CSSA B-3 BIOREACTOR OPERATIONS
PERFORMANCE STATUS REPORT
(QUARTER 2, MONTH 6 – OCTOBER 2007)

JANUARY 30, 2008

This status report summarizes the operation of a bioreactor at Solid Waste Management Unit (SWMU) B-3 from August 1, 2007 through October 31, 2007; comprising the second 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 October 2007 are attached for reference. Parsons site personnel working on this project during the reporting period include Ken Rice, Kyle Caskey, Samantha Elliott, Eric Tennyson, and Adrien Lindley

Executive Summary

Site conditions were somewhat drier and warmer than normal with few significant rain events through the latter part of the quarter. Injection of groundwater resumed near the end of August after rains during July and the first half of August completely filled the bioreactor. Approximately 1,046,399 gallons of groundwater extracted from CS-MW16-LGR and CS-MW16-CC have been injected into bioreactor trench 1 since the start of injection. Due to the failure of the pump at CS-MW16-LGR on May 24, 2007, all groundwater injected into the bioreactor in quarter 2, 471,706 gallons, was extracted from CS-MW16-CC. Monthly Underground Injection Control (UIC) reports for the second quarter were submitted to the Texas Commission on Environmental Quality (TCEQ) on September 28, 2007, October 26, and December 7, 2007.

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) to occur. 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 products ethene and ethane are not currently present in analytical results for samples collected within the trenches, yet have been observed in multiport monitoring well CS-WB05 zone LGR04B, however this may be a response to the injection of lactate in the nearby CS-MW01 well performed in April of 2006. The LGR04B groundwater bearing zone is located in the approximately 325 feet below ground level.

Summary of Bioreactor Operation

Initial baseline and quarter 1 through quarter 2 analytical results from monitoring of the bioreactor sumps indicate that the SWMU B-3 trenches contain significant levels of *cis*-DCE as well as lesser concentrations of other dechlorination products (e.g., VC). In addition, toluene, naphthalene, and other fuel related compounds were identified during monitoring of bioreactor trench 1 sumps. A summary of the analytical data collected for the reporting period is included in Table 1. A summary of monthly and quarter 2 monitoring results from the surrounding wells and bioreactor trench sumps are attached. Analytical results of the surrounding SWMU B-3 multi-port Westbay monitoring points and monitoring wells are also 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 precipitation-mobilized contaminant mass from rain events in July and August, 2007 is being reduced, as *cis*-DCE concentrations dropped an order of magnitude, from >2,000 µg/L to 220 µg/L, while VC concentrations in the trench sumps rose an order of magnitude, from 40 µg/L to 630 µg/L in the trench sumps.

Water quality field measurements from the bioreactor sumps generally indicate that DO remains low (< 0.5 mg/L), ORP averages less than -180 mV, pH ~ 6.5, temperatures ranges from 25 ^{o}C to 34 ^{o}C, and specific conductivity ranges from 0.69 to 3.52 millisiemens per centimeter (mS/cm). Other observations regarding the data collected during this reporting period are listed below.

During the month of August, 2007, 6.33 inches of rainfall was measured at the B-3 bioreactor site corresponding to an average water thickness in Trench 1 of 8.4 feet. Little rainfall during the rest of the quarter resulted in a steady decline in water thickness during months 5 and 6.

Due to these significant rain events occurring during the initial month of the quarterly period, saturated conditions were maintained in Trench 1, therefore requiring less contribution from groundwater than originally anticipated. Prior to the rain events water thicknesses in Trench 1 were approximately 4 feet. On July 21, 2007, the bioreactor was completely filled and the bioreactor injection system was ceased. The bioreactor injection system recommenced on August 27, 2007 after water thicknesses in the bioreactor declined to approximately 7.5 feet. During this period the observed infiltration rate for bioreactor trench 1 was approximately 20 gallons per minute.

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 16.5 µg/L for As (MCL is 10 µg/L) and from 669 to 1,760 µg/L for Mn (MCL is 50 µg/L). The surrounding multi-point monitoring wells contain less elevated levels of As and Mn, but As and Mn are not present in elevated concentrations within the surrounding monitoring wells (see Figure 1). 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 significant rainfall events, the values of DO and ORP in water samples from the trenches did not change significantly, indicating that anaerobic reducing conditions were maintained even with the addition of groundwater and significant contributions of precipitation that likely had a concentration of DO of several mg/L or higher. 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 ratio of VC to DCE has undergone a dramatic shift from being dominated by high concentrations of DCE to being dominated by high concentrations of VC. This suggests that the reduction of DCE to VC is occurring. An increasing trend in concentrations of VC in trench 1 from the July 2007 sampling event indicate that cis-DCE is being reduced to VC, and that *Dehalococcoides* (DHC) bacteria capable of reducing *cis*-DCE to VC are likely to be gradually building up. There is no evidence of VC being reduced to ethene in the trenches at this time.
4. No DHC populations were detected in well (multi-port and monitoring) samples and only low levels of VC were detected; however, ethene was detected in one CS-WB05-LGR04B sample. VC and DHC were detected in the baseline and quarterly trench samples; however no ethene or ethane were detected in trench samples.
5. The dissolved hydrogen concentration of the sump samples was in the range consistent with reductive dechlorination of CAHs by DHC.
6. Saturated conditions are being maintained within bioreactor Trench 1 although water thicknesses have decreased from full conditions (nearly 11 feet) in August to less than 2 feet in October for an average water thickness during the quarter of approximately 5.5 feet.

Anticipated Schedule for Next Period (November, 2007 – January, 2008):

- Continue monitoring and maintenance activities for delivery of groundwater to the bioreactor trenches.
- Continue bioreactor system controls installation and automation.
- Monthly monitoring event (Month 7) for bioreactor system.
- Continue UIC monitoring and reporting.
- Tracer and Bioaugmentation are to occur in January, 2008.
- Investigate a potential upgradient trench east of CS-WB05.
- Replace/Repair CS-MW16-LGR pump.

Specific Data Observation Notes for Attachments

- Analytical results from the B-3 Trench 1 Sump samples, shown in Table 2.1.2, presents data from the quarter 2 sampling event, that suggest the residual contamination that leaches into the bioreactor from the fractured formation surrounding the bioreactor during recharge events are being reduced. The elevated concentrations of *cis*-DCE present in the latter part of quarter 1 and month 4 are appear to be reduced to VC.
- Table 2.1.1 for Trench 1 Sump 1-3 indicates a general decline in water thickness from completely filled conditions on 8/2/07, with an average water thickness of 10.81 feet. This decline continued until a large rain event on 8/16/07 refilled the bioreactor, and was summarily followed by another steady decline in water thickness resulting in a Trench 1 average water thickness of 1.46 feet during the latter part of the quarterly monitoring event. An infiltration rate of ~20 gallons/min was observed during the 2nd quarterly period.
- Table 2.1.2 indicates that VC was present at very high concentrations in sumps 1 and 2 (500 and 630 µg/L, respectively) in month 4 and remained at high concentrations (~ 40 µg/L) throughout the remainder of the quarter. VC concentrations in sump 3 were low (~ 5 µg/L) until month 6, when concentrations rose to 34 µg/L.
- Table 2.3.3 indicates that vinyl chloride was present (5.2 µg/L) in the sample taken on 10/15/2007 in monitoring well CS-B3-MW01, which is the second time VC has been detected in this monitoring well. VC has not been observed in any other monitoring well data.
- Table 2.4.4 indicates that the *Dehalococcoides* bacteria are slightly increasing in the monitoring wells, and though no baseline data exists for B3 T1-2, there appears to be an order of magnitude increase in *Dehalococcoides* bacteria compared to baseline data for B3 T1-3. This however, may be due to the significantly higher VOC concentrations in B3 T1-2 versus B3 T1-3, and/or renewed stability in the DHC "environment" as the influx of freshwater from precipitation has diminished through the quarter.
- The changes in molar fraction and total molar concentrations shown in graphs of quarter 2 trench 1 sumps indicate a significant influx of residual contaminants into the bioreactor from the surrounding formation from significant rain events as well as the reduction of leached contaminant mass to VC.
- Figure 2.2.5 shows that the water levels in Westbay wells are influenced by precipitation and pumping at CS-MW16-LGR.

