CSSA B-3 BIOREACTOR OPERATIONS
PERFORMANCE STATUS REPORT
(QUARTER 4, MONTH 12 – APRIL 2008)

JULY 1, 2008

This status report summarizes the operation of a bioreactor at Solid Waste Management Unit (SWMU) B-3 from February 1, 2008 through April 30, 2008; comprising the fourth quarter of bioreactor operations and monitoring since system start-up. This status report includes descriptions of current conditions, field observations, analytical results, and an anticipated schedule of activities for the next reporting period. Analytical results from monthly and quarterly regulatory and performance sampling through April 2008 are attached for reference. Parsons site personnel working on this project during the reporting period include Ken Rice, Kyle Caskey, Samantha Elliott, Eric Tennyson, Adrien Lindley, Michael Zugelder, and Edward Galbavy.

Executive Summary

Site conditions were drier than normal with few significant rain events through the quarter. Injection of extracted groundwater continued through most of the quarter. The few interruptions resulted from reaching the automatic cut-off water levels in the extraction wells. Approximately 5,186,105 gallons of groundwater extracted from CS-MW16-LGR and CS-MW16-CC have been injected into bioreactor trench 1 since the start of injection. A total of 3,262,200 gallons of extracted groundwater from wells CS-MW16-LGR and CS-MW16-CC were injected into the bioreactor during quarter 4. The majority of extracted groundwater, ~2,315,200 gallons, was from the CS-MW16-LGR well, while ~947,000 gallons was extracted from the CS-MW16-CC well. Monthly Underground Injection Control (UIC) reports for the fourth quarter were submitted to the Texas Commission on Environmental Quality (TCEQ) on April 21, 2008, May 9, 2008 and June 6, 2008.

Data from monitoring efforts indicate that the B-3 bioreactor has continued to maintain appropriate geochemical conditions for effective anaerobic dechlorination of chlorinated aliphatic hydrocarbons (CAHs). Geochemical parameters indicating optimal conditions include the following:

- Concentrations of dissolved oxygen (DO) are less generally than 0.5 milligrams per liter (mg/L) and oxidation-reduction potential (ORP) values are less than -100 millivolts (mV), indicating an anaerobic environment conductive to dechlorination of CAHs within the trenches;
- Production of methane indicating that fermentation is occurring; and
- Hydrogen concentrations are greater than 1.0 nanomoles per liter (nmol/L), indicating that there is sufficient electron donor present to stimulate anaerobic dechlorination of CAHs.

Evidence that anaerobic dechlorination of trichloroethene (TCE) appears to have been stimulated with the production of the intermediate dechlorination products *cis*-1,2-dichloroethene (*cis*-DCE) and vinyl chloride (VC). The dechlorination end product ethene was indicated in the analytical results for samples collected in the trench sumps.

Summary of Bioreactor Operation

Initial baseline and quarter 1 through quarter 4 analytical results from monitoring of the bioreactor sumps indicate that the SWMU B-3 trenches contain significant levels of *cis*-DCE as well as significant concentrations of other dechlorination products (e.g., VC). In addition, minor amounts toluene, naphthalene, and other fuel related compounds were identified during monitoring of bioreactor trench 1 sumps during the quarter. A summary of the analytical data collected for the reporting period is included in Table 1. A summary of monthly and quarter 4 monitoring results from the surrounding wells and bioreactor trench sumps are attached.

Results of VOC analysis from monitoring data indicate that injected groundwater from CS-MW16-LGR & CC, and the uppermost saturated zones of the Westbay® wells contain < 100 micrograms per liter (µg/L) of TCE/PCE and *cis*-DCE. Quarterly data from the bioreactor trench sumps indicate that contaminant mass is being reduced, as *cis*-DCE concentrations have remained low and significant VC concentrations in the trench sumps have been maintained. Reductions in contaminant concentrations within the bioreactor trench 1, and the subsequent reductions in VC concentrations may stem from the lack of significant rain events through the quarter, which have previously (June 2007 through August 2007) preceded large influxes of contaminant mass.

Water quality field measurements from the bioreactor sumps generally indicate that DO remains low (< 0.5 mg/L), ORP averages less than -200 mV, pH ~ 6.6, temperatures range from 21.7^{o}C to 23.8 ^{o}C, and specific conductivity ranges from 0.939 to 0.762 millisiemens per centimeter (mS/cm). Other observations regarding the data collected during this reporting period are listed below.

Through the 4th quarter, 2.63 inches of precipitation was measured at the B-3 bioreactor site. Average water thickness in Trench 1 during this period is approximately 6.6 feet.

Attached are graphs including a cumulative total volume of recovered groundwater from CS-MW16-LGR and CS-MW16-CC applied into trench 1, the B-3 Trench 1 average water thickness with rainfall data and average water applied daily to trench 1, and the water level elevations in the defined uppermost saturated zone (zone LGR-03B) of the B-3 multi-port monitoring wells with rainfall data.

Analytical Data Observations

1. Arsenic (As) and manganese (Mn) were reported in bioreactor trench water samples at concentrations ranging from Non-Detect (ND) to 9.9 µg/L for As (MCL is 10 µg/L) and from 271 to 751 µg/L for Mn (MCL is 50 µg/L). Elevated levels of As and Mn were reported in surrounding monitoring wells in concentrations ranging from 10.5 to 26.9 µg/L and ND to 228 µg/L, respectively. The surrounding multi-point monitoring wells also contain elevated levels of As and Mn, ND to 18.9 µg/L and ND to 1,120 µg/L, respectively. The elevated levels are likely due to changing pH conditions of the groundwater and the reduction of naturally occurring As and Mn within the limestone media to more soluble forms.
2. Even with a significant increase in the volume of water injected daily, due to the continuous operation of the automated injection system, the values of DO and ORP in water samples from the trenches did not change significantly, indicating that anaerobic reducing conditions were maintained. Although DO and ORP levels in monitoring wells and nearby Westbay wells are significantly higher that those in the Trench sumps, these measurements were not collected *in situ* and may not be representative of actual conditions, they may however be used to detect changes in subsurface conditions.

3. The VC to DCE molar fraction ratio remained high in month 12, as the total molar concentration was comprised of approximately 90% VC in sampled trench 1 sumps. This ratio dropped from month 9 through month 10, as VC in the trench sumps was removed. This may be due to the increased pumping and subsequent injection of CS-MW16-LGR into trench 1. At the time the automation system was installed, the water level in the trench sumps was greatly reduced, however, upon completion of the automation system the trenches were filled quickly with extracted groundwater from CS-MW16-LGR and CS-MW16-CC extraction wells. Thus, the samples collected immediately following the refilling of trench 1 (February) reflect the chemistry of mixed extraction well water. Overall, through the 4th quarter, a reducing trend in the total molar concentration of chlorinated contaminants was observed. *Dehalococcoides* (DHC) bacterial samples collected from the trench sumps indicate a slight decreasing trend in microbial population growth in trench 1 sump 1, while slight increases were observed in sumps 2 and 3. Ethene was observed in trench 1 sumps through the quarter indicating the reduction of VC.
4. The dissolved hydrogen concentration in trench 1 sump samples was in the range consistent with reductive dechlorination of CAHs by DHC.
5. Saturated conditions are being maintained within bioreactor Trench 1 with an average water thickness for the quarter of approximately 6.6 feet.
6. Water supply issues – Due to continuing drought conditions and decreases in water table elevations, it is likely that the volume of injection water from CS-MW16 wells will decrease. Efforts are currently underway to identify and deliver additional water to the bioreactor.

Anticipated Schedule for Next Period (May, 2008 – July, 2008):

- Continue monitoring and maintenance activities for delivery of groundwater to the bioreactor trenches.
- Monthly monitoring events in May and June (Months 13 and 14), and quarterly monitoring event in July (Month 15) for bioreactor system.
- Continue UIC monitoring and reporting.

Specific Data Observation Notes for Attachments

- Analytical results from the B-3 Trench 1 Sump samples, shown in Table 4.1.2, presents data from the quarter 4 sampling events, and suggest the residual contamination seen in February in the trench 1 sumps (*cis*-1,2DCE) has either been reduced to VC or ethene, corresponding to the higher microbial populations observed in the following months or have migrated away from trench 1.
- Table 4.1.1 indicates a water thickness of approximately 6.6 feet in trench 1 was maintained.
- Table 4.1.2 indicates that VC was present at moderate to high concentrations in trench 1 sumps (between 5 and 210 µg/L) and Ethene was observed in concentrations ranging from ND to 4.57 µg/L.
- Table 4.3.3 indicates that vinyl chloride was present (6.1 µg/L) in the sample taken from monitoring well CS-B3-MW01, which is the fourth time VC has been detected in this monitoring well. VC was also observed in monitoring well in the extraction well CS-MW16-CC (0.25 µg/L).
- Table 4.4.4 indicates that the *Dehalococcoides* (DHC) bacteria are slightly increasing in trench 1 sump 1, but an order of magnitude decrease was observed in sump 2. Sump 3 indicated a two order of magnitude increase in DHC initially followed by a slight decrease at the end of the quarter.
- The changes in molar fraction and total molar concentrations shown in graphs of quarter 4 trench 1 sumps indicate a continued reduction in contaminant mass to end products VC and Ethene.
- Figure 4.2.5 shows that the water levels in Westbay wells are significantly influenced by precipitation, or lack there of, and pumping at CS-MW16-LGR.

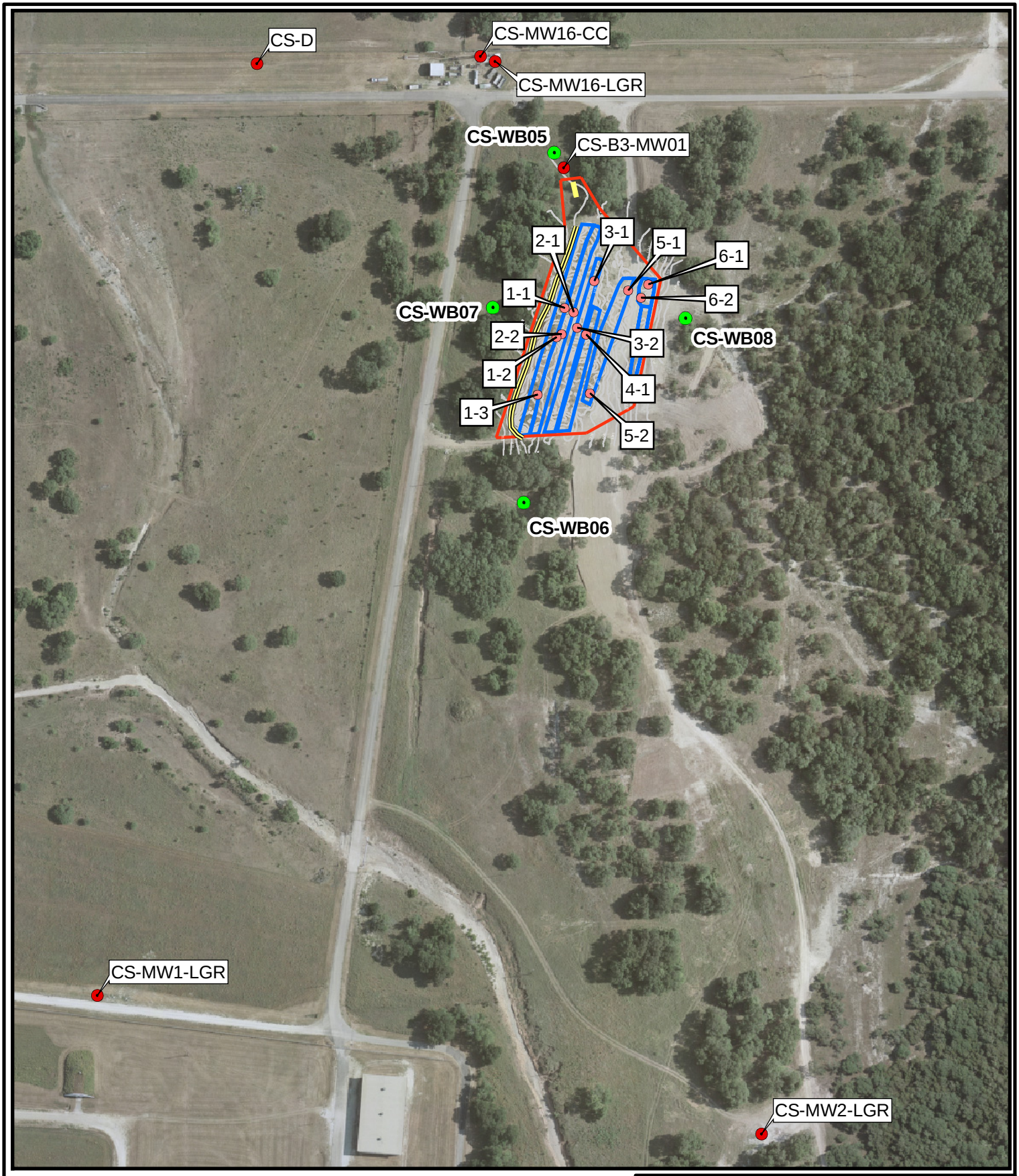

Figure 1

B-3 Bioreactor System
Camp Stanley Storage Activity

P a r s o n s

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Analytical Summary Data

Table 1 Summary of Analysis Presented for Reporting Period

Event	VOCs	TDS	TOC	DOC	MEE & CO_2	SO_3^-	Chloride, Sulfate	Alkalinity	N, NO_3 & NO_2	Fe^{2+}	Mn	Metals	H^+	DHC
Quarterly Sampling[a] (3)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Regulatory Sampling[b] (19)	✓	✓												
Regulatory Sampling (20)	✓	✓												
Monthly Sampling[c] (10)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Regulatory Sampling (21)	✓	✓												
Regulatory Sampling (22)	✓	✓												
Monthly Sampling (11)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Regulatory Sampling (23)	✓	✓												
Regulatory Sampling (24)	✓	✓												
Quarterly Sampling (4)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

□ - Not Sampled

a - Quarterly sampling includes samples from B3-trench sumps, Monitoring Wells, and Multi-port (Westbay) wells.
b - Regulatory sampling includes samples from the B3 groundwater injection system.
c - Monthly sampling includes samples from B3-trench sumps, the uppermost saturated intervals of the multi-port wells (Zone 03B).

