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 conductive to dechlorination of CAHs within the trenches;
- Production of methane indicating that fermentation is occurring; and
- Hydrogen concentrations are greater than 1.0 nanomoles per liter (nmol/L), indicating that there is sufficient electron donor present to stimulate anaerobic dechlorination of CAHs.

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 biotraps baited with several milligrams of cis-DCE per trap designed to lure dehalogenating microbes present in the trenches. Sump samples collected while the biotraps 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 ^{o}C to ~25 ^{o}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 ^{o}C to 25.3 ^{o}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 µg/L, respectively). Ethene is present in samples from MW26 and -34, and WB08-UGR-01 (10.4, 16.6, and 11.9 µg/L, respectively). Ethane is present in samples from MW26 and -34, and WB08-UGR-01 (3.0, 1.6, and 1.5 µg/L, respectively). Additionally, end products VC and ethene are observed at depth in the WB05-LGR-04A and -04B zones (25.73 µg/L VC in -04A; and 273.95 µg/L VC and 6.3 µg/L ethene in -04B), as well as CS-B3-MW01 (22.4 µg/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 CO_2 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	
cis -Dichloroethene	0.07	70	Organic Compound
trans -Dichloroethene	0.1	100	
Trichloroethene	0.005	5	
Tetrachloroethene	0.005	5	
Vinyl Chloride	0.002	2	