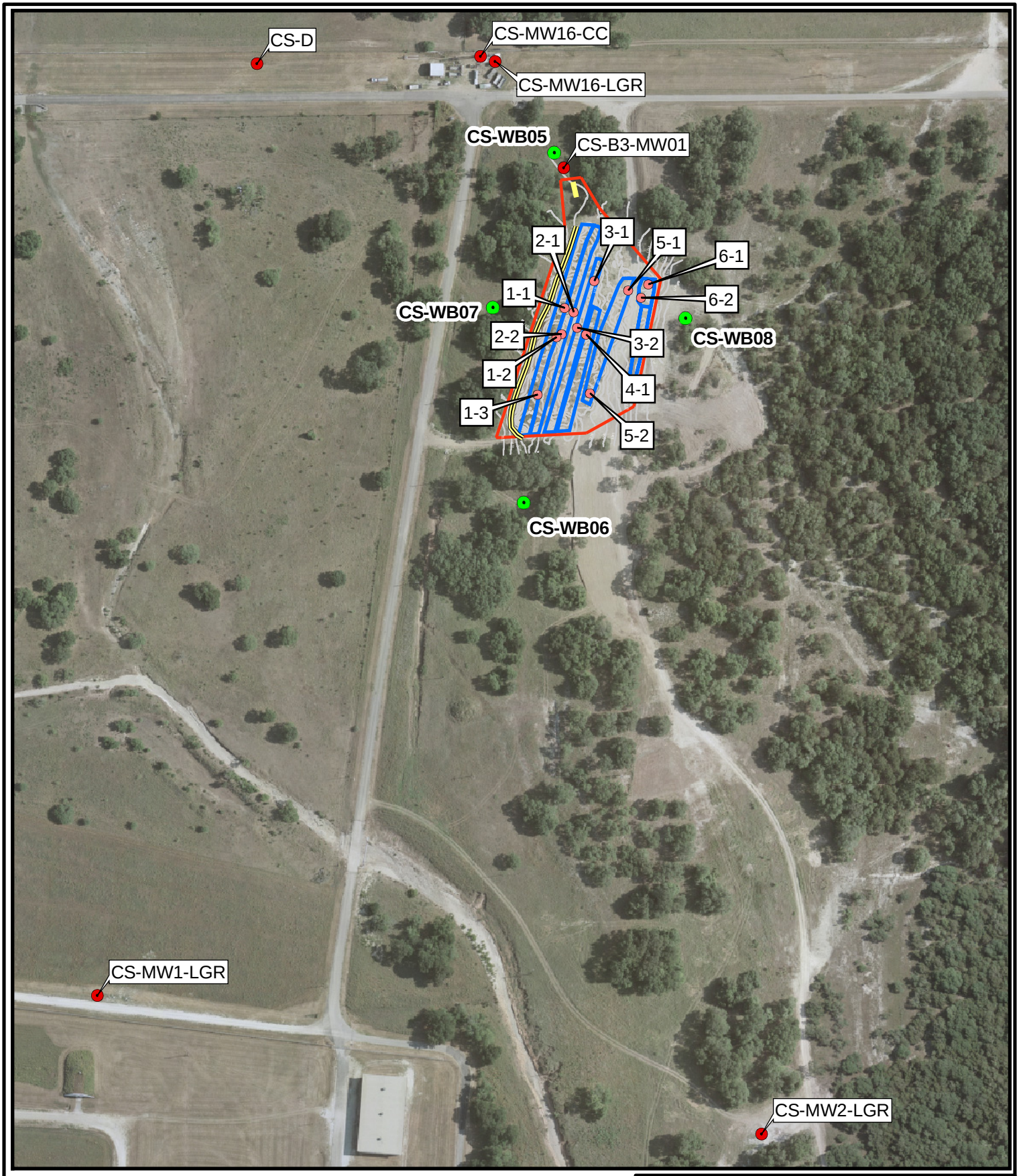

Figure 1

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] (1)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Regulatory Sampling[b] (7)	□	□												
Regulatory Sampling (8)	□	□												
Monthly Sampling[c] (4)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Regulatory Sampling (9)	✓	✓												
Regulatory Sampling (10)	✓	✓												
Monthly Sampling (5)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Regulatory Sampling (11)	✓	✓												
Regulatory Sampling (12)	✓	✓												
Quarterly Sampling (2)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

□ - 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 numbering

First digit (Sample Event)	0 = Baseline
	1 = Quarter 1 (or Baseline through quarter 1)
	2 = Quarter 2
Second digit (Well/Sump Sampled)	1 = Trench Sumps
	2 = Westbay Wells
	3 = Monitoring Wells
	4 = Combination of Wells and Sumps
Third digit (Sampled for)	1 = Field Parameters
	2 = VOC Analytical Data
	3 = Other Analytical Data
	4 = Microbial Data
Third digit qualifier (Westbay Identifier)	a = CS-WB05
	b = CS-WB06
	c = CS-WB07
	d = CS-WB08

Table 0 COC MCLs

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

Table 2.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data Baseline - Quarter 2

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)*
8/2/2007		2.28	6.54	25.20	0.691	0.40	-215.0	10.62
8/9/2007	800	5.20	6.53	26.39	1.318	0.71	-207.1	7.70
8/15/2007	830	8.02	6.44	26.73	1.731	0.95	-162.0	4.88
8/23/2007	930	2.68	6.49	25.90	0.85	0.72	-171.0	10.22
8/29/2007	945	5.63	6.43	27.21	0.855	0.61	-183.2	7.27
9/6/2007	845	5.27	6.28	28.44	1.342	0.63	-161.0	7.63
9/13/2007	830	6.83	6.22	26.22	1.037	0.69	-163.0	6.07
9/17/2007	1225	8.29	6.02	26.44	1.12	0.47	-154.1	4.61
9/26/2007		9.35	6.46	25.85	1.069	0.86	-166.6	3.55
10/5/2007	1430	8.92	6.59	25.19	1.007	0.63	-178.2	3.98
10/11/2007	1030	10.18	6.19	25.18	0.979	0.51	-194.4	2.72
10/16/2007	950	11.37	5.98	25.21	1.069	0.53	-151.4	1.53
10/22/2007	1330	11.60	6.11	25.29	1.093	0.50	-165.0	1.30
10/29/2007	1315	11.49	6.23	24.85	1.035	0.56	-168.0	1.41

NA = Not Available

Table 2.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data Baseline - Quarter 2

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)*
8/2/2007		1.90	6.63	27.37	0.857	0.31	-223.5	10.50
8/9/2007	800	4.80	6.62	30.05	1.154	0.47	-208.9	7.60
8/15/2007	830	7.67	6.57	30.39	1.502	0.53	-150.2	4.73
8/23/2007	1000	2.28	6.35	28.07	1.026	0.69	-152.3	10.12
8/29/2007	945	5.00	6.79	30.68	1.057	0.39	-194.4	7.40
89/6/07	845	4.94	6.39	27.76	1.123	0.38	-169.9	7.46
9/13/2007	830	6.52	6.30	27.64	1.525	0.40	-194.5	5.88
9/17/2007	1225	7.92	6.20	27.42	0.972	0.37	-143.9	4.48
9/26/2007		9.02	6.30	26.63	1.329	0.56	-178.4	3.38
10/5/2007	1430	8.62	6.27	26.2	1.082	0.48	-171.5	3.78
10/11/2007	1030	9.77	6.25	25.72	1.020	0.23	194.2	2.63
10/16/2007	950	10.91	6.06	25.65	1.055	0.28	-175.6	1.49
10/22/2007	1330	11.35	6.22	25.67	1.045	0.49	-177.9	1.05
10/29/2007	1315	11.22	6.27	25.34	0.962	0.35	-179.5	1.18

NA = Not Available

Table 2.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data Baseline - Quarter 2

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)*
8/2/2007		1.53	6.68	30.35	1.137	0.27	-220.9	11.32
8/9/2007	800	4.36	7.13	31.25	1.130	0.40	-209.9	8.49
8/15/2007	830	7.43	6.81	30.79	1.274	0.37	-181.4	5.42
8/23/2007	1235	1.92	6.99	29.43	0.996	0.40	-181	10.93
8/29/2007	945	4.55	7.13	29.19	0.836	0.36	-196.3	8.30
9/6/2007	845	4.71	6.51	28.75	1.100	0.35	-185.1	8.14
9/13/2007	830	6.41	6.40	28.25	1.225	0.34	-229.8	6.44
9/17/2007	1225	7.71	6.27	28.62	1.016	0.30	-156.4	5.14
9/26/2007		8.72	6.38	27.45	1.113	0.41	-171.6	4.13
10/5/2007	1430	8.45	6.38	27.02	1.070	0.36	-154.4	4.40
10/11/2007	1030	9.4	6.27	26.55	1.001	0.24	-179.7	3.45
10/16/2007	950	10.59	6.13	26.05	1.059	0.31	-176.9	2.26
10/22/2007	1330	10.87	6.21	25.97	1.062	0.39	-175.1	1.98
10/29/2007	1315	11	6.29	25.45	0.995	0.42	-183.1	1.85

NA = Not Available

Table 2.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data Baseline - Quarter 2

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)*
8/2/2007		3.69	6.41	28.68	1.38	0.49	-189.7	5.98
8/9/2007	800	6.62	6.56	28.91	1.751	0.48	-201.4	3.05
8/15/2007	930	8.98	6.59	28.68	1.714	0.65	-184.3	0.69
8/23/2007	900	4.08	6.35	29.39	1.678	0.59	-174.5	5.59
8/29/2007	945	6.79	6.43	29.45	1.542	0.48	-177.5	2.88
9/6/2007	845	6.71	6.37	30.40	1.635	0.48	-176.1	2.96
9/13/2007	830	8.25	6.33	29.75	1.614	0.52	-187.3	1.42
9/17/2007	1225	8.99	6.39	29.72	1.606	0.33	-155.0	0.68
9/26/2007		9.16						0.51
10/5/2007	1430	9.45						0.22
10/11/2007	1030	9.45	6.4	30.45	1.806	0.21	-233.1	0.22
10/16/2007	950	9.49						0.18
10/22/2007	1330	9.51						0.16
10/29/2007	1315	9.41						0.26

NA = Not Available

Table 2.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data Baseline - Quarter 2

