font-size: 1.2em; font-family: cursive;">831/277-6001</div>		Fax #				
Project/System Information:		Drinking water <input type="checkbox"/> Wastewater <input type="checkbox"/> Monitoring Well <input checked="" type="checkbox"/> Soil <input type="checkbox"/> Sludge <input type="checkbox"/> Other <input type="checkbox"/>		System ID Number: _____		For Regulatory Compliance? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		For State or Local Health Department reporting: Electronic Data Transfer (EDT)? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>		System ID Number: _____								
MBAS Lab #	Project ID or Source Code #	Sample Site / Description (Well Name, APN#, Address, Stormdrain #)	Sampling Date	Time	Receiving Temp.	CL2 Residual	Coliform Routine	Other	Repeat	Special	# Cont.	Container Type	Size					
73117		Paralta	8/15/17	1000	20.6						16			X				
73118		Ord Grove	8/15/17	1030	21.8						16			X				
		Printed Name					Signature				Date	Time	Comments or Special Instructions:					
Sampled by:		JOSEPH SUWADA	[Signature]								8/15/17	1152						
Relinquished by:		JOSEPH SUWADA																
Received by:																		
Relinquished by:																		
Received by:		Monterey Bay Analytical Services	[Signature]								8/15/17	1152						

<input type="checkbox"/> Payment received	Check #	Amount:	Receipt #	Date:
---	---------	---------	-----------	-------

Sample Condition Upon Receipt

COC Info

Was temp acceptable? Chemistry $\leq 6^{\circ}\text{C}$ Micro $\leq 10^{\circ}\text{C}$

YES

NO

NA

2 Hr

Is there evidence of chilling?

YES NO

NA

Did bottles arrive intact?

YES

NO

NA

Did bottle labels agree with COC?

YES

NO

NA

Discrepancy Documentation:

Person Contacted: _____ Method: In Person/Phone/Email _____

Problem _____

Resolution _____

Person Contacted: _____ Method: In Person/Phone/Email _____

Problem _____

Resolution _____

Sample Split/Filtration

Lab ID	Cont. Size	Pres	Date/Initials
73117-18	250mL ^{x2}	LN2	8/15/17 <u>mut</u>
↓	500mL	LN2 H2SO4 NA2S2O7	↓

Lab ID	Cont. Size	Pres	Date/Initials

Comments



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1708713

Report Created for: Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Project Contact: David Holland
Project P.O.:
Project Name: MPWMD

Project Received: 08/16/2017

Analytical Report reviewed & approved for release on 08/23/2017 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Bay Analytical
Project: MPWMD
WorkOrder: 1708713

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Bay Analytical
Date Received: 8/16/17 9:41
Date Prepared: 8/22/17
Project: MPWMD

WorkOrder: 1708713
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Paralta	1708713-001A	Water	08/15/2017 10:00	GC26	144182

Analytes	Result	RL	DF	Date Analyzed
Methane	1.6	0.10	1	08/22/2017 14:20

Analyst(s): AK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
Ord Grove	1708713-002A	Water	08/15/2017 10:30	GC26	144182

Analytes	Result	RL	DF	Date Analyzed
Methane	2.3	0.10	1	08/22/2017 14:32

Analyst(s): AK

 Angela Rydelius, Lab Manager



Quality Control Report

Client: Monterey Bay Analytical
Date Prepared: 8/22/17
Date Analyzed: 8/22/17
Instrument: GC26
Matrix: Water
Project: MPWMD

WorkOrder: 1708713
BatchID: 144182
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L
Sample ID: MB/LCS-144182

QC Summary Report for RSK175

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Methane	ND	0.900	0.10	1.17	-	77	70-130

QA/QC Officer

McC Campbell Analytical, Inc.

1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262



CHAIN-OF-CUSTODY RECORD

WorkOrder: 1708713

ClientCode: MBAS

- WaterTrax
 WriteOn
 EDF
 Excel
 EQuIS
 Email
 HardCopy
 ThirdParty
 J-flag
 Detection Summary
 Dry-Weight

Report to:

David Holland
Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940
831-375-6227 FAX: 831-641-0734

Email: mweidner@mbasinc.com; Dholland@mbas
cc/3rd Party:
PO:
ProjectNo: MPWMD

Bill to:

Accounts Payable
Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 08/16/2017

Date Logged: 08/16/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1708713-001	Paralta	Water	8/15/2017 10:00	<input type="checkbox"/>	A												
1708713-002	Ord Grove	Water	8/15/2017 10:30	<input type="checkbox"/>	A												

Test Legend:

1	RSK175_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Jena Alfaro

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY BAY ANALYTICAL

Project: MPWMD

Work Order: 1708713

Client Contact: David Holland

QC Level: LEVEL 2

Contact's Email: mweidner@mbasinc.com; Dholland@mbasinc.com;
info@sbcglobal.net; info@mbasinc.com

Comments:

Date Logged: 8/16/2017

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1708713-001A	Paralta	Water	RSK175 <Methane_4>	3	VOA w/ HCl	<input type="checkbox"/>	8/15/2017 10:00	5 days	None	<input type="checkbox"/>	
1708713-002A	Ord Grove	Water	RSK175 <Methane_4>	3	VOA w/ HCl	<input type="checkbox"/>	8/15/2017 10:30	5 days	None	<input type="checkbox"/>	

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).

- 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.

1708713

McCAMPBELL ANALYTICAL, INC.

1534 WILLOW PASS ROAD
PITTSBURG, CA 94565-1701

Website: www.mccampbell.com Email: main@mccampbell.com

Telephone: (877) 252-9262 Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME

- GeoTracker EDF
 PDF
 Excel
 Write On (DW)
- RUSH
 24 HR
 48 HR
 72 HR
 5 DAY

Report To: David Holland Bill To:

Company: Monterey Bay Analytical Services

4 Justin Ct. Suite D

Monterey, Ca 93940 E-Mail: info@mbasinc.com

Tele: (831) 375 - 6227 Fax: (831) 641-0734

Project #: Project Name: MPWMD

Project Location:

Sampler Signature: Joseph Suwada

Analysis Request

Other **Comments**

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				MTBE / BTEX & TPH as Gas (602 / 8021 + 8015)	MTBE / BTEX ONLY (EPA 602 / 8021)	TPH as Diesel / Motor Oil (8015)	Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 502.2 / 601 / 8010 / 8021 (HVOCs)	EPA 505/608 / 8081 (CI Pesticides)	EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners	EPA 507 / 8141 (NP Pesticides)	EPA 515 / 8151 (Acidic CI Herbicides)	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / PNAs)	CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)	Lead (200.7 / 200.8 / 6010 / 6020)	Methane									
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO ₃	Other																										
	Paralta	8/15/17	10:00	3	V	X						X	X																								X		AB73117	
	Ord Grove	8/15/17	10:30	3	V	X						X	X																							X		AB73118		

Relinquished By: David Holland	Date: 8/15	Time: 1600	Received By: <i>[Signature]</i>
Relinquished By: <i>GSO</i>	Date: 8/16/17	Time: 0941	Received By: <i>[Signature]</i>
Relinquished By:	Date:	Time:	Received By:

ICEA 5.3 net
 GOOD CONDITION _____
 HEAD SPACE ABSENT _____
 DECHLORINATED IN LAB _____
 APPROPRIATE CONTAINERS _____
 PRESERVED IN LAB _____

COMMENTS:

VOAS O&G METALS OTHER
 PRESERVATION pH<2



Sample Receipt Checklist

Client Name: Monterey Bay Analytical
Project Name: MPWMD

Date and Time Received: 8/16/2017 09:41
Date Logged: 8/16/2017
Received by: Jena Alfaro
Logged by: Jena Alfaro

WorkOrder No: 1708713 Matrix: Water
Carrier: Golden State Overnight

Chain of Custody (COC) Information

- Chain of custody present? Yes [checked] No []
Chain of custody signed when relinquished and received? Yes [checked] No []
Chain of custody agrees with sample labels? Yes [checked] No []
Sample IDs noted by Client on COC? Yes [checked] No []
Date and Time of collection noted by Client on COC? Yes [checked] No []
Sampler's name noted on COC? Yes [checked] No []

Sample Receipt Information

- Custody seals intact on shipping container/cooler? Yes [] No [] NA [checked]
Shipping container/cooler in good condition? Yes [checked] No []
Samples in proper containers/bottles? Yes [checked] No []
Sample containers intact? Yes [checked] No []
Sufficient sample volume for indicated test? Yes [checked] No []

Sample Preservation and Hold Time (HT) Information

- All samples received within holding time? Yes [checked] No [] NA []
Sample/Temp Blank temperature Temp: 5.3°C NA []
Water - VOA vials have zero headspace / no bubbles? Yes [checked] No [] NA []
Sample labels checked for correct preservation? Yes [checked] No []
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes [] No [] NA [checked]
Samples Received on Ice? Yes [checked] No []
(Ice Type: WET ICE)

UCMR Samples:

- Total Chlorine tested and acceptable upon receipt for EPA 522? Yes [] No [] NA [checked]
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes [] No [] NA [checked]

Comments:

September 11, 2017

Monterey Bay Analytical Services
 4 Justin Court
 Monterey, CA 93940

Lab ID : SP 1709938
 Customer : 2-19144

Laboratory Report

Introduction: This report package contains total of 9 pages divided into 3 sections:

Case Narrative (2 pages) : An overview of the work performed at FGL.
 Sample Results (4 pages) : Results for each sample submitted.
 Quality Control (3 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
Paralta	08/15/2017	08/16/2017	SP 1709938-001	PW
Ord Grove	08/15/2017	08/16/2017	SP 1709938-002	PW

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 5 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Organic QC

551.1	08/21/2017:212564 All analysis quality controls are within established criteria
	08/22/2017:212564 All analysis quality controls are within established criteria
	08/21/2017:210002 All preparation quality controls are within established criteria
552	08/22/2017:210073 All preparation quality controls are within established criteria
552.2	08/24/2017:212642 All analysis quality controls are within established criteria

September 11, 2017
Monterey Bay Analytical Services

Lab ID : SP 1709938
Customer : 2-19144

Radio QC

900.0	09/01/2017:213355 All analysis quality controls are within established criteria
	09/05/2017:213368 All analysis quality controls are within established criteria
	08/30/2017:210414 All preparation quality controls are within established criteria
903.0	08/29/2017:213031 All analysis quality controls are within established criteria
	08/22/2017:210071 All preparation quality controls are within established criteria

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2017-09-11



September 11, 2017

Lab ID : SP 1709938-001

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : August 15, 2017-10:00

Sampled By : Joseph Suwada

Received On : August 16, 2017-12:26

Matrix : Potable Water

Description : Paralta
Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	79.4	80-120	%		551.1	08/21/17:210002	551.1	08/21/17:212564
Bromodichloromethane	3	1	ug/L		551.1	08/21/17:210002	551.1	08/21/17:212564
Bromoform	ND	1	ug/L		551.1	08/21/17:210002	551.1	08/21/17:212564
Chloroform	12	1	ug/L		551.1	08/21/17:210002	551.1	08/21/17:212564
Dibromochloromethane	ND	1	ug/L		551.1	08/21/17:210002	551.1	08/21/17:212564
Total Trihalomethanes	15	--	ug/L		551.1	08/21/17:210002	551.1	08/21/17:212564
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	95.2	70-130	%		552	08/22/17:210073	552.2	08/24/17:212642
Bromoacetic Acid	ND	1	ug/L		552	08/22/17:210073	552.2	08/24/17:212642
Chloroacetic Acid	ND	2	ug/L		552	08/22/17:210073	552.2	08/24/17:212642
Dibromoacetic Acid	ND	1	ug/L		552	08/22/17:210073	552.2	08/24/17:212642
Dichloroacetic Acid	ND	1	ug/L		552	08/22/17:210073	552.2	08/24/17:212642
Trichloroacetic Acid	ND	1	ug/L		552	08/22/17:210073	552.2	08/24/17:212642
Haloacetic acids (five)	ND	--	ug/L		552	08/22/17:210073	552.2	08/24/17:212642

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



September 11, 2017

Lab ID : SP 1709938-001
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : August 15, 2017-10:00
Sampled By : Joseph Suwada
Received On : August 16, 2017-12:26
Matrix : Potable Water

Description : Paralta
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	3.77 ± 1.77	1.47	pCi/L		900.0	08/30/17-09:00 2P1710414	900.0	09/01/17-16:00 2A1713355
Total Alpha Radium (226)	0.978 ± 0.285	0.363	pCi/L		903.0	08/22/17-17:40 2P1710071	903.0	08/29/17-17:10 2A1713031

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



September 11, 2017

Lab ID : SP 1709938-002

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : August 15, 2017-10:30

Sampled By : Joseph Suwada

Received On : August 16, 2017-12:26

Matrix : Potable Water

Description : Ord Grove

Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	81.5	80-120	%		551.1	08/21/17:210002	551.1	08/22/17:212564
Bromodichloromethane	ND	1	ug/L		551.1	08/21/17:210002	551.1	08/22/17:212564
Bromoform	ND	1	ug/L		551.1	08/21/17:210002	551.1	08/22/17:212564
Chloroform	2	1	ug/L		551.1	08/21/17:210002	551.1	08/22/17:212564
Dibromochloromethane	ND	1	ug/L		551.1	08/21/17:210002	551.1	08/22/17:212564
Total Trihalomethanes	2	--	ug/L		551.1	08/21/17:210002	551.1	08/22/17:212564
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	96.2	70-130	%		552	08/22/17:210073	552.2	08/24/17:212642
Bromoacetic Acid	ND	1	ug/L		552	08/22/17:210073	552.2	08/24/17:212642
Chloroacetic Acid	ND	2	ug/L		552	08/22/17:210073	552.2	08/24/17:212642
Dibromoacetic Acid	ND	1	ug/L		552	08/22/17:210073	552.2	08/24/17:212642
Dichloroacetic Acid	ND	1	ug/L		552	08/22/17:210073	552.2	08/24/17:212642
Trichloroacetic Acid	ND	1	ug/L		552	08/22/17:210073	552.2	08/24/17:212642
Haloacetic acids (five)	ND	--	ug/L		552	08/22/17:210073	552.2	08/24/17:212642

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



September 11, 2017

Lab ID : SP 1709938-002
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : August 15, 2017-10:30
Sampled By : Joseph Suwada
Received On : August 16, 2017-12:26
Matrix : Potable Water

Description : Ord Grove
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	11.7 ± 3.21	2.10	pCi/L		900.0	08/30/17-09:00 2P1710414	900.0	09/05/17-09:45 2A1713368
Total Alpha Radium (226)	1.38 ± 0.334	0.363	pCi/L		903.0	08/22/17-17:40 2P1710071	903.0	08/29/17-17:30 2A1713031

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.

September 11, 2017
Monterey Bay Analytical Services

Lab ID : SP 1709938
Customer : 2-19144

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note	
Organic Bromodichloromethane	551.1	08/21/17:210002SBL (SP 1709938-001)	Blank	ug/L		ND	<1		
			LCS	ug/L	9.814	104 %	80-120		
			MS	ug/L	10.07	91.8 %	80-120		
			MSD	ug/L	10.09	99.3 %	80-120		
	551.1	08/21/17:212564SBL	MSRPD	ug/L	20.18	6.3%	≤20		
			CCV	ug/L	166.7	109 %	80-120		
	551.1	08/21/17:212564SBL	CCV	ug/L	83.33	96.5 %	80-120		
			Blank	ug/L		ND	<1		
Bromoform	551.1	08/21/17:210002SBL (SP 1709938-001)	LCS	ug/L	9.814	106 %	80-120		
			MS	ug/L	10.07	95.6 %	80-120		
			MSD	ug/L	10.09	102 %	80-120		
			MSRPD	ug/L	20.18	6.9%	≤20		
	551.1	08/21/17:212564SBL	CCV	ug/L	166.7	109 %	80-120		
			CCV	ug/L	83.33	91.6 %	80-120		
	Chloroform	551.1	08/21/17:210002SBL (SP 1709938-001)	Blank	ug/L		ND	<1	
				LCS	ug/L	9.814	111 %	80-120	
MS				ug/L	10.07	101 %	80-120		
MSD				ug/L	10.09	101 %	80-120		
551.1		08/21/17:212564SBL	MSRPD	ug/L	20.18	0.1%	≤20		
			CCV	ug/L	166.7	115 %	80-120		
551.1		08/21/17:212564SBL	CCV	ug/L	83.33	106 %	80-120		
			Decafluorobiphenyl	551.1	08/21/17:210002SBL (SP 1709938-001)	Blank	ug/L	19.76	84.8 %
LCS	ug/L	19.63				109 %	80-120		
MS	ug/L	20.14				93.6 %	80-120		
MSD	ug/L	20.18				89.9 %	80-120		
551.1	08/21/17:212564SBL	MSRPD		ug/L	20.18	3.8%	≤20.0		
		CCV		ug/L	333.3	110 %	80-120		
551.1	08/21/17:212564SBL	CCV		ug/L	166.7	99.7 %	80-120		
		Dibromochloromethane		551.1	08/21/17:210002SBL (SP 1709938-001)	Blank	ug/L		ND
LCS	ug/L		9.814			108 %	80-120		
MS	ug/L		10.07			95.8 %	80-120		
MSD	ug/L		10.09			103 %	80-120		
551.1	08/21/17:212564SBL		MSRPD	ug/L	20.18	6.8%	≤20		
			CCV	ug/L	166.7	111 %	80-120		
551.1	08/21/17:212564SBL		CCV	ug/L	83.33	95.3 %	80-120		
			2,3-Dibromopropionic Acid	552	08/22/17:210073SBL (SP 1709839-001)	Blank	ug/L	5.000	80.8 %
LCS	ug/L	5.000				107 %	70-130		
MS	ug/L	5.000				76.6 %	70-130		
MSD	ug/L	5.000				71.7 %	70-130		
552	08/22/17:210073SBL	MSRPD		ug/L	5.000	0.24	≤1		
		Dibromoacetic Acid		552	08/22/17:210073SBL (SP 1709839-001)	Blank	ug/L		ND
LCS	ug/L					10.00	97.4 %	70-130	
MS	ug/L					10.00	92.0 %	70-130	
MSD	ug/L		10.00			98.4 %	70-130		
552	08/22/17:210073SBL		MSRPD	ug/L	5.000	5.3%	≤20.0		
			Dichloroacetic Acid	552	08/22/17:210073SBL (SP 1709839-001)	Blank	ug/L		ND
LCS	ug/L					10.00	108 %	70-130	
MS	ug/L					10.00	91.3 %	70-130	
MSD	ug/L	10.00				96.0 %	70-130		
552	08/22/17:210073SBL	MSRPD		ug/L	5.000	4.8%	≤20.0		
		Monobromoacetic Acid		552	08/22/17:210073SBL (SP 1709839-001)	Blank	ug/L		ND
LCS	ug/L					10.00	114 %	70-130	
MS	ug/L					10.00	95.6 %	70-130	
MSD	ug/L		10.00			99.8 %	70-130		
552	08/22/17:210073SBL		MSRPD	ug/L	5.000	4.1%	≤20.0		

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Monochloroacetic Acid	552	08/22/17:210073SBL (SP 1709839-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	10.00	121 %	70-130	
			MS	ug/L	10.00	89.5 %	70-130	
			MSD	ug/L	10.00	94.7 %	70-130	
			MSRPD	ug/L	5.000	5.0%	≤20.0	
Trichloroacetic Acid	552	08/22/17:210073SBL (SP 1709839-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	87.9 %	70-130	
			MS	ug/L	10.00	78.1 %	70-130	
			MSD	ug/L	10.00	80.4 %	70-130	
			MSRPD	ug/L	5.000	2.7%	≤20.0	
2,3-Dibromopropionic Acid	552.2	08/24/17:212642SBL	CCV	ug/L	50.00	124 %	70-130	
			CCV	ug/L	75.00	90.1 %	70-130	
Dibromoacetic Acid	552.2	08/24/17:212642SBL	CCV	ug/L	100.0	118 %	70-130	
			CCV	ug/L	150.0	111 %	70-130	
Dichloroacetic Acid	552.2	08/24/17:212642SBL	CCV	ug/L	100.0	121 %	70-130	
			CCV	ug/L	150.0	111 %	70-130	
Monobromoacetic Acid	552.2	08/24/17:212642SBL	CCV	ug/L	100.0	113 %	70-130	
			CCV	ug/L	150.0	103 %	70-130	
Monochloroacetic Acid	552.2	08/24/17:212642SBL	CCV	ug/L	100.0	120 %	70-130	
			CCV	ug/L	150.0	106 %	70-130	
Trichloroacetic Acid	552.2	08/24/17:212642SBL	CCV	ug/L	100.0	109 %	70-130	
			CCV	ug/L	150.0	105 %	70-130	
Definition								
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.								
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.								
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.								
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.								
ND : Non-detect - Result was below the DQO listed for the analyte.								
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio Alpha	900.0	09/01/17:213355aat	CCV CCB	cpm cpm	8332	39.4 % 0.060	35-47 0.2	
	900.0	09/05/17:213368aat	CCV CCB	cpm cpm	8326	41.0 % 0.100	35-47 0.14	
Gross Alpha	900.0	08/30/17:210414aat (SP 1709955-002)	Blank	pCi/L		0.32	3	
			LCS	pCi/L	108.2	101 %	75-125	
			MS	pCi/L	108.2	114 %	60-140	
			MSD	pCi/L	108.2	125 %	60-140	
			MSRPD	pCi/L	108.2	9.1%	≤30	
Alpha	903.0	08/29/17:213031emv	CCV	cpm	8335	41.2 %	37-46	
			CCB	cpm		0.0600	0.16	
Total Alpha Radium (226)	903.0	08/22/17:210071emv	RgBlk	pCi/L		0.01	2	
			LCS	pCi/L	21.85	70.6 %	52-107	
			BS	pCi/L	21.85	68.4 %	43-111	
			BSD	pCi/L	21.85	71.6 %	43-111	
			BSRPD	pCi/L	21.85	4.7%	≤35.5	

Definition

CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

1. Number of ice chests/packages received: 1
2. Shipper tracking numbers 537242350
3. Were samples received in a chilled condition?
Temps: 5 / / / / / /
4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
5. Do the number of bottles received agree with the COC? Yes No N/A
6. Verify sample date, time, sampler Yes No N/A
7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) Yes No
8. Were sample custody seals intact? Yes No N/A

Sample Verification, Labeling and Distribution:

1. Were all requested analyses understood and acceptable? Yes No
2. Did bottle labels correspond with the client's ID's? Yes No
3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
[Exception: Oil & Grease, VOA and CrVI verified in lab]
4. VOAs checked for Headspace? Yes No N/A
5. Were all analyses within holding times at time of receipt? Yes No
6. Have rush or project due dates been checked and accepted? Yes No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and
Approved By

Cynthia T Casarez



Digitally signed by Cynthia T Casarez
Title: Sample Receiving
Date: 08/17/2017-08:52:30

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2019144)
Monterey Bay Analytical Services
SP 1709938

CTC-08/17/2017-08:52:30

Monterey Peninsula Water Mgmt. District
 Joe Oliver
 P.O. Box 85
 Monterey, CA 93940

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Monday, November 27, 2017

Lab Number: 170911_10-01

Collection Date/Time: 9/11/2017 14:00 Sample Collector: Suwada J Client Sample #:
 Submittal Date/Time: 9/11/2017 15:35 Sample ID:

Sample Description: PCA East 8 Yyp

Analyte	Method	Unit	Result	Dil.	Qual	PQL	MCL	Anal. Date	Anal. Time	Analyst
Alkalinity, Total (as CaCO ₃)	SM2320B	mg/L	196	1		10		9/13/2017	9:00	BS
Aluminum, Total	EPA200.8	µg/L	15	1		5	1000	9/14/2017	15:29	MW
Ammonia-N	EPA 350.1	mg/L	ND	1		0.1		9/20/2017	14:37	BS
Arsenic, Total	EPA200.8	µg/L	7	1		1	10	9/14/2017	15:29	MW
Barium, Total	EPA200.8	µg/L	99	1		1	1000	9/14/2017	15:29	MW
Boron	EPA200.7	mg/L	0.10	1		0.05		9/15/2017	12:49	MW
Bromide	EPA300.0	mg/L	0.3	1		0.1		9/12/2017	12:59	HM
Calcium	EPA200.7	mg/L	56	1		1		9/15/2017	12:49	MW
Chloramines	SM4500-Cl G	mg/L	ND	1		0.05		9/12/2017	16:30	LRH
Chloride	EPA300.0	mg/L	112	1		1		9/12/2017	12:59	HM
Chlorine Residual, Free (Laboratory)	SM4500-Cl G	mg/L	ND	1		0.05		9/12/2017	16:30	LRH
Dissolved Organic Carbon	SM5310C	mg/L	0.6	1		0.2		9/21/2017	15:44	HM
Fluoride	EPA300.0	mg/L	0.3	1		0.1	2	9/12/2017	12:59	HM
Gross Alpha	EPA900.0	pCi/L	0.986 +/-1.93	1	E			10/9/2017	11:50	
Haloacetic Acids	EPA552	µg/L	ND	1	E			9/20/2017	21:42	
Iron, Dissolved	EPA200.7	µg/L	ND	1		10		9/15/2017	12:52	MW
Iron, Total	EPA200.7	µg/L	54	1		10	300	9/14/2017	15:29	MW
Lithium	EPA200.8	µg/L	37	1		0.5		9/14/2017	15:29	MW
Magnesium	EPA200.7	mg/L	12	1		1		9/15/2017	12:49	MW
Manganese, Dissolved	EPA200.7	µg/L	157	1		10	50	9/15/2017	12:52	MW
Manganese, Total	EPA200.7	µg/L	150	1		10	50	9/14/2017	15:29	MW
Mercury, Total	EPA200.8	µg/L	ND	1		0.5	2	9/14/2017	15:29	MW
Methane	EPA174/175	µg/L	2.80	1	E			9/19/2017	10:20	
Molybdenum, Total	EPA200.8	µg/L	9	1		0.5		9/14/2017	15:29	MW

mg/L : Milligrams per liter (=ppm)
 H = Analyzed outside of hold time
 MDL = Method Detection Limit

µg/L : Micrograms per liter (=ppb)
 E = Analysis performed by External Laboratory; See Report attachments
 J = Result is less than PQL

PQL : Practical Quantitation Limit

MCL : Maximum Contamination Level
 T = Temperature Exceedance

Monterey Peninsula Water Mgmt. District
 Joe Oliver
 P.O. Box 85
 Monterey, CA 93940


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Monday, November 27, 2017

Nickel, Total	EPA200.8	µg/L	4	1	1	100	9/14/2017	15:29	MW
Nitrate as N	EPA300.0	mg/L	ND	1	0.1	10	9/12/2017	12:59	HM
Nitrate as NO3	EPA300.0	mg/L	ND	1	1	45	9/12/2017	12:59	HM
Nitrate+Nitrite as N	EPA300.0	mg/L	ND	1	0.1		9/12/2017	12:59	HM
Nitrite as N	EPA300.0	mg/L	ND	1	0.1	1	9/12/2017	12:59	HM
pH (Laboratory)	SM4500-H+B	pH (H)	7.3	1	0.1	10	9/11/2017	17:30	BS
Phosphorus, Total	EPA 365.1	mg/L	0.02	1	0.02		9/22/2017	12:36	BS
Potassium	EPA200.7	mg/L	4.4	1	1		9/15/2017	12:49	MW
QC Ratio TDS/SEC	Calculation	NA	0.61	1					
Radium 226	EPA903.0	pCi/L	0.56+/-0.134	1			9/27/2017	11:25	
Selenium, Total	EPA200.8	µg/L	1	1	1	50	9/14/2017	15:29	MW
Silica (SiO2), Total	EPA200.7	mg/L	51	1	0.05		9/15/2017	12:49	MW
Sodium	EPA200.7	mg/L	98	1	1		9/15/2017	12:49	MW
Specific Conductance (EC)	SM2510B	µmhos/cm	764	1	1	900	9/14/2017	11:35	HM
Strontium, Total	EPA200.8	µg/L	281	1	1		9/14/2017	15:29	MW
Sulfate	EPA300.0	mg/L	32	1	1		9/12/2017	12:59	HM
TOC	SM5310C	mg/L	0.6	1	0.2		9/21/2017	16:10	HM
Total Dissolved Solids	SM2540C	mg/L	463	1	10	500	9/14/2017	16:00	MP
Total Kjeldahl Nitrogen	EPA 351.2	mg/L	ND	1	0.5		10/13/2017	14:11	BS
Trihalomethanes	EPA524.2		ND	1	E		9/20/2017	21:41	
Uranium, Radiological	EPA200.8	pCi/L	ND	1	0.5	20	9/14/2017	15:29	MW
Uranium, Total	EPA200.8	µg/L	ND	1	0.5		9/14/2017	15:29	MW
Vanadium, Total	EPA200.8	µg/L	ND	1	5	50	9/14/2017	15:29	MW
Zinc, Dissolved	EPA200.7	µg/L	ND	1	10		9/15/2017	12:52	MW
Zinc, Total	EPA200.7	µg/L	ND	1	10	5000	9/14/2017	15:29	MW

Comments:

Report Approved by:



David Holland, Laboratory Director

mg/L : Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

MCL : Maximum Contamination Level

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See Report attachments

T = Temperature Exceedance

MDL = Method Detection Limit

J = Result is less than PQL

170911-10

Monterey Bay Analytical Services Chain Of Custody / Analysis Request

4 Justin Ct. Suite D • Monterey, Ca 93940 • (831) 375-MBAS (6227) • (831) 641-0734 (Fax)



Client/Company Name: MPWMD	Attention: Jon hear	Analysis Requested				
Billing Address:		SI, 61, DBP				
E-Mail Address(es): jhear@mpwmd.net						
Turn Around Time: STD (7-14 Days) <input type="checkbox"/> 48-Hour <input type="checkbox"/> 5-Day <input type="checkbox"/> 24-Hour <input type="checkbox"/>		Phone #				
		Fax #				
Project/System Information:		Drinking water <input type="checkbox"/> Wastewater <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Soil <input type="checkbox"/> Sludge <input type="checkbox"/> Other <input type="checkbox"/>				

For Regulatory Compliance? YES NO
 For State or Local Health Department reporting:
 Electronic Data Transfer (EDT)? YES NO
 System ID Number: _____

MBAS Lab #	Project ID or Source Code #	Sample Site / Description (Well Name, APN#, Address, Stormdrain #)	Sampling		Receiving Temp.	CL2					# Cont.	Container		
			Date	Time		Residual	Routine	Other	Repeat	Special		Type	Size	
01		PCA East Deep	9/11/17	1400	25.3						16			X

	Printed Name	Signature	Date	Time	Comments or Special Instructions:
Sampled by:	Joseph Suwada	<i>[Signature]</i>			
Relinquished by:	Joseph Suwada	<i>[Signature]</i>	9/11/17	1534	
Received by:					
Relinquished by:					
Received by:	Monterey Bay Analytical Services	<i>[Signature]</i>	9/11/17	1535	

Payment received Check # _____ Amount: _____ Receipt # _____ Date: _____

[Handwritten initials]

Sample Condition Upon Receipt

COC Info

Was temp acceptable? Chemistry $\leq 6^{\circ}\text{C}$ Micro $\leq 10^{\circ}\text{C}$

YES

NO

NA <2 Hr

Is there evidence of chilling?

YES

NO

NA

Did bottles arrive intact?

YES

NO

NA

Did bottle labels agree with COC?

YES

NO

NA

Discrepancy Documentation:

Person Contacted: _____ Method: In Person/Phone/Email _____

Problem _____

Resolution _____

Person Contacted: _____ Method: In Person/Phone/Email _____

Problem _____

Resolution _____

Sample Split/Filtration

Lab Filtered

Lab ID	Cont. Size	Pres	Date/Initials
170911-10	500ml	H ₂ SO ₄	9/11/17
↓	500ml	H ₂ SO ₄	↓
170911-10	250ml	HNO ₃	9/12/17
↓	↓	↓	9/12/17

Lab ID	Cont. Size	Pres	Date/Initials

Comments



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1709528

Report Created for: Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Project Contact: David Holland
Project P.O.:
Project Name: MPWMD

Project Received: 09/14/2017

Analytical Report reviewed & approved for release on 09/20/2017 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Bay Analytical
Project: MPWMD
WorkOrder: 1709528

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Bay Analytical
Date Received: 9/14/17 9:56
Date Prepared: 9/19/17
Project: MPWMD

WorkOrder: 1709528
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
PCA East Deep	1709528-001A	Water	09/11/2017 14:00	GC26 0918170914.D	145610

Analytes	Result	RL	DF	Date Analyzed
Methane	2.8	0.10	1	09/19/2017 10:20

Analyst(s): AK

 Angela Rydelius, Lab Manager



Quality Control Report

Client: Monterey Bay Analytical
Date Prepared: 9/18/17
Date Analyzed: 9/18/17
Instrument: GC26
Matrix: Water
Project: MPWMD

WorkOrder: 1709528
BatchID: 145610
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L
Sample ID: MB/LCS-145610

QC Summary Report for RSK175

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Methane	ND	1.32	0.10	1.17	-	112	70-130

QA/QC Officer



1534 Willow Pass Rd
 Pittsburg, CA 94565-1701
 (925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1709528

ClientCode: MBAS

- WaterTrax
 WriteOn
 EDF
 Excel
 EQuIS
 Email
 HardCopy
 ThirdParty
 J-flag
 Detection Summary
 Dry-Weight

Report to:

David Holland
 Monterey Bay Analytical
 4 Justin Court, Suite D
 Monterey, CA 93940
 831-375-6227 FAX: 831-641-0734

Email: mweidner@mbasinc.com; Dholland@mbas
 cc/3rd Party:
 PO:
 ProjectNo: MPWMD

Bill to:

Accounts Payable
 Monterey Bay Analytical
 4 Justin Court, Suite D
 Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 09/14/2017

Date Logged: 09/14/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1709528-001	PCA East Deep	Water	9/11/2017 14:00	<input type="checkbox"/>	A												

Test Legend:

1	RSK175_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Jena Alfaro

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
 Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY BAY ANALYTICAL

Project: MPWMD

Work Order: 1709528

Client Contact: David Holland

QC Level: LEVEL 2

Contact's Email: mweidner@mbasinc.com; Dholland@mbasinc.com;
info@sbcglobal.net; info@mbasinc.com

Comments:

Date Logged: 9/14/2017

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1709528-001A	PCA East Deep	Water	RSK175 <Methane_4>	2	VOA w/ HCl	<input type="checkbox"/>	9/11/2017 14:00	5 days	None	<input type="checkbox"/>	

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).

- 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.

1709828

McCAMPBELL ANALYTICAL, INC.

1534 WILLOW PASS ROAD
PITTSBURG, CA 94565-1701

Website: www.mccampbell.com Email: main@mccampbell.com
Telephone: (877) 252-9262 Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME

RUSH 24 HR 48 HR 72 HR 5 DAY

GeoTracker EDF PDF Excel Write On (DW)

Report To: David Holland Bill To:
Company: Monterey Bay Analytical Services
4 Justin Ct. Suite D
Monterey, Ca 93940 E-Mail: info@mbasinc.com
Tele: (831) 375 - 6227 Fax: (831) 641-0734
Project #: Project Name: MPWMD
Project Location:
Sampler Signature: Joseph Suwada

Analysis Request														Other	Comments		
MTBE / BTEX & TPH as Gas (602 / 8021 + 8015)	MTBE / BTEX ONLY (EPA 602 / 8021)	TPH as Diesel / Motor Oil (8015)	Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 502.2 / 601 / 8010 / 8021 (HVOCs)	EPA 505/ 608 / 8081 (CI Pesticides)	EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners	EPA 507 / 8141 (NP Pesticides)	EPA 515 / 8151 (Acidic CI Herbicides)	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / PNAs)	CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	LUFF 5 Metals (200.7 / 200.8 / 6010 / 6020)	Lead (200.7 / 200.8 / 6010 / 6020)	Methane	Filter Samples for Metals analysis: Yes / No
																X	170911_10-01

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED						
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO ₃	Other			
	PCA East Deep	9/11/17	14:00	3	V	X					X	X					

Relinquished By: David Holland *[Signature]* Date: 9/13 Time: 1600 Received By: GSO 537397887
Relinquished By: GSO Date: 9/14/17 Time: 0956 Received By: *[Signature]*
Relinquished By: Date: Time: Received By:

COMMENTS:
ICE/4.90
GOOD CONDITION
HEAD SPACE ABSENT
DECHLORINATED IN LAB
APPROPRIATE CONTAINERS
PRESERVED IN LAB
* 1 VOA received Broken.
VOAS O&G METALS OTHER
PRESERVATION pH<2



Sample Receipt Checklist

Client Name: **Monterey Bay Analytical**
 Project Name: **MPWMD**

Date and Time Received: **9/14/2017 09:56**
 Date Logged: **9/14/2017**
 Received by: **Jena Alfaro**
 Logged by: **Jena Alfaro**

WorkOrder No: **1709528** Matrix: Water
 Carrier: Golden State Overnight

Chain of Custody (COC) Information

Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample IDs noted by Client on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Date and Time of collection noted by Client on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sampler's name noted on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
COC agrees with Quote?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper containers/bottles?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
Sample/Temp Blank temperature	Temp: 4.9°C		NA <input type="checkbox"/>
Water - VOA vials have zero headspace / no bubbles?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
Sample labels checked for correct preservation?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Samples Received on Ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

(Ice Type: BLUE ICE)

UCMR Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

Comments:

October 11, 2017

Monterey Bay Analytical Services
 4 Justin Court
 Monterey, CA 93940

Lab ID : SP 1711192
 Customer : 2-19144

Laboratory Report

Introduction: This report package contains total of 7 pages divided into 3 sections:

Case Narrative (2 pages) : An overview of the work performed at FGL.
 Sample Results (2 pages) : Results for each sample submitted.
 Quality Control (3 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
PCA East Deep	09/11/2017	09/14/2017	SP 1711192-001	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 4 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Organic QC

551.1	09/20/2017:214125 All analysis quality controls are within established criteria
	09/19/2017:211260 All preparation quality controls are within established criteria
552	09/19/2017:211280 All preparation quality controls are within established criteria
552.2	09/20/2017:214191 All analysis quality controls are within established criteria

Radio QC

900.0	10/09/2017:215280 All analysis quality controls are within established criteria
	10/05/2017:211994 All preparation quality controls are within established criteria
903.0	09/27/2017:214650 All analysis quality controls are within established criteria

October 11, 2017
Monterey Bay Analytical Services

Lab ID : SP 1711192
Customer : 2-19144

Radio QC

903.0	09/24/2017:211451 All preparation quality controls are within established criteria
-------	--

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2017-10-11



October 11, 2017

Lab ID : SP 1711192-001
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : September 11, 2017-14:00
Sampled By : Joseph Suwada
Received On : September 14, 2017-12:15
Matrix : Water

Description : PCA East Deep
Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	96.5	80-120	%		551.1	09/19/17:211260	551.1	09/20/17:214125
Bromodichloromethane	ND	1	ug/L		551.1	09/19/17:211260	551.1	09/20/17:214125
Bromoform	ND	1	ug/L		551.1	09/19/17:211260	551.1	09/20/17:214125
Chloroform	ND	1	ug/L		551.1	09/19/17:211260	551.1	09/20/17:214125
Dibromochloromethane	ND	1	ug/L		551.1	09/19/17:211260	551.1	09/20/17:214125
Total Trihalomethanes	ND	--	ug/L		551.1	09/19/17:211260	551.1	09/20/17:214125
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	95.5	70-130	%		552	09/19/17:211280	552.2	09/20/17:214191
Bromoacetic Acid	ND	1	ug/L		552	09/19/17:211280	552.2	09/20/17:214191
Chloroacetic Acid	ND	2	ug/L		552	09/19/17:211280	552.2	09/20/17:214191
Dibromoacetic Acid	ND	1	ug/L		552	09/19/17:211280	552.2	09/20/17:214191
Dichloroacetic Acid	ND	1	ug/L		552	09/19/17:211280	552.2	09/20/17:214191
Trichloroacetic Acid	ND	1	ug/L		552	09/19/17:211280	552.2	09/20/17:214191
Haloacetic acids (five)	ND	--	ug/L		552	09/19/17:211280	552.2	09/20/17:214191

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



October 11, 2017

Lab ID : SP 1711192-001

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : September 11, 2017-14:00

Sampled By : Joseph Suwada

Received On : September 14, 2017-12:15

Matrix : Water

Description : PCA East Deep

Project : MPWMD

Sample Result - Radio

Table with 7 columns: Constituent, Result ± Error, MDA, Units, MCL/AL, Sample Preparation (Method, Date/ID), Sample Analysis (Method, Date/ID). Rows include Radio Chemistry, Gross Alpha, and Total Alpha Radium (226).

