EAST BAY MUNICIPAL UTILITY DISTRICT

February 28, 2020

Ms. Alyx Karpowicz
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Re: East Bay Municipal Utility District Bayside Groundwater Project, 2019 Annual Report, Order No. R2-2007-0038

Dear Ms. Karpowicz:

In accordance with the Waste Discharge Requirements of Order No. R2-2007-0038, the East Bay Municipal Utility District (EBMUD) is submitting the enclosed 2019 annual self-monitoring report (SMR) for the Bayside Groundwater Project. There were no exceedances of the permit's water quality limits.

Table 1 includes construction details for the project's groundwater monitoring wells. Table 2 summarizes historical injected and recovered water volumes. Injection of treated drinking water in the Bayside Well occurred during November and December 2019 totaling approximately 8.39 million gallons; however no extraction events took place in 2019.

The Self-Monitoring and Reporting Program (SMP) of Order No. R2-2007-0038 requires EBMUD to implement a phased approach for groundwater quality monitoring. Table 3 of the SMP tabulates groundwater quality monitoring well groups for phased monitoring. There are a total of four groups. Group 3 monitoring, consisting of the Bayside Well, MW-2S, MW-2D[1], MW-4, MW-5D, MW-6, and MW-7, was implemented beginning in 2014.

Table 3 summarizes groundwater level elevations and depths; Table 4 presents the vertical hydraulic gradients at MW-5S, MW-5I, and MW-5D; and Tables 5 and 6 contain current and historical groundwater quality results. Figure 1 is a well location map; Figures 2 and 3 present the groundwater elevation contours on August 1, 2019 and December 1, 2019, respectively; and Figure 4 shows TDS concentration contours. Attachment B contains figures showing the monitoring wells' groundwater elevation trends in 2019.

There were no exceedances of the permit's limits for TTHMs and HAAs.

[1] EBMUD uses slightly different well names than those used in the Permit. For example, "MW-2I" is used instead of "MW-2D" and "MW-9D" instead of "MW-9." EBMUD's well naming convention is used in this Report.

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact me at (510) 287-0412 or David Behnken, Environmental Health and Safety Specialist II, at (510) 287-0327.

Sincerely,

Chandra Johannesson
Manager of Environmental Compliance

LARRY WALKER ASSOCIATES

February 28, 2019 SENT VIA: EMAIL

Mr. David Behnken
Environmental Health and Safety Specialist II
East Bay Municipal Utility District
375 11th Street
Oakland, CA 94607

Subject: **EBMUD Bayside Groundwater Project, 2019 Annual Report, Waste Discharge Requirements Order No. R2-2007-0038**

Dear Mr. Behnken:

Larry Walker Associates (LWA) has prepared this 2019 Annual Report (Report) on behalf of the East Bay Municipal Utility District (EBMUD) for the Bayside Groundwater Project (Project) in Alameda County. LWA has prepared this Report in accordance with the Self-Monitoring and Reporting Program (SMRP) of Waste Discharge Requirements (Permit) Order No. R2-2007-0038, which was adopted by the San Francisco Regional Water Quality Control Board (Regional Board) on May 9, 2007 (Regional Board, 2007).

The Project consists of the Bayside Well and a number of additional monitoring wells constructed in the vicinity of the Bayside Well. Depth to groundwater was monitored in the Bayside Well and associated monitoring well network during 2019. Groundwater samples were collected on October 8, 9, 10, 11, 22, and 24, 2019, for analytical testing. Groundwater elevations and analytical results are provided in this Report, along with results from previous years in accordance with the SMRP, for evaluation of long-term trends.

This Report addresses the following topics:

- Project Overview
- Regulatory Requirements
- Injection and Recovery Activities
- Monitoring and Sampling Activities
- Groundwater Elevations and Flow Directions
- Groundwater Quality Results
- Conclusions

PROJECT OVERVIEW

The Project site is located in a predominantly industrial area within unincorporated portions of the City of San Lorenzo and the City of San Leandro. The Bayside Well is located at 2600 Grant Avenue in San Lorenzo. The Project area is bounded by residential communities to the north and east, and the San Francisco Bay about a half-mile to the west.

The Bayside Well is an Aquifer Storage and Recovery (ASR) well designed, constructed, and operated for injection of treated drinking water from EBMUD's distribution system into the South East Bay Plain Groundwater Basin for aquifer storage during wet years and, later, for recovery as a source of supplemental drinking water supply for EBMUD during dry years. Injection of treated drinking water took place in November and December 2019. No extraction of water occurred during 2019.

The Bayside Well was constructed with 18-inch diameter stainless steel casing and is screened from 520 feet below ground surface (bgs) to 650 feet bgs. The monitoring well network consists of 17 monitoring wells constructed to various depths (**Figure 1**). Well construction details are summarized in **Table 1**. Additional background information on the Project is provided in the Permit.

REGULATORY REQUIREMENTS

The SMRP requires groundwater level monitoring in 13 of the 17 Project monitoring wells. The 13 Project wells monitored during this reporting period were MW-1, MW-2S, MW-2I, MW-3, MW-4, MW-5S, MW-5I, MW-5D, MW-6, MW-7, MW-9D, MW-10I, and MW-10D[1]. After the first year of monitoring in 2009, groundwater levels are required to be monitoring on an hourly basis in 11 of the 13 wells listed above. The exceptions to this monitoring frequency are MW-4 and MW-6, where groundwater level monitoring is required to be performed quarterly only.

To address the primary groundwater quality concern of introducing disinfection by-products (DBPs) into the groundwater basin, the SMRP requires EBMUD to implement a phased approach for sampling and monitoring groundwater quality in subsets of the Project monitoring wells. Each phase is successive and depends on certain SMRP triggers, generally related to the location of the injected water front (i.e. leading edge of the injected water). The SMRP specifies the following phased approach consisting of four groups of monitoring wells:

- Initial monitoring in Group 1 wells (Bayside Well, MW-2S, MW-2I, MW-4, and MW-10D[2]) is required to start three months prior to the start of Project operations and to continue on an annual basis until Group 2 monitoring is triggered.

[1] EBMUD uses slightly different well names than those used in the Permit. For example, "MW-2I" is used instead of "MW-2D" and "MW-9D" instead of "MW-9." EBMUD's well naming convention is used in this Report.

[2] Group 1 monitoring included limited monitoring at MW-10D. Specifically, the SMRP requires monitoring of MW-10D only once in the beginning of the Group 1 monitoring phase.

- Monitoring of Group 2 wells (Group 1 wells plus MW-6, but excluding MW-10D) would begin once the injected water front reaches MW-4 and would continue on an annual basis until Group 3 monitoring is triggered.
- Monitoring of Group 3 wells (Group 2 wells plus MW-5D and MW-7) would begin once the injected water front reaches MW-6 and would continue on an annual basis until Group 4 monitoring is triggered.
- Monitoring of Group 4 wells (Group 3 wells plus MW-10D) would begin with the detection of injected water at MW-5D or MW-7, or 15 years after initiating Project operations, whichever is earlier.

Water quality parameters are required to be measured annually per the parameters and test methods listed in Table 4 of the SMRP. These parameters include general water quality parameters, standard minerals, and DBPs. The Permit specifies water quality limits for total trihalomethanes (TTHMs) at 80 micrograms per liter (µg/L), and haloacetic acids (HAAs) at 60 µg/L. The individual analytes are discussed below in the Groundwater Quality Results section.

The SMRP requires the submission of data from the Project's monitoring well network to the Regional Board in an annual report. Annual reports, due by March 1 of the following year, are required to include the following items, per Part A.4 of the SMRP:

- A table of water injection and recovery data, including the cumulative total volume injected and recovered since Project inception.
- Maps of well locations, groundwater elevation contours, extent of the injected water front, and extent of dissolved water quality parameters (isoconcentration maps).
- A table of location and construction details for the wells.
- A table of current groundwater depths, elevations, and horizontal and vertical gradients.
- A table of current and historical (past five years) water quality results for the wells.
- A discussion of field and laboratory results that includes conclusions, recommendations, and data anomalies.

INJECTION AND RECOVERY ACTIVITIES

Injection of treated drinking water in the Bayside Well took place over approximately one month, between November 18 and December 11, 2019. A total of 8.39 million gallons of treated drinking water was injected at a sustained rate of 253 gallons per minute. The 2019 injection flow rate was determined to be the highest injection rate possible without incurring backflow shut-off or spill risks. No extraction from the Bayside Well occurred in 2019. The injection rate was in compliance with the permitted maximum rate limits. The cumulative volumes of injected and recovered water since the Project inception in 2009 are shown in **Table 2**.

MONITORING AND SAMPLING ACTIVITIES

The SMRP requires groundwater level monitoring on an hourly basis in the applicable monitoring wells with the exception of MW-4 and MW-6, for which quarterly groundwater level monitoring is required. In early 2014, EBMUD installed new dedicated pressure transducers in

the wells to collect hourly groundwater level data. Hourly groundwater level data were collected from January through December 2019.

The SMRP also requires groundwater quality monitoring following a phased approach. In 2013, EBMUD initiated monitoring of Group 2 wells, which added MW-6 to the annual monitoring well network. In 2015, EBMUD initiated monitoring of Group 3 wells, which added MW-5D and MW-7 to the annual monitoring well network, in response to the detection of chlorine residual and the HAA, dibromoacetic acid, at MW-6, as detailed in the 2013 Annual Report.

EBMUD collected the 2019 groundwater samples from the required monitoring wells. The required annual water quality sampling was performed on October 8, 9, 10, 11, 22, and 24, 2019.

Submersible pumps fitted with new tubing were used to purge and sample groundwater monitoring wells MW-2S, MW-2I, MW-4, MW-5D, MW-6 and MW-7. The Bayside Well was purged using the dedicated downhole turbine pump with the sample collected from a spigot at the wellhead. Purge water was disposed of on permeable ground adjacent to monitoring wells. Purge water from the Bayside Well was pumped to an onsite holding tank and eventually discharged to Oro Loma Sanitary District (OLSD) under an 'over the counter' permit per OLSD Ordinance No. 35-16, including Attachment A to Resolution No. 3627. No surface water discharges occurred during the 2019 reporting period.

Groundwater monitoring and sampling were completed using the following procedures:

1. Measured static water level within each well and calculated three well casing volumes required for purging in accordance with United States Environmental Protection Agency (USEPA) groundwater sampling protocols.
2. Purged the well until three well casing volumes were removed.
3. Measured field water quality parameters (pH, specific conductance, and temperature) periodically during purging.
4. Collected samples in containers with appropriate preservatives in accordance with USEPA sampling protocols for individual constituents.
5. Measured residual chlorine immediately after sample collection.
6. Transported samples to EBMUD's state-certified laboratory in a cooler under chain of custody for analytical testing.

Attachment A provides well purge logs, including the static water level, purge volumes, and field parameter measurements.

GROUNDWATER ELEVATIONS AND FLOW DIRECTIONS

Static depth to groundwater levels measured prior to well purging and sampling in 2019 are summarized in **Table 3**, along with calculated groundwater elevations. The calculated groundwater elevations are based on the reference elevations noted in **Table 1**. The historical static water levels and groundwater elevations are also provided in **Table 3**.

Groundwater elevations derived from the pressure transducers installed in May 2014 and corrected for barometric pressures are plotted by well for January through December 2019 (**Attachment B**). These elevations were calculated by EBMUD staff. It should be noted that MW-7, which was damaged in prior years and unable to generate water quality samples, was

repaired on December 6, 2018, and modified with a flush mount surface, resulting in a groundwater elevation shift of approximately -2.78 feet.

Groundwater elevation contour maps were generated using groundwater elevation data collected at specific times using the pressure transducers. Groundwater elevation contours for August 1, 2019, corresponding to a low tide in San Francisco Bay, are shown on **Figure 2**. Groundwater elevation contours for December 1, 2019, corresponding to a high tide in San Francisco Bay, are shown on **Figure 3**. As shown on **Figures 2** and **Figure 3**, the groundwater flow direction was primarily to the north-northeast at both low tide (**Figure 2**) and high tide (**Figure 3**). The horizontal hydraulic gradients were variable with lower gradients generally further from the bay and higher gradients closer to the bay.

Groundwater elevations during low tide ranged from -16.20 feet above mean sea level (amsl) to -11.60 feet amsl for the five wells shown on **Figure 2**. Groundwater elevations during high tide ranged from -14.45 feet amsl to -8.45 feet amsl at the same wells (**Figure 3**).

Vertical hydraulic gradients were calculated based on groundwater elevations and the distance to the center of the screened interval specified in **Table 4** for the nested wells MW-5S, MW-5I, and MW-5D. Specifically, vertical gradients were calculated for a low tide using groundwater elevation data from around 6:00 on August 1, 2019, and for a high tide using groundwater elevation data from around 14:15 on December 1, 2019. The calculated vertical gradients for these dates, including supporting data for the calculations, are presented in **Table 4**. The overall vertical gradient under both conditions was downward at approximately 0.02 to 0.04 feet per foot. These results are consistent with the vertical gradients reported in the 2018 Annual Report.

GROUNDWATER QUALITY RESULTS

The 2019 analytical results are included in the following tables, along with historical water quality results for the previous five years (2014 through 2018):

- **Table 5** includes data for general water quality parameters (e.g. pH, chlorine residual, total dissolved solids (TDS), ammonia, nitrate, chloride, manganese, and iron) and standard minerals (e.g. calcium, magnesium, potassium, sodium, sulfate, total alkalinity [including alkalinity series], and hardness).
- **Table 6** includes data for DBPs (e.g. THMs and HAAs including their individual components).

Copies of the analytical laboratory reports for the 2019 water quality data are provided in **Attachment C**.[3] The laboratory report for the Bayside Well also includes data collected by EBMUD for additional constituents beyond those presented in **Table 5** and **Table 6**. These results are for "Title 22" parameters that would be of interest in a future water system permit application to the State.

For wells with pre-2019 data (Bayside Well, MW-2S, MW-2I, MW-4, MW-5D, MW-6 and MW-7), the 2019 water quality results summarized in **Table 5** are generally consistent. A

[3] The laboratory reports in Attachment C include results for additional parameters beyond those required by the SMRP. EBMUD collected this information for reasons unrelated to the Permit and SMRP. These data are not discussed in this Report.

number of parameters detected in MW-2S have significantly higher concentrations than the same parameter detected in the other monitoring wells. Monitoring well MW-2S is a much shallower well and may be affected by seawater intrusion.

For the 2019 groundwater quality results summarized in **Table 5**, TDS has been used as a representative constituent to evaluate overall groundwater quality conditions. The isoconcentration contours shown on **Figure 4** are based on TDS concentrations for deep monitoring wells, including the Bayside Well, MW-4, MW-5D, MW-6 and MW-7. The isoconcentration contours indicate the lowest concentration of 190 milligrams per liter (mg/L) occurs at the Bayside Well with increasing TDS concentrations in a northerly direction (i.e. further inland). The highest TDS concentration of 460 mg/L was detected at well MW-5D. TDS concentrations increase in a northeasterly direction away from the Bayside Well. The TDS concentration trend shown on **Figure 4** is similar in shape and direction to the northeasterly groundwater gradients (**Figure 2** and **Figure 3**). Comparison between Figures 2, 3 and 4 shows that TDS concentrations increase hydraulically downgradient from the Bayside Well.

The current DBPs data summarized in **Table 6** are consistent with the historical groundwater monitoring results. A few analytes were above the method detection limits (MDLs) and the combined DBPs as HAA(5),[4] HAA(9),[5] and TTHMs are within the range of historical results in the monitoring wells. Results are notable for the Bayside Well when compared to the elevated results for chloroform and bromodichloromethane that were detected during the 2018 monitoring event. The data indicates there are no exceedances of the Permit's water quality limits for HAAs and TTHMs at 60 µg/L and 80 µg/L, respectively.

CONCLUSIONS

EBMUD conducted the 2019 groundwater monitoring for the Bayside Groundwater Project site in accordance with the Self-Monitoring and Reporting Program of Waste Discharge Requirements Order No. R2-2007-0038. EBMUD will continue to implement groundwater monitoring for the Group 3 wells during 2020. The 2020 Annual Report will be submitted to the Regional Board by March 1, 2021.

[4] HAA(5) includes the sum of dibromoacetic, dichloroacetic, monobromoacetic, monochloroacetic, and trichloroacetic acids.

[5] HAA(9) includes the sum of all nine haloacetic acids.

East Bay Municipal Utility District
Bayside Groundwater Project
Annual Report 2019

Prepared for

East Bay Municipal Utility District

February 2020

The material and data in this report, including all attachments and supplemental information, were prepared under the supervision and direction of the undersigned. The information submitted is, to the best of my knowledge, true, accurate, and complete.

Alina Constantinescu

Alina P. Constantinescu

P.E. C72181

LARRY WALKER ASSOCIATES

LIST OF TABLES

LIST OF FIGURES

LIST OF ATTACHMENTS

LIST OF REFERENCES

1. Regional Board, 2007. Order No R2-2007-0038 *Waste Discharge Requirements for East Bay Municipal Utility District, Bayside Groundwater Project, San Lorenzo, Alameda County.* Adopted May 9, 2007.

Table 1. Groundwater Monitoring Well Construction Details

Well ID	Latitude	Longitude	Address	City	Completion Date	Drilled Depth, feet bgs[a]	Casing Depth, feet bgs	Depth to Top of Perforation, feet bgs	Depth to Bottom of Perforation, feet bgs	Casing Diameter, inches	Reference Elevation, feet amsl[b]	Reference Location on Well
MW-1	37° 40' 4.8"	122° 9' 25.2"	2600 Grant Avenue	San Lorenzo		665	650	520	640	2	8.71	Top of steel casing
MW-2S						210	60	40	60	2	9.90	Top of steel casing
MW-2I[c]						210	200	160	190	2		
MW-3	37° 40' 4.8"	122° 9' 28.8"				665	660	520	650	2	8.12	Top of steel casing
MW-4	37° 40' 11.6"	122° 9' 28.8"	2575 Grant Avenue			705	650	520	650	2	8.96	Top of steel rim
MW-5S	37° 40' 34.4"	122° 9' 06.6"	2006 Via Barrett		Sep. 2008	460	210	200	210	2	13.88	Seal of vault lid at easterly edge
MW-5I	37° 40' 34.4"	122° 9' 06.6"	2005 Via Barrett		Sep. 2008	460	325	315	325	2		
MW-5D	37° 40' 34.4"	122° 9' 06.6"	2007 Via Barrett		Feb. 2001	1,025	640	500	630	4	13.76	Top of casing at northerly edge
MW-6	37° 40' 07"	122° 9' 04.5"	15600 Worthley		Nov. 2000	1,000	655	480	650	4	9.46	Top of casing at easterly edge
MW-7	37° 39' 56.5"	122° 8' 44.2"	Western tip of San Lorenzo Park		Dec. 2018	972	680	510	630	4	4.64	Top of vault lid [e]
MW-8D	37° 43' 04"	122° 11' 50.3"	1970 Davis Street			910	490	420	480	2	14.76	Top of steel rim
MW-9S	37° 41' 11"	122° 6' 46"	589 E. Lewelling Avenue		Jan. 2008	460	120	110	120	2	54.39	Seal of vault lid at westerly edge
MW-9I					Jan. 2008	460	210	200	210	2		
MW-9D[d]					Jan. 2008	460	335	325	335	2		
MW-10S	37° 41' 19"	122° 9' 43"	15526 Wick Boulevard	San Leandro	Sep. 2008	680	120	100	120	2	11.76	Seal of vault lid at easterly edge
MW-10I					Sep. 2008	680	360	340	360	2		
MW-10D					Sep. 2008	680	610	590	610	2		

(a) bgs = below ground surface
(b) amsl = above Mean Sea Level
(c) Well MW-2I is referred to in the Permit as "MW-2D."
(d) Well MW-9D is referred to in the Permit as "MW-9."
(e) Well surface completion was modified to fix the monitoring well. The difference between the top of casing reference point and current flush mounted vault was measure to be 2.78 feet, which will be used until MW-7 is resurveyed.

Table 2. Historical Injected and Recovered Water Volumes		
Year	Injected Volume, gallons	Recovered Volume, gallons
2009	445,000	4,545,000
2010	0	113,000,000
2011	28,432,401	0
2012	0	0
2013	0	0
2014	0	0
2015	0	0
2016	0	0
2017	1,310,000	0
2018	8,340,000	0
2019	8,390,000	0
Total	**46,917,401**	**117,545,000**

Table 3. Summary of Groundwater Elevation and Depth

Measurement Date	Groundwater Elevation, ft amsl								Depth to Groundwater, ft							
	Bayside	MW-1[a]	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	Bayside	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7
12/8/08			0.99		-4.07	[b]					8.78[c]		12.68[c]			
12/9/08		-5.06		1.09						13.74[c]		8.73[c]				
12/14/09					-3.75								12.71			
12/15/09			0.95	1.44							8.95	8.46				
12/8/10	-7.22		1.71	0.25	-7.45				15.6		8.19	9.65	16.41			
12/21/11		-4.16	1.12	3.59	-4.17					12.87	8.78	6.31	13.13			
1/5/12		-3.94	1.04	6.24	-3.97					12.65	8.86	3.66	12.93			
12/13/12		-4.49	2.38	1.72	-4.16	-4.52				13.20	7.52	8.18	13.12	13.98		
12/18/13		-4.06	1.59	0.37	-6.68	-6.46				12.77	8.31	9.53	15.64	15.92		
12/12-12/17/14		-6.54	2.75	0.18	-6.01	-5.99	-5.76	[d]		15.25	7.15	9.72	14.97	15.45	19.52	[d]
11/16-12/15/15		-5.48	2.90	0.32	-4.94	[d]	-5.87	[d]		14.19[f]	7.00	9.58	13.9	[e]	19.63	[d]
12/21-12/27/16		-2.00	2.90	2.88	-1.95	-1.96	-1.96	[d]		10.71	7.00	7.02	10.91	11.42	15.72	[d]
12/19-12/20/17		-5.05	1.86	-1.07	-1.42	-1.80	-1.47	[d]		13.76	8.04	10.97	10.38	11.26	15.23	[d]
12/5-12/19/18		-11.12	1.62	-2.17	-2.36	-2.11	-2.14	-4.30		19.83	8.28	12.07	11.32	11.57	15.90	8.94
10/8-10/24/19		-12.43	1.92	-3.39	-1.12	-2.95	-6.92	-0.72		21.14	7.98	13.29	11.02	12.85	16.82	10.62

[a] Groundwater elevation is averaged over the measurement date period from tranducer data, and used to calculate the depth to groundwater using the surveyed elevation.

[b] Gray shaded cells indicate that no monitoring was required for the well at that time period, reflecting the transition between monitoring groups.

[c] Applicable well reference elevations are different from those in Table 1.

[d] Well MW-7 was damaged in 2012, and accurate data collection was not feasible until 2016. In 2017, a sample wasn't collected because the pump EBMUD owns was found to be incompatible with the well.

[e] Well MW-6 was not monitored in late 2015 due to a pump equipment failure.

[f] Depth to Groundwater for MW-1 was incorrectly reported in the 2015 Annual Report as -13.56 ft.

Table 4. Calculated Vertical Hydraulic Gradients for Low Tide and High Tide in San Francisco Bay

Nested Well	Measurement Date and Time	Screened Interval, ft	Center of Screened Intervals, ft bgs	Groundwater Elevation, ft amsl	Shallow to Intermediate Vertical Gradient, ft/ft	Intermediate to Deep Vertical Gradient, ft/ft	Shallow to Deep Vertical Gradient, ft/ft	Vertical Gradient Direction
Low Tide								
MW-5S	8/1/2019 @ 06:14	200 - 210	205	-3.56	0.021	--	0.034	downward
MW-5I	8/1/2019 @ 06:15	315 - 325	320	-5.94		0.040		
MW-5D	8/1/2019 @ 06:19	500 - 630	575	-16.20	--			
High Tide								
MW-5S	12/1/2019 @ 14:14	200 - 210	205	-3.09	0.033	--	0.031	downward
MW-5I	12/1/2019 @ 14:15	315 - 325	320	-6.84		0.030		
MW-5D	12/1/2019 @ 14:00	500 - 630	575	-14.45	--			

Table 5. Current and Historical Groundwater Quality Results for General Water Quality Parameters and Standard Minerals[a]

Sample Date	General Water Quality Parameters								Standard Minerals									
															Alkalinity (as CaCO3)			
	pH	Chlorine Residual, mg/L	TDS, mg/L	Ammonia, mg/L	Nitrate as N, mg/L	Chloride, mg/L	Manganese, µg/L	Iron, µg/L	Calcium, mg/L	Magnesium, mg/L	Potassium, mg/L	Sodium, mg/L	Sulfate, mg/L	Hardness, mg/L	Total, mg/L	Hydroxide, mg/L	Carbonate, mg/L	Bicarbonate, mg/L
Bayside Well																		
12/17/2014	8.19	ND	130	0.42	<0.009	15	23.0	52.3	14.7	3.88	1.07	28.0	15	70	69	<0.1	0.99	68
11/16/2015	7.68	0.10	75	<0.3	<0.009	15	22.3	215	13.5	3.64	1.01	23.3	16	48	70	<0.1	<0.1	70
12/7/2016	8.09	0.10	140	0.11	<0.009	17	16.2	70.2	16.4	4.15	1.13	27.1	18	55	68	<0.1	<0.1	68
12/5/2017	7.91	ND	150	0.25	<0.040	16	12.9	66.5	16.5	4.17	1.19	25.0	21	62	68	<0.1	<0.1	68
12/5/2018	7.93	<0.02	170	0.280	0.12	13	13.2	946	23.2	7.66	1.34	24.0	32	94	89	<0.10	<0.10	89
10/8/2019	6.85	<0.02	190	<0.250	<0.035	15	17.0	75.6	21.5	6.65	1.30	24.7	34	87	95	<0.10	<0.10	95
MW-2S																		
12/13/2014	6.57	0.20	83,000	<0.3	23(b)	39,000	36,900	<31.2	1,230	2,680	462	22,000	6,100	17,000	380	<0.1	0.13	380
12/10/2015	6.85	ND	76,000	<0.3	27	41,000	21,900	76.8	1,250	3,040	401	20,500	5,200	16,000	390	<0.1	<0.1	390
12/27/2016	6.73	0.07	77,000	0.34	<0.65	42,000	38,100	<62.4	1,330	3,150	510	20,600	5,700	16,000	390	<0.1	<0.1	390
12/19/2017	6.27	ND	73,000	1.23	<11	41,000	33,200	<62.4	1,210	2,800	501	21,200	5,500	17,000	390	<0.1	<0.1	390
12/11/2018	6.66	1	74,000	0.952	<1	41,000	33,200	<52.0	1,150	3,090	439	23,400	5,500	16,000	400	<0.10	<0.10	400
10/22/2019	6.72	0.4	82,000	0.760	<35	42,000	37,400	<54.1	1,240	2,870	405	20,700	5,500	16,000	400	<0.10	<0.10	400
MW-2I																		
12/12/2014	7.90	ND	520	1.1	<0.009	81	98.7	213	14.6	12.6	5.33	153	31	94	310	<0.1	2.3	310
12/15/2015	7.75	ND	490	0.56	0.044	59	105	177	14.4	12.5	6.73	156	34	90	300	<0.1	<0.1	300
12/27/2016	8.10	0.02	540	0.28	0.18	84	111	98.0	15.2	13.2	6.16	148	30	94	320	<0.1	<0.1	320
12/19/2017	7.69	0.05	630	1.0	0.18	150	139	1,220	17.8	15.9	7.61	193	13	130	350	<0.1	<0.1	350
12/11/2018	7.83	<0.02	620	0.280	<0.019	120	124	1,260	15.8	14.2	5.87	184	22	110	330	<0.10	<0.10	330
10/9/2019	7.67	0.20	690	<0.250	<0.070	150	123	458	17.8	15.7	5.82	191	12	120	360	<0.10	<0.10	360
MW-4																		
12/16/2014	8.22	0.10	450	<0.3	0.028	56	239	33.7	32.2	12.8	2.72	113	39	130	270	<0.1	4.2	270
12/8/2015	7.98	ND	420	<0.3	0.039	56	215	32.5	28.8	11.7	3.08	106	41	130	250	<0.1	<0.1	250
12/27/2016	8.14	ND	440	0.34	0.098	59	222	31.6	31.4	12.6	2.76	108	42	120	260	<0.1	<0.1	260
12/20/2017	7.55	ND	410	0.25	0.091	57	196	24.4	27.9	10.7	2.69	107	40	130	240	<0.1	<0.1	240
12/11/2018	7.73	<0.02	380	0.280	<0.019	48	192	39.1	24.6	9.01	2.12	102	37	100	220	<0.10	<0.10	220
10/9/2019	7.63	0.20	420	<0.250	<0.070	53	199	32.2	26.7	9.98	2.18	97.1	40	120	240	<0.10	<0.10	240
MW-5D																		
12/16/2014	7.00	0.40	490	<0.3	<0.009	96	241	180	42.8	10.8	2.59	123	46	150	230	<0.1	0.22	230
11/18/2015	7.53	0.20	450	<0.3	<0.009	82	175	46.4	35.6	9.06	2.30	112	49	140	240	<0.1	<0.1	240
12/21/2016	7.68	0.02	470	<0.3	<0.013	84	195	34.6	39.0	9.74	2.34	130	49	130	230	<0.1	<0.1	230
12/19/2017	7.55	ND	410	<0.25	<0.091	57	196	24.4	27.9	10.70	2.69	107	40	130	240	<0.1	<0.1	240
12/10/2018	7.57	<0.02	460	0.280	0.19	79	197	270	35.6	9.13	1.96	112	46	130	230	<0.10	<0.10	230
10/10/2019	7.10	0.10	460	<0.250	<0.070	81	188	58.0	35.2	8.58	1.79	107	51	140	240	<0.10	<0.10	240

Table 5. Current and Historical Groundwater Quality Results for General Water Quality Parameters and Standard Minerals[a]

Sample Date	General Water Quality Parameters								Standard Minerals									
															Alkalinity (as CaCO3)			
	pH	Chlorine Residual, mg/L	TDS, mg/L	Ammonia, mg/L	Nitrate as N, mg/L	Chloride, mg/L	Manganese, µg/L	Iron, µg/L	Calcium, mg/L	Magnesium, mg/L	Potassium, mg/L	Sodium, mg/L	Sulfate, mg/L	Hardness, mg/L	Total, mg/L	Hydroxide, mg/L	Carbonate, mg/L	Bicarbonate, mg/L
MW-6																		
12/13/2014	7.92	0.10	430	<0.3	<0.009	58	209	25.4	34.1	8.89	2.39	110	56	120	230	<0.1	1.8	230
12/10/2015	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)
12/27/2016	7.72	ND	400	0.34	0.17	68	192	21.0	35.6	8.25	3.00	87.7	40	120	210	<0.1	<0.1	210
12/20/2017	7.37	0.01	450	<0.3	<0.19	83	164	130.0	34.2	8.56	2.39	99	49	150	230	<0.1	<0.1	230
12/12/2018	6.9	0.10	410	0.280	<0.019	54	234	43.4	30.5	7.10	3.56	97.2	46	110	230	<0.10	<0.10	230
10/11/2019	7.17	0.50	400	<0.250	<0.070	54	171	14.9	29.2	7.34	1.91	98.5	47	110	230	<0.10	<0.10	230
MW-7																		
2016	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)
2017	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)
12/19/2018	8.32	0.30	470	0.280	<0.095	86	236	164	36.1	8.97	2.46	118	50	130	230	<0.10	<0.10	230
10/24/2019	7.49	0.10	470	<0.250	0.33	91	207	26.4	32.8	8.44	1.77	108	54	140	230	<0.10	<0.10	230

[a] Symbols and data qualifiers are described as follows:
"<" or "ND" indicates non-detect (ND) results, with the Method Detection Limit (MDL) shown as the value following "<".
"B" preceding a value indicates that the parameter was detected in the laboratory blank associated with the reported result.
"E" preceding a value indicates a detected results with a value reported as "estimated" between the MDL and the Reporting Limit.
"--" indicates that no result was reported for the analyte on the corresponding sample date.