Key for table/figure numbering	
First digit (Sample Event)	0 = Baseline 1 = Quarter 1 (or baseline through quarter 1) 2 = Quarter 2 3 = Quarter 3 4 = Quarter 4
Second digit (Well/Sump Sampled)	1 = Trench Sumps 2 = Westbay Wells 3 = Monitoring Wells 4 = Combination of Wells and Sumps 5 = Injection System
Third digit (Sampled for)	1 = Field Parameters 2 = VOC Analytical Data 3 = Other Analytical Data 4 = Microbial Data 5 = Applied Water Volume 6 = System Physical Parameters
Third digit qualifier (Westbay Identifier)	a = CS-WB05 b = CS-WB06 c = CS-WB07 d = CS-WB08

Table 0 **COC MCLs**

COC	MCL (mg/L)	MCL (µg/L)	Type
Arsenic	0.01	10	Metal
Manganese	0.05	50	
cis -Dichloroethene	0.07	70	Organic Compound
trans -Dichloroethene	0.1	100	
Trichloroethene	0.005	5	
Tetrachloroethene	0.005	5	
Vinyl Chloride	0.002	2	

Table 4.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data - Quarter 4

TRENCH 1 Sump 1-1								
Sump Depth:		12.9 *feet BTOC*						
Sample Date	**Sample Time**	**Sump H_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(feet)*
2/1/2008	1000	11.40						1.50
2/4/2008	1330	7.33	6.19	22.29	0.725	0.51	-188.5	5.57
2/7/2008	1300	6.68	6.63	22.38	3.317	0.35	-253.6	6.22
2/14/2008	940	6.18	6.58	22.32	2.035	0.37	-255.9	6.72
2/19/2008	1025	6.32	6.70	22.31	1.932	0.56	-254.4	6.58
2/29/2008	1530	5.93	6.66	22.60	1.014	0.84	-227.2	6.97
3/5/2008	1400	5.95	6.77	22.43	0.755	0.56	-177.6	6.95
3/13/2008	1545	5.75	6.65	22.07	0.735	0.66	-220.4	7.15
3/19/2008	1300	6.12	6.58	22.67	0.818	0.89	-201.8	6.78
3/26/2008	1000	6.38	6.60	22.89	0.652	0.53	-195.2	6.52
4/3/2008	1325	6.77	6.44	23.22	0.68	0.65	-202.8	6.13
4/9/2008	1400	7.10	6.47	23.61	0.818	0.64	-207.4	5.80
4/22/2008	945	6.90	6.75	23.81	0.777	0.44	-193.4	6.00

NA = Not Available

Table 4.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data - Quarter 4

TRENCH 1 Sump 1-2								
Sump Depth:		12.4 *feet BTOC*						
Sample Date	**Sample Time**	**Sump H_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(feet)*
2/1/2008	1000	11.03						1.37
2/4/2008	1330	7.04	6.24	21.95	0.897	0.43	-227.0	5.36
2/7/2008	1300	6.32	6.67	22.08	1.560	0.26	-233.2	6.08
2/14/2008	940	5.85	6.62	21.90	0.518	0.32	-211.1	6.55
2/19/2008	1025	5.90	6.80	22.27	1.630	0.50	-257.8	6.50
2/29/2008	1530	5.59	6.71	22.59	0.898	0.67	-249.3	6.81
3/5/2008	1400	5.63	6.77	22.44	0.719	0.35	-211.1	6.77
3/13/2008	1545	5.40	6.83	21.46	0.578	0.41	-195	7.00
3/19/2008	1300	5.75	6.76	22.65	0.656	0.64	-178.2	6.65
3/26/2008	1000	6.01	6.76	22.77	0.616	0.53	-153.2	6.39
4/3/2008	1325	6.43	6.48	23.76	0.644	0.47	-157	5.97
4/9/2008	1400	6.73	6.61	23.98	0.735	0.37	-196.7	5.67
4/22/2008	1045	6.54	6.81	23.97	0.748	0.67	-187.6	5.86

NA = Not Available

Table 4.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data - Quarter 4

TRENCH 1 Sump 1-3								
Sump Depth:		12.85 *feet BTOC*						
Sample Date	**Sample Time**	**Sump H_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(feet)*
2/1/2008	1000	10.65						2.20
2/4/2008	1330	6.75	6.34	21.58	0.655	0.35	-195.9	6.10
2/7/2008	1300	6.04	6.67	21.67	0.631	0.35	-188.4	6.81
2/14/2008	940	5.62	6.76	21.68	0.530	0.36	-214.2	7.23
2/19/2008	1025	5.65	6.96	21.40	0.601	0.60	-188.0	7.20
2/29/2008	1530	5.35	6.94	21.83	0.668	0.45	-240.0	7.50
3/5/2008	1400	5.39	6.95	21.71	0.651	0.37	-217.8	7.46
3/13/2008	1545	5.17	6.99	21.50	0.577	0.39	-281.9	7.68
3/19/2008	1300	5.53	6.90	21.86	0.690	0.57	-184.9	7.32
3/26/2008	1000	5.79	7.08	22.42	0.626	0.61	-229.6	7.06
4/3/2008	1325	6.2	6.76	23.14	0.642	0.40	-210.9	6.65
4/9/2008	1400	6.53	6.83	23.26	0.717	0.37	-218.9	6.32
4/22/2008	1125	6.32	6.95	23.69	0.701	0.32	-175.6	6.53

NA = Not Available

Table 4.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data - Quarter 4

TRENCH 2 Sump 2-1								
Sump Depth:		9.67 *feet BTOC*						
Sample Date	**Sample Time**	**Sump H_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(feet)*
2/4/2008	1330	9.67						0.00
2/7/2008	1300	8.15	6.34	22.66	1.545	0.38	-195.4	1.52
2/14/2008	940	7.64	6.42	22.61	1.154	0.37	-216.9	2.03
2/19/2008	1025	7.72	6.69	22.75	1.133	0.30	-169.1	1.95
2/29/2008	1530	7.41	6.55	23.18	1.056	0.47	-212.2	2.26
3/5/2008	1400	7.46	6.61	23.13	1.046	0.43	-157.0	2.21
3/13/2008	1545	7.24	6.56	23.32	1.006	0.64	-155.4	2.43
3/19/2008	1300	7.6	6.43	23.27	1.173	0.77	-167.9	2.07
3/26/2008	1000	7.83	6.78	23.76	1.130	0.78	-192.4	1.84
4/3/2008	1325	8.2	6.3	24.52	1.100	0.50	-191.3	1.47
4/9/2008	1400	8.58	6.4	24.79	1.229	0.55	-146.5	1.09
4/22/2008	851	8.37	6.61	26.22	1.235	0.31	-106.4	1.30

NA = Not Available

Table 4.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data - Quarter 4

TRENCH 2 Sump 2-2								
Sump Depth:		10.01 *feet BTOC*						
Sample Date	**Sample Time**	**Sump H_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(feet)*
2/4/2008	1330	10.01						0.00
2/7/2008	1300	8.53	6.48	22.19	1.599	0.32	-157.2	1.48
2/14/2008	940	7.98	6.47	21.91	1.187	0.32	-199.3	2.03
2/19/2008	1025	8.10	6.56	21.91	1.460	0.37	-158	1.91
2/29/2008	1530	7.73	6.57	22.14	1.531	0.54	-200.6	2.28
3/5/2008	1400	7.76	6.64	22.12	1.534	0.33	-172.0	2.25
3/13/2008	1545	7.53	6.70	22.13	1.514	0.47	-182.3	2.48
3/19/2008	1300	7.88	6.48	22.26	1.812	0.69	-148.8	2.13
3/26/2008	1000	8.14	6.68	22.76	1.762	0.52	-164.0	1.87
4/3/2008	1325	8.36	6.30	23.57	1.894	0.51	-155.7	1.65
4/9/2008	1400	8.91	6.46	24.16	2.139	0.44	-142.3	1.10
4/22/2008	851	8.65	6.68	25.53	1.677	0.33	-91.3	1.36

NA = Not Available

Table 4.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data - Quarter 4

TRENCH 3 Sump 3-1								
Sump Depth:		9.96 *feet BTOC*						
Sample Date	**Sample Time**	**Sump H_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(feet)*
2/4/2008	1330	9.96						0.00
2/7/2008	1300	9.27						0.69
2/14/2008	940	9.31						0.65
2/19/2008	1025	9.29						0.67
2/29/2008	1530	9.30						0.66
3/5/2008	1400	9.30						0.66
3/13/2008	1545	9.18						0.78
3/19/2008	1300	9.20						0.76
3/26/2008	1000	9.19	6.74	25.54	1.601	0.56	-215.8	0.77
4/3/2008	1325	9.19						0.77
4/9/2008	1400	9.21						0.75
4/22/2008	851	9.14						0.82

NA = Not Available

Table 4.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data - Quarter 4

TRENCH 3 Sump 3-2								
Sump Depth:		7.4 *feet BTOC*						
Sample Date	**Sample Time**	**Sump H_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(feet)*
2/4/2008	1330	7.40						0.00
2/7/2008	1300	7.40						0.00
2/14/2008	940	7.40						0.00
2/19/2008	1025	7.40						0.00
2/29/2008	1530	7.40						0.00
3/5/2008	1400	7.40						0.00
3/13/2008	1545	7.40						0.00
3/19/2008	1300	7.40						0.00
3/26/2008	1000	7.40						0.00
4/3/2008	1325	7.40						0.00
4/9/2008	1400	7.40						0.00
4/22/2008	851	7.40						0.00

NA = Not Available

Table 4.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data - Quarter 4

TRENCH 4 Sump 4-1								
Sump Depth:		6.32 *feet BTOC*						
Sample Date	**Sample Time**	**Sump H_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(feet)*
2/4/2008	1330	6.32						0.00
2/7/2008	1300	6.32						0.00
2/14/2008	940	6.32						0.00
2/19/2008	1025	6.32						0.00
2/29/2008	1530	6.32						0.00
3/5/2008	1400	6.32						0.00
3/13/2008	1545	6.32						0.00
3/19/2008	1300	6.32						0.00
3/26/2008	1000	6.32						0.00
4/3/2008	1325	6.32						0.00
4/9/2008	1400	6.32						0.00
4/22/2008	851	6.32						0.00

NA = Not Available

Table 4.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data - Quarter 4

TRENCH 5 Sump 5-1								
Sump Depth:		9.33 *feet BTOC*						
Sample Date	**Sample Time**	**Sump H_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		***(°C)***	***(m-mho/cm)***	***(mg/L)***	***(eV)***	***(feet)***
2/4/2008	1330	9.33						0.00
2/7/2008	1300	9.33						0.00
2/14/2008	940	9.33						0.00
2/19/2008	1025	9.33						0.00
2/29/2008	1530	9.33						0.00
3/5/2008	1400	9.33						0.00
3/13/2008	1545	9.29						0.04
3/19/2008	1300	9.30						0.03
3/26/2008	1000	9.32						0.01
4/3/2008	1325	9.33						0.00
4/9/2008	1400	9.33						0.00
4/22/2008	851	9.32						0.01

NA = Not Available

Table 4.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data - Quarter 4

TRENCH 5 Sump 5-2								
Sump Depth:		7.98 *feet BTOC*						
Sample Date	**Sample Time**	**Sump H_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		***(°C)***	***(m-mho/cm)***	***(mg/L)***	***(eV)***	***(feet)***
2/4/2008	1330	7.98						0.00
2/7/2008	1300	7.98						0.00
2/14/2008	940	7.98						0.00
2/19/2008	1025	7.98						0.00
2/29/2008	1530	7.98						0.00
3/5/2008	1400	7.98						0.00
3/13/2008	1545	7.79						0.19
3/19/2008	1300	7.89						0.09
3/26/2008	1000	7.96						0.02
4/3/2008	1325	7.98						0.00
4/9/2008	1400	7.98						0.00
4/22/2008	851	7.80						0.18

NA = Not Available

Table 4.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data - Quarter 4

TRENCH 6 Sump 6-1								
Sump Depth:		11.45 *feet BTOC*						
Sample Date	**Sample Time**	**Sump H_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		***(°C)***	***(m-mho/cm)***	***(mg/L)***	***(eV)***	***(feet)***
2/4/2008	1330	11.45						0.00
2/7/2008	1300	11.13						0.32
2/14/2008	940	11.14						0.31
2/19/2008	1025	11.10						0.35
2/29/2008	1530	11.11						0.34
3/5/2008	1400	11.07						0.38
3/13/2008	1545	11.04						0.41
3/19/2008	1300	11.09						0.36
3/26/2008	1000	11.08						0.37
4/3/2008	1325	11.10						0.35
4/9/2008	1400	11.10						0.35
4/22/2008	851	11.05						0.40
.								