Figures

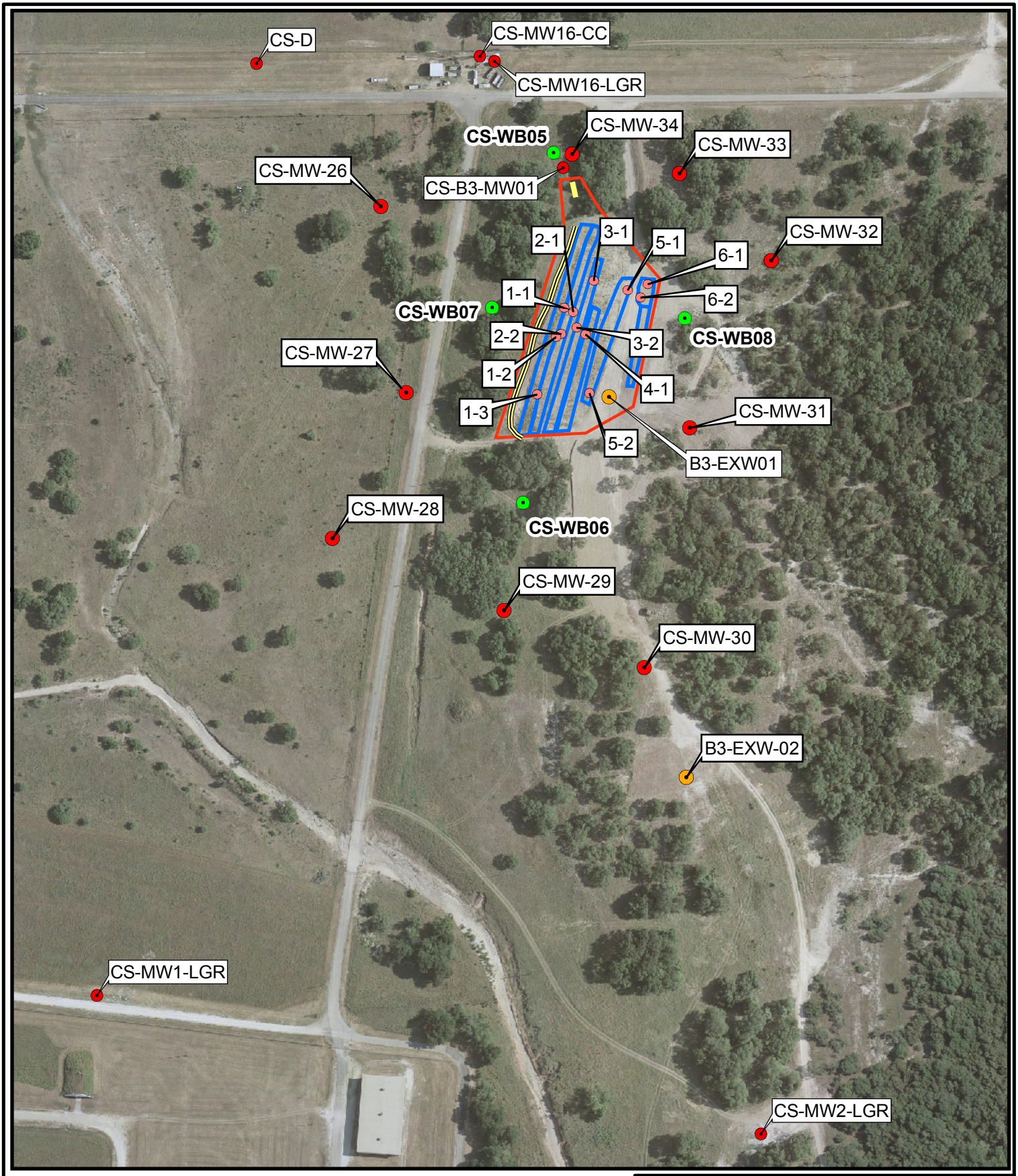


Figure 1

B-3 Bioreactor System
Camp Stanley Storage Activity

PARSONS

J:\744\744223 B3 & AOC65\gis\b3-monitoring_wells.mxd - 8/5/2010 @ 4:47:16 PM

Figure 16.1.2T1-1

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

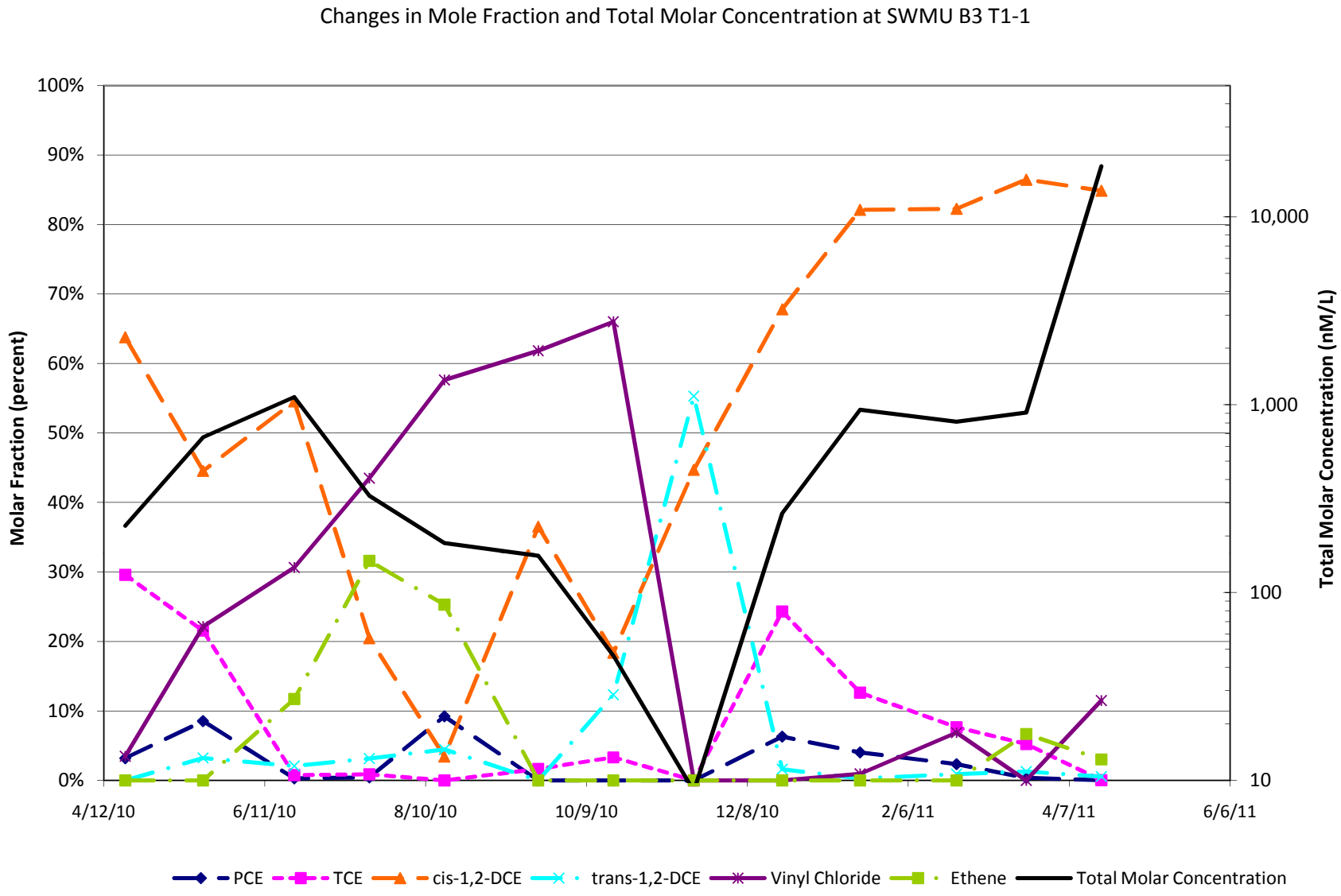


Figure 16.1.2T1-2

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

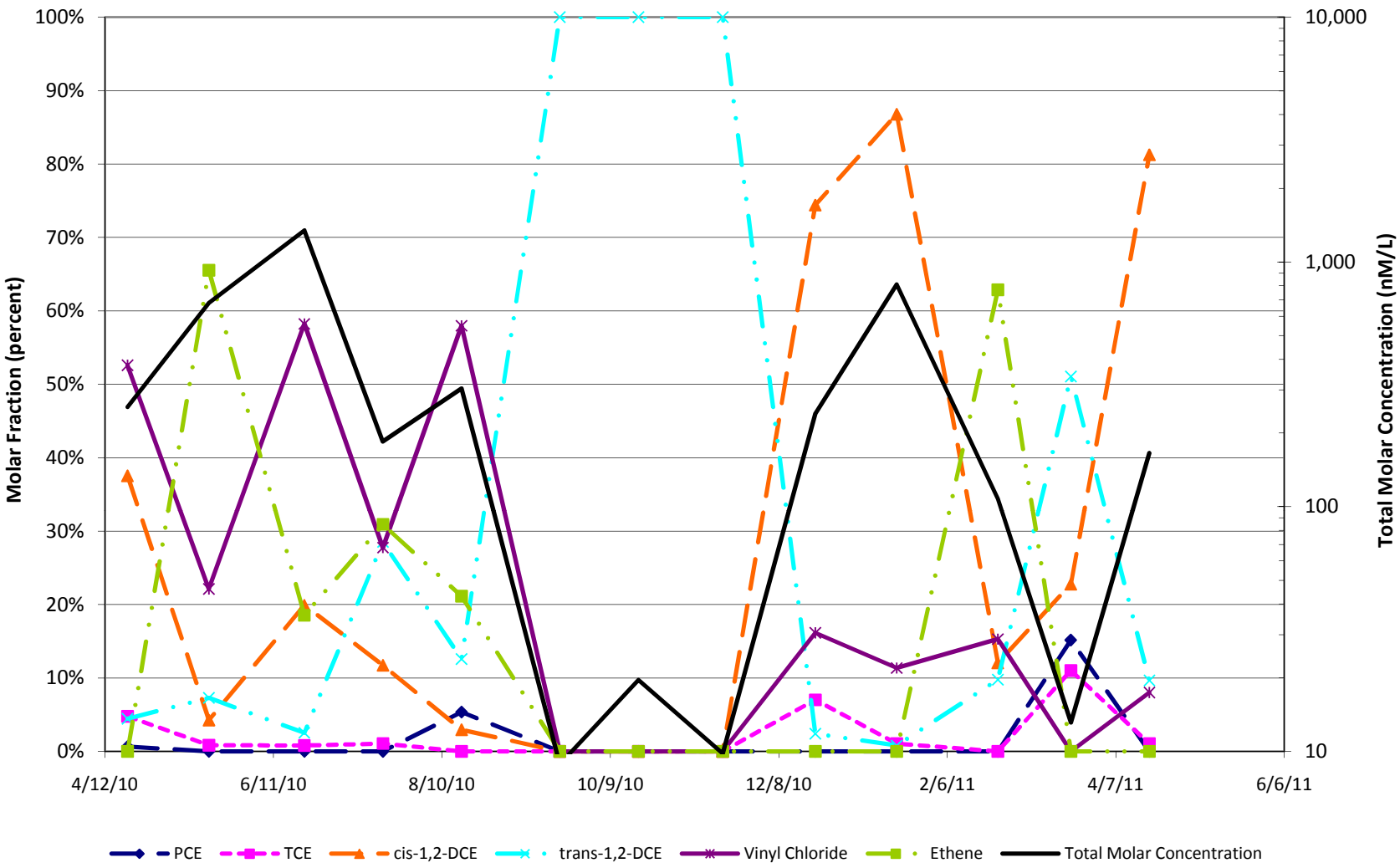


Figure 16.1.2T1-3

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

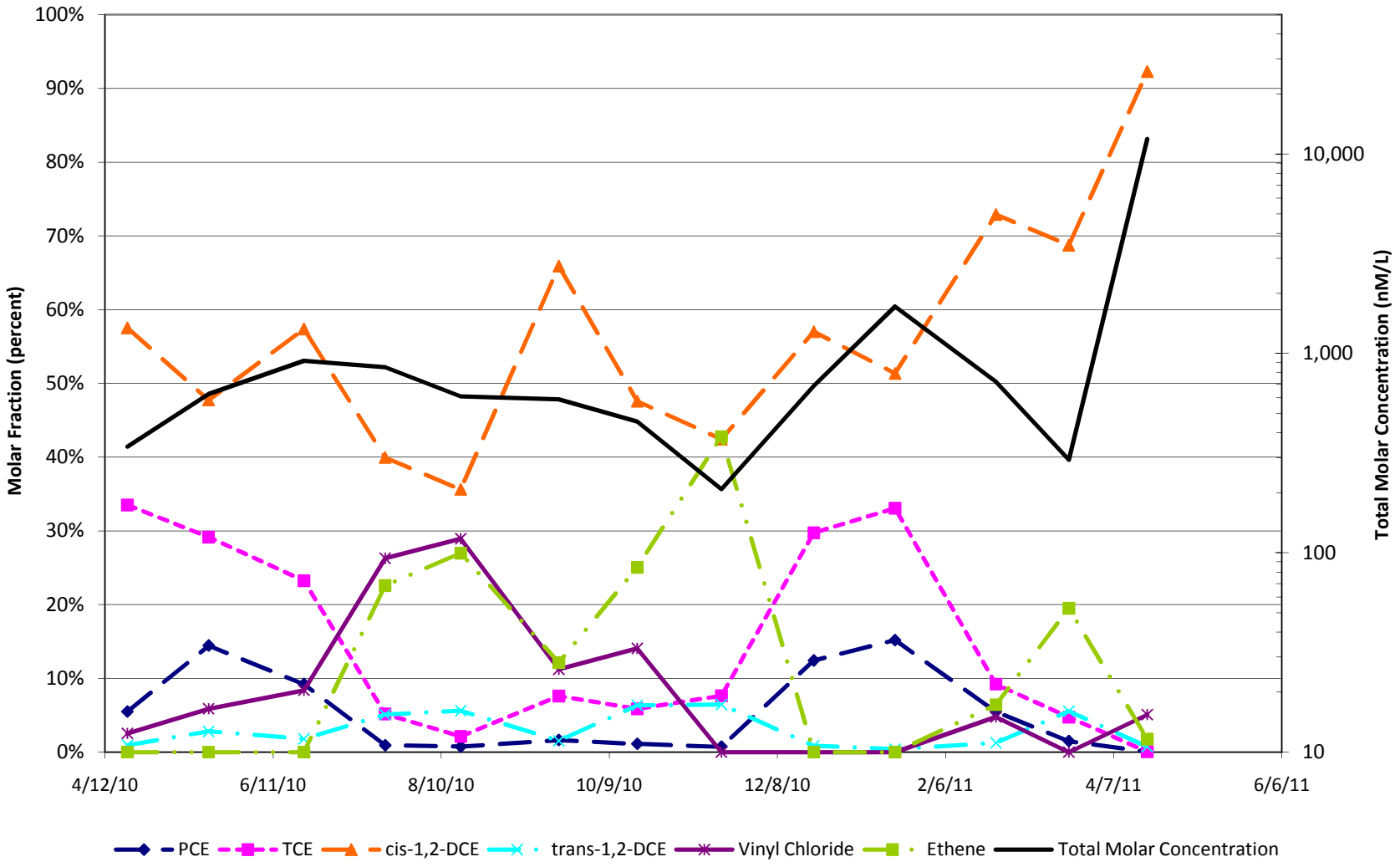


Figure 16.1.2T6-1

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

