

**CSSA B-3 BIOREACTOR OPERATIONS  
PERFORMANCE STATUS REPORT  
(QUARTER 10, MONTHS 28 – 30, AUGUST – OCTOBER, 2009)**

**JANUARY 22, 2010**

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This status report summarizes the operation of a bioreactor at Solid Waste Management Unit (SWMU) B-3 from August 1, 2009 through October 31, 2009, comprising the tenth 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 2009 are attached for reference. Parsons site personnel working on this project during the reporting period include Ken Rice, Samantha Elliott, Eric Tennyson, Adrien Lindley, Julie Bouch, Michael Zugelder, Edward Galbavy, Scott Pearson and Justin Kirk.

***Executive Summary***

Site conditions were seasonal and wet through the quarter with 16.84 inches of precipitation reported. Injection of extracted groundwater continued through the quarter, except during a flood test conducted from September 10 through October 14. Other interruptions during this quarter resulted from ground water levels reaching the automatic cut-off water levels in the extraction wells. Approximately 19,399,665 gallons of groundwater extracted from CS-MW16-LGR, CS-MW16-CC, and B3-EXW01 have been injected into bioreactor trenches 1 and 2 since the start of normal operations. During quarter 10, a total of 2,189,039 gallons of extracted groundwater from wells CS-MW16-LGR, CS-MW16-CC, and B3-EXW01 were injected into the bioreactor. The majority of extracted groundwater, ~930,000 gallons, was from the CS-MW16-CC well, while ~890,000 gallons was extracted from B3-EXW01, and 440,000 gallons were extracted from CS-MW16-LGR. The semi-annual UIC report was delivered to the TCEQ on December 10, 2009 with the next report due June, 2010.

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 generally less than 0.5 milligrams per liter (mg/L) and oxidation-reduction potential (ORP) values are less than -100 millivolts (mV), indicating an anaerobic environment conducive 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.

Analytical results for samples collected in trench 1 sumps provide evidence that biotic and abiotic dechlorination of trichloroethene (TCE) is occurring. The consistent presence of the end product ethene provides evidence that the biotic reductive dechlorination process appears to be the major

pathway for degradation of CAHs within trench 1. Additionally, two other degradation mechanisms, both biotic and abiotic, appear to be occurring within trench 1.

It appears that biotic anaerobic oxidation of CAHs to carbon dioxide may be occurring with Mn (IV) as the terminal electron acceptor. This degradation pathway reaction results in the production of the reduced form of manganese [Mn (II)]. The detections of high concentrations of Mn(II) in trench 1 may be the result of this biotic process.

Evidence for the existence of an abiotic reductive dechlorination is indicated by the presence of reduced iron [Fe(II)] and trans-DCE in trench 1. Field sampling analyses (Noblis) indicated positive results for hydrogen sulfide and sulfate-reducing bacteria. Hydrogen sulfide likely reduces iron [III] in soil minerals to iron [II], which is then available to facilitate reductive dechlorination of CAHs. Although evidence suggests this degradation pathway exists, it may not be a significant contributor to the overall degradation of contaminants.

### ***Summary of Bioreactor Operation***

Initial baseline and quarter 1 through quarter 10 analytical results from monitoring of the bioreactor sumps indicate that the SWMU B-3 trenches contain a range of *cis*-DCE levels (0.42 – 55 µg/L – Quarter 10) as well as concentrations of other dechlorination products (e.g., VC, ethene). In addition, minor amounts of toluene, and other fuel related compounds were identified during monitoring of bioreactor trench 1, 2, 3, and 6 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 10 monitoring results from the bioreactor trench sumps are attached, analytical results of the surrounding SWMU B-3 multi-port monitoring wells (MPMW or Westbay®) and monitoring wells are also attached.

Results of VOC analysis from monitoring data indicate that groundwater from the uppermost saturated zone of the Westbay® wells CS-WB05 and CS-WB07 contain < 100 micrograms per liter (µg/L) of PCE, TCE, and *cis*-DCE, while CS-WB06 and CS-WB08 contains > 100 µg/L of PCE, TCE, and *cis*-DCE. Groundwater from CS-MW16-LGR and B3-EWX01 contain > 100 µg/L of PCE, TCE, and *cis*-DCE and groundwater from CS-MW16-CC contains < 100 µg/L of PCE, TCE, and *cis*-DCE. Quarterly data from the bioreactor trench sumps indicate a decrease in contaminant mass (total molar concentration) in all trench 1 sumps as well as T2-1, however, T1-3 indicates a significant reduction followed by a significant increase in contaminant mass during the quarter. Over the bioreactor operational period, contaminant mass appears stable or decreasing.

Water quality field measurements from the bioreactor trench 1 sumps generally indicate that DO is similar to the previous quarter with an average of 0.39 mg/L, ORP has risen slightly since the previous quarter, averaging -153 mV, pH ~ 6.33, temperatures range from 20.45 °C to 30.82 °C, and specific conductivity ranges from 0.294 to 1.504 millisiemens per centimeter (mS/cm). Other observations regarding the data collected during this reporting period are listed below.

Water quality field measurements from trench 2 include: average DO, pH, and ORP ~0.40 mg/L, ~6.49, and ~ -153 mV, respectively; temperature ranges from 23.90 °C to 30.85 °C; and specific conductivity ranges from 0.309 to 1.491 mS/cm.

Through the 10<sup>th</sup> quarter of bioreactor operation, 16.84 inches of precipitation were measured at the weather stations proximal to the bioreactor site. Average water thickness in Trench 1 during this period is approximately 4.58 feet. Average water thickness in Trench 2 during this period is approximately 1.56 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, the CVOC concentrations in CS-MW16-LGR, 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) was detected in concentrations exceeding the MCL (10 µg/L) in trench samples at T1-1 (15.2 µg/L), T1-2 (12.2 µg/L), T1-3 (10.1 µg/L), T2-1 (17.1 µg/L), T2-2 (17.3 µg/L), and T6-2 (10.5 µg/L) collected during quarter 10. Manganese (Mn) was reported in bioreactor trench water samples at concentrations ranging from 39.9 to 1,500 µg/L (MCL is 50 µg/L). An elevated level of Mn was reported in three of the surrounding monitoring wells during this quarter CS-MW16-LGR, CS-B3-MW01, and B3-EXW01 with 270 µg/L, 128 µg/L, and 106 µg/L, respectively. Arsenic was not detected above the MCL in any of the monitoring wells surrounding the bioreactor during the quarter. Elevated levels of Mn were reported in CS-WB06-UGR01 (645 µg/L), CS-WB08-UGR01 (321 µg/L) and CS-WB08-LGR-04 (133 µg/L), and elevated levels of As were reported in CS-WB05-LGR04B (60.1 µg/L); all other MPMW zones reported Mn and As levels below the MCL. 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. Additionally, the biotic anaerobic oxidation pathway of CAHs may also be contributing to the elevated levels of Mn within the treatment system.
2. Lead levels in groundwater collected from T5-2 reached 18.6 µg/L, exceeding the drinking water Action Level (15 µg/L). Lead monitoring in groundwater will continue as Bioreactor operations proceed.
3. DO and ORP values remain favorable for the reduction of CAHs even with the increased volume of water applied via the continuous operation of the automated injection system with the new extraction well (B3-EXW01), indicating that anaerobic reducing conditions were maintained.
4. The volatile organic compound summary for the trenches indicates a continuation of a predominately a three-component (VC, DCE isomer, and ethene) chemical composition in water collected from the trench sumps. This indicates the further reduction of contaminants along the degradation pathway toward the end product ethene. Total molar concentrations in trench sumps T1-1, T1-2, T1-3, and T2-1 remain stable or decreased slightly through the quarter. The trans-DCE isomer in trench 1 is theorized to be the result of an abiotic reductive dechlorination pathway.
5. Reductive dechlorination of CAHs by microbial activity other than DHC appears to be occurring as DHC bacterial counts have been negligible.
6. Saturated conditions are being maintained within bioreactor Trench 1 with an average water thickness for the quarter of approximately 5.48 feet.
7. The successful completion of the scheduled flood test at the bioreactor has provided flow path information in the near surface (in the trenches) as well as in individual hydrostratigraphic units (Westbay zones and screened intervals of monitoring wells). Initial analysis from data collected during the flood test indicates a direct connection from trench 6 to trenches 1, 3, and 5, and provides evidence of a lesser degree of influence in trenches 2 and 4. At the conclusion of the flood test (October 14, 2009) the average saturated thickness in the trenches were as follows: T1 – 8.39 ft, T2 – 3.67 ft, T3 – 1.215 ft (T3-1 had 2.43 ft of water and T3-2 remained dry though the flood

test), T4 – 0.41 ft, T5 – 1.29 ft (T5-1 had 2.18 ft of water and T5-2 maintained pre-flood its test level of 0.40 ft), and T6 – 5.41 ft. Another initial conclusion that can be made include the regional bottom filling of hydrostratigraphic units beginning with the Cow Creek and continuing to the Lower Glen Rose 04 and 03 zones. It may also be concluded that a connection exists between trench 6 and the monitoring well CS-B3-MW01 and potentially to CS MW16LGR, as the groundwater analytical results from CS-B3-MW01 are markedly dissimilar than previous results, and somewhat similar to results expected from trench sumps.

***Anticipated Schedule for Next Period (November, 2009 – January, 2009):***

- Continue monitoring and maintenance activities for delivery of groundwater to the bioreactor trenches.
- Conduct monthly monitoring events in November and December (Months 31 and 32), and quarterly monitoring event in January (Month 33) for bioreactor system.
- Continue UIC monthly monitoring with semi-annual reporting due June 2010.
- Begin planning stages for the construction of 6 shallow nested wells around the bioreactor.
- Complete the flood test data analysis and report.

***Preliminary Observations from SWMU B-3 Flood Test:***

The goal of the flood test was to use injected water as a tracer and determine preferential pathways, trench connectivity, groundwater flow direction, and travel times from the bioreactor at trench 6 to the other trenches that make up the bioreactor, specific hydrostratigraphic zones in Westbay wells that surround the bioreactor, and monitoring and extraction wells surrounding the B3 at CSSA. Though conditions were favorable at the beginning of the test, several significant rainfall events interfered with the test such that observed responses mid way through the test could only be due to local and regional recharge from precipitation rather than the artificial recharge imposed by the flooding of trench 6. The completed flood test report will include graphs and figures supporting the following observations.

1. WB08 shows the greatest responses to the flooding of trench 6 (pressure increases in the hydrostratigraphic zones) due to its proximity to the bioreactor and trench 6.
2. Flow in the UGR01 and unsaturated LGR01, and LGR02 tends to go south and southwest as observed in the flooding responses in these zones at WB06 and lesser responses in these zones at WB07, which corresponds to the regional groundwater flow direction.
3. Trench 6 is connected to trench 1 and 2 and the northern portions of trenches 5 most directly, as determined by the amount and timing of the water thickness increases in sumps T1-1, T1-2, T2-1, and T5-1. Trench 6 is less directly connected to trench 3 and the southern portions of trenches 1 and 2, and appears to have little connection to trench 4, and the southern portions of trenches 3 and 5.
4. A connection exists between trench 6 and CS-MW01 and from CS-MW01 to CS-MW16-LGR. Analytical data collected from CS-MW01 indicated a significant shift in *cis*-DCE from the previous years possibly due to flushing of contaminants from underneath trench 6. Though this *cis*-DCE front is not as apparent in WB05-LGR04B, a slight increase in *cis*-DCE is noted in the sample collected at the conclusion of the flood test. Though no significant increases in *cis*-DCE are observed in CS-MW16LGR, the appearance of water collected before the pump was restarted at the conclusion of the test looked and smelled

similar to that of CS-MW01 water (gray, cloudy, with an odor of decaying biological material). Prior to the flood test the water collected from CS-MW16-LGR was clear and had no odor.

5. Regional recharge provided the greatest response to saturated and unsaturated zones as evidenced by the rapid and high magnitude response in the lower, saturated portions of the aquifer.

### **Specific Data Observation Notes for Attachments**

- Analytical results from the B-3 Trench Sump (trenches 1 through 6) samples, shown in Table 10.1.2, present data from the quarter 10 sampling events.
- Table 10.1.1 indicates a water thickness of approximately 4.58 feet in trench 1 was maintained.
- Table 10.1.2 indicates that VC was present at moderate concentrations in trench 1 sumps (ranging from non-detect to 110 µg/L) and Ethene was observed in concentrations ranging from ND to 17 µg/L.
- Table 10.1.3 indicates that Mn(II) and Fe(II) were present at concentrations consistent with alternative degradation pathways. Additionally, Table 10.1.3 provides evidence of the biotic anaerobic degradation pathway with the elevated concentrations of Mn and CO<sub>2</sub>.
- Table 10.3.3 indicates that VC was present (5.0 µg/L) in the sample taken from monitoring well CS-B3-MW01, which remains consistent with samples collected through the previous 29 months. Additionally, table 10.3.3 indicates that VC concentrations in groundwater samples collected from the new extraction well (B3-EXW01) have decreased from 15 µg/L (July, 2009) to 0.81 µg/L in October.
- Table 10.4.4 indicates that the *Dehalococcoides* (DHC) bacteria populations are very low or are no longer present in the trench sumps.
- The changes in molar fraction and total molar concentrations shown in graphs of quarter 10 trench 1 sumps indicate a continued reduction in contaminant mass to end products VC and ethene.
- Figure 10.2.5 shows that the water levels in Westbay wells are significantly influenced by precipitation and pumping at CS-MW16-LGR.

## Analytical Summary Data

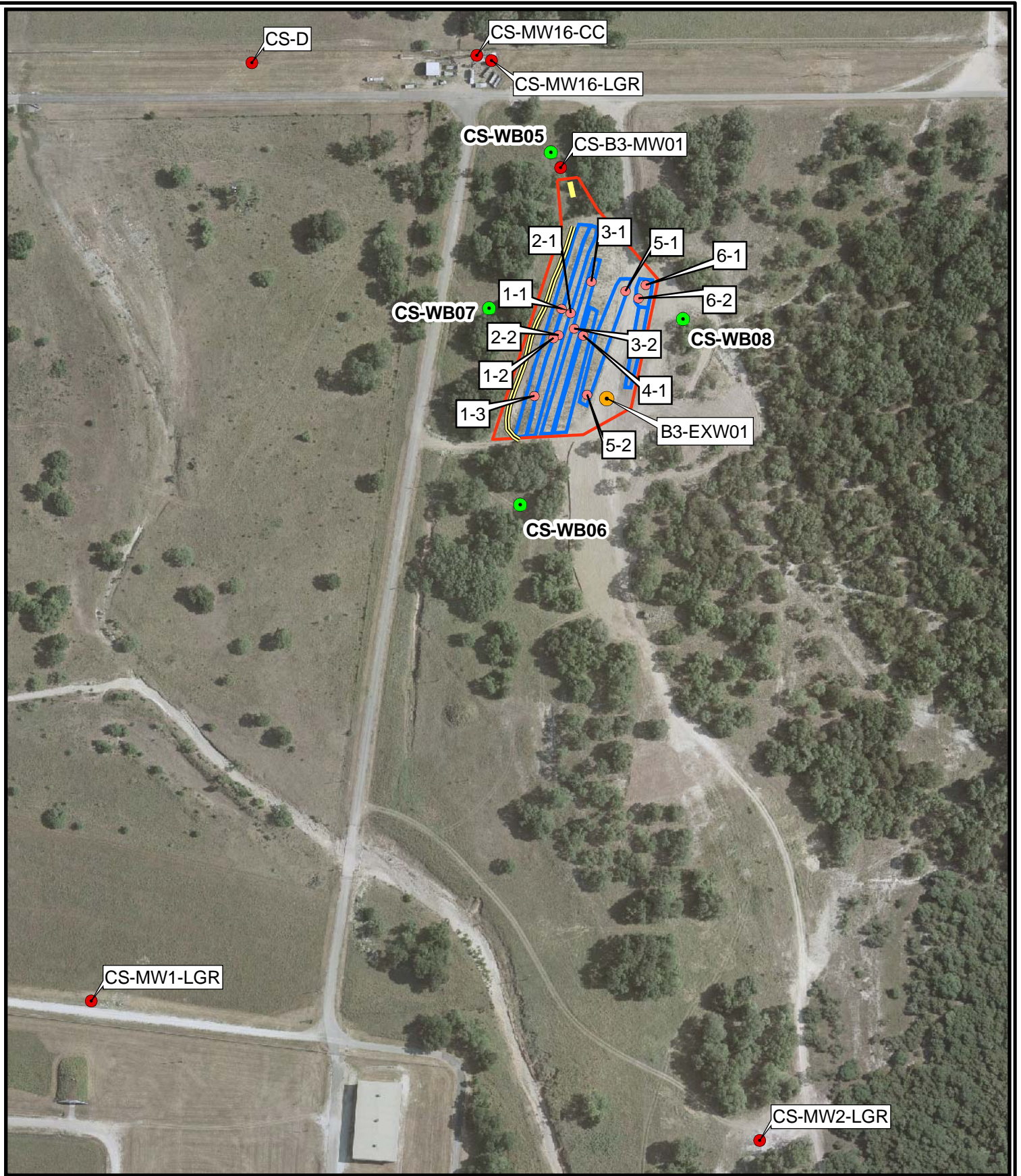
**Table 1 Summary of Analysis Presented for Reporting Period**

<b>Event</b>	<b>VOCs</b>	<b>TDS</b>	<b>TOC</b>	<b>DOC</b>	<b>MEE &amp; CO<sub>2</sub></b>	<b>SO<sub>3</sub><sup>-</sup></b>	<b>Chloride, Sulfate</b>	<b>Alkalinity</b>	<b>N, NO<sub>3</sub> &amp; NO<sub>2</sub></b>	<b>Fe<sup>2+</sup></b>	<b>Mn</b>	<b>Metals</b>	<b>H<sup>+</sup></b>	<b>DHC</b>
Monthly Sampling <sup>a</sup> (28)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Monthly Sampling <sup>a</sup> (29)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Quarterly Sampling <sup>b</sup> (10)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

a - Monthly sampling includes samples from B3-trench sumps, the uppermost saturated intervals of the multi-port wells (Zone 03B) and B3-UIC samples.

b - Quarterly sampling includes samples from B3-trench sumps, Monitoring Wells, and Multi-port (Westbay) wells and monthly samples.