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



October 11, 2017
Monterey Bay Analytical Services

Lab ID : SP 1711192
Customer : 2-19144

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic Bromodichloromethane	551.1	09/19/17:211260SBL (SP 1711197-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.21	117 %	80-120	
			MS	ug/L	9.940	105 %	80-120	
			MSD	ug/L	9.894	107 %	80-120	
	MSRPD	ug/L	19.79	0.9%	≤20			
	551.1	09/20/17:214125SBL	CCV	ug/L	83.33	105 %	80-120	
			CCV	ug/L	166.7	118 %	80-120	
Bromoform	551.1	09/19/17:211260SBL (SP 1711197-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.21	105 %	80-120	
			MS	ug/L	9.940	95.7 %	80-120	
			MSD	ug/L	9.894	96.7 %	80-120	
	MSRPD	ug/L	19.79	0.4%	≤20			
	551.1	09/20/17:214125SBL	CCV	ug/L	83.33	97.7 %	80-120	
			CCV	ug/L	166.7	108 %	80-120	
Chloroform	551.1	09/19/17:211260SBL (SP 1711197-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.21	120 %	80-120	
			MS	ug/L	9.940	110 %	80-120	
			MSD	ug/L	9.894	112 %	80-120	
	MSRPD	ug/L	19.79	1.1%	≤20			
	551.1	09/20/17:214125SBL	CCV	ug/L	83.33	108 %	80-120	
			CCV	ug/L	166.7	115 %	80-120	
Decafluorobiphenyl	551.1	09/19/17:211260SBL (SP 1711197-001)	Blank	ug/L	20.21	94.8 %	80-120	
			LCS	ug/L	20.42	93.6 %	80-120	
			MS	ug/L	19.88	103 %	80-120	
			MSD	ug/L	19.79	103 %	80-120	
	MSRPD	ug/L	19.79	0.3%	≤20.0			
	551.1	09/20/17:214125SBL	CCV	ug/L	166.7	104 %	80-120	
			CCV	ug/L	333.3	106 %	80-120	
Dibromochloromethane	551.1	09/19/17:211260SBL (SP 1711197-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.21	111 %	80-120	
			MS	ug/L	9.940	102 %	80-120	
			MSD	ug/L	9.894	104 %	80-120	
	MSRPD	ug/L	19.79	1.0%	≤20			
	551.1	09/20/17:214125SBL	CCV	ug/L	83.33	101 %	80-120	
			CCV	ug/L	166.7	113 %	80-120	
2,3-Dibromopropionic Acid	552	09/19/17:211280SBL (SP 1711192-001)	Blank	ug/L	5.000	77.1 %	70-130	
			LCS	ug/L	5.000	90.6 %	70-130	
			MS	ug/L	5.000	89.4 %	70-130	
			MSD	ug/L	5.000	96.9 %	70-130	
			MSRPD	ug/L	5.000	0.38	≤1	
Dibromoacetic Acid	552	09/19/17:211280SBL (SP 1711192-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	105 %	70-130	
			MS	ug/L	10.00	94.2 %	70-130	
			MSD	ug/L	10.00	92.6 %	70-130	
			MSRPD	ug/L	5.000	1.6%	≤20.0	
Dichloroacetic Acid	552	09/19/17:211280SBL (SP 1711192-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	107 %	70-130	
			MS	ug/L	10.00	101 %	70-130	
			MSD	ug/L	10.00	99.5 %	70-130	
			MSRPD	ug/L	5.000	1.6%	≤20.0	
Monobromoacetic Acid	552	09/19/17:211280SBL (SP 1711192-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	100 %	70-130	
			MS	ug/L	10.00	87.9 %	70-130	
			MSD	ug/L	10.00	87.9 %	70-130	
			MSRPD	ug/L	5.000	0.06%	≤20.0	

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Monochloroacetic Acid	552	09/19/17:211280SBL (SP 1711192-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	10.00	106 %	70-130	
			MS	ug/L	10.00	93.0 %	70-130	
			MSD	ug/L	10.00	92.9 %	70-130	
			MSRPD	ug/L	5.000	0.0050	≤2	
Trichloroacetic Acid	552	09/19/17:211280SBL (SP 1711192-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	101 %	70-130	
			MS	ug/L	10.00	96.6 %	70-130	
			MSD	ug/L	10.00	94.8 %	70-130	
			MSRPD	ug/L	5.000	1.8 %	≤20.0	
2,3-Dibromopropionic Acid	552.2	09/20/17:214191SBL	CCV	ug/L	75.00	115 %	70-130	
			CCV	ug/L	50.00	101 %	70-130	
Dibromoacetic Acid	552.2	09/20/17:214191SBL	CCV	ug/L	150.0	102 %	70-130	
			CCV	ug/L	100.0	99.4 %	70-130	
Dichloroacetic Acid	552.2	09/20/17:214191SBL	CCV	ug/L	150.0	105 %	70-130	
			CCV	ug/L	100.0	102 %	70-130	
Monobromoacetic Acid	552.2	09/20/17:214191SBL	CCV	ug/L	150.0	97.8 %	70-130	
			CCV	ug/L	100.0	96.0 %	70-130	
Monochloroacetic Acid	552.2	09/20/17:214191SBL	CCV	ug/L	150.0	99.9 %	70-130	
			CCV	ug/L	100.0	103 %	70-130	
Trichloroacetic Acid	552.2	09/20/17:214191SBL	CCV	ug/L	150.0	91.9 %	70-130	
			CCV	ug/L	100.0	95.4 %	70-130	
Definition								
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.								
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.								
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.								
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.								
ND : Non-detect - Result was below the DQO listed for the analyte.								
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	10/09/17:215280aat	CCV CCB	cpm cpm	8302	38.2 % 0.0600	35-47 0.13	
Gross Alpha	900.0	10/05/17:211994aat (SP 1711262-001)	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 107.8 107.8 107.8 107.8	0.32 120 % 118 % 126 % 6.9%	3 75-125 60-140 60-140 ≤30	
Alpha	903.0	09/27/17:214650aat	CCV CCB	cpm cpm	8311	40.4 % 0.100	37-46 0.16	
Total Alpha Radium (226)	903.0	09/24/17:211451elc	RgBlk LCS BS BSD BSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 21.85 21.85 21.85 21.85	0.01 53.6 % 72.3 % 65.7 % 9.5%	2 52-107 43-111 43-111 ≤35.5	

Definition	
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.



Monterey Bay Analytical Services

4 Justin Court Suite D, Monterey, CA 9394

831.375.MBAS (6227)

www.MBASinc.com

ELAP Certification Number: 2385

Monterey Peninsula Water Mgmt. District

MPWMD-Attn: Jon Lear

P.O. Box 85

Monterey, CA

Page 1 of 1

Tuesday, October 03, 2017

Lab Number: 170918_02-01

Collection Date/Time: 9/18/2017 9:00

Sample Collector: Suwada J

Client Sample #:

Submittal Date/Time: 9/18/2017 9:34

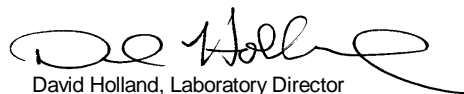
Sample ID:

Sample Description: MW-1

Analyte	Method	Unit	Result	Dil.	Qual	PQL	MCL	Anal. Date	Anal. Time	Analyst
Trihalomethanes	EPA524.2	µg/L	81	1	E			10/1/2017	12:00	
Haloacetic Acids	EPA552	µg/L	ND/See attached	1	E			9/27/2017	12:00	
Chlorine Residual, Free (Laboratory)	SM4500-Cl G	mg/L	Not Detected	1		0.05		9/18/2017	17:30	LRH
Chloramines	SM4500-Cl G	mg/L	Not Detected	1		0.05		9/18/2017	17:30	LRH

Comments:

Report Approved by:



David Holland, Laboratory Director

mg/L : Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

MCL : Maximum Contamination Level

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See Report attachments

T = Temperature Exceedance

D = Method deviates from standard method due to insufficient sample for MS/MSD

J = Result is less than PQL

170918-02

Monterey Bay Analytical Services Chain Of Custody / Analysis Request

4 Justin Ct. Suite D • Monterey, Ca 93940 • (831) 375-MBAS (6227) • (831) 641-0734 (Fax)



Client/Company Name: MPWMD Attention: Jon hear

Billing Address:

Analysis Requested				

Project/System Information:

E-Mail Address(es):

Contract/P.O. #:

For Regulatory Compliance? YES NO
 For State or Local Health Department reporting:
 Electronic Data Transfer (EDT)? YES NO
 System ID Number: _____

Turn Around Time:
 STD (7-14 Days) 48-Hour
 5-Day 24-Hour

Phone # 658-5647
 Fax #

Drinking water Wastewater Monitoring Well Soil Sludge Other

MBAS Lab #	Project ID or Source Code #	Sample Site / Description (Well Name, APN#, Address, Stormdrain #)	Sampling		Receiving Temp.	CL2 Residual	Coliform Analysis					# Cont.	Container	
			Date	Time			Routine	Other	Repeat	Special	Type		Size	
<u>CF1</u>		<u>MW-1</u>	<u>9/18/17</u>	<u>6900</u>	<u>19.8</u>							<u>5</u>		

DBP + chloraime

Printed Name	Signature	Date	Time	Comments or Special Instructions:
Sampled by: <u>JOSEPH SUWADA</u>				
Relinquished by: <u>JOSEPH SUWADA</u>		<u>9/18/17</u>	<u>0934</u>	
Received by:				
Relinquished by:				
Received by: <u>Monterey Bay Analytical Services</u>		<u>9/18/17</u>	<u>9:34</u>	

Payment received Check # _____ Amount: _____ Receipt # _____ Date: _____

LBH

170918-02

Sample Condition Upon Receipt

COC Info

Was temp acceptable? Chemistry $\leq 6^{\circ}\text{C}$ Micro $\leq 10^{\circ}\text{C}$

YES

NO

NA <2 Hr

Is there evidence of chilling?

YES

NO

NA

Did bottles arrive intact?

YES

NO

NA

Did bottle labels agree with COC?

YES

NO

NA

Discrepancy Documentation:

Person Contacted: _____ Method: In Person/Phone/Email _____

Problem _____

Resolution _____

Person Contacted: _____ Method: In Person/Phone/Email _____

Problem _____

Resolution _____

Sample Split/Filtration

Lab ID	Cont. Size	Pres	Date/Initials

Lab ID	Cont. Size	Pres	Date/Initials

Comments



BSK Associates Laboratory Fresno
1414 Stanislaus St
Fresno, CA 93706
559-497-2888 (Main)
559-485-6935 (FAX)

A7I2017

10/03/2017

Invoice: A724693

David Holland
Monterey Bay Analytical
4 Justin Court Suite D
Monterey, CA 93940

RE: Report for A7I2017 MPWMD

Dear David Holland,

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 9/20/2017. 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 2009 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.

Thanks 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

Case Narrative

Project and Report Details	Invoice Details
----------------------------	-----------------

Client: Monterey Bay Analytical
Report To: David Holland
Project #: MPWMD
Received: 9/20/2017 - 10:17
Report Due: 10/04/2017

Invoice To: Monterey Bay Analytical
Invoice Attn: David Holland
Project PO#: -

Sample Receipt Conditions

<p>Cooler: Default Cooler Temperature on Receipt °C: 3.4</p>	<p>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</p>
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Data Qualifiers

The following qualifiers have been applied to one or more analytical results:

None applied

Report Distribution

Recipient(s)	Report Format	CC:
David Holland	FINAL.RPT	
Monterey Bay Analytical Services	FINAL.RPT	

Certificate of Analysis

Sample ID: A7I2017-01
Sampled By: Joseph Suwada
Sample Description: MW-1 // 170918_02-01

Sample Date - Time: 09/18/17 - 19:00
Matrix: Drinking Water
Sample Type: Grab

BSK Associates Laboratory Fresno
Organics

Analyte	Method	Result	RL	Units	RL Mult	Batch	Prepared	Analyzed	Qual
<u>Trihalomethanes by GC-MS</u>									
Bromodichloromethane	EPA 524.2	17	0.50	ug/L	1	A712853	10/01/17	10/01/17	
Bromoform	EPA 524.2	0.57	0.50	ug/L	1	A712853	10/01/17	10/01/17	
Chloroform	EPA 524.2	57	0.50	ug/L	1	A712853	10/01/17	10/01/17	
Dibromochloromethane	EPA 524.2	6.2	0.50	ug/L	1	A712853	10/01/17	10/01/17	
Surrogate: 1,2-Dichlorobenzene-d4	EPA 524.2	100 %	<i>Acceptable range: 70-130 %</i>						
Surrogate: Bromofluorobenzene	EPA 524.2	103 %	<i>Acceptable range: 70-130 %</i>						
Total Trihalomethanes		81	0.50	ug/L					
<u>Haloacetic Acids by GC-ECD, GC-MS</u>									
Dibromoacetic Acid (DBAA)	EPA 552.3	ND	1.0	ug/L	1	A712501	09/25/17	09/27/17	
Dichloroacetic Acid (DCAA)	EPA 552.3	1.6	1.0	ug/L	1	A712501	09/25/17	09/27/17	
Monobromoacetic Acid (MBAA)	EPA 552.3	ND	1.0	ug/L	1	A712501	09/25/17	09/27/17	
Monochloroacetic Acid (MCAA)	EPA 552.3	ND	2.0	ug/L	1	A712501	09/25/17	09/27/17	
Trichloroacetic Acid (TCAA)	EPA 552.3	ND	1.0	ug/L	1	A712501	09/25/17	09/27/17	
Surrogate: 2-Bromobutanoic Acid	EPA 552.3	99 %	<i>Acceptable range: 70-130 %</i>						
Total Haloacetic Acids		ND	2.0	ug/L					

**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
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EPA 524.2 - Quality Control

Batch: A712853

Prepared: 10/1/2017

Prep Method: EPA 524.2

Analyst: ANM

Blank (A712853-BLK1)

Bromodichloromethane	ND	0.50	ug/L							10/01/17	
Bromoform	ND	0.50	ug/L							10/01/17	
Chloroform	ND	0.50	ug/L							10/01/17	
Dibromochloromethane	ND	0.50	ug/L							10/01/17	
Surrogate: 1,2-Dichlorobenzene-d4	53			50		105	70-130			10/01/17	
Surrogate: Bromofluorobenzene	53			50		105	70-130			10/01/17	

Blank Spike (A712853-BS1)

Bromodichloromethane	9.2	0.50	ug/L	10		92	70-130			10/01/17	
Bromoform	9.1	0.50	ug/L	10		91	70-130			10/01/17	
Chloroform	9.0	0.50	ug/L	10		90	70-130			10/01/17	
Dibromochloromethane	8.9	0.50	ug/L	10		89	70-130			10/01/17	
Surrogate: 1,2-Dichlorobenzene-d4	49			50		98	70-130			10/01/17	
Surrogate: Bromofluorobenzene	50			50		99	70-130			10/01/17	

Blank Spike Dup (A712853-BSD1)

Bromodichloromethane	8.9	0.50	ug/L	10		89	70-130	3	30	10/01/17	
Bromoform	8.9	0.50	ug/L	10		89	70-130	2	30	10/01/17	
Chloroform	8.8	0.50	ug/L	10		88	70-130	2	30	10/01/17	
Dibromochloromethane	8.7	0.50	ug/L	10		87	70-130	3	30	10/01/17	
Surrogate: 1,2-Dichlorobenzene-d4	49			50		98	70-130			10/01/17	
Surrogate: Bromofluorobenzene	50			50		100	70-130			10/01/17	

Matrix Spike (A712853-MS1), Source: A712224-01

Bromodichloromethane	10	0.50	ug/L	10	ND	102	47-151			10/01/17	
Bromoform	9.8	0.50	ug/L	10	ND	98	29-162			10/01/17	
Chloroform	10	0.50	ug/L	10	ND	103	52-148			10/01/17	
Dibromochloromethane	9.7	0.50	ug/L	10	ND	97	44-149			10/01/17	
Surrogate: 1,2-Dichlorobenzene-d4	53			50		105	70-130			10/01/17	
Surrogate: Bromofluorobenzene	52			50		104	70-130			10/01/17	

EPA 552.3 - Quality Control

Batch: A712501

Prepared: 9/25/2017

Prep Method: EPA 552.3

Analyst: KHH

Blank (A712501-BLK1)

Dibromoacetic Acid (DBAA)	ND	1.0	ug/L							09/27/17	
Dichloroacetic Acid (DCAA)	ND	1.0	ug/L							09/27/17	
Monobromoacetic Acid (MBAA)	ND	1.0	ug/L							09/27/17	
Monochloroacetic Acid (MCAA)	ND	2.0	ug/L							09/27/17	
Trichloroacetic Acid (TCAA)	ND	1.0	ug/L							09/27/17	
Surrogate: 2-Bromobutanoic Acid	9.6			10		96	70-130			09/27/17	

Blank Spike (A712501-BS1)

Dibromoacetic Acid (DBAA)	9.9	1.0	ug/L	10		99	70-130			09/27/17	
Dichloroacetic Acid (DCAA)	10	1.0	ug/L	10		100	70-130			09/27/17	

**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
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EPA 552.3 - Quality Control

Batch: A712501

Prepared: 9/25/2017

Prep Method: EPA 552.3

Analyst: KHH

Blank Spike (A712501-BS1)

Monobromoacetic Acid (MBAA)	10	1.0	ug/L	10		100	70-130			09/27/17	
Monochloroacetic Acid (MCAA)	19	2.0	ug/L	20		97	70-130			09/27/17	
Trichloroacetic Acid (TCAA)	9.9	1.0	ug/L	10		99	70-130			09/27/17	
Surrogate: 2-Bromobutanoic Acid	9.7			10		97	70-130			09/27/17	

Blank Spike Dup (A712501-BSD1)

Dibromoacetic Acid (DBAA)	9.5	1.0	ug/L	10		95	70-130	4	30	09/27/17	
Dichloroacetic Acid (DCAA)	10	1.0	ug/L	10		101	70-130	1	30	09/27/17	
Monobromoacetic Acid (MBAA)	9.4	1.0	ug/L	10		94	70-130	6	30	09/27/17	
Monochloroacetic Acid (MCAA)	19	2.0	ug/L	20		96	70-130	1	30	09/27/17	
Trichloroacetic Acid (TCAA)	9.5	1.0	ug/L	10		95	70-130	5	30	09/27/17	
Surrogate: 2-Bromobutanoic Acid	8.9			10		89	70-130			09/27/17	

Duplicate (A712501-DUP1), Source: A7I2445-01

Dibromoacetic Acid (DBAA)	ND	1.0	ug/L		ND				30	09/28/17	
Dichloroacetic Acid (DCAA)	ND	1.0	ug/L		ND				30	09/28/17	
Monobromoacetic Acid (MBAA)	ND	1.0	ug/L		ND				30	09/28/17	
Monochloroacetic Acid (MCAA)	ND	2.0	ug/L		ND				30	09/28/17	
Trichloroacetic Acid (TCAA)	ND	1.0	ug/L		ND				30	09/28/17	
Surrogate: 2-Bromobutanoic Acid	8.6			10		86	70-130			09/28/17	

Matrix Spike (A712501-MS1), Source: A7I1989-01

Dibromoacetic Acid (DBAA)	11	1.0	ug/L	10	1.2	98	70-130			09/27/17	
Dichloroacetic Acid (DCAA)	10	1.0	ug/L	10	ND	97	70-130			09/27/17	
Monobromoacetic Acid (MBAA)	9.6	1.0	ug/L	10	ND	92	70-130			09/27/17	
Monochloroacetic Acid (MCAA)	19	2.0	ug/L	20	ND	93	70-130			09/27/17	
Trichloroacetic Acid (TCAA)	10	1.0	ug/L	10	ND	99	70-130			09/27/17	
Surrogate: 2-Bromobutanoic Acid	9.6			10		96	70-130			09/27/17	

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.
- 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.

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 at RL	CFU:	Colony Forming Unit
µg/Kg:	Micrograms/Kilogram (ppb)	pCi/L:	Picocuries per Liter	Absent:	Less than 1 CFU/100mLs
%:	Percent Recovered (surrogates)	RL Mult:	RL Multiplier	Present:	1 or more CFU/100mLs
NR:	Non-Reportable	MCL:	Maximum Contaminant Limit		

Please see the individual Subcontract Lab's report for applicable certifications.

BSK is not accredited under the NELAP program for the following parameters:

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
State of Nevada	CA000792018-1	State of Oregon - NELAP	4021-009
EPA - UCMR4	CA00079	State of Washington	C997-17B
State of New York	12073		

Sacramento

State of California - ELAP 2435

San Bernardino

State of California - ELAP 2993 State of Oregon - NELAP 4119-002

Vancouver

State of Oregon - NELAP WA100008-010 State of Washington C824-17



A7I2017



09202017

Monte6227

Turnaround: Standard

Due Date: 10/4/2017



Monterey Bay Analytical



Printed: 9/20/2017 5:14:53PM

Page 1 of 1

Page 7 of 9



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: _____

A712017 09/20/2017
 Monte6227 10



*Required Fields

Temp: 3.4

Company/Client Name*: Monterey Bay Analytical Services	Report Attention*: Mason Weidner Holland Additional cc's: David Holland	Invoice To*: David Holland PO#: _____	Phone*: 831-375-6227	Fax*: 831-641-0734
E-mail*: info@mbasinc.com				

Address*: 4 Justin Court, Suite D	City*: Monterey	State*: CA	Zip*: 93940
---	---------------------------	----------------------	-----------------------

Project: MPWMD	Project #:	How would you like to receive your completed results?*
Reporting Options: <input type="checkbox"/> Trace (J-Flag) <input type="checkbox"/> Swamp <input type="checkbox"/> EDD Type: _____	Regulatory Carbon Copies: <input type="checkbox"/> SWRCB (Drinking Water) <input type="checkbox"/> Merced Co <input type="checkbox"/> Fresno Co <input type="checkbox"/> Madera Co <input type="checkbox"/> Tulare Co <input type="checkbox"/> Other: _____	<input checked="" type="checkbox"/> E-Mail <input type="checkbox"/> Fax <input type="checkbox"/> Mail Regulatory Compliance: <input type="checkbox"/> EDT to California SWRCB (Drinking Water) System Number*: _____ <input type="checkbox"/> Geotracker #: _____
Sampler Name (Printed/Signature)*: Joseph Suwada	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*		Matrix*	Comments / Station Code / WTRAX	HAA	THMS																
		Date	Time																				
1.	MW-1	9/18/17	19:00	DW	170918_02-01	X	X																

Relinquished by: (Signature and Printed Name) David Holland	Company MBAS	Date 9/19	Time 1600	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) John Huen	Date 9/20/17	Time 10:17	Payment Received at Delivery: Date: _____ Amount: _____ PIA#: _____	Check / Cash Init.
Shipping Method: <input checked="" type="checkbox"/> QNTBXC <input type="checkbox"/> UPS <input type="checkbox"/> GSO <input type="checkbox"/> WALK-IN <input type="checkbox"/> FED EX	Courier: _____	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. If not so paid, account balances are deemed delinquent. Delinquent balances are subject to monthly service charges and interest specified in BSK's current Standard Terms and Conditions for Laboratory Services. The person signing for the Client/Company acknowledges that they are either the Client or an authorized agent to the Client, that the Client agrees to be responsible for payment for the services on this Chain of Custody, and agrees to BSK's terms and conditions for laboratory services unless contractually bound otherwise. BSK's current terms and conditions can be found at www.bskassociates.com/BSKLabTermsConditions.pdf

Sample Integrity



BSK Bottles: Yes No* Page 1 of 1

COC Info		Was temperature within range? Chemistry $\leq 6^{\circ}\text{C}$ Micro $< 8^{\circ}\text{C}$		Were correct containers and preservatives received for the tests requested?		
		<u>Yes</u> No NA		<u>Yes</u> No NA		
		Yes No <u>NA</u>		Were there bubbles in the VOA vials? (Volatiles Only)		
		Yes <u>No</u>		Yes <u>No</u> NA		
		Yes <u>No</u>		Was a sufficient amount of sample received?		
		Yes <u>No</u>		Yes <u>No</u>		
		Yes No <u>NA</u>		Do samples have a hold time <72 hours?		
		Yes No <u>NA</u>		Yes <u>No</u>		
		Yes No <u>NA</u>		Was PM notified of discrepancies? PM: By/Time:		
		Yes No <u>NA</u>		Yes No <u>NA</u>		
Bottles Received	250ml(A) 500ml(B) 1Liter(C) 40ml VOA(V)		Checks	Passed?		
	Bacti $\text{Na}_2\text{S}_2\text{O}_3$		—	—		
None (P) White Cap		—	—			
Cr6 (P) Lt. Green Label/Blue Cap $\text{NH}_4\text{OH}/(\text{NH}_4)_2\text{SO}_4$ DW		Cl, pH > 8	Y	N		
Cr6 (P) Pink Label/Blue Cap $\text{NH}_4\text{OH}/(\text{NH}_4)_2\text{SO}_4$ WW		pH 9.3-9.7	Y	N		
Cr6 (P) Black Label/Blue Cap $\text{NH}_4\text{OH}/(\text{NH}_4)_2\text{SO}_4$ 7199 ***24 HOUR HOLD TIME***		pH 9.0-9.5	Y	N		
HNO ₃ (P) Red Cap or HCl (P) Purple Cap/Lt. Blue Label		—	—			
H ₂ SO ₄ (P) or (AG) Yellow Cap/Label		pH < 2	Y	N		
NaOH (P) Green Cap		Cl, pH > 10	Y	N		
NaOH + ZnAc (P)		pH > 9	Y	N		
Dissolved Oxygen 300ml (g)		—	—			
None (AG) 608/6081/8082, 625, 632/6321, 8151, 8270		—	—			
HCl (AG) Lt. Blue Label O&G, Diesel		—	—			
Ascorbic, EDTA, KH ₂ Ct (AG) Pink Label 525		—	—			
Na ₂ SO ₃ 250mL (AG) Neon Green Label 515		—	—			
Na ₂ S ₂ O ₃ 1 Liter (Brown P) 549		—	—			
Na ₂ S ₂ O ₃ (AG) Blue Label 548, THM, 524		—	—		2U	
Na ₂ S ₂ O ₃ (CG) Blue Label 504, 505, 547		—	—			
Na ₂ S ₂ O ₃ + MCAA (CG) Orange Label 531		pH < 3	Y	N		
NH ₄ Cl (AG) Purple Label 552		—	—		1A	
EDA (AG) Brown Label DBPs		—	—			
HCL (CG) 524.2, BTEX, Gas, MTBE, 8260/624		—	—			
Buffer pH 4 (CG)		—	—			
H ₃ PO ₄ (CG) Salmon Label		—	—			
Other:						
Asbestos 1Liter Plastic w/ Foil		—	—			
Low Level Hg / Metals Double Baggie		—	—			
Bottled Water		—	—			
Clear Glass 250mL / 500mL / 1 Liter		—	—			
Soil Tube Brass / Steel / Plastic		—	—			
Tedlar Bag / Plastic Bag		—	—			
Split	Container	Preservative	Date/Time/Initials	Container	Preservative	Date/Time/Initials
	S P			S P		
				S P		
Comments	Decision one out of three voa broken. Jip 9/20/17					

Labeled by: [Signature] @ 1533

Labels checked by: JWD @ 1510

RUSH Paged by: _____ @ _____



Monterey Peninsula Water Mgmt. District
 MPWMD-Attn: Jon Lear
 P.O. Box 85
 Monterey, CA

4 Justin Court Suite D, Monterey, CA 93940
 831.375.MBAS (6227)
 www.MBASinc.com
 ELAP Certification Number: 2385

Lab Number: 170918_14-01

Collection Date/Time: 9/18/2017 13:00

Sample Collector: Suwada J

Client Sample #:

Submittal Date/Time: 9/18/2017 14:30

Sample ID:

Sample Description: SMS (D)

Analyte	Method	Unit	Result	Dil.	Qual	PQL	MCL	Anal. Date	Anal. Time	Analyst
Trihalomethanes	EPA524.2	µg/L	81	1	E			9/20/2017	12:00	
Haloacetic Acids	EPA552	µg/L	3	1	E			9/26/2017	12:00	
Chlorine Residual, Free (Laboratory)	SM4500-Cl G	mg/L	Not Detected	1		0.05		9/18/2017	17:30	LRH
Chloramines	SM4500-Cl G	mg/L	Not Detected	1		0.05		9/18/2017	17:30	LRH

Comments:

Report Approved by: 
 David Holland, Laboratory Director

mg/L : Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

MCL : Maximum Contamination Level

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See Report attachments

T = Temperature Exceedance

D = Method deviates from standard method due to insufficient sample for MS/MSD

J = Result is less than PQL

September 28, 2017

Monterey Bay Analytical Services
 4 Justin Court
 Monterey, CA 93940

Lab ID : SP 1711396
 Customer : 2-19144

Laboratory Report

Introduction: This report package contains total of 5 pages divided into 3 sections:

Case Narrative (2 pages) : An overview of the work performed at FGL.
 Sample Results (1 page) : Results for each sample submitted.
 Quality Control (2 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
SMS (D)	09/18/2017	09/19/2017	SP 1711396-001	PW

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 5 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Organic QC

551.1	09/20/2017:214125 All analysis quality controls are within established criteria
	09/21/2017:214240 All analysis quality controls are within established criteria
	09/19/2017:211260 All preparation quality controls are within established criteria
552	09/26/2017:211555 All preparation quality controls are within established criteria
552.2	09/26/2017:214492 All analysis quality controls are within established criteria
	09/26/2017:214553 All analysis quality controls are within established criteria

September 28, 2017
Monterey Bay Analytical Services

Lab ID : SP 1711396
Customer : 2-19144

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2017-09-28



September 28, 2017

Lab ID : SP 1711396-001
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : September 18, 2017-13:00
Sampled By : Joseph Suwada
Received On : September 19, 2017-11:03
Matrix : Potable Water

Description : SMS (D)
Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	104	80-120	%		551.1	09/19/17:211260	551.1	09/20/17:214125
Bromodichloromethane	24	1	ug/L		551.1	09/19/17:211260	551.1	09/20/17:214125
Bromoform	1	1	ug/L		551.1	09/19/17:211260	551.1	09/20/17:214125
Chloroform	45	5*	ug/L		551.1	09/19/17:211260	551.1	09/21/17:214240
Dibromochloromethane	11	1	ug/L		551.1	09/19/17:211260	551.1	09/20/17:214125
Total Trihalomethanes	81	--	ug/L		551.1	09/19/17:211260	551.1	09/20/17:214125
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	108	70-130	%		552	09/26/17:211555	552.2	09/26/17:214492
Bromoacetic Acid	ND	1	ug/L		552	09/26/17:211555	552.2	09/26/17:214492
Chloroacetic Acid	ND	2	ug/L		552	09/26/17:211555	552.2	09/26/17:214492
Dibromoacetic Acid	ND	1	ug/L		552	09/26/17:211555	552.2	09/26/17:214553
Dichloroacetic Acid	2	1	ug/L		552	09/26/17:211555	552.2	09/26/17:214492
Trichloroacetic Acid	1	1	ug/L		552	09/26/17:211555	552.2	09/26/17:214492
Haloacetic acids (five)	3	--	ug/L		552	09/26/17:211555	552.2	09/26/17:214492

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.

September 28, 2017
Monterey Bay Analytical Services

Lab ID : SP 1711396
 Customer : 2-19144

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic Bromodichloromethane	551.1	09/19/17:211260SBL (SP 1711395-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	9.868	115 %	80-120	
			MS	ug/L	10.04	105 %	80-120	
			MSD	ug/L	9.921	110 %	80-120	
	551.1	09/20/17:214125SBL	MSRPD	ug/L	19.84	2.6%	≤20	
			CCV	ug/L	83.33	107 %	80-120	
	551.1	09/20/17:214125SBL	CCV	ug/L	166.7	109 %	80-120	
			CCV	ug/L	166.7	109 %	80-120	
Bromoform	551.1	09/19/17:211260SBL (SP 1711395-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	9.868	104 %	80-120	
			MS	ug/L	10.04	91.1 %	80-120	
			MSD	ug/L	9.921	103 %	80-120	
	551.1	09/20/17:214125SBL	MSRPD	ug/L	19.84	7.9%	≤20	
			CCV	ug/L	83.33	101 %	80-120	
	551.1	09/20/17:214125SBL	CCV	ug/L	166.7	100 %	80-120	
			CCV	ug/L	166.7	100 %	80-120	
Chloroform	551.1	09/19/17:211260SBL (SP 1711395-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	9.868	116 %	80-120	
			MS	ug/L	10.04	97.9 %	80-120	
			MSD	ug/L	9.921	104 %	80-120	
	551.1	09/21/17:214240SBL	MSRPD	ug/L	19.84	3.9%	≤20	
			CCV	ug/L	83.33	113 %	80-120	
	551.1	09/21/17:214240SBL	CCV	ug/L	166.7	105 %	80-120	
			CCV	ug/L	166.7	105 %	80-120	
Decafluorobiphenyl	551.1	09/19/17:211260SBL (SP 1711395-001)	Blank	ug/L	20.24	83.6 %	80-120	
			LCS	ug/L	19.74	105 %	80-120	
			MS	ug/L	20.09	94.8 %	80-120	
			MSD	ug/L	19.84	89.0 %	80-120	
	551.1	09/20/17:214125SBL	MSRPD	ug/L	19.84	7.6%	≤20.0	
			CCV	ug/L	166.7	120 %	80-120	
	551.1	09/20/17:214125SBL	CCV	ug/L	333.3	106 %	80-120	
			CCV	ug/L	333.3	106 %	80-120	
Dibromochloromethane	551.1	09/19/17:211260SBL (SP 1711395-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	9.868	110 %	80-120	
			MS	ug/L	10.04	99.1 %	80-120	
			MSD	ug/L	9.921	105 %	80-120	
	551.1	09/20/17:214125SBL	MSRPD	ug/L	19.84	3.4%	≤20	
			CCV	ug/L	83.33	103 %	80-120	
	551.1	09/20/17:214125SBL	CCV	ug/L	166.7	104 %	80-120	
			CCV	ug/L	166.7	104 %	80-120	
2,3-Dibromopropionic Acid	552	09/26/17:211555SBL (CC 1783575-001)	Blank	ug/L	5.000	79.1 %	70-130	
			LCS	ug/L	5.000	97.9 %	70-130	
			MS	ug/L	5.000	106 %	70-130	
			MSD	ug/L	5.000	112 %	70-130	
	552	09/26/17:211555SBL	MSRPD	ug/L	5.000	5.6%	≤20.0	
			MSRPD	ug/L	5.000	5.6%	≤20.0	
	552	09/26/17:211555SBL	CCV	ug/L	5.000	104 %	70-130	
			CCV	ug/L	5.000	104 %	70-130	
Dibromoacetic Acid	552	09/26/17:211555SBL (CC 1783575-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	98.8 %	70-130	
			MS	ug/L	10.00	106 %	70-130	
			MSD	ug/L	10.00	104 %	70-130	
	552	09/26/17:211555SBL	MSRPD	ug/L	5.000	1.6%	≤20.0	
			MSRPD	ug/L	5.000	1.6%	≤20.0	
	552	09/26/17:211555SBL	CCV	ug/L	5.000	104 %	70-130	
			CCV	ug/L	5.000	104 %	70-130	
Dichloroacetic Acid	552	09/26/17:211555SBL (CC 1783575-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	111 %	70-130	
			MS	ug/L	10.00	97.4 %	70-130	
			MSD	ug/L	10.00	95.7 %	70-130	
	552	09/26/17:211555SBL	MSRPD	ug/L	5.000	1.7%	≤20.0	
			MSRPD	ug/L	5.000	1.7%	≤20.0	
	552	09/26/17:211555SBL	CCV	ug/L	5.000	104 %	70-130	
			CCV	ug/L	5.000	104 %	70-130	
Monobromoacetic Acid	552	09/26/17:211555SBL (CC 1783575-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	99.0 %	70-130	
			MS	ug/L	10.00	88.0 %	70-130	
			MSD	ug/L	10.00	89.3 %	70-130	
	552	09/26/17:211555SBL	MSRPD	ug/L	5.000	1.3%	≤20.0	
			MSRPD	ug/L	5.000	1.3%	≤20.0	
	552	09/26/17:211555SBL	CCV	ug/L	5.000	104 %	70-130	
			CCV	ug/L	5.000	104 %	70-130	

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Monochloroacetic Acid	552	09/26/17:211555SBL (CC 1783575-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	10.00	104 %	70-130	
			MS	ug/L	10.00	97.6 %	70-130	
			MSD	ug/L	10.00	99.2 %	70-130	
			MSRPD	ug/L	5.000	0.16	≤2	
Trichloroacetic Acid	552	09/26/17:211555SBL (CC 1783575-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	85.9 %	70-130	
			MS	ug/L	10.00	78.7 %	70-130	
			MSD	ug/L	10.00	72.2 %	70-130	
			MSRPD	ug/L	5.000	7.7%	≤20.0	
2,3-Dibromopropionic Acid	552.2	09/26/17:214492SBL	CCV	ug/L	75.00	122 %	70-130	
Dibromoacetic Acid	552.2	09/26/17:214553SBL	CCV	ug/L	150.0	95.1 %	70-130	
			CCV	ug/L	100.0	89.5 %	70-130	
Dichloroacetic Acid	552.2	09/26/17:214492SBL	CCV	ug/L	150.0	108 %	70-130	
			CCV	ug/L	100.0	97.2 %	70-130	
Monobromoacetic Acid	552.2	09/26/17:214492SBL	CCV	ug/L	150.0	94.3 %	70-130	
			CCV	ug/L	100.0	88.6 %	70-130	
Monochloroacetic Acid	552.2	09/26/17:214492SBL	CCV	ug/L	150.0	96.4 %	70-130	
			CCV	ug/L	100.0	91.8 %	70-130	
Trichloroacetic Acid	552.2	09/26/17:214492SBL	CCV	ug/L	150.0	91.5 %	70-130	
			CCV	ug/L	100.0	91.7 %	70-130	
Definition								
CCV : Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.								
Blank : Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.								
LCS : Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.								
MS : Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSD : Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.								
MSRPD : MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.								
ND : Non-detect - Result was below the DQO listed for the analyte.								
DQO : Data Quality Objective - This is the criteria against which the quality control data is compared.								



Client: Monterey Bay Analytical Services Customer Number: 2019144 Address: 4 Justin Court Monterey, CA 93940 Phone: (831)375-6227 Fax: (831)641-0734 Email Address: info@mbasinc.com Contact Person: David Holland Project Name: MPWMD Purchase Order Number: Quote Number:				Lab Number: <i>1711396</i>		TEST DESCRIPTION AND ANALYSES REQUESTED															
				Method of Sampling: Composite (C) Grab (G)																	
Rush Analysis: <input type="checkbox"/> 5 Day <input type="checkbox"/> 4 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> 24 hour Rush pre-approval by lab (initials): _____ Electronic Data Transfer: <input type="checkbox"/> No <input type="checkbox"/> State <input type="checkbox"/> Client Other: _____				Number of Containers																	
Sampler(s): Joseph Suwada Sampling Fee: _____ Pickup Fee: _____ Compositor Setup Date: _____ Time: _____				Type of Containers: (G) Glass (P) Plastic (V) VOA (MT) Metal Tube Potable (P) Non-Potable (NP) Ag Water (AgW)																	
Samp Num	Location Description	Date Sampled	Time Sampled	(SW) Surface Water (MW) Monitoring Well (GW) Ground Water (TB) Travel Blank (WW) Waste Water (DW) Drinking Water	(S) Soil (SLG) Sludge (SLD) Soda (O) Od	Bact: (Sys) System (SRC) Source (W) Waste	Bact: (ROUT) Routine (RPT) Repeat (OTH) Other (RPL) Replaca	(LT) Leaf Tissue (PET) Petiole Tissue (PRD) Produce	Preservative: (1) NaOH + ZnAc, (2) NaOH, (3) HCl (4) H2SO4, (5) HNO3, (6) Na2S2O3, (7) Other	HAA	THMS										
1.	SMS (D)	9/18/17	13:00							X	X										
Remarks 170918_14-01				Relinquished Date: Time: <i>De Haddo 9/18/17 1600</i>		Relinquished Date: Time: <i>680 9/18/17 1103</i>		Relinquished Date: Time:													
				Received By: Date: Time: <i>Wey 9/18/17 1103</i>		Received By: Date: Time:															

Corporate Offices & Laboratory
853 Corporation Street
Santa Paula, CA 93060
TEL: (805)392-2000
Env FAX: (805)525-4172 / Ag FAX: (805)392-2063
CA ELAP Certification No.1573

Office & Laboratory
2500 Stagecoach Road
Stockton, CA 95215
TEL: (209)942-0182
FAX: (209)942-0423
CA ELAP Certification No. 1563

Office & Laboratory
563 E. Lindo Avenue
Chico, CA 95926
TEL: (530)343-5818
FAX: (530)343-3807
CA ELAP Certification No. 2670
Page 7 of 10

Office & Laboratory
3442 Empresa Drive, Suite D
San Luis Obispo, CA 93401
TEL: (805)783-2940
FAX: (805)783-2912
CA ELAP Certification No. 2775

Office & Laboratory
9415 W. Goshen Avenue
Visalia, CA 93291
TEL: (559)734-9473
FAX: (559)734-8435
CA ELAP Certification No. 2810

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

- 1. Number of ice chests/packages received: 1
- 2. Shipper tracking numbers 537647863
- 3. Were samples received in a chilled condition?
Temps: 5 / / / / / /
- 4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
- 5. Do the number of bottles received agree with the COC? Yes No N/A
- 6. Verify sample date, time, sampler Yes No N/A
- 7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) Yes No
- 8. Were sample custody seals intact? Yes No N/A

Sample Verification, Labeling and Distribution:

- 1. Were all requested analyses understood and acceptable? Yes No
- 2. Did bottle labels correspond with the client's ID's? Yes No
- 3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
 [Exception: Oil & Grease, VOA and CrVI verified in lab]
- 4. VOAs checked for Headspace? Yes No N/A
- 5. Were all analyses within holding times at time of receipt? Yes No
- 6. Have rush or project due dates been checked and accepted? Yes No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and
Approved By

Inez Covarrubias



Digitally signed by Inez Covarrubias
Title: Sample Receiving
Date: 09/20/2017-12:59:48

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2019144)
Monterey Bay Analytical Services
SP 1711396

IV-09/20/2017-12:59:48

Monterey Bay Analytical Services Chain Of Custody / Analysis Request

4 Justin Ct. Suite D • Monterey, Ca 93940 • (831) 375-MBAS (6227) • (831) 641-0734 (Fax)



Client/Company Name: MPWMD	Attention: Jon hear	Analysis Requested				
Billing Address:		DBP + Chloramines				
E-Mail Address(es): jhear@mpwmd.net						
Contract/P.O. #:						
For Regulatory Compliance? YES <input type="checkbox"/> NO <input type="checkbox"/> For State or Local Health Department reporting: Electronic Data Transfer (EDT)? YES <input type="checkbox"/> NO <input type="checkbox"/> System ID Number: _____		Turn Around Time: STD (7-14 Days) <input type="checkbox"/> 48-Hour <input type="checkbox"/> 5-Day <input type="checkbox"/> 24-Hour <input type="checkbox"/>	Phone # 658-5647		Fax #	
Drinking water <input type="checkbox"/> Wastewater <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Soil <input type="checkbox"/> Sludge <input type="checkbox"/> Other <input type="checkbox"/>						

MBAS Lab #	Project ID or Source Code #	Sample Site / Description (Well Name, APN#, Address, Stormdrain #)	Sampling		Receiving Temp.	CL2 Residual	Coliform Analysis				# Cont.	Container		X	Analysis Requested					
			Date	Time			Routine	Other	Repeat	Special		Type	Size							
		SMS(D)	9/18/17	1300	21.8						6									

	Printed Name	Signature	Date	Time	Comments or Special Instructions:
Sampled by:	JOSEPH SUWADA				
Relinquished by:	JOSEPH SUWADA		9/18/17	1430	
Received by:					
Relinquished by:					
Received by:	Monterey Bay Analytical Services		9/18/17	1430	

Payment received Check # _____ Amount: _____ Receipt # _____ Date: _____

Sample Condition Upon Receipt

COC Info

Was temp acceptable? Chemistry $\leq 6^{\circ}\text{C}$ Micro $\leq 10^{\circ}\text{C}$

YES

NO

NA <2 Hr

Is there evidence of chilling?