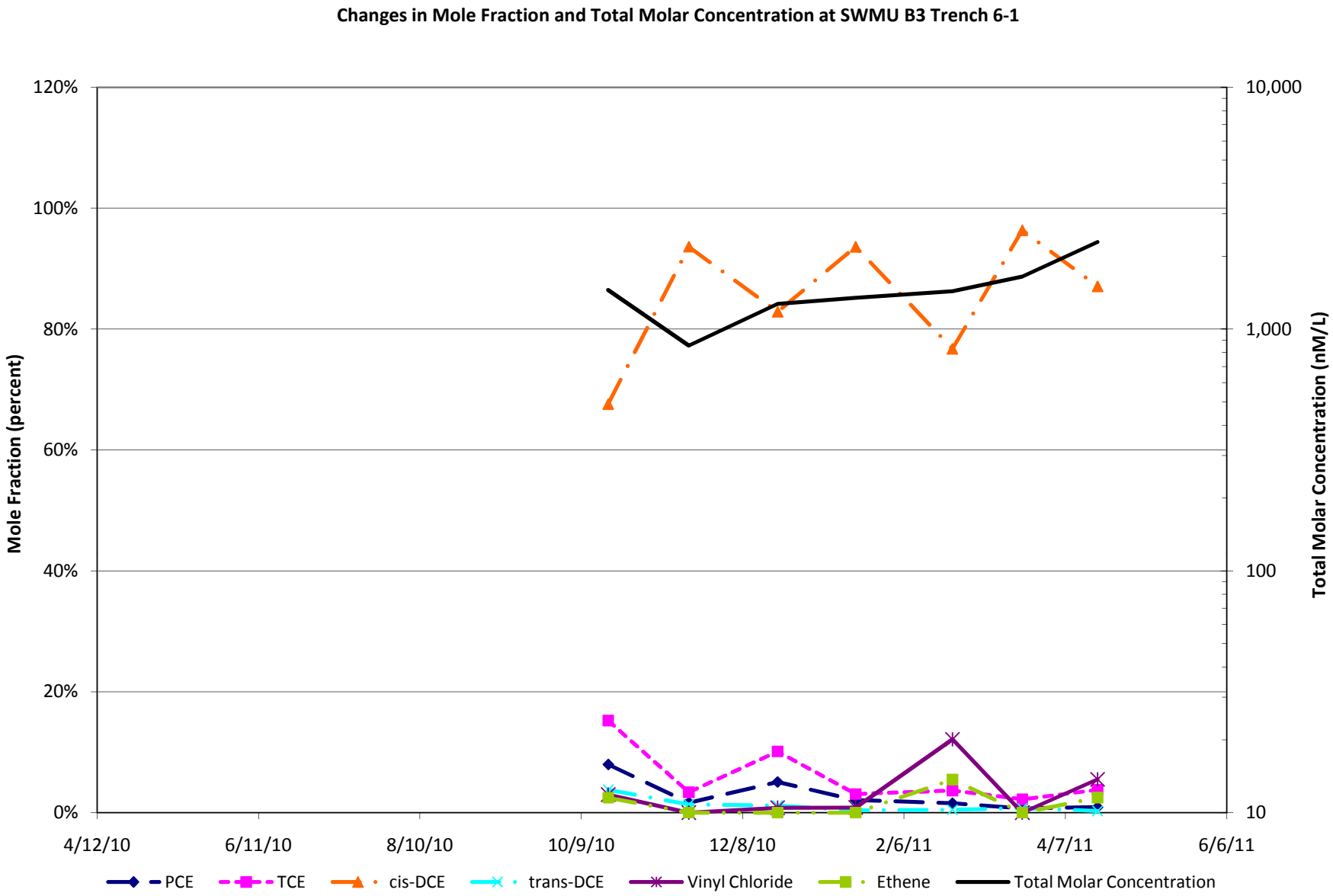


Figure 16.1.2T6-2

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

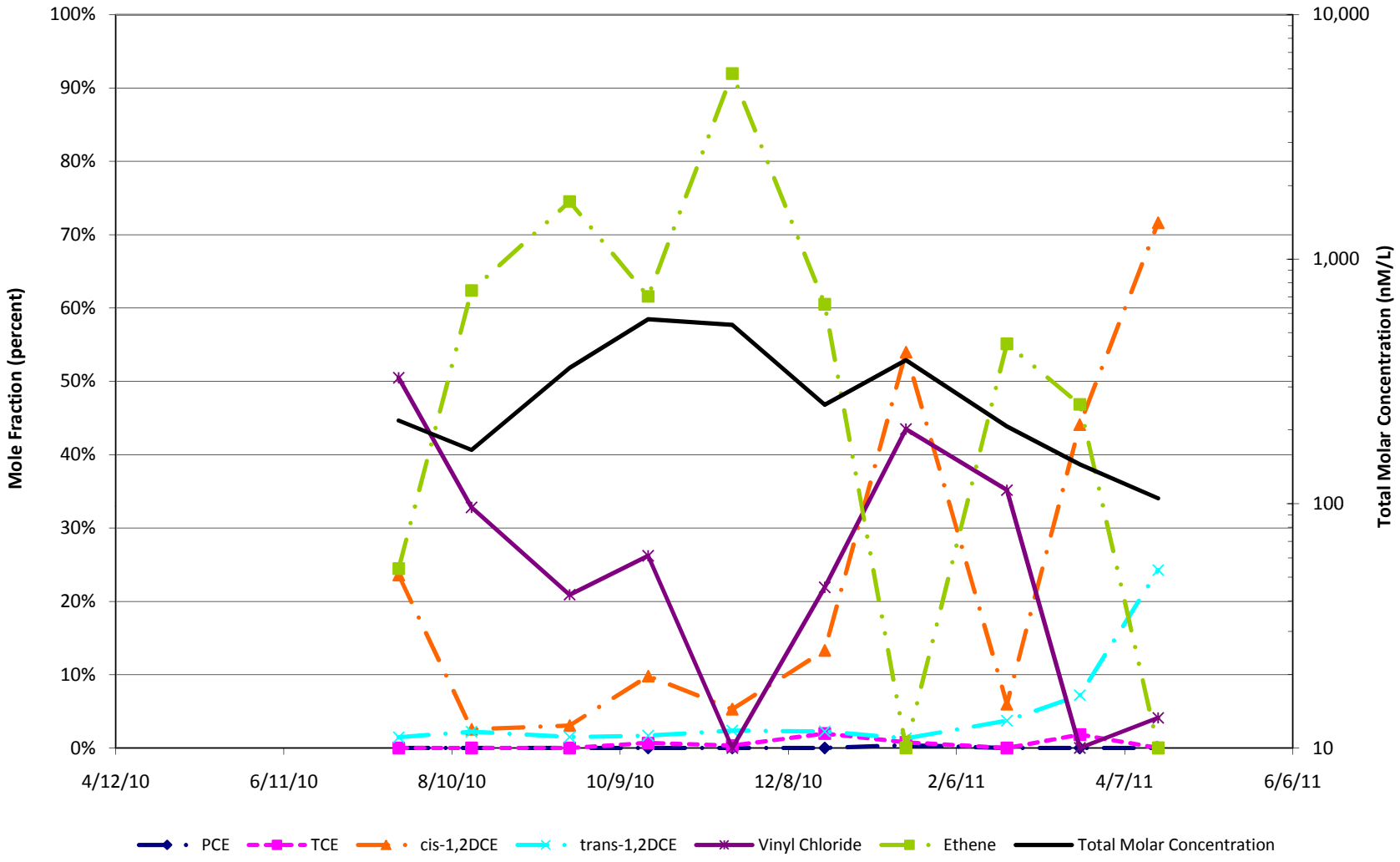


Figure 16.2.2a

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

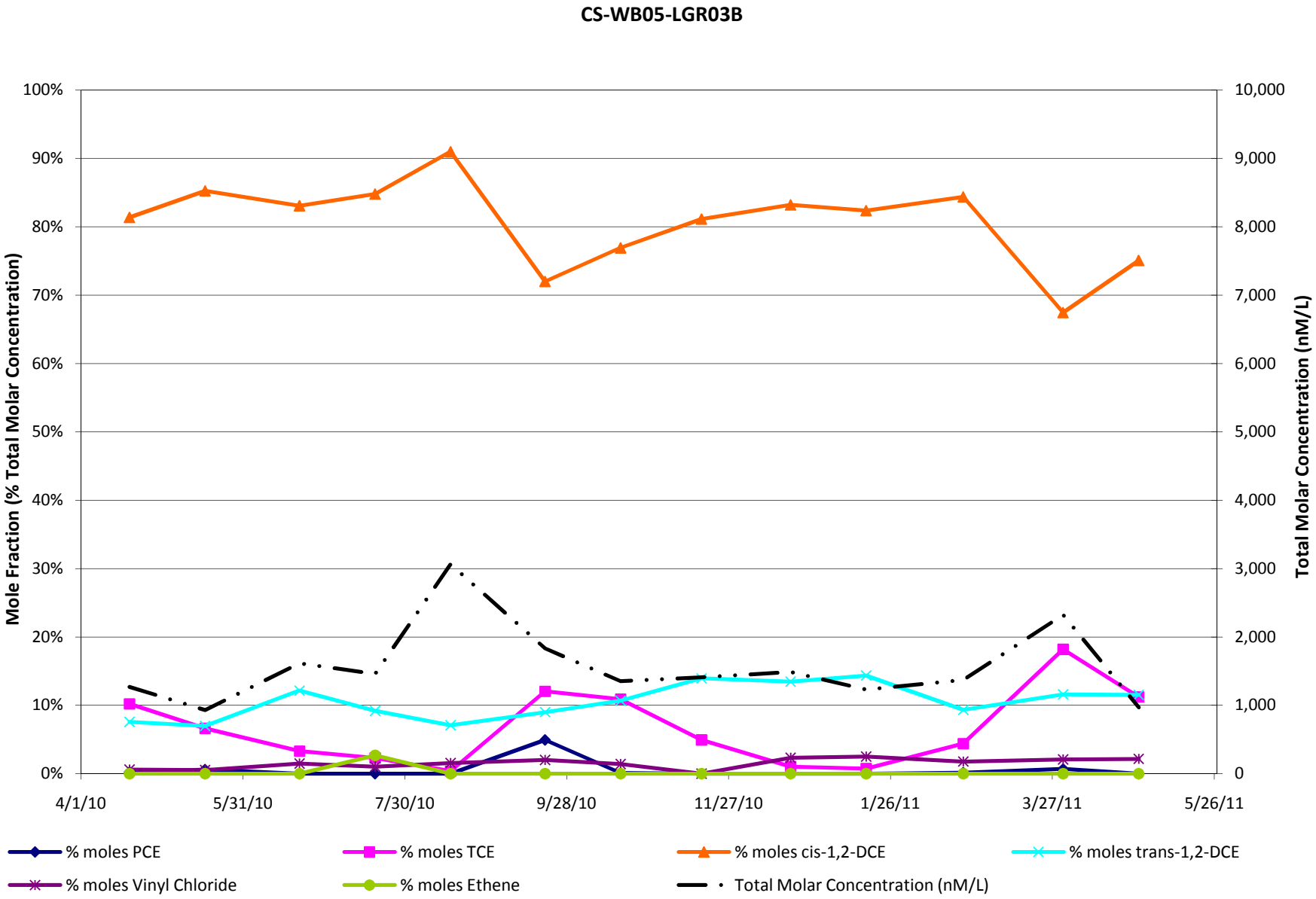


Figure 16.2.2b

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

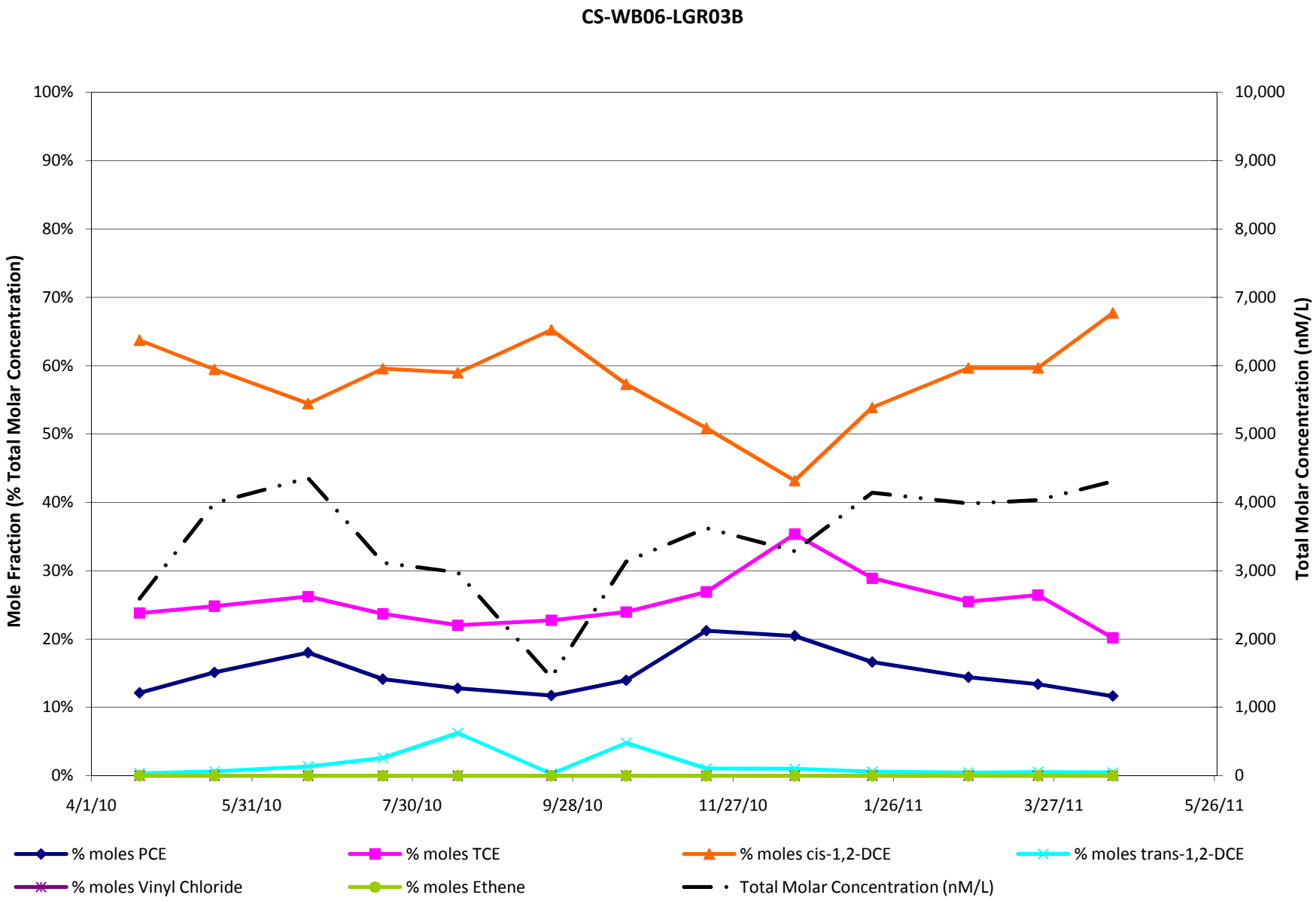


Figure 16.2.2c

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

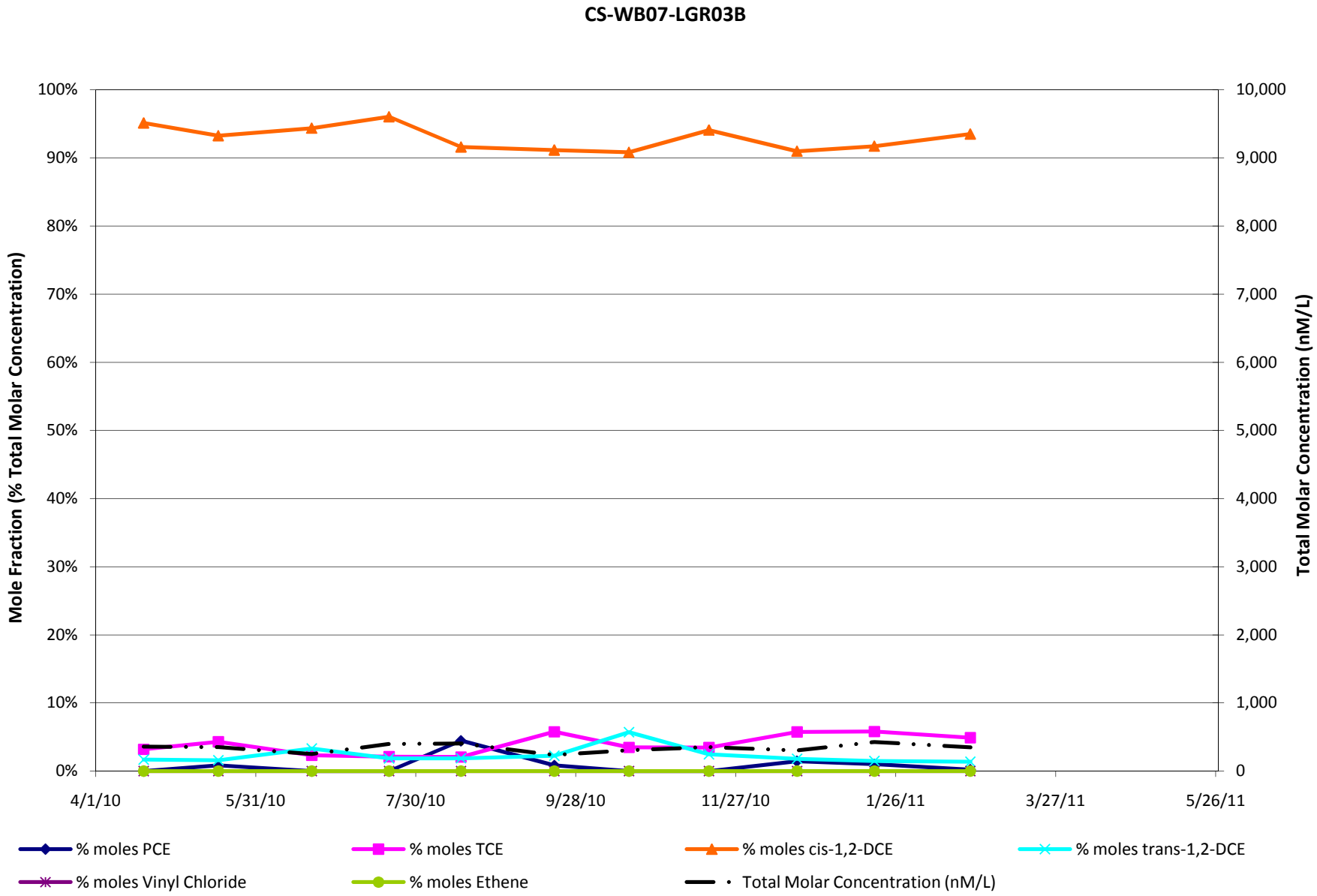


Figure 16.2.2d

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

