

**CSSA B-3 BIOREACTOR OPERATIONS
ANNUAL PERFORMANCE STATUS REPORT
(QUARTER 13 – QUARTER 16, MAY 2010 – APRIL 2011)**

AUGUST 4, 2011

This status report summarizes the operation of a bioreactor at Solid Waste Management Unit (SWMU) B-3 from May 2010 through April 2011, comprising the fourth year of bioreactor operations and monitoring since system start-up. This status report includes descriptions of current conditions, field observations, analytical results, and an anticipated schedule of activities for the next reporting period. Analytical results from monthly and quarterly regulatory and performance sampling through April 2011 are attached for reference. Parsons personnel working on this project during the reporting period include Ken Rice, Samantha Elliott, Eric Tennyson, Adrien Lindley, Julie Bouch, Michael Zugelder, Scott Pearson, Edward Galbavy, William Martin, and Erin Atkinson.

Executive Summary

Site conditions were mixed through the year where moderate conditions were recorded during the first half of the year (~18 inches of precipitation from May through September) followed by moderate to severe drought conditions during the second half of the year (~4.3 inches of precipitation from October through April) for a reported total of 22.34 inches of precipitation on Post for the year. Injection of extracted groundwater continued through the year with few interruptions. Minor interruptions include: winterizing, system maintenance, and reaching automatic cut-off levels in the wells and/or storage tank. During the year, approximately 18,148,185 gallons of groundwater extracted from CS-MW16-LGR, CS-MW16-CC, B3-EXW01, and B3-EXW02 were injected into bioreactor trenches 1, 2, and 6 for a total of 41,399,289 gallons since the start of normal operations. Injecting extracted groundwater continued through the year in trench 1, and switched from trench 2 to trench 6 in July, 2010. During quarter 16, a total of 3,838,617 gallons of extracted groundwater from wells CS-MW16-LGR, CS-MW16-CC, B3-EXW01 and B3-EXW02 were injected into the bioreactor. The majority of extracted groundwater, ~1,290,660 gallons, was from CS-MW16-CC, while ~959,092 gallons was extracted from CS-MW16-LGR, ~821,395 gallons was extracted from B3-EXW02, and ~767,470 gallons were extracted from CS-B3-EXW01. During the March 2011 sampling event, CS-WB07 was damaged such that further sampling from any zone therein was deemed impractical.

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 tetrachloroethene (PCE) and 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 trenches 1 and 6. 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 periodic detections of high concentrations of Mn(II) in trenches 1, 2, and 6 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

Monthly and quarterly analytical results throughout the year at the bioreactor sumps indicate that SWMU B-3 trenches contain a range of *cis*-DCE levels (non-detect – 193 µg/L) as well as concentrations of other dechlorination products (e.g., VC, ethene). April 2011 detections of *cis*-DCE in sumps T1-1 and T1-3 are anomalous. A study performed by Noblis during this period utilized biotrap baited with several milligrams of *cis*-DCE per trap designed to lure dehalogenating microbes present in the trenches. Sump samples collected while the biotrap were deployed does not distinguish between *cis*-DCE originating from the traps or from water in the trenches. In addition, minor amounts of toluene, and other fuel related compounds were identified during monitoring of bioreactor sumps from trenches 1, 2 and 6 through quarter 16. A summary of the analytical data collected for the reporting period (year 4) is included in Table 1. A summary of monthly and quarterly 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 analyses indicate that groundwater from the uppermost saturated zone (LGR-03B) of Westbay® wells CS-WB05 and CS-WB07 (when sampled) contain less than 100 micrograms per liter (µg/L) of PCE and TCE, while *cis*-DCE was detected in concentrations less than 100 µg/L in CS-WB07 and greater than 100 µg/L in CS-WB05. Wells CS-WB06 and CS-WB08 both contain greater than 100 µg/L of PCE, TCE, and *cis*-DCE. Groundwater from CS-MW16-LGR and B3-EWX01 contain greater than 100 µg/L of PCE, TCE, and *cis*-DCE while CS-MW16-CC contains less than 100 µg/L of PCE, TCE, and *cis*-DCE.

Volatile organic carbon (VOC) analytical results from bioreactor trench sumps samples indicate a decrease in contaminant mass (total molar concentration) in trench sumps T1-2 and T6-2 through the year. Increases in total molar concentrations were observed in samples from T1-1, T1-3, and T6-1 through the year. No significant change in total molar concentration was observed in samples from sump T2-2. Over the bioreactor operational period (4 years), contaminant mass appears stable or decreasing.

Water quality field measurements from the bioreactor trench 1 sumps indicate that DO has fallen slightly from the previous quarter to an average of 0.19 mg/L, ORP has fallen since the previous quarter, averaging -184.4 mV, pH ~ 6.64, temperatures range from ~18 °C to ~25 °C, and specific conductivity ranges from ~0.422 to ~1.02 millisiemens per centimeter (mS/cm). Average annual

values for DO, pH, ORP, and specific conductivity in trench 1 during the fourth year of bioreactor operations include: 0.31 mg/L, 6.69, -180.09 mV, and 0.743 mS/cm, respectively. Other observations regarding the data collected during this reporting period are listed below.

Water quality field measurements from trench 6 during the sixteenth quarter include average DO, pH, and ORP of ~0.14 mg/L, ~6.59, and ~ -235.83 mV, respectively; temperature ranges from 21.6 °C to 25.3 °C; and specific conductivity ranges from 0.441 to 0.957 mS/cm.

Ground water elevation data from the shallow UGR wells combined with similar data from the Westbay UGR zones in (WB-06, -07, -08) and the bioreactor sumps helped confirm the presence of a groundwater “mound” around the bioreactor trenches. Analyses of samples from these wells indicated the presence of vinyl chloride with concentrations ranging from non-detect to 148 ppb, with the highest levels found north and west of the bioreactor. MW-28, located southwest of the bioreactor, has been consistently dry, and MW-29 and MW-30 were also dry through the quarter. Water quality parameters in the UGR wells fluctuated during the reporting period. In general, good reducing conditions (low DO, ORP, and pH) were reported in MW-26, 31 and 34, while MW-27 and 33 showed fair reducing conditions and MW-32 showed poor reducing conditions. There were, significant perturbations in either DO or ORP observed at MW-27, 31, 33, and 34, while MW-26 and MW-32 consistently indicated good and poor reducing conditions, respectively.

Through the 16th quarter of bioreactor operation, 0.53 inches of precipitation were measured at the weather station proximal to the bioreactor site for a total of 22.34 inches for the year. Average water thickness in trench 1 during the quarter was approximately 3.90 feet. Average water thickness in trench 6 during the quarter was approximately 1.78 feet. Average water thicknesses in trenches 1 and 6 for the year were 4.77 and 1.91 feet, respectively.

Attached are graphs including: cumulative total volume of recovered groundwater from CS-MW16-LGR, CS-MW16-CC, B3-EXW01, and B3-EXW02 applied into trenches 1, 2, and 6 through the O&M period, B-3 trench 1 average water thickness with rainfall data and water applied daily to trench 1, VOC concentration summaries for extraction wells, storage tank (UIC), trench 1 and 6 sumps, and in the defined uppermost saturated zones (zone LGR-03B) in the surrounding multi-port monitoring wells, cumulative precipitation, as well as water level elevations in the defined uppermost saturated zone (zone LGR-03B) of the B-3 multi-port monitoring wells with rainfall data.

Quarter 16 - Analytical Data Observations

1. Arsenic (As) was detected in concentrations exceeding the MCL (10 µg/L) in two sumps, T1-2 (11.5 µg/L) and T2-2 (10.5 µg/L) and one Westbay well zone, CS-WB05-LGR04B (13.8 µg/L) during quarter 16. Manganese (Mn) was reported in bioreactor trench water samples at concentrations ranging from 21.9 to 499.8 µg/L (MCL is 50 µg/L). All of the shallow UGR wells sampled during the year (8 of 9) had, at some point, elevated levels of Mn. During the quarter, samples from 5 of 6 UGR wells indicated elevated levels of Mn, with concentrations ranging from 122 to 1,069 µg/L. Three of the shallow UGR wells did not produce enough water to sample during quarter 16. An elevated level of Mn was reported in CS-B3-MW01 (180 µg/L) during this quarter. Elevated levels of Mn were reported in CS-WB05-LGR-04B (58.7 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. DO and ORP values were more favorable for the reduction of CAHs compared with the previous quarter, and it is likely that geochemical conditions will continue to improve as normal bioreactor operations continue.
3. The volatile organic compound summary for the trenches indicates an end-product (DCE isomer, VC, and ethene) dominated chemical composition in water. Total molar concentrations in sumps in trenches 1, 2 and 6 have fluctuated through the year.
4. Reductive dechlorination of CAHs by microbial activity appears to be occurring as DHC bacteria counts have been within the range of biostimulated populations ($1.0E+03$ cell/mL) in trenches 1 and 6 at various times through the year.
5. Saturated conditions within the bioreactor are maintained through the quarter with average water thicknesses of approximately 3.90 and 1.78 feet in trenches 1 and 6, respectively, and annually with average water thicknesses of 4.77 and 1.91 feet respectively.
6. The reductive dechlorination end products VC, ethene, and ethane are present in the shallow UGR zone around the SWMU B-3 in addition to samples collected from sumps indicating the lateral influence of the bioreactor. VC is present in samples from the shallow UGR wells MW26, -27, and -34, and in WB08-UGR-01 (85, 0.39, 148, 100 $\mu\text{g/L}$, respectively). Ethene is present in samples from MW26 and -34, and WB08-UGR-01 (10.4, 16.6, and 11.9 $\mu\text{g/L}$, respectively). Ethane is present in samples from MW26 and -34, and WB08-UGR-01 (3.0, 1.6, and 1.5 $\mu\text{g/L}$, respectively). Additionally, end products VC and ethene are observed at depth in the WB05-LGR-04A and -04B zones (25.73 $\mu\text{g/L}$ VC in -04A; and 273.95 $\mu\text{g/L}$ VC and 6.3 $\mu\text{g/L}$ ethene in -04B), as well as CS-B3-MW01 (22.4 $\mu\text{g/L}$ VC). These two wells are both located north of the bioreactor indicating reduction byproducts are migrating vertically in this area.

Recommendations

Recommendation for further treatability study actions include:

- Continue monitoring bioreactor and surrounding wells for UIC Permit and Performance parameters.
- Continue investigation of degradation pathways through microbial and isotope analysis.
- Investigate other potential extraction well installation area(s).

Anticipated Schedule for Next Period (May, 2011 – April, 2012):

- Continue monitoring and maintenance activities for delivery of groundwater to the bioreactor trenches.
- Conduct monthly and quarterly monitoring events for the bioreactor system.
- Continue UIC monthly monitoring with semi-annual reporting due December 2010.
- Complete re-design and construction of various bioreactor system controls and components including: installation of a new storage tank(s), relocating system controls, and incorporating system instrumentation in SCADA.
- Complete the drilling, development, and construction of two additional extraction wells to deliver groundwater to the bioreactor and replace Westbay well WB-07.

Specific Data Observation Notes for Attachments

- Analytical results from the B-3 trench sump (trenches 1 through 6) samples, shown in Table 16.1.2, present data from the fourth year of bioreactor operations as well as quarter 16 sampling events.
- Table 16.1.1 indicates an average water thickness of 3.9 feet was maintained during the quarter and an average water thickness of 4.77 feet was achieved during the year in trench 1. Average water thicknesses in trench 6 were 1.78 and 1.91 feet for the quarter and annually, respectively.
- Table 16.1.2 indicates that VC was present at variable concentrations in trench sumps, ranging from non-detect to 134 µg/L during the year and the quarter. Ethene was observed in concentrations ranging from ND to 15.7 µg/L in trench 1, ND to 3.5 µg/L in trench 2, and non-detect to 13.9 µg/L in trench 6 through the year.
- Table 16.1.3 indicates that Mn(II) and Fe(II) were present at concentrations consistent with alternative degradation pathways. Additionally, Table 16.1.3 provides evidence of the biotic anaerobic degradation pathway with the elevated concentrations of Mn and CO₂ and presents ethane concentrations ranging from ND to 7.0 µg/L in trench 1, and ND to 9.8 µg/L in trench 6 during the quarter. Ethane was detected in samples from sumps T1-2, T1-3, and T6-2 in concentrations ranging from 2.6 to 9.8 µg/L (when detected). Samples from trench sumps T1-1 and T6-1 did not detect the presence of ethane.
- Table 16.3.3 indicates that VC was present (22.4 µg/L) in the sample collected from monitoring well CS-B3-MW01. Table 16.2.3a indicates similar concentration (25.73 µg/L) in WB05-LGR04A and a high VC concentration in WB05-LGR04B (273.95 µg/L) suggesting a connection between this zone and CS-B3-MW01. Ethene was observed in WB05-LGR04B during the quarter (6.3 µg/L).
- Table 16.4.4 indicates that the *Dehalococcoides* (DHC) bacteria populations are low to moderate in the trench sumps.
- The changes in molar fraction and total molar concentrations shown in graphs of quarter 16 trench sumps indicate an increase in contaminant mass possibly derived from less-dechlorinated (higher proportion of PCE and TCE) water provided by B3-EXW01 and EXW02 (Table 16.6.2). Dechlorination of VOC impacted water to VC and ethene, however, is still occurring in the trenches.
- Table 16.6.3 indicates that significant amounts of contaminant mass are being provided for injection into the bioreactor by the four extraction wells. Parent products (PCE and TCE) make up the majority of the contaminant mass, though *cis*-DCE is also present.
- Figure 16.2.5 shows that the water levels in Westbay wells are significantly influenced by precipitation, while pumping at CS-MW16-LGR and CS-B3-EXW01 shows strong influence in the deeper LGR zones. Pumping at CS-MW16-CC appears to have no influence on UGR or upper LGR zones.
- Table 16.7.3 indicates the presence of VC in several of the shallow UGR wells with concentrations ranging from non-detect to 148 µg/L. Additionally, Table 16.7.3 provides evidence of the biotic anaerobic degradation pathway with the elevated concentrations of Mn and CO₂.

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 |
|--------------------------------------|------|-----|-----|-----|-----------------------------|------------------------------|----------------------|------------|---|------------------|----|----------|----------------|-----|
| Monthly Sampling ^a (37) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Monthly Sampling ^a (38) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Quarterly Sampling ^b (13) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Monthly Sampling ^a (40) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Monthly Sampling ^a (41) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Quarterly Sampling ^b (14) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Monthly Sampling ^a (43) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Monthly Sampling ^a (44) | ✓ | ✓ | | | ✓ | | | | | ✓ | ✓ | ✓ | | |
| Quarterly Sampling ^b (15) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ |
| Monthly Sampling ^a (46) | ✓ | ✓ | | | ✓ | | | | | ✓ | ✓ | ✓ | | |
| Monthly Sampling ^a (47) | ✓ | ✓ | | | ✓ | | | | | ✓ | ✓ | ✓ | | |
| Quarterly Sampling ^b (16) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ |

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.

* - Metals analyses was reduced to include only arsenic results beginning with the Month 44 sampling event.

| 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 11 = Quarter 11 12 = Quarter 12 13 = Quarter 13 14 = Quarter 14 15 = Quarter 15 16 = Quarter 16 |
| 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 7 = Shallow UGR 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