YES NO NA

Did bottles arrive intact?

YES

NO

NA

Did bottle labels agree with COC?

YES

NO

NA

Discrepancy Documentation:

Person Contacted: _____ Method: In Person/Phone/Email _____

Problem _____

Resolution _____

Person Contacted: _____ Method: In Person/Phone/Email _____

Problem _____

Resolution _____

Sample Split/Filtration

Lab ID	Cont. Size	Pres	Date/Initials

Lab ID	Cont. Size	Pres	Date/Initials

Comments

Monterey Peninsula Water Mgmt. District

P.O. Box 85
Monterey, CA 93940

Lab Number: 171002_48-01

Collection Date/Time: 10/2/2017 3:15 PM Sample Collector: Suwada J Client Sample #:
 Submittal Date/Time: 10/2/2017 4:44 PM Sample ID:

Sample Description: MW-1

Analyte	Method	Unit	Result	Qual	PQL	Anal. Date	Anal. Time	Analyst
QC Ratio TDS/SEC	Calculation	NA	0.66			10/5/2017	14:25	HM
Ammonia-N	EPA 350.1	mg/L	ND		0.1	10/9/2017	14:35	BS
Total Kjeldahl Nitrogen	EPA 351.2	mg/L	0.8		0.5	10/16/2017	16:12	BS
Phosphorus, Total	EPA 365.1	mg/L	0.07		0.02	10/13/2017	10:31	BS
Methane	EPA174/175	µg/L	ND	E		12/1/1959	10:12	
Iron, Dissolved	EPA200.7	µg/L	14		10	10/27/2017	17:50	MW
Iron, Total	EPA200.7	µg/L	ND		10	10/10/2017	23:48	MW
Manganese, Dissolved	EPA200.7	µg/L	ND		10	10/27/2017	17:50	MW
Manganese, Total	EPA200.7	µg/L	ND		10	10/10/2017	23:48	MW
Zinc, Dissolved	EPA200.7	µg/L	549		10	10/27/2017	17:50	MW
Boron	EPA200.7	mg/L	ND		0.05	10/27/2017	17:47	MW
Calcium	EPA200.7	mg/L	48		1	10/27/2017	17:47	MW
Magnesium	EPA200.7	mg/L	13		1	10/27/2017	17:47	MW
Potassium	EPA200.7	mg/L	3.2		1	10/27/2017	17:47	MW
Silica (SiO2), Total	EPA200.7	mg/L	28		0.05	10/27/2017	17:47	MW
Sodium	EPA200.7	mg/L	48		1	10/27/2017	17:47	MW
Zinc, Total	EPA200.7	µg/L	40		10	10/27/2017	17:47	MW
Aluminum, Total	EPA200.8	µg/L	5		5	10/10/2017	11:48	MW
Arsenic, Total	EPA200.8	µg/L	2		1	10/10/2017	23:48	MW
Barium, Total	EPA200.8	µg/L	26		1	10/10/2017	11:48	MW
Lithium	EPA200.8	µg/L	4		0.5	10/10/2017	11:48	MW
Mercury, Total	EPA200.8	µg/L	ND		0.5	10/10/2017	11:48	MW

mg/L : Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

MCL : Maximum Contamination Level

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See Report attachments

T = Temperature Exceedance

MDL = Method Detection Limit

J = Result is less than PQL

Monterey Peninsula Water Mgmt. District

P.O. Box 85
Monterey, CA 93940

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Friday, November 10, 2017

Molybdenum, Total	EPA200.8	µg/L	5	0.5	10/10/2017	11:48	MW
Nickel, Total	EPA200.8	µg/L	ND	1	10/10/2017	11:48	MW
Selenium, Total	EPA200.8	µg/L	3	1	10/10/2017	11:48	MW
Strontium, Total	EPA200.8	µg/L	213	1	10/10/2017	11:48	MW
Uranium, Total	EPA200.8	µg/L	1.0	0.5	10/10/2017	11:48	MW
Vanadium, Total	EPA200.8	µg/L	ND	5	10/10/2017	11:48	MW
Uranium, Radiological	EPA200.8	pCi/L	0.7	0.5	10/10/2017	11:48	MW
Bromide	EPA300.0	mg/L	ND	0.1	10/3/2017	18:36	HM
Chloride	EPA300.0	mg/L	28	1	10/3/2017	18:36	HM
Fluoride	EPA300.0	mg/L	0.2	0.1	10/3/2017	18:36	HM
Nitrate as N	EPA300.0	mg/L	0.3	0.1	10/3/2017	18:36	HM
Nitrite as N	EPA300.0	mg/L	ND	0.1	10/3/2017	18:36	HM
Orthophosphate as P	EPA300.0	mg/L	ND	0.1	10/3/2017	18:36	HM
Sulfate	EPA300.0	mg/L	69	1	10/3/2017	18:36	HM
Trihalomethanes	EPA524.2	µg/L	71	E	10/11/2017	12:00	
Haloacetic Acids	EPA552	µg/L	ND	E	10/7/2017	12:00	
Gross Alpha	EPA900.0	pCi/L	2.88 ± 1.29	E	10/25/2017	8:10	
Radium 226	EPA903.0	pCi/L	0.050 ± 0.120	E	10/13/2017	17:20	
Alkalinity, Total (as CaCO ₃)	SM2320B	mg/L	137	10	10/12/2017	8:48	LM
Specific Conductance (EC)	SM2510B	µmhos/cm	491	1	10/5/2017	10:55	HM
Total Dissolved Solids	SM2540C	mg/L	326	10	10/5/2017	14:25	HM
Chlorine Residual, Total (Laboratory)	SM4500-CI G	mg/L	ND	0.05	10/2/2017	16:30	LRH
Chlorine Residual, Free (Laboratory)	SM4500-CI G	mg/L	ND	0.05	10/2/2017	16:30	LRH
Chloramines	SM4500-CI G	mg/L	ND	0.05	10/2/2017	16:30	LRH

mg/L : Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

MCL : Maximum Contamination Level

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See Report attachments

T = Temperature Exceedance

MDL = Method Detection Limit

J = Result is less than PQL



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ELAP Certification Number: 2385

Monterey Peninsula Water Mgmt. District

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Monterey, CA 93940

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Friday, November 10, 2017

pH (Laboratory)	SM4500-H+B	pH (H)	7.5	0.1	10/2/2017	17:00	BS
Dissolved Organic Carbon	SM5310C	mg/L	1.8	0.2	10/17/2017	13:03	HM
TOC	SM5310C	mg/L	1.2	0.2	10/17/2017	13:22	HM

Comments:

mg/L : Milligrams per liter (=ppm)
H = Analyzed outside of hold time
MDL = Method Detection Limit

ug/L : Micrograms per liter (=ppb)
E = Analysis performed by External Laboratory; See Report attachments
J = Result is less than PQL

PQL : Practical Quantitation Limit

MCL : Maximum Contamination Level

T = Temperature Exceedance

Monterey Peninsula Water Mgmt. District

P.O. Box 85
 Monterey, CA 93940

Lab Number: 171002_48-02

Collection Date/Time: 10/2/2017 4:00 PM Sample Collector: Suwada J Client Sample #:
 Submittal Date/Time: 10/2/2017 4:44 PM Sample ID:

Sample Description: SMS (D)

Analyte	Method	Unit	Result	Qual	PQL	Anal. Date	Anal. Time	Analyst
QC Ratio TDS/SEC	Calculation	NA	0.61			10/5/2017	14:25	HM
Ammonia-N	EPA 350.1	mg/L	ND		0.1	10/4/2017	16:30	BS
Total Kjeldahl Nitrogen	EPA 351.2	mg/L	ND		0.5	10/16/2017	16:12	BS
Phosphorus, Total	EPA 365.1	mg/L	0.09	LM	0.02	10/13/2017	10:31	BS
Methane	EPA174/175	µg/L	0.39	E		10/12/2017	13:12	
Iron, Dissolved	EPA200.7	µg/L	ND		10	10/27/2017	17:56	MW
Iron, Total	EPA200.7	µg/L	ND		10	11/2/2017	15:22	MW
Manganese, Dissolved	EPA200.7	µg/L	ND		10	10/27/2017	17:56	MW
Manganese, Total	EPA200.7	µg/L	ND		10	11/2/2017	15:22	MW
Sodium	EPA200.7	mg/L	48		1	11/2/2017	15:22	MW
Zinc, Dissolved	EPA200.7	µg/L	55		10	10/27/2017	17:56	MW
Boron	EPA200.7	mg/L	ND		0.05	11/2/2017	15:22	MW
Calcium	EPA200.7	mg/L	48		1	11/2/2017	15:22	MW
Magnesium	EPA200.7	mg/L	14		1	11/2/2017	15:22	MW
Potassium	EPA200.7	mg/L	3.2		1	11/2/2017	15:22	MW
Silica (SiO2), Total	EPA200.7	mg/L	25		0.05	11/2/2017	15:22	MW
Zinc, Total	EPA200.7	µg/L	61		10	11/2/2017	15:22	MW
Aluminum, Total	EPA200.8	µg/L	7		5	10/10/2017	11:51	MW
Arsenic, Total	EPA200.8	µg/L	6		1	10/10/2017	23:51	MW
Barium, Total	EPA200.8	µg/L	56		1	10/10/2017	11:51	MW
Lithium	EPA200.8	µg/L	4		0.5	10/10/2017	11:51	MW
Mercury, Total	EPA200.8	µg/L	ND		0.5	10/10/2017	11:51	MW

mg/L : Milligrams per liter (=ppm)
 H = Analyzed outside of hold time
 MDL = Method Detection Limit

µg/L : Micrograms per liter (=ppb)
 E = Analysis performed by External Laboratory; See Report attachments
 J = Result is less than PQL

PQL : Practical Quantitation Limit

MCL : Maximum Contamination Level
 T = Temperature Exceedance

Monterey Peninsula Water Mgmt. District

P.O. Box 85
Monterey, CA 93940

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Friday, November 10, 2017

Molybdenum, Total	EPA200.8	µg/L	25	0.5	10/10/2017	11:51	MW	
Nickel, Total	EPA200.8	µg/L	ND	1	10/10/2017	11:51	MW	
Selenium, Total	EPA200.8	µg/L	4	1	10/10/2017	11:51	MW	
Strontium, Total	EPA200.8	µg/L	250	1	10/10/2017	11:51	MW	
Uranium, Total	EPA200.8	µg/L	1.0	0.5	10/10/2017	11:51	MW	
Vanadium, Total	EPA200.8	µg/L	ND	5	10/10/2017	11:51	MW	
Uranium, Radiological	EPA200.8	pCi/L	0.7	0.5	10/10/2017	11:51	MW	
Bromide	EPA300.0	mg/L	ND	0.1	10/3/2017	20:00	HM	
Chloride	EPA300.0	mg/L	29	1	10/3/2017	20:00	HM	
Fluoride	EPA300.0	mg/L	0.3	0.1	10/3/2017	20:00	HM	
Nitrate as N	EPA300.0	mg/L	0.3	0.1	10/3/2017	20:00	HM	
Nitrite as N	EPA300.0	mg/L	ND	0.1	10/3/2017	20:00	HM	
Orthophosphate as P	EPA300.0	mg/L	ND	IA, LN	0.1	10/3/2017	20:00	HM
Sulfate	EPA300.0	mg/L	70	1	10/3/2017	20:00	HM	
Trihalomethanes	EPA524.2	µg/L	86	E	10/11/2017	12:00		
Haloacetic Acids	EPA552	µg/L	6	E	10/7/2017	12:00		
Gross Alpha	EPA900.0	pCi/L	1.80 ± 1.09	E	10/25/2017	9:55		
Radium 226	EPA903.0	pCi/L	0.149 ± 0.154	E	10/13/2017	17:40		
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	143	10	10/12/2017	8:48	LM	
Specific Conductance (EC)	SM2510B	µmhos/cm	505	1	10/5/2017	10:55	HM	
Total Dissolved Solids	SM2540C	mg/L	308	10	10/5/2017	14:25	HM	
Chlorine Residual, Total (Laboratory)	SM4500-CI G	mg/L	N.D.	0.05	10/2/2017	16:30	LRH	
Chlorine Residual, Free (Laboratory)	SM4500-CI G	mg/L	ND	0.05	10/2/2017	16:30	LRH	
Chloramines	SM4500-CI G	mg/L	N.D.	0.05	10/2/2017	16:30	LRH	

mg/L : Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

MCL : Maximum Contamination Level

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See Report attachments

T = Temperature Exceedance

MDL = Method Detection Limit

J = Result is less than PQL



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Monterey Peninsula Water Mgmt. District

P.O. Box 85
Monterey, CA 93940

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Friday, November 10, 2017

pH (Laboratory)	SM4500-H+B	pH (H)	7.7	0.1	10/2/2017	17:00	BS
Dissolved Organic Carbon	SM5310C	mg/L	1.7	0.2	10/17/2017	13:42	HM
TOC	SM5310C	mg/L	1.3	0.2	10/17/2017	14:01	HM

Comments:

Report Approved by: 
David Holland, Laboratory Director

mg/L : Milligrams per liter (=ppm)
H = Analyzed outside of hold time
MDL = Method Detection Limit

ug/L : Micrograms per liter (=ppb)
E = Analysis performed by External Laboratory; See Report attachments
J = Result is less than PQL

PQL : Practical Quantitation Limit

MCL : Maximum Contamination Level
T = Temperature Exceedance

171002-48

Monterey Bay Analytical Services Chain Of Custody / Analysis Request

4 Justin Ct. Suite D • Monterey, Ca 93940 • (831) 375-MBAS (6227) • (831) 641-0734 (Fax)



Client/Company Name: MPWMD	Attention: Jon hear	Analysis Requested				
Billing Address:						

Project/System Information:

For Regulatory Compliance? YES NO

For State or Local Health Department reporting: YES NO

Electronic Data Transfer (EDT)? YES NO

System ID Number: _____

E-Mail Address(es):
jhear@mpwmd.net

Contract/P.O. #:

Turn Around Time:
 STD (7-14 Days) 48-Hour
 5-Day 24-Hour

Phone # **831-658-5647**
 Fax #

Drinking water Wastewater Monitoring Well Soil Sludge Other

MBAS Lab #	Project ID or Source Code #	Sample Site / Description (Well Name, APN#, Address, Stormdrain #)	Sampling		Receiving Temp.	CL2 Residual	Coliform Analysis				# Cont.	Container		X	X				
			Date	Time			Routine	Other	Repeat	Special		Type	Size						
48-01		MW 1	10/2/17	1515	18.7						20								
48-02		SMS(D)	10/2/17	1600	17.3						21								

X 51, 61, DBP

Printed Name	Signature	Date	Time	Comments or Special Instructions:
Sampled by: JOSEPH SOWADIT				
Relinquished by: JOSEPH SOWADIT		10/2/17	1644	
Received by:				
Relinquished by:				
Received by: Monterey Bay Analytical Services		10/2/17	16 44	

Payment received Check # _____ Amount: _____ Receipt # _____ Date: _____

Sample Condition Upon Receipt

COC Info

Was temp acceptable? Chemistry $\leq 6^{\circ}\text{C}$ Micro $\leq 10^{\circ}\text{C}$
 Did bottles arrive intact?
 Did bottle labels agree with COC?

YES NO NA <2 Hr
YES NO NA
YES NO NA

Is there evidence of chilling? YES NO NA

Discrepancy Documentation:

Person Contacted: _____ Method: In Person/Phone/Email _____

Problem _____

Resolution _____

Person Contacted: _____ Method: In Person/Phone/Email _____

Problem _____

Resolution _____

Sample Split/Filtration

Lab ID	Cont. Size	Pres	Date/Initials
48-01	250	HNO ₃	10/2 HVM
48-02	250	HNO ₃	10/2 HVM

Lab ID	Cont. Size	Pres	Date/Initials

Comments



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1710274

Report Created for: Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Project Contact: David Holland
Project P.O.:
Project Name: MPWMD

Project Received: 10/06/2017

Analytical Report reviewed & approved for release on 10/13/2017 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Bay Analytical
Project: MPWMD
WorkOrder: 1710274

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Bay Analytical
Date Received: 10/6/17 10:10
Date Prepared: 10/12/17
Project: MPWMD

WorkOrder: 1710274
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L

Dissolved Gases by RSK 175

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MW-1	1710274-001A	Water	10/02/2017 15:15	GC26 1012170905.D	146990

Analytes	Result	RL	DF	Date Analyzed
Methane	ND	0.10	1	10/12/2017 12:59

Analyst(s): HK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
SMS (D)	1710274-002A	Water	10/02/2017 16:00	GC26 1012170906.D	146990

Analytes	Result	RL	DF	Date Analyzed
Methane	0.39	0.10	1	10/12/2017 13:12

Analyst(s): HK

 Angela Rydelius, Lab Manager



Quality Control Report

Client: Monterey Bay Analytical
Date Prepared: 10/12/17
Date Analyzed: 10/12/17
Instrument: GC26
Matrix: Water
Project: MPWMD

WorkOrder: 1710274
BatchID: 146990
Extraction Method: RSK175
Analytical Method: RSK175
Unit: µg/L
Sample ID: MB/LCS-146990

QC Summary Report for RSK175

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Ethane	ND	3.02	0.20	2.38	-	127	70-130
Ethylene	ND	2.98	0.30	3.08	-	97	70-130
Methane	ND	1.36	0.10	1.17	-	117	70-130

 QA/QC Officer



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1710274

ClientCode: MBAS

- WaterTrax
 WriteOn
 EDF
 Excel
 EQulS
 Email
 HardCopy
 ThirdParty
 J-flag
 Detection Summary
 Dry-Weight

Report to:

David Holland
Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940
831-375-6227 FAX: 831-641-0734

Email: mweidner@mbasinc.com; Dholland@mbas
cc/3rd Party:
PO:
ProjectNo: MPWMD

Bill to:

Accounts Payable
Monterey Bay Analytical
4 Justin Court, Suite D
Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 10/06/2017

Date Logged: 10/06/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1710274-001	MW-1	Water	10/2/2017 15:15	<input type="checkbox"/>	A												
1710274-002	SMS (D)	Water	10/2/2017 16:00	<input type="checkbox"/>	A												

Test Legend:

1	RSK175_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Jena Alfaro

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY BAY ANALYTICAL

Project: MPWMD

Work Order: 1710274

Client Contact: David Holland

QC Level: LEVEL 2

Contact's Email: mweidner@mbasinc.com; Dholland@mbasinc.com;
info@sbcglobal.net; info@mbasinc.com

Comments:

Date Logged: 10/6/2017

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1710274-001A	MW-1	Water	RSK175 <Methane_4>	3	VOA w/ HCl	<input type="checkbox"/>	10/2/2017 15:15	5 days	None	<input type="checkbox"/>	
1710274-002A	SMS (D)	Water	RSK175 <Methane_4>	3	VOA w/ HCl	<input type="checkbox"/>	10/2/2017 16:00	5 days	None	<input type="checkbox"/>	

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).

- 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.

1710274

McCAMPBELL ANALYTICAL, INC.

1534 WILLOW PASS ROAD
PITTSBURG, CA 94565-1701

Website: www.mcccampbell.com Email: main@mcccampbell.com
Telephone: (877) 252-9262 Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME

- GeoTracker EDF
- PDF
- Excel
- Write On (DW)
- RUSH
 24 HR
 48 HR
 72 HR
 5 DAY

Report To: David Holland Bill To: _____

Company: Monterey Bay Analytical Services

4 Justin Ct. Suite D

Monterey, Ca 93940 E-Mail: info@mbasinc.com

Tele: (831) 375 - 6227 Fax: (831) 641-0734

Project #: _____ Project Name: MPWMD

Project Location: _____

Sampler Signature: Joseph Suwada

SAMPLE ID	LOCATION/ Field Point Name	SAMPLING		# Containers		MATRIX					METHOD PRESERVED				Analysis Request										Other	Comments
		Date	Time			Water	Soil	Air	Sludge	Other	ICE	HCL	HNO ₃	Other												
				Type Containers																						
✓ ✓ MW-1		10/02/17	15:15	3	V	X					X	X													X	171002_48-01
	SMS (D)	10/2/17	16:00	3	V	X					X	X													X	171002_48-02

Relinquished By: David Holland	Date: 10/15	Time: 1600	Received By: GSO 537882501	COMMENTS: ICE/PC 2/1 GOOD CONDITION _____ HEAD SPACE ABSENT _____ DECHLORINATED IN LAB _____ APPROPRIATE CONTAINERS _____ PRESERVED IN LAB _____ VOAS O&G METALS OTHER PRESERVATION pH <2
Relinquished By: GSO	Date: 10/17	Time: 1010	Received By:	
Relinquished By:	Date:	Time:	Received By:	



Sample Receipt Checklist

Client Name: **Monterey Bay Analytical**
Project Name: **MPWMD**

Date and Time Received: **10/6/2017 10:10**
Date Logged: **10/6/2017**
Received by: **Jena Alfaro**
Logged by: **Jena Alfaro**

WorkOrder No: **1710274** Matrix: Water
Carrier: Golden State Overnight

Chain of Custody (COC) Information

- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Sample IDs noted by Client on COC? Yes No
- Date and Time of collection noted by Client on COC? Yes No
- Sampler's name noted on COC? Yes No
- COC agrees with Quote? Yes No NA

Sample Receipt Information

- Custody seals intact on shipping container/cooler? Yes No NA
- Shipping container/cooler in good condition? Yes No
- Samples in proper containers/bottles? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

- All samples received within holding time? Yes No NA
 - Sample/Temp Blank temperature Temp: 2.1°C NA
 - Water - VOA vials have zero headspace / no bubbles? Yes No NA
 - Sample labels checked for correct preservation? Yes No
 - pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 - Samples Received on Ice? Yes No
- (Ice Type: WET ICE)

UCMR Samples:

- Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
- Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:

October 27, 2017

Monterey Bay Analytical Services
 4 Justin Court
 Monterey, CA 93940

Lab ID : SP 1712314
 Customer : 2-19144

Laboratory Report

Introduction: This report package contains total of 9 pages divided into 3 sections:

Case Narrative (2 pages) : An overview of the work performed at FGL.
 Sample Results (4 pages) : Results for each sample submitted.
 Quality Control (3 pages) : Supporting Quality Control (QC) results.

Case Narrative

This Case Narrative pertains to the following samples:

Sample Description	Date Sampled	Date Received	FGL Lab ID #	Matrix
MW-1	10/02/2017	10/06/2017	SP 1712314-001	W
SMS (D)	10/02/2017	10/06/2017	SP 1712314-002	W

Sampling and Receipt Information: All samples were received in acceptable condition and within temperature requirements, unless noted on the Condition Upon Receipt (CUR) form. All samples arrived at 6 °C. All samples were prepared and analyzed within the method specified hold time. All samples were checked for pH if acid or base preservation is required (except for VOAs). For details of sample receipt information, please see the attached Chain of Custody and Condition Upon Receipt Form.

Quality Control: All samples were prepared and analyzed according to the following tables:

Organic QC

551.1	10/11/2017:215389 All analysis quality controls are within established criteria.
	10/12/2017:215445 All analysis quality controls are within established criteria.
	10/10/2017:212171 All preparation quality controls are within established criteria, except: The following note applies to Bromodichloromethane, Decafluorobiphenyl: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.
552	10/06/2017:212054 All preparation quality controls are within established criteria, except: The following note applies to 2,3-Dibromopropionic Acid, Trichloroacetic Acid, Monochloroacetic Acid, Monobromoacetic Acid, Dichloroacetic Acid: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery. The following note applies to Trichloroacetic Acid: 435 Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.

October 27, 2017
Monterey Bay Analytical Services

Lab ID : SP 1712314
Customer : 2-19144

Organic QC

552.2	10/07/2017:215103 All analysis quality controls are within established criteria.
	10/07/2017:215193 All analysis quality controls are within established criteria.

Radio QC

900.0	10/25/2017:216176 All analysis quality controls are within established criteria.
	10/24/2017:212791 All preparation quality controls are within established criteria.
903.0	10/13/2017:215681 All analysis quality controls are within established criteria.
	10/10/2017:212207 All preparation quality controls are within established criteria.

Certification:: I certify that this data package is in compliance with ELAP standards, both technically and for completeness, except for any conditions listed above. Release of the data contained in this data package is authorized by the Laboratory Director or his designee, as verified by the following electronic signature.

KD:DMB

Approved By **Kelly A. Dunnahoo, B.S.**



Digitally signed by Kelly A. Dunnahoo, B.S.
Title: Laboratory Director
Date: 2017-10-27



October 27, 2017

Lab ID : SP 1712314-001

Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : October 2, 2017-15:15

Sampled By : Joseph Suwada

Received On : October 6, 2017-09:45

Matrix : Water

Description : MW-1

Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	109	80-120	%		551.1	10/10/17:212171	551.1	10/11/17:215389
Bromodichloromethane	16	1	ug/L		551.1	10/10/17:212171	551.1	10/11/17:215389
Bromoform	ND	1	ug/L		551.1	10/10/17:212171	551.1	10/11/17:215389
Chloroform	50	5*	ug/L		551.1	10/10/17:212171	551.1	10/12/17:215445
Dibromochloromethane	5	1	ug/L		551.1	10/10/17:212171	551.1	10/11/17:215389
Total Trihalomethanes	71	--	ug/L		551.1	10/10/17:212171	551.1	10/11/17:215389
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	104	70-130	%		552	10/06/17:212054	552.2	10/07/17:215103
Bromoacetic Acid	ND	1	ug/L		552	10/06/17:212054	552.2	10/07/17:215103
Chloroacetic Acid	ND	2	ug/L		552	10/06/17:212054	552.2	10/07/17:215103
Dibromoacetic Acid	ND	1	ug/L		552	10/06/17:212054	552.2	10/07/17:215103
Dichloroacetic Acid	ND	1	ug/L		552	10/06/17:212054	552.2	10/07/17:215103
Trichloroacetic Acid	ND	1	ug/L		552	10/06/17:212054	552.2	10/07/17:215103
Haloacetic acids (five)	ND	--	ug/L		552	10/06/17:212054	552.2	10/07/17:215103

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



October 27, 2017

Lab ID : SP 1712314-001
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : October 2, 2017-15:15
Sampled By : Joseph Suwada
Received On : October 6, 2017-09:45
Matrix : Water

Description : MW-1
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	2.88 ± 1.29	1.17	pCi/L	15/5	900.0	10/24/17-10:15 2P1712791	900.0	10/25/17-08:10 2A1716176
Total Alpha Radium (226)	0.050 ± 0.120	0.322	pCi/L	3	903.0	10/10/17-18:30 2P1712207	903.0	10/13/17-17:20 2A1715681

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



October 27, 2017

Lab ID : SP 1712314-002
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : October 2, 2017-16:00
Sampled By : Joseph Suwada
Received On : October 6, 2017-09:45
Matrix : Water

Description : SMS (D)
Project : MPWMD

Sample Result - Organic

Constituent	Result	PQL	Units	Note	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
EPA 551.1								
Decafluorobiphenyl [‡]	105	80-120	%		551.1	10/10/17:212171	551.1	10/11/17:215389
Bromodichloromethane	22	1	ug/L		551.1	10/10/17:212171	551.1	10/11/17:215389
Bromoform	1	1	ug/L		551.1	10/10/17:212171	551.1	10/11/17:215389
Chloroform	52	5*	ug/L		551.1	10/10/17:212171	551.1	10/12/17:215445
Dibromochloromethane	11	1	ug/L		551.1	10/10/17:212171	551.1	10/11/17:215389
Total Trihalomethanes	86	--	ug/L		551.1	10/10/17:212171	551.1	10/11/17:215389
EPA 552.2								
2,3-Dibromopropionic Acid [‡]	92.0	70-130	%		552	10/06/17:212054	552.2	10/07/17:215103
Bromoacetic Acid	ND	1	ug/L		552	10/06/17:212054	552.2	10/07/17:215103
Chloroacetic Acid	ND	2	ug/L		552	10/06/17:212054	552.2	10/07/17:215103
Dibromoacetic Acid	ND	1	ug/L		552	10/06/17:212054	552.2	10/07/17:215193
Dichloroacetic Acid	1	1	ug/L		552	10/06/17:212054	552.2	10/07/17:215103
Trichloroacetic Acid	5	1	ug/L		552	10/06/17:212054	552.2	10/07/17:215103
Haloacetic acids (five)	6	--	ug/L		552	10/06/17:212054	552.2	10/07/17:215103

ND=Non-Detected. PQL=Practical Quantitation Limit. ‡Surrogate. * PQL adjusted for dilution.



October 27, 2017

Lab ID : SP 1712314-002
Customer ID : 2-19144

Monterey Bay Analytical Services

4 Justin Court
Monterey, CA 93940

Sampled On : October 2, 2017-16:00
Sampled By : Joseph Suwada
Received On : October 6, 2017-09:45
Matrix : Water

Description : SMS (D)
Project : MPWMD

Sample Result - Radio

Constituent	Result ± Error	MDA	Units	MCL/AL	Sample Preparation		Sample Analysis	
					Method	Date/ID	Method	Date/ID
Radio Chemistry								
Gross Alpha	1.80 ± 1.09	1.15	pCi/L	15/5	900.0	10/24/17-10:15 2P1712791	900.0	10/25/17-09:55 2A1716176
Total Alpha Radium (226)	0.149 ± 0.154	0.322	pCi/L	3	903.0	10/10/17-18:30 2P1712207	903.0	10/13/17-17:40 2A1715681

ND=Non-Detected. PQL=Practical Quantitation Limit. * PQL adjusted for dilution.

MDA = Minimum Detectable Activity (Calculated at the 95% confidence level) = Data utilized by DHS to determine matrix interference.
MCL / AL = Maximum Contamination Level / Action Level. Alpha's Action Level of 5 pCi/L is based on the Assigned Value (AV).
AV = Assigned Value(Gross Alpha Result + (0.84 x Error)). CCR Section 64442: Drinking Water Compliance Note: Do the following
If Gross Alpha's (AV) exceeds 5 pCi/L run Uranium. If Gross Alpha's (AV) minus Uranium exceeds 5 pCi/L run Radium 226.

Drinking Water Compliance:

Gross Alpha (AV) minus Uranium is less than or equal to 15 pCi/L
Uranium is less than or equal to 20 pCi/L
Radium 226 + Radium 228 is less than or equal to 5 pCi/L

Note: Samples are held for 3-6 months prior to disposal.



October 27, 2017
Monterey Bay Analytical Services

Lab ID : SP 1712314
Customer : 2-19144

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic Bromodichloromethane	551.1	10/10/17:212171SBL (SP 1712314-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.09	109 %	80-120	
			MS	ug/L	10.07	124 %	80-120	435
			MSD	ug/L	9.865	127 %	80-120	435
	MSRPD	ug/L	19.73	0.1%	≤20			
	551.1	10/11/17:215389SBL	CCV	ug/L	166.7	110 %	80-120	
CCV	ug/L	83.33	98.8 %	80-120				
Bromoform	551.1	10/10/17:212171SBL (SP 1712314-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.09	106 %	80-120	
			MS	ug/L	10.07	114 %	80-120	
			MSD	ug/L	9.865	115 %	80-120	
	MSRPD	ug/L	19.73	1.0%	≤20			
	551.1	10/11/17:215389SBL	CCV	ug/L	166.7	106 %	80-120	
CCV	ug/L	83.33	92.5 %	80-120				
Chloroform	551.1	10/10/17:212171SBL (SP 1712314-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.09	115 %	80-120	
			MS	ug/L	10.07	159 %	<¼	
			MSD	ug/L	9.865	169 %	<¼	
	MSRPD	ug/L	19.73	1.0%	≤20			
	551.1	10/12/17:215445SBL	CCV	ug/L	83.33	97.9 %	80-120	
CCV	ug/L	166.7	119 %	80-120				
Decafluorobiphenyl	551.1	10/10/17:212171SBL (SP 1712314-001)	Blank	ug/L	20.46	118 %	80-120	
			LCS	ug/L	20.17	118 %	80-120	
			MS	ug/L	20.15	114 %	80-120	
			MSD	ug/L	19.73	130 %	80-120	435
	MSRPD	ug/L	19.73	11.1%	≤20.0			
	551.1	10/11/17:215389SBL	CCV	ug/L	333.3	120 %	80-120	
CCV	ug/L	166.7	112 %	80-120				
Dibromochloromethane	551.1	10/10/17:212171SBL (SP 1712314-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.09	108 %	80-120	
			MS	ug/L	10.07	115 %	80-120	
			MSD	ug/L	9.865	116 %	80-120	
	MSRPD	ug/L	19.73	0.3%	≤20			
	551.1	10/11/17:215389SBL	CCV	ug/L	166.7	108 %	80-120	
CCV	ug/L	83.33	94.4 %	80-120				
2,3-Dibromopropionic Acid	552	10/06/17:212054SBL (SP 1712109-001)	Blank	ug/L	5.000	71.1 %	70-130	
			LCS	ug/L	5.000	105 %	70-130	
			MS	ug/L	5.000	185 %	70-130	435
			MSD	ug/L	5.000	209 %	70-130	435
	MSRPD	ug/L	5.000	12.2%	≤20.0			
	552	10/06/17:212054SBL	Blank	ug/L		ND	<1	
LCS	ug/L	10.00	94.4 %	70-130				
MS	ug/L	10.00	92.6 %	70-130				
MSD	ug/L	10.00	89.0 %	70-130				
MSRPD	ug/L	5.000	2.3%	≤20.0				
Dichloroacetic Acid	552	10/06/17:212054SBL (SP 1712109-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	99.0 %	70-130	
			MS	ug/L	10.00	75.4 %	70-130	
			MSD	ug/L	10.00	66.4 %	70-130	435
	MSRPD	ug/L	5.000	7.5%	≤20.0			
	552	10/06/17:212054SBL	Blank	ug/L		ND	<1	
LCS	ug/L	10.00	85.5 %	70-130				
MS	ug/L	10.00	69.5 %	70-130				
MSD	ug/L	10.00	61.8 %	70-130	435			
MSRPD	ug/L	5.000	9.4%	≤20.0				

Quality Control - Organic

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Organic								
Monochloroacetic Acid	552	10/06/17:212054SBL (SP 1712109-001)	Blank	ug/L		ND	<2	
			LCS	ug/L	10.00	89.8 %	70-130	
			MS	ug/L	10.00	69.2 %	70-130	435
			MSD	ug/L	10.00	60.7 %	70-130	435
			MSRPD	ug/L	5.000	0.85	≤2	
Trichloroacetic Acid	552	10/06/17:212054SBL (SP 1712109-001)	Blank	ug/L		ND	<1	
			LCS	ug/L	10.00	84.8 %	70-130	
			MS	ug/L	10.00	65.1 %	70-130	435
			MSD	ug/L	10.00	48.3 %	70-130	435
			MSRPD	ug/L	5.000	23.1%	≤20.0	435
2,3-Dibromopropionic Acid	552.2	10/07/17:215103SBL	CCV	ug/L	50.00	110 %	70-130	
			CCV	ug/L	75.00	80.6 %	70-130	
Dibromoacetic Acid	552.2	10/07/17:215103SBL	CCV	ug/L	100.0	93.2 %	70-130	
			CCV	ug/L	150.0	81.3 %	70-130	
	552.2	10/07/17:215193SBL	CCV	ug/L	100.0	98.6 %	70-130	
			CCV	ug/L	150.0	88.9 %	70-130	
Dichloroacetic Acid	552.2	10/07/17:215103SBL	CCV	ug/L	100.0	92.7 %	70-130	
			CCV	ug/L	150.0	82.0 %	70-130	
Monobromoacetic Acid	552.2	10/07/17:215103SBL	CCV	ug/L	100.0	82.7 %	70-130	
			CCV	ug/L	150.0	72.6 %	70-130	
Monochloroacetic Acid	552.2	10/07/17:215103SBL	CCV	ug/L	100.0	82.9 %	70-130	
			CCV	ug/L	150.0	76.0 %	70-130	
Trichloroacetic Acid	552.2	10/07/17:215103SBL	CCV	ug/L	100.0	85.1 %	70-130	
			CCV	ug/L	150.0	73.1 %	70-130	
Definition								
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.							
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.							
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.							
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.							
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.							
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.							
ND	: Non-detect - Result was below the DQO listed for the analyte.							
<4	: High Sample Background - Spike concentration was less than one fourth of the sample concentration.							
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.							
Explanation								
435	: Sample matrix may be affecting this analyte. Data was accepted based on the LCS or CCV recovery.							

Quality Control - Radio

Constituent	Method	Date/ID	Type	Units	Conc.	QC Data	DQO	Note
Radio								
Alpha	900.0	10/25/17:216176aat	CCV CCB	cpm cpm	8665	41.0 % 0.0400	35-47 0.12	
Gross Alpha	900.0	10/24/17:212791aat (SP 1712568-002)	Blank LCS MS MSD MSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 107.8 107.8 107.8 107.8	 1.59 119 % 119 % 119 % 0.2%	 3 75-125 60-140 60-140 ≤30	
Alpha	903.0	10/13/17:215681aat	CCV CCB	cpm cpm	8299	37.8 % 0.0800	37-46 0.16	
Total Alpha Radium (226)	903.0	10/10/17:212207emv	RgBlk LCS BS BSD BSRPD	pCi/L pCi/L pCi/L pCi/L pCi/L	 24.28 24.28 24.28 24.28	 0.01 65.9 % 48.3 % 61.7 % 24.3%	 2 52-107 43-111 43-111 ≤35.5	

Definition	
CCV	: Continuing Calibration Verification - Analyzed to verify the instrument calibration is within criteria.
CCB	: Continuing Calibration Blank - Analyzed to verify the instrument baseline is within criteria.
Blank	: Method Blank - Prepared to verify that the preparation process is not contributing contamination to the samples.
RgBlk	: Method Reagent Blank - Prepared to correct for any reagent contributions to sample result.
LCS	: Laboratory Control Standard/Sample - Prepared to verify that the preparation process is not affecting analyte recovery.
MS	: Matrix Spikes - A random sample is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
MSD	: Matrix Spike Duplicate of MS/MSD pair - A random sample duplicate is spiked with a known amount of analyte. The recoveries are an indication of how that sample matrix affects analyte recovery.
BS	: Blank Spikes - A blank is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
BSD	: Blank Spike Duplicate of BS/BSD pair - A blank duplicate is spiked with a known amount of analyte. It is prepared to verify that the preparation process is not affecting analyte recovery.
MSRPD	: MS/MSD Relative Percent Difference (RPD) - The MS relative percent difference is an indication of precision for the preparation and analysis.
BSRPD	: BS/BSD Relative Percent Difference (RPD) - The BS relative percent difference is an indication of precision for the preparation and analysis.
DQO	: Data Quality Objective - This is the criteria against which the quality control data is compared.



