EAST BAY
MUNICIPAL UTILITY DISTRICT

February 27, 2012

Mr. Michael Rochette
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, 2011 Annual Report, Order No. R2-2007-0038

Dear Mr. Rochette:

In accordance with the General Waste Discharge Requirements of Order No. R2-2007-0038, this submittal is the 2011 annual self monitoring report for East Bay Municipal Utility District's (EBMUD's) Bayside Groundwater Project.

EBMUD performed potable water injection at the Bayside facility that lasted from June 1 to August 1, 2011. A total of approximately 28.4 million gallons were injected in two months with an annualized daily injection rate of 0.08 million gallons per day (MGD). No extraction events took place in 2011. Tables 1 to 3 summarize the injection and extraction volume data.

The Self Monitoring and Reporting Program (SMP) of Order No. R2-2007-0038 requires EBMUD to schedule and conduct a phased approach for groundwater quality monitoring. The SMP requires EBMUD to begin groundwater level and quality monitoring three months prior to initiating operation and continue for one additional year after operation ceases. Table 3 of the SMP tabulates monitoring well groups for phased monitoring. Monitoring is required to begin with Group 1 wells (Bayside Well, MW-2s, MW-2D[1], and MW-4). The monitoring of Group 1 wells is to be conducted on an annual basis until the expanding injected waterfront reaches MW-4.

On December 21, 2011, annual water quality sampling was conducted and samples were analyzed in accordance with Table 4 of the SMP. EBMUD retained Environmental Sampling Services (ESS) to collect water quality samples at the Bayside Well, MW-2S, MW-2I and MW-4. A peristaltic pump with a dedicated length of tubing was used to purge and sample MW-2S. A centrifugal pump with dedicated lengths of tubing was used to purge and sample MW-2I and MW-4. The Bayside Well was purged using a dedicated downhole turbine pump. The sample was collected from a spigot at the wellhead. Purge water discharges were disposed of on permeable ground adjacent to MW-2S, MW-2I, and MW-4. The Bayside Well's purge water was pumped to an onsite holding tank and eventually discharged to Oro Loma Sanitary District under a permit. No surface water discharges occurred.

Sampling was completed according to the following procedure:

1. Disinfect all equipment including water level sounder, pump, and tubing with a dilute bleach solution[2].
2. Measure static water level within each well and calculate the three-well volume of the well required for purging as per USEPA groundwater sampling protocol.

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[1] "MW-2D" is actually "MW-2I".
[2] In the case of the Bayside Well, samples were collected simply by activating the pump in the extraction mode.

3. Purge the well and collect the samples.
4. Measure field water quality data[3] and collect samples in sample containers with appropriate preservatives as per relevant USEPA sampling protocols for individual constituents.
5. Transport samples to EBMUD's state certified laboratory in a cooler for further analyses, under chain of custody.

Due to the detection of chlorine residual in the samples from December 21, 2011, the wells were resampled on January 5, 2012 for trihalomethanes, with field dechlorination and acidification. Purging and sampling techniques were identical to those used in the December monitoring round, except that a peristaltic pump with dedicated tubing was used at both MW-2S and MW-2I.

Table 4 contains construction details for all available wells in the groundwater monitoring system[4]. Table 5 contains groundwater elevation and depth to groundwater data. Table 6 summarizes general groundwater quality data; Table 7 summarizes sampling results for standard minerals; Table 8 summarizes haloacetic acids data; and Table 9 summarizes results for trihalomethanes. Tables 10 and 11 summarize vertical gradient calculations. Appendix A contains the original laboratory reports including the analytical methods used and associated method detection limits and minimum levels of quantitation.

Figure 1 shows the groundwater level monitoring network and Figure 2 shows the groundwater quality monitoring network. Pressure transducers have been installed in all of the wells listed in Table 4, in addition to the Bayside Well. These transducers measure water level and temperature at a minimum of 30-minute intervals. Figures 3 and 4 present the groundwater level contour maps for February 1 and October 1, 2011, respectively. Figures 5 to 17 present the 2011 groundwater level trends for the monitoring wells.

The high chloride concentrations from MW-2S, a shallow well screened from 40 to 60 feet below grade, are consistent with historic high chloride concentrations observed in the local shallow zone. Results for TTHMs and HAAs were well below the permit limits of 80 µg/L and 60 µg/L, respectively. No exceedances of water quality limits in the order were observed.

Groundwater elevation contour maps were prepared to represent subsurface conditions on February 1 and October 1, before and after the injection that occurred from June 1 to August 1. On both occasions, the deep aquifer was flowing in a southwesterly direction in the immediate area surrounding the Bayside project site. The gradient was 0.003 ft/ft on February 1 and 0.006 ft/ft on October 1. Water levels at MW-1 were also used to represent conditions at the Bayside Well due to its proximity to the Bayside Well and the fact that it is screened at the same depth. Water levels were missing for MW-5D and MW-7 on October 1 because the probe in MW-5D malfunctioned and the probe in MW-7 was stolen.

Vertical gradients were calculated for the three nested wells at MW-5 for February 1 and October 1 (see Tables 10 and 11). The gradient was downward in each case[5]. The vertical gradient between the deep well, MW-5D,

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[3] Measured field WQ parameters included pH, specific conductance, temperature, and color. Chlorine residual was also measured immediately prior to sample collection.
[4] Not all of the wells in Table 4 are required to be monitored according to Order No. R2-2007-0038.
[5] The gradient direction indicates the potential for ground water flow in that direction. However, the actual flow direction is also governed by the permeability of the porous medium and by the geology.

and intermediate well, MW-5I, could not be calculated on October 1 due to the missing water level data at MW-5D, as explained above.

Figures 5 through 17 show the typical pattern of higher groundwater levels during the late winter/spring than summer/fall prevailed in the deep aquifer. The deep wells also registered significant responses to the injection event that occurred in June and July, followed by a quick decline of water levels immediately afterwards. Wells close to the Bayside Well such as MW-3 and MW-4 experienced as much as a six-to-seven-foot increase in water levels, while MW-7 appeared to have a five-foot change before its probe went missing.

MW-2S experienced a sharp decline in water level that corresponded to the sampling event on December 21. Water levels at MW-2I exhibited a response to the injection event in June and July. However, they also showed significant fluctuations starting in September, most likely due to a malfunctioning probe. At one point in late December, the water level would also indicate artesian conditions, despite the fact that the 2011-2012 winter had been very dry up to that point and no injection had taken place since August 1st. In addition, the well was never observed to be flowing.

The probes in MW-6, MW-10I, and MW-10D also malfunctioned at one point or another during 2011, resulting in data gaps and/or significant water level fluctuations with no apparent explanation.

EBMUD and its contractor performed a stable isotope analysis using available oxygen-18 data. The results failed to provide a clear indication regarding whether or not the injected water front had reached MW-4. Nevertheless, due to the detection of chlorine residual at MW-4 on December 21, 2011, EBMUD will expand its groundwater quality monitoring well network and commence Group 2 monitoring in 2012. Group 2 wells include the Bayside Well, MW-2S, MW-2I, MW-4, and MW-6. In addition, EBMUD will implement the following monitoring protocol:

- Annual routine groundwater sampling will, to the extent practicable, be conducted during a period of non-pumping and prior to injection of water in the Bayside Well. Analysis of Oxygen-18 in these samples should indicate background or native stable isotopic compositions.
- A sample of injection water will be collected at the surface prior to or during injection. Analysis of oxygen-18 in this sample will indicate the stable isotopic composition of water potentially mixing with native groundwater.
- Once injection begins, a groundwater sample[6] or a time-series set of groundwater samples will be collected from the monitoring wells[7]. Analysis of oxygen-18 in these samples should provide a reliable indication that injection water had or had not migrated to a specific location of interest.

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[6] The timing of this sample will be determined by consulting past monitoring well water level responses to injection events. Only analysis for oxygen-18 will be necessary, plus TDS or any field measurement of specific conductance and/or chlorine residual deemed appropriate for independent corroboration of oxygen-18 results.

[7] All wells in the monitoring group except the Bayside Well.

EBMUD will continue to monitor injection and extraction of groundwater in accordance with all associated regulatory permits in 2012.

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) 287-0345 or Derek Lee, Senior Environmental Health and Safety Specialist, at (510) 287-1086.

Sincerely,

John H. Schroeter, P.E.
Manager of Environmental Compliance

Table 1: Extraction Summary		
Date	Average Flow Rate (GPM)	Approx. Daily Volume (MGD)
Permit Limit = Annual Rate of 1 MGD		
2011	0	0
Annualized Daily Rate		**0**

Table 2: Injection Summary		
Date	Average Flow Rate (GPM)	Approx. Daily Volume (MGD)
Permit Limit = Annual Rate of 1 MGD		
Jun-11	329	0.47
Jul-11	313	0.45
Aug-11	155	0.22
Annualized Daily Rate		**0.08**

Table 3: Cumulative Total Volume		
Year	Recovered Volume (gallons)	Injected Volume (gallons)
2009	4,545,000	445,000
2010	113,000,000	0
2011	0	28,432,401
Total	**117,545,000**	**28,877,401**

Table 4: Groundwater Monitoring Wells Information

Well ID	Latitude	Longitude	Address	City	Completion Date	Drilled Depth (ft bgs)	Casing Depth (ft bgs)	Depth of Perforation Begin (ft bgs)	Depth of Perforation End (ft bgs)	Casing Diameter (in)	Reference Elevation (ft amsl)	Reference Location on Well
MW-1[1]	37° 40' 4.8"	122° 9' 25.2"	2600 Grant Ave	San Lorenzo		665	650	520	640	2	8.71	Top of steel casing
MW-2S[1]	37° 40' 4.8"	122° 9' 25.2"	2600 Grant Ave	San Lorenzo		210	60	40	60	2	9.9	Top of steel casing
MS-2I[1]	37° 40' 4.8"	122° 9' 25.2"	2600 Grant Ave	San Lorenzo		210	200	160	190	2	9.9	Top of steel casing
MW-3[1]	37° 40' 4.8"	122° 9' 28.8"	2600 Grant Ave	San Lorenzo		665	660	520	650	2	8.12	Top of steel casing
MW-4[1]	37° 40' 11.6"	122° 9' 28.8"	2575 Grant Ave	San Lorenzo		705	650	520	650	2	8.96	Top of steel rim
MW-5S[1]	37° 40' 34.4"	122° 9' 06.6"	2006 Via Barrett	San Lorenzo	Sep-08	460	210	200	210	2	13.88	Seat of vault lid @ e'ly edge
MW-5I[1]	37° 40' 34.4"	122° 9' 06.6"	2005 Via Barrett	San Lorenzo	Sep-08	460	325	315	325	2	13.88	Seat of vault lid @ e'ly edge
MW-5D[1]	37° 40' 34.4"	122° 9' 06.6"	2007 Via Barrett	San Lorenzo	Feb-01	1025	640	500	630	4	13.76	Top of casing @ n'ly fastener hole
MW-6[1]	37° 40' 07"	122° 9' 04.5"	15600 Worthley	San Lorenzo	Nov-00	1000	655	480	650	4	9.46	Top of casing @ e'ly edge
MW-7[1]	37° 39' 56.5"	122° 8' 44.2"	Western tip of San Lorenzo park	San Lorenzo	Nov-00	972	680	510	630	4	7.42	Top of casing @ n'ly edge
MW-8D	34° 43' 04"	122° 11' 50.3"	1970 Davis Street	San Leandro		910	490	420	480	2	14.76	Top of steel rim
MW-9S	37° 41' 11"	122° 6' 46"	589 E. Lewelling Ave	San Lorenzo	Jan-08	460	120	110	120	2	54.39	Seat of vault, w'ly side
MW-9I	37° 41' 11"	122° 6' 46"	589 E. Lewelling Ave	San Lorenzo	Jan-08	460	210	200	210	2	54.39	Seat of vault, w'ly side
MW-9D[1]	37° 41' 11"	122° 6' 46"	589 E. Lewelling Ave	San Lorenzo	Jan-08	460	335	325	335	2	54.39	Seat of vault, w'ly side
MW-10S	37° 41' 19"	122° 9' 43"	15528 Wick Blvd	San Leandro	Sep-08	680	120	100	120	2	11.76	Seat of vault lid @ e'ly edge
MW-10I[1]	37° 41' 19"	122° 9' 43"	15528 Wick Blvd	San Leandro	Sep-08	680	360	340	360	2	11.76	Seat of vault lid @ e'ly edge
MW-10D[1]	37° 41' 19"	122° 9' 43"	15528 Wick Blvd	San Leandro	Sep-08	680	610	590	610	2	11.76	Seat of vault lid @ e'ly edge

Notes:

1 - Groundwater level monitoring required per Order No. R2-2007-0038

Table 5: Groundwater Elevation/Depth to Groundwater Data

	Groundwater Elevation ft amsl									Depth to Groundwater ft bgs								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			0.99		-4.07							8.78*		12.68*				
12/9/2008		-5.06		1.09							13.74*		8.73*					
12/14/2009					-3.75									12.71				
12/15/2009			0.95	1.44								8.95	8.46					
12/8/2010	-7.22		1.71	0.25	-7.45					15.6		8.19	9.65	16.41				
12/21/2011		-4.16	1.12	3.59	-4.17						12.87	8.78	6.31	13.13				
1/5/2012		-3.94	1.04	6.24	-3.97						12.65	8.86	3.66	12.93				

Notes:

BW = Bayside Well

* Applicable well reference elevations are different from those in Table 4.

Table 6: General Water Quality Data

	pH								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			6.6		7.82				
12/9/2008		7.96		7.97					
12/14/2009	8.18				8.02				
12/15/2009			6.55	8.05					
12/8/2010	7.37		6.33	7.56	7.51				
12/21/2011	8.17		6.67	7.86	7.8				
1/5/2012	7.82		6.83	7.82	7.42				

	Chlorine Residual								
	mg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
			ND		ND				
		ND		ND					
	ND				ND				
			ND	ND					
	ND		ND	ND	ND				
	ND		0.14	ND	0.08				
	ND		0.09	ND	ND				

	TDS								
	mg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
			77000		400				
		170		520					
	200				440				
			87000	510					
	360		80000	620	430				
	89		78000	520	400				
	NA		NA	NA	NA				

	Ammonia as N								
	mg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			0.28		0.28				
12/9/2008		<0.2		0.84					
12/14/2009	<0.3				<0.3				
12/15/2009			<0.3	<0.3					
12/8/2010	<0.3		<0.3	<0.3	<0.3				
12/21/2011	<0.12		<0.12	0.168	<0.12				

	Nitrate as N								
	mg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
			<0.14		<0.14				
		<0.14		<0.14					
	0.029				0.36				
			<0.095	0.16					
	E0.004		<0.31	<0.0031	<0.0031				
	0.18		<0.095	<0.095	0.026				

	Chloride								
	mg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
			510		50				
		25		78					
	31				54				
			39000	84					
	55		44000	110	57				
	9		44000	79	56				

	Manganese								
	µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			18800		206				
12/9/2008		56.7		101					
12/14/2009	55.4				228				
12/15/2009			36900	98.6					
12/8/2010	58.1		35000	99.8	203				
12/21/2011	11.2		36400	102	260				

	Iron								
	µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
			<230		47				
		<11		210					
	130				35				
			<31	110					
	160		<83	390	77				
	312		<26	151	281				

Notes:

BW = Bayside Well

E = Estimated value, concentration outside calibration range. For SIP, E=DNQ, Estimated Concentration.