[b] The analytical laboratory report notes that the analysis for nitrate exceeded the hold time for the MW-2S sample collected 12/13/2014.

[c] Well MW-6 was not sampled in 2015 due to pump equipment failure.

[d] Well MW-7 was not sampled in 2016 and 2017 because the pump EBMUD owns was found to be incompatible with the well.

Table 6. Current and Historical Groundwater Quality Results for Disinfection Byproducts[a]

Sample Date	Haloacetic Acids											Trihalomethanes				
	HAA(5),[b] µg/L	HAA(9),[c] µg/L	Bromochloro-acetic Acid, µg/L	Bromodichloro-acetic Acid, µg/L	Chlorodibromo-acetic Acid, µg/L	Dibromo-acetic Acid, µg/L	Dichloro-acetic Acid, µg/L	Monobromo-acetic Acid, µg/L	Monochloro-acetic Acid, µg/L	Tribromo-acetic Acid, µg/L	Trichloro-acetic Acid, µg/L	TTHMs,[d] µg/L	Chloroform, µg/L	Bromodichloro-methane, µg/L	Dibromochloro-methane, µg/L	Bromoform, µg/L
Bayside Well																
12/17/2014	ND	ND	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<0.89	0.45	<0.079	<0.13	<0.23
11/16/2015	1.7	<3.2	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	0.36	<0.98	0.37	<0.145	<0.20	<0.27
12/7/2016	ND	ND	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<4.95	4.4	0.19	<0.13	<0.23
12/5/2017	1.6	<3.1	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	0.26	<15.56	14	1.2	<0.13	<0.23
12/5/2018	<10.4	<12.8	<0.15	1.2	<0.31	1.1	3.4	<0.29	<0.65	<0.72	5.0	<35.22	29.71	3.56	1.65	<0.3
10/8/2019	<1.5	<3.3	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	0.99	<0.17	<10.51	9.14	0.67	<0.4	<0.3
MW-2S																
12/13/2014	ND	ND	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<0.609	<0.17	<0.079	<0.13	<0.23
12/10/2015	ND	ND	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<0.609	<0.17	<0.079	<0.13	<0.23
12/27/2016	ND	ND	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<0.609	<0.17	<0.079	<0.13	<0.23
12/19/2017	ND	ND	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<0.609	<0.17	<0.079	<0.13	<0.23
12/11/2018	<1.5	<3.5	<0.15	0.75	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<1.50	<0.4	<0.4	<0.4	<0.3
10/22/2019	<1.5	<3.1	<0.15	E 0.36	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<1.50	<0.4	<0.4	<0.4	<0.3
MW-2I																
12/12/2014	ND	3.4	0.50	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	J <0.72	<0.17	<0.609	<0.17	<0.079	<0.13	<0.23
12/15/2015	ND	ND	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<0.609	<0.17	<0.079	<0.13	<0.23
12/27/2016	ND	ND	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<0.609	<0.17	<0.079	<0.13	<0.23
12/19/2017	ND	ND	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<0.609	<0.17	<0.079	<0.13	<0.23
12/11/2018	<1.6	<3.5	<0.15	0.73	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	E 0.22	<1.50	<0.4	<0.4	<0.4	<0.3
10/9/2019	<1.5	<3.3	<0.15	<0.57	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<1.50	<0.4	<0.4	<0.4	<0.3
MW-4																
12/16/2014	<1.6	<3.1	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	0.72	<0.72	<0.17	<0.609	<0.17	<0.079	<0.13	<0.23
12/8/2015	ND	ND	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<0.609	<0.17	<0.079	<0.13	<0.23
12/27/2016	ND	ND	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<0.609	<0.17	<0.079	<0.13	<0.23
12/20/2017	ND	ND	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<0.609	<0.17	<0.079	<0.13	<0.23
12/11/2018	<1.6	<3.1	<0.15	<0.31	<0.31	E 0.27	<0.18	<0.29	<0.65	<0.72	E 0.21	<1.50	<0.4	<0.4	<0.4	<0.3
10/9/2019	<1.5	<3.0	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<1.50	<0.4	<0.4	<0.4	<0.3
MW-5D																
12/16/2014	ND	ND	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<0.609	<0.17	<0.079	<0.13	<0.23
11/18/2015	ND	ND	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<0.170	<0.17	<0.079	<0.13	<0.23
12/21/2016	ND	ND	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<0.609	<0.17	<0.079	<0.13	<0.23
12/19/2017	ND	ND	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<0.609	<0.17	<0.079	<0.13	<0.23
12/10/2018	<1.5	<3.1	E 0.19	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<1.50	<0.4	<0.4	<0.4	<0.3
10/10/2019	<1.5	<3.1	E 0.18	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<1.50	<0.4	<0.4	<0.4	<0.3

Table 6. Current and Historical Groundwater Quality Results for Disinfection Byproducts[a]

Sample Date	Haloacetic Acids											Trihalomethanes				
	HAA(5),[b] µg/L	HAA(9),[c] µg/L	Bromochloro-acetic Acid, µg/L	Bromodichloro-acetic Acid, µg/L	Chlorodibromo-acetic Acid, µg/L	Dibromo-acetic Acid, µg/L	Dichloro-acetic Acid, µg/L	Monobromo-acetic Acid, µg/L	Monochloro-acetic Acid, µg/L	Tribromo-acetic Acid, µg/L	Trichloro-acetic Acid, µg/L	TTHMs,[d] µg/L	Chloroform, µg/L	Bromodichloro-methane, µg/L	Dibromochloro-methane, µg/L	Bromoform, µg/L
MW-6																
12/13/2014	[e]	[e]	[e]	[e]	[e]	[e]	[e]	[e]	[e]	[e]	[e]	<0.609	<0.17	<0.079	<0.13	<0.23
12/10/2015	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]	[f]
12/27/2016	ND	ND	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<0.609	<0.17	<0.079	<0.13	<0.23
12/19/2017	ND	ND	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<0.609	<0.17	<0.079	<0.13	<0.23
12/12/2018	<1.6	<3.1	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	E 0.21	<1.50	<0.4	<0.4	<0.4	<0.3
10/11/2019	<1.5	<3.0	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<1.50	<0.4	<0.4	<0.4	<0.3
MW-7																
2016	[g]	[g]	[g]	[g]	[g]	[g]	[g]	[g]	[g]	[g]	[g]	[g]	[g]	[g]	[g]	[g]
2017	[g]	[g]	[g]	[g]	[g]	[g]	[g]	[g]	[g]	[g]	[g]	[g]	[g]	[g]	[g]	[g]
12/19/2018	<1.5	<3.0	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<1.50	<0.4	<0.4	<0.4	<0.3
10/24/2019	<1.5	<3.0	<0.15	<0.31	<0.31	<0.25	<0.18	<0.29	<0.65	<0.72	<0.17	<1.50	<0.4	<0.4	<0.4	<0.3

[a] Symbols and data qualifiers are described as follows:
"<" or "ND" indicates non-detect (ND) results, with the Method Detection Limit (MDL) shown as the value following "<", except for total haloacetic acids (HAA) and total trihalomethanes (TTHMs) as detailed below.
"J" preceding a value indicates that the quantitation of the result does not meet the laboratory's Standard Operating Procedure criteria.
"E" indicates that value is estimated, concentration is outside calibration range.
"--" indicates that no result was reported for the analyte on the corresponding sample date.

[b] HAA5 value is calculated by adding values for dibromoacetic, dichloroacetic, monobromoacetic, monochloroacetic, and trichloroacetic acids, with "<" indicating that the total includes ND data (MDLs used). If all results are ND, then the total is indicated as ND.

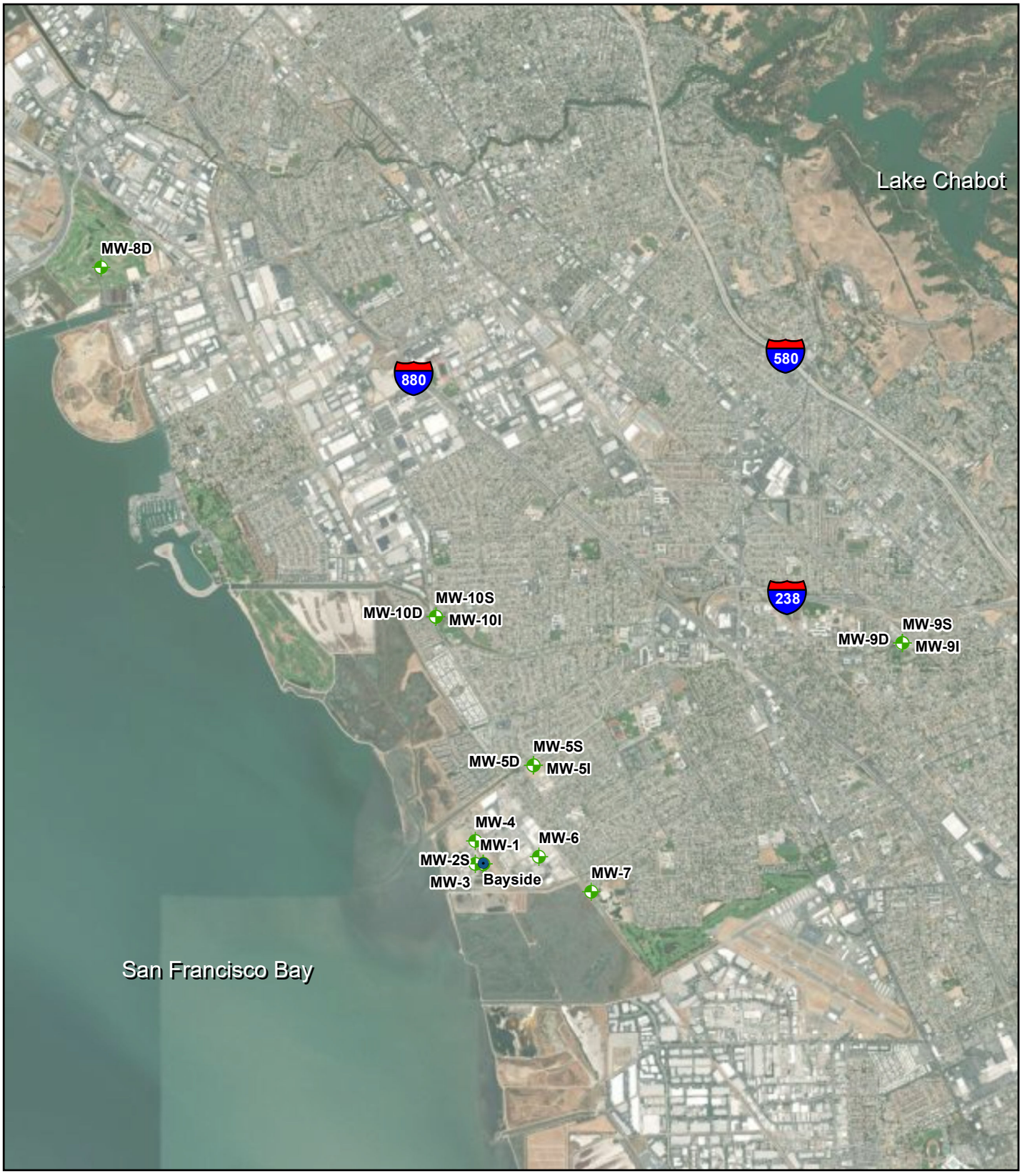
[c] HAA9 value is calculated by adding results for all individual haloacetic acids shown, with "<" indicating that the total includes ND data (MDLs used). If all results are ND, then the total is indicated as ND.

[d] TTHMs value is calculated by adding individual trihalomethane results (including MDLs for ND data). If ND data is included, "<" is indicated with the TTHMs result.

[e] Well MW-6 was not monitored for haloacetic acids in 2014.

[f] Well MW-6 was not monitored in 2015 due to pump equipment failure.

[g] Well MW-7 was not sampled in 2016 and 2017 because the pump EBMUD owns was found to be incompatible with the well.



LEGEND

- Groundwater Monitoring Well
- Bayside Aquifer Storage and Recovery Well

N

0 0.5 1

Miles

FIGURE 1

East Bay Municipal Utility District
2019 Bayside Annual Report

Well Location Map

LEGEND

- Groundwater monitoring well and elevation, feet above mean sea level (amsl)
- Groundwater elevation contour, feet amsl, dashed where approximate
- Approximate horizontal groundwater gradient direction and magnitude

N

0 250 500

Scale in Feet

FIGURE 2

East Bay Municipal Utility District
2019 Bayside Annual Report

Groundwater Elevation Contours
Low Tide (August 1, 2019)

LEGEND

- Groundwater monitoring well and elevation, feet above mean sea level (amsl)
- Groundwater elevation contour, feet amsl, dashed where approximate
- Approximate horizontal groundwater gradient direction and magnitude

N

0 250 500

Scale in Feet

FIGURE 3

East Bay Municipal Utility District
2019 Bayside Annual Report

Groundwater Elevation Contours
High Tide (December 1, 2019)

LEGEND

Groundwater monitoring well and TDS concentration in mg/L.

TDS concentration contour.

N

0 250 500

Scale in Feet

FIGURE 4

East Bay Municipal Utility District
2019 Bayside Annual Report

Groundwater TDS Contours
December 2019

Attachment A – Groundwater Purging Logs

GROUNDWATER PURGING LOG

SITE NAME: **Bayside Well**		
WELL NO: **Bayside**	INSPECTOR: CP/PH	DATE: 10/08/19

PURGING DATA

WELL DIAMETER (inches): **18**	TUBING DIAMETER (inches): **NA**	WELL SCREEN INTERVAL DEPTH: **NA**	INITIAL TOTALIZER READING (gal): 8,476,326	PURGE PUMP TYPE: O – dedicated well pump

WELL VOLUME PURGE: 30,000

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): **NA**	PURGING INITIATED AT: 0940	PURGING ENDED AT: 1021	TOTAL VOLUME PURGED (gallons): 30,000	FINAL TOTALIZER READING (gal): 8,506,326

TIME	VOLUME PURGED (gallons)	TOTAL VOLUME PURGED (gallons)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or (µS/cm)
0955	10,000	10,000	6.95	25.0	298.2
1008	10,000	20,000	7.36	25.0	293.2
1021	10,000	30,000	7.53	25.0	292.4

WELL CAPACITY (Gallons Per Foot): **2"** = 0.16; **4"** = 0.65

PURGING EQUIPMENT CODES: **B** = Bailer; **BP** = Bladder Pump; **ESP** = Electric Submersible Pump; **PP** = Peristaltic Pump; **O** = Other (Specify)

GROUNDWATER PURGING LOG

SITE NAME: **Bayside Wells**		
WELL NO: **2S**	INSPECTOR: CY/DW/NPK	DATE: 10/22/19

PURGING DATA

WELL DIAMETER (inches): **2**	TUBING DIAMETER (inches): **1/2**	WELL SCREEN INTERVAL DEPTH: **40** feet to **60** feet	STATIC DEPTH TO WATER ~~(feet)~~: 7.98 Feet Below top of casing	PURGE PUMP TYPE: **ESP**

WELL VOLUME PURGE: (**60** ft – 7.98 ft) X **0.16** gal/ft = 8.32 gallons X 3 = 24.97 total purge gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT: 1004	PURGING ENDED AT: 1010	TOTAL VOLUME PURGED (gallons): 25	FINAL STATIC DEPTH TO WATER (feet): 8.24

TIME	VOLUME PURGED (gallons)	TOTAL VOLUME PURGED (gallons)			pH (standard units)	TEMP. (°C)	COND. (circle units) ~~mS/cm~~ or µS/cm				
1006	8	8			6.70	18.9°	84.3				
1008	8	16			6.67	18.8°	85.3				
1010	8	24			6.68	18.5°	86.0				

GROUNDWATER PURGING LOG

SITE NAME: **Bayside Wells**		
WELL NO: **2I**	INSPECTOR: JRW	DATE: 10/9/2019

PURGING DATA

WELL DIAMETER (inches): **2**	TUBING DIAMETER (inches): **1/2**	WELL SCREEN INTERVAL DEPTH: **160** feet to **190** feet	STATIC DEPTH TO WATER (ft): 13.29	PURGE PUMP TYPE: **ESP**

WELL VOLUME PURGE: (**200** ft – 13.29 ft) X **0.16** gal/ft = 29.87 gallons X 3 = ~~89.6~~ total purge gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT: 12:25	PURGING ENDED AT: 15:08	TOTAL VOLUME PURGED (gallons): 90	FINAL STATIC DEPTH TO WATER (feet): 14.92

TIME	VOLUME PURGED (gallons)	TOTAL VOLUME PURGED (gallons)	pH (standard units)	TEMP. (°C)	COND. (circle units) µmhos/cm or µS/cm
13:19	30	30	7.67	20.8	1161 µS
14:13	30	60	7.72	21.5	1124 µS
15:08	30	90	7.67	19.9	1105 µS

GROUNDWATER PURGING LOG

SITE NAME: **Bayside Wells**		
WELL NO: **4**	INSPECTOR: JR ZW	DATE: 10/09/14

PURGING DATA

WELL DIAMETER (inches): **2**	TUBING DIAMETER (inches): **1/2**	WELL SCREEN INTERVAL DEPTH: **520** feet to **650** feet	STATIC DEPTH TO WATER (feet): 12.02	PURGE PUMP TYPE: **ESP**

WELL VOLUME PURGE: (650 ft – 12.02 ft) X **0.16** gal/ft = 102.07 gallons X 3 = 306.23 total purge gallons
637.98

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): **25**	PURGING INITIATED AT: 9:34	PURGING ENDED AT: 10:34	TOTAL VOLUME PURGED (gallons): 306	FINAL STATIC DEPTH TO WATER (feet): 11.55

TIME	VOLUME PURGED (gallons)	TOTAL VOLUME PURGED (gallons)	pH (standard units)	TEMP. (°C)	COND. (circle units) mmhos/cm or µS/cm
9:54 10:10 m	102	102	7.67	20.0	685 µS/cm
10:14	102	204	7.61	20.7	687 µS/cm
10:34	102	306	7.63	21.2	621 µS/cm

GROUNDWATER PURGING LOG

SITE NAME: **Bayside Wells**		
WELL NO: **5D**	INSPECTOR: DW/RV	DATE: 10/10/19

PURGING DATA

WELL DIAMETER (inches): **4**	TUBING DIAMETER (inches): **1/2**	WELL SCREEN INTERVAL DEPTH: **500** feet to **630** feet	STATIC DEPTH TO WATER (feet): 16.82	PURGE PUMP TYPE: **ESP**

WELL VOLUME PURGE: (**640** ft − 16.82 ft) X **0.65** gal/ft = 405 gallons X 3 = 1215 total purge gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): **25**	PURGING INITIATED AT: 1020	PURGING ENDED AT: 1305	TOTAL VOLUME PURGED (gallons): 1215	FINAL STATIC DEPTH TO WATER (feet): 16.46

TIME	VOLUME PURGED (gallons)	TOTAL VOLUME PURGED (gallons)	pH (standard units)	TEMP. (°C)	COND. (circle units) mS/cm or µS/cm
1050	300	300	6.91	22.0	142
1135	300	600	7.08	22.3	768
1215	300	900	7.14	22.5	725
1305	300	1200	7.20	22.2	731
Initial purge rate at 10gpm, however, well recharge rate slower than purge rate, therefore, changed rate to 6gpm.					

GROUNDWATER PURGING LOG

SITE NAME: **Bayside Wells**		
WELL NO: **6**	INSPECTOR: DOW, CY	DATE: 10/11/19

PURGING DATA

WELL DIAMETER (inches): **4**	TUBING DIAMETER (inches): **1/2**	WELL SCREEN INTERVAL DEPTH: **480** feet to **650** feet	STATIC DEPTH TO WATER (feet): 12.85	PURGE PUMP TYPE: **ESP**

WELL VOLUME PURGE: (**655** ft – 12.85 ft) X **0.65** gal/ft = 417 gallons X 3 = 1252 total purge gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): **25**	PURGING INITIATED AT: 09:52	PURGING ENDED AT: 1323	TOTAL VOLUME PURGED (gallons): 1260	FINAL STATIC DEPTH TO WATER (feet): 12.10

TIME	VOLUME PURGED (gallons)	TOTAL VOLUME PURGED (gallons)	pH (standard units)	TEMP. (°C)	COND. (circle units) mS/cm or µS/cm (compensated)	Flow Rate (gpm)
10:23	180	180	7.40	19.7	852	6
10:53	180	360	7.27	21.4	669	6
11:23	180	540	7.31	21.5	664	6
11:53	180	720	7.22	21.5	661	6
12:23	180	900	7.25	21.4	662	6
12:53	180	1080	7.25	21.4	661	6
13:23	180	1260	7.34	21.1	660	6

Sample Time: 1328
Temp: 21.4
pH: 7.17
Total Cl_2: 0.5 mg/L

GROUNDWATER PURGING LOG

SITE NAME: Bayside Wells		
WELL NO: 7	INSPECTOR: NPK/DW	DATE: 10/24/19

PURGING DATA

WELL DIAMETER (inches): 4	TUBING DIAMETER (inches): 1/2	WELL SCREEN INTERVAL DEPTH: 510 feet to 630 feet	STATIC DEPTH TO WATER (feet): 10.62	PURGE PUMP TYPE: ESP

WELL VOLUME PURGE: (680 ft − 10.62 ft) X 0.65 gal/ft = 435.1 gallons X 3 = 1305.3 total purge gallons

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): 25	PURGING INITIATED AT: 1120	PURGING ENDED AT: 1350	TOTAL VOLUME PURGED (gallons): 1350	FINAL STATIC DEPTH TO WATER (feet): 10.69

TIME	VOLUME PURGED (gallons)	TOTAL VOLUME PURGED (gallons)			pH (standard units)	TEMP. (°C)	COND. (circle units) mS/cm or µS/cm				
1210	450	450			6.86	22.7	828				
1300	450	900			7.47	22.6	797				
1350	450	1350			7.49	23.2	762				