NA = Not Available

Table 4.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data - Quarter 4

TRENCH 6 Sump 6-2								
Sump Depth:		12.34 *feet BTOC*						
Sample Date	**Sample Time**	**Sump H_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		***(°C)***	***(m-mho/cm)***	***(mg/L)***	***(eV)***	***(feet)***
2/4/2008	1330	12.34						0.00
2/7/2008	1300	11.98						0.36
2/14/2008	940	11.97						0.37
2/19/2008	1025	11.99						0.35
2/29/2008	1530	11.98						0.36
3/5/2008	1400	11.95						0.39
3/13/2008	1545	11.95						0.39
3/19/2008	1300	11.95						0.39
3/26/2008	1000	11.95						0.39
4/3/2008	1325	11.99						0.35
4/9/2008	1400	11.98						0.36
4/22/2008	851	11.96						0.38

NA = Not Available

Table 4.1.2 SWMU B-3 Trench 1 Quarter 4 - VOC Analytical Summary Table

Q4	B3 T1-1			B3 T1-2			B3 T1-3		
Date	**2/19/08**	**3/26/08**	**4/22/08**	**2/19/08**	**3/26/08**	**4/22/08**	**2/19/08**	**3/26/08**	**4/22/08**
PCE (µg/L)	1.5	0	0	0.6	0.25	0.18	3.5	0.79	0.29
TCE (µg/L)	0.73	0	0	0.7	0.16	0	4.5	0.89	0
cis-1,2-DCE (µg/L)	19	0.29	0	130	1.2	0.23	120	33	1.9
trans-1,2-DCE (µg/L)	0.91	1.4	1.8	1.1	2.8	4.2	0.59	0.52	1
Vinyl Chloride (µg/L)	170	210	54	12	170	31	5	87	44
Ethene (µg/L)	1.35	1.66	0	4.16	2.67	1.48	0	4.57	0
PCE (nM/L)	9.045	0.000	0.000	3.618	1.508	1.085	21.106	4.764	1.749
TCE (nM/L)	5.556	0.000	0.000	5.328	1.218	0.000	34.249	6.774	0.000
cis-1,2-DCE (nM/L)	195.977	2.991	0.000	1340.897	12.378	2.372	1237.751	340.382	19.598
trans-1,2-DCE (nM/L)	9.386	14.440	18.566	11.346	28.881	43.321	6.086	5.364	10.315
Vinyl Chloride (nM/L)	2719.565	3359.462	863.862	191.969	2719.565	495.921	79.987	1391.777	703.887
Ethene (nM/L)	48.128	59.180	0.000	148.307	95.187	52.763	0.000	162.923	0.000
Total Molar Conc. (nM/L)	2,987.658	3,436.074	882.428	1,701.465	2,858.736	595.463	1,379.179	1,911.984	735.548
% moles PCE	0.303%	0.000%	0.000%	0.213%	0.053%	0.182%	1.530%	0.249%	0.238%
% moles TCE	0.186%	0.000%	0.000%	0.313%	0.043%	0.000%	2.483%	0.354%	0.000%
% moles cis-1,2-DCE	6.560%	0.087%	0.000%	78.808%	0.433%	0.398%	89.746%	17.803%	2.664%
% moles trans-1,2-DCE	0.314%	0.420%	2.104%	0.667%	1.010%	7.275%	0.441%	0.281%	1.402%
% moles Vinyl Chloride	91.027%	97.770%	97.896%	11.283%	95.132%	83.283%	5.800%	72.792%	95.696%
% moles Ethene	1.611%	1.722%	0.000%	8.716%	3.330%	8.861%	0.000%	8.521%	0.000%
sum % moles	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Month 10	Month 11	Month 12	Month 10	Month 11	Month 12	Month 10	Month 11	Month 12

Note: 0 sample indicates a non-detect analyte value

Q4		B3																			
Well ID		**B3 T1-1**						**B3 T1-2**						**B3 T1-3**						**B3 T2-1**		**B3 T2-2**	
Sample Date		**2/19/2008**		**3/26/2008**		**4/22/2008**		**2/19/2008**		**3/26/2008**		**4/22/2008**		**2/19/2008**		**3/26/2008**		**4/22/2008**		**3/26/2008**		**3/26/2008**	
Compound	**Units**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**
Dissolved Organic Carbon	mg/L	4.5		4.2		3.8		8.5		5.3		3.8		11.7		8.4		3.2		17		61.8	
Total Organic Carbon	mg/L	5.3		4.4		4.9		9.8		5.7		4.5		13.0		9.5		3.8		15.2		67.4	
Methane	µg/L	5,800		14,600		9,710		2,580		6,490		7,990		1,720		3,330		2,770		6,380		10,700	
Ethene	µg/L	1.35	J	1.66		0		4.16		2.67		1.48	J	0		4.57		0		0		0	
Ethane	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Carbon Dioxide	µg/L	112,000		164,000		279,000		65,600		95,600		205,000		51,000		28,300		110,000		438,000		672,000	
Alkalinity, Total (as CACO3)	mg/L	358		357		396		349		344		353		330		352		328		595		1780	
Nitrate/Nitrite	mg/L	0		0		0		0		0		0		0		0		0		0		0	
Sulfate	mg/L	1.2		2		6.1		4.0		4.9		17.6		7.1		11.3		30.9		1.5		3.5	
Chloride	mg/L	11.4		11.1		14.7		13.7		11.1		14.5		10.8		10.9		14.7		11		15.6	
Ferrous Iron	mg/L	4.6		8.1		4.3		4.4		2.5		2.4		3.7		5.1		2.5		7.2		8.6	
Manganese	µg/L	400		386		356		624		541		436		751		624		271		1870		1470	
Hydrogen	nM/L	3.1		7.1		4.4		5.4		1.9		1.6		5.7		2.1		1.9		4.3		2.0	
Hydrogen Sulfide																							
Total Dissolved Solids	mg/L	385		372		419		371		351		401		416		381		379		648		2500	
Benzene	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Bromodichloromethane	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Bromoform	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Chloroform	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Dibromochloromethane	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Dichlorodifluoromethane	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Dichloroethene, 1,1-	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Dichloroethene, cis-1,2-	µg/L	19		0.29	J	0		130		1.2		0.23	J	120		33		1.9		0		0	
Dichloroethene, trans-1,2-	µg/L	0.91		1.40		1.80		1.1		0.39	J	4.2		0.59	J	0.52	J	1.0		0.64		0	
Methylene chloride	µg/L	0		0.75	J	0		0		0		0		0		0		0		0		0	
Naphthalene	µg/L	0.84		0.78		0.64	B	0		0		0		0		0		0		0		0	
Tetrachloroethene	µg/L	1.5		0		0		0.60	J	0.25	J	0.18	J	3.5		0.79	J	0.29	J	0		0	
Toluene	µg/L	0.97	J	1.8		1.7		0.35	J	0.45	J	0.96	J	0.25	J	0.32	J	0.35	J	1.20		1.3	
Trichloroethene	µg/L	0.73	J	0		0		0.70	J	0.16	J	0		4.5		0.89	J	0		0		0	
Vinyl chloride	µg/L	170		210	J	54		12		170		31		5.0		87		44		67		13	
Arsenic	µg/L	0		0		7.4		9.9		4.4	J	5.6		7.8		0		8		21.1		25.0	
Barium	µg/L	303		117		111		374		110		126		161		113		316		385		416	
Cadmium	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Chromium	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Copper	µg/L	2.7	J	1.6	J	0		0		0		0		1.9	J	0		0		3.0	J	3.1	J
Lead	µg/L	0		0		0		2.9	J	0		0		3.4	J	0		2.4	J	0		0	
Mercury	µg/L	0.17	J	0		0		0.20		0		0		0.15	J	0		0		0		0	
Nickel	µg/L	1.4	J	1.2	J	1.6	J	1.3	J	1.5	J	2.1	J	1.3	J	1.5	J	1.0	J	7.1		7.3	
Zinc	µg/L	21.8	J	10.8	J	9.5	J	10.3	J	5.4	J	8.7	J	3.3	J	4.2	J	11.1	J	14.1	J	5.8	J
		Month 10		Month 11		Month 12		Month 10		Month 11		Month 12		Month 10		Month 11		Month 12		Month 11		Month 11	

Note: 0 sample indicates a non-detect analyte value

WB05 Field Parameters

	WB05						
Zone	**Sample Date**	**Sample Time**	**pH**	**Temp. (℃)**	**Sp. Cond. (mS/cm)**	**ORP (mV)**	**DO (mg/L)**
LGR-01 30 - 107 ft bgs	6/18/2007	1302	7.14	24.41	0.970	-36.5	3.40
	7/17/2007	1500	7.07	24.73	0.998	-21.1	4.80
	8/22/2007	1400	6.86	23.67	0.934	-24.2	4.22
	9/21/2007	1045	6.86	22.45	0.903	-39.7	2.52
	10/24/2007	1045	7.40	21.86	0.863	10.9	4.12
	1/24/2008	1330	7.00	13.27	0.670	-39.6	5.14
	4/28/2008	950	7.34	18.91	0.716	13.6	5.33
	5/22/2008	1315	7.74	26.70	0.920	269.0	4.20
LGR-02 112 - 190 ft bgs	6/18/2007	1252	7.14	27.16	0.796	-65.9	3.20
	7/17/2007	1415	7.08	26.23	0.873	-58.0	5.24
	8/22/2007	1350	6.88	24.57	0.811	-45.5	4.03
	9/21/2007	1030	6.92	22.60	0.714	-41.2	3.92
	10/24/2007	1000	7.40	19.46	0.703	20.3	4.60
	1/24/2008	945	7.38	14.97	0.583	-42.2	6.61
	4/29/2008	dry					
LGR-03A 195 - ft bgs	6/18/2007	1117	7.19	24.46	0.667	-45.3	4.00
	7/17/2007	1315	7.23	25.58	0.711	-32.9	5.24
	8/22/2007	1341	6.96	26.36	0.720	6.5	5.20
	9/21/2007	1015	7.00	22.71	0.661	-58.0	4.39
	10/24/2007	930	7.46	18.67	0.590	35.1	4.84
	1/23/2008	1130	7.10	13.55	0.500	-43.3	6.30
	4/29/2008	1015	7.30	21.83	0.615	1.2	4.01
LGR-03B - 270 ft bgs	5/4/2006	1600	6.89	27.93	0.720	26.9	5.10
	6/5/2006	1750	7.17	27.39	0.778	-25.0	3.95
	8/9/2006	1754	6.89	28.55	0.817	-40.9	5.78
	10/12/2006	1000	7.56	22.36	0.675	-131.4	6.43
	1/3/2007	1510	7.30	18.53	0.633	-79.9	5.01
	4/23/2007	1000	7.15	22.10	0.670	-40.2	6.35
	5/14/2007	1445	6.95	23.71	0.599	-90.7	6.52
	6/18/2007	1030	7.13	24.58	0.689	-50.2	5.31
	7/17/2007	1045	7.18	23.59	0.688	-51.5	7.27
	8/22/2007	1045	7.11	34.34	0.848	-5.2	3.98
	9/18/2007	1430	6.96	23.97	0.680	-10.8	5.91
	10/15/2007	1030	7.37	22.53	0.601	-19.2	5.80
	11/20/2007	915	6.93	21.53	0.579	2.8	5.52
	12/17/2007	1015	7.68	18.31	0.583	-27.0	6.80
	1/21/2008	945	6.97	14.47	0.507	-19.3	5.48
	2/18/2008	1055	7.29	19.73	0.625	-3.6	4.04
	3/25/2008	1223	7.30	21.51	0.676	1.3	4.64
	4/21/2008	1115	7.39	22.49	0.658	53.4	4.10
	5/19/2008	1100	7.66	24.30	0.740	278.0	5.20
LGR-04A 275 - 284 ft bgs	5/4/2006	1925	7.05	24.69	0.561	-79.6	4.09
	6/5/2006	1555	7.15	29.84	0.716	-97.5	4.17
	8/9/2006	1600	6.99	28.78	0.685	-119.6	4.47
	10/11/2006	1600	7.33	24.49	0.565	-95.4	5.75
	1/4/2007	1030	7.27	18.86	0.528	-104.4	6.23
	6/18/2007	1014	7.23	24.51	0.612	-99.2	3.13
	7/17/2007	930	7.18	23.24	0.616	-116.3	6.57
	8/22/2007	1034	7.06	23.47	0.603	-99.0	3.85
	9/21/2007	1007	6.96	22.45	0.591	-84.0	4.51
	10/23/2007	1500	7.19	22.25	0.586	-102.7	3.98
	1/23/2008	1045	7.25	14.27	0.462	-111.7	6.53
	4/28/2008	1550	7.24	23.47	0.637	-2.0	3.18
LGR-04B 289 - 340 ft bgs	5/5/2006	1740	6.96	28.21	0.575	129.0	6.45
	6/5/2006	1130	7.07	25.69	0.598	52.9	6.68
	8/9/2006	1225	6.82	26.41	0.615	60.9	9.71
	10/11/2006	1430	7.06	25.83	0.574	31.2	8.72
	1/3/2007	1440	7.19	17.77	0.491	13.8	9.48
	6/18/2007	1001	7.00	23.08	0.571	-22.7	4.63
	7/16/2007	1600	6.94	24.02	0.597	5.7	5.85
	8/22/2007	1025	6.85	23.06	0.567	1.9	4.90
	9/21/2007	958	7.01	22.45	0.565	-26.0	6.03
	10/23/2007	1410	6.87	23.80	0.601	-10.9	4.60
	1/23/2008	945	6.93	16.58	0.785	-26.0	5.76
	4/28/2008	1500	7.35	22.68	0.757	-44.7	4.02
LGR-BS-01 345 - 388 ft bgs	8/9/2006	1025	7.24	25.97	0.649	-34.1	8.30
	10/11/2006	1015	7.20	20.96	0.515	-66.7	8.23
	1/3/2007	1130	7.31	17.57	0.519	-36.3	7.76
	6/18/2007	945	7.16	23.17	0.570	-59.7	5.36
	7/16/2007	1445	7.15	25.02	0.612	-38.8	5.40
	8/22/2007	1013	7.01	23.29	0.576	-59.5	5.23
	9/21/2007	950	7.13	22.48	0.568	-67.7	7.76
	10/23/2007	1110	7.11	20.32	0.537	-21.3	8.04
	1/22/2008	1420	6.97	18.35	0.468	-46.7	7.84
	4/28/2008	1400	7.68	23.50	0.563	-8.2	5.39
LGR-CC-01 393 - 442 ft bgs	8/8/2006	1505	7.07	28.06	0.732	-63.1	8.73
	10/10/2006	1630	7.60	22.41	0.521	-111.5	8.05
	1/3/2007	1000	7.46	17.64	0.555	-64.7	8.66
	6/18/2007	933	7.09	23.50	0.617	-68.0	5.09
	7/16/2007	1125	7.11	24.28	0.656	-74.8	4.73
	8/22/2007	1004	6.95	23.41	0.623	-86.2	4.40
	9/21/2007	938	7.14	22.65	0.621	-76.0	4.22
	10/23/2007	1040	7.25	18.82	0.570	-22.1	6.07
	1/22/2008	1305	6.95	21.47	0.588	-65.9	5.23
	4/28/2008	1115	7.49	21.95	0.623	-24.8	5.56
LGR-CC-02 447 - 473 ft bgs	8/8/2006	1232	7.29	26.19	0.754	-60.7	8.99
	10/10/2006	1136	7.54	21.24	0.554	-87.5	10.24
	1/2/2007	1415	7.34	19.48	0.630	-56.0	9.35
	6/18/2007	917	6.85	23.52	0.626	-80.3	5.25
	7/16/2007	1015	6.97	24.90	0.671	-58.4	4.96
	8/22/2007	954	6.86	23.96	0.635	-74.3	5.94
	9/21/2007	928	7.46	22.73	0.631	-88.0	4.73
	10/23/2007	945	7.06	16.07	0.529	-53.1	7.28
	1/22/2008	1045	6.73	21.38	0.584	-90.5	4.67
	4/28/2008	1035	7.45	21.02	0.606	-33.2	5.61