- New Extraction Well
- Bioreactor Trench Sumps
- B-3 Monitoring Wells
- Westbay Wells
- B-3 Boundary
- Berm Location
- Tank
- Former Trench Locations

Figure 1

B-3 Bioreactor System  
Camp Stanley Storage Activity

**PARSONS**

**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 5 = Quarter 5 6 = Quarter 6 7 = Quarter 7 8 = Quarter 8 9 = Quarter 9 10 = Quarter 10
Second digit (Well/Sump Sampled)	1 = Trench Sumps 2 = Westbay Wells 3 = Monitoring Wells 4 = Combination of Wells and Sumps 5 = Injection System 6 = Extraction Wells
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	
<i>cis</i> -Dichloroethene	0.07	70	Organic Compound
<i>trans</i> -Dichloroethene	0.1	100	
Trichloroethene	0.005	5	
Tetrachloroethene	0.005	5	
Vinyl Chloride	0.002	2	



## Figures

Figure 10.1.2T1-1

B-3 Bioreactor Trench 1 Sump 1 VOC Summary through Quarter 10

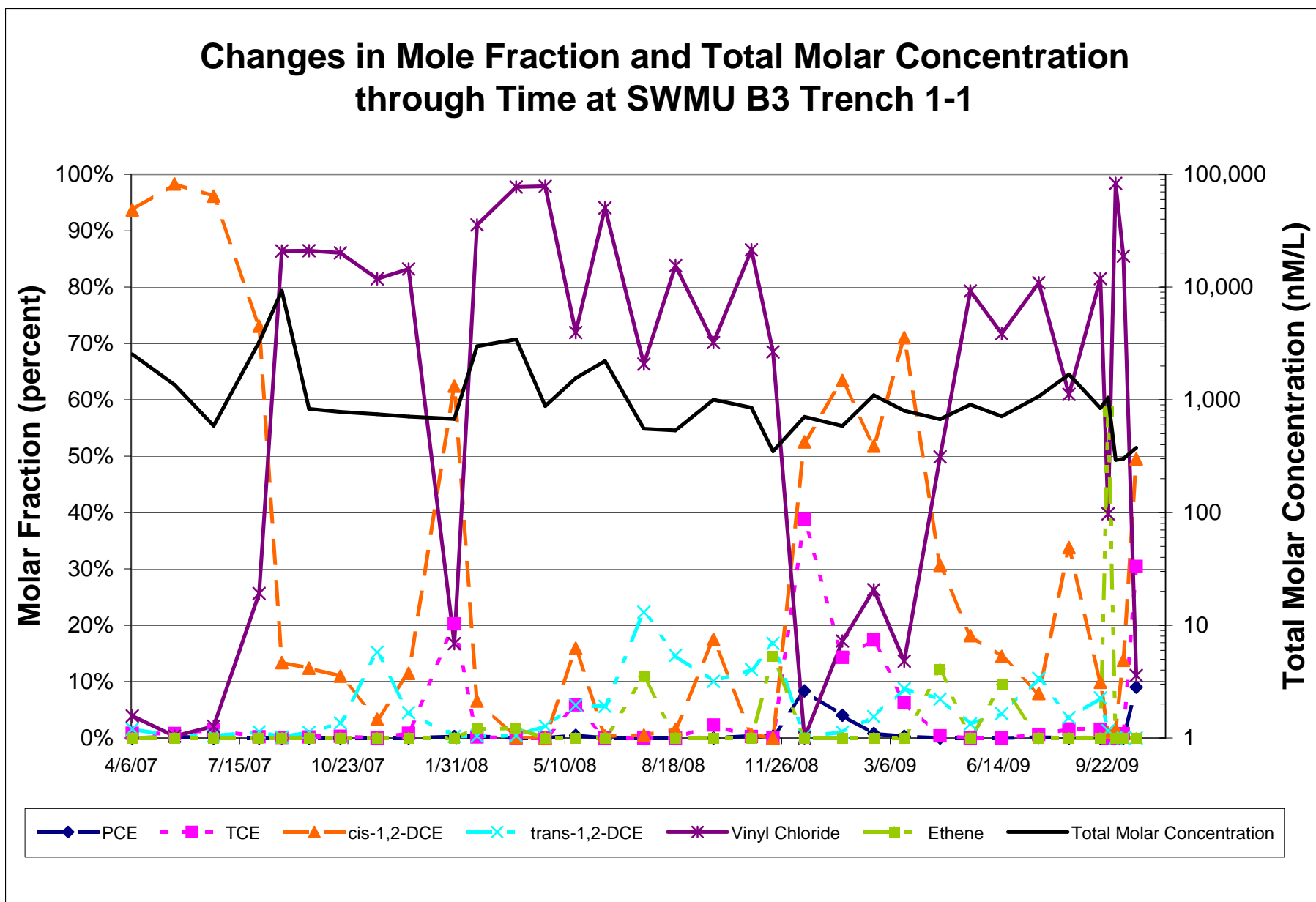


Figure 10.1.2T1-2

B-3 Bioreactor Trench 1 Sump 2 VOC Summary through Quarter 10

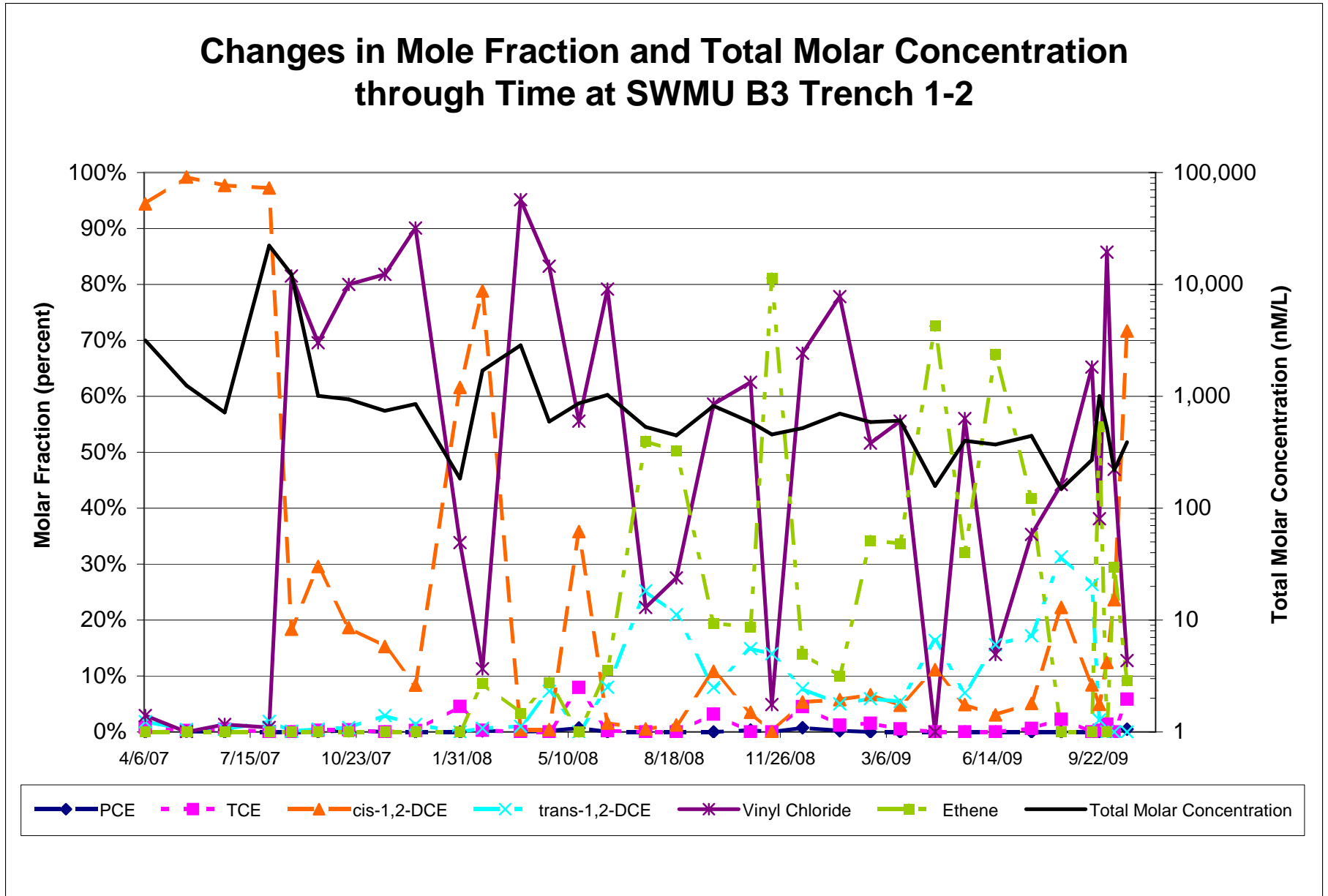


Figure 10.1.2T1-3

B-3 Bioreactor Trench 1 Sump 3 VOC Summary through Quarter 10

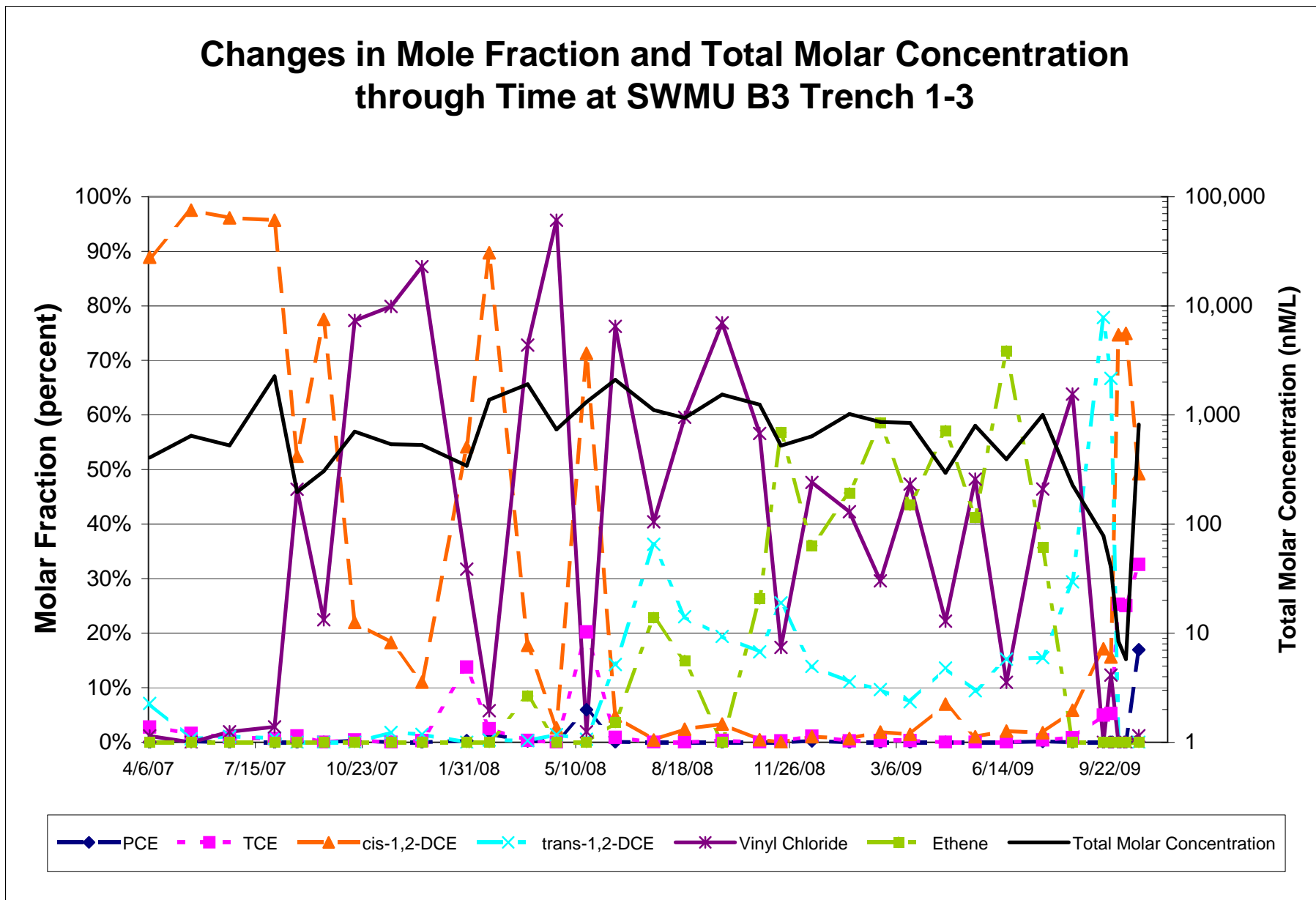


Figure 10.1.2T2-1

B-3 Bioreactor Trench 2 Sump 1 VOC Summary through Quarter 10

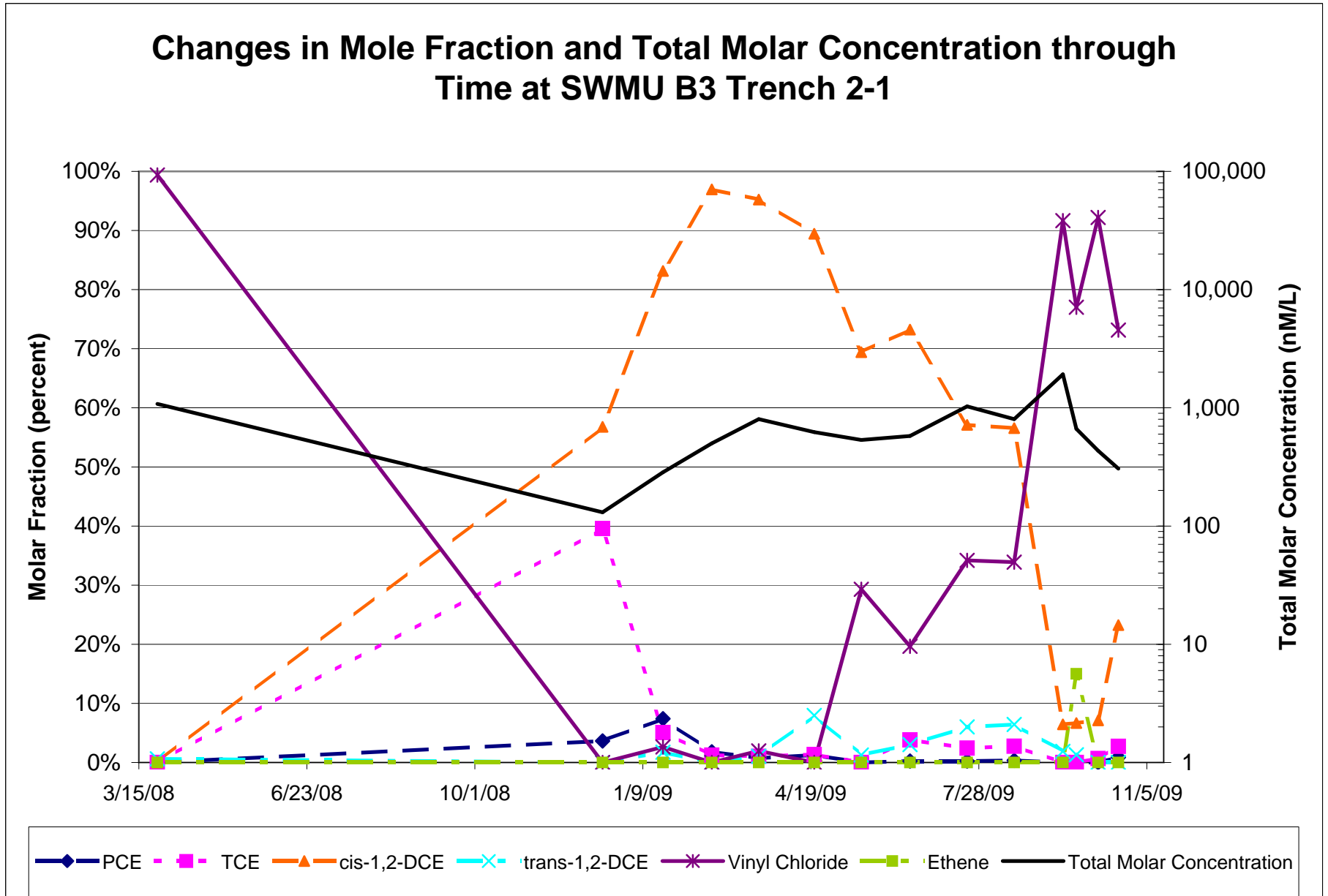


Figure 10.2.2a

Changes in Mole Fraction and Total Molar Concentration through Time at CS-WB05-LGR03B