Attachment B – Groundwater Elevation Trends for Monitoring Wells

Figure B-1. 2019 MW-1 Groundwater Elevation Trend

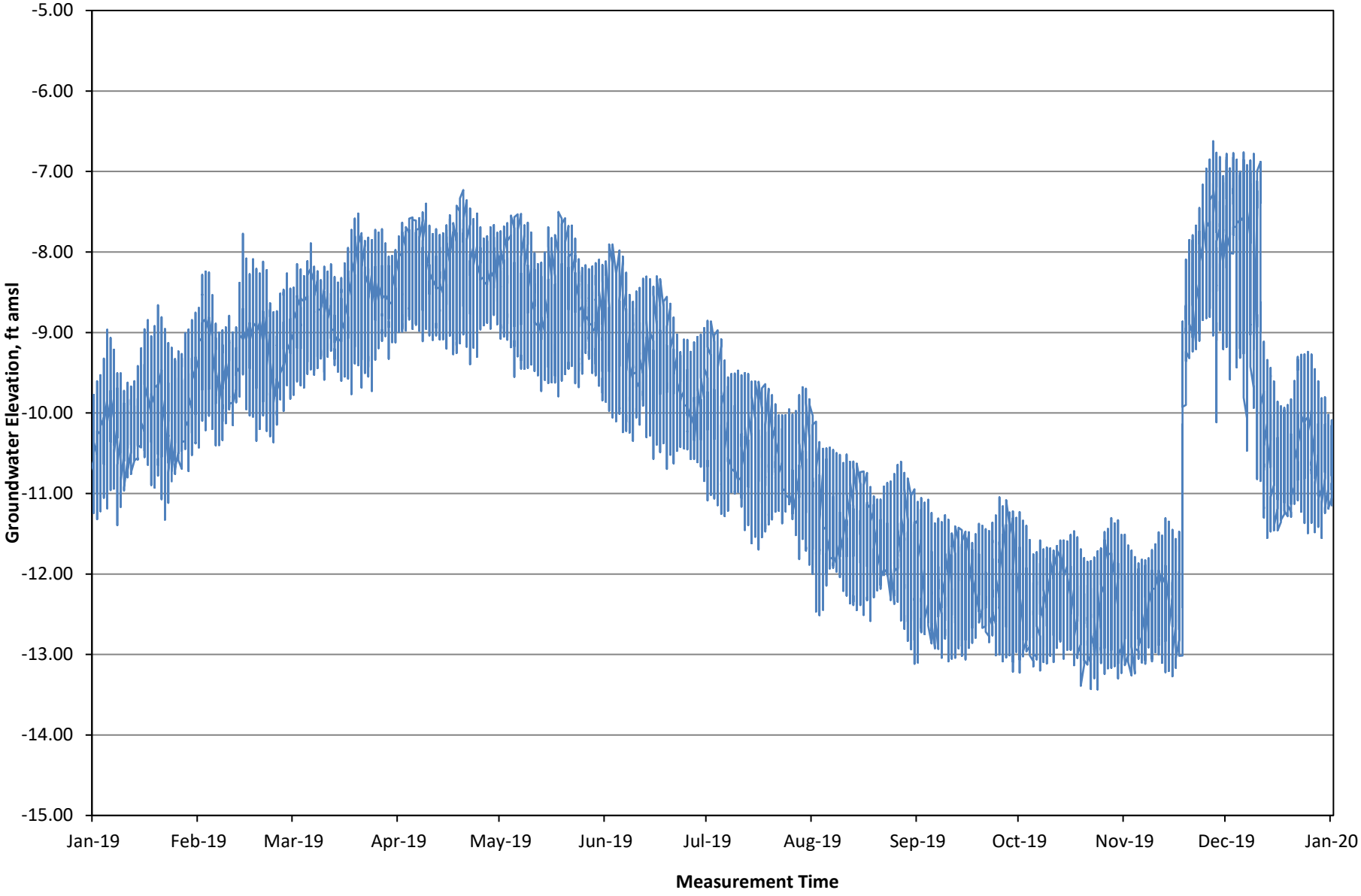


Figure B-2. 2019 MW-2S Groundwater Elevation Trend

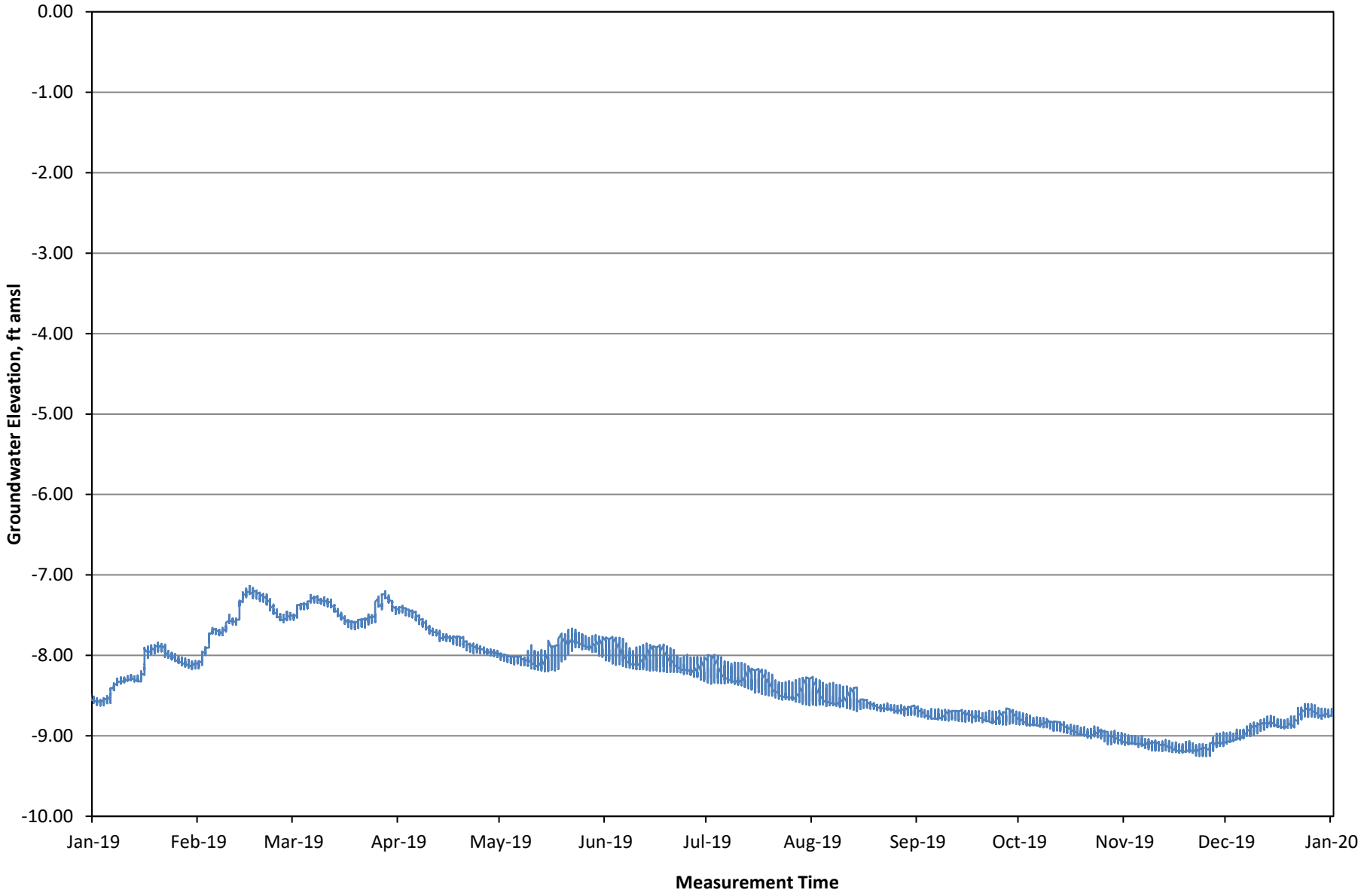


Figure B-3. 2019 MW-2I Groundwater Elevation Trend

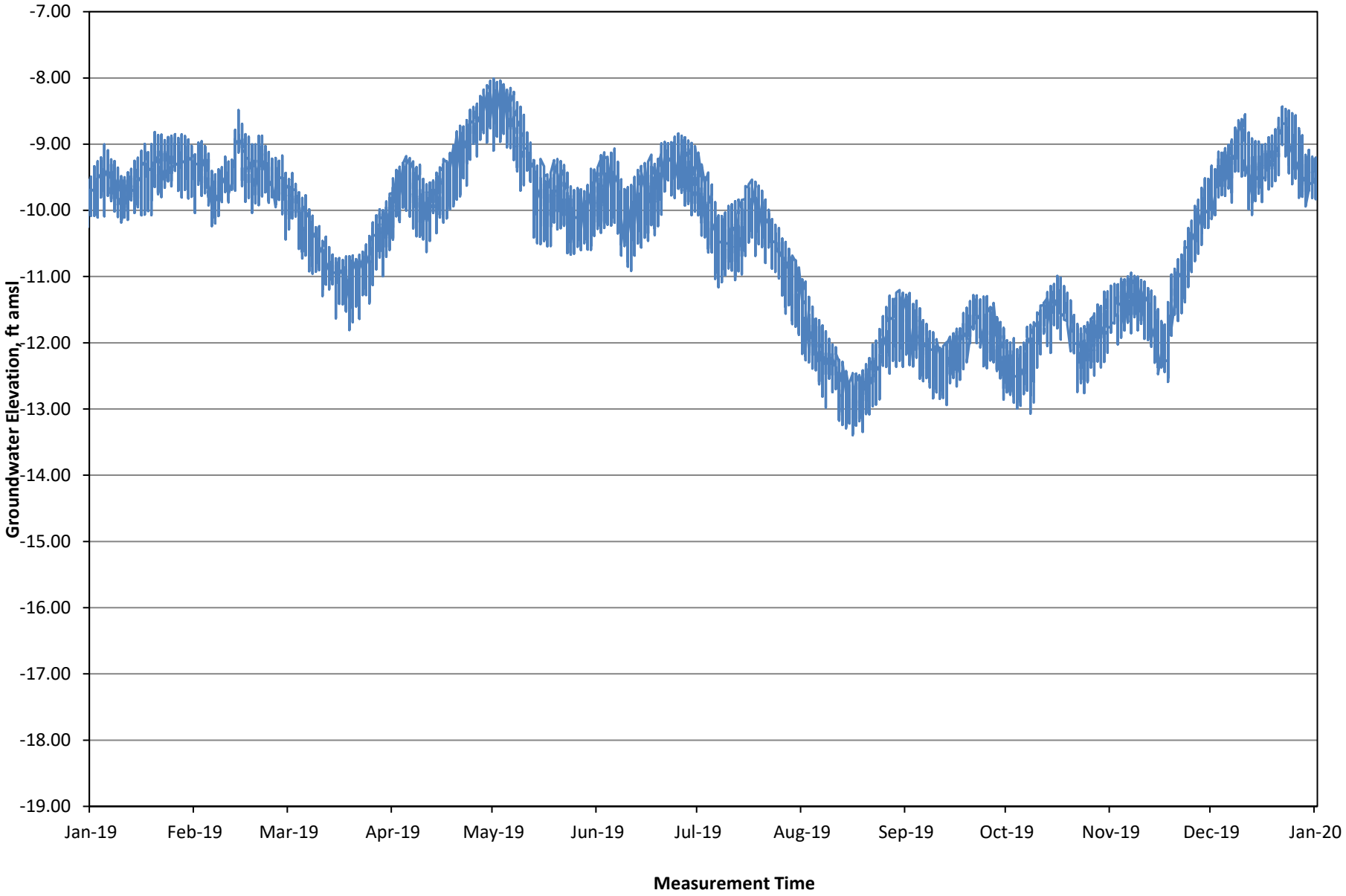


Figure B-4. 2019 MW-3 Groundwater Elevation Trend

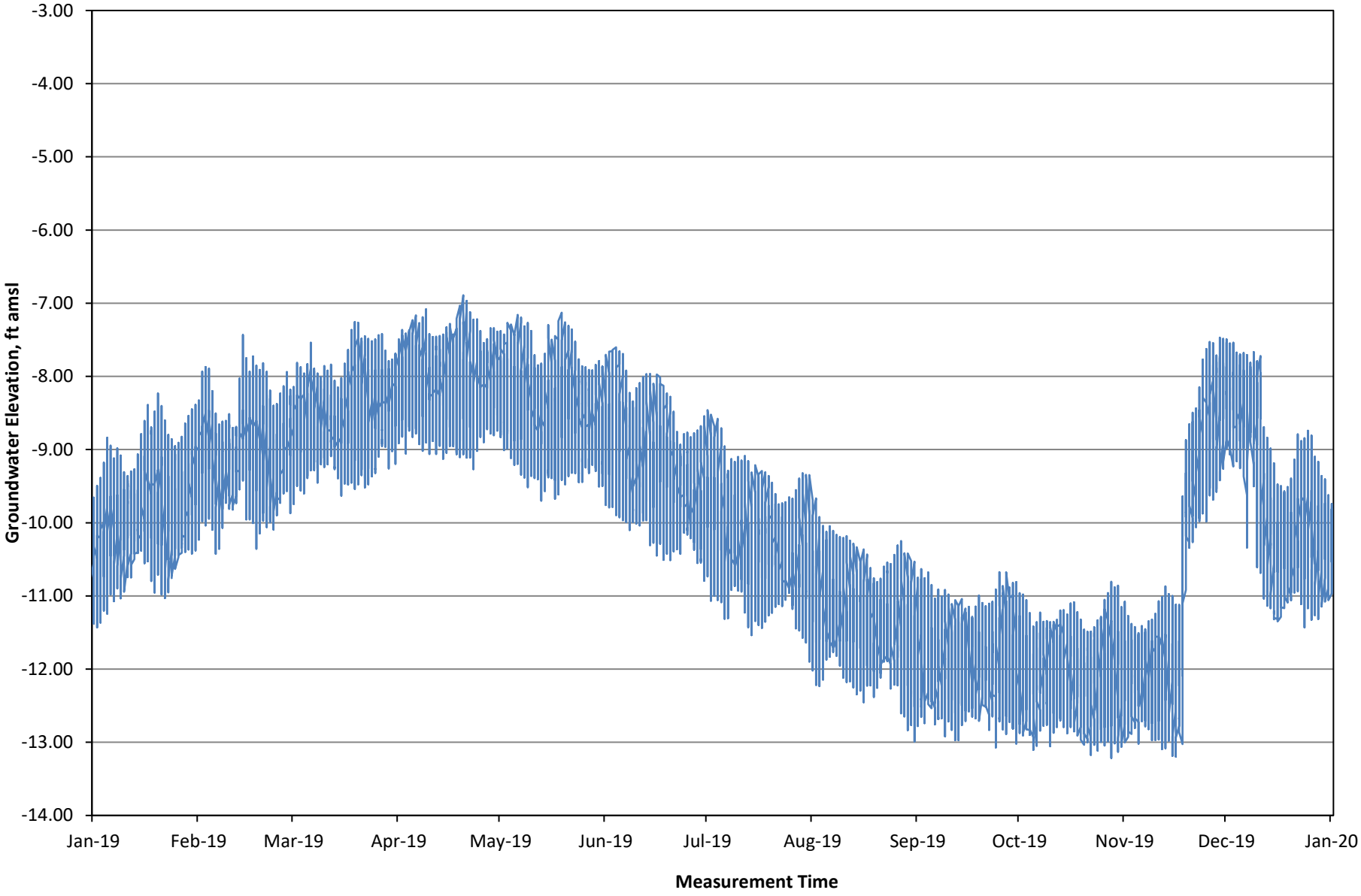


Figure B-5. 2019 MW-4 Groundwater Elevation Trend

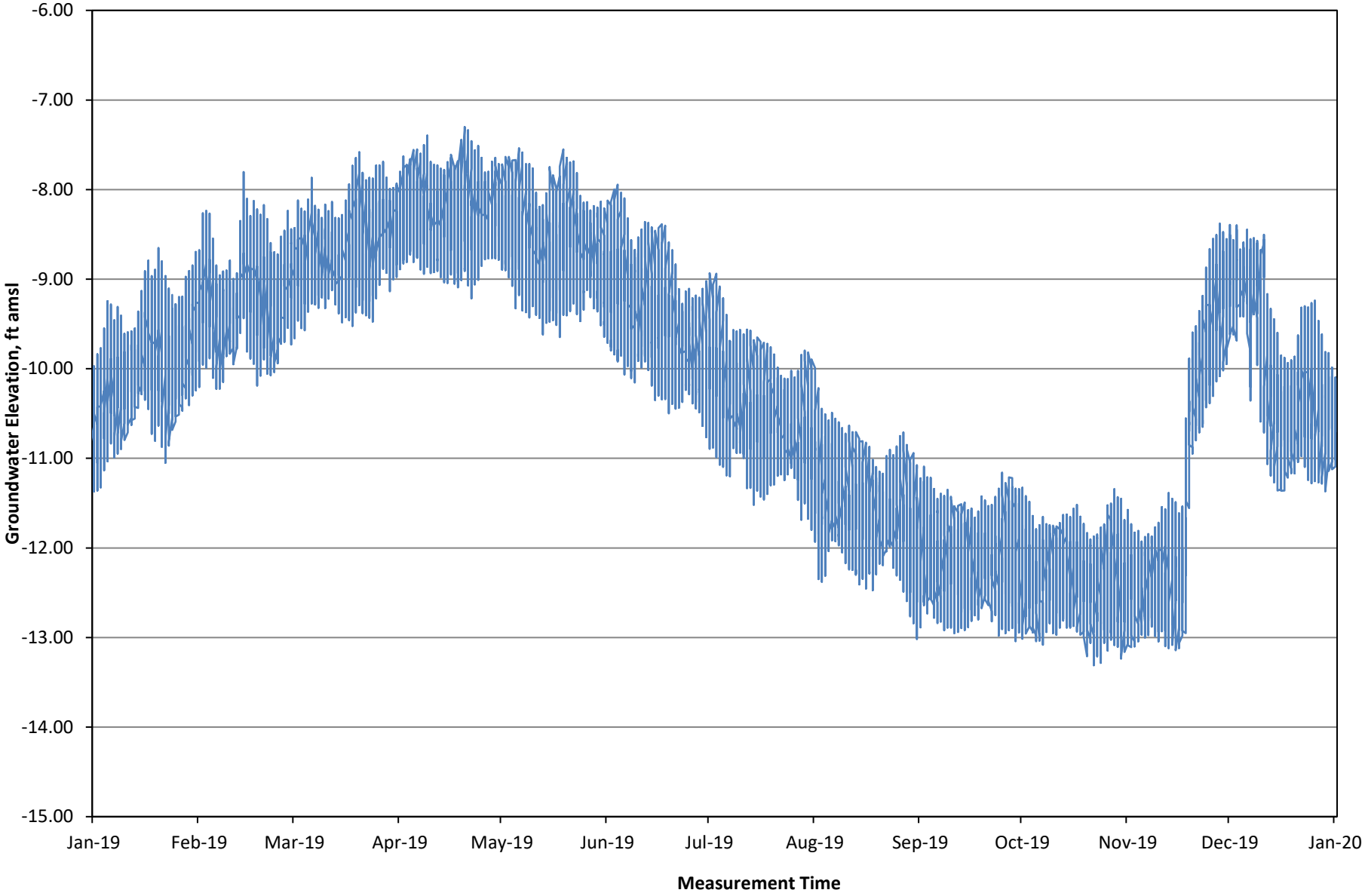


Figure B-6. 2019 MW-5S Groundwater Elevation Trend

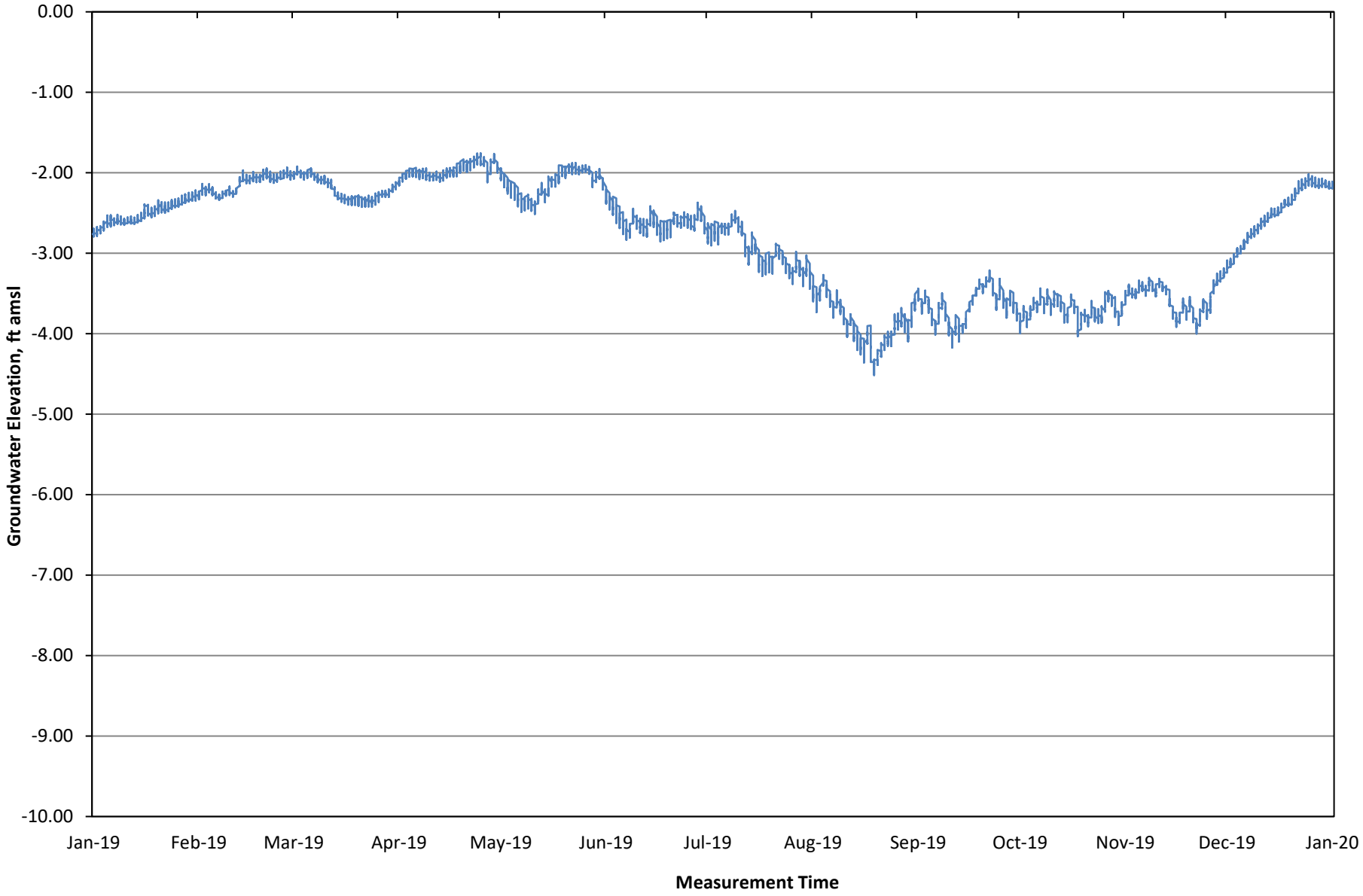


Figure B-7. 2019 MW-5I Groundwater Elevation Trend

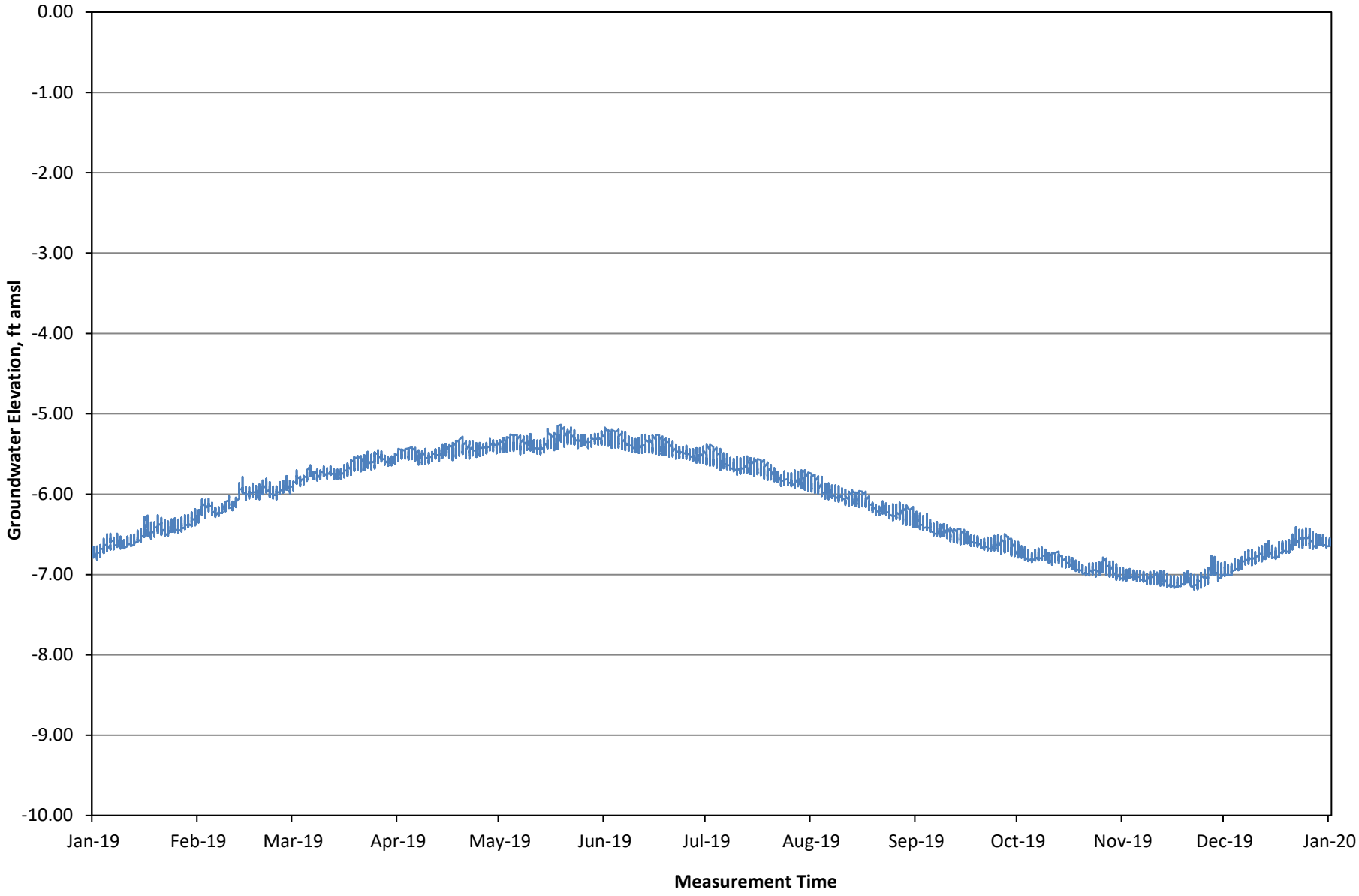


Figure B-8. 2019 MW-5D Groundwater Elevation Trend

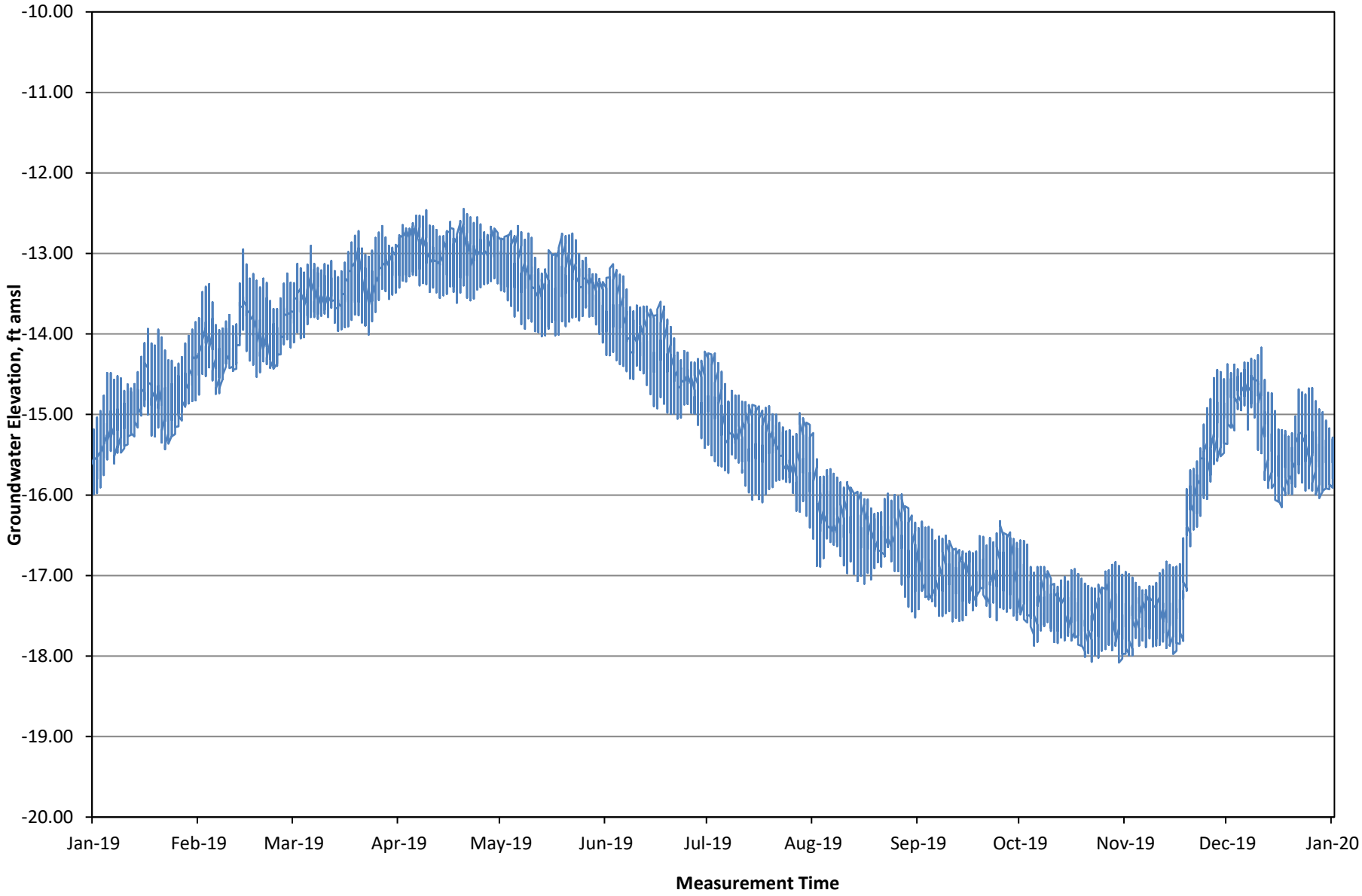


Figure B-9. 2019 MW-6 Groundwater Elevation Trend

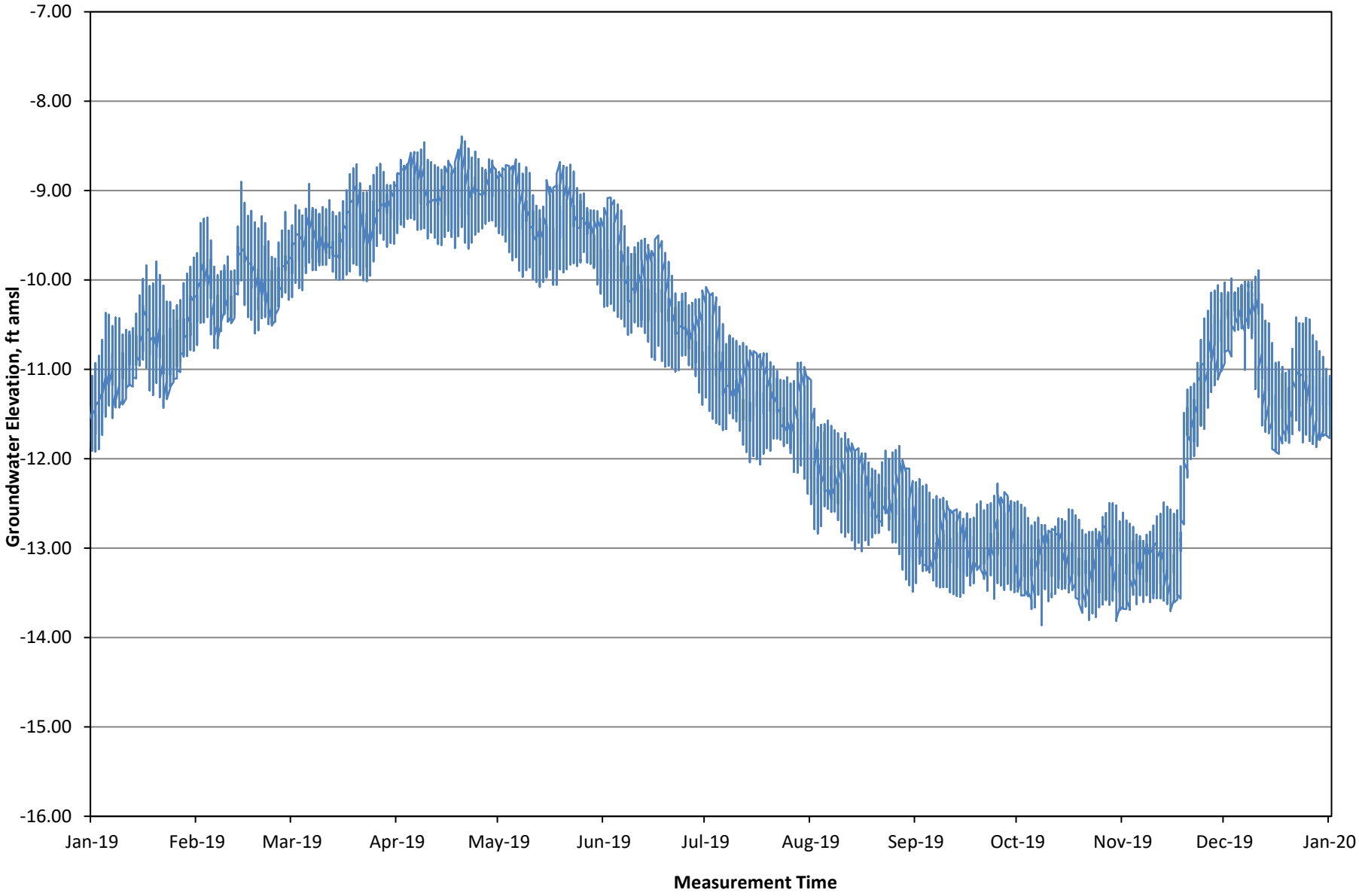


Figure B-10. 2019 MW-7 Groundwater Elevation Trend

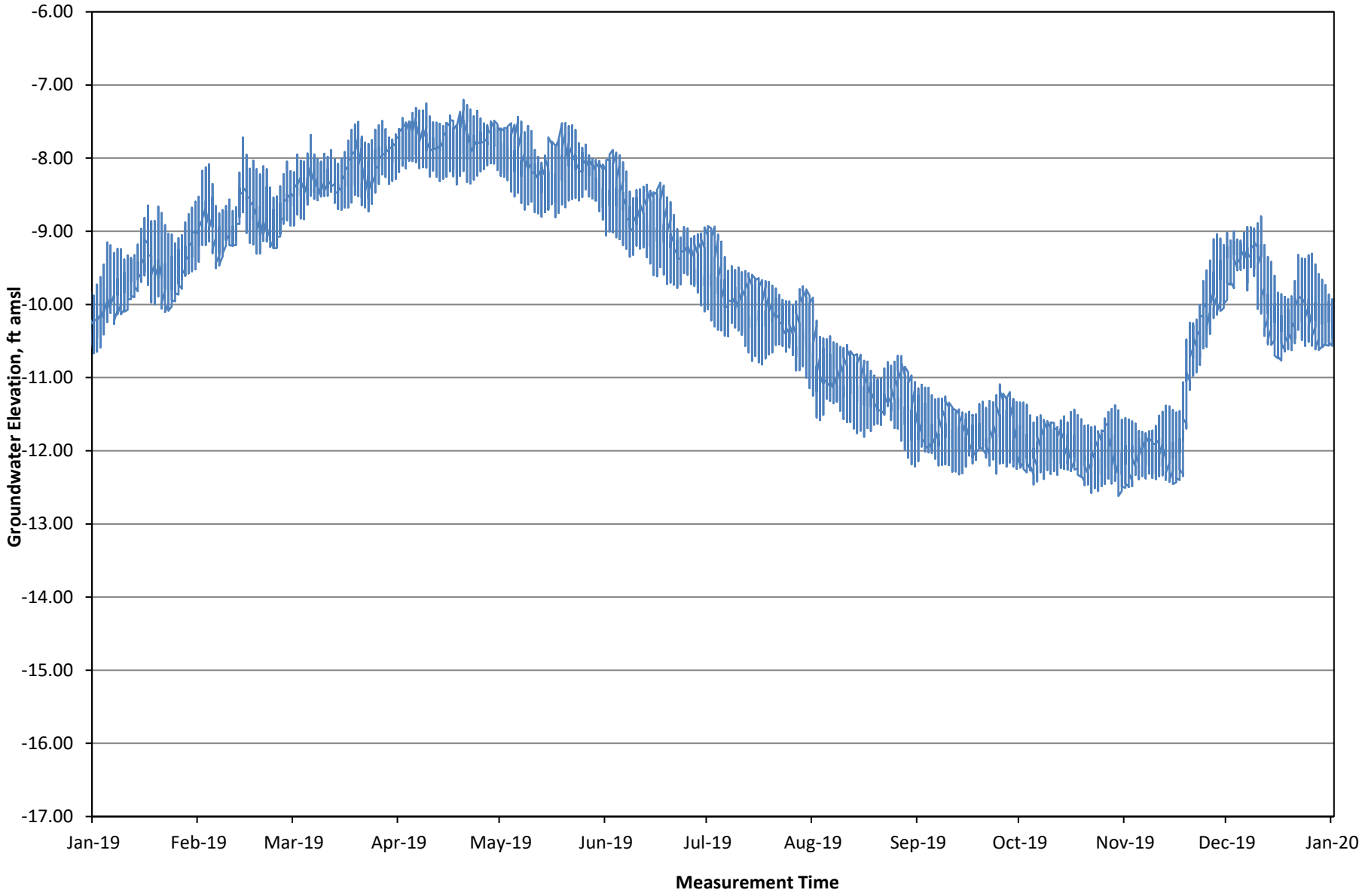


Figure B-11. 2019 MW-9D Groundwater Elevation Trend

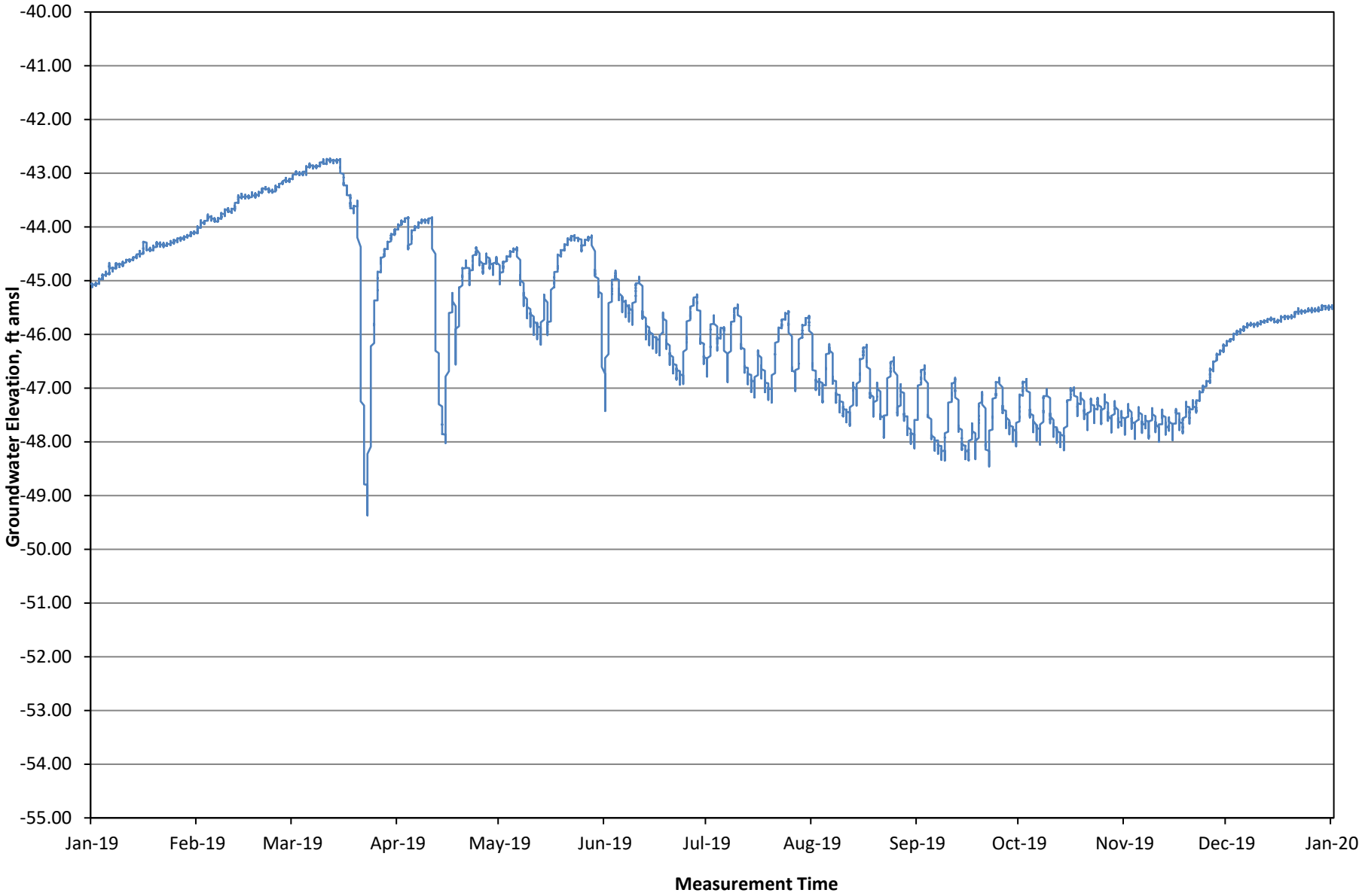


Figure B-12. 2019 MW-10I Groundwater Elevation Trend

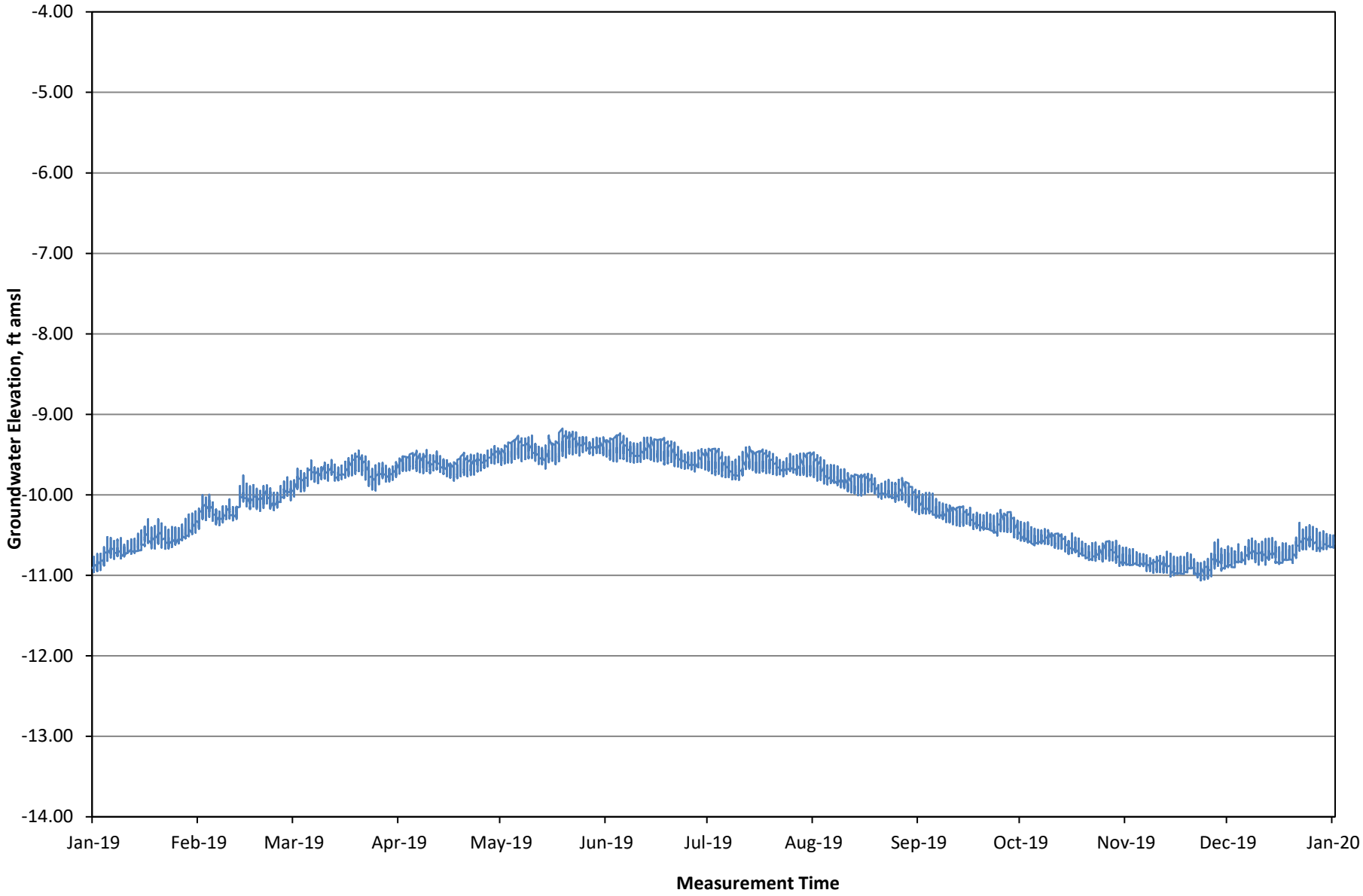
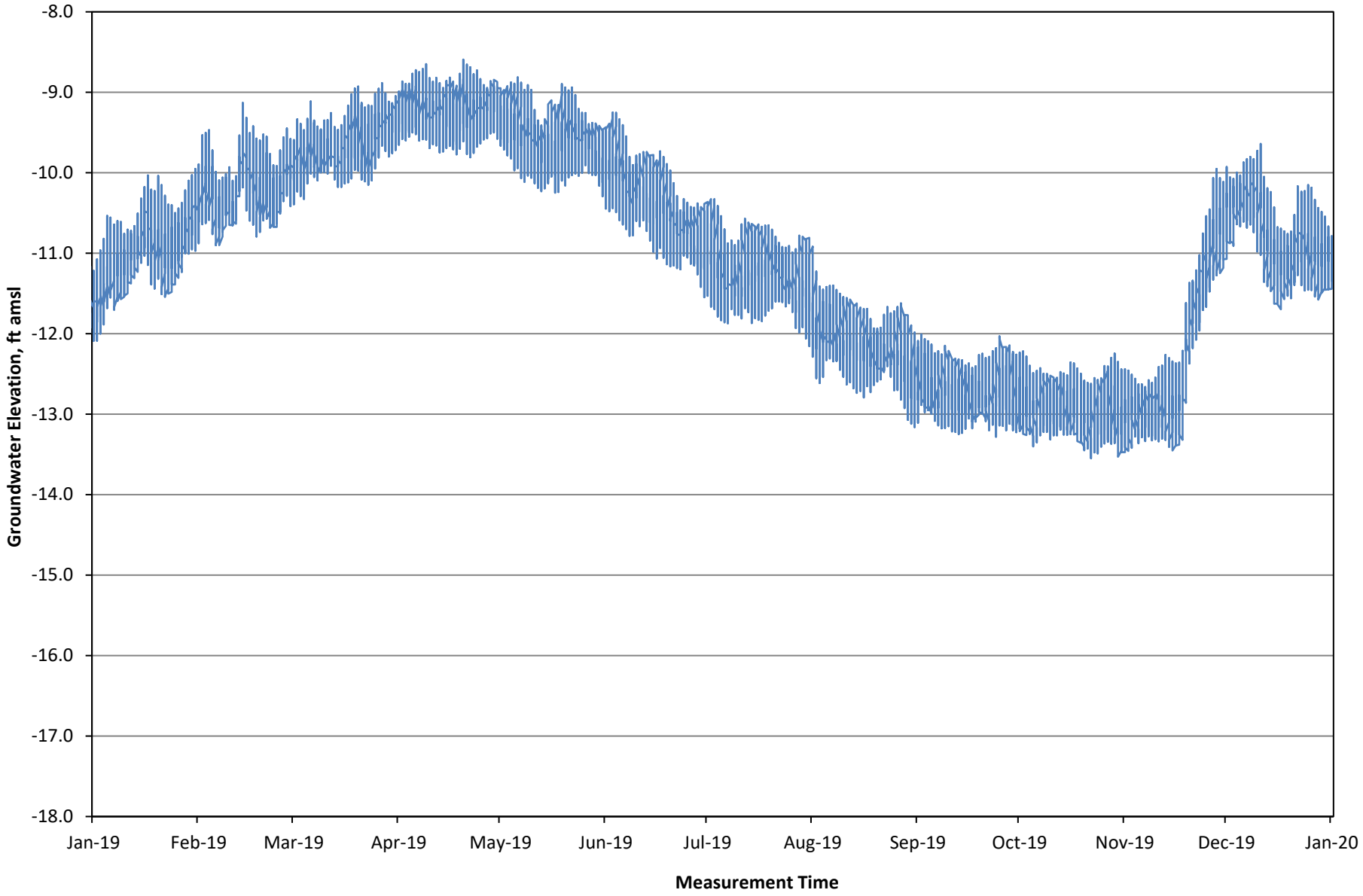


Figure B-13. 2019 MW-10D Groundwater Elevation Trend



Attachment C – Analytical Lab Reports for 2019 Water Quality Monitoring

EAST BAY MUNICIPAL UTILITY DISTRICT
Laboratory Services Division
Phone (510)287-1432 Fax (510)465-5462
PO Box 24055, MS 59, Oakland, CA 94623

Analytical Report Prepared for DAVID BEHNKEN

Report generated on: Dec 10, 2019 07:10 am
Login No.: L231964

Reported by:

KRISTI LORENSON
Laboratory Program Manager

Approved by:

JULIA HALSNE
Laboratory Services Division Manager

LSR B455-0706-1
Project Title: BAYSIDE GROUND WATER PROJECT

Login Performance Summary
4 - Samples received by the lab on: Oct 08 2019, 01:49 pm
0 - Lost Analyses
0 - Hold Time Exceedences
Turn-around-time not met

Samples included in this report:

Sample	Type	Collected	Site	Locator	ClientID
L231964-1	GRAB	08-Oct-2019 11:33	WTP BAYSIDE	BAY WELL HEAD	-
L231964-2	GRAB	08-Oct-2019 10:25	WTP BAYSIDE	BAY WELL HEAD	-
L231964-3	QCFB	08-Oct-2019 11:38	FIELD QC	COLLECTION QC	-
L231964-4	QCTB	08-Oct-2019 11:35	FIELD QC	COLLECTION QC	-

Legend to the laboratory qualifiers used in this report:
< - Less than
E - Estimated value, concentration outside calibration range. For SIP, E=DNQ, Estimated Concentration.
F - Analyte detected in field or rinsate blank
N - Spike recovery outside of control limits
U - Analyte not detected
Qualifiers for subcontract work - See textvalue for description

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: WTP BAYSIDE Bayside GW Project Extraction Wells at 2540 Grant Avenue, San Lorenzo
Locator: BAY WELL HEAD Sample tap at the well, as shown in Drawing No. 2097-C-002
Lab ID: L231964-1 (P240026-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 08 2019, 11:33am Sample collector: C. PAGTAKHAN
Date Received: Oct 08 2019, 01:49pm Sample receiver: ANG
Sample Comments: Annual Bayside Sampling per DDW T22 and WDR; +FLD DATA: pH = 6.85 CL2R = <0.02 mg/L (MDL=0.02 mg/L)