Note: elevation for LGR-03A is the top of the LGR zone and LGR-03B is the base of the LGR zone

WB06 Field Parameters

	WB06						
Zone	**Sample Date**	**Sample Time**	**pH**	**Temp. (℃)**	**Sp. Cond. (mS/cm)**	**ORP (mV)**	**DO (mg/L)**
UGR-01	12/27/2005	dry					
	1/5/2007	dry					
	6/18/2007	1451	7.01	22.90	0.614	-11.7	4.02
	7/25/2007	1015	6.84	21.20	0.663	20.4	4.84
UGR-01	8/21/2007	1445	6.87	25.07	0.715	13.0	3.37
9.5 - 27.5 ft bgs	9/20/2007	1450	6.84	24.30	0.651	-6.5	4.10
	10/17/2007	1445	6.49	26.30	1.075	7.5	2.80
	1/29/2008	1425	7.06	22.60	0.994	-23.3	3.68
	4/24/2008	1530	6.99	24.96	0.911	5.6	2.82
	5/22/2008	1540	7.89	26.90	0.925	137.0	4.08
LGR-01	12/27/2005	1621	7.22	24.30	0.622	NA	NA
	1/10/2007	1045	7.27	18.78	0.518	-13.3	5.08
	6/18/2007	1436	7.06	23.34	0.678	-23.2	3.55
	7/25/2007	930	7.11	21.08	0.606	15.0	5.85
LGR-01	8/21/2007	1435	7.00	24.42	0.645	12.8	4.37
32.5 - 100.5 ft bgs	9/20/2007	1440	6.93	23.96	0.662	-14.2	4.28
	10/17/2007	1355	7.08	25.97	0.636	-6.0	3.45
	1/29/2008	1330	7.27	21.57	0.677	-25.1	3.72
	4/24/2008	1430	7.10	24.14	0.745	6.9	4.16
LGR-02	1/27/2005	1515	7.22	23.40	0.680	NA	NA
	1/25/2006	1230	7.18	19.74	0.602	201.8	6.18
	1/5/2007	1350	7.27	22.63	0.596	-33.4	4.04
	6/18/2007	1426	7.17	23.25	0.596	-20.1	4.62
	7/23/2007	1420	7.04	25.44	0.628	-303.0	5.79
LGR-02	8/21/2007	1425	7.10	24.28	0.622	2.8	3.64
105.5 - 181.5 ft bgs	9/20/2007	1430	6.96	23.68	0.617	-20.6	4.89
	10/17/2007	1310	7.10	25.80	0.635	-11.8	3.93
	1/29/2008	1130	7.14	20.99	0.539	-25.4	3.65
	4/24/2008	1330	7.35	22.97	0.579	4.6	2.75
LGR-03A	1/27/2005	1448	7.20	23.60	0.631	NA	NA
	1/5/2007	1015	7.37	20.59	0.555	-15.4	4.77
	6/18/2007	1415	7.06	23.82	0.593	-13.8	4.42
	7/23/2007	1310	6.97	27.61	0.639	0.7	5.35
LGR-03A	8/21/2007	1415	7.03	24.26	0.605	21.9	6.27
186.5 - ft bgs	9/20/2007	1415	6.89	22.57	0.586	-21.3	5.49
	10/17/2007	1045	6.80	22.80	0.581	19.9	6.79
	1/29/2008	1025	7.06	20.83	0.548	-14.1	3.96
	4/24/2008	1130	7.27	23.15	0.598	-2.8	2.73
LGR-03B	1/27/2005	1420	7.15	24.70	0.647	NA	NA
	1/25/2006	955	7.28	17.78	0.544	122.3	8.55
	1/4/2007	1600	7.11	19.87	0.547	4.1	6.70
	5/15/2007	1420	7.15	23.95	0.595	-12.0	7.08
	6/18/2007	1353	7.06	24.94	0.606	-8.1	4.55
	7/23/2007	1045	6.99	23.51	0.587	-9.5	6.36
LGR-03B	8/21/2007	1355	7.07	24.74	0.613	-0.1	3.20
- 267.5 ft bgs	9/18/2007	1100	7.14	23.69	0.605	-4.9	6.23
	10/16/2007	1030	6.87	22.35	0.577	-44.0	6.25
	11/26/2007	945	7.18	15.67	0.472	4.9	8.18
	12/17/2007	1405	7.15	19.65	0.538	-21.8	6.74
	1/21/2008	1415	7.31	18.87	0.501	34.2	6.50
	2/18/2008	1450	7.36	20.81	0.566	1.5	4.97
	3/25/2008	1556	7.43	24.00	0.639	3.9	5.12
	4/21/2008	1430	7.42	23.04	0.596	43.7	4.51
	5/19/2008	1430	8.04	25.90	0.673	147.0	4.05
LGR-04	1/27/2005	1352	7.10	25.10	0.608	NA	NA
	1/25/2006		6.92	20.94	0.542	117.0	8.73
	1/4/2007	1500	7.22	20.28	0.514	-14.6	7.23
	6/18/2007	1337	6.99	25.24	0.606	-10.6	4.65
	7/23/2007	1000	6.79	23.56	0.579	-9.0	4.31
LGR-04	8/21/2007	1340	6.93	24.03	0.590	10.9	4.64
272.5 - 332.5 ft bgs	9/20/2007	1400	7.14	23.20	0.587	-19.5	5.00
	10/17/2007	1000	6.82	22.98	0.567	24.4	6.80
	1/29/2008	945	7.23	19.92	0.510	-4.6	6.87
	4/24/2008	1030	7.15	22.57	0.566	3.2	4.22

Note: elevation for LGR-03A is the top of the LGR zone and LGR-03B is the base of the LGR zone

WB07 Field Parameters

	WB07						
Zone	**Sample Date**	**Sample Time**	**pH**	**Temp. (℃)**	**Sp. Cond. (mS/cm)**	**ORP (mV)**	**DO (mg/L)**
UGR-01	12/28/2005	dry					
	1/9/2007	dry					
	6/19/2007	1030	6.67	22.89	0.997	-124.0	3.45
	7/19/2007	1040	6.49	22.98	1.210	-105.9	3.95
UGR-01	8/22/2007	1601	6.56	23.06	0.832	-105.0	2.13
7.25 - 22.25 ft bgs	9/20/2007	1335	6.65	23.86	0.960	-103.7	2.73
	10/18/2007	1345	6.56	25.18	0.991	-114.5	2.67
	1/28/2008	dry					
	4/30/2008	dry					
	5/22/2008	dry					
LGR-01	12/28/2005	1248	7.13	21.50	0.672	NA	NA
	1/9/2007	915	7.26	17.05	0.646	-3.0	4.20
	6/19/2007	1020	7.15	23.15	0.735	-23.5	3.41
	7/19/2007	940	6.98	23.31	0.730	-9.5	4.09
LGR-01	8/22/2007	1555	6.90	22.97	0.720	7.9	3.53
27.25 - 98.25 ft bgs	9/20/2007	1325	7.00	23.15	0.769	-14.2	5.03
	10/18/2007	1250	6.77	23.97	0.749	11.0	4.70
	1/28/2008	1330	7.27	18.41	0.759	-22.9	4.61
	4/30/2008	1100	6.98	21.35	0.825	18.2	3.76
	5/22/2008	1440	8.13	27.60	1.010	206.0	4.55
LGR-02	12/28/2005	1224	7.10	21.40	0.642	NA	NA
	1/24/2006		7.15	21.68	0.599	202.9	7.98
	1/8/2007	1430	7.27	19.93	0.555	-2.3	4.84
	6/19/2007	1012	7.22	23.27	0.634	-48.0	4.88
	7/18/2007	1500	7.02	22.67	0.626	-36.9	6.52
LGR-02	8/22/2007	1545	6.98	23.06	0.637	-21.3	4.74
103.25 - 183.25 ft bgs	9/20/2007	1315	7.03	22.99	0.642	-35.7	5.37
	10/18/2007	1100	6.96	23.00	0.592	2.7	5.43
	1/28/2008	1100	7.48	18.05	0.535	-29.0	5.07
	4/30/2008	1400	7.53	24.72	0.615	-12.1	2.84
LGR-03A	12/28/2005	1159	7.21	20.70	0.576	NA	NA
	1/8/2007	1310	7.67	19.02	0.523	-71.1	3.10
	6/19/2007	1000	7.20	23.02	0.573	-67.5	3.63
	7/18/2007	1345	7.07	23.88	0.583	-44.9	5.11
LGR-03A	8/22/2007	1535	7.02	23.47	0.584	-34.3	5.29
188.25 - ft bgs	9/20/2007	1310	6.92	22.64	0.575	-39.1	5.44
	10/18/2007	1030	6.94	23.08	0.538	16.0	6.43
	1/28/2008	1020	7.13	18.00	0.499	-22.0	5.46
	4/30/2008	1300	7.21	25.06	0.579	6.5	3.08
LGR-03B	12/28/2005	1133	7.15	20.30	0.571	NA	NA
	1/24/2006		7.24	21.54	0.544	113.9	9.21
	1/8/2007	1030	7.31	19.01	0.522	-45.2	6.66
	4/23/2007	1350	7.17	22.65	0.589	-39.1	7.75
	5/15/2007	1010	7.15	24.32	0.590	-45.6	6.21
	6/19/2007	900	7.14	23.86	0.585	-50.7	7.63
	7/18/2007	1050	7.16	23.34	0.573	-34.8	8.08
LGR-03B	8/22/2007	1455	7.04	24.46	0.597	-21.1	6.06
- 265.25 ft bgs	9/18/2007	930	7.28	22.80	0.582	-43.0	5.58
	10/15/2007	1330	7.13	23.22	0.528	-33.9	6.35
	11/20/2007	1030	7.04	21.64	0.509	-0.7	6.26
	12/17/2007	1500	7.41	19.53	0.515	-44.0	6.20
	1/21/2008	1130	7.15	17.90	0.478	-43.7	5.83
	2/18/2008	1355	7.42	21.06	0.557	3.9	4.82
	3/25/2008	1445	7.52	25.45	0.643	6.1	4.88
	4/22/2008	900	7.22	22.62	0.576	19.7	3.87
	5/19/2008	1345	8.30	26.60	0.656	118.0	3.63
LGR-04	12/28/2005	1106	6.98	19.60	0.537	NA	NA
	1/24/2006		7.08	21.54	0.537	177.8	7.95
	1/8/2007	1000	7.17	19.22	0.507	13.5	7.23
	6/19/2007	842	7.13	23.99	0.568	-12.5	5.34
	7/18/2007	1000	6.99	23.02	NA	NA	NA
LGR-04	8/22/2007	1441	7.02	25.94	0.602	1.3	4.10
270.25 - 331.25 ft bgs	9/20/2007	1250	7.64	23.64	0.577	-12.2	5.32
	10/18/2007	925	6.79	23.07	0.520	29.2	6.91
	1/28/2008	945	7.11	18.21	0.483	-4.6	6.49
	4/29/2008	1500	7.36	24.00	0.543	22.9	6.15

Note: elevation for LGR-03A is the top of the LGR zone and LGR-03B is the base of the LGR zone