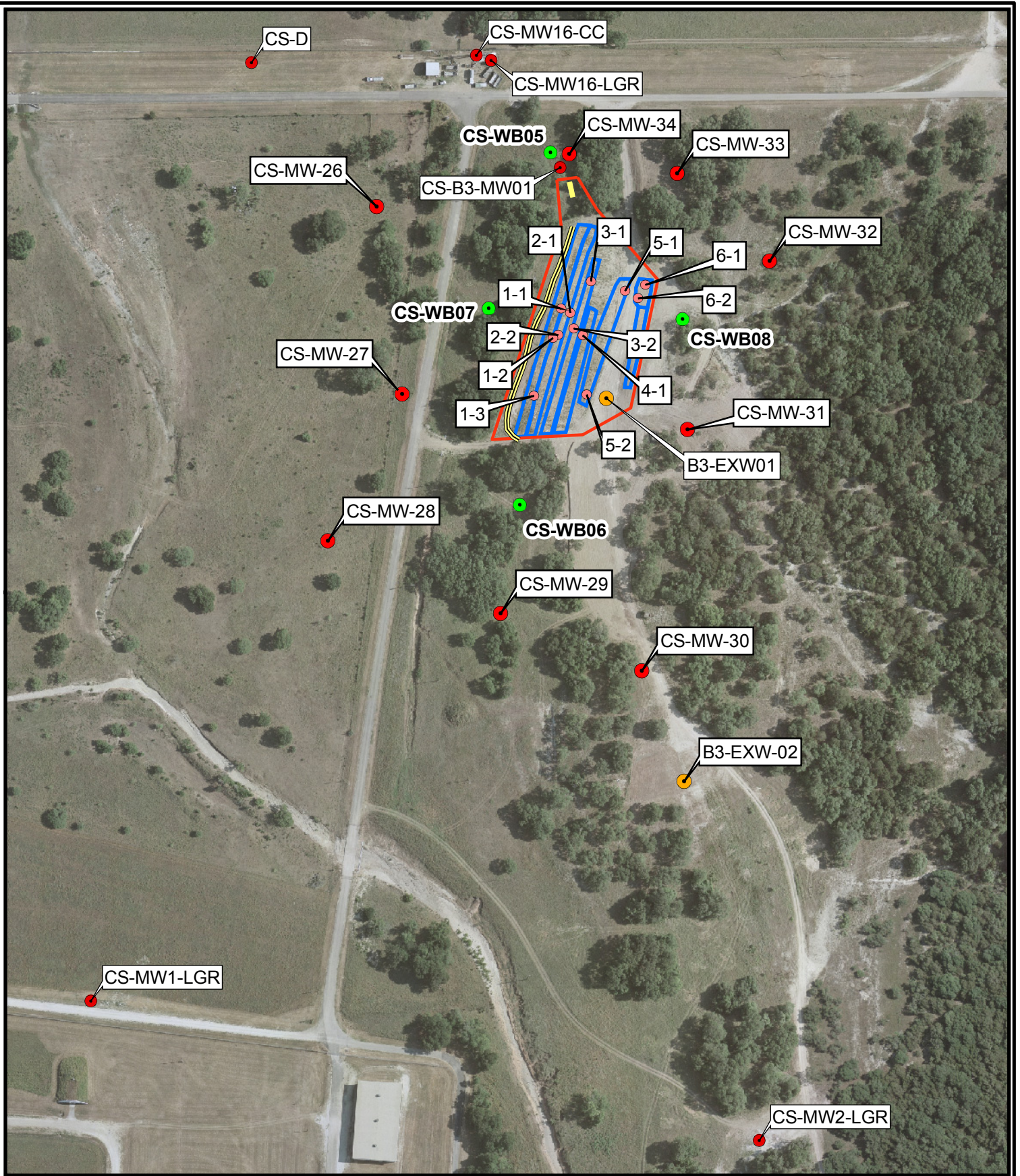


Figure 1

B-3 Bioreactor System
Camp Stanley Storage Activity

PARSONS

Figure 16.1.2T1-1

B3 Bioreactor Trench 1 Sump 1 VOC Summary Quarter 12 - Quarter 16

Changes in Mole Fraction and Total Molar Concentration at SWMU B3 T1-1

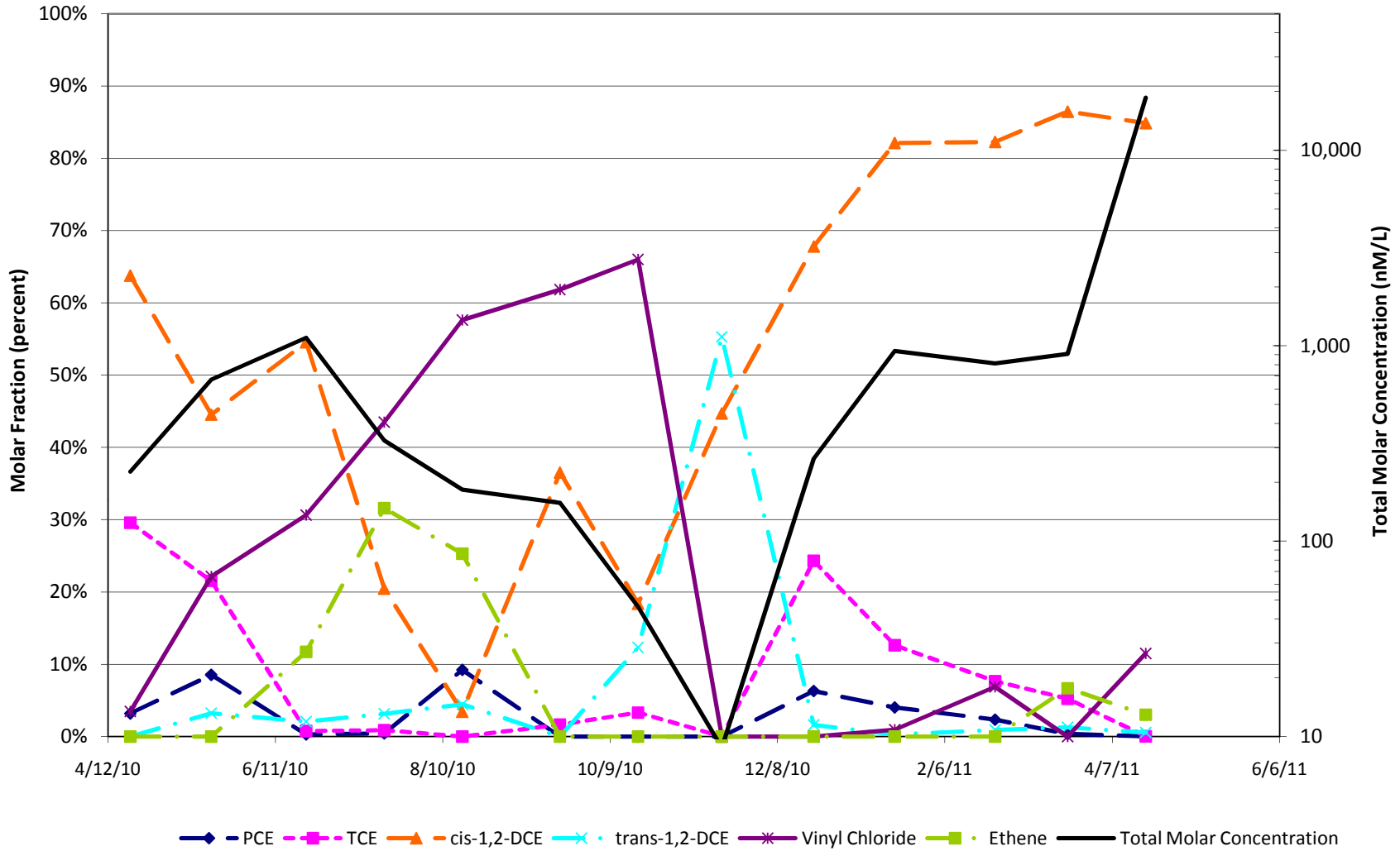


Figure 16.1.2T1-2

B-3 Bioreactor Trench 1 Sump 2 VOC Summary Quarter 12 - Quarter 16

Changes in Mole Fraction and Total Molar Concentration at SWMU B3 Trench 1-2

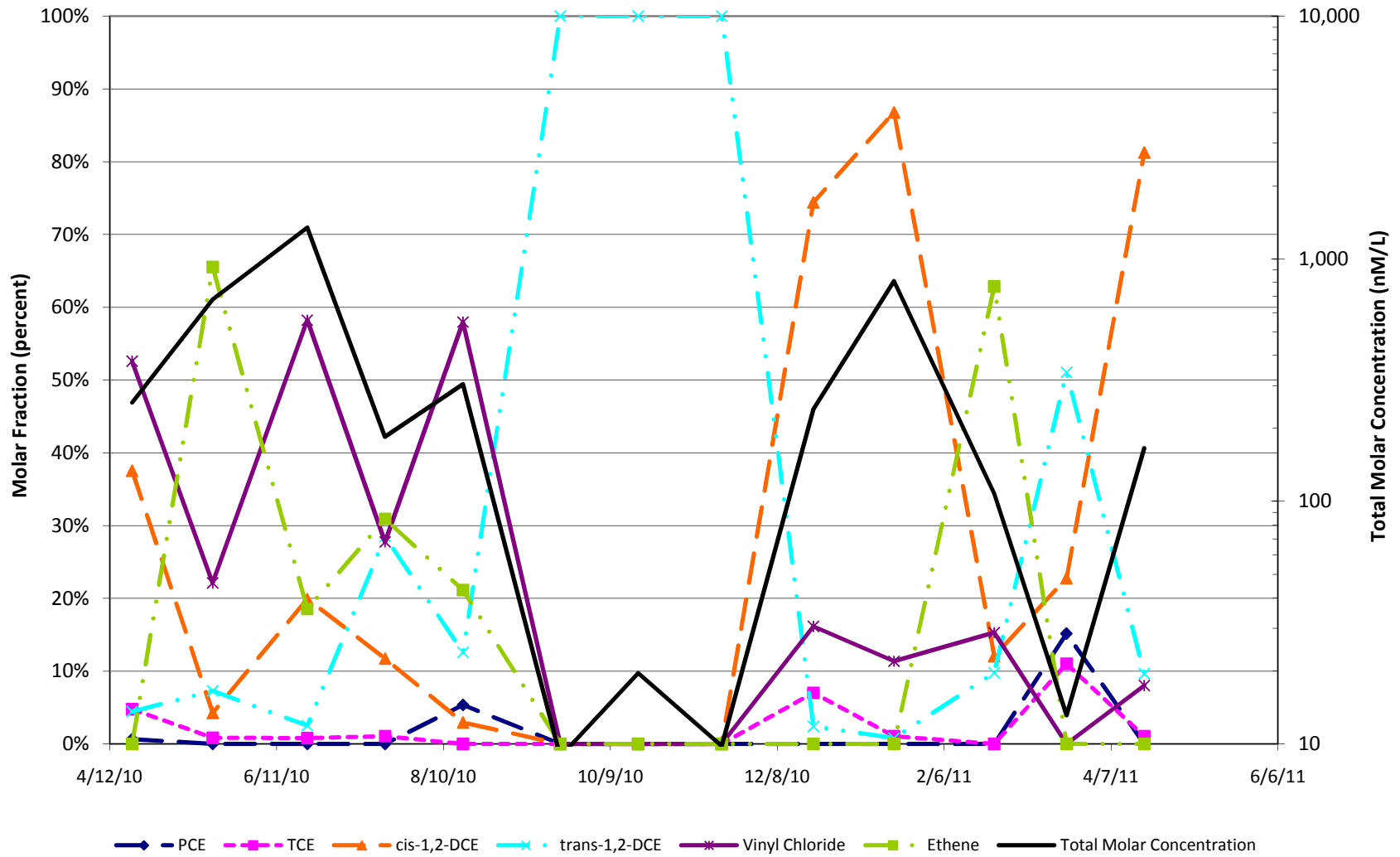


Figure 16.1.2T1-3

B-3 Bioreactor Trench 1 Sump 3 VOC Summary Quarter 12 - Quarter 16

Changes in Mole Fraction and Total Molar Concentration at SWMU B3 Trench 1-3

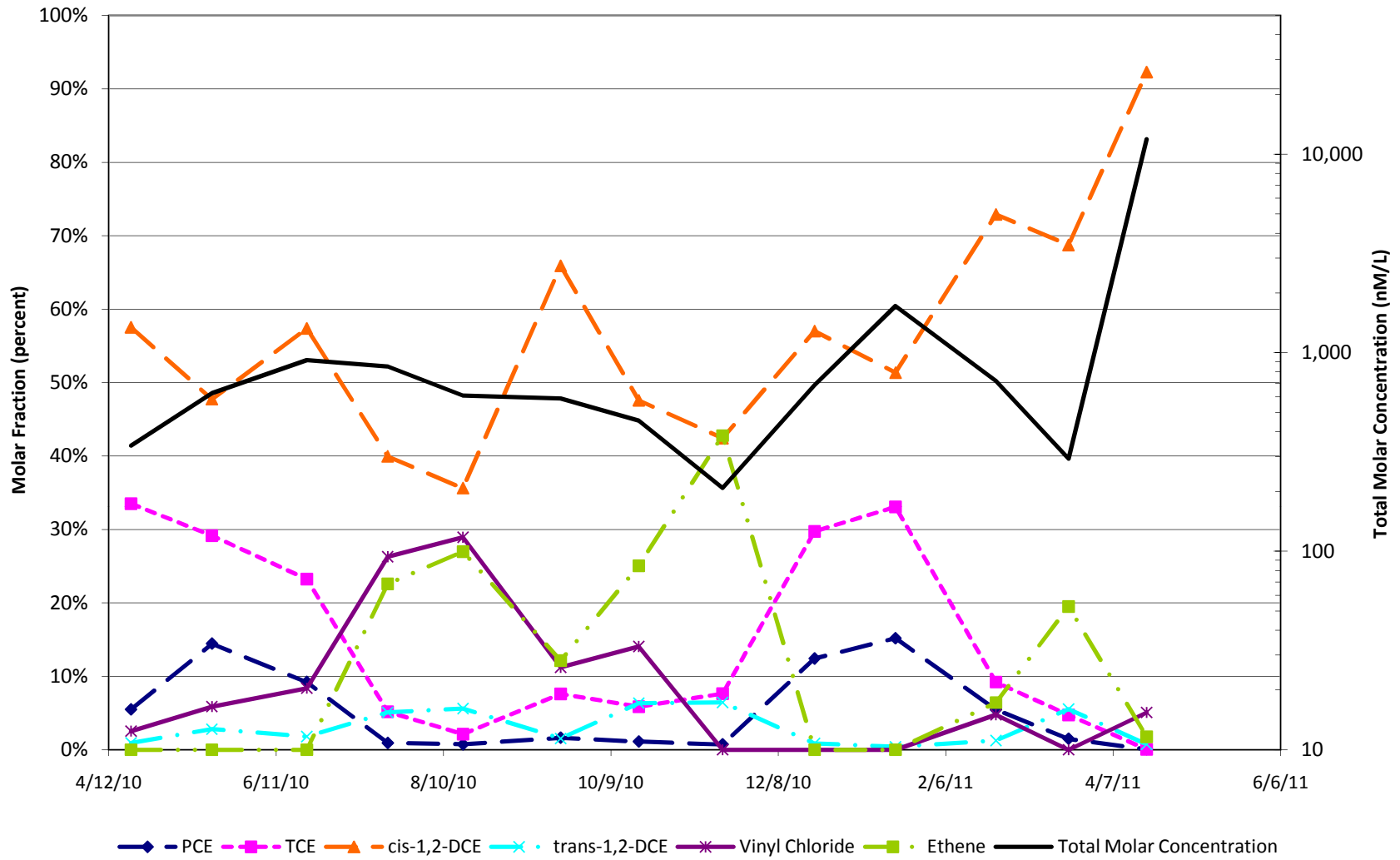


Figure 16.1.2T6-1

B-3 Bioreactor Trench 6 Sump 2 VOC Summary Quarter 12 - Quarter 16

Changes in Mole Fraction and Total Molar Concentration at SWMU B3 Trench 6-1

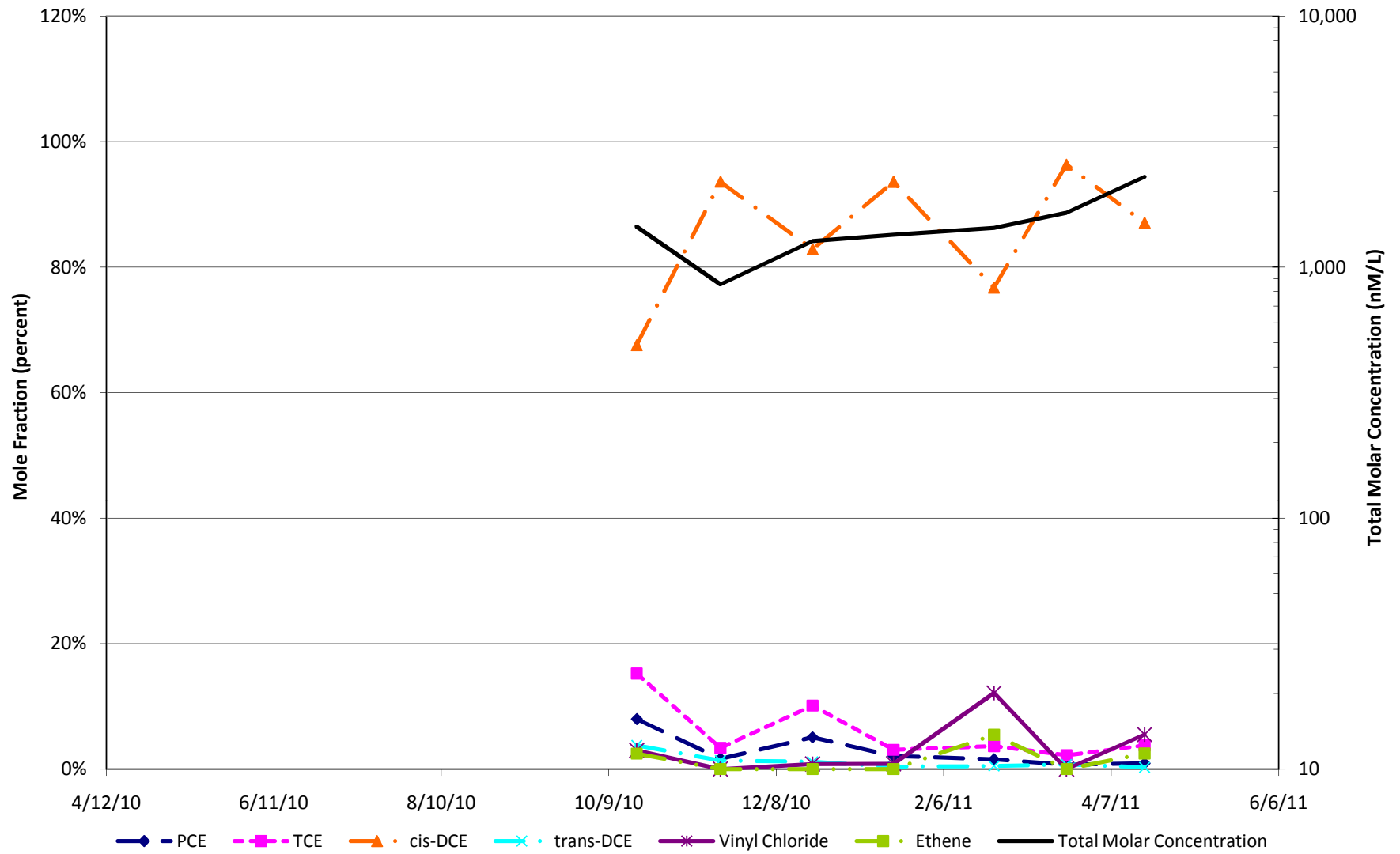


Figure 16.1.2T6-2

B-3 Bioreactor Trench 6 Sump 2 VOC Summary Quarter 12 - Quarter 16

Changes in Mole Fraction and Total Molar Concentration at SWMU B3 Trench 6-2

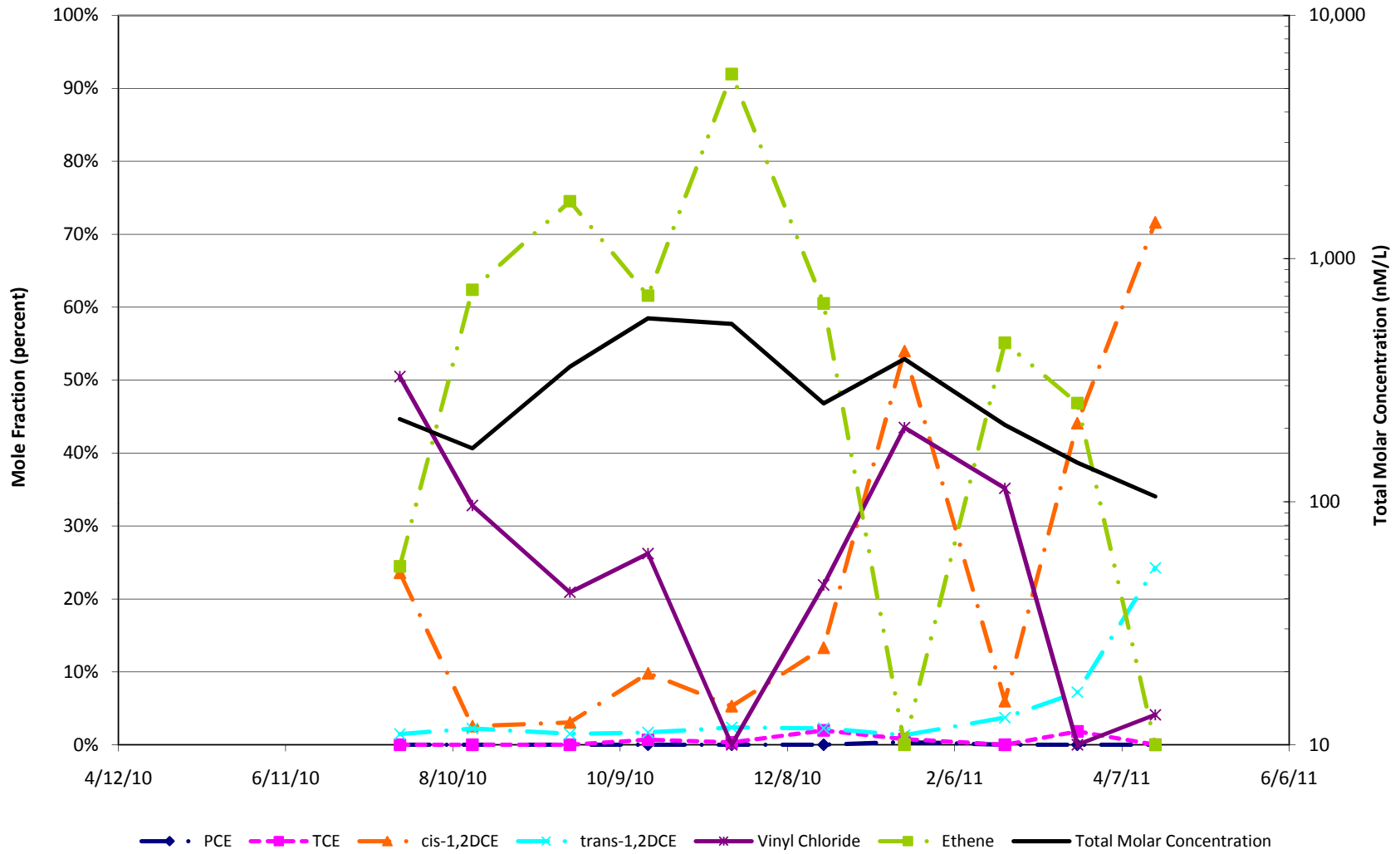


Figure 16.2.2a

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

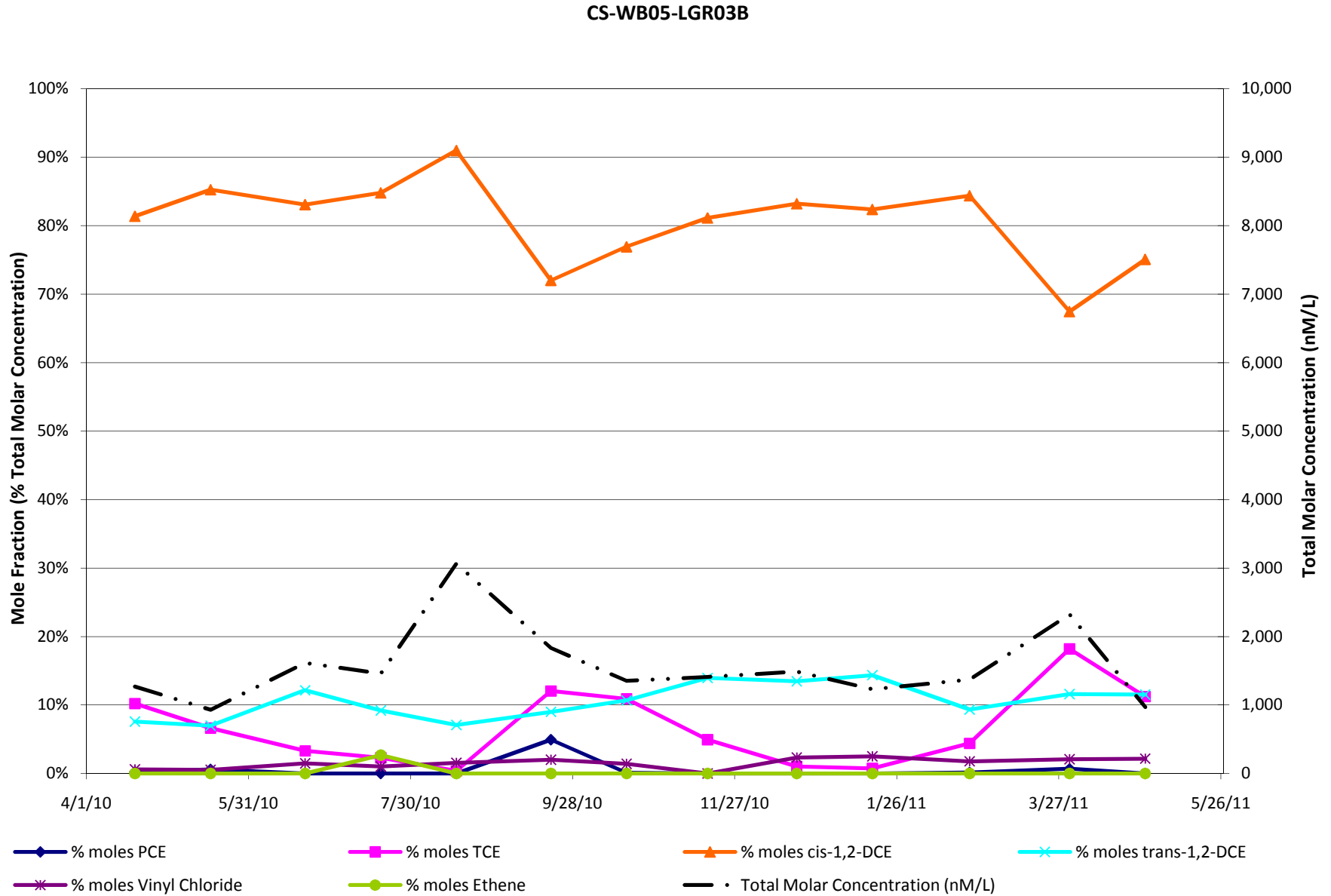


Figure 16.2.2b

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

CS-WB06-LGR03B

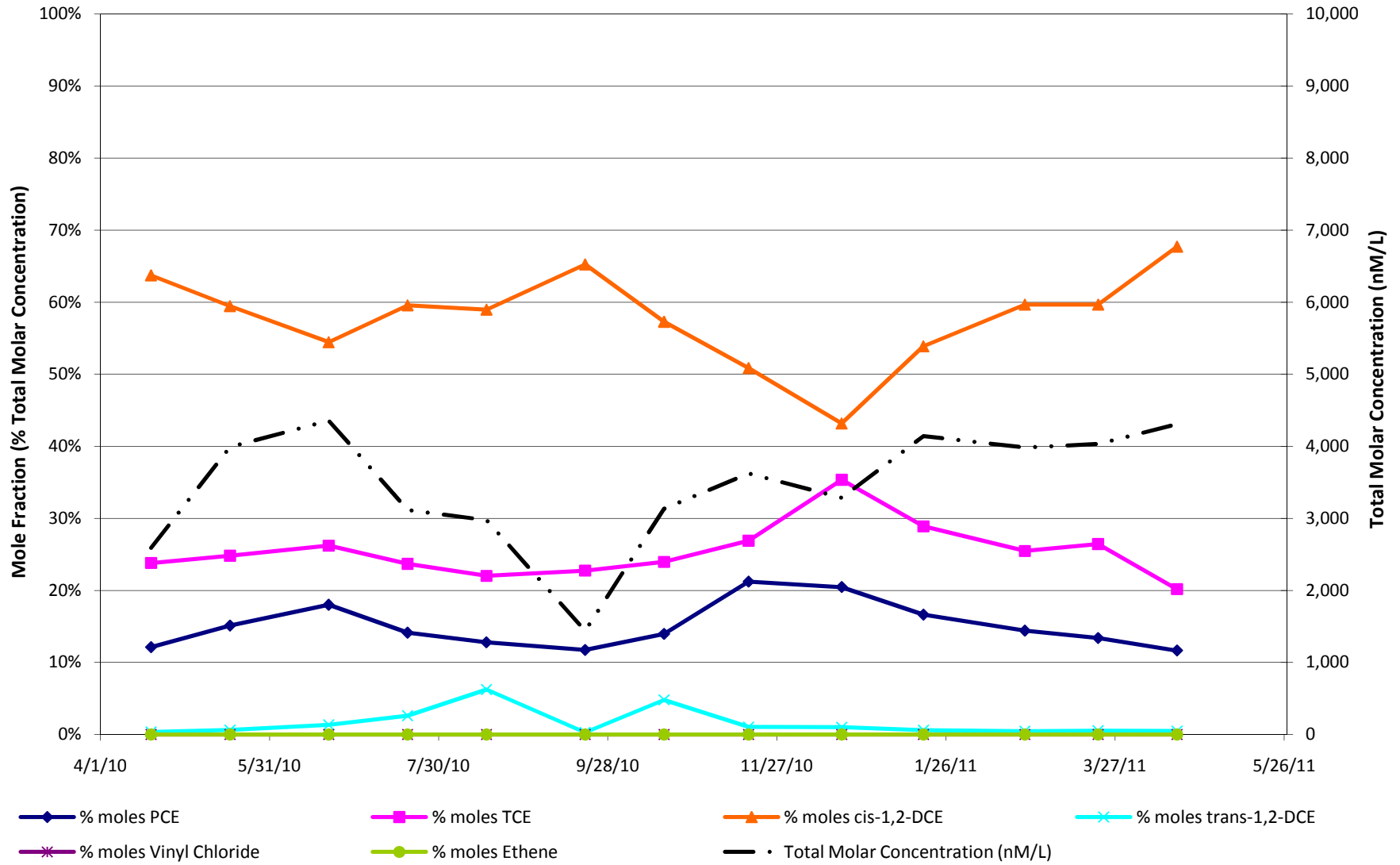


Figure 16.2.2c

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

CS-WB07-LGR03B

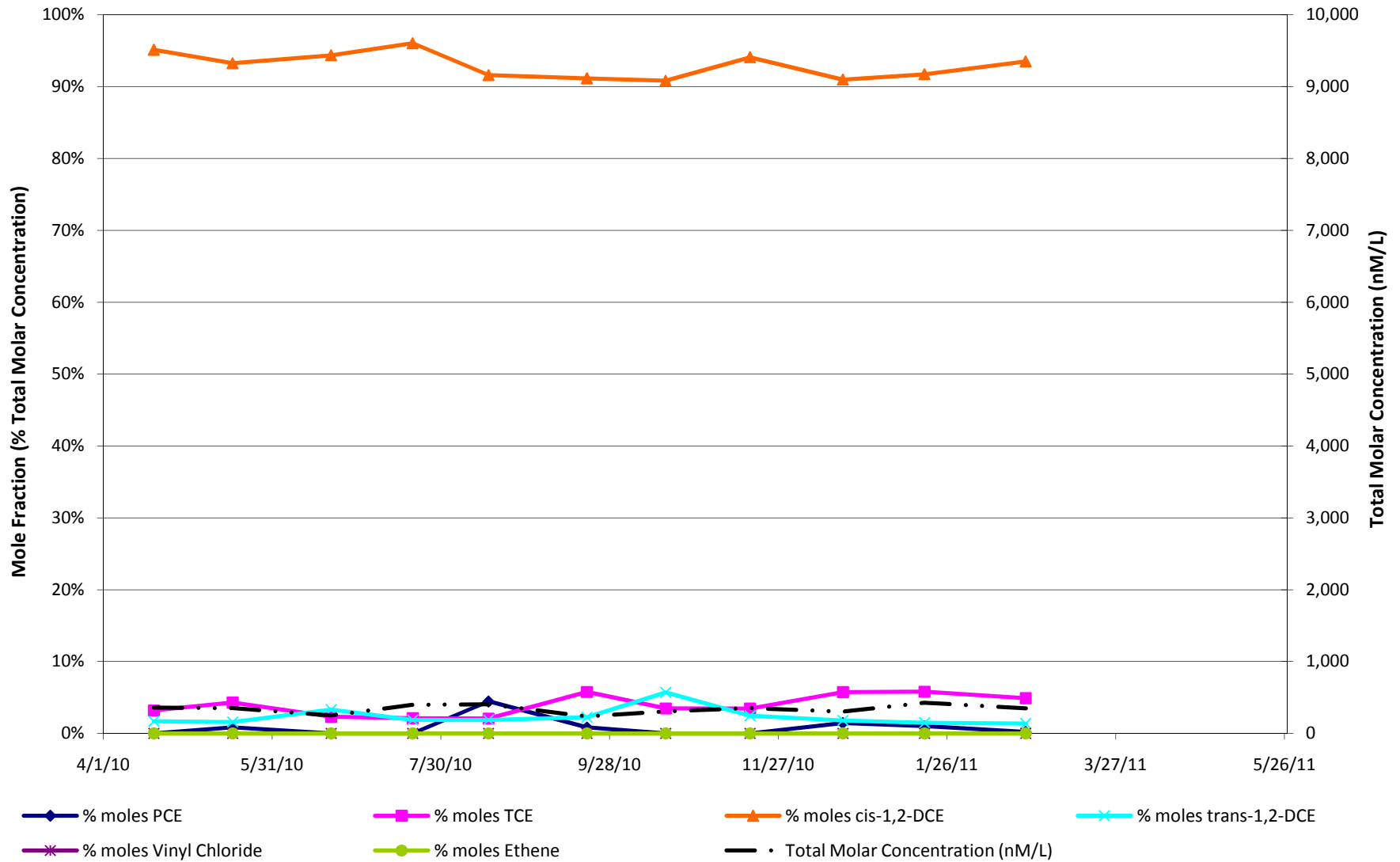


Figure 16.2.2d

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

CS-WB08-LGR03B

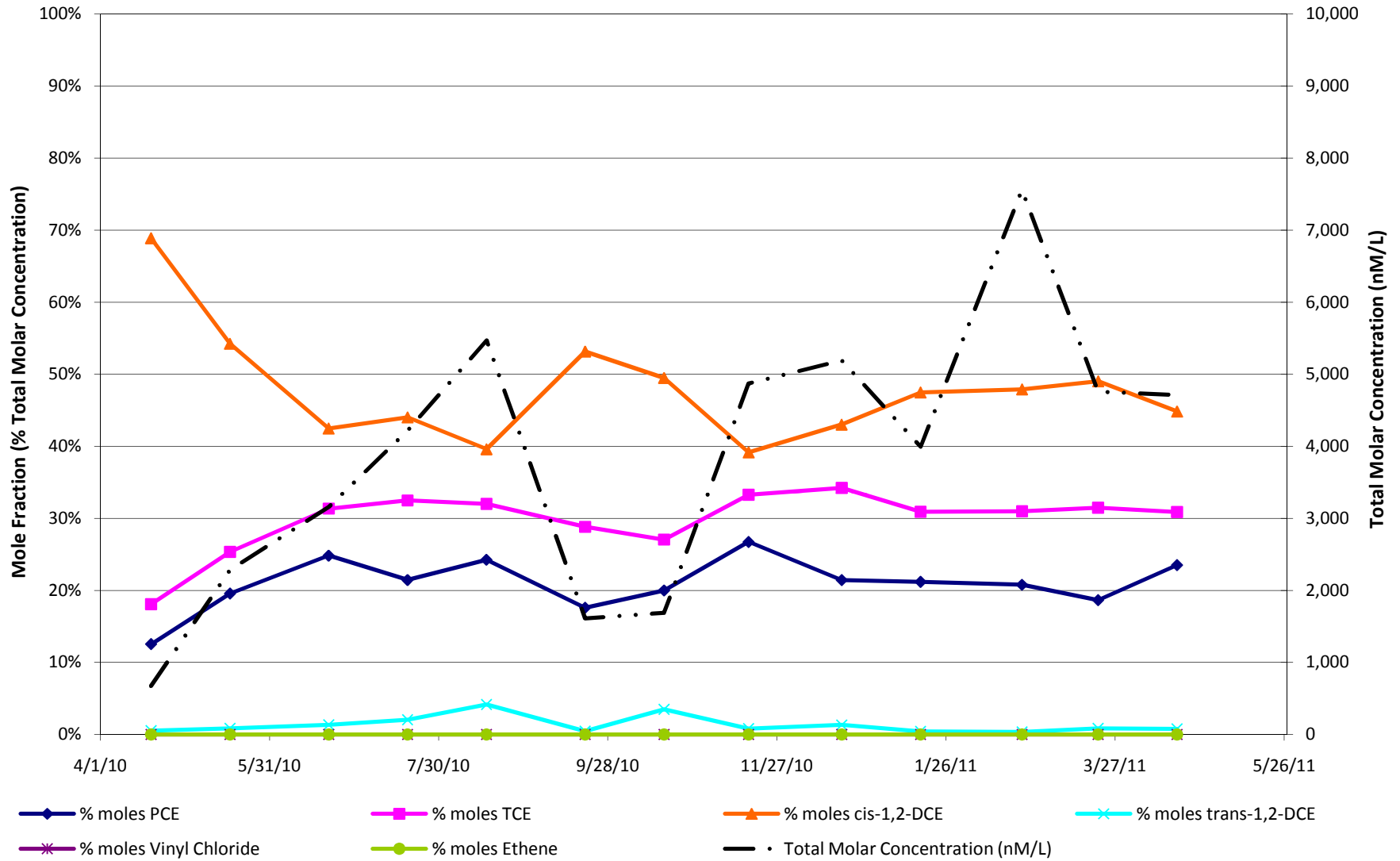


Figure 16.6.2-16CC

CS-MW16-CC VOC Summary Quarter 12 - Quarter 16

Changes in Mole Fraction and Total Molar Concentration at CS-MW16-CC

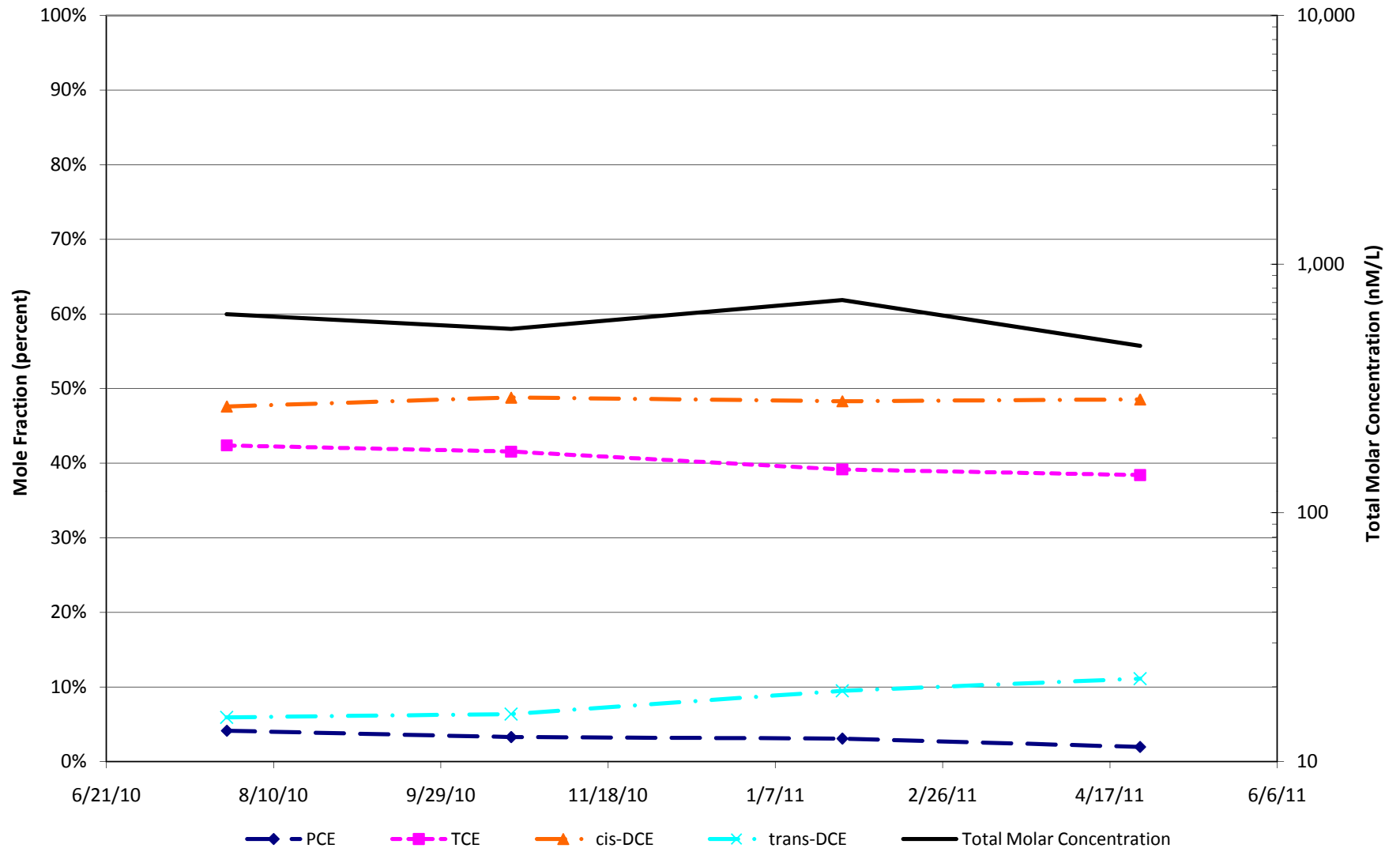


Figure 16.6.2-16LGR

CS-MW16-LGR VOC Summary Quarter 12 - Quarter 16

Changes in Mole Fraction and Total Molar Concentration at CS-MW16-LGR

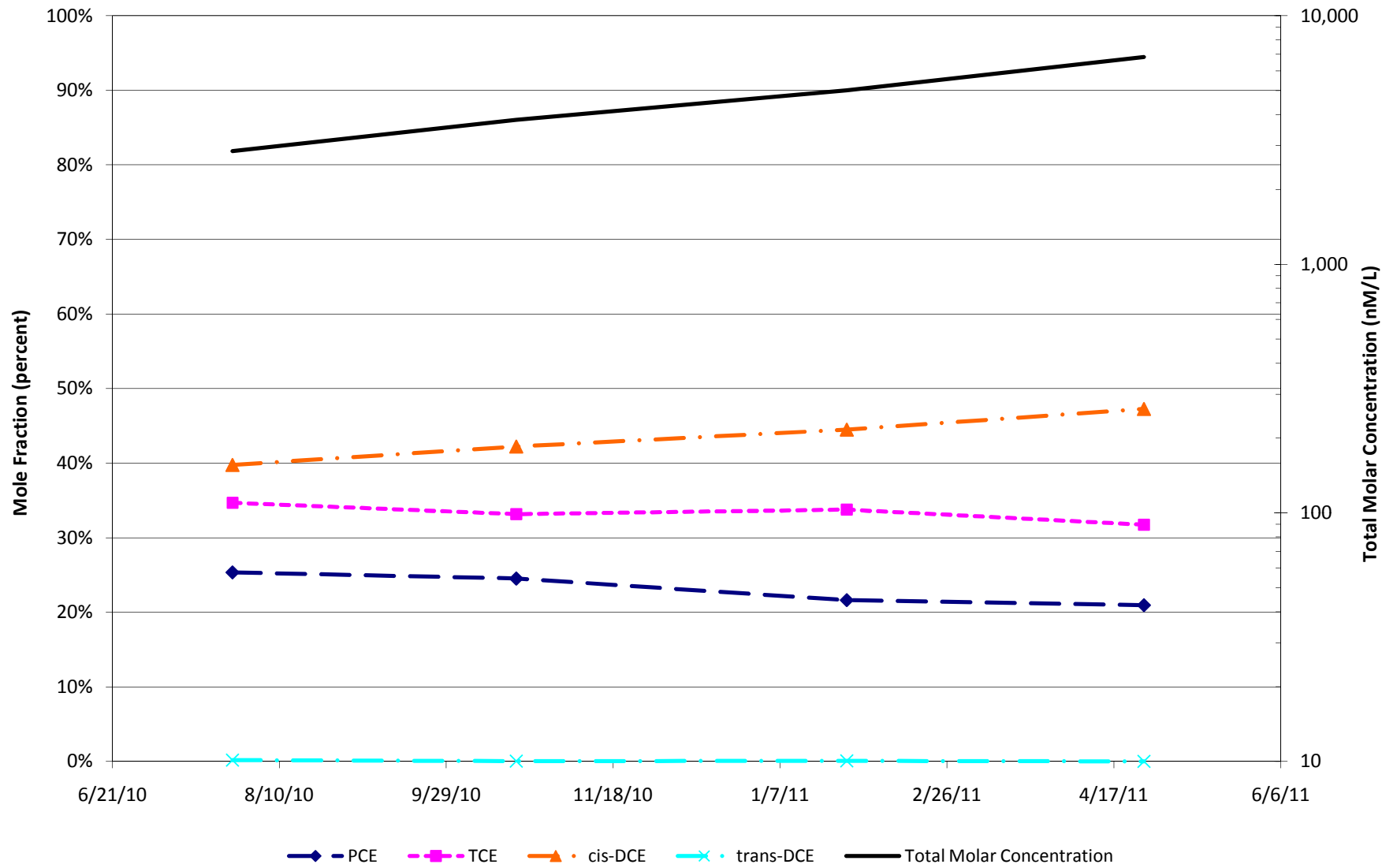


Figure 16.2.5

Lower Glen Rose Groundwater Elevations (feet above MSL) Measured in Westbay Wells May 2009 - April 2011