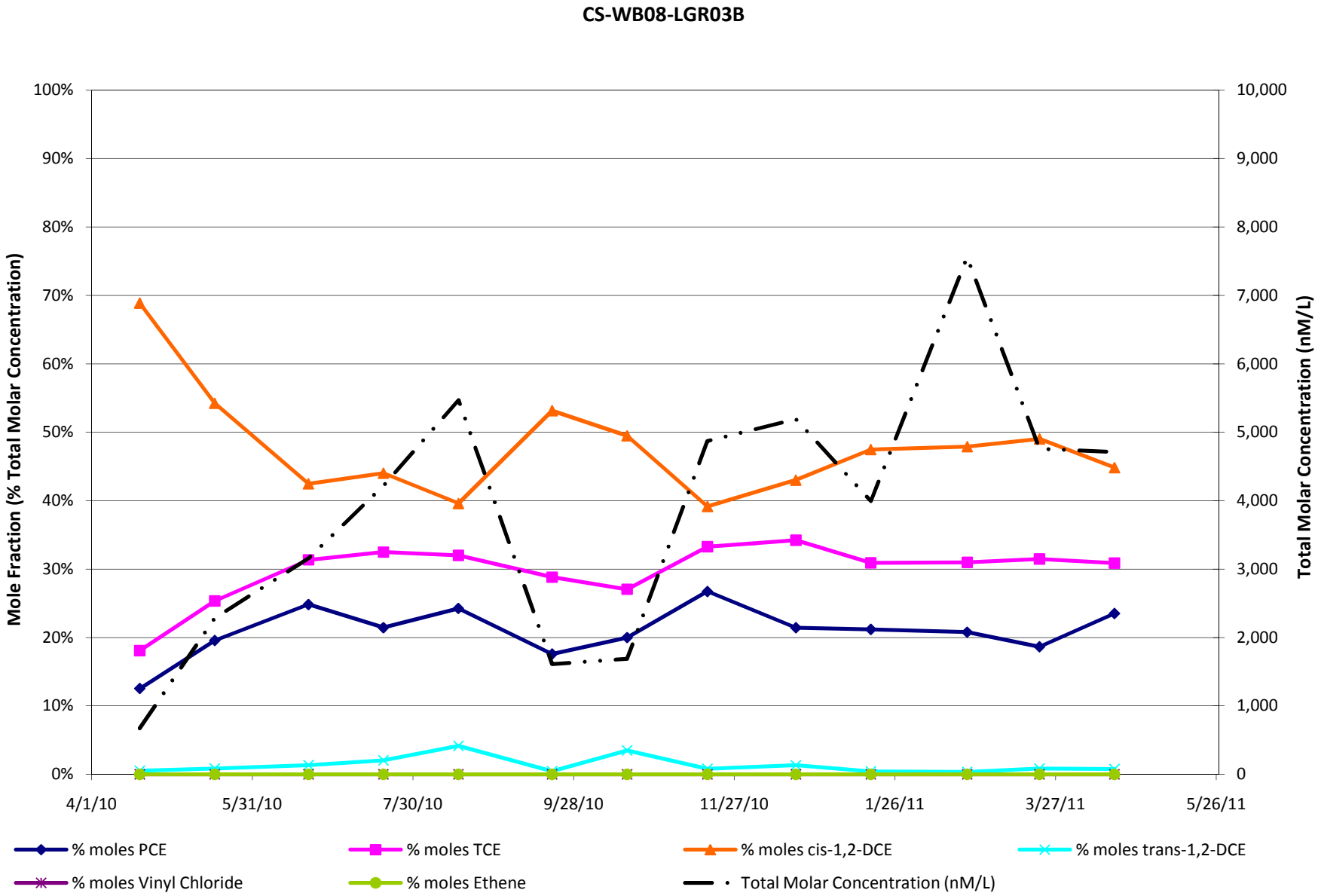


Figure 16.6.2-16CC

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

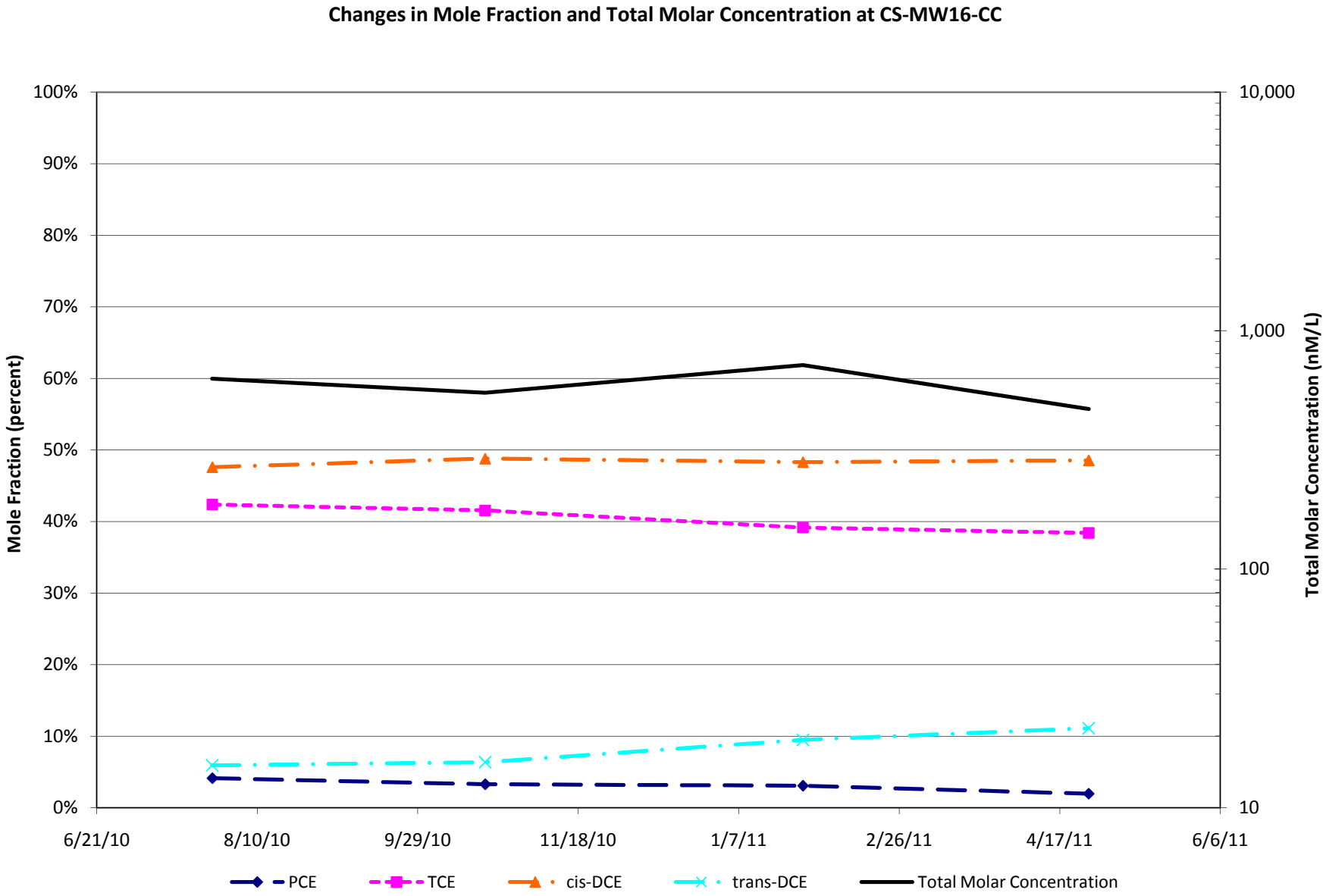


Figure 16.6.2-16LGR

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

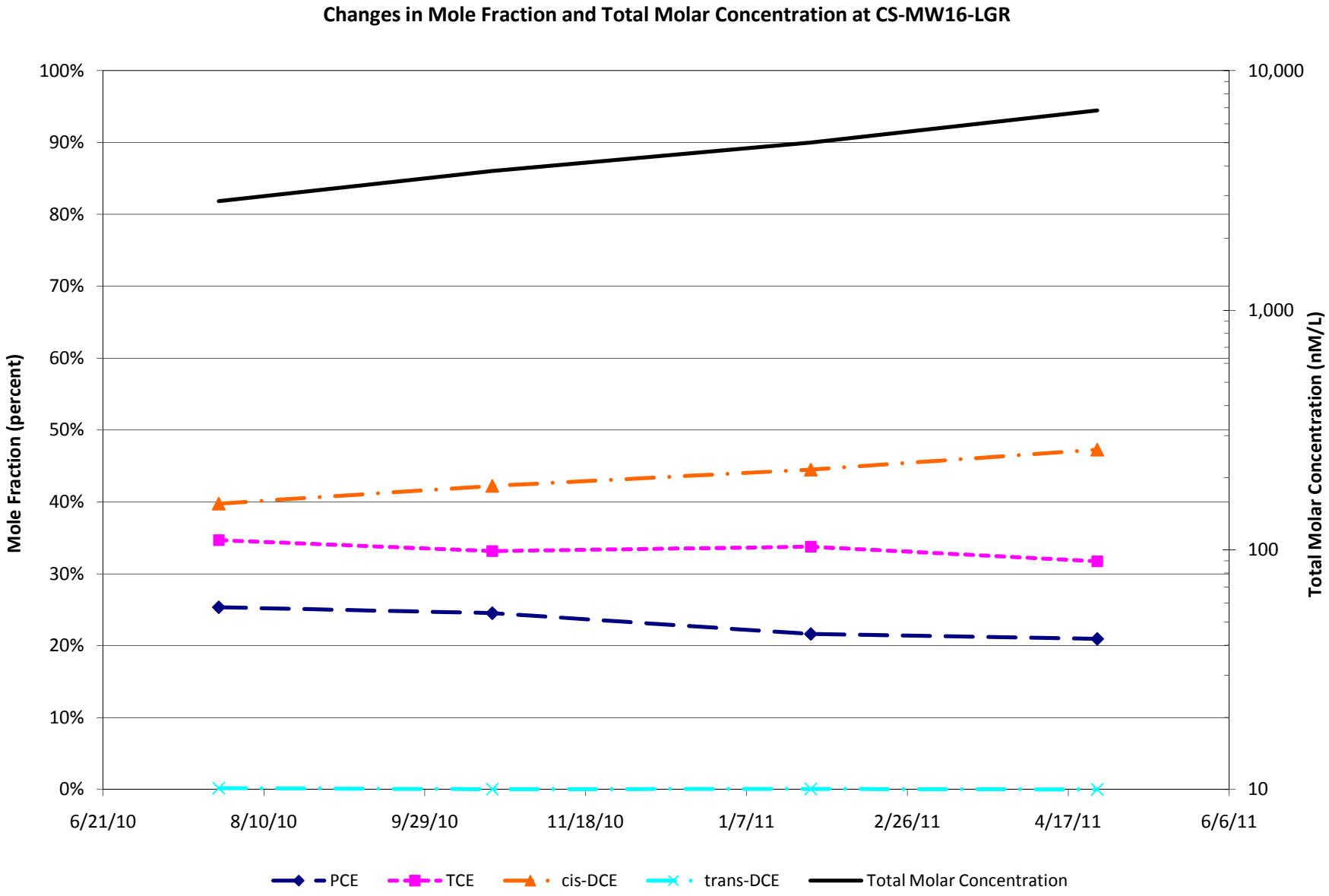


Figure 16.2.5

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

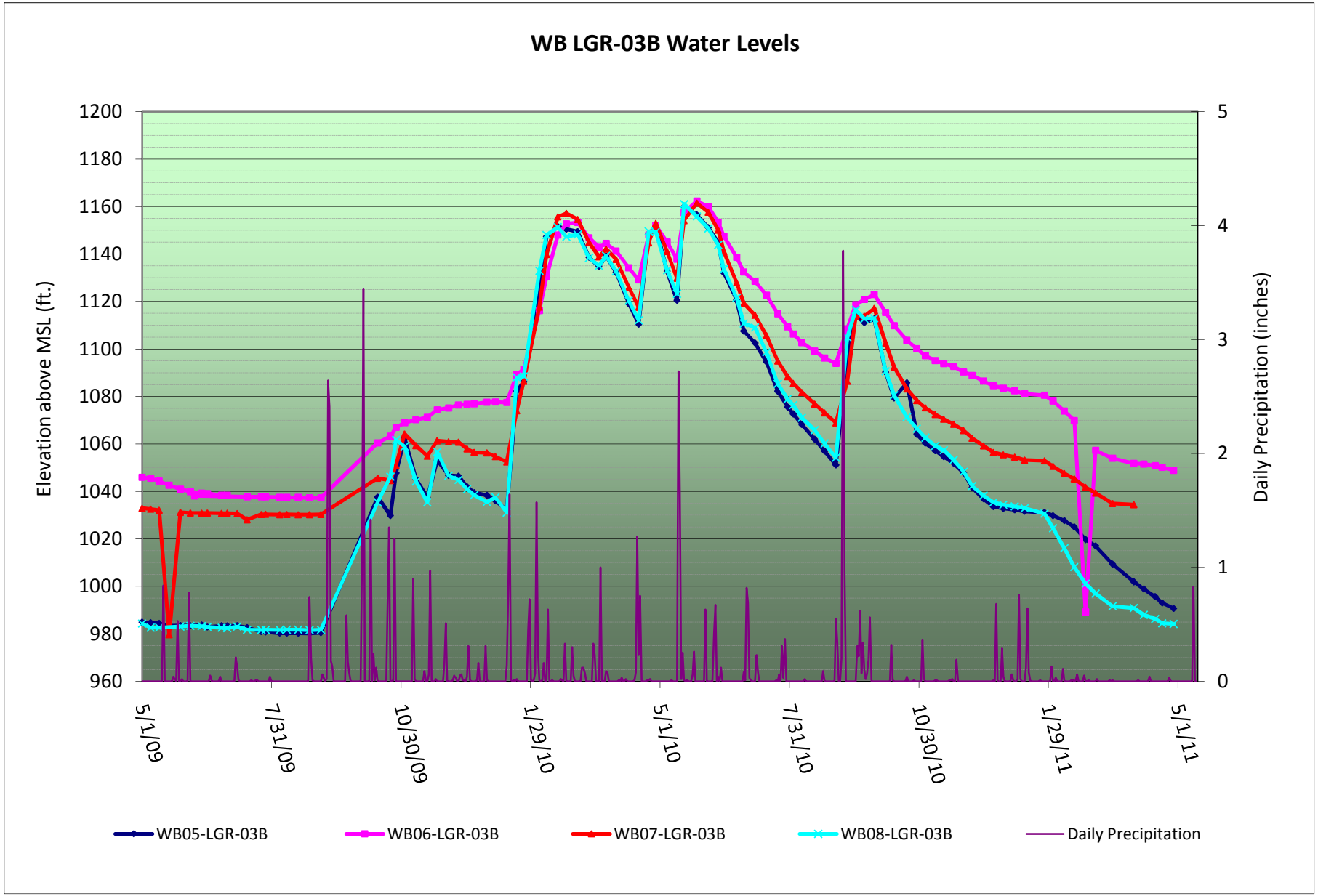


Figure 16.6.2-EXW01

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

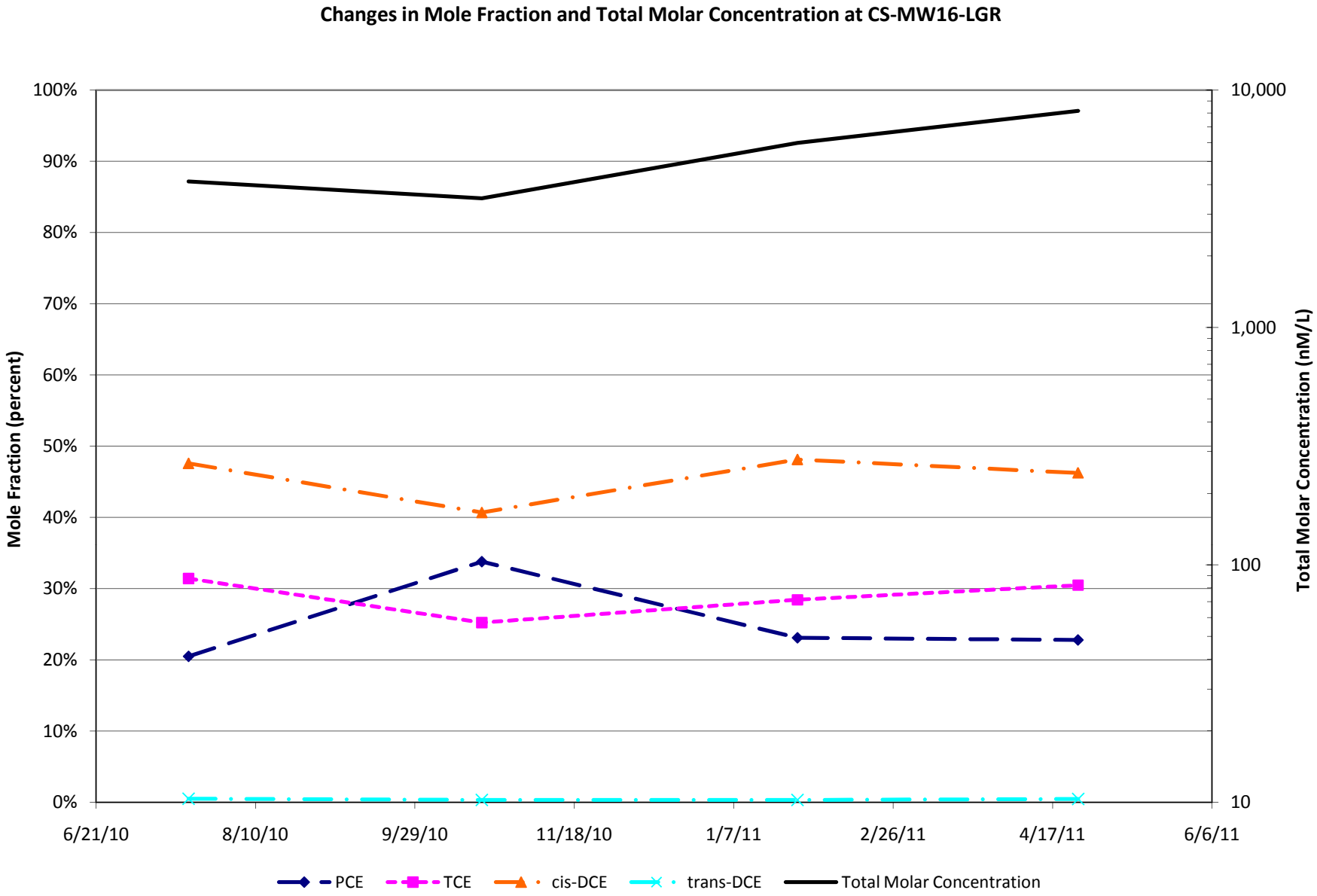


Figure 16.5.2 Changes in Mole Fraction and Total Molar Concentration at Storage Tank (UIC)