NA = Not analyzed

Table 7: Standard Minerals Data

	Calcium µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			630000		25400				
12/9/2008		17000		15000					
12/14/2009	28000				30000				
12/15/2009			1300000	15000					
12/8/2010	27000		1300000	17000	29000				
12/21/2011	10800		1250000	13900	27800				

	Magnesium µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			1500000		10600				
12/9/2008		5400		14000					
12/14/2009	7400				12000				
12/15/2009			2.80E+06	13000					
12/8/2010	7900		2.50E+06	15000	12000				
12/21/2011	2780		2.78E+06	12600	10500				

	Potassium µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			230000		3200				
12/9/2008		1100		5500					
12/14/2009	1400				2800				
12/15/2009			500000	6100					
12/8/2010	1700		450000	6000	2600				
12/21/2011	768		509000	5200	2410				

	Sodium µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			11000000		102000				
12/9/2008		36000		150000					
12/14/2009	41000				110000				
12/15/2009			2.30E+07	160000					
12/8/2010	84000		2.10E+07	170000	100000				
12/21/2011	15200		2.22E+07	153000	103000				

	Sulfate mg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			5600		32				
12/9/2008		16		27					
12/14/2009	23				37				
12/15/2009			4000	26					
12/8/2010	42		5700	23	42				
12/21/2011	11		5700	32	41				

	Hardness mg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			16000		110				
12/9/2008		64		93					
12/14/2009	97				120				
12/15/2009			17000	100					
12/8/2010	100		16000	100	130				
12/21/2011	40		16000	94	120				

	Alkalinity: Total as $CaCO_3$ mg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			420		230				
12/9/2008		87		160					
12/14/2009	110				240				
12/15/2009			380	310					
12/8/2010	170		390	310	230				
12/21/2011	47		420	310	230				

	Alkalinity: Hydroxide mg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			<0.1		<0.1				
12/9/2008		<0.1		<0.1					
12/14/2009	< 0.1				<0.1				
12/15/2009			<0.1	<0.1					
12/8/2010	<0.1		<0.1	<0.1	<0.1				
12/21/2011	<0.1		<0.1	<0.1	<0.1				

	Alkalinity: Carbonate mg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			0.16		1.4				
12/9/2008		0.74		1.4					
12/14/2009	0.66				1.6				
12/15/2009			0.2	2.8					
12/8/2010	0.37		<0.1	1	0.7				
12/21/2011	0.64		0.18	2.1	1.4				

	Alkalinity: Bicarbonate mg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			420		229				
12/9/2008		86.2		159					
12/14/2009	109				238				
12/15/2009			380	307					
12/8/2010	170		390	310	230				
12/21/2011	46		420	300	230				

Notes:
BW = Bayside Well

Table 8: Haloacetic Acids Data

	HAA(5) µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			2.1		<2.9				
12/9/2008		<2.9		<2.9					
12/14/2009	<2.9				<2.9				
12/15/2009			<2.9	<2.9					
12/8/2010	<2.9		<2.9	<2.9	<2.9				
12/21/2011	0.59		0.31	<2.9	<2.9				

	HAA(9) µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			3.6		<5				
12/9/2008		<5		<5					
12/14/2009	<5				<5				
12/15/2009			<5	<5					
12/8/2010	<5		<5	<5	<5				
12/21/2011	0.59		0.31	<5	<5				

	Bromochloroacetic Acid µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			<0.55		<0.55				
12/9/2008		<0.55		<0.55					
12/14/2009	<0.55				<0.55				
12/15/2009			<0.55	<0.55					
12/8/2010	<0.55		<0.55	<0.55	<0.55				
12/21/2011	<0.55		<0.55	<0.55	<0.55				

	Bromodichloroacetic Acid µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			1.5		<0.26				
12/9/2008		<0.26		<0.26					
12/14/2009	<0.26				<0.26				
12/15/2009			<0.26	<0.26					
12/8/2010	<0.26		<0.26	<0.26	<0.26				
12/21/2011	<0.26		<0.26	<0.26	<0.26				

	Chlorodibromoacetic Acid µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			<0.54		<0.54				
12/9/2008		<0.54		<0.54					
12/14/2009	<0.54				<0.54				
12/15/2009			<0.54	<0.54					
12/8/2010	<0.54		<0.54	<0.54	<0.54				
12/21/2011	<0.54		<0.54	<0.54	<0.54				

	Dibromoacetic Acid µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			0.6		<0.25				
12/9/2008		<0.25		<0.25					
12/14/2009	<0.25				<0.25				
12/15/2009			<0.25	<0.25					
12/8/2010	<0.25		<0.25	<0.25	<0.25				
12/21/2011	<0.25		0.31	<0.25	<0.25				

	Dichloroacetic Acid µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			<0.99		<0.99				
12/9/2008		<0.99		<0.99					
12/14/2009	<0.99				<0.99				
12/15/2009			<0.99	<0.99					
12/8/2010	<0.99		<0.99	<0.99	<0.99				
12/21/2011	<0.99		<0.99	<0.99	<0.99				

	Monobromoacetic Acid µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			<0.54		<0.54				
12/9/2008		<0.54		<0.54					
12/14/2009	<0.54				<0.54				
12/15/2009			<0.54	<0.54					
12/8/2010	<0.54		<0.54	<0.54	<0.54				
12/21/2011	<0.54		<0.54	<0.54	<0.54				

	Monochloroacetic Acid µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			1.5		<0.78				
12/9/2008		<0.78		<0.78					
12/14/2009	<0.78				<0.78				
12/15/2009			<0.78	<0.78					
12/8/2010	<0.78		<0.78	<0.78	<0.78				
12/21/2011	<0.78		<0.78	<0.78	<0.78				

Table 8: Haloacetic Acids Data

	Tribromoacetic Acid µg/L									Trichloroacetic Acid µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			<0.83		<0.83							<0.3		<0.3				
12/9/2008		<0.83		<0.83							<0.3		<0.3					
12/14/2009	<0.83				<0.83					<0.3				<0.3				
12/15/2009			<0.83	<0.83								<0.3	<0.3					
12/8/2010	<0.83		<0.83	<0.83	<0.83					<0.3		<0.3	<0.3	<0.3				
12/21/2011	<0.83		<0.83	<0.83	<0.83					0.59		<0.3	<0.3	<0.3				

Notes:
BW = Bayside Well

Table 9: Trihalomethanes Data

	TTHMs µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			<0.37		<0.37				
12/9/2008		<0.37		<0.37					
12/16/2008									<0.37
12/1/2009	0.1								
12/4/2009	0.11								
12/14/2009	<2.43[1]				<2.43[1]				
12/15/2009			<2.43[1]	<2.43[1]					
12/8/2010	<2.43[1]		<2.43[1]	<2.43[1]	<2.43[1]				
1/5/2012	≥39.86 & <40.09[1]		<0.609[1]	<0.609[1]	<0.609[1]				

	Chloroform µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			<0.054		<0.054				
12/9/2008		<0.054		<0.054					
12/16/2008									<0.054
12/1/2009									
12/4/2009									
12/14/2009	<0.57				<0.57				
12/15/2009			<0.57	<0.57					
12/8/2010	<0.57		<0.57	<0.57	<0.57				
1/5/2012	38		<0.17	<0.17	<0.17				

	Bromodichloromethane µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			<0.074		<0.074				
12/9/2008		<0.074		<0.074					
12/16/2008									<0.074
12/1/2009									
12/4/2009									
12/14/2009	< 0.58				<0.58				
12/15/2009			<0.58	<0.58					
12/8/2010	<0.58		<0.58	<0.58	<0.58				
1/5/2012	1.6		<0.079	<0.079	<0.079				

	Dibromochloromethane µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			<0.11		<0.11				
12/9/2008		<0.11		<0.11					
12/16/2008									<0.11
12/14/2009	< 0.64				<0.64				
12/15/2009			<0.64	<0.64					
12/8/2010	<0.64		<0.64	<0.64	<0.64				
1/5/2012	0.26		<0.13	<0.13	<0.13				

	Bromoform µg/L								
	BW	MW-1	MW-2S	MW-2I	MW-4	MW-6	MW-5D	MW-7	MW-10D
12/8/2008			<0.13		<0.13				
12/9/2008		<0.13		<0.13					
12/16/2008									<0.13
12/14/2009	<0.64				<0.64				
12/15/2009			<0.64	<0.64					
12/8/2010	<0.64		<0.64	<0.64	<0.64				
1/5/2012	<0.23		<0.23	<0.23	<0.23				

Notes:
BW = Bayside Well
1 - Calculated from individual THMs

Table 10: Vertical Gradients for the Nested MW-5 Wells on February 1, 2011			
Nested Well Set	**MW-5S**	**MW-5I**	**MW-5D**
Elevation at land surface (ft amsl)	13.88	13.88	13.76
Depth of monitoring well (ft bgs)	210	325	640
Depth to water (ft bgs)	1.85	8.16	18.18
Hydraulic Head (ft)	12.03	5.72	-4.42
Pressure Head (ft)	208.15	316.84	621.82
Elevation Head (ft)	-196.12	-311.12	-626.24
Vertical Hydraulic Gradient (ft/ft)	--	**0.055**	**0.032**

Table 11: Vertical Gradients for the Nested MW-5 Wells on October 1, 2011			
Nested Well Set	**MW-5S**	**MW-5I**	**MW-5D**
Elevation at land surface (ft amsl)	13.88	13.88	13.76
Depth of monitoring well (ft bgs)	210	325	640
Depth to water (ft bgs)	1.82	7.07	NA
Hydraulic Head (ft)	12.06	6.81	--
pressure Head (ft)	208.18	317.93	--
Elevation Head (ft)	-196.12	-311.12	--
Vertical Hydraulic Gradient (ft/ft)	--	**0.046**	--

Figure 1 – Groundwater Level Monitoring Well Network

Figure 2 – Groundwater Quality Monitoring Well Network

LEGEND

- Groundwater monitoring well
- (-3.24) Groundwater elevation in feet below mean sea level (measured February 1, 2011)
- -3.0 Groundwater elevation contour in feet below mean sea level (contour interval: 1.0 feet)
- 0.003 Calculated groundwater gradient direction and magnitude in foot per foot

URS	26817754.2008	GROUNDWATER ELEVATION CONTOUR MAP February 1, 2011	Figure 3
	EBMUD		

LEGEND

⊕	Groundwater monitoring well
(-3.24)	Groundwater elevation in feet below mean sea level (measured October 1, 2011)
-3.0	Groundwater elevation contour in feet below mean sea level (contour interval: 1.0 feet)
0.0003	Calculated groundwater gradient direction and magnitude in foot per foot
NA	Not available (water level not measured)

URS	26817754.2008	GROUNDWATER ELEVATION CONTOUR MAP (October 1, 2011)	Figure 4
	EBMUD		