ENVIRONMENTAL AGRICULTURAL

Analytical Chemists

www.fglinc.com

CHAIN OF CUSTODY AND ANALYSIS REQUEST DOCUMENT

Client: Monterey Bay Analytical Services
Customer Number: 2019144
Address: 4 Justin Court, Monterey, CA 93940
Phone: (831)375-6227 Fax: (831)641-0734
Email Address: info@mbasinc.com
Contact Person: David Holland
Project Name: MPWMD
Purchase Order Number:
Quote Number:

Rush Analysis: [] 5 Day [] 4 Day [] 3 Day [] 2 Day [] 24 hour
Rush pre-approval by lab (initials):
Electronic Data Transfer: [] No [] State [] Client Other:

Sampler(s): Joseph Suwada
Sampling Fee: Pickup Fee:
Compositor Setup Date: Time:

Table with columns: Method of Sampling, Number of Containers, Type of Containers, Potability, (SW) Surface Water, (TW) Travel Blank, (S) Soil, Bact. (Sys) System, Bact. (ROUT) Routine, (LT) Leaf Tissue, Preservative, HAA, THMS, Gross Alpha, Ra 226. Includes handwritten lab number 171002_48-01.

Table with columns: Samp Num, Location Description, Date Sampled, Time Sampled. Contains two rows of sample data.

Remarks: 171002_48-01, 171002_48-02
537 84624860

Relinquished Date: Time: Received By: Date: Time:
Relinquished Date: Time: Received By: Date: Time:
Relinquished Date: Time: Received By: Date: Time:

Corporate Offices & Laboratory
853 Corporation Street
Santa Paula, CA 93080
TEL: (805)392-2000
Env FAX: (805)525-4172 / Ag FAX: (805)392-2063
CA ELAP Certification No.1573

Office & Laboratory
2500 Stagecoach Road
Stockton, CA 95215
TEL: (209)942-0182
FAX: (209)942-0423
CA ELAP Certification No. 1563

Office & Laboratory
563 E. Lindo Avenue
Chico, CA 95926
TEL: (530)343-5818
FAX: (530)343-3807
CA ELAP Certification No. 2670

Office & Laboratory
3442 Empresa Drive, Suite D
San Luis Obispo, CA 93401
TEL: (805)783-2940
FAX: (805)783-2912
CA ELAP Certification No. 2775

Office & Laboratory
9415 W. Goshen Avenue
Visalia, CA 93291
TEL: (559)734-9473
FAX: (559)734-8435
CA ELAP Certification No. 2810

Condition Upon Receipt (Attach to COC)

Sample Receipt at SP:

- 1. Number of ice chests/packages received: 1
- 2. Shipper tracking numbers 537882486
- 3. Were samples received in a chilled condition?
Temps: 6 / / / / / /
- 4. Surface water (SWTR) bact samples: A sample that has a temperature upon receipt of >10C, whether iced or not, should be flagged unless the time since sample collection has been less than two hours.
- 5. Do the number of bottles received agree with the COC? Yes No N/A
- 6. Verify sample date, time, sampler Yes No N/A
- 7. Were the samples received intact? (i.e. no broken bottles, leaks, etc.) Yes No
- 8. Were sample custody seals intact? Yes No N/A

Sample Verification, Labeling and Distribution:

- 1. Were all requested analyses understood and acceptable? Yes No
- 2. Did bottle labels correspond with the client's ID's? Yes No
- 3. Were all bottles requiring sample preservation properly preserved? Yes No N/A FGL
 [Exception: Oil & Grease, VOA and CrVI verified in lab]
- 4. VOAs checked for Headspace? Yes No N/A
- 5. Were all analyses within holding times at time of receipt? Yes No
- 6. Have rush or project due dates been checked and accepted? Yes No N/A

Include a copy of the COC for lab delivery. (Bacti. Inorganics and Radio)

Sample Receipt, Login and Verification completed by:

Reviewed and
Approved By

Shawn Peck



Digitally signed by Shawn Peck
Title: Sample Receiving
Date: 10/16/2017-12:24:07

Discrepancy Documentation:

Any items above which are "No" or do not meet specifications (i.e. temps) must be resolved.

1. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

2. Person Contacted: _____ Phone Number: _____
Initiated By: _____ Date: _____
Problem: _____

Resolution: _____

(2019144)
Monterey Bay Analytical Services
SP 1712314
SRP-10/16/2017-12:24:07

Monterey Peninsula Water Mgmt. District
 MPWMD-Attn: Jon Lear
 P.O. Box 85
 Monterey, CA 93940

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Friday, November 03, 2017

Lab Number: 171004_36-01

Collection Date/Time: 10/4/2017 11:00 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 10/4/2017 13:01 Sample ID:

Sample Description: ASR2

Analyte	Method	Unit	Result	Dil.	Qual	PQL	MCL	Anal. Date	Anal. Time	Analyst
QC Ratio TDS/SEC	Calculation	NA	0.60	1				10/5/2017	14:25	HM
Total Nitrogen	Calculation	mg/L	ND	1		0.5				
Ammonia-N	EPA 350.1	mg/L	ND	1		0.1		10/9/2017	14:35	BS
Total Kjeldahl Nitrogen	EPA 351.2	mg/L	ND	1		0.5		10/16/2017	16:12	BS
Phosphorus, Total	EPA 365.1	mg/L	0.30	1		0.02		10/13/2017	10:31	BS
Methane	EPA174/175	µg/L	0.70	1	E			10/12/2017	13:28	
Iron, Dissolved	EPA200.7	µg/L	11	1		10		10/27/2017	8:31	MW
Iron, Total	EPA200.7	µg/L	66	1		10		10/26/2017	12:38	MW
Manganese, Dissolved	EPA200.7	µg/L	ND	1		10	50	10/27/2017	8:31	MW
Manganese, Total	EPA200.7	µg/L	ND	1		10		10/26/2017	12:38	MW
Zinc, Dissolved	EPA200.7	µg/L	272	1		10		10/27/2017	8:31	MW
Boron	EPA200.7	mg/L	ND	1		0.05		10/27/2017	20:16	MW
Calcium	EPA200.7	mg/L	38	1		1		10/27/2017	20:16	MW
Magnesium	EPA200.7	mg/L	14	1		1		10/27/2017	20:16	MW
Potassium	EPA200.7	mg/L	2.8	1		1		10/27/2017	20:16	MW
Silica (SiO2), Total	EPA200.7	mg/L	24	1		0.05		10/27/2017	20:16	MW
Sodium	EPA200.7	mg/L	43	1		1		10/27/2017	20:16	MW
Zinc, Total	EPA200.7	µg/L	209	1		10	5000	10/26/2017	12:38	MW
Aluminum, Total	EPA200.8	µg/L	ND	1		5	1000	10/26/2017	12:38	MW
Arsenic, Total	EPA200.8	µg/L	ND	1		1	10	10/26/2017	12:38	MW
Barium, Total	EPA200.8	µg/L	62	1		1	1000	10/26/2017	12:38	MW
Lithium	EPA200.8	µg/L	7	1		0.5		10/26/2017	12:38	MW
Mercury, Total	EPA200.8	µg/L	ND	1		0.5	2	10/26/2017	12:38	MW
Molybdenum, Total	EPA200.8	µg/L	6	1		0.5		10/26/2017	12:38	MW

mg/L : Milligrams per liter (=ppm)
 H = Analyzed outside of hold time
 MDL = Method Detection Limit

µg/L : Micrograms per liter (=ppb)
 E = Analysis performed by External Laboratory; See Report attachments
 J = Result is less than PQL

PQL : Practical Quantitation Limit

MCL : Maximum Contamination Level
 T = Temperature Exceedance

Monterey Peninsula Water Mgmt. District
 MPWMD-Attn: Jon Lear
 P.O. Box 85
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4 Justin Court Suite D, Monterey, CA 93940
 831.375.MBAS (6227)
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 ELAP Certification Number: 2385

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Friday, November 03, 2017

Nickel, Total	EPA200.8	µg/L	2	1	1	100	10/26/2017	12:38	MW
Selenium, Total	EPA200.8	µg/L	3	1	1	50	10/26/2017	12:38	MW
Strontium, Total	EPA200.8	µg/L	208	1	1		10/26/2017	12:38	MW
Uranium, Total	EPA200.8	µg/L	2.4	1	0.5		10/26/2017	12:38	MW
Vanadium, Total	EPA200.8	µg/L	ND	1	5	50	10/26/2017	12:38	MW
Uranium, Radiological	EPA200.8	pCi/L	1.6	1	0.5	20	10/26/2017	12:38	MW
Bromide	EPA300.0	mg/L	ND	1	0.1		10/12/2017	7:48	HM
Chloride	EPA300.0	mg/L	28	1	1		10/5/2017	0:15	HM
Fluoride	EPA300.0	mg/L	0.3	1	0.1	2	10/5/2017	0:15	HM
Nitrate as N	EPA300.0	mg/L	0.2	1	0.1	10	10/5/2017	0:15	HM
Nitrite as N	EPA300.0	mg/L	ND	1	0.1	1	10/5/2017	0:15	HM
Orthophosphate as P	EPA300.0	mg/L	0.26	1	0.1		10/5/2017	0:15	HM
Sulfate	EPA300.0	mg/L	70	1	1		10/5/2017	0:15	HM
Trihalomethanes	EPA524.2	µg/L	87	1	E		10/11/2017	12:00	
Haloacetic Acids	EPA552	µg/L	4	1	E		10/13/2017	12:00	
Gross Alpha	EPA900.0	pCi/L	2.04 ± 1.15	1	E	1.17	10/25/2017	4:40	
Radium 226	EPA903.0	pCi/L	0.090 ± 0.124	1	E	0.322	10/14/2017	13:40	
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	134	1		10	10/12/2017	8:48	LM
Specific Conductance (EC)	SM2510B	µmhos/cm	495	1		1 900	10/5/2017	10:55	HM
Total Dissolved Solids	SM2540C	mg/L	297	1		10 500	10/5/2017	14:25	HM
Chlorine Residual, Total (Laboratory)	SM4500-Cl G	mg/L	N.D.	1		0.05	10/4/2017	16:52	LRH
Chlorine Residual, Free (Laboratory)	SM4500-Cl G	mg/L	N/A	1		0.05	10/4/2017	16:52	LRH
Chloramines	SM4500-Cl G	mg/L	N.D.	1		0.05	10/4/2017	16:52	LRH
pH (Laboratory)	SM4500-H+B	pH (H)	7.4	1		0.1 10	10/4/2017	16:20	LM
Dissolved Organic Carbon	SM5310C	mg/L	1.9	1		0.2	10/17/2017	14:20	HM
TOC	SM5310C	mg/L	1.4	1		0.2	10/17/2017	14:39	HM

Comments:

mg/L : Milligrams per liter (=ppm)
 H = Analyzed outside of hold time
 MDL = Method Detection Limit

ug/L : Micrograms per liter (=ppb)
 E = Analysis performed by External Laboratory; See Report attachments
 J = Result is less than PQL

PQL : Practical Quantitation Limit

MCL : Maximum Contamination Level
 T = Temperature Exceedance

Monterey Peninsula Water Mgmt. District

MPWMD-Attn: Jon Lear

P.O. Box 85

Monterey, CA 93940

Lab Number: 171004_36-02

Collection Date/Time: 10/4/2017 11:55

Sample Collector: LEAR J

Client Sample #:

Submittal Date/Time: 10/4/2017 13:01

Sample ID:

Sample Description: ASR4

Analyte	Method	Unit	Result	Dil.	Qual	PQL	MCL	Anal. Date	Anal. Time	Analyst
QC Ratio TDS/SEC	Calculation	NA	0.61	1				10/5/2017	14:25	HM
Total Nitrogen	Calculation	mg/L	ND	1		0.5				
Ammonia-N	EPA 350.1	mg/L	ND	1		0.1		10/9/2017	14:35	BS
Total Kjeldahl Nitrogen	EPA 351.2	mg/L	ND	1		0.5		10/16/2017	16:12	BS
Phosphorus, Total	EPA 365.1	mg/L	0.17	1		0.02		10/13/2017	10:31	BS
Methane	EPA174/175	µg/L	0.98	1	E			10/12/2017	13:42	
Iron, Dissolved	EPA200.7	µg/L	18	1		10		10/27/2017	8:34	MW
Iron, Total	EPA200.7	µg/L	201	1		10		10/26/2017	13:48	MW
Manganese, Dissolved	EPA200.7	µg/L	13	1		10	50	10/27/2017	8:34	MW
Manganese, Total	EPA200.7	µg/L	14	1		10		10/26/2017	13:48	MW
Zinc, Dissolved	EPA200.7	µg/L	139	1		10		10/27/2017	8:34	MW
Boron	EPA200.7	mg/L	ND	1		0.05		10/27/2017	20:34	MW
Calcium	EPA200.7	mg/L	36	1		1		10/27/2017	20:34	MW
Magnesium	EPA200.7	mg/L	13	1		1		10/27/2017	20:34	MW
Potassium	EPA200.7	mg/L	2.7	1		1		10/27/2017	20:34	MW
Silica (SiO ₂), Total	EPA200.7	mg/L	24	1		0.05		10/27/2017	20:34	MW
Sodium	EPA200.7	mg/L	39	1		1		10/27/2017	20:34	MW
Zinc, Total	EPA200.7	µg/L	104	1		10	5000	10/26/2017	13:48	MW
Aluminum, Total	EPA200.8	µg/L	ND	1		5	1000	10/26/2017	13:48	MW
Arsenic, Total	EPA200.8	µg/L	8	1		1	10	10/26/2017	13:48	MW
Barium, Total	EPA200.8	µg/L	60	1		1	1000	10/26/2017	13:48	MW
Lithium	EPA200.8	µg/L	7	1		0.5		10/26/2017	13:48	MW
Mercury, Total	EPA200.8	µg/L	ND	1		0.5	2	10/26/2017	13:48	MW
Molybdenum, Total	EPA200.8	µg/L	55	1		0.5		10/26/2017	13:48	MW

mg/L : Milligrams per liter (=ppm)

µg/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

MCL : Maximum Contamination Level

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See Report attachments

T = Temperature Exceedance

MDL = Method Detection Limit

J = Result is less than PQL

Monterey Peninsula Water Mgmt. District
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Friday, November 03, 2017

Nickel, Total	EPA200.8	µg/L	23	1	1	100	10/26/2017	13:48	MW
Selenium, Total	EPA200.8	µg/L	10	1	1	50	10/26/2017	13:48	MW
Strontium, Total	EPA200.8	µg/L	206	1	1		10/26/2017	13:48	MW
Uranium, Total	EPA200.8	µg/L	1.7	1	0.5		10/26/2017	13:48	MW
Vanadium, Total	EPA200.8	µg/L	ND	1	5	50	10/26/2017	13:48	MW
Uranium, Radiological	EPA200.8	pCi/L	1.2	1	0.5	20	10/26/2017	13:48	MW
Bromide	EPA300.0	mg/L	ND	1	0.1		10/12/2017	8:22	HM
Chloride	EPA300.0	mg/L	27	1	1		10/5/2017	0:32	HM
Fluoride	EPA300.0	mg/L	0.3	1	0.1	2	10/5/2017	0:32	HM
Nitrate as N	EPA300.0	mg/L	0.2	1	0.1	10	10/5/2017	0:32	HM
Nitrite as N	EPA300.0	mg/L	ND	1	0.1	1	10/5/2017	0:32	HM
Orthophosphate as P	EPA300.0	mg/L	0.16	1	0.1		10/5/2017	0:32	HM
Sulfate	EPA300.0	mg/L	70	1	1		10/5/2017	0:32	HM
Trihalomethanes	EPA524.2	µg/L	59	1	E		10/11/2017	12:00	
Haloacetic Acids	EPA552	µg/L	2	1	E		10/13/2017	12:00	
Gross Alpha	EPA900.0	pCi/L	2.02 ± 1.14	1	E	1.16	10/25/2017	6:25	
Radium 226	EPA903.0	pCi/L	0.000 ± 0.088	1	E	0.322	10/14/2017	14:50	
Alkalinity, Total (as CaCO3)	SM2320B	mg/L	134	1		10	10/12/2017	8:48	LM
Specific Conductance (EC)	SM2510B	µmhos/cm	487	1		1 900	10/5/2017	10:55	HM
Total Dissolved Solids	SM2540C	mg/L	297	1		10 500	10/5/2017	14:25	HM
Chlorine Residual, Total (Laboratory)	SM4500-Cl G	mg/L	N.D.	1		0.05	10/4/2017	16:52	LRH
Chlorine Residual, Free (Laboratory)	SM4500-Cl G	mg/L	N/A	1		0.05	10/4/2017	16:52	LRH
Chloramines	SM4500-Cl G	mg/L	N.D.	1		0.05	10/4/2017	16:52	LRH
pH (Laboratory)	SM4500-H+B	pH (H)	7.5	1		0.1 10	10/4/2017	16:20	LM
Dissolved Organic Carbon	SM5310C	mg/L	1.7	1		0.2	10/17/2017	16:20	HM
TOC	SM5310C	mg/L	1.3	1		0.2	10/17/2017	16:39	HM

Comments:

mg/L : Milligrams per liter (=ppm)
 H = Analyzed outside of hold time
 MDL = Method Detection Limit

ug/L : Micrograms per liter (=ppb)
 E = Analysis performed by External Laboratory; See Report attachments
 J = Result is less than PQL

PQL : Practical Quantitation Limit

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 T = Temperature Exceedance



Monterey Peninsula Water Mgmt. District
MPWMD-Attn: Jon Lear
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Friday, November 03, 2017

Report Approved by: 
David Holland, Laboratory Director

mg/L : Milligrams per liter (=ppm)
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ug/L : Micrograms per liter (=ppb)
E = Analysis performed by External Laboratory; See Report attachments
J = Result is less than PQL

PQL : Practical Quantitation Limit

MCL : Maximum Contamination Level
T = Temperature Exceedance

171004-36

Monterey Bay Analytical Services Chain Of Custody / Analysis Request

4 Justin Ct. Suite D • Monterey, Ca 93940 • (831) 375-MBAS (6227) • (831) 641-0734 (Fax)



Client/Company Name: <i>INFUND</i>	Attention: <i>Steve Campbell, not</i>	Analysis Requested					
Billing Address:		ST	ST	DBP			
Project/System Information:	E-Mail Address(es):						Contract/P.O. #:
For Regulatory Compliance? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> For State or Local Health Department reporting: Electronic Data Transfer (EDT)? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> System ID Number: _____	Turn Around Time: STD (7-14 Days) <input type="checkbox"/> 48-Hour <input type="checkbox"/> 5-Day <input type="checkbox"/> 24-Hour <input type="checkbox"/>						Phone # Fax #
Drinking water <input type="checkbox"/> Wastewater <input type="checkbox"/> Monitoring Well <input type="checkbox"/> Soil <input type="checkbox"/> Sludge <input type="checkbox"/> Other <input type="checkbox"/>							

MBAS Lab #	Project ID or Source Code #	Sample Site / Description (Well Name, APN#, Address, Stormdrain #)	Sampling		Receiving Temp.	CL2 Residual	Coliform Analysis					# Cont.	Container		ST	ST	DBP							
			Date	Time			Routine	Other	Repeat	Special	Type		Size											
01		ASR2	10/4/17	1100	20.9										X	X	X							
02		ASR4	10/4/17	1155	19.4										X	X	X							

Printed Name	Signature	Date	Time	Comments or Special Instructions:
Sampled by: <i>JONATHAN LEAR</i>	<i>[Signature]</i>			
Relinquished by: <i>JONATHAN LEAR</i>	<i>[Signature]</i>	10/4/17	1300	
Received by:				
Relinquished by:				
Received by: Monterey Bay Analytical Services	<i>[Signature]</i>	10/4/17	1301	

<input type="checkbox"/> Payment received	Check #	Amount:	Receipt #	Date:
---	---------	---------	-----------	-------

Sample Condition Upon Receipt

COC Info

Was temp acceptable? Chemistry $\leq 6^{\circ}\text{C}$ Micro $\leq 10^{\circ}\text{C}$
 Did bottles arrive intact?
 Did bottle labels agree with COC?

YES NO NA <2 Hr
YES NO NA
YES NO NA

Is there evidence of chilling?

YES NO NA

Discrepancy Documentation:

Person Contacted: _____ Method: In Person/Phone/Email _____

Problem _____

Resolution _____

Person Contacted: _____ Method: In Person/Phone/Email _____

Problem _____

Resolution _____

Sample Split/Filtration

Field Filtered

Lab ID	Cont. Size	Pres	Date/Initials
01	250ml	H ₂ SO ₄ + Thio	10/5/17 ARH
02	↓	↓	↓
01	250ml	H ₂ O ₂	10/5 ⁴ /17/LH
02	↓	↓	↓
01	↓	↓	↓
02	↓	↓	↓

Lab ID	Cont. Size	Pres	Date/Initials

Comments

APPENDIX C – HIGH-FREQUENCY INJECTATE SAMPLING DATA

Composite Sample				Injection at ASR2	Hg (mg/L)
Date Taken	From	To	Hours		
12/16/2016				Yes	
12/17/2016	12/16/16 16:00	12/17/16 9:20	17.3	Yes	<0.05
12/18/2016	12/17/16 9:20	12/18/16 13:40	28.3	Yes	<0.05
12/19/2016	12/18/16 13:40	12/19/16 11:30	21.8	Yes	<0.05
12/20/2016	12/19/16 11:30	12/20/16 8:50	21.3	Yes	<0.05
12/21/2016	12/20/16 8:50	12/21/16 8:30	15.2	No	<0.05
12/22/2016				Yes	
12/23/2016	12/22/16 9:15	12/23/16 12:00	26.8	Yes	<0.05
12/24/2016	12/23/16 12:00	12/24/16 11:00	23.0	Yes	<0.05
12/25/2016	12/24/16 11:00	12/25/16 9:10	22.2	Yes	<0.05
12/26/2016	12/25/16 9:10	12/26/16 12:45	27.6	Yes	<0.05
12/27/2016	12/26/16 12:45	12/27/16 10:40	21.9	Yes	<0.05
12/28/2016	12/27/16 10:40	12/28/16 9:30	22.8	Yes	<0.05
12/29/2016	12/28/16 9:30	12/29/16 9:40	24.2	No	<0.05
12/30/2016				No	
12/31/2016				No	
1/1/2017				No	
1/2/2017				No	
1/3/2017				Yes	
1/4/2017	1/3/17 8:30	1/4/17 11:45	35.8	Yes	<0.05
1/5/2017	1/4/17 11:45	1/5/17 9:00	21.2	Yes	<0.05
1/6/2017	1/5/17 9:00	1/6/17 9:00	24.0	Yes	<0.05
1/7/2017	1/6/17 9:00	1/7/17 8:45	23.8	Yes	<0.05
1/8/2017	1/7/17 8:45	1/8/17 8:50	24.1	Yes	<0.05
1/9/2017	1/8/17 8:50	1/9/17 9:00	24.2	Yes	<0.05
1/10/2017	1/9/17 9:00	1/10/17 10:00	25.0	Yes	<0.05
1/11/2017	1/10/17 10:00	1/11/17 9:00	23.0	Yes	<0.05
1/12/2017	1/11/17 9:00	1/12/17 9:00	24.0	Yes	<0.05
1/13/2017	1/12/17 9:00	1/13/17 9:00	24.0	Yes	<0.05
1/14/2017	1/13/17 9:00	1/14/17 9:30	24.5	Yes	<0.05
1/15/2017	1/14/17 9:30	1/15/17 8:40	23.2	Yes	<0.05
1/16/2017	1/15/17 8:40	1/16/17 9:30	24.8	Yes	<0.05
1/17/2017	1/16/17 9:30	1/17/17 9:35	24.1	Yes	<0.05
1/18/2017	1/17/17 9:35	1/18/17 9:00	23.4	Yes	<0.05
1/19/2017	1/18/17 9:00	1/19/17 9:55	24.9	Yes	<0.05
1/20/2017	1/19/17 9:55	1/20/17 9:05	23.2	Yes	<0.05
1/21/2017	1/20/17 9:05	1/21/17 10:00	24.9	Yes	<0.05
1/22/2017	1/21/17 10:00	1/22/17 8:30	22.5	Yes	<0.05
1/23/2017	1/22/17 8:30	1/23/17 8:45	24.3	Yes	<0.05
1/24/2017	1/23/17 8:45	1/24/17 8:45	24.0	Yes	<0.05
1/25/2017	1/24/17 8:45	1/25/17 8:30	23.7	Yes	<0.05
1/26/2017	1/25/17 8:30	1/26/17 8:00	23.5	Yes	<0.05
1/27/2017	1/26/17 8:00	1/27/17 13:00	29.0	Yes	<0.05

Composite Sample				Injection at ASR2	Hg (mg/L)
Date Taken	From	To	Hours		
1/28/2017	1/27/17 13:00	1/28/17 10:30	21.5	Yes	<0.05
1/29/2017	1/28/17 10:30	1/29/17 11:00	24.5	Yes	<0.05
1/30/2017	1/29/17 11:00	1/30/17 8:45	21.8	Yes	<0.05
1/31/2017	1/30/17 8:45	1/31/17 9:25	24.7	Yes	<0.05
2/1/2017	1/31/17 9:25	2/1/17 9:30	24.1	Yes	<0.05
2/2/2017	2/1/17 9:30	2/2/17 10:30	25.0	Yes	<0.05
2/3/2017	2/2/17 10:30	2/3/17 9:15	22.7	Yes	<0.05
2/4/2017	2/3/17 9:15	2/4/17 9:30	24.3	Yes	<0.05
2/5/2017	2/4/17 9:30	2/5/17 8:50	23.3	Yes	<0.05
2/6/2017	2/5/17 8:50	2/6/17 9:00	24.2	Yes	<0.05
2/7/2017	2/6/17 9:00	2/7/17 9:00	24.0	Yes	<0.05
2/8/2017	2/7/17 9:00	2/8/17 9:00	24.0	Yes	<0.05
2/9/2017	2/8/17 9:00	2/9/17 9:00	24.0	Yes	<0.05
2/10/2017	2/9/17 9:00	2/10/17 9:30	24.5	Yes	<0.05
2/11/2017	2/10/17 9:30	2/11/17 9:10	23.7	Yes	<0.05
2/12/2017	2/11/17 9:10	2/12/17 9:30	24.3	Yes	<0.05
2/13/2017	2/12/17 9:30	2/13/17 9:30	24.0	Yes	<0.05
2/14/2017	2/13/17 9:30	2/14/17 8:40	23.2	Yes	<0.05
2/15/2017	2/14/17 8:40	2/15/17 8:30	23.8	Yes	<0.05
2/16/2017	2/15/17 8:30	2/16/17 9:00	24.5	No	<0.05
2/17/2017				Yes	
2/18/2017	2/17/17 7:20	2/18/17 0:00	16.7	No	<0.05
2/19/2017				No	
2/20/2017				No	
2/21/2017				Yes	
2/22/2017	2/21/17 0:00	2/22/17 14:00	38.0	Yes	<0.05
2/23/2017	2/22/17 14:00	2/23/17 8:30	18.5	Yes	<0.05
2/24/2017	2/23/17 8:30	2/24/17 11:00	26.5	Yes	<0.05
2/25/2017	2/24/17 11:00	2/25/17 8:10	21.2	Yes	<0.05
2/26/2017	2/25/17 8:10	2/26/17 9:10	25.0	Yes	<0.05
2/27/2017	2/26/17 9:10	2/27/17 8:45	23.6	Yes	<0.05
2/28/2017	2/27/17 8:45	2/28/17 8:40	23.9	Yes	<0.05
3/1/2017	2/28/17 8:40	3/1/17 8:40	24.0	Yes	<0.05
3/2/2017	3/1/17 8:40	3/2/17 8:40	24.0	Yes	<0.05
3/3/2017	3/2/17 8:40	3/3/17 8:45	24.1	Yes	<0.05
3/4/2017	3/3/17 8:45	3/4/17 9:00	24.2	Yes	<0.05
3/5/2017	3/4/17 9:00	3/5/17 9:05	24.1	Yes	<0.05
3/6/2017	3/5/17 9:05	3/6/17 8:45	23.7	Yes	<0.05
3/7/2017	3/6/17 8:45	3/7/17 8:40	23.9	Yes	<0.05
3/8/2017	3/7/17 12:45	3/8/17 9:00	20.3	Yes	<0.05
3/9/2017	3/8/17 9:00	3/9/17 8:30	23.5	Yes	<0.05
3/10/2017	3/9/17 8:30	3/10/17 8:15	23.8	Yes	<0.05

Composite Sample				Injection at ASR2	Hg (mg/L)
Date Taken	From	To	Hours		
3/13/2017	3/12/17 10:10	3/13/17 8:40	22.5	Yes	<0.05
3/14/2017	3/13/17 8:40	3/14/17 8:05	23.4	Yes	<0.05
3/15/2017	3/14/17 8:05	3/15/17 8:25	24.3	Yes	<0.05
3/16/2017	3/15/17 8:25	3/16/17 9:00	24.6	Yes	<0.05
3/17/2017	3/16/17 9:00	3/17/17 9:10	24.2	Yes	<0.05
3/18/2017	3/17/17 9:10	3/18/17 8:10	23.0	Yes	<0.05
3/19/2017	3/18/17 8:10	3/19/17 9:30	25.3	Yes	<0.05
3/20/2017	3/19/17 9:30	3/20/17 9:15	23.7	Yes	<0.05
3/21/2017	3/20/17 9:15	3/21/17 8:20	23.1	Yes	<0.05
3/22/2017	3/21/17 8:20	3/22/17 11:15	26.9	Yes	<0.05
3/23/2017	3/22/17 11:15	3/23/17 8:45	21.5	Yes	<0.05
3/24/2017	3/23/17 8:45	3/24/17 12:30	27.8	Yes	<0.05
3/25/2017	3/24/17 12:30	3/25/17 8:00	19.5	Yes	<0.05
3/26/2017	3/25/17 8:00	3/26/17 8:15	24.2	Yes	<0.05
3/27/2017	3/26/17 8:15	3/27/17 12:30	28.3	Yes	<0.05
3/28/2017	3/27/17 12:30	3/28/17 8:10	19.7	Yes	<0.05
3/29/2017	3/28/17 8:10	3/29/17 9:20	25.2	Yes	<0.05
3/30/2017	3/29/17 9:20	3/30/17 8:45	23.4	Yes	<0.05
3/31/2017	3/30/17 8:45	3/31/17 8:40	23.9	Yes	<0.05
4/1/2017	3/31/17 8:40	4/1/17 8:05	23.4	Yes	<0.05
4/2/2017	4/1/17 8:05	4/2/17 10:10	26.1	Yes	<0.05
4/3/2017	4/2/17 10:10	4/3/17 8:10	22.0	Yes	<0.05
4/4/2017	4/3/17 8:10	4/4/17 8:05	23.9	Yes	<0.05
4/5/2017	4/4/17 8:05	4/5/17 8:00	23.9	Yes	<0.2
4/6/2017	4/5/17 8:00	4/6/17 12:00	28.0	Yes	<0.2
4/7/2017	4/6/17 12:00	4/7/17 9:00	21.0	Yes	<0.2
4/8/2017	4/7/17 9:00	4/8/17 8:10	23.2	Yes	<0.2
4/9/2017	4/8/17 8:10	4/9/17 9:40	25.5	Yes	<0.2
4/10/2017	4/9/17 9:40	4/10/17 8:00	22.3	Yes	<0.2
4/11/2017	4/10/17 8:00	4/11/17 8:00	24.0	Yes	<0.2
4/12/2017	4/11/17 8:00	4/12/17 9:00	25.0	Yes	<0.2
4/13/2017	4/12/17 9:00	4/13/17 9:00	24.0	Yes	<0.5
4/14/2017	4/13/17 9:00	4/14/17 8:45	23.8	Yes	<0.5
4/15/2017	4/14/17 8:45	4/15/17 7:50	23.1	Yes	<0.5
4/16/2017	4/15/17 7:50	4/16/17 9:00	25.2	Yes	<0.5
4/17/2017	4/16/17 9:00	4/17/17 8:05	23.1	Yes	<0.5
4/18/2017	4/17/17 8:05	4/18/17 8:35	24.5	Yes	<0.5
4/19/2017	4/18/17 8:35	4/19/17 8:05	23.5	Yes	<0.5
4/20/2017	4/19/17 8:05	4/20/17 8:00	23.9	Yes	<0.5
4/21/2017	4/20/17 8:00	4/21/17 15:05	31.1	Yes	<0.5
4/22/2017	4/21/17 15:05	4/22/17 9:45	18.7	Yes	<0.5
4/23/2017	4/22/17 9:45	4/23/17 9:20	23.6	Yes	<0.5
4/24/2017	4/23/17 9:20	4/24/17 8:40	23.3	Yes	<0.5

Composite Sample				Injection at ASR2	Hg (mg/L)
Date Taken	From	To	Hours		
4/27/2017	4/26/17 9:00	4/27/17 9:30	24.5	Yes	<0.25
4/28/2017	4/27/17 9:30	4/28/17 8:30	23.0	Yes	<0.25
4/29/2017	4/28/17 8:30	4/29/17 9:45	25.3	Yes	<0.25
4/30/2017	4/29/17 9:45	4/30/17 8:05	22.3	Yes	<0.25
5/1/2017	4/30/17 8:05	5/1/17 8:00	23.9	Yes	<0.25
5/2/2017	5/1/17 8:00	5/2/17 8:00	24.0	Yes	<0.25
5/3/2017	5/2/17 8:00	5/3/17 9:00	25.0	Yes	<0.25
5/4/2017	5/3/17 9:00	5/4/17 9:00	24.0	Yes	<0.25
5/5/2017	5/4/17 9:00	5/5/17 9:00	24.0	Yes	<0.25
5/6/2017	5/5/17 9:00	5/6/17 10:40	25.7	Yes	<0.25
5/7/2017	5/6/17 10:40	5/7/17 12:25	25.7	Yes	<0.25
5/8/2017	5/7/17 12:25	5/8/17 8:00	19.6	Yes	<0.25
5/9/2017	5/8/17 8:00	5/9/17 8:15	24.2	Yes	<0.25
5/10/2017	5/9/17 8:15	5/10/17 8:30	24.2	Yes	<0.25
5/11/2017	5/10/17 8:30	5/11/17 8:30	24.0	Yes	<0.25
5/12/2017	5/11/17 8:30	5/12/17 8:50	24.3	Yes	<0.25
5/13/2017	5/12/17 8:50	5/13/17 8:15	23.4	Yes	<0.25
5/14/2017	5/13/17 8:15	5/14/17 10:45	26.5	Yes	<0.25
5/15/2017	5/14/17 10:45	5/15/17 8:05	21.3	Yes	<0.25
5/16/2017	5/15/17 8:05	5/16/17 8:15	24.2	Yes	<0.25
5/17/2017	5/16/17 8:15	5/17/17 8:00	23.8	Yes	<0.25
5/18/2017	5/17/17 8:00	5/18/17 8:30	24.5	Yes	<0.25
5/19/2017	5/18/17 8:30	5/19/17 11:30	27.0	Yes	<0.25
5/20/2017	5/19/17 11:30	5/20/17 9:15	21.8	Yes	<0.25
5/21/2017	5/20/17 9:15	5/21/17 6:20	21.1	Yes	<0.25
5/22/2017	5/21/17 6:20	5/22/17 8:05	25.7	Yes	<0.25
5/23/2017	5/22/17 8:05	5/23/17 8:05	24.0	Yes	<0.25
5/24/2017	5/23/17 8:05	5/24/17 9:30	25.4	Yes	<0.25
5/25/2017	5/24/17 9:30	5/25/17 8:35	23.1	Yes	<0.25
5/26/2017	5/25/17 8:35	5/26/17 8:35	24.0	Yes	<0.25
5/27/2017	5/26/17 8:35	5/27/17 8:05	23.5	Yes	<0.25
5/28/2017	5/27/17 8:05	5/28/17 8:05	24.0	Yes	<0.25
5/29/2017	5/28/17 8:05	5/29/17 9:40	25.6	Yes	<0.25
5/30/2017	5/29/17 9:40	5/30/17 8:05	22.4	No	<0.25

Carmel Valley Wellfield Production During 2017 ASR Operations (all values in cubic feet)

Date	Panetta #1	Panetta #2	Garzas #3	Garzas #4	LL #5	LL #6	Berwick #8	Berwick #9	Begonia #2	Manor #2	Schulte #2	Pearce	Cypress #2	R. Canada #2	Eastwood-Canada
12/16/2016	0	0	0	58550	52910	65731	60640	0	165724	0	0	0	238709	0	0
12/17/2016	0	0	0	57661	52000	64659	60640	0	165724	0	0	0	238709	0	0
12/18/2016	0	0	0	57629	52019	60733	60640	0	165724	0	0	0	238709	0	0
12/19/2016	0	0	0	58112	52440	67770	60640	63600	165724	0	0	0	238709	0	0
12/20/2016	0	0	0	59699	53930	68608	121000	98800	222976	0	0	0	238709	0	0
12/21/2016	20493	0	0	59158	53611	67242	120300	98500	222080	0	0	0	238709	0	0
12/22/2016	40685	0	0	57542	52389	27638	48400	50800	199936	0	8608	0	238709	0	0
12/23/2016	40595	0	0	57360	52200	61741	50700	62900	171904	0	97888	0	238709	0	0
12/24/2016	40256	0	0	57018	51840	61251	118300	96100	216768	0	23520	0	238709	0	0
12/25/2016	40480	0	0	57200	52010	61360	73700	96900	217984	0	42176	0	238709	0	0
12/26/2016	40454	0	0	57261	52042	61520	74300	96700	217408	0	63712	0	238709	0	0
12/27/2016	40557	0	0	57280	52080	61408	91000	95300	214848	0	147488	0	255300	0	12515
12/28/2016	40678	0	0	57450	52210	61482	97300	94400	212672	0	161216	0	248900	0	12515
12/29/2016	40403	0	0	57110	51899	61440	106000	94500	212992	0	138912	0	239700	0	13566
12/30/2016	40090	0	0	56771	51590	61178	43400	39100	131520	0	39680	0	298250	0	13566
12/31/2016	40768	0	0	40979	52200	61472	60700	56600	216000	0	90304	0	298250	0	13566
1/1/2017	41069	0	0	0	52030	61088	73900	76900	215680	0	88096	0	205750	0	13566
1/2/2017	41062	0	0	0	52010	61072	32900	66800	176704	0	0	0	205750	0	13566
1/3/2017	23782	0	0	0	29379	34829	70300	76100	217024	0	65792	0	252100	0	13174
1/4/2017	16608	0	0	25811	22390	1670	55900	47900	157568	0	111520	0	261850	0	13174
1/5/2017	36698	18130	0	58179	53130	30630	112800	90600	204736	0	229984	0	261850	0	11076
1/6/2017	31814	35901	0	57331	52571	58461	116900	93400	212480	0	247008	0	213233	0	11076
1/7/2017	31808	36050	0	57299	52520	67139	114400	92100	206976	0	243392	0	213233	0	11076
1/8/2017	31840	35920	0	40118	52150	76230	110100	88500	198144	0	234208	0	213233	0	11076
1/9/2017	32710	37349	0	0	52859	76771	46800	37400	84672	0	99200	0	276400	0	11076
1/10/2017	32122	36630	0	0	52170	76259	140567	59050	256043	0	299872	0	269700	0	11076
1/11/2017	32717	37370	0	0	52981	76810	140567	59050	256043	0	299872	0	184300	0	0
1/12/2017	33101	38282	0	0	53880	77181	140567	59050	256043	0	299872	0	44600	0	0
1/13/2017	32672	37530	0	0	53210	76547	110500	59050	126592	0	100288	138750	44600	0	12395
1/14/2017	32838	37789	0	0	53430	76710	70000	99160	185779	0	247397	138750	216200	0	12395
1/15/2017	33197	38400	0	0	40850	77142	128050	99160	185779	0	247397	138750	171000	220107	12395
1/16/2017	32973	38021	0	0	10	76800	128050	99160	185779	0	247397	138750	166800	220107	12395
1/17/2017	32032	36760	0	0	0	75949	128050	99160	185779	0	247397	176300	182700	220107	13338
1/18/2017	31520	35930	0	0	0	75450	128050	99160	185779	0	247397	176300	177300	220107	13338
1/19/2017	31456	35651	0	0	0	75331	117200	92800	212288	0	247397	133400	178700	220107	13447
1/20/2017	32371	36989	0	0	0	76250	112600	89100	203712	0	198720	133400	222500	220107	13447
1/21/2017	32864	37821	0	0	0	76598	92300	73400	169472	0	188384	0	239800	167168	13447
1/22/2017	33248	38370	0	0	0	76762	129167	101033	234432	0	260939	0	260700	173156	13447
1/23/2017	33280	38410	0	0	0	76701	129167	101033	234432	0	260939	133400	273800	173156	13447
1/24/2017	31059	35120	0	0	0	72960	129167	101033	234432	0	260939	133400	281200	173156	13447
1/25/2017	31603	35760	0	0	0	72579	31800	26800	216332	0	72608	133400	275900	173156	13447
1/26/2017	31603	35760	0	0	0	72579	125742	98233	214000	0	229010	180700	273900	173156	13448
1/27/2017	31648	35650	0	0	0	72451	125742	98233	214000	0	229010	180700	271900	173156	13448
1/28/2017	31693	35421	0	0	0	72250	125742	98233	214000	0	229010	180700	269300	173156	13448