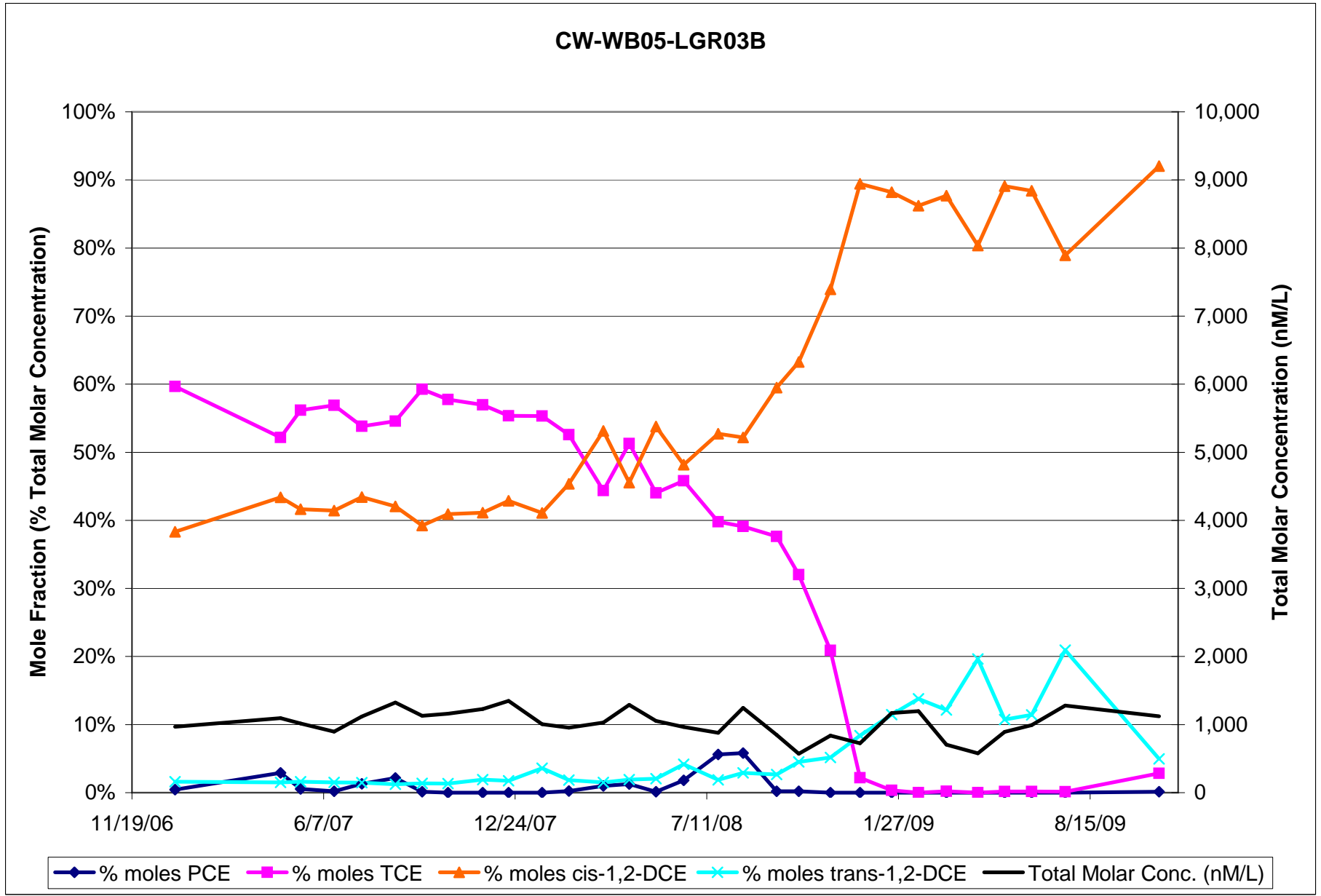




Figure 10.2.2b

Changes in Mole Fraction and Total Molar Concentration through Time at CS-WB06-LGR03B

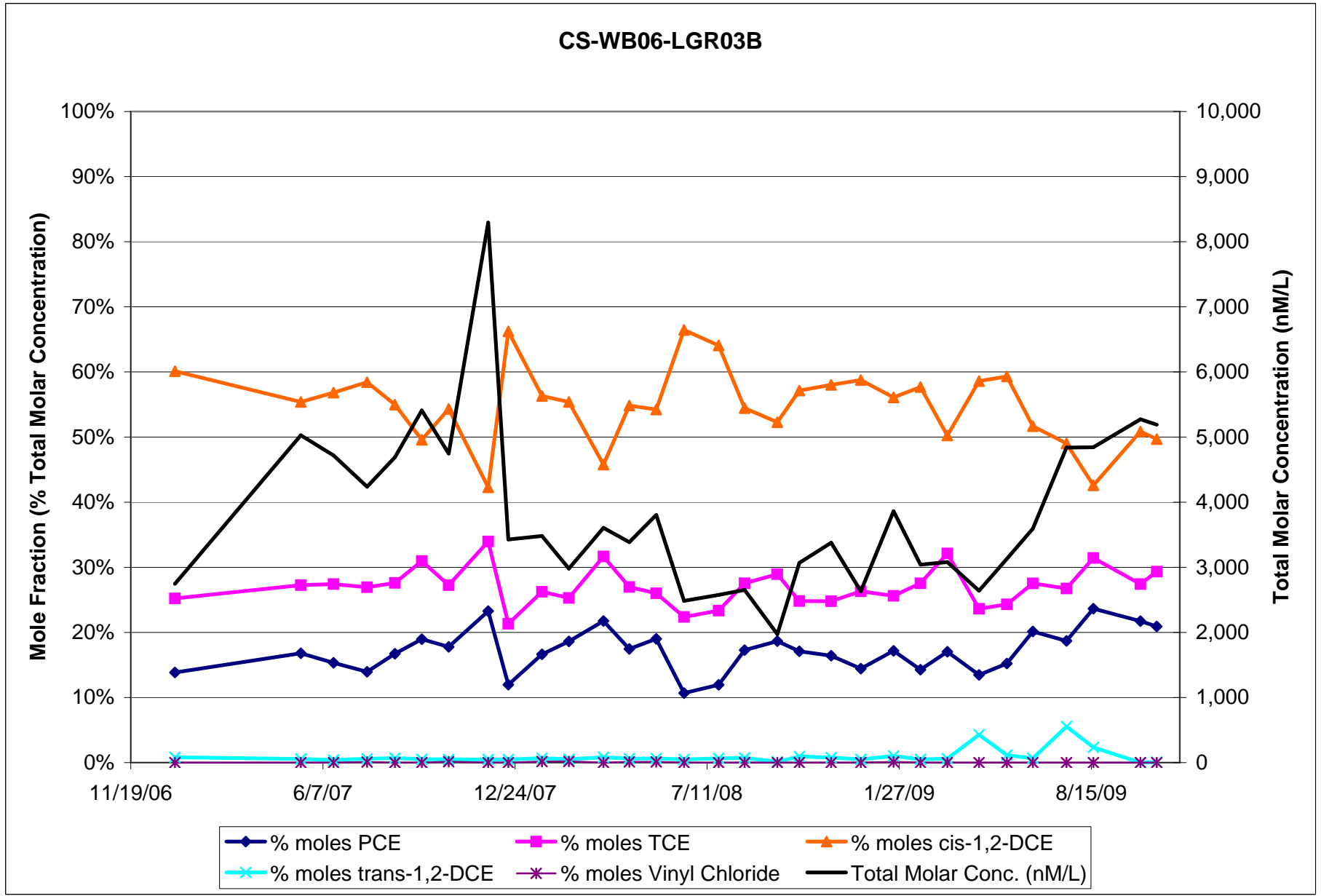


Figure 10.2.2c

Changes in Mole Fraction and Total Molar Concentration through Time at CS-WB07-LGR03B

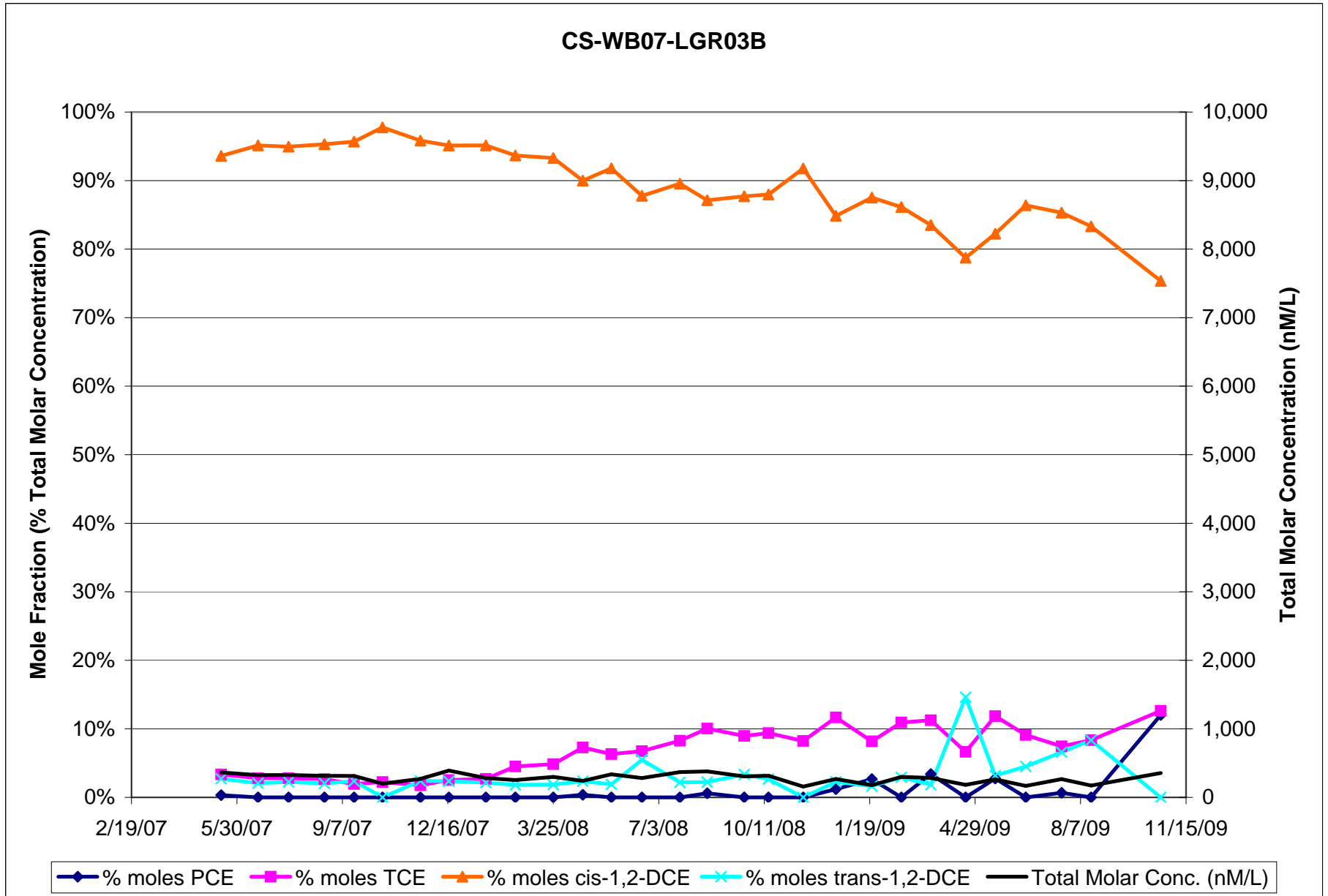


Figure 10.2.2d

Changes in Mole Fraction and Total Molar Concentration through Time at CS-WB08-LGR03B

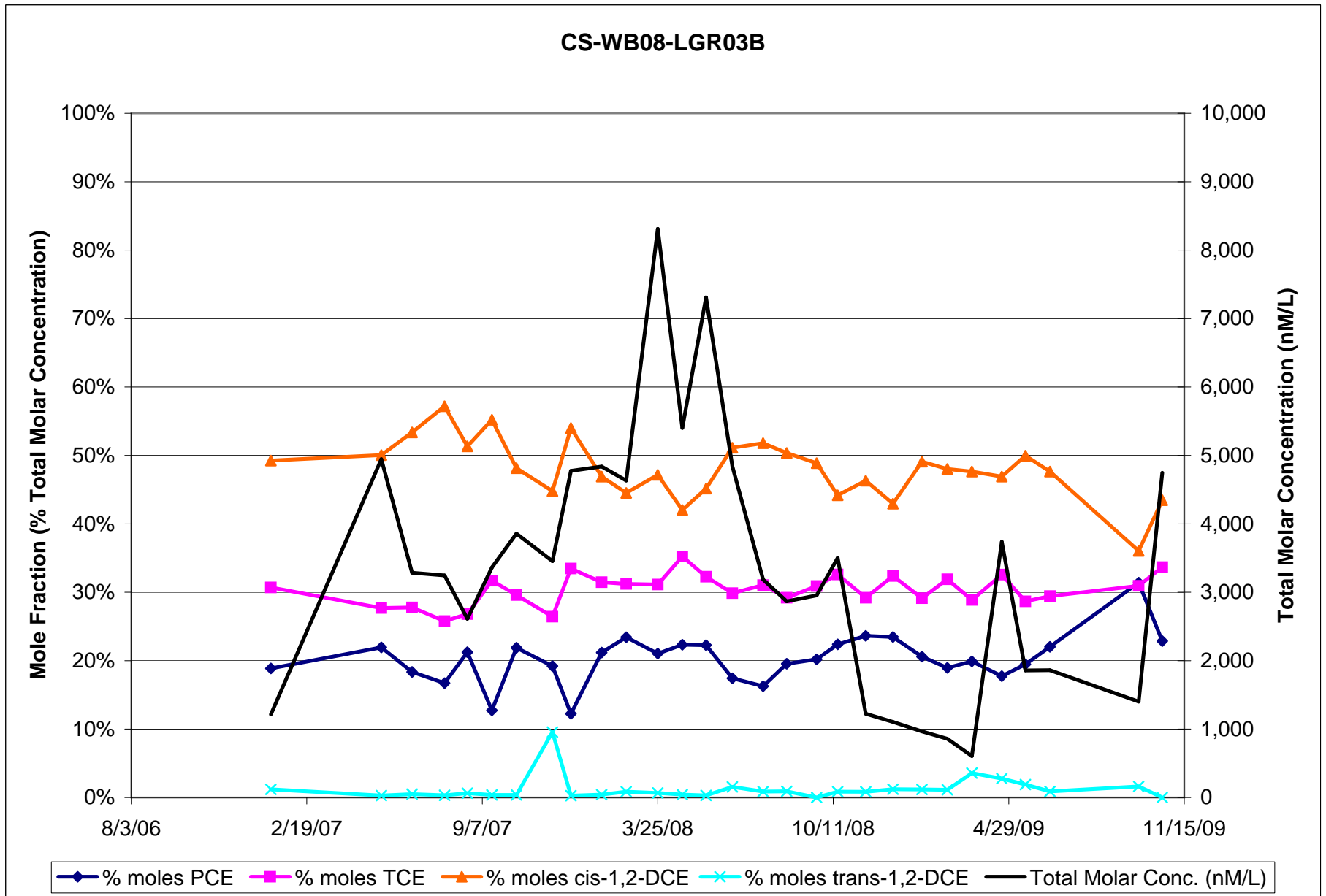


Figure 10.2.5 Lower Glen Rose Groundwater Elevations (feet above MSL) Measured in Westbay Wells through Quarter 10