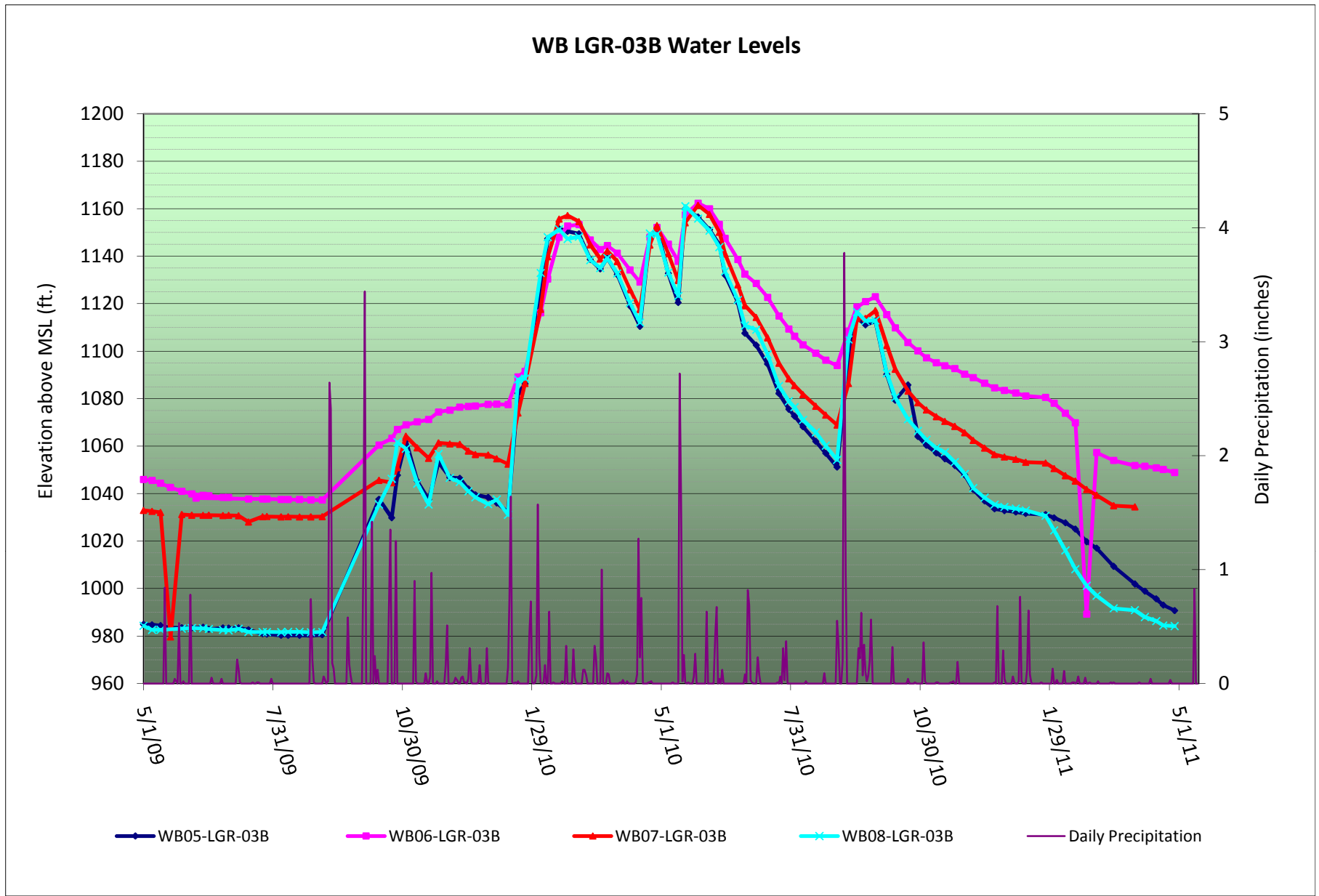


Figure 16.6.2-EXW01

B3-EXW-01 VOC Summary Quarter 12 - Quarter 16

Changes in Mole Fraction and Total Molar Concentration at CS-MW16-LGR

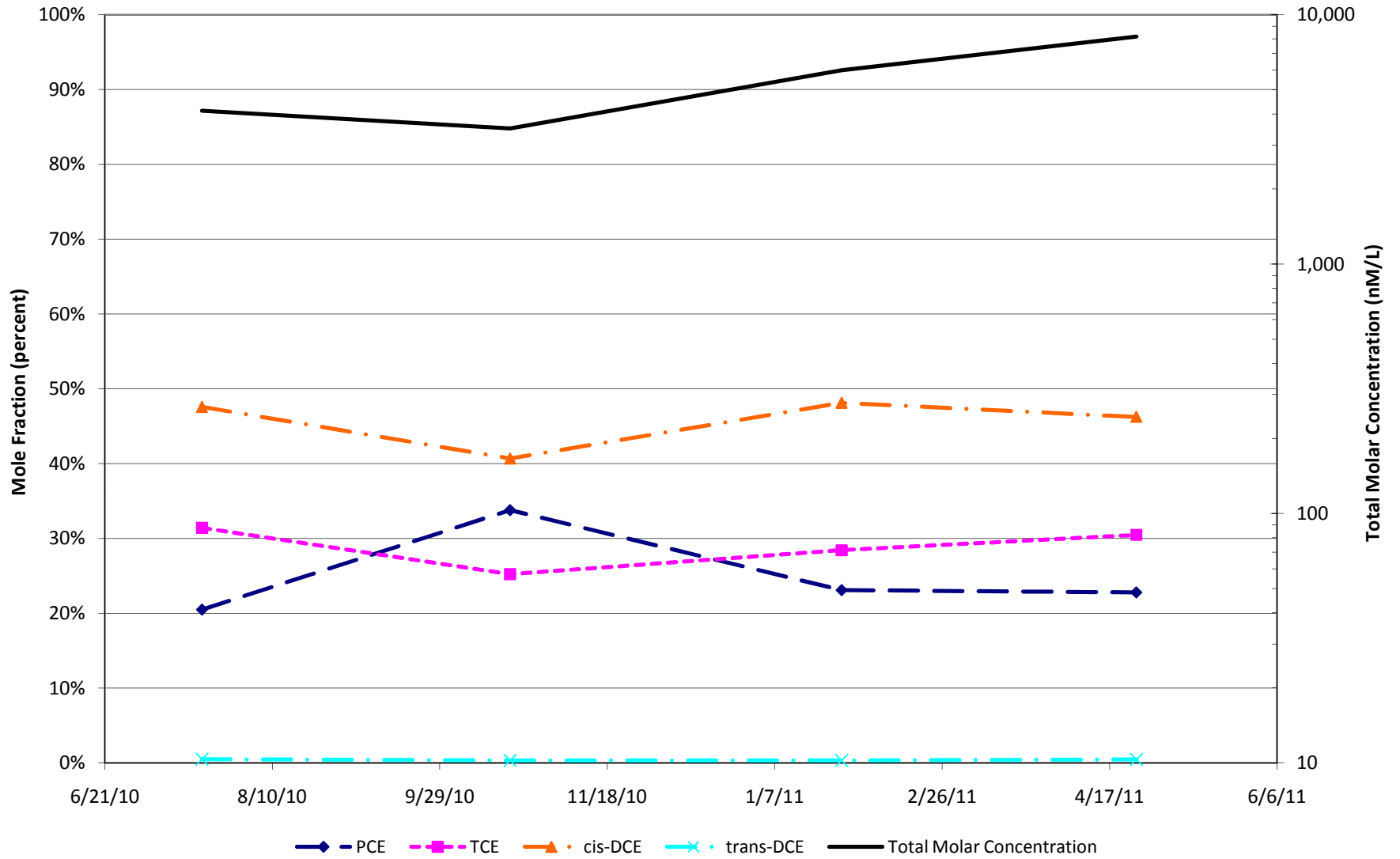


Figure 16.5.2

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

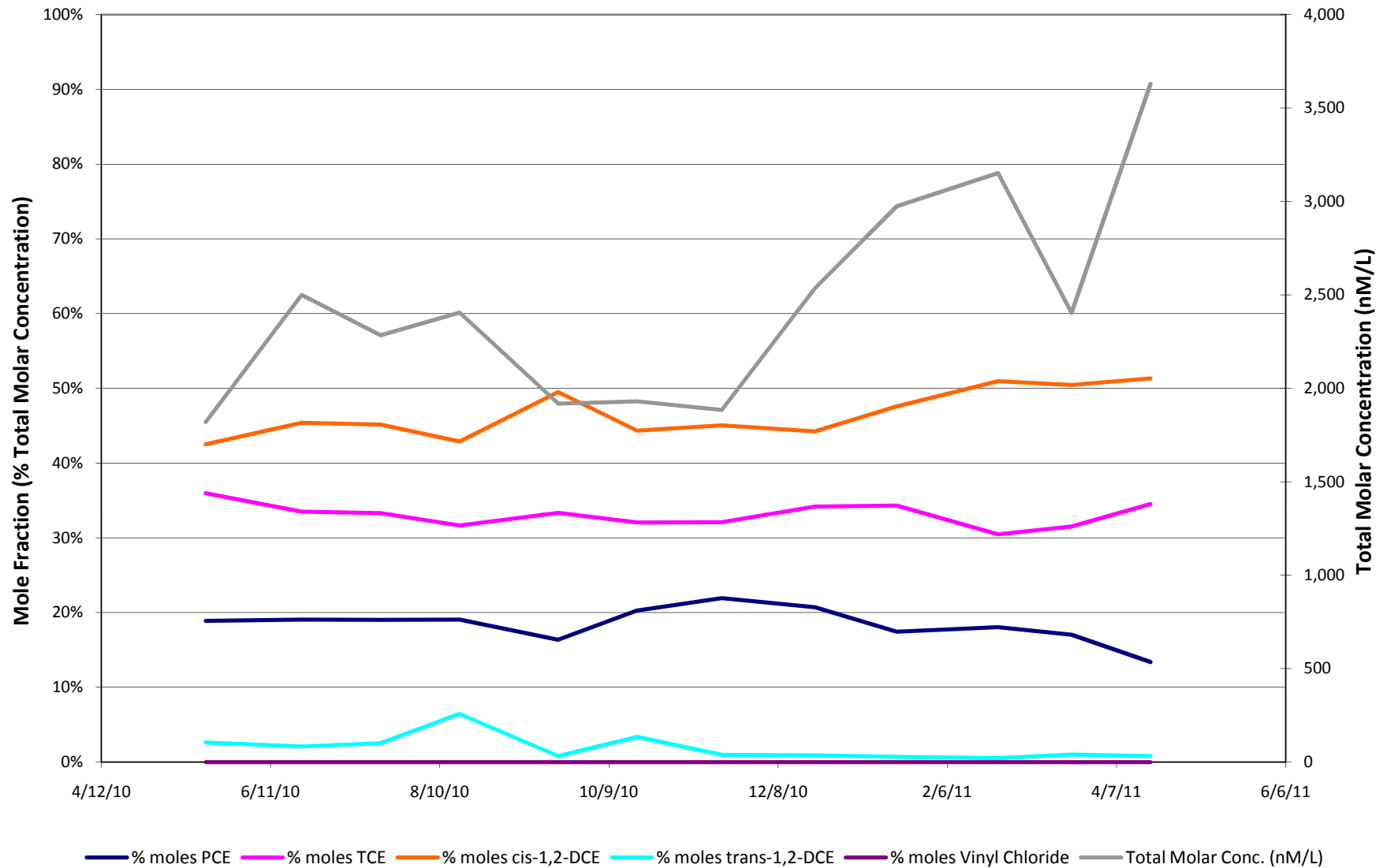


Figure 16.5.5

Cumulative Total Groundwater Applied to SWMU B-3 Trenches 1, 2, and 6 May 2010 - April 2011

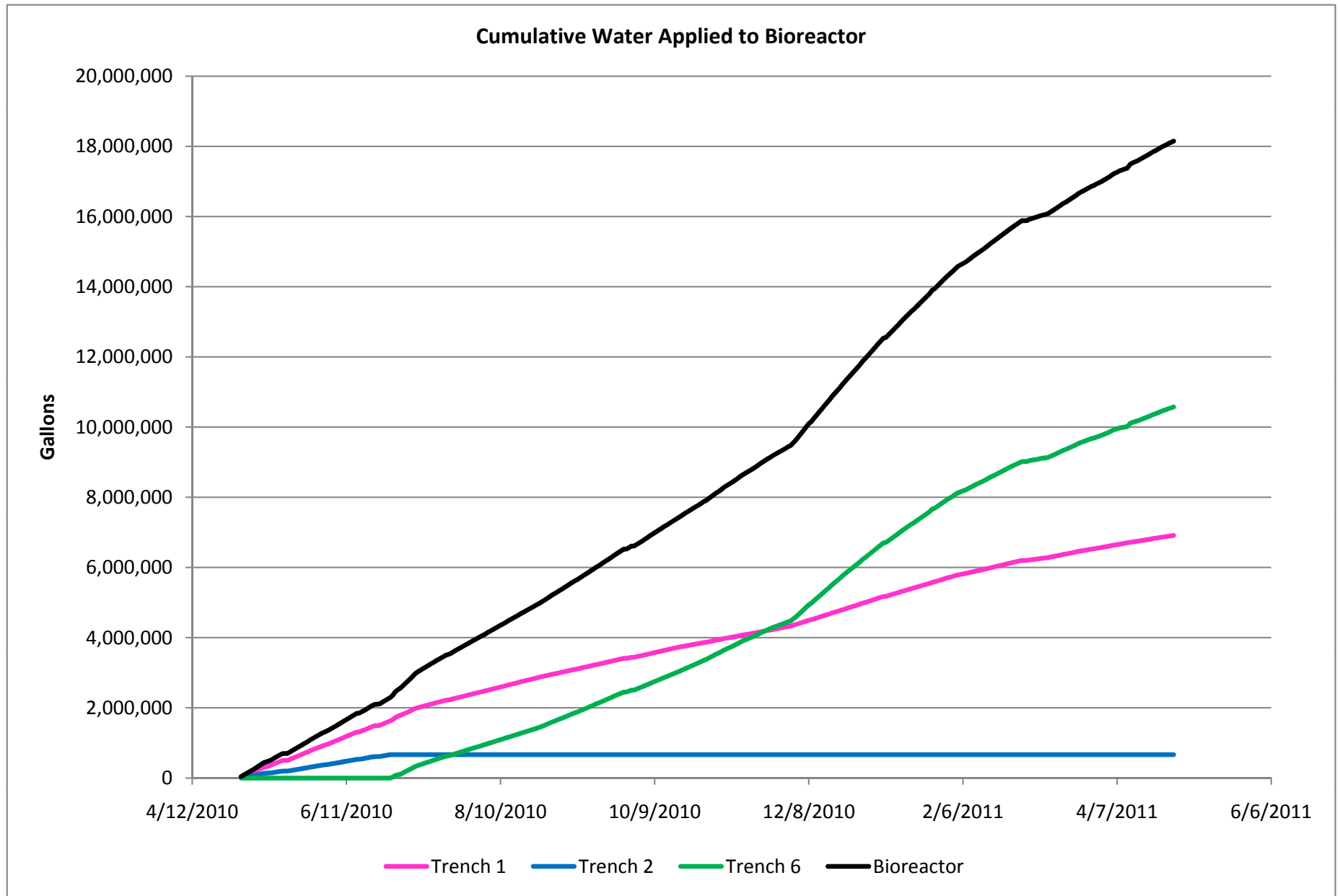


Figure 16.5.6

SWMU B-3 Bioreactor -Trench 1

Average Water Thickness, Water Applied from Extraction wells, and Precipitation

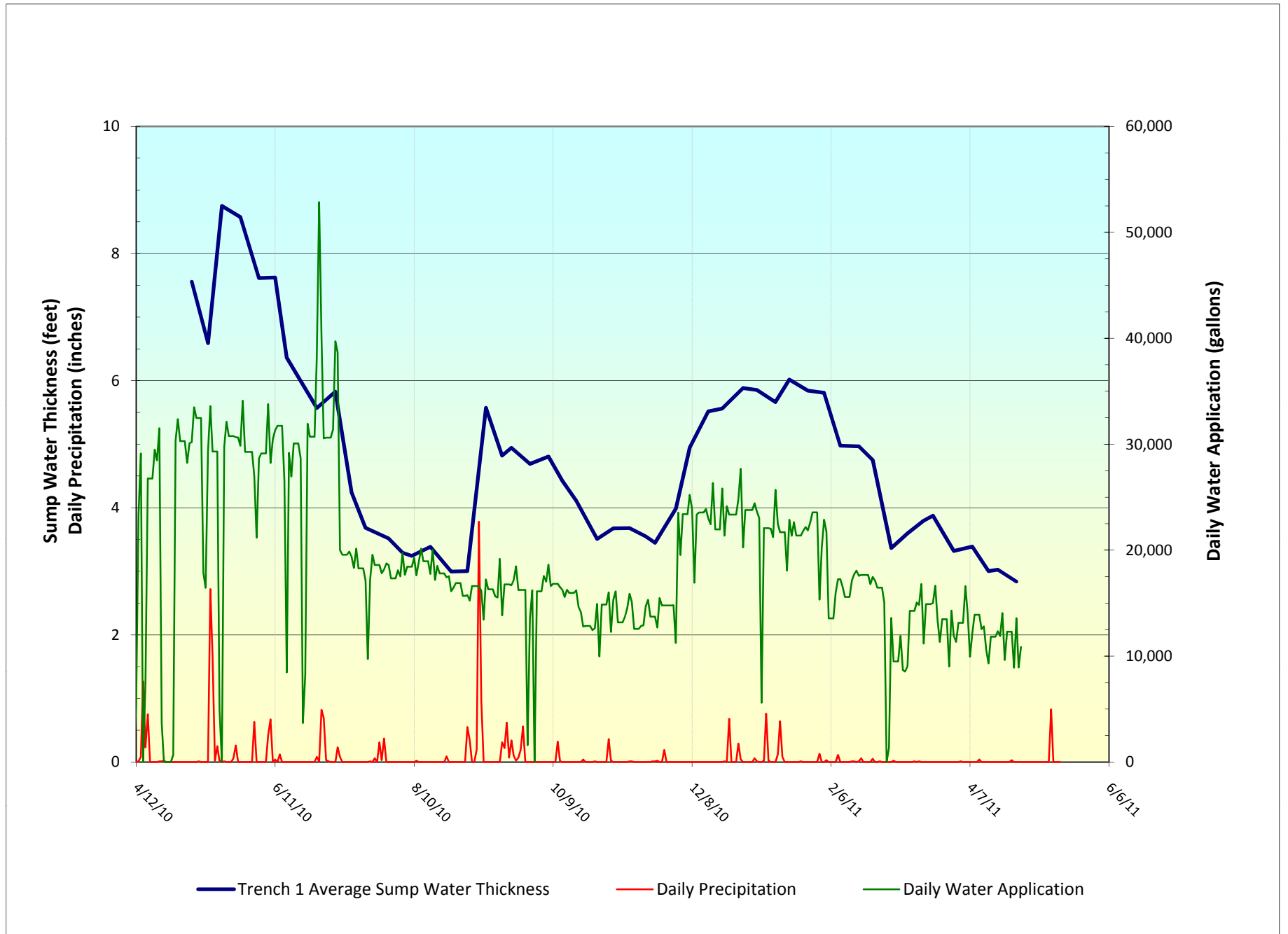
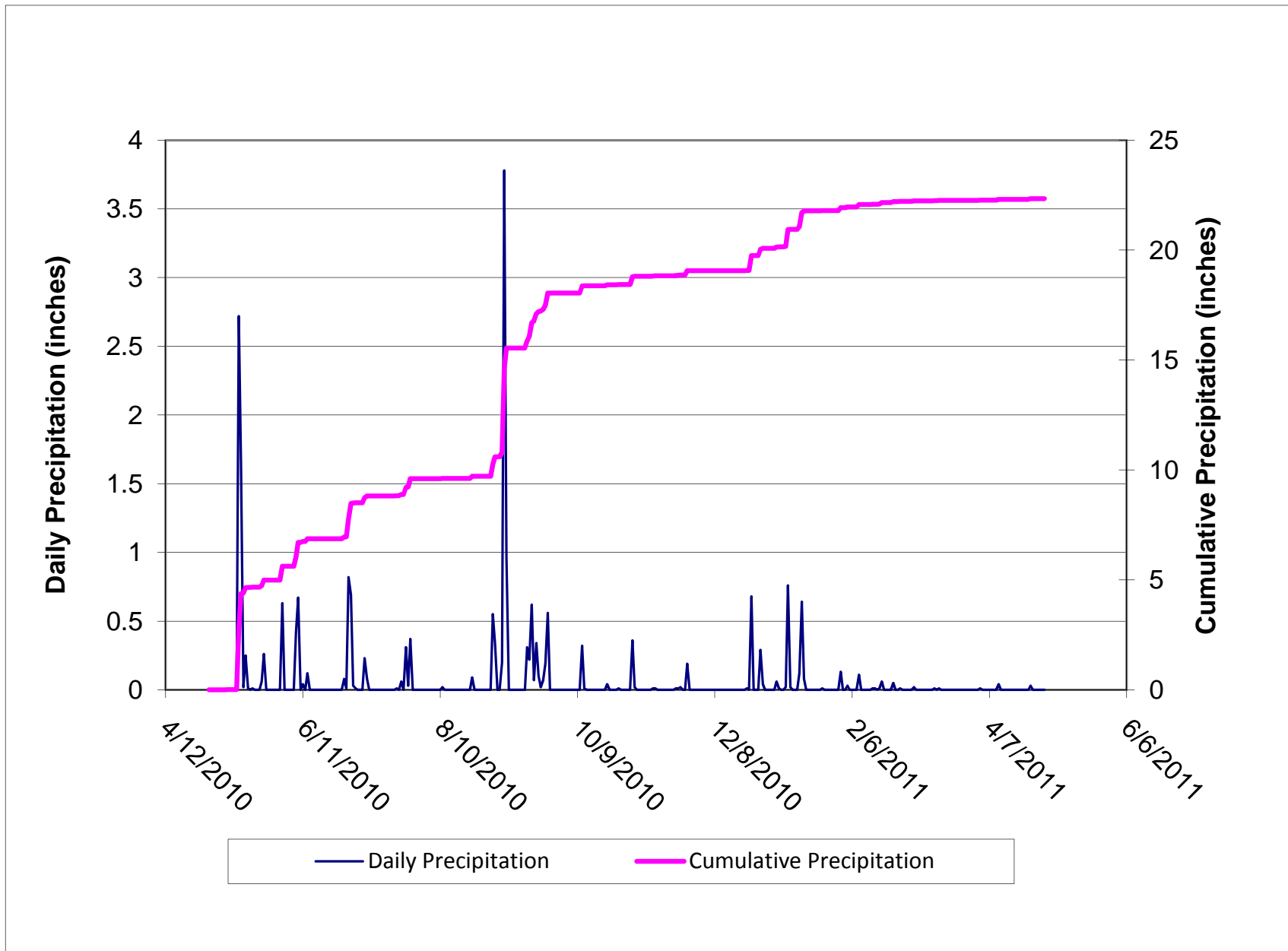
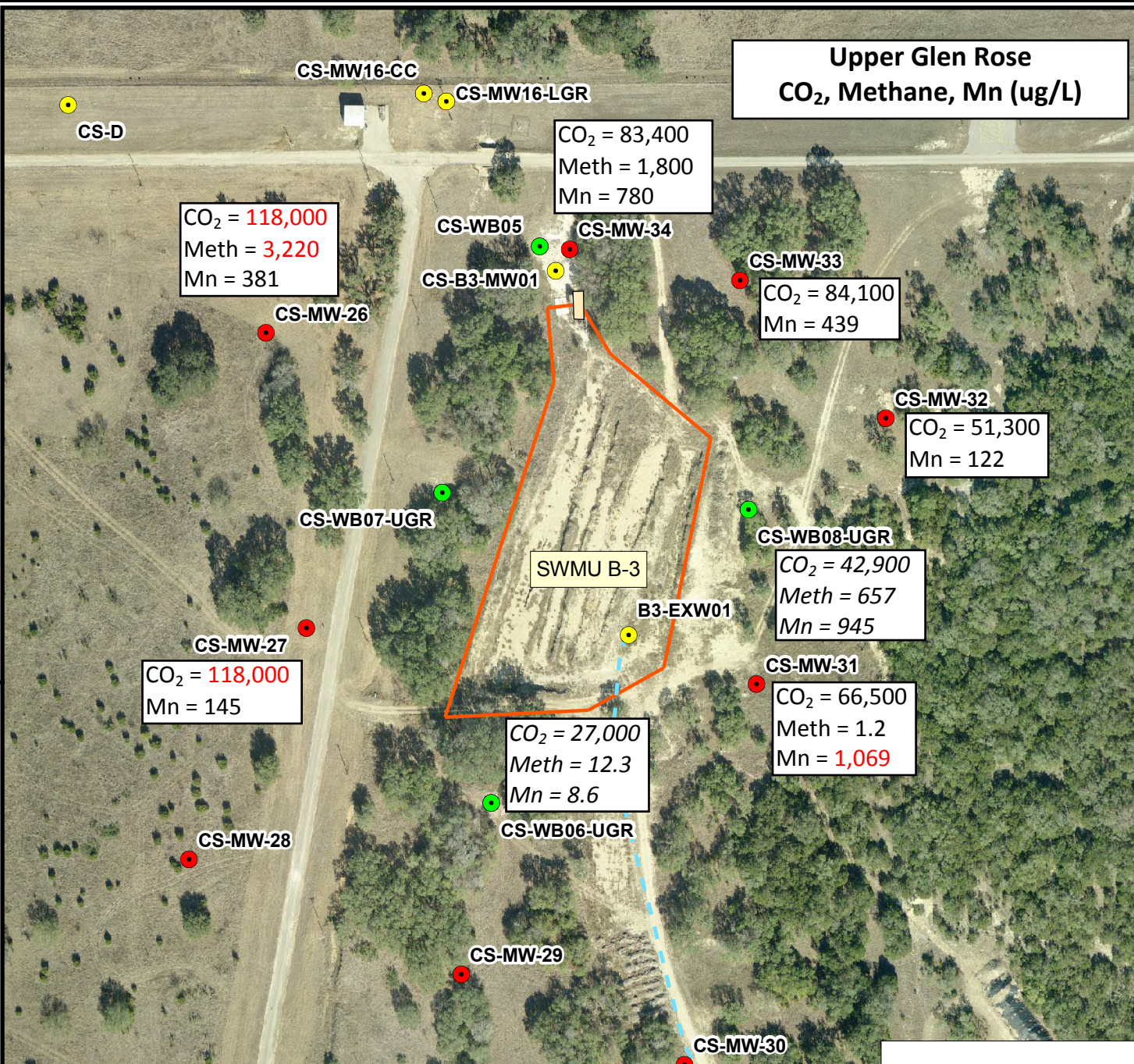


Figure 16.8.7

CSSA Precipitation May 2010 - April 2011



Upper Glen Rose CO₂, Methane, Mn (ug/L)



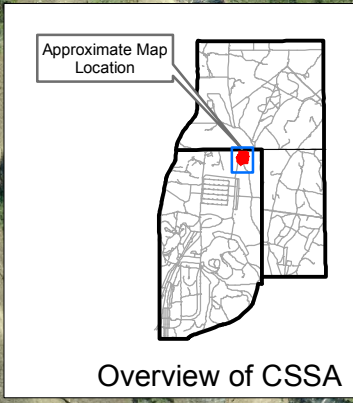
Note: MW-UGR wells sampled 4/26/11;
WB UGR zones sampled 4/27/11 - 4/28/11