WB08 Field Parameters

	WB08						
Zone	**Sample Date**	**Sample Time**	**pH**	**Temp. (℃)**	**Sp. Cond. (mS/cm)**	**ORP (mV)**	**DO (mg/L)**
UGR-01	1/10/2007	dry					
	6/19/2007	dry					
	7/26/2007	1500	6.70	23.40	0.650	15.9	4.36
UGR-01	8/21/2007	1050	6.91	24.02	0.633	22.0	2.73
9.5 - 45.5 ft bgs	9/20/2007	1605	6.83	24.44	0.604	-11.8	2.87
	10/25/2007	dry					
	1/30/2008	dry					
	4/23/2008	dry					
	5/22/2008	dry					
LGR-01	12/28/2005	925	7.05	20.40	0.888	NA	NA
	1/10/2007	930	7.34	17.25	0.743	-59.9	4.37
	6/19/2007	1419	7.21	24.05	0.901	-80.2	3.20
	7/26/2007	1410	6.86	24.15	0.831	-17.3	3.77
LGR-01	8/21/2007	1043	7.01	23.74	0.773	9.5	3.15
50.5 - 122.5 ft bgs	9/20/2007	1555	6.94	23.95	0.793	-34.2	3.49
	10/25/2007	1045	6.88	19.85	0.689	-3.8	6.07
	1/30/2008	1115	7.34	16.10	0.667	-27.9	4.86
	4/23/2008	1430	7.35	23.14	0.753	-3.3	2.81
	5/22/2008	1645	8.16	27.10	0.822	125.0	4.95
LGR-02	12/29/2005	952	7.08	18.10	0.331	NA	NA
	1/26/2006	1130	7.26	20.65	0.716	77.9	7.87
	1/9/2007	1510	7.26	20.49	0.665	-87.6	2.86
	6/19/2007	1408	7.18	24.44	0.825	-54.2	3.69
	7/26/2007	1330	6.92	25.39	0.884	-6.9	4.95
LGR-02	8/21/2007	1035	7.03	24.26	0.856	-9.9	4.28
127.5 - 200.5 ft bgs	9/20/2007	1545	6.91	23.53	0.848	-28.8	4.10
	10/25/2007	1000	6.88	17.58	0.671	-0.8	6.78
	1/30/2008	1030	7.31	15.81	0.638	-18.9	4.99
	4/23/2008	1200	7.36	23.18	0.818	-4.8	3.04
LGR-03A	1/9/2007	1422	dry				
	6/19/2007	1356	7.13	25.02	0.620	-17.8	4.62
	7/26/2007	1055	6.90	23.19	0.605	30.5	7.67
LGR-03A	8/21/2007	1032	6.93	23.60	0.605	40.2	6.42
205.5 - ft bgs	9/20/2007	1535	6.95	23.57	0.609	-4.1	6.80
	10/24/2007	1410	6.79	22.90	0.582	36.8	6.32
	1/30/2008	1000	7.25	15.94	0.472	-4.4	5.81
	4/23/2008	1000	7.17	23.99	0.597	8.3	3.32
LGR-03B	12/28/2005	1546	7.04	24.60	0.629	NA	NA
	1/26/2006	1655	7.20	21.22	0.562	218.9	7.35
	1/9/2007	1345	7.28	20.81	0.573	-43.6	3.28
	5/15/2007	920	6.98	22.84	0.580	6.0	8.08
	6/19/2007	1340	7.03	26.10	0.638	-11.3	5.56
	7/26/2007	1020	6.94	23.57	0.608	18.0	5.86
LGR-03B	8/21/2007	1015	6.92	23.60	0.589	34.1	4.80
- 280.5 ft bgs	9/18/2007	930	7.28	22.80	0.582	-43.0	5.58
	10/16/2007	1330	7.20	23.05	0.586	-0.9	6.74
	11/26/2007	1030	7.03	14.00	0.510	19.2	8.23
	12/17/2007	1115	7.13	18.28	0.514	-7.9	7.58
	1/21/2008	1530	7.15	19.47	0.503	29.7	4.96
	2/18/2008	1540	7.00	21.06	0.563	11.1	5.95
	3/25/2008	1643	7.48	24.01	0.627	8.2	5.27
	4/22/2008	1030	7.15	23.41	0.591	-13.2	3.38
	5/19/2008	1500	8.03	25.70	0.652	208.0	4.62
LGR-04	12/28/2005	1518	6.89	25.10	0.629	NA	NA
	1/26/2006	1500	7.07	24.55	0.596	200.1	8.64
	1/9/2007	1030	7.04	18.93	0.639	4.9	5.97
	6/19/2007	1326	6.94	25.76	0.660	-5.3	5.67
	7/26/2007	945	7.02	22.86	0.542	5.7	6.45
LGR-04	8/21/2007	1004	7.00	23.30	0.557	30.6	5.80
285.5 - 353.5 ft bgs	9/20/2007	1523	7.50	23.64	0.653	-4.0	5.31
	10/24/2007	1330	6.82	23.27	0.600	50.3	7.67
	1/30/2008	900	7.04	18.66	0.722	11.2	6.03
	4/22/2008	1430	7.20	24.34	0.801	27.7	4.18

Note: elevation for LGR-03A is the top of the LGR zone and LGR-03B is the base of the LGR zone

Table 4.2.3

SWMU B-3 Westbay Monitoring Wells
Upper Saturated Zone (Zone LGR03B) Analytical Results Summary Quarter 3 - Quarter 4

Q4	CS-WB05-LGR03B						CS-WB06-LGR03B						CS-WB07-LGR03B						CS-WB08-LGR03B					
Date	**11/20/07**	**12/17/07**	**1/21/08**	**2/18/08**	**3/25/08**	**4/21/08**	**11/26/07**	**12/17/07**	**1/21/08**	**2/18/08**	**3/25/08**	**4/21/08**	**11/20/07**	**12/17/07**	**1/21/08**	**2/18/08**	**3/25/08**	**4/22/08**	**11/26/07**	**12/17/07**	**1/21/08**	**2/18/08**	**3/25/08**	**4/22/08**
PCE (µg/L)	0	0	0	0.36	1.7	2.7	320	68	96	92	130	98	0	0	0	0	0	0.15	110	97	170	180	290	200
TCE (µg/L)	92	98	73	66	60	87	370	96	120	99	150	120	0.62	1.3	1	1.5	1.9	2.3	120	210	200	190	340	250
cis-1,2-DCE (µg/L)	49	56	40	42	53	57	340	220	190	160	160	180	25	36	26	23	27	21	150	250	220	200	380	220
trans-1,2-DCE (µg/L)	2.3	2.3	3.5	1.7	1.5	2.4	3.9	1.6	2.3	1.5	2.9	2	0.63	0.89	0.59	0.45	0.54	0.55	32	1.3	2.0	3.8	5.3	2.2
Vinyl Chloride (µg/L)	0	0	0	0	0	0	0	0	0.34	0.34	0	0.23	0	0	0	0	0	0	0	0	0	0	0	0
Ethene (µg/L)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PCE (nM/L)	0.000	0.000	0.000	2.171	10.251	16.282	1929.687	410.058	578.906	554.785	783.935	590.967	0.000	0.000	0.000	0.000	0.000	0.905	663.330	584.936	1025.146	1085.449	1748.779	1206.054
TCE (nM/L)	700.205	745.871	555.598	502.321	456.656	662.151	2816.044	730.649	913.312	753.482	1141.639	913.312	4.719	9.894	7.611	11.416	14.461	17.505	913.312	1598.295	1522.186	1446.077	2587.716	1902.732
cis-1,2-DCE (nM/L)	505.415	577.617	412.584	433.213	546.674	587.932	3506.962	2269.211	1959.773	1650.335	1650.335	1856.627	257.865	371.325	268.179	237.236	278.494	216.606	1547.189	2578.649	2269.211	2062.919	3919.546	2269.211
trans-1,2-DCE (nM/L)	23.724	23.724	36.101	17.535	15.472	24.755	40.227	16.503	23.724	15.472	29.912	20.629	6.498	9.180	6.086	4.642	5.570	5.673	330.067	13.409	20.629	39.195	54.667	22.692
Vinyl Chloride (nM/L)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.439	5.439	0.000	3.679	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Ethene (nM/L)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Molar Conc. (nM/L)	1,229.344	1,347.212	1,004.283	955.240	1,029.053	1,291.120	8,292.920	3,426.422	3,481.153	2,979.513	3,605.822	3,385.214	269.082	390.400	281.876	253.294	298.525	240.689	3,453.898	4,775.289	4,837.172	4,633.640	8,310.708	5,400.690
% moles PCE	0.000%	0.000%	0.000%	0.227%	0.996%	1.261%	23.269%	11.968%	16.630%	18.620%	21.741%	17.457%	0.000%	0.000%	0.000%	0.000%	0.000%	0.376%	19.205%	12.249%	21.193%	23.425%	21.042%	22.331%
% moles TCE	56.958%	55.364%	55.323%	52.586%	44.376%	51.285%	33.957%	21.324%	26.236%	25.289%	31.661%	26.979%	1.754%	2.534%	2.700%	4.507%	4.844%	7.273%	26.443%	33.470%	31.469%	31.208%	31.137%	35.231%
% moles cis-1,2-DCE	41.113%	42.875%	41.082%	45.351%	53.124%	45.537%	42.289%	66.227%	56.297%	55.389%	45.769%	54.845%	95.831%	95.114%	95.141%	93.660%	93.290%	89.994%	44.795%	54.000%	46.912%	44.520%	47.163%	42.017%
% moles trans-1,2-DCE	1.930%	1.761%	3.595%	1.836%	1.504%	1.917%	0.485%	0.482%	0.681%	0.519%	0.830%	0.609%	2.415%	2.351%	2.159%	1.832%	1.866%	2.357%	9.556%	0.281%	0.426%	0.846%	0.658%	0.420%
% moles Vinyl Chloride	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.156%	0.183%	0.000%	0.109%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
% moles Ethene	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
sum % moles	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12

Note: 0 sample indicates a non-detect analyte value

SWMU B-3 Bioreactor Multi-port Well CS-WB05 - Q4 Performance Data

Q4		WB05																			
Well ID		**CS-WB05-LGR01**		**CS-WB05-LGR03A**		**CS-WB05-LGR03B**						**CS-WB05-LGR04A**		**CS-WB05-LGR04B**		**CS-WB05-BS-01**		**CS-WB05-CC-01**		**CS-WB05-CC-02**	
Sample Date		**4/28/2008**		**4/29/2008**		**2/18/2008**		**3/25/2008**		**4/21/2008**		**4/28/2008**		**4/28/2008**		**4/28/2008**		**4/28/2008**		**4/28/2008**	
Compound	**Units**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**
Dissolved Organic Carbon	mg/L	0		0		0.92		0.24	J	0.91		0.3	J	0.88		0		0.35	J	0.23	J
Total Organic Carbon	mg/L	0.64		0.51		0.77		0.38	J	1.4		1.2		2.6		0.62		0.59		0.67	
Methane	µg/L	1.95		55.7		7.44		6.14		17.8		2860		46,100		23.5		5.67		12.7	
Ethene	µg/L	0		0		0		0		0		0		0		0		0		0	
Ethane	µg/L	0		0		0		0		0		0		0		0		0		0	
Carbon Dioxide	µg/L	73,100		12,300		22,300		21,000		46,000		28,100		458,000		26,700		30,500		9,840	
Alkalinity, Total (as CACO3)	mg/L	385		316		330		332		304		366		485		290		295		293	
Nitrate/Nitrite	mg/L	0		0		0		0		0		0.055	J	0		0		0		0	
Sulfate	mg/L	93.9		49.3		50.1		48.3		49		19.1		2.8		31.2		77		65.9	
Chloride	mg/L	13.8		10.8		11.0		11.0		10.8		11.8		12.2		12		16.7		16.5	
Ferrous Iron	mg/L	0		0.21		0.063	J	0.026	J	0.089	J	0.043	J	0.56		0.093	J	0.17		0.49	
Manganese	µg/L	1.3	J	0		2.8	J	2.7	J	0		9.3		56		0		0		0	
Hydrogen	nM																				
Hydrogen Sulfide																					
Total Dissolved Solids	mg/L	493		400		387		374		385		373		468		336		399		391	
Benzene	µg/L	0		0		0		0		0		0		0		0		0		0	
Bromodichloromethane	µg/L	0		0		0		0		0		0		0		0		0		0	
Bromoform	µg/L	0		0		0		0		0		0		0		0		0		0	
Chloroform	µg/L	0		0		0		0		0		0.18	J	0		0		0		0	
Dibromochloromethane	µg/L	0		0		0		0		0		0		0		0		0		0	
Dichlorodifluoromethane	µg/L	0		0		0		0		0		0		0		0		0		0	
Dichloroethene, 1,1-	µg/L	0		0		0		0		0		0		0.59	J	0		0		1.3	
Dichloroethene, cis-1,2-	µg/L	0		72		42		53		57		230		630		27		53		250	
Dichloroethene, trans-1,2-	µg/L	0		2.3		1.7		1.5		2.4		1.2		1.2		0.24	J	0.4	J	1.8	
Methylene chloride	µg/L	0		0		0		0		0		0		0		0		0		0	
Naphthalene	µg/L	0		0		0		0		0		0		0		0		0		0	
Tetrachloroethene	µg/L	0.69	J	1.5		0.36	J	1.7		2.7		52		24		0.2	J	43		52	
Toluene	µg/L	0		0		0		0		0		0		0		0		0		0.19	J
Trichloroethene	µg/L	0.48	J	91		66		60		87		180		31		17		56		250	
Vinyl chloride	µg/L	0		0		0		0		0		0.4	J	1.9		0		0		0.44	J
Arsenic	µg/L	6.8		13.1		0.0		6.0		17.1		10.2		5		5.8		8		12.5	
Barium	µg/L	21.7		28.9		29.2		29.8		28.3		35.2		28.4		26.3		27.8		18.7	
Cadmium	µg/L	0		0		0		0		0		0		0		0		0		0	
Chromium	µg/L	0		0		9.2		4.4	J	2.6	J	0		0		2.4	J	1.9	J	2.4	J
Copper	µg/L	0		0		0		0		0		1.2	J	1.6	J	0		1.1	J	0	
Lead	µg/L	0		0		0		0		0		0		0		0		0		0	
Mercury	µg/L	0		0		0.29	B	0		0		0		0		0		0		0	
Nickel	µg/L	7.7		9.3		11.6		10.9		8.2		4.8	J	39.4		2.7	J	14.6		3.2	J
Zinc	µg/L	4.7	J	5.2	J	10.3	J	41.5	J	21.2	J	12.5	J	3.9	J	3.1	J	7.8	J	8.5	J
		Q4 - Month 12		Q4 - Month 12		Quarter 4						Q4 - Month 12		Q4 - Month 12		Q4 - Month 12		Q4 - Month 12		Q4 - Month 12	

Note: 0 sample value indicates a non-detect analyte value

Note: CS-WB05-CC-01 sample from 1/22/08 likely contained water from the inner part of the well due to catastrophic failure of the shoe on the Westbay probe during sampling