Date	Panetta #1	Panetta #2	Garzas #3	Garzas #4	LL #5	LL #6	Berwick #8	Berwick #9	Begonia #2	Manor #2	Schulte #2	Pearce	Cypress #2	R. Canada #2	Eastwood-Canada
1/29/2017	30867	34450	0	0	0	72499	125742	98233	214000	0	229010	180700	268000	173156	13448
1/30/2017	31840	35840	0	0	0	72810	125742	98233	214000	0	229010	180700	110300	173156	13448
1/31/2017	32422	36741	0	0	0	73562	125742	98233	214000	0	229010	180700	174100	173156	13448
2/1/2017	31955	36019	0	0	0	72950	125742	98233	197200	0	229010	172000	268800	173156	13153
2/2/2017	32301	36579	0	0	0	73530	125742	98233	201338	0	229010	170823	267600	173156	13411
2/3/2017	32730	37150	0	0	0	73920	125742	98233	201338	0	229010	170823	271900	173156	13411
2/4/2017	32819	37581	0	0	0	74189	125742	98233	201338	0	237408	170823	277400	173156	13411
2/5/2017	32762	37230	0	0	0	73939	125742	98233	201338	0	237600	170823	277000	173156	13411
2/6/2017	33651	37090	11749	0	0	74051	125742	98233	201338	0	237888	170823	275900	173156	13411
2/7/2017	33318	36570	29270	0	0	73981	79600	92800	201338	0	242112	170823	279800	98624	13411
2/8/2017	32384	34690	57050	0	0	73238	157900	91800	213376	0	236096	170823	283200	172992	13411
2/9/2017	32218	34451	56731	0	0	72912	117900	39047	202624	0	169600	180304	282700	177088	13448
2/10/2017	32546	35165	57277	0	0	73110	115356	90350	211072	0	234600	176324	260067	160224	13448
2/11/2017	32546	35165	57277	0	0	73110	115356	90350	211072	0	234600	176324	260067	160224	13448
2/12/2017	32546	35165	57277	0	0	73110	115356	90350	211072	0	234600	176324	260067	160224	13448
2/13/2017	32546	35165	57277	0	0	73110	115356	90350	211072	0	234600	176324	260100	160224	13448
2/14/2017	32038	34090	56520	0	0	72662	118000	90900	212288	0	235488	176496	279700	168448	13448
2/15/2017	31840	33710	56280	0	0	72570	118000	90500	212224	0	235808	176608	277900	166848	13448
2/16/2017	31802	33750	55830	0	0	73869	116900	90100	210880	0	235200	175792	275400	166912	13099
2/17/2017	31648	34010	56670	0	0	18669	81300	63200	76416	0	231200	92208	107600	56320	13099
2/18/2017	32877	34800	58090	0	0	0	60100	46400	0	0	127008	204688	159400	78080	13099
2/19/2017	33024	33870	56920	0	0	0	0	0	0	0	41184	56608	221700	235328	13099
2/20/2017	21370	21699	36570	0	0	0	18700	0	42688	0	60096	50704	204000	161088	13099
2/21/2017	0	0	0	0	0	0	123100	0	221824	0	249728	195504	319600	0	13099
2/22/2017	0	0	0	0	0	0	46200	100	155648	0	205696	188288	309600	84672	13099
2/23/2017	0	0	0	0	0	0	28000	63800	217600	0	237984	176304	301700	171456	13664
2/24/2017	18650	18690	34190	23712	0	0	14300	70800	151808	0	236992	176896	297700	171648	13664
2/25/2017	32870	32741	56330	49798	0	0	85500	91100	215808	0	236896	175104	293700	168320	13664
2/26/2017	32749	32581	56210	49590	0	0	119100	90700	214592	0	236928	175696	291000	167872	13664
2/27/2017	32832	32650	56210	49651	0	0	119000	90600	214528	0	237280	176608	288200	169728	0
2/28/2017	32858	33240	40381	36550	0	0	118600	90400	214272	0	237024	176704	286100	172800	0
3/1/2017	32749	32520	56080	48438	0	0	118400	90200	213696	0	237888	177296	284100	169216	13038
3/2/2017	32781	32390	55949	48621	0	0	118400	90100	213056	0	235712	176992	282400	167616	12964
3/3/2017	32678	32358	55870	49469	0	0	118400	90000	212992	0	237088	175504	280500	167680	12964
3/4/2017	32723	32510	56000	49610	0	0	118400	90000	213184	0	237280	176304	279400	167808	12964
3/5/2017	32832	32811	56301	49859	0	0	118800	89900	214272	0	237504	175504	279200	168576	12964
3/6/2017	32486	32029	55720	49242	23741	41062	106700	84600	213312	0	236224	175088	277600	167680	12964
3/7/2017	32474	31850	55539	49101	52050	85978	29900	23700	74432	0	169600	124912	180600	126016	12964
3/8/2017	32339	31301	55221	48739	51579	85670	36900	35100	127104	0	239776	181792	234300	178240	12964
3/9/2017	32390	31200	55099	48640	51430	85741	70200	67500	212160	0	239104	181504	232600	175680	13316
3/10/2017	32378	31320	55110	48710	51450	85869	98900	90000	212416	0	239808	182304	231300	175872	13316
3/11/2017	32461	31310	55181	48739	51470	79312	118700	89600	211904	0	239584	181296	230400	174208	13316
3/12/2017	32582	31390	55189	48819	51541	86989	118600	89500	212096	0	239520	181488	229900	175104	13316
3/13/2017	32678	31090	54880	48570	51229	86819	118300	89400	210880	0	238784	180608	243800	171776	13316
3/14/2017	32621	31600	51790	36723	51280	86810	118300	89200	211904	0	239008	179104	251800	170624	13316
3/15/2017	19149	18290	56141	49187	51451	86790	95900	88900	212416	0	238912	178496	251800	170624	13316

Date	Panetta #1	Panetta #2	Garzas #3	Garzas #4	LL #5	LL #6	Berwick #8	Berwick #9	Begonia #2	Manor #2	Schulte #2	Pearce	Cypress #2	R. Canada #2	Eastwood-Canada
3/16/2017	17920	16870	56149	49402	51579	86880	118800	89400	211520	0	238400	179200	252400	171008	13613
3/17/2017	33050	31059	55701	48730	51461	87002	118200	89000	211200	0	238688	179600	251000	168896	13613
3/18/2017	32806	31110	55699	48730	51450	86659	118300	88600	211968	0	238592	178704	251500	169664	13613
3/19/2017	32742	31080	55651	48682	51400	86499	118000	88400	211584	0	237920	178304	251400	170112	13613
3/20/2017	32851	31579	55819	49018	51699	87030	118400	88800	212544	0	243296	46986	269600	189376	13613
3/21/2017	32941	32061	55970	49382	52110	87341	118400	88900	213504	0	241984	104000	262200	181440	13613
3/22/2017	32627	31421	55781	48938	51270	86650	117900	88600	211904	0	237600	179088	250500	168896	13613
3/23/2017	32512	31059	55570	48672	51300	86490	118000	87900	210944	0	237120	178512	249900	167680	13624
3/24/2017	32499	31261	55501	48800	51499	86470	117700	87900	211712	0	231680	179392	250700	168704	13624
3/25/2017	32672	31549	55669	48979	51590	86762	117200	87800	211392	0	239104	179600	249700	168384	13624
3/26/2017	32678	31501	55390	48899	51610	86768	117700	88200	210752	0	237600	179504	250000	168320	13624
3/27/2017	32877	31610	55710	49082	51760	87011	117900	88200	211968	0	239104	178896	250100	168512	13624
3/28/2017	13235	12550	56430	50128	52050	86509	118100	88400	212224	0	238688	180400	250700	168512	13624
3/29/2017	11750	11430	56709	50682	31341	49181	118300	88000	211264	0	241408	189808	145000	186944	10570
3/30/2017	32659	30389	55131	48381	51139	85251	81200	71600	211392	0	238816	183904	192400	177408	13829
3/31/2017	31501	30101	49440	43488	45690	78909	118500	88400	212608	0	237888	183392	194600	178304	13829
4/1/2017	34010	32379	56179	49722	52371	87760	118900	88900	213248	0	239008	186000	195800	179008	13138
4/2/2017	34195	33080	56760	50358	53160	88442	119300	88900	214464	0	239680	186496	197900	180224	13138
4/3/2017	34080	32830	56560	50141	52979	88128	118900	88600	213696	0	238112	184112	213600	176960	13138
4/4/2017	33523	31650	55880	49229	51990	86960	118000	87800	212224	0	236896	181888	217000	173696	13138
4/5/2017	33651	31760	56040	49462	52170	87270	118200	88000	211776	0	236896	183600	216400	173760	13138
4/6/2017	33126	30691	55461	48630	51301	86358	89600	73200	210340	0	236224	183104	213600	171200	13258
4/7/2017	33370	31318	55650	49098	51739	86902	118400	87900	197184	0	225792	185600	221400	150848	13258
4/8/2017	33613	32131	56270	49741	52430	87299	118600	87900	190912	0	220512	184592	262000	130624	13258
4/9/2017	33798	32400	56278	49869	52579	87539	118400	87700	190528	0	218880	183616	278100	128896	13258
4/10/2017	33728	32000	56110	49651	52362	87501	100800	82900	174080	0	208320	175792	266300	74112	13258
4/11/2017	33414	30829	52701	46211	51261	86621	43000	38400	150720	0	219296	185904	257800	132800	13258
4/12/2017	29421	27421	55810	48829	50637	85258	26300	88400	183104	0	219392	186000	250800	132800	13258
4/13/2017	32685	31170	55770	48842	51571	85990	84200	87500	183104	0	160096	188096	255400	138624	13132
4/14/2017	32506	30811	55541	48438	51139	90170	66800	59900	182784	0	218304	182992	250400	131392	13132
4/15/2017	32890	31238	55390	48909	51552	90861	58550	70700	182720	0	219008	184912	251000	132096	13132
4/16/2017	32499	30981	55579	48733	36608	90192	89200	74500	182272	0	217280	184304	249600	130304	13132
4/17/2017	32499	31010	54760	48698	29110	82029	90300	86900	181568	0	218912	184688	249200	129984	13132
4/18/2017	32378	31120	55530	47002	51370	90490	63600	70200	182656	0	217696	184704	249000	129600	13132
4/19/2017	32211	31160	55380	48358	51261	90531	118600	86700	180992	0	217088	183696	248700	128064	13132
4/20/2017	32390	31550	55600	48640	51600	90950	118200	86600	181312	0	217216	184208	249000	129216	12848
4/21/2017	33062	32440	55840	49261	52230	91818	118700	87300	181952	0	218496	187088	250500	131392	12848
4/22/2017	33670	32030	55979	49562	52531	91933	118900	87300	182720	0	220000	186112	250900	132352	12848
4/23/2017	33920	32370	56211	49549	52579	91770	118800	87200	183104	0	218304	184592	265900	129344	12848
4/24/2017	33798	32070	56130	49440	52480	91590	118900	87300	183296	0	217600	184208	267300	128128	12848
4/25/2017	33869	32120	56080	49370	52410	91610	118400	87000	182592	0	190208	185200	262900	142912	12848
4/26/2017	33651	31709	55880	49171	52189	79418	117200	86900	182016	0	215776	183088	257800	148608	12848
4/27/2017	34266	31858	56170	46144	52320	83332	118100	86560	181837	0	211143	183040	257775	148429	12463
4/28/2017	34266	31858	56170	46144	52320	83332	118100	86560	181837	0	211143	183040	257775	148429	12463
4/29/2017	34266	31858	56170	46144	52320	83332	118100	86560	181837	0	211143	183040	257775	148429	12463
4/30/2017	34266	31858	56170	46144	52320	83332	118100	86560	181837	0	211143	183040	257775	148429	12463

Date	Panetta #1	Panetta #2	Garzas #3	Garzas #4	LL #5	LL #6	Berwick #8	Berwick #9	Begonia #2	Manor #2	Schulte #2	Pearce	Cypress #2	R. Canada #2	Eastwood-Canada
5/1/2017	34266	31858	56170	46144	52320	83333	118100	86560	181837	0	211142	183040	257800	148429	12774
5/2/2017	35021	32430	56030	49699	52742	91939	118300	87100	182080	0	218496	184608	258400	149056	12774
5/3/2017	34669	31909	55840	49328	52310	91360	118400	87100	182592	0	216896	183504	257400	147456	12774
5/4/2017	33632	31010	55539	48691	51728	90358	117000	85500	181504	0	215712	181392	255900	145728	12150
5/5/2017	33208	30433	55670	48062	31675	89798	104900	85200	180400	0	214552	180252	254667	143552	12150
5/6/2017	33208	30433	55670	48062	31675	89798	104900	85200	180400	0	214552	180252	254667	143552	12150
5/7/2017	33208	30433	55670	48062	31675	89798	104900	85200	180400	0	214552	180252	254667	143552	12150
5/8/2017	33208	30433	55670	19024	31675	89798	104900	85200	180400	0	214552	180252	254600	143552	12150
5/9/2017	34419	32819	57360	0	52170	90541	111300	80900	170432	0	196096	172800	243100	149760	12150
5/10/2017	34470	32941	57400	0	52259	90560	117200	85500	180608	0	215392	181792	255600	145216	12150
5/11/2017	34368	32779	57190	0	50682	90419	117500	85500	180672	0	215488	182512	255800	144704	12310
5/12/2017	34490	33211	57581	0	52509	90672	117500	85100	180288	0	215712	181792	256300	144896	12310
5/13/2017	34643	33610	57779	0	52810	95299	117700	85700	181952	0	214912	181200	257100	145920	12310
5/14/2017	34618	33680	57821	0	52861	95091	117700	85600	181952	0	215584	182304	257300	145472	12310
5/15/2017	34566	33610	57760	0	52790	99370	117100	85100	181312	0	214592	181488	256900	145792	12310
5/16/2017	34790	33970	57829	0	53050	106458	117400	85600	181824	0	215712	183104	257400	146112	12310
5/17/2017	34995	34171	58021	0	53229	106653	117300	85600	182208	0	215712	183008	257800	145536	12310
5/18/2017	35328	34259	57810	0	53341	105888	116900	85900	182272	0	215776	183600	258300	146496	11879
5/19/2017	35290	34160	57730	0	53190	106710	111400	80900	170816	0	203904	173696	243500	138688	11879
5/20/2017	35258	33661	57301	0	52838	107290	117100	85300	181504	0	215808	183296	256900	147072	11879
5/21/2017	35072	34090	57890	0	53152	109440	117500	85500	181568	0	215808	183104	257200	147008	11879
5/22/2017	34138	32219	56950	0	51638	92640	71300	84700	178944	0	212800	181008	253500	142592	11879
5/23/2017	34144	32210	57010	0	51661	101811	2600	45600	153600	0	197088	194992	82400	169216	11879
5/24/2017	33958	32211	56990	0	51600	105181	22500	44900	168896	0	221696	193296	97000	164608	11879
5/25/2017	34067	32050	56739	0	51482	101347	46200	42300	106112	0	215424	183104	247700	143424	9897
5/26/2017	34003	32261	57030	0	51667	106653	49500	80300	175744	0	210080	178800	254900	139776	9897
5/27/2017	33997	32130	56861	0	51552	104730	68700	84500	179840	0	213312	181200	253300	142080	9897
5/28/2017	33901	32080	56789	0	51459	104320	83000	67300	179584	0	214688	181600	252900	141184	9897
5/29/2017	33990	32350	57000	0	51731	103370	58000	84500	180288	0	214400	180992	253200	141952	9897
5/30/2017	33824	31878	56730	0	51379	103030	67000	84300	179584	0	213120	180208	251900	140672	9897
5/31/2017	19258	18202	33931	0	33590	69699	40400	62000	145216	0	179968	158096	235400	131520	9897



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1612C51

Report Created for: Monterey Peninsula Water Management

5 Harris Ct. Bldg G
Monterey, CA 93940

Project Contact: Maureen Hamilton

Project P.O.:

Project Name: ASR; Monterey, CA

Project Received: 12/27/2016

Analytical Report reviewed & approved for release on 01/03/2017 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Peninsula Water Management
Project: ASR; Monterey, CA
WorkOrder: 1612C51

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Quality Control Qualifiers

F13 Indigenous sample results too high for a representative matrix spike analysis.



Analytical Report

Client: Monterey Peninsula Water Management
Date Received: 12/27/16 9:14
Date Prepared: 12/27/16-12/29/16
Project: ASR; Monterey, CA

WorkOrder: 1612C51
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
1	1612C51-001A	Water	12/17/2016 09:20	ICP-MS3	131834

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	12/27/2016 21:42

Surrogates	REC (%)	Limits
Terbium	107	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
2	1612C51-002A	Water	12/18/2016 13:40	ICP-MS2	131904

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	12/29/2016 22:43

Surrogates	REC (%)	Limits
Terbium	110	70-130

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
3	1612C51-003A	Water	12/19/2016 11:32	ICP-MS3	131834

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	12/27/2016 22:45

Surrogates	REC (%)	Limits
Terbium	102	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
4	1612C51-004A	Water	12/20/2016 08:55	ICP-MS3	131834

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	12/27/2016 22:51

Surrogates	REC (%)	Limits
Terbium	105	70-130

Analyst(s): DVH

(Cont.)



Analytical Report

Client: Monterey Peninsula Water Management
Date Received: 12/27/16 9:14
Date Prepared: 12/27/16-12/29/16
Project: ASR; Monterey, CA

WorkOrder: 1612C51
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
5	1612C51-005A	Water	12/21/2016 09:15	ICP-MS3	131834

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	12/27/2016 22:57

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	104	70-130	12/27/2016 22:57

Analyst(s): DVH



Quality Control Report

Client: Monterey Peninsula Water Management
Date Prepared: 12/27/16
Date Analyzed: 12/27/16
Instrument: ICP-MS3
Matrix: Water
Project: ASR; Monterey, CA

WorkOrder: 1612C51
BatchID: 131834
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L
Sample ID: MB/LCS-131834
 1612C51-001AMS/MSD

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Mercury	ND	1.30	0.050	1.25	-	104	85-115
Surrogate Recovery							
Terbium	774	806		750	103	108	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Mercury	1.38	1.38	1.25	ND	107	107	75-125	0	20
Surrogate Recovery									
Terbium	810	826	750		108	110	70-130	1.88	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Mercury	ND<0.25	ND	-	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



Quality Control Report

Client: Monterey Peninsula Water Management
Date Prepared: 12/28/16
Date Analyzed: 12/29/16
Instrument: ICP-MS2
Matrix: Water
Project: ASR; Monterey, CA

WorkOrder: 1612C51
BatchID: 131904
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L
Sample ID: MB/LCS-131904
 1612D40-001CMS/MSD

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Mercury	ND	1.34	0.050	1.25	-	107	85-115
Surrogate Recovery							
Terbium	800	853		750	107	114	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Mercury	3.77	2.86	1.25	9.0	0,F13	0,F13	75-125	NA	20
Surrogate Recovery									
Terbium	873	856	750		116	114	70-130	1.96	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Mercury	8.20	9.0	8.89	20

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1612C51

ClientCode: MPWM

QuoteID: 6557

WaterTrax
 WriteOn
 EDF
 Excel
 EQUIS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Maureen Hamilton
Monterey Peninsula Water Management
5 Harris Ct. Bldg G
Monterey, CA 93940
(831) 658-5600 FAX:

Email: mhamilton@mpwmd.net
cc/3rd Party:
PO:
ProjectNo: ASR; Monterey, CA

Bill to:

Maureen Hamilton
Monterey Peninsula Water Management
5 Harris Ct. Bldg G
Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 12/27/2016

Date Logged: 12/27/2016

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1612C51-001	1	Water	12/17/2016 09:20	<input type="checkbox"/>	A												
1612C51-002	2	Water	12/18/2016 13:40	<input type="checkbox"/>	A												
1612C51-003	3	Water	12/19/2016 11:32	<input type="checkbox"/>	A												
1612C51-004	4	Water	12/20/2016 08:55	<input type="checkbox"/>	A												
1612C51-005	5	Water	12/21/2016 09:15	<input type="checkbox"/>	A												

Test Legend:

1	METALSMS_TTLC_W	2		3		4	
5		6		7		8	
9		10		11		12	

Project Manager: Heidi Fruhlinger

Prepared by: Agustina Venegas

Comments: 32 samples per month for a 1yr

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY PENINSULA WATER MANAGEMENT **Project:** ASR; Monterey, CA

Client Contact: Maureen Hamilton

Contact's Email: mhamilton@mpwmd.net

Comments: 32 samples per month for a 1yr

Work Order: 1612C51

QC Level:

Date Logged: 12/27/2016

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1612C51-001A	1	Water	E200.8 (Metals) <Mercury>	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	12/17/2016 9:20	5 days	Present	<input type="checkbox"/>	
1612C51-002A	2	Water	E200.8 (Metals) <Mercury>	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	12/18/2016 13:40	5 days	Present	<input type="checkbox"/>	
1612C51-003A	3	Water	E200.8 (Metals) <Mercury>	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	12/19/2016 11:32	5 days	None	<input type="checkbox"/>	
1612C51-004A	4	Water	E200.8 (Metals) <Mercury>	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	12/20/2016 8:55	5 days	None	<input type="checkbox"/>	
1612C51-005A	5	Water	E200.8 (Metals) <Mercury>	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	12/21/2016 9:15	5 days	None	<input type="checkbox"/>	

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).

- 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.



McC Campbell Analytical, Inc.

1534 Willow Pass Rd. / Pittsburg, Ca. 94565-1701
www.mcccampbell.com / main@mcccampbell.com
Telephone: (877) 252-9262 / Fax: (925) 252-9269

112051

CHAIN OF CUSTODY RECORD

TURN AROUND TIME: RUSH 1 DAY 2 DAY 3 DAY 5 DAY

GeoTracker EDF PDF EDD Write On (DW) EQUIS 10 DAY

Effluent Sample Requiring "J" flag UST Clean Up Fund Project ; Claim # _____

Report To: **Maureen Hamilton** Bill To: **same**

Company: **Monterey Peninsula Water District**

Tele: (831) 658-5622 E-Mail: **mhamilton@mpwmd.net**

Project #: _____ Project Name: **ASR**

Project Location: **Monterey, CA** Purchase Order# **Quote# 6657**

Sampler Signature: *Maureen Hamilton*

Analysis Request

SAMPLE ID	Location/ Field Point Name	SAMPLING		# Containers	MATRIX										METHOD PRESERVED			
		Date	Time		Ground Water	Waste Water	Drinking Water	Sea Water	Soil	Air	Sludge	Other	HCL	HNO ₃	Other			
1	INS	12/17	09:20	X													X	EPA 200.8 Hg
2	↓	12/18	13:40	↓													↓	
3	↓	12/19	11:30	↓													↓	
4	↓	12/20	08:45	↓													↓	
5	↓	12/21	09:14	↓													↓	

**MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate \$250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

*** If metals are requested for water samples and the water type is not specified on the chain of custody, then MAI will default to metals by E200.8.

Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

ICE/t° _____ COMMENTS:

GOOD CONDITION _____

HEAD SPACE ABSENT _____

DECHLORINATED IN LAB _____

APPROPRIATE CONTAINERS _____

PRESERVED IN LAB _____

VOAS O&G METALS OTHER HAZARDOUS:

PRESERVATION pH<2



Sample Receipt Checklist

Client Name: **Monterey Peninsula Water Management**
 Project Name: **ASR; Monterey, CA**
 WorkOrder No: **1612C51** Matrix: Water
 Carrier: FedEx

Date and Time Received: **12/27/2016 09:14**
 Date Logged: **12/27/2016**
 Received by: Agustina Venegas
 Logged by: Agustina Venegas

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No NA
 Sample/Temp Blank temperature Temp: NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments: pH adjusted in Lab.



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1612E19

Report Created for: Monterey Peninsula Water Management

5 Harris Ct. Bldg G
Monterey, CA 93940

Project Contact: Maureen Hamilton

Project P.O.:

Project Name: ASR; Monterey, CA

Project Received: 12/29/2016

Analytical Report reviewed & approved for release on 01/05/2017 by:

Angela Rydelius,
Laboratory Manager

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Glossary of Terms & Qualifier Definitions

Client: Monterey Peninsula Water Management
Project: ASR; Monterey, CA
WorkOrder: 1612E19

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Peninsula Water Management
Date Received: 12/29/16 13:10
Date Prepared: 12/29/16
Project: ASR; Monterey, CA

WorkOrder: 1612E19
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Mercury

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
MW 1	1612E19-001A	Water	12/28/2016 11:42	ICP-MS3	131984

Analytes	Result	RL	DF	Date Analyzed
Mercury	0.23	0.050	1	12/30/2016 09:11

Surrogates	REC (%)	Limits
Terbium	102	70-130

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
5 ASR 2	1612E19-002A	Water	12/22/2016	ICP-MS3	131984

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	12/30/2016 09:17

Surrogates	REC (%)	Limits
Terbium	101	70-130

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
6 ASR 2	1612E19-003A	Water	12/24/2016	ICP-MS3	131984

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	12/30/2016 09:42

Surrogates	REC (%)	Limits
Terbium	100	70-130

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
7 ASR 2	1612E19-004A	Water	12/25/2016	ICP-MS3	131984

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	12/30/2016 09:48

Surrogates	REC (%)	Limits
Terbium	100	70-130

Analyst(s): DB

(Cont.)



Analytical Report

Client: Monterey Peninsula Water Management
Date Received: 12/29/16 13:10
Date Prepared: 12/29/16
Project: ASR; Monterey, CA

WorkOrder: 1612E19
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Mercury

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
8 ASR 2	1612E19-005A	Water	12/26/2016 12:45	ICP-MS3	131984

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	12/30/2016 09:55

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	102	70-130	12/30/2016 09:55

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
9 ASR 2	1612E19-006A	Water	12/27/2016 10:40	ICP-MS3	131984

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	12/30/2016 10:01

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	99	70-130	12/30/2016 10:01

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
10 ASR 2	1612E19-007A	Water	12/28/2016 09:30	ICP-MS3	131984

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	12/30/2016 10:07

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	99	70-130	12/30/2016 10:07

Analyst(s): DB



Quality Control Report

Client: Monterey Peninsula Water Management
Date Prepared: 12/29/16
Date Analyzed: 12/29/16 - 12/30/16
Instrument: ICP-MS2
Matrix: Water
Project: ASR; Monterey, CA

WorkOrder: 1612E19
BatchID: 131984
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L
Sample ID: MB/LCS-131984
 1612E08-001AMS/MSD

QC Summary Report for Mercury

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Mercury	ND	1.25	0.050	1.25	-	100	85-115
Surrogate Recovery							
Terbium	794	807		750	106	108	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Mercury	1.40	1.39	1.25	ND	111	110	75-125	1.22	20
Surrogate Recovery									
Terbium	842	842	750		112	112	70-130	0	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Mercury	ND<0.25	ND	-	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



1534 Willow Pass Rd
 Pittsburg, CA 94565-1701
 (925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1612E19

ClientCode: MPWM

WaterTrax
 WriteOn
 EDF
 Excel
 EQulS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Maureen Hamilton
 Monterey Peninsula Water Management
 5 Harris Ct. Bldg G
 Monterey, CA 93940
 (831) 658-5600 FAX:

Email: mhamilton@mpwmd.net
 cc/3rd Party:
 PO:
 ProjectNo: ASR; Monterey, CA

Bill to:

Maureen Hamilton
 Monterey Peninsula Water Management
 5 Harris Ct. Bldg G
 Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 12/29/2016

Date Logged: 12/29/2016

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1612E19-001	MW 1	Water	12/28/2016 11:42	<input type="checkbox"/>	A												
1612E19-002	5 ASR 2	Water	12/22/2016 00:00	<input type="checkbox"/>	A												
1612E19-003	6 ASR 2	Water	12/24/2016 00:00	<input type="checkbox"/>	A												
1612E19-004	7 ASR 2	Water	12/25/2016 00:00	<input type="checkbox"/>	A												
1612E19-005	8 ASR 2	Water	12/26/2016 12:45	<input type="checkbox"/>	A												
1612E19-006	9 ASR 2	Water	12/27/2016 10:40	<input type="checkbox"/>	A												
1612E19-007	10 ASR 2	Water	12/28/2016 09:30	<input type="checkbox"/>	A												

Test Legend:

1	HGMS_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Agustina Venegas

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days). Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY PENINSULA WATER MANAGEMENT **Project:** ASR; Monterey, CA

Client Contact: Maureen Hamilton

Contact's Email: mhamilton@mpwmd.net

Work Order: 1612E19

QC Level: LEVEL 2

Date Logged: 12/29/2016

Comments:

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1612E19-001A	MW 1	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	12/28/2016 11:42	5 days	None	<input type="checkbox"/>	
1612E19-002A	5 ASR 2	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	12/22/2016	5 days	None	<input type="checkbox"/>	
1612E19-003A	6 ASR 2	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	12/24/2016	5 days	None	<input type="checkbox"/>	
1612E19-004A	7 ASR 2	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	12/25/2016	5 days	Present	<input type="checkbox"/>	
1612E19-005A	8 ASR 2	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	12/26/2016 12:45	5 days	None	<input type="checkbox"/>	
1612E19-006A	9 ASR 2	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	12/27/2016 10:40	5 days	None	<input type="checkbox"/>	
1612E19-007A	10 ASR 2	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	12/28/2016 9:30	5 days	None	<input type="checkbox"/>	

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).

- 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.



Sample Receipt Checklist

Client Name: **Monterey Peninsula Water Management**
 Project Name: **ASR; Monterey, CA**
 WorkOrder No: **1612E19** Matrix: Water
 Carrier: FedEx

Date and Time Received: **12/29/2016 13:10**
 Date Logged: **12/29/2016**
 Received by: **Agustina Venegas**
 Logged by: **Agustina Venegas**

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No NA
 Sample/Temp Blank temperature Temp: NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:



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"When Quality Counts"

Analytical Report

WorkOrder: 1612C51

Report Created for: Monterey Peninsula Water Management

5 Harris Ct. Bldg G
Monterey, CA 93940

Project Contact: Maureen Hamilton

Project P.O.:

Project Name: ASR; Monterey, CA

Project Received: 12/27/2016

Analytical Report reviewed & approved for release on 01/03/2017 by:

Angela Rydelius,
Laboratory Manager

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Glossary of Terms & Qualifier Definitions

Client: Monterey Peninsula Water Management
Project: ASR; Monterey, CA
WorkOrder: 1612C51

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Quality Control Qualifiers

F13 Indigenous sample results too high for a representative matrix spike analysis.



Analytical Report

Client: Monterey Peninsula Water Management
Date Received: 12/27/16 9:14
Date Prepared: 12/27/16-12/29/16
Project: ASR; Monterey, CA

WorkOrder: 1612C51
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
1	1612C51-001A	Water	12/17/2016 09:20	ICP-MS3	131834

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Mercury	ND	0.050	1	12/27/2016 21:42

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>
Terbium	107	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
2	1612C51-002A	Water	12/18/2016 13:40	ICP-MS2	131904

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Mercury	ND	0.050	1	12/29/2016 22:43

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>
Terbium	110	70-130

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
3	1612C51-003A	Water	12/19/2016 11:32	ICP-MS3	131834

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Mercury	ND	0.050	1	12/27/2016 22:45

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>
Terbium	102	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
4	1612C51-004A	Water	12/20/2016 08:55	ICP-MS3	131834

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Mercury	ND	0.050	1	12/27/2016 22:51

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>
Terbium	105	70-130

Analyst(s): DVH

(Cont.)



Analytical Report

Client: Monterey Peninsula Water Management

WorkOrder: 1612C51

Date Received: 12/27/16 9:14

Extraction Method: E200.8

Date Prepared: 12/27/16-12/29/16

Analytical Method: E200.8

Project: ASR; Monterey, CA

Unit: µg/L

Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
5	1612C51-005A	Water	12/21/2016 09:15	ICP-MS3	131834

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	12/27/2016 22:57

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	104	70-130	12/27/2016 22:57

Analyst(s): DVH



Quality Control Report

Client: Monterey Peninsula Water Management
Date Prepared: 12/27/16
Date Analyzed: 12/27/16
Instrument: ICP-MS3
Matrix: Water
Project: ASR; Monterey, CA

WorkOrder: 1612C51
BatchID: 131834
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L
Sample ID: MB/LCS-131834
 1612C51-001AMS/MSD

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Mercury	ND	1.30	0.050	1.25	-	104	85-115
Surrogate Recovery							
Terbium	774	806		750	103	108	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Mercury	1.38	1.38	1.25	ND	107	107	75-125	0	20
Surrogate Recovery									
Terbium	810	826	750		108	110	70-130	1.88	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Mercury	ND<0.25	ND	-	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



Quality Control Report

Client: Monterey Peninsula Water Management
Date Prepared: 12/28/16
Date Analyzed: 12/29/16
Instrument: ICP-MS2
Matrix: Water
Project: ASR; Monterey, CA

WorkOrder: 1612C51
BatchID: 131904
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L
Sample ID: MB/LCS-131904
 1612D40-001CMS/MSD

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Mercury	ND	1.34	0.050	1.25	-	107	85-115
Surrogate Recovery							
Terbium	800	853		750	107	114	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Mercury	3.77	2.86	1.25	9.0	0,F13	0,F13	75-125	NA	20
Surrogate Recovery									
Terbium	873	856	750		116	114	70-130	1.96	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Mercury	8.20	9.0	8.89	20

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



1534 Willow Pass Rd
 Pittsburg, CA 94565-1701
 (925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1612C51

ClientCode: MPWM

QuoteID: 6557

WaterTrax
 WriteOn
 EDF
 Excel
 EQUIS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Maureen Hamilton
 Monterey Peninsula Water Management
 5 Harris Ct. Bldg G
 Monterey, CA 93940
 (831) 658-5600 FAX:

Email: mhamilton@mpwmd.net
 cc/3rd Party:
 PO:
 ProjectNo: ASR; Monterey, CA

Bill to:

Maureen Hamilton
 Monterey Peninsula Water Management
 5 Harris Ct. Bldg G
 Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 12/27/2016

Date Logged: 12/27/2016

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1612C51-001	1	Water	12/17/2016 09:20	<input type="checkbox"/>	A												
1612C51-002	2	Water	12/18/2016 13:40	<input type="checkbox"/>	A												
1612C51-003	3	Water	12/19/2016 11:32	<input type="checkbox"/>	A												
1612C51-004	4	Water	12/20/2016 08:55	<input type="checkbox"/>	A												
1612C51-005	5	Water	12/21/2016 09:15	<input type="checkbox"/>	A												

Test Legend:

1	METALSMS_TTLC_W	2		3		4	
5		6		7		8	
9		10		11		12	

Project Manager: Heidi Fruhlinger

Prepared by: Agustina Venegas

Comments: 32 samples per month for a 1yr

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
 Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY PENINSULA WATER MANAGEMENT **Project:** ASR; Monterey, CA

Client Contact: Maureen Hamilton

Contact's Email: mhamilton@mpwmd.net

Comments: 32 samples per month for a 1yr

Work Order: 1612C51

QC Level:

Date Logged: 12/27/2016

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1612C51-001A	1	Water	E200.8 (Metals) <Mercury>	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	12/17/2016 9:20	5 days	Present	<input type="checkbox"/>	
1612C51-002A	2	Water	E200.8 (Metals) <Mercury>	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	12/18/2016 13:40	5 days	Present	<input type="checkbox"/>	
1612C51-003A	3	Water	E200.8 (Metals) <Mercury>	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	12/19/2016 11:32	5 days	None	<input type="checkbox"/>	
1612C51-004A	4	Water	E200.8 (Metals) <Mercury>	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	12/20/2016 8:55	5 days	None	<input type="checkbox"/>	
1612C51-005A	5	Water	E200.8 (Metals) <Mercury>	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	12/21/2016 9:15	5 days	None	<input type="checkbox"/>	

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).

- 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.



McC Campbell Analytical, Inc.

1534 Willow Pass Rd. / Pittsburg, Ca. 94565-1701
www.mcccampbell.com / main@mcccampbell.com
Telephone: (877) 252-9262 / Fax: (925) 252-9269

112051

CHAIN OF CUSTODY RECORD

TURN AROUND TIME: RUSH 1 DAY 2 DAY 3 DAY 5 DAY

GeoTracker EDF PDF EDD Write On (DW) EQUIS 10 DAY

Effluent Sample Requiring "J" flag UST Clean Up Fund Project ; Claim # _____

Report To: **Maureen Hamilton** Bill To: **same**

Company: **Monterey Peninsula Water District**

Tele: (831) 658-5622 E-Mail: **mhamilton@mpwmd.net**

Project #: _____ Project Name: **ASR**

Project Location: **Monterey, CA** Purchase Order# **Quote# 6657**

Sampler Signature: *Maureen Hamilton*

Analysis Request

SAMPLE ID	Location/ Field Point Name	SAMPLING		# Containers	MATRIX										METHOD PRESERVED		EPA 200.8 Hg
		Date	Time		Ground Water	Waste Water	Drinking Water	Sea Water	Soil	Air	Sludge	Other	HCL	HNO ₃	Other		
1	INS	12/17	09:20	X													X
2	↓	12/18	13:40	↓													↓
3	↓	12/19	11:30	↓													↓
4	↓	12/20	08:45	↓													↓
5	↓	12/21	09:14	↓													↓

**MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate \$250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

*** If metals are requested for water samples and the water type is not specified on the chain of custody, then MAI will default to metals by E200.8.

Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

ICE/t° _____ COMMENTS:

GOOD CONDITION _____

HEAD SPACE ABSENT _____

DECHLORINATED IN LAB _____

APPROPRIATE CONTAINERS _____

PRESERVED IN LAB _____

VOAS O&G METALS OTHER HAZARDOUS:

PRESERVATION pH<2



Sample Receipt Checklist

Client Name: **Monterey Peninsula Water Management**
Project Name: **ASR; Monterey, CA**
WorkOrder No: **1612C51** Matrix: Water
Carrier: FedEx

Date and Time Received **12/27/2016 09:14**
Date Logged: **12/27/2016**
Received by: **Agustina Venegas**
Logged by: **Agustina Venegas**

Chain of Custody (COC) Information

Chain of custody present? Yes No
Chain of custody signed when relinquished and received? Yes No
Chain of custody agrees with sample labels? Yes No
Sample IDs noted by Client on COC? Yes No
Date and Time of collection noted by Client on COC? Yes No
Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
Shipping container/cooler in good condition? Yes No
Samples in proper containers/bottles? Yes No
Sample containers intact? Yes No
Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No NA
Sample/Temp Blank temperature Temp: NA
Water - VOA vials have zero headspace / no bubbles? Yes No NA
Sample labels checked for correct preservation? Yes No
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
Samples Received on Ice? Yes No

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments: pH adjusted in Lab.



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1701512

Report Created for: Monterey Peninsula Water Management

5 Harris Ct. Bldg G
Monterey, CA 93940

Project Contact: Maureen Hamilton

Project P.O.:

Project Name: Injection @ ASR2

Project Received: 01/13/2017

Analytical Report reviewed & approved for release on 01/20/2017 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Peninsula Water Management
Project: Injection @ ASR2
WorkOrder: 1701512

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Peninsula Water Management
Date Received: 1/13/17 10:12
Date Prepared: 1/13/17
Project: Injection @ ASR2

WorkOrder: 1701512
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Mercury

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
INJ@ASR2 #19	1701512-001A	Water	01/11/2017 09:00	ICP-MS3	132608

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	01/17/2017 19:23

Surrogates	REC (%)	Limits
Terbium	103	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
INJ@ASR #18	1701512-002A	Water	01/10/2017	ICP-MS3	132608

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	01/17/2017 19:29

Surrogates	REC (%)	Limits
Terbium	102	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
#16	1701512-003A	Water	01/09/2017 09:30	ICP-MS3	132608

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	01/17/2017 19:35

Surrogates	REC (%)	Limits
Terbium	105	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
#15	1701512-004A	Water	01/08/2017	ICP-MS3	132608

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	01/17/2017 19:42

Surrogates	REC (%)	Limits
Terbium	108	70-130

Analyst(s): DVH

(Cont.)