Figure 5 - MW-1 2011 GW Level Trend

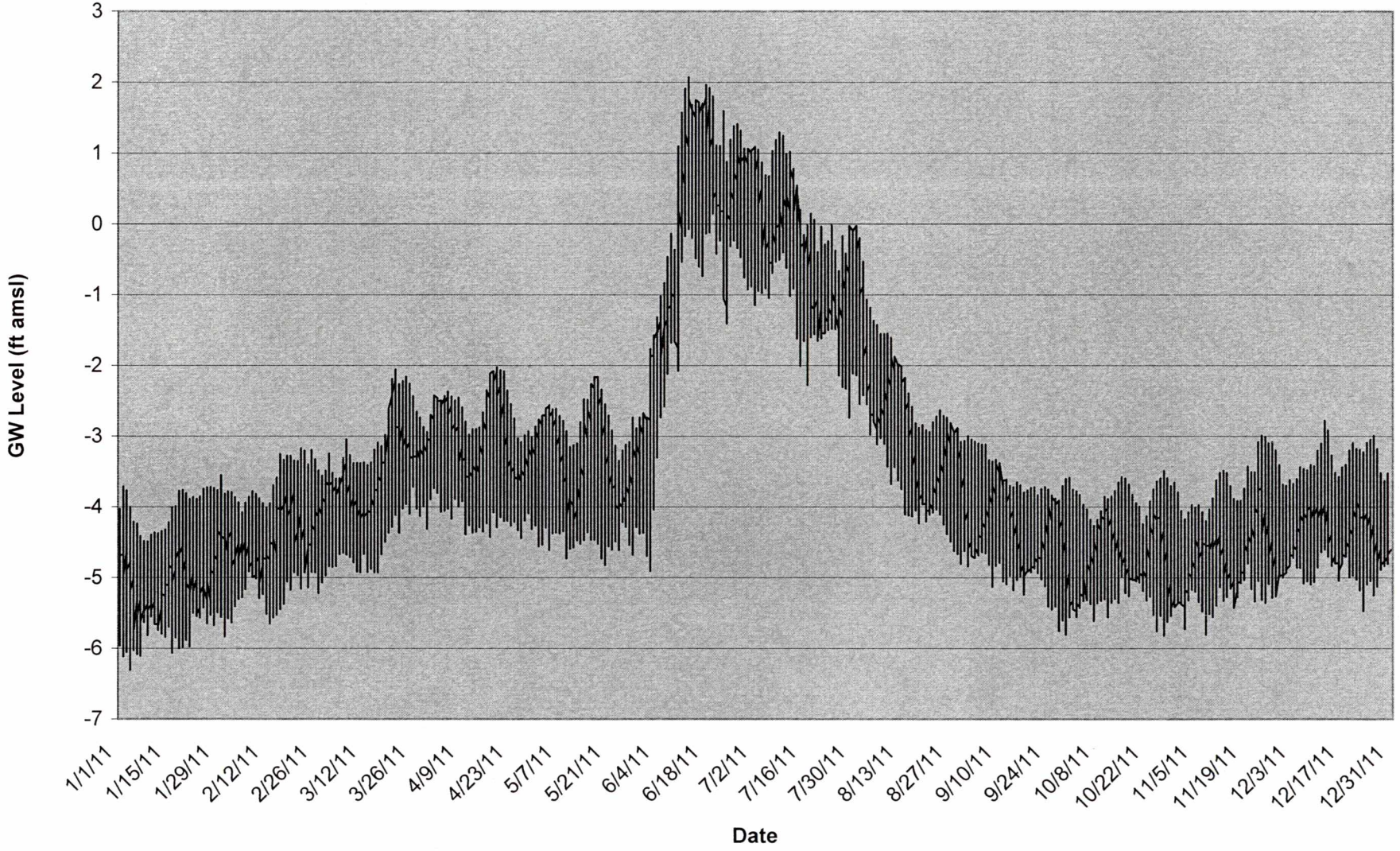


Figure 6 - MW-2S 2011 GW Level Trend

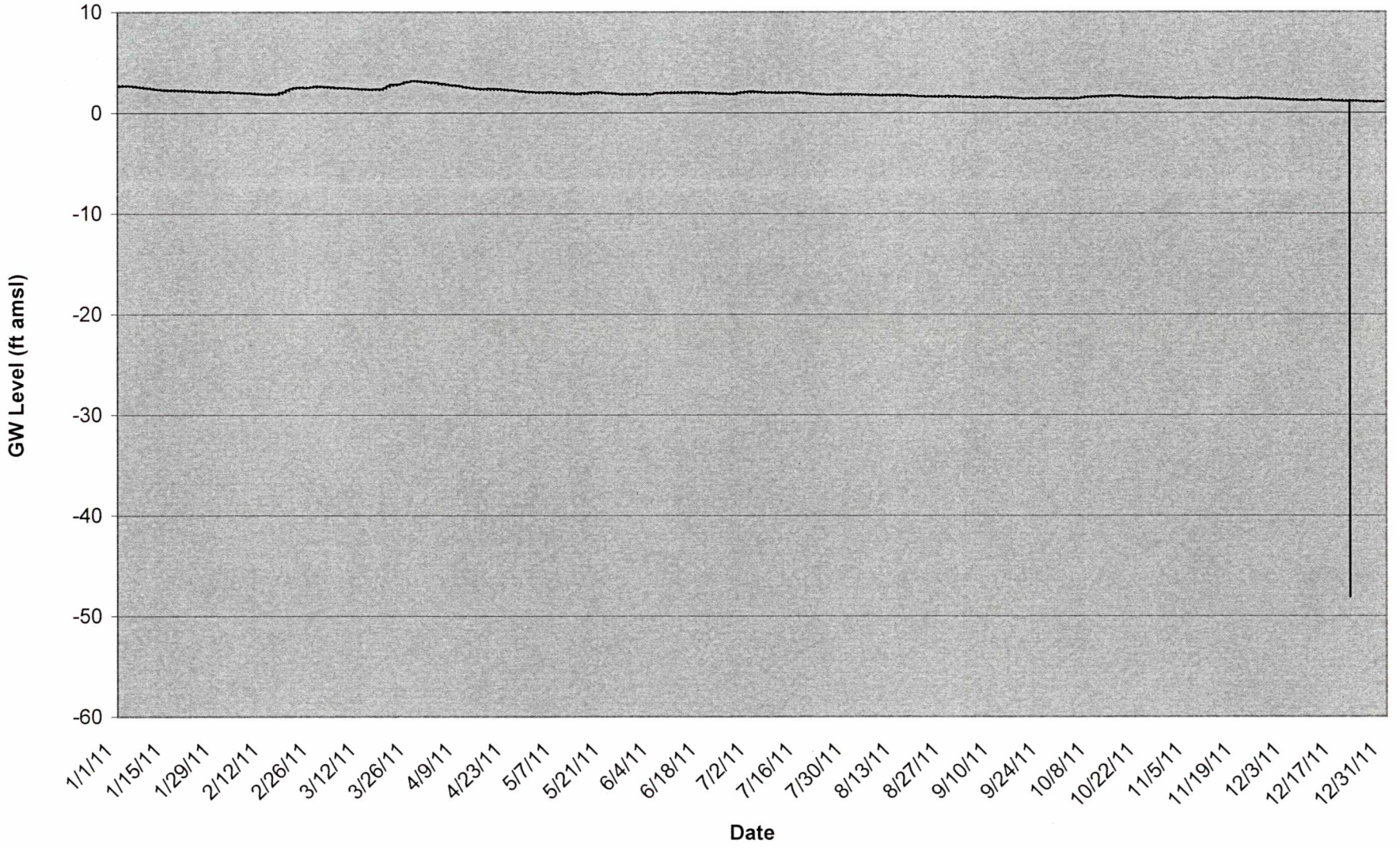


Figure 7 - MW-2I 2011 GW Level Trend

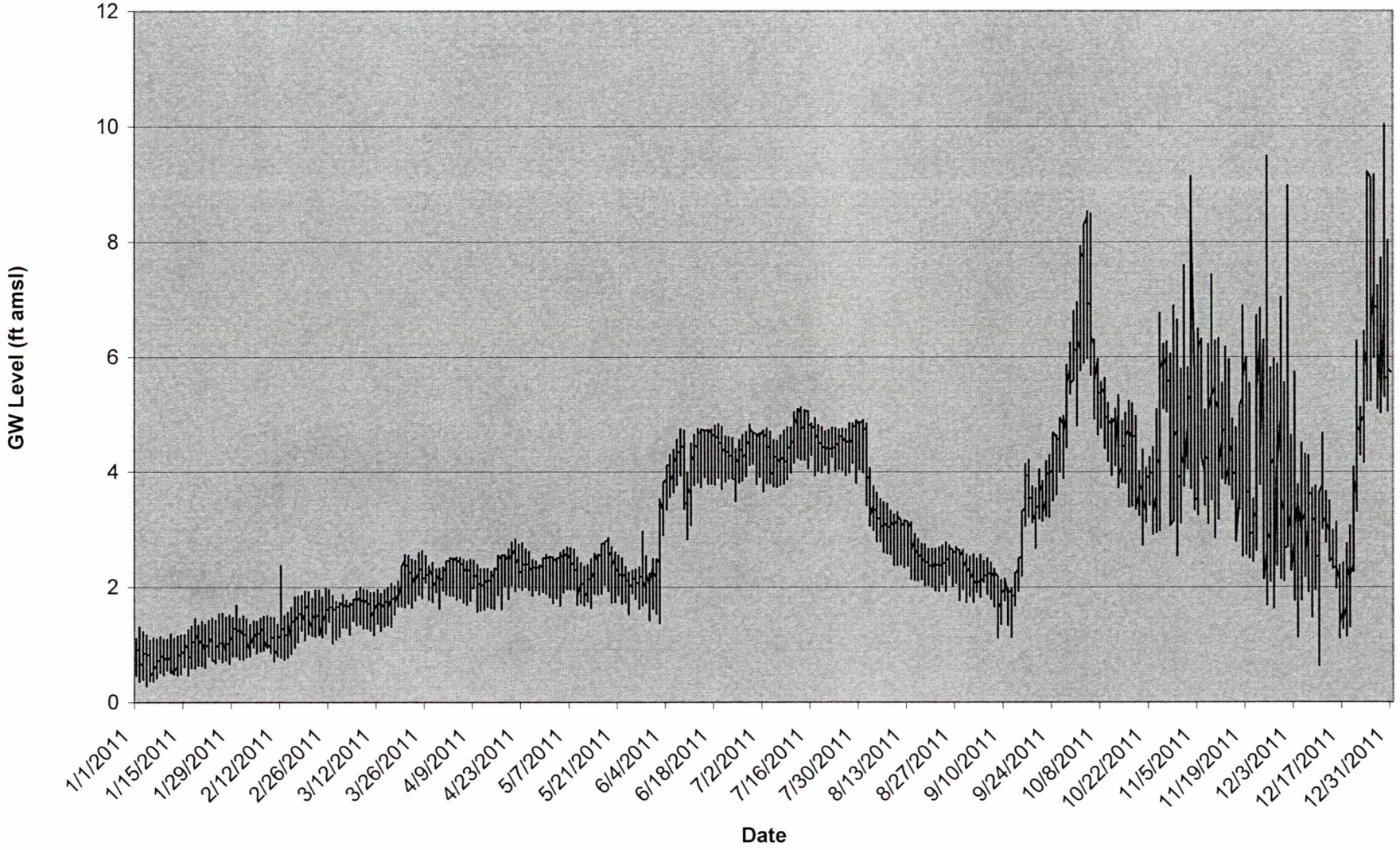


Figure 8 - MW-3 2011 GW Level Trend

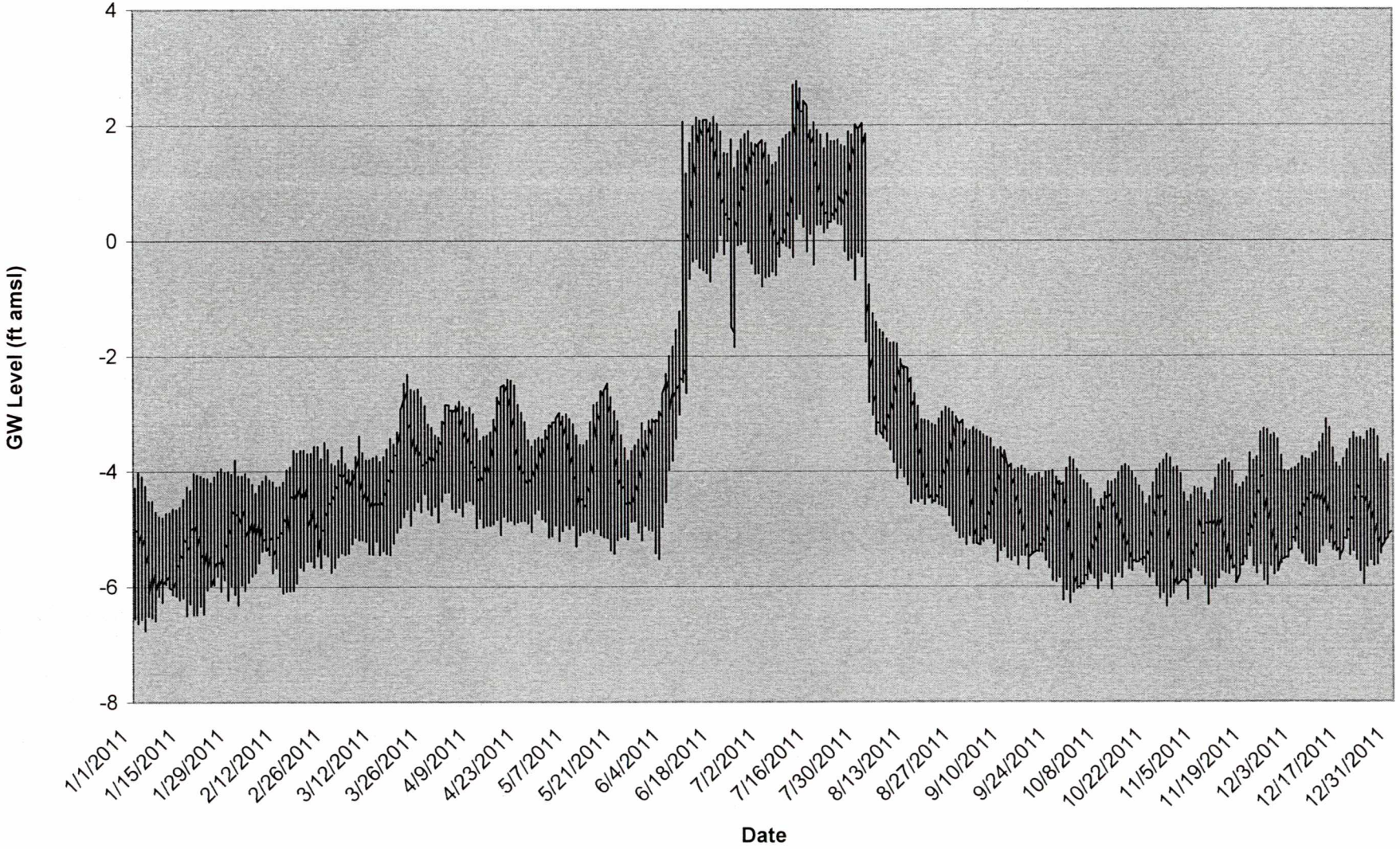


Figure 9 - MW-4 2011 GW Level Trend

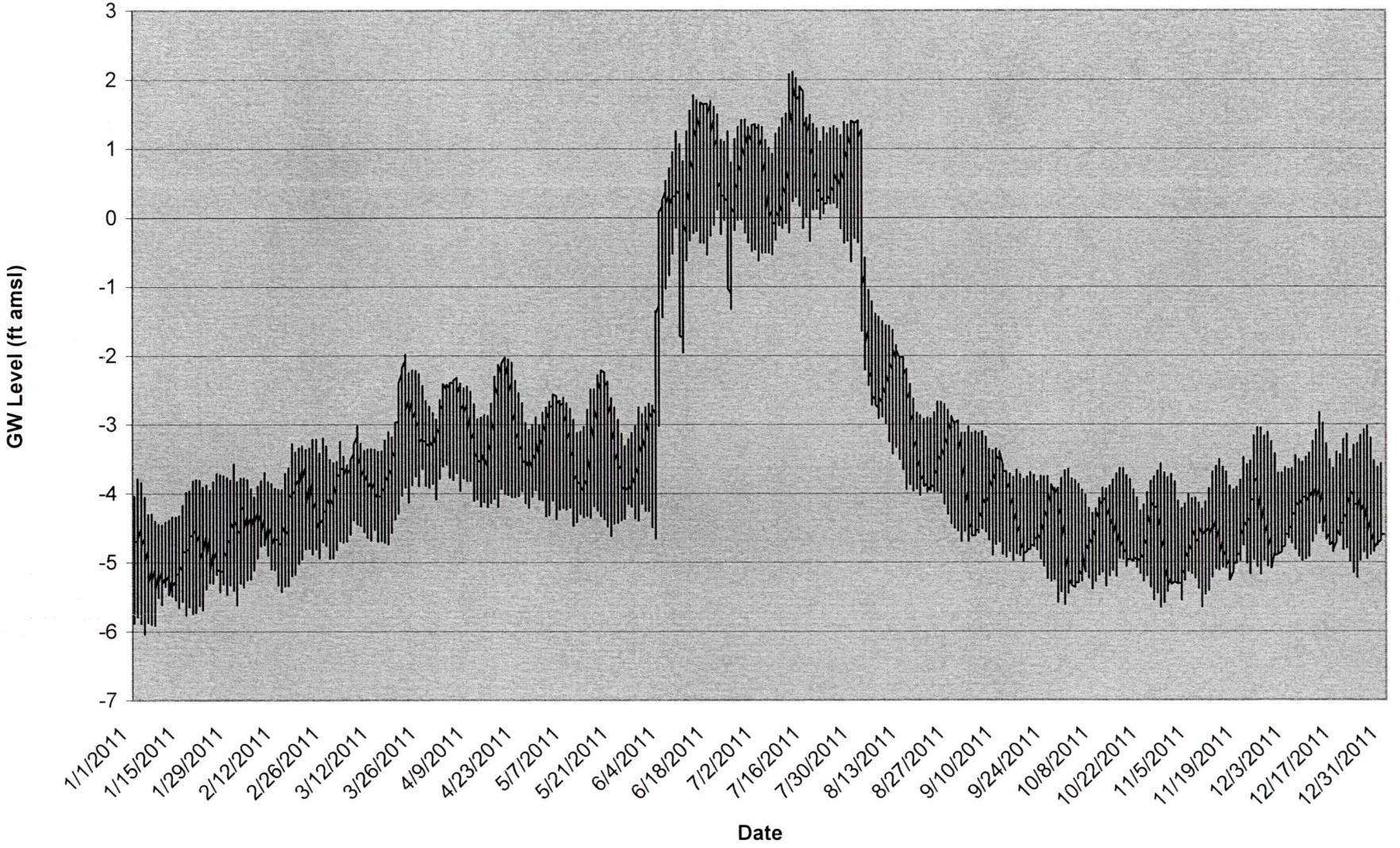


Figure 10 - MW-5S 2011 GW Level Trend

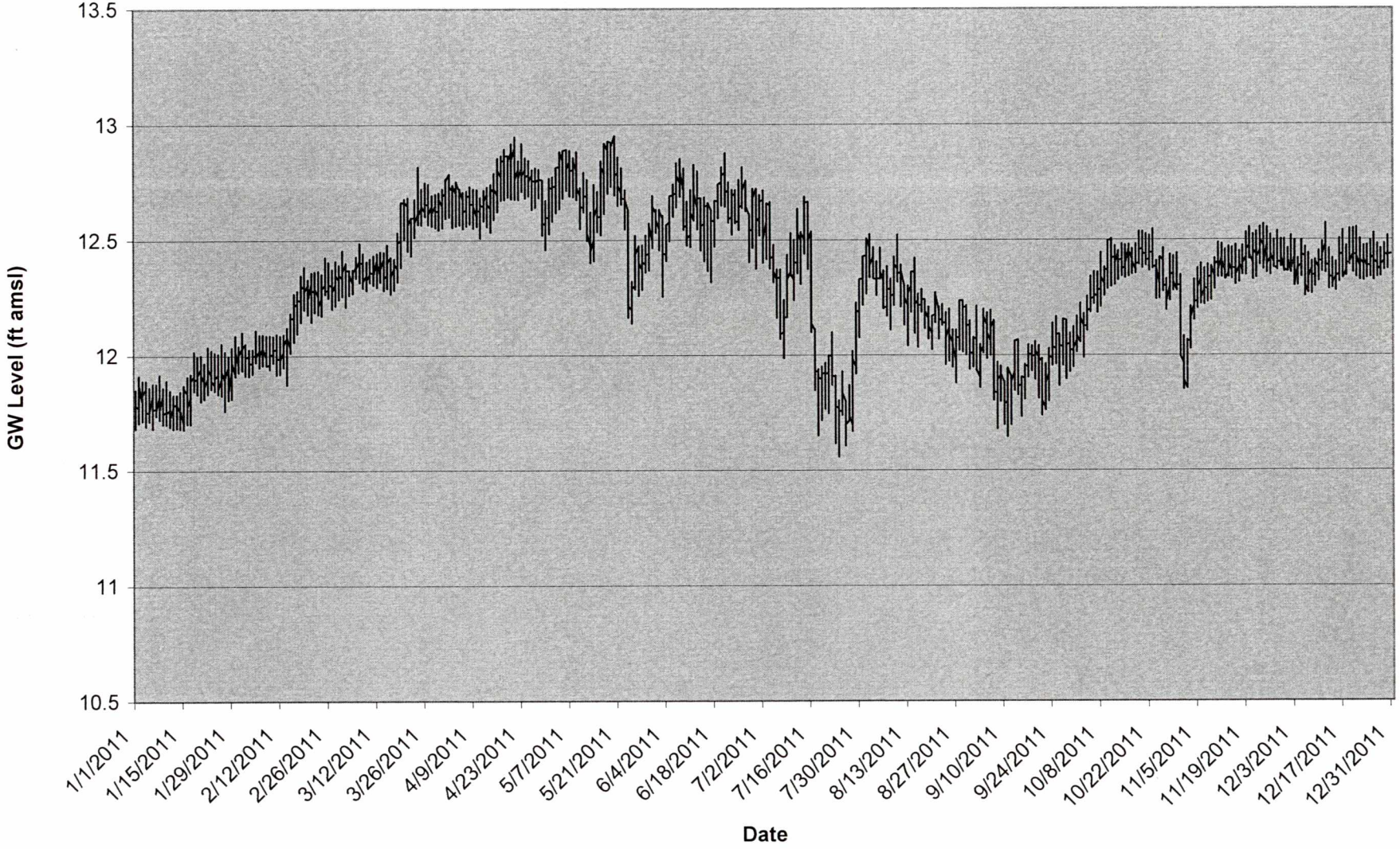


Figure 11 - MW-5I 2011 GW Level Trend

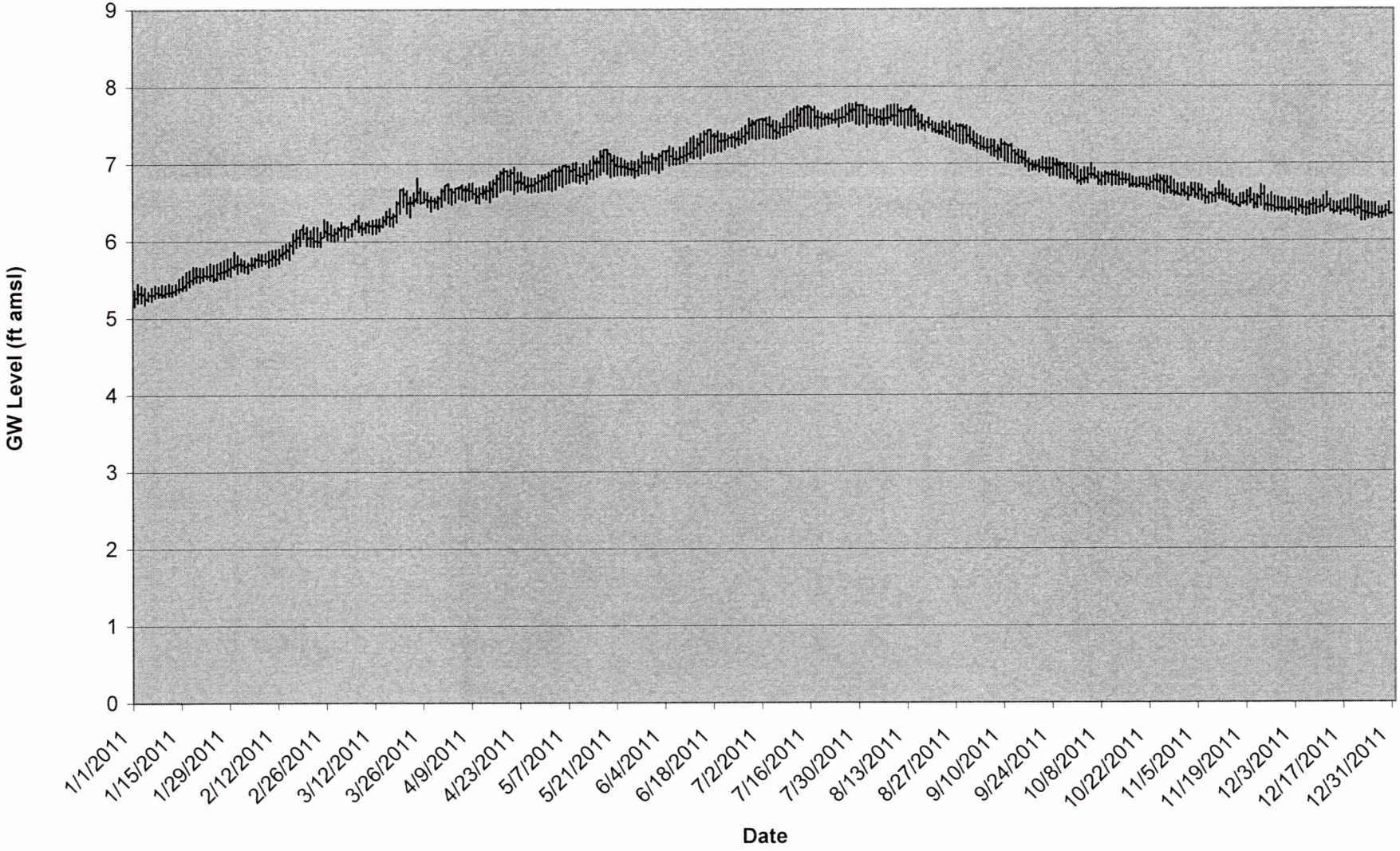


Figure 12 - MW-5D 2011 GW Level Trend

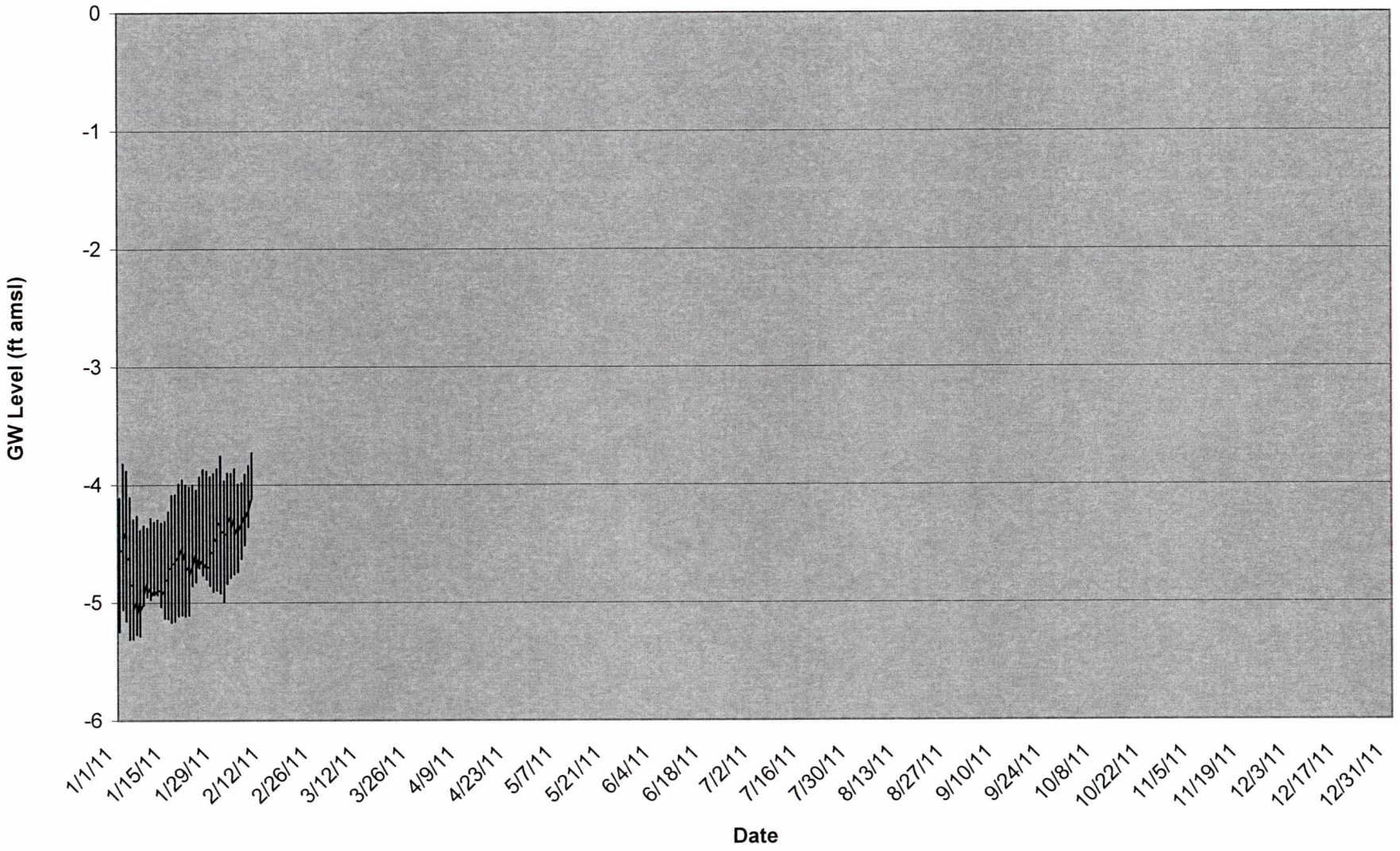


Figure 13 - MW-6 2011 GW Level Trend

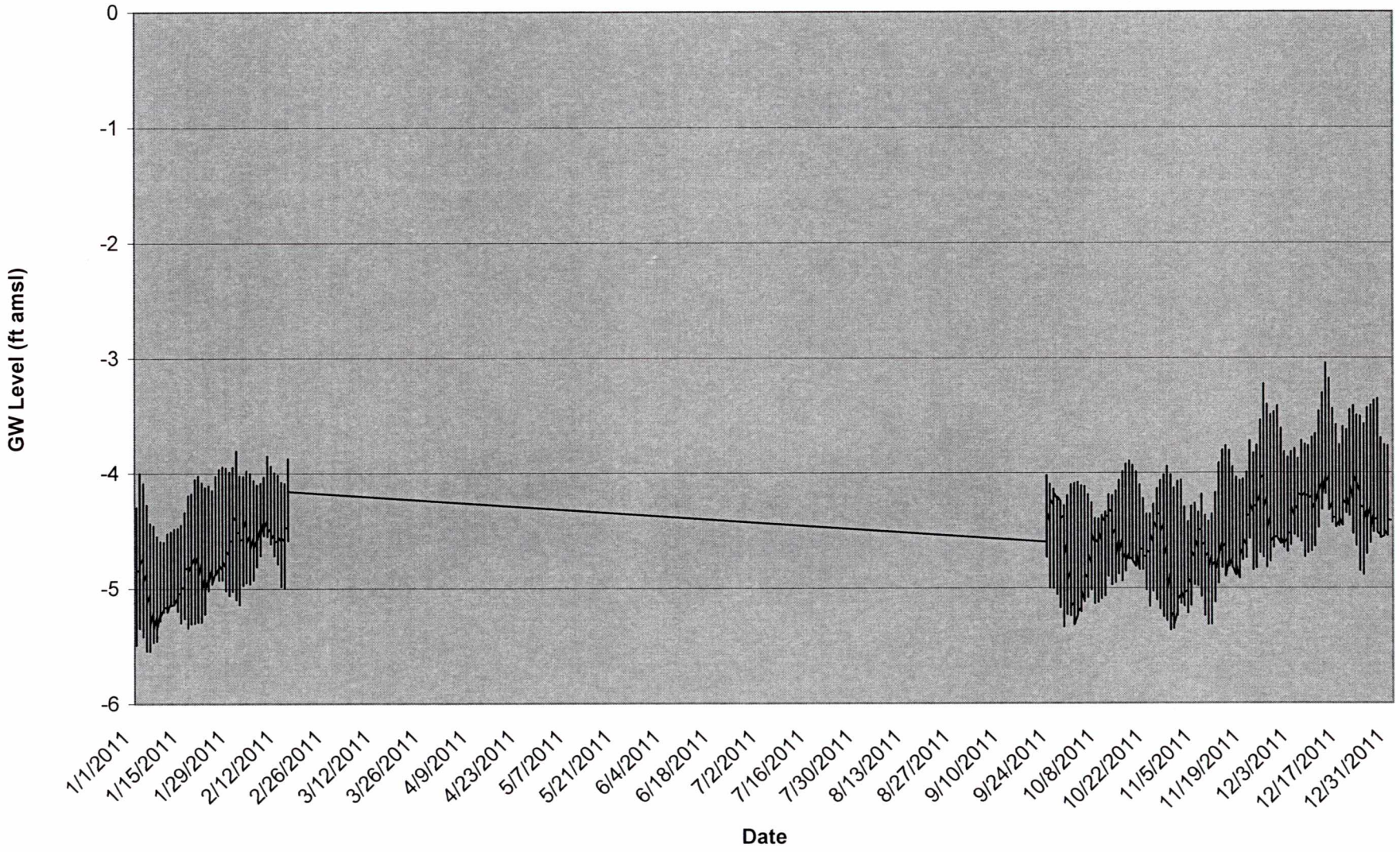


Figure 14 - MW-7 2011 GW Level Trend

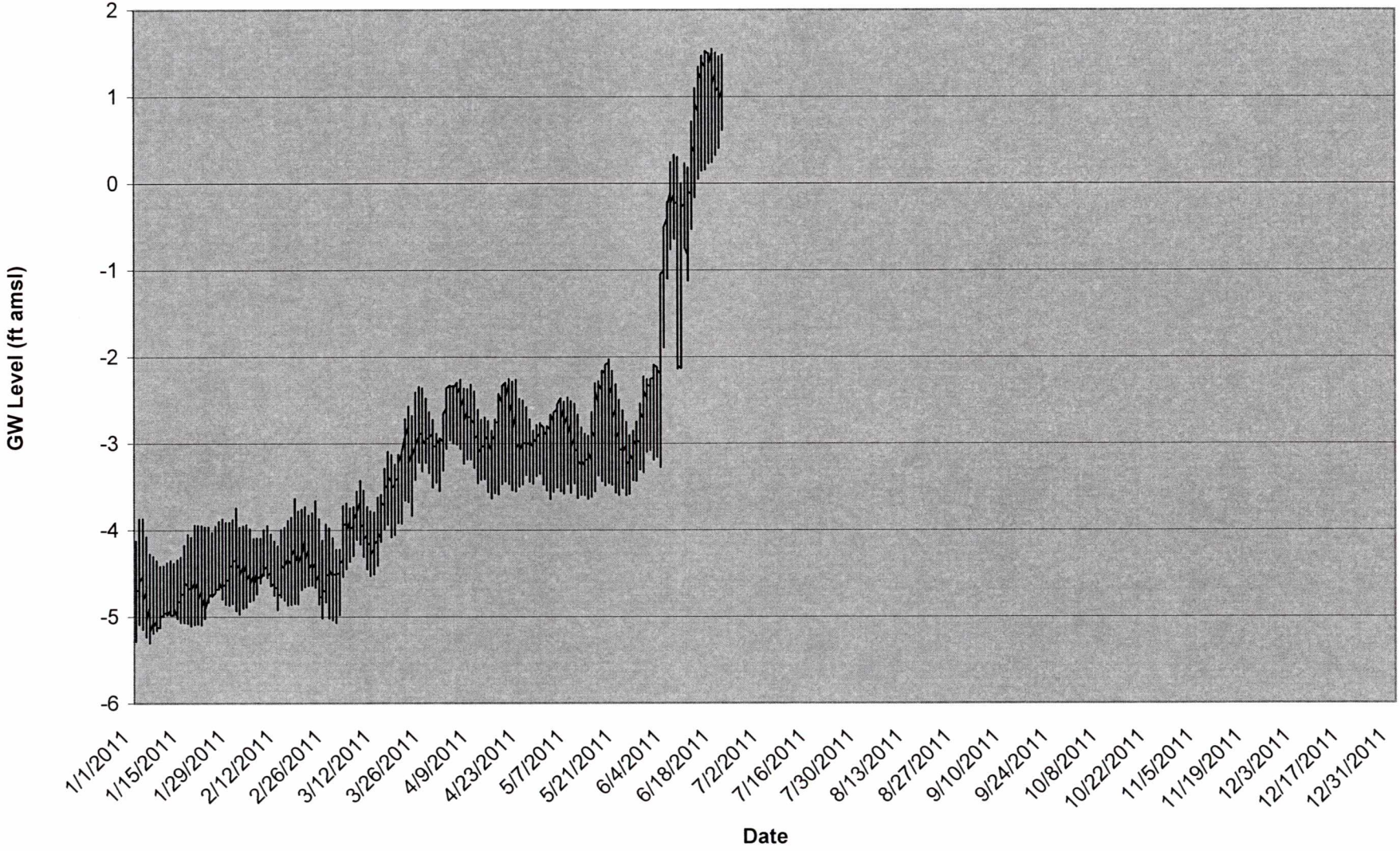


Figure 15 - MW-9D 2011 GW Level Trend

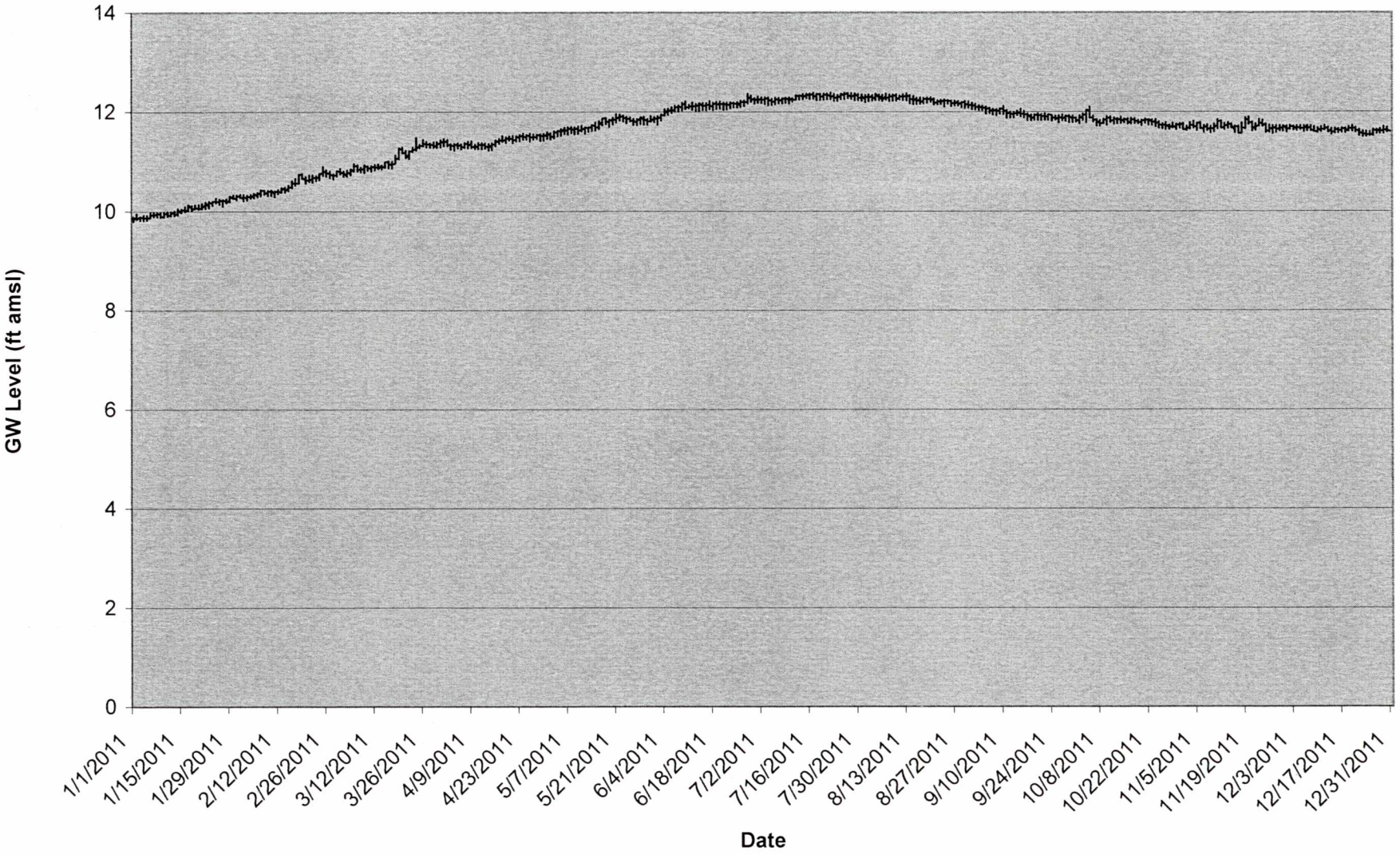


Figure 16 - MW-10I 2011 GW Level Trend

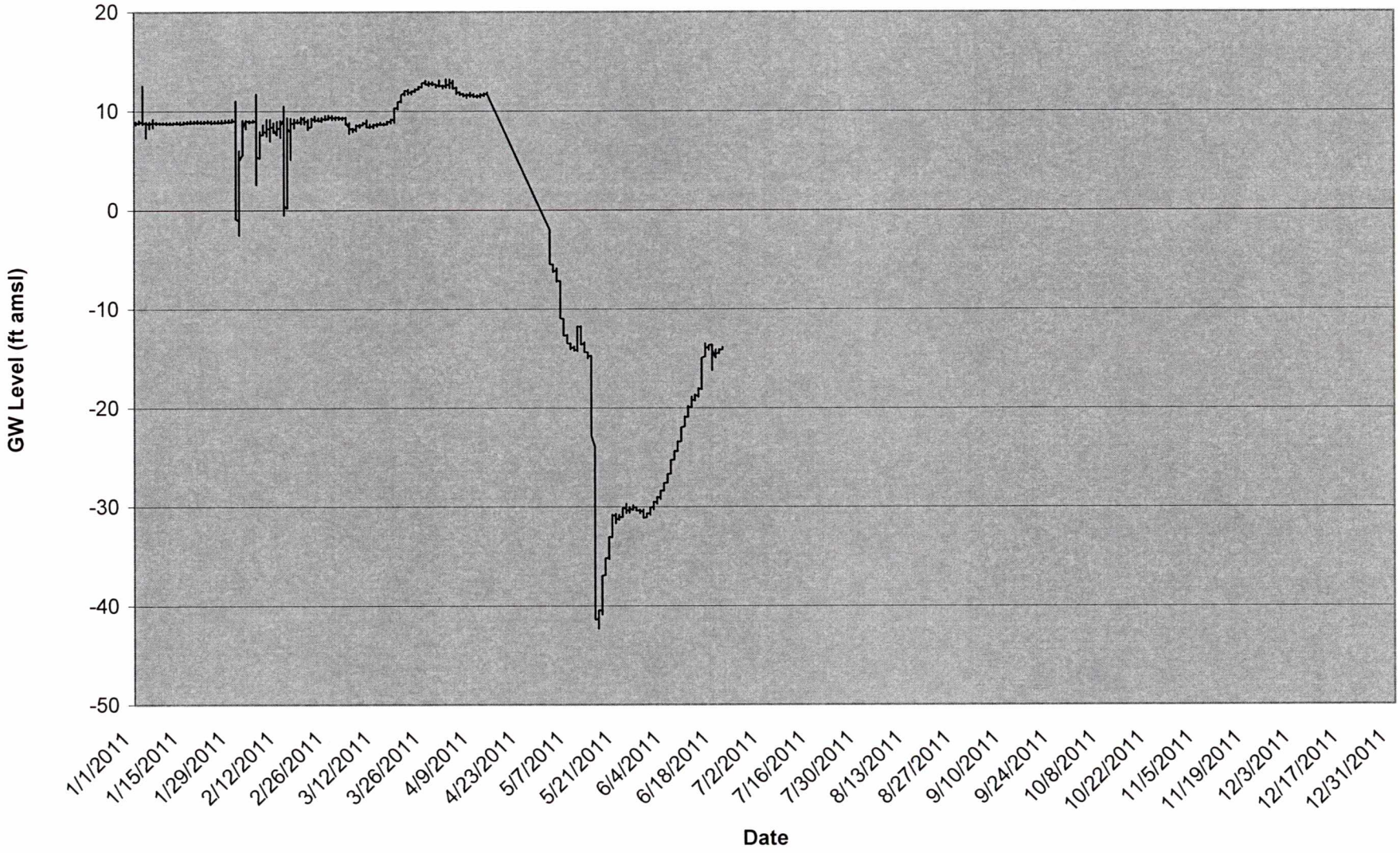
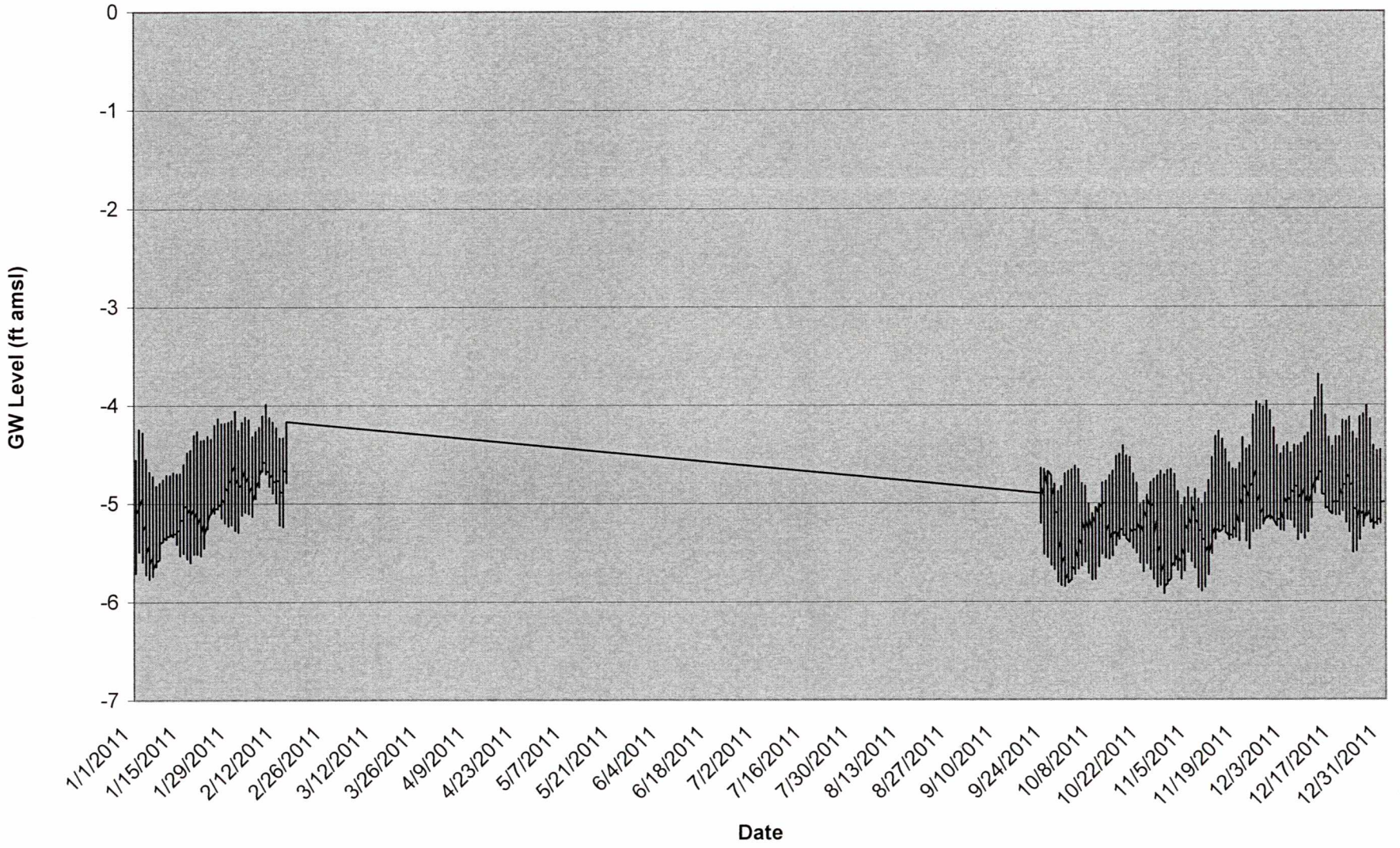


Figure 17 - MW-10D 2011 GW Level Trend



Appendix A: Lab Reports

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 DEREK LEE

Report generated on: Jan 18, 2012 03:23 pm
Login No.: L172221

Reported by:

JACK C. LIM
Laboratory Program Manager

Approved by:

NIRMELA ARSEM
Laboratory Services Division Manager

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

Login Performance Summary
4 - Samples received by the lab on: Dec 21 2011, 02:58 pm
0 - Lost Analyses
0 - Hold Time Exceedences
Turn-around-time not met

Samples included in this report:

Sample	Type	Collected	Site	Locator	ClientID
L172221-1	GRAB	21-Dec-2011 09:04	WTP BAYSIDE	BAY WELL HEAD	-
L172221-2	GRAB	21-Dec-2011 12:30	GW BAYSIDE	BAY1-MW4	-
L172221-3	GRAB	21-Dec-2011 10:20	GW BAYSIDE	BAY1-MW2S	-
L172221-4	GRAB	21-Dec-2011 13:09	GW BAYSIDE	BAY1-MW2I	-

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

EAST BAY MUNICIPAL UTILITY DISTRICT
Laboratory Services Division
PO Box 24055, MS 59, Oakland, CA 94623
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: L172221-1 (P177329-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Dec 21 2011, 09:04am Sample collector: S. Penman/Bayside
Date Received: Dec 21 2011, 02:58pm Sample receiver: ANG