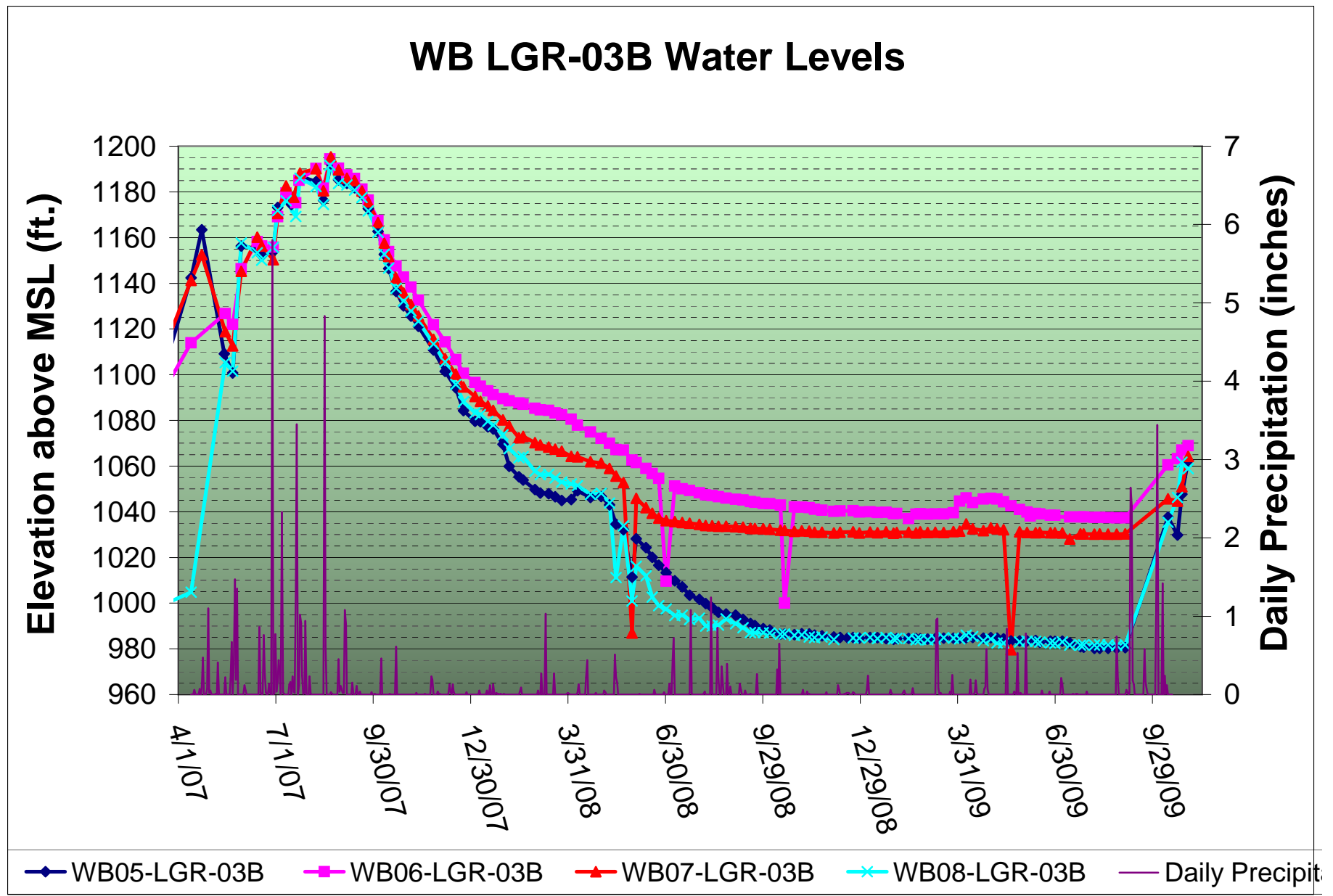


Figure 10.3.3

Well CS-MW16-LGR CVOC Concentrations, Volume Pumped, and Precipitation

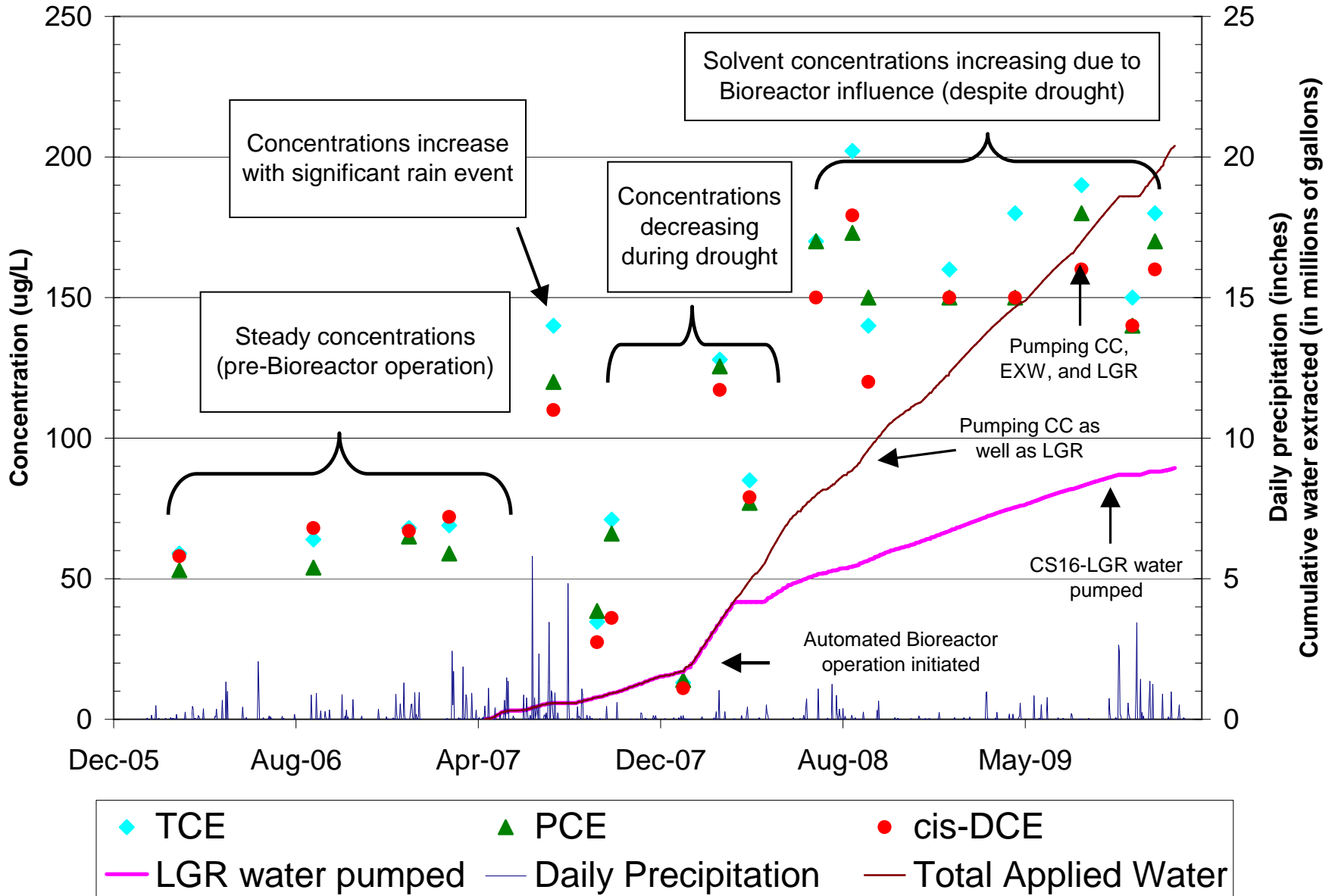


Figure 10.5.2

Changes in Mole Fraction and Total Molar Concentration through Time at Storage Tank (UIC)

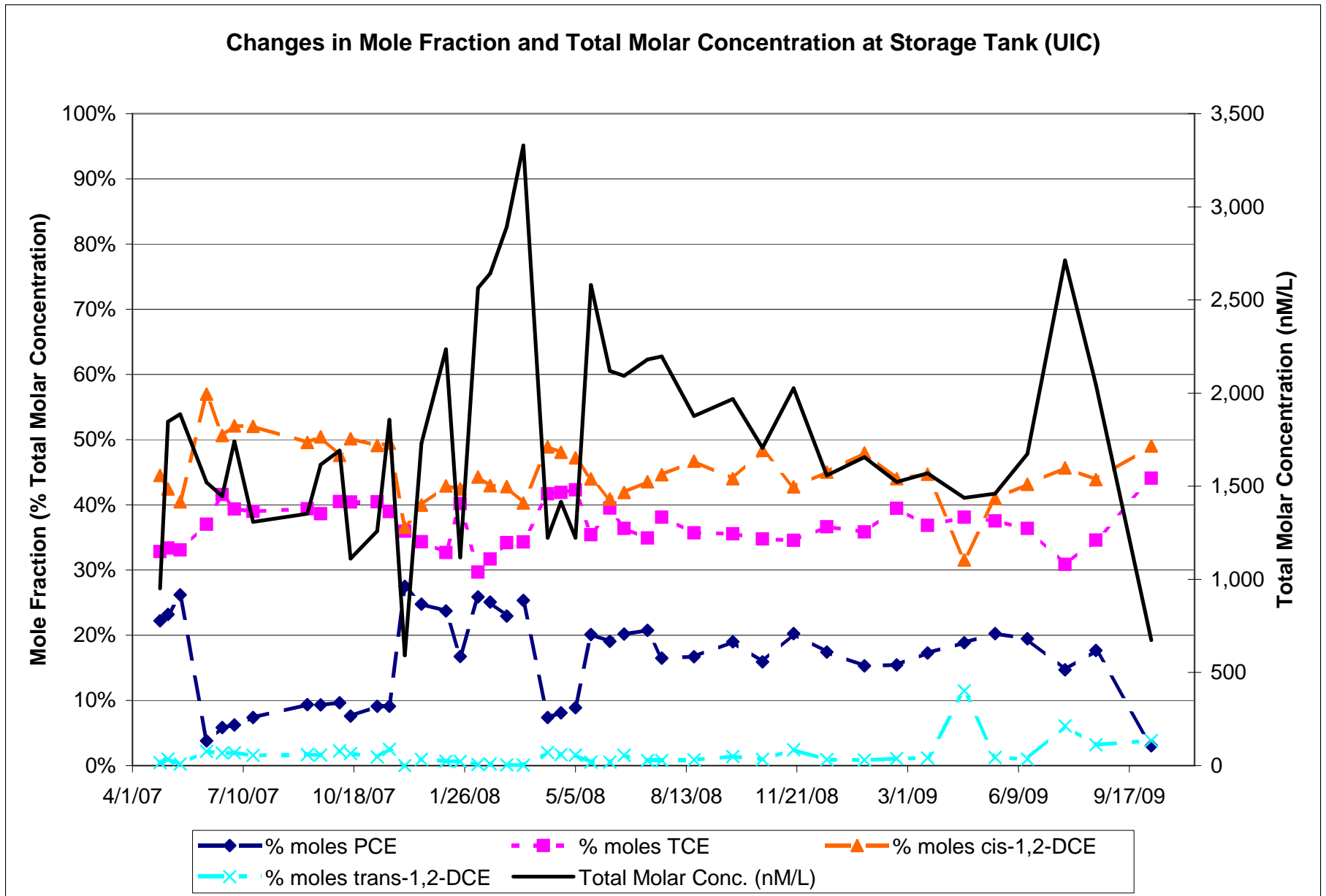




Figure 10.5.5 Cumulative Total Groundwater from CS-MW16 LGR and CC Applied to SWMU B3 Trench 1 and 2 through Quarter 10

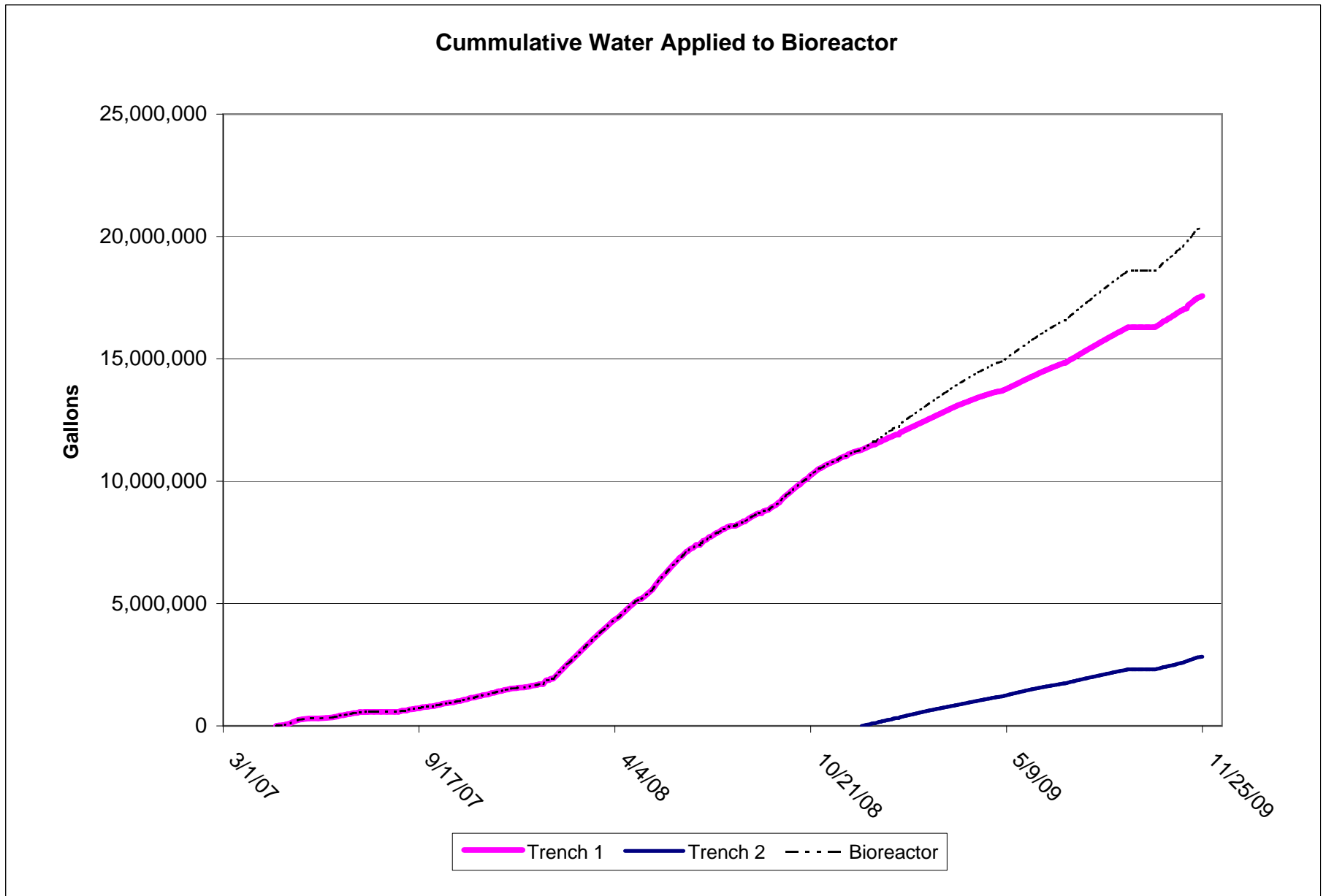
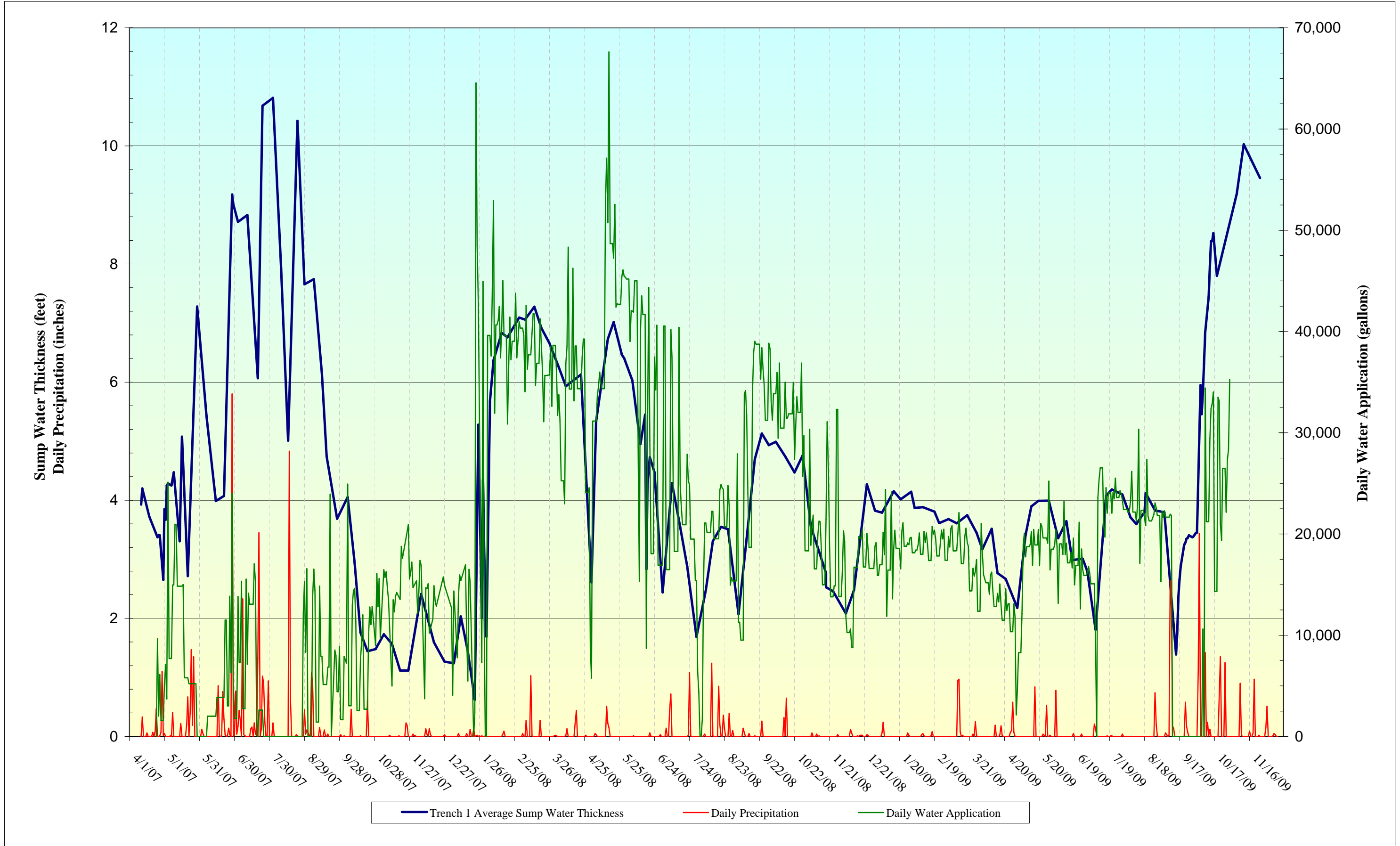