Analytical Report

Client: Monterey Peninsula Water Management
Date Received: 1/13/17 10:12
Date Prepared: 1/13/17
Project: Injection @ ASR2

WorkOrder: 1701512
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Mercury

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
#14	1701512-005A	Water	01/07/2017 08:45	ICP-MS3	132608

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Mercury	ND	0.050	1	01/17/2017 19:48

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>
Terbium	103	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
#13	1701512-006A	Water	01/06/2017 09:00	ICP-MS3	132608

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Mercury	ND	0.050	1	01/17/2017 19:54

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>
Terbium	103	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
#11	1701512-007A	Water	12/29/2016	ICP-MS3	132608

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Mercury	ND	0.050	1	01/17/2017 20:00

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>
Terbium	105	70-130

Analyst(s): DVH



Quality Control Report

Client: Monterey Peninsula Water Management
Date Prepared: 1/13/17
Date Analyzed: 1/13/17 - 1/17/17
Instrument: ICP-MS3
Matrix: Water
Project: Injection @ ASR2

WorkOrder: 1701512
BatchID: 132608
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L
Sample ID: MB/LCS-132608
 1701485-002AMS/MSD

QC Summary Report for Mercury

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Mercury	ND	1.27	0.050	1.25	-	101	85-115
Surrogate Recovery							
Terbium	726.3	765		750	97	102	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Mercury	1.37	1.41	1.25	ND	109	113	75-125	2.95	20
Surrogate Recovery									
Terbium	821	795	750		110	106	70-130	3.30	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Mercury	ND<0.25	ND	-	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1701512

ClientCode: MPWM

QuoteID: 6557

WaterTrax
 WriteOn
 EDF
 Excel
 EQUIS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Maureen Hamilton
Monterey Peninsula Water Management
5 Harris Ct. Bldg G
Monterey, CA 93940
(831) 658-5600 FAX:

Email: mhamilton@mpwmd.net
cc/3rd Party:
PO:
ProjectNo: Injection @ ASR2

Bill to:

Maureen Hamilton
Monterey Peninsula Water Management
5 Harris Ct. Bldg G
Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 01/13/2017

Date Logged: 01/13/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1701512-001	INJ@ASR2 #19	Water	1/11/2017 09:00	<input type="checkbox"/>	A												
1701512-002	INJ@ASR #18	Water	1/10/2017 00:00	<input type="checkbox"/>	A												
1701512-003	#16	Water	1/9/2017 09:30	<input type="checkbox"/>	A												
1701512-004	#15	Water	1/8/2017 00:00	<input type="checkbox"/>	A												
1701512-005	#14	Water	1/7/2017 08:45	<input type="checkbox"/>	A												
1701512-006	#13	Water	1/6/2017 09:00	<input type="checkbox"/>	A												
1701512-007	#11	Water	12/29/2016 00:00	<input type="checkbox"/>	A												

Test Legend:

1	HGMS_W	2		3		4	
5		6		7		8	
9		10		11		12	

Project Manager: Heidi Fruhlinger

Prepared by: Alexandra Iniguez

Comments: 32 samples per month for a1yr

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY PENINSULA WATER MANAGEMENT

Project: Injection @ ASR2

Work Order: 1701512

Client Contact: Maureen Hamilton

QC Level:

Contact's Email: mhamilton@mpwmd.net

Comments: 32 samples per month for a 1yr

Date Logged: 1/13/2017

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1701512-001A	INJ@ASR2 #19	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	1/11/2017 9:00	5 days	Trace	<input type="checkbox"/>	
1701512-002A	INJ@ASR #18	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	1/10/2017	5 days	Trace	<input type="checkbox"/>	
1701512-003A	#16	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	1/9/2017 9:30	5 days	Trace	<input type="checkbox"/>	
1701512-004A	#15	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	1/8/2017	5 days	Trace	<input type="checkbox"/>	
1701512-005A	#14	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	1/7/2017 8:45	5 days	Trace	<input type="checkbox"/>	
1701512-006A	#13	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	1/6/2017 9:00	5 days	Trace	<input type="checkbox"/>	
1701512-007A	#11	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	12/29/2016	5 days	Trace	<input type="checkbox"/>	

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).

- 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.

701512



McC Campbell Analytical, Inc.

1534 Willow Pass Rd. / Pittsburg, Ca. 94565-1701
 www.mcccampbell.com / main@mcccampbell.com
 Telephone: (877) 252-9262 / Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME: RUSH 1 DAY 2 DAY 3 DAY 5 DAY
 GeoTracker EDF PDF EDD Write On (DW) EQUIS 10 DAY
 Effluent Sample Requiring "J" flag UST Clean Up Fund Project ; Claim # _____

Report To: Maureen Hamilton Bill To: same
 Company: Monterey Peninsula Water District
 Tele: (831) 658-5622 E-Mail: mhamilton@mpwmd.net
 Project #: *Injection@ASR2* Project Name: ASR
 Project Location: Monterey, CA Purchase Order#
 Sampler Signature: *[Signature]* QUOTE ID 6557

Analysis Request

SAMPLE ID	Location/ Field Point Name	SAMPLING		# Containers	MATRIX									METHOD PRESERVED		
		Date	Time		Ground Water	Waste Water	Drinking Water	Sea Water	Soil	Air	Sludge	Other	HCL	HNO ₃	Other	
<i>HM #15</i> INS@ASR2 #101 ASR2		<i>1/11</i>	<i>0900</i>		X										X	X
INS@ASR2 #116 ASR2		<i>1/10</i>													X	
#16	ASR2INS	<i>1/9</i>	<i>0930</i>													
#15	ASR2INS	<i>1/8</i>														
#14	ASR2INS	<i>1/7</i>	<i>845</i>													
#13	ASR2INS	<i>1/6</i>	<i>0900</i>													
#11	ASR2INS	<i>12/29</i>														

Hg 200.8

**MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate \$250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

*** If metals are requested for water samples and the water type is not specified on the chain of custody, then MAI will default to metals by E200.8.

Relinquished By:	Date:	Time:	Received By:
	<i>1/13/17</i>	<i>10:12</i>	<i>[Signature]</i>
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

ICE/t° _____
 GOOD CONDITION _____
 HEAD SPACE ABSENT _____
 DECHLORINATED IN LAB _____
 APPROPRIATE CONTAINERS _____
 PRESERVED IN LAB _____
 VOAS O&G METALS OTHER HAZARDOUS:
 PRESERVATION pH<2



Sample Receipt Checklist

Client Name: **Monterey Peninsula Water Management**
 Project Name: **Injection @ ASR2**
 WorkOrder No: **1701512** Matrix: Water
 Carrier: FedEx

Date and Time Received: **1/13/2017 10:12**
 Date Logged: **1/13/2017**
 Received by: **Alexandra Iniguez**
 Logged by: **Alexandra Iniguez**

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No NA
 Sample/Temp Blank temperature Temp: NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

 Comments:



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1701B03

Report Created for: Monterey Peninsula Water Management

5 Harris Ct. Bldg G
Monterey, CA 93940

Project Contact: Maureen Hamilton

Project P.O.:

Project Name: ASR

Project Received: 01/25/2017

Analytical Report reviewed & approved for release on 01/31/2017 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Peninsula Water Management
Project: ASR
WorkOrder: 1701B03

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Peninsula Water Management
Date Received: 1/25/17 9:50
Date Prepared: 1/25/17
Project: ASR

WorkOrder: 1701B03
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Mercury

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
28	1701B03-001A	Water	01/20/2017 09:05	ICP-MS2	133101

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	01/26/2017 03:17

Surrogates	REC (%)	Limits
Terbium	104	70-130

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
29	1701B03-002A	Water	01/21/2017 10:00	ICP-MS2	133101

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	01/26/2017 03:23

Surrogates	REC (%)	Limits
Terbium	101	70-130

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
30	1701B03-003A	Water	01/22/2017	ICP-MS2	133101

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	01/26/2017 03:29

Surrogates	REC (%)	Limits
Terbium	101	70-130

Analyst(s): DB

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
31	1701B03-004A	Water	01/23/2017	ICP-MS2	133101

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	01/26/2017 11:40

Surrogates	REC (%)	Limits
Terbium	102	70-130

Analyst(s): DVH



Quality Control Report

Client: Monterey Peninsula Water Management
Date Prepared: 1/25/17
Date Analyzed: 1/26/17
Instrument: ICP-MS2
Matrix: Water
Project: ASR

WorkOrder: 1701B03
BatchID: 133101
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L
Sample ID: MB/LCS-133101
 1701A59-001CMS/MSD

QC Summary Report for Mercury

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Mercury	ND	1.31	0.050	1.25	-	105	85-115
Surrogate Recovery							
Terbium	743.7	791		750	99	105	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Mercury	1.59	1.62	1.25	0.2372	108	110	75-125	1.87	20
Surrogate Recovery									
Terbium	803	790	750		107	105	70-130	1.70	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Mercury	0.332	0.2372	40.0	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1701B03

ClientCode: MPWM

QuoteID: 6557

WaterTrax
 WriteOn
 EDF
 Excel
 EQUIS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Maureen Hamilton
Monterey Peninsula Water Management
5 Harris Ct. Bldg G
Monterey, CA 93940
(831) 658-5600 FAX:

Email: mhamilton@mpwmd.net
cc/3rd Party:
PO:
ProjectNo: ASR

Bill to:

Maureen Hamilton
Monterey Peninsula Water Management
5 Harris Ct. Bldg G
Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 01/25/2017

Date Logged: 01/25/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1701B03-001	28	Water	1/20/2017 09:05	<input type="checkbox"/>	A												
1701B03-002	29	Water	1/21/2017 10:00	<input type="checkbox"/>	A												
1701B03-003	30	Water	1/22/2017 00:00	<input type="checkbox"/>	A												
1701B03-004	31	Water	1/23/2017 00:00	<input type="checkbox"/>	A												

Test Legend:

1	HGMS_W	2		3		4	
5		6		7		8	
9		10		11		12	

Project Manager: Heidi Fruhlinger

Prepared by: Jena Alfaro

Comments: 32 samples per month for a 1yr

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY PENINSULA WATER MANAGEMENT **Project:** ASR

Work Order: 1701B03

Client Contact: Maureen Hamilton

QC Level:

Contact's Email: mhamilton@mpwmd.net

Comments: 32 samples per month for a 1yr

Date Logged: 1/25/2017

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1701B03-001A	28	Water	E200.8 (Mercury)	1	250mL HDPE w/ 1ml HNO3 & .25ml HCl	<input type="checkbox"/>	1/20/2017 9:05	5 days	None	<input type="checkbox"/>	
1701B03-002A	29	Water	E200.8 (Mercury)	1	250mL HDPE w/ 1ml HNO3 & .25ml HCl	<input type="checkbox"/>	1/21/2017 10:00	5 days	None	<input type="checkbox"/>	
1701B03-003A	30	Water	E200.8 (Mercury)	1	250mL HDPE w/ 1ml HNO3 & .25ml HCl	<input type="checkbox"/>	1/22/2017	5 days	None	<input type="checkbox"/>	
1701B03-004A	31	Water	E200.8 (Mercury)	1	250mL HDPE w/ 1ml HNO3 & .25ml HCl	<input type="checkbox"/>	1/23/2017	5 days	None	<input type="checkbox"/>	

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).

- 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.



McC Campbell Analytical, Inc.

1534 Willow Pass Rd. / Pittsburg, Ca. 94565-1701
 www.mccampbell.com / main@mccampbell.com
 Telephone: (877) 252-9262 / Fax: (925) 252-9269

1701 B03

CHAIN OF CUSTODY RECORD

TURN AROUND TIME: RUSH 1 DAY 2 DAY 3 DAY 5 DAY

GeoTracker EDF PDF EDD Write On (DW) EQuIS 10 DAY

Effluent Sample Requiring "J" flag UST Clean Up Fund Project ; Claim # _____

Report To: Maureen Hamilton Bill To: same

Company: Monterey Peninsula Water District

Tele: (831) 658-5622 E-Mail: mhamilton@mpwmd.net

Project #: Project Name: ASR

Project Location: Monterey, CA Purchase Order#

Sampler Signature: *Maureen Hamilton* QUOTE ID 6557

Analysis Request

SAMPLE ID	Location/ Field Point Name	SAMPLING		# Containers	MATRIX										METHOD PRESERVED		Other $H_2O_2 + HCl$
		Date	Time		Ground Water	Waste Water	Drinking Water	Sea Water	Soil	Air	Sludge	Other	HCL	HNO ₃			
28	ASRINS	1-20-17	0905	X													
29	↓	1/21	1000	↓													
30	↓	1/22		↓													
31	↓	1/23		↓													

EPA 200.8 Hg

**MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate \$250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

*** If metals are requested for water samples and the water type is not specified on the chain of custody, then MAI will default to metals by E200.8.

Relinquished By: <i>Maureen Hamilton</i>	Date: 1/24/17	Time:	Received By: <i>Fedex</i>
Relinquished By: <i>Fedex</i>	Date: 1/24/17	Time: 950	Received By: <i>[Signature]</i>
Relinquished By:	Date:	Time:	Received By:

ICE/t° _____ COMMENTS:
 GOOD CONDITION _____
 HEAD SPACE ABSENT _____
 DECHLORINATED IN LAB _____
 APPROPRIATE CONTAINERS _____
 PRESERVED IN LAB _____
Fedex 80945284 6994

VOAS O&G METALS OTHER HAZARDOUS:
 PRESERVATION pH<2



Sample Receipt Checklist

Client Name: **Monterey Peninsula Water Management**
 Project Name: **ASR**
 WorkOrder No: **1701B03** Matrix: Water
 Carrier: FedEx

Date and Time Received: **1/25/2017 09:50**
 Date Logged: **1/25/2017**
 Received by: Jena Alfaro
 Logged by: Jena Alfaro

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No NA
 Sample/Temp Blank temperature Temp: NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1703999

Report Created for: Monterey Peninsula Water Management

5 Harris Ct. Bldg G
Monterey, CA 93940

Project Contact: Maureen Hamilton

Project P.O.:

Project Name: ASR

Project Received: 03/21/2017

Analytical Report reviewed & approved for release on 03/27/2017 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Peninsula Water Management
Project: ASR
WorkOrder: 1703999

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Peninsula Water Management
Date Received: 3/21/17 10:01
Date Prepared: 3/21/17
Project: ASR

WorkOrder: 1703999
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Mercury

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
63	1703999-001A	Water	03/05/2017 09:05	ICP-MS2	135896

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	03/22/2017 01:13

Surrogates	REC (%)	Limits
Terbium	99	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
64	1703999-002A	Water	03/06/2017 08:45	ICP-MS2	135896

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	03/22/2017 01:20

Surrogates	REC (%)	Limits
Terbium	102	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
65	1703999-003A	Water	03/07/2017 08:40	ICP-MS2	135896

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	03/22/2017 01:26

Surrogates	REC (%)	Limits
Terbium	101	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
66	1703999-004A	Water	03/08/2017 09:00	ICP-MS2	135896

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	03/22/2017 01:32

Surrogates	REC (%)	Limits
Terbium	103	70-130

Analyst(s): DVH

(Cont.)



Analytical Report

Client: Monterey Peninsula Water Management
Date Received: 3/21/17 10:01
Date Prepared: 3/21/17
Project: ASR

WorkOrder: 1703999
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Mercury

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
67	1703999-005A	Water	03/09/2017 08:30	ICP-MS2	135896

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	03/22/2017 01:38

Surrogates	REC (%)	Limits
Terbium	103	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
70	1703999-006A	Water	03/10/2017 08:15	ICP-MS2	135896

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	03/22/2017 01:44

Surrogates	REC (%)	Limits
Terbium	100	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
71	1703999-007A	Water	03/11/2017 08:15	ICP-MS2	135896

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	03/22/2017 02:09

Surrogates	REC (%)	Limits
Terbium	102	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
72	1703999-008A	Water	03/12/2017 10:10	ICP-MS2	135896

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	03/22/2017 02:15

Surrogates	REC (%)	Limits
Terbium	101	70-130

Analyst(s): DVH

(Cont.)



Analytical Report

Client: Monterey Peninsula Water Management
Date Received: 3/21/17 10:01
Date Prepared: 3/21/17
Project: ASR

WorkOrder: 1703999
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Mercury

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
73	1703999-009A	Water	03/13/2017 08:40	ICP-MS2	135896

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Mercury	ND	0.050	1	03/22/2017 02:22

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>
Terbium	96	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
74	1703999-010A	Water	03/14/2017 08:05	ICP-MS2	135896

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Mercury	ND	0.050	1	03/22/2017 02:28

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>
Terbium	99	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
75	1703999-011A	Water	03/15/2017 08:25	ICP-MS2	135896

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Mercury	ND	0.050	1	03/22/2017 02:34

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>
Terbium	93	70-130

Analyst(s): DVH



Quality Control Report

Client: Monterey Peninsula Water Management
Date Prepared: 3/20/17
Date Analyzed: 3/21/17
Instrument: ICP-MS3
Matrix: Water
Project: ASR

WorkOrder: 1703999
BatchID: 135896
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L
Sample ID: MB/LCS-135896
 1703981-012BMS/MSD

QC Summary Report for Mercury

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Mercury	ND	1.23	0.050	1.25	-	98	85-115
Surrogate Recovery							
Terbium	749.6	806		750	100	107	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Mercury	1.28	1.27	1.25	ND	103	102	75-125	1.10	20
Surrogate Recovery									
Terbium	832	831	750		111	111	70-130	0	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Mercury	ND<0.25	ND	-	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

QA/QC Officer



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1703999

ClientCode: MPWM

QuoteID: 6557

WaterTrax
 WriteOn
 EDF
 Excel
 EQUIS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Maureen Hamilton
Monterey Peninsula Water Management
5 Harris Ct. Bldg G
Monterey, CA 93940
(831) 658-5600 FAX:

Email: mhamilton@mpwmd.net
cc/3rd Party:
PO:
ProjectNo: ASR

Bill to:

Maureen Hamilton
Monterey Peninsula Water Management
5 Harris Ct. Bldg G
Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 03/21/2017

Date Logged: 03/21/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1703999-001	63	Water	3/5/2017 09:05	<input type="checkbox"/>	A												
1703999-002	64	Water	3/6/2017 08:45	<input type="checkbox"/>	A												
1703999-003	65	Water	3/7/2017 08:40	<input type="checkbox"/>	A												
1703999-004	66	Water	3/8/2017 09:00	<input type="checkbox"/>	A												
1703999-005	67	Water	3/9/2017 08:30	<input type="checkbox"/>	A												
1703999-006	70	Water	3/10/2017 08:15	<input type="checkbox"/>	A												
1703999-007	71	Water	3/11/2017 08:15	<input type="checkbox"/>	A												
1703999-008	72	Water	3/12/2017 10:10	<input type="checkbox"/>	A												
1703999-009	73	Water	3/13/2017 08:40	<input type="checkbox"/>	A												
1703999-010	74	Water	3/14/2017 08:05	<input type="checkbox"/>	A												
1703999-011	75	Water	3/15/2017 08:25	<input type="checkbox"/>	A												

Test Legend:

1	HGMS_W	2		3		4	
5		6		7		8	
9		10		11		12	

Project Manager: Heidi Fruhlinger

Prepared by: Jena Alfaro

Comments: 32 samples per month for a 1yr

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY PENINSULA WATER MANAGEMENT **Project:** ASR

Work Order: 1703999

Client Contact: Maureen Hamilton

QC Level:

Contact's Email: mhamilton@mpwmd.net

Comments: 32 samples per month for a 1yr

Date Logged: 3/21/2017

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1703999-001A	63	Water	E200.8 (Mercury)	1	250mL HDPE w/ 1mL HNO3 & .25mL HCl	<input type="checkbox"/>	3/5/2017 9:05	5 days	None	<input type="checkbox"/>	
1703999-002A	64	Water	E200.8 (Mercury)	1	250mL HDPE w/ 1mL HNO3 & .25mL HCl	<input type="checkbox"/>	3/6/2017 8:45	5 days	None	<input type="checkbox"/>	
1703999-003A	65	Water	E200.8 (Mercury)	1	250mL HDPE w/ 1mL HNO3 & .25mL HCl	<input type="checkbox"/>	3/7/2017 8:40	5 days	None	<input type="checkbox"/>	
1703999-004A	66	Water	E200.8 (Mercury)	1	250mL HDPE w/ 1mL HNO3 & .25mL HCl	<input type="checkbox"/>	3/8/2017 9:00	5 days	None	<input type="checkbox"/>	
1703999-005A	67	Water	E200.8 (Mercury)	1	250mL HDPE w/ 1mL HNO3 & .25mL HCl	<input type="checkbox"/>	3/9/2017 8:30	5 days	None	<input type="checkbox"/>	
1703999-006A	70	Water	E200.8 (Mercury)	1	250mL HDPE w/ 1mL HNO3 & .25mL HCl	<input type="checkbox"/>	3/10/2017 8:15	5 days	None	<input type="checkbox"/>	
1703999-007A	71	Water	E200.8 (Mercury)	1	250mL HDPE w/ 1mL HNO3 & .25mL HCl	<input type="checkbox"/>	3/11/2017 8:15	5 days	None	<input type="checkbox"/>	
1703999-008A	72	Water	E200.8 (Mercury)	1	250mL HDPE w/ 1mL HNO3 & .25mL HCl	<input type="checkbox"/>	3/12/2017 10:10	5 days	None	<input type="checkbox"/>	
1703999-009A	73	Water	E200.8 (Mercury)	1	250mL HDPE w/ 1mL HNO3 & .25mL HCl	<input type="checkbox"/>	3/13/2017 8:40	5 days	None	<input type="checkbox"/>	
1703999-010A	74	Water	E200.8 (Mercury)	1	250mL HDPE w/ 1mL HNO3 & .25mL HCl	<input type="checkbox"/>	3/14/2017 8:05	5 days	None	<input type="checkbox"/>	
1703999-011A	75	Water	E200.8 (Mercury)	1	250mL HDPE w/ 1mL HNO3 & .25mL HCl	<input type="checkbox"/>	3/15/2017 8:25	5 days	None	<input type="checkbox"/>	

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).

- 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.



McC Campbell Analytical, Inc.

1534 Willow Pass Rd. / Pittsburg, Ca. 94565-1701
 www.mccampbell.com / main@mccampbell.com
 Telephone: (877) 252-9262 / Fax: (925) 252-9269

1703999

CHAIN OF CUSTODY RECORD

TURN AROUND TIME: RUSH 1 DAY 2 DAY 3 DAY 5 DAY
 GeoTracker EDF PDF EDD Write On (DW) EQUIS 10 DAY
 Effluent Sample Requiring "J" flag UST Clean Up Fund Project ; Claim # _____

Report To: **Maureen Hamilton** Bill To: **same**
 Company: **Monterey Peninsula Water District**

Tele: (831) 658-5622 E-Mail: **mhamilton@mpwmd.net**
 Project #: _____ Project Name: **ASR**
 Project Location: **Monterey, CA** Purchase Order# _____
 Sampler Signature: *[Signature]* **QUOTE ID 6557**

Analysis Request

SAMPLE ID	Location/ Field Point Name	SAMPLING		# Containers	MATRIX										METHOD PRESERVED			
		Date	Time		Ground Water	Waste Water	Drinking Water	Sea Water	Soil	Air	Sludge	Other	HCL	HNO ₃	Other			
63	ASR21WJ	3/5	0905	1	X												X	X
64		3/6	0845															
65		3/7	0840															
66		3/8	0900															
67		3/9	0830															
70		3/10	0815															
71		3/11	0815															
72		3/12	1010															
73		3/13	0840															
74		3/14	0805															
75		3/15	0825															

FPA 200.8 Hg

****MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate \$250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.**

***** If metals are requested for water samples and the water type is not specified on the chain of custody, then MAI will default to metals by E200.8.**

Relinquished By: <i>[Signature]</i>	Date: 3/17	Time: 10:00	Received By: <i>[Signature]</i>	ICE/1"	COMMENTS:
Relinquished By: Fedex	Date: 3/21/17	Time: 1001	Received By: <i>[Signature]</i>	GOOD CONDITION _____	
Relinquished By:	Date:	Time:	Received By:	HEAD SPACE ABSENT _____	
				DECHLORINATED IN LAB _____	HAZARDOUS:
				APPROPRIATE CONTAINERS _____	
				PRESERVED IN LAB _____	
				VOAS O&G METALS OTHER	
				PRESERVATION pH<2	



Sample Receipt Checklist

Client Name: **Monterey Peninsula Water Management**
 Project Name: **ASR**
 WorkOrder No: **1703999** Matrix:
 Carrier: **FedEx**

Date and Time Received: **3/21/2017 10:01**
 Date Logged: **3/21/2017**
 Received by: **Jena Alfaro**
 Logged by: **Jena Alfaro**

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No NA
 Sample/Temp Blank temperature Temp: NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1701512

Report Created for: Monterey Peninsula Water Management

5 Harris Ct. Bldg G
Monterey, CA 93940

Project Contact: Maureen Hamilton

Project P.O.:

Project Name: Injection @ ASR2

Project Received: 01/13/2017

Analytical Report reviewed & approved for release on 01/20/2017 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Peninsula Water Management
Project: Injection @ ASR2
WorkOrder: 1701512

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Peninsula Water Management
Date Received: 1/13/17 10:12
Date Prepared: 1/13/17
Project: Injection @ ASR2

WorkOrder: 1701512
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Mercury

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
INJ@ASR2 #19	1701512-001A	Water	01/11/2017 09:00	ICP-MS3	132608

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	01/17/2017 19:23

Surrogates	REC (%)	Limits
Terbium	103	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
INJ@ASR #18	1701512-002A	Water	01/10/2017	ICP-MS3	132608

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	01/17/2017 19:29

Surrogates	REC (%)	Limits
Terbium	102	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
#16	1701512-003A	Water	01/09/2017 09:30	ICP-MS3	132608

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	01/17/2017 19:35

Surrogates	REC (%)	Limits
Terbium	105	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
#15	1701512-004A	Water	01/08/2017	ICP-MS3	132608

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	01/17/2017 19:42

Surrogates	REC (%)	Limits
Terbium	108	70-130

Analyst(s): DVH

(Cont.)



Analytical Report

Client: Monterey Peninsula Water Management
Date Received: 1/13/17 10:12
Date Prepared: 1/13/17
Project: Injection @ ASR2

WorkOrder: 1701512
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Mercury

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
#14	1701512-005A	Water	01/07/2017 08:45	ICP-MS3	132608

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	01/17/2017 19:48

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	103	70-130	01/17/2017 19:48

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
#13	1701512-006A	Water	01/06/2017 09:00	ICP-MS3	132608

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	01/17/2017 19:54

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	103	70-130	01/17/2017 19:54

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
#11	1701512-007A	Water	12/29/2016	ICP-MS3	132608

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	01/17/2017 20:00

Surrogates	REC (%)	Limits	Date Analyzed
Terbium	105	70-130	01/17/2017 20:00

Analyst(s): DVH



Quality Control Report

Client: Monterey Peninsula Water Management
Date Prepared: 1/13/17
Date Analyzed: 1/13/17 - 1/17/17
Instrument: ICP-MS3
Matrix: Water
Project: Injection @ ASR2

WorkOrder: 1701512
BatchID: 132608
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L
Sample ID: MB/LCS-132608
 1701485-002AMS/MSD

QC Summary Report for Mercury

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Mercury	ND	1.27	0.050	1.25	-	101	85-115
Surrogate Recovery							
Terbium	726.3	765		750	97	102	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Mercury	1.37	1.41	1.25	ND	109	113	75-125	2.95	20
Surrogate Recovery									
Terbium	821	795	750		110	106	70-130	3.30	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Mercury	ND<0.25	ND	-	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1701512

ClientCode: MPWM

QuoteID: 6557

WaterTrax
 WriteOn
 EDF
 Excel
 EQUIS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Maureen Hamilton
Monterey Peninsula Water Management
5 Harris Ct. Bldg G
Monterey, CA 93940
(831) 658-5600 FAX:

Email: mhamilton@mpwmd.net
cc/3rd Party:
PO:
ProjectNo: Injection @ ASR2

Bill to:

Maureen Hamilton
Monterey Peninsula Water Management
5 Harris Ct. Bldg G
Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 01/13/2017

Date Logged: 01/13/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1701512-001	INJ@ASR2 #19	Water	1/11/2017 09:00	<input type="checkbox"/>	A												
1701512-002	INJ@ASR #18	Water	1/10/2017 00:00	<input type="checkbox"/>	A												
1701512-003	#16	Water	1/9/2017 09:30	<input type="checkbox"/>	A												
1701512-004	#15	Water	1/8/2017 00:00	<input type="checkbox"/>	A												
1701512-005	#14	Water	1/7/2017 08:45	<input type="checkbox"/>	A												
1701512-006	#13	Water	1/6/2017 09:00	<input type="checkbox"/>	A												
1701512-007	#11	Water	12/29/2016 00:00	<input type="checkbox"/>	A												

Test Legend:

1	HGMS_W	2		3		4	
5		6		7		8	
9		10		11		12	

Project Manager: Heidi Fruhlinger

Prepared by: Alexandra Iniguez

Comments: 32 samples per month for a1yr

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY PENINSULA WATER MANAGEMENT

Project: Injection @ ASR2

Work Order: 1701512

Client Contact: Maureen Hamilton

QC Level:

Contact's Email: mhamilton@mpwmd.net

Comments: 32 samples per month for a 1yr

Date Logged: 1/13/2017

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1701512-001A	INJ@ASR2 #19	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	1/11/2017 9:00	5 days	Trace	<input type="checkbox"/>	
1701512-002A	INJ@ASR #18	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	1/10/2017	5 days	Trace	<input type="checkbox"/>	
1701512-003A	#16	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	1/9/2017 9:30	5 days	Trace	<input type="checkbox"/>	
1701512-004A	#15	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	1/8/2017	5 days	Trace	<input type="checkbox"/>	
1701512-005A	#14	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	1/7/2017 8:45	5 days	Trace	<input type="checkbox"/>	
1701512-006A	#13	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	1/6/2017 9:00	5 days	Trace	<input type="checkbox"/>	
1701512-007A	#11	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	12/29/2016	5 days	Trace	<input type="checkbox"/>	

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).

- 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.



McC Campbell Analytical, Inc.

1534 Willow Pass Rd. / Pittsburg, Ca. 94565-1701
 www.mcccampbell.com / main@mcccampbell.com
 Telephone: (877) 252-9262 / Fax: (925) 252-9269

1701512

CHAIN OF CUSTODY RECORD

TURN AROUND TIME: RUSH 1 DAY 2 DAY 3 DAY 5 DAY
 GeoTracker EDF PDF EDD Write On (DW) EQUIS 10 DAY
 Effluent Sample Requiring "J" flag UST Clean Up Fund Project ; Claim # _____

Report To: Maureen Hamilton **Bill To:** same
Company: Monterey Peninsula Water District
Tele: (831) 658-5622 **E-Mail:** mhamilton@mpwmd.net
Project #: Injection@ASR2 **Project Name:** ASR
Project Location: Monterey, CA **Purchase Order#**
Sampler Signature: *[Signature]* **QUOTE ID** 6557

Analysis Request

SAMPLE ID	Location/ Field Point Name	SAMPLING		# Containers	MATRIX										METHOD PRESERVED			
		Date	Time		Ground Water	Waste Water	Drinking Water	Sea Water	Soil	Air	Sludge	Other	HCL	HNO ₃	Other			
HM #155 INS@ASR2 #109 ASR2		1/11	0900	X													X	X
INS@ASR2 #115 ASR2		1/10															X	
#16	ASR2INS	1/9	0930															
#15	ASR2INS	1/8																
#14	ASR2INS	1/7	845															
#13	ASR2INS	1/6	0900															
#11	ASR2INS	12/29																

**MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate \$250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

*** If metals are requested for water samples and the water type is not specified on the chain of custody, then MAI will default to metals by E200.8.

Relinquished By:	Date:	Time:	Received By:	ICE/r°	COMMENTS:
	1/13/17	10:12	<i>[Signature]</i>	GOOD CONDITION _____	
Relinquished By:	Date:	Time:	Received By:	HEAD SPACE ABSENT _____	
Relinquished By:	Date:	Time:	Received By:	DECHLORINATED IN LAB _____	HAZARDOUS:
				APPROPRIATE CONTAINERS _____	
Relinquished By:	Date:	Time:	Received By:	PRESERVED IN LAB _____	
				VOAS O&G METALS OTHER	
				PRESERVATION pH<2	



Sample Receipt Checklist

Client Name: **Monterey Peninsula Water Management**
 Project Name: **Injection @ ASR2**
 WorkOrder No: **1701512** Matrix: Water
 Carrier: FedEx

Date and Time Received: **1/13/2017 10:12**
 Date Logged: **1/13/2017**
 Received by: **Alexandra Iniguez**
 Logged by: **Alexandra Iniguez**

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No NA
 Sample/Temp Blank temperature Temp: NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1701303

Report Created for: Monterey Peninsula Water Management

5 Harris Ct. Bldg G
Monterey, CA 93940

Project Contact: Maureen Hamilton

Project P.O.:

Project Name: ASR

Project Received: 01/10/2017

Analytical Report reviewed & approved for release on 01/12/2017 by:

Angela Rydelius,
Laboratory 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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Monterey Peninsula Water Management
Project: ASR
WorkOrder: 1701303

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Peninsula Water Management
Date Received: 1/10/17 11:54
Date Prepared: 1/10/17
Project: ASR

WorkOrder: 1701303
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Mercury

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
INJASR2 12/30/16	1701303-001A	Water	12/30/2016 08:15	ICP-MS3	132371

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	01/11/2017 00:44

Surrogates	REC (%)	Limits
Terbium	99	70-130

Analyst(s): BBO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
INJASR2 1/5/17	1701303-002A	Water	01/05/2017 09:00	ICP-MS3	132371

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	01/11/2017 00:51

Surrogates	REC (%)	Limits
Terbium	102	70-130

Analyst(s): BBO



Quality Control Report

Client: Monterey Peninsula Water Management
Date Prepared: 1/9/17
Date Analyzed: 1/10/17
Instrument: ICP-MS3
Matrix: Water
Project: ASR

WorkOrder: 1701303
BatchID: 132371
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L
Sample ID: MB/LCS-132371
 1701285-008DMS/MSD

QC Summary Report for Mercury

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Mercury	ND	1.25	0.050	1.25	-	100	85-115
Surrogate Recovery							
Terbium	762	776		750	102	103	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Mercury	1.30	1.50	1.25	ND<0.50	104	120	75-125	14.3	20
Surrogate Recovery									
Terbium	799	805	750		107	107	70-130	0	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Mercury	ND<2.5	ND<0.50	-	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1701303

ClientCode: MPWM

QuoteID: 6557

WaterTrax
 WriteOn
 EDF
 Excel
 EQulS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Maureen Hamilton
Monterey Peninsula Water Management
5 Harris Ct. Bldg G
Monterey, CA 93940
(831) 658-5600 FAX:

Email: mhamilton@mpwmd.net
cc/3rd Party:
PO:
ProjectNo: ASR

Bill to:

Maureen Hamilton
Monterey Peninsula Water Management
5 Harris Ct. Bldg G
Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 01/10/2017

Date Logged: 01/10/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1701303-001	INJASR2 12/30/16	Water	12/30/2016 08:15	<input type="checkbox"/>	A												
1701303-002	INJASR2 1/5/17	Water	1/5/2017 09:00	<input type="checkbox"/>	A												

Test Legend:

1	HGMS_W	2		3		4	
5		6		7		8	
9		10		11		12	

Project Manager: Heidi Fruhlinger

Prepared by: Jena Alfaro

Comments: 32 samples per month for a1yr

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY PENINSULA WATER MANAGEMENT **Project:** ASR

Work Order: 1701303

Client Contact: Maureen Hamilton

QC Level:

Contact's Email: mhamilton@mpwmd.net

Comments: 32 samples per month for a 1yr

Date Logged: 1/10/2017

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1701303-001A	INJASR2 12/30/16	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	12/30/2016 8:15	5 days	None	<input type="checkbox"/>	
1701303-002A	INJASR2 1/5/17	Water	E200.8 (Mercury)	1	250mL HDPE w/ HNO3	<input type="checkbox"/>	1/5/2017 9:00	5 days	None	<input type="checkbox"/>	

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).

- 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.

1701303



McC Campbell Analytical, Inc.

1534 Willow Pass Rd. / Pittsburg, Ca. 94565-1701
 www.mcccampbell.com / main@mcccampbell.com
 Telephone: (877) 252-9262 / Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME: RUSH 1 DAY 2 DAY 3 DAY 5 DAY
 GeoTracker EDF PDF EDD Write On (DW) EQUIS 10 DAY
 Effluent Sample Requiring "J" flag UST Clean Up Fund Project ; Claim # _____

Report To: **Maureen Hamilton** Bill To: **same**
 Company: **Monterey Peninsula Water District**
 Tele: (831) 658-5622 E-Mail: **mhamilton@mpwmd.net**
 Project #: _____ Project Name: **ASR**
 Project Location: **Monterey, CA** Purchase Order# _____
 Sampler Signature: *[Signature]* QUOTE ID 6557

Analysis Request

SAMPLE ID	Location/ Field Point Name	SAMPLING		# Containers	MATRIX								METHOD PRESERVED				
		Date	Time		Ground Water	Waste Water	Drinking Water	Sea Water	Soil	Air	Sludge	Other	HCL	HNO ₃	Other		
INJASR2	12-30-16	0815															
INJASR2	1-5-17	0900															
INJASR2	12-30-16	0815			X							X		X			
INJASR2	1-5-17	0900			X							X		X			

**MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate \$250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.
 *** If metals are requested for water samples and the water type is not specified on the chain of custody, then MAI will default to metals by E200.8.

Relinquished By:	Date:	Time:	Received By:	ICE/t° _____ GOOD CONDITION _____ HEAD SPACE ABSENT _____ DECHLORINATED IN LAB _____ APPROPRIATE CONTAINERS _____ PRESERVED IN LAB _____ VOAS O&G METALS OTHER HAZARDOUS: PRESERVATION pH<2	COMMENTS:
Relinquished By:	Date:	Time:	Received By:		
Relinquished By:	Date:	Time:	Received By:		



Sample Receipt Checklist

Client Name: **Monterey Peninsula Water Management**
 Project Name: **ASR**
 WorkOrder No: **1701303** Matrix: Water
 Carrier: FedEx

Date and Time Received: **1/10/2017 11:54**
 Date Logged: **1/10/2017**
 Received by: **Jena Alfaro**
 Logged by: **Jena Alfaro**

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No NA
 Sample/Temp Blank temperature Temp: NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

 Comments:



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Page 1 of 1

Tuesday, April 18, 2017

Lab Number: AB65010

Collection Date/Time: 4/5/2017 8:00 Sample Collector: JS Client Sample #:
Submittal Date/Time: 4/10/2017 10:06 Sample ID Coliform Designation:

Sample Description: #96, Inj @ ASR2

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	Not Detected	IJ	0.2	2	4/14/2017	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Lab Number: AB65011

Collection Date/Time: 4/6/2017 8:30 Sample Collector: JL Client Sample #:
Submittal Date/Time: 4/10/2017 10:06 Sample ID Coliform Designation:

Sample Description: #97, Inj @ ASR2

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	Not Detected	IJ	0.2	2	4/14/2017	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Lab Number: AB65012

Collection Date/Time: 4/7/2017 9:00 Sample Collector: JL Client Sample #:
Submittal Date/Time: 4/10/2017 10:06 Sample ID Coliform Designation:

Sample Description: #98, Inj @ ASR2

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	Not Detected	IJ	0.2	2	4/14/2017	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Lab Number: AB65013

Collection Date/Time: 4/8/2017 8:20 Sample Collector: JS Client Sample #:
Submittal Date/Time: 4/10/2017 10:06 Sample ID Coliform Designation:

Sample Description: #99, Inj @ ASR2

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	Not Detected	IJ	0.2	2	4/14/2017	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Lab Number: AB65014

Collection Date/Time: 4/9/2017 9:40 Sample Collector: TL Client Sample #:
Submittal Date/Time: 4/10/2017 10:06 Sample ID Coliform Designation:

Sample Description: #100, Inj @ ASR2

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	Not Detected	IJ	0.2	2	4/14/2017	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Lab Number: AB65015

Collection Date/Time: 4/10/2017 8:00 Sample Collector: JS Client Sample #:
Submittal Date/Time: 4/10/2017 10:06 Sample ID Coliform Designation:

Sample Description: #101, Inj @ ASR2

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	Not Detected	IJ	0.2	2	4/14/2017	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Report Approved by:

David Holland, Laboratory Director

Monterey Bay Analytical Services

QC Summary for 200.8

Spiked Sample

Date Analyzed

AB65015

Not Diluted

4/14/2017 4:53:07 PM

	ICVB	QCS	LCB	LCS	LCSD	LCS/LCSD	Sample	Spiked	MS	MSD	MS-MSD	ICV	CCV	ICV-CCV	CCVB	Qualifier
	ug/L	%Rec.	ug/L	% Rec	%Rec	%RPD	ug/L	ug/L	%Rec.	% Rec.	% RPD	% Rec	% Rec	% RPD	ug/L	Code
		85-115%		70-130%	70-130%	20%			70-130%	70-130%	20%	85-115%	85-115%	20%		
Mercury	0.03	106.1	0.02	102.7	102.8	0.16	0.02	2.5	118.57	121.28	2.23	108.6	118.5	8.70	0.02	IJ

LQ: LCS recovery above method control limits.; IJ: ICV and/or CCV above acceptance limits.