Q4		WB06															
Well ID		**CS-WB06-UGR01**		**CS-WB06-LGR01**		**CS-WB06-LGR02**		**CS-WB06-LGR03A**		**CS-WB06-LGR03B**						**CS-WB06-LGR04**	
Sample Date		**4/24/2008**		**4/24/2008**		**4/24/2008**		**4/24/2008**		**2/18/2008**		**3/25/2008**		**4/21/2008**		**4/24/2008**	
Compound	**Units**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**
Dissolved Organic Carbon	mg/L	3.1		1.3		0.45	J	0.19	J					0.23	J	0	
Total Organic Carbon	mg/L	4.3		2.2		0.91		0.67						0.44	J	0.83	
Methane	µg/L	491		0		1.61		12.5						8.64		0	
Ethene	µg/L	0		0		0		0						0		0	
Ethane	µg/L	0		0		0		0						0		0	
Carbon Dioxide	µg/L	44,300		12,600		21,500		33,100						27,700		50,700	
Alkalinity, Total (as CACO3)	mg/L	473		385		286		307						297		292	
Nitrate/Nitrite	mg/L	1.1		0		0		0.14						0		0.088	J
Sulfate	mg/L	14.2		19.1		27		21.4						21.2		10.6	
Chloride	mg/L	15.1		12.8		10		12.2						12.2		12.6	
Ferrous Iron	mg/L	0.022	J	0		0.022	J	0						0.023	J	0	
Manganese	µg/L	1120		1.6	J	0		0						1.5	J	0	
Hydrogen	nM																
Hydrogen Sulfide																	
Total Dissolved Solids	mg/L	517		416		319		331		348				333		321	
Benzene	µg/L	0		0		0		0		0		0		0		0	
Bromodichloromethane	µg/L	0		0		0		0		0		0		0		0	
Bromoform	µg/L	0		0		0		0		0		0		0		0	
Chloroform	µg/L	0		0		0		0		0		0		0		0	J
Dibromochloromethane	µg/L	0		0		0		0		0		0		0		0	
Dichlorodifluoromethane	µg/L	0		0		0		0		0		0		0		0	
Dichloroethene, 1,1-	µg/L	0		0		0		0		0		0.36	J	0		0.49	J
Dichloroethene, cis-1,2-	µg/L	100		78		34		220		160		160		180		370	
Dichloroethene, trans-1,2-	µg/L	2.9		1.9		1.5		2.3		1.5		2.9		2		3.4	
Methylene chloride	µg/L	0		0		0		0		0		0		0		0	
Naphthalene	µg/L	0		0		0		0		0		0		0		0	
Tetrachloroethene	µg/L	0		12		5.4		93		92		130		98		260	
Toluene	µg/L	0		0		0		0.26	J	0.20	J	0.22	J	0.25	J	0	
Trichloroethene	µg/L	0.48	J	16		9.7		140		99		150		120		220	
Vinyl chloride	µg/L	53		0		0		0		0		0		0.23	J	0	
Arsenic	µg/L	10.1		15.4		12.1		18.9						10.3		8.5	
Barium	µg/L	78.8		68.6		53.7		27.6						26.7		29.1	
Cadmium	µg/L	0		0		0		0						0		0	
Chromium	µg/L	2.2	J	4.8	J	4	J	7						0		2	J
Copper	µg/L	0		0		0		0						0		0	
Lead	µg/L	0		0		3.1	J	0						2.2	J	0	
Mercury	µg/L	0		0		0		0.076	J					0		0.06	J
Nickel	µg/L	24.2		5		5.5		7.7						5.1		2.1	J
Zinc	µg/L	11.8	J	9	J	11.2	J	16.3	J					17.8	J	18.1	J
		Q4 - Month 12		Q4 - Month 12		Q4 - Month 12		Q4 - Month 12		Quarter 4						Q4 - Month 12	

Note: 0 sample value indicates a non-detect analyte value

Table 4.2.3c SWMU B-3 Bioreactor Multi-port Well CS-WB07 - Q4 Performance Data

Q4		WB07													
Well ID		**CS-WB07-LGR01**		**CS-WB07-LGR-02**		**CS-WB07-LGR-03A**		**CS-WB07-LGR-03B**						**CS-WB07-LGR-04**	
Sample Date		**4/30/2008**		**4/30/2008**		**4/30/2008**		**2/18/2008**		**3/25/2008**		**4/22/2008**		**4/29/2008**	
Compound	**Units**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**
Dissolved Organic Carbon	mg/L	0.62		0		0.23	J	0.90		0.00		0.15	J	0	
Total Organic Carbon	mg/L	1.1		0.79		0.76		1.0		0.4	J	0.25	J	0.17	J
Methane	µg/L	60.4		0		10.6		19.2		1.3		0.0126		0	
Ethene	µg/L	0		0		0		0		0		0		0	
Ethane	µg/L	0		0		0		0		0		0		0	
Carbon Dioxide	µg/L	37,600		7,290		72,700		20,900		4,160		39,400		53,800	
Alkalinity, Total (as CACO3)	mg/L	401		307		284		305		316		289		284	
Nitrate/Nitrite	mg/L	0		0		0		0		0		0		0.85	
Sulfate	mg/L	96.8		37		20.7		20.6		19.9		20.7		10	
Chloride	mg/L	16.9		12.8		10.1		10.0		10.2		10		11.9	
Ferrous Iron	mg/L	0.046	J	0.3		0.096	J	0.063	J	0.12		0		0.096	J
Manganese	µg/L	0		0		0		0		0		0		0	
Hydrogen	nM														
Hydrogen Sulfide															
Total Dissolved Solids	mg/L	571		376		319		325		322		326		325	
Benzene	µg/L	0		0		0		0		0		0		0	
Bromodichloromethane	µg/L	0		0		0		0		0		0		0	
Bromoform	µg/L	0		0		0		0		0		0		0	
Chloroform	µg/L	0		0		0		0		0		0		0.24	J
Dibromochloromethane	µg/L	0		0		0		0		0		0		0	
Dichlorodifluoromethane	µg/L	0		0		0		0		0		0		0	
Dichloroethene, 1,1-	µg/L	0		0		0		0		0		0		0.68	J
Dichloroethene, cis-1,2-	µg/L	5.5		0		25		23		27		21		360	
Dichloroethene, trans-1,2-	µg/L	0.44	J	0		0.46	J	0.45	J	0.54	J	0.55	J	3.7	
Methylene chloride	µg/L	0		0		0		0		0		0		0	
Naphthalene	µg/L	0		0		0		0		0		0		0	
Tetrachloroethene	µg/L	0.58	J	0		0		0		0		0.15	J	300	
Toluene	µg/L	0		0		0		0		0		0		0	
Trichloroethene	µg/L	1.8		0.2	J	2.5		1.5		1.9		2.3		260	
Vinyl chloride	µg/L	8.6		0		0		0		0		0		0	
Arsenic	µg/L	9		9.8		9.1		0		5.5		6.9		3.8	J
Barium	µg/L	85.5		105		34.6		31.8		32.3		31.3		26.5	
Cadmium	µg/L	0		0		0		0		0		0		0	
Chromium	µg/L	4.3	J	4.7	J	2.2	J	4.7	J	0		0		2.7	J
Copper	µg/L	1.1	J	0		0		0		0		0		1.4	J
Lead	µg/L	0		0		0		1.9	J	0		1.9	J	0	
Mercury	µg/L	0		0		0		0.25	B	0		0		0	
Nickel	µg/L	11.2		4.5	J	4	J	3.2	J	1.3	J	2.6	J	4.8	J
Zinc	µg/L	5.6	J	0		0		0		9.8	J	8.3	J	0	
		Q4 - Month 12		Q4 - Month 12		Q4 - Month 12		Quarter 4						Q4 - Month 12	

Note: 0 sample value indicates a non-detect analyte value

Q4		WB08													
Well ID		**CS-WB08-LGR01**		**CS-WB08-LGR02**		**CS-WB08-LGR03A**		**CS-WB08-LGR03B**						**CS-WB08-LGR04**	
Sample Date		**4/23/2008**		**4/22/2008**		**4/23/2008**		**2/18/2008**		**3/25/2008**		**4/22/2008**		**4/22/2008**	
Compound	**Units**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**
Dissolved Organic Carbon	mg/L	0.23	J	0.63		0.27	J					0		1.8	
Total Organic Carbon	mg/L	1.4		1.2		0.75						0.31	J	2.6	
Methane	µg/L	0.432		1.28		0						0		0	
Ethene	µg/L	0		0		0						0		0	
Ethane	µg/L	0		0		0						0		0	
Carbon Dioxide	µg/L	42,200		30,100		29,100						53,700		93,300	
Alkalinity, Total (as CACO3)	mg/L	336		353		283						284		413	
Nitrate/Nitrite	mg/L	0		0		0.92						0.82		0.085	J
Sulfate	mg/L	90.7		99.9		16						16.3		9	
Chloride	mg/L	10.3		11.3		11.4						11.4		15.2	
Ferrous Iron	mg/L	0.038	J	0.099	J	0						0		0.099	J
Manganese	µg/L	2	J	0		0						1.2	J	0	
Hydrogen	nM														
Hydrogen Sulfide															
Total Dissolved Solids	mg/L	463		511		325		339		330		323		443	
Benzene	µg/L	0		0		0		0		0		0		0	
Bromodichloromethane	µg/L	0		0		0		0		0		0		0	
Bromoform	µg/L	0		0		0		0		0		0		0	
Chloroform	µg/L	0		0		0.27	J	0.20	J	0.35		0.23	J	0	
Dibromochloromethane	µg/L	0		0		0		0		0		0		0	
Dichlorodifluoromethane	µg/L	0		0		0		0		0		0		0	
Dichloroethene, 1,1-	µg/L	0		0		0		0		0		0		0	
Dichloroethene, cis-1,2-	µg/L	40		5.9		190		200		380	J	220		160	
Dichloroethene, trans-1,2-	µg/L	0.97		0		2.8		3.8		5.3		2.2		3.7	
Methylene chloride	µg/L	0		0		0		0		0		0		0	
Naphthalene	µg/L	0		0		0		0		0		0		0	
Tetrachloroethene	µg/L	2.8		0		160		180		290	J	200		3.3	
Toluene	µg/L	0		0		0		0		0		0		0	
Trichloroethene	µg/L	19		0.27	J	170		190		340	J	250		4	
Vinyl chloride	µg/L	0.0		0.0		0		0		0		0		0.71	J
Arsenic	µg/L	11		13.5		13.3						0		6.4	
Barium	µg/L	86.8		65.5		35.5						31.7		50	
Cadmium	µg/L	0		0		0						0		0	
Chromium	µg/L	1.6	J	0		0						0		0	
Copper	µg/L	0		0		0						0		0	
Lead	µg/L	0		0		0						1.6	J	0	
Mercury	µg/L	0.072	J	0.09	J	0						0		0.068	J
Nickel	µg/L	2	J	2.2	J	4.5	J					5.1		4.7	J
Zinc	µg/L	157		13.2	J	17.9	J					13	J	11.6	J
		Q4 - Month 12		Q4 - Month 12		Q4 - Month 12		Quarter 4						Q4 - Month 12	

Note: 0 sample value indicates a non-detect analyte value

Q4		Monitoring Wells									
Well ID		**CS-MW16-LGR**		**CS-MW1-LGR**		**CS-D**		**CS-B3-MWO1**		**CS-MW16-CC**	
Sample Date		**4/21/2008**		**4/21/2008**		**4/21/2008**		**4/21/2008**		**4/21/2008**	
Compound	**Units**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**
Dissolved Organic Carbon	mg/L	0.24	J	0.2	J	0		30		0.17	J
Total Organic Carbon	mg/L	0.45	J	0.74		0.24	J	34.3		0.36	J
Methane	µg/L	79.0		0		0		71,800		2.87	
Ethene	µg/L	0		0		0		0		0	
Ethane	µg/L	0		0		0		0		0	
Carbon Dioxide	µg/L	51,500		49,100		32,600		996,000		29,300	
Alkalinity, Total (as CACO3)	mg/L	268		258		267		1720		277	
Nitrate/Nitrite	mg/L	0.96		0.78		1.2		0		0	
Sulfate	mg/L	19.7		13.8		15		0.93	J	51.6	
Chloride	mg/L	11.3		8.9		10.9		13		14.8	
Ferrous Iron	mg/L	0.089	J	0.042	J	0.051	J	8.1		0.16	
Manganese	µg/L	4.4	J	0.0		0.0		228		0.0	
Hydrogen	nM			1.2							
Hydrogen Sulfide											
Total Dissolved Solids	mg/L	318		291		314		1390		361	
Benzene	µg/L	0		0		0		0		0	
Bromodichloromethane	µg/L	0		0		0		0		0	
Bromoform	µg/L	0		0		0		0		0	
Chloroform	µg/L	0		0.12	J	0.21	J	0		0	
Dibromochloromethane	µg/L	0		0		0		0		0	
Dichlorodifluoromethane	µg/L	0		0		0		0		0	
Dichloroethene, 1,1-	µg/L	0.0		0.0		0.0		0		0.6	J
Dichloroethene, cis-1,2-	µg/L	79		20		190		120		69	
Dichloroethene, trans-1,2-	µg/L	0.46	J	0.38	J	1.1		0.37	J	2.6	
Methylene chloride	µg/L	0		0		0		0		0	
Naphthalene	µg/L	0		0		0		0		0	
Tetrachloroethene	µg/L	77		14		160		0		20	
Toluene	µg/L	0		0		0		0		0	
Trichloroethene	µg/L	85		31		210		0		84	
Vinyl chloride	µg/L	0		0		0		6.1		0.25	J
Arsenic	µg/L	14.9		15.9		10.5		26.9		13.4	
Barium	µg/L	37.8		32.5		32		628		23.9	
Cadmium	µg/L	0		0		0		0		0	
Chromium	µg/L	0		1.4	J	0		4.3	J	0	
Copper	µg/L	116		0		0		5.2		6.2	
Lead	µg/L	12.7		0		1.6	J	39.1		1.9	J
Mercury	µg/L	0.12	J	0		0		0		0	
Nickel	µg/L	1.3	J	5.1		0.7	J	19.9		3.3	J
Zinc	µg/L	311		9	J	20.5	J	70.4		34.7	J
		Quarter 4 - Month 12		Quarter 4 - Month 12		Quarter 4 - Month 12		Quarter 4 - Month 12		Quarter 4 - Month 12	