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method: SAMPLER PROVIDED FIELD MEASUREMENTS - DATA ENTRY LIST FOR FIELD DATA							RawH2O	
FIELD ANALYSIS/OBSERVATION DATA PARAMETERS								
PH		**6.85**	pH units	1				
CHLORINE RESIDUAL: TOTAL	<	0.02	mg/L	1	0.02			
Run ID: R298624 / Work Group No.: WG232321								
Prep Date1: 08-OCT-19 Analyzed 08-Oct-19 11:33								
Method: EPA 524.4 - Volatile Organics, GC/MS							RawH2O	
TARGET ANALYTES								
ALLYL CHLORIDE	U	0.36	ug/L	1	0.36			
TERT-AMYL METHYL ETHER	U	0.23	ug/L	1	0.23	3		
BENZENE	U	0.054	ug/L	1	0.054	0.5		
BROMOBENZENE	U	0.11	ug/L	1	0.11			
BROMOCHLOROMETHANE	U	0.15	ug/L	1	0.15			
BROMODICHLOROMETHANE		**0.58**	ug/L	1	0.09			
BROMOFORM	U	0.096	ug/L	1	0.096			
BROMOMETHANE	**E,F**	**0.82**	ug/L	1	0.72			
TERT-BUTYL ALCOHOL	U	0.57	ug/L	1	0.57	2		
N-BUTYLBENZENE	U	0.076	ug/L	1	0.076			
SEC-BUTYLBENZENE	U	0.069	ug/L	1	0.069			
TERT-BUTYLBENZENE	U	0.15	ug/L	1	0.15			
CARBON DISULFIDE	U	0.072	ug/L	1	0.072			
CARBON TETRACHLORIDE	U	0.14	ug/L	1	0.14	0.5		
CHLOROBENZENE	U	0.085	ug/L	1	0.085	0.5		
1-CHLOROBUTANE	U	0.076	ug/L	1	0.076			
CHLOROFORM		**7.6**	ug/L	1	0.11			
CHLOROMETHANE	U	0.30	ug/L	1	0.3			
O-CHLOROTOLUENE	U	0.17	ug/L	1	0.17			
P-CHLOROTOLUENE	U	0.15	ug/L	1	0.15			
DIBROMOCHLOROMETHANE	**E**	**0.22**	ug/L	1	0.065			
DIBROMOMETHANE	U	0.088	ug/L	1	0.088			
1,2-DICHLOROBENZENE	U	0.082	ug/L	1	0.082	0.5		
1,3-DICHLOROBENZENE	U	0.071	ug/L	1	0.071			
1,4-DICHLOROBENZENE	U	0.070	ug/L	1	0.07	0.5		
DICHLORODIFLUOROMETHANE	U	0.23	ug/L	1	0.23	0.5		
1,1-DICHLOROETHANE	U	0.13	ug/L	1	0.13	0.5		
1,2-DICHLOROETHANE	U	0.11	ug/L	1	0.11	0.5		
1,1-DICHLOROETHENE	U	0.12	ug/L	1	0.12	0.5		
CIS-1,2-DICHLOROETHENE	U	0.14	ug/L	1	0.14	0.5		
TRANS-1,2-DICHLOROETHENE	U	0.10	ug/L	1	0.1	0.5		
1,2-DICHLOROPROPANE	U	0.070	ug/L	1	0.07	0.5		
1,3-DICHLOROPROPANE	U	0.064	ug/L	1	0.064			
1,1-DICHLOROPROPENE	U	0.14	ug/L	1	0.14			
CIS-1,3-DICHLOROPROPENE	U	0.099	ug/L	1	0.099	0.5		
TRANS-1,3-DICHLOROPROPENE	U	0.070	ug/L	1	0.07	0.5		
DIISOPROPYL ETHER	U	0.072	ug/L	1	0.072			
ETHYL BENZENE	U	0.053	ug/L	1	0.053	0.5		
ETHYL ETHER	U	0.11	ug/L	1	0.11			
ETHYLMETHACRYLATE	U	0.051	ug/L	1	0.051			
ETHYL-T-BUTYL ETHER	U	0.070	ug/L	1	0.07	3		
FLUOROTRICHLOROMETHANE	U	0.065	ug/L	1	0.065	5		
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	U	0.12	ug/L	1	0.12	10		
HEXACHLOROBUTADIENE	U	0.089	ug/L	1	0.089			

RL is either the client requested or regulatory mandated Reporting Limit. ML is the regulatory mandated Minimum Level

EAST BAY MUNICIPAL UTILITY DISTRICT
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Phone (510)287-1432 Fax (510)465-5462

Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: WTP BAYSIDE Bayside GW Project Extraction Wells at 2540 Grant Avenue, San Lorenzo
Locator: BAY WELL HEAD Sample tap at the well, as shown in Drawing No. 2097-C-002
Lab ID: L231964-1 (P240026-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 08 2019, 11:33am Sample collector: C. PAGTAKHAN
Date Received: Oct 08 2019, 01:49pm Sample receiver: ANG
Sample Comments: Annual Bayside Sampling per DDW T22 and WDR; +FLD DATA: pH = 6.85 CL2R = <0.02 mg/L (MDL=0.02 mg/L)