ICVB = Initial Calibration Verification Blank QCS = Quality Control Sample LCB = Laboratory Control Blank LCS(D) = Laboratory Control Sample (Duplicate) MS(D) = Matrix Spike (Duplicate) ICV = Initial Calibration Verification CCV = Continuing Calibration Verification RPD = Relative Percent Difference [Note QCS contains W; Hg %Rec based on Hg201]



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Page 1 of 2

Tuesday, April 18, 2017

Lab Number: AB65016

Collection Date/Time: 4/5/2017 18:20 Sample Collector: RM Client Sample #:

Submittal Date/Time: 4/10/2017 10:06 Sample ID Coliform Designation:

Sample Description: ASR4 5 Min

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	0.9	IJ	0.2	2	4/14/2017	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Lab Number: AB65017

Collection Date/Time: 4/5/2017 18:25 Sample Collector: RM Client Sample #:

Submittal Date/Time: 4/10/2017 10:06 Sample ID Coliform Designation:

Sample Description: ASR4 10 Min

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	0.7	IJ	0.2	2	4/14/2017	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Lab Number: AB65018

Collection Date/Time: 4/5/2017 18:30 Sample Collector: RM Client Sample #:

Submittal Date/Time: 4/10/2017 10:06 Sample ID Coliform Designation:

Sample Description: ASR4 15 Min

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	0.8	IJ	0.2	2	4/14/2017	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Lab Number: AB65019

Collection Date/Time: 4/5/2017 18:35 Sample Collector: RM Client Sample #:

Submittal Date/Time: 4/10/2017 10:06 Sample ID Coliform Designation:

Sample Description: ASR4 20 Min

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	0.8	IJ	0.2	2	4/14/2017	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Lab Number: AB65020

Collection Date/Time: 4/6/2017 9:40 Sample Collector: RM Client Sample #:

Submittal Date/Time: 4/10/2017 10:06 Sample ID Coliform Designation:

Sample Description: ASR4 5 Min

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	0.7	IJ	0.2	2	4/14/2017	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Lab Number: AB65021

Collection Date/Time: 4/6/2017 9:45 Sample Collector: RM Client Sample #:

Submittal Date/Time: 4/10/2017 10:06 Sample ID Coliform Designation:

Sample Description: ASR4 10 Min

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	0.7	IJ	0.2	2	4/14/2017	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

mg/L: Milligrams per liter ug/L : Micrograms per liter PQL : Practical Quantitation Limit MCL: Maximum Contamination Level

H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments. T = Temperature Exceedance

Lab Number: AB65022Collection Date/Time: 4/6/2017 9:50
Submittal Date/Time: 4/10/2017 10:06Sample Collector: RM
Sample IDClient Sample #:
Coliform Designation:**Sample Description: ASR4 15 Min**

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	0.7	IJ	0.2	2	4/14/2017	SM

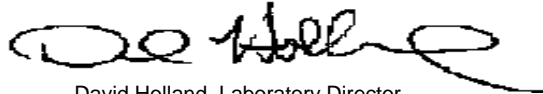
Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Lab Number: AB65023Collection Date/Time: 4/6/2017 9:55
Submittal Date/Time: 4/10/2017 10:06Sample Collector: RM
Sample IDClient Sample #:
Coliform Designation:**Sample Description: ASR4 20 Min**

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	0.8	IJ	0.2	2	4/14/2017	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Report Approved by:



David Holland, Laboratory Director

Monterey Bay Analytical Services

QC Summary for 200.8

Spiked Sample

AB65120

Date Analyzed

4/14/2017 5:41:31 PM

	ICVB	QCS	LCB	LCS	LCSD	LCS/LCSD	Sample	Spiked	MS	MSD	MS-MSD	ICV	CCV	ICV-CCV	CCVB	Qualifier
	ug/L	%Rec.	ug/L	% Rec	%Rec	%RPD	ug/L	ug/L	%Rec.	% Rec.	% RPD	% Rec	% Rec	% RPD	ug/L	Code
		85-115%		70-130%	70-130%	20%			70-130%	70-130%	20%	85-115%	85-115%	20%		
Mercury	0.03	106.1	0.02	102.7	102.8	0.16	0.02	2.5	113.40	119.18	4.94	108.6	118.5	8.74	0.02	IJ

IJ: ICV and/or CCV above acceptance limits.

ICVB = Initial Calibration Verification Blank QCS = Quality Control Sample LCB = Laboratory Control Blank LCS(D) = Laboratory Control Sample (Duplicate) MS(D) = Matrix Spike (Duplicate) ICV = Initial Calibration Verification CCV = Continuing Calibration Verification RPD = Relative Percent Difference [Note QCS contains W; Hg %Rec based on Hg201]



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Page 1 of 1

Friday, April 21, 2017

Lab Number: AB65523

Collection Date/Time: 4/13/2017 9:00 Sample Collector: LEAR, J Client Sample #: 104

Submittal Date/Time: 4/18/2017 8:56 Sample ID NON-REG Coliform Designation:

Sample Description: 104 Inj @ ASR2

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	Not Detected		0.5	2	4/20/2017	MW

Sample Comments:

Lab Number: AB65524

Collection Date/Time: 4/14/2017 8:45 Sample Collector: LEAR, J Client Sample #: 105

Submittal Date/Time: 4/18/2017 8:56 Sample ID NON-REG Coliform Designation:

Sample Description: 105 Inj @ ASR2

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	Not Detected		0.5	2	4/20/2017	MW

Sample Comments:

Lab Number: AB65525

Collection Date/Time: 4/15/2017 7:50 Sample Collector: LEAR, J Client Sample #: 106

Submittal Date/Time: 4/18/2017 8:56 Sample ID NON-REG Coliform Designation:

Sample Description: 106 Inj @ ASR2

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	Not Detected		0.5	2	4/20/2017	MW

Sample Comments:

Lab Number: AB65526

Collection Date/Time: 4/16/2017 9:00 Sample Collector: LEAR, J Client Sample #: 107

Submittal Date/Time: 4/18/2017 8:56 Sample ID NON-REG Coliform Designation:

Sample Description: 107 Inj @ ASR2

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	Not Detected		0.5	2	4/20/2017	MW

Sample Comments:

Lab Number: AB65527

Collection Date/Time: 4/17/2017 8:05 Sample Collector: LEAR, J Client Sample #: 108

Submittal Date/Time: 4/18/2017 8:56 Sample ID NON-REG Coliform Designation:

Sample Description: 108 Inj @ ASR2

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	Not Detected		0.5	2	4/20/2017	MW

Sample Comments:

Lab Number: AB65528

Collection Date/Time: 4/18/2017 8:30 Sample Collector: LEAR, J Client Sample #: 109

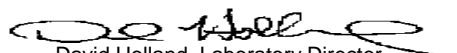
Submittal Date/Time: 4/18/2017 8:56 Sample ID NON-REG Coliform Designation:

Sample Description: 109 Inj @ ASR2

Analyte	Method	Unit	Result	Qual	PQL	MCL	Date Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	Not Detected		0.5	2	4/20/2017	MW

Sample Comments:

Report Approved by:


David Holland, Laboratory Director

mg/L: Milligrams per liter ug/L : Micrograms per liter PQL : Practical Quantitation Limit MCL: Maximum Contamination Level

H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments. T = Temperature Exceedance



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Monday, May 01, 2017

MPWMD

Jonathan Lear

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Lab Number: AB65241

Collection Date/Time: 4/12/2017 9:00

Sample Collector: LEAR, J

Client Sample #:

Submittal Date/Time: 4/12/2017 10:18

Sample ID

Sample Description: #103 inj @ ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	Not Detected	1	IJ	0.2	0.04	4/14/2017	6:50 PM	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Report Approved by:

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

H = Analyzed outside of hold time

J = Result is less than PQL

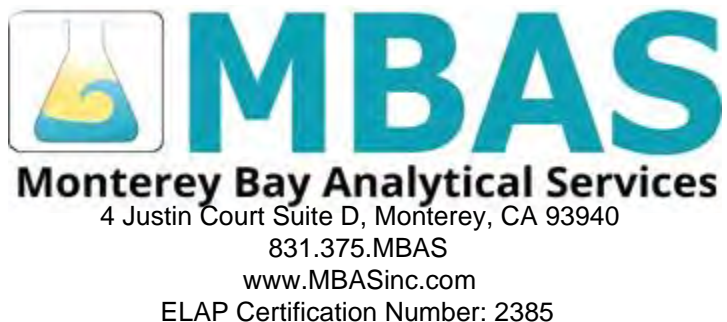
ug/L : Micrograms per liter (=ppb)

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

T = Temperature Exceedance

PQL : Practical Quantitation Limit

MPWMD
 Jonathan Lear
 P.O. Box 85
 Monterey, CA 93442-0085



Lab Number: AB65972
 Collection Date/Time: 4/19/2017 8:05 Sample Collector: LEAR, J Client Sample #:
 Submittal Date/Time: 4/25/2017 8:47 Sample ID

Sample Description: #110 Inj @ ASR2										
Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	2		0.5	0.08	4/26/2017	2:45:00 PM	MW

Sample Comments:

Lab Number: AB65973
 Collection Date/Time: 4/20/2017 8:00 Sample Collector: LEAR, J Client Sample #:
 Submittal Date/Time: 4/25/2017 8:47 Sample ID

Sample Description: #111 Inj @ ASR2										
Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	2		0.5	0.08	4/26/2017	2:49:00 PM	MW

Sample Comments:

Lab Number: AB65974
 Collection Date/Time: 4/21/2017 8:30 Sample Collector: LEAR, J Client Sample #:
 Submittal Date/Time: 4/25/2017 8:47 Sample ID

Sample Description: #112 Inj @ ASR2										
Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	2		0.5	0.08	4/26/2017	2:52:00 PM	MW

Sample Comments:

Lab Number: AB65975
 Collection Date/Time: 4/22/2017 9:45 Sample Collector: LEAR, J Client Sample #:
 Submittal Date/Time: 4/25/2017 8:47 Sample ID

Sample Description: #113 Inj @ ASR2										
Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	2		0.5	0.08	4/26/2017	2:56:00 PM	MW

Sample Comments:

Lab Number: AB65976
 Collection Date/Time: 4/23/2017 9:20 Sample Collector: LEAR, J Client Sample #:
 Submittal Date/Time: 4/25/2017 8:47 Sample ID

Sample Description: #114 Inj @ ASR2										
Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	2		0.5	0.08	4/26/2017	2:59:00 PM	MW

Sample Comments:

mg/L: Milligrams per liter (=ppm) µg/L: Micrograms per liter (=ppb) PQL: Practical Quantitation Limit J = Result is less than PQL
 H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments.
 D = Method deviates from standard method due to insufficient sample for MS/MSD

Lab Number: AB65977

Collection Date/Time: 4/24/2017 8:40 Sample Collector: LEAR, J Client Sample #:
Submittal Date/Time: 4/25/2017 8:47 Sample ID

Sample Description: #115 Inj @ ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	2		0.5	0.08	4/26/2017	3:03:00 PM	MW

Sample Comments:

Lab Number: AB65978

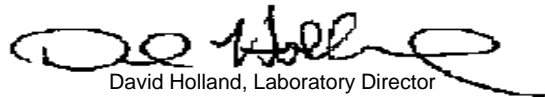
Collection Date/Time: 4/25/2017 8:20 Sample Collector: LEAR, J Client Sample #:
Submittal Date/Time: 4/25/2017 8:47 Sample ID

Sample Description: #116 Inj @ ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	2		0.5	0.08	4/26/2017	3:06:00 PM	MW

Sample Comments:

Report Approved by:



David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm) ug/L : Micrograms per liter (=ppb) PQL : Practical Quantitation Limit J = Result is less than PQL
H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments.
D = Method deviates from standard method due to insufficient sample for MS/MSD



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Thursday, May 04, 2017

MPWMD

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Lab Number: AB65121

Collection Date/Time: 4/11/2017 8:00

Sample Collector: LEAR J

Client Sample #:

Submittal Date/Time: 4/11/2017 9:26

Sample ID

Sample Description: #101 ASR 2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst:
Mercury, Total	EPA200.8	µg/L	Not Detected	1	IJ	0.2	0.04	4/14/2017	5:48 PM	SM

Sample Comments: IJ: ICV and/or CCV above acceptance limits.

Report Approved by:

David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm)

ug/L : Micrograms per liter (=ppb)

PQL : Practical Quantitation Limit

H = Analyzed outside of hold time

E = Analysis performed by External Laboratory; See External Laboratory Report attachments.

J = Result is less than PQL

T = Temperature Exceedance

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Lab Number: AB66306

Collection Date/Time: 4/26/2017 9:00 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/1/2017 8:59 Sample ID

Sample Description: #117 Inj @ ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1		0.25	0.04	5/4/2017	2:42:00 PM	MW

Sample Comments:

Lab Number: AB66307

Collection Date/Time: 4/27/2017 9:30 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/1/2017 8:59 Sample ID

Sample Description: #118 Inj @ ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1		0.25	0.04	5/5/2017	2:39:00 PM	MW

Sample Comments:

Lab Number: AB66308

Collection Date/Time: 4/28/2017 8:30 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/1/2017 8:59 Sample ID

Sample Description: #119 Inj @ ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1		0.25	0.04	5/5/2017	2:39:00 PM	MW

Sample Comments:

Lab Number: AB66309

Collection Date/Time: 4/29/2017 9:45 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/1/2017 8:59 Sample ID

Sample Description: #120 Inj @ ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1		0.25	0.04	5/5/2017	2:39:00 PM	MW

Sample Comments:

Lab Number: AB66310

Collection Date/Time: 4/30/2017 8:05 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/1/2017 8:59 Sample ID

Sample Description: #121 Inj @ ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1		0.25	0.04	5/5/2017	2:39:00 PM	MW

Sample Comments:

Lab Number: AB66311

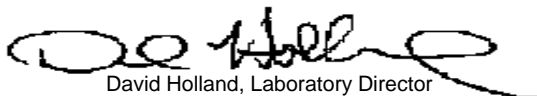
Collection Date/Time: 5/1/2017 8:00 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/1/2017 8:59 Sample ID

Sample Description: #122 Inj @ ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1		0.25	0.04	5/5/2017	2:39:00 PM	MW

Sample Comments:

Report Approved by:


 David Holland, Laboratory Director



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1702475

Report Created for: Monterey Peninsula Water Management

5 Harris Ct. Bldg G
Monterey, CA 93940

Project Contact: Maureen Hamilton

Project P.O.:

Project Name: ASR

Project Received: 02/08/2017

Analytical Report reviewed & approved for release on 02/13/2017 by:

Angela Rydelius,
Laboratory Manager

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Glossary of Terms & Qualifier Definitions

Client: Monterey Peninsula Water Management
Project: ASR
WorkOrder: 1702475

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: Monterey Peninsula Water Management
Date Received: 2/8/17 10:04
Date Prepared: 2/8/17
Project: ASR

WorkOrder: 1702475
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Mercury

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
39	1702475-001A	Water	01/31/2017 09:29	ICP-MS1	133850

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	02/09/2017 18:42

Surrogates	REC (%)	Limits
Terbium	104	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
40	1702475-002A	Water	02/01/2017 09:30	ICP-MS1	133850

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	02/09/2017 18:48

Surrogates	REC (%)	Limits
Terbium	105	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
41	1702475-003A	Water	02/02/2017 10:30	ICP-MS1	133850

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	02/09/2017 18:54

Surrogates	REC (%)	Limits
Terbium	105	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
42	1702475-004A	Water	02/03/2017 09:15	ICP-MS1	133850

Analytes	Result	RL	DF	Date Analyzed
Mercury	ND	0.050	1	02/09/2017 19:00

Surrogates	REC (%)	Limits
Terbium	107	70-130

Analyst(s): DVH

(Cont.)



Analytical Report

Client: Monterey Peninsula Water Management
Date Received: 2/8/17 10:04
Date Prepared: 2/8/17
Project: ASR

WorkOrder: 1702475
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Mercury

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
43	1702475-005A	Water	02/04/2017 09:30	ICP-MS1	133850

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Mercury	ND	0.050	1	02/09/2017 19:07

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>
Terbium	105	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
44	1702475-006A	Water	02/05/2017 08:50	ICP-MS1	133850

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Mercury	ND	0.050	1	02/10/2017 18:31

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>
Terbium	103	70-130

Analyst(s): DVH

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
45	1702475-007A	Water	02/06/2017 09:00	ICP-MS1	133850

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Mercury	ND	0.050	1	02/10/2017 18:37

<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>
Terbium	104	70-130

Analyst(s): DVH



Quality Control Report

Client: Monterey Peninsula Water Management
Date Prepared: 2/7/17
Date Analyzed: 2/8/17
Instrument: ICP-MS3
Matrix: Water
Project: ASR

WorkOrder: 1702475
BatchID: 133850
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L
Sample ID: MB/LCS-133850
 1702451-001AMS/MSD

QC Summary Report for Mercury

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Mercury	ND	1.28	0.050	1.25	-	103	85-115
Surrogate Recovery							
Terbium	767.4	784		750	102	104	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Mercury	1.42	1.44	1.25	ND	111	112	75-125	0.699	20
Surrogate Recovery									
Terbium	803	792	750		107	106	70-130	1.33	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Mercury	ND<0.25	ND	-	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



1534 Willow Pass Rd
 Pittsburg, CA 94565-1701
 (925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1702475

ClientCode: MPWM

QuoteID: 6557

WaterTrax
 WriteOn
 EDF
 Excel
 EQUIS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:

Maureen Hamilton
 Monterey Peninsula Water Management
 5 Harris Ct. Bldg G
 Monterey, CA 93940
 (831) 658-5600 FAX:

Email: mhamilton@mpwmd.net
 cc/3rd Party:
 PO:
 ProjectNo: ASR

Bill to:

Maureen Hamilton
 Monterey Peninsula Water Management
 5 Harris Ct. Bldg G
 Monterey, CA 93940

Requested TAT: 5 days;

Date Received: 02/08/2017

Date Logged: 02/08/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1702475-001	39	Water	1/31/2017 09:29	<input type="checkbox"/>	A												
1702475-002	40	Water	2/1/2017 09:30	<input type="checkbox"/>	A												
1702475-003	41	Water	2/2/2017 10:30	<input type="checkbox"/>	A												
1702475-004	42	Water	2/3/2017 09:15	<input type="checkbox"/>	A												
1702475-005	43	Water	2/4/2017 09:30	<input type="checkbox"/>	A												
1702475-006	44	Water	2/5/2017 08:50	<input type="checkbox"/>	A												
1702475-007	45	Water	2/6/2017 09:00	<input type="checkbox"/>	A												

Test Legend:

1	HGMS_W	2		3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Jena Alfaro

Comments: 32 samples per month for a 1yr

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
 Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: MONTEREY PENINSULA WATER MANAGEMENT **Project:** ASR

Work Order: 1702475

Client Contact: Maureen Hamilton

QC Level:

Contact's Email: mhamilton@mpwmd.net

Comments: 32 samples per month for a 1yr

Date Logged: 2/8/2017

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1702475-001A	39	Water	E200.8 (Mercury)	1	w/ 1ml HNO3 & .25ml HCl	<input type="checkbox"/>	1/31/2017 9:29	5 days	None	<input type="checkbox"/>	
1702475-002A	40	Water	E200.8 (Mercury)	1	w/ 1ml HNO3 & .25ml HCl	<input type="checkbox"/>	2/1/2017 9:30	5 days	None	<input type="checkbox"/>	
1702475-003A	41	Water	E200.8 (Mercury)	1	w/ 1ml HNO3 & .25ml HCl	<input type="checkbox"/>	2/2/2017 10:30	5 days	None	<input type="checkbox"/>	
1702475-004A	42	Water	E200.8 (Mercury)	1	w/ 1ml HNO3 & .25ml HCl	<input type="checkbox"/>	2/3/2017 9:15	5 days	None	<input type="checkbox"/>	
1702475-005A	43	Water	E200.8 (Mercury)	1	w/ 1ml HNO3 & .25ml HCl	<input type="checkbox"/>	2/4/2017 9:30	5 days	None	<input type="checkbox"/>	
1702475-006A	44	Water	E200.8 (Mercury)	1	w/ 1ml HNO3 & .25ml HCl	<input type="checkbox"/>	2/5/2017 8:50	5 days	None	<input type="checkbox"/>	
1702475-007A	45	Water	E200.8 (Mercury)	1	w/ 1ml HNO3 & .25ml HCl	<input type="checkbox"/>	2/6/2017 9:00	5 days	None	<input type="checkbox"/>	

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).

- 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.



McC Campbell Analytical, Inc.

1534 Willow Pass Rd. / Pittsburg, Ca. 94565-1701
 www.mcccampbell.com / main@mcccampbell.com
 Telephone: (877) 252-9262 / Fax: (925) 252-9269

1702475

CHAIN OF CUSTODY RECORD

TURN AROUND TIME: RUSH 1 DAY 2 DAY 3 DAY 5 DAY
 GeoTracker EDF PDF EDD Write On (DW) EQUIS 10 DAY
 Effluent Sample Requiring "J" flag UST Clean Up Fund Project ; Claim # _____

Report To: **Maureen Hamilton** Bill To: **same**
 Company: **Monterey Peninsula Water District**
 Tele: (831) 658-5622 E-Mail: **mhamilton@mpwmd.net**
 Project #: _____ Project Name: **ASR**
 Project Location: **Monterey, CA** Purchase Order# _____
 Sampler Signature: *[Signature]* QUOTE ID 6557

Analysis Request

SAMPLE ID	Location/ Field Point Name	SAMPLING		# Containers	MATRIX										METHOD PRESERVED			
		Date	Time		Ground Water	Waste Water	Drinking Water	Sea Water	Soil	Air	Sludge	Other	HCL	HNO ₃	Other			
39	ASR 2 JWS	1/31/17	09 24	1	X											X	X	
40		2/1/17	09 30	1														
41		2/2/17	10 30	1														
42		2/3/17	09 15	1														
43		2/4/17	09 30	1														
44		2/5/17	08 50	1														
45		2/6/17	09 00	1														

EPA 200.8 Hg

**MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate \$250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

*** If metals are requested for water samples and the water type is not specified on the chain of custody, then MAI will default to metals by E200.8.

Relinquished By: <i>[Signature]</i>	Date: 2/7/16	Time: 09:00	Received By: <i>[Signature]</i>	ICE/t° _____	COMMENTS: 8094 5284 6972
Relinquished By: <i>Fedex</i>	Date: 2/8/17	Time: 1004	Received By: <i>[Signature]</i>	GOOD CONDITION _____	
Relinquished By: _____	Date: _____	Time: _____	Received By: _____	HEAD SPACE ABSENT _____	

APPROPRIATE CONTAINERS _____
 PRESERVED IN LAB _____
 VOAS O&G METALS OTHER HAZARDOUS:
 PRESERVATION pH<2



Sample Receipt Checklist

Client Name: **Monterey Peninsula Water Management**
 Project Name: **ASR**
 WorkOrder No: **1702475** Matrix: Water
 Carrier: FedEx

Date and Time Received: **2/8/2017 10:04**
 Date Logged: **2/8/2017**
 Received by: Jena Alfaro
 Logged by: Jena Alfaro

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No NA
 Sample/Temp Blank temperature Temp: NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments:

MPWMD
 Jonathan Lear
 P.O. Box 85
 Monterey, CA 93442-0085



Monterey Bay Analytical Services

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ELAP Certification Number: 2385

Lab Number: AB67342

Collection Date/Time: 5/9/2017 8:15 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/15/2017 12:59 Sample ID

Sample Description: #130 ASR2 Inj

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1		0.25	0.04	5/17/2017	3:44:00 PM	MW

Sample Comments:

Lab Number: AB67343

Collection Date/Time: 5/10/2017 9:00 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/15/2017 12:59 Sample ID

Sample Description: #131 Inj @ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1		0.25	0.04	5/17/2017	3:44:00 PM	MW

Sample Comments:

Lab Number: AB67344

Collection Date/Time: 5/11/2017 8:30 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/15/2017 12:59 Sample ID

Sample Description: #132 Inj @ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1		0.25	0.04	5/17/2017	3:44:00 PM	MW

Sample Comments:

Lab Number: AB67345

Collection Date/Time: 5/12/2017 8:45 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/15/2017 12:59 Sample ID

Sample Description: #133 Inj @ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1		0.25	0.04	5/17/2017	3:44:00 PM	MW

Sample Comments:

Lab Number: AB67346

Collection Date/Time: 5/13/2017 8:25 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/15/2017 12:59 Sample ID

Sample Description: #134 Inj @ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1		0.25	0.04	5/17/2017	3:44:00 PM	MW

Sample Comments:

mg/L: Milligrams per liter (=ppm) ug/L : Micrograms per liter (=ppb) PQL : Practical Quantitation Limit J = Result is less than PQL
 H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments.
 D = Method deviates from standard method due to insufficient sample for MS/MSD

Lab Number: AB67347

Collection Date/Time: 5/14/2017 10:45 Sample Collector: LEAR J Client Sample #:
Submittal Date/Time: 5/15/2017 12:59 Sample ID

Sample Description: #135 Inj @ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1		0.25	0.04	5/17/2017	3:44:00 PM	MW

Sample Comments:

Lab Number: AB67348

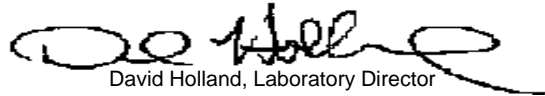
Collection Date/Time: 5/15/2017 8:05 Sample Collector: LEAR J Client Sample #:
Submittal Date/Time: 5/15/2017 12:59 Sample ID

Sample Description: #136 Inj @ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1		0.25	0.04	5/17/2017	3:44:00 PM	MW

Sample Comments:

Report Approved by:



David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm) ug/L : Micrograms per liter (=ppb) PQL : Practical Quantitation Limit J = Result is less than PQL
H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments.
D = Method deviates from standard method due to insufficient sample for MS/MSD

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ELAP Certification Number: 2385

Lab Number: AB66879

Collection Date/Time: 5/2/2017 8:10 Sample Collector: LEAR, J Client Sample #:
 Submittal Date/Time: 5/8/2017 9:54 Sample ID

Sample Description: #123 ASR 2-Inj

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1	LP,IA	0.25	0.04	5/24/2017	1:15:00 PM	MW

Sample Comments: LP: LCS recovery above method control limits. Analyte ND. IA: Results are valid even though CCV recovery outside of limits.

Lab Number: AB66880

Collection Date/Time: 5/3/2017 9:00 Sample Collector: LEAR, J Client Sample #:
 Submittal Date/Time: 5/8/2017 9:54 Sample ID

Sample Description: #124 Inj @ ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1		0.25	0.04	5/17/2017	1:50:00 PM	MW

Sample Comments:

Lab Number: AB66881

Collection Date/Time: 5/4/2017 9:00 Sample Collector: LEAR, J Client Sample #:
 Submittal Date/Time: 5/8/2017 9:54 Sample ID

Sample Description: #125 Inj @ ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1		0.25	0.04	5/17/2017	1:53:00 PM	MW

Sample Comments:

Lab Number: AB66882

Collection Date/Time: 5/5/2017 9:00 Sample Collector: LEAR, J Client Sample #:
 Submittal Date/Time: 5/8/2017 9:54 Sample ID

Sample Description: #126 Inj @ ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1		0.25	0.04	5/17/2017	1:56:00 PM	MW

Sample Comments:

Lab Number: AB66883

Collection Date/Time: 5/6/2017 10:40 Sample Collector: LEAR, J Client Sample #:
 Submittal Date/Time: 5/8/2017 9:54 Sample ID

Sample Description: #127 Inj @ ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1		0.25	0.04	5/17/2017	2:00:00 PM	MW

Sample Comments:

mg/L: Milligrams per liter (=ppm) ug/L : Micrograms per liter (=ppb) PQL : Practical Quantitation Limit J = Result is less than PQL
 H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments.
 D = Method deviates from standard method due to insufficient sample for MS/MSD

Lab Number: AB66884

Collection Date/Time: 5/7/2017 12:20 Sample Collector: LEAR, J Client Sample #:
Submittal Date/Time: 5/8/2017 9:54 Sample ID

Sample Description: #128 Inj @ ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1		0.25	0.04	5/17/2017	2:03:00 PM	MW

Sample Comments:

Lab Number: AB66885

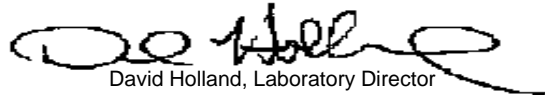
Collection Date/Time: 5/8/2017 8:00 Sample Collector: LEAR, J Client Sample #:
Submittal Date/Time: 5/8/2017 9:54 Sample ID

Sample Description: #129 Inj @ ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1		0.25	0.04	5/17/2017	2:07:00 PM	MW

Sample Comments:

Report Approved by:



David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm) ug/L : Micrograms per liter (=ppb) PQL : Practical Quantitation Limit J = Result is less than PQL
H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments.
D = Method deviates from standard method due to insufficient sample for MS/MSD

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ELAP Certification Number: 2385

Lab Number: AB67787

Collection Date/Time: 5/16/2017 8:15 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/22/2017 9:16 Sample ID

Sample Description: #137 ASR2-INJ

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1	LP,IA	0.25	0.04	5/24/2017	6:49:00 PM	MW

Sample Comments: LP: LCS recovery above method control limits. Analyte ND. IA: Results are valid even though CCV recovery outside of limits.

Lab Number: AB67788

Collection Date/Time: 5/17/2017 8:00 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/22/2017 9:16 Sample ID

Sample Description: #138 ASR2-INJ

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1	LP,IA	0.25	0.04	5/24/2017	6:53:00 PM	MW

Sample Comments: LP: LCS recovery above method control limits. Analyte ND. IA: Results are valid even though CCV recovery outside of limits.

Lab Number: AB67789

Collection Date/Time: 5/18/2017 8:30 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/22/2017 9:16 Sample ID

Sample Description: #139 INJ@ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1	LP,IA	0.25	0.04	5/24/2017	6:56:00 PM	MW

Sample Comments: LP: LCS recovery above method control limits. Analyte ND. IA: Results are valid even though CCV recovery outside of limits.

Lab Number: AB67790

Collection Date/Time: 5/19/2017 11:30 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/22/2017 9:16 Sample ID

Sample Description: #140 INJ@ASR2

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1	LP,IA	0.25	0.04	5/24/2017	7:00:00 PM	MW

Sample Comments: LP: LCS recovery above method control limits. Analyte ND. IA: Results are valid even though CCV recovery outside of limits.

Lab Number: AB67791

Collection Date/Time: 5/20/2017 9:15 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/22/2017 9:16 Sample ID

Sample Description: #141 ASR2 INJECT

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1	LP,IA	0.25	0.04	5/24/2017	7:03:00 PM	MW

Sample Comments: LP: LCS recovery above method control limits. Analyte ND. IA: Results are valid even though CCV recovery outside of limits.

mg/L: Milligrams per liter (=ppm) µg/L : Micrograms per liter (=ppb) PQL : Practical Quantitation Limit J = Result is less than PQL
 H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments.
 D = Method deviates from standard method due to insufficient sample for MS/MSD

Lab Number: AB67792

Collection Date/Time: 5/21/2017 6:20 Sample Collector: LEAR J Client Sample #:
Submittal Date/Time: 5/22/2017 9:16 Sample ID

Sample Description: #142 ASR2 INJ

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1	LP,IA	0.25	0.04	5/24/2017	7:06:00 PM	MW

Sample Comments: LP: LCS recovery above method control limits. Analyte ND. IA: Results are valid even though CCV recovery outside of limits.

Lab Number: AB67793

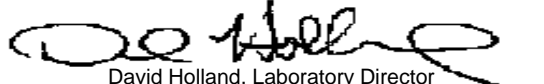
Collection Date/Time: 5/22/2017 8:05 Sample Collector: LEAR J Client Sample #:
Submittal Date/Time: 5/22/2017 9:16 Sample ID

Sample Description: #143 ASR2-INJ

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1	LP,IA	0.25	0.04	5/24/2017	7:10:00 PM	MW

Sample Comments: LP: LCS recovery above method control limits. Analyte ND. IA: Results are valid even though CCV recovery outside of limits.

Report Approved by:


David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm) ug/L : Micrograms per liter (=ppb) PQL : Practical Quantitation Limit J = Result is less than PQL
H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments.
D = Method deviates from standard method due to insufficient sample for MS/MSD

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ELAP Certification Number: 2385

Lab Number: AB68372

Collection Date/Time: 5/23/2017 8:05 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/30/2017 16:10 Sample ID

Sample Description: #144 ASR2 INJ

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1	IL	0.25	0.04	5/31/2017	3:36:00 PM	MW

Sample Comments: IL: RPD exceeds laboratory control limit

Lab Number: AB68373

Collection Date/Time: 5/24/2017 9:30 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/30/2017 16:10 Sample ID

Sample Description: #145

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1	IL	0.25	0.04	5/31/2017	3:36:00 PM	MW

Sample Comments: IL: RPD exceeds laboratory control limit

Lab Number: AB68374

Collection Date/Time: 5/25/2017 8:35 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/30/2017 16:10 Sample ID

Sample Description: #146 ASR2 INJ

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1	IL	0.25	0.04	5/31/2017	3:36:00 PM	MW

Sample Comments: IL: RPD exceeds laboratory control limit

Lab Number: AB68375

Collection Date/Time: 5/26/2017 8:35 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/30/2017 16:10 Sample ID

Sample Description: #147 ASR2 INJ

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1	IL	0.25	0.04	5/31/2017	3:36:00 PM	MW

Sample Comments: IL: RPD exceeds laboratory control limit

Lab Number: AB68376

Collection Date/Time: 5/27/2017 8:05 Sample Collector: LEAR J Client Sample #:
 Submittal Date/Time: 5/30/2017 16:10 Sample ID

Sample Description: #148 ASR2 INJ

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1	IL	0.25	0.04	5/31/2017	3:36:00 PM	MW

Sample Comments: IL: RPD exceeds laboratory control limit

mg/L: Milligrams per liter (=ppm) µg/L : Micrograms per liter (=ppb) PQL : Practical Quantitation Limit J = Result is less than PQL
 H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments.
 D = Method deviates from standard method due to insufficient sample for MS/MSD

Lab Number: AB68377

Collection Date/Time: 5/28/2017 8:05 Sample Collector: LEAR J Client Sample #:
Submittal Date/Time: 5/30/2017 16:10 Sample ID

Sample Description: #149 ASR2 INJ

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1	IL	0.25	0.04	5/31/2017	3:36:00 PM	MW

Sample Comments: IL: RPD exceeds laboratory control limit

Lab Number: AB68378

Collection Date/Time: 5/29/2017 9:40 Sample Collector: LEAR J Client Sample #:
Submittal Date/Time: 5/30/2017 16:10 Sample ID

Sample Description: #150 ASR2 INJ

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1	IL	0.25	0.04	5/31/2017	3:36:00 PM	MW

Sample Comments: IL: RPD exceeds laboratory control limit

Lab Number: AB68379

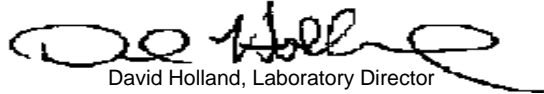
Collection Date/Time: 5/30/2017 8:05 Sample Collector: LEAR J Client Sample #:
Submittal Date/Time: 5/30/2017 16:10 Sample ID

Sample Description: #151 ASR2 INJ

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1	IL	0.25	0.04	5/31/2017	3:36:00 PM	MW

Sample Comments: IL: RPD exceeds laboratory control limit

Report Approved by:



David Holland, Laboratory Director

mg/L: Milligrams per liter (=ppm) ug/L : Micrograms per liter (=ppb) PQL : Practical Quantitation Limit J = Result is less than PQL
H = Analyzed outside of hold time E = Analysis performed by External Laboratory; See Report attachments.
D = Method deviates from standard method due to insufficient sample for MS/MSD

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ELAP Certification Number: 2385

Lab Number: AB68856

Collection Date/Time: 5/31/2017 8:00

Sample Collector: LEAR J

Client Sample #:

Submittal Date/Time: 6/6/2017 8:33

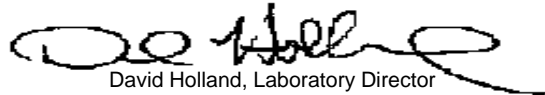
Sample ID

Sample Description: #152-ASR2-inj

Analyte	Method	Unit	Result	Dilution	Qual	PQL	MDL	Date Analyzed	Time Analyzed	Analyst
Mercury, Total	EPA200.8	µg/L	Not Detected	1	IH	0.25	0.04	6/7/2017	1:03:00 PM	MW

Sample Comments: IH: LCS and/or CCV below acceptance limits.