Sample Comments: BAYSIDE WELL pH = 8.17;Cl2R = 0.02mg/L; THMS discarded 12-28 due invalid vials, see L172508-1

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	Matrix RL/ML	Tag
Method: SAMPLER PROVIDED FIELD MEASUREMENTS - DATA ENTRY LIST FOR FIELD DATA						GroundH2O	
FIELD ANALYSIS/OBSERVATION DATA PARAMETERS							
PH		**8.17**	pH units	1			
CHLORINE RESIDUAL: TOTAL		**0.02**	mg/L	1	0.01		
Run ID: R222463 / Work Group No.: WG173571							
Prep Date1: 21-DEC-11 Analyzed 21-Dec-11 09:04							
Method: EPA 300.1 - Anions by IC: EPA 300.1						GroundH2O	1
Instrument calibrated 27-DEC-11							
TARGET ANALYTES							
CHLORIDE		**9.0**	mg/L	50	0.21		
SULFATE		**11**	mg/L	50	0.24	0.5	
SURROGATE							
DICHLOROACETATE		100	% recovery	50			
Run ID: R222600 / Work Group No.: WG173598							
Prep Date1: 27-DEC-11 Analyzed 27-Dec-11 23:41							
Method: EPA 300.1 - Anions by IC: EPA 300.1						GroundH2O	
Instrument calibrated 22-DEC-11							
TARGET ANALYTES							
NITRATE AS N		**0.18**	mg/L	1	0.0019	0.4	
SURROGATE							
DICHLOROACETATE		110	% recovery	1			
Run ID: R222421 / Work Group No.: WG173553							
Prep Date1: 22-DEC-11 Analyzed 22-Dec-11 16:26							
Method: EPA 552.2 - Haloacetic Acids & Dalapon						GroundH2O	
TARGET ANALYTES							
BROMOCHLOROACETIC ACID	U	0.55	ug/L	1	0.55		
BROMODICHLOROACETIC ACID	U	0.26	ug/L	1	0.26		
CHLORODIBROMOACETIC ACID	U	0.54	ug/L	1	0.54		
DALAPON	U	0.15	ug/L	1	0.15		
DIBROMOACETIC ACID	U	0.25	ug/L	1	0.25	1	
DICHLOROACETIC ACID	U	0.99	ug/L	1	0.99	1	
MONOBROMOACETIC ACID	U	0.54	ug/L	1	0.54	1	
MONOCHLOROACETIC ACID	U	0.78	ug/L	1	0.78	2	
TRIBROMOACETIC ACID	U	0.83	ug/L	1	0.83		
TRICHLOROACETIC ACID		**0.59**	ug/L	1	0.3	1	
VALUE CALCULATED FROM OTHER RESULTS							
HAA(5)		0.59	ug/L		2.9		
HAA(9)		0.59	ug/L		5		
INTERNAL STANDARD							
1,2,3-TRICHLOROPROPANE		110	% recovery		1		
SURROGATE							
2,3-DIBROMOPROPIONIC ACID		76	% recovery		1		
Run ID: R222922 / Work Group No.: WG173623							
Prep Date1: 27-DEC-11 Prep Date2: 28-DEC-11 Analyzed 05-Jan-12 04:32							

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

EAST BAY MUNICIPAL UTILITY DISTRICT
Laboratory Services Division
PO Box 24055, MS 59, Oakland, CA 94623
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: L172221-1 (P177329-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Dec 21 2011, 09:04am Sample collector: S. Penman/Bayside