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)*
8/2/2007		3.98	6.58	29.75	3.451	0.37	-188.8	6.03
8/9/2007	800	6.82	6.55	29.23	3.520	0.64	-181.4	3.19
8/15/2007	830	8.86	6.66	29.76	3.429	0.42	-178.8	1.15
8/23/2007	900	4.4	6.49	29.98	3.365	0.48	-171.7	5.61
8/29/2007	945	6.99	6.47	29.99	3.206	0.43	-194.4	3.02
9/6/2007	845	6.97	6.45	30.18	3.156	0.43	-183.9	3.04
9/13/2007	830	8.45	6.39	30.03	3.080	0.49	-195.6	1.56
9/17/2007	1225	8.95	6.34	30.18	2.900	0.31	-166.3	1.06
9/26/2007		9.22	6.27	30.45	2.788	0.56	-195.3	0.79
10/5/2007	1430	9.47	6.26	30.44	2.447	0.41	-201.1	0.54
10/11/2007	1030	9.58	6.33	30.51	2.571	0.2	-212	0.43
10/16/2007	950	9.6						0.41
10/22/2007	1330	9.61						0.40
10/29/2007	1315	9.66						0.35

NA = Not Available

Table 2.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data Baseline - Quarter 2

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)*
8/2/2007		6.23	6.49	25.04	0.936	0.49	-222.7	3.73
8/9/2007	800	8.28	6.48	25.52	1.017	0.45	-190.9	1.68
8/15/2007	830	8.99	6.49	26.26	1.034	0.43	-152.4	0.97
8/23/2007	900	6.80	6.42	25.57	1.068	0.46	-148.2	3.16
8/29/2007	945	8.52	6.45	26.01	1.034	0.47	-144.5	1.44
9/6/2007	845	7.83	6.3	26.48	1.125	0.36	-176.3	2.13
9/13/2007	830	9.00	6.34	27.13	1.094	0.41	-196.3	0.96
9/17/2007	1225	9.12	6.48	27.49	1.057	0.45	-147.3	0.84
9/26/2007		9.16						0.80
10/5/2007	1430	9.12	6.38	28.59	1.001	0.41	-140.4	0.84
10/11/2007	1030	9.10	6.29	29.06	1.06	0.26	-175.1	0.86
10/16/2007	950	9.13						0.83
10/22/2007	1330	9.06	6.25	29.17	1.198	0.32	-161.0	0.90
10/29/2007	1315	9.11	6.34	29.42	1.14	0.29	-180.8	0.85

NA = Not Available

Table 2.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data Baseline - Quarter 2

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)*
8/2/2007		6.33	6.61	28.35	1.22	0.47	-189.7	1.07
8/9/2007	800	7.02						0.38
8/15/2007	830	7.04						0.36
8/23/2007	900	6.90						0.50
8/29/2007	945	7.11						0.29
9/6/2007	845	7.08						0.32
9/13/2007	830	7.40						0.00
9/17/2007	1225	7.40						0.00
9/26/2007		7.40						0.00
10/5/2007	1430	7.40						0.00
10/11/2007	1030	7.40						0.00
10/16/2007	950	7.40						0.00
10/22/2007	1330	7.40						0.00
10/29/2007	1315	7.40						0.00

NA = Not Available

Table 2.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data Baseline - Quarter 2

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)*
8/2/2007		5.50	6.6	28.52	1.307	0.5	-193.9	0.82
8/9/2007	800	6.18						0.14
8/15/2007	830	6.18						0.14
8/23/2007	900	6.05						0.27
8/29/2007	945	6.18						0.14
9/6/2007	845	6.13						0.19
9/13/2007	830	6.2						0.12
9/17/2007	1225	6.2						0.12
9/26/2007		6.32						0.00
10/5/2007	1430	6.32						0.00
10/11/2007	1030	6.24						0.08
10/16/2007	950	6.28						0.04
10/22/2007	1330	6.26						0.06
10/29/2007	1315	6.32						0.00

NA = Not Available

Table 2.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data Baseline - Quarter 2

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)***
8/2/2007		8.18	6.54	25.64	0.975	0.63	-194.6	1.15
8/9/2007	800	9.10						0.23
8/15/2007	830	9.11						0.22
8/23/2007	900	9.10						0.23
8/29/2007	945	9.12						0.21
9/6/2007	845	9.05						0.28
9/13/2007	830	9.08						0.25
9/17/2007	1225	9.08						0.25
9/26/2007		9.33						0.00
10/5/2007	1430	9.33						0.00
10/11/2007	1030	9.06						0.27
10/16/2007	950	9.08						0.25
10/22/2007	1330	9.07						0.26
10/29/2007	1315	9.11						0.22

NA = Not Available

Table 2.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data Baseline - Quarter 2

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)***
8/2/2007		4.9	6.47	25.08	0.835	0.55	-189.6	3.08
8/9/2007	800	7.72						0.26
8/15/2007	830	7.85						0.13
8/23/2007	900	6.05	6.46	26.68	0.919	0.47	-124.6	1.93
8/29/2007	945	7.8						0.18
9/6/2007	845	6.71	6.44	27.46	0.911	0.39	-130.5	1.27
9/13/2007	830	7.73						0.25
9/17/2007	1225	7.75						0.23
9/26/2007		7.98						0.00
10/5/2007	1430	7.98						0.00
10/11/2007	1030	7.66						0.32
10/16/2007	950	7.68						0.30
10/22/2007	1330	6.98	6.3	27.6	0.944	0.38	-109.1	1.00
10/29/2007	1315	7.68						0.30

NA = Not Available

Table 2.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data Baseline - Quarter 2

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)***
8/2/2007		9.7	6.35	25.41	1.127	0.53	-219.4	1.75
8/9/2007	800	11.15						0.30
8/15/2007	830	11.14						0.31
8/23/2007	900	11.15						0.30
8/29/2007	945	11.15						0.30
9/6/2007	845	11.09						0.36
9/13/2007	830	11.15						0.30
9/17/2007	1225	11.16						0.29
9/26/2007		11.45						0.00
10/5/2007	1430	11.45						0.00
10/11/2007	1030	11.14						0.31
10/16/2007	950	11.13						0.32
10/22/2007	1330	11.15						0.30
10/29/2007	1315	11.16						0.29

NA = Not Available

Table 2.1.1 SWMU B-3 Bioreactor Trenches - Field Measurement Data Baseline - Quarter 2

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)***
8/2/2007		9.45	6.42	24.45	0.978	0.79	-170.8	2.89
8/9/2007	800	12.07						0.27
8/15/2007	830	12.06						0.28
8/23/2007	900	11.35	6.42	26.22	1.083	0.48	-149.6	0.99
8/29/2007	945	12.06						0.28
9/6/2007	845	12.1						0.24
9/13/2007	830	12.05						0.29
9/17/2007	1225	12.1						0.24
9/26/2007		12.34						0.00
10/5/2007	1430	12.34						0.00
10/11/2007	1030	12.06						0.28
10/16/2007	950	12.05						0.29
10/22/2007	1330	12.1						0.24
10/29/2007	1315	12.1						0.24

NA = Not Available

Table 2.1.2 SWMU B-3 Trench 1 - VOC Analytical Summary Table

Quarter 2	B3-T1-1			B3-T1-2			B3-T1-3		
Date	**8/23/07**	**9/17/07**	**10/16/07**	**8/23/07**	**9/17/07**	**10/16/07**	**8/23/07**	**9/17/07**	**10/16/07**
PCE (µg/L)	0	0	0	0	0	0.36	0	0	0.34
TCE (µg/L)	0.96	0.2	0.3	0.19	0.4	0.44	0.3	0	0.38
cis-1,2-DCE (µg/L)	120	10	8.3	220	29	17	10	23	15
trans-1,2-DCE (µg/L)	1.4	0.81	2	1.4	0.51	0.71	0	0	0
Vinyl Chloride (µg/L)	500	45	42	630	44	47	5.7	4.3	34
Ethene (µg/L)	0	0	0	0	0	0	0	0	0
PCE (nM/L)	0.000	0.000	0.000	0.000	0.000	2.171	0.000	0.000	2.050
TCE (nM/L)	7.306	1.522	2.283	1.446	3.044	3.349	2.283	0.000	2.892
cis-1,2-DCE (nM/L)	1237.751	103.146	85.611	2269.211	299.123	175.348	103.146	237.236	154.719
trans-1,2-DCE (nM/L)	14.440	8.355	20.629	14.440	5.260	7.323	0.000	0.000	0.000
Vinyl Chloride (nM/L)	7998.720	719.885	671.892	10078.387	703.887	751.880	91.185	68.789	543.913
Ethene (nM/L)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total Molar Conc. (nM/L)	9,258.219	832.908	780.416	12,363.485	1,011.315	940.071	196.615	306.025	703.574
% moles PCE	0.000%	0.000%	0.000%	0.000%	0.000%	0.231%	0.000%	0.000%	0.291%
% moles TCE	0.079%	0.183%	0.293%	0.012%	0.301%	0.356%	1.161%	0.000%	0.411%
% moles cis-1,2-DCE	13.369%	12.384%	10.970%	18.354%	29.578%	18.653%	52.461%	77.522%	21.990%
% moles trans-1,2-DCE	0.156%	1.003%	2.643%	0.117%	0.520%	0.779%	0.000%	0.000%	0.000%
% moles Vinyl Chloride	86.396%	86.430%	86.094%	81.517%	69.601%	79.981%	46.378%	22.478%	77.307%
% moles Ethene	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%