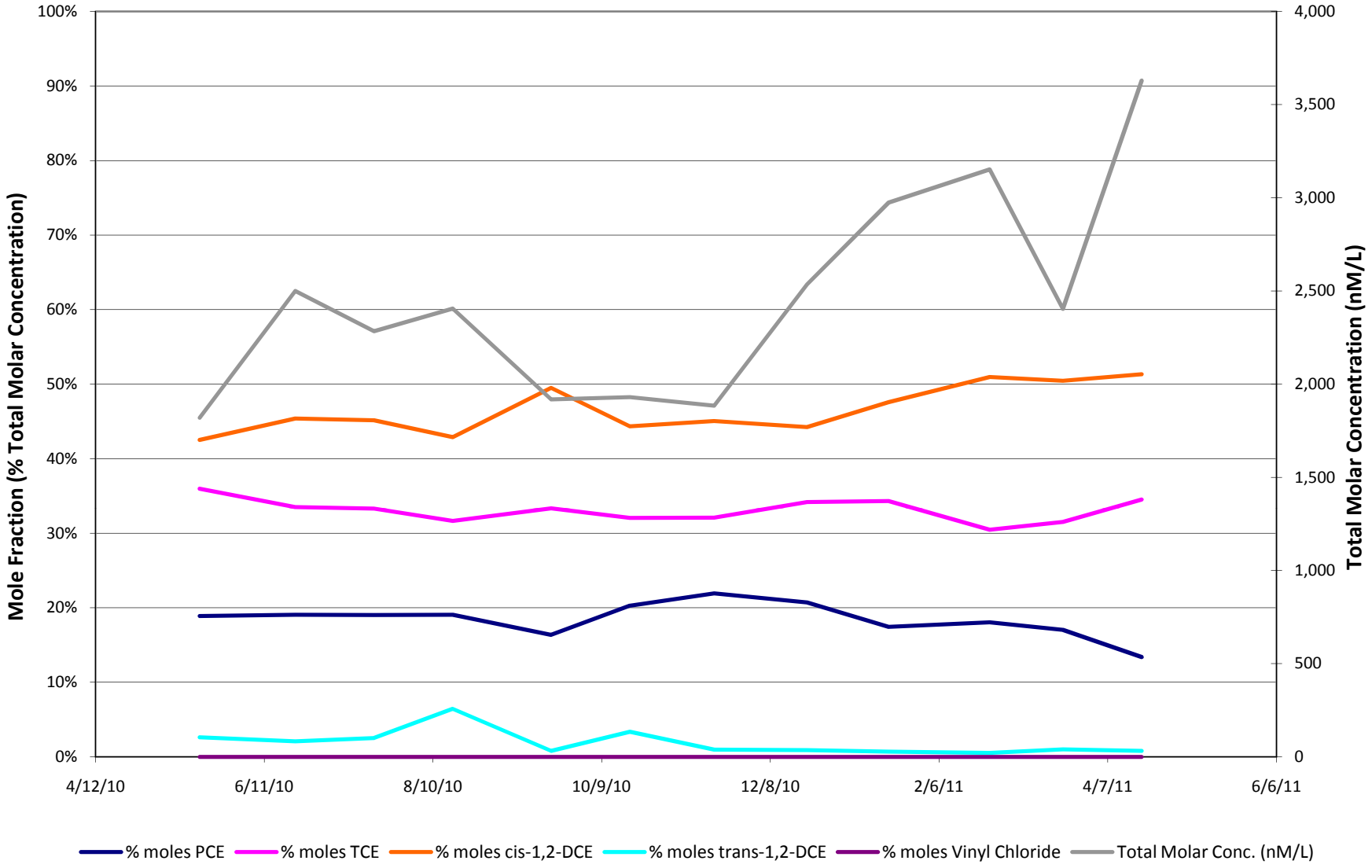


Figure 16.5.5

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

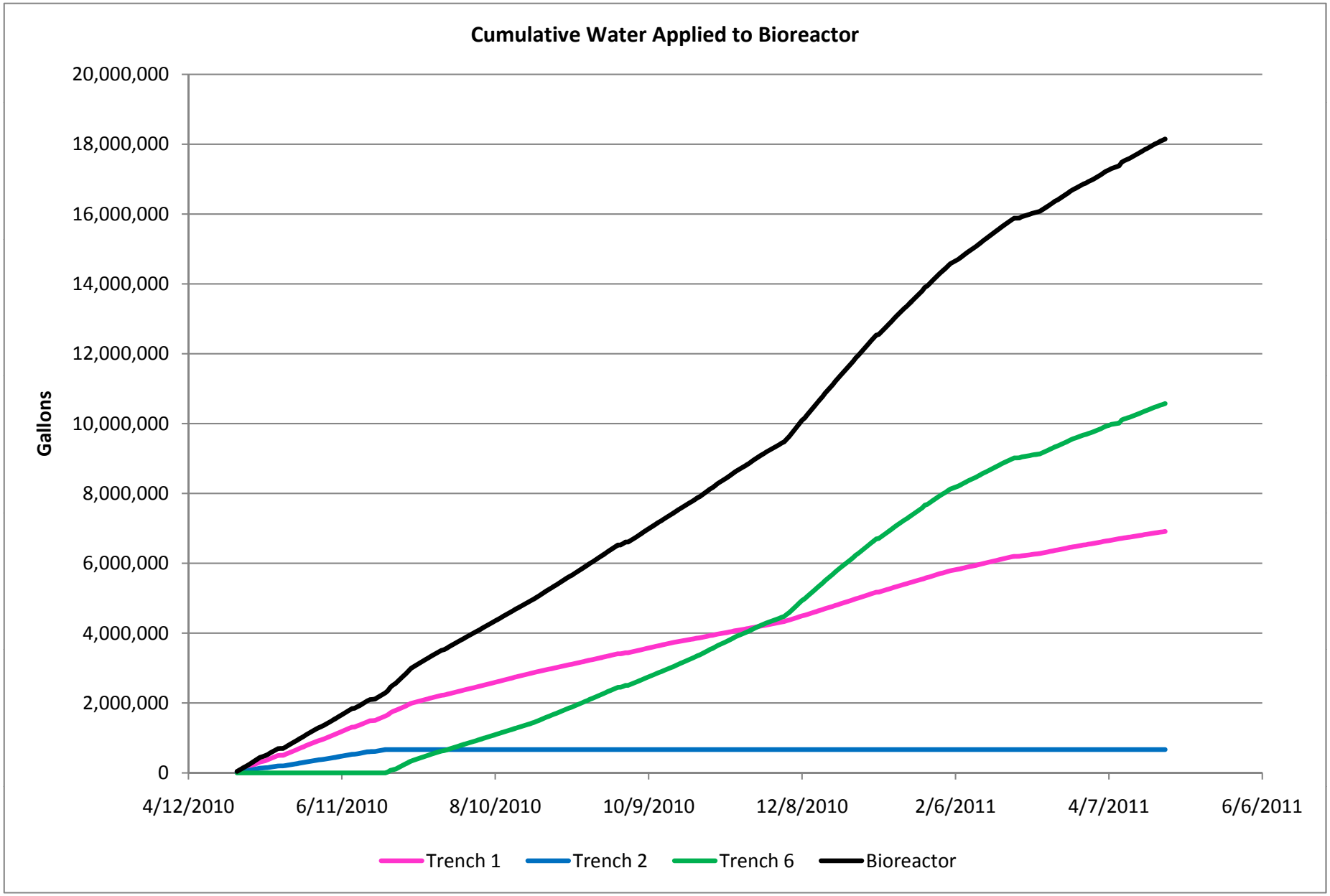


Figure 16.5.6

SWMU B-3 Bioreactor -Trench 1

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

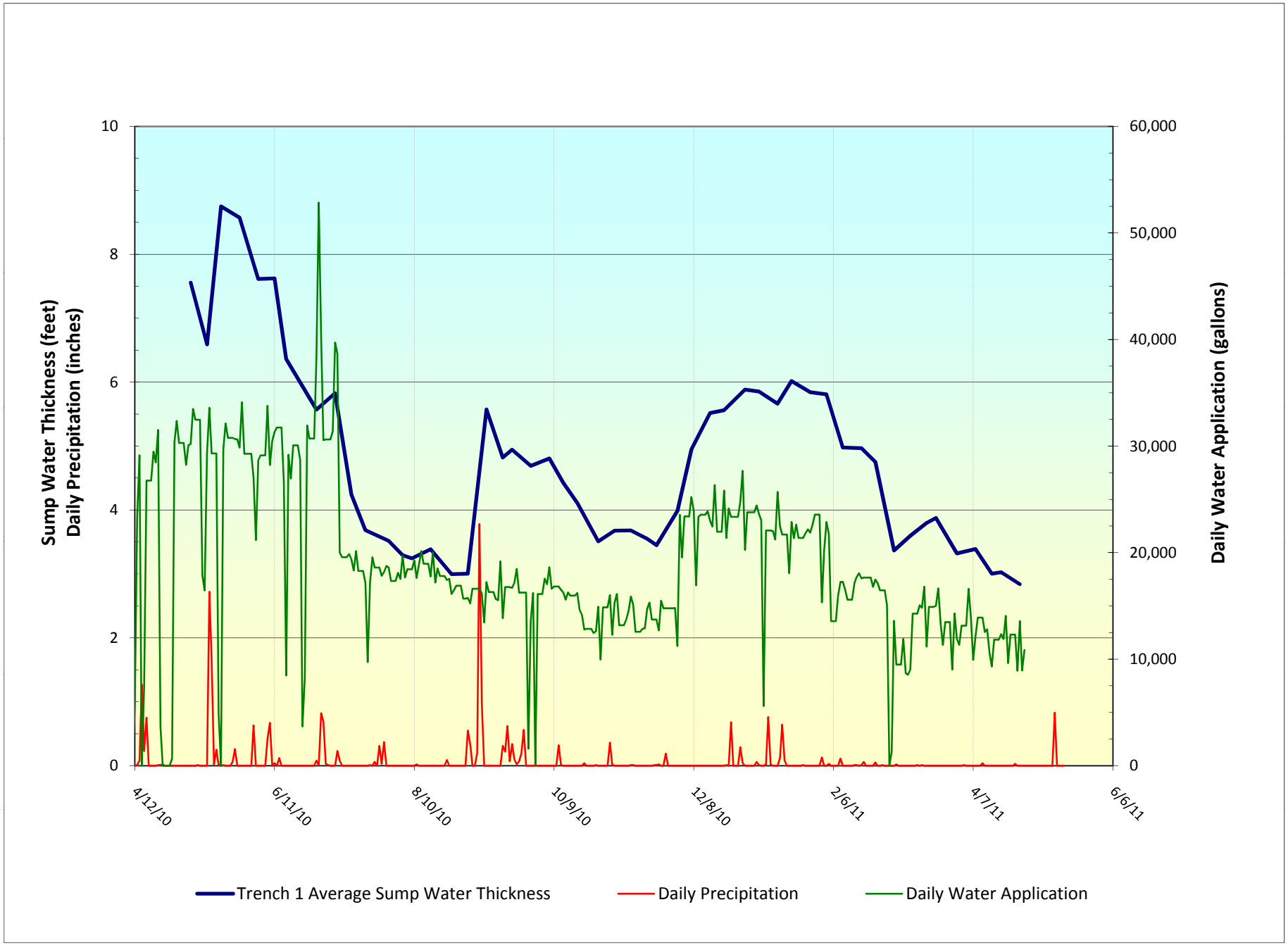
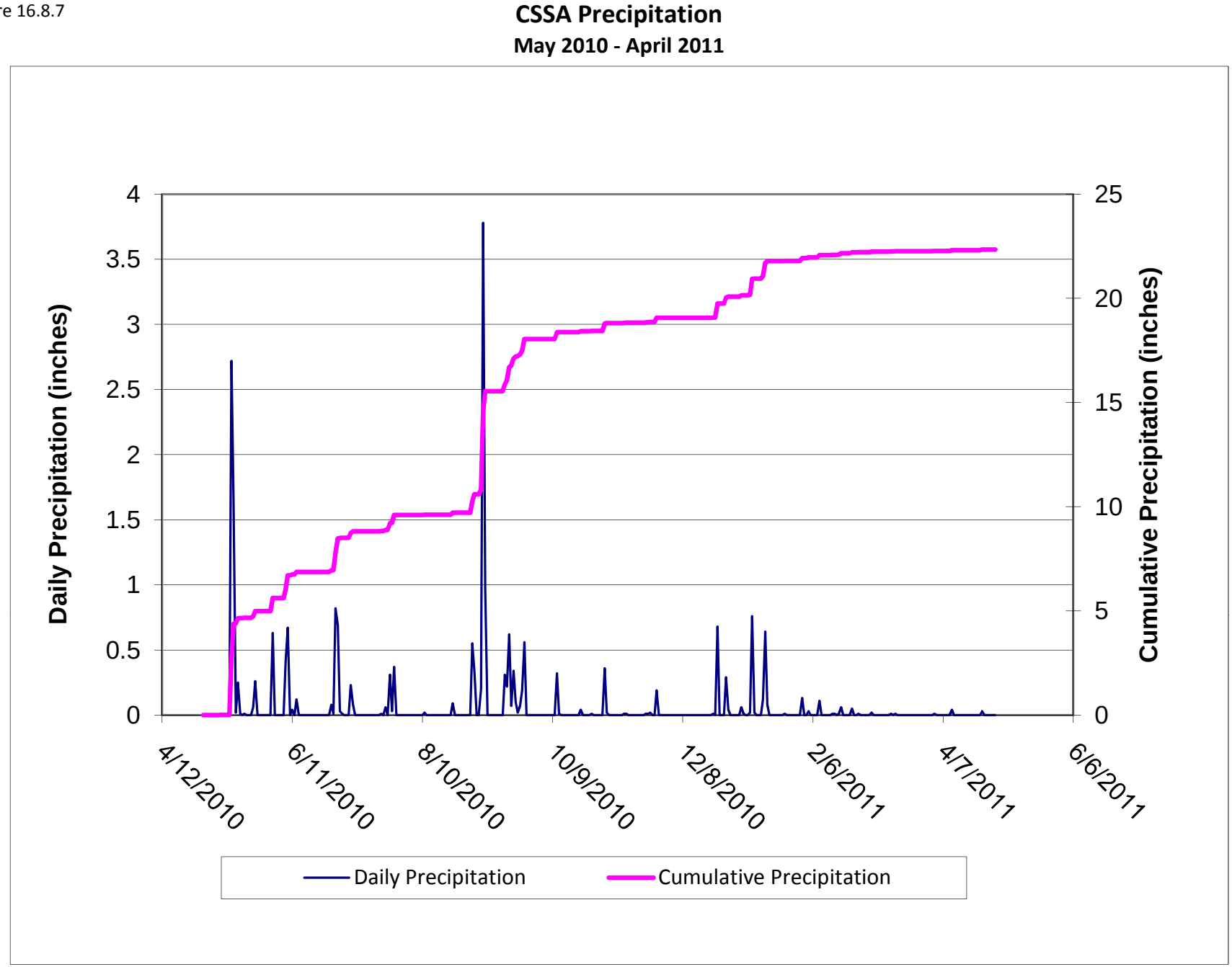
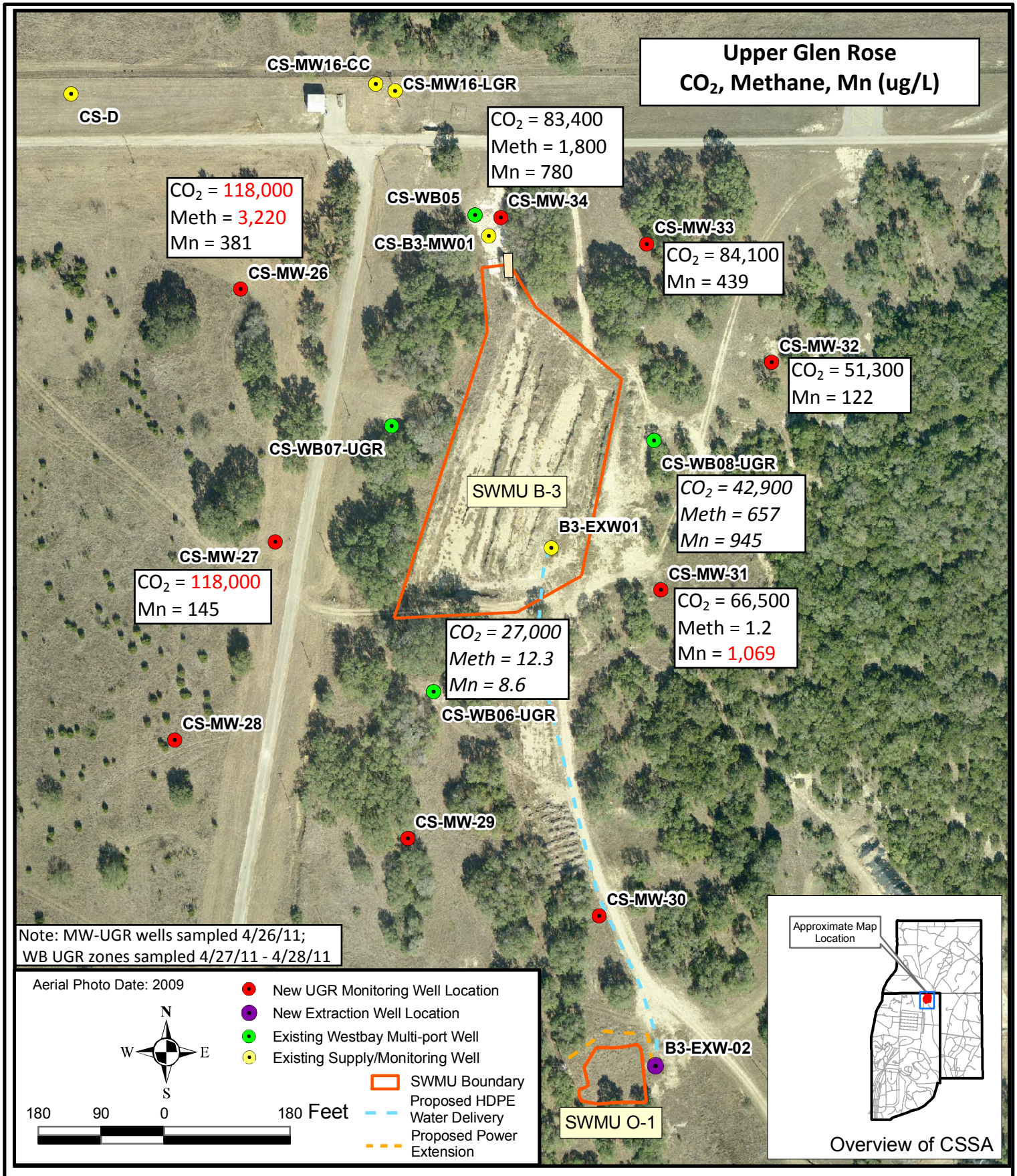
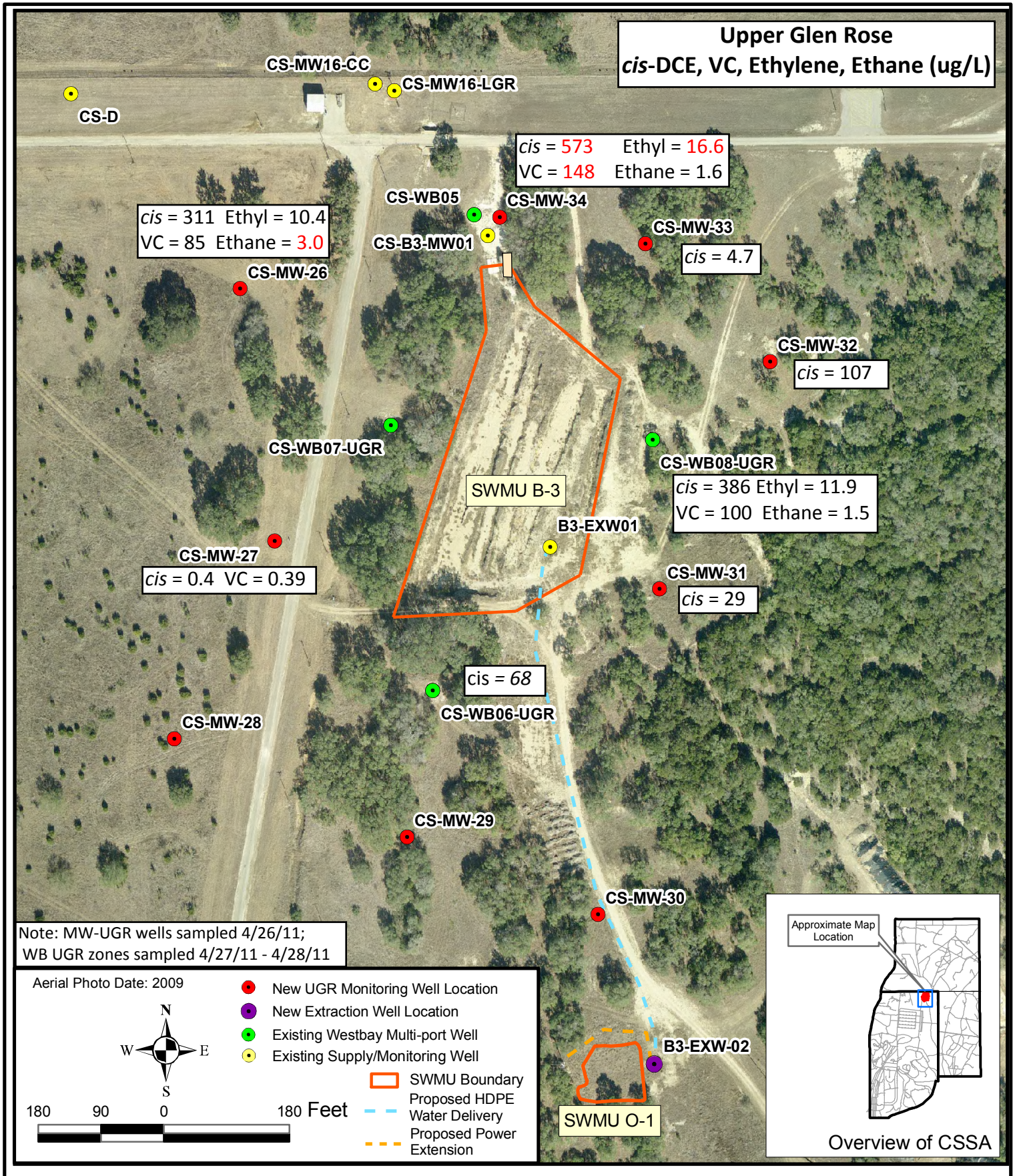
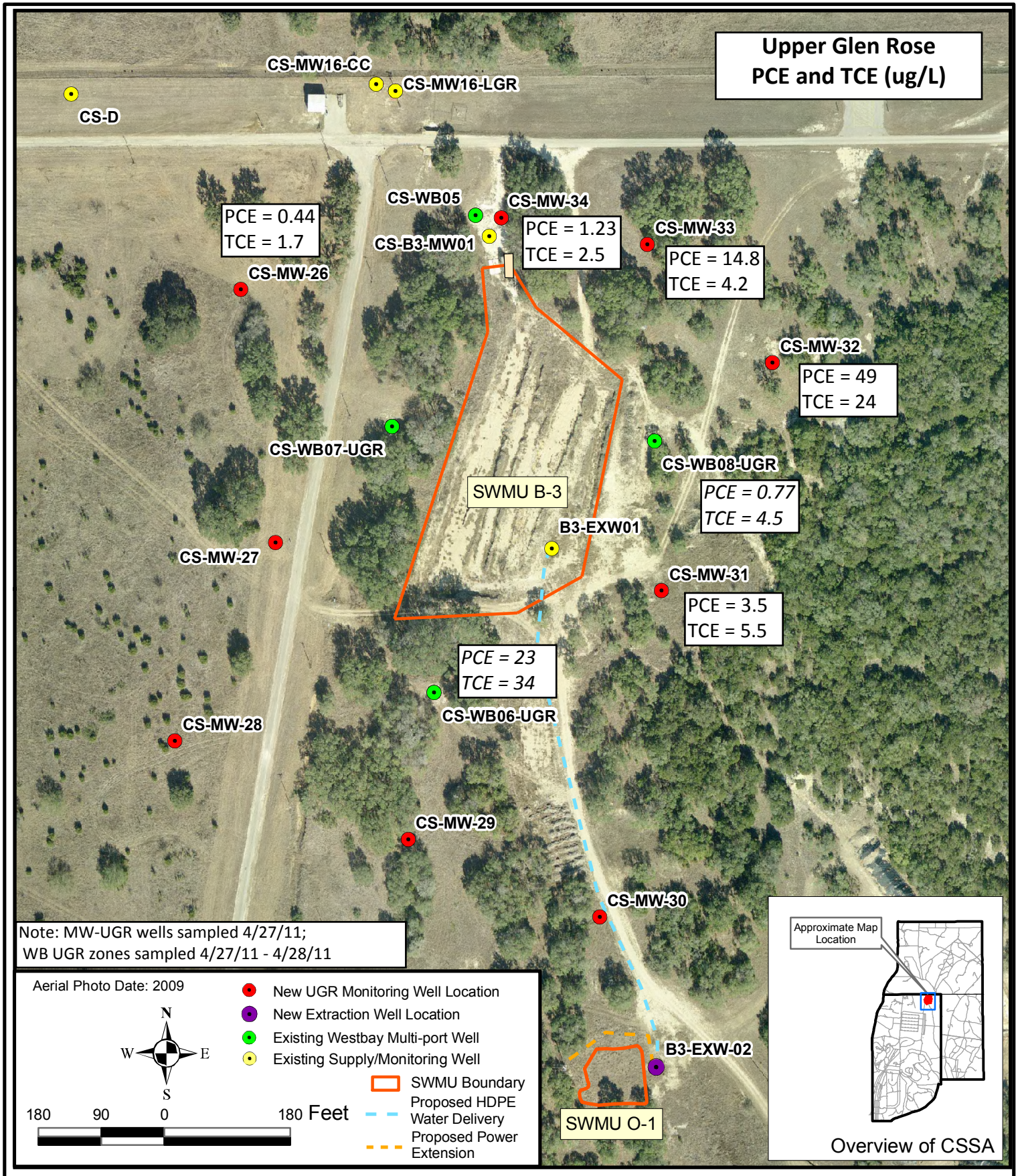