Aerial Photo Date: 2009

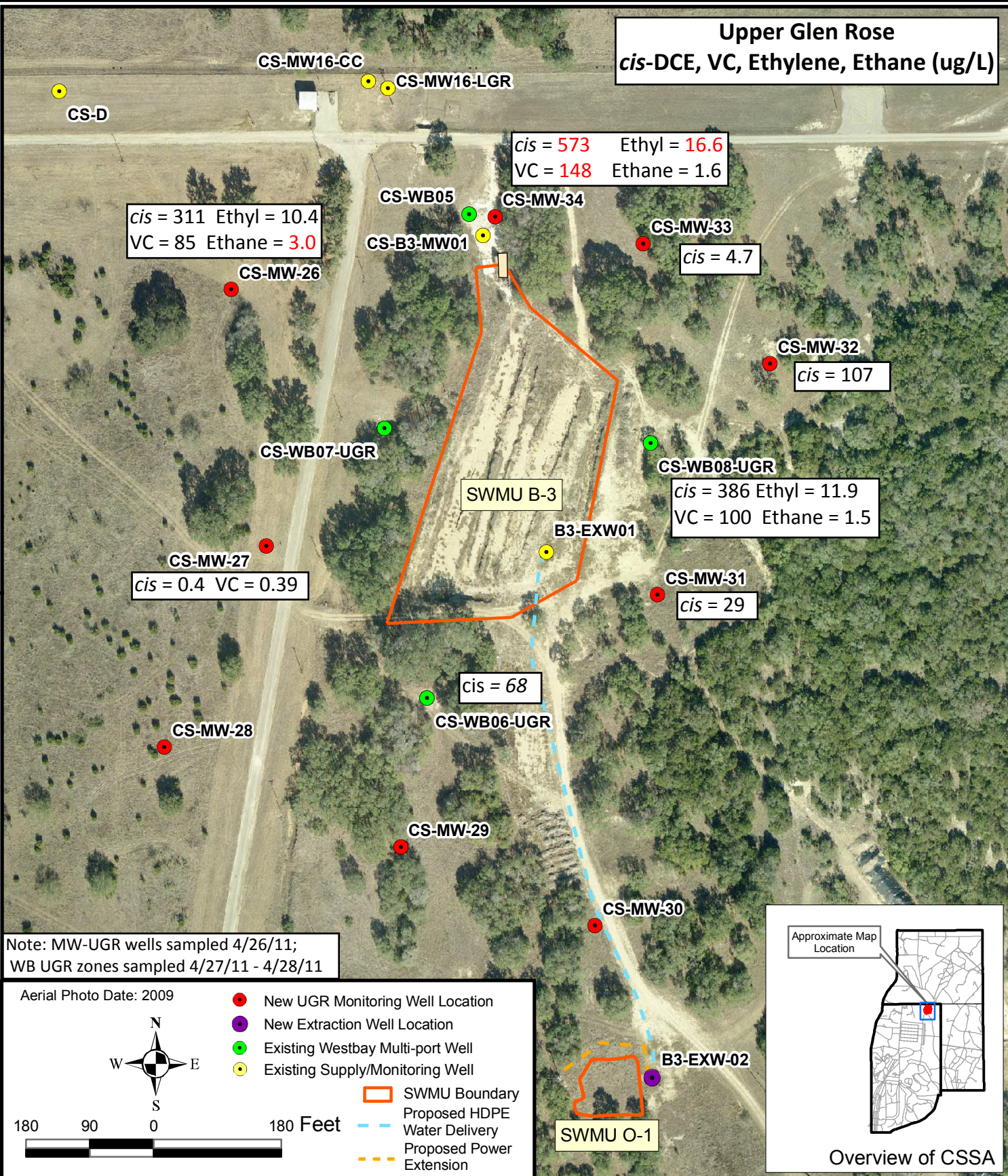
● New UGR Monitoring Well Location
● New Extraction Well Location
● Existing Westbay Multi-port Well
● Existing Supply/Monitoring Well

SWMU Boundary
 Proposed HDPE Water Delivery
 Proposed Power Extension

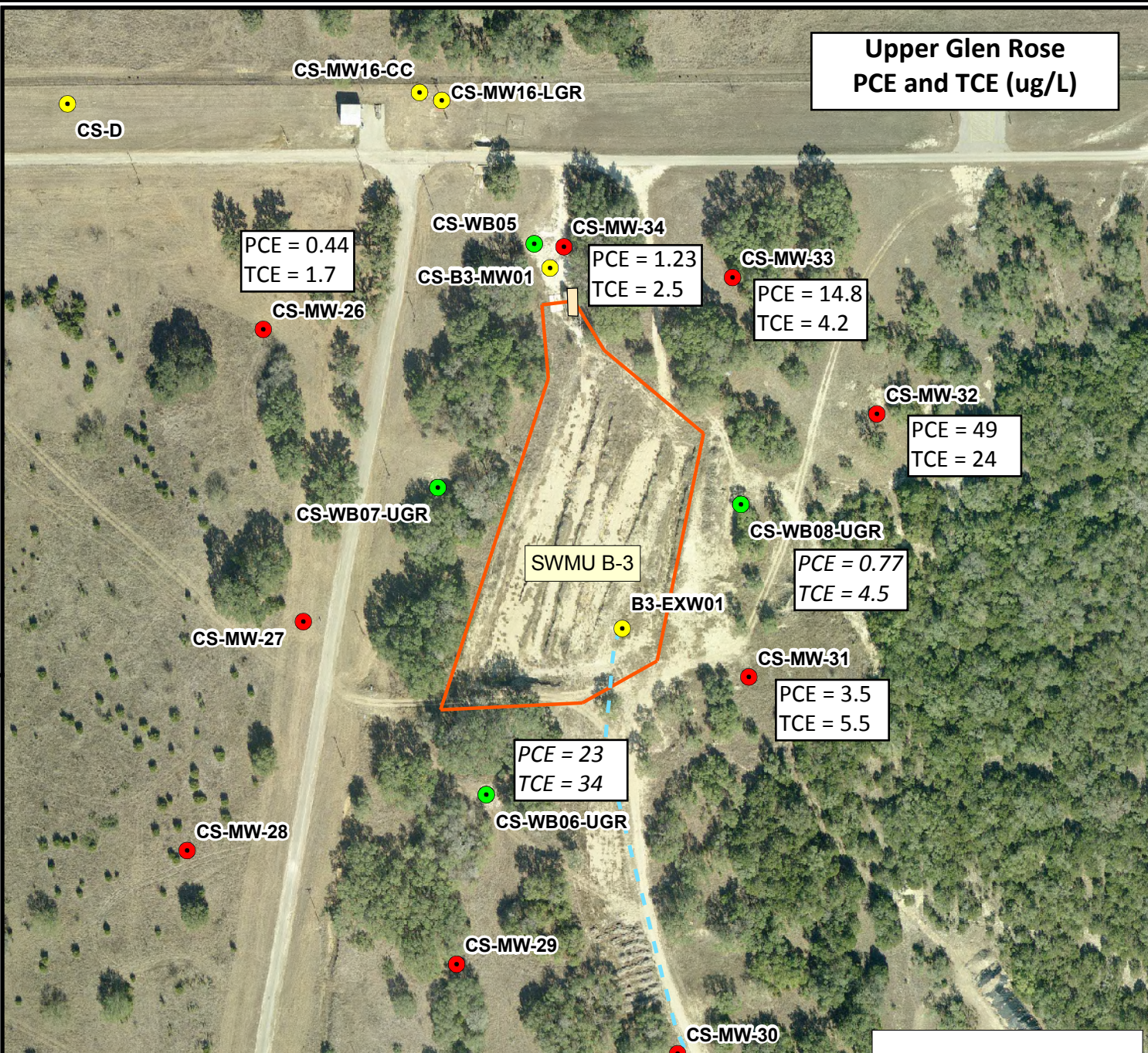
180 90 0 180 Feet



Upper Glen Rose cis-DCE, VC, Ethylene, Ethane (ug/L)



Upper Glen Rose PCE and TCE (ug/L)



Note: MW-UGR wells sampled 4/27/11;
WB UGR zones sampled 4/27/11 - 4/28/11

Aerial Photo Date: 2009

180 90 0 180 Feet

● New UGR Monitoring Well Location
● New Extraction Well Location
● Existing Westbay Multi-port Well
● Existing Supply/Monitoring Well

SWMU Boundary
 Proposed HDPE Water Delivery
 Proposed Power Extension

Approximate Map Location

Overview of CSSA

Tables

Table 16.1.1

SWMU B-3 Bioreactor Trenches - Field Measurement Data
May 2010 - April 2011

| TRENCH 1 | | | | | | | | |
|----------------------------|-------------|--|------|---------------------|--|-------------------------------|-------------|--|
| Sump 1-1 | | | | | | | | |
| Sump Depth: 12.9 feet BTOC | | | | | | | | |
| Sample Date | Sample Time | Sump H ₂ O Level (feet BTOC) | pH | Temperature (°C) | Specific Conductivity (m-mho/cm) | Dissolved Oxygen (mg/L) | ORP (eV) | Sump H ₂ O Thickness (feet) |
| 5/6/2010 | 1000 | 5.47 | 6.64 | 23.59 | 0.942 | 0.36 | -171.2 | 7.43 |
| 5/13/2010 | 1034 | 6.42 | 6.71 | 24.29 | 0.818 | 0.46 | -133.9 | 6.48 |
| 5/19/2010 | 900 | 4.29 | 6.76 | 22.40 | 0.825 | 0.30 | -159.5 | 8.61 |
| 5/27/2010 | 1430 | 4.45 | 7.30 | 24.46 | 0.443 | 0.43 | -102.9 | 8.45 |
| 6/4/2010 | 1500 | 5.37 | 6.97 | 23.90 | 0.636 | 0.24 | -86.1 | 7.53 |
| 6/11/2010 | 1130 | 5.35 | 6.91 | 24.52 | 0.661 | 0.40 | -109.2 | 7.55 |
| 6/16/2010 | 1315 | 7.70 | 6.84 | 24.47 | 0.664 | 0.14 | -155.9 | 5.20 |
| 6/29/2010 | 1015 | 8.05 | 6.65 | 25.36 | 0.764 | 0.51 | -182.4 | 4.85 |
| 7/7/2010 | 1105 | 7.30 | 6.74 | 25.14 | 0.861 | 0.70 | -171.0 | 5.60 |
| 7/14/2010 | 830 | 8.89 | 6.55 | 25.74 | 0.913 | 0.37 | -311.6 | 4.01 |
| 7/20/2010 | 1043 | 9.41 | 6.50 | 25.64 | 0.664 | 0.13 | -279.3 | 3.49 |
| 7/30/2010 | 1000 | 9.60 | 6.39 | 25.36 | 0.555 | 0.39 | -282.1 | 3.30 |
| 8/5/2010 | 915 | 9.86 | 6.44 | 26.10 | 0.985 | 0.33 | -288.1 | 3.04 |
| 8/9/2010 | 840 | 9.87 | 6.43 | 26.36 | 0.966 | 0.43 | -262.9 | 3.03 |
| 8/17/2010 | 848 | 9.33 | 6.37 | 26.11 | 1.02 | 0.46 | -277.1 | 3.57 |
| 8/26/2010 | 935 | 10.16 | 6.43 | 25.83 | 0.561 | 0.21 | -263.0 | 2.74 |
| 9/2/2010 | 1500 | 10.14 | 6.34 | 25.63 | 0.549 | 0.16 | -268.9 | 2.76 |
| 9/10/2010 | 1500 | 7.49 | 6.57 | 25.20 | 0.751 | 0.35 | -55.4 | 5.41 |
| 9/17/2010 | 1015 | 8.27 | 6.56 | 25.70 | 0.73 | 0.28 | -97.3 | 4.63 |
| 9/21/2010 | 910 | 8.18 | 6.66 | 30.56 | 1.275 | 0.29 | -246.0 | 4.72 |
| 9/29/2010 | 1000 | 8.44 | 6.73 | 27.83 | 1.247 | 0.42 | -258.1 | 4.46 |
| 10/7/2010 | 1300 | 8.32 | 6.60 | 25.95 | 0.788 | 0.23 | -288.1 | 4.58 |
| 10/13/2010 | 1028 | 8.76 | 6.61 | 27.48 | 0.674 | 0.45 | -267.8 | 4.14 |
| 10/19/2010 | 830 | 9.08 | 6.56 | 26.52 | 0.816 | 0.41 | -252.0 | 3.82 |
| 10/28/2010 | 1315 | 9.59 | 6.60 | 25.14 | 1.12 | 0.59 | -297.3 | 3.31 |
| 11/4/2010 | 1500 | 9.44 | 6.56 | 24.03 | 1.036 | 0.44 | -248.8 | 3.46 |
| 11/11/2010 | 1325 | 9.47 | 6.48 | 24.72 | 0.975 | 0.43 | -253.6 | 3.43 |
| 11/18/2010 | 848 | 9.61 | 6.51 | 24.39 | 0.665 | 0.36 | -195.4 | 3.29 |
| 11/22/2010 | 1000 | 9.72 | 6.46 | 24.84 | 0.648 | 0.52 | -210.9 | 3.18 |
| 12/1/2010 | 947 | 8.93 | 6.54 | 24.39 | 0.596 | 0.32 | -185.0 | 3.97 |
| 12/7/2010 | 1500 | 7.95 | 6.62 | 22.25 | 1.022 | 0.35 | -195.9 | 4.95 |
| 12/15/2010 | 1430 | 7.60 | 6.79 | 22.39 | 1.046 | 0.20 | -110.0 | 5.30 |
| 12/21/2010 | 1000 | 7.55 | 6.89 | 22.48 | 0.661 | 0.49 | 21.3 | 5.35 |
| 12/30/2010 | 1028 | 7.21 | 6.95 | 22.06 | 0.872 | 0.42 | -69.3 | 5.69 |
| 1/5/2011 | 1000 | 7.24 | 6.97 | 22.01 | 0.792 | 0.59 | -78.0 | 5.66 |
| 1/13/2011 | 1330 | 7.45 | 6.95 | 21.31 | 0.819 | 0.43 | -81.4 | 5.45 |
| 1/19/2011 | 1000 | 7.10 | 6.90 | 21.88 | 0.551 | 0.44 | -86.2 | 5.80 |
| 1/27/2011 | 1245 | 7.26 | 6.96 | 21.68 | 0.599 | 0.50 | -50.0 | 5.64 |
| 2/3/2011 | | 7.46 | 7.11 | 20.29 | 0.651 | 0.63 | -98.0 | 5.44 |
| 2/10/2011 | 942 | 8.18 | 6.97 | 21.28 | 0.61 | 0.11 | -55.7 | 4.72 |
| 2/18/2011 | 930 | 8.14 | 6.76 | 22.18 | 0.535 | 0.26 | -56.7 | 4.76 |
| 2/24/2011 | 1030 | 8.30 | 6.76 | 23.38 | 0.793 | 0.34 | -53.3 | 4.60 |
| 3/4/2011 | 900 | 9.75 | 6.57 | 22.29 | 0.677 | 0.18 | -211.9 | 3.15 |
| 3/11/2011 | 1030 | 10.19 | 6.58 | 22.62 | 0.925 | 0.17 | -263.8 | 2.71 |
| 3/18/2011 | 830 | 9.29 | 6.48 | 23.52 | 0.956 | 0.24 | -276.3 | 3.61 |
| 3/22/2011 | 1000 | 9.20 | 6.51 | 23.32 | 0.947 | 0.07 | -280.3 | 3.70 |
| 3/31/2011 | 1330 | 9.80 | 6.46 | 23.43 | 0.775 | 0.20 | -241.7 | 3.10 |
| 4/8/2011 | 830 | 9.71 | 6.41 | 24.31 | 0.966 | 0.23 | -267.6 | 3.19 |
| 4/15/2011 | 1030 | 10.08 | 6.44 | 24.57 | 0.556 | 0.12 | -223.0 | 2.82 |
| 4/19/2011 | 940 | 10.02 | 6.15 | 24.77 | 0.678 | 0.08 | -244.1 | 2.88 |
| 4/27/2011 | 1510 | 10.21 | 6.22 | 25.31 | 0.959 | 0.13 | -232.7 | 2.69 |

Table 16.1.1

SWMU B-3 Bioreactor Trenches - Field Measurement Data
May 2010 - April 2011

| TRENCH 1 | | | | | | | | |
|---------------------------------|-------------|--|------|---------------------|--|-------------------------------|-------------|--|
| Sump 1-2 | | | | | | | | |
| Sump Depth: 12.4 feet BTOC | | | | | | | | |
| Sample Date | Sample Time | Sump H ₂ O Level (feet BTOC) | pH | Temperature (°C) | Specific Conductivity (m-mho/cm) | Dissolved Oxygen (mg/L) | ORP (eV) | Sump H ₂ O Thickness (feet) |
| 5/6/2010 | 1000 | 5.19 | 6.61 | 23.93 | 0.948 | 0.32 | -132.8 | 7.21 |
| 5/13/2010 | 1034 | 6.10 | 6.60 | 23.59 | 1.023 | 0.39 | -120.1 | 6.30 |
| 5/19/2010 | 900 | 3.99 | 6.74 | 25.25 | 0.888 | 0.21 | -110.2 | 8.41 |
| 5/27/2010 | 1430 | 4.18 | 6.96 | 25.01 | 0.555 | 0.22 | -175 | 8.22 |
| 6/4/2010 | 1500 | 5.09 | 6.70 | 24.56 | 0.784 | 0.49 | -119.3 | 7.31 |
| 6/11/2010 | 1130 | 5.08 | 6.87 | 24.90 | 0.716 | 0.29 | -115.1 | 7.32 |
| 6/16/2010 | 1315 | 4.37 | 6.62 | 24.57 | 0.840 | 0.23 | -140.5 | 8.03 |
| 6/29/2010 | 1015 | 7.55 | 6.74 | 24.92 | 0.736 | 0.41 | -177.3 | 4.85 |
| 7/7/2010 | 1105 | 6.92 | 6.65 | 24.98 | 0.851 | 0.62 | -122.8 | 5.48 |
| 7/14/2010 | 830 | 8.47 | 6.53 | 24.68 | 0.844 | 0.77 | -299.1 | 3.93 |
| 7/20/2010 | 1043 | 9.03 | 6.56 | 24.66 | 0.620 | 0.17 | -259.6 | 3.37 |
| 7/30/2010 | 1000 | 9.20 | 6.47 | 26.60 | 0.529 | 0.44 | -170.7 | 3.20 |
| 8/5/2010 | 915 | 9.38 | 6.48 | 26.48 | 1.011 | 0.43 | -250.9 | 3.02 |
| 8/9/2010 | 840 | 9.45 | 6.45 | 25.95 | 1.012 | 0.49 | -260.3 | 2.95 |
| 8/17/2010 | 848 | 9.50 | 6.44 | 26.55 | 0.958 | 0.28 | -265.8 | 2.90 |
| 8/26/2010 | 935 | 9.70 | 6.46 | 26.56 | 0.558 | 0.40 | -175 | 2.70 |
| 9/2/2010 | 1500 | 9.68 | 6.34 | 26.80 | 0.548 | 0.34 | -153.4 | 2.72 |
| 9/10/2010 | 1500 | 7.15 | 6.52 | 27.39 | 0.775 | 0.23 | -281.2 | 5.25 |
| 9/17/2010 | 1015 | 7.88 | 6.52 | 27.26 | 0.763 | 0.25 | -278.4 | 4.52 |
| 9/21/2010 | 910 | 7.82 | 6.47 | 27.76 | 1.226 | 0.26 | -205.1 | 4.58 |
| 9/29/2010 | 1000 | 8.05 | 6.55 | 25.74 | 1.239 | 0.44 | -266.3 | 4.35 |
| 10/7/2010 | 1300 | 7.92 | 6.52 | 25.33 | 0.772 | 0.37 | -276.6 | 4.48 |
| 10/13/2010 | 1028 | 8.33 | 6.56 | 24.30 | 0.658 | 0.35 | -283.7 | 4.07 |
| 10/19/2010 | 830 | 8.63 | 6.55 | 24.00 | 0.755 | 0.34 | -280.9 | 3.77 |
| 10/28/2010 | 1315 | 9.18 | 6.69 | 24.51 | 1.021 | 0.47 | -288.7 | 3.22 |
| 11/4/2010 | 1500 | 9.03 | 6.61 | 24.80 | 0.921 | 0.44 | -266.9 | 3.37 |
| 11/11/2010 | 1323 | 9.05 | 6.52 | 24.28 | 0.912 | 0.40 | -290.4 | 3.35 |
| 11/18/2010 | 848 | 9.17 | 6.59 | 23.82 | 0.627 | 0.18 | -236 | 3.23 |
| 11/22/2010 | 1000 | 9.26 | 6.53 | 23.67 | 0.614 | 0.28 | -267.9 | 3.14 |
| 12/1/2010 | 947 | 8.72 | 6.59 | 24.32 | 0.608 | 0.21 | -189.8 | 3.68 |
| 12/7/2010 | 1500 | | | | | | | |
| Data not recorded on field form | | | | | | | | |
| 12/15/2010 | 1430 | 7.21 | 6.78 | 22.68 | 1.398 | 0.26 | -219 | 5.19 |
| 12/21/2010 | 1000 | 7.17 | 6.95 | 22.24 | 0.787 | 0.24 | 0.3 | 5.23 |
| 12/30/2010 | 1028 | 6.84 | 7.00 | 21.67 | 0.958 | 0.03 | -72.1 | 5.56 |
| 1/5/2011 | 1000 | 6.87 | 7.02 | 21.59 | 0.841 | 0.09 | -69.6 | 5.53 |
| 1/13/2011 | 1330 | 7.06 | 6.96 | 20.99 | 0.797 | 0.14 | -76.9 | 5.34 |
| 1/19/2011 | 1000 | 6.70 | 6.97 | 20.22 | 0.549 | 0.02 | -161.9 | 5.70 |
| 1/27/2011 | 1245 | 6.87 | 6.98 | 20.24 | 0.581 | 0.09 | -51.1 | 5.53 |
| 2/3/2011 | | | | | | | | |
| Lid frozen shut | | | | | | | | |
| 2/10/2011 | 942 | 7.76 | 6.85 | 20.09 | 0.571 | 0.08 | -39.9 | 4.64 |
| 2/18/2011 | 930 | 7.76 | 6.74 | 20.18 | 0.538 | 0.07 | -149.3 | 4.64 |
| 2/24/2011 | 1030 | 8 | 6.72 | 20.93 | 0.79 | 0.05 | -135.2 | 4.40 |
| 3/4/2011 | 900 | 9.3 | 6.74 | 21.7 | 0.673 | 0.05 | -205.1 | 3.10 |
| 3/11/2011 | 1030 | 7.75 | 6.5 | 22.21 | 0.861 | 0.13 | -210.6 | 4.65 |
| 3/18/2011 | 830 | 8.89 | 6.54 | 22.72 | 0.983 | 0.22 | -241 | 3.51 |
| 3/22/2011 | 1025 | 8.82 | 6.62 | 22.61 | 1.02 | 0.18 | -212.6 | 3.58 |
| 3/31/2011 | 1330 | 9.3 | 6.53 | 23.52 | 0.778 | 0.08 | -194.1 | 3.10 |
| 4/8/2011 | 830 | 9.27 | 6.55 | 24.04 | 0.956 | 0.12 | -225.2 | 3.13 |
| 4/15/2011 | 1030 | 9.63 | 6.54 | 24.1 | 0.568 | 0.11 | -175.8 | 2.77 |
| 4/19/2011 | 940 | 9.63 | 6.55 | 24.3 | 0.704 | 0.02 | -203.8 | 2.77 |
| 4/27/2011 | 1510 | 9.81 | 6.5 | 24.57 | 0.928 | 0.07 | -216.4 | 2.59 |

Table 16.1.1

SWMU B-3 Bioreactor Trenches - Field Measurement Data
May 2010 - April 2011

| TRENCH 1 | | | | | | | | |
|-----------------------------|-------------|--|------|---------------------|--|-------------------------------|-------------|--|
| Sump 1-3 | | | | | | | | |
| Sump Depth: 12.85 feet BTOC | | | | | | | | |
| Sample Date | Sample Time | Sump H ₂ O Level (feet BTOC) | pH | Temperature (°C) | Specific Conductivity (m-mho/cm) | Dissolved Oxygen (mg/L) | ORP (eV) | Sump H ₂ O Thickness (feet) |
| 5/6/2010 | 1000 | 4.82 | 7.17 | 23.77 | 0.638 | 0.52 | -104.0 | 8.03 |
| 5/13/2010 | 1034 | 5.86 | 7.13 | 24.43 | 0.664 | 0.37 | -95.7 | 6.99 |
| 5/19/2010 | 900 | 3.62 | 7.53 | 27.38 | 0.606 | 0.54 | -97.5 | 9.23 |
| 5/27/2010 | 1430 | 3.80 | 7.64 | 27.28 | 0.441 | 0.34 | -99.3 | 9.05 |
| 6/4/2010 | 1500 | 4.85 | 7.25 | 23.48 | 0.628 | 0.39 | -73.5 | 8.00 |
| 6/11/2010 | 1130 | 4.85 | 7.38 | 26.10 | 0.614 | 0.37 | -80.3 | 8.00 |
| 6/16/2010 | 1315 | 6.99 | 6.99 | 25.12 | 0.667 | 0.22 | -170.7 | 5.86 |
| 6/29/2010 | 1015 | 5.84 | 6.87 | 28.63 | 0.695 | 0.42 | -98.7 | 7.01 |
| 7/7/2010 | 1105 | 6.45 | 6.94 | 23.73 | 0.602 | 0.54 | -54.9 | 6.40 |
| 7/14/2010 | 830 | 8.07 | 6.64 | 24.69 | 0.720 | 0.31 | -307.6 | 4.78 |
| 7/20/2010 | 1043 | 8.66 | 6.58 | 29.43 | 0.605 | 0.11 | -245.9 | 4.19 |
| 7/30/2010 | 1000 | 8.80 | 6.48 | 25.47 | 0.488 | 0.28 | -247.9 | 4.05 |
| 8/5/2010 | 915 | 9.03 | 6.50 | 25.26 | 0.872 | 0.35 | -273.0 | 3.82 |
| 8/9/2010 | 840 | 9.10 | 6.42 | 25.43 | 0.858 | 0.34 | -274.3 | 3.75 |
| 8/17/2010 | 848 | 9.16 | 6.43 | 25.30 | 0.853 | 0.23 | -298.9 | 3.69 |
| 8/26/2010 | 935 | 9.30 | 6.55 | 25.09 | 0.468 | 0.20 | -275.0 | 3.55 |
| 9/2/2010 | 1500 | 9.32 | 6.04 | 24.94 | 0.462 | 0.27 | -267.9 | 3.53 |
| 9/10/2010 | 1500 | 6.79 | 7.08 | 24.43 | 0.376 | 0.19 | -141.1 | 6.06 |
| 9/17/2010 | 1015 | 7.54 | 6.49 | 24.43 | 0.389 | 0.26 | -264.0 | 5.31 |
| 9/21/2010 | 910 | 7.32 | 6.59 | 23.71 | 0.680 | 0.20 | -206.7 | 5.53 |
| 9/29/2010 | 1000 | 7.59 | 6.70 | 23.48 | 0.711 | 0.34 | -117.9 | 5.26 |
| 10/7/2010 | 1300 | 7.49 | 6.75 | 22.60 | 0.459 | 0.44 | -160.0 | 5.36 |
| 10/13/2010 | 1028 | 7.79 | 6.73 | 23.00 | 0.389 | 0.38 | -252.5 | 5.06 |
| 10/19/2010 | 830 | 8.11 | 6.77 | 22.76 | 0.469 | 0.21 | -238.0 | 4.74 |
| 10/28/2010 | 1315 | 8.85 | 6.67 | 23.45 | 0.759 | 0.53 | -273.3 | 4.00 |
| 11/4/2010 | 1500 | 8.65 | 6.60 | 21.78 | 0.849 | 0.40 | -231.2 | 4.20 |
| 11/11/2010 | 1325 | 8.59 | 6.51 | 21.81 | 0.877 | 0.38 | -278.4 | 4.26 |
| 11/18/2010 | 848 | 8.72 | 6.60 | 21.84 | 0.608 | 0.20 | -182.4 | 4.13 |
| 11/22/2010 | 1000 | 8.82 | 6.51 | 21.67 | 0.599 | 0.36 | -247.5 | 4.03 |
| 12/1/2010 | 947 | 8.54 | 6.62 | 21.37 | 0.523 | 0.23 | -145.0 | 4.31 |
| 12/7/2010 | 1500 | | 6.81 | 20.80 | 0.789 | 0.51 | 38.6 | |
| 12/15/2010 | 1430 | 6.79 | 6.96 | 20.44 | 0.693 | 0.44 | 14.1 | 6.06 |
| 12/21/2010 | 1000 | 6.75 | 6.99 | 20.58 | 0.444 | 0.28 | -48.9 | 6.10 |
| 12/30/2010 | 1028 | 6.45 | 7.09 | 20.54 | 0.654 | 0.21 | -84.0 | 6.40 |
| 1/5/2011 | 1000 | 6.48 | 7.02 | 20.47 | 0.619 | 0.11 | -85.0 | 6.37 |
| 1/13/2011 | 1330 | 6.65 | 7.06 | 19.37 | 0.627 | 0.64 | -72.0 | 6.20 |
| 1/19/2011 | 1000 | 6.30 | 7.04 | 20.22 | 0.439 | 0.57 | -72.5 | 6.55 |
| 1/27/2011 | 1245 | 6.49 | 7.01 | 19.76 | 0.510 | 0.78 | -49.9 | 6.36 |
| 2/3/2011 | | 6.68 | 7.22 | 18.41 | 0.574 | 0.75 | -112.8 | 6.17 |
| 2/10/2011 | 942 | 7.28 | 7.06 | 19.22 | 0.483 | 0.60 | -26.7 | 5.57 |
| 2/18/2011 | 930 | 7.35 | 6.95 | 20.61 | 0.422 | 0.23 | -214.2 | 5.50 |
| 2/24/2011 | 1030 | 7.60 | 6.96 | 21.97 | 0.636 | 0.29 | -83.1 | 5.25 |
| 3/4/2011 | 900 | 9.00 | 6.70 | 21.71 | 0.552 | 0.16 | -191.3 | 3.85 |
| 3/11/2011 | 1030 | 9.42 | 6.52 | 21.77 | 0.767 | 0.09 | -207.0 | 3.43 |
| 3/18/2011 | 830 | 8.58 | 6.52 | 22.60 | 0.942 | 0.14 | -258.7 | 4.27 |
| 3/22/2011 | 1055 | 8.50 | 6.55 | 22.58 | 0.948 | 0.20 | -236.9 | 4.35 |
| 3/31/2011 | 1330 | 9.09 | 6.51 | 23.36 | 0.714 | 0.15 | -235.9 | 3.76 |
| 4/8/2011 | 830 | 9.00 | 6.52 | 23.41 | 0.835 | 0.11 | -226.1 | 3.85 |
| 4/15/2011 | 1030 | 9.43 | 6.50 | 24.38 | 0.463 | 0.10 | -187.8 | 3.42 |
| 4/19/2011 | 940 | 9.42 | 6.49 | 24.48 | 0.570 | 0.01 | -170.0 | 3.43 |
| 4/27/2011 | 1510 | 9.61 | 6.47 | 25.06 | 0.822 | 0.10 | -221.9 | 3.24 |