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

Q2		B3																			
Well ID		**B3 T-1-1**						**B3 T-1-2**						**B3 T-1-3**						**B3 T-6-1**		**B3 T-6-2**	
Sample Date		**8/23/2007**		**9/17/2007**		**10/16/2007**		**8/23/2007**		**9/17/2007**		**10/16/2007**		**8/23/2007**		**9/17/2007**		**10/16/2007**		**8/2/2007**		**8/2/2007**	
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	18.9		17.1		3.4		24.7		16		6.8		28.4		15.6		15.4	J			34.5	
Total Organic Carbon	mg/L	20		25.7		7.1		26.7		19.6		12.4		28.4		17.4		20.1				40.8	
Methane	µg/L	7630		16300		6580		8940		20900		5050		2810		9110		10700				11900	
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	146,000		688,000		1,110,000		152,000		676,000		542,000		48,700		499,000		902,000				314,000	
Alkalinity, Total (as CACO3)	mg/L	386		499		531		454		432		524				500		528				515	
Nitrate/Nitrite	mg/L	0		0		0.17		0		0		0.23		0.067	J	0		0.2				0	
Sulfate	mg/L	3.4		2.4		19.9		5.7		8.8		1		4.2		16.9		1.6				0.97	J
Chloride	mg/L	9.1		15.7		14.5		9.1		15.6		14.8		6		14.8		14.3				13.5	
Ferrous Iron	mg/L	7.3		13.1		14.6		5.4		10.9		15.9		4.3		8.5		14.6				9.4	
Manganese	µg/L	708		1120		669		808		1120		1130		831		1340		1760				1120	
Hydrogen	nM/L	11		4.5		3.9		3.3		4		2.8		8.6		4.1		5.7		2.0			
Hydrogen Sulfide																							
Total Dissolved Solids	mg/L	470		620		566		600		544		596		584		615		641				662	
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		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		0.56	J	0		0		0		0		0				0.49	J
Dichloroethene, cis-1,2-	µg/L	120		10		8.3		220		29		17		10		23		15				480	
Dichloroethene, trans-1,2-	µg/L	1.4		0.81		2		1.4		0.51	J	0.71		0		0		0				4.8	
Methylene chloride	µg/L	0		0		0		0		0		0		0		0		0				0	
Naphthalene	µg/L	1.5		2.5		1.8		0		0.6		1.2		0		0		0				0.41	
Tetrachloroethene	µg/L	0		0		0		0		0		0.36	J	0		0		0.34	J			0	
Toluene	µg/L	28		96		17		18		56		28		1.9		1.9		8.1				15	
Trichloroethene	µg/L	0.96		0.2	J	0.3	J	0.19	J	0.4	J	0.44	J	0.3	J	0		0.38	J			0.18	J
Vinyl chloride	µg/L	500		45		42		630		44		47		5.7		4.3		34				5.4	
Arsenic	µg/L	5.3		4.9	J	4.7	J	11.4		11.1		7.9		11.6		10.7		16.5				10.5	
Barium	µg/L	124		215		147		214		196		171		192		208		213				151	
Cadmium	µg/L	0		0		0		0		0		0		0		0		0				0	
Chromium	µg/L	1.5	J	1.5	J	1.6	J	1.5	J	0		1.8	J	2	J	1.4	J	2.4	J			1.5	J
Copper	µg/L	3.7	J	0		0		3.3		0		0		4	J	1.1	J	0				4.8	J
Lead	µg/L	0		0		0		0		0		0		0		0		0				6.8	
Mercury	µg/L	0		0		0		0.1	J	0		0.064	J	0		0		0				0	
Nickel	µg/L	0		2.0	J	1.2	J	5.8		1.1	J	0		6.7		2.5	J	1.4	J			7.6	
Zinc	µg/L	6.6	J	7.0	J	4.9	J	0		7.8	J	34.5	J	12.8	J	13.5	J	0				12.3	J
		Month 4		Month 5		Month 6		Month 4		Month 5		Month 6		Month 4		Month 5		Month 6		Month 4		Month 4	

Note: 0 sample indicates a non-detect analyte value

Table 2.2.1a SWMU B-3 Multiport Well CS-WB05 Field Parameter Data

WB05 Field Parameters

	WB05						
Zone	**Sample Date**	**Sample Time**	**pH**	**Temp. (℃)**	**Sp. Cond. (mS/cm)**	**ORP (mV)**	**DO (mg/L)**
LGR-01	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
LGR-02	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
LGR-03A	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
LGR-03B	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
LGR-04A	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
LGR-04B	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
LGR-BS-01	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
LGR-CC-01	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
LGR-CC-02	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

Table 2.2.1b SWMU B-3 Multiport Well CS-WB06 Field Parameter Data

WB06 Field Parameters

	WB06						
Zone	**Sample Date**	**Sample Time**	**pH**	**Temp. (°C)**	**Sp. Cond. (mS/cm)**	**ORP (mV)**	**DO (mg/L)**
UGR-01	8/21/2007	1445	6.87	25.07	0.715	13.0	3.37
	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
LGR-01	8/21/2007	1435	7.00	24.42	0.645	12.8	4.37
	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
LGR-02	8/21/2007	1425	7.10	24.28	0.622	2.8	3.64
	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
LGR-03A	8/21/2007	1415	7.03	24.26	0.605	21.9	6.27
	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
LGR-03B	8/21/2007	1355	7.07	24.74	0.613	-0.1	3.20
	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
LGR-04	8/21/2007	1340	6.93	24.03	0.590	10.9	4.64
	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

Table 2.2.1c SWMU B-3 Multiport Well CS-WB07 Field Parameter Data

WB07 Field Parameters

	WB07						
Zone	**Sample Date**	**Sample Time**	**pH**	**Temp. (℃)**	**Sp. Cond. (mS/cm)**	**ORP (mV)**	**DO (mg/L)**
UGR-01	8/22/2007	1601	6.56	23.06	0.832	-105.0	2.13
	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
LGR-01	8/22/2007	1555	6.90	22.97	0.720	7.9	3.53
	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
LGR-02	8/22/2007	1545	6.98	23.06	0.637	-21.3	4.74
	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
LGR-03A	8/22/2007	1535	7.02	23.47	0.584	-34.3	5.29
	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
LGR-03B	8/22/2007	1455	7.04	24.46	0.597	-21.1	6.06
	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
LGR-04	8/22/2007	1441	7.02	25.94	0.602	1.3	4.10
	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

Table 2.2.1d SWMU B-3 Multiport Well CS-WB08 Field Parameter Data

WB08 Field Parameters

	WB08						
Zone	**Sample Date**	**Sample Time**	**pH**	**Temp. (℃)**	**Sp. Cond. (mS/cm)**	**ORP (mV)**	**DO (mg/L)**
UGR-01	8/21/2007	1050	6.91	24.02	0.633	22.0	2.73
	9/20/2007	1605	6.83	24.44	0.604	-11.8	2.87
	10/25/2007	dry					
LGR-01	8/21/2007	1043	7.01	23.74	0.773	9.5	3.15
	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
LGR-02	8/21/2007	1035	7.03	24.26	0.856	-9.9	4.28
	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
LGR-03A	8/21/2007	1032	6.93	23.60	0.605	40.2	6.42
	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
LGR-03B	8/21/2007	1015	6.92	23.60	0.589	34.1	4.80
	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
LGR-04	8/21/2007	1004	7.00	23.30	0.557	30.6	5.80
	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

Q2 **WB05**

Well ID		CS-WB05-LGR01		CS-WB05-LGR02		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		10/24/2007		10/24/2007		10/24/2007		8/22/2007		9/18/2007		10/15/2007		10/23/2007		10/23/2007		10/23/2007		10/23/2007		10/23/2007	
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	1.1		0.66		0.63		0.86		0.56		0.69		0.93		3.2		0.51		0.61		1.4	
Total Organic Carbon	mg/L	1.3		0.64		0.77		0.16	J	1.2		2.2		0.92		3.8		0.2	J	0.36	J	0.64	
Methane	µg/L	8.18		2.37		1.35		13		7.47		1.96		35.7		123		15		2.01		6.94	
Ethene	µg/L	0		0		0		0		0		0		0		4.57		0		0		0	
Ethane	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Carbon Dioxide	µg/L	6,760		4,780		8,750		36,900		23,200		13,600		7,670		9,520		34,600		24,500		8,200	
Alkalinity, Total (as CACO3)	mg/L	303		328		317		295		319		295		288		280		266		268		279	
Nitrate/Nitrite	mg/L	0.46		0.096	J	0		0.081	J	0		0.14		0		0.62		0.057	J	0		0	
Sulfate	mg/L	17.2		103		49.6		48.8		49.9		48.5		28.1		10.6		28.1		48.4		47	
Chloride	mg/L	11.2		11.9		11		12.7		10.9		10.9		11.2		12.7		11.2		14.7		14.7	
Ferrous Iron	mg/L	0		0		0		0		0		0		0		0		0		0		0.67	J
Manganese	µg/L	5.5		2	J	2	J	1.5	J	3.1	J	2.1	J	5.9		4	J	0		1.9	J	2.3	J
Hydrogen	nM																						
Hydrogen Sulfide																							
Total Dissolved Solids	mg/L	355		497		387		392		421		380		348		352		330		369		391	
Benzene	µg/L	0		0		0		0		0		0		0		0.22	J	0		0.2	J	0.16	J
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		0.52	J	1	J
Dichloroethene, cis-1,2-	µg/L	1.1	J	12		59		54		43		46		130		22		40		240		320	
Dichloroethene, trans-1,2-	µg/L	0		0.77		2.9		1.6		1.5		1.5		4		0		0.5	J	5.7		3.3	
Methylene chloride	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Naphthalene	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Tetrachloroethene	µg/L	3.2		0		0		4.7		0.23	J	0		0.64	J	6.2		0		180		24	
Toluene	µg/L	0		0		0		0		0		0		0		0		0		0.18	J	0	
Trichloroethene	µg/L	2.1		4.4		98		95		88		88		97		6.8		23		270		420	
Vinyl chloride	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Arsenic	µg/L	12.8		5.9		8.2		4.6	J	5.0		3.9	J	3.3	J	0		0		8		6.1	
Barium	µg/L	42.7		41.4		27.8		28.3		27.8		29.5		31.7		28.7		27.5		32.4		17.9	
Cadmium	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Chromium	µg/L	9.4		1.6	J	0		0		0		2.1	J	4	J	1.7	J	2.9	J	3.2	J	4.5	J
Copper	µg/L	0		0		0.0		1.2	J	0		0		0		0		0		0		0	
Lead	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Mercury	µg/L	0.096	J	0.073	J	0.15	J	0.12	J	0		0		0		0.12	J	0		0		0	
Nickel	µg/L	9.6		13.5		8.6		11		8.0		8.6		1.4	J	3	J	1.1	J	15		1.7	J
Zinc	µg/L	5.5	J	4.3	J	16.4	J	21.8	J	22.6	J	16.5	J	9.2	J	9.2	J	10	J	8.2	J	16.5	J
		Month 6- Quarter 2		Month 6- Quarter 2		Month 6- Quarter 2		Month 4		Month 5		Month 6		Month 6- Quarter 2		Month 6- Quarter 2		Month 6- Quarter 2		Month 6- Quarter 2		Month 6- Quarter 2	