Figure 10.5.6

SWMU B-3 Bioreactor - Trench 1  
Average Water Thickness, CS-16 and CS-B3EXW01 Water Application, and Daily Precipitation



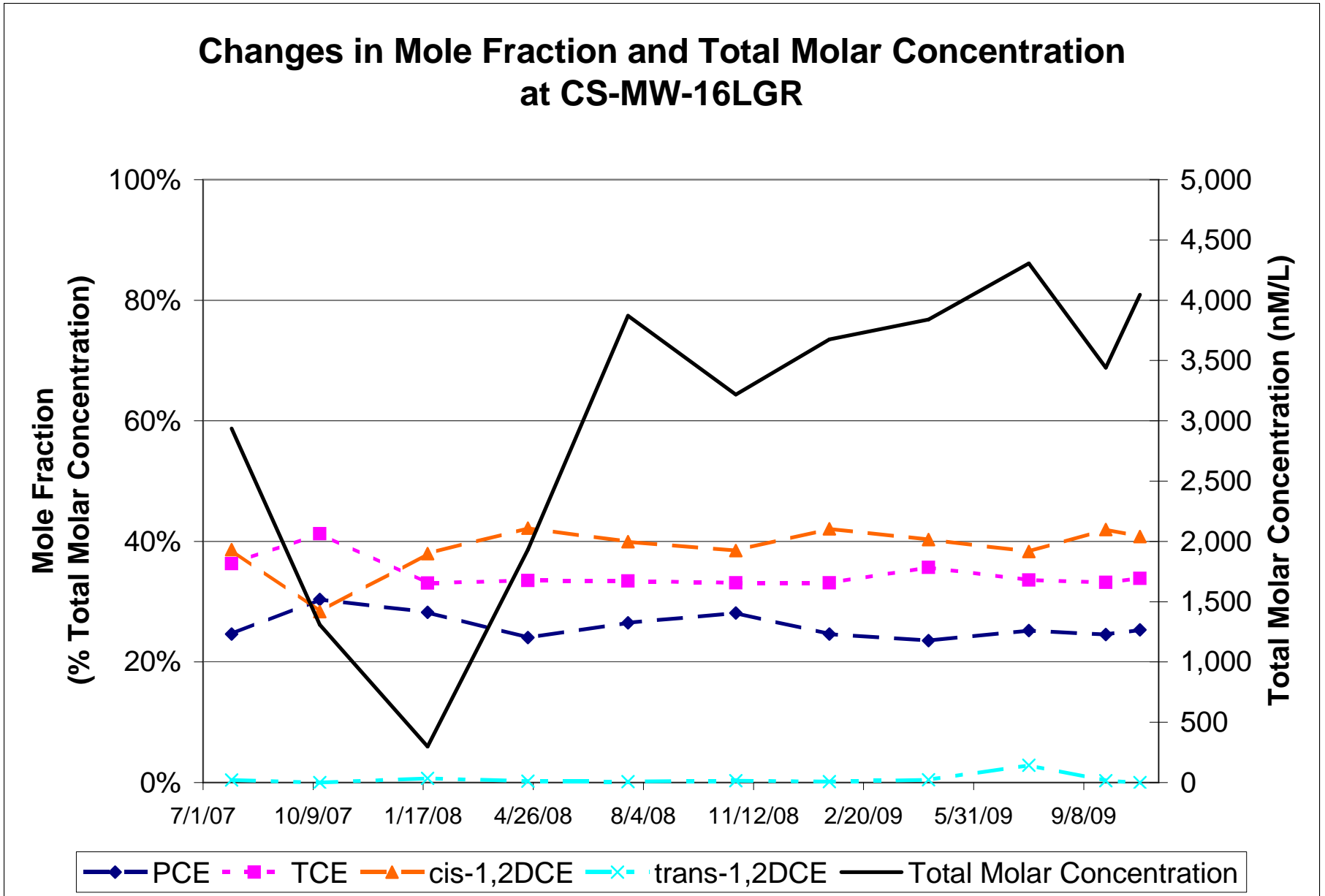


Figure 10.6.2CC

CS-MW16-CC VOC summary through Quarter 10

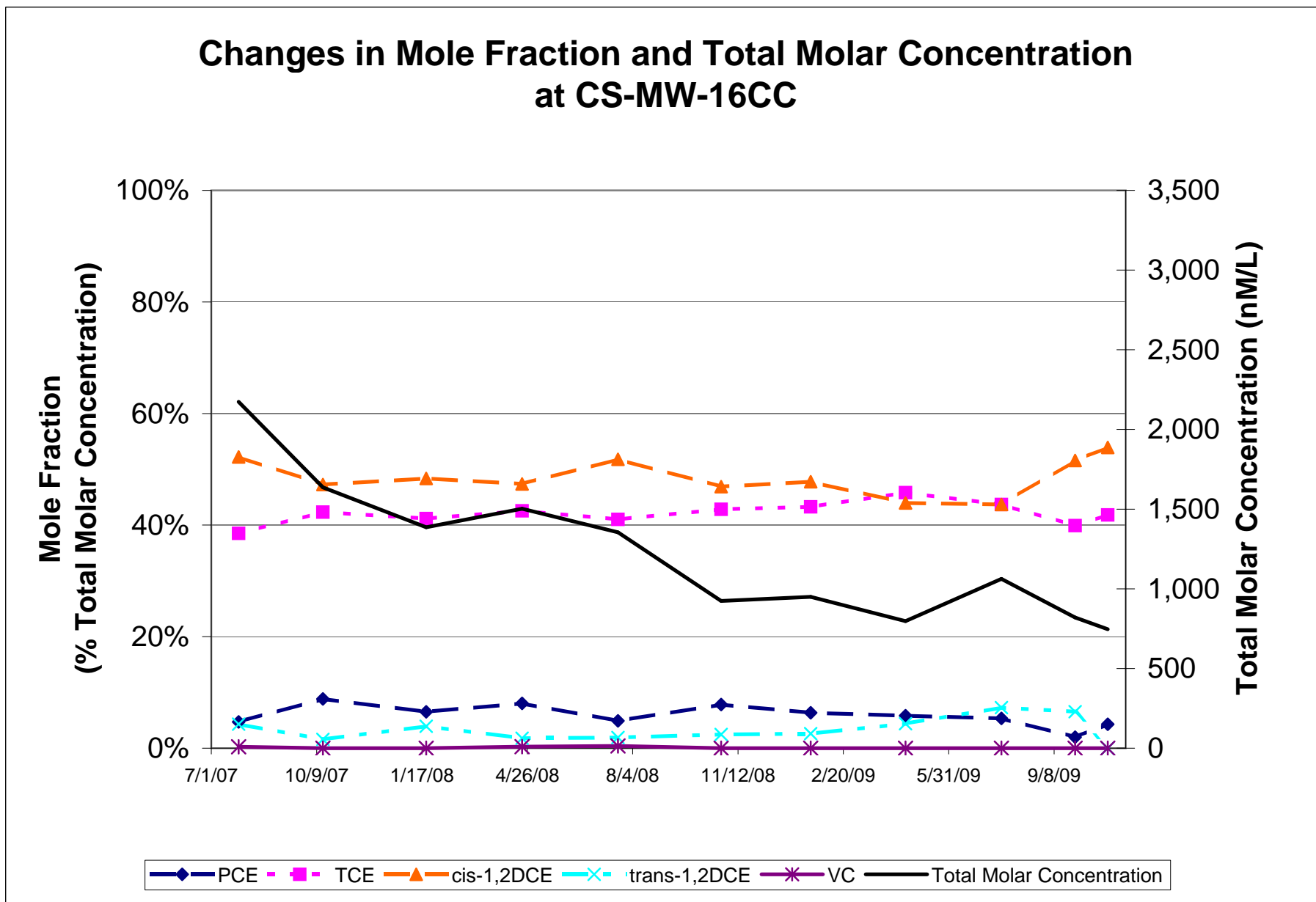
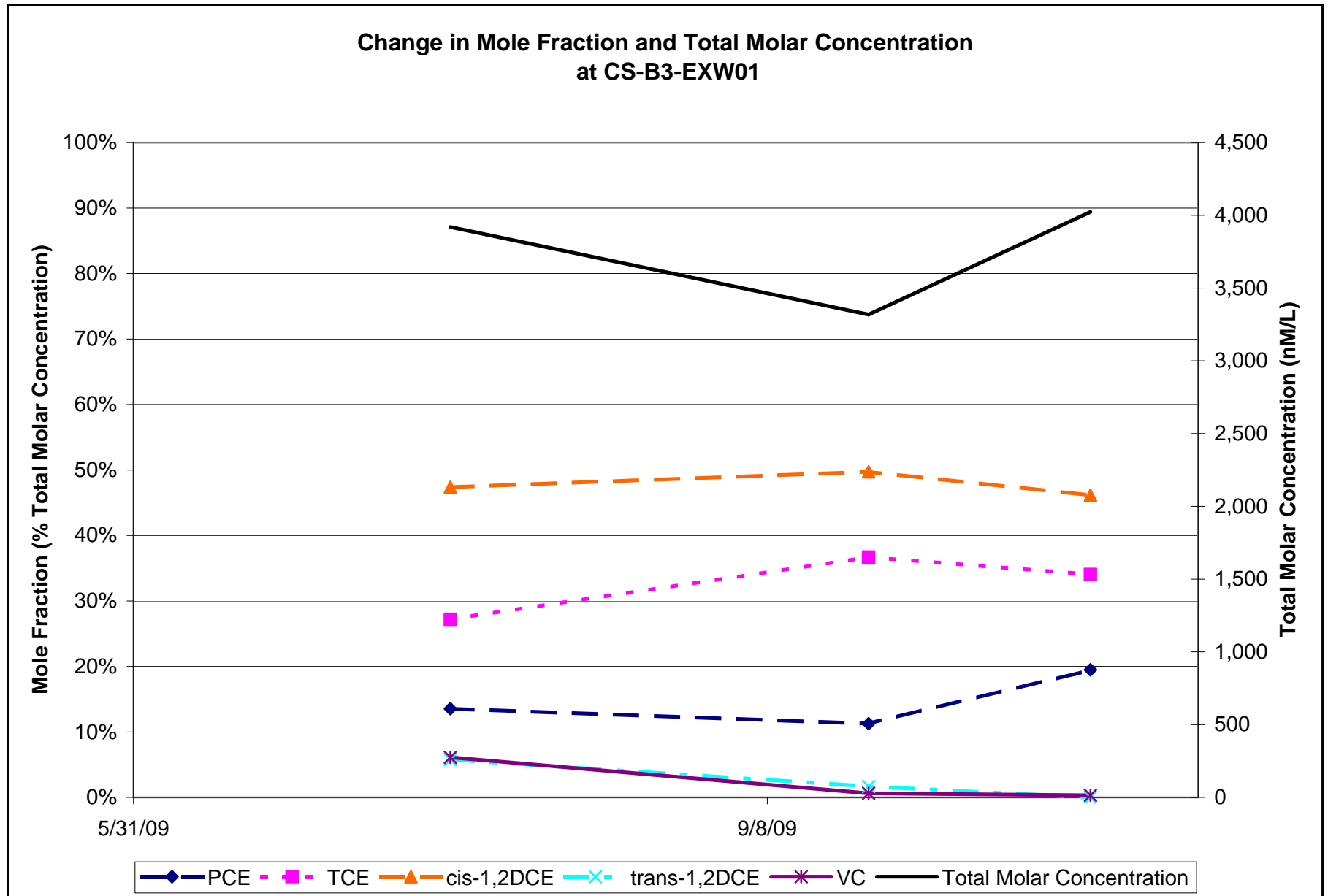


Figure 10.6.2EX

CS-B3-EXW01 VOC summary through Quarter 10



## Tables





























Table 10.1.2

SWMU B-3 Trench 1 through 6 Quarter 10 - VOC Analytical Summary Table

Q9 Date	B3 T1-1						B3 T1-2						B3 T1-3					
	8/18/09	9/16/09	9/23/09	9/30/09	10/7/09	10/19/09	8/18/09	9/16/09	9/23/09	9/30/09	10/7/09	10/19/09	8/18/09	9/16/09	9/23/09	9/30/09	10/7/09	10/19/09
PCE (µg/L)	0	0	0	0	0	5.6	0	0	0	0.35	0	0.32	0	0	0	0	0	23
TCE (µg/L)	3.5	1.7	0	0	0.29	15	0.44	0	0.36	0.94	0	3.0	0.26	0.51	0.28	0.28	0.19	35
cis-1,2-DCE (µg/L)	55	8.1	0.98	0.46	4	18	3.2	2.2	4.8	6.3	5	27	1.3	1.3	0.61	0.61	0.42	39
trans-1,2-DCE (µg/L)	5.9	5.8	1.3	0	0	0	4.5	6.9	2.1	0	0	0	6.5	5.9	2.6	0	0	0
Vinyl Chloride (µg/L)	64	43	26	18	16	2.6	4.1	11	24	28	6.4	3.1	9.1	0	0.31	0	0	0.62
Ethene (µg/L)	0	0	17	0	0	0	0	0	15.4	0	1.8	1.0	0	0	0	0	0	0
PCE (nM/L)	0.000	0.000	0.000	0.000	0.000	33.770	0.000	0.000	0.000	2.111	0.000	1.930	0.000	0.000	0.000	0.000	0.000	138.696
TCE (nM/L)	26.638	12.939	0.000	0.000	2.207	114.164	3.349	0.000	2.740	7.154	0.000	22.833	1.979	3.882	2.131	2.131	1.446	266.383
cis-1,2-DCE (nM/L)	567.303	83.548	10.108	4.745	41.258	185.663	33.007	22.692	49.510	64.982	51.573	278.494	13.409	13.409	6.292	6.292	4.332	402.269
trans-1,2-DCE (nM/L)	60.856	59.825	13.409	0.000	0.000	0.000	46.416	71.171	21.661	0.000	0.000	0.000	67.045	60.856	26.818	0.000	0.000	0.000
Vinyl Chloride (nM/L)	1023.836	687.890	415.933	287.954	255.959	41.593	65.590	175.972	383.939	447.928	102.384	49.592	145.577	0.000	4.959	0.000	0.000	9.918
Ethene (nM/L)	0.000	0.000	606.061	0.000	0.000	0.000	0.000	0.000	549.020	0.000	64.171	35.651	0.000	0.000	0.000	0.000	0.000	0.000
Total Molar Conc. (nM/L)	1,678.633	844.201	1,045.511	292.699	299.425	375.190	148.361	269.835	1,006.869	522.175	218.128	388.499	228.009	78.147	40.200	8.423	5.778	817.266
% moles PCE	0.000%	0.000%	0.000%	0.000%	0.000%	9.001%	0.000%	0.000%	0.000%	0.404%	0.000%	0.497%	0.000%	0.000%	0.000%	0.000%	0.000%	16.971%
% moles TCE	1.587%	1.533%	0.000%	0.000%	0.737%	30.428%	2.257%	0.000%	0.272%	1.370%	0.000%	5.877%	0.868%	4.967%	5.301%	25.301%	25.026%	32.594%
% moles cis-1,2-DCE	33.796%	9.897%	0.967%	1.621%	13.779%	49.485%	22.248%	8.410%	4.917%	12.444%	23.643%	71.685%	5.881%	17.159%	15.651%	74.699%	74.974%	49.221%
% moles trans-1,2-DCE	3.625%	7.087%	1.283%	0.000%	0.000%	0.000%	31.286%	26.376%	2.151%	0.000%	0.000%	0.000%	29.404%	77.874%	66.711%	0.000%	0.000%	0.000%
% moles Vinyl Chloride	60.992%	81.484%	39.783%	98.379%	85.484%	11.086%	44.209%	65.215%	38.132%	85.781%	46.937%	12.765%	63.847%	0.000%	12.336%	0.000%	0.000%	1.214%
% moles Ethene	0.000%	0.000%	57.968%	0.000%	0.000%	0.000%	0.000%	0.000%	54.527%	0.000%	29.419%	9.176%	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%
	Month 28	Month 29	Month 29	Month 29	Month 30	Month 30	Month 28	Month 29	Month 29	Month 29	Month 30	Month 30	Month 28	Month 29	Month 29	Month 29	Month 30	Month 30

Note: 0 sample indicates a non-detect analyte value

Table 10.1.2 (cont.)