Method Reference — Matrix — Tag

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML
HEXACHLOROETHANE	U	0.18	ug/L	1	0.18	
IODOMETHANE	U	0.58	ug/L	1	0.58	
ISOPROPYLBENZENE	U	0.056	ug/L	1	0.056	
P-ISOPROPYLTOLUENE	U	0.062	ug/L	1	0.062	
METHYLENE CHLORIDE	**E**	**0.44**	ug/L	1	0.092	0.5
METHYL-T-BUTYL ETHER	U	0.067	ug/L	1	0.067	3
NAPHTHALENE	U	0.070	ug/L	1	0.07	
PENTACHLOROETHANE	U	0.38	ug/L	1	0.38	
N-PROPYLBENZENE	U	0.051	ug/L	1	0.051	
STYRENE	U	0.075	ug/L	1	0.075	0.5
1,1,1,2-TETRACHLOROETHANE	U	0.097	ug/L	1	0.097	
1,1,2,2-TETRACHLOROETHANE	U	0.13	ug/L	1	0.13	0.5
TETRACHLOROETHENE	U	0.10	ug/L	1	0.1	0.5
TETRAHYDROFURAN	U	0.37	ug/L	1	0.37	
TOLUENE	U	0.054	ug/L	1	0.054	0.5
1,2,3-TRICHLOROBENZENE	U	0.075	ug/L	1	0.075	
1,2,4-TRICHLOROBENZENE	U	0.096	ug/L	1	0.096	0.5
1,1,1-TRICHLOROETHANE	U	0.11	ug/L	1	0.11	0.5
1,1,2-TRICHLOROETHANE	U	0.079	ug/L	1	0.079	0.5
TRICHLOROETHENE	U	0.12	ug/L	1	0.12	0.5
1,2,4-TRIMETHYLBENZENE	U	0.072	ug/L	1	0.072	
1,3,5-TRIMETHYLBENZENE	U	0.071	ug/L	1	0.071	
VINYL CHLORIDE	U	0.086	ug/L	1	0.086	0.5
O-XYLENE	U	0.079	ug/L	1	0.079	0.5
M+P XYLENES	U	0.14	ug/L	1	0.14	0.5
VALUE(S) USED TO CALCULATE OTHER VALUE(S)						
TOTAL 1,3-DICHLOROPROPENES	U	0.50	ug/L	1		0.5
TOTAL XYLENES	U	0.50	ug/L	1	0.22	0.5
INTERNAL STANDARD						
1,4-DIFLUOROBENZENE		107	% recovery	1		
D4-1,4-DICHLOROBENZENE		83.7	% recovery	1		
D5-CHLOROBENZENE		92.2	% recovery	1		
SURROGATE						
4-BROMOFLUOROBENZENE		99.5	% recovery	1		
D3-METHYL-T-BUTYL-ETHER		87.3	% recovery	1		
D4-1,2-DICHLOROBENZENE		103	% recovery	1		

Run ID: R298716 / Work Group No.: WG232277
Prep Date1: 21-OCT-19 Analyzed 21-Oct-19 13:03

Method: EPA 525.2 - Semivolatile Organics, GC/MS — RawH2O

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML
TARGET ANALYTES						
ACENAPHTHYLENE	U	0.036	ug/L	1	0.036	
ALACHLOR	U	0.021	ug/L	1	0.021	1
ALDRIN	U	0.011	ug/L	1	0.011	
ANTHRACENE	U,N	0.042	ug/L	1	0.042	
ATRAZINE	U	0.026	ug/L	1	0.026	0.5
BENZO(A)ANTHRACENE	U	0.017	ug/L	1	0.017	
BENZO(B)FLUORANTHENE	U	0.014	ug/L	1	0.014	
BENZO(K)FLUORANTHENE	U	0.013	ug/L	1	0.013	
BENZO(A)PYRENE	U,N	0.011	ug/L	1	0.011	0.1
BENZO(GHI)PERYLENE	U	0.016	ug/L	1	0.016	
BIS(2-ETHYLHEXYL)ADIPATE	U	0.029	ug/L	1	0.029	5
BIS(2-ETHYLHEXYL)PHTHALATE	U	0.059	ug/L	1	0.059	3
ALPHA BHC	U	0.012	ug/L	1	0.012	

RL is either the client requested or regulatory mandated Reporting Limit. ML is the regulatory mandated Minimum Level

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
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Locator: BAY WELL HEAD Sample tap at the well, as shown in Drawing No. 2097-C-002
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Date Collected: Oct 08 2019, 11:33am Sample collector: C. PAGTAKHAN
Date Received: Oct 08 2019, 01:49pm Sample receiver: ANG
Sample Comments: Annual Bayside Sampling per DDW T22 and WDR; +FLD DATA: pH = 6.85 CL2R = <0.02 mg/L (MDL=0.02 mg/L)

Method Reference — Matrix — Tag

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML
BETA BHC	U	0.020	ug/L	1	0.02	
DELTA BHC	U	0.012	ug/L	1	0.012	
GAMMA BHC	U	0.017	ug/L	1	0.017	0.2
BROMACIL	U,N	0.018	ug/L	1	0.018	
BUTACHLOR	U	0.026	ug/L	1	0.026	
BUTYLBENZYL PHTHALATE	U	0.026	ug/L	1	0.026	
CHLORDANE	U	0.10	ug/L	1	0.1	0.1
CHLORDANE-ALPHA	U	0.018	ug/L	1	0.018	
CHLORDANE-GAMMA	U	0.018	ug/L	1	0.018	
CHLOROBENZILATE	U	0.047	ug/L	1	0.047	
CHLORONEB	U	0.052	ug/L	1	0.052	
CHLOROTHALONIL	U	0.032	ug/L	1	0.032	
CHRYSENE	U	0.012	ug/L	1	0.012	
DCPA	U	0.028	ug/L	1	0.028	
4,4'-DDD	U	0.022	ug/L	1	0.022	
4,4'-DDE	U	0.025	ug/L	1	0.025	
4,4'-DDT	U	0.023	ug/L	1	0.023	
DIBENZO(A,H)ANTHRACENE	U	0.014	ug/L	1	0.014	
DI-N-BUTYL PHTHALATE	U	0.028	ug/L	1	0.028	
DIELDRIN	U	0.023	ug/L	1	0.023	
DIETHYL PHTHALATE	U	0.014	ug/L	1	0.014	
DIMETHYL PHTHALATE	U	0.010	ug/L	1	0.01	
2,4-DINITROTOLUENE	U	0.025	ug/L	1	0.025	
2,6-DINITROTOLUENE	U	0.019	ug/L	1	0.019	
ALPHA ENDOSULFAN	U	0.012	ug/L	1	0.012	
BETA ENDOSULFAN	U	0.019	ug/L	1	0.019	
ENDOSULFAN SULFATE	U	0.035	ug/L	1	0.035	
ENDRIN	U	0.031	ug/L	1	0.031	0.1
ENDRIN ALDEHYDE	U	0.029	ug/L	1	0.029	
EPTC	U	0.010	ug/L	1	0.01	
ETRIDIAZOLE	U	0.010	ug/L	1	0.01	
FLUORENE	U	0.022	ug/L	1	0.022	
HEPTACHLOR	U	0.0060	ug/L	1	0.006	0.01
HEPTACHLOR EPOXIDE	U	0.0060	ug/L	1	0.006	0.01
HEXACHLOROBENZENE	U	0.018	ug/L	1	0.018	0.5
HEXACHLOROCYCLOPENTADIENE	U	0.019	ug/L	1	0.019	1
HEXAZINONE	U	0.035	ug/L	1	0.035	
INDENO(1,2,3-CD)PYRENE	U	0.013	ug/L	1	0.013	
ISOPHORONE	U	0.011	ug/L	1	0.011	
METHOXYCHLOR	U	0.011	ug/L	1	0.011	10
METOLACHLOR	U	0.023	ug/L	1	0.023	
METRIBUZIN	U	0.025	ug/L	1	0.025	
MOLINATE	U	0.026	ug/L	1	0.026	2
CIS-PERMETHRIN	U	0.047	ug/L	1	0.047	
TRANS-PERMETHRIN	U	0.020	ug/L	1	0.02	
PHENANTHRENE	U	0.015	ug/L	1	0.015	
PROMETRYN	U	0.022	ug/L	1	0.022	
PROPACHLOR	U	0.014	ug/L	1	0.014	
PYRENE	U	0.030	ug/L	1	0.03	
SIMAZINE	U	0.028	ug/L	1	0.028	1
TERBACIL	U	0.032	ug/L	1	0.032	
THIOBENCARB	U	0.018	ug/L	1	0.018	1
TOXAPHENE	U	0.50	ug/L	1	0.5	1
TRIFLURALIN	U	0.010	ug/L	1	0.01	

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: WTP BAYSIDE Bayside GW Project Extraction Wells at 2540 Grant Avenue, San Lorenzo
Locator: BAY WELL HEAD Sample tap at the well, as shown in Drawing No. 2097-C-002
Lab ID: L231964-1 (P240026-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 08 2019, 11:33am Sample collector: C. PAGTAKHAN
Date Received: Oct 08 2019, 01:49pm Sample receiver: ANG
Sample Comments: Annual Bayside Sampling per DDW T22 and WDR; +FLD DATA: pH = 6.85 CL2R = <0.02 mg/L (MDL=0.02 mg/L)

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Tag
Method Reference						Matrix	
INTERNAL STANDARD							
D10-ACENAPHTHENE		78.6	% recovery		1		
D10-PHENANTHRENE		89.7	% recovery		1		
D12-CHRYSENE		79.8	% recovery		1		
SURROGATE							
D12-PERYLENE		70	% recovery		1		
1,3-DIMETHYL-2-NITROBENZENE		99	% recovery		1		
TRIPHENYL PHOSPHATE		120	% recovery		1		
D10-PYRENE		98	% recovery		1		
Run ID: R298788 / Work Group No.: WG232337							
Prep Date1: 17-OCT-19 Prep Date2: 18-OCT-19 Analyzed 18-Oct-19 17:18							
Method: SRL 524M-TCP - SIM for TCP, PT, GC/MS						RawH2O	
TARGET ANALYTES							
1,2,3-TRICHLOROPROPANE	U	0.94	ng/L	1	0.94		
INTERNAL STANDARD							
D5-1,2,3-TRICHLOROPROPANE		95.1	% recovery				
Run ID: R298625 / Work Group No.: WG232258							
Prep Date1: 15-OCT-19 Analyzed 15-Oct-19 19:58							
Method: EPA 300.1 - Ion Chromatography						RawH2O	
Instrument calibrated 07-OCT-19							
TARGET ANALYTES							
FLUORIDE		**0.53**	mg/L	5	0.06	0.1	
CHLORIDE		**15**	mg/L	5	0.28		
NITRITE AS N	U	0.036	mg/L	5	0.036	0.4	
NITRATE AS N	U	0.035	mg/L	5	0.035	0.4	
SULFATE		**34**	mg/L	5	0.38	0.5	
SURROGATE							
DICHLOROACETATE		100	% recovery	5			
Run ID: R298496 / Work Group No.: WG232145							
Prep Date1: 08-OCT-19 Analyzed 08-Oct-19 15:34							
Method: EPA 552.2 - Haloacetic Acids						RawH2O	
TARGET ANALYTES							
BROMOCHLOROACETIC ACID	U	0.15	ug/L	1	0.15		
BROMODICHLOROACETIC ACID	U	0.31	ug/L	1	0.31		
CHLORODIBROMOACETIC ACID	U	0.31	ug/L	1	0.31		
DIBROMOACETIC ACID	U	0.25	ug/L	1	0.25	1	
DICHLOROACETIC ACID	U	0.18	ug/L	1	0.18	1	
MONOBROMOACETIC ACID	U	0.29	ug/L	1	0.29	1	
MONOCHLOROACETIC ACID	U	0.65	ug/L	1	0.65	2	
TRIBROMOACETIC ACID		**0.99**	ug/L	1	0.72		
TRICHLOROACETIC ACID	U	0.17	ug/L	1	0.17	1	
VALUE CALCULATED FROM OTHER RESULTS							
HAA(5)	U	1.0	ug/L				
HAA (5) calculation uses a zero for any individual HAA result less than the California DLR for that HAA							
HAA(9)	U	1.0	ug/L				
INTERNAL STANDARD							
1,2,3-TRICHLOROPROPANE		100	% recovery		1		
SURROGATE							
2,3-DIBROMOPROPIONIC ACID		100	% recovery		1		
Run ID: R298534 / Work Group No.: WG232203							
Prep Date1: Analyzed 10-Oct-19 20:37							

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: WTP BAYSIDE Bayside GW Project Extraction Wells at 2540 Grant Avenue, San Lorenzo
Locator: BAY WELL HEAD Sample tap at the well, as shown in Drawing No. 2097-C-002
Lab ID: L231964-1 (P240026-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 08 2019, 11:33am Sample collector: C. PAGTAKHAN
Date Received: Oct 08 2019, 01:49pm Sample receiver: ANG
Sample Comments: Annual Bayside Sampling per DDW T22 and WDR; +FLD DATA: pH = 6.85 CL2R = <0.02 mg/L (MDL=0.02 mg/L)

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method: SM5310C - 5310 C. Heated-Persulfate Oxidation Method							RawH2O	
TARGET ANALYTES								
TOTAL ORGANIC CARBON		**1.4**	mg/L	1	0.12			
Run ID: R298835 / Work Group No.: WG232459								
Prep Date1: 23-OCT-19 Analyzed 25-Oct-19 15:00								
Method: SM2120B - 2001, Visual Comparison							RawH2O	
TARGET ANALYTES								
COLOR		**3.0**	color unit	1	1			
pH = 6								
Run ID: R298509 / Work Group No.: WG232175								
Prep Date1: 09-OCT-19 Analyzed 09-Oct-19 14:21								
Method: SM2130B - 2011, Nephelometric							RawH2O	
TARGET ANALYTES								
TURBIDITY		**0.29**	NTU	1	0.1			
Run ID: R298503 / Work Group No.: WG232173								
Prep Date1: 09-OCT-19 Analyzed 09-Oct-19 10:32								
Method: SM2320B - 2011, Titration							RawH2O	
TARGET ANALYTES								
ALKALINITY: TOTAL AS CACO3		**95**	mg/L	1	5			
Run ID: R298659 / Work Group No.: WG232331								
Prep Date1: 18-OCT-19 Analyzed 18-Oct-19 09:02								
Method: SM2320B-1997 - Calculation							RawH2O	
TARGET ANALYTES								
ALKALINITY: HYDROXIDE	U	0.10	mg/L	1	0.1			
Run ID: R298661 / Work Group No.: WG232352								
Prep Date1: 18-OCT-19 Analyzed 18-Oct-19 09:54								
Method: SM2320B-1997 - Calculation							RawH2O	
TARGET ANALYTES								
ALKALINITY: BICARBONATE		**95**	mg/L	1	5			
Run ID: R298661 / Work Group No.: WG232352								
Prep Date1: 18-OCT-19 Analyzed 18-Oct-19 09:54								
Method: SM2320B-1997 - Calculation							RawH2O	
TARGET ANALYTES								
ALKALINITY: CARBONATE	U	0.10	mg/L	1	0.1			
Run ID: R298661 / Work Group No.: WG232352								
Prep Date1: 18-OCT-19 Analyzed 18-Oct-19 09:54								
Method: SM2340C - 2011, Titration: EDTA							RawH2O	
TARGET ANALYTES								
HARDNESS: TOTAL AS CACO3		**87**	mg/L	1	3			
Run ID: R298746 / Work Group No.: WG232433								
Prep Date1: 23-OCT-19 Analyzed 23-Oct-19 13:42								

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: WTP BAYSIDE Bayside GW Project Extraction Wells at 2540 Grant Avenue, San Lorenzo
Locator: BAY WELL HEAD Sample tap at the well, as shown in Drawing No. 2097-C-002
Lab ID: L231964-1 (P240026-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 08 2019, 11:33am Sample collector: C. PAGTAKHAN
Date Received: Oct 08 2019, 01:49pm Sample receiver: ANG
Sample Comments: Annual Bayside Sampling per DDW T22 and WDR; +FLD DATA: pH = 6.85 CL2R = <0.02 mg/L (MDL=0.02 mg/L)

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method: SM2510B - 2011, Meter: Platinum Electrode							RawH2O	
TARGET ANALYTES								
CONDUCTIVITY		**303**	umhos/cm	1	0.55			
Run ID: R298548 / Work Group No.: WG232226								
Prep Date1: 11-OCT-19 Analyzed 11-Oct-19 15:31								
Method: SM2540C - 2011, Dried at 180C							RawH2O	
TARGET ANALYTES								
TOTAL DISSOLVED SOLIDS		**190**	mg/L	1	10			
Run ID: R298575 / Work Group No.: WG232208								
Prep Date1: 11-OCT-19 Analyzed 11-Oct-19 08:33								
Method: SM4500-CN C, E - 2011, Distillation & Colorimetric							RawH2O	
TARGET ANALYTES								
CYANIDE: TOTAL	U	0.0016	mg/L	1	0.0016			
Run ID: R298581 / Work Group No.: WG232243								
Prep Date1: 15-OCT-19 Analyzed 15-Oct-19 08:00								
Method: SM4500-NH3 B, C - 2011, Distillation & Titration							GroundH2O	
TARGET ANALYTES								
AMMONIA AS N	U	0.250	mg/L	1	0.25			
Run ID: R298636 / Work Group No.: WG232305								
Prep Date1: 17-OCT-19 Analyzed 17-Oct-19 13:05								
Method: EPA 200.7 - Rev. 4.4, ICP Scan							RawH2O	
TARGET ANALYTES								
ALUMINUM	U	16.3	ug/L	1.04	16.3	50		
CALCIUM		**21,500**	ug/L	1.04	22.6			
COPPER	U	4.16	ug/L	1.04	4.16	50		
IRON		**75.6**	ug/L	1.04	5.41	100		
POTASSIUM		**1,300**	ug/L	1.04	19.9			
MAGNESIUM		**6,650**	ug/L	1.04	5.72			
MANGANESE		**17.0**	ug/L	1.04	0.135	20		
SODIUM		**24,700**	ug/L	1.04	4.26			
ZINC		**3.80**	ug/L	1.04	0.728	50		
Run ID: R298664 / Work Group No.: WG232330								
Prep Date1: 11-OCT-19 Prep Date2: 18-OCT-19 Analyzed 18-Oct-19 13:31								
Method: EPA 200.8 - Rev. 5.4, ICP-MS Scan							RawH2O	
TARGET ANALYTES								
SILVER	U	0.0081	ug/L	1.02	0.0081	10		
ARSENIC		**0.45**	ug/L	1.02	0.23	2		
BARIUM		**40**	ug/L	1.02	0.026	100		
BERYLLIUM	U	0.010	ug/L	1.02	0.01	1		
CADMIUM	U	0.012	ug/L	1.02	0.012	1		
CHROMIUM		**0.17**	ug/L	1.02	0.11	10		
NICKEL		**0.22**	ug/L	1.02	0.025	10		
LEAD	U	0.057	ug/L	1.02	0.057	5		
ANTIMONY	U	0.15	ug/L	1.02	0.15	6		
SELENIUM		**0.87**	ug/L	1.02	0.69	5		
THALLIUM	U	0.010	ug/L	1.02	0.01	1		
INTERNAL STANDARD								
SCANDIUM		102	% response	1.02				

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: WTP BAYSIDE Bayside GW Project Extraction Wells at 2540 Grant Avenue, San Lorenzo
Locator: BAY WELL HEAD Sample tap at the well, as shown in Drawing No. 2097-C-002
Lab ID: L231964-1 (P240026-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 08 2019, 11:33am Sample collector: C. PAGTAKHAN
Date Received: Oct 08 2019, 01:49pm Sample receiver: ANG
Sample Comments: Annual Bayside Sampling per DDW T22 and WDR; +FLD DATA: pH = 6.85 CL2R = <0.02 mg/L (MDL=0.02 mg/L)

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
GERMANIUM		97.2	% response	1.02				
RHODIUM		92.4	% response	1.02				
INDIUM		96.7	% response	1.02				
TERBIUM		98.7	% response	1.02				
Run ID: R298737 / Work Group No.: WG232427								
Prep Date1: 21-OCT-19 Prep Date2: 23-OCT-19 Analyzed 23-Oct-19 09:59								
Method: EPA 245.1 - Cold Vapor AA							RawH2O	
TARGET ANALYTES								
MERCURY	U	0.037	ug/L	1	0.037			
Run ID: R298862 / Work Group No.: WG232518								
Prep Date1: 28-OCT-19 Analyzed 28-Oct-19 09:00								
Method: SM9223B - 22nd Edition, Colilert-18, Quantitray Enumeration							RawH2O	
TARGET ANALYTES								
TOTAL COLIFORMS	<	1.0	MPN/100 mL	1	1			
E. COLI	<	1.0	MPN/100 mL	1	1			
Run ID: R298505 / Work Group No.: WG232161								
Prep Date1: 08-OCT-19 Analyzed 08-Oct-19 16:47								

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: WTP BAYSIDE Bayside GW Project Extraction Wells at 2540 Grant Avenue, San Lorenzo
Locator: BAY WELL HEAD Sample tap at the well, as shown in Drawing No. 2097-C-002
Lab ID: L231964-2 (P240026-2)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 08 2019, 10:25am Sample collector: C. PAGTAKHAN
Date Received: Oct 08 2019, 01:49pm Sample receiver: ANG
Sample Comments: Annual Sampling per DDW T22 and WDR; SUBCONTRACT DATA; 1613 for 2,3,7,8-TCDD only

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method: EPA 100.1: EPA 100.2 - Asbestos by Electron Microscopy							RawH2O	
Subcontract data from Forensic Analytical								
Comment: ND-None Detected								
SUBCONTRACT LAB DATA								
ASBESTOS	<	0.2	MFL	1	0.2	0.2		
Run ID: R298768 / Work Group No.: WG232478								
Prep Date1: 09-OCT-19 Analyzed 23-Oct-19 00:00								
Method: EPA 1613 - DIOXIN 1613A TCDD							RawH2O	
Subcontract data from Frontier Analytical Laboratory								
Comment: ND Analyte Not Detected at Detection Limit Level of 0.597 pg/L.								
SUBCONTRACT LAB DATA								
2,3,7,8-TETRACHLORODIBENZO DIOXIN	**ND**	**0.36**	pg/L	1	0.36	5		
Run ID: R298860 / Work Group No.: WG232566								
Prep Date1: 21-OCT-19 Analyzed 22-Oct-19 08:11								
Method: EPA 218.6 - Hexavalent Chromium by IC							RawH2O	
Subcontract data from Alpha Analytical Lab								
Comment: U - ANALYTE INCLUDED IN ANALYSIS BUT NOT DETECTED AT OR ABOVE MDL								
SUBCONTRACT LAB DATA								
HEXAVALENT CHROMIUM	U	0.2	ug/L	1	0.2	1		
Run ID: R299013 / Work Group No.: WG232726								
Prep Date1: 14-OCT-19 Analyzed 14-Oct-19 23:05								
Method: EPA 314.0 - Ion Chromatography							RawH2O	
Subcontract data from Alpha Analytical Lab								
Comment: U - ANALYTE INCLUDED IN ANALYSIS BUT NOT DETECTED AT OR ABOVE MDL								
SUBCONTRACT LAB DATA								
PERCHLORATE	U	0.9	ug/L	1	0.9	4		
Run ID: R299013 / Work Group No.: WG232726								
Prep Date1: 14-OCT-19 Analyzed 14-Oct-19 17:32								
Method: EPA 504.1 - EDB & DBCP, GC/ECD							RawH2O	
Subcontract data from Alpha Analytical Lab								
Comment: U - ANALYTE INCLUDED IN ANALYSIS BUT NOT DETECTED AT OR ABOVE MDL								
SUBCONTRACT LAB DATA								
DIBROMOCHLOROPROPANE	U	0.001	ug/L	1	0.001	0.01		
ETHYLMETHACRYLATE	U	0.002	ug/L	1	0.002	0.02		
Run ID: R299013 / Work Group No.: WG232726								
Prep Date1: 16-OCT-19 Analyzed 17-Oct-19 06:24								
Method: EPA 508 - PCBS by 508							RawH2O	
Subcontract data from Alpha Analytical Lab								
Comment: U - ANALYTE INCLUDED IN ANALYSIS BUT NOT DETECTED AT OR ABOVE MDL								
SUBCONTRACT LAB DATA								
AROCLOR 1016	U	0.3	ug/L	1	0.3	0.5		
AROCLOR 1221	U	0.3	ug/L	1	0.3	0.5		
AROCLOR 1232	U	0.3	ug/L	1	0.3	0.5		
AROCLOR 1242	U	0.3	ug/L	1	0.3	0.5		
AROCLOR 1248	U	0.3	ug/L	1	0.3	0.5		
AROCLOR 1254	U	0.3	ug/L	1	0.3	0.5		
AROCLOR 1260	U	0.2	ug/L	1	0.2	0.5		
TOTAL PCB'S	U	0.3	ug/L	1	0.3	0.5		

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: WTP BAYSIDE Bayside GW Project Extraction Wells at 2540 Grant Avenue, San Lorenzo
Locator: BAY WELL HEAD Sample tap at the well, as shown in Drawing No. 2097-C-002
Lab ID: L231964-2 (P240026-2)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 08 2019, 10:25am Sample collector: C. PAGTAKHAN
Date Received: Oct 08 2019, 01:49pm Sample receiver: ANG
Sample Comments: Annual Sampling per DDW T22 and WDR; SUBCONTRACT DATA; 1613 for 2,3,7,8-TCDD only

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML
Method Reference						Matrix Tag
Run ID: R299013 / Work Group No.: WG232726						
Prep Date1: 15-OCT-19 Analyzed 22-Oct-19 18:09						
Method: EPA 515.3 - Chlorinated Acids, GC/ECD						RawH2O
Subcontract data from Alpha Analytical Lab						
Comment: U - ANALYTE INCLUDED IN ANALYSIS BUT NOT DETECTED AT OR ABOVE MDL						
SUBCONTRACT LAB DATA						
2,4,5-TRICHLOROPHENOL	U	0.2	ug/L	1	0.2	1
(2,4-DICHLOROPHENOXY)ACETIC ACID	U	1	ug/L	1	1	10
BENTAZON	U	0.2	ug/L	1	0.2	2
DALAPON	U	2	ug/L	1	2	10
DINOSEB	U	0.2	ug/L	1	0.2	2
PENTACHLOROPHENOL	U	0.09	ug/L	1	0.09	0.2
PICLORAM	U	0.1	ug/L	1	0.1	1
Run ID: R299013 / Work Group No.: WG232726						
Prep Date1: 15-OCT-19 Analyzed 16-Oct-19 21:28						
Method: EPA 531.1 - Carbamates, HPLC						RawH2O
Subcontract data from Alpha Analytical Lab						
Comment: U - ANALYTE INCLUDED IN ANALYSIS BUT NOT DETECTED AT OR ABOVE MDL						
SUBCONTRACT LAB DATA						
3-HYDROXYCARBOFURAN	U	0.6	ug/L	1	0.6	3
ALDICARB	U	0.6	ug/L	1	0.6	3
ALDICARB SULFONE	U	0.5	ug/L	1	0.5	4
CARBARYL	U	0.8	ug/L	1	0.8	5
CARBOFURAN	U	0.4	ug/L	1	0.4	5
METHIOCARB	U	0.9	ug/L	1	0.9	5
METHOMYL	U	0.9	ug/L	1	0.9	2
OXAMYL	U	0.9	ug/L	1	0.9	20
PROPOXUR	U	0.9	ug/L	1	0.9	5
Run ID: R299013 / Work Group No.: WG232726						
Prep Date1: 17-OCT-19 Analyzed 22-Oct-19 08:21						
Method: EPA 547 - Glyphosate, HPLC						RawH2O
Subcontract data from Alpha Analytical Lab						
Comment: U - ANALYTE INCLUDED IN ANALYSIS BUT NOT DETECTED AT OR ABOVE MDL						
SUBCONTRACT LAB DATA						
GLYPHOSATE	U	6	ug/L	1	6	25
Run ID: R299013 / Work Group No.: WG232726						
Prep Date1: 16-OCT-19 Analyzed 16-Oct-19 18:34						
Method: EPA 548.1 - Endothall, GC/MS						RawH2O
Subcontract data from Alpha Analytical Lab						
Comment: U - ANALYTE INCLUDED IN ANALYSIS BUT NOT DETECTED AT OR ABOVE MDL						
SUBCONTRACT LAB DATA						
ENDOTHALL	U	20	ug/L	1	20	45
Run ID: R299013 / Work Group No.: WG232726						
Prep Date1: 11-OCT-19 Analyzed 15-Oct-19 02:29						

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EAST BAY MUNICIPAL UTILITY DISTRICT
Laboratory Services Division
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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: WTP BAYSIDE Bayside GW Project Extraction Wells at 2540 Grant Avenue, San Lorenzo
Locator: BAY WELL HEAD Sample tap at the well, as shown in Drawing No. 2097-C-002
Lab ID: L231964-2 (P240026-2)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 08 2019, 10:25am Sample collector: C. PAGTAKHAN
Date Received: Oct 08 2019, 01:49pm Sample receiver: ANG
Sample Comments: Annual Sampling per DDW T22 and WDR; SUBCONTRACT DATA; 1613 for 2,3,7,8-TCDD only