Table 16.1.1

SWMU B-3 Bioreactor Trenches - Field Measurement Data
May 2010 - April 2011

| TRENCH 2 | | | | | | | | |
|----------------------------|-------------|--|------|---------------------|--|-------------------------------|-------------|--|
| Sump 2-1 | | | | | | | | |
| Sump Depth: 9.67 feet BTOC | | | | | | | | |
| Sample Date | Sample Time | Sump H ₂ O Level (feet BTOC) | pH | Temperature (°C) | Specific Conductivity (m-mho/cm) | Dissolved Oxygen (mg/L) | ORP (eV) | Sump H ₂ O Thickness (feet) |
| 5/6/2010 | 1000 | 6.95 | 6.67 | 24.11 | 0.877 | 0.41 | -128.3 | 2.72 |
| 5/13/2010 | 1034 | 7.86 | 6.7 | 24.58 | 0.831 | 0.37 | -125.9 | 1.81 |
| 5/19/2010 | 900 | 5.74 | 6.87 | 24.05 | 0.918 | 0.62 | -92.0 | 3.93 |
| 5/27/2010 | 1430 | 5.89 | 7.09 | 24.18 | 0.547 | 0.38 | -224.0 | 3.78 |
| 6/4/2010 | 1500 | 6.83 | 6.75 | 24.69 | 0.771 | 0.28 | -106.6 | 2.84 |
| 6/11/2010 | 1130 | 6.78 | 6.78 | 25.27 | 0.775 | 0.61 | -103.3 | 2.89 |
| 6/16/2010 | 1315 | 8.67 | 6.61 | 25.44 | 0.728 | 0.17 | -118.1 | 1.00 |
| 6/29/2010 | 1015 | 9.09 | 6.52 | 26.21 | 0.848 | 0.60 | -147.2 | 0.58 |
| 7/7/2010 | 1105 | 8.78 | 6.53 | 27.42 | 1.040 | 0.63 | -127.2 | 0.89 |
| 7/14/2010 | 830 | 9.26 | | | | | | 0.41 |
| 7/20/2010 | 1043 | 9.67 | | | | | | 0.00 |
| 7/30/2010 | 1000 | 9.67 | | | | | | 0.00 |
| 8/5/2010 | 915 | 9.67 | | | | | | 0.00 |
| 8/9/2010 | 840 | 9.67 | | | | | | 0.00 |
| 8/17/2010 | 848 | 9.67 | | | | | | 0.00 |
| 8/26/2010 | 935 | 9.67 | | | | | | 0.00 |
| 9/2/2010 | 1500 | 9.67 | | | | | | 0.00 |
| 9/10/2010 | 1500 | 8.4 | 6.6 | 31.39 | 1.448 | 0.84 | -173.4 | 1.27 |
| 9/17/2010 | 1015 | 9.11 | 6.65 | 32.07 | 1.266 | 0.69 | -141.0 | 0.56 |
| 9/21/2010 | 910 | 9.05 | 6.65 | 31.92 | 1.871 | 1.10 | -161.5 | 0.62 |
| 9/29/2010 | 1000 | 9.08 | | | | | | 0.59 |
| 10/7/2010 | 1300 | 9.13 | | | | | | 0.54 |
| 10/13/2010 | 1028 | 9.15 | | | | | | 0.52 |
| 10/19/2010 | 830 | 9.23 | | | | | | 0.44 |
| 10/28/2010 | 1315 | 9.39 | | | | | | 0.28 |
| 11/4/2010 | 1500 | 9.35 | | | | | | 0.32 |
| 11/11/2010 | 1325 | 9.39 | | | | | | 0.28 |
| 11/18/2010 | 848 | 9.45 | | | | | | 0.22 |
| 11/22/2010 | 1000 | 9.48 | | | | | | 0.19 |
| 12/1/2010 | 947 | 8.59 | 6.65 | 25.37 | 1.148 | 0.46 | -77.2 | 1.08 |
| 12/7/2010 | 1500 | 9.02 | 7.13 | 24.96 | 1.567 | 2.32 | -2.6 | 0.65 |
| 12/15/2010 | 1430 | 8.99 | 7.07 | 24.67 | 1.220 | 2.91 | 16.5 | 0.68 |
| 12/21/2010 | 1000 | 8.93 | | | | | | 0.74 |
| 12/30/2010 | 1028 | 8.69 | 7.05 | 23.2 | 0.885 | 2.89 | -53.1 | 0.98 |
| 1/5/2011 | 1000 | 8.72 | 7.09 | 22.8 | 0.839 | 3.04 | -51.9 | 0.95 |
| 1/13/2011 | 1330 | 8.93 | | | | | | 0.74 |
| 1/19/2011 | 1000 | 8.5 | 7.08 | 21.26 | 0.601 | 3.12 | -46.6 | 1.17 |
| 1/27/2011 | 1245 | 8.73 | 7.25 | 20.56 | 0.693 | 2.10 | -52.5 | 0.94 |
| 2/18/2011 | 930 | 9.14 | | | | | | 0.53 |
| 2/24/2011 | 1030 | 9.2 | | | | | | 0.47 |
| 3/4/2011 | 900 | 9.49 | | | | | | 0.18 |
| 3/11/2011 | 1030 | 9.67 | | | | | | 0.00 |
| 3/18/2011 | 830 | 9.34 | | | | | | 0.33 |
| 3/22/2011 | 950 | 9.4 | | | | | | 0.27 |
| 3/31/2011 | 1330 | 9.55 | | | | | | 0.12 |
| 4/8/2011 | 830 | 9.6 | | | | | | 0.07 |
| 4/15/2011 | 1030 | 9.67 | | | | | | 0.00 |
| 4/19/2011 | 940 | 9.67 | | | | | | 0.00 |
| 4/27/2011 | 1510 | 9.67 | | | | | | 0.00 |

Table 16.1.1

SWMU B-3 Bioreactor Trenches - Field Measurement Data
May 2010 - April 2011

| TRENCH 2 | | | | | | | | |
|-----------------------------|-------------|--|------|---------------------|--|-------------------------------|-------------|--|
| Sump 2-2 | | | | | | | | |
| Sump Depth: 10.01 feet BTOC | | | | | | | | |
| Sample Date | Sample Time | Sump H ₂ O Level (feet BTOC) | pH | Temperature (°C) | Specific Conductivity (m-mho/cm) | Dissolved Oxygen (mg/L) | ORP (eV) | Sump H ₂ O Thickness (feet) |
| 5/6/2010 | 1000 | 7.24 | 6.56 | 23.29 | 1.196 | 0.39 | -149.4 | 2.77 |
| 5/13/2010 | 1034 | 8.16 | 6.40 | 24.16 | 1.370 | 0.36 | -116.5 | 1.85 |
| 5/19/2010 | 900 | 6.04 | 6.42 | 24.64 | 1.504 | 0.32 | -116.7 | 3.97 |
| 5/27/2010 | 1430 | 6.22 | 6.69 | 24.8 | 1.053 | 0.33 | -165.3 | 3.79 |
| 6/4/2010 | 1500 | 7.14 | 6.36 | 25.6 | 1.637 | 0.48 | -89.1 | 2.87 |
| 6/11/2010 | 1130 | 7.12 | 6.48 | 26.24 | 1.658 | 0.57 | -96.9 | 2.89 |
| 6/16/2010 | 1315 | 8.58 | 6.29 | 26.68 | 1.686 | 0.34 | -108.4 | 1.43 |
| 6/29/2010 | 1015 | 9.00 | 6.26 | 28.63 | 1.544 | 0.60 | -28.2 | 1.01 |
| 7/7/2010 | 1105 | 9.05 | 6.38 | 29.59 | 1.216 | 0.69 | -112.5 | 0.96 |
| 7/14/2010 | 830 | 9.62 | | | | | | 0.39 |
| 7/20/2010 | 1043 | 9.93 | | | | | | 0.08 |
| 7/30/2010 | 1000 | 10.00 | | | | | | 0.01 |
| 8/5/2010 | 915 | 10.01 | | | | | | 0.00 |
| 8/9/2010 | 840 | 10.01 | | | | | | 0.00 |
| 8/17/2010 | 848 | 10.01 | | | | | | 0.00 |
| 8/26/2010 | 935 | 10.01 | | | | | | 0.00 |
| 9/2/2010 | 1500 | 10.01 | | | | | | 0.00 |
| 9/10/2010 | 1500 | 8.84 | 6.71 | 33.74 | 0.805 | 0.18 | -206.4 | 1.17 |
| 9/17/2010 | 1015 | 9.15 | 6.81 | 32.68 | 0.844 | 0.39 | -186.2 | 0.86 |
| 9/21/2010 | 910 | 9.02 | 6.73 | 32.34 | 1.445 | 0.17 | -149.9 | 0.99 |
| 9/29/2010 | 1000 | 9.06 | 6.86 | 31.22 | 1.358 | 0.29 | -115.6 | 0.95 |
| 10/7/2010 | 1300 | 9.38 | 7.01 | 30.26 | 0.890 | 0.86 | -84.0 | 0.63 |
| 10/13/2010 | 1028 | 9.51 | | | | | | 0.50 |
| 10/19/2010 | 830 | 9.72 | | | | | | 0.29 |
| 10/28/2010 | 1315 | 10.01 | | | | | | 0.00 |
| 11/4/2010 | 1500 | 10.01 | | | | | | 0.00 |
| 11/11/2010 | 1325 | 10.01 | | | | | | 0.00 |
| 11/18/2010 | 848 | 10.01 | | | | | | 0.00 |
| 11/22/2010 | 1000 | 10.01 | | | | | | 0.00 |
| 12/1/2010 | 947 | 9.98 | | | | | | 0.03 |
| 12/7/2010 | 1500 | | | | | | | |
| 12/15/2010 | 1430 | 9.20 | 6.96 | 26.64 | 1.499 | 0.86 | -13.3 | 0.81 |
| 12/21/2010 | 1000 | 9.10 | | | | | | 0.91 |
| 12/30/2010 | 1028 | 8.96 | 6.96 | 24.83 | 1.550 | 0.18 | -54.8 | 1.05 |
| 1/5/2011 | 1000 | 8.93 | 6.86 | 24.24 | 1.539 | 0.12 | -41.0 | 1.08 |
| 1/13/2011 | 1330 | 9.09 | | | | | | 0.92 |
| 1/19/2011 | 1000 | 8.90 | 6.93 | 22.25 | 1.076 | 2.13 | -26.5 | 1.11 |
| 1/27/2011 | 1245 | 9.02 | 6.79 | 21.29 | 1.149 | 0.14 | -43.9 | 0.99 |
| 2/18/2011 | 930 | 9.60 | | | | | | 0.41 |
| 2/24/2011 | 1030 | 9.60 | | | | | | 0.41 |
| 3/4/2011 | 900 | 9.60 | | | | | | 0.41 |
| 3/11/2011 | 1030 | 10.01 | | | | | | 0.00 |
| 3/18/2011 | 830 | 10.01 | | | | | | 0.00 |
| 3/22/2011 | 950 | 10.01 | | | | | | 0.00 |
| 3/31/2011 | 1330 | 10.01 | | | | | | 0.00 |
| 4/8/2011 | 830 | 10.01 | | | | | | 0.00 |
| 4/15/2011 | 1030 | 10.01 | | | | | | 0.00 |
| 4/19/2011 | 940 | 10.01 | | | | | | 0.00 |
| 4/27/2011 | 1510 | 10.01 | | | | | | 0.00 |

Table 16.1.1

SWMU B-3 Bioreactor Trenches - Field Measurement Data
May 2010 - April 2011

| TRENCH 3 | | | | | | | | |
|----------------------------|-------------|--|--------|---------------------|--|-------------------------------|-------------|--|
| Sump 3-1 | | | | | | | | |
| Sump Depth: 9.96 feet BTOC | | | | | | | | |
| Sample Date | Sample Time | Sump H ₂ O Level (feet BTOC) | pH | Temperature (°C) | Specific Conductivity (m-mho/cm) | Dissolved Oxygen (mg/L) | ORP (eV) | Sump H ₂ O Thickness (feet) |
| 5/6/2010 | 1000 | 9.22 | | | | | | 0.74 |
| 5/13/2010 | 1034 | 9.20 | | | | | | 0.76 |
| 5/19/2010 | 900 | 7.85 | 6.65 | 20.26 | 0.732 | 0.64 | -140.3 | 2.11 |
| 5/27/2010 | 1430 | 8.95 | 7.14 | 21.81 | 0.475 | 0.22 | -144.8 | 1.01 |
| 6/4/2010 | 1500 | 9.20 | | | | | | 0.76 |
| 6/11/2010 | 1130 | 9.04 | | | | | | 0.92 |
| 6/16/2010 | 1315 | 9.16 | | | | | | 0.80 |
| 6/29/2010 | 1015 | 9.19 | | | | | | 0.77 |
| 7/7/2010 | 1105 | 9.20 | | | | | | 0.76 |
| 7/14/2010 | 830 | 9.18 | | | | | | 0.78 |
| 7/20/2010 | 1043 | 9.20 | 6.44 | 30.16 | 0.605 | 0.37 | -270.9 | 0.76 |
| 7/30/2010 | 1000 | 9.19 | | | | | | 0.77 |
| 8/5/2010 | 915 | 9.19 | | | | | | 0.77 |
| 8/9/2010 | 840 | 9.19 | | | | | | 0.77 |
| 8/17/2010 | 848 | 9.20 | 6.46 | 32.46 | 0.853 | 0.23 | -298.9 | 0.76 |
| 8/26/2010 | 935 | 9.20 | | | | | | 0.76 |
| 9/2/2010 | 1500 | 9.23 | 6.53 | 33.85 | 0.513 | 0.11 | -201.9 | 0.73 |
| 9/10/2010 | 1500 | 8.56 | 6.84 | 29.71 | 0.376 | 0.2 | -29.6 | 1.40 |
| 9/17/2010 | 1015 | 9.18 | 6.40 | 30.85 | 0.388 | 0.33 | -52.8 | 0.78 |
| 9/21/2010 | 910 | 9.15 | 6.38 | 30.93 | 0.671 | 0.48 | -64.0 | 0.81 |
| 9/29/2010 | 1000 | 8.92 | | | | | | 1.04 |
| 10/7/2010 | 1300 | 9.16 | | | | | | 0.80 |
| 10/13/2010 | 1028 | 9.23 | | | | | | 0.73 |
| 10/19/2010 | 830 | 9.26 | 6.67 | 30.92 | 0.603 | 1.26 | 3.9 | 0.70 |
| 10/28/2010 | 1315 | 9.29 | | | | | | 0.67 |
| 11/4/2010 | 1500 | 9.34 | | | | | | 0.62 |
| 11/11/2010 | 1325 | 9.40 | | | | | | 0.56 |
| 11/18/2010 | 848 | 9.42 | | | | | | 0.54 |
| 11/22/2010 | 1000 | 9.48 | | | | | | 0.48 |
| 12/1/2010 | 947 | 7.08 | 7.06 | 21.68 | 0.395 | 5.17 | | 2.88 |
| 12/7/2010 | 1500 | 9.21 | | | | | | 0.75 |
| 12/15/2010 | 1430 | 9.29 | | | | | | 0.67 |
| 12/21/2010 | 1000 | 9.28 | | | | | | 0.68 |
| 12/30/2010 | 1028 | 9.36 | | | | | | 0.60 |
| 1/5/2011 | 1000 | 9.40 | | | | | | 0.56 |
| 1/13/2011 | 1330 | 9.46 | | | | | | 0.50 |
| 1/19/2011 | 1000 | 9.50 | 6.75 | 24.09 | 0.7 | 1.98 | -39.2 | 0.46 |
| 1/27/2011 | 1245 | 9.53 | | | | | | 0.43 |
| 2/18/2011 | 930 | 9.62 | | | | | | 0.34 |
| 2/24/2011 | 1030 | 9.70 | 669.00 | 23.27 | 1.19 | 1.44 | -10.30 | 0.26 |
| 3/4/2011 | 900 | 9.65 | | | | | | 0.31 |
| 3/11/2011 | 1030 | 9.64 | | | | | | 0.32 |
| 3/18/2011 | 830 | 9.64 | | | | | | 0.32 |
| 3/22/2011 | 950 | 9.60 | | | | | | 0.36 |
| 3/31/2011 | 1330 | 9.65 | | | | | | 0.31 |
| 4/8/2011 | 830 | 9.63 | | | | | | 0.33 |
| 4/15/2011 | 1030 | 9.60 | | | | | | 0.36 |
| 4/19/2011 | 940 | 9.64 | | | | | | 0.32 |
| 4/27/2011 | 1510 | 9.65 | | | | | | 0.31 |

Table 16.1.1

SWMU B-3 Bioreactor Trenches - Field Measurement Data
May 2010 - April 2011

| TRENCH 3 | | | | | | | | |
|---------------------------|-------------|--|----|---------------------|--|-------------------------------|-------------|--|
| Sump 3-2 | | | | | | | | |
| Sump Depth: 7.4 feet BTOC | | | | | | | | |
| Sample Date | Sample Time | Sump H ₂ O Level (feet BTOC) | pH | Temperature (°C) | Specific Conductivity (m-mho/cm) | Dissolved Oxygen (mg/L) | ORP (eV) | Sump H ₂ O Thickness (feet) |
| 5/6/2010 | 1000 | 7.40 | | | | | | 0.00 |
| 5/13/2010 | 1034 | 7.40 | | | | | | 0.00 |
| 5/19/2010 | 900 | 7.40 | | | | | | 0.00 |
| 5/27/2010 | 1430 | 7.40 | | | | | | 0.00 |
| 6/4/2010 | 1500 | 7.40 | | | | | | 0.00 |
| 6/11/2010 | 1130 | 7.40 | | | | | | 0.00 |
| 6/16/2010 | 1315 | 7.40 | | | | | | 0.00 |
| 6/29/2010 | 1015 | 7.40 | | | | | | 0.00 |
| 7/7/2010 | 1105 | 7.40 | | | | | | 0.00 |
| 7/14/2010 | 830 | 7.40 | | | | | | 0.00 |
| 7/20/2010 | 1043 | 7.40 | | | | | | 0.00 |
| 7/30/2010 | 1000 | 7.40 | | | | | | 0.00 |
| 8/5/2010 | 915 | 7.40 | | | | | | 0.00 |
| 8/9/2010 | 840 | 7.40 | | | | | | 0.00 |
| 8/17/2010 | 848 | 7.40 | | | | | | 0.00 |
| 8/26/2010 | 935 | 7.40 | | | | | | 0.00 |
| 9/2/2010 | 1500 | 7.40 | | | | | | 0.00 |
| 9/10/2010 | 1500 | 7.27 | | | | | | 0.13 |
| 9/17/2010 | 1015 | 7.40 | | | | | | 0.00 |
| 9/21/2010 | 910 | 7.40 | | | | | | 0.00 |
| 9/29/2010 | 1000 | 7.40 | | | | | | 0.00 |
| 10/7/2010 | 1300 | 7.40 | | | | | | 0.00 |
| 10/13/2010 | 1028 | 7.40 | | | | | | 0.00 |
| 10/19/2010 | 830 | 7.40 | | | | | | 0.00 |
| 10/28/2010 | 1315 | 7.40 | | | | | | 0.00 |
| 11/4/2010 | 1500 | 7.40 | | | | | | 0.00 |
| 11/11/2010 | 1325 | 7.40 | | | | | | 0.00 |
| 11/18/2010 | 848 | 7.40 | | | | | | 0.00 |
| 11/22/2010 | 1000 | 7.40 | | | | | | 0.00 |
| 12/1/2010 | 947 | 7.26 | | | | | | 0.14 |
| 12/7/2010 | 1500 | 7.40 | | | | | | 0.00 |
| 12/15/2010 | 1430 | 7.40 | | | | | | 0.00 |
| 12/21/2010 | 1000 | 7.40 | | | | | | 0.00 |
| 12/30/2010 | 1028 | 7.40 | | | | | | 0.00 |
| 1/5/2011 | 1000 | 7.40 | | | | | | 0.00 |
| 1/13/2011 | 1330 | 7.40 | | | | | | 0.00 |
| 1/19/2011 | 1000 | 7.40 | | | | | | 0.00 |
| 1/27/2011 | 1245 | 7.40 | | | | | | 0.00 |
| 2/18/2011 | 930 | 7.40 | | | | | | 0.00 |
| 2/24/2011 | 1030 | 7.40 | | | | | | 0.00 |
| 3/4/2011 | 900 | 7.40 | | | | | | 0.00 |
| 3/11/2011 | 1030 | 7.40 | | | | | | 0.00 |
| 3/18/2011 | 1030 | 7.40 | | | | | | 0.00 |
| 3/22/2011 | 950 | 7.40 | | | | | | 0.00 |
| 3/31/2011 | 1330 | 7.40 | | | | | | 0.00 |
| 4/8/2011 | 830 | 7.40 | | | | | | 0.00 |
| 4/15/2011 | 1030 | 7.40 | | | | | | 0.00 |
| 4/19/2011 | 940 | 7.40 | | | | | | 0.00 |
| 4/27/2011 | 1510 | 7.40 | | | | | | 0.00 |

Table 16.1.1

SWMU B-3 Bioreactor Trenches - Field Measurement Data
May 2010 - April 2011

| TRENCH 4 | | | | | | | | |
|----------------------------|-------------|---|----|----------------------------|--|-----------------------------------|--------------------|--|
| Sump 4-1 | | | | | | | | |
| Sump Depth: 6.32 feet BTOC | | | | | | | | |
| Sample Date | Sample Time | Sump H ₂ O Level <i>(feet BTOC)</i> | pH | Temperature <i>(°C)</i> | Specific Conductivity <i>(m-mho/cm)</i> | Dissolved Oxygen <i>(mg/L)</i> | ORP <i>(eV)</i> | Sump H ₂ O Thickness <i>(feet)</i> |
| 5/6/2010 | 1000 | 6.32 | | | | | | 0.00 |
| 5/13/2010 | 1034 | 6.32 | | | | | | 0.00 |
| 5/19/2010 | 900 | 6.18 | | | | | | 0.14 |
| 5/27/2010 | 1430 | 6.24 | | | | | | 0.08 |
| 6/4/2010 | 1500 | 6.29 | | | | | | 0.03 |
| 6/11/2010 | 1130 | 6.32 | | | | | | 0.00 |
| 6/16/2010 | 1315 | 6.32 | | | | | | 0.00 |
| 6/29/2010 | 1015 | 6.32 | | | | | | 0.00 |
| 7/7/2010 | 1105 | 6.32 | | | | | | 0.00 |
| 7/14/2010 | 830 | 6.32 | | | | | | 0.00 |
| 7/20/2010 | 1043 | 6.32 | | | | | | 0.00 |
| 7/30/2010 | 1000 | 6.32 | | | | | | 0.00 |
| 8/5/2010 | 915 | 6.32 | | | | | | 0.00 |
| 8/9/2010 | 840 | 6.32 | | | | | | 0.00 |
| 8/17/2010 | 848 | 6.32 | | | | | | 0.00 |
| 8/26/2010 | 935 | 6.32 | | | | | | 0.00 |
| 9/2/2010 | 1500 | 6.32 | | | | | | 0.00 |
| 9/10/2010 | 1500 | 6.25 | | | | | | 0.07 |
| 9/17/2010 | 1015 | 6.32 | | | | | | 0.00 |
| 9/21/2010 | 910 | 6.32 | | | | | | 0.00 |
| 9/29/2010 | 1000 | 6.32 | | | | | | 0.00 |
| 10/7/2010 | 1300 | 6.32 | | | | | | 0.00 |
| 10/13/2010 | 1028 | 6.32 | | | | | | 0.00 |
| 10/19/2010 | 830 | 6.32 | | | | | | 0.00 |
| 10/28/2010 | 1315 | 6.32 | | | | | | 0.00 |
| 11/4/2010 | 1500 | 6.32 | | | | | | 0.00 |
| 11/11/2010 | 1325 | 6.32 | | | | | | 0.00 |
| 11/18/2010 | 848 | 6.32 | | | | | | 0.00 |
| 11/22/2010 | 1000 | 6.32 | | | | | | 0.00 |
| 12/1/2010 | 947 | 6.32 | | | | | | 0.00 |
| 12/7/2010 | 1500 | 6.32 | | | | | | 0.00 |
| 12/15/2010 | 1430 | 6.32 | | | | | | 0.00 |
| 12/21/2010 | 1000 | 6.32 | | | | | | 0.00 |
| 12/30/2010 | 1028 | 6.32 | | | | | | 0.00 |
| 1/5/2011 | 1000 | 6.32 | | | | | | 0.00 |
| 1/13/2011 | 1330 | 6.32 | | | | | | 0.00 |
| 1/19/2011 | 1000 | 6.32 | | | | | | 0.00 |
| 1/27/2011 | 1245 | 6.32 | | | | | | 0.00 |
| 2/18/2011 | 930 | 6.32 | | | | | | 0.00 |
| 2/24/2011 | 1030 | 6.32 | | | | | | 0.00 |
| 3/4/2011 | 900 | 6.32 | | | | | | 0.00 |
| 3/11/2011 | 1030 | 6.32 | | | | | | 0.00 |
| 3/18/2011 | 830 | 6.32 | | | | | | 0.00 |
| 3/22/2011 | 950 | 6.32 | | | | | | 0.00 |
| 3/31/2011 | 1330 | 6.32 | | | | | | 0.00 |
| 4/8/2011 | 830 | 6.32 | | | | | | 0.00 |
| 4/15/2011 | 1030 | 6.32 | | | | | | 0.00 |
| 4/19/2011 | 940 | 6.32 | | | | | | 0.00 |
| 4/27/2011 | 1510 | 6.32 | | | | | | 0.00 |

Table 16.1.1

SWMU B-3 Bioreactor Trenches - Field Measurement Data
May 2010 - April 2011

| TRENCH 5 | | | | | | | | |
|----------------------------|-------------|--|----|---------------------|--|-------------------------------|-------------|--|
| Sump 5-1 | | | | | | | | |
| Sump Depth: 9.33 feet BTOC | | | | | | | | |
| Sample Date | Sample Time | Sump H ₂ O Level (feet BTOC) | pH | Temperature (°C) | Specific Conductivity (m-mho/cm) | Dissolved Oxygen (mg/L) | ORP (eV) | Sump H ₂ O Thickness (feet) |
| 5/6/2010 | 1000 | 9.29 | | | | | | 0.04 |
| 5/13/2010 | 1034 | 9.30 | | | | | | 0.03 |
| 5/19/2010 | 900 | 9.20 | | | | | | 0.13 |
| 5/27/2010 | 1430 | 9.22 | | | | | | 0.11 |
| 6/4/2010 | 1500 | 9.28 | | | | | | 0.05 |
| 6/11/2010 | 1130 | 9.30 | | | | | | 0.03 |
| 6/16/2010 | 1315 | 9.33 | | | | | | 0.00 |
| 6/29/2010 | 1015 | 9.33 | | | | | | 0.00 |
| 7/7/2010 | 1105 | 9.33 | | | | | | 0.00 |
| 7/14/2010 | 830 | 9.33 | | | | | | 0.00 |
| 7/20/2010 | 1043 | 9.33 | | | | | | 0.00 |
| 7/30/2010 | 1000 | 9.33 | | | | | | 0.00 |
| 8/5/2010 | 915 | 9.33 | | | | | | 0.00 |
| 8/9/2010 | 840 | 9.33 | | | | | | 0.00 |
| 8/17/2010 | 848 | 9.33 | | | | | | 0.00 |
| 8/26/2010 | 935 | 9.33 | | | | | | 0.00 |
| 9/2/2010 | 1500 | 9.33 | | | | | | 0.00 |
| 9/10/2010 | 1500 | 9.22 | | | | | | 0.11 |
| 9/21/2010 | 910 | 9.24 | | | | | | 0.09 |
| 9/29/2010 | 1000 | 9.17 | | | | | | 0.16 |
| 10/7/2010 | 1300 | 9.20 | | | | | | 0.13 |
| 10/13/2010 | 1028 | 9.24 | | | | | | 0.09 |
| 10/19/2010 | 830 | 9.30 | | | | | | 0.03 |
| 10/28/2010 | 1315 | 9.33 | | | | | | 0.00 |
| 11/4/2010 | 1500 | 9.33 | | | | | | 0.00 |
| 11/11/2010 | 1325 | 9.33 | | | | | | 0.00 |
| 11/18/2010 | 848 | 9.33 | | | | | | 0.00 |
| 11/22/2010 | 1000 | 9.33 | | | | | | 0.00 |
| 12/1/2010 | 947 | 9.33 | | | | | | 0.00 |
| 12/7/2010 | 1500 | 9.33 | | | | | | 0.00 |
| 12/15/2010 | 1430 | 9.25 | | | | | | 0.08 |
| 12/21/2010 | 1000 | 9.19 | | | | | | 0.14 |
| 12/30/2010 | 1028 | 9.20 | | | | | | 0.13 |
| 1/5/2011 | 1000 | 9.18 | | | | | | 0.15 |
| 1/13/2011 | 1330 | 9.25 | | | | | | 0.08 |
| 1/19/2011 | 1000 | 9.26 | | | | | | 0.07 |
| 1/27/2011 | 1245 | 9.26 | | | | | | 0.07 |
| 2/18/2011 | 930 | 9.33 | | | | | | 0.00 |
| 2/24/2011 | 1030 | 9.33 | | | | | | 0.00 |
| 3/4/2011 | 900 | 9.33 | | | | | | 0.00 |
| 3/11/2011 | 1030 | 9.33 | | | | | | 0.00 |
| 3/18/2011 | 830 | 9.33 | | | | | | 0.00 |
| 3/22/2011 | 950 | 9.33 | | | | | | 0.00 |
| 3/31/2011 | 1330 | 9.33 | | | | | | 0.00 |
| 4/8/2011 | 830 | 9.33 | | | | | | 0.00 |
| 4/15/2011 | 1030 | 9.33 | | | | | | 0.00 |
| 4/19/2011 | 940 | 9.33 | | | | | | 0.00 |
| 4/27/2011 | 1510 | 9.33 | | | | | | 0.00 |