SWMU B-3 Trench 1 through 6 Quarter 10 - VOC Analytical Summary Table

Q9	B3 T2-1					B3 T2-2				B3-T3-1			B3-T5-1					B3-T5-2	B3-T6-1		B3T6-2		
	Date	8/18/09	9/16/09	9/24/09	10/7/09	10/19/09	3/26/08	9/23/09	10/7/09	10/19/09	9/30/09	10/7/09	10/19/09	9/16/09	9/24/09	9/30/09	10/7/09	10/20/09	10/7/09	9/24/09	10/20/09	9/24/09	10/20/09
PCE (µg/L)	0.47	0	0	0	0.44	0	0	0	0.18	0	0	0.24	0	0	0.46	0	0	0	0	0.15	0	0	0.16
TCE (µg/L)	2.9	0	0	0.38	1.1	0	0	0	0.32	0	0	0.51	0	0	0	0	0.22	0	0	0	0.16	0	0
cis-1,2-DCE (µg/L)	44	12	4.3	3.0	6.9	0	1.4	1.8	70	0.33	0	1.2	0.72	0.82	0.39	0	0.52	0	0.28	0.25	0.43	0.41	0
trans-1,2-DCE (µg/L)	5.0	3.5	0.84	0	0	0	0.47	0	0	0	0	0	0.78	0	0	0	0	0	0	0	0	0	0
Vinyl Chloride (µg/L)	17	110	32	25	14	13	29	19	16	0	0	0	3.2	0.87	0	0	0	0	0.40	0	0.89	0	0
Ethene (µg/L)	0	0	2.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PCE (nM/L)	2.834	0.000	0.000	0.000	2.653	0.000	0.000	0.000	1.085	0.000	0.000	1.447	0.000	0.000	2.774	0.000	0.000	0.000	0.905	0.000	0.000	0.000	0.965
TCE (nM/L)	22.072	0.000	0.000	2.892	8.372	0.000	0.000	0.000	2.435	0.000	0.000	3.882	0.000	0.000	0.000	0.000	1.674	0.000	0.000	1.218	0.000	0.000	0.000
cis-1,2-DCE (nM/L)	453.842	123.775	44.353	30.944	71.171	0.000	14.440	18.566	722.022	3.404	0.000	12.378	7.427	8.458	4.023	0.000	5.364	0.000	2.888	2.579	4.435	4.229	0.000
trans-1,2-DCE (nM/L)	51.573	36.101	8.664	0.000	0.000	0.000	4.848	0.000	0.000	0.000	0.000	0.000	8.045	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Vinyl Chloride (nM/L)	271.956	1759.718	511.918	399.936	223.964	207.967	463.926	303.951	255.959	0.000	0.000	0.000	51.192	13.918	0.000	0.000	0.000	0.000	6.399	0.000	14.238	0.000	0.000
Ethene (nM/L)	0.000	0.000	99.822	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)	802.278	1,919.595	664.757	433.772	306.160	207.967	483.214	322.518	981.502	3.404	0.000	17.706	66.664	22.376	6.797	0.000	7.038	0.000	10.192	3.796	18.673	5.194	0.000
% moles PCE	0.353%	0.000%	0.000%	0.000%	0.867%	0.000%	0.000%	0.000%	0.111%	0.000%	0.000%	8.174%	0.000%	0.000%	40.813%	0.000%	0.000%	0.000%	8.875%	0.000%	0.000%	0.000%	18.577%
% moles TCE	2.751%	0.000%	0.000%	0.667%	2.735%	0.000%	0.000%	0.000%	0.248%	0.000%	0.000%	21.922%	0.000%	0.000%	0.000%	0.000%	23.791%	0.000%	0.000%	32.076%	0.000%	0.000%	0.000%
% moles cis-1,2-DCE	56.569%	6.448%	6.672%	7.134%	23.246%	0.000%	2.988%	5.757%	73.563%	100.000%	0.000%	69.904%	11.140%	37.800%	59.187%	0.000%	76.209%	0.000%	28.338%	67.924%	23.752%	81.423%	0.000%
% moles trans-1,2-DCE	6.428%	1.881%	1.303%	0.000%	0.000%	0.000%	1.003%	0.000%	0.000%	0.000%	0.000%	0.000%	12.069%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%	0.000%
% moles Vinyl Chloride	33.898%	91.671%	77.008%	92.200%	73.153%	100.000%	96.008%	94.243%	26.078%	0.000%	0.000%	0.000%	76.791%	62.200%	0.000%	0.000%	0.000%	0.000%	62.787%	0.000%	76.248%	0.000%	0.000%
% moles Ethene	0.000%	0.000%	15.016%	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%
	Month 28	Month 29	Month 29	Month 30	Month 30	Month 11	Month 29	Month 30	Month 30	Month 29	Month 30	Month 30	Month 29	Month 29	Month 29	Month 30	Month 30	Month 30	Month 29	Month 30	Month 29	Month 30	Month 30

Note: 0 sample indicates a non-detect analyte value



Table 10.1.3

B-3 Bioreactor Analytical Summary - Quarter 10

Well ID		B3 T1-1										B3 T1-2								B3 T1-3								B3 T2-1																			
		8/18/2009		9/16/2009		9/23/2009		9/30/2009		10/7/2009		10/19/2009		8/18/2009		9/16/2009		9/23/2009		9/30/2009		10/7/2009		10/19/2009		8/18/2009		9/16/2009		9/24/2009		10/7/2009		10/19/2009													
Sample Date	Units	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	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	4.1		25.3		12.9				30.5		28.6				105		31.3		2.7		19.2		14.3				92.5		21.3		2.0		15.8		9.8		106		49.7							
Total Organic Carbon	mg/L	6.2		21.3		15.2				53.5		31		16.7		106		38.4		10.2		16.4		94.7		24.6		2.2		19.1		B		12.8		99.3		48.9									
Methane	μg/L	750				6,850				2,130		201		8,870		13,800		5,040		12,600		6,740		11,100		12,500		240		501				6,330		1,170		2,580									
Ethene	μg/L	0				17				0		0		15.4		1.8	J	1.0	J	0		0		2.5		0		0		0		2.8	J	0		0		0									
Ethane	μg/L	0				0				0		0		0		0		0		0		0		0		0.70	J	0		0		0		0		0		0									
Carbon Dioxide	μg/L	136,000				478,000				277,000		84,500		332,000		581,000		456,000		147,000		162,000		742,000		764,000		30,100		170,000				300,000		203,000		127,000									
Alkalinity, Total (as CaCO3)	mg/L	371		521		506				568		459		469		459		739		426		385		568		391		583		455		302		391		530		560									
Nitrate/Nitrite	mg/L	0		0.045	J	0				0.20		2.6		0.034	J	0		0		0.06	BJ	0		0.14		0		0.094	BJ	0.04	J	0.035	J	0		3.6		0.060	BJ								
Sulfate	mg/L	28.8		21.6		7.1				35.6		49.3		5.6		9.8		35		20.4		1.6		5.9		3.4		19.6		43.7		27.1		67.4		29.2		38.1		16							
Chloride	mg/L	15.8		14.5		20.1				12.4		12		15.7		19.1		12.1		13		15.8		12.5		16.9		6.6		14.6		15.9		22.2		24.9		10.7		13.5							
Ferrous Iron	mg/L	1.9		4.1		3				3.5		0.24	J	4.1		4.0		6.8		5.3		1.9		2.9		2.7		6.4		0.92	J	1.8		2.3		1.3		0		4.9							
Manganese	μg/L	39.9		158		123				529		316		201		314		495		354		548		175		292		289		545		292		87.3		147		202		299		1,500					
Hydrogen	nM/L	2.8								3.3						3.4						3.9								2.2				3.7				2.8									
Hydrogen Sulfide																																															
Total Dissolved Solids	mg/L	451		648		572				710		645		482		567		531		912		540		439		619		666		890		409		454		704		573		731		792					
Benzene	μg/L	0		0		0.34	J	0.82		0.25	J	0		0		0		0		0		0		0		0		0		0		0		0.67		0.52		0.30	J	0							
Bromodichloromethane	μg/L	0		0		0		0		0		0		0		0		0		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		0		0		0		0		0		0		0		0		0							
Chloroform	μg/L	0		0		0		0		0		0		0		0		0		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		0		0		0		0		0		0		0		0		0							
Dichlorodifluoromethane	μg/L	0		0		0		0		0		0		0		0		0		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		0		0		0		0		0		0		0		0		0							
Dichloroethene, cis-1,2-	μg/L	55		8.1		0.98	BJ	0.46	J	4.0		18		3.2		2.2		4.8		6.3		5		27		1.3		1.3		0.61	BJ	0.61	J	0.42	J	39		44		12		4.3		3		6.9	
Dichloroethene, trans-1,2-	μg/L	5.9		5.8		1.3		0		0		0		4.5		6.9		2.1		0		0		6.5		5.9		2.6		0		0		5.0		3.5		0.84		0		0					
Methylene chloride	μg/L	0		0		0.45	J	0		0		0		0		0.45	J	0		0		0		0		0		0.44	J	0		0		0		0.44	J	0		0							
Naphthalene	μg/L	0		0		0.40		0.64		0		0		0		1.0		0		0		0		0		0		0		0		0		0		0.44		1		0.55	B						
Tetrachloroethene	μg/L	0		0		0		0		0		5.6		0		0		0.35	J	0		0		0		0		0		23		0.47	J	0		0		0		0.44	J						
Toluene	μg/L	0.26	J	0.17	J	0.40	J	1.1		0.31	J	0		1.0	J	0.28	J	0.22	J	0.45	J	0.45	J	0.44	J	0		0.37	J	0.56	J	1.6		0.69	J	0		0.28	J	0.28	J	0.24	J	0.23	J		
Trichloroethene	μg/L	3.5		1.7		0		0.29	J	15		0.44	J	0		0.36	J	0.94	J	0		3.0		0.26	J	0.51	J	0.28	J	0.28	J	0.19	J	35		2.9		0		0.38	J	1.1					
Vinyl chloride	μg/L	64		43		26		18		16		2.6		4.1		11		24		28		6.4		3.1		9.1		0		0.31	J	0		0		0.62	J	17		110		32		25		14	
Arsenic	μg/L	0		0		0		15.2		4.2	J	0		0		0		10.8		12.8		0		0		10.1		0		0		0		0		0		7.0		17.1							
Barium	μg/L	47.9		80.4		75.4		254		183		98.3		98.7		104		254		177		87.6		127		137		224		201		88.5		60.3		88.3		82.5		156		254					
Cadmium	μg/L	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0							
Chromium	μg/L	0		0		1.5	J			0		1.4	J	0		0		1.8	J	0		0		1.7	J	1.6	J	0		0		0		0		0		0		2.1	J						
Copper	μg/L	27.9		2.1	J	0		1.4	J	5.2		1.0	J	0		0		0		10.4		0		1.5	J	0		15		3.4	J	11.4		2.9	J	0		5		4.7	J						
Lead	μg/L	0		0		0		0		0		0		0		0		0		0		1.6	J	0		14.4		0		0		0		0		0		0		0							
Mercury	μg/L	0		0		0		0.12	J	0		0		0		0		0		0		0		0		0.13	J	0		0		0		0		0		0.29		0							
Nickel	μg/L	0		3.6	J	0		3.5	J	4.3	J	0		1.7	J	0.40	J	2.8	J	0		2.6	J	0		3.6	J	1.3	J	2.8	J	2.1	J	2.1	J	6.4		6.0									
Zinc	μg/L	33.7	BJ	9.7	J	16	J	27.1	J	27.4	J	0		9.1	J	14.7	J	14.3	J	24.6	J	5.0	BJ	8.4	J	17.9	J	14	J	20.6	J	21.8	BJ	17.5	J	26.3	J	23	J	28.1	J						
		Month 28		Month 29		Month 29		Month 29		Month 30		Month 30		Month 28		Month 29		Month 29		Month 29		Month 30		Month 30																							

Well ID	BS T2-2												BS T3-1												BS T5-1												BS T5-2												BS T6-1												BS T6-2											
	3/26/2008		9/23/2009		10/7/2009		10/19/2009		9/30/2009		10/7/2009		9/16/2009		9/24/2009		9/30/2009		10/7/2009		10/20/2009		10/7/2009		7/24/2007		8/2/2007		9/24/2009		10/20/2009		7/24/2007		8/2/2007		9/24/2009		10/20/2009																																	
	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag																																
Component	Units																																																																							
Dissolved Organic Carbon	mg/L	61.8		34.3		120		45.3		37.7		49.4		4.5		1.5		5.6		60.9		0.92		6.9		0.48	J	1.5		31.5		4.8		6.6		6.6		6.6																																		
Total Organic Carbon	mg/L	67.4		42.2		133		48.8		59.5		47.5		4.7	B	1.5		8.6		3.1		93.2		0.67		1.9		30.8		5.6		7.1		7.1		7.1		7.1																																		
Methane	µg/L	10,701		10,200		11,920		9,600		1,040		3,240		25.6				14.5		4.7		1,680		10.6		0.70	J	11,900		213		236		236		236		236																																		
Ethane	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0																																		
Ethane	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0																																		
Carbon Dioxide	µg/L	671,000		529,000		788,000		133,000		90,000		174,000		46,300				60,600		20,800		376,000		20,800		16,400		314,000		47,400		58,500		58,500		58,500																																				
Alkalinity, Total (as CaCO3)	mg/L	1790		636		815		421		332		605		310		289		292		254		236		236		515		234		262		290		290		290																																				
Nitrate/Nitrite	mg/L	0		0		0		0.42	B	1.9		0.060	B	0.97		0.87		0.46		0.78		1.2		1.1		0		0.042	J	0		0		0		0																																				
Sulfide	mg/L	3.5		1.4		3.7		8.8		4.1		0.99	J	17.6		16.8		15.2		17.1		5.2		14		17.7		0.97	J	12.9		12.9		12.4		12.4																																				
Chloride	mg/L	15.6		21.9		11.8		14.2		2.8		6.8		11.8		12.2		11.7		12.5		5.9		11.5		12.8		13.5		12.9		12.4		12.4																																						
Ferrous Ion	mg/L	8.6		8		7.6		4.7		0.82	J	10.2		0		0		69.4		30.1		1,050		4.8		0		9.4		1.2		2.0		171		171																																				
Manganese	µg/L	1,470		1,050		1,130		839		489		845		38.3		45.3										2.0	J	2.0	J	1130		101		171																																						
Hydrogen	nM/L	2.0								2.0								0.62						2.0		0.85																																														
Hydrogen Sulfide	mg/L																																																																							
Total Dissolved Solids	mg/L	2500		801		1,010		584		437		750		355		366		303		370		766				332		370		662		351		421																																						
Benzene	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0																																				
Bromochloromethane	µg/L	0		0		0		0		0		0		0		0		0		0		0.40		0		0		0		0		0		0		0																																				
Bromoform	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0																																				
Chloroform	µg/L	0		0		0		0		0		0		0		0.15	J	0		0		0.13	J	0		0		0.15	J	0.15	J	0		0.079	J	0.090	J																																			
Dibromochloromethane	µg/L	0		0		0		0		0		0		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		0		0		0		0		0		0																																						
Dichloroethene, 1,1-	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		1.9		0		0.31	J	0.49	J	0		0																																				
Dichloroethene, cis-1,2-	µg/L	0		1.4	B	1.8		70		0.33	J	0		1.2		0.72	J	0.82	BJ	0.39	J	0		0.52	J	150		0.28	BJ	0.25	J	150		0.43	BJ	0.41	J																																			
Dichloroethene, trans-1,2-	µg/L	0		0.47	J	0		0		0		0		0		0.78		0		0		0		1.5		0		0		0		0		0		0																																				
Methylene chloride	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0.40	J	0		0.45	J	0		0																																						
Naphthalene	µg/L	0		0		0		0		0		0		0		0		0		0		0		0.53		0		0.55		0.41		0		0																																						
Tetrachloroethene	µg/L	0		0		0		0.18	J	0		0		0.24	J	0		0		0		0.48	J	0		10		0.15	J	0		2.5		0		0.18	J																																			
Toluene	µg/L	1.3		0.24	J	0.39	J	0.33	J	0.25	J	0		0		0		0		0		0		1.1		0		29		15		0		0																																						
Trichloroethane	µg/L	0		0		0.32	J	0		0		0.51	J	0		0		0		0.22	J	0		14		0		0.16	J	15		0.18	J	0		0																																				
Vinyl chloride	µg/L	13		29		19		16		0		0		3.2		0.87	J	0		0		0		0		0.67	J	0.40	J	0		5.4		0.89	J																																					
Arsenic	µg/L	25.0		10.8		13.9		17.3		6.8		16.7		0		0		0		0		9.8						10.5		3.9	J	2.9	J																																							
Barium	µg/L	416		222		261		243		123		248		87.1		70.6		66.3		57.6		178				51.6		32.9		88.2		98.4																																								
Calcium	µg/L	0		0		0		0		0		0		0		0		0		0		0				0		0		0		0		0																																						
Chromium	µg/L	0		0		1.5		0		1.8	J	2.1	J	0		0		0		0		0				1.5	J	0		0		0		0																																						
Copper	µg/L	3.1	J	0		2.7	J	4.2	J	8.1		5.0		5		0		0		2	J	7.4				0		2.4	J	1.6	J	2.1	J																																							
Lead	µg/L	0		0		0		0		4.3	J	0		4.8	J	0		0		0		18.6				1.6	J	0		6.8	J	0		0																																						
Mercury	µg/L	0		0		0.15	J	0		0.14	J	0		0		0		0.12	J	0		0.15	J			0		0		0		0		0.068	J																																					
Nickel	µg/L	7.3		3.3	J	4.6	J	4.0	J	8.8	J	4.1	J	0.91	J	0		0		0		3.5	J			0		5.1		7.6	J	0		0.51	J																																					
Zinc	µg/L	5.8	J	18.2	J	16.4	J	18.3	J	27	J	23.8	J	9.1	J	15.9	J			11.8	J	5.2	J	19.2	J			59.9		349		12.3	J	15.4	J	4.7	J																																			
		Month 11		Month 29		Month 30		Month 30		Month 29		Month 30		Month 29		Month 29		Month 30		Month 30		Month 30		Month 3		Month 4		Month 29		Month 30		Month 3		Month 4		Month 29		Month 30																																		