Date Received: Dec 21 2011, 02:58pm Sample receiver: ANG
Sample Comments: BAYSIDE WELL pH = 8.17;Cl2R = 0.02mg/L; THMS discarded 12-28 due invalid vials, see L172508-1

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	Matrix Tag RL/ML
Method: SM(20)2320 B - Alkalinity: Total, Titration						GroundH2O
TARGET ANALYTES						
ALKALINITY: TOTAL AS CACO3		**47**	mg/L	1	5	
Run ID: R222626 / Work Group No.: WG173619						
Prep Date1: 28-DEC-11 Analyzed 28-Dec-11 12:10						
Method: SM(20)2340 C - HARDNESS: TOTAL, TITRATION						GroundH2O
TARGET ANALYTES						
HARDNESS: TOTAL AS CACO3		**40**	mg/L	1	2	
Run ID: R222624 / Work Group No.: WG173617						
Prep Date1: 28-DEC-11 Analyzed 28-Dec-11 09:40						
Method: SM(20)2540 C - Solids: Total Dissolved						GroundH2O
TARGET ANALYTES						
TOTAL DISSOLVED SOLIDS		**89**	mg/L	1	18	
Run ID: R222443 / Work Group No.: WG173536						
Prep Date1: 22-DEC-11 Analyzed 22-Dec-11 07:45						
Method: SM(20)4500-CO2 D - BICARBONATE, CALCULATION						GroundH2O
TARGET ANALYTES						
ALKALINITY: BICARBONATE		**46**	mg/L	1	5	
Run ID: R222644 / Work Group No.: WG173626						
Prep Date1: 28-DEC-11 Analyzed 28-Dec-11 12:55						
Method: SM(20)4500-CO2 D - Carbonate, Calculation						GroundH2O
TARGET ANALYTES						
ALKALINITY: CARBONATE		**0.64**	mg/L	1	0.1	
Run ID: R222644 / Work Group No.: WG173626						
Prep Date1: 28-DEC-11 Analyzed 28-Dec-11 12:55						
Method: SM(20)4500-CO2 D - Hydroxide, calculation						GroundH2O
TARGET ANALYTES						
ALKALINITY: HYDROXIDE	U	0.10	mg/L	1	0.1	
Run ID: R222644 / Work Group No.: WG173626						
Prep Date1: 28-DEC-11 Analyzed 28-Dec-11 12:55						
Method: SM(20)4500-NH3 B,C - AMMONIA: TOTAL, TITRATION						GroundH2O
TARGET ANALYTES						
AMMONIA AS N	U	0.120	mg/L	.4	0.12	
Run ID: R222543 / Work Group No.: WG173539						
Prep Date1: 22-DEC-11 Analyzed 22-Dec-11 08:30						
Method: EPA 200.7 - ICP Scan						RawH2O
TARGET ANALYTES						
CALCIUM		**10,800**	ug/L	1.04	14.6	
IRON		**312**	ug/L	1.04	5.2	100
POTASSIUM		**768**	ug/L	1.04	10.4	
MAGNESIUM		**2,780**	ug/L	1.04	11.4	
MANGANESE		**11.2**	ug/L	1.04	0.624	20
SODIUM		**15,200**	ug/L	1.04	5.2	
Run ID: R222863 / Work Group No.: WG173659						
Prep Date1: 30-DEC-11 Analyzed 04-Jan-12 10:12						