Table 16.1.1

SWMU B-3 Bioreactor Trenches - Field Measurement Data
May 2010 - April 2011

| TRENCH 5 | | | | | | | | |
|----------------------------|-------------|--|----|---------------------|--|-------------------------------|-------------|--|
| Sump 5-2 | | | | | | | | |
| Sump Depth: 7.98 feet BTOC | | | | | | | | |
| Sample Date | Sample Time | Sump H ₂ O Level (feet BTOC) | pH | Temperature (°C) | Specific Conductivity (m-mho/cm) | Dissolved Oxygen (mg/L) | ORP (eV) | Sump H ₂ O Thickness (feet) |
| 5/6/2010 | 1000 | 7.98 | | | | | | 0.00 |
| 5/13/2010 | 1034 | 7.98 | | | | | | 0.00 |
| 5/19/2010 | 900 | 7.52 | | | | | | 0.46 |
| 5/27/2010 | 1430 | 7.89 | | | | | | 0.09 |
| 6/4/2010 | 1500 | 7.79 | | | | | | 0.19 |
| 6/11/2010 | 1130 | 7.76 | | | | | | 0.22 |
| 6/16/2010 | 1315 | 7.85 | | | | | | 0.13 |
| 6/26/2010 | 1015 | 7.79 | | | | | | 0.19 |
| 7/7/2010 | 1105 | 7.80 | | | | | | 0.18 |
| 7/14/2010 | 830 | 7.87 | | | | | | 0.11 |
| 7/20/2010 | 1043 | 7.51 | | | | | | 0.47 |
| 7/30/2010 | 1000 | 7.53 | | | | | | 0.45 |
| 8/5/2010 | 915 | 7.96 | | | | | | 0.02 |
| 8/9/2010 | 840 | 7.96 | | | | | | 0.02 |
| 8/17/2010 | 848 | 7.98 | | | | | | 0.00 |
| 8/26/2010 | 935 | 7.98 | | | | | | 0.00 |
| 9/2/2010 | 1500 | 7.98 | | | | | | 0.00 |
| 9/10/2010 | 1500 | 7.78 | | | | | | 0.20 |
| 9/21/2010 | 910 | 7.73 | | | | | | 0.25 |
| 9/29/2010 | 1000 | 7.71 | | | | | | 0.27 |
| 10/7/2010 | 1300 | 7.86 | | | | | | 0.12 |
| 10/13/2010 | 1028 | 7.92 | | | | | | 0.06 |
| 10/19/2010 | 830 | 7.98 | | | | | | 0.00 |
| 10/28/2010 | 1315 | 7.98 | | | | | | 0.00 |
| 11/4/2010 | 1500 | 7.98 | | | | | | 0.00 |
| 11/11/2010 | 1325 | 7.98 | | | | | | 0.00 |
| 11/18/2010 | 848 | 7.98 | | | | | | 0.00 |
| 11/22/2010 | 1000 | 7.98 | | | | | | 0.00 |
| 12/1/2010 | 947 | 7.98 | | | | | | 0.00 |
| 12/7/2010 | 1500 | 7.98 | | | | | | 0.00 |
| 12/15/2010 | 1430 | 7.98 | | | | | | 0.00 |
| 12/21/2010 | 1000 | 7.98 | | | | | | 0.00 |
| 12/30/2010 | 1028 | 7.98 | | | | | | 0.00 |
| 1/5/2011 | 1000 | 7.98 | | | | | | 0.00 |
| 1/13/2011 | 1330 | 7.94 | | | | | | 0.04 |
| 1/19/2011 | 1000 | 7.90 | | | | | | 0.08 |
| 1/27/2011 | 1245 | 7.98 | | | | | | 0.00 |
| 2/18/2011 | 930 | 7.98 | | | | | | 0.00 |
| 2/24/2011 | 1030 | 7.98 | | | | | | 0.00 |
| 3/4/2011 | 900 | 7.98 | | | | | | 0.00 |
| 3/11/2011 | 1030 | 7.98 | | | | | | 0.00 |
| 3/18/2011 | 830 | 7.98 | | | | | | 0.00 |
| 3/22/2011 | 950 | 7.98 | | | | | | 0.00 |
| 3/31/2011 | 1330 | 7.98 | | | | | | 0.00 |
| 4/8/2011 | 830 | 7.98 | | | | | | 0.00 |
| 4/15/2011 | 1030 | 7.98 | | | | | | 0.00 |
| 4/19/2011 | 940 | 7.98 | | | | | | 0.00 |
| 4/27/2011 | 1510 | 7.98 | | | | | | 0.00 |

Table 16.1.1

SWMU B-3 Bioreactor Trenches - Field Measurement Data
May 2010 - April 2011

| TRENCH 6 | | | | | | | | |
|-----------------------------|-------------|--|------|---------------------|--|-------------------------------|-------------|--|
| Sump 6-1 | | | | | | | | |
| Sump Depth: 11.45 feet BTOC | | | | | | | | |
| Sample Date | Sample Time | Sump H ₂ O Level (feet BTOC) | pH | Temperature (°C) | Specific Conductivity (m-mho/cm) | Dissolved Oxygen (mg/L) | ORP (eV) | Sump H ₂ O Thickness (feet) |
| 5/6/2010 | 1000 | 11.15 | | | | | | 0.30 |
| 5/13/2010 | 1034 | 11.16 | | | | | | 0.29 |
| 5/19/2010 | 900 | 11.09 | | | | | | 0.36 |
| 5/27/2010 | 1430 | 11.09 | | | | | | 0.36 |
| 6/4/2010 | 1500 | 11.08 | | | | | | 0.37 |
| 6/11/2010 | 1130 | 11.03 | | | | | | 0.42 |
| 6/16/2010 | 1315 | 11.07 | | | | | | 0.38 |
| 6/29/2010 | 1015 | 11.08 | | | | | | 0.37 |
| 7/7/2010 | 1105 | 10.95 | | | | | | 0.50 |
| 7/14/2010 | 830 | 11.20 | | | | | | 0.25 |
| 7/20/2010 | 1043 | 11.29 | | | | | | 0.16 |
| 7/30/2010 | 1000 | 11.30 | | | | | | 0.15 |
| 8/5/2010 | 915 | 11.30 | | | | | | 0.15 |
| 8/9/2010 | 840 | 11.04 | | | | | | 0.41 |
| 8/17/2010 | 848 | 10.98 | | | | | | 0.47 |
| 8/26/2010 | 935 | 10.83 | 6.47 | 24.3 | 0.433 | 0.23 | -210.6 | 0.62 |
| 9/2/2010 | 1500 | 10.75 | 6.48 | 24.31 | 0.412 | 0.18 | -201.7 | 0.70 |
| 9/10/2010 | 1500 | 10.54 | 6.69 | 24.2 | 0.51 | 0.22 | -94.5 | 0.91 |
| 9/17/2010 | 1015 | 9.27 | 6.6 | 23.82 | 0.469 | 0.29 | -276.9 | 2.18 |
| 9/21/2010 | 910 | 10.63 | 6.51 | 23.47 | 0.754 | 0.18 | -220.5 | 0.82 |
| 9/29/2010 | 1000 | 11.01 | | | | | | 0.44 |
| 10/7/2010 | 1300 | 10.65 | 6.49 | 22.66 | 0.482 | 0.31 | -192.9 | 0.80 |
| 10/13/2010 | 1028 | 10.65 | 6.42 | 23.08 | 0.412 | 0.47 | -163.5 | 0.80 |
| 10/19/2010 | 830 | 10.67 | 6.49 | 23.29 | 0.505 | 0.49 | -244.5 | 0.78 |
| 10/28/2010 | 1315 | 10.48 | 6.64 | 23.23 | 0.753 | 0.57 | -230.9 | 0.97 |
| 11/4/2010 | 1500 | 9.89 | 6.68 | 22.2 | 0.737 | 0.55 | -267.1 | 1.56 |
| 11/11/2010 | 1325 | 9.90 | 6.65 | 22.88 | 0.682 | 0.38 | -246.5 | 1.55 |
| 11/18/2010 | 848 | 9.82 | 6.69 | 22.52 | 0.502 | 0.36 | -156.4 | 1.63 |
| 11/22/2010 | 1000 | 10.29 | 6.71 | 23.19 | 0.468 | 0.21 | -236 | 1.16 |
| 12/1/2010 | 947 | 10.40 | 6.66 | 21.55 | 0.452 | 0.48 | -125.3 | 1.05 |
| 12/7/2010 | 1500 | 8.88 | 6.87 | 21.74 | 0.646 | 0.95 | 46.7 | 2.57 |
| 12/15/2010 | 1430 | 8.99 | 6.76 | 22.26 | 0.657 | 0.98 | 46.9 | 2.46 |
| 12/21/2010 | 1000 | 9.09 | 6.81 | 22.5 | 0.426 | 1.01 | 6.7 | 2.36 |
| 12/30/2010 | 1028 | 9.14 | 6.89 | 21.92 | 0.627 | 0.66 | -88.4 | 2.31 |
| 1/5/2011 | 1000 | 9.13 | 6.77 | 21.13 | 0.632 | 0.56 | -123.4 | 2.32 |
| 1/13/2011 | 1330 | 9.15 | 6.67 | 21.29 | 0.748 | 0.82 | -169.2 | 2.30 |
| 1/19/2011 | 1000 | 9.10 | 6.74 | 22.02 | 0.501 | 1.12 | -33.7 | 2.35 |
| 1/27/2011 | 1245 | 9.47 | 6.67 | 21.88 | 0.573 | 0.76 | -101.9 | 1.98 |
| 2/18/2011 | 930 | 9.98 | 6.58 | 22.52 | 0.537 | 0.3 | -200.3 | 1.47 |
| 2/24/2011 | 1030 | 10.00 | 6.58 | 22.73 | 0.83 | 0.22 | -195.9 | 1.45 |
| 3/4/2011 | 900 | 10.36 | 6.52 | 22.28 | 0.649 | 0.21 | -203.2 | 1.09 |
| 3/11/2011 | 1030 | 10.86 | 6.43 | 20.61 | 0.764 | 0.17 | -230.3 | 0.59 |
| 3/18/2011 | 830 | 9.82 | 6.64 | 23.43 | 0.734 | 0.32 | -284.6 | 1.63 |
| 3/22/2011 | 950 | 9.90 | 6.7 | 23.23 | 0.722 | 0.07 | -270.5 | 1.55 |
| 3/31/2011 | 1330 | 10.45 | 6.56 | 22.5 | 0.649 | 0.12 | -198.1 | 1.00 |
| 4/8/2011 | 830 | 10.12 | 6.67 | 24.14 | 0.744 | 0.3 | -189.1 | 1.33 |
| 4/15/2011 | 1030 | 10.45 | 6.63 | 23.8 | 0.441 | 0.1 | -209.2 | 1.00 |
| 4/19/2011 | 940 | 10.27 | 6.64 | 24.19 | 0.548 | 0.03 | -195.7 | 1.18 |
| 4/27/2011 | 1510 | 10.50 | 6.64 | 23.95 | 0.711 | 0.12 | -198.6 | 0.95 |

Table 16.1.1

SWMU B-3 Bioreactor Trenches - Field Measurement Data
May 2010 - April 2011

| TRENCH 6 | | | | | | | | |
|-----------------------------|-------------|--|------|---------------------|--|-------------------------------|-------------|--|
| Sump 6-2 | | | | | | | | |
| Sump Depth: 12.34 feet BTOC | | | | | | | | |
| Sample Date | Sample Time | Sump H ₂ O Level (feet BTOC) | pH | Temperature (°C) | Specific Conductivity (m-mho/cm) | Dissolved Oxygen (mg/L) | ORP (eV) | Sump H ₂ O Thickness (feet) |
| 5/6/2010 | 1000 | 12.28 | | | | | | 0.06 |
| 5/13/2010 | 1034 | 12.27 | | | | | | 0.07 |
| 5/19/2010 | 900 | 11.94 | | | | | | 0.40 |
| 5/27/2010 | 1430 | 11.98 | | | | | | 0.36 |
| 6/4/2010 | 1500 | 11.98 | | | | | | 0.36 |
| 6/11/2010 | 1130 | 11.96 | | | | | | 0.38 |
| 6/16/2010 | 1315 | 11.94 | | | | | | 0.40 |
| 6/29/2010 | 1015 | 11.39 | 6.61 | 26.19 | 1.230 | 0.68 | -169 | 0.95 |
| 7/7/2010 | 1105 | 11.07 | 7.08 | 27.34 | 0.678 | 0.54 | -165 | 1.27 |
| 7/14/2010 | 830 | 11.19 | 6.53 | 25.85 | 0.887 | 0.47 | -307.2 | 1.15 |
| 7/20/2010 | 1043 | 11.21 | 6.48 | 26.4 | 0.646 | 0.24 | -270.7 | 1.13 |
| 7/30/2010 | 1000 | 11 | 6.42 | 26.46 | 0.529 | 0.25 | -190 | 1.34 |
| 8/5/2010 | 915 | 10.95 | 6.45 | 26.62 | 0.927 | 0.34 | -273.4 | 1.39 |
| 8/9/2010 | 840 | 10.78 | | | | | | 1.56 |
| 8/17/2010 | 848 | 10.76 | | | | | | 1.58 |
| 8/26/2010 | 935 | 10.48 | 6.47 | 27.14 | 0.52 | 0.26 | -177.3 | 1.86 |
| 9/2/2010 | 1500 | 10.6 | 6.49 | 26.92 | 0.529 | 0.25 | -223.5 | 1.74 |
| 9/10/2010 | 1500 | 10.35 | 6.61 | 26.08 | 0.554 | 0.24 | -236.7 | 1.99 |
| 9/17/2010 | 1015 | 7.84 | 6.6 | 25.69 | 0.528 | 0.31 | -219 | 4.50 |
| 9/21/2010 | 910 | 10.45 | 6.47 | 25.77 | 0.881 | 0.26 | -238.9 | 1.89 |
| 9/29/2010 | 1000 | 10.68 | 6.49 | 24.85 | 0.921 | 0.37 | -244.7 | 1.66 |
| 10/7/2010 | 1300 | 10.46 | 6.57 | 23.62 | 0.543 | 0.35 | -267.7 | 1.88 |
| 10/13/2010 | 1028 | 10.52 | 6.57 | 23.67 | 0.449 | 0.53 | -270.7 | 1.82 |
| 10/19/2010 | 830 | 10.39 | 6.51 | 23.87 | 0.556 | 0.21 | -278.9 | 1.95 |
| 10/28/2010 | 1315 | 10.16 | 6.52 | 23.78 | 0.832 | 0.57 | -283 | 2.18 |
| 11/4/2010 | 1500 | 9.67 | 6.73 | 22.6 | 0.718 | 0.41 | -288.1 | 2.67 |
| 11/11/2010 | 1325 | 9.27 | 6.6 | 23.02 | 0.695 | 0.44 | -277.1 | 3.07 |
| 11/18/2010 | 848 | 9.54 | 6.67 | 22.43 | 0.516 | 0.25 | -229.4 | 2.80 |
| 11/22/2010 | 1000 | 9.93 | 6.6 | 23.21 | 0.488 | 0.28 | -193.8 | 2.41 |
| 12/1/2010 | 947 | 10.08 | 6.58 | 22.65 | 0.463 | 0.35 | -186.4 | 2.26 |
| 12/7/2010 | 1500 | 8.61 | 6.63 | 22.37 | 0.865 | 0.22 | -210 | 3.73 |
| 12/15/2010 | 1430 | 8.72 | 6.62 | 22.14 | 0.852 | 0.2 | -267.9 | 3.62 |
| 12/21/2010 | 1000 | 8.82 | 6.7 | 22.29 | 0.559 | 0.16 | -268 | 3.52 |
| 12/30/2010 | 1028 | 8.88 | 6.76 | 22.07 | 0.803 | 0.05 | -353.6 | 3.46 |
| 1/5/2011 | 1000 | 8.86 | 6.79 | 22.11 | 0.777 | 0.04 | -250.7 | 3.48 |
| 1/13/2011 | 1330 | 8.85 | 6.82 | 20.95 | 0.789 | 1.1 | 306.7 | 3.49 |
| 1/19/2011 | 1000 | 9.2 | 6.77 | 21.78 | 0.560 | 0.04 | -278.5 | 3.14 |
| 1/27/2011 | 1245 | 9.19 | 6.78 | 21.69 | 0.641 | 0.03 | -204.8 | 3.15 |
| 2/18/2011 | 930 | 9.68 | 6.73 | 21.5 | 0.503 | 13 | -294.4 | 2.66 |
| 2/24/2011 | 1030 | 9.7 | 6.68 | 22.52 | 0.785 | 0.1 | -276.6 | 2.64 |
| 3/4/2011 | 900 | 10.12 | 6.56 | 22.72 | 0.745 | 0.17 | -240.4 | 2.22 |
| 3/11/2011 | 1030 | 10.62 | 6.54 | 22.76 | 0.945 | 0.09 | -264.4 | 1.72 |
| 3/18/2011 | 830 | 9.53 | 6.53 | 22.73 | 0.957 | 0.14 | -291 | 2.81 |
| 3/22/2011 | 950 | 9.6 | 6.6 | 23.12 | 0.917 | 0.06 | -285.9 | 2.74 |
| 3/31/2011 | 1330 | 10.25 | 6.54 | 24.15 | 0.698 | 0.12 | -222.9 | 2.09 |
| 4/8/2011 | 830 | 9.88 | 6.56 | 23.99 | 0.866 | 0.09 | -231.1 | 2.46 |
| 4/15/2011 | 1030 | 10.16 | 6.58 | 24.56 | 0.496 | 0.27 | -229.6 | 2.18 |
| 4/19/2011 | 940 | 10.03 | 6.54 | 24.83 | 0.611 | 0.02 | -237.8 | 2.31 |
| 4/27/2011 | 1510 | 10.25 | 6.52 | 25.3 | 0.873 | 0.03 | -238.7 | 2.09 |

B-3 Bioreactor Analytical Summary
May 2010 - April 2011

Q16

| Well ID | | T1-1 | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|-------|----------|------|----------|------|----------|------|----------|------|----------|------|----------|------|----------|------|----------|------|----------|------|----------|------|----------|------|----------|------|
| Sample Date | | 5/19/10 | | 6/22/10 | | 7/20/10 | | 8/17/10 | | 9/21/10 | | 10/19/10 | | 11/18/10 | | 12/21/10 | | 1/19/11 | | 2/24/11 | | 3/22/11 | | 4/19/11 | |
| 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 |
| Dissolved Organic Carbon | mg/L | 4.5 | | 6.3 | | 11.1 | | 4.8 | | 30 | | 21.3 | | 3.5 | | 1.9 | | 1.9 | | 1.1 | | | | 158 | |
| Total Organic Carbon | mg/L | 4.6 | | 5.8 | | 13.2 | | 5.1 | | 29 | | 19.6 | | 4.4 | | | | | | | | | | 190 | |
| Methane | µg/L | 2,190 | | 1,260 | | 3,550 | | 7,180 | | 1,700 | | 9,690 | | 10,400 | | 3.7 | | 2.4 | | 84.6 | | 1,070 | | 8,270 | |
| Ethene | µg/L | 0 | | 3.6 | | 2.9 | J | 1.3 | J | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 1.7 | F | 15.7 | |
| Ethane | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| Carbon Dioxide | µg/L | 103,000 | | 87,300 | | 359,000 | | 575,000 | | 234,000 | | 640,000 | | 658,000 | | 65,700 | | 67,600 | | 118,000 | | 230,000 | | 759,000 | |
| Alkalinity, Total (as CaCO3) | mg/L | 395 | | 350 | | 470 | | 569 | | 539 | | 900 | | 523 | | | | | | | | | | | |
| Nitrate/Nitrite | mg/L | 0.509 | | 0 | | 0 | | 0.011 | J | 0 | | 0.039 | F | 0 | | | | | | | | | | | |
| Sulfate | mg/L | 39.2 | | 30.2 | | 21.1 | | 7.9 | | 140 | | 37.4 | | 5.6 | | | | 53.4 | | | | | | 0.43 | F |
| Chloride | mg/L | 13.5 | | 14.5 | | 15.4 | | 16 | | 12 | | 15.1 | | 15 | | | | 13.9 | | | | | | 42 | |
| Ferrous Iron | mg/L | 2.0 | | 2.3 | | 4.9 | | 3.0 | | 5.8 | | 3.1 | | 1.8 | | 0.26 | F | 0.16 | F | 1.0 | | 3.3 | | 3.2 | |
| Manganese | µg/L | 451 | | 231 | | 299 | | 143 | | 375 | | 338.4 | | 205 | | 141 | | 40 | | 155 | | 67 | | 94 | |
| Hydrogen | nM/L | | | | | 4.0 | | | | | | | | | | | | | | | | | | | |
| Hydrogen Sulfide | µg/L | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Dissolved Solids | mg/L | 400 | | 392 | | 570 | | 579 | | 825 | | 690 | | 503 | | 682 | | 472 | | 415 | | 507 | | 994 | |
| 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 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| 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 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| Dichloroethene, cis-1,2- | µg/L | 29 | | 58 | | 6.5 | | 0.61 | J | 5.6 | | 0.82 | F | 0.38 | F | 17 | | 75 | | 65 | | 76 | | 1529 | |
| Dichloroethene, trans-1,2- | µg/L | 2.1 | | 2.2 | | 1.0 | | 0.79 | | 0 | | 0.55 | F | 0.47 | F | 0.41 | F | 0.25 | F | 0.71 | | 1.1 | | 10.1 | |
| Methylene chloride | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 4.6 | |
| Naphthalene | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| Tetrachloroethene | µg/L | 9.5 | | 0.54 | J | 0.24 | J | 2.8 | | 0 | | 0 | | 0 | | 2.8 | | 6.3 | | 3.1 | | 0.53 | F | 1.3 | F |
| Toluene | µg/L | 0 | | 0 | | 0 | | 0 | | 0.48 | F | 0.19 | F | 0 | | 0 | | 0 | | 0 | | 0 | | 0.66 | F |
| Trichloroethene | µg/L | 19 | | 1.1 | | 0.37 | J | 0 | | 0.34 | F | 0.20 | F | 0 | | 8.4 | | 16 | | 8.2 | | 6.2 | | 0.86 | F |
| Vinyl chloride | µg/L | 9.3 | | 21 | | 8.9 | | 6.6 | | 6.1 | | 1.9 | | 0 | | 0 | | 0.56 | F | 3.5 | | 0 | | 134 | |
| Arsenic | µg/L | 0 | | 0 | | 7.1 | | 4.2 | J | 0 | | 3.9 | F | 0 | | 7.1 | | 0 | | 0 | | 3.7 | F | 2.5 | F |
| Barium | µg/L | 259 | | 118 | | 112 | | 71.7 | | 121 | | 100 | | 89 | | | | | | | | | | | |
| Cadmium | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | | | | | | | | | | |
| Chromium | µg/L | 0 | | 0 | | 0 | | 0 | | 2.2 | F | 0 | | 0 | | | | | | | | | | | |
| Copper | µg/L | 1.2 | J | 1.5 | J | 0 | | 10.2 | | 0 | | 0 | | 14 | | | | | | | | | | | |
| Lead | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 6.3 | | | | | | | | | | | |
| Mercury | µg/L | 0 | | 0.062 | J | 0 | | 0.14 | J | 0 | | 0.19 | F | 0 | | | | | | | | | | | |
| Nickel | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 1.1 | F | 1.1 | F | | | | | | | | | | |
| Zinc | µg/L | 20.5 | J | 26.1 | J | 21.6 | J | 35.3 | J | 38 | F | 9.0 | F | 34 | F | | | | | | | | | | |
| | | Month 37 | | Month 38 | | Month 39 | | Month 40 | | Month 41 | | Month 42 | | Month 43 | | Month 44 | | Month 45 | | Month 46 | | Month 47 | | Month 48 | |

Note: 0 sample indicates a non-detect analyte value

| Well ID | | T1-2 | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|-------|---------|------|---------|------|---------|------|---------|------|---------|------|----------|------|----------|------|----------|------|---------|------|---------|------|---------|------|---------|------|
| Sample Date | | 5/19/10 | | 6/22/10 | | 7/20/10 | | 8/17/10 | | 9/21/10 | | 10/19/10 | | 11/18/10 | | 12/21/10 | | 1/19/11 | | 2/24/11 | | 3/22/11 | | 4/19/11 | |
| 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 |
| Dissolved Organic Carbon | mg/L | 13.1 | | 11 | | 9.1 | | 6.4 | | 15 | | 8.8 | | 4.3 | | 6.1 | | 6.1 | | | | | | 5.5 | |
| Total Organic Carbon | mg/L | 11.9 | | 9.9 | | 9.8 | | 7.7 | | 13 | | 8.2 | | 3.9 | | 5.0 | | | | | | | | 9.7 | |
| Methane | µg/L | 18,200 | | 11,900 | | 10,500 | | 10,300 | | 21,500 | | 23,500 | | 12,200 | | 455 | | 104 | | 9,620 | | 7,580 | | 10,900 | |
| Ethene | µg/L | 12.5 | | 7.0 | | 1.6 | J | 1.8 | J | 0 | | 0 | | 0 | | 0 | | 0 | | 1.9 | F | 0 | | 0 | |
| Ethane | µg/L | 0 | | 0 | | 5.0 | | 1.9 | J | 1.1 | F | 3.6 | | 3.6 | | 0 | | 0 | | 8.0 | | 4.7 | | 2.6 | |
| Carbon Dioxide | µg/L | 427,000 | | 190,000 | | 238,000 | | 422,000 | | 810,000 | | 589,000 | | 490,000 | | 72,500 | | 64,100 | | 175,000 | | 263,000 | | 355,000 | |
| Alkalinity, Total (as CaCO3) | mg/L | 497 | | 586 | | 413 | | 500 | | 564 | | 490 | | 460 | | | | | | | | | | | |
| Nitrate/Nitrite | mg/L | 0 | | 0 | | 0 | | 0.011 | J | 0 | | 0.039 | F | 0 | | | | | | | | | | | |
| Sulfate | mg/L | 16 | | 12.8 | | 3.9 | | 1.1 | | 110 | | 53 | | 13.8 | | | | 39.2 | | | | | | 0.61 | F |
| Chloride | mg/L | 9.9 | | 14 | | 15 | | 15.3 | | 13 | | 15.3 | | 15.0 | | | | 14 | | | | | | 15 | |
| Ferrous Iron | mg/L | 4.7 | | 3.0 | | 2.8 | | 4.1 | | 4.8 | | 4.0 | | 3.0 | | 1.4 | | 0.80 | F | 5.5 | | 9.9 | | 12.4 | |
| Manganese | µg/L | 340 | | 292 | | 330 | | 421 | | 427 | | 374 | | 253 | | 697 | | 447 | | 310 | | 500 | | 484 | |
| Hydrogen | nM/L | 2.8 | | 2.8 | | 6.6 | | 7.6 | | 9.0 | | 5.4 | | 10 | | | | 0.84 | | | | | | 10 | |
| Hydrogen Sulfide | µg/L | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Dissolved Solids | mg/L | 494 | | 407 | | 495 | | 569 | | 787 | | 609 | | 454 | | 837 | | 473 | | 419 | | 491 | | 531 | |
| 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 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0.15 | F |
| 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 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| Dichloroethene, cis-1,2- | µg/L | 2.8 | | 26 | | 2.1 | | 0.87 | J | 0 | | 0 | | 0 | | 17 | | 68 | | 1.3 | | 0.29 | F | 13.1 | |
| Dichloroethene, trans-1,2- | µg/L | 4.8 | | 3.3 | | 5.1 | | 3.7 | | 0.86 | | 1.9 | | 0.95 | | 0.56 | F | 0.62 | | 1.0 | | 0.65 | | 1.6 | |
| 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 | 0 | | 0 | | 0 | | 2.7 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0.33 | F | 0 | |
| Toluene | µg/L | 0.23 | J | 0.19 | J | 0.28 | J | 0.62 | J | 0.33 | F | 0.19 | F | 0 | | 0 | | 0 | | 0 | | 0.19 | F | 6.4 | |
| Trichloroethene | µg/L | 0.74 | J | 1.4 | | 0.26 | J | 0 | | 0 | | 0 | | 0 | | 2.2 | | 1.1 | | 0 | | 0.19 | F | 0.23 | F |
| Vinyl chloride | µg/L | 9.4 | | 49 | | 3.2 | | 11 | | 0 | | 0 | | 0 | | 2.4 | | 5.8 | | 1.0 | F | 0 | | 0.83 | F |
| Arsenic | µg/L | 0 | | 2.7 | J | 6.1 | | 4.3 | J | 0 | | 1.7 | F | 0.60 | F | 15 | | 2.5 | F | 0 | | 12 | | 3.1 | F |
| Barium | µg/L | 133 | | 104 | | 109 | | 123 | | 95 | | 136 | | 137 | | | | | | | | | | | |
| Cadmium | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | | | | | | | | | | |
| Chromium | µg/L | 0 | | 0 | | 0 | | 0 | | 2.6 | F | 0 | </ | | | | | | | | | | | | |