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method: EPA 549.2 - Diquat & Paraquat, HPLC							RawH2O	
Subcontract data from Alpha Analytical Lab								
Comment: U - ANALYTE INCLUDED IN ANALYSIS BUT NOT DETECTED AT OR ABOVE MDL								
SUBCONTRACT LAB DATA								
DIQUAT	U	0.6	ug/L	1	0.6	2		
Run ID: R299013 / Work Group No.: WG232726								
Prep Date1: 15-OCT-19 Analyzed 16-Oct-19 02:12								
Method: EPA 8260B - Trihalomethanes, GC/MS							GroundH2O	
Subcontract data from Alpha Analytical Lab								
Comment: U - ANALYTE INCLUDED IN ANALYSIS BUT NOT DETECTED AT OR ABOVE MDL								
SUBCONTRACT LAB DATA								
BROMODICHLOROMETHANE		**0.67**	ug/L	1	0.4	0.5		
BROMOFORM	U	0.3	ug/L	1	0.3	0.5		
CHLOROFORM		**9.14**	ug/L	1	0.4	0.5		
DIBROMOCHLOROMETHANE	U	0.4	ug/L	1	0.4	0.5		
TRIHALOMETHANES		**9.81**	ug/L	1	0.4	0.5		
Run ID: R299013 / Work Group No.: WG232726								
Prep Date1: 16-OCT-19 Analyzed 16-Oct-19 21:52								
Method: EPA 900.0 - NONE							RawH2O	
Subcontract data from FG Labs - Santa Paula								
Comment: MDL value is the MDA.								
SUBCONTRACT LAB DATA								
RADIONUCLIDES: ALPHA		**3.13**	pCi/L		0.463	3		
RADIONUCLIDES: BETA		**1.33**	pCi/L		0.676	4		
RADIONUCLIDES: ALPHA COUNTING ERROR	**+/-**	**0.68**	pCi/L					
RADIONUCLIDES: BETA COUNTING ERROR	**+/-**	**0.617**	pCi/L					
GROSS ALPHA MDA95		**0.463**	pCi/L					
GROSS BETA MDA95		**0.676**	pCi/L					
Run ID: R299961 / Work Group No.: WG233106								
Prep Date1: 01-NOV-19 Analyzed 12-Nov-19 15:00								
Method: EPA 903.0,903.1, 904.0 - Radium 226 by 903.0 or 903.1 and Radium 228 by 904.0							RawH2O	
Subcontract data from FG Labs - Santa Paula								
Comment: MDL value is the MDA95.								
SUBCONTRACT LAB DATA								
RADIUM 226		**0**	pCi/L		0.418	1		
RADIUM 226 COUNTING ERROR	**+/-**	**0.071**	pCi/L					
RADIUM 226 MDA95		**0.418**	pCi/L					
Run ID: R299961 / Work Group No.: WG233106								
Prep Date1: 13-OCT-19 Analyzed 22-Oct-19 16:18								
Method: EPA 903.0,903.1, 904.0 - Radium 226 by 903.0 or 903.1 and Radium 228 by 904.0							RawH2O	1
Subcontract data from FG Labs - Santa Paula								
Comment: MDL value is the MDA95.								
SUBCONTRACT LAB DATA								
RADIUM 228		**0.216**	pCi/L		0.41	1		
RADIUM 228 COUNTING ERROR	**+/-**	**0.856**	pCi/L					
RADIUM 228 MDA95		**0.41**	pCi/L					
Run ID: R299961 / Work Group No.: WG233106								
Prep Date1: 03-NOV-19 Analyzed 09-Nov-19 17:10								

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: WTP BAYSIDE Bayside GW Project Extraction Wells at 2540 Grant Avenue, San Lorenzo
Locator: BAY WELL HEAD Sample tap at the well, as shown in Drawing No. 2097-C-002
Lab ID: L231964-2 (P240026-2)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 08 2019, 10:25am Sample collector: C. PAGTAKHAN
Date Received: Oct 08 2019, 01:49pm Sample receiver: ANG
Sample Comments: Annual Sampling per DDW T22 and WDR; SUBCONTRACT DATA; 1613 for 2,3,7,8-TCDD only

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method: EPA 905.0 -							RawH2O	
Subcontract data from FG Labs - Santa Paula								
Comment: MDL value is the MDA.								
SUBCONTRACT LAB DATA								
STRONTIUM 90		**0**	pCi/L		0.546	2		
STRONTIUM 90 COUNTING ERROR	+/-	**0.284**	pCi/L					
STRONTIUM 90 MDA95		**0.546**	pCi/L					
Run ID: R299961 / Work Group No.: WG233106								
Prep Date1: 14-OCT-19 Analyzed 23-Oct-19 11:00								
Method: EPA 906.0 -							RawH2O	
Subcontract data from FG Labs - Santa Paula								
Comment: MDL value is the MDA.								
SUBCONTRACT LAB DATA								
TRITIUM		**190**	pCi/L		434	1000		
TRITIUM COUNTING ERROR	+/-	**274**	pCi/L					
TRITIUM MDA95		**434**	pCi/L					
Run ID: R299961 / Work Group No.: WG233106								
Prep Date1: 22-OCT-19 Analyzed 23-Oct-19 20:10								
Method: EPA 908.0 -							RawH2O	
Subcontract data from FG Labs - Santa Paula								
Comment: MDL value is the MDA.								
SUBCONTRACT LAB DATA								
URANIUM		**3.01**	pCi/L		0.391	1		
URANIUM COUNTING ERROR	+/-	**1.23**	pCi/L					
URANIUM MDA95		**0.391**	pCi/L					
Run ID: R299961 / Work Group No.: WG233106								
Prep Date1: 11-NOV-19 Analyzed 15-Nov-19 13:21								
Method: EPA 913.0 - RADON: EPA 913.0							RawH2O	
Subcontract data from FG Labs - Santa Paula								
Comment: MDL value is the MDA.								
SUBCONTRACT LAB DATA								
RADON 222		**246**	pCi/L		18.2			
RADON 222 COUNTING ERROR	+/-	**27.1**	pCi/L					
RADON 222 MDA95	+/-	**18.2**	pCi/L					
Run ID: R299961 / Work Group No.: WG233106								
Prep Date1: 11-OCT-19 Analyzed 11-Oct-19 19:35								
Method: PER SUBCONTRACT LABORATORY REPORT - Subcontract data transmittal							RawH2O	
Subcontract data								
Comment: Original report transmitted to client. Copy of report archived with data packet.								
SUBCONTRACT LAB DATA								
DATA TRANSMITTAL								
Run ID: R299953 / Work Group No.: WG233105								
Prep Date1: 26-NOV-19 Analyzed 26-Nov-19 00:00								

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: WTP BAYSIDE Bayside GW Project Extraction Wells at 2540 Grant Avenue, San Lorenzo
Locator: BAY WELL HEAD Sample tap at the well, as shown in Drawing No. 2097-C-002
Lab ID: L231964-2 (P240026-2)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 08 2019, 10:25am Sample collector: C. PAGTAKHAN
Date Received: Oct 08 2019, 01:49pm Sample receiver: ANG
Sample Comments: Annual Sampling per DDW T22 and WDR; SUBCONTRACT DATA; 1613 for 2,3,7,8-TCDD only

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method Reference							RawH2O	
Method: SM2150B - 1997, Ambient Temperature, one panelist								

Subcontract data from Caltest Analytical

Comment: ND – indicates analytical result has not been detected above the Reporting Limit (RL). Per client request, the sample was tested at ambient conditions (19.0 degrees C) and was not dechlorinated.

SUBCONTRACT LAB DATA

THRESHOLD ODOR NUMBER	**ND**	**1**	TON	1	1	1	
NO ODOR OBSERVED		**1**	Panelists				
NUMBER ANALYZING SAMPLE		**1**	Panelists				
TEMPERATURE		**19**	deg C				

Run ID: R298593 / Work Group No.: WG232288
Prep Date1: 08-OCT-19 Analyzed 08-Oct-19 15:52

Method: SM5540C - 2000, Colorimetric							RawH2O

Subcontract data from Alpha Analytical Lab

Comment: U - ANALYTE INCLUDED IN ANALYSIS BUT NOT DETECTED AT OR ABOVE MDL

SUBCONTRACT LAB DATA

MBAS	U	0.03	mg/L	1	0.03	0.05	

Run ID: R299013 / Work Group No.: WG232726
Prep Date1: 10-OCT-19 Analyzed 10-Oct-19 16:15

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: FIELD QC Sample collection QC
Locator: COLLECTION QC Field QC Sample submitted for analysis
Lab ID: L231964-3 (P240026-3)
Sample Type: QCFB (Field Blank Grab)
Date Collected: Oct 08 2019, 11:38am Sample collector: C. PAGTAKHAN
Date Received: Oct 08 2019, 01:49pm Sample receiver: ANG
Sample Comments: QCFB for L231964-1; Prep'd on 7/8/2019 by VOA Chemist

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix / Tag
Method: EPA 524.4 - Volatile Organics, GC/MS							DrinkH2O
TARGET ANALYTES							
ALLYL CHLORIDE	U	0.36	ug/L	1	0.36		
TERT-AMYL METHYL ETHER	U	0.23	ug/L	1	0.23	3	
BENZENE	U	0.054	ug/L	1	0.054	0.5	
BROMOBENZENE	U	0.11	ug/L	1	0.11		
BROMOCHLOROMETHANE	U	0.15	ug/L	1	0.15		
BROMODICHLOROMETHANE	U	0.090	ug/L	1	0.09		
BROMOFORM	U	0.096	ug/L	1	0.096		
BROMOMETHANE	**E**	**1.2**	ug/L	1	0.72		
TERT-BUTYL ALCOHOL	U	0.57	ug/L	1	0.57	2	
N-BUTYLBENZENE	U	0.076	ug/L	1	0.076		
SEC-BUTYLBENZENE	U	0.069	ug/L	1	0.069		
TERT-BUTYLBENZENE	U	0.15	ug/L	1	0.15		
CARBON DISULFIDE	U	0.072	ug/L	1	0.072		
CARBON TETRACHLORIDE	U	0.14	ug/L	1	0.14	0.5	
CHLOROBENZENE	U	0.085	ug/L	1	0.085	0.5	
1-CHLOROBUTANE	U	0.076	ug/L	1	0.076		
CHLOROFORM	U	0.11	ug/L	1	0.11		
CHLOROMETHANE	U	0.30	ug/L	1	0.3		
O-CHLOROTOLUENE	U	0.17	ug/L	1	0.17		
P-CHLOROTOLUENE	U	0.15	ug/L	1	0.15		
DIBROMOCHLOROMETHANE	U	0.065	ug/L	1	0.065		
DIBROMOMETHANE	U	0.088	ug/L	1	0.088		
1,2-DICHLOROBENZENE	U	0.082	ug/L	1	0.082	0.5	
1,3-DICHLOROBENZENE	U	0.071	ug/L	1	0.071		
1,4-DICHLOROBENZENE	U	0.070	ug/L	1	0.07	0.5	
DICHLORODIFLUOROMETHANE	U	0.23	ug/L	1	0.23	0.5	
1,1-DICHLOROETHANE	U	0.13	ug/L	1	0.13	0.5	
1,2-DICHLOROETHANE	U	0.11	ug/L	1	0.11	0.5	
1,1-DICHLOROETHENE	U	0.12	ug/L	1	0.12	0.5	
CIS-1,2-DICHLOROETHENE	U	0.14	ug/L	1	0.14	0.5	
TRANS-1,2-DICHLOROETHENE	U	0.10	ug/L	1	0.1	0.5	
1,2-DICHLOROPROPANE	U	0.070	ug/L	1	0.07	0.5	
1,3-DICHLOROPROPANE	U	0.064	ug/L	1	0.064		
1,1-DICHLOROPROPENE	U	0.14	ug/L	1	0.14		
CIS-1,3-DICHLOROPROPENE	U	0.099	ug/L	1	0.099	0.5	
TRANS-1,3-DICHLOROPROPENE	U	0.070	ug/L	1	0.07	0.5	
DIISOPROPYL ETHER	U	0.072	ug/L	1	0.072		
ETHYL BENZENE	U	0.053	ug/L	1	0.053	0.5	
ETHYL ETHER	U	0.11	ug/L	1	0.11		
ETHYLMETHACRYLATE	U	0.051	ug/L	1	0.051		
ETHYL-T-BUTYL ETHER	U	0.070	ug/L	1	0.07	3	
FLUOROTRICHLOROMETHANE	U	0.065	ug/L	1	0.065	5	
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	U	0.12	ug/L	1	0.12	10	
HEXACHLOROBUTADIENE	U	0.089	ug/L	1	0.089		
HEXACHLOROETHANE	U	0.18	ug/L	1	0.18		
IODOMETHANE	**E**	**0.78**	ug/L	1	0.58		
ISOPROPYLBENZENE	U	0.056	ug/L	1	0.056		
P-ISOPROPYLTOLUENE	U	0.062	ug/L	1	0.062		
METHYLENE CHLORIDE	U	0.092	ug/L	1	0.092	0.5	
METHYL-T-BUTYL ETHER	U	0.067	ug/L	1	0.067	3	
NAPHTHALENE	U	0.070	ug/L	1	0.07		
PENTACHLOROETHANE	U	0.38	ug/L	1	0.38		

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: FIELD QC Sample collection QC
Locator: COLLECTION QC Field QC Sample submitted for analysis
Lab ID: L231964-3 (P240026-3)
Sample Type: QCFB (Field Blank Grab)
Date Collected: Oct 08 2019, 11:38am Sample collector: C. PAGTAKHAN
Date Received: Oct 08 2019, 01:49pm Sample receiver: ANG
Sample Comments: QCFB for L231964-1; Prep'd on 7/8/2019 by VOA Chemist

Method Reference — Matrix — Tag

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML
N-PROPYLBENZENE	U	0.051	ug/L	1	0.051	
STYRENE	U	0.075	ug/L	1	0.075	0.5
1,1,1,2-TETRACHLOROETHANE	U	0.097	ug/L	1	0.097	
1,1,2,2-TETRACHLOROETHANE	U	0.13	ug/L	1	0.13	0.5
TETRACHLOROETHENE	U	0.10	ug/L	1	0.1	0.5
TETRAHYDROFURAN	U	0.37	ug/L	1	0.37	
TOLUENE	U	0.054	ug/L	1	0.054	0.5
1,2,3-TRICHLOROBENZENE	U	0.075	ug/L	1	0.075	
1,2,4-TRICHLOROBENZENE	U	0.096	ug/L	1	0.096	0.5
1,1,1-TRICHLOROETHANE	U	0.11	ug/L	1	0.11	0.5
1,1,2-TRICHLOROETHANE	U	0.079	ug/L	1	0.079	0.5
TRICHLOROETHENE	U	0.12	ug/L	1	0.12	0.5
1,2,4-TRIMETHYLBENZENE	U	0.072	ug/L	1	0.072	
1,3,5-TRIMETHYLBENZENE	U	0.071	ug/L	1	0.071	
VINYL CHLORIDE	U	0.086	ug/L	1	0.086	0.5
O-XYLENE	U	0.079	ug/L	1	0.079	0.5
M+P XYLENES	U	0.14	ug/L	1	0.14	0.5
VALUE(S) USED TO CALCULATE OTHER VALUE(S)						
TOTAL 1,3-DICHLOROPROPENES	U	0.50	ug/L	1		0.5
TOTAL XYLENES	U	0.50	ug/L	1	0.22	0.5
INTERNAL STANDARD						
1,4-DIFLUOROBENZENE		92.8	% recovery	1		
D4-1,4-DICHLOROBENZENE		95.4	% recovery	1		
D5-CHLOROBENZENE		91.8	% recovery	1		
SURROGATE						
4-BROMOFLUOROBENZENE		102	% recovery	1		
D3-METHYL-T-BUTYL-ETHER		101	% recovery	1		
D4-1,2-DICHLOROBENZENE		105	% recovery	1		

Run ID: R298716 / Work Group No.: WG232277
Prep Date1: 21-OCT-19 Analyzed 21-Oct-19 12:17

Method: SRL 524M-TCP - SIM for TCP, PT, GC/MS — DrinkH2O

TARGET ANALYTES						
1,2,3-TRICHLOROPROPANE	U	0.94	ng/L	1	0.94	
INTERNAL STANDARD						
D5-1,2,3-TRICHLOROPROPANE		96.3	% recovery			

Run ID: R298625 / Work Group No.: WG232258
Prep Date1: 15-OCT-19 Analyzed 15-Oct-19 19:32

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: FIELD QC Sample collection QC
Locator: COLLECTION QC Field QC Sample submitted for analysis
Lab ID: L231964-4 (P240026-4)
Sample Type: QCTB (Trip Blank Grab)
Date Collected: Oct 08 2019, 11:35am Sample collector: C. PAGTAKHAN
Date Received: Oct 08 2019, 01:49pm Sample receiver: ANG
Sample Comments: QCTB for L231964-2; DO NOT OPEN.

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	Matrix / RL/ML	Tag
Method: EPA 504.1 - EDB & DBCP, GC/ECD						RawH2O	
Subcontract data from Alpha Analytical Lab							
Comment: U - ANALYTE INCLUDED IN ANALYSIS BUT NOT DETECTED AT OR ABOVE MDL							
SUBCONTRACT LAB DATA							
DIBROMOCHLOROPROPANE	U	0.001	ug/L	1	0.001	0.01	
ETHYLMETHACRYLATE	U	0.002	ug/L	1	0.002	0.02	
Run ID: R299013 / Work Group No.: WG232726							
Prep Date1: 16-OCT-19 Analyzed 17-Oct-19 07:00							

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Analytical Report Prepared for DAVID BEHNKEN

Report generated on: Dec 18, 2019 02:28 pm
Login No.: L232237

Reported by:

KRISTI LORENSON
Laboratory Program Manager

Approved by:

JULIA HALSNE
Laboratory Services Division Manager

LSR B455-0706-1
Project Title: BAYSIDE GROUND WATER PROJECT

Login Performance Summary
1 - Sample received by the lab on: Oct 22 2019, 12:07 pm
0 - Lost Analyses
0 - Hold Time Exceedences
Turn-around-time not met

Samples included in this report:

Sample	Type Collected	Site	Locator	ClientID
L232237-1	GRAB 22-Oct-2019 10:14	GW BAYSIDE	BAY1-MW2S	MW2S

Legend to the laboratory qualifiers used in this report:
E - Estimated value, concentration outside calibration range. For SIP, E=DNQ, Estimated Concentration.
U - Analyte not detected
Qualifiers for subcontract work - See textvalue for description

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW2S OW-1 the same parcel as the Bayside Well on Oro Loma Property; formerly BAY1-MW2-60
ClientID: MW2S
Lab ID: L232237-1 (P240112-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 22 2019, 10:14am Sample collector: D. Williams
Date Received: Oct 22 2019, 12:07pm Sample receiver: ANG
Sample Comments: MW-2S; +FLD DATA: pH = 6.72 ; Cl2R = 0.4 mg/L; Depth to GW = 8.24 feet; GW Elevation = N/A feet; Temp = 19.2 deg C; Labelled as RAW WATER for the program. [Analyst Note: May need to dilute for ICP & IC due to salt water intrusion]

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method Reference								
Method: EPA 8260B - Trihalomethanes, GC/MS							GroundH2O	
Subcontract data from Alpha Analytical Lab								
Comment: U - ANALYTE INCLUDED IN ANALYSIS BUT NOT DETECTED AT OR ABOVE MDL								
SUBCONTRACT LAB DATA								
BROMODICHLOROMETHANE	U	0.4	ug/L	1	0.4	0.5		
BROMOFORM	U	0.3	ug/L	1	0.3	0.5		
CHLOROFORM	U	0.4	ug/L	1	0.4	0.5		
DIBROMOCHLOROMETHANE	U	0.4	ug/L	1	0.4	0.5		
TRIHALOMETHANES	U	0.4	ug/L	1	0.4	0.5		
Run ID: R299360 / Work Group No.: WG232803								
Prep Date1: 02-NOV-19 Analyzed 02-Nov-19 13:10								
Method: PER SUBCONTRACT LABORATORY REPORT - Subcontract data transmittal for oxygen 18							GroundH2O	
Subcontract data from Alpha Analytical Lab								
Comment: Refer to sublab data report attached								
SUBCONTRACT LAB DATA								
DATA TRANSMITTAL								
Run ID: R300334 / Work Group No.: WG233347								
Prep Date1: 22-NOV-19 Analyzed 22-Nov-19 00:00								
Method: PER SUBCONTRACT LABORATORY REPORT - Subcontract data transmittal							GroundH2O	
Subcontract data								
Comment: Original report transmitted to client. Copy of report archived with data packet.								
SUBCONTRACT LAB DATA								
DATA TRANSMITTAL								
Run ID: R300326 / Work Group No.: WG232801								
Prep Date1: 10-DEC-19 Analyzed 10-Dec-19 00:00								
Method: SAMPLER PROVIDED FIELD MEASUREMENTS - DATA ENTRY LIST FOR FIELD DATA							GroundH2O	
FIELD ANALYSIS/OBSERVATION DATA PARAMETERS								
PH		**6.72**	pH units	1				
TEMPERATURE		**19.2**	deg C	1				
DEPTH		**8.24**	feet	1				
CHLORINE RESIDUAL: TOTAL		**0.4**	mg/L	1	0.08			
Run ID: R298756 / Work Group No.: WG232464								
Prep Date1: 22-OCT-19 Analyzed 22-Oct-19 10:14								
Method: EPA 300.1 - Ion Chromatography							GroundH2O	1
Instrument calibrated 31-OCT-19								
TARGET ANALYTES								
SULFATE		**5,500**	mg/L	1000	76	0.5		
SURROGATE								
DICHLOROACETATE		97	% recovery	1000				
Run ID: R298934 / Work Group No.: WG232615								
Prep Date1: 31-OCT-19 Analyzed 01-Nov-19 09:16								

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW2S OW-1 the same parcel as the Bayside Well on Oro Loma Property; formerly BAY1-MW2-60
ClientID: MW2S
Lab ID: L232237-1 (P240112-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 22 2019, 10:14am Sample collector: D. Williams
Date Received: Oct 22 2019, 12:07pm Sample receiver: ANG
Sample Comments: MW-2S; +FLD DATA: pH = 6.72 ; Cl2R = 0.4 mg/L; Depth to GW = 8.24 feet; GW Elevation = N/A feet; Temp = 19.2 deg C; Labelled as RAW WATER for the program. [Analyst Note: May need to dilute for ICP & IC due to salt water intrusion]

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method: EPA 300.1 - Ion Chromatography							GroundH2O	
Instrument calibrated 07-OCT-19								
TARGET ANALYTES								
CHLORIDE		**42,000**	mg/L	5000	280			
NITRATE AS N	U	35	mg/L	5000	35	0.4		
SURROGATE								
DICHLOROACETATE		100	% recovery	5000				
Run ID: R298846 / Work Group No.: WG232406								
Prep Date1: 22-OCT-19 Analyzed 23-Oct-19 22:30								
Method: EPA 552.2 - Haloacetic Acids							GroundH2O	1
TARGET ANALYTES								
TRIBROMOACETIC ACID	U	0.72	ug/L	1	0.72			
INTERNAL STANDARD								
1,2,3-TRICHLOROPROPANE		100	% recovery		1			
SURROGATE								
2,3-DIBROMOPROPIONIC ACID		110	% recovery		1			
Run ID: R298943 / Work Group No.: WG232570								
Prep Date1: Analyzed 01-Nov-19 09:27								
Method: EPA 552.2 - Haloacetic Acids							GroundH2O	
TARGET ANALYTES								
BROMOCHLOROACETIC ACID	U	0.15	ug/L	1	0.15			
BROMODICHLOROACETIC ACID	**E**	**0.36**	ug/L	1	0.31			
CHLORODIBROMOACETIC ACID	U	0.31	ug/L	1	0.31			
DIBROMOACETIC ACID	U	0.25	ug/L	1	0.25	1		
DICHLOROACETIC ACID	U	0.18	ug/L	1	0.18	1		
MONOBROMOACETIC ACID	U	0.29	ug/L	1	0.29	1		
MONOCHLOROACETIC ACID	U	0.65	ug/L	1	0.65	2		
TRICHLOROACETIC ACID	U	0.17	ug/L	1	0.17	1		
VALUE CALCULATED FROM OTHER RESULTS								
HAA(5)	U	1.0	ug/L					
HAA (5) calculation uses a zero for any individual HAA result less than the California DLR for that HAA								
HAA(9)	U	1.0	ug/L					
INTERNAL STANDARD								
1,2,3-TRICHLOROPROPANE		98	% recovery		1			
SURROGATE								
2,3-DIBROMOPROPIONIC ACID		98	% recovery		1			
Run ID: R298943 / Work Group No.: WG232570								
Prep Date1: Analyzed 30-Oct-19 13:32								
Method: SM2320B - 2011, Titration							GroundH2O	
TARGET ANALYTES								
ALKALINITY: TOTAL AS CACO3		**400**	mg/L	1	5			
Run ID: R298795 / Work Group No.: WG232483								
Prep Date1: 25-OCT-19 Analyzed 25-Oct-19 08:14								

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW2S OW-1 the same parcel as the Bayside Well on Oro Loma Property; formerly BAY1-MW2-60
ClientID: MW2S
Lab ID: L232237-1 (P240112-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 22 2019, 10:14am Sample collector: D. Williams
Date Received: Oct 22 2019, 12:07pm Sample receiver: ANG
Sample Comments: MW-2S; +FLD DATA: pH = 6.72 ; Cl2R = 0.4 mg/L; Depth to GW = 8.24 feet; GW Elevation = N/A feet; Temp = 19.2 deg C; Labelled as RAW WATER for the program. [Analyst Note: May need to dilute for ICP & IC due to salt water intrusion]

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method Reference								
Method: SM2320B-1997 - Calculation							GroundH2O	
TARGET ANALYTES								
ALKALINITY: BICARBONATE		**400**	mg/L	1	5			
Run ID: R298798 / Work Group No.: WG232497								
Prep Date1: 25-OCT-19 Analyzed 25-Oct-19 08:14								
Method: SM2320B-1997 - Calculation							GroundH2O	
TARGET ANALYTES								
ALKALINITY: HYDROXIDE	U	0.10	mg/L	1	0.1			
Run ID: R298798 / Work Group No.: WG232497								
Prep Date1: 25-OCT-19 Analyzed 25-Oct-19 08:14								
Method: SM2320B-1997 - Calculation							GroundH2O	
TARGET ANALYTES								
ALKALINITY: CARBONATE	U	0.10	mg/L	1	0.1			
Run ID: R298798 / Work Group No.: WG232497								
Prep Date1: 25-OCT-19 Analyzed 25-Oct-19 08:14								
Method: SM2340C - 2011, Titration: EDTA							GroundH2O	
TARGET ANALYTES								
HARDNESS: TOTAL AS CACO3		**16,000**	mg/L	50	150			
Run ID: R299618 / Work Group No.: WG232837								
Prep Date1: 13-NOV-19 Analyzed 13-Nov-19 15:40								
Method: SM2540C - 2011, Dried at 180C							GroundH2O	
TARGET ANALYTES								
TOTAL DISSOLVED SOLIDS		**82,000**	mg/L	33.3	330			
Run ID: R298907 / Work Group No.: WG232482								
Prep Date1: 29-OCT-19 Analyzed 29-Oct-19 07:55								
Method: SM4500-NH3 B, C - 2011, Distillation & Titration							GroundH2O	
TARGET ANALYTES								
AMMONIA AS N		**0.760**	mg/L	1	0.25			
Run ID: R298767 / Work Group No.: WG232460								
Prep Date1: 24-OCT-19 Analyzed 24-Oct-19 12:15								
Method: EPA 200.7 - Rev. 4.4, ICP Scan							RawH2O	2
TARGET ANALYTES								
IRON	U	54.1	ug/L	10.4	54.1	100		
POTASSIUM		**405,000**	ug/L	10.4	199			
MANGANESE		**37,400**	ug/L	10.4	1.35	20		
Run ID: R298885 / Work Group No.: WG232556								
Prep Date1: 23-OCT-19 Prep Date2: 30-OCT-19 Analyzed 30-Oct-19 11:15								
Method: EPA 200.7 - Rev. 4.4, ICP Scan							RawH2O	1
TARGET ANALYTES								
CALCIUM		**1.24E+06**	ug/L	104	2260			
MAGNESIUM		**2.87E+06**	ug/L	104	572			

Results with 6 figures or more are expressed in scientific notation.
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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW2S OW-1 the same parcel as the Bayside Well on Oro Loma Property; formerly BAY1-MW2-60
ClientID: MW2S
Lab ID: L232237-1 (P240112-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 22 2019, 10:14am Sample collector: D. Williams
Date Received: Oct 22 2019, 12:07pm Sample receiver: ANG
Sample Comments: MW-2S; +FLD DATA: pH = 6.72 ; Cl2R = 0.4 mg/L; Depth to GW = 8.24 feet;
GW Elevation = N/A feet; Temp = 19.2 deg C; Labelled as RAW WATER for the
program. [Analyst Note: May need to dilute for ICP & IC due to salt water
intrusion]

Method Reference						Matrix	Tag
Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	
Run ID: R298885 / Work Group No.: WG232556							
Prep Date1: 23-OCT-19 Prep Date2: 30-OCT-19 Analyzed 30-Oct-19 10:41							
Method: EPA 200.7 - Rev. 4.4, ICP Scan						RawH2O	
TARGET ANALYTES							
SODIUM		**2.07E+07**	ug/L	1040	4260		
Run ID: R298885 / Work Group No.: WG232556							
Prep Date1: 23-OCT-19 Prep Date2: 30-OCT-19 Analyzed 30-Oct-19 10:13							

Results with 6 figures or more are expressed in scientific notation.
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Analytical Report Prepared for DAVID BEHNKEN

Report generated on: Nov 25, 2019 02:01 pm
Login No.: L232027

Reported by:

KRISTI LORENSON
Laboratory Program Manager

Approved by:

JULIA HALSNE
Laboratory Services Division Manager

LSR B455-0706-1
Project Title: BAYSIDE GROUND WATER PROJECT

Login Performance Summary
1 - Sample received by the lab on: Oct 10 2019, 10:39 am
0 - Lost Analyses
0 - Hold Time Exceedences
Turn-around-time not met

Samples included in this report:

Sample	Type	Collected	Site	Locator	ClientID
L232027-1	GRAB	09-Oct-2019 15:08	GW BAYSIDE	BAY1-MW2I	MW2I

Legend to the laboratory qualifiers used in this report:
U - Analyte not detected
Qualifiers for subcontract work - See textvalue for description

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Phone (510)287-1432 Fax (510)465-5462

Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW2I OW-1 the same parcel as the Bayside Well on Oro Loma Property; aka BAY1-MW2D until 11-2009; formerly BAY1-MW2-190
ClientID: MW2I
Lab ID: L232027-1 (P240111-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 09 2019, 03:08pm Sample collector: J. Roberts
Date Received: Oct 10 2019, 10:39am Sample receiver: ANG
Sample Comments: MW-2I; +FLD DATA: pH = 7.67 ; Cl2R = 0.2 mg/L; Depth to GW = 14.92 feet; GW Elevation = N/A feet; Temp = 19.9 deg C;Labelled as RAW WATER for the program.