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

EAST BAY MUNICIPAL UTILITY DISTRICT
Laboratory Services Division
PO Box 24055, MS 59, Oakland, CA 94623
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-MW4 OW-1 the same parcel as the Bayside Well on Oro Loma Property; formerly BAY1-MW5
Lab ID: L172221-2 (P177329-2)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Dec 21 2011, 12:30pm Sample collector: S. Penman/Bayside
Date Received: Dec 21 2011, 02:58pm Sample receiver: ANG
Sample Comments: MW4 pH = 7.80;Cl2R = 0.08mg/L; Depth to GW = 11.59feet Start, 12.49feet End; +TRANSMITTAL for OXY-18 to ZYmax via Alpha; THMS discarded 12-28 due invalid vials, see L172508-2

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	Matrix RL/ML	Tag
Method: PER SUBCONTRACT LABORATORY REPORT - Subcontract data transmittal						GroundH2O	
Subcontract data from Alpha Analytical Lab							
Comment: Original report transmitted to client. Copy of report archived with data packet.							
SUBCONTRACT LAB DATA							
DATA TRANSMITTAL							
Run ID: R223309 / Work Group No.: WG173945							
Prep Date1: 16-JAN-12 Analyzed 16-Jan-12 00:00							
Method: SAMPLER PROVIDED FIELD MEASUREMENTS - DATA ENTRY LIST FOR FIELD DATA						GroundH2O	
FIELD ANALYSIS/OBSERVATION DATA PARAMETERS							
PH		**7.8**	pH units	1			
DEPTH		**11.59**	feet	1			
CHLORINE RESIDUAL: TOTAL		**0.08**	mg/L	1	0.01		
Run ID: R222463 / Work Group No.: WG173571							
Prep Date1: 21-DEC-11 Analyzed 21-Dec-11 12:30							
Method: EPA 300.1 - Anions by IC: EPA 300.1						GroundH2O	1
Instrument calibrated 27-DEC-11							
TARGET ANALYTES							
CHLORIDE		**56**	mg/L	50	0.21		
SULFATE		**41**	mg/L	50	0.24	0.5	
SURROGATE							
DICHLOROACETATE		100	% recovery	50			
Run ID: R222600 / Work Group No.: WG173598							
Prep Date1: 27-DEC-11 Analyzed 28-Dec-11 01:27							
Method: EPA 300.1 - Anions by IC: EPA 300.1						GroundH2O	
Instrument calibrated 22-DEC-11							
TARGET ANALYTES							
NITRATE AS N		**0.026**	mg/L	1	0.0019	0.4	
SURROGATE							
DICHLOROACETATE		110	% recovery	1			
Run ID: R222421 / Work Group No.: WG173553							
Prep Date1: 22-DEC-11 Analyzed 22-Dec-11 17:02							
Method: EPA 552.2 - Haloacetic Acids & Dalapon						GroundH2O	
TARGET ANALYTES							
BROMOCHLOROACETIC ACID	U	0.55	ug/L	1	0.55		
BROMODICHLOROACETIC ACID	U	0.26	ug/L	1	0.26		
CHLORODIBROMOACETIC ACID	U	0.54	ug/L	1	0.54		
DALAPON	U	0.15	ug/L	1	0.15		
DIBROMOACETIC ACID	U	0.25	ug/L	1	0.25	1	
DICHLOROACETIC ACID	U	0.99	ug/L	1	0.99	1	
MONOBROMOACETIC ACID	U	0.54	ug/L	1	0.54	1	
MONOCHLOROACETIC ACID	U	0.78	ug/L	1	0.78	2	
TRIBROMOACETIC ACID	U	0.83	ug/L	1	0.83		
TRICHLOROACETIC ACID	U	0.30	ug/L	1	0.3	1	
VALUE CALCULATED FROM OTHER RESULTS							
HAA(5)		0.0	ug/L		2.9		
HAA(9)		0.0	ug/L		5		
INTERNAL STANDARD							
1,2,3-TRICHLOROPROPANE		100	% recovery		1		

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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
Lab ID: L172221-2 (P177329-2)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Dec 21 2011, 12:30pm Sample collector: S. Penman/Bayside
Date Received: Dec 21 2011, 02:58pm Sample receiver: ANG
Sample Comments: MW4 pH = 7.80;Cl2R = 0.08mg/L; Depth to GW = 11.59feet Start, 12.49feet
End; +TRANSMITTAL for OXY-18 to ZYmax via Alpha; THMS discarded 12-28 due
invalid vials, see L172508-2

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	Matrix / RL/ML	Tag
SURROGATE							
2,3-DIBROMOPROPIONIC ACID		81	% recovery		1		
Run ID: R222922 / Work Group No.: WG173623							
Prep Date1: 27-DEC-11 Prep Date2: 28-DEC-11 Analyzed 05-Jan-12 05:18							
Method: SM(20)2320 B - Alkalinity: Total, Titration						GroundH2O	
TARGET ANALYTES							
ALKALINITY: TOTAL AS CACO3		**230**	mg/L	1	5		
Run ID: R222626 / Work Group No.: WG173619							
Prep Date1: 28-DEC-11 Analyzed 28-Dec-11 12:10							
Method: SM(20)2340 C - HARDNESS: TOTAL, TITRATION						GroundH2O	
TARGET ANALYTES							
HARDNESS: TOTAL AS CACO3		**120**	mg/L	1	2		
Run ID: R222624 / Work Group No.: WG173617							
Prep Date1: 28-DEC-11 Analyzed 28-Dec-11 09:40							
Method: SM(20)2540 C - Solids: Total Dissolved						GroundH2O	
TARGET ANALYTES							
TOTAL DISSOLVED SOLIDS		**400**	mg/L	1.33	24		
Run ID: R222443 / Work Group No.: WG173536							
Prep Date1: 22-DEC-11 Analyzed 22-Dec-11 07:45							
Method: SM(20)4500-CO2 D - BICARBONATE, CALCULATION						GroundH2O	
TARGET ANALYTES							
ALKALINITY: BICARBONATE		**230**	mg/L	1	5		
Run ID: R222644 / Work Group No.: WG173626							
Prep Date1: 28-DEC-11 Analyzed 28-Dec-11 12:55							
Method: SM(20)4500-CO2 D - Carbonate, Calculation						GroundH2O	
TARGET ANALYTES							
ALKALINITY: CARBONATE		**1.4**	mg/L	1	0.1		
Run ID: R222644 / Work Group No.: WG173626							
Prep Date1: 28-DEC-11 Analyzed 28-Dec-11 12:55							
Method: SM(20)4500-CO2 D - Hydroxide, calculation						GroundH2O	
TARGET ANALYTES							
ALKALINITY: HYDROXIDE	U	0.10	mg/L	1	0.1		
Run ID: R222644 / Work Group No.: WG173626							
Prep Date1: 28-DEC-11 Analyzed 28-Dec-11 12:55							
Method: SM(20)4500-NH3 B,C - AMMONIA: TOTAL, TITRATION						GroundH2O	
TARGET ANALYTES							
AMMONIA AS N	U	0.120	mg/L	.4	0.12		
Run ID: R222543 / Work Group No.: WG173539							
Prep Date1: 22-DEC-11 Analyzed 22-Dec-11 08:30							
Method: EPA 200.7 - ICP Scan						RawH2O	
TARGET ANALYTES							
CALCIUM		**27,800**	ug/L	1.04	14.6		
IRON		**281**	ug/L	1.04	5.2	100	
POTASSIUM		**2,410**	ug/L	1.04	10.4		
MAGNESIUM		**10,500**	ug/L	1.04	11.4		

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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
Lab ID: L172221-2 (P177329-2)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Dec 21 2011, 12:30pm Sample collector: S. Penman/Bayside
Date Received: Dec 21 2011, 02:58pm Sample receiver: ANG
Sample Comments: MW4 pH = 7.80;Cl2R = 0.08mg/L; Depth to GW = 11.59feet Start, 12.49feet End; +TRANSMITTAL for OXY-18 to ZYmax via Alpha; THMS discarded 12-28 due invalid vials, see L172508-2

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	Matrix RL/ML	Tag
MANGANESE		**260**	ug/L	1.04	0.624	20	
SODIUM		**103,000**	ug/L	1.04	5.2		

Run ID: R222863 / Work Group No.: WG173659
Prep Date1: 30-DEC-11 Analyzed 04-Jan-12 10:16

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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
Lab ID: L172221-3 (P177329-3)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Dec 21 2011, 10:20am Sample collector: S. Penman/Bayside
Date Received: Dec 21 2011, 02:58pm Sample receiver: ANG
Sample Comments: MS2 pH = 6.67;Cl2R = 0.14mg/L; Depth to GW = 8.45feet Start, 8.60feet End;
+TRANSMITTAL for OXY-18 to ZYmax via Alpha; THMS discarded 12-28 due
invalid vials, see L172508-3

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	RL/ML	Matrix	Tag
Method: PER SUBCONTRACT LABORATORY REPORT - Subcontract data transmittal							GroundH2O	
Subcontract data from Alpha Analytical Lab								
Comment: Original report transmitted to client. Copy of report archived with data packet.								
SUBCONTRACT LAB DATA								
DATA TRANSMITTAL								
Run ID: R223309 / Work Group No.: WG173945								
Prep Date1: 16-JAN-12 Analyzed 16-Jan-12 00:00								
Method: SAMPLER PROVIDED FIELD MEASUREMENTS - DATA ENTRY LIST FOR FIELD DATA							GroundH2O	
FIELD ANALYSIS/OBSERVATION DATA PARAMETERS								
PH		**6.67**	pH units	1				
DEPTH		**8.45**	feet	1				
CHLORINE RESIDUAL: TOTAL		**0.14**	mg/L	1	0.01			
Run ID: R222463 / Work Group No.: WG173571								
Prep Date1: 21-DEC-11 Analyzed 21-Dec-11 10:20								
Method: EPA 300.1 - Anions by IC: EPA 300.1							GroundH2O	1
Instrument calibrated 27-DEC-11								
TARGET ANALYTES								
CHLORIDE		**44,000**	mg/L	25000	100			
SULFATE		**5,700**	mg/L	25000	120	0.5		
SURROGATE								
DICHLOROACETATE		100	% recovery	25000				
Run ID: R222600 / Work Group No.: WG173598								
Prep Date1: 27-DEC-11 Analyzed 28-Dec-11 02:02								
Method: EPA 300.1 - Anions by IC: EPA 300.1							GroundH2O	
Instrument calibrated 22-DEC-11								
TARGET ANALYTES								
NITRATE AS N	U	0.095	mg/L	50	0.095	0.4		
SURROGATE								
DICHLOROACETATE		110	% recovery	50				
Run ID: R222560 / Work Group No.: WG173564								
Prep Date1: 23-DEC-11 Analyzed 23-Dec-11 09:28								
Method: EPA 552.2 - Haloacetic Acids & Dalapon							GroundH2O	
TARGET ANALYTES								
BROMOCHLOROACETIC ACID	U	0.55	ug/L	1	0.55			
BROMODICHLOROACETIC ACID	U	0.26	ug/L	1	0.26			
CHLORODIBROMOACETIC ACID	U	0.54	ug/L	1	0.54			
DALAPON	U	0.15	ug/L	1	0.15			
DIBROMOACETIC ACID		**0.31**	ug/L	1	0.25	1		
DICHLOROACETIC ACID	U	0.99	ug/L	1	0.99	1		
MONOBROMOACETIC ACID	U	0.54	ug/L	1	0.54	1		
MONOCHLOROACETIC ACID	U	0.78	ug/L	1	0.78	2		
TRIBROMOACETIC ACID	U	0.83	ug/L	1	0.83			
TRICHLOROACETIC ACID	U	0.30	ug/L	1	0.3	1		
VALUE CALCULATED FROM OTHER RESULTS								
HAA(5)		0.31	ug/L		2.9			
HAA(9)		0.31	ug/L		5			
INTERNAL STANDARD								
1,2,3-TRICHLOROPROPANE		110	% recovery		1			

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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
Lab ID: L172221-3 (P177329-3)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Dec 21 2011, 10:20am Sample collector: S. Penman/Bayside
Date Received: Dec 21 2011, 02:58pm Sample receiver: ANG
Sample Comments: MS2 pH = 6.67;Cl2R = 0.14mg/L; Depth to GW = 8.45feet Start, 8.60feet End;
+TRANSMITTAL for OXY-18 to ZYmax via Alpha; THMS discarded 12-28 due
invalid vials, see L172508-3

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	Matrix RL/ML	Tag
SURROGATE							
2,3-DIBROMOPROPIONIC ACID		88	% recovery		1		
Run ID: R222922 / Work Group No.: WG173623							
Prep Date1: 27-DEC-11 Prep Date2: 28-DEC-11 Analyzed 05-Jan-12 06:04							
Method: SM(20)2320 B - Alkalinity: Total, Titration						GroundH2O	
TARGET ANALYTES							
ALKALINITY: TOTAL AS CACO3		**420**	mg/L	5	25		
Run ID: R222626 / Work Group No.: WG173619							
Prep Date1: 28-DEC-11 Analyzed 28-Dec-11 12:10							
Method: SM(20)2340 C - HARDNESS: TOTAL, TITRATION						GroundH2O	
TARGET ANALYTES							
HARDNESS: TOTAL AS CACO3		**16,000**	mg/L	50	100		
Run ID: R222624 / Work Group No.: WG173617							
Prep Date1: 28-DEC-11 Analyzed 28-Dec-11 09:40							
Method: SM(20)2540 C - Solids: Total Dissolved						GroundH2O	
TARGET ANALYTES							
TOTAL DISSOLVED SOLIDS		**78,000**	mg/L	50	900		
Run ID: R222443 / Work Group No.: WG173536							
Prep Date1: 22-DEC-11 Analyzed 22-Dec-11 07:45							
Method: SM(20)4500-CO2 D - BICARBONATE, CALCULATION						GroundH2O	
TARGET ANALYTES							
ALKALINITY: BICARBONATE		**420**	mg/L	1	5		
Run ID: R222644 / Work Group No.: WG173626							
Prep Date1: 28-DEC-11 Analyzed 28-Dec-11 12:55							
Method: SM(20)4500-CO2 D - Carbonate, Calculation						GroundH2O	
TARGET ANALYTES							
ALKALINITY: CARBONATE		**0.18**	mg/L	1	0.1		
Run ID: R222644 / Work Group No.: WG173626							
Prep Date1: 28-DEC-11 Analyzed 28-Dec-11 12:55							
Method: SM(20)4500-CO2 D - Hydroxide, calculation						GroundH2O	
TARGET ANALYTES							
ALKALINITY: HYDROXIDE	U	0.10	mg/L	1	0.1		
Run ID: R222644 / Work Group No.: WG173626							
Prep Date1: 28-DEC-11 Analyzed 28-Dec-11 12:55							
Method: SM(20)4500-NH3 B,C - AMMONIA: TOTAL, TITRATION						GroundH2O	
TARGET ANALYTES							
AMMONIA AS N	U	0.120	mg/L	.4	0.12		
Run ID: R222543 / Work Group No.: WG173539							
Prep Date1: 22-DEC-11 Analyzed 22-Dec-11 08:30							
Method: EPA 200.7 - ICP Scan						RawH2O	
TARGET ANALYTES							
CALCIUM		**1.25E+06**	ug/L	5.2	72.8		
IRON	U	26.0	ug/L	5.2	26	100	
POTASSIUM		**509,000**	ug/L	5.2	52		

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
Lab ID: L172221-3 (P177329-3)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Dec 21 2011, 10:20am Sample collector: S. Penman/Bayside
Date Received: Dec 21 2011, 02:58pm Sample receiver: ANG
Sample Comments: MS2 pH = 6.67;Cl2R = 0.14mg/L; Depth to GW = 8.45feet Start, 8.60feet End;
+TRANSMITTAL for OXY-18 to ZYmax via Alpha; THMS discarded 12-28 due
invalid vials, see L172508-3

Method Reference Parameter	Qualifier	Result	Units	Dilution	MDL	Matrix RL/ML	Tag
MAGNESIUM		**2.78E+06**	ug/L	52	572		
MANGANESE		**36,400**	ug/L	5.2	3.12	20	
SODIUM		**2.22E+07**	ug/L	52	260		

Run ID: R222863 / Work Group No.: WG173659
Prep Date1: 30-DEC-11 Analyzed 04-Jan-12 10:53