Upper Saturated Zone (Zone LGR03B) Analytical Results Summary
May 2010 - April 2011

| CS-WB05-LGR03B | | | | | | | | | | | | | |
|--------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Date | 4/19/10 | 5/17/10 | 6/21/10 | 7/19/10 | 8/16/10 | 9/20/10 | 10/18/10 | 11/17/10 | 12/20/10 | 1/17/11 | 2/22/11 | 3/31/11 | 4/28/11 |
| PCE (µg/L) | 0.53 | 0.94 | 0 | 0 | 0 | 15 | 0.21 | 0 | 0 | 0 | 0.30 | 2.7 | 0 |
| TCE (µg/L) | 17 | 8.1 | 7.0 | 4.4 | 1.5 | 29 | 19 | 9.1 | 2.0 | 1.2 | 7.9 | 55 | 14.3 |
| cis-1,2-DCE (µg/L) | 100 | 77 | 130 | 120 | 270 | 128 | 101 | 111 | 120 | 98 | 112 | 152 | 71 |
| trans-1,2-DCE (µg/L) | 9.3 | 6.3 | 19 | 13 | 21 | 16 | 14 | 19 | 19 | 17 | 12 | 26 | 10.8 |
| Vinyl Chloride (µg/L) | 0.48 | 0.31 | 1.5 | 0.94 | 3.0 | 2.3 | 1.2 | 0 | 2.2 | 1.9 | 1.5 | 3.0 | 1.3 |
| Ethene (µg/L) | 0 | 0 | 0 | 1.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PCE (nM/L) | 3.20 | 5.67 | 0.00 | 0.00 | 0.00 | 90.45 | 1.27 | 0.00 | 0.00 | 0.00 | 1.81 | 15.98 | 0.00 |
| TCE (nM/L) | 129.39 | 61.65 | 53.28 | 33.49 | 11.42 | 220.72 | 147.65 | 69.49 | 15.07 | 9.29 | 60.13 | 422.33 | 108.68 |
| cis-1,2-DCE (nM/L) | 1031.46 | 794.22 | 1340.90 | 1237.75 | 2784.94 | 1320.27 | 1041.77 | 1143.37 | 1236.41 | 1014.23 | 1155.54 | 1566.58 | 727.28 |
| trans-1,2-DCE (nM/L) | 95.93 | 64.98 | 195.98 | 134.09 | 216.61 | 165.03 | 144.40 | 196.49 | 200.00 | 176.79 | 127.69 | 269.11 | 111.71 |
| Vinyl Chloride (nM/L) | 7.68 | 4.96 | 24.00 | 15.04 | 47.99 | 36.79 | 19.20 | 0.00 | 34.39 | 30.88 | 24.32 | 48.15 | 20.96 |
| Ethene (nM/L) | 0.00 | 0.00 | 0.00 | 39.22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total Molar Conc. (nM/L) | 1,267.6 | 931.5 | 1,614.1 | 1,459.6 | 3,061.0 | 1,833.3 | 1,354.3 | 1,409.4 | 1,485.9 | 1,231.2 | 1,369.5 | 2,322.2 | 968.6 |
| % moles PCE | 0.3% | 0.6% | 0.0% | 0.0% | 0.0% | 4.9% | 0.1% | 0.0% | 0.0% | 0.0% | 0.1% | 0.7% | 0.0% |
| % moles TCE | 10.2% | 6.6% | 3.3% | 2.3% | 0.4% | 12.0% | 10.9% | 4.9% | 1.0% | 0.8% | 4.4% | 18.2% | 11.2% |
| % moles cis-1,2-DCE | 81.4% | 85.3% | 83.1% | 84.8% | 91.0% | 72.0% | 76.9% | 81.1% | 83.2% | 82.4% | 84.4% | 67.5% | 75.1% |
| % moles trans-1,2-DCE | 7.6% | 7.0% | 12.1% | 9.2% | 7.1% | 9.0% | 10.7% | 13.9% | 13.5% | 14.4% | 9.3% | 11.6% | 11.5% |
| % moles Vinyl Chloride | 0.6% | 0.5% | 1.5% | 1.0% | 1.6% | 2.0% | 1.4% | 0.0% | 2.3% | 2.5% | 1.8% | 2.1% | 2.2% |
| % moles Ethene | 0.0% | 0.0% | 0.0% | 2.7% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 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% |
| | Month 36 | Month 37 | Month 38 | Month 39 | Month 40 | Month 41 | Month 42 | Month 43 | Month 44 | Month 45 | Month 46 | Month 47 | Month 48 |

| CS-WB06-LGR03B | | | | | | | | | | | | | |
|--------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Date | 4/19/10 | 5/17/10 | 6/21/10 | 7/19/10 | 8/16/10 | 9/20/10 | 10/18/10 | 11/17/10 | 12/20/10 | 1/18/11 | 2/23/11 | 3/21/11 | 4/18/11 |
| PCE (µg/L) | 52 | 100 | 130 | 73 | 63 | 28 | 73 | 127 | 111 | 114 | 95 | 89 | 83 |
| TCE (µg/L) | 81 | 130 | 150 | 97 | 86 | 43 | 99 | 128 | 153 | 157 | 133 | 140 | 114 |
| cis-1,2-DCE (µg/L) | 160 | 230 | 230 | 180 | 170 | 91 | 174 | 179 | 137 | 216 | 230 | 233 | 283 |
| trans-1,2-DCE (µg/L) | 0.90 | 2.4 | 5.7 | 7.9 | 18 | 0.41 | 15 | 3.7 | 3.2 | 2.5 | 1.8 | 2.0 | 2.0 |
| Vinyl Chloride (µg/L) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ethene (µg/L) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PCE (nM/L) | 313.57 | 603.03 | 783.94 | 440.21 | 379.91 | 168.85 | 437.19 | 768.02 | 671.59 | 688.78 | 573.72 | 539.29 | 501.30 |
| TCE (nM/L) | 616.49 | 989.42 | 1141.64 | 738.26 | 654.54 | 327.27 | 750.44 | 973.89 | 1160.82 | 1196.51 | 1014.16 | 1065.00 | 868.33 |
| cis-1,2-DCE (nM/L) | 1650.34 | 2372.36 | 2372.36 | 1856.63 | 1753.48 | 938.63 | 1794.74 | 1841.88 | 1417.84 | 2231.98 | 2376.07 | 2405.47 | 2914.49 |
| trans-1,2-DCE (nM/L) | 9.28 | 24.76 | 58.79 | 81.49 | 185.66 | 4.23 | 150.59 | 37.85 | 33.11 | 25.27 | 18.77 | 21.04 | 20.73 |
| Vinyl Chloride (nM/L) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Ethene (nM/L) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total Molar Conc. (nM/L) | 2,589.7 | 3,989.6 | 4,356.7 | 3,116.6 | 2,973.6 | 1,439.0 | 3,133.0 | 3,621.6 | 3,283.4 | 4,142.5 | 3,982.7 | 4,030.8 | 4,304.9 |
| % moles PCE | 12.1% | 15.1% | 18.0% | 14.1% | 12.8% | 11.7% | 14.0% | 21.2% | 20.5% | 16.6% | 14.4% | 13.4% | 11.6% |
| % moles TCE | 23.8% | 24.8% | 26.2% | 23.7% | 22.0% | 22.7% | 24.0% | 26.9% | 35.4% | 28.9% | 25.5% | 26.4% | 20.2% |
| % moles cis-1,2-DCE | 63.7% | 59.5% | 54.5% | 59.6% | 59.0% | 65.2% | 57.3% | 50.9% | 43.2% | 53.9% | 59.7% | 59.7% | 67.7% |
| % moles trans-1,2-DCE | 0.4% | 0.6% | 1.3% | 2.6% | 6.2% | 0.3% | 4.8% | 1.0% | 1.0% | 0.6% | 0.5% | 0.5% | 0.5% |
| % moles Vinyl Chloride | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| % moles Ethene | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 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% |
| | Month 36 | Month 37 | Month 38 | Month 39 | Month 40 | Month 41 | Month 42 | Month 43 | Month 44 | Month 45 | Month 46 | Month 47 | Month 48 |

| CS-WB07-LGR03B | | | | | | | | | | | |
|--------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Date | 4/19/10 | 5/17/10 | 6/21/10 | 7/20/10 | 8/16/10 | 9/20/10 | 10/18/10 | 11/17/10 | 12/20/10 | 1/18/11 | 2/23/11 |
| PCE (µg/L) | 0 | 0.5 | 0 | 0 | 3.0 | 0.33 | 0 | 0 | 0.73 | 0.71 | 0.13 |
| TCE (µg/L) | 1.5 | 2.0 | 0.77 | 1.1 | 1.1 | 1.8 | 1.4 | 1.6 | 2.3 | 3.2 | 2.3 |
| cis-1,2-DCE (µg/L) | 33 | 32 | 23 | 37 | 36 | 21 | 27 | 32 | 27 | 38 | 32 |
| trans-1,2-DCE (µg/L) | 0.59 | 0.55 | 0.81 | 0.72 | 0.74 | 0.52 | 1.7 | 0.84 | 0.53 | 0.61 | 0.47 |
| Vinyl Chloride (µg/L) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ethene (µg/L) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PCE (nM/L) | 0.00 | 3.02 | 0.00 | 0.00 | 18.09 | 1.99 | 0.00 | 0.00 | 4.40 | 4.28 | 0.78 |
| TCE (nM/L) | 11.42 | 15.22 | 5.86 | 8.37 | 8.37 | 13.70 | 10.66 | 12.18 | 17.35 | 24.66 | 17.12 |
| cis-1,2-DCE (nM/L) | 340.38 | 330.07 | 237.24 | 381.64 | 371.33 | 216.61 | 278.49 | 330.69 | 274.27 | 389.79 | 326.97 |
| trans-1,2-DCE (nM/L) | 6.09 | 5.67 | 8.35 | 7.43 | 7.63 | 5.36 | 17.53 | 8.66 | 5.47 | 6.29 | 4.85 |
| Vinyl Chloride (nM/L) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Ethene (nM/L) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total Molar Conc. (nM/L) | 357.9 | 354.0 | 251.5 | 397.4 | 405.4 | 237.7 | 306.7 | 351.5 | 301.5 | 425.0 | 349.7 |
| % moles PCE | 0.0% | 0.9% | 0.0% | 0.0% | 4.5% | 0.8% | 0.0% | 0.0% | 1.5% | 1.0% | 0.2% |
| % moles TCE | 3.2% | 4.3% | 2.3% | 2.1% | 2.1% | 5.8% | 3.5% | 3.5% | 5.8% | 5.8% | 4.9% |
| % moles cis-1,2-DCE | 95.1% | 93.2% | 94.3% | 96.0% | 91.6% | 91.1% | 90.8% | 94.1% | 91.0% | 91.7% | 93.5% |
| % moles trans-1,2-DCE | 1.7% | 1.6% | 3.3% | 1.9% | 1.9% | 2.3% | 5.7% | 2.5% | 1.8% | 1.5% | 1.4% |
| % moles Vinyl Chloride | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| % moles Ethene | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| sum % moles | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| | Month 36 | Month 37 | Month 38 | Month 39 | Month 40 | Month 41 | Month 42 | Month 43 | Month 44 | Month 45 | Month 46 |

| CS-WB08-LGR03B | | | | | | | | | | | | | |
|--------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Date | 4/19/10 | 5/17/10 | 6/21/10 | 7/19/10 | 8/16/10 | 9/20/10 | 10/18/10 | 11/17/10 | 12/20/10 | 1/17/11 | 2/22/11 | 3/21/11 | 4/18/11 |
| PCE (µg/L) | 14 | 74 | 130 | 150 | 220 | 47 | 56 | 216 | 185 | 140 | 261 | 147 | 184 |
| TCE (µg/L) | 16 | 76 | 130 | 180 | 230 | 61 | 60 | 213 | 233 | 162 | 308 | 197 | 191 |
| cis-1,2-DCE (µg/L) | 45 | 120 | 130 | 180 | 210 | 83 | 81 | 185 | 217 | 184 | 351 | 226 | 205 |
| trans-1,2-DCE (µg/L) | 0.34 | 1.9 | 4.1 | 8.4 | 22 | 0.71 | 5.7 | 3.9 | 6.7 | 1.7 | 2.5 | 3.9 | 3.6 |
| Vinyl Chloride (µg/L) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ethene (µg/L) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PCE (nM/L) | 84.42 | 446.24 | 783.94 | 904.54 | 1326.66 | 283.42 | 337.70 | 1302.54 | 1112.95 | 845.50 | 1571.07 | 887.17 | 1108.24 |
| TCE (nM/L) | 121.77 | 578.43 | 989.42 | 1369.97 | 1750.51 | 464.27 | 456.66 | 1621.13 | 1776.09 | 1233.50 | 2341.81 | 1496.99 | 1454.75 |
| cis-1,2-DCE (nM/L) | 464.16 | 1237.75 | 1340.90 | 1856.63 | 2166.06 | 856.11 | 835.48 | 1908.20 | 2233.52 | 1895.10 | 3622.49 | 2332.44 | 2112.02 |
| trans-1,2-DCE (nM/L) | 3.51 | 19.60 | 42.29 | 86.64 | 226.92 | 7.32 | 58.79 | 40.23 | 68.90 | 17.23 | 25.79 | 40.33 | 36.72 |
| Vinyl Chloride (nM/L) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Ethene (nM/L) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total Molar Conc. (nM/L) | 673.9 | 2,282.0 | 3,156.5 | 4,217.8 | 5,470.2 | 1,611.1 | 1,688.6 | 4,872.1 | 5,191.5 | 3,991.3 | 7,561.1 | 4,756.9 | 4,711.7 |
| % moles PCE | 12.5% | 19.6% | 24.8% | 21.4% | 24.3% | 17.6% | 20.0% | 26.7% | 21.4% | 21.2% | 20.8% | 18.7% | 23.5% |
| % moles TCE | 18.1% | 25.3% | 31.3% | 32.5% | 32.0% | 28.8% | 27.0% | 33.3% | 34.2% | 30.9% | 31.0% | 31.5% | 30.9% |
| % moles cis-1,2-DCE | 68.9% | 54.2% | 42.5% | 44.0% | 39.6% | 53.1% | 49.5% | 39.2% | 43.0% | 47.5% | 47.9% | 49.0% | 44.8% |
| % moles trans-1,2-DCE | 0.5% | 0.9% | 1.3% | 2.1% | 4.1% | 0.5% | 3.5% | 0.8% | 1.3% | 0.4% | 0.3% | 0.8% | 0.8% |
| % moles Vinyl Chloride | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| % moles Ethene | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 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% |
| | Month 36 | Month 37 | Month 38 | Month 39 | Month 40 | Month 41 | Month 42 | Month 43 | Month 44 | Month 45 | Month 46 | Month 47 | Month 48 |

Note: 0 sample indicates a non-detect analyte value

SWMU B-3 Bioreactor Multi-port Well CS-WB05
May 2010 - April 2011

| Well ID | | CS-WB05-LGR01 | | | | | | | | | | | | CS-WB05-LGR02 | | | | CS-WB05-LGR03A | | | | | | CS-WB05-LGR03B | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|-------|---------------|------|------------|------|-----------|------|-----------|------|-----------|------|------------|------|---------------|------|------------|------|----------------|------|-----------|------|-----------|------|----------------|------|-----------|------|-----------|------|------------|------|------------|------|------------|------|-----------|------|-----------|------|-----------|------|-----------|---|--|--|
| Sample Date | | 7/26/2010 | | 10/26/2010 | | 1/25/2011 | | 4/26/2011 | | 7/26/2010 | | 10/26/2010 | | 7/26/2010 | | 10/26/2010 | | 1/25/2011 | | 5/17/2010 | | 6/21/2010 | | 7/19/2010 | | 8/16/2010 | | 9/20/2010 | | 10/18/2010 | | 11/17/2010 | | 12/20/2010 | | 1/17/2011 | | 2/22/2011 | | 3/31/2011 | | 4/18/2011 | | | |
| 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 | Value | Flag | Value | Flag | Value | Flag | Value | Flag | Value | Flag | Value | Flag | Value | Flag | | | | |
| Dissolved Organic Carbon | mg/L | 1.4 | | 0.26 | F | | | | | 1.4 | | 0.48 | F | 1.4 | | 0.33 | F | | | 1.8 | | 1.0 | | 1.1 | | 0.18 | J | 2.1 | | 1.2 | | 0.28 | F | | | 0.51 | | | | 0 | | | | | |
| Total Organic Carbon | mg/L | 0.65 | | 0 | | | | | | 1.2 | | 0 | | 2.6 | | 0 | | | | 0.34 | J | 1.0 | | 1.8 | | 0 | | 2.6 | | 0.99 | | 0 | | 0 | | 0 | | 0 | | 0.42 | F | | | | |
| Methane | µg/L | 3.5 | | 1.8 | | 17.5 | | 3.3 | | 448 | | 73.2 | | 225 | | 95.8 | | 78.5 | | 214 | | 632 | | 847 | | 137 | | 47 | | 45.4 | | 247 | | 147 | | 147 | | 38 | | 68 | | 106 | F | | |
| Ethane | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 1.1 | J | 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 | | 0 | | 0 | | | |
| Carbon Dioxide | µg/L | 61,800 | | 38,200 | | 12,600 | | 50,600 | | 66,900 | | 11,900 | | 26,600 | | 20,700 | | 9,040 | | 34,600 | | 56,700 | | 52,800 | | 20,800 | | 10,200 | | 8,050 | | 26,500 | | 30,500 | | 33,000 | | 8,230 | | 14,300 | | 23,200 | | | |
| Alkalinity, Total (as CaCO3) | mg/L | 370 | | 979 | | | | 330 | | 759 | | 316 | | 1,026 | | 326 | | 306 | | 315 | | 326 | | 313 | | 312 | | 312 | | 291 | | | | | | | | | | | | | | | |
| Nitrate/Nitrite | mg/L | 0 | | 0.092 | F | | | 0 | | 0 | | 0.15 | B | | | 0.10 | B | | | 0.011 | J | 0 | | 0 | | 0.039 | F | 0 | | | | | | | | | | | | | | | | | |
| Sulfate | mg/L | 90 | | 91.9 | | | | 86.3 | | 71.8 | | 45.1 | | 42.3 | | 42.6 | | 41 | | 44 | | 44.9 | | 46.2 | | 44.8 | | 45 | | | | | | 48.52 | | | | | | | | 39 | | | |
| Chloride | mg/L | 13.9 | | 14.1 | | | | 12.1 | | 12.6 | | 11.2 | | 10.9 | | 11.2 | | 12.3 | | 11.4 | | 11.2 | | 11.4 | | 11.2 | | 11.6 | | 11.2 | | 11 | | | | 11.24 | | | | | | 10.8 | | | |
| Ferrous Iron | mg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0.20 | F | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | | |
| Manganese | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 1.9 | F | 0 | | 0 | | 1.6 | F | 0 | | 0 | | | |
| Hydrogen | nM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hydrogen Sulfide | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Dissolved Solids | mg/L | 528 | | 56,300 | | 500 | | 520 | | 482 | | 49,600 | | 395 | | 41,000 | | 376 | | 364 | | 395 | | 395 | | 419 | | 393 | | 386 | | 261 | | 416 | | 419 | | 383 | | 382 | J | 390 | | | |
| Benzene | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 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 | | 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 | | 0 | | | |
| Chloroform | µg/L | 0 | | 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 | | 0 | | | |
| Dichlorodifluoromethane | µg/L | 0 | | 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 | | 0 | | | |
| Dichloroethene, cis-1,2- | µg/L | 1.1 | J | 1.9 | | 1.96 | | 1.8 | | 33 | | 52.6 | | 130 | | 95.7 | | 97.01 | | 77 | | 130 | | 120 | | 270 | | 128 | | 101 | | 110.85 | | 119.87 | | 98.33 | | 112 | | 152 | J | 71 | | | |
| Dichloroethene, trans-1,2- | µg/L | 0 | | 0.33 | F | 0.65 | | 0.29 | F | 5.4 | | 4.4 | | 18 | | 8.4 | | 15.87 | | 6.3 | | 19 | | 13 | | 21 | | 16 | | 14.5 | | 19.05 | | 19.39 | | 17.14 | | 12 | | 26 | J | 10.8 | | | |
| Methylene chloride | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 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 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | | |
| Tetrachloroethene | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0.16 | J | 0.52 | F | 0.3 | F | 0.94 | J | 0 | | 0 | | 0 | | 15 | | 0.21 | F | 0 | | 0 | | 0 | | 0.30 | F | 2.7 | J | 0 | | 0 | | | |
| Toluene | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | | |
| Trichloroethene | µg/L | 1 | | 1.2 | | 1.33 | | 0.81 | F | 2.3 | | 10.7 | | 5.7 | | 18.2 | | 1.64 | | 8.1 | | 7.0 | | 4.4 | | 1.5 | | 29 | | 19.4 | | 9.13 | | 1.98 | | 1.22 | | 7.9 | | 55 | J | 14.3 | | | |
| Vinyl chloride | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 1.3 | | 1.7 | | 2.26 | | 0.31 | J | 1.5 | | 0.94 | J | 3.0 | | 2.3 | | 1.2 | | 0 | | 2.15 | | 1.93 | | 1.5 | | 3.0 | J | 1.3 | | | |
| Arsenic | µg/L | 0 | | 0.70 | F | 0 | | 2.0 | F | 0 | | 1.4 | F | 0 | | 2.6 | F | 0 | | 0 | | 4.6 | J | 6.8 | | 7.1 | | 4.0 | F | 3.0 | F | 0.70 | F | 7.0 | | 2.5 | F | 0 | | 2.0 | F | 1.4 | F | | |
| Barium | µg/L | 31.5 | | 33.5 | | | | 49.2 | | 48 | | 30.9 | | 30.4 | | 30.4 | | 30.2 | | 28.3 | | 26.8 | | 29.5 | | 30.7 | | 32 | | | | | | | | | | | | | | | | | |
| Cadmium | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | | |
| Chromium | µg/L | 6.5 | | 0 | | 2.7 | J | 0 | | 1.6 | J | 0 | | 2 | J | 0 | | 1.3 | J | 2.4 | J | 0 | | 7.4 | | 1.7 | F | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | | |
| Copper | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | | |
| Lead | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | | |
| Mercury | µg/L | 0 | | 0.050 | F | | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0.081 | J | 0.050 | F | 0.14 | F | 0.050 | F | | | | | | | | | | | | |
| Nickel | µg/L | 5.8 | | 2.4 | F | | | 5.5 | | 5.0 | | 4.2 | J | 3.7 | F | | | 4.2 | J | 2.3 | J | 1.2 | J | 5.4 | | 2.7 | F | 4.2 | F | 4.0 | F | | | | | | | | | | | | | | |
| Zinc | µg/L | 41.1 | J | 9.0 | F | | | 19.1 | J | 10 | F | 74.3 | | 11 | F | | | 19.6 | J | 22.5 | J | 43.5 | J | 38.4 | J | 0 | | 9.0 | F | 32 | F | | | | | | | | | | | | | | |
| | | Q13- Month 39 | | | | Q1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

SWMU B-3 Bioreactor Multi-port Well CS-WB08
May 2010 - April 2011

| Q16 | | CS-WB08 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|-------|---------------|------|------------|------|---------------|------|-----------|------|---------------|------|------------|------|---------------|------|-----------|------|---------------|------|------------|------|---------------|--------|-----------|-------|----------------|-------|------------|-------|-----------|------|
| Well ID | | CS-WB08-UGR01 | | | | | | | | CS-WB08-LGR01 | | | | | | | | CS-WB08-LGR02 | | | | | | | | CS-WB08-LGR03A | | | | | |
| Sample Date | Units | 7/27/2010 | | 10/28/2010 | | 1/25/2011 | | 4/27/2011 | | 7/27/2010 | | 10/28/2010 | | 1/25/2011 | | 4/27/2011 | | 7/27/2010 | | 10/28/2010 | | 1/25/2011 | | 4/27/2011 | | 7/27/2010 | | 10/28/2010 | | 1/25/2011 | |
| 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 | Value | Flag | Value | Flag |
| Dissolved Organic Carbon | mg/L | 2.3 | | 1.3 | | | | | | 1.2 | | 0.96 | | | | | | 0.96 | | 0.45 | F | | | | | 1.3 | | 0.55 | | | |
| Total Organic Carbon | mg/L | 2.2 | | 1.1 | | | | | | 1.0 | | 0 | | | | | | 0.79 | | 0 | | | | | | 2.3 | | 0 | | | |
| Methane | µg/L | 227 | | 388 | | 71.5 | | 657 | | 0 | | 0 | | 0 | | 0 | | 1.2 | | 0 | | 0 | 1.9 | | 0 | | 0 | | 0 | | |
| Ethene | µg/L | 0 | | 9.0 | | 1.2 | F | 11.9 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0 | | 0 | | 0 | | 0 | | |
| Ethane | µg/L | 0 | | 0 | | 0 | | 1.5 | F | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0 | | 0 | | 0 | | 0 | | |
| Carbon Dioxide | µg/L | 33,300 | | 75,300 | | 22,700 | | 42,900 | | 24,000 | | 11,300 | | 43,600 | | 34,000 | | 27,300 | | 7,210 | | 8,600 | 26,400 | | 9,680 | | 7,540 | | 7,810 | | |
| Alkalinity, Total (as CaCO3) | mg/L | 422 | | 944 | | | | | | 345 | | 1,181 | | | | | | 352 | | 735 | | | | | 313 | | 685 | | | | |
| Nitrate/Nitrite | mg/L | 0.11 | | 0 | | | | | | 0 | | 0.054 | F | | | | | 0 | | 0 | | | | | 0.67 | | 0.64 | | | | |
| Sulfate | mg/L | 19.7 | | 20.1 | | | | | | 93 | | 91.4 | | | | | | 104 | | 105 | | | | | 15 | | 15.6 | | | | |
| Chloride | mg/L | 16.5 | | 16.6 | | | | | | 11.5 | | 12.0 | | | | | | 12.4 | | 12.4 | | | | | 12.5 | | 12.7 | | | | |
| Ferrous Iron | mg/L | 0 | | 0.20 | F | 0 | | 0.76 | F | 0 | | 0 | | 0 | | 0 | | 0.18 | J | 0 | | 0 | 0 | | 0 | | 0 | | 0 | | |
| Manganese | µg/L | 250 | | 660 | | 389 | | 945 | | 3.2 | J | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0 | | 0 | | 0 | | 0 | | |
| Hydrogen | nM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hydrogen Sulfide | mg/L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Dissolved Solids | mg/L | 479 | | 421 | | 339 | | 459 | | 514 | | 508 | | 481 | | 531 | | 536 | | 553 | | 513 | 552 | | 359 | | 345 | | 335 | | |
| Benzene | µg/L | 0 | | 0 | | 0 | | 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 | | 0 | | 0 | | 0 | | |
| Bromoform | µg/L | 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 | 0.15 | J | 0 | | 0.23 | F | | | |
| Dibromochloromethane | µg/L | 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 | | |
| Dichloroethene, 1,1- | µg/L | 0.81 | J | 0.89 | F | 0 | | 0.32 | F | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0 | | 0 | | 0 | | 0 | | |
| Dichloroethene, cis-1,2- | µg/L | 1,700 | | 543 | | 128 | | 386 | | 87 | | 76 | | 67 | | 43 | | 4.2 | | 2.5 | | 3.3 | 5.5 | | 150 | | 187 | | 206 | | |
| Dichloroethene, trans-1,2- | µg/L | 10 | | 3.2 | | 1.2 | | 1.7 | | 4.4 | | 6.1 | | 4.6 | | 3.8 | | 0 | | 0 | | 0.13 | F | 1.9 | | 2.7 | | 3.9 | | | |
| Methylene chloride | µg/L | 0 | | 0 | | 0 | | 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 | | 0 | | 0 | | 0 | | |
| Tetrachloroethene | µg/L | 5.7 | | 2.4 | | 11 | | 0.77 | F | 3.3 | | 0 | | 0.51 | F | 0 | | 2.7 | | 1.4 | | 3.7 | 0 | | 95 | | 196 | | 107 | | |
| Toluene | µg/L | 0.19 | J | 0.33 | F | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0 | | 0 | | 0 | | 0 | | |
| Trichloroethene | µg/L | 10 | | 8.6 | | 20 | | 4.5 | | 6.3 | | 0.46 | F | 0.61 | F | 0.31 | F | 2.9 | | 1.8 | | 3.3 | 0.20 | F | 120 | | 203 | | 134 | | |
| Vinyl chloride | µg/L | 69 | | 38.6 | | 0 | | 100 | | 0.33 | J | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0 | | 0 | | 0 | | 0 | | |
| Arsenic | µg/L | 6.7 | | 0 | | 0 | | 3.1 | F | 0 | | 1.4 | F | 0 | | 1.7 | F | 0 | | 1.6 | F | 0.30 | F | 1.4 | F | 0 | | 0.70 | F | 0 | |
| Barium | µg/L | 43.3 | | 47.9 | | | | | | 106 | | 102 | | | | | | 68.9 | | 71.7 | | | | | 36.6 | | 34.4 | | | | |
| Cadmium | µg/L | 0.76 | J | 0 | | | | | | 0 | | 0 | | | | | | 0 | | 0 | | | | | 0 | | 0 | | | | |
| Chromium | µg/L | 5.8 | | 1.8 | F | | | | | 11.6 | | | | | | | | 0 | | 1.6 | F | | | | 1.8 | J | 0 | | | | |
| Copper | µg/L | 0 | | 33 | | | | | | 18.7 | B | 29 | | | | | | 19.9 | B | 29 | | | | | 24.2 | B | 28 | | | | |
| Lead | µg/L | 0 | | 0 | | | | | | 0 | | 0 | | | | | | 0 | | 0 | | | | | 1.6 | J | 0 | | | | |
| Mercury | µg/L | 0 | | 0.060 | F | | | | | 0 | | 0.050 | F | | | | | 0 | | 0.070 | F | | | | 0 | | 0 | | | | |
| Nickel | µg/L | 12.6 | | 16.7 | | | | | | 10.4 | | 2.2 | F | | | | | 3.5 | J | 1.7 | F | | | | 5.5 | | 4.1 | F | | | |
| Zinc | µg/L | 81.2 | | 44 | F | | | | | 15.1 | J | 36 | F | | | | | 22.8 | J | 43 | F | | | | 21.3 | J | 43 | F | | | |
| | | Q13- Month 39 | | | | Q14- Month 42 | | | | Q15- Month 45 | | | | Q16- Month 48 | | | | Q13- Month 39 | | | | Q14- Month 42 | | | | Q15- Month 45 | | | | | |

| Well ID | | CS-WB08-LGR03B | | | | | | | | | | | | | | | | | | | | | | | | CS-WB08-LGR04 | | | | | | | |
|------------------------------|-------|----------------|------|-----------|------|-----------|------|-----------|------|-----------|------|------------|------|------------|------|------------|------|-----------|------|-----------|------|-----------|--------|-----------|--------|---------------|--------|------------|--------|-----------|--------|-----------|--|
| Sample Date | Units | 5/17/2010 | | 6/21/2010 | | 7/19/2010 | | 8/16/2010 | | 9/20/2010 | | 10/18/2010 | | 11/17/2010 | | 12/20/2010 | | 1/17/2011 | | 2/22/2011 | | 3/21/2011 | | 4/18/2011 | | 7/27/2010 | | 10/28/2010 | | 1/25/2011 | | 4/27/2011 | |
| 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 | Value | Flag | Value | Flag | | |
| Dissolved Organic Carbon | mg/L | | | | | 1.5 | | 0.63 | | 1.2 | | 1.1 | | 1.1 | | 0.41 | F | | | | | 0.32 | F | 2.3 | | 1.3 | | | | | | | |
| Total Organic Carbon | mg/L | | | | | 2.3 | | 0.74 | | 0.38 | F | 0.61 | | 0 | | | | | | | | 0 | | 2.9 | | 0.99 | | | | | | | |
| Methane | µg/L | | | | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0 | | 0 | | 0 | | 0 | | | | |
| Ethene | µg/L | | | | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0 | | 0 | | 0 | | 0 | | | | |
| Ethane | µg/L | | | | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0 | | 0 | | 0 | | 0 | | | | |
| Carbon Dioxide | µg/L | | | | | 5,710 | J | 36,300 | | 30,400 | | 30,400 | | 61,500 | | 39,100 | | 42,800 | | 9,280 | | 22,800 | 42,100 | | 29,800 | | 69,300 | | 27,100 | | 21,900 | | |
| Alkalinity, Total (as CaCO3) | mg/L | | | | | 313 | | 298 | | 311 | | 286 | | 291 | | | | | | | | | | 341 | | 315 | | | | | | | |
| Nitrate/Nitrite | mg/L | | | | | 0.60 | | 0.59 | | 0.71 | | 0.71 | B | 0.69 | | | | | | | | | | 0.19 | | 0.20 | | | | | | | |
| Sulfate | mg/L | | | | | 15.2 | | 15.4 | | 17.7 | | 15.8 | | 15 | | | | | | | | | 16.5 | | 22.5 | | 27.2 | | | | | | |
| Chloride | mg/L | | | | | 13.1 | | 12.3 | | 13.5 | | 12.9 | | 12 | | | | | | | | | 11.2 | | 14.7 | | 14.8 | | | | | | |
| Ferrous Iron | mg/L | | | | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | 0 | | 0 | | 0 | | 0 | | | | |
| Manganese | µg/L | | | | | 0 | | 0 | | 0 | | 0 | | 1.4 | F | 0 | | 0 | | 0 | | | | | | | | | | | | | |