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML
Method Reference						Matrix: GroundH2O, Tag:
Method: EPA 8260B - Trihalomethanes, GC/MS						GroundH2O
Subcontract data from Alpha Analytical Lab						
Comment: U - ANALYTE INCLUDED IN ANALYSIS BUT NOT DETECTED AT OR ABOVE MDL						
SUBCONTRACT LAB DATA						
BROMODICHLOROMETHANE	U	0.4	ug/L	1	0.4	0.5
BROMOFORM	U	0.3	ug/L	1	0.3	0.5
CHLOROFORM	U	0.4	ug/L	1	0.4	0.5
DIBROMOCHLOROMETHANE	U	0.4	ug/L	1	0.4	0.5
TRIHALOMETHANES	U	0.4	ug/L	1	0.4	0.5
Run ID: R298815 / Work Group No.: WG232519						
Prep Date1: 22-OCT-19 Analyzed 22-Oct-19 10:40						
Method: PER SUBCONTRACT LABORATORY REPORT - Subcontract data transmittal						GroundH2O
Subcontract data						
Comment: Original report transmitted to client. Copy of report archived with data packet.						
SUBCONTRACT LAB DATA						
DATA TRANSMITTAL						
Run ID: R299777 / Work Group No.: WG232918						
Prep Date1: 18-NOV-19 Analyzed 18-Nov-19 00:00						
Method: PER SUBCONTRACT LABORATORY REPORT - Subcontract data transmittal for oxygen 18						GroundH2O
Subcontract data from Alpha Analytical Lab						
Comment: Refer to sublab data report attached						
SUBCONTRACT LAB DATA						
DATA TRANSMITTAL						
Run ID: R299781 / Work Group No.: WG232926						
Prep Date1: 08-NOV-19 Analyzed 08-Nov-19 00:00						
Method: SAMPLER PROVIDED FIELD MEASUREMENTS - DATA ENTRY LIST FOR FIELD DATA						GroundH2O
FIELD ANALYSIS/OBSERVATION DATA PARAMETERS						
PH		**7.67**	pH units	1		
TEMPERATURE		**19.9**	deg C	1		
DEPTH		**14.92**	feet	1		
CHLORINE RESIDUAL: TOTAL		**0.2**	mg/L	1	0.08	
Run ID: R298540 / Work Group No.: WG232218						
Prep Date1: 09-OCT-19 Analyzed 09-Oct-19 15:08						
Method: EPA 300.1 - Ion Chromatography						GroundH2O 1
Instrument calibrated 07-OCT-19						
TARGET ANALYTES						
CHLORIDE		**150**	mg/L	20	1.1	
SURROGATE						
DICHLOROACETATE		99	% recovery	20		
Run ID: R298530 / Work Group No.: WG232191						
Prep Date1: 10-OCT-19 Analyzed 10-Oct-19 16:57						

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW2I OW-1 the same parcel as the Bayside Well on Oro Loma Property; aka BAY1-MW2D until 11-2009; formerly BAY1-MW2-190
ClientID: MW2I
Lab ID: L232027-1 (P240111-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 09 2019, 03:08pm Sample collector: J. Roberts
Date Received: Oct 10 2019, 10:39am Sample receiver: ANG
Sample Comments: MW-2I; +FLD DATA: pH = 7.67 ; Cl2R = 0.2 mg/L; Depth to GW = 14.92 feet; GW Elevation = N/A feet; Temp = 19.9 deg C;Labelled as RAW WATER for the program.

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method Reference								
Method: EPA 300.1 - Ion Chromatography							GroundH2O	
Instrument calibrated 07-OCT-19								
TARGET ANALYTES								
NITRATE AS N	U	0.070	mg/L	10	0.07	0.4		
SULFATE		**12**	mg/L	10	0.76	0.5		
SURROGATE								
DICHLOROACETATE		99	% recovery	10				
Run ID: R298530 / Work Group No.: WG232191								
Prep Date1: 10-OCT-19 Analyzed 10-Oct-19 15:07								
Method: EPA 552.2 - Haloacetic Acids							GroundH2O	
TARGET ANALYTES								
BROMOCHLOROACETIC ACID	U	0.15	ug/L	1	0.15			
BROMODICHLOROACETIC ACID	U	0.57	ug/L	1	0.31			
CHLORODIBROMOACETIC ACID	U	0.31	ug/L	1	0.31			
DIBROMOACETIC ACID	U	0.25	ug/L	1	0.25	1		
DICHLOROACETIC ACID	U	0.18	ug/L	1	0.18	1		
MONOBROMOACETIC ACID	U	0.29	ug/L	1	0.29	1		
MONOCHLOROACETIC ACID	U	0.65	ug/L	1	0.65	2		
TRICHLOROACETIC ACID	U	0.17	ug/L	1	0.17	1		
VALUE CALCULATED FROM OTHER RESULTS								
HAA(5)	U	1.0	ug/L					
HAA (5) calculation uses a zero for any individual HAA result less than the California DLR for that HAA								
HAA(9)	U	1.0	ug/L					
INTERNAL STANDARD								
1,2,3-TRICHLOROPROPANE		100	% recovery		1			
SURROGATE								
2,3-DIBROMOPROPIONIC ACID		94	% recovery		1			
Run ID: R298639 / Work Group No.: WG232268								
Prep Date1: Analyzed 16-Oct-19 18:37								
Method: EPA 552.2 - Haloacetic Acids							GroundH2O	1
TARGET ANALYTES								
TRIBROMOACETIC ACID	U	0.72	ug/L	1	0.72			
INTERNAL STANDARD								
1,2,3-TRICHLOROPROPANE		100	% recovery		1			
SURROGATE								
2,3-DIBROMOPROPIONIC ACID		110	% recovery		1			
Run ID: R298639 / Work Group No.: WG232268								
Prep Date1: Analyzed 22-Oct-19 21:11								
Method: SM2320B - 2011, Titration							GroundH2O	
TARGET ANALYTES								
ALKALINITY: TOTAL AS CACO3		**360**	mg/L	1	5			
Run ID: R298659 / Work Group No.: WG232331								
Prep Date1: 18-OCT-19 Analyzed 18-Oct-19 09:02								

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW2I OW-1 the same parcel as the Bayside Well on Oro Loma Property; aka BAY1-MW2D until 11-2009; formerly BAY1-MW2-190
ClientID: MW2I
Lab ID: L232027-1 (P240111-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 09 2019, 03:08pm Sample collector: J. Roberts
Date Received: Oct 10 2019, 10:39am Sample receiver: ANG
Sample Comments: MW-2I; +FLD DATA: pH = 7.67 ; Cl2R = 0.2 mg/L; Depth to GW = 14.92 feet; GW Elevation = N/A feet; Temp = 19.9 deg C;Labelled as RAW WATER for the program.

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method Reference								
Method: SM2320B-1997 - Calculation							GroundH2O	
TARGET ANALYTES								
ALKALINITY: CARBONATE	U	0.10	mg/L	1	0.1			
Run ID: R298661 / Work Group No.: WG232352								
Prep Date1: 18-OCT-19 Analyzed 18-Oct-19 10:30								
Method: SM2320B-1997 - Calculation							GroundH2O	
TARGET ANALYTES								
ALKALINITY: HYDROXIDE	U	0.10	mg/L	1	0.1			
Run ID: R298661 / Work Group No.: WG232352								
Prep Date1: 18-OCT-19 Analyzed 18-Oct-19 10:30								
Method: SM2320B-1997 - Calculation							GroundH2O	
TARGET ANALYTES								
ALKALINITY: BICARBONATE		**360**	mg/L	1	5			
Run ID: R298661 / Work Group No.: WG232352								
Prep Date1: 18-OCT-19 Analyzed 18-Oct-19 10:30								
Method: SM2340C - 2011, Titration: EDTA							GroundH2O	
TARGET ANALYTES								
HARDNESS: TOTAL AS CACO3		**120**	mg/L	1	3			
Run ID: R298746 / Work Group No.: WG232433								
Prep Date1: 23-OCT-19 Analyzed 23-Oct-19 13:42								
Method: SM2540C - 2011, Dried at 180C							GroundH2O	
TARGET ANALYTES								
TOTAL DISSOLVED SOLIDS		**690**	mg/L	2	20			
Run ID: R298575 / Work Group No.: WG232208								
Prep Date1: 11-OCT-19 Analyzed 11-Oct-19 08:33								
Method: SM4500-NH3 B, C - 2011, Distillation & Titration							GroundH2O	
TARGET ANALYTES								
AMMONIA AS N	U	0.250	mg/L	1	0.25			
Run ID: R298721 / Work Group No.: WG231841								
Prep Date1: 22-OCT-19 Analyzed 22-Oct-19 11:35								
Method: EPA 200.7 - Rev. 4.4, ICP Scan							RawH2O	
TARGET ANALYTES								
CALCIUM		**17,800**	ug/L	1.04	22.6			
IRON		**458**	ug/L	1.04	5.41	100		
POTASSIUM		**5,820**	ug/L	1.04	19.9			
MAGNESIUM		**15,700**	ug/L	1.04	5.72			
MANGANESE		**123**	ug/L	1.04	0.135	20		
Run ID: R298685 / Work Group No.: WG232368								
Prep Date1: 17-OCT-19 Prep Date2: 21-OCT-19 Analyzed 21-Oct-19 11:52								

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW2I OW-1 the same parcel as the Bayside Well on Oro Loma Property; aka BAY1-MW2D until 11-2009; formerly BAY1-MW2-190
ClientID: MW2I
Lab ID: L232027-1 (P240111-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 09 2019, 03:08pm Sample collector: J. Roberts
Date Received: Oct 10 2019, 10:39am Sample receiver: ANG
Sample Comments: MW-2I; +FLD DATA: pH = 7.67 ; Cl2R = 0.2 mg/L; Depth to GW = 14.92 feet; GW Elevation = N/A feet; Temp = 19.9 deg C;Labelled as RAW WATER for the program.

Method Reference						Matrix	Tag
Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	
Method: EPA 200.7 - Rev. 4.4, ICP Scan						RawH2O	1
TARGET ANALYTES							
SODIUM		**191,000**	ug/L	4.16	17.1		

Run ID: R298685 / Work Group No.: WG232368
Prep Date1: 17-OCT-19 Prep Date2: 21-OCT-19 Analyzed 21-Oct-19 14:22

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PO Box 24055, MS 59, Oakland, CA 94623

Analytical Report Prepared for DAVID BEHNKEN

Report generated on: Nov 25, 2019 02:03 pm
Login No.: L232028

Reported by:

KRISTI LORENSON
Laboratory Program Manager

Approved by:

JULIA HALSNE
Laboratory Services Division Manager

LSR B455-0706-1
Project Title: BAYSIDE GROUND WATER PROJECT

Login Performance Summary
1 - Sample received by the lab on: Oct 10 2019, 10:55 am
0 - Lost Analyses
0 - Hold Time Exceedences
Turn-around-time not met

Samples included in this report:

Sample	Type	Collected	Site	Locator	ClientID
L232028-1	GRAB	09-Oct-2019 10:34	GW BAYSIDE	BAY1-MW4	MW4

Legend to the laboratory qualifiers used in this report:
U - Analyte not detected
Qualifiers for subcontract work - See textvalue for description

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW4 OW-1 the same parcel as the Bayside Well on Oro Loma Property; formerly BAY1-MW5
ClientID: MW4
Lab ID: L232028-1 (P240113-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 09 2019, 10:34am Sample collector: Z. Wu
Date Received: Oct 10 2019, 10:55am Sample receiver: ANG
Sample Comments: MW-4; +FLD DATA: pH = 7.63 ; Cl2R = 0.2 mg/L; Depth to GW = 11.55 feet; GW Elevation = N/A feet; Temp = 21.2 deg C;Labelled as RAW WATER for the program.

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method: EPA 8260B - Trihalomethanes, GC/MS							GroundH2O	
Subcontract data from Alpha Analytical Lab								
Comment: U - ANALYTE INCLUDED IN ANALYSIS BUT NOT DETECTED AT OR ABOVE MDL								
SUBCONTRACT LAB DATA								
BROMODICHLOROMETHANE	U	0.4	ug/L	1	0.4	0.5		
BROMOFORM	U	0.3	ug/L	1	0.3	0.5		
CHLOROFORM	U	0.4	ug/L	1	0.4	0.5		
DIBROMOCHLOROMETHANE	U	0.4	ug/L	1	0.4	0.5		
TRIHALOMETHANES	U	0.4	ug/L	1	0.4	0.5		
Run ID: R298818 / Work Group No.: WG232522								
Prep Date1: 22-OCT-19 Analyzed 22-Oct-19 11:15								
Method: PER SUBCONTRACT LABORATORY REPORT - Subcontract data transmittal for oxygen 18							GroundH2O	
Subcontract data from Alpha Analytical Lab								
Comment: Refer to sublab data report attached								
SUBCONTRACT LAB DATA								
DATA TRANSMITTAL								
Run ID: R299781 / Work Group No.: WG232926								
Prep Date1: 08-NOV-19 Analyzed 08-Nov-19 00:00								
Method: PER SUBCONTRACT LABORATORY REPORT - Subcontract data transmittal							GroundH2O	
Subcontract data								
Comment: Original report transmitted to client. Copy of report archived with data packet.								
SUBCONTRACT LAB DATA								
DATA TRANSMITTAL								
Run ID: R299778 / Work Group No.: WG232919								
Prep Date1: 18-NOV-19 Analyzed 18-Nov-19 00:00								
Method: SAMPLER PROVIDED FIELD MEASUREMENTS - DATA ENTRY LIST FOR FIELD DATA							GroundH2O	
FIELD ANALYSIS/OBSERVATION DATA PARAMETERS								
PH		**7.63**	pH units	1				
TEMPERATURE		**21.2**	deg C	1				
DEPTH		**11.55**	feet	1				
CHLORINE RESIDUAL: TOTAL		**0.2**	mg/L	1	0.08			
Run ID: R298539 / Work Group No.: WG232217								
Prep Date1: 09-OCT-19 Analyzed 09-Oct-19 10:34								
Method: EPA 300.1 - Ion Chromatography							GroundH2O	
Instrument calibrated 07-OCT-19								
TARGET ANALYTES								
CHLORIDE		**53**	mg/L	10	0.57			
NITRATE AS N	U	0.070	mg/L	10	0.07	0.4		
SULFATE		**40**	mg/L	10	0.76	0.5		
SURROGATE								
DICHLOROACETATE		99	% recovery	10				
Run ID: R298530 / Work Group No.: WG232191								
Prep Date1: 10-OCT-19 Analyzed 10-Oct-19 15:43								

RL is either the client requested or regulatory mandated Reporting Limit. ML is the regulatory mandated Minimum Level

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW4 OW-1 the same parcel as the Bayside Well on Oro Loma Property; formerly BAY1-MW5
ClientID: MW4
Lab ID: L232028-1 (P240113-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 09 2019, 10:34am Sample collector: Z. Wu
Date Received: Oct 10 2019, 10:55am Sample receiver: ANG
Sample Comments: MW-4; +FLD DATA: pH = 7.63 ; Cl2R = 0.2 mg/L; Depth to GW = 11.55 feet; GW Elevation = N/A feet; Temp = 21.2 deg C;Labelled as RAW WATER for the program.

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method: EPA 552.2 - Haloacetic Acids							GroundH2O	1
TARGET ANALYTES								
TRIBROMOACETIC ACID	U	0.72	ug/L	1	0.72			
INTERNAL STANDARD								
1,2,3-TRICHLOROPROPANE		100	% recovery		1			
SURROGATE								
2,3-DIBROMOPROPIONIC ACID		110	% recovery		1			
Run ID: R298639 / Work Group No.: WG232268								
Prep Date1: Analyzed 22-Oct-19 22:26								
Method: EPA 552.2 - Haloacetic Acids							GroundH2O	
TARGET ANALYTES								
BROMOCHLOROACETIC ACID	U	0.15	ug/L	1	0.15			
BROMODICHLOROACETIC ACID	U	0.31	ug/L	1	0.31			
CHLORODIBROMOACETIC ACID	U	0.31	ug/L	1	0.31			
DIBROMOACETIC ACID	U	0.25	ug/L	1	0.25		1	
DICHLOROACETIC ACID	U	0.18	ug/L	1	0.18		1	
MONOBROMOACETIC ACID	U	0.29	ug/L	1	0.29		1	
MONOCHLOROACETIC ACID	U	0.65	ug/L	1	0.65		2	
TRICHLOROACETIC ACID	U	0.17	ug/L	1	0.17		1	
VALUE CALCULATED FROM OTHER RESULTS								
HAA(5)	U	1.0	ug/L					
HAA (5) calculation uses a zero for any individual HAA result less than the California DLR for that HAA								
HAA(9)	U	1.0	ug/L					
INTERNAL STANDARD								
1,2,3-TRICHLOROPROPANE		100	% recovery		1			
SURROGATE								
2,3-DIBROMOPROPIONIC ACID		98	% recovery		1			
Run ID: R298639 / Work Group No.: WG232268								
Prep Date1: Analyzed 16-Oct-19 19:50								
Method: SM2320B - 2011, Titration							GroundH2O	
TARGET ANALYTES								
ALKALINITY: TOTAL AS CACO3		**240**	mg/L	1	5			
Run ID: R298659 / Work Group No.: WG232331								
Prep Date1: 18-OCT-19 Analyzed 18-Oct-19 09:02								
Method: SM2320B-1997 - Calculation							GroundH2O	
TARGET ANALYTES								
ALKALINITY: CARBONATE	U	0.10	mg/L	1	0.1			
Run ID: R298661 / Work Group No.: WG232352								
Prep Date1: 18-OCT-19 Analyzed 18-Oct-19 10:38								
Method: SM2320B-1997 - Calculation							GroundH2O	
TARGET ANALYTES								
ALKALINITY: HYDROXIDE	U	0.10	mg/L	1	0.1			
Run ID: R298661 / Work Group No.: WG232352								
Prep Date1: 18-OCT-19 Analyzed 18-Oct-19 10:38								

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW4 OW-1 the same parcel as the Bayside Well on Oro Loma Property; formerly BAY1-MW5
ClientID: MW4
Lab ID: L232028-1 (P240113-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 09 2019, 10:34am Sample collector: Z. Wu
Date Received: Oct 10 2019, 10:55am Sample receiver: ANG
Sample Comments: MW-4; +FLD DATA: pH = 7.63 ; Cl2R = 0.2 mg/L; Depth to GW = 11.55 feet; GW Elevation = N/A feet; Temp = 21.2 deg C;Labelled as RAW WATER for the program.

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method: SM2320B-1997 - Calculation							GroundH2O	
TARGET ANALYTES								
ALKALINITY: BICARBONATE		**240**	mg/L	1	5			
Run ID: R298661 / Work Group No.: WG232352								
Prep Date1: 18-OCT-19 Analyzed 18-Oct-19 10:38								
Method: SM2340C - 2011, Titration: EDTA							GroundH2O	
TARGET ANALYTES								
HARDNESS: TOTAL AS CACO3		**120**	mg/L	1	3			
Run ID: R298746 / Work Group No.: WG232433								
Prep Date1: 23-OCT-19 Analyzed 23-Oct-19 13:42								
Method: SM2540C - 2011, Dried at 180C							GroundH2O	
TARGET ANALYTES								
TOTAL DISSOLVED SOLIDS		**420**	mg/L	1	10			
Run ID: R298575 / Work Group No.: WG232208								
Prep Date1: 11-OCT-19 Analyzed 11-Oct-19 08:33								
Method: SM4500-NH3 B, C - 2011, Distillation & Titration							GroundH2O	
TARGET ANALYTES								
AMMONIA AS N	U	0.250	mg/L	1	0.25			
Run ID: R298721 / Work Group No.: WG231841								
Prep Date1: 22-OCT-19 Analyzed 22-Oct-19 11:35								
Method: EPA 200.7 - Rev. 4.4, ICP Scan							RawH2O	1
TARGET ANALYTES								
SODIUM		**97,100**	ug/L	2.08	8.53			
Run ID: R298664 / Work Group No.: WG232330								
Prep Date1: 11-OCT-19 Prep Date2: 18-OCT-19 Analyzed 18-Oct-19 14:01								
Method: EPA 200.7 - Rev. 4.4, ICP Scan							RawH2O	
TARGET ANALYTES								
CALCIUM		**26,700**	ug/L	1.04	22.6			
IRON		**32.2**	ug/L	1.04	5.41	100		
POTASSIUM		**2,180**	ug/L	1.04	19.9			
MAGNESIUM		**9,980**	ug/L	1.04	5.72			
MANGANESE		**199**	ug/L	1.04	0.135	20		
Run ID: R298664 / Work Group No.: WG232330								
Prep Date1: 11-OCT-19 Prep Date2: 18-OCT-19 Analyzed 18-Oct-19 13:37								

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Analytical Report Prepared for DAVID BEHNKEN

Report generated on: Nov 25, 2019 02:01 pm
Login No.: L232045

Reported by:

KRISTI LORENSON
Laboratory Program Manager

Approved by:

JULIA HALSNE
Laboratory Services Division Manager

LSR B455-0706-1
Project Title: BAYSIDE GROUND WATER PROJECT

Login Performance Summary
1 - Sample received by the lab on: Oct 10 2019, 02:44 pm
0 - Lost Analyses
0 - Hold Time Exceedences
Turn-around-time not met

Samples included in this report:

Sample	Type Collected	Site	Locator	ClientID
L232045-1	GRAB 10-Oct-2019 13:09	GW BAYSIDE	BAY1-MW5D	MW5D

Legend to the laboratory qualifiers used in this report:
E - Estimated value, concentration outside calibration range. For SIP, E=DNQ, Estimated Concentration.
U - Analyte not detected
Qualifiers for subcontract work - See textvalue for description

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW5D Q APN 411-0003-0083 Via Barrett, San Lorenzo; Formerly BAY-MW-BARETT
ClientID: MW5D
Lab ID: L232045-1 (P240114-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 10 2019, 01:09pm Sample collector: D. Williams
Date Received: Oct 10 2019, 02:44pm Sample receiver: ANG
Sample Comments: MW-5D; +FLD DATA: pH = 7.10 ; Cl2R = 0.1 mg/L; Depth to GW = 16.46 feet; GW Elevation = N/A feet; Temp = 22.3 deg C; Labelled as RAW WATER for the program.

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method Reference								
Method: EPA 8260B - Trihalomethanes, GC/MS							GroundH2O	
Subcontract data from Alpha Analytical Lab								
Comment: U - ANALYTE INCLUDED IN ANALYSIS BUT NOT DETECTED AT OR ABOVE MDL								
SUBCONTRACT LAB DATA								
BROMODICHLOROMETHANE	U	0.4	ug/L	1	0.4	0.5		
BROMOFORM	U	0.3	ug/L	1	0.3	0.5		
CHLOROFORM	U	0.4	ug/L	1	0.4	0.5		
DIBROMOCHLOROMETHANE	U	0.4	ug/L	1	0.4	0.5		
TRIHALOMETHANES	U	0.4	ug/L	1	0.4	0.5		
Run ID: R298831 / Work Group No.: WG232532								
Prep Date1: 22-OCT-19 Analyzed 22-Oct-19 11:49								
Method: PER SUBCONTRACT LABORATORY REPORT - Subcontract data transmittal for oxygen 18							GroundH2O	
Subcontract data from Alpha Analytical Lab								
Comment: Refer to sublab data report attached								
SUBCONTRACT LAB DATA								
DATA TRANSMITTAL								
Run ID: R299781 / Work Group No.: WG232926								
Prep Date1: 08-NOV-19 Analyzed 08-Nov-19 00:00								
Method: PER SUBCONTRACT LABORATORY REPORT - Subcontract data transmittal							GroundH2O	
Subcontract data								
Comment: Original report transmitted to client. Copy of report archived with data packet.								
SUBCONTRACT LAB DATA								
DATA TRANSMITTAL								
Run ID: R299779 / Work Group No.: WG232920								
Prep Date1: 18-NOV-19 Analyzed 18-Nov-19 00:00								
Method: SAMPLER PROVIDED FIELD MEASUREMENTS - DATA ENTRY LIST FOR FIELD DATA							GroundH2O	
FIELD ANALYSIS/OBSERVATION DATA PARAMETERS								
PH		**7.1**	pH units	1				
TEMPERATURE		**22.3**	deg C	1				
DEPTH		**16.46**	feet	1				
CHLORINE RESIDUAL: TOTAL		**0.1**	mg/L	1	0.08			
Run ID: R298655 / Work Group No.: WG232347								
Prep Date1: 10-OCT-19 Analyzed 10-Oct-19 13:09								
Method: EPA 300.1 - Ion Chromatography							GroundH2O	
Instrument calibrated 07-OCT-19								
TARGET ANALYTES								
CHLORIDE		**81**	mg/L	10	0.57			
NITRATE AS N	U	0.070	mg/L	10	0.07	0.4		
SULFATE		**51**	mg/L	10	0.76	0.5		
SURROGATE								
DICHLOROACETATE		99	% recovery	10				
Run ID: R298530 / Work Group No.: WG232191								
Prep Date1: 10-OCT-19 Analyzed 10-Oct-19 16:20								

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW5D Q APN 411-0003-0083 Via Barrett, San Lorenzo; Formerly BAY-MW-BARETT
ClientID: MW5D
Lab ID: L232045-1 (P240114-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 10 2019, 01:09pm Sample collector: D. Williams
Date Received: Oct 10 2019, 02:44pm Sample receiver: ANG
Sample Comments: MW-5D; +FLD DATA: pH = 7.10 ; Cl2R = 0.1 mg/L; Depth to GW = 16.46 feet; GW Elevation = N/A feet; Temp = 22.3 deg C; Labelled as RAW WATER for the program.