Figure 16.8.7


CSSA Precipitation
May 2010 - April 2011
Daily Precipitation (inches)
Cumulative Precipitation (inches)
4
3.5
3
2.5
2
1.5
1
0.5
0
25
20
15
10
5
0
4/12/2010
6/11/2010
8/10/2010
10/9/2010
12/8/2010
2/6/2011
4/7/2011
6/6/2011
Daily Precipitation
Cumulative Precipitation


Upper Glen Rose
CO_2, Methane, Mn (ug/L)
CS-MW16-CC
CS-MW16-LGR
CS-D
CO_2 = 83,400
Meth = 1,800
Mn = 780
CO_2 = 118,000
Meth = 3,220
Mn = 381
CS-WB05
CS-MW-34
CS-B3-MW01
CS-MW-33
CO_2 = 84,100
Mn = 439
CS-MW-26
CS-MW-32
CO_2 = 51,300
Mn = 122
CS-WB07-UGR
CS-WB08-UGR
SWMU B-3
CO_2 = 42,900
Meth = 657
Mn = 945
B3-EXW01
CS-MW-27
CO_2 = 118,000
Mn = 145
CS-MW-31
CO_2 = 66,500
Meth = 1.2
Mn = 1,069
CO_2 = 27,000
Meth = 12.3
Mn = 8.6
CS-WB06-UGR
CS-MW-28
CS-MW-29
CS-MW-30
B3-EXW-02
SWMU O-1
Note: MW-UGR wells sampled 4/26/11;
WB UGR zones sampled 4/27/11 - 4/28/11
Aerial Photo Date: 2009
N
W
E
S
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


Upper Glen Rose
cis-DCE, VC, Ethylene, Ethane (ug/L)
CS-MW16-CC
CS-MW16-LGR
CS-D
cis = 573 Ethyl = 16.6
VC = 148 Ethane = 1.6
CS-WB05
CS-MW-34
cis = 311 Ethyl = 10.4
VC = 85 Ethane = 3.0
CS-B3-MW01
CS-MW-33
cis = 4.7
CS-MW-26
CS-MW-32
cis = 107
CS-WB07-UGR
CS-WB08-UGR
SWMU B-3
cis = 386 Ethyl = 11.9
VC = 100 Ethane = 1.5
B3-EXW01
CS-MW-27
cis = 0.4 VC = 0.39
CS-MW-31
cis = 29
cis = *68*
CS-WB06-UGR
CS-MW-28
CS-MW-29
CS-MW-30
B3-EXW-02
SWMU O-1
Note: MW-UGR wells sampled 4/26/11;
WB UGR zones sampled 4/27/11 - 4/28/11
Aerial Photo Date: 2009
N
W
E
S
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


Upper Glen Rose
PCE and TCE (ug/L)
CS-MW16-CC
CS-MW16-LGR
CS-D
CS-WB05
CS-MW-34
PCE = 0.44
TCE = 1.7
CS-B3-MW01
PCE = 1.23
TCE = 2.5
CS-MW-33
PCE = 14.8
TCE = 4.2
CS-MW-26
CS-MW-32
PCE = 49
TCE = 24
CS-WB07-UGR
CS-WB08-UGR
SWMU B-3
PCE = 0.77
TCE = 4.5
B3-EXW01
CS-MW-27
CS-MW-31
PCE = 3.5
TCE = 5.5
PCE = 23
TCE = 34
CS-WB06-UGR
CS-MW-28
CS-MW-29
CS-MW-30
B3-EXW-02
SWMU O-1
Note: MW-UGR wells sampled 4/27/11;
WB UGR zones sampled 4/27/11 - 4/28/11
Aerial Photo Date: 2009
N
W
E
S
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_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(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_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(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_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(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_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(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_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(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_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(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_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(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_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(feet)*
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_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(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_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(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_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(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_20 Level**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**Sump H_20 Thickness**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(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

Table 16.1.2

B-3 Bioreactor VOC Summary
May 2010 - April 2011

Q16	T1-1												
Date	**4/20/10**	**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**
PCE (µg/L)	1.2	9.5	0.54	0.24	2.8	0	0	0	2.8	6.3	3.1	0.53	1.3
TCE (µg/L)	8.8	19	1.1	0.37	0	0.34	0.20	0	8.4	16	8.2	6.2	0.86
cis-1,2-DCE (µg/L)	14	29	58	6.5	0.61	5.6	0.82	0.38	17	75	65	76	1529
trans-1,2-DCE (µg/L)	0	2.1	2.2	1.0	0.79	0	0.55	0.47	0.41	0.25	0.71	1.1	10.1
Vinyl Chloride (µg/L)	0.49	9.3	21	8.9	6.6	6.1	1.9	0	0	0.56	3.5	0	134
Ethene (µg/L)	0	0	3.6	2.9	1.3	0	0	0	0	0	0	1.7	15.7
PCE (nM/L)	7.24	57.29	3.26	1.45	16.88	0.00	0.00	0.00	16.64	37.93	18.87	3.20	8.02
TCE (nM/L)	66.98	144.61	8.37	2.82	0.00	2.59	1.52	0.00	64.16	118.65	62.11	47.49	6.55
cis-1,2-DCE (nM/L)	144.40	299.12	598.25	67.04	6.29	57.35	8.46	3.92	179.06	771.94	667.87	785.04	15773.39
trans-1,2-DCE (nM/L)	0.00	21.66	22.69	10.31	8.15	0.00	5.67	4.85	4.23	2.58	7.32	11.66	103.76
Vinyl Chloride (nM/L)	7.84	148.78	335.95	142.38	105.58	97.10	30.40	0.00	0.00	8.96	55.67	0.00	2135.98
Ethene (nM/L)	0.00	0.00	128.34	103.39	46.35	0.00	0.00	0.00	0.00	0.00	0.00	60.61	559.71
Total Molar Conc. (nM/L)	226.5	671.5	1,096.9	327.4	183.3	157.0	46.0	8.8	264.1	940.1	811.8	908.0	18,587.4
% moles PCE	3.2%	8.5%	0.3%	0.4%	9.2%	0.0%	0.0%	0.0%	6.3%	4.0%	2.3%	0.4%	0.0%
% moles TCE	29.6%	21.5%	0.8%	0.9%	0.0%	1.6%	3.3%	0.0%	24.3%	12.6%	7.6%	5.2%	0.0%
% moles cis-1,2-DCE	63.8%	44.5%	54.5%	20.5%	3.4%	36.5%	18.4%	44.7%	67.8%	82.1%	82.3%	86.5%	84.9%
% moles trans-1,2-DCE	0.0%	3.2%	2.1%	3.2%	4.4%	0.0%	12.3%	55.3%	1.6%	0.3%	0.9%	1.3%	0.6%
% moles Vinyl Chloride	3.5%	22.2%	30.6%	43.5%	57.6%	61.8%	66.0%	0.0%	0.0%	1.0%	6.9%	0.0%	11.5%
% moles Ethene	0.0%	0.0%	11.7%	31.6%	25.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.7%	3.0%
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%