Note : 0 sample value indicates a non-detect analyte value

Table 4.4.4

SWMU B-3 Sump and Monitoring Well Microbial Data
Baseline - Q4

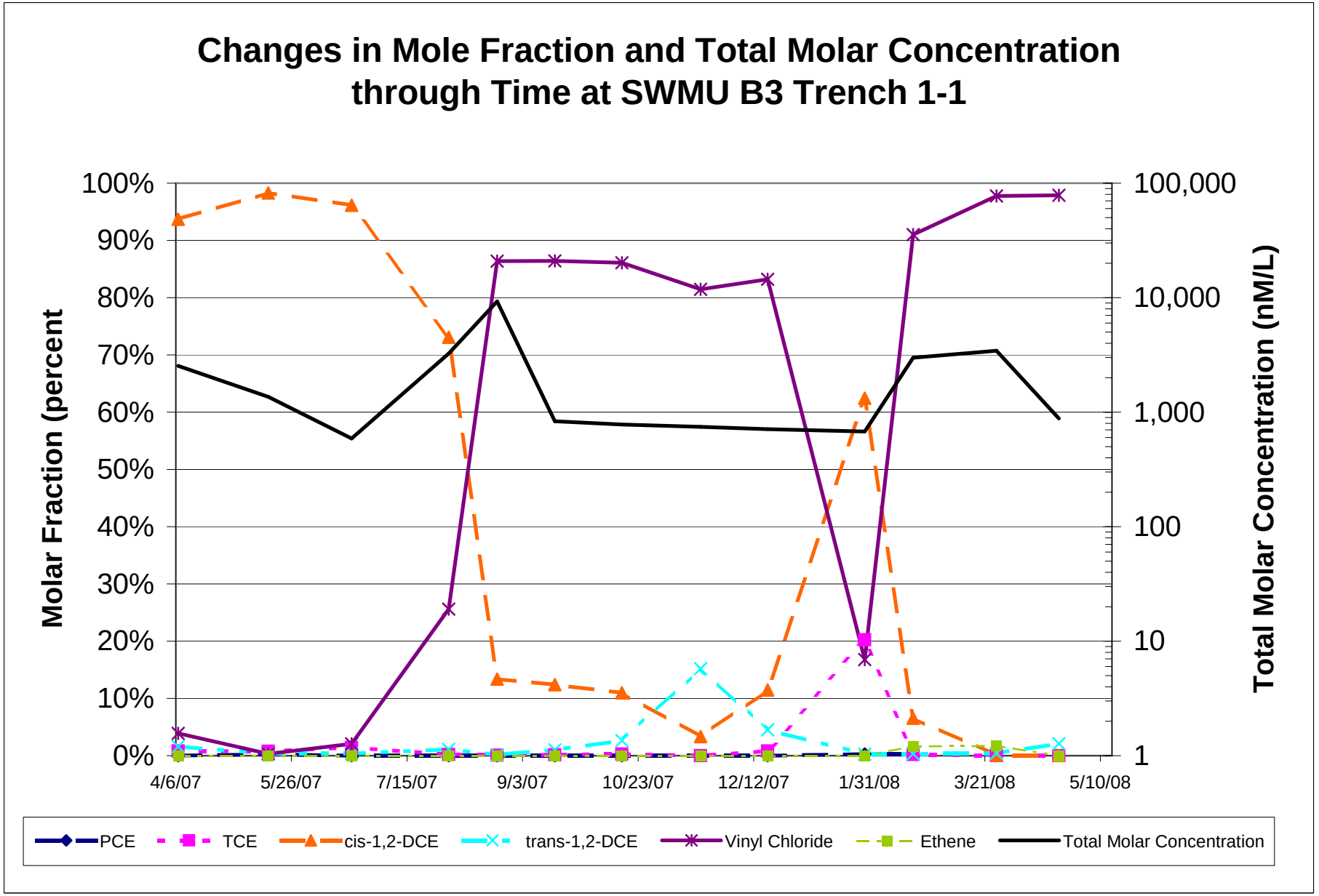
Monitoring Wells

Baseline - Q3		CS B-3 MW01			CS-MW 16-LGR			CS-MW16-CC
	Sample date:	*12/19/2006*	*8/3/2007*	*10/15/2007*	*12/19/2006*	*8/3/2007*	*10/17/2007*	*10/17/2007*
Dechlorinating Bacteria	units							
Dehalococcoides spp (1)	(cells/mL)	2.37E+01	4.50E-01	1.17E+00	6.90E+01	1.31E-01	3.67E-01	5.93E-01
Functional Genes	units							
TCE R-Dase (1)	(cells/mL)	<1.11E+00	<2.5E-01	5.68E-01 (J)	<2.5E-01	<5E-01	<2.5E-01	<2.5E-01
BAV1 VC R-Dase (1)	(cells/mL)	<1.11E+00	<2.5E-01	1.20E+00	<2.5E-01	<5E-01	<2.5E-01	<2.5E-01
VC R-Dase	(cells/mL)	<1.11E+00	<2.5E-01	3.31E+01	<2.5E-01	<5E-01	2.47E+00	1.10E+00

Trench Sump	Sample date:	*12/19/2006*	*8/3/2007*	*8/23/2007*	*9/17/2007*	*10/17/2007*	*11/19/2007*	*12/18/2007*	*1/25/2008*	*2/20/2008*	*3/26/2008*	*4/22/2008*
B3 T1-1												
Dechlorinating Bacteria	units											
Dehalococcoides spp (1)	(cells/mL)									5.01E+04	6.03E+03	8.78E+03
Functional Genes	units											
TCE R-Dase (1)	(cells/mL)									2.89E+04	1.83E+03	3.02E+03
BAV1 VC R-Dase (1)	(cells/mL)									8.49E+00	<5E-01	1.66E-01 (J)
VC R-Dase	(cells/mL)									4.50E+05	1.17E+04	2.81E+03
B3 T1-2												
Dechlorinating Bacteria	units											
Dehalococcoides spp (1)	(cells/mL)					1.68E+04	2.30E+04	1.99E+03	2.75E+02	2.09E+04	9.03E+04	4.32E+03
Functional Genes	units											
TCE R-Dase (1)	(cells/mL)					3.71E+03	7.56E+02	2.06E+03	2.32E+02	9.26E+02	4.36E+04	1.79E+03
BAV1 VC R-Dase (1)	(cells/mL)					<2.5E-01	<2.5E-01	<2.5E-01	<5E+00	2.32E+00	3.94E-01 (J)	<5E-01 (J)
VC R-Dase	(cells/mL)					<2.5E-01	<2.5E-01	3.08E+00	3.40E+02	3.54E+05	2.42E+04	3.45E+02
B3 T1-3												
Dechlorinating Bacteria	units											
Dehalococcoides spp (1)	(cells/mL)	2.46E+03	7.62E+00	7.27E+01	4.75E+00				2.15E+03	1.62E+02	7.07E+04	2.46E+04
Functional Genes	units											
TCE R-Dase (1)	(cells/mL)	<1E+00	<4.55E-01	2.87E+00	4.73E-01 (J)				2.32E+02	5.23E+01	2.75E+04	1.74E+04
BAV1 VC R-Dase (1)	(cells/mL)	<1E+00	<4.55E-01	<5E-01	<5E-01				<1E+00	<8.33E-01	<9.35E-01	<3.33E-01
VC R-Dase	(cells/mL)	<1E+00	<4.55E-01	<5E-01	<5E-01				5.89E+01	7.43E+02	6.43E+04	6.13E+02
B3 T2-1												
Dechlorinating Bacteria	units											
Dehalococcoides spp (1)	(cells/mL)										4.93E+02	
Functional Genes	units											
TCE R-Dase (1)	(cells/mL)										6.08E+01	
BAV1 VC R-Dase (1)	(cells/mL)										<5E-01	
VC R-Dase	(cells/mL)										3.93E+01	
B3 T2-2												
Dechlorinating Bacteria	units											
Dehalococcoides spp (1)	(cells/mL)										2.21E+02	
Functional Genes	units											
TCE R-Dase (1)	(cells/mL)										5.82E+00	
BAV1 VC R-Dase (1)	(cells/mL)										<8.7E-01	
VC R-Dase	(cells/mL)										1.47E+01	
B3 T6-1												
Dechlorinating Bacteria	units											
Dehalococcoides spp (1)	(cells/mL)		1.45E+02									
Functional Genes	units											
TCE R-Dase (1)	(cells/mL)		<9.09E-01									
BAV1 VC R-Dase (1)	(cells/mL)		<9.09E-01									
VC R-Dase	(cells/mL)		<9.09E-01									

Graphs

Figure 4.1.2T1-1 B-3 Bioreactor Trench 1 Sump 1 VOC Summary through Quarter 4



J:\745\745953 CSSA DY02\03000 B-3 Bioreactor\Monitoring Data\B-3 Data AL\Q4 Analytes tables_(all).xls

Figure 4.1.2T1-2 B-3 Bioreactor Trench 1 Sump 2 VOC Summary through Quarter 4

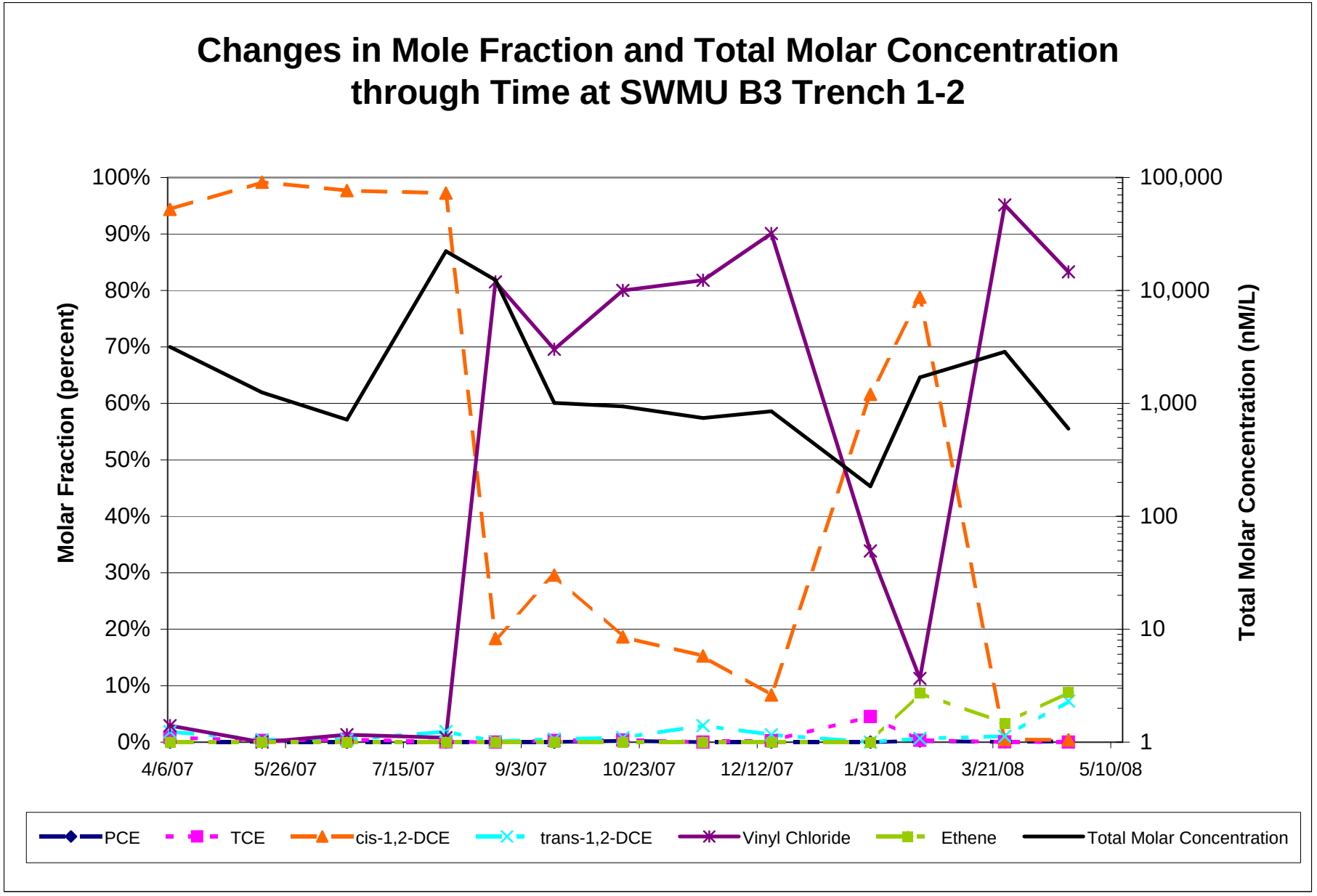


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Figure 4.1.2T1-3 B-3 Bioreactor Trench 1 Sump 3 VOC Summary through Quarter 4