Note: 0 sample indicates a non-detect analyte value

Table 10.2.2

SWMU B-3 Westbay Monitoring Wells  
Upper Saturated Zone (Zone LGR03B) Analytical Results Summary Quarter 10

Q10	CS-WB05-LGR03B	CS-WB06-LGR03B			CS-WB07-LGR03B		CS-WB08-LGR03B	
Date	10/26/09	8/17/09	10/5/09	10/22/09	8/17/09	10/22/09	9/24/09	10/21/09
PCE (µg/L)	0.27	190	190	180	0	7.1	73	180
TCE (µg/L)	4.2	200	190	200	1.9	5.9	57	210
cis-1,2-DCE (µg/L)	100	200	260	250	14	26	49	200
trans-1,2-DCE (µg/L)	5.4	11	0	0.38	1.4	0	2.2	0
Vinyl Chloride (µg/L)	0	0	0	0	0	0	0	0
Ethene (µg/L)	0	0	0	0	0	0	0	0

PCE (nM/L)	1.628	1145.752	1145.752	1085.449	0.000	42.815	440.210	1085.449
TCE (nM/L)	31.966	1522.186	1446.077	1522.186	14.461	44.904	433.823	1598.295
cis-1,2-DCE (nM/L)	1031.460	2062.919	2681.795	2578.649	144.404	268.179	505.415	2062.919
trans-1,2-DCE (nM/L)	55.699	113.461	0.000	3.920	14.440	0.000	22.692	0.000
Vinyl Chloride (nM/L)	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
<b>Total Molar Conc. (nM/L)</b>	1,120.75	4,844.32	5,273.62	5,190.20	173.31	355.90	1,402.14	4,746.66

% moles PCE	0.145%	23.651%	21.726%	20.913%	0.000%	12.030%	31.396%	22.868%
% moles TCE	2.852%	31.422%	27.421%	29.328%	8.344%	12.617%	30.940%	33.672%
% moles cis-1,2-DCE	92.033%	42.584%	50.853%	49.683%	83.324%	75.353%	36.046%	43.460%
% moles trans-1,2-DCE	4.970%	2.342%	0.000%	0.076%	8.332%	0.000%	1.618%	0.000%
% moles Vinyl Chloride	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%
<b>sum % moles</b>	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Month 30	Month 28	Month 30	Month 30	Month 28	Month 30	Month 29	Month 30

Note: Dry LGR-03B zones in WB05 and WB08 were not sampled during the Month 28 sampling event

Note: 0 sample indicates a non-detect analyte value

Note: No Samples were collected at WB5, WB6, and WB7 in month 29 due to Flood Test operations.

Table 10.2.3a

SWMU B-3 Bioreactor Multi-port Well CS-WB05 - Q10 Performance Data

Well ID		WB05																			
		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		10/15/2009		10/15/2009		10/26/2009		10/26/2009		10/26/2009		10/26/2009		10/27/2009		4/28/2009		7/27/2009		10/27/2009	
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	2.0		2.3		0.65		1.4		1.7		0.78		1.1		0		0.30	J	1.3	
Total Organic Carbon	mg/L	1.4		1.9		0.45	J	1.0		1.5		1.2		0.98		0.24	J	0		0.97	
Methane	µg/L	12.5		188		1,960		1,450		5,980		103		8.6		203		34.9		14	
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	11,600		13,000		55,700		50,100		158,000		21,800		30,300		14,200		25,800		22,400	
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L	378		304		317		328		347		285		266		342		285		271	
Nitrate/Nitrite	mg/L	0		0.29		0.069	BJ	0.047	BJ	0.048	BJ	0.048	BJ	0.058	BJ	0.067	J	0.078	J	0.050	BJ
Sulfate	mg/L	92		37.5		47.6		22.4		6.6		32.3		84.8		93.4		92.1		90.2	
Chloride	mg/L	14		10.4		12.5		12.7		13.9		12.5		18.3		18.2		17.7		19.5	
Ferrous Iron	mg/L	0		0		0		0		5.2		0		0		0.17	J	0.16	J	0.26	J
Manganese	µg/L	3.4	J	1.3	J	0		7.4		49.7		0		0		0		0		0	
Hydrogen	nM																				
Hydrogen Sulfide																					
Total Dissolved Solids	mg/L	568		394		410		366		391		337		410		436		566		441	
Benzene	µg/L	0		0		0		0		0.16	J	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		0.44	BJ	1.6	B	0.52	BJ	0		0		0.63	J	0.47	BJ
Dichloroethene, cis-1,2-	µg/L	1.9		56		100		490		860		59		5.6		45		63		71	
Dichloroethene, trans-1,2-	µg/L	0		0		5.4		5.6		1.5		0.3	J	0		3.3		9.0		2.6	
Methylene chloride	µg/L	0		0		0		0		0		0		0		0		0		0	
Naphthalene	µg/L	0		0		0.52		0		0		0		0		0		0		0	
Tetrachloroethene	µg/L	1.2	J	25		0.27	J	34		64		1.5		0.31	J	0.33	J	1.1	BJ	0.42	J
Toluene	µg/L	0		0		0		0		0		0		0		0		0		0	
Trichloroethene	µg/L	2.3		46		4.2		140		240		8.8		19		63		130		92	
Vinyl chloride	µg/L	0		0		0		0.66	J	2.3		0		0		0.66	J	0		6.5	
Arsenic	µg/L	0		0		4.9	J	3.8	J	60.1		3.1	J	4.5	J	0		0		4.9	J
Barium	µg/L	32.6		32.1		28.9		32.1		21.9		26.3		21.8		20.6		20.5		19.3	
Cadmium	µg/L	0		0		0		0		0		0		0		0		0		0	
Chromium	µg/L	4.2	J	2	J	0		0		0		0		0		7.8		2.3	J	0	
Copper	µg/L	0		0		0		0		0		0		0		0		0		0	
Lead	µg/L	0		0		0		0		0		0		0		0		0		0	
Mercury	µg/L	0		0		0.098	BJ	0.11	BJ	0.14	BJ	0.13	BJ	0.11	BJ	0		0.12	J	0.11	BJ
Nickel	µg/L	6.9		4.0	J	3.0	J	1.8	J	75.2		0.54	J	2.6	J	3.5	J	0.59	J	0	
Zinc	µg/L	18.4	J	12.2	J	19.4	J	9.5	J	29.3	J	16.3	J	19.9	J	0		22.5	J	10.1	J
		Q10- Month 30		Q10- Month 30		Q10- Month 30		Q10- Month 30		Q10- Month 30		Q10- Month 30		Q10- Month 30		Q8- Month 24		Q9- Month 27		Q10- Month 30	

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

Note: Dry zones including LGR02 were not sampled during the quarterly sampling event.

Table 10.2.3b

SWMU B-3 Bioreactor Multi-port Well CS-WB06 - Q10 Performance Data

Q10		WB06																									
Well ID	Sample Date	CS-WB06-UGR01				CS-WB06-LGR01				CS-WB06-LGR02				CS-WB06-LGR03A				CS-WB06-LGR03B				CS-WB06-LGR04					
		10/5/2009		10/15/2009		10/5/2009		10/15/2009		10/5/2009		10/15/2009		10/5/2009		10/22/2009		8/17/2009		10/5/2009		10/22/2009		10/5/2009		10/22/2009	
Compound	Units	Value	Flag	Value	Flag	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	6.3	B	2.5		0.82	B	0.54		0		1.0		1.7	B	2.1		1.4	B	0.81		1.0	B	0.21	J		
Total Organic Carbon	mg/L	0		2.8		10.4		1.2		1.8		0.56		1.4		0.50		2.6		1.1		21.6		0.52			
Methane	µg/L	57.8		24.9		0		0		0		0.50	J	0		0		0		0.30	J	0		0			
Ethene	µg/L	0		0		0		0		0		0		0		0		0		0		0		0			
Ethane	µg/L	0		0		0		0		0		0		0		0		0		0		0		0			
Carbon Dioxide	µg/L	31,000		16,900		64,000		13,300		14,400		16,200		48,200		8,990		53,400		15,000		51,000		73,800			
Alkalinity, Total (as CaCO3)	mg/L	313		305		341		325		295		302		288		283		316		301		307		285			
Nitrate/Nitrite	mg/L	0.17	B	0.053	J	0.44	B	0.45		0.028	B J	0		0.24	B	0.23	B	0.18	B	0.22	B	0.96	B	0.98	B		
Sulfate	mg/L	16.9		18.8		16.5		16.5		24.1		24.5		16.4		17.3		17.2		17.6		10.2		11.1			
Chloride	mg/L	13		13		12.2		11.9		10.5		10.2		11.8		12.4		12.1		12.8		13.2		13.7			
Ferrous Iron	mg/L	0.21	J	0		0		0		0		0		0		0		0		0		0		0			
Manganese	µg/L	645		576		0		0		0		0		0		0		0		0		0		0			
Hydrogen	nM																										
Hydrogen Sulfide																											
Total Dissolved Solids	mg/L	395		361		412		371		373		370		366		311		336		363		315		373		319	
Benzene	µg/L	0		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		0			
Bromoform	µg/L	0		0		0		0		0		0		0		0		0		0		0		0			
Chloroform	µg/L	0		0		0		0.085	J	0		0		0		0.12	J	0.11	J	0.13	J	0.11	J	0.13	J	0.15	J
Dibromochloromethane	µg/L	0		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		0			
Dichloroethene, 1,1-	µg/L	0.60	J	0		0		0		0		0		0		0.37	J	0		0.32	J	0.59	J	0			
Dichloroethene, cis-1,2-	µg/L	220		84		30		26		49		21		240		270		200		260		250		450		310	
Dichloroethene, trans-1,2-	µg/L	0		0		0		0.62		0		0.96		0		0		11		0		0.38	J	0			
Methylene chloride	µg/L	0		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		0			
Tetrachloroethene	µg/L	190		120		48		32		12		5		180		180		190		190		180		220		190	
Toluene	µg/L	0		0		0		0		0		0		0		0		0		0		0		0			
Trichloroethene	µg/L	63		31		41		32		16		7.4		170		200		200		190		200		180		160	
Vinyl chloride	µg/L	16		5.5		0		0		0.44	J	0		0		0		0		0		0		0			
Arsenic	µg/L	0		0		0		0		0		0		0		0		2.5	J	0		0		0			
Barium	µg/L	68.4		60.9		60		79		67.5		49.8		30.2		30.6		29.8		30.2		28.4		29.9			
Cadmium	µg/L	0		0		0		0		0		0		0		0		0		0		0		0			
Chromium	µg/L	2.3	J	4.7	J	2	J	4.5	J	1.8	J	0		1.7	J	1.7	J	1.6	J	0		0		0			
Copper	µg/L	0		0		0		1.3	J	0		1.8	J	1.3	J	0		0		0		0		0			
Lead	µg/L	1.6	J	0		0		0		0		0		0		0		0		0		0		0			
Mercury	µg/L	0.1	J	0		0.096	J	0		0.099	J	0		0.079	J	0		0.11	J	0		0.090	J	0			
Nickel	µg/L	10.7		11.4		1.5	J	4.9	J	2.8	J	1.3	J	3.7	J	3.5	J	3.5	J	3.5	J	1.8	J	1.1	J		
Zinc	µg/L	16.3	J	11.2	J	18.1	J	17.8	J	17.3	J	9.8	J	24.9	J	23.1	J	30.1	J	18.1	J	19.3	J	15.3	J		
		Q10 - Month 30		Q10 - Month 30		Q10 - Month 30		Q10 - Month 30		Q10 - Month 30		Q10 - Month 30		Q10 - Month 30		Q10 - Month 28		Q10 - Month 30		Q10 - Month 30		Q10 - Month 30		Q10 - Month 30		Q10 - Month 30	

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

Table 10.2.3c

SWMU B-3 Bioreactor Multi-port Well CS-WB07 - Q10 Performance Data

Q10		WB07											
Well ID		CS-WB07-LGR01		CS-WB07-LGR-02		CS-WB07-LGR-03A		CS-WB07-LGR-03B				CS-WB07-LGR-04	
Sample Date		10/14/2009		10/14/2009		10/27/2009		8/17/2009		10/22/2009		10/22/2009	
Compound	Units	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag
Dissolved Organic Carbon	mg/L	2.9	B	2.3	B	0.99		1.4		0.43	J	1.1	
Total Organic Carbon	mg/L	2.5		2.3		0.69		1.0		2.3		1.9	
Methane	µg/L	4.3		0.5	J	3.3		155		7.6		0	
Ethene	µg/L	0		0		0		0		0		0	
Ethane	µg/L	0		0		0		0		0		0	
Carbon Dioxide	µg/L	17,900		11,200		24,000		30,000		27,700		20,800	
Alkalinity, Total (as CaCO3)	mg/L	421		291		286		311		290		274	
Nitrate/Nitrite	mg/L	0.18	B	0.43	B	0.035	BJ	0.036	J	0.13	B	1.05	B
Sulfate	mg/L	79.9		37.5		20.1		21.9		20.5		10.1	
Chloride	mg/L	16.4		12.5		10.4		11.1		10.7		12.2	
Ferrous Iron	mg/L	0		0		0		3.8		0		0	
Manganese	µg/L	7.4		2.0	J	0		0		0		0	
Hydrogen	nM												
Hydrogen Sulfide													
Total Dissolved Solids	mg/L	577		381		334		336		307		328	
Benzene	µg/L	0		0		0		0		0		0	
Bromodichloromethane	µg/L	0		0		0		0		0		0	
Bromoform	µg/L	0		0		0		0		0		0	
Chloroform	µg/L	0		0		0		0		0		0.22	J
Dibromochloromethane	µg/L	0		0		0		0		0		0	
Dichlorodifluoromethane	µg/L	0		0		0		0		0		0	
Dichloroethene, 1,1-	µg/L	0		0		0		0		0		0	
Dichloroethene, cis-1,2-	µg/L	3		0.89	J	27		14		26		250	
Dichloroethene, trans-1,2-	µg/L	0.58	J	0		0		1.4		0		0	
Methylene chloride	µg/L	0		0		0		0		0		0	
Naphthalene	µg/L	0		0		0		0		0		0	
Tetrachloroethene	µg/L	0.22	J	0.83	J	0.33	BJ	0		7.1		210	
Toluene	µg/L	0		0		0		0		0		0	
Trichloroethene	µg/L	1.7		2.4		4.8		1.9		5.9		220	
Vinyl chloride	µg/L	2.3		0		0		0		0		0	
Arsenic	µg/L	0		0		3.5	J	0		0		0	
Barium	µg/L	116		88.9		31.7		35.3		32.4		28.6	
Cadmium	µg/L	0		0		0		0		0		0	
Chromium	µg/L	0		1.7	J	0		1.7	J	0		0	
Copper	µg/L	0		0		0		0		0		0	
Lead	µg/L	0		0		0		0		0		0	
Mercury	µg/L	0		0		0.12	BJ	0		0		0	
Nickel	µg/L	5.3		2.1	J	0.86	J	0.85	J	1.3	J	1.2	J
Zinc	µg/L	11.9	J	13.3	J	7.2	J	2.6	BJ	8.8	J	8.2	J
		Q10- Month 30		Q10- Month 30		Q10 - Month 30		Q10 - Month 28		Q10- Month 30		Q10- Month 30	

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

Note: Dry zones including UGR-01 were not sampled during the quarterly sampling event.