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

Q2 **WB06**

Well ID		CS-WB06-UGR01		CS-WB06-LGR01		CS-WB06-LGR02		CS-WB06-LGR03A		CS-WB06-LGR03B						CS-WB06-LGR04	
Sample Date		10/17/2007		10/17/2007		10/17/2007		10/17/2007		8/21/2007		9/18/2007		10/16/2007		10/17/2007	
Compound	Units	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag
Dissolved Organic Carbon	mg/L	9		2.4		0.45	J	0.45	J					0.47	J	0.42	J
Total Organic Carbon	mg/L	9.2		2.4		0.45	J	0.36	J					1.4		0.78	
Methane	µg/L	2.41		0		0		0.698	J					3.03		0	
Ethene	µg/L	0		0		0		0						0		0	
Ethane	µg/L	0		0		0		0						0		0	
Carbon Dioxide	µg/L	48700		8030		18600		18400						39800		14400	
Alkalinity, Total (as CACO3)	mg/L	508		300		276		275						297		269	
Nitrate/Nitrite	mg/L	0		0.26		0		0.047	J					0.057	J	1.1	
Sulfate	mg/L	40.8		23.1		30.7		17.9						17.9		9.9	
Chloride	mg/L	18.6		11.1		9.7		11.7						11.6		12.3	
Ferrous Iron	mg/L	0		0		0		0						0		0	
Manganese	µg/L	254		2	J	2.4	J	0						0		0	
Hydrogen	nM																
Hydrogen Sulfide																	
Total Dissolved Solids	mg/L	649		295		334		318		330		359		321		316	
Benzene	µg/L	0		0		0		0		0		0		0.17	J	0.17	J
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		0.14	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		0		0.48	J
Dichloroethene, cis-1,2-	µg/L	54		75		21		280		250		260		250		280	
Dichloroethene, trans-1,2-	µg/L	0.47	J	3.5		1.6		2.3		3.2		2.7		2.3		2.9	
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	1.6	B	8		4.9		150		130		170		140		130	
Toluene	µg/L	0.26	J	0		0		0		0		0		0.23	J	0	
Trichloroethene	µg/L	2		23		7.5		190		170		220		170		120	
Vinyl chloride	µg/L	0		0		0		0		0		0		0.41	J	0	
Arsenic	µg/L	3.1	J	3	J	2.6	J	6.9						6.4		0	
Barium	µg/L	72.1		35.1		58.1		29.2						30.3		3.1	
Cadmium	µg/L	0		0		0		0						0		0	
Chromium	µg/L	4.9	J	4.8	J	2.5	J	2.6	J					2.9	J	2.4	J
Copper	µg/L	0		0		0		0						0		0	
Lead	µg/L	0		0		0		0						0		0	
Mercury	µg/L	0.066	J	0		0		0						0.065	J	0	
Nickel	µg/L	14.6		3.4	J	5.4		5						5.2		2.2	J
Zinc	µg/L	58.9		0		10.2	J	12.5	J					14.6	J	6.8	J
		Month 6		Month 6		Month 6		Month 6		Month 4		Month 5		Month 6		Month 6	

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

Q2 **WB07**

Well ID		CS-WB07-UGR01		CS-WB07-LGR01		CS-WB07-LGR-02		CS-WB07-LGR-03A		CS-WB07-LGR-03B						CS-WB07-LGR-04	
Sample Date		10/18/2007		10/18/2007		10/18/2007		10/18/2007		8/22/2007		9/18/2007		10/15/2007		10/18/2007	
Compound	Units	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag
Dissolved Organic Carbon	mg/L	10.7		0.49	J	0.54		0.78		0.71		0.71		0.4	J	1.1	
Total Organic Carbon	mg/L	13.2		0.55		0.57		0.83		0.83		1.5		0.79		0.92	
Methane	µg/L	134		0		0		1.89		19.1		9.62		5.22		0	
Ethene	µg/L	0		0		0		0		0		0		0		0	
Ethane	µg/L	0		0		0		0		0		0		0		0	
Carbon Dioxide	µg/L	36000		5310		6900		9410		26500		30500		35000		47200	
Alkalinity, Total (as CACO3)	mg/L	529		340		298		284		280		304		272		268	
Nitrate/Nitrite	mg/L	0		0.082	J	0		0.059	J	0.082	J	0		0		1.1	
Sulfate	mg/L	9.8		98.2	E	41		19.9		20.2		20.3		20.1		9.4	
Chloride	mg/L	16.1		14.9		12.6		9.7		10.4		10		9.8		11.8	
Ferrous Iron	mg/L	6.1		0		0		0		0		0		0		0	
Manganese	µg/L	2690		0		1.7	J	0		0		1.4	J	0		0	
Hydrogen	nM																
Hydrogen Sulfide																	
Total Dissolved Solids	mg/L	639		475		376		325		329		357		323		297	
Benzene	µg/L	0.17	J	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	
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		0		0	
Dichloroethene, cis-1,2-	µg/L	250		0.76	J	0.32	J	30		29		29		19		430	
Dichloroethene, trans-1,2-	µg/L	2		0		0		0.92		0.62		0.72		0		1.2	
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	0.32	JB	1.3	JB	0.97	JB	0.52	J	1.10		0		0		260	
Toluene	µg/L	0.66	J	0		0		0		0		0		0		280	
Trichloroethene	µg/L	0.46	J	1.5		1.1		0.91	J	0		0.80	J	0.59	J	0	
Vinyl chloride	µg/L	76		0		0		0		0		0		0		0	
Arsenic	µg/L	7.1		4.9	J	0		4.9	J	0		0		0		0	
Barium	µg/L	141		58.5		83.2		33.7		35.4		32.7		32.7		28.1	
Cadmium	µg/L	0		0		0		0		0		0		0		0	
Chromium	µg/L	6.5		3.3	J	2.4	J	3.9	J	3.9		3.0	J	1.5	J	1.9	J
Copper	µg/L	0		0		0		0		0		0		0		0	
Lead	µg/L	0		0		0		0		0		2.0	J	0.0		0	
Mercury	µg/L	0		0		0		0		0		0		0		0	
Nickel	µg/L	21.7		8.4		2.5	J	3.7	J	5.4		3.1	J	1.9	J	2	J
Zinc	µg/L	0		2.6	J	0		2.5	J	5.8	J	10.2	J	4.5	J	6.8	J
		Month 6		Month 6		Month 6		Month 6		Month 4		Month 5		Month 6		Month 6	

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

Table 2.2.2d SWMU B-3 Bioreactor Multi-port Well CS-WB08 - Quarter 2 Performance Data

Q2		WB08													
Well ID		**CS-WB08-LGR01**		**CS-WB08-LGR02**		**CS-WB08-LGR03A**		**CS-WB08-LGR03B**						**CS-WB08-LGR04**	
Sample Date		**10/25/2007**		**10/25/2007**		**10/24/2007**		**8/21/2007**		**9/18/2007**		**10/16/2007**		**10/24/2007**	
Compound	**Units**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**
Dissolved Organic Carbon	mg/L	0.8		0.45	J	0.61						0.76		1.3	
Total Organic Carbon	mg/L	0.56		0.33	J	0.59						0.83		1.1	
Methane	µg/L	3.89		1.81		0						0		0	
Ethene	µg/L	0		0		0						0		0	
Ethane	µg/L	0		0		0						0		0	
Carbon Dioxide	µg/L	22,800		29,100		7,240						66,500		6,480	
Alkalinity, Total (as CACO3)	mg/L	339		320		290						291		303	
Nitrate/Nitrite	mg/L	0		0		0.75						0.68		0.46	
Sulfate	mg/L	86.6		107		18.5						18.7		17.2	
Chloride	mg/L	10.7		11.3		12						11.8		11.2	
Ferrous Iron	mg/L	0		0		0						0		0	
Manganese	µg/L	3.1	J	0		0						0		5	
Hydrogen	nM														
Hydrogen Sulfide															
Total Dissolved Solids	mg/L	513		551		349		340		352		340		355	
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	
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	0.32	J	0		0		0		0		0		0	
Dichloroethene, cis-1,2-	µg/L	88		7		180		130		180		180		96	
Dichloroethene, trans-1,2-	µg/L	3.2		0.23	J	2.6		1.6		1.2		1.4		1.5	
Methylene chloride	µg/L	0		0		0		0		0		0		0	
Naphthalene	µg/L	0		0		0		0		0		0		0	
Tetrachloroethene	µg/L	7.6		0		91		92		71		140		24	
Toluene	µg/L	0		0		0		0		0		0		0	
Trichloroethene	µg/L	31		0.64	J	120		92		140		150		17	
Vinyl chloride	µg/L	0		0		0		0		0		0		0	
Arsenic	µg/L	9.9		7.1		0						2.5	J	0	
Barium	µg/L	89.3		63.6		32.2						33.4		33.4	
Cadmium	µg/L	0		0		0						0		0	
Chromium	µg/L	2	J	1.5	J	1.7	J					1.7	J	5.4	
Copper	µg/L	0		0		0						0		0	
Lead	µg/L	3.1	J	2.2	J	0						0		0	
Mercury	µg/L	0.069	J	0		0						0.096	J	0.082	J
Nickel	µg/L	2.2	J	2	J	5.5						6.5		3.8	J
Zinc	µg/L	12.4	J	10.3	J	8.4	J					9.3	J	22.9	J
		Month 6		Month 6		Month 6		Month 4		Month 5		Month 6		Month 6	