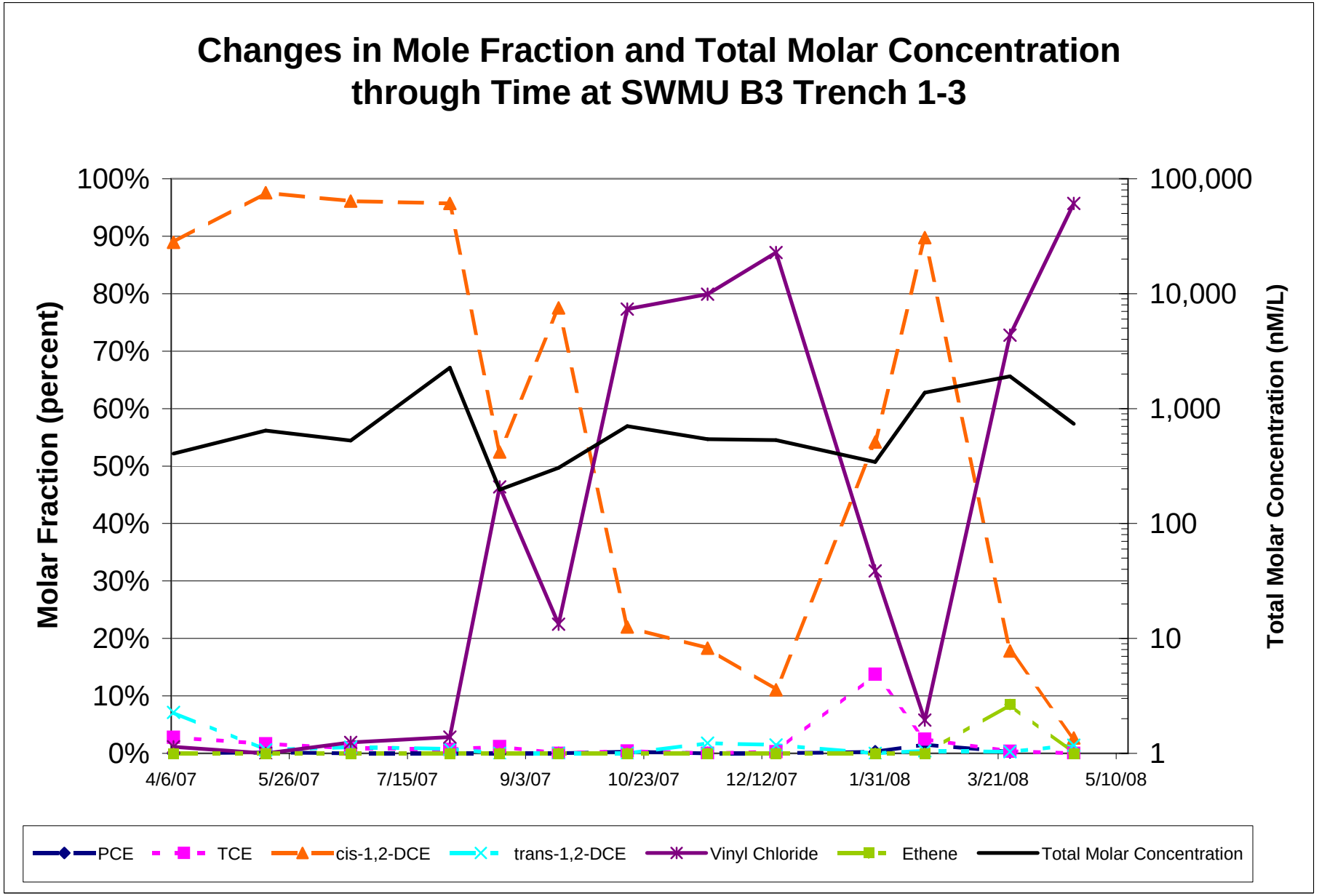

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Figure 4.2.5 Lower Glen Rose Groundwater Elevations (feet above MSL) Measured in Westbay Wells through Quarter 4

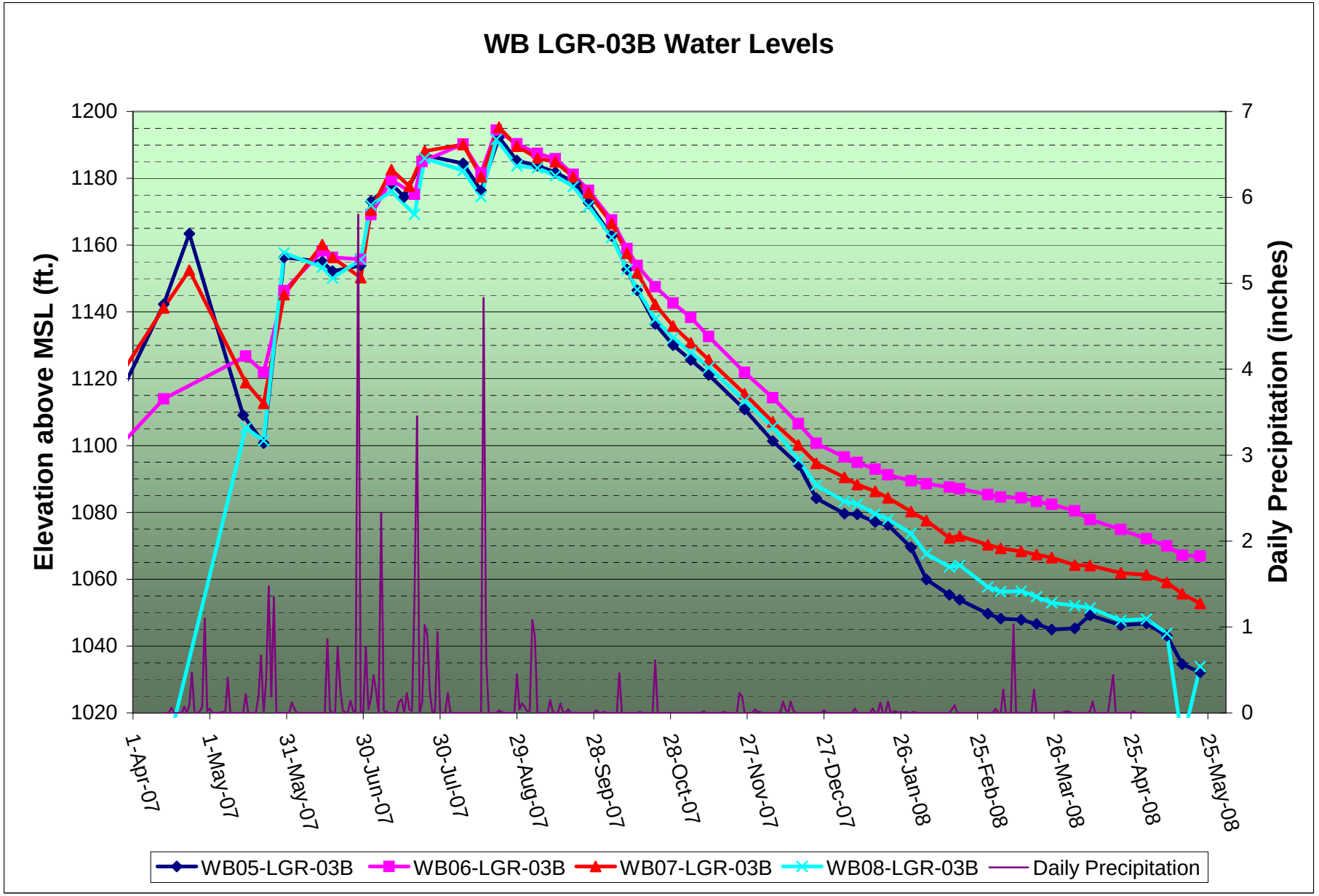

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Figure 4.5.5 Cumulative Total Groundwater from CS-MW16 LGR and CC Applied to SWMU B3 Trench 1 through Quarter 4

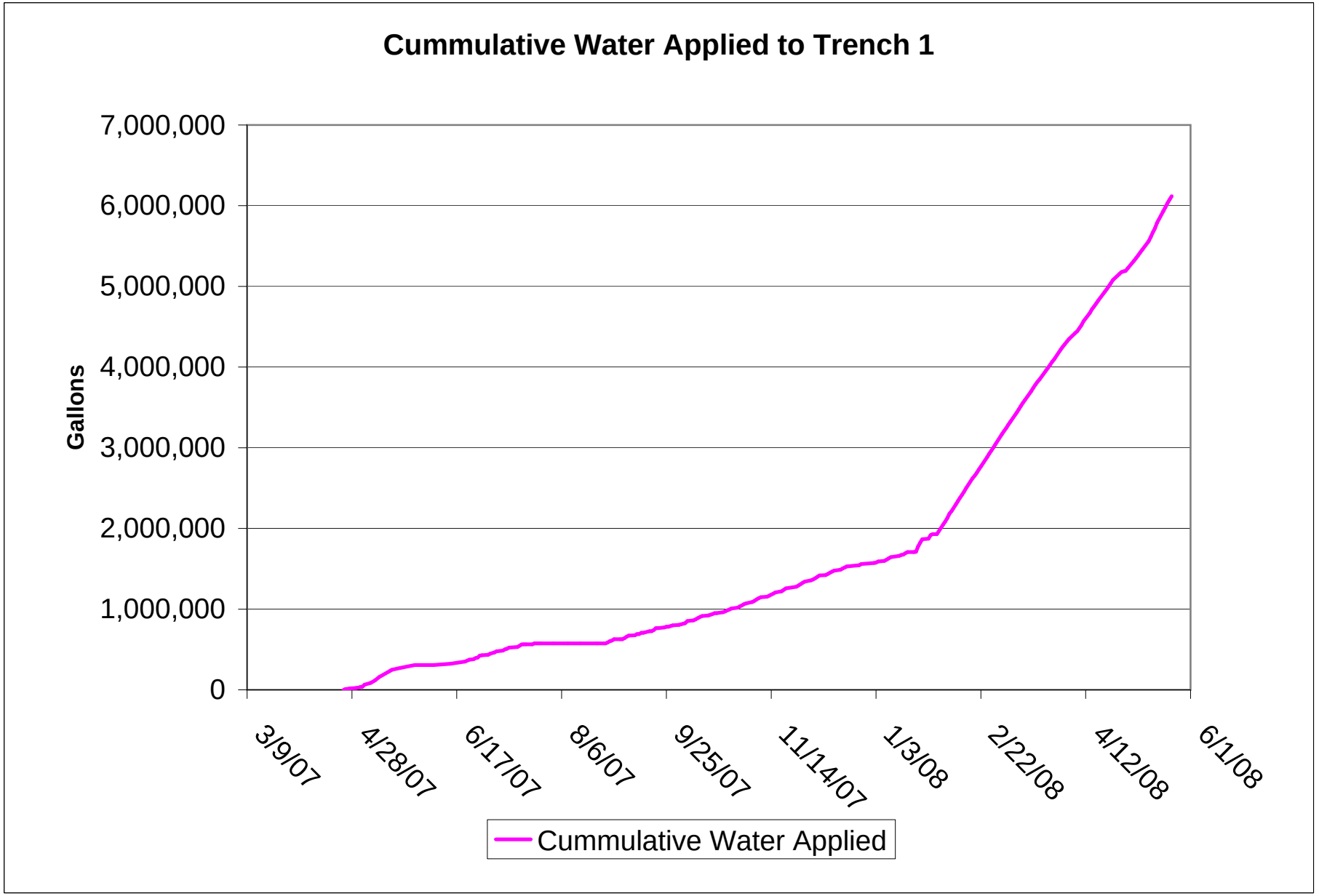
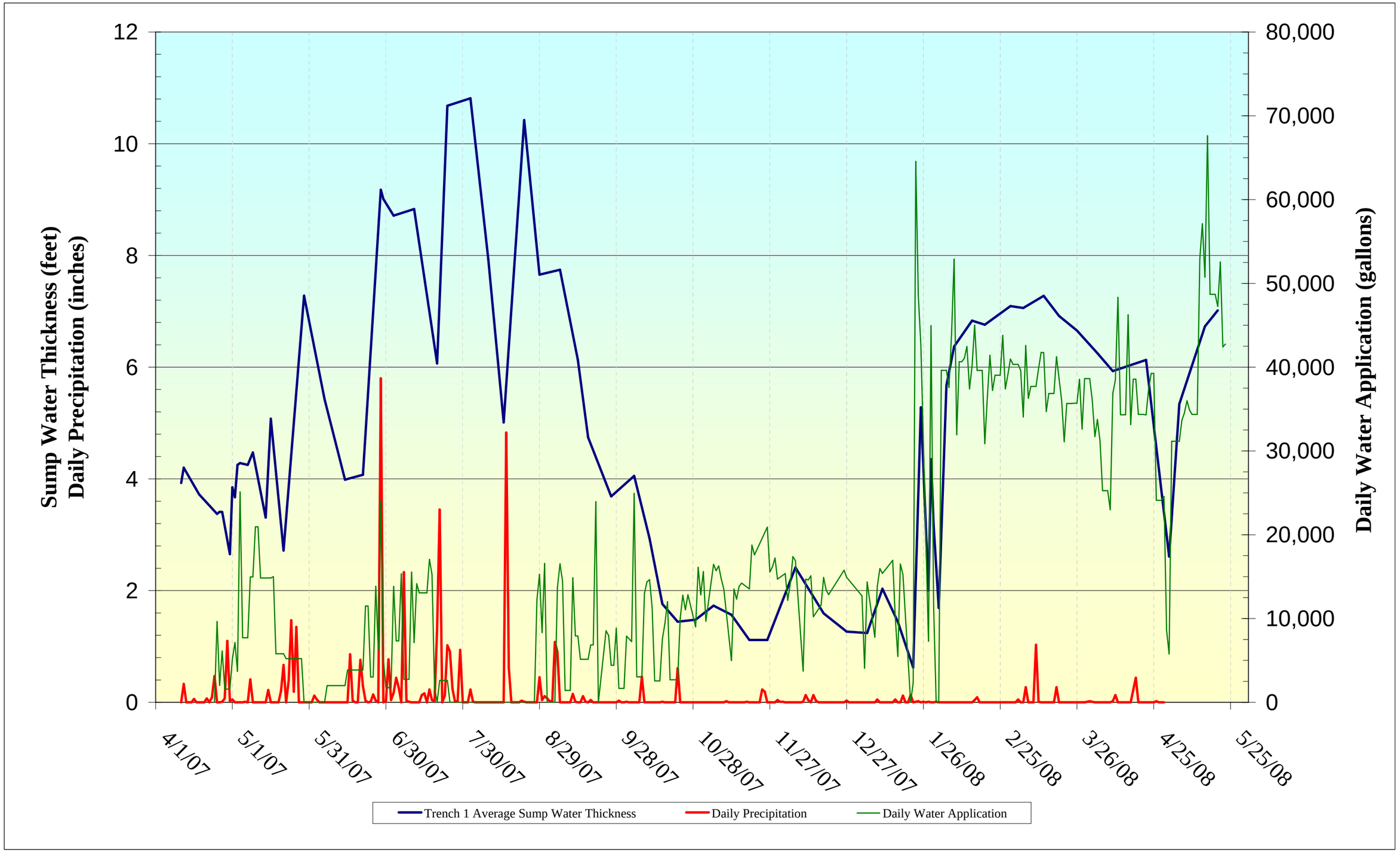


Figure 4.5.6

SWMU B-3 Bioreactor - Trench 1
Average Water Thickness, CS-16 Water Application, and Daily Precipitation



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