Note: 0 sample indicates a non-detect analyte value

	T1-2												
Date	**4/20/10**	**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**
PCE (µg/L)	0.28	0	0	0	2.7	0	0	0	0	0	0	0.33	0
TCE (µg/L)	1.6	0.74	1.4	0.26	0	0	0	0	2.2	1.1	0	0.19	0.23
cis-1,2-DCE (µg/L)	9.3	2.8	26	2.1	0.87	0	0	0	17	68	1.3	0.29	13.1
trans-1,2-DCE (µg/L)	1.1	4.8	3.3	5.1	3.7	0.86	1.9	0.95	0.56	0.62	1.0	0.65	1.6
Vinyl Chloride (µg/L)	8.4	9.4	49	3.2	11	0	0	0	2.4	5.8	1.0	0	0.83
Ethene (µg/L)	0	12.5	7.0	1.6	1.8	0	0	0	0	0	1.9	0	0
PCE (nM/L)	1.69	0.00	0.00	0.00	16.28	0.00	0.00	0.00	0.00	0.00	0.00	1.99	0.00
TCE (nM/L)	12.18	5.63	10.66	1.98	0.00	0.00	0.00	0.00	16.82	8.52	0.00	1.45	1.75
cis-1,2-DCE (nM/L)	95.93	28.88	268.18	21.66	8.97	0.00	0.00	0.00	178.34	703.15	13.00	2.99	134.61
trans-1,2-DCE (nM/L)	11.35	49.51	34.04	52.60	38.16	8.87	19.60	9.80	5.78	6.40	10.52	6.70	15.99
Vinyl Chloride (nM/L)	134.38	150.38	783.87	51.19	175.97	0.00	0.00	0.00	38.71	91.99	16.48	0.00	13.28
Ethene (nM/L)	0.00	445.63	249.55	57.04	64.17	0.00	0.00	0.00	0.00	0.00	67.74	0.00	0.00
Total Molar Conc. (nM/L)	255.5	680.0	1,346.3	184.5	303.6	8.9	19.6	9.8	239.6	810.1	107.7	13.1	165.6
% moles PCE	0.7%	0.0%	0.0%	0.0%	5.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	15.2%	0.0%
% moles TCE	4.8%	0.8%	0.8%	1.1%	0.0%	0.0%	0.0%	0.0%	7.0%	1.1%	0.0%	11.0%	1.1%
% moles cis-1,2-DCE	37.5%	4.2%	19.9%	11.7%	3.0%	0.0%	0.0%	0.0%	74.4%	86.8%	12.1%	22.8%	81.3%
% moles trans-1,2-DCE	4.4%	7.3%	2.5%	28.5%	12.6%	100.0%	100.0%	100.0%	2.4%	0.8%	9.8%	51.1%	9.7%
% moles Vinyl Chloride	52.6%	22.1%	58.2%	27.7%	58.0%	0.0%	0.0%	0.0%	16.2%	11.4%	15.3%	0.0%	8.0%
% moles Ethene	0.0%	65.5%	18.5%	30.9%	21.1%	0.0%	0.0%	0.0%	0.0%	0.0%	62.9%	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%

	T1-3												
Date	**4/20/10**	**5/19/10**	**6/22/10**	**7/21/10**	**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**
PCE (µg/L)	3.1	15	14	1.3	0.74	1.6	0.84	0.25	14	43.29	6.5	0.72	1.4
TCE (µg/L)	15	24	28	5.8	1.7	5.9	3.5	2.1	27	74.79	8.7	1.8	0.88
cis-1,2-DCE (µg/L)	19	29	51	33	21	38	21	8.6	38	85.65	51	19	1064
trans-1,2-DCE (µg/L)	0.31	1.7	1.6	4.2	3.3	0.87	2.8	1.3	0.57	0.67	0.88	1.6	8.5
Vinyl Chloride (µg/L)	0.54	2.3	4.8	14	11	4.1	4.0	0	0	0	2.2	0	38
Ethene (µg/L)	0	0	0	5.4	4.6	2.0	3.2	2.5	0	0	1.3	1.6	5.9
PCE (nM/L)	18.69	90.45	84.42	7.84	4.46	9.59	5.07	1.51	85.27	261.05	39.44	4.34	8.62
TCE (nM/L)	114.16	182.66	213.11	44.14	12.94	44.60	26.64	15.91	204.28	569.22	66.52	13.85	6.70
cis-1,2-DCE (nM/L)	195.98	299.12	526.04	340.38	216.61	387.21	216.61	88.40	391.65	883.45	526.46	200.93	10971.74
trans-1,2-DCE (nM/L)	3.20	17.53	16.50	43.32	34.04	8.97	28.88	13.41	5.88	6.91	9.08	16.19	87.57
Vinyl Chloride (nM/L)	8.64	36.79	76.79	223.96	175.97	65.91	63.99	0.00	0.00	0.00	34.39	0.00	603.26
Ethene (nM/L)	0.00	0.00	0.00	192.51	163.99	71.30	114.08	89.13	0.00	0.00	46.35	57.04	210.34
Total Molar Conc. (nM/L)	340.7	626.6	916.9	852.2	608.0	587.6	455.3	208.3	687.1	1,720.6	722.2	292.4	11,888.2
% moles PCE	5.5%	14.4%	9.2%	0.9%	0.7%	1.6%	1.1%	0.7%	12.4%	15.2%	5.5%	1.5%	0.1%
% moles TCE	33.5%	29.2%	23.2%	5.2%	2.1%	7.6%	5.9%	7.6%	29.7%	33.1%	9.2%	4.7%	0.1%
% moles cis-1,2-DCE	57.5%	47.7%	57.4%	39.9%	35.6%	65.9%	47.6%	42.4%	57.0%	51.3%	72.9%	68.7%	92.3%
% moles trans-1,2-DCE	0.9%	2.8%	1.8%	5.1%	5.6%	1.5%	6.3%	6.4%	0.9%	0.4%	1.3%	5.5%	0.7%
% moles Vinyl Chloride	2.5%	5.9%	8.4%	26.3%	28.9%	11.2%	14.1%	0.0%	0.0%	0.0%	4.8%	0.0%	5.1%
% moles Ethene	0.0%	0.0%	0.0%	22.6%	27.0%	12.1%	25.1%	42.8%	0.0%	0.0%	6.4%	19.5%	1.8%
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%

Table 16.1.2

B-3 Bioreactor VOC Summary
May 2010 - April 2011

Q16 (cont.)	T2-1		T2-2		T6-1						
Date	**5/19/10**	**6/22/10**	**5/19/10**	**6/22/10**	**10/19/10**	**11/18/10**	**12/21/10**	**1/19/11**	**2/24/11**	**3/22/11**	**4/19/11**
PCE (µg/L)	0.52	0.26	0	0	19.20	2.3	11	4.6	3.7	2.0	3.4
TCE (µg/L)	1.6	1.8	0.16	0	29.0	3.8	17	5.4	6.9	4.8	11.4
cis-1,2-DCE (µg/L)	12	41	0.79	1.1	95	78	102	122	107	154	193
trans-1,2-DCE (µg/L)	1.1	4.5	0	0	5.3	1.1	1.4	0.52	0.67	1.2	0.61
Vinyl Chloride (µg/L)	6.9	64	0	0	2.7	0	0.64	0.71	11	0	7.9
Ethene (µg/L)	0	3.5	0	0	1.0	0	0	0	2.2	0	1.6
PCE (nM/L)	3.14	1.57	0.00	0.00	115.78	13.99	64.52	27.98	22.13	11.88	20.68
TCE (nM/L)	12.18	13.70	1.22	0.00	220.72	28.85	128.62	41.40	52.44	36.15	86.61
cis-1,2-DCE (nM/L)	123.78	422.90	8.15	11.35	979.89	799.59	1053.02	1261.78	1099.85	1587.73	1994.02
trans-1,2-DCE (nM/L)	11.35	46.42	0.00	0.00	54.67	11.66	14.54	5.36	6.91	12.07	6.29
Vinyl Chloride (nM/L)	110.38	1023.84	0.00	0.00	43.19	0.00	10.24	11.36	173.73	0.00	126.06
Ethene (nM/L)	0.00	124.78	0.00	0.00	35.65	0.00	0.00	0.00	78.43	0.00	57.04
Total Molar Conc. (nM/L)	260.8	1,633.2	9.4	11.3	1,449.9	854.1	1,270.9	1,347.9	1,433.5	1,647.8	2,290.7
% moles PCE	1.2%	0.1%	0.0%	0.0%	8.0%	1.6%	5.1%	2.1%	1.5%	0.7%	0.9%
% moles TCE	4.7%	0.8%	13.0%	0.0%	15.2%	3.4%	10.1%	3.1%	3.7%	2.2%	3.8%
% moles cis-1,2-DCE	47.5%	25.9%	87.0%	100.0%	67.6%	93.6%	82.9%	93.6%	76.7%	96.4%	87.0%
% moles trans-1,2-DCE	4.4%	2.8%	0.0%	0.0%	3.8%	1.4%	1.1%	0.4%	0.5%	0.7%	0.3%
% moles Vinyl Chloride	42.3%	62.7%	0.0%	0.0%	3.0%	0.0%	0.8%	0.8%	12.1%	0.0%	5.5%
% moles Ethene	0.0%	7.6%	0.0%	0.0%	2.5%	0.0%	0.0%	0.0%	5.5%	0.0%	2.5%
sum % moles	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

	T6-2									
Date	**7/22/10**	**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**
PCE (µg/L)	0	0	0	0	0	0	0.25	0	0	0
TCE (µg/L)	0	0	0	0.51	0.24	0.66	0.40	0	0.35	0
cis-1,2-DCE (µg/L)	5.0	0.41	1.1	5.4	2.8	3.3	20	1.2	6.2	7.3
trans-1,2-DCE (µg/L)	0.31	0.36	0.52	0.93	1.3	0.56	0.50	0.75	1.0	2.5
Vinyl Chloride (µg/L)	6.9	3.4	4.7	9.3	0	3.5	11	4.6	0	0.27
Ethene (µg/L)	1.5	2.9	7.5	9.8	13.9	4.3	0	3.2	1.9	0
PCE (nM/L)	0.00	0.00	0.00	0.00	0.00	0.00	1.51	0.00	0.00	0.00
TCE (nM/L)	0.00	0.00	0.00	3.88	1.83	5.02	3.04	0.00	2.66	0.00
cis-1,2-DCE (nM/L)	51.57	4.23	11.04	55.70	28.57	33.73	208.66	12.38	63.74	75.19
trans-1,2-DCE (nM/L)	3.20	3.71	5.36	9.59	12.89	5.78	5.16	7.74	10.42	25.48
Vinyl Chloride (nM/L)	110.38	54.39	75.03	148.78	0.00	55.51	168.13	72.79	0.00	4.32
Ethene (nM/L)	53.48	103.39	267.38	349.38	495.54	153.30	0.00	114.08	67.74	0.00
Total Molar Conc. (nM/L)	218.6	165.7	358.8	567.3	538.8	253.3	386.5	207.0	144.6	105.0
% moles PCE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%
% moles TCE	0.0%	0.0%	0.0%	0.7%	0.3%	2.0%	0.8%	0.0%	1.8%	0.0%
% moles cis-1,2-DCE	23.6%	2.6%	3.1%	9.8%	5.3%	13.3%	54.0%	6.0%	44.1%	71.6%
% moles trans-1,2-DCE	1.5%	2.2%	1.5%	1.7%	2.4%	2.3%	1.3%	3.7%	7.2%	24.3%
% moles Vinyl Chloride	50.5%	32.8%	20.9%	26.2%	0.0%	21.9%	43.5%	35.2%	0.0%	4.1%
% moles Ethene	24.5%	62.4%	74.5%	61.6%	92.0%	60.5%	0.0%	55.1%	46.9%	0.0%
sum % moles	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 16.1.3

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						158	
Total Organic Carbon	mg/L	4.6		5.8		13.2		5.1		29		19.6		4.4				1.1						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																									
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						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																									
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		0											
Copper	µg/L	7.2		1.3	J	0		9.1		0		0		15											
Lead	µg/L	0		0		0		0		0		0		5.9											
Mercury	µg/L	0		0		0		0.11	J	0.050	F	0.14	F	0											
Nickel	µg/L	0		0		0		0		0		0		0											
Zinc	µg/L	16.4	J	26.8	J	9.8	J	51.3		0		0		48	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		T1-3																					
Sample Date		5/19/10		6/22/10		7/21/10		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	8.2		2.7		2.4		2.4		3.0		2.4		2.2				1.5						2.0	
Total Organic Carbon	mg/L	5.8		2.4		2.9		2.3		4.0		3.8		1.2				0.42	F					3.2	
Methane	µg/L	8.4		20.5		717		673		585		2,360		1,880		0		4.0		186		1,130		5,360	
Ethene	µg/L	0		0		5.4		4.6		2.0	F	3.2		2.5	F	0		0		1.3	F	1.6	F	5.9	
Ethane	µg/L	0		0		0.90	J	0.70	J	1.0	F	2.2		1.8	F	0		0		0.80	F	1.4	F	7.0	
Carbon Dioxide	µg/L	12,300		40,600		207,000		302,000		84,700		180,000		325,000		36,800		26,000		56,700		206,000		231,000	
Alkalinity, Total (as CACO3)	mg/L	275		295		391		404		309		313		391											
Nitrate/Nitrite	mg/L	0.239		0		0		0.011	J	0.054	F	0.084	F	0											
Sulfate	mg/L	28.7		48.9		33.1		24.8		40		38.9		66.9				31						0.33	F
Chloride	mg/L	9.5		14.7		15.7		15.7		15		15.7		14.9				13.5						14.5	
Ferrous Iron	mg/L	0.36	J	0		1.9		2.5		1.4		1.1		1.6		0.22	F	0.18	F	2.0		3.7		2.2	
Manganese	µg/L	106		88.9		138		82		63		53		63		23		4.7	F	161		86		217	
Hydrogen	nM/L					4.5																			
Hydrogen Sulfide																									
Total Dissolved Solids	mg/L	279		388		476		502		409		402		491		4,532		372		347		530		465	
Benzene	µg/L	0		0		0.18	J	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		0.080	F	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		51		33		21		38		21		8.6		38		86		51		19		1064	
Dichloroethene, trans-1,2-	µg/L	1.7		1.6		4.2		3.3		0.87		2.8		1.3		0.57	F	0.67		0.88		1.6		8.5	
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	15		14		1.3	J	0.74	J	1.6		0.84	F	0.25	F	14		43		6.5		0.72	F	1.4	
Toluene	µg/L	0		0		0		0		0		0		0		0		0		0		0		5.2	
Trichloroethene	µg/L	24		28		5.8		1.7		5.9		3.5		2.1		27		75		8.7		1.8		0.88	F
Vinyl chloride	µg/L	2.3		4.8		14		11		4.1		4.0		0		0		0		2.2		0		38	
Arsenic	µg/L	0		0		6.4		5		2.1	F	1.7	F	0		6.4		0		0		5.5		0	
Barium	µg/L	296		65		70.8		52.8		57		55.4		72											
Cadmium	µg/L	0		0		0		0.51	J	0		0		0											
Chromium	µg/L	0		0		0		0		1.4	F	1.7	F	0											
Copper	µg/L	11.6		1.1	J	0		8		0		0		15											
Lead	µg/L	1.6	J	0		0		0		0		0		6.3											
Mercury	µg/L	0		0		0		0.089	J	0		0.15	F	0.070	F										
Nickel	µg/L	3.5	J	0		0		0		0		0		0											
Zinc	µg/L	64.9		16.7	J	4.7	J	39	J	0		0		55											
		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

Table 16.1.3 (cont.)