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-MW2I OW-1 the same parcel as the Bayside Well on Oro Loma Property; aka BAY1-MW2D until 11-2009; formerly BAY1-MW2-190
Lab ID: L172221-4 (P177329-4)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Dec 21 2011, 01:09pm Sample collector: S. Penman/Bayside
Date Received: Dec 21 2011, 02:58pm Sample receiver: ANG
Sample Comments: MS2I pH = 7.86;Cl2R = 0.02mg/L; Depth to GW = 8.29feet Start, 12.98feet End; +TRANSMITTAL for OXY-18 to ZYmax via Alpha; THMS discarded 12-28 due invalid vials, see L172508-4

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	Matrix RL/ML	Tag
Method: PER SUBCONTRACT LABORATORY REPORT - Subcontract data transmittal						GroundH2O	
Subcontract data from Alpha Analytical Lab							
Comment: Original report transmitted to client. Copy of report archived with data packet.							
SUBCONTRACT LAB DATA							
DATA TRANSMITTAL							
Run ID: R223309 / Work Group No.: WG173945							
Prep Date1: 16-JAN-12 Analyzed 16-Jan-12 00:00							
Method: SAMPLER PROVIDED FIELD MEASUREMENTS - DATA ENTRY LIST FOR FIELD DATA						GroundH2O	
FIELD ANALYSIS/OBSERVATION DATA PARAMETERS							
PH		**7.86**	pH units	1			
DEPTH		**8.29**	feet	1			
CHLORINE RESIDUAL: TOTAL		**0.02**	mg/L	1	0.01		
Run ID: R222463 / Work Group No.: WG173571							
Prep Date1: 21-DEC-11 Analyzed 21-Dec-11 13:09							
Method: EPA 300.1 - Anions by IC: EPA 300.1						GroundH2O	1
Instrument calibrated 27-DEC-11							
TARGET ANALYTES							
CHLORIDE		**79**	mg/L	100	0.42		
SULFATE		**32**	mg/L	100	0.49	0.5	
SURROGATE							
DICHLOROACETATE		100	% recovery	100			
Run ID: R222600 / Work Group No.: WG173598							
Prep Date1: 27-DEC-11 Analyzed 28-Dec-11 02:38							
Method: EPA 300.1 - Anions by IC: EPA 300.1						GroundH2O	
Instrument calibrated 22-DEC-11							
TARGET ANALYTES							
NITRATE AS N	U	0.095	mg/L	50	0.095	0.4	
SURROGATE							
DICHLOROACETATE		110	% recovery	50			
Run ID: R222560 / Work Group No.: WG173564							
Prep Date1: 23-DEC-11 Analyzed 23-Dec-11 11:49							
Method: EPA 552.2 - Haloacetic Acids & Dalapon						GroundH2O	
TARGET ANALYTES							
BROMOCHLOROACETIC ACID	U	0.55	ug/L	1	0.55		
BROMODICHLOROACETIC ACID	U	0.26	ug/L	1	0.26		
CHLORODIBROMOACETIC ACID	U	0.54	ug/L	1	0.54		
DALAPON	U	0.15	ug/L	1	0.15		
DIBROMOACETIC ACID	U	0.25	ug/L	1	0.25	1	
DICHLOROACETIC ACID	U	0.99	ug/L	1	0.99	1	
MONOBROMOACETIC ACID	U	0.54	ug/L	1	0.54	1	
MONOCHLOROACETIC ACID	U	0.78	ug/L	1	0.78	2	
TRIBROMOACETIC ACID	U	0.83	ug/L	1	0.83		
TRICHLOROACETIC ACID	U	0.30	ug/L	1	0.3	1	
VALUE CALCULATED FROM OTHER RESULTS							
HAA(5)		0.0	ug/L		2.9		
HAA(9)		0.0	ug/L		5		
INTERNAL STANDARD							

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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
Lab ID: L172221-4 (P177329-4)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Dec 21 2011, 01:09pm Sample collector: S. Penman/Bayside
Date Received: Dec 21 2011, 02:58pm Sample receiver: ANG
Sample Comments: MS2I pH = 7.86;Cl2R = 0.02mg/L; Depth to GW = 8.29feet Start, 12.98feet End; +TRANSMITTAL for OXY-18 to ZYmax via Alpha; THMS discarded 12-28 due invalid vials, see L172508-4

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	Matrix / RL/ML	Tag
1,2,3-TRICHLOROPROPANE		97	% recovery		1		
SURROGATE							
2,3-DIBROMOPROPIONIC ACID		81	% recovery		1		
Run ID: R222922 / Work Group No.: WG173623							
Prep Date1: 27-DEC-11 Prep Date2: 28-DEC-11 Analyzed 05-Jan-12 06:50							
Method: SM(20)2320 B - Alkalinity: Total, Titration						GroundH2O	
TARGET ANALYTES							
ALKALINITY: TOTAL AS CACO3		**310**	mg/L	1	5		
Run ID: R222626 / Work Group No.: WG173619							
Prep Date1: 28-DEC-11 Analyzed 28-Dec-11 12:10							
Method: SM(20)2340 C - HARDNESS: TOTAL, TITRATION						GroundH2O	
TARGET ANALYTES							
HARDNESS: TOTAL AS CACO3		**94**	mg/L	1	2		
Run ID: R222624 / Work Group No.: WG173617							
Prep Date1: 28-DEC-11 Analyzed 28-Dec-11 09:40							
Method: SM(20)2540 C - Solids: Total Dissolved						GroundH2O	
TARGET ANALYTES							
TOTAL DISSOLVED SOLIDS		**520**	mg/L	1.33	24		
Run ID: R222443 / Work Group No.: WG173536							
Prep Date1: 22-DEC-11 Analyzed 22-Dec-11 07:45							
Method: SM(20)4500-CO2 D - BICARBONATE, CALCULATION						GroundH2O	
TARGET ANALYTES							
ALKALINITY: BICARBONATE		**300**	mg/L	1	5		
Run ID: R222644 / Work Group No.: WG173626							
Prep Date1: 28-DEC-11 Analyzed 28-Dec-11 12:55							
Method: SM(20)4500-CO2 D - Carbonate, Calculation						GroundH2O	
TARGET ANALYTES							
ALKALINITY: CARBONATE		**2.1**	mg/L	1	0.1		
Run ID: R222644 / Work Group No.: WG173626							
Prep Date1: 28-DEC-11 Analyzed 28-Dec-11 12:55							
Method: SM(20)4500-CO2 D - Hydroxide, calculation						GroundH2O	
TARGET ANALYTES							
ALKALINITY: HYDROXIDE	U	0.10	mg/L	1	0.1		
Run ID: R222644 / Work Group No.: WG173626							
Prep Date1: 28-DEC-11 Analyzed 28-Dec-11 12:55							
Method: SM(20)4500-NH3 B,C - AMMONIA: TOTAL, TITRATION						GroundH2O	
TARGET ANALYTES							
AMMONIA AS N		**0.168**	mg/L	.4	0.12		
Run ID: R222543 / Work Group No.: WG173539							
Prep Date1: 22-DEC-11 Analyzed 22-Dec-11 08:30							

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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
Lab ID: L172221-4 (P177329-4)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Dec 21 2011, 01:09pm Sample collector: S. Penman/Bayside
Date Received: Dec 21 2011, 02:58pm Sample receiver: ANG
Sample Comments: MS2I pH = 7.86;Cl2R = 0.02mg/L; Depth to GW = 8.29feet Start, 12.98feet End; +TRANSMITTAL for OXY-18 to ZYmax via Alpha; THMS discarded 12-28 due invalid vials, see L172508-4

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	Matrix RL/ML	Tag
Method: EPA 200.7 - ICP Scan						RawH2O	
TARGET ANALYTES							
CALCIUM		**13,900**	ug/L	1.04	14.6		
IRON		**151**	ug/L	1.04	5.2	100	
POTASSIUM		**5,200**	ug/L	1.04	10.4		
MAGNESIUM		**12,600**	ug/L	1.04	11.4		
MANGANESE		**102**	ug/L	1.04	0.624	20	
SODIUM		**153,000**	ug/L	1.04	5.2		

Run ID: R222863 / Work Group No.: WG173659
Prep Date1: 30-DEC-11 Analyzed 04-Jan-12 10:20

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

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 DEREK LEE

Report generated on: Jan 13, 2012 04:14 pm
Login No.: L172508

Reported by:

JACK C. LIM
Laboratory Program Manager

Approved by:

NIRMELA ARSEM
Laboratory Services Division Manager

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

Login Performance Summary
5 - Samples received by the lab on: Jan 06 2012, 10:35 am
0 - Lost Analyses
0 - Hold Time Exceedences
Turn-around-time met

Samples included in this report:

Sample	Type	Collected	Site	Locator	ClientID
L172508-1	GRAB	05-Jan-2012 09:40	WTP BAYSIDE	BAY WELL HEAD	-
L172508-2	GRAB	05-Jan-2012 16:38	GW BAYSIDE	BAY1-MW4	-
L172508-3	GRAB	05-Jan-2012 10:46	GW BAYSIDE	BAY1-MW2S	-
L172508-4	GRAB	05-Jan-2012 14:30	GW BAYSIDE	BAY1-MW2I	-
L172508-5	QCFB	05-Jan-2012 15:30	FIELD QC	COLLECTION QC	-

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

EAST BAY MUNICIPAL UTILITY DISTRICT
Laboratory Services Division
PO Box 24055, MS 59, Oakland, CA 94623
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: L172508-1 (P178147-1)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Jan 05 2012, 09:40am Sample collector: Stephan Permon
Date Received: Jan 06 2012, 10:32am Sample receiver: CDHALIWA
Sample Comments: RE: L172221 Resample due to invalid THM sampling vials on 12-21-11; CL2R = 0.0 mg/L. Acid Lot #1081631

Method Reference Parameter	Qualifier	Result	Units	Dilution	MDL	Matrix RL/ML	Tag
Method: EPA 8260B - Trihalomethanes: GC/MS						GroundH2O	
TARGET ANALYTES							
CHLOROFORM		**38**	ug/L	1	0.17		
BROMODICHLOROMETHANE		**1.6**	ug/L	1	0.079		
DIBROMOCHLOROMETHANE		**0.26**	ug/L	1	0.13		
BROMOFORM	U	0.23	ug/L	1	0.23		
INTERNAL STANDARD							
FLUOROBENZENE		102	% recovery	1			
D5-CHLOROBENZENE		108	% recovery	1			
D4-1,4-DICHLOROBENZENE		109	% recovery	1			
SURROGATE							
D8-TOLUENE		104	% recovery	1			
4-BROMOFLUOROBENZENE		95.8	% recovery	1			

Run ID: R223181 / Work Group No.: WG173874
Prep Date1: 12-JAN-12 Analyzed 12-Jan-12 12:38

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

EAST BAY MUNICIPAL UTILITY DISTRICT
Laboratory Services Division
PO Box 24055, MS 59, Oakland, CA 94623
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-MW4 OW-1 the same parcel as the Bayside Well on Oro Loma Property; formerly BAY1-MW5
Lab ID: L172508-2 (P178147-2)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Jan 05 2012, 04:38pm Sample collector: Stephan Permon
Date Received: Jan 06 2012, 10:32am Sample receiver: CDHALIWA
Sample Comments: RE: L172221 Resample due to invalid THM sampling vials on 12-21-11; CL2R =0.08 mg/L; Acid Lot #1081631

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	Matrix / RL/ML	Tag
Method: EPA 8260B - Trihalomethanes: GC/MS						GroundH2O	
TARGET ANALYTES							
CHLOROFORM	U	0.17	ug/L	1	0.17		
BROMODICHLOROMETHANE	U	0.079	ug/L	1	0.079		
DIBROMOCHLOROMETHANE	U	0.13	ug/L	1	0.13		
BROMOFORM	U	0.23	ug/L	1	0.23		
INTERNAL STANDARD							
FLUOROBENZENE		101	% recovery	1			
D5-CHLOROBENZENE		108	% recovery	1			
D4-1,4-DICHLOROBENZENE		112	% recovery	1			
SURROGATE							
D8-TOLUENE		107	% recovery	1			
4-BROMOFLUOROBENZENE		98.0	% recovery	1			

Run ID: R223181 / Work Group No.: WG173874
Prep Date1: 12-JAN-12 Analyzed 12-Jan-12 13:18

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

EAST BAY MUNICIPAL UTILITY DISTRICT
Laboratory Services Division
PO Box 24055, MS 59, Oakland, CA 94623
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-MW2S OW-1 the same parcel as the Bayside Well on Oro Loma Property; formerly BAY1-MW2-60
Lab ID: L172508-3 (P178147-3)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Jan 05 2012, 10:46am Sample collector: Stephan Permon
Date Received: Jan 06 2012, 10:32am Sample receiver: CDHALIWA
Sample Comments: RE: L172221 Resample due to invalid THM sampling vials on 12-21-11; CL2R = 0.09 mg/L; Acid Lot #1081631

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	Matrix RL/ML	Tag
Method: EPA 8260B - Trihalomethanes: GC/MS						GroundH2O	
TARGET ANALYTES							
CHLOROFORM	U	0.17	ug/L	1	0.17		
BROMODICHLOROMETHANE	U	0.079	ug/L	1	0.079		
DIBROMOCHLOROMETHANE	U	0.13	ug/L	1	0.13		
BROMOFORM	U	0.23	ug/L	1	0.23		
INTERNAL STANDARD							
FLUOROBENZENE		103	% recovery	1			
D5-CHLOROBENZENE		104	% recovery	1			
D4-1,4-DICHLOROBENZENE		103	% recovery	1			
SURROGATE							
D8-TOLUENE		99.6	% recovery	1			
4-BROMOFLUOROBENZENE		95.0	% recovery	1			

Run ID: R223181 / Work Group No.: WG173874
Prep Date1: 12-JAN-12 Analyzed 12-Jan-12 13:58

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EAST BAY MUNICIPAL UTILITY DISTRICT
Laboratory Services Division
PO Box 24055, MS 59, Oakland, CA 94623
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
Lab ID: L172508-4 (P178147-4)
Sample Type: GRAB (Instantaneous Grab)
Date Collected: Jan 05 2012, 02:30pm Sample collector: Stephan Permon
Date Received: Jan 06 2012, 10:32am Sample receiver: CDHALIWA
Sample Comments: RE: L172221 Resample due to invalid THM sampling vials on 12-21-11; CL2R = 0.0 mg/L; Acid Lot #1081631

Method Reference / Parameter	Qualifier	Result	Units	Dilution	MDL	Matrix / RL/ML	Tag
Method: EPA 8260B - Trihalomethanes: GC/MS						GroundH2O	
TARGET ANALYTES							
CHLOROFORM	U	0.17	ug/L	1	0.17		
BROMODICHLOROMETHANE	U	0.079	ug/L	1	0.079		
DIBROMOCHLOROMETHANE	U	0.13	ug/L	1	0.13		
BROMOFORM	U	0.23	ug/L	1	0.23		
INTERNAL STANDARD							
FLUOROBENZENE		98.6	% recovery	1			
D5-CHLOROBENZENE		107	% recovery	1			
D4-1,4-DICHLOROBENZENE		104	% recovery	1			
SURROGATE							
D8-TOLUENE		104	% recovery	1			
4-BROMOFLUOROBENZENE		93.0	% recovery	1			

Run ID: R223181 / Work Group No.: WG173874
Prep Date1: 12-JAN-12 Analyzed 12-Jan-12 14:38

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

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

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: L172508-5 (P177930-5)
Sample Type: QCFB (Field Blank Grab)
Date Collected: Jan 05 2012, 03:30pm Sample collector: Stephan Permon
Date Received: Jan 06 2012, 10:35am Sample receiver: CDHALIWA
Sample Comments: QCFB for L172508-4 ;Prep'd on 29-DEC-11 by JA;extra +HOLD for COC documentation; Acid CONTAINER ID # 1081631

Method Reference Parameter	Qualifier	Result	Units	Dilution	MDL	Matrix RL/ML	Tag
Method: EPA 8260B - Trihalomethanes: GC/MS						GroundH2O	
TARGET ANALYTES							
CHLOROFORM	U	0.17	ug/L	1	0.17		
BROMODICHLOROMETHANE	U	0.079	ug/L	1	0.079		
DIBROMOCHLOROMETHANE	U	0.13	ug/L	1	0.13		
BROMOFORM	U	0.23	ug/L	1	0.23		
INTERNAL STANDARD							
FLUOROBENZENE		91.6	% recovery	1			
D5-CHLOROBENZENE		95.0	% recovery	1			
D4-1,4-DICHLOROBENZENE		85.0	% recovery	1			
SURROGATE							
D8-TOLUENE		102	% recovery	1			
4-BROMOFLUOROBENZENE		98.6	% recovery	1			

Run ID: R223181 / Work Group No.: WG173874
Prep Date1: 12-JAN-12 Analyzed 12-Jan-12 11:58