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method Reference								
Method: EPA 552.2 - Haloacetic Acids							GroundH2O	1
TARGET ANALYTES								
TRIBROMOACETIC ACID	U	0.72	ug/L	1	0.72			
INTERNAL STANDARD								
1,2,3-TRICHLOROPROPANE		100	% recovery		1			
SURROGATE								
2,3-DIBROMOPROPIONIC ACID		110	% recovery		1			
Run ID: R298639 / Work Group No.: WG232268								
Prep Date1: Analyzed 22-Oct-19 23:15								
Method: EPA 552.2 - Haloacetic Acids							GroundH2O	
TARGET ANALYTES								
BROMOCHLOROACETIC ACID	**E**	**0.18**	ug/L	1	0.15			
BROMODICHLOROACETIC ACID	U	0.31	ug/L	1	0.31			
CHLORODIBROMOACETIC ACID	U	0.31	ug/L	1	0.31			
DIBROMOACETIC ACID	U	0.25	ug/L	1	0.25	1		
DICHLOROACETIC ACID	U	0.18	ug/L	1	0.18	1		
MONOBROMOACETIC ACID	U	0.29	ug/L	1	0.29	1		
MONOCHLOROACETIC ACID	U	0.65	ug/L	1	0.65	2		
TRICHLOROACETIC ACID	U	0.17	ug/L	1	0.17	1		
VALUE CALCULATED FROM OTHER RESULTS								
HAA(5)	U	1.0	ug/L					
HAA (5) calculation uses a zero for any individual HAA result less than the California DLR for that HAA								
HAA(9)	U	1.0	ug/L					
INTERNAL STANDARD								
1,2,3-TRICHLOROPROPANE		100	% recovery		1			
SURROGATE								
2,3-DIBROMOPROPIONIC ACID		95	% recovery		1			
Run ID: R298639 / Work Group No.: WG232268								
Prep Date1: Analyzed 17-Oct-19 01:06								
Method: SM2320B - 2011, Titration							GroundH2O	
TARGET ANALYTES								
ALKALINITY: TOTAL AS CACO3		**240**	mg/L	1	5			
Run ID: R298659 / Work Group No.: WG232331								
Prep Date1: 18-OCT-19 Analyzed 18-Oct-19 09:02								
Method: SM2320B-1997 - Calculation							GroundH2O	
TARGET ANALYTES								
ALKALINITY: CARBONATE	U	0.10	mg/L	1	0.1			
Run ID: R298661 / Work Group No.: WG232352								
Prep Date1: 18-OCT-19 Analyzed 18-Oct-19 10:50								
Method: SM2320B-1997 - Calculation							GroundH2O	
TARGET ANALYTES								
ALKALINITY: HYDROXIDE	U	0.10	mg/L	1	0.1			
Run ID: R298661 / Work Group No.: WG232352								
Prep Date1: 18-OCT-19 Analyzed 18-Oct-19 10:50								

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW5D Q APN 411-0003-0083 Via Barrett, San Lorenzo; Formerly BAY-MW-BARETT
ClientID: MW5D
Lab ID: L232045-1 (P240114-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 10 2019, 01:09pm Sample collector: D. Williams
Date Received: Oct 10 2019, 02:44pm Sample receiver: ANG
Sample Comments: MW-5D; +FLD DATA: pH = 7.10 ; Cl2R = 0.1 mg/L; Depth to GW = 16.46 feet; GW Elevation = N/A feet; Temp = 22.3 deg C; Labelled as RAW WATER for the program.

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method: SM2320B-1997 - Calculation							GroundH2O	
TARGET ANALYTES								
ALKALINITY: BICARBONATE		**240**	mg/L	1	5			
Run ID: R298661 / Work Group No.: WG232352								
Prep Date1: 18-OCT-19 Analyzed 18-Oct-19 10:50								
Method: SM2340C - 2011, Titration: EDTA							GroundH2O	
TARGET ANALYTES								
HARDNESS: TOTAL AS CACO3		**140**	mg/L	1	3			
Run ID: R298746 / Work Group No.: WG232433								
Prep Date1: 23-OCT-19 Analyzed 23-Oct-19 13:42								
Method: SM2540C - 2011, Dried at 180C							GroundH2O	
TARGET ANALYTES								
TOTAL DISSOLVED SOLIDS		**460**	mg/L	1.33	13			
Run ID: R298575 / Work Group No.: WG232208								
Prep Date1: 11-OCT-19 Analyzed 11-Oct-19 08:33								
Method: SM4500-NH3 B, C - 2011, Distillation & Titration							GroundH2O	
TARGET ANALYTES								
AMMONIA AS N	U	0.250	mg/L	1	0.25			
Run ID: R298721 / Work Group No.: WG231841								
Prep Date1: 22-OCT-19 Analyzed 22-Oct-19 11:35								
Method: EPA 200.7 - Rev. 4.4, ICP Scan							RawH2O	1
TARGET ANALYTES								
SODIUM		**107,000**	ug/L	2.08	8.53			
Run ID: R298664 / Work Group No.: WG232330								
Prep Date1: 11-OCT-19 Prep Date2: 18-OCT-19 Analyzed 18-Oct-19 14:07								
Method: EPA 200.7 - Rev. 4.4, ICP Scan							RawH2O	
TARGET ANALYTES								
CALCIUM		**35,200**	ug/L	1.04	22.6			
IRON		**58.0**	ug/L	1.04	5.41	100		
POTASSIUM		**1,790**	ug/L	1.04	19.9			
MAGNESIUM		**8,580**	ug/L	1.04	5.72			
MANGANESE		**188**	ug/L	1.04	0.135	20		
Run ID: R298664 / Work Group No.: WG232330								
Prep Date1: 11-OCT-19 Prep Date2: 18-OCT-19 Analyzed 18-Oct-19 13:43								

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Analytical Report Prepared for DAVID BEHNKEN

Report generated on: Nov 25, 2019 02:01 pm
Login No.: L232065

Reported by:

KRISTI LORENSON
Laboratory Program Manager

Approved by:

JULIA HALSNE
Laboratory Services Division Manager

LSR B455-0706-1
Project Title: BAYSIDE GROUND WATER PROJECT

Login Performance Summary
1 - Sample received by the lab on: Oct 11 2019, 02:37 pm
0 - Lost Analyses
0 - Hold Time Exceedences
Turn-around-time not met

Samples included in this report:

Sample	Type Collected	Site	Locator	ClientID
L232065-1	GRAB 11-Oct-2019 13:28	GW BAYSIDE	BAY1-MW6	MW6

Legend to the laboratory qualifiers used in this report:
U - Analyte not detected
Qualifiers for subcontract work - See textvalue for description

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW6 R APN 438-0010-003 2364 Baumann Ave., San Lorenzo; formerly BAY-MW-WORTHLEY
ClientID: MW6
Lab ID: L232065-1 (P240115-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 11 2019, 01:28pm Sample collector: C. Yee
Date Received: Oct 11 2019, 02:37pm Sample receiver: ANG
Sample Comments: MW-6; +FLD DATA: pH = 7.17 ; Cl2R = 0.5 mg/L; Depth to GW = 12.10 feet;
GW Elevation = N/A feet; Temp = 21.4deg C. Labelled as RAW WATER for the
program.

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method: EPA 8260B - Trihalomethanes, GC/MS							GroundH2O	
Subcontract data from Alpha Analytical Lab								
Comment: U - ANALYTE INCLUDED IN ANALYSIS BUT NOT DETECTED AT OR ABOVE MDL								
SUBCONTRACT LAB DATA								
BROMODICHLOROMETHANE	U	0.4	ug/L	1	0.4	0.5		
BROMOFORM	U	0.3	ug/L	1	0.3	0.5		
CHLOROFORM	U	0.4	ug/L	1	0.4	0.5		
DIBROMOCHLOROMETHANE	U	0.4	ug/L	1	0.4	0.5		
TRIHALOMETHANES	U	0.4	ug/L	1	0.4	0.5		
Run ID: R298928 / Work Group No.: WG232632								
Prep Date1: 22-OCT-19 Analyzed 22-Oct-19 12:23								
Method: PER SUBCONTRACT LABORATORY REPORT - Subcontract data transmittal for oxygen 18							GroundH2O	
Subcontract data from Alpha Analytical Lab								
Comment: Refer to sublab data report attached								
SUBCONTRACT LAB DATA								
DATA TRANSMITTAL								
Run ID: R299781 / Work Group No.: WG232926								
Prep Date1: 08-NOV-19 Analyzed 08-Nov-19 00:00								
Method: PER SUBCONTRACT LABORATORY REPORT - Subcontract data transmittal							GroundH2O	
Subcontract data								
Comment: Original report transmitted to client. Copy of report archived with data packet.								
SUBCONTRACT LAB DATA								
DATA TRANSMITTAL								
Run ID: R298929 / Work Group No.: WG232631								
Prep Date1: 01-NOV-19 Analyzed 01-Nov-19 00:00								
Method: SAMPLER PROVIDED FIELD MEASUREMENTS - DATA ENTRY LIST FOR FIELD DATA							GroundH2O	
FIELD ANALYSIS/OBSERVATION DATA PARAMETERS								
PH		**7.17**	pH units	1				
TEMPERATURE		**21.4**	deg C	1				
DEPTH		**12.1**	feet	1				
CHLORINE RESIDUAL: TOTAL		**0.5**	mg/L	1	0.08			
Run ID: R298648 / Work Group No.: WG232341								
Prep Date1: 11-OCT-19 Analyzed 11-Oct-19 13:28								
Method: EPA 300.1 - Ion Chromatography							GroundH2O	
Instrument calibrated 07-OCT-19								
TARGET ANALYTES								
CHLORIDE		**54**	mg/L	10	0.57			
NITRATE AS N	U	0.070	mg/L	10	0.07	0.4		
SURROGATE								
DICHLOROACETATE		100	% recovery	10				
Run ID: R298574 / Work Group No.: WG232215								
Prep Date1: 11-OCT-19 Analyzed 11-Oct-19 15:26								

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW6 R APN 438-0010-003 2364 Baumann Ave., San Lorenzo; formerly BAY-MW-WORTHLEY
ClientID: MW6
Lab ID: L232065-1 (P240115-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 11 2019, 01:28pm Sample collector: C. Yee
Date Received: Oct 11 2019, 02:37pm Sample receiver: ANG
Sample Comments: MW-6; +FLD DATA: pH = 7.17 ; Cl2R = 0.5 mg/L; Depth to GW = 12.10 feet;
GW Elevation = N/A feet; Temp = 21.4deg C. Labelled as RAW WATER for the
program.

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method: EPA 300.1 - Ion Chromatography							GroundH2O	1
Instrument calibrated 07-OCT-19								
TARGET ANALYTES								
SULFATE		**47**	mg/L	10	0.76	0.5		
SURROGATE								
DICHLOROACETATE		99	% recovery	10				
Run ID: R298699 / Work Group No.: WG232373								
Prep Date1: 21-OCT-19 Analyzed 21-Oct-19 12:45								
Method: EPA 552.2 - Haloacetic Acids							GroundH2O	
TARGET ANALYTES								
BROMOCHLOROACETIC ACID	U	0.15	ug/L	1	0.15			
BROMODICHLOROACETIC ACID	U	0.31	ug/L	1	0.31			
CHLORODIBROMOACETIC ACID	U	0.31	ug/L	1	0.31			
DIBROMOACETIC ACID	U	0.25	ug/L	1	0.25	1		
DICHLOROACETIC ACID	U	0.18	ug/L	1	0.18	1		
MONOBROMOACETIC ACID	U	0.29	ug/L	1	0.29	1		
MONOCHLOROACETIC ACID	U	0.65	ug/L	1	0.65	2		
TRIBROMOACETIC ACID	U	0.72	ug/L	1	0.72			
TRICHLOROACETIC ACID	U	0.17	ug/L	1	0.17	1		
VALUE CALCULATED FROM OTHER RESULTS								
HAA(5)	U	1.0	ug/L					
HAA (5) calculation uses a zero for any individual HAA result less than the California DLR for that HAA								
HAA(9)	U	1.0	ug/L					
INTERNAL STANDARD								
1,2,3-TRICHLOROPROPANE		98	% recovery		1			
SURROGATE								
2,3-DIBROMOPROPIONIC ACID		97	% recovery		1			
Run ID: R298797 / Work Group No.: WG232434								
Prep Date1: Analyzed 23-Oct-19 18:35								
Method: SM2320B - 2011, Titration							GroundH2O	
TARGET ANALYTES								
ALKALINITY: TOTAL AS CACO3		**230**	mg/L	1	5			
Run ID: R298659 / Work Group No.: WG232331								
Prep Date1: 18-OCT-19 Analyzed 18-Oct-19 09:02								
Method: SM2320B-1997 - Calculation							GroundH2O	
TARGET ANALYTES								
ALKALINITY: CARBONATE	U	0.10	mg/L	1	0.1			
Run ID: R298661 / Work Group No.: WG232352								
Prep Date1: 18-OCT-19 Analyzed 18-Oct-19 10:56								
Method: SM2320B-1997 - Calculation							GroundH2O	
TARGET ANALYTES								
ALKALINITY: HYDROXIDE	U	0.10	mg/L	1	0.1			
Run ID: R298661 / Work Group No.: WG232352								
Prep Date1: 18-OCT-19 Analyzed 18-Oct-19 10:56								

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW6 R APN 438-0010-003 2364 Baumann Ave., San Lorenzo; formerly BAY-MW-WORTHLEY
ClientID: MW6
Lab ID: L232065-1 (P240115-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 11 2019, 01:28pm Sample collector: C. Yee
Date Received: Oct 11 2019, 02:37pm Sample receiver: ANG
Sample Comments: MW-6; +FLD DATA: pH = 7.17 ; Cl2R = 0.5 mg/L; Depth to GW = 12.10 feet;
GW Elevation = N/A feet; Temp = 21.4deg C. Labelled as RAW WATER for the
program.

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method: SM2320B-1997 - Calculation							GroundH2O	
TARGET ANALYTES								
ALKALINITY: BICARBONATE		**230**	mg/L	1	5			
Run ID: R298661 / Work Group No.: WG232352								
Prep Date1: 18-OCT-19 Analyzed 18-Oct-19 10:56								
Method: SM2340C - 2011, Titration: EDTA							GroundH2O	
TARGET ANALYTES								
HARDNESS: TOTAL AS CACO3		**110**	mg/L	1	3			
Run ID: R298746 / Work Group No.: WG232433								
Prep Date1: 23-OCT-19 Analyzed 23-Oct-19 13:42								
Method: SM2540C - 2011, Dried at 180C							GroundH2O	
TARGET ANALYTES								
TOTAL DISSOLVED SOLIDS		**400**	mg/L	1	10			
Run ID: R298658 / Work Group No.: WG232306								
Prep Date1: 17-OCT-19 Analyzed 17-Oct-19 08:20								
Method: SM4500-NH3 B, C - 2011, Distillation & Titration							GroundH2O	
TARGET ANALYTES								
AMMONIA AS N	U	0.250	mg/L	1	0.25			
Run ID: R298721 / Work Group No.: WG231841								
Prep Date1: 22-OCT-19 Analyzed 22-Oct-19 11:35								
Method: EPA 200.7 - Rev. 4.4, ICP Scan							RawH2O	1
TARGET ANALYTES								
SODIUM		**98,500**	ug/L	2.08	8.53			
Run ID: R298685 / Work Group No.: WG232368								
Prep Date1: 21-OCT-19 Prep Date2: 21-OCT-19 Analyzed 21-Oct-19 14:28								
Method: EPA 200.7 - Rev. 4.4, ICP Scan							RawH2O	
TARGET ANALYTES								
CALCIUM		**29,200**	ug/L	1.04	22.6			
IRON		**14.9**	ug/L	1.04	5.41	100		
POTASSIUM		**1,910**	ug/L	1.04	19.9			
MAGNESIUM		**7,340**	ug/L	1.04	5.72			
MANGANESE		**171**	ug/L	1.04	0.135	20		
Run ID: R298685 / Work Group No.: WG232368								
Prep Date1: 21-OCT-19 Analyzed 21-Oct-19 13:47								

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Analytical Report Prepared for DAVID BEHNKEN

Report generated on: Dec 18, 2019 02:29 pm
Login No.: L232318

Reported by:

KRISTI LORENSON
Laboratory Program Manager

Approved by:

JULIA HALSNE
Laboratory Services Division Manager

LSR B455-0706-1
Project Title: BAYSIDE GROUND WATER PROJECT

Login Performance Summary
1 - Sample received by the lab on: Oct 24 2019, 02:55 pm
0 - Lost Analyses
0 - Hold Time Exceedences
Turn-around-time not met

Samples included in this report:

Sample	Type	Collected	Site	Locator	ClientID
L232318-1	GRAB	24-Oct-2019 13:55	GW BAYSIDE	BAY1-MW7	MW7

Legend to the laboratory qualifiers used in this report:
U - Analyte not detected
Qualifiers for subcontract work - See textvalue for description

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW7 S APN 411-0078-001 Via Buena Vista; formerly BAY-MW-SL PARK
ClientID: MW7
Lab ID: L232318-1 (P240116-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 24 2019, 01:55pm Sample collector: N. Klumpp
Date Received: Oct 24 2019, 02:55pm Sample receiver: ANG
Sample Comments: MW-7; +FLD DATA: pH = 7.49 ; Cl2R = 0.1 mg/L; Depth to GW = 10.62 feet; GW Elevation = N/A feet; Temp = 23.2deg C; Labelled as RAW WATER for the program.

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method: EPA 8260B - Trihalomethanes, GC/MS							GroundH2O	
Subcontract data from Alpha Analytical Lab								
Comment: U - ANALYTE INCLUDED IN ANALYSIS BUT NOT DETECTED AT OR ABOVE MDL								
SUBCONTRACT LAB DATA								
BROMODICHLOROMETHANE	U	0.4	ug/L	1	0.4	0.5		
BROMOFORM	U	0.3	ug/L	1	0.3	0.5		
CHLOROFORM	U	0.4	ug/L	1	0.4	0.5		
DIBROMOCHLOROMETHANE	U	0.4	ug/L	1	0.4	0.5		
TRIHALOMETHANES	U	0.4	ug/L	1	0.4	0.5		
Run ID: R299625 / Work Group No.: WG232863								
Prep Date1: 05-NOV-19 Analyzed 05-Nov-19 11:36								
Method: PER SUBCONTRACT LABORATORY REPORT - Subcontract data transmittal							GroundH2O	
Subcontract data								
Comment: Original report transmitted to client. Copy of report archived with data packet.								
SUBCONTRACT LAB DATA								
DATA TRANSMITTAL								
Run ID: R300321 / Work Group No.: WG233342								
Prep Date1: 10-DEC-19 Analyzed 10-Dec-19 00:00								
Method: PER SUBCONTRACT LABORATORY REPORT - Subcontract data transmittal for oxygen 18							GroundH2O	
Subcontract data from Alpha Analytical Lab								
Comment: Refer to sublab data report attached								
SUBCONTRACT LAB DATA								
DATA TRANSMITTAL								
Run ID: R300334 / Work Group No.: WG233347								
Prep Date1: 22-NOV-19 Analyzed 22-Nov-19 00:00								
Method: SAMPLER PROVIDED FIELD MEASUREMENTS - DATA ENTRY LIST FOR FIELD DATA							GroundH2O	
FIELD ANALYSIS/OBSERVATION DATA PARAMETERS								
PH		**7.49**	pH units	1				
TEMPERATURE		**23.2**	deg C	1				
DEPTH		**10.62**	feet	1				
CHLORINE RESIDUAL: TOTAL		**0.1**	mg/L	1	0.08			
Run ID: R298824 / Work Group No.: WG232529								
Prep Date1: 24-OCT-19 Analyzed 24-Oct-19 13:55								
Method: EPA 300.1 - Ion Chromatography							GroundH2O	1
Instrument calibrated 29-OCT-19								
TARGET ANALYTES								
CHLORIDE		**91**	mg/L	25	1.4			
SULFATE		**54**	mg/L	25	1.9	0.5		
SURROGATE								
DICHLOROACETATE		100	% recovery	25				
Run ID: R298931 / Work Group No.: WG232585								
Prep Date1: 30-OCT-19 Analyzed 30-Oct-19 23:32								

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW7 S APN 411-0078-001 Via Buena Vista; formerly BAY-MW-SL PARK
ClientID: MW7
Lab ID: L232318-1 (P240116-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 24 2019, 01:55pm Sample collector: N. Klumpp
Date Received: Oct 24 2019, 02:55pm Sample receiver: ANG
Sample Comments: MW-7; +FLD DATA: pH = 7.49 ; Cl2R = 0.1 mg/L; Depth to GW = 10.62 feet; GW Elevation = N/A feet; Temp = 23.2deg C; Labelled as RAW WATER for the program.

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method: EPA 300.1 - Ion Chromatography							GroundH2O	
Instrument calibrated 07-OCT-19								
TARGET ANALYTES								
NITRATE AS N		**0.33**	mg/L	25	0.18	0.4		
SURROGATE								
DICHLOROACETATE		94	% recovery	25				
Run ID: R298848 / Work Group No.: WG232470								
Prep Date1: 24-OCT-19 Analyzed 24-Oct-19 23:21								
Method: EPA 552.2 - Haloacetic Acids							GroundH2O	
TARGET ANALYTES								
BROMOCHLOROACETIC ACID	U	0.15	ug/L	1	0.15			
BROMODICHLOROACETIC ACID	U	0.31	ug/L	1	0.31			
CHLORODIBROMOACETIC ACID	U	0.31	ug/L	1	0.31			
DIBROMOACETIC ACID	U	0.25	ug/L	1	0.25	1		
DICHLOROACETIC ACID	U	0.18	ug/L	1	0.18	1		
MONOBROMOACETIC ACID	U	0.29	ug/L	1	0.29	1		
MONOCHLOROACETIC ACID	U	0.65	ug/L	1	0.65	2		
TRICHLOROACETIC ACID	U	0.17	ug/L	1	0.17	1		
VALUE CALCULATED FROM OTHER RESULTS								
HAA(5)	U	1.0	ug/L					
HAA (5) calculation uses a zero for any individual HAA result less than the California DLR for that HAA								
HAA(9)	U	1.0	ug/L					
INTERNAL STANDARD								
1,2,3-TRICHLOROPROPANE		100	% recovery		1			
SURROGATE								
2,3-DIBROMOPROPIONIC ACID		98	% recovery		1			
Run ID: R298943 / Work Group No.: WG232570								
Prep Date1: Analyzed 30-Oct-19 15:10								
Method: EPA 552.2 - Haloacetic Acids							GroundH2O	1
TARGET ANALYTES								
TRIBROMOACETIC ACID	U	0.72	ug/L	1	0.72			
INTERNAL STANDARD								
1,2,3-TRICHLOROPROPANE		110	% recovery		1			
SURROGATE								
2,3-DIBROMOPROPIONIC ACID		110	% recovery		1			
Run ID: R298943 / Work Group No.: WG232570								
Prep Date1: Analyzed 01-Nov-19 11:52								
Method: SM2320B - 2011, Titration							GroundH2O	
TARGET ANALYTES								
ALKALINITY: TOTAL AS CACO3		**230**	mg/L	1	5			
Run ID: R298795 / Work Group No.: WG232483								
Prep Date1: 25-OCT-19 Analyzed 25-Oct-19 08:14								

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW7 S APN 411-0078-001 Via Buena Vista; formerly BAY-MW-SL PARK
ClientID: MW7
Lab ID: L232318-1 (P240116-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 24 2019, 01:55pm Sample collector: N. Klumpp
Date Received: Oct 24 2019, 02:55pm Sample receiver: ANG
Sample Comments: MW-7; +FLD DATA: pH = 7.49 ; Cl2R = 0.1 mg/L; Depth to GW = 10.62 feet; GW Elevation = N/A feet; Temp = 23.2deg C; Labelled as RAW WATER for the program.

Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method: SM2320B-1997 - Calculation							GroundH2O	
TARGET ANALYTES								
ALKALINITY: CARBONATE	U	0.10	mg/L	1	0.1			
Run ID: R298798 / Work Group No.: WG232497								
Prep Date1: 25-OCT-19 Analyzed 25-Oct-19 08:14								
Method: SM2320B-1997 - Calculation							GroundH2O	
TARGET ANALYTES								
ALKALINITY: HYDROXIDE	U	0.10	mg/L	1	0.1			
Run ID: R298798 / Work Group No.: WG232497								
Prep Date1: 25-OCT-19 Analyzed 25-Oct-19 08:14								
Method: SM2320B-1997 - Calculation							GroundH2O	
TARGET ANALYTES								
ALKALINITY: BICARBONATE		**230**	mg/L	1	5			
Run ID: R298798 / Work Group No.: WG232497								
Prep Date1: 25-OCT-19 Analyzed 25-Oct-19 08:14								
Method: SM2340C - 2011, Titration: EDTA							GroundH2O	
TARGET ANALYTES								
HARDNESS: TOTAL AS CACO3		**140**	mg/L	1	3			
Run ID: R298853 / Work Group No.: WG232536								
Prep Date1: 28-OCT-19 Analyzed 28-Oct-19 14:00								
Method: SM2540C - 2011, Dried at 180C							GroundH2O	
TARGET ANALYTES								
TOTAL DISSOLVED SOLIDS		**470**	mg/L	1.33	13			
Run ID: R298907 / Work Group No.: WG232482								
Prep Date1: 29-OCT-19 Analyzed 29-Oct-19 07:55								
Method: SM4500-NH3 B, C - 2011, Distillation & Titration							GroundH2O	
TARGET ANALYTES								
AMMONIA AS N	U	0.250	mg/L	1	0.25			
Run ID: R298912 / Work Group No.: WG232600								
Prep Date1: 31-OCT-19 Analyzed 31-Oct-19 12:00								
Method: EPA 200.7 - Rev. 4.4, ICP Scan							RawH2O	
TARGET ANALYTES								
CALCIUM		**32,800**	ug/L	1.04	22.6			
IRON		**26.4**	ug/L	1.04	5.41	100		
POTASSIUM		**1,770**	ug/L	1.04	19.9			
MAGNESIUM		**8,440**	ug/L	1.04	5.72			
MANGANESE		**207**	ug/L	1.04	0.135	20		
Run ID: R298838 / Work Group No.: WG232515								
Prep Date1: 25-OCT-19 Prep Date2: 28-OCT-19 Analyzed 28-Oct-19 12:15								

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Analytical Results Report

LSR B455-0706-1 BAYSIDE GROUND WATER PROJECT
Site: GW BAYSIDE East Bay Ground Water Injection/Extraction Project Bayside Groundwater
Locator: BAY1-MW7 S APN 411-0078-001 Via Buena Vista; formerly BAY-MW-SL PARK
ClientID: MW7
Lab ID: L232318-1 (P240116-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Oct 24 2019, 01:55pm Sample collector: N. Klumpp
Date Received: Oct 24 2019, 02:55pm Sample receiver: ANG
Sample Comments: MW-7; +FLD DATA: pH = 7.49 ; Cl2R = 0.1 mg/L; Depth to GW = 10.62 feet; GW Elevation = N/A feet; Temp = 23.2deg C; Labelled as RAW WATER for the program.

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method: EPA 200.7 - Rev. 4.4, ICP Scan							RawH2O	1
TARGET ANALYTES								
SODIUM		**108,000**	ug/L	4.16	17.1			

Run ID: R298838 / Work Group No.: WG232515
Prep Date1: 25-OCT-19 Prep Date2: 28-OCT-19 Analyzed 28-Oct-19 12:21

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