Table 10.2.3d

SWMU B-3 Bioreactor Multi-port Well CS-WB08 - Q10 Performance Data

Well ID		WB08																			
		CS-WB08-UGR01				CS-WB08-LGR01				CS-WB08-LGR02				CS-WB08-LGR03B				CS-WB08-LGR04			
Sample Date		9/24/2009		10/14/2009		9/24/2009		10/14/2009		9/24/2009		10/14/2009		9/24/2009		10/21/2009		9/24/2009		10/21/2009	
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	0.88		3.3	B	0.65		2.0	B	0.44	J	1.9	B	0.30	J	0.19	J	1.4		2.6	
Total Organic Carbon	mg/L	1.2		2.3		0.20	J	1.5		0.56		1.1		0.37	J	1.9		2.1		2.6	
Methane	µg/L	117		159		0.40	J	0.70	J	8.7		9.4		0		0		0		0	
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	12,000		22,100		55,900		48,500		34,300		29,200		20,900		38,600		294,000		77,900	
Alkalinity, Total (as CaCO3)	mg/L	257		270		315		319		336		344		298		290		360		332	
Nitrate/Nitrite	mg/L	0		0.064	B J	0.26		0.38	B	0		0.045	B J	0.053	J	0.64	B	0.099	J	0.17	B
Sulfate	mg/L	14.3		15.3		87.1		91.8		79		85		26.8		15.5		15.4		18.7	
Chloride	mg/L	12		12.4		10.5		10.9		12.1		11.2		10.4		12.8		14.3		15	
Ferrous Iron	mg/L	0		0		0		0		0		0		0		0		0		0	
Manganese	µg/L	272		321		5.6		6.2		0		3.5	J	0		3.2	J	0		133	
Hydrogen	nM																				
Hydrogen Sulfide																					
Total Dissolved Solids	mg/L	336		327		467		492		535		487		361		313		439		376	
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	0.081	J	0		0		0		0		0		0		0.19	J	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	0.43	J	0		0		0		0		0		0		0		0		0	
Dichloroethene, cis-1,2-	µg/L	320		170		18		16		25		33		49		200		140		57	
Dichloroethene, trans-1,2-	µg/L	3.1		0.59	J	2.7		3.2		0.81		0.41	J	2.2		0		2.3		0	
Methylene chloride	µg/L	0.47	B J	0		0.46	B J	0		0.38	B J	0		0		0		0		0	
Naphthalene	µg/L	0		0.43		0		0		0		0		0		0		0		0	
Tetrachloroethene	µg/L	25		8.7		2.2		0		0		0		73		180		80		25	
Toluene	µg/L	0		0		0		0		0		0		0		0		0		0	
Trichloroethene	µg/L	22		15		7.0		0.63	J	0.23	J	0		57		210		39		16	
Vinyl chloride	µg/L	21		11		0		0		0		0		0		0		0.76	J	0	
Arsenic	µg/L	0		0		0		0		0		0		0		0		0		0	
Barium	µg/L	37.8		39		107		112		53.3		53		27.2		34.2		52.1		50.7	
Cadmium	µg/L	0		0		0		0		0		0		0		0		0		0	
Chromium	µg/L	1.7	J	7.2		3.0	J	8.8		3.4	J	3.1	J	2.3	J	1.8	J	4.2	J	0	
Copper	µg/L	0		0		0		1.5	J	0		1.7	J	0		0		0		0	
Lead	µg/L	0		0		0		0		0		0		0		0		0		0	
Mercury	µg/L	0		0.061	J	0		0		0		0		0		0		0		0	
Nickel	µg/L	6.9		12.2		1.7	J	7.7		1.6	J	2.3	J	9.5		4.0	J	3.6	J	3.4	J
Zinc	µg/L	20.3	J	10.8	J	17.5	J	25.4	J	20.7	J	23.7	J	29.4	J	13.8	J	39.3	J	7.3	J
		Q10 - Month 29		Q10 - Month 30		Q10 - Month 29		Q10 - Month 30		Q10 - Month 29		Q10 - Month 30		Q10 - Month 29		Q10 - Month 30		Q10 - Month 29		Q10 - Month 30	

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

Table 10.3.3

B-3 Bioreactor Monitoring Well Analytical Summary - Quarter 10

Well ID		Monitoring Wells																	
		CS-MW16-LGR				CS-MW1-LGR		CS-D		CS-B3-MW01		CS-MW16-CC				B3-EXW01			
Sample Date		9/28/2009		10/29/2009		10/29/2009		10/29/2009		10/29/2009		9/28/2009		10/29/2009		9/24/2009		10/29/2009	
Compound	Units	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag	Value	Flag
Dissolved Organic Carbon	mg/L	0.77		1.0		0.63		0.56		9.8		0.26	J	1.7		0.49	J	3.6	
Total Organic Carbon	mg/L	0.74		1.3		0.36	J	0.70		9.9		0.63		1.9		0.53		4.3	
Methane	µg/L	33.2		0		0		0		97,600		10.9		10.5		8.7		0.40	J
Ethene	µg/L	0		0		0		0		0		0		0		0		0	
Ethane	µg/L	0		0		0		0		0		0		0		0		0	
Carbon Dioxide	µg/L	35,000		35,000		36,100		34,200		1,270,000		24,800		31,000		30,400		45,800	
Alkalinity, Total (as CaCO3)	mg/L	292		271		256		252		622		284		270		282		293	
Nitrate/Nitrite	mg/L	0.01	J	0.81	B	1.233	B	1.23	B	0.033	BJ	0.044	J	0.033	BJ	0.06	J	1.03	B
Sulfate	mg/L	20.3		18.8		14.4		16.8		1.0		62.7		61.2		17		10.9	
Chloride	mg/L	10.4		11.4		10.6		10.9		13.9		17.1		18.1		11.2		12	
Ferrous Iron	mg/L	1.8		4.5		0		0		4.5		1.2		3.0		0		0	
Manganese	µg/L	270		13.1		0		0		128		5.2		26.3		106		5.5	
Hydrogen	nM			2.9		1.4		4.1		1.4				7.5				12	
Hydrogen Sulfide																			
Total Dissolved Solids	mg/L	329		333		302		314		692		398		395		347		317	
Benzene	µg/L	0		0		0		0		0		0		0		0		0	
Bromodichloromethane	µg/L	0		0		0		0		0		0		0		0		0	
Bromoform	µg/L	0		0		0		0		0		0		0		0		0	
Chloroform	µg/L	0		0		0.14	J	0.13	J	0		0		0		0		0.19	J
Dibromochloromethane	µg/L	0		0		0		0		0		0		0		0		0	
Dichlorodifluoromethane	µg/L	0		0		0		0		0		0		0		0		0	
Dichloroethene, 1,1-	µg/L	0		0		0		0		0		0.32	J	0		0		0	
Dichloroethene, cis-1,2-	µg/L	140		160		46		71		510		41		39		160		180	
Dichloroethene, trans-1,2-	µg/L	0.98		0		0		0		0		5.2		0		5.4		0	
Methylene chloride	µg/L	0		0		0		0		0		0		0		0.58	BJ	0	
Naphthalene	µg/L	0		0		0		0		0		0		0		0		0	
Tetrachloroethene	µg/L	140		170		33		65		0		2.7		5.3		62		130	
Toluene	µg/L	0		0		0		0		0		0		0		0		0	
Trichloroethene	µg/L	150		180		47		93		1.5	B	43		41		160		180	
Vinyl chloride	µg/L	0		0		0		0.24	J	5.0		0		0		1.3		0.81	J
Arsenic	µg/L	0		0		0		0		0		0		0		0		0	
Barium	µg/L	46		45.1		37.9		38.9		126		24.1		25.2		37.9		34.6	
Cadmium	µg/L	0		0		0		0		0		0		0		0		0	
Chromium	µg/L	0		0		14.6		0		0		0		0		0		0	
Copper	µg/L	4.7	J	33.6		0		0		0		2.4	J	11.8		5.9		0	
Lead	µg/L	0		2.3	J	0		0		0		1.7	J	3.8	J	5.5		0	
Mercury	µg/L	0		0		0		0		0		0		0		0		0	
Nickel	µg/L	2.9	J	1.6	J	7.3		1.8	J	4.3	J	4.4	J	4.9	J	8.2		2.4	J
Zinc	µg/L	77.4		780		4.6	J	16	J	5.8	J	533		451		10,500		419	
		Quarter 10 - Month 29		Quarter 10 - Month 30		Quarter 10 - Month 30		Quarter 10 - Month 30		Quarter 10 - Month 30		Quarter 10 - Month 29		Quarter 10 - Month 30		Quarter 10 - Month 29		Quarter 10 - Month 30	

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



Table 10.4.4

SWMU B-3 Sump and Monitoring Well Microbial Data Quarter 10

Trench Sump	Sample date:	9/23/2009	10/19/2009
<b>B3 T1-1</b>			
<b>Dechlorinating Bacteria</b>	units		
<i>Dehalococcoides spp (1)</i>	(cells/mL)		
<b>Functional Genes</b>	units		
TCE R-Dase (1)	(cells/mL)		
BAV1 VC R-Dase (1)	(cells/mL)		
VC R-Dase	(cells/mL)		
<b>B3 T1-2</b>			
<b>Dechlorinating Bacteria</b>	units		
<i>Dehalococcoides spp (1)</i>	(cells/mL)	1.62E+03	1.32E+01
<b>Functional Genes</b>	units		
TCE R-Dase (1)	(cells/mL)	7.22E+02	1.20E+00
BAV1 VC R-Dase (1)	(cells/mL)	<5.00E-01	9.00E-01
VC R-Dase	(cells/mL)	1.12E+03	9.00E-01
<b>B3 T1-3</b>			
<b>Dechlorinating Bacteria</b>	units		
<i>Dehalococcoides spp (1)</i>	(cells/mL)		
<b>Functional Genes</b>	units		
TCE R-Dase (1)	(cells/mL)		
BAV1 VC R-Dase (1)	(cells/mL)		
VC R-Dase	(cells/mL)		
<b>B3 T2-1</b>			
<b>Dechlorinating Bacteria</b>	units		
<i>Dehalococcoides spp (1)</i>	(cells/mL)		4.84E+01
<b>Functional Genes</b>	units		
TCE R-Dase (1)	(cells/mL)		1.34E+01
BAV1 VC R-Dase (1)	(cells/mL)		3.20E+00
VC R-Dase	(cells/mL)		1.50E+00
<b>B3 T2-2</b>			
<b>Dechlorinating Bacteria</b>	units		
<i>Dehalococcoides spp (1)</i>	(cells/mL)		
<b>Functional Genes</b>	units		
TCE R-Dase (1)	(cells/mL)		
BAV1 VC R-Dase (1)	(cells/mL)		
VC R-Dase	(cells/mL)		
<b>B3 T3-1</b>			
<b>Dechlorinating Bacteria</b>	units		
<i>Dehalococcoides spp (1)</i>	(cells/mL)		2.88E+01
<b>Functional Genes</b>	units		
TCE R-Dase (1)	(cells/mL)		<5.00E-01
BAV1 VC R-Dase (1)	(cells/mL)		9.00E-01
VC R-Dase	(cells/mL)		1.00E-01 (J)
<b>B3 T5-1</b>			
<b>Dechlorinating Bacteria</b>	units		
<i>Dehalococcoides spp (1)</i>	(cells/mL)		5.80E+00
<b>Functional Genes</b>	units		
TCE R-Dase (1)	(cells/mL)		<5.00E-01
BAV1 VC R-Dase (1)	(cells/mL)		5.00E-01 (J)
VC R-Dase	(cells/mL)		<5.00E-01
<b>B3 T6-1</b>			
<b>Dechlorinating Bacteria</b>	units		
<i>Dehalococcoides spp (1)</i>	(cells/mL)	6.90E+00	1.10E+00
<b>Functional Genes</b>	units		
TCE R-Dase (1)	(cells/mL)	<5.00E-01	<5.00E-01
BAV1 VC R-Dase (1)	(cells/mL)	<5.00E-01	1.00E-01 (J)
VC R-Dase	(cells/mL)	2.70E+00	<5.00E-01

Monitoring wells		
<b>CS-D</b>		10/29/2009
<b>Dechlorinating Bacteria</b>	units	
<i>Dehalococcoides spp (1)</i>	(cells/mL)	8.00E-01 (J)
<b>Functional Genes</b>	units	
TCE R-Dase (1)	(cells/mL)	<5.00E-01
BAV1 VC R-Dase (1)	(cells/mL)	<5.00E-01
VC R-Dase	(cells/mL)	1.00E-01 (J)
<b>B3-EXW01</b>		10/29/2009
<b>Dechlorinating Bacteria</b>	units	
<i>Dehalococcoides spp (1)</i>	(cells/mL)	4.00E-01 (J)
<b>Functional Genes</b>	units	
TCE R-Dase (1)	(cells/mL)	<5.00E-01
BAV1 VC R-Dase (1)	(cells/mL)	<5.00E-01
VC R-Dase	(cells/mL)	<5.00E-01
<b>CS-MW01-LGR</b>		10/29/2009
<b>Dechlorinating Bacteria</b>	units	
<i>Dehalococcoides spp (1)</i>	(cells/mL)	5.00E-01 (J)
<b>Functional Genes</b>	units	
TCE R-Dase (1)	(cells/mL)	<5.00E-01
BAV1 VC R-Dase (1)	(cells/mL)	<5.00E-01
VC R-Dase	(cells/mL)	<5.00E-01
<b>CS-MW16-LGR</b>		10/29/2009
<b>Dechlorinating Bacteria</b>	units	
<i>Dehalococcoides spp (1)</i>	(cells/mL)	3.00E-01 (J)
<b>Functional Genes</b>	units	
TCE R-Dase (1)	(cells/mL)	<5.00E-01
BAV1 VC R-Dase (1)	(cells/mL)	<5.00E-01
VC R-Dase	(cells/mL)	2.00E-01 (J)
<b>CS-MW16-CC</b>		10/29/2009
<b>Dechlorinating Bacteria</b>	units	
<i>Dehalococcoides spp (1)</i>	(cells/mL)	<5.00E-01
<b>Functional Genes</b>	units	
TCE R-Dase (1)	(cells/mL)	<5.00E-01
BAV1 VC R-Dase (1)	(cells/mL)	<5.00E-01
VC R-Dase	(cells/mL)	2.00E-01 (J)
<b>CS-B3-MW01</b>		10/27/2009
<b>Dechlorinating Bacteria</b>	units	
<i>Dehalococcoides spp (1)</i>	(cells/mL)	2.62E+01
<b>Functional Genes</b>	units	
TCE R-Dase (1)	(cells/mL)	<4.44E+00
BAV1 VC R-Dase (1)	(cells/mL)	<4.44E+00
VC R-Dase	(cells/mL)	<4.44E+00

Table 10.5.3

SWMU B3-UIC Analytical Summary Table - Quarter 10

Q10		B3			
Well ID		B3-UIC		B3-UIC	
Sample Date		8/18/2009		10/7/2009	
Compound	Units	Value	Flag	Value	Flag
Dissolved Organic Carbon	mg/L				
Total Organic Carbon	mg/L				
Methane	µg/L				
Ethene	µg/L				
Ethane	µg/L				
Carbon Dioxide	µg/L				
Alkalinity, Total (as CaCO <sub>3</sub> )	mg/L				
Nitrate/Nitrite	mg/L				
Sulfate	mg/L				
Chloride	mg/L				
Ferrous Iron	mg/L				
Manganese	µg/L				
Hydrogen	nM				
Hydrogen Sulfide					
Total Dissolved Solids	mg/L	365		359	
Benzene	µg/L	0		0	
Bromodichloromethane	µg/L	0		0	
Bromoform	µg/L	0		0	
Chloroform	µg/L	0		0	
Dibromochloromethane	µg/L	0		0	
Dichlorodifluoromethane	µg/L	0		0	
Dichloroethene, 1,1-	µg/L	0		0	
Dichloroethene, cis-1,2-	µg/L	87		32	
Dichloroethene, trans-1,2-	µg/L	6.3		2.5	
Methylene chloride	µg/L	0		0	
Naphthalene	µg/L	0		0	
Tetrachloroethene	µg/L	60		3.4	
Toluene	µg/L	0		0	
Trichloroethene	µg/L	93		39	
Vinyl chloride	µg/L	0.89	J	0	

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

No sample collected in September 2009 as injection was suspended for flood test.