Table 16.3.3

B-3 Bioreactor Monitoring Well Analytical Summary
May 2010 - April 2011

| Well ID | Sample Date | Units | Monitoring Wells | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|-------------|--------|------------------|--------|------------|--------|-----------|--------|-----------|--------|-----------|--------|------------|--------|-----------|-----------|------------|---------|------------|---------|-----------|--------|-----------|--------|-----------|--|
| | | | CS-MW1-LGR | | | | | | | | CS-D | | | | | | CS-B3-MW01 | | | | | | CS-4 | | | |
| | | | 7/29/2010 | | 10/20/2010 | | 1/31/2011 | | 4/27/2011 | | 7/29/2010 | | 10/20/2010 | | 1/31/2011 | | 7/29/2010 | | 10/20/2010 | | 1/31/2011 | | 4/27/2011 | | 1/31/2011 | |
| 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 | 1.9 | | 0.66 | | 0 | | 0 | | 0.99 | | 0.34 | F | 0.34 | F | 7.0 | | 6.7 | | 3.1 | | 2.5 | | 0.44 | F | |
| Total Organic Carbon | mg/L | 0.97 | | | | 0 | | 0 | | 1.1 | | 0 | | 0 | | 4.8 | | 4.0 | | 2.0 | | 1.7 | | 0 | | |
| Methane | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 260,000 | | 147,000 | | 4,450 | | 351 | | 0 | | |
| Ethene | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 3.6 | | 0 | | 1.3 | F | 0 | | 0 | | |
| Ethane | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | |
| Carbon Dioxide | µg/L | 39,100 | | 35,600 | | 30,300 | | 29,600 | | 39,800 | | 32,700 | | 36,900 | | 1,190,000 | | 702,000 | | 168,000 | | 52,300 | | 29,400 | | |
| Sulfate | mg/L | 14.1 | | 13.4 | | 14.0 | | 13.7 | | 15.1 | | 14.3 | | 15.7 | | 1.1 | | 1.2 | | 1.8 | | 2.2 | | 25.8 | | |
| Chloride | mg/L | 9.4 | | 9.3 | | 9.0 | | 8.8 | | 11.1 | | 11.0 | | 11.1 | | 13.2 | | 13.3 | | 13.3 | | 12.2 | | 16.6 | | |
| Ferrous Iron | mg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 7.5 | | 6.2 | | 6.5 | | 6.9 | | 0 | | |
| Manganese | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 198 | | 150 | | 199.4 | | 180 | | 0 | | |
| Total Dissolved Solids | mg/L | 311 | | 311 | | 314 | | 316 | | 330 | | 332 | | 355 | | 633 | | 612 | | 641 | | 663 | | 333 | | |
| 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 | 0.12 | J | 0.13 | F | 0.16 | F | 0.11 | F | 0 | | 0.16 | F | 0.20 | F | 0 | | 0 | | 0 | | 0 | | 0 | | |
| 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 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | |
| Dichloroethene, cis-1,2- | µg/L | 25 | | 20.1 | | 22.4 | | 18.3 | | 140 | | 154 | | 138 | | 2.2 | | 0.34 | F | 0.21 | F | 0.23 | F | 1.4 | | |
| Dichloroethene, trans-1,2- | µg/L | 0.38 | J | 0.22 | F | 0.38 | F | 0.16 | F | 1.6 | | 1.1 | | 1.6 | | 1.3 | | 1.1 | | 0.66 | | 0 | | 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 | 19 | | 16.0 | | 15.8 | | 12.7 | | 130 | | 147 | | 144 | | 0 | | 0.33 | F | 0 | | 0 | | 3.3 | | |
| Toluene | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0.12 | F | 0 | | |
| Trichloroethene | µg/L | 34 | | 30.3 | | 39.2 | | 29.7 | | 160 | | 175 | | 179 | | 0 | | 0.22 | F | 0 | | 0 | | 4.4 | | |
| Vinyl chloride | µg/L | 0 | | 0 | | 0 | | 0.29 | F | 0 | | 0.30 | F | 0 | | 220 | | 187 | | 53.3 | | 22.4 | | 0 | | |
| Arsenic | µg/L | 7.1 | | 0 | | 0 | | 0.50 | F | 5.3 | | 1.3 | F | 1.0 | F | 7.2 | | 3.2 | F | 1.2 | F | 2.4 | F | 0.40 | F | |
| Barium | µg/L | 32.5 | | 34.4 | | | | | | 31.3 | | 35 | | | | 250 | | 99.7 | | | | | | | | |
| Cadmium | µg/L | 1.0 | J | 0 | | | | | | 0.74 | J | 0 | | | | 0 | | 0 | | | | | | | | |
| Chromium | µg/L | 1.8 | J | 0 | | | | | | 0 | | 0 | | | | 1.7 | J | 0 | | | | | | | | |
| Copper | µg/L | 0 | | 0 | | | | | | 0 | | 0 | | | | 0 | | 0 | | | | | | | | |
| Lead | µg/L | 0 | | 0 | | | | | | 0 | | 0 | | | | 5.8 | | 0 | | | | | | | | |
| Mercury | µg/L | 0 | | 0.060 | F | | | | | 0 | | 0.060 | F | | | 0 | | 0.050 | F | | | | | | | |
| Nickel | µg/L | 2.5 | J | 4.7 | F | | | | | 0 | | 0 | | | | 4.4 | J | 2.9 | F | | | | | | | |
| Zinc | µg/L | 27.5 | J | 0 | | | | | | 23.9 | J | 0 | | | | 50.5 | | 0 | | | | | | | | |

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

Table 16.4.4

SWMU B-3 Microbial Data Summary
May 2010 - April 2011

| Trench Sump | Sample date: | 7/20/2010 | 10/19/2010 | 1/19/2011 | 4/19/2011 |
|--------------------------------|---------------------|-------------|------------|------------|-----------|
| B3 T1-2 | | | | | |
| Dechlorinating Bacteria | units | | | | |
| <i>Dehalococcoides spp (1)</i> | (cells/mL) | 1.52E+03 | 9.01E+01 | 1.50E+03 | 4.82E+02 |
| Functional Genes | units | | | | |
| TCE R-Dase (1) | (cells/mL) | 5.66E+02 | 1.05E+01 | 6.56E+01 | 6.27E+01 |
| BAV1 VC R-Dase (1) | (cells/mL) | 2.00E-01(J) | <5.00E-01 | 1.00E-01 J | <5.00E-01 |
| VC R-Dase | (cells/mL) | 1.13E+03 | 3.22E+01 | 1.77E+02 | 1.15E+02 |
| B3 T6-1 | | | | | |
| Dechlorinating Bacteria | units | | | | |
| <i>Dehalococcoides spp (1)</i> | (cells/mL) | | | 5.47E+02 | |
| Functional Genes | units | | | | |
| TCE R-Dase (1) | (cells/mL) | | | 2.97E+01 | |
| BAV1 VC R-Dase (1) | (cells/mL) | | | 2.09E+02 | |
| VC R-Dase | (cells/mL) | | | 1.39E+02 | |
| B3 T6-2 | | | | | |
| Dechlorinating Bacteria | units | | | | |
| <i>Dehalococcoides spp (1)</i> | (cells/mL) | 3.52E+03 | 6.32E+03 | | 1.88E+02 |
| Functional Genes | units | | | | |
| TCE R-Dase (1) | (cells/mL) | 4.27E+02 | 1.04E+03 | | 2.12E+02 |
| BAV1 VC R-Dase (1) | (cells/mL) | 1.49E+01 | 1.64E+03 | | 3.22E+02 |
| VC R-Dase | (cells/mL) | 2.14E+03 | 1.93E+03 | | 1.18E+03 |

| Monitoring wells | Sample date: | 5/19/2010 | 1/27/2011 | 4/26/2011 |
|--------------------------------|---------------------|-----------|------------|-----------|
| CS-MW01-LGR | | | | |
| Dechlorinating Bacteria | units | | | |
| <i>Dehalococcoides spp (1)</i> | (cells/mL) | | | 2.00E+00 |
| Functional Genes | 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 |
| CS-MW16-LGR | | | | |
| Dechlorinating Bacteria | units | | | |
| <i>Dehalococcoides spp (1)</i> | (cells/mL) | | 2.00E-01 J | <5.00E-01 |
| Functional Genes | units | | | |
| TCE R-Dase (1) | (cells/mL) | | <5.00E-01 | <5.00E-01 |
| BAV1 VC R-Dase (1) | (cells/mL) | | <5.00E-01 | <5.00E-01 |
| VC R-Dase | (cells/mL) | | <5.00E-01 | <5.00E-01 |
| CS-MW27-UGR | | | | |
| Dechlorinating Bacteria | units | | | |
| <i>Dehalococcoides spp (1)</i> | (cells/mL) | 6.50E+00 | | |
| Functional Genes | 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 | | |

Table 16.5.1

**UIC Field Parameter Summary
May 2010 - April 2011**

| | Date | Time | pH | Temperature | Specific Conductivity | ORP | Dissolved Oxygen |
|---------------|------------|------|------|-------------|-----------------------|-------|------------------|
| | | | | (°C) | (m-mho/cm) | (eV) | (mg/L) |
| B3-UIC | 5/20/2010 | 855 | 7.22 | 20.00 | 0.661 | -69.4 | 6.24 |
| | 6/22/2010 | 900 | 7.21 | 23.52 | 0.631 | -20.8 | 4.03 |
| | 7/20/2010 | 1245 | 7.35 | 27.06 | 0.464 | 105.0 | 5.06 |
| | 8/17/2010 | 954 | 7.44 | 24.66 | 0.636 | -3.3 | 6.22 |
| | 9/21/2010 | 1045 | 7.26 | 23.74 | 0.624 | -6.8 | 5.55 |
| | 10/19/2010 | 830 | 7.22 | 22.39 | 0.434 | 136.0 | 6.89 |
| | 11/18/2010 | 820 | 7.40 | 16.81 | 0.421 | 110.2 | 7.40 |
| | 12/21/2010 | 1000 | 7.23 | 21.98 | 0.421 | 119.2 | 5.17 |
| | 1/19/2011 | 1000 | 7.34 | 20.50 | 0.451 | -21.6 | 5.91 |
| | 2/24/2011 | 1030 | 7.25 | 21.95 | 0.610 | -3.7 | 5.95 |
| | 3/22//11 | 1110 | 7.41 | 22.45 | 0.639 | -55.1 | 5.76 |
| | 4/19/2011 | 1040 | 7.50 | 23.32 | 0.442 | -49.5 | 5.80 |

Table 16.5.6

**B3 - UIC Analytical Results
May 2010 - April 2011**

| | Sample ID | | | B3-UIC | | | B3-UIC | | | B3-UIC | | | B3-UIC | | | B3-UIC | | | | | |
|-------------------------|-------------|---------|------------------------------|----------|----------|---------|----------|----------|---------|----------|----------|---------|----------|----------|---------|----------|----------|---------|----------|----------|---|
| | Sample Date | | | 05/19/10 | | | 06/22/10 | | | 07/20/10 | | | 08/17/10 | | | 09/21/10 | | | 10/29/10 | | |
| | Sample Type | | | N1 | | | N1 | | | N1 | | | N1 | | | N1 | | | N1 | | |
| Sampling Method | | | Grab | | | Grab | | | Grab | | | Grab | | | Grab | | | Grab | | | |
| Lab ID | | | AY15780 | | | AY17148 | | | AY18286 | | | AY19940 | | | AY22083 | | | AY24744 | | | |
| | Lab MDL | Lab PQL | B-3 UIC Criteria (RCRA Haz.) | Results | | | Results | | | Results | | | Results | | | Results | | | Results | | |
| | | | | Flags | Dilution | | Flags | Dilution | | Flags | Dilution | | Flags | Dilution | | Flags | Dilution | | Flags | Dilution | |
| SW8260B (µg/L) | | | | | | | | | | | | | | | | | | | | | |
| Cis-DCE | 0.16 | 1.2 | -- | 75 | | 1 | 110 | | 1 | 100 | | 1 | 100 | | 1 | 92 | | 1 | 83 | | 1 |
| Trans-DCE | 0.19 | 0.6 | -- | 4.6 | | 1 | 5.0 | | 1 | 5.6 | | 1 | 15 | | 1 | 1.5 | | 1 | 6.3 | | 1 |
| TCE | 0.16 | 1.0 | 500. | 86 | | 1 | 110 | | 1 | 100 | | 1 | 100 | | 1 | 84 | | 1 | 81.3 | | 1 |
| PCE | 0.15 | 1.4 | 700. | 57 | | 1 | 79 | | 1 | 72 | | 1 | 76 | | 1 | 52 | | 1 | 64.9 | | 1 |
| Toluene | 0.17 | 1.1 | -- | 0.17 | U | 1 | 0.17 | U | 1 | 0.17 | U | 1 | 0.17 | U | 1 | 0.06 | U | 1 | 0.06 | U | 1 |
| Vinyl Chloride | 0.23 | 1.1 | 200. | 0.23 | U | 1 | 0.23 | U | 1 | 0.23 | U | 1 | 0.23 | U | 1 | 0.08 | U | 1 | 0.08 | U | 1 |
| EPA 160.1 (mg/L) | | | | | | | | | | | | | | | | | | | | | |
| TDS | 4.4 | 10. | -- | 308 | | 1 | 363 | | 1 | 364 | | 1 | 392 | | 1 | 377 | | 1 | 364 | | 1 |
| Field measured | | | | | | | | | | | | | | | | | | | | | |
| pH | | | | 7.22 | | | 7.21 | | | 7.35 | | | 7.44 | | | 7.26 | | | 6.89 | | |

| | Sample ID | | | B3-UIC | | | B3-UIC | | | B3-UIC | | | B3-UIC | | | B3-UIC | | | | | |
|-------------------------|-------------|---------|------------------------------|----------|----------|---------|----------|----------|---------|----------|----------|---------|----------|----------|---------|----------|----------|---------|----------|----------|---|
| | Sample Date | | | 11/18/10 | | | 12/21/10 | | | 01/19/11 | | | 02/24/11 | | | 03/22/11 | | | 04/19/11 | | |
| | Sample Type | | | N1 | | | N1 | | | N1 | | | N1 | | | N1 | | | N1 | | |
| Sampling Method | | | Grab | | | Grab | | | Grab | | | Grab | | | Grab | | | Grab | | | |
| Lab ID | | | AY27043 | | | AY29487 | | | AY30319 | | | AY33013 | | | AY34395 | | | AY36056 | | | |
| | Lab MDL | Lab PQL | B-3 UIC Criteria (RCRA Haz.) | Results | | | Results | | | Results | | | Results | | | Results | | | Results | | |
| | | | | Flags | Dilution | | Flags | Dilution | | Flags | Dilution | | Flags | Dilution | | Flags | Dilution | | Flags | Dilution | |
| SW8260B (µg/L) | | | | | | | | | | | | | | | | | | | | | |
| Cis-DCE | 0.16 | 1.2 | -- | 82 | | 1 | 109 | | 1 | 137 | | 1 | 156 | | 2 | 118 | | 2 | 181 | | 5 |
| Trans-DCE | 0.19 | 0.6 | -- | 1.7 | | 1 | 2.2 | | 1 | 2.0 | | 1 | 1.6 | | 1 | 2.3 | | 2 | 2.8 | | 1 |
| TCE | 0.16 | 1.0 | 500. | 79 | | 1 | 114 | | 1 | 134 | | 1 | 126 | | 1 | 100 | | 2 | 164 | | 5 |
| PCE | 0.15 | 1.4 | 700. | 68 | | 1 | 87 | | 1 | 86 | | 1 | 94 | | 1 | 68 | | 2 | 80 | | 1 |
| Toluene | 0.17 | 1.1 | -- | 0.06 | U | 1 | 0.06 | U | 1 | 0.06 | U | 1 | 0.06 | U | 1 | 0.12 | U | 2 | 0.06 | U | 1 |
| Vinyl Chloride | 0.23 | 1.1 | 200. | 0.08 | U | 1 | 0.08 | U | 1 | 0.08 | U | 1 | 0.08 | U | 1 | 0.16 | U | 2 | 0.08 | U | 1 |
| EPA 160.1 (mg/L) | | | | | | | | | | | | | | | | | | | | | |
| TDS | 4.4 | 10. | -- | 221 | | 1 | 376 | | 1 | 368 | | 1 | 290 | | 1 | 344 | | 1 | 364 | | 1 |
| Field measured | | | | | | | | | | | | | | | | | | | | | |
| pH | | | | 7.40 | | | 7.23 | | | 7.34 | | | 7.25 | | | 7.41 | | | 7.50 | | |

Tables present all laboratory results for analytes. Data packages for laboratory results are presented in Attachment 1. All samples were analyzed by APPL Laboratory Services. pH results reported were field measured. UIC criteria specified in 40 CFR 261.24 Table 1

Data Qualifiers:
J - The analyte was positively identified, the quantitation is an estimation.
U - The analyte was analyzed for, but not detected. The associated numerical value is the MDL.

Abbreviations:
PQL Practical Quantitation Limit
MDL Method Detection Limit
N1 Environmental Sample
SQL Sample Quantitation Limit
UIC Underground Injection Control

Table 16.6.2

B-3 Bioreactor Extraction Well VOC Summary
May 2010 - April 2011

| Q16 | 16 LGR | | | | 16 CC | | | | EXW 01 | | | | EXW 02 | | |
|--------------------------|---------|---------|----------|---------|---------|---------|----------|---------|---------|---------|----------|---------|---------|---------|---------|
| | Date | 7/27/10 | 10/20/10 | 1/27/11 | 4/26/11 | 7/27/10 | 10/20/10 | 1/27/11 | 4/26/11 | 7/20/10 | 10/20/10 | 1/27/11 | 4/25/11 | 6/2/10 | 1/27/11 |
| PCE (µg/L) | 120 | 155 | 180 | 237 | 4.3 | 3.0 | 3.7 | 1.5 | 140 | 196 | 230 | 309 | 12 | 101 | 137 |
| TCE (µg/L) | 130 | 166 | 222 | 285 | 35 | 30 | 37 | 23.7 | 170 | 116 | 224 | 327 | 5.8 | 127 | 180 |
| cis-1,2-DCE (µg/L) | 110 | 156 | 216 | 313 | 29 | 26 | 34 | 22 | 190 | 138 | 280 | 367 | 10 | 115 | 154 |
| trans-1,2-DCE (µg/L) | 0.51 | 0.20 | 0.42 | 0 | 3.6 | 3.4 | 6.6 | 5.1 | 2.0 | 1.1 | 1.9 | 3.8 | 0.0 | 1.3 | 10 |
| Vinyl Chloride (µg/L) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ethene (µg/L) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PCE (nM/L) | 723.63 | 934.69 | 1084.06 | 1430.44 | 25.93 | 18.09 | 22.13 | 9.23 | 844.24 | 1181.93 | 1384.79 | 1863.78 | 72.36 | 609.06 | 826.27 |
| TCE (nM/L) | 989.42 | 1263.41 | 1691.99 | 2165.99 | 266.38 | 228.33 | 281.15 | 180.23 | 1293.86 | 882.87 | 1703.33 | 2492.50 | 44.14 | 966.59 | 1367.53 |
| cis-1,2-DCE (nM/L) | 1134.61 | 1609.08 | 2229.81 | 3225.79 | 299.12 | 268.18 | 346.78 | 227.85 | 1959.77 | 1423.41 | 2884.27 | 3781.54 | 103.15 | 1186.18 | 1589.07 |
| trans-1,2-DCE (nM/L) | 5.26 | 2.06 | 4.33 | 0.00 | 37.13 | 35.07 | 67.97 | 52.19 | 20.63 | 11.35 | 19.39 | 38.68 | 0.00 | 13.41 | 103.56 |
| Vinyl Chloride (nM/L) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Ethene (nM/L) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total Molar Conc. (nM/L) | 2,852.9 | 3,809.2 | 5,010.2 | 6,822.2 | 628.6 | 549.7 | 718.0 | 469.5 | 4,118.5 | 3,499.6 | 5,991.8 | 8,176.5 | 219.7 | 2,775.2 | 3,886.4 |
| % moles PCE | 25.4% | 24.5% | 21.6% | 21.0% | 4.1% | 3.3% | 3.1% | 2.0% | 20.5% | 33.8% | 23.1% | 22.8% | 32.9% | 21.9% | 21.3% |
| % moles TCE | 34.7% | 33.2% | 33.8% | 31.7% | 42.4% | 41.5% | 39.2% | 38.4% | 31.4% | 25.2% | 28.4% | 30.5% | 20.1% | 34.8% | 35.2% |
| % moles cis-1,2-DCE | 39.8% | 42.2% | 44.5% | 47.3% | 47.6% | 48.8% | 48.3% | 48.5% | 47.6% | 40.7% | 48.1% | 46.2% | 47.0% | 42.7% | 40.9% |
| % moles trans-1,2-DCE | 0.2% | 0.1% | 0.1% | 0.0% | 5.9% | 6.4% | 9.5% | 11.1% | 0.5% | 0.3% | 0.3% | 0.5% | 0.0% | 0.5% | 2.7% |
| % moles Vinyl Chloride | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| % moles Ethene | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| 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% |

Note: 0 sample indicates a non-detect analyte value

B-3 Bioreactor Extraction Well Analytical Summary
May 2010 - April 2011

| Q16 | | Extraction Wells | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------------------|-------------|------------------|------|------------|------|-----------|------|-----------|------|------------|------|------------|------|-----------|------|-----------|------|-----------|------|------------|------|-----------|------|-----------|------|-----------|------|----------|------|-----------|------|-----------|---|
| Well ID | Sample Date | CS-MW16-LGR | | | | | | | | CS-MW16-CC | | | | | | | | B3-EXW01 | | | | | | | | B3-EXW02 | | | | | | | |
| | | 7/27/2010 | | 10/20/2010 | | 1/27/2011 | | 4/26/2011 | | 7/27/2010 | | 10/20/2010 | | 1/27/2011 | | 4/26/2011 | | 7/23/2010 | | 10/20/2010 | | 1/27/2011 | | 4/25/2011 | | 5/19/2010 | | 6/2/2010 | | 1/27/2011 | | 4/25/2011 | |
| 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 | Value | Flag | Value | Flag | | |
| Dissolved Organic Carbon | mg/L | 0.51 | | 0.39 | F | 0 | | 0 | | 1.3 | | 0.49 | F | 0 | | 0 | | 0.93 | | 0.42 | F | 0.14 | F | 0 | | | | | | 0.21 | F | 0 | |
| Total Organic Carbon | mg/L | 0.52 | | 0 | | 0 | | 0 | | 0.63 | F | 0 | | 0 | | 0 | | 0.62 | | 0 | F | 0 | F | 0 | | | | | | 0 | | 0 | |
| Methane | µg/L | 3.0 | | 5.0 | | 9 | | 2.2 | | 5 | | 4.6 | | 5.7 | | 5.5 | | 0 | | 0 | | 0 | | 0 | | | | | 0 | | 0 | | |
| Ethene | µg/L | 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 | | |
| Carbon Dioxide | µg/L | 42,100 | | 35,600 | | 46,300 | | 20,800 | | 25,300 | | 20,800 | | 36,200 | | 22,800 | | 35,300 | | 39,700 | | 38,300 | | 50,100 | | | | | | 45,600 | | 36,500 | |
| Alkalinity, Total (as CaCO3) | mg/L | 275 | | 269 | | | | | | 279 | | 273 | | | | | | 284 | | 278 | | | | | | | | | | | | | |
| Nitrate/Nitrite | mg/L | 1.3 | | 1.2 | | | | | | 0.044 | J | 0.066 | F | | | | | 1.1 | | 1.2 | | | | | | | | | | | | | |
| Sulfate | mg/L | 19.1 | | 17.8 | | 17.1 | | 17.4 | | 66.9 | | 65.8 | | 65.6 | | 65 | | 10.3 | | 10.3 | | 10.0 | | 10.0 | | | | | 13.1 | | 13.9 | | |
| Chloride | mg/L | 12 | | 11.2 | | 10.6 | | 10.5 | | 16.9 | | 17.7 | | 18.1 | | 17.2 | | 11.6 | | 11.8 | | 11.5 | | 11.7 | | | | | 12.5 | | 12.5 | | |
| Ferrous Iron | mg/L | 0 | | 0 | | 0 | | 0 | | 0.20 | J | 0.29 | F | 0.22 | F | 0.28 | F | 0 | | 0 | | 0 | | 0 | | | | 0.45 | F | 0 | | | |
| Manganese | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 132 | | 11 | | 0 | F | 0 | |
| Hydrogen | nM | 4.8 | | 6.9 | | 2.5 | | 4.0 | | 6.2 | | 6.9 | | | | | | 98 | | 7.1 | | | | | | | | | | | | | |
| Hydrogen Sulfide | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total Dissolved Solids | mg/L | 339 | | 344 | | 328 | | 321 | | 398 | | 391 | | 397 | | 416 | | 341 | | 345 | | 330 | | 353 | | | | | 329 | | 347 | | |
| Benzene | µg/L | 0 | | 0 | | 0 | | 0 | | 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 | | 0 | | 0 | | 0 | | 0 | |
| Bromoform | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| Chloroform | µg/L | 0.14 | J | 0 | | 0.16 | F | 0.21 | F | 0 | | 0 | | 0 | | 0 | | 0.19 | J | 0.20 | F | 0.24 | F | 0.26 | F | 0 | | 0 | | 0.17 | F | 0.17 | F |
| Dibromochloromethane | µg/L | 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 | |
| Dichloroethene, 1,1- | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0.39 | F | 0.21 | F | 0 | | 0 | | 0 | | 0.36 | F | 0 | | 0 | | 0 | | 0 | | 0 | |
| Dichloroethene, cis-1,2- | µg/L | 110 | | 156 | | 216 | | 313 | | 29 | | 26 | | 34 | | 22 | | 190 | | 138 | | 280 | | 367 | | 12 | | 10 | | 115 | | 154 | |
| Dichloroethene, trans-1,2- | µg/L | 0.51 | J | 0.20 | F | 0.42 | F | 0 | | 3.6 | | 3.4 | | 6.6 | | 5.1 | | 2.0 | | 1.1 | | 1.9 | | 3.8 | | 0 | | 0 | | 1.3 | | 10 | |
| Methylene chloride | µg/L | 0 | | 0 | | 0 | | 0 | | 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 | | 0 | | 0 | | 0 | | 0 | |
| Tetrachloroethene | µg/L | 120 | | 155 | | 180 | | 237 | | 4.3 | | 3.0 | | 3.7 | | 1.5 | | 140 | | 196 | | 230 | | 309 | | 15 | | 12 | | 101 | | 137 | |
| Toluene | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| Trichloroethene | µg/L | 130 | | 166 | | 222 | | 285 | | 35 | | 30 | | 37 | | 23.7 | | 170 | | 116 | | 224 | | 327 | | 3.8 | | 5.8 | | 127 | | 180 | |
| Vinyl chloride | µg/L | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | |
| Arsenic | µg/L | 0 | | 0.80 | F | 0 | | 0.50 | F | 0 | | 2.4 | F | 0 | | 0.80 | F | 0 | | 1.8 | F | 0 | | 0.60 | F | 0 | | 4.5 | F | 0 | | 0 | |
| Barium | µg/L | 36.1 | | 36.4 | | | | | | 21.9 | | 22.8 | | | | | | 29.1 | | 29.9 | | | | 47 | | 45 | | | | | | | |
| Cadmium | µg/L | 0 | | 0.36 | F | | | | | 0 | | 0.43 | F | | | | | 0 | | 0 | | | | 0 | | 0 | | 0 | | 0 | | 0 | |
| Chromium | µg/L | 0 | | 0 | | | | | | 0 | | 0 | | | | | | 0 | | 0 | | | | 6.1 | | 1.5 | F | | | | | | |
| Copper | µg/L | 52.4 | B | 6.0 | | | | | | 18.8 | B | 0 | | | | | | 6.2 | | 0 | | | | 9.6 | | 3.2 | F | | | | | | |
| Lead | µg/L | 4.4 | J | 0 | | | | | | 0 | | 0 | | | | | | 2.1 | J | 0 | | | | 0 | | 1.7 | F | | | | | | |
| Mercury | µg/L | 0 | | 0.070 | F | | | | | 0 | | 0.050 | F | | | | | 0 | | 0.050 | F | | | 0 | | 0.06 | F | | | | | | |
| Nickel | µg/L | 3.2 | J | 0 | | | | | | 4.9 | J | 3.9 | F | | | | | 0.59 | J | 0 | | | | 6.2 | | 0 | | | | | | | |
| Zinc | µg/L | 76.1 | | 19 | F | | | | | 21.1 | J | 9.0 | F | | | | | 714 | | 390 | | | | 29 | F | 13 | F | | | | | | |

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