Report Approved by:



David Holland, Laboratory Director

Carmel Valley Wellfield Production During 2017 ASR Operations

Date	Robles #3	Panetta #1	Panetta #2	Garzas #3	Garzas #4	LL #5	LL #6	Berwick #8	Berwick #9	Begonia #2	Manor #2	Schulte #2	Pearce	Cypress #2	R. Canada #2	Eastwood-Canada
12/16/2016	0	0	0	0	58550.4	52910.4	65731.2	60640	0	165724.4	0	0	0	238709.0909	0	0
12/17/2016	0	0	0	0	57660.8	52000	64659.2	60640	0	165724.4	0	0	0	238709.0909	0	0
12/18/2016	0	0	0	0	57628.8	52019.2	60732.8	60640	0	165724.4	0	0	0	238709.0909	0	0
12/19/2016	0	0	0	0	58112	52440	67769.6	60640	63600	165724.4	0	0	0	238709.0909	0	0
12/20/2016	0	0	0	0	59699.2	53929.6	68608	121000	98800	222976	0	0	0	238709.0909	0	0
12/21/2016	0	20492.8	0	0	59158.4	53611.2	67241.6	120300	98500	222080	0	0	0	238709.0909	0	0
12/22/2016	0	40684.8	0	0	57542.4	52388.8	27638.4	48400	50800	199936	0	8608	0	238709.0909	0	0
12/23/2016	0	40595.2	0	0	57360	52200	61740.8	50700	62900	171904	0	97888	0	238709.0909	0	0
12/24/2016	0	40256	0	0	57017.6	51840	61251.2	118300	96100	216768	0	23520	0	238709.0909	0	0
12/25/2016	0	40480	0	0	57200	52009.6	61360	73700	96900	217984	0	42176	0	238709.0909	0	0
12/26/2016	0	40454.4	0	0	57260.8	52041.6	61520	74300	96700	217408	0	63712	0	238709.0909	0	0
12/27/2016	0	40556.8	0	0	57280	52080	61408	91000	95300	214848	0	147488	0	255300	0	12515.17274
12/28/2016	0	40678.4	0	0	57449.6	52209.6	61481.6	97300	94400	212672	0	161216	0	248900	0	12515.17274
12/29/2016	0	40403.2	0	0	57110.4	51899.2	61440	106000	94500	212992	0	138912	0	239700	0	13565.90184
12/30/2016	0	40089.6	0	0	56771.2	51590.4	61177.6	43400	39100	131520	0	39680	0	298250	0	13565.90184
12/31/2016	0	40768	0	0	40979.2	52200	61472	60700	56600	216000	0	90304	0	298250	0	13565.90184
1/1/2017	0	41068.8	0	0	0	52030.4	61088	73900	76900	215680	0	88096	0	205750	0	13565.90184
1/2/2017	0	41062.4	0	0	0	52009.6	61072	32900	66800	176704	0	0	0	205750	0	13565.90184
1/3/2017	0	23782.4	0	0	0	29379.2	34828.8	70300	76100	217024	0	65792	0	252100	0	13173.54943
1/4/2017	0	16608	0	0	25811.2	22390.04	1670.4	55900	47900	157568	0	111520	0	261850	0	13173.54943
1/5/2017	0	36697.6	18129.6	0	58179.2	53129.6	30630.4	112800	90600	204736	0	229984	0	261850	0	11076.32446
1/6/2017	0	31814.4	35900.8	0	57331.2	52571.2	58460.8	116900	93400	212480	0	247008	0	213233.3333	0	11076.32446
1/7/2017	0	31808	36049.6	0	57299.2	52520	67139.2	114400	92100	206976	0	243392	0	213233.3333	0	11076.32446
1/8/2017	0	31840	35920	0	40118.4	52150.4	76230.4	110100	88500	198144	0	234208	0	213233.3333	0	11076.32446
1/9/2017	0	32710.4	37348.8	0	0	52859.2	76771.2	46800	37400	84672	0	99200	0	276400	0	11076.32446
1/10/2017	0	32121.6	36630.4	0	0	52169.6	76259.2	140566.667	59050	256042.7	0	299872	0	269700	0	11076.32446
1/11/2017	0	32716.8	37369.6	0	0	52980.8	76809.6	140566.667	59050	256042.7	0	299872	0	184300	0	0
1/12/2017	0	33100.8	38281.6	0	0	53880	77180.8	140566.667	59050	256042.7	0	299872	0	44600	0	0
1/13/2017	0	32672	37529.6	0	0	53209.6	76547.2	110500	59050	126592	0	100288	138750	44600	0	12395.19445
1/14/2017	0	32838.4	37788.8	0	0	53430.4	76710.4	70000	99160	185779.2	0	247397.3	138750	216200	0	12395.19445
1/15/2017	0	33196.8	38400	0	0	40849.6	77142.4	128050	99160	185779.2	0	247397.3	138750	171000	220106.6667	12395.19445
1/16/2017	0	32972.8	38020.8	0	0	9.6	76800	128050	99160	185779.2	0	247397.3	138750	166800	220106.6667	12395.19445
1/17/2017	0	32032	36760	0	0	0	75948.8	128050	99160	185779.2	0	247397.3	176300	182700	220106.6667	13337.9765
1/18/2017	0	31520	35929.6	0	0	0	75449.6	128050	99160	185779.2	0	247397.3	176300	177300	220106.6667	13337.9765
1/19/2017	0	31456	35651.2	0	0	0	75331.2	117200	92800	212288	0	247397.3	133400	178700	220106.6667	13446.73518
1/20/2017	0	32371.2	36988.8	0	0	0	76249.6	112600	89100	203712	0	198720	133400	222500	220106.6667	13446.73518
1/21/2017	0	32864	37820.8	0	0	0	76598.4	92300	73400	169472	0	188384	0	239800	167168	13446.73518
1/22/2017	0	33248	38369.6	0	0	0	76761.6	129166.667	101033.3	234432	0	260938.7	0	260700	173156	13446.73518
1/23/2017	0	33280	38409.6	0	0	0	76700.8	129166.667	101033.3	234432	0	260938.7	133400	273800	173156	13446.73518
1/24/2017	0	31059.2	35120	0	0	0	72960	129166.667	101033.3	234432	0	260938.7	133400	281200	173156	13446.73518
1/25/2017	0	31603.2	35760	0	0	0	72579.2	31800	26800	216332	0	72608	133400	275900	173156	13446.73518
1/26/2017	0	31603.2	35760	0	0	0	72579.2	125741.667	98233.33	214000	0	229009.8	180700	273900	173156	13447.81735
1/27/2017	0	31648	35649.6	0	0	0	72451.2	125741.667	98233.33	214000	0	229009.8	180700	271900	173156	13447.81735
1/28/2017	0	31692.8	35420.8	0	0	0	72249.6	125741.667	98233.33	214000	0	229009.8	180700	269300	173156	13447.81735
1/29/2017	0	30867.2	34449.6	0	0	0	72499.2	125741.667	98233.33	214000	0	229009.8	180700	268000	173156	13447.81735
1/30/2017	0	31840	35840	0	0	0	72809.6	125741.667	98233.33	214000	0	229009.8	180700	110300	173156	13447.81735
1/31/2017	0	32422.4	36740.8	0	0	0	73561.6	125741.667	98233.33	214000	0	229009.8	180700	174100	173156	13447.81735

Date	Robles #3	Panetta #1	Panetta #2	Garzas #3	Garzas #4	LL #5	LL #6	Berwick #8	Berwick #9	Begonia #2	Manor #2	Schulte #2	Pearce	Cypress #2	R. Canada #2	Eastwood-Canada
2/1/2017	0	31955.2	36019.2	0	0	0	72950.4	125741.667	98233.33	197200	0	229009.8	172000	268800	173156	13152.82895
2/2/2017	0	32300.8	36579.2	0	0	0	73529.6	125741.667	98233.33	201337.7	0	229009.8	170822.5	267600	173156	13411.02337
2/3/2017	0	32729.6	37150.4	0	0	0	73920	125741.667	98233.33	201337.7	0	229009.8	170822.5	271900	173156	13411.02337
2/4/2017	0	32819.2	37580.8	0	0	0	74188.8	125741.667	98233.33	201337.7	0	237408	170822.5	277400	173156	13411.02337
2/5/2017	0	32761.6	37230.4	0	0	0	73939.2	125741.667	98233.33	201337.7	0	237600	170822.5	277000	173156	13411.02337
2/6/2017	0	33651.2	37089.6	11748.8	0	0	74051.2	125741.667	98233.33	201337.7	0	237888	170822.5	275900	173156	13411.02337
2/7/2017	0	33318.4	36569.6	29270.4	0	0	73980.8	79600	92800	201337.7	0	242112	170822.5	279800	98624	13411.02337
2/8/2017	0	32384	34689.6	57049.6	0	0	73238.4	157900	91800	213376	0	236096	170822.5	283200	172992	13411.02337
2/9/2017	0	32217.6	34451.2	56731.2	0	0	72912	117900	39047.35	202624	0	169600	180304	282700	177088	13447.88101
2/10/2017	0	32545.6	35164.8	57277.2	0	0	73109.6	115356.483	90350	211072	0	234600	176324	260066.6667	160224	13447.88101
2/11/2017	0	32545.6	35164.8	57277.2	0	0	73109.6	115356.483	90350	211072	0	234600	176324	260066.6667	160224	13447.88101
2/12/2017	0	32545.6	35164.8	57277.2	0	0	73109.6	115356.483	90350	211072	0	234600	176324	260066.6667	160224	13447.88101
2/13/2017	0	32545.6	35164.8	57277.2	0	0	73109.6	115356.483	90350	211072	0	234600	176324	260100	160224	13447.88101
2/14/2017	0	32038.4	34089.6	56520	0	0	72662.4	118000	90900	212288	0	235488	176496	279700	168448	13447.88101
2/15/2017	0	31840	33710.4	56280	0	0	72569.6	118000	90500	212224	0	235808	176608	277900	166848	13447.88101
2/16/2017	0	31801.6	33750.4	55830.4	0	0	73868.8	116900	90100	210880	0	235200	175792	275400	166912	13098.97478
2/17/2017	0	31648	34009.6	56670.4	0	0	18668.8	81300	63200	76416	0	231200	92208	107600	56320	13098.97478
2/18/2017	0	32876.8	34800	58089.6	0	0	0	60100	46400	0	0	127008	204688	159400	78080	13098.97478
2/19/2017	0	33024	33870.4	56920	0	0	0	0	0	0	0	41184	56608	221700	235328	13098.97478
2/20/2017	0	21369.6	21699.2	36569.6	0	0	0	18700	0	42688	0	60096	50704	204000	161088	13098.97478
2/21/2017	0	0	0	0	0	0	0	123100	0	221824	0	249728	195504	319600	0	13098.97478
2/22/2017	0	0	0	0	0	0	0	46200	100	155648	0	205696	188288	309600	84672	13098.97478
2/23/2017	0	0	0	0	0	0	0	28000	63800	217600	0	237984	176304	301700	171456	13663.82284
2/24/2017	0	18649.6	18689.6	34190.4	23712	0	0	14300	70800	151808	0	236992	176896	297700	171648	13663.82284
2/25/2017	0	32870.4	32740.8	56329.6	49798.4	0	0	85500	91100	215808	0	236896	175104	293700	168320	13663.82284
2/26/2017	0	32748.8	32580.8	56209.6	49590.4	0	0	119100	90700	214592	0	236928	175696	291000	167872	13663.82284
2/27/2017	0	32832	32649.6	56209.6	49651.2	0	0	119000	90600	214528	0	237280	176608	288200	169728	0
2/28/2017	0	32857.6	33240	40380.8	36550.4	0	0	118600	90400	214272	0	237024	176704	286100	172800	0
3/1/2017	0	32748.8	32520	56080	48438.4	0	0	118400	90200	213696	0	237888	177296	284100	169216	13037.86368
3/2/2017	0	32780.8	32390.4	55948.8	48620.8	0	0	118400	90100	213056	0	235712	176992	282400	167616	12964.33938
3/3/2017	0	32678.4	32358.4	55870.4	49468.8	0	0	118400	90000	212992	0	237088	175504	280500	167680	12964.33938
3/4/2017	0	32723.2	32510.4	56000	49609.6	0	0	118400	90000	213184	0	237280	176304	279400	167808	12964.33938
3/5/2017	0	32832	32811.2	56300.8	49859.2	0	0	118800	89900	214272	0	237504	175504	279200	168576	12964.33938
3/6/2017	0	32486.4	32028.8	55720	49241.6	23740.8	41062.4	106700	84600	213312	0	236224	175088	277600	167680	12964.33938
3/7/2017	0	32473.6	31849.6	55539.2	49100.8	52049.6	85977.6	29900	23700	74432	0	169600	124912	180600	126016	12964.33938
3/8/2017	0	32339.2	31300.8	55220.8	48739.2	51579.2	85670.4	36900	35100	127104	0	239776	181792	234300	178240	12964.33938
3/9/2017	0	32390.4	31200	55099.2	48640	51430.4	85740.8	70200	67500	212160	0	239104	181504	232600	175680	13316.11019
3/10/2017	0	32377.6	31320	55110.4	48710.4	51449.6	85868.8	98900	90000	212416	0	239808	182304	231300	175872	13316.11019
3/11/2017	0	32460.8	31310.4	55180.8	48739.2	51470.4	79312	118700	89600	211904	0	239584	181296	230400	174208	13316.11019
3/12/2017	0	32582.4	31390.4	55188.8	48819.2	51540.8	86988.8	118600	89500	212096	0	239520	181488	229900	175104	13316.11019
3/13/2017	0	32678.4	31089.6	54880	48569.6	51228.8	86819.2	118300	89400	210880	0	238784	180608	243800	171776	13316.11019
3/14/2017	0	32620.8	31600	51790.4	36723.2	51280	86809.6	118300	89200	211904	0	239008	179104	251800	170624	13316.11019
3/15/2017	0	19148.8	18289.6	56140.8	49187.2	51451.2	86790.4	95900	88900	212416	0	238912	178496	251800	170624	13316.11019
3/16/2017	0	17920	16870.4	56148.8	49401.6	51579.2	86880	118800	89400	211520	0	238400	179200	252400	171008	13612.881
3/17/2017	0	33049.6	31059.2	55700.8	48729.6	51460.8	87001.6	118200	89000	211200	0	238688	179600	251000	168896	13612.881
3/18/2017	0	32806.4	31110.4	55699.2	48729.6	51449.6	86659.2	118300	88600	211968	0	238592	178704	251500	169664	13612.881
3/19/2017	0	32742.4	31080	55651.2	48681.6	51400	86499.2	118000	88400	211584	0	237920	178304	251400	170112	13612.881
3/20/2017	0	32851.2	31579.2	55819.2	49017.6	51699.2	87030.4	118400	88800	212544	0	243296	46986	269600	189376	13612.881
3/21/2017	0	32940.8	32060.8	55969.6	49382.4	52110.4	87340.8	118400	88900	213504	0	241984	104000	262200	181440	13612.881

Date	Robles #3	Panetta #1	Panetta #2	Garzas #3	Garzas #4	LL #5	LL #6	Berwick #8	Berwick #9	Begonia #2	Manor #2	Schulte #2	Pearce	Cypress #2	R. Canada #2	Eastwood-Canada
3/22/2017	0	32627.2	31420.8	55780.8	48937.6	51270.4	86649.6	117900	88600	211904	0	237600	179088	250500	168896	13612.881
3/23/2017	0	32512	31059.2	55569.6	48672	51300	86489.6	118000	87900	210944	0	237120	178512	249900	167680	13624.05287
3/24/2017	0	32499.2	31260.8	55500.8	48800	51499.2	86470.4	117700	87900	211712	0	231680	179392	250700	168704	13624.05287
3/25/2017	0	32672	31548.8	55668.8	48979.2	51590.4	86761.6	117200	87800	211392	0	239104	179600	249700	168384	13624.05287
3/26/2017	0	32678.4	31500.8	55390.4	48899.2	51609.6	86768	117700	88200	210752	0	237600	179504	250000	168320	13624.05287
3/27/2017	0	32876.8	31609.6	55710.4	49081.6	51760	87011.2	117900	88200	211968	0	239104	178896	250100	168512	13624.05287
3/28/2017	0	13235.2	12550.4	56430.4	50128	52049.6	86508.8	118100	88400	212224	0	238688	180400	250700	168512	13624.05287
3/29/2017	0	11750.4	11430.4	56708.8	50681.6	31340.8	49180.8	118300	88000	211264	0	241408	189808	145000	186944	10570.12079
3/30/2017	0	32659.2	30388.8	55131.2	48380.8	51139.2	85251.2	81200	71600	211392	0	238816	183904	192400	177408	13828.58411
3/31/2017	0	31500.8	30100.8	49440	43488	45689.6	78908.8	118500	88400	212608	0	237888	183392	194600	178304	13828.58411
4/1/2017	0	34,010	32,379	56,179	49,722	52,371	87,760	118,900	88,900	213,248	0	239,008	186,000	195,800	179,008	13,138
4/2/2017	0	34,195	33,080	56,760	50,358	53,160	88,442	119,300	88,900	214,464	0	239,680	186,496	197,900	180,224	13,138
4/3/2017	0	34,080	32,830	56,560	50,141	52,979	88,128	118,900	88,600	213,696	0	238,112	184,112	213,600	176,960	13,138
4/4/2017	0	33,523	31,650	55,880	49,229	51,990	86,960	118,000	87,800	212,224	0	236,896	181,888	217,000	173,696	13,138
4/5/2017	0	33,651	31,760	56,040	49,462	52,170	87,270	118,200	88,000	211,776	0	236,896	183,600	216,400	173,760	13,138
4/6/2017	0	33,126	30,691	55,461	48,630	51,301	86,358	89,600	73,200	210,340	0	236,224	183,104	213,600	171,200	13,258
4/7/2017	0	33,370	31,318	55,650	49,098	51,739	86,902	118,400	87,900	197,184	0	225,792	185,600	221,400	150,848	13,258
4/8/2017	0	33,613	32,131	56,270	49,741	52,430	87,299	118,600	87,900	190,912	0	220,512	184,592	262,000	130,624	13,258
4/9/2017	0	33,798	32,400	56,278	49,869	52,579	87,539	118,400	87,700	190,528	0	218,880	183,616	278,100	128,896	13,258
4/10/2017	0	33,728	32,000	56,110	49,651	52,362	87,501	100,800	82,900	174,080	0	208,320	175,792	266,300	74,112	13,258
4/11/2017	0	33,414	30,829	52,701	46,211	51,261	86,621	43,000	38,400	150,720	0	219,296	185,904	257,800	132,800	13,258
4/12/2017	0	29,421	27,421	55,810	48,829	50,637	85,258	26,300	88,400	183,104	0	219,392	186,000	250,800	132,800	13,258
4/13/2017	0	32,685	31,170	55,770	48,842	51,571	85,990	84,200	87,500	183,104	0	160,096	188,096	255,400	138,624	13,132
4/14/2017	0	32,506	30,811	55,541	48,438	51,139	90,170	66,800	59,900	182,784	0	218,304	182,992	250,400	131,392	13,132
4/15/2017	0	32,890	31,238	55,390	48,909	51,552	90,861	58,550	70,700	182,720	0	219,008	184,912	251,000	132,096	13,132
4/16/2017	0	32,499	30,981	55,579	48,733	36,608	90,192	89,200	74,500	182,272	0	217,280	184,304	249,600	130,304	13,132
4/17/2017	0	32,499	31,010	54,760	48,698	29,110	82,029	90,300	86,900	181,568	0	218,912	184,688	249,200	129,984	13,132
4/18/2017	0	32,378	31,120	55,530	47,002	51,370	90,490	63,600	70,200	182,656	0	217,696	184,704	249,000	129,600	13,132
4/19/2017	0	32,211	31,160	55,380	48,358	51,261	90,531	118,600	86,700	180,992	0	217,088	183,696	248,700	128,064	13,132
4/20/2017	0	32,390	31,550	55,600	48,640	51,600	90,950	118,200	86,600	181,312	0	217,216	184,208	249,000	129,216	12,848
4/21/2017	0	33,062	32,440	55,840	49,261	52,230	91,818	118,700	87,300	181,952	0	218,496	187,088	250,500	131,392	12,848
4/22/2017	0	33,670	32,030	55,979	49,562	52,531	91,933	118,900	87,300	182,720	0	220,000	186,112	250,900	132,352	12,848
4/23/2017	0	33,920	32,370	56,211	49,549	52,579	91,770	118,800	87,200	183,104	0	218,304	184,592	265,900	129,344	12,848
4/24/2017	0	33,798	32,070	56,130	49,440	52,480	91,590	118,900	87,300	183,296	0	217,600	184,208	267,300	128,128	12,848
4/25/2017	0	33,869	32,120	56,080	49,370	52,410	91,610	118,400	87,000	182,592	0	190,208	185,200	262,900	142,912	12,848
4/26/2017	0	33,651	31,709	55,880	49,171	52,189	79,418	117,200	86,900	182,016	0	215,776	183,088	257,800	148,608	12,848
4/27/2017	0	34,266	31,858	56,170	46,144	52,320	83,332	118,100	86,560	181,837	0	211,143	183,040	257,775	148,429	12,463
4/28/2017	0	34,266	31,858	56,170	46,144	52,320	83,332	118,100	86,560	181,837	0	211,143	183,040	257,775	148,429	12,463
4/29/2017	0	34,266	31,858	56,170	46,144	52,320	83,332	118,100	86,560	181,837	0	211,143	183,040	257,775	148,429	12,463
4/30/2017	0	34,266	31,858	56,170	46,144	52,320	83,332	118,100	86,560	181,837	0	211,143	183,040	257,775	148,429	12,463
5/1/2017	0	34265.6	31858.2	56169.9	46144	52320	83332.5	118100	86560	181837	0	211142	183040	257800	148429	12773.6218
5/2/2017	0	35020.8	32430.4	56030.4	49699.2	52742.4	91939.2	118300	87100	182080	0	218496	184608	258400	149056	12773.6218
5/3/2017	0	34668.8	31908.8	55840	49328	52310.4	91360	118400	87100	182592	0	216896	183504	257400	147456	12773.6218
5/4/2017	0	33632	31009.6	55539.2	48691.2	51728	90358.4	117000	85500	181504	0	215712	181392	255900	145728	12149.65193
5/5/2017	0	33208	30432.8	55670	48061.72	31675.2	89797.6	104900	85200	180400	0	214552	180252	254666.6667	143552	12149.65193
5/6/2017	0	33208	30432.8	55670	48061.72	31675.2	89797.6	104900	85200	180400	0	214552	180252	254666.6667	143552	12149.65193
5/7/2017	0	33208	30432.8	55670	48061.72	31675.2	89797.6	104900	85200	180400	0	214552	180252	254666.6667	143552	12149.65193
5/8/2017	0	33208	30432.8	55670	19024.43	31675.2	89797.6	104900	85200	180400	0	214552	180252	254600	143552	12149.65193
5/9/2017	0	34419.2	32819.2	57360	0	52169.6	90540.8	111300	80900	170432	0	196096	172800	243100	149760	12149.65193

Date	Robles #3	Panetta #1	Panetta #2	Garzas #3	Garzas #4	LL #5	LL #6	Berwick #8	Berwick #9	Begonia #2	Manor #2	Schulte #2	Pearce	Cypress #2	R. Canada #2	Eastwood-Canada
5/10/2017	0	34470.4	32940.8	57400	0	52259.2	90560	117200	85500	180608	0	215392	181792	255600	145216	12149.65193
5/11/2017	0	34368	32779.2	57190.4	0	50681.6	90419.2	117500	85500	180672	0	215488	182512	255800	144704	12309.68665
5/12/2017	0	34489.6	33211.2	57580.8	0	52508.8	90672	117500	85100	180288	0	215712	181792	256300	144896	12309.68665
5/13/2017	0	34643.2	33609.6	57779.2	0	52809.6	95299.2	117700	85700	181952	0	214912	181200	257100	145920	12309.68665
5/14/2017	0	34617.6	33680	57820.8	0	52860.8	95091.2	117700	85600	181952	0	215584	182304	257300	145472	12309.68665
5/15/2017	0	34566.4	33609.6	57760	0	52790.4	99369.6	117100	85100	181312	0	214592	181488	256900	145792	12309.68665
5/16/2017	0	34790.4	33969.6	57828.8	0	53049.6	106457.6	117400	85600	181824	0	215712	183104	257400	146112	12309.68665
5/17/2017	0	34995.2	34171.2	58020.8	0	53228.8	106652.8	117300	85600	182208	0	215712	183008	257800	145536	12309.68665
5/18/2017	0	35328	34259.2	57809.6	0	53340.8	105888	116900	85900	182272	0	215776	183600	258300	146496	11879.23529
5/19/2017	0	35289.6	34160	57729.6	0	53190.4	106710.4	111400	80900	170816	0	203904	173696	243500	138688	11879.23529
5/20/2017	0	35257.6	33660.8	57300.8	0	52838.4	107289.6	117100	85300	181504	0	215808	183296	256900	147072	11879.23529
5/21/2017	0	35072	34089.6	57889.6	0	53152	109440	117500	85500	181568	0	215808	183104	257200	147008	11879.23529
5/22/2017	0	34137.6	32219.2	56950.4	0	51638.4	92640	71300	84700	178944	0	212800	181008	253500	142592	11879.23529
5/23/2017	0	34144	32209.6	57009.6	0	51660.8	101811.2	2600	45600	153600	0	197088	194992	82400	169216	11879.23529
5/24/2017	0	33958.4	32211.2	56990.4	0	51600	105180.8	22500	44900	168896	0	221696	193296	97000	164608	11879.23529
5/25/2017	0	34067.2	32049.6	56739.2	0	51481.6	101347.2	46200	42300	106112	0	215424	183104	247700	143424	9897.325702
5/26/2017	0	34003.2	32260.8	57030.4	0	51667.2	106652.8	49500	80300	175744	0	210080	178800	254900	139776	9897.325702
5/27/2017	0	33996.8	32129.6	56860.8	0	51552	104729.6	68700	84500	179840	0	213312	181200	253300	142080	9897.325702
5/28/2017	0	33900.8	32080	56788.8	0	51459.2	104320	83000	67300	179584	0	214688	181600	252900	141184	9897.325702
5/29/2017	0	33990.4	32350.4	57000	0	51731.2	103369.6	58000	84500	180288	0	214400	180992	253200	141952	9897.325702
5/30/2017	0	33824	31878.4	56729.6	0	51379.2	103030.4	67000	84300	179584	0	213120	180208	251900	140672	9897.325702
5/31/2017	0	19257.6	18201.6	33931.2	0	33590.4	69699.2	40400	62000	145216	0	179968	158096	235400	131520	9897.325702

**APPENDIX D – BACKFLUSH RESIDUE SAMPLING LABORATORY
REPORTS**



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1710737

Report Created for: Pueblo Water Resources
P.O Box 1493
Goleta, CA 93117

Project Contact: Stephen Tanner
Project P.O.:
Project Name: MPWMD ASR Study

Project Received: 10/19/2017

Analytical Report reviewed & approved for release on 10/26/2017 by:

Yen Cao
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 the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Pueblo Water Resources
Project: MPWMD ASR Study
WorkOrder: 1710737

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
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
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	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 (The RL is the lowest calibration standard in a multipoint calibration.)
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
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Analytical Qualifiers

H Samples were analyzed out of holding time



Analytical Report

Client: Pueblo Water Resources
Date Received: 10/19/17 14:52
Date Prepared: 10/25/17
Project: MPWMD ASR Study

WorkOrder: 1710737
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

Mercury

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR-2 SLUDGE (9/6/17)	1710737-001B	Soil	09/06/2017 10:00	ICP-MS3 093SMPL.D	147517

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Mercury	6.3	H	0.050	1	10/25/2017 23:48

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Terbium	97	H	70-130	10/25/2017 23:48

Analyst(s): ND

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR-2-SLUDGE (8/1/17)	1710737-002B	Soil	08/01/2017 14:30	ICP-MS3 020SMPL.D	147517

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Mercury	2.0	H	0.050	1	10/26/2017 09:44

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Terbium	108	H	70-130	10/26/2017 09:44

Analyst(s): ND

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR-3-SLUDGE (9/6/17)	1710737-003B	Soil	09/06/2017 13:00	ICP-MS3 022SMPL.D	147517

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Mercury	1.4	H	0.050	1	10/26/2017 09:57

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Terbium	104	H	70-130	10/26/2017 09:57

Analyst(s): ND

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR-3-SLUDGE (7/3/17)	1710737-004B	Soil	07/31/2017 12:30	ICP-MS3 080SMPL.D	147549

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Mercury	1.9	H	0.050	1	10/25/2017 22:27

Surrogates	REC (%)	Qualifiers	Limits	Date Analyzed
Terbium	108	H	70-130	10/25/2017 22:27

Analyst(s): ND

(Cont.)



Analytical Report

Client: Pueblo Water Resources
Date Received: 10/19/17 14:52
Date Prepared: 10/25/17
Project: MPWMD ASR Study

WorkOrder: 1710737
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg

Mercury

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR-4-SLUDGE (9/6/17)	1710737-005B	Soil	09/06/2017 11:45	ICP-MS3 096SMPL.D	147549

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Mercury	8.9	H	0.050	1	10/26/2017 00:06

Surrogates	REC (%)	Qualifiers	Limits	
Terbium	107	H	70-130	10/26/2017 00:06

Analyst(s): ND

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR-4-SLUDGE (7/31/17)	1710737-006B	Soil	07/31/2017 10:00	ICP-MS3 097SMPL.D	147549

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Mercury	11	H	0.050	1	10/26/2017 00:12

Surrogates	REC (%)	Qualifiers	Limits	
Terbium	102	H	70-130	10/26/2017 00:12

Analyst(s): ND



Analytical Report

Client: Pueblo Water Resources
Date Received: 10/19/17 14:52
Date Prepared: 10/23/17
Project: MPWMD ASR Study

WorkOrder: 1710737
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Mercury

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR-2 SLUDGE (9/6/17)	1710737-001A	Water	09/06/2017 10:00	ICP-MS1 119SMPL.D	147400

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Mercury	0.058	H	0.050	1	10/23/2017 22:48

Surrogates	REC (%)	Qualifiers	Limits	
Terbium	102	H	70-130	10/23/2017 22:48

Analyst(s): JC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR-2-SLUDGE (8/1/17)	1710737-002A	Water	08/01/2017 14:30	ICP-MS1 120SMPL.D	147400

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Mercury	ND	H	0.050	1	10/23/2017 22:55

Surrogates	REC (%)	Qualifiers	Limits	
Terbium	104	H	70-130	10/23/2017 22:55

Analyst(s): JC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR-3-SLUDGE (9/6/17)	1710737-003A	Water	09/06/2017 13:00	ICP-MS1 121SMPL.D	147400

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Mercury	ND	H	0.050	1	10/23/2017 23:01

Surrogates	REC (%)	Qualifiers	Limits	
Terbium	103	H	70-130	10/23/2017 23:01

Analyst(s): JC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR-3-SLUDGE (7/3/17)	1710737-004A	Water	07/31/2017 12:30	ICP-MS1 122SMPL.D	147400

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Mercury	ND	H	0.050	1	10/23/2017 23:07

Surrogates	REC (%)	Qualifiers	Limits	
Terbium	101	H	70-130	10/23/2017 23:07

Analyst(s): JC

(Cont.)



Analytical Report

Client: Pueblo Water Resources
Date Received: 10/19/17 14:52
Date Prepared: 10/23/17
Project: MPWMD ASR Study

WorkOrder: 1710737
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L

Mercury

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR-4-SLUDGE (9/6/17)	1710737-005A	Water	09/06/2017 11:45	ICP-MS1 123SMPL.D	147400

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Mercury	ND	H	0.050	1	10/23/2017 23:13

Surrogates	REC (%)	Qualifiers	Limits	
Terbium	102	H	70-130	10/23/2017 23:13

Analyst(s): JC

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ASR-4-SLUDGE (7/31/17)	1710737-006A	Water	07/31/2017 10:00	ICP-MS1 124SMPL.D	147400

Analytes	Result	Qualifiers	RL	DF	Date Analyzed
Mercury	ND	H	0.050	1	10/23/2017 23:19

Surrogates	REC (%)	Qualifiers	Limits	
Terbium	103	H	70-130	10/23/2017 23:19

Analyst(s): JC



Quality Control Report

Client: Pueblo Water Resources
Date Prepared: 10/24/17
Date Analyzed: 10/25/17
Instrument: ICP-MS2, ICP-MS3
Matrix: Soil
Project: MPWMD ASR Study

WorkOrder: 1710737
BatchID: 147517
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg
Sample ID: MB/LCS-147517
 1710921-001AMS/MSD

QC Summary Report for Mercury

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Mercury	ND	1.29	0.050	1.25	-	103	75-125
Surrogate Recovery							
Terbium	537.1	535		500	107	107	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Mercury	1.30	1.28	1.25	0.06470	99	97	75-125	1.78	20
Surrogate Recovery									
Terbium	533	531	500		107	106	70-130	0.432	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Mercury	ND<0.25	0.06470	-	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



Quality Control Report

Client: Pueblo Water Resources
Date Prepared: 10/25/17
Date Analyzed: 10/25/17
Instrument: ICP-MS3
Matrix: Soil
Project: MPWMD ASR Study

WorkOrder: 1710737
BatchID: 147549
Extraction Method: SW3050B
Analytical Method: SW6020
Unit: mg/Kg
Sample ID: MB/LCS-147549
 1710737-004BMS/MSD

QC Summary Report for Mercury

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Mercury	ND	1.23	0.050	1.25	-	98	75-125
Surrogate Recovery							
Terbium	538.6	539		500	108	108	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Mercury	3.30	3.11	1.25	1.882	114	98	75-125	5.92	20
Surrogate Recovery									
Terbium	506	449	500		101	90	70-130	12.1	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Mercury	1.86	1.882	1.17	20

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



Quality Control Report

Client: Pueblo Water Resources
Date Prepared: 10/23/17
Date Analyzed: 10/23/17
Instrument: ICP-MS1
Matrix: Water
Project: MPWMD ASR Study

WorkOrder: 1710737
BatchID: 147400
Extraction Method: E200.8
Analytical Method: E200.8
Unit: µg/L
Sample ID: MB/LCS-147400
 1710822-001CMS/MSD

QC Summary Report for Mercury

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Mercury	ND	1.24	0.050	1.25	-	99	85-115
Surrogate Recovery							
Terbium	774	776		750	103	103	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Mercury	1.28	1.35	1.25	ND	102	107	75-125	4.86	20
Surrogate Recovery									
Terbium	796	798	750		106	106	70-130	0	20

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Mercury	ND<0.25	ND	-	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.

1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262



WaterTrax WriteOn EDF

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1710737

ClientCode: PWRG

Excel EQulS Email HardCopy ThirdParty J-flag
 Detection Summary Dry-Weight

Report to:

Stephen Tanner
Pueblo Water Resources
P.O Box 1493
Goleta, CA 93117
(805) 620-2238 FAX: (805) 967-1920

Email: stanner@pueblo-water.com
cc/3rd Party:
PO:
ProjectNo: MPWMD ASR Study

Bill to:

Stephen Tanner
Pueblo Water Resources
P.O Box 1493
Goleta, CA 93117
stanner@pueblo-water.com; mburke@p

**Requested TATs: 1 day;
5 days;**

**Date Received: 10/19/2017
Date Logged: 10/19/2017**

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1710737-001	ASR-2 SLUDGE (9/6/17)	Soil	9/6/2017 10:00	<input type="checkbox"/>	B												
1710737-001	ASR-2 SLUDGE (9/6/17)	Water	9/6/2017 10:00	<input type="checkbox"/>		A											
1710737-002	ASR-2-SLUDGE (8/1/17)	Soil	8/1/2017 14:30	<input type="checkbox"/>	B												
1710737-002	ASR-2-SLUDGE (8/1/17)	Water	8/1/2017 14:30	<input type="checkbox"/>		A											
1710737-003	ASR-3-SLUDGE (9/6/17)	Soil	9/6/2017 13:00	<input type="checkbox"/>	B												
1710737-003	ASR-3-SLUDGE (9/6/17)	Water	9/6/2017 13:00	<input type="checkbox"/>		A											
1710737-004	ASR-3-SLUDGE (7/3/17)	Soil	7/31/2017 12:30	<input type="checkbox"/>	B												
1710737-004	ASR-3-SLUDGE (7/3/17)	Water	7/31/2017 12:30	<input type="checkbox"/>		A											
1710737-005	ASR-4-SLUDGE (9/6/17)	Soil	9/6/2017 11:45	<input type="checkbox"/>	B												
1710737-005	ASR-4-SLUDGE (9/6/17)	Water	9/6/2017 11:45	<input type="checkbox"/>		A											
1710737-006	ASR-4-SLUDGE (7/31/17)	Soil	7/31/2017 10:00	<input type="checkbox"/>	B												
1710737-006	ASR-4-SLUDGE (7/31/17)	Water	7/31/2017 10:00	<input type="checkbox"/>		A											

Test Legend:

1	HGMS_S	2	HGMS_W	3		4	
5		6		7		8	
9		10		11		12	

Prepared by: Kena Ponce

Comments: Hg added to solid phase 10/25/17.

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: PUEBLO WATER RESOURCES

Project: MPWMD ASR Study

Work Order: 1710737

Client Contact: Stephen Tanner

QC Level: LEVEL 2

Contact's Email: stanner@pueblo-water.com

Comments: Hg added to solid phase 10/25/17.

Date Logged: 10/19/2017

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1710737-001A	ASR-2 SLUDGE (9/6/17)	Water	E200.8 (Mercury)	1	1G HDPE	<input type="checkbox"/>	9/6/2017 10:00	5 days		<input type="checkbox"/>	
1710737-001B	ASR-2 SLUDGE (9/6/17)	Soil	SW6020 (Mercury)	1	1G HDPE	<input type="checkbox"/>	9/6/2017 10:00	1 day		<input type="checkbox"/>	
1710737-002A	ASR-2-SLUDGE (8/1/17)	Water	E200.8 (Mercury)	1	1G HDPE	<input type="checkbox"/>	8/1/2017 14:30	5 days		<input type="checkbox"/>	
1710737-002B	ASR-2-SLUDGE (8/1/17)	Soil	SW6020 (Mercury)	1	1G HDPE	<input type="checkbox"/>	8/1/2017 14:30	1 day		<input type="checkbox"/>	
1710737-003A	ASR-3-SLUDGE (9/6/17)	Water	E200.8 (Mercury)	1	1G HDPE	<input type="checkbox"/>	9/6/2017 13:00	5 days		<input type="checkbox"/>	
1710737-003B	ASR-3-SLUDGE (9/6/17)	Soil	SW6020 (Mercury)	1	1G HDPE	<input type="checkbox"/>	9/6/2017 13:00	1 day		<input type="checkbox"/>	
1710737-004A	ASR-3-SLUDGE (7/3/17)	Water	E200.8 (Mercury)	1	1G HDPE	<input type="checkbox"/>	7/31/2017 12:30	5 days		<input type="checkbox"/>	
1710737-004B	ASR-3-SLUDGE (7/3/17)	Soil	SW6020 (Mercury)	1	1G HDPE	<input type="checkbox"/>	7/31/2017 12:30	1 day		<input type="checkbox"/>	
1710737-005A	ASR-4-SLUDGE (9/6/17)	Water	E200.8 (Mercury)	1	1G HDPE	<input type="checkbox"/>	9/6/2017 11:45	5 days		<input type="checkbox"/>	
1710737-005B	ASR-4-SLUDGE (9/6/17)	Soil	SW6020 (Mercury)	1	1G HDPE	<input type="checkbox"/>	9/6/2017 11:45	1 day		<input type="checkbox"/>	
1710737-006A	ASR-4-SLUDGE (7/31/17)	Water	E200.8 (Mercury)	1	1G HDPE	<input type="checkbox"/>	7/31/2017 10:00	5 days		<input type="checkbox"/>	
1710737-006B	ASR-4-SLUDGE (7/31/17)	Soil	SW6020 (Mercury)	1	1G HDPE	<input type="checkbox"/>	7/31/2017 10:00	1 day		<input type="checkbox"/>	

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).

- 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.



McC Campbell Analytical, Inc.

1534 Willow Pass Rd. / Pittsburg, Ca. 94565-1701
 www.mcccampbell.com / main@mcccampbell.com
 Telephone: (877) 252-9262 / Fax: (925) 252-9269

CHAIN OF CUSTODY RECORD

TURN AROUND TIME: RUSH 24 HR 48 HR 72 HR 5 DAY
 GeoTracker EDF PDF EDD Write On (DW) EQUIS 10 DAY
 Effluent Sample Requiring "J" flag UST Clean Up Fund Project ; Claim # _____

1710737

Report To: Stephen Tanner **Bill To:** Pueblo Water Resources
Company: Pueblo Water Resources
E-Mail: stanner@pueblo-water.com
Tele: (805) 620-2238 **Fax:** ()
Project #: **Project Name:** MPWMD ASR Study
Project Location: Monterey **Purchase Order#**
Sampler Signature:

Analysis Request

SAMPLE ID	Location/ Field Point Name	SAMPLING		# Containers	MATRIX								METHOD PRESERVED			Hg by attached procedure	Centrifuge & Separate by attached procedure	Hg on soil phase added 10/25/17		
		Date	Time		Ground Water	Waste Water	Drinking Water	Sea \ Water	Soil	Air	Sludge	Other	HCL	HNO ₃	Other					
ASR-2 Sludge	ASR-2	9.6.17	10:00	1										x				x	x	x
ASR-2 Sludge	ASR-2	8.1.17	14:30	1										x				x	x	x
ASR-3 Sludge	ASR-3	9.6.17	13:00	1										x				x	x	x
ASR-3 Sludge	ASR-3	7.31.17	12:30	1										x				x	x	x
ASR-4 Sludge	ASR-4	9.6.17	11:45	1										x				x	x	x
ASR-4 Sludge	ASR-4	7.31.17	10:00	1										x				x	x	x

**MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate \$250 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

Relinquished By: S. Tan **Date:** 10-17-2017 **Time:** 1500 **Received By:** Fedex
Relinquished By: Fedex **Date:** 10/19/17 **Time:** 1452 **Received By:** [Signature]
Relinquished By: **Date:** **Time:** **Received By:**

COMMENTS:
 ICE/t° _____
 GOOD CONDITION _____
 HEAD SPACE ABSENT _____
 DECHLORINATED IN LAB _____
 APPROPRIATE CONTAINERS _____
 PRESERVED IN LAB _____
 VOAS O&G METALS OTHER HAZARDOUS:
 PRESERVATION _____ pH<2 _____

Procedure for Sludge Processing

- 1- ^{Six} ~~Several~~ sludge samples are included herein . . . each sample must be processed separately.
- 2- Centrifuge each sample to separate solids. Record the weight of each solid sample. Do not dry or bake the solid samples.
- 3- Save the solids and the liquid in separate containers for each sample, therefore there will be 6 containers total, 3 each of solids and 3 each of liquids.
- 4- Analyze the liquid samples for Hg by 200.8 method
- 5- Call Steve Tanner at (805) 620-2238 and report the weight of each solid sample. Also determine how much solid sample would be needed to analyze for Hg.
- 6- Tanner will give authorization to analyze the solid samples for Hg, or to ship the samples to another lab for analysis. Do not analyze solid samples for Hg without authorization from Steve Tanner !

Thanks!

Steve

McC Campbell Analytical, Inc.

From: Steve Tanner <stanner@pueblo-water.com>
Sent: Wednesday, October 25, 2017 11:50 AM
To: 'McC Campbell Analytical, Inc.'; 'Rosa Venegas'
Cc: 'Delano Boese'; 'Theresa'
Subject: RE: WIEGHTS FOR SEDIMENT WO#1710737

OK – Our geochemist says that the RL's aren't low enough for the Cu and Zn, but we do want to do the Hg. . . . so we'll do Hg only.

Please proceed immediately with analysis of the 6 sludge solids samples via method EPA 6020, with a RL of 0.05 mg/kg Hg.

Also please proceed with analysis of the 6 liquid/supernatant samples derived from the sludge for Hg via EPA 200.8

Please advise if you have any questions !

Thanks –
Steve

From: McC Campbell Analytical, Inc. [<mailto:main@mcccampbell.com>]
Sent: Tuesday, October 24, 2017 11:31 AM
To: 'Steve Tanner'
Cc: 'Delano Boese'; 'Theresa'; main@mcccampbell.com
Subject: RE: WIEGHTS FOR SEDIMENT WO#1710737

Due to the typical high abundance of Zn & Cu in soil, these are typical RLs for these elements.
Angela

From: Steve Tanner [<mailto:stanner@pueblo-water.com>]
Sent: Tuesday, October 24, 2017 11:26 AM
To: 'McC Campbell Analytical, Inc.'
Cc: 'Delano Boese'; 'Theresa'
Subject: RE: WIEGHTS FOR SEDIMENT WO#1710737

I will check with our geochemist and see if the Cu and Zn RL's are OK they seem really high though ☹

From: McC Campbell Analytical, Inc. [<mailto:main@mcccampbell.com>]
Sent: Tuesday, October 24, 2017 11:24 AM
To: 'Steve Tanner'
Cc: 'Delano Boese'; 'Theresa'; main@mcccampbell.com
Subject: RE: WIEGHTS FOR SEDIMENT WO#1710737

Hi Steve,
A minimum of 1 gram of sample for Hg +/- Zn, Cu. We would analyze by EPA 6020 (ICP-MS). Our Hg RL by 6020 is 0.05 mg/kg; Zn is 15 mg/kg and Cu is 2 mg/kg. Will these RLs work?



Sample Receipt Checklist

Client Name: **Pueblo Water Resources**
 Project Name: **MPWMD ASR Study**

Date and Time Received: **10/19/2017 14:52**
 Date Logged: **10/19/2017**
 Received by: **Kena Ponce**
 Logged by: **Kena Ponce**

WorkOrder No: **1710737** Matrix: Water
 Carrier: FedEx

Chain of Custody (COC) Information

- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Sample IDs noted by Client on COC? Yes No
- Date and Time of collection noted by Client on COC? Yes No
- Sampler's name noted on COC? Yes No
- COC agrees with Quote? Yes No NA

Sample Receipt Information

- Custody seals intact on shipping container/cooler? Yes No NA
- Shipping container/cooler in good condition? Yes No
- Samples in proper containers/bottles? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

- All samples received within holding time? Yes No NA
- Sample/Temp Blank temperature Temp: NA
- Water - VOA vials have zero headspace / no bubbles? Yes No NA
- Sample labels checked for correct preservation? Yes No
- pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
- Samples Received on Ice? Yes No

UCMR Samples:

- Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
- Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

Comments: pH adjusted in Lab.