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

Table 2.2.3

SWMU B-3 Westbay Monitoring Wells
Upper Saturated Zone (Zone LGR03B) Analytical Results
Quarter 2

Q2	CS-WB05-LGR03B			CS-WB06-LGR03B			CS-WB07-LGR03B			CS-WB08-LGR03B		
Date	**8/21/07**	**9/18/07**	**10/15/07**	**8/21/07**	**9/18/07**	**10/16/07**	**8/21/07**	**9/18/07**	**10/15/07**	**8/21/07**	**9/18/07**	**10/16/07**
PCE (µg/L)	4.7	0.23	0	130	170	140	0	0	0	92	71	140
TCE (µg/L)	95	88	88	170	220	170	1.1	0.8	0.59	92	140	150
cis-1,2-DCE (µg/L)	54	43	46	250	260	250	29	29	19	130	180	180
trans-1,2-DCE (µg/L)	1.6	1.5	1.5	3.2	2.7	2.3	0.62	0.72	0	1.6	1.2	1.4
Vinyl Chloride (µg/L)	0	0	0	0	0	0.41	0	0	0	0	0	0
Ethene (µg/L)	0	0	0	0	0	0	0	0	0	0	0	0
PCE (nM/L)	28.342	1.387	0.000	783.935	1025.146	844.238	0.000	0.000	0.000	554.785	428.149	844.238
TCE (nM/L)	723.038	669.762	669.762	1293.858	1674.404	1293.858	8.372	6.089	4.490	700.205	1065.530	1141.639
cis-1,2-DCE (nM/L)	556.988	443.528	474.471	2578.649	2681.795	2578.649	299.123	299.123	195.977	1340.897	1856.627	1856.627
trans-1,2-DCE (nM/L)	16.503	15.472	15.472	33.007	27.849	23.724	6.395	7.427	0.000	16.503	12.378	14.440
Vinyl Chloride (nM/L)	0.000	0.000	0.000	0.000	0.000	6.559	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
Total Molar Conc. (nM/L)	1,324.872	1,130.148	1,159.705	4,689.449	5,409.195	4,747.027	313.890	312.639	200.468	2,612.391	3,362.684	3,856.945
% moles PCE	2.139%	0.123%	0.000%	16.717%	18.952%	17.785%	0.000%	0.000%	0.000%	21.237%	12.732%	21.889%
% moles TCE	54.574%	59.263%	57.753%	27.591%	30.955%	27.256%	2.667%	1.948%	2.240%	26.803%	31.687%	29.600%
% moles cis-1,2-DCE	42.041%	39.245%	40.913%	54.988%	49.578%	54.321%	95.295%	95.677%	97.760%	51.328%	55.213%	48.137%
% moles trans-1,2-DCE	1.246%	1.369%	1.334%	0.704%	0.515%	0.500%	2.037%	2.375%	0.000%	0.632%	0.368%	0.374%
% moles Vinyl Chloride	0.000%	0.000%	0.000%	0.000%	0.000%	0.138%	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%
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%
	Month 4	Month 5	Month 6	Month 4	Month 5	Month 6	Month 4	Month 5	Month 6	Month 4	Month 5	Month 6

Note: 0 sample indicates a non-detect analyte value

Q2 **Monitoring Wells**

Well ID		CS-MW16-LGR		CS-MW1-LGR		CS-D		CS-B3-MWO1		CS-MW16-CC	
Sample Date		10/15/2007		10/15/2007		10/15/2007		10/15/2007		10/15/2007	
Compound	Units	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag
Dissolved Organic Carbon	mg/L	0.3	J	0.43	J	0.27	J	256		0.23	J
Total Organic Carbon	mg/L	0.36	J	0.58		0.28	J	320		0.52	
Methane	µg/L	4.89		0		0		37800		1.72	
Ethene	µg/L	0		0		0		0		0	
Ethane	µg/L	0		0		0		0		0	
Carbon Dioxide	µg/L	40200		28000		26900		1340000		24600	
Alkalinity, Total (as CACO3)	mg/L	257		239		246		1830		251	
Nitrate/Nitrite	mg/L	0.8		1.4		0.55		0		0.086	J
Sulfate	mg/L	21.5		14.2		14.9		0		48.8	
Chloride	mg/L	11.7		9.4		10.3		28.5		14	
Ferrous Iron	mg/L	0		0		0		22.6		0	
Manganese	µg/L	10.4		1.3	J	1.9	J	508		0.0	
Hydrogen	nM	3.6		3		1.9		2.7		2.9	
Hydrogen Sulfide											
Total Dissolved Solids	mg/L	315		290		287		2160		350	
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		0		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		0.6	J
Dichloroethene, cis-1,2-	µg/L	36		52		140		160		75	
Dichloroethene, trans-1,2-	µg/L	0		0.7		1.3		0.59	J	2.5	
Methylene chloride	µg/L	0		0		0		0		0	
Naphthalene	µg/L	0		0		0		0.5		0	
Tetrachloroethene	µg/L	66		35		120		0		24	
Toluene	µg/L	0		0		0		0		0	
Trichloroethene	µg/L	71		47		150		0.29	J	91	
Vinyl chloride	µg/L	0		0		0		5.2		0	
Arsenic	µg/L	0		0		0		7.6		0	
Barium	µg/L	41.1		35.2		30.8		524		23.8	
Cadmium	µg/L	0		0		0		0		0	
Chromium	µg/L	0		2.5	J	0		4.1	J	0	
Copper	µg/L	0		0		0		2.9	J	53.1	
Lead	µg/L	0		0		0		26.1		6.7	
Mercury	µg/L	0.063	J	0		0		0.1	J	0	
Nickel	µg/L	0.84	J	30.1		0.66	J	15.7		3.6	J
Zinc	µg/L	322		6.2	J	279		75.2		132	
		Month 6		Month 6		Month 6		Month 6		Month 6	

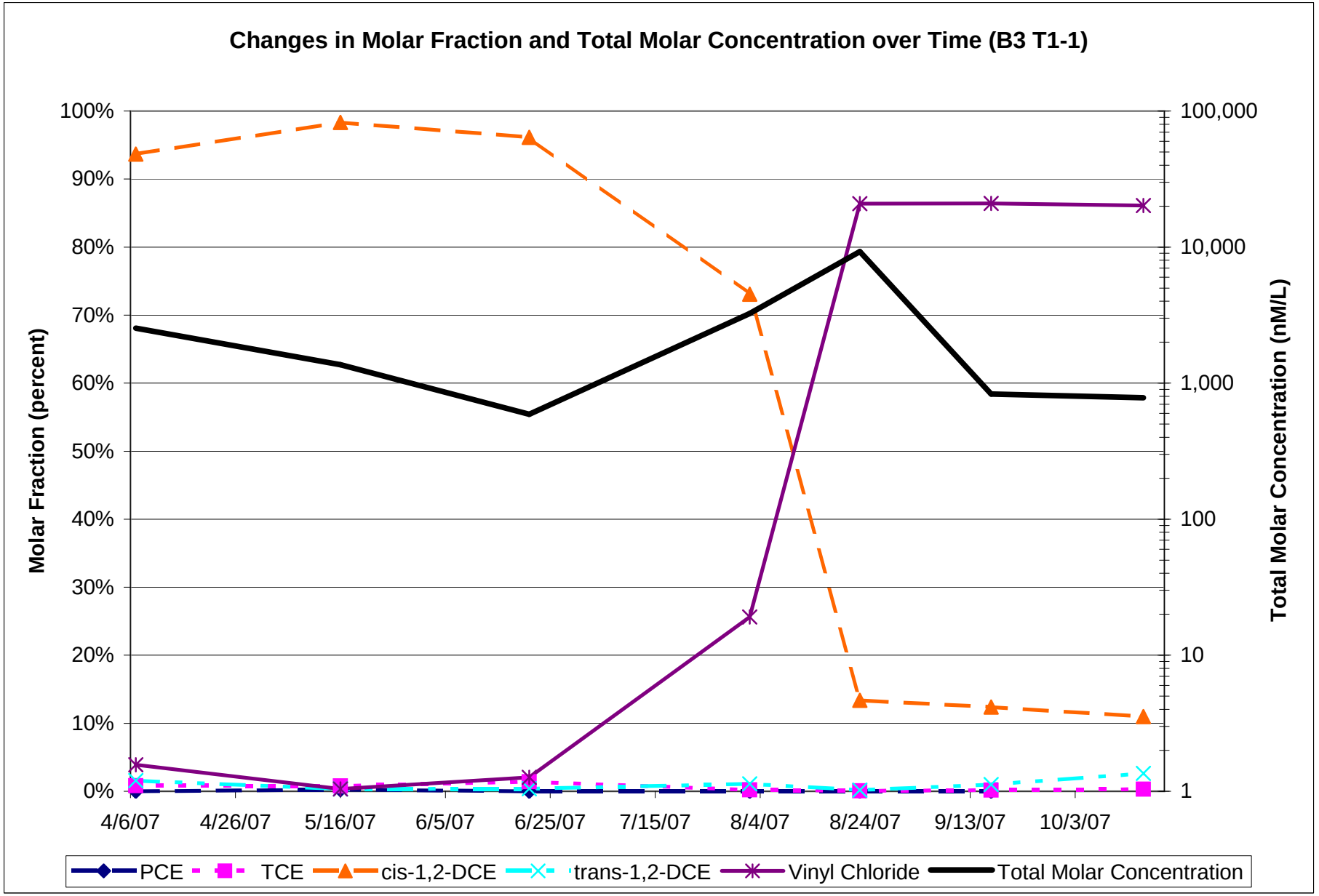
Note : 0 sample value indicates a non-detect analyte value