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

Dr. Yi Wang
Director of ZymaX Forensics Isotopes
600 S. Andreasen Dr., Suite B
Escondido, CA 92029
Tel: 760.781.3338 ext 43
Fax: 760.781.3339
Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

REPORT OF ISOTOPE ANALYSES

Report Date: August 25th, 2011

Sample from EBMUD (Jack Lim) and Alpha (Robbie Phillips) for $\delta^{18}O$ and δD (‰ VSMOW) isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
42294-1	L169016-1	-12.8	-93.2
	Analytical precision (1σ)	0.1	0.6

ZymaX ID	$\delta^{18}O$	δD
QC-01	-7.0	-44.5
QC-02	-6.8	-43.7
Mean	-6.9	-44.1
STDEV	0.1	0.6

ZYMAX FORENSICS ISOTOPE LABORATORY ANALYSES

Gas
^{13}C and D/H of C1 to C4; ^{13}C of CO_2; ^{14}C of C1 and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas

Solvents, Oil, Extract, Fraction and Kerogen
Compound-Specific ^{13}C and D/H of MTBE, PCE, TCE, DCE, TCA, PAH, Gasoline, Oil; Bulk ^{13}C, D/H, ^{34}S, ^{15}N

Water
D, ^{3}H and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S; ^{13}C, ^{37}Cl and D of chlorinated solvents
^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate

Soil and Minerals:
^{13}C, ^{18}O, ^{15}N, ^{34}S, D/H; ^{14}C of carbonate or organics

Chain of Custody Attachment

(page 2 of 2)

Date samples submitted: August 1, 2011

Method of shipment: FedEx to DPRA (billing to ALPHA)

Login#	Site/Locator	Sampler	Sample Date / Time
L169016-1	WTP BAYSIDE MISC (GW injection header)	I.Hunsinger	01-AUG-11 10:50

42294-1

Analyses

1. Oxygen-18 isotope & Deuterium H-2 isotope

For Oxy-18 sub lab (approved by ALPHA):

DPRA (Zymax)
600 S. Andreasen Drive, Suite B
Escondido, CA 92029
Att: Dr. Alan Jeffrey/ Yi Wang
(760)-781-3338

Comments: Please comply with hold time, sampled on August 1, 2011

TAT: STD or as applicable (Oxy-18 25 days)

Samples to be BILLED to: Robbie Phillips
Alpha Analytical Laboratories
6398 Dougherty Road, Suite 3
Dublin, CA 94568
(925) 828-6226
PO # BRD-14208-CX
Expires 31-Jul-11

Results to: Alpha and East Bay MUD
Jack C Lim
EBMUD Laboratory
P.O. Box 24055 MS # 59
Oakland, California. 94623
Tel No: 510-287-1664
Fax No: 510-465-5462

East Bay Municipal Utility District
Laboratory Services Chain of Custody Record

Prelog or Login No.: L169016

Project Title
BAYSIDE GROUND WATER PROJECT
Account or Project: B455-0706-1

Client PM: DEREK LEE
Tel No.: (510) 287-1086
Lab PM: JACK C. LIM

Sampled by: IHunsinger
Rcvd: 01-AUG-11 12:05
Sample Date: 01-AUG-11

Lab No.	Sample Type	Time	Site	Locator	Sample Matrix	Tests Required	Container ID Barcode	Chemical Preservative	Date pH	DueDate Initials
L169016-1	GRAB	10:50	WTP BAYSIDE	MISC 42294-1	DrinkH2O	+TRANSMITTAL (Per Subcontract Laboratory Report)	1059808 PLSTM			[redacted]11

ClientID:
Sample Comments: SWQ sampling Distribution just before well shutdown; sampled from GW injection header; +TRANSMITTAL for OXY 18. Acid container ID# 1051863. Pricing: STD
& H-2

Total containers received: 1

	Signature	Print Name	Time	Date
Relinquished by	[signature]	DANIEL Siu [redacted]	1315 [redacted]	01-AUG-11
Received by	Ryan Woon	Ryan Woon	10:00	8/2/11
Relinquished by				
Received by				
Relinquished by				
Received by				

Sample Type Descriptions:
GRAB - Instantaneous Grab
QCFB - Field Blank Grab

Container Type Descriptions:
VOC4A - Glass, clear, septa top, Ascorbic acid, 40 mL
PLSTM - Plastic, WM, 500 mL
PLSTS - Plastic, NM, 125 mL
A125N - Glass, amber, NM, septa top, NH4Cl, 125 mL
PLSTL - Plastic, WM, 1000 mL

Email results to:
JACK C. LIM (jlim@ebmud.com)
EBMUD Laboratory
P.O. Box 24055 MS# 59
Oakland, CA 94623
(510) 287-1664

SUBCONTRACT: Billing
Robbie Phillips
Alpha Analytical Laboratories
6398 Doughherty Road, Suite 3
Dublin CA 94568
(925)828-6226
PO# BRD-14208-CX Expires: 31-JUL-12

Please advise EBMUD laboratory if Due Date will be missed

Samples will be retained beyond the approval process only if requested by the client.

Sent to
[redacted]DPRA (Zymax)
600 S. Andreasen Drive, Suite B
Escondido, CA 92029
Attn: Dr. Alan Jeffrey / Yi Wang
760-781-3338

Dr. Yi Wang
Director of ZymaX Forensics Isotopes
600 S. Andreasen Dr., Suite B
Escondido, CA 92029
Tel: 760.781.3338 ext 43
Fax: 760.781.3339
Cell: 609.721.2843
Email: yi.wang@zymaxusa.com

REPORT OF ISOTOPE ANALYSES

Report Date: January 16th, 2012

Sample from EBMUD (Jack Lim) and Alpha (Robbie Phillips) for $\delta^{18}O$ and δD (‰ VSMOW) isotope analysis

ZymaX ID	Sample ID	$\delta^{18}O$	δD
42491-1	L172221-2 GW Bayside/Bay1-MW4	-7.1	-49.2
42491-2	L172221-3 GW Bayside/Bay1-MW2S	-2.6	-25.3
42491-3	L172221-4 GW Bayside/Bay1-MW2I	-5.9	-39.8
	Analytical precision (1σ)	0.1	0.4

ZymaX ID	$\delta^{18}O$	δD
QC-01	-4.5	-36.0
QC-02	-4.7	-36.5
Mean	-4.6	-36.3
STDEV	0.1	0.4

ZYMAX FORENSICS ISOTOPE LABORATORY ANALYSES

Gas

^{13}C and D/H of C1 to C4; ^{13}C of CO_2; ^{14}C of C1 and CO_2; ^{34}S of H_2S; ^{15}N and ^{18}O of N_2O gas

Solvents, Oil, Extract, Fraction and Kerogen

Compound-Specific ^{13}C and D/H of MTBE, PCE, TCE, DCE, TCA, PAH, Gasoline, Oil; Bulk ^{13}C, D/H, ^{34}S, ^{15}N

Water

D, ^{3}H and ^{18}O; ^{34}S and ^{18}O of dissolved sulfate; ^{34}S of dissolved H_2S; ^{13}C, ^{37}Cl and D of chlorinated solvents

^{15}N and ^{18}O of dissolved Nitrate; ^{15}N of Ammonia; ^{13}C of dissolved CO_2 and Carbonate/Bicarbonate

Soil and Minerals:

^{13}C, ^{18}O, ^{15}N, ^{34}S, D/H; ^{14}C of carbonate or organics

East Bay Municipal Utility District
Laboratory Services Chain of Custody Record

Prelog or Login No.: L172221

Project Title
BAYSIDE GROUND WATER PROJECT
Account or Project: B455-0706-1

Client PM: DEREK LEE
Tel No.: (510) 287-1086
Lab PM: JACK C. LIM

Sampled by: S. Penman/Bayside
Rcvd: 21-DEC-11 14:58
Sample Date: 21-DEC-11

Lab No.	Sample Type	Time	Site	Locator	Sample Matrix	Tests Required	Container ID Barcode	Chemical Preservative	Date pH	DueDate Initials
L172221-2	GRAB	12:30	GW BAYSIDE	BAY1-MW4	GroundH2O	+TRANSMITTAL (Per Subcontract Laboratory Report)	1081228 PLSTS			[redacted]
ClientID:										
Sample Comments: MW4 pH = 7.80;Cl2R = 0.08mg/L; Depth to GW = 11.59feet Start, 12.49feet End; +TRANSMITTAL for OXY-18 to ZYmax via Alpha Pricing: STD										
L172221-3	GRAB	10:20	GW BAYSIDE	BAY1-MW2S	GroundH2O	+TRANSMITTAL (Per Subcontract Laboratory Report)	1081238 PLSTS			[redacted]
ClientID:										
Sample Comments: MS2 pH = 6.67;Cl2R = 0.14mg/L; Depth to GW = 8.45feet Start, 8.60feet End; +TRANSMITTAL for OXY-18 to ZYmax via Alpha Pricing: STD										
L172221-4	GRAB	13:09	GW BAYSIDE	BAY1-MW2I	GroundH2O	+TRANSMITTAL (Per Subcontract Laboratory Report)	1081248 PLSTS			[redacted]
ClientID:										
Sample Comments: MS2I pH = 7.86;Cl2R = 0.02mg/L; Depth to GW = 8.29feet Start, 12.98feet End; +TRANSMITTAL for OXY-18 to ZYmax via Alpha Pricing: STD										

Total containers received: 3

	Signature	Print Name	Time	Date
Relinquished by	A. Allard	J. Allard ~~Alvin C Ng~~	0830 ~~14:58~~	27-DEC-11 ~~21-DEC-11~~
Received by	J Wang	Y. WANG	14:10	28-DEC-11
Relinquished by				
Received by				
Relinquished by				
Received by				

Sample Type Descriptions:
GRAB - Instantaneous Grab
QCFB - Field Blank Grab

Container Type Descriptions:
PLSTM - Plastic, WM, 500 mL
PLSTS - Plastic, NM, 125 mL
VOC4H - Glass, clear, septa top, HCl, 40 mL
A125N - Glass, amber, NM, septa top, NH4Cl, 125 mL
PLSTL - Plastic, WM, 1000 mL

Email results to:
JACK C. LIM (jlim@ebmud.com)
EBMUD Laboratory
P.O. Box 24055 MS# 59
Oakland, CA 94623
(510) 287-1664

SUBCONTRACT:
Robbie Phillips
Alpha Analytical Laboratories
6398 Doughherty Road, Suite 3
Dublin CA 94568
(925)828-6226
PO# BRD-14208-CX Expires: 31-JUL-12

Please advise EBMUD laboratory if Due Date will be missed

Samples will be retained beyond the approval process only if requested by the client.

Chain of Custody Attachment

(page 2 of 2)

Date samples submitted: December 27th, 2011

Login#	Site/Locator	Zymax IDs	Sample Date / Time
L172221-1	GW BAYSIDE/BAY1-MW4	42491-1	21-DEC-11 12:30
L172221-1	GW BAYSIDE/BAY1-MW2S	-2	21-DEC-11 10:20
L172221-1	GW BAYSIDE/BAY1-MW2I	-3	21-DEC-11 13:09

Analyses : Oxygen-18 isotope For Oxy-18 (approved by ALPHA)

Comments: Please comply with hold time, sampled on DEC 21st, 2011
TAT: STD or as applicable (Oxy-18 25 days)

Method of shipment: FedEx

Submitted to:
DPRA (Zymax)
600 S. Andreasen Drive, Suite B
Escondido, CA 92029
Att: Dr. Alan Jeffrey/ Yi Wang
(760)-781-3338

Through(billing to): Robbie Phillips
Alpha Analytical Laboratories
6398 Dougherty Road, Suite 3
Dublin, CA 94568
(925) 828-6226
PO # BRD-14208-CX
Expires 31-Jul-12

Results to:
Alpha and
East Bay MUD (Jack C Lim)
EBMUD Laboratory
P.O. Box 24055 MS # 59
Oakland, California. 94623
Tel No: 510-287-1664
Fax No: 510-465-5462

12/28/11
Zymax lab

11L1010

East Bay Municipal Utility District
Laboratory Services Chain of Custody Record

Prelog or Login No.: L172221

Project Title
BAYSIDE GROUND WATER PROJECT
Account or Project: B455-0706-1

Client PM: DEREK LEE
Tel No.: (510) 287-1086
Lab PM: JACK C. LIM

Sampled by: S. Penman/Bayside
Rcvd: 21-DEC-11 14:58
Sample Date: 21-DEC-11

Lab No.	Sample Type	Time	Site	Locator	Sample Matrix	Tests Required	Container ID Barcode	Chemical Preservative	Date pH	DueDate Initials
L172221-2	GRAB	12:30	GW BAYSIDE	BAY1-MW4	GroundH2O	+TRANSMITTAL (Per Subcontract Laboratory Report)	1081228	PLSTS		11-JAN-12
ClientID:										
Sample Comments: MW4 pH = 7.80;Cl2R = 0.08mg/L; Depth to GW = 11.59feet Start, 12.49feet End; +TRANSMITTAL for OXY-18 to ZYmax via Alpha Pricing: STD										
L172221-3	GRAB	10:20	GW BAYSIDE	BAY1-MW2S	GroundH2O	+TRANSMITTAL (Per Subcontract Laboratory Report)	1081238	PLSTS		11-JAN-12
ClientID:										
Sample Comments: MS2 pH = 6.67;Cl2R = 0.14mg/L; Depth to GW = 8.45feet Start, 8.60feet End; +TRANSMITTAL for OXY-18 to ZYmax via Alpha Pricing: STD										
L172221-4	GRAB	13:09	GW BAYSIDE	BAY1-MW2I	GroundH2O	+TRANSMITTAL (Per Subcontract Laboratory Report)	1081248	PLSTS		11-JAN-12
ClientID:										
Sample Comments: MS2I pH = 7.86;Cl2R = 0.02mg/L; Depth to GW = 8.29feet Start, 12.98feet End; +TRANSMITTAL for OXY-18 to ZYmax via Alpha Pricing: STD										

Total containers received: 3

	Signature	Print Name	Time	Date
Relinquished by		Alvin C Ng	14:58	21-DEC-11
Received by				
Relinquished by				
Received by				
Relinquished by				
Received by				

Sample Type Descriptions:
GRAB - Instantaneous Grab
QCFB - Field Blank Grab

Container Type Descriptions:
PLSTM - Plastic, WM, 500 mL
PLSTS - Plastic, NM, 125 mL
VOC4H - Glass, clear, septa top, HCl, 40 mL
A125N - Glass, amber, NM, septa top, NH4Cl, 125 mL
PLSTL - Plastic, WM, 1000 mL

Email results to:
JACK C. LIM (jlim@ebmud.com)
EBMUD Laboratory
P.O. Box 24055 MS# 59
Oakland, CA 94623
(510) 287-1664

SUBCONTRACT:
Robbie Phillips
Alpha Analytical Laboratories
6398 Doughherty Road, Suite 3
Dublin CA 94568
(925)828-6226
PO# BRD-14208-CX Expires: 31-JUL-12

Please advise EBMUD laboratory if Due Date will be missed

Samples will be retained beyond the approval process only if requested by the client.

1/L1010

Chain of Custody Attachment

(page 2 of 2)

Date samples submitted: December 27th, 2011

Login#	Site/Locator	Sample Date / Time
L172221-12	GW BAYSIDE/BAY1-MW4	21-DEC-11 12:30
L172221-13	GW BAYSIDE/BAY1-MW2S	21-DEC-11 10:20
L172221-14	GW BAYSIDE/BAY1-MW2I	21-DEC-11 13:09

Analyses : Oxygen-18 isotope For Oxy-18 (approved by ALPHA)

As per Yi Wang: I did not get a chance to discuss the analysis and your needs, but I would recommend the use of both hydrogen-2 and Oxygen-18 of water instead of oxygen-18 only for any future projects if you do not want to change it for the current project. By testing both isotopes of water, it would avoid any possible bias due to testing one isotope only. So far all water isotope projects that we have performed were to test both hydrogen and oxygen of water.

Comments: Please comply with hold time, sampled on DEC 21st, 2011

TAT: STD or as applicable (Oxy-18 25 days)

Method of shipment: FedEx

Submitted to: DPRA (Zymax)
600 S. Andreasen Drive, Suite B
Escondido, CA 92029
Att: Dr. Alan Jeffrey/ Yi Wang
(760)-781-3338

Through(billing to): Robbie Phillips
Alpha Analytical Laboratories
6398 Dougherty Road, Suite 3
Dublin, CA 94568
(925) 828-6226
PO # BRD-14208-CX
Expires 31-Jul-12

Results to: Alpha and
East Bay MUD (Jack C Lim)
EBMUD Laboratory
P.O. Box 24055 MS # 59
Oakland, California. 94623
Tel No: 510-287-1664
Fax No: 510-465-5462