Table 2.4.4 SWMU B-3 Sump and Monitoring Well Baseline and Microbial Data - Quarter 2

Q2		CS B-3 MW01			CS-MW 16-LGR			CS-MW16-CC	B3-T1-2		B3 T1-3			
	Sample date:	*12/19/2006*	*8/3/2007*	*10/15/2007*	*12/19/2006*	*8/3/2007*	*10/17/2007*	*10/17/2007*	*10/17/2007*	*11/19/2007*	*12/19/2006*	*8/3/2007*	*8/23/2007*	*9/17/2007*
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	1.68E+04	2.30E+04	2.46E+03	7.62E+00	7.27E+01	4.75E+00
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	3.71E+03	7.56E+02	<1E+00	<4.55E-01	2.87E+00	4.73E-01 (J)
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	<2.5E-01	<2.5E-01	<1E+00	<4.55E-01	<5E-01	<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	<2.5E-01	<2.5E-01	<1E+00	<4.55E-01	<5E-01	<5E-01

Graphs

Figure 2.1.2T1-1 B-3 Bioreactor Quarter 1 Trench 1 Sump 1 VOC Summary



J:\744\744223 B3 & AOC65\11000 Bioreactor O&M\Monitoring Data\B-3 Data AL\Trench VOC mole analytes AL.xls

Figure 2.1.2T1-2 B-3 Bioreactor Quarter 1 Trench 1 Sump 2 VOC Summary

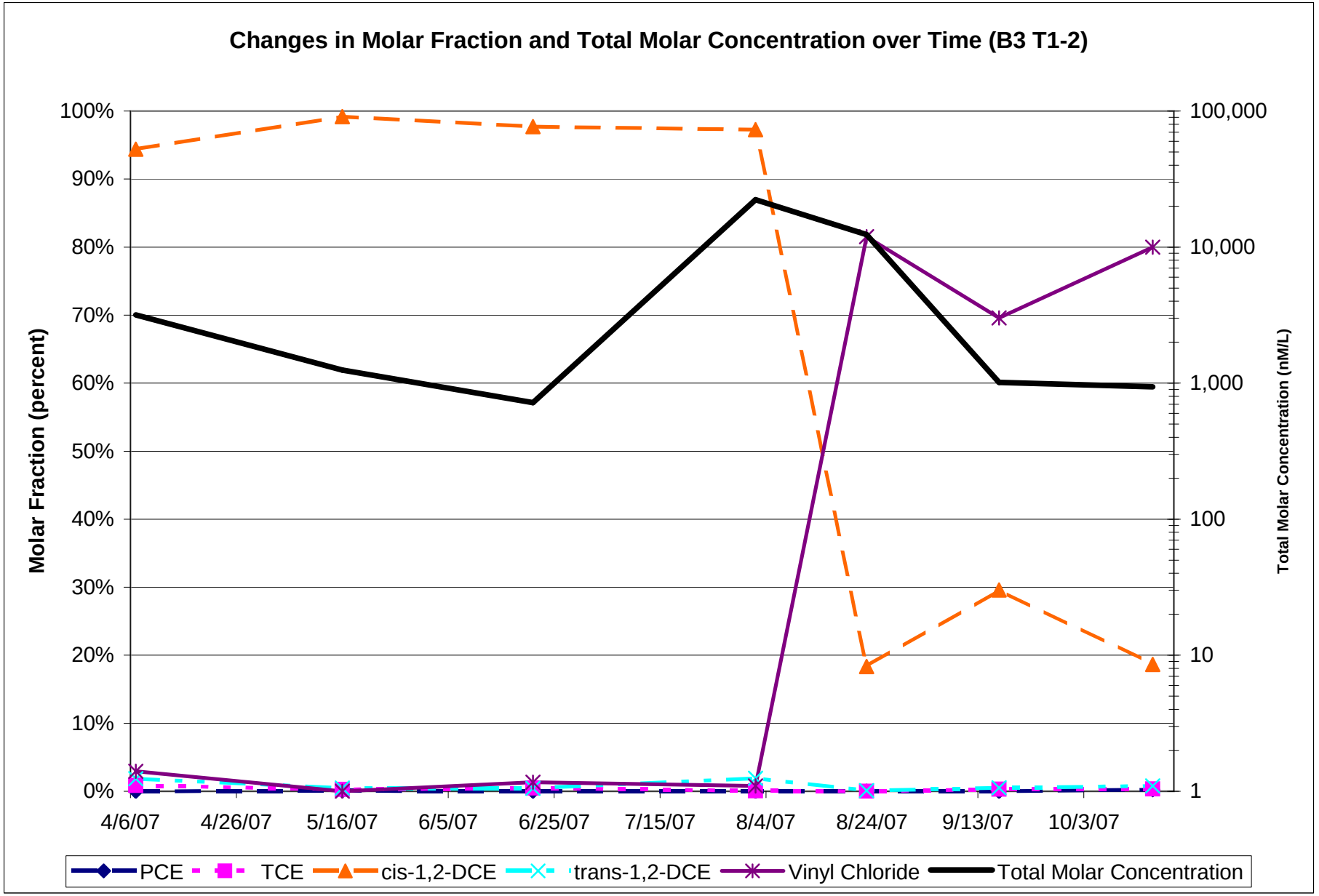


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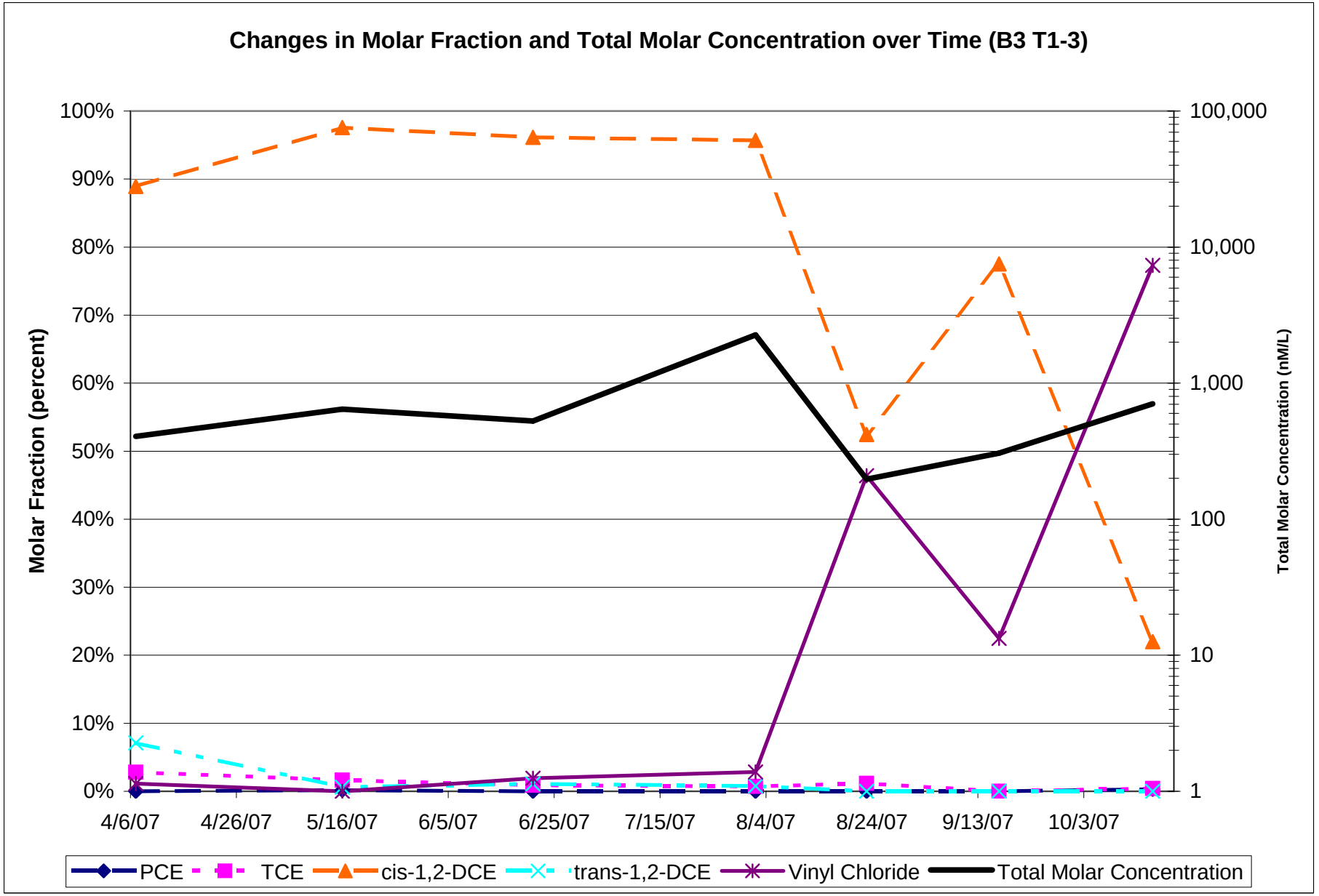
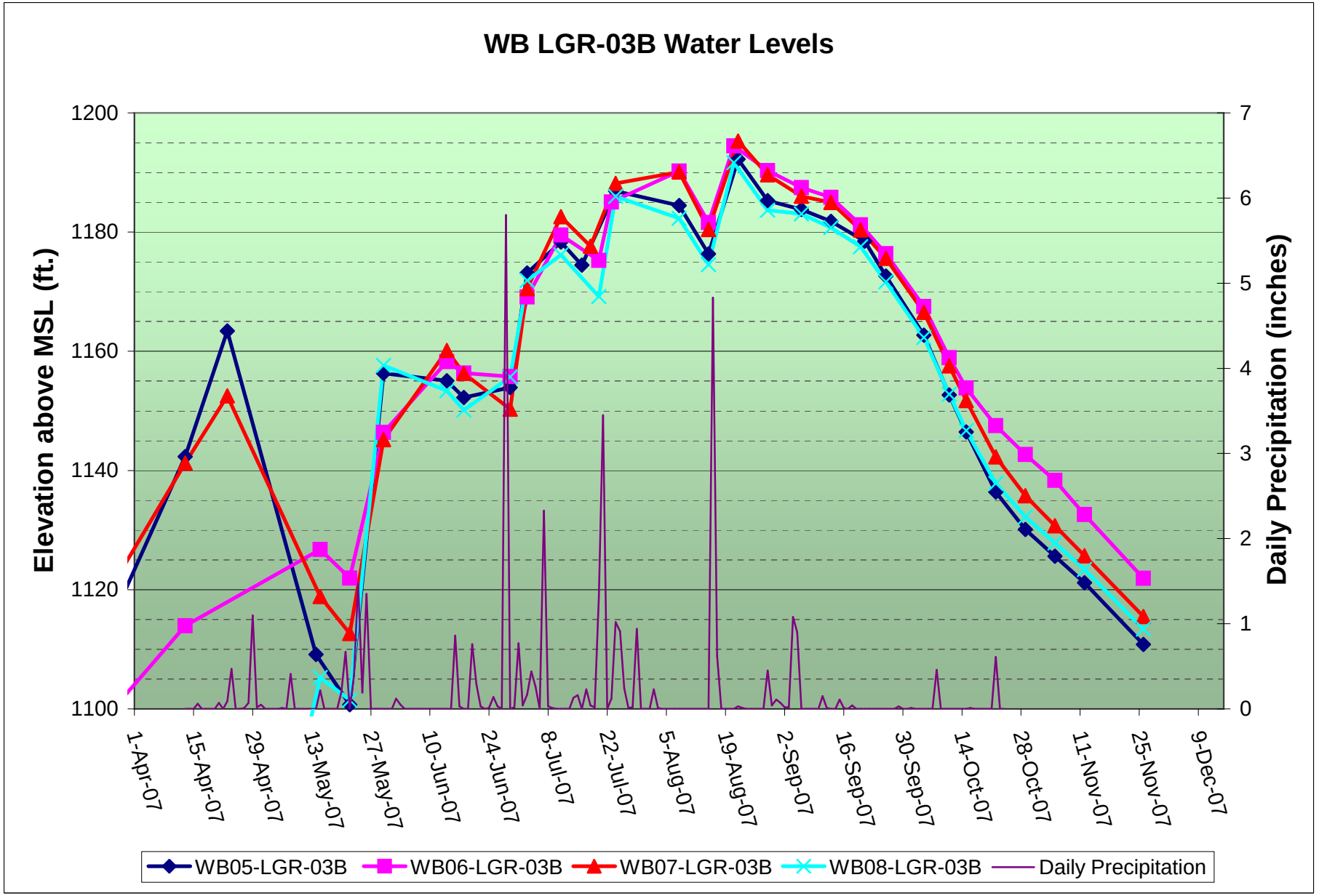
Figure 2.1.2T1-3 B-3 Bioreactor Quarter 1 Trench 1 Sump 3 VOC Summary



J:\744\744223 B3 & AOC65\11000 Bioreactor O&M\Monitoring Data\B-3 Data AL\Trench VOC mole analytes AL.xls

Figure 2.2.5 Lower Glen Rose Groundwater Elevations (feet above MSL) Measured in Westbay Wells through Quarter 2



J:\744\744223 B3 & AOC65\11000 Bioreactor O&M\Monitoring Data\B-3 Data AL\B-3 WB water level data 1graph(all).xls

Figure 2.5.5 Cumulative Total Volume of Recovered Groundwater from CS-MW16-LGR and CS-MW16-CC Applied to SWMU B-3 Trench 1

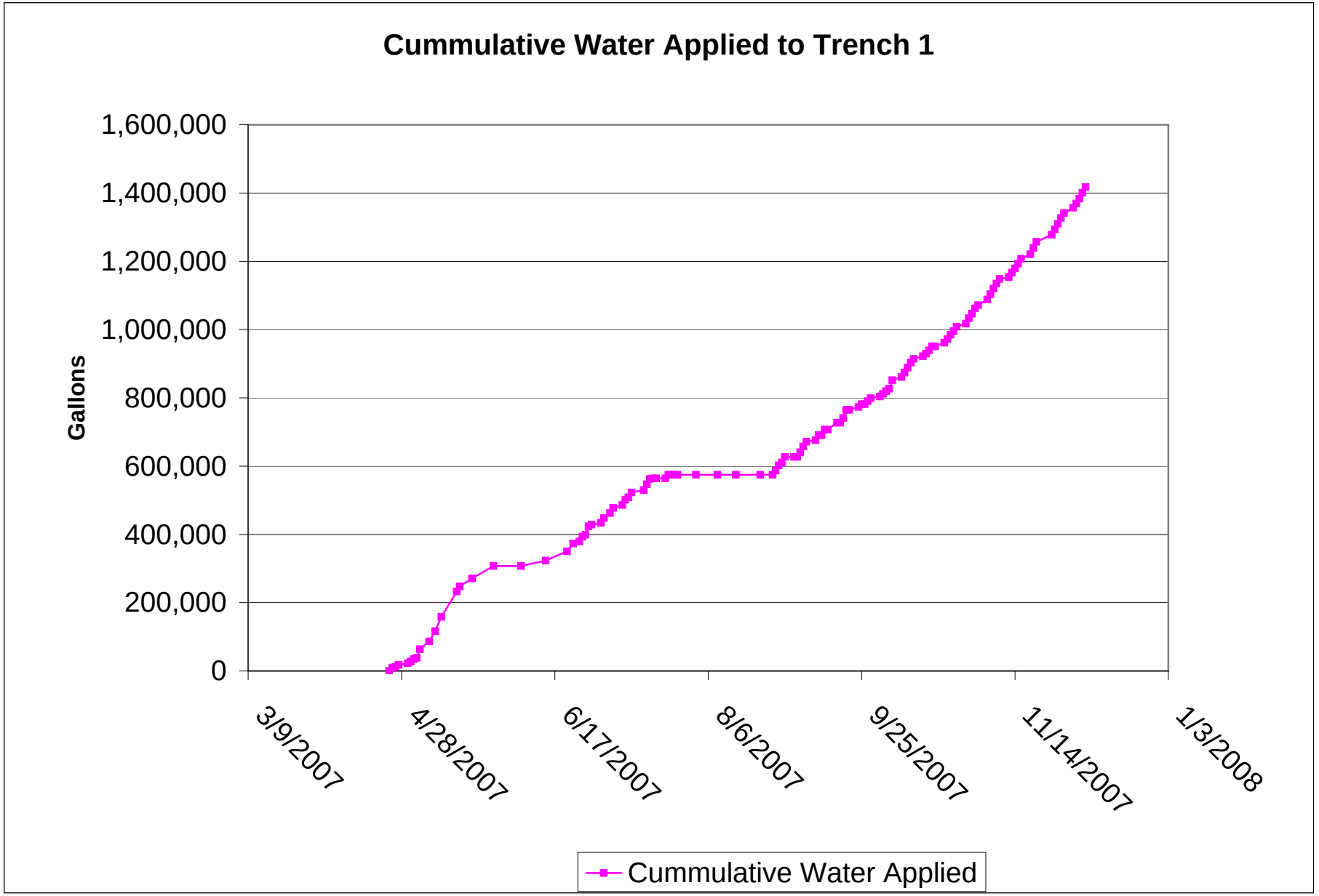


Figure 2.5.6

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