B-3 Bioreactor Analytical Summary
May 2010 - April 2011

Q16

Well ID		T2-1				T2-2				T6-1											
Sample Date		5/19/10		6/22/10		5/19/10		6/22/10		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
Dissolved Organic Carbon	mg/L	22.2		4.8		33.1		44.7		2.1		1.7				2.0						0.90	
Total Organic Carbon	mg/L	18.5		4.1		30.1		49.6		1.7		0.72				0.86						0.21	F
Methane	µg/L	78.5		1,180		65,200		16,000		31		74		24		8.1		321		201		120	
Ethene	µg/L	0		3.5		0		0		1.0	F	0		0		0		2.2	F	0		1.6	F
Ethane	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Carbon Dioxide	µg/L	79,100		119,000		3,280,000		1,200,000		149,000		90,600		41,100		136,000		173,000		70,500		117,000	
Alkalinity, Total (as CACO3)	mg/L	443		383		823		1,040		328		331											
Nitrate/Nitrite	mg/L	0.52		0.031	J	0		0		0.14	B	0.040	F										
Sulfate	mg/L	66.1		30		4.3	J	4.1	J	41.9		37				26.5						35.1	
Chloride	mg/L	7.4		14.6		15.7		16.2		15.7		15				13.8						14	
Ferrous Iron	mg/L	1.4		3.5		9.7		15.8		0.31	F	0.91	F	0		0.23	F	2.4		1.4		0.73	F
Manganese	µg/L	463		418		1,560		1,490		17.8		69		24		38.5		144		63		22	
Hydrogen	nM/L	2.4		3.4												1.3							
Hydrogen Sulfide																							
Total Dissolved Solids	mg/L	559		436		886		1,090		420		349		391		423		477		354		433	
Benzene	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Bromodichloromethane	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Bromoform	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Chloroform	µg/L	0		0		0		0		0.31		0.24	F	0.16	F	0.25	F	0.15	F	0.11	F	0	
Dibromochloromethane	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Dichlorodifluoromethane	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Dichloroethene, 1,1-	µg/L	0		0		0		0		0		0		0		0		0		0.23	F	0	
Dichloroethene, cis-1,2-	µg/L	12		41		0.79	J	1.1	J	95		78		102		122		107		154		193	
Dichloroethene, trans-1,2-	µg/L	1.1		4.5		0		0		5.3		1.1		1.4		0.52	F	0.67		1.2		0.61	
Methylene chloride	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Naphthalene	µg/L	0		0		0		0		0		0		0		0		0		0		0	
Tetrachloroethene	µg/L	0.52	J	0.26	J	0		0		19.2		2.3		11		4.6		3.7		2.0		3.4	
Toluene	µg/L	0		0		1.1		3.0		0		0		0		0		0		0		0.14	F
Trichloroethene	µg/L	1.6		1.8		0.16	J	0		29		3.8		17		5.4		6.9		4.8		11.4	
Vinyl chloride	µg/L	6.9		64		0		0		2.7		0		0.64	F	0.71	F	11		0		7.9	
Arsenic	µg/L	0		0		7.2		10.5		1.9	F	0		4.3	F	0		0		2.0	F	0.60	F
Barium	µg/L	152		135		902		345		36.5		56											
Cadmium	µg/L	0		0		0		0		0		0											
Chromium	µg/L	0		0		0		0		0		0											
Copper	µg/L	12.2		1.9	J	7.2		0		0		14											
Lead	µg/L	0		0		0		0		0		7.3											
Mercury	µg/L	0		0		0		0		0.14	F	0.060	F										
Nickel	µg/L	1.8	J	0		2.7	J	2.1	J	1.5	F	2.4	F										
Zinc	µg/L	18.1	J	5.5	J	35	J	11.7	J	43	F	67											
		Month 37		Month 38		Month 37		Month 38		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		T6-2																			
Sample Date		7/22/10		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
Dissolved Organic Carbon	mg/L	6.2		10		8.5		4.0		3.3				3.2						2.0	
Total Organic Carbon	mg/L	9.4		12.4		7.9		4.6		3.1				2.1						1.8	
Methane	µg/L	1,400		17,000		16,300		5,380		2,930		2,090		0		3,760		3,940		7,270	
Ethene	µg/L	1.5	J	2.9	J	7.5		9.8		14		4.3		0		3.2		1.9	F	0	
Ethane	µg/L	0		0		3.7		1.9	F	5.4		8.8		0		10		10		9.8	
Carbon Dioxide	µg/L	383,000		872,000		479,000		446,000		154,000		126,000		111,000		125,000		187,000		219,000	
Alkalinity, Total (as CACO3)	mg/L	489		460		466		421		337											
Nitrate/Nitrite	mg/L	0.036	J	0.011	J	0		0.095	F	0											
Sulfate	mg/L	8.7		2.2		1.6		13		24				17						2.5	
Chloride	mg/L	16.1		14.8		15		15.7		15				14						14.3	
Ferrous Iron	mg/L	5.6		5.1		4.7		3.8		2.4		2.7		0.97	F	1.8		2.2		2.3	
Manganese	µg/L	212		221		206		115		118		125		140		101		193		153	
Hydrogen	nM/L	6.2		5.8		5.8		7.6		1.8										2.5	
Hydrogen Sulfide																					
Total Dissolved Solids	mg/L	544		523		534		458		339		509		473		389		515		498	
Benzene	µg/L	0		0		0		0		0		0		0		0		0		0	
Bromodichloromethane	µg/L	0		0		0		0		0		0		0		0		0		0	
Bromoform	µg/L	0		0		0		0		0		0		0		0		0		0	
Chloroform	µg/L	0		0		0		0		0		0		0		0		0		0	
Dibromochloromethane	µg/L	0		0		0		0		0		0		0		0		0		0.43	F
Dichlorodifluoromethane	µg/L	0		0		0		0		0		0		0		0		0		0	
Dichloroethene, 1,1-	µg/L	0		0		0		0		0		0		0		0		0		0	
Dichloroethene, cis-1,2-	µg/L	5		0.41	J	1.1	F	5.4		2.8		3.3		20		1.2		6.2		7.3	
Dichloroethene, trans-1,2-	µg/L	0.31	J	0.36	J	0.52	F	0.93		1.3		0.56	F	0.50	F	0.75		1.0		2.5	
Methylene chloride	µg/L	0		0		0		0		0		0		0		0		0		0	
Naphthalene	µg/L	0		0		0		0		0		0		0		0		0		0	
Tetrachloroethene	µg/L	0		0		0		0		0		0		0.25	F	0		0		0	
Toluene	µg/L	1.0	J	2		2.0		0.62	F	0.23	F	0		0		0.19	F	0		1.3	
Trichloroethene	µg/L	0		0		0		0.51	F	0.24	F	0.66	F	0.40	F	0		0.35	F	0	
Vinyl chloride	µg/L	6.9		3.4		4.7		9.3		0		3.5		11		4.6		0		0.27	F
Arsenic	µg/L	0		7.2		7.2		2.7	F	0		6.8		0		0		4.8	F	0.60	F
Barium	µg/L	79		80.3		83		71		64											
Cadmium	µg/L	0		0		0		0		0											
Chromium	µg/L	0		0		1.6	F	0		0											
Copper	µg/L	1.1	J	20.6		0		0		14											
Lead	µg/L	0		4.7	J	0		0		6.8											
Mercury	µg/L	0		0.092	J	0		0.14	F	0.060	F										
Nickel	µg/L	0		0		1.1	F	1.1	F	1.4	F										
Zinc	µg/L	49.2	J	110		29	F	16	F	33	F										
		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

Table 16.2.2

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

Table 16.2.3a

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

Q16		CS-WB05																																	
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	
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**
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	
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	
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	
Ethene	µg/L	0		0		0		0		0		0		0		0		0		0		0		1.1	J	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	
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	
Alkalinity, Total (as CACO3)	mg/L	370		979						330		759		316		1,026				326		320		315		306		313		312		291					
Nitrate/Nitrite	mg/L	0		0.092	F					0		0		0		0.15	B			0.10	B	0		0		0.011	J	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	
Chloride	mg/L	13.9		14.1						12.1		12.6		11.2		10.9				11.2		12.3		11.4		11.2		11.6		11.2		11				11.24	
Ferrous Iron	mg/L	0		0		0		0		0		0		0		0		0		0		0		0		0		0.20	F	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	
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	
Benzene	µg/L	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	
Bromoform	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	
Chloroform	µg/L	0		0		0		0		0		0		0		0		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	
Dichlorodifluoromethane	µg/L	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	
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	
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	
Methylene chloride	µg/L	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	
Tetrachloroethene	µg/L	0		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	
Toluene	µg/L	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	
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	
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
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					
Chromium	µg/L	6.5		0						2.7	J	0		1.6	J	0				2	J	0		0		7.4		1.7	F	0		0					
Copper	µg/L	0		0						0		0		0		0				1.3	J	2.4	J	0		12.4		0		0		14					
Lead	µg/L	0		0						0		0		0		0				0		0		0		0		0		0		6.9					
Mercury	µg/L	0		0.050	F					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		Q14- Month 42		Q15- Month 45		Q16- Month 48		Q13- Month 39		Q14- Month 42		Q13- Month 39		Q14- Month 42		Q15- Month 45		Quarter 13						Quarter 14						Quarter 15					

Well ID		CS-WB05-LGR04A								CS-WB05-LGR04B								CS-WB05-BS-01								CS-WB05-CC-01								CS-WB05-CC-02			
Sample Date		7/22/2010		10/26/2010		1/24/2011		4/26/2011		7/22/2010		10/26/2010		1/24/2011		4/26/2011		7/22/2010		10/25/2010		1/24/2011		4/25/2011		7/21/2010		10/25/2010		1/24/2011		4/25/2011		7/21/2010		10/25/2010		1/24/2011		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**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**
Dissolved Organic Carbon	mg/L	1.2		0.90						3.2		1.5						1.4		0.42	F					3.5		0.45	F					1.0		0.62					
Total Organic Carbon	mg/L	1.6		0						3.4		2.0						2.7		0						2.6		0						1.6		0					
Methane	µg/L	585		1,970		463		356		16,300		17,700		10,100		2,400		15.2		17.1		27.1		60		14.4		1.2		0.90	F	4.6		2.7		3.6		1.4		4.4	
Ethene	µg/L	0		0		0		0		2.0	J	7.9		12.6		6.3		0		0		0		0		0		0		0		0		0		0		0		0		0	
Ethane	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	
Carbon Dioxide	µg/L	17,700		51,900		9,200		10,100		81,700		216,000		148,000		22,400		10,900		8,280		36,400		29,000		33,500		9,920		9,340		25,400		19,700		24,300		9,760		10,900	
Alkalinity, Total (as CACO3)	mg/L	316		322						380		345						285		273						278		276						277		269					
Nitrate/Nitrite	mg/L	0.046	J	0.11	B					0.054	J	0.12	B					0		0.076	F					0		0.088	F					0		0.22	B				
Sulfate	mg/L	17.6		16.1						2.1		2.6						30		30.2						79.8		80.2						91.7		94					
Chloride	mg/L	12.5		11.9						12.8		12.5						11.9		11.9						17.9		17.1						19		18.3					
Ferrous Iron	mg/L	0		0		0		0		2.8		2.3		0.36	F	1.5		0		0		0		0		0.16	J	0.22	F	0.17	F	0.22	F	0		0.22	F	0		0.22	F
Manganese	µg/L	8.3		7.1		7.6		11.3		67.7		61.3		52.6		59		0		0		0		0		0		0		0		0		0		0		0		0	
Hydrogen	nM																																								
Hydrogen Sulfide																																									
Total Dissolved Solids	mg/L	368		37,200		333		379		411		40,100		357		397		348		360		300		367		431		435		411		420		452		452		417		461	
Benzene	µg/L	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	
Bromoform	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	
Chloroform	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	
Dibromochloromethane	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	
Dichlorodifluoromethane	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	
Dichloroethene, 1,1-	µg/L	0		0		0.27	F	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0.19	F	0		0	
Dichloroethene, cis-1,2-	µg/L	470		387		511		529		260		70.7		80.8		48		54		52.7		34.04		60		3		2.5		2.45		2.9		37		41.3		15.38		29	
Dichloroethene, trans-1,2-	µg/L	16		4.1		5.2		19.9		13		2.1		5.63		9.4		2.1		0.43	F	0		0		0.28	J	0.27	F	0		0.66		1.3		2.6		0.89		5.1	
Methylene chloride	µg/L	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	
Tetrachloroethene	µg/L	25		26.6		44.5		25.1		15		17.8		48.77		12.4		0		0		0		0		0.62	J	1.1	F	1.75		1.1	F	0		0.61	F	0.38	F	0.46	F
Toluene	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0.11	F
Trichloroethene	µg/L	150		183		187.88		245		19		21		62.84		28		0		0.25	F	0.31	F	0.20	F	5.6		6.1		5.95		7.8		39		56		23.36		36	
Vinyl chloride	µg/L	16		32.6		25.79		26		300		283		242.3		274		2.1		2.8		1.92		3.9		0.74	J	0		0		0		1.1		1.7		0		0.28	F
Arsenic	µg/L	0		3.0	F	0		0.80	F	19.3		18		5.8		13.8		0		0.90	F	0		1.0	F	6.1		1.6	F	0		0.30	F	7.1		1.4	F	0		2.2	F
Barium	µg/L	30.9		32.6						22.6		19.4						30.9		27.8						21.2		21.6						20.4		24.9					
Cadmium	µg/L	0		0						0		0						0		0						0		0						0		0					
Chromium	µg/L	0		0						0		0						1.4	J	1.1	F					1.6	J	0						0		0					
Copper	µg/L	4.3	J	0						2.2	J	0						4.2	J	0						0		0						0		0					
Lead	µg/L	0		0						0		0						0		0						0		0						0		0					
Mercury	µg/L	0		0.060	F					0		0.060	F					0		0.070	F					0		0.10	F					0		0.050	F				
Nickel	µg/L	2.1	J	2.3	F					90		74.8						0		0						0.48	J	1.7	F					0		1.3	F				
Zinc	µg/L	45.5	J	10	F					43.3	J	13	F					40.8	J	93						22.7	J	106						44.3	J	108					
		Q13- Month 39		Q14- Month 42		Q15- Month 45		Q16- Month 48		Q13- Month 39		Q14- Month 42		Q15- Month 45		Q16- Month 48		Q13- Month 39		Q14- Month 42		Q15- Month 45		Q16- Month 48		Q13- Month 39		Q14- Month 42		Q15- Month 45		Q16- Month 48		Q13- Month 39		Q14- Month 42		Q15- Month 45		Q16- Month 48	

Note: 0 sample value indicates a non-detect analyte value
Zone CS-WB05-LGR02 was dry; not sampled

Table 16.2.3b

SWMU B-3 Bioreactor Multi-port Well CS-WB06
May 2010 - April 2011

Q16																															
Well ID		**CS-WB06-UGR01**								**CS-WB06-LGR01**								**CS-WB06-LGR02**								**CS-WB06-LGR03A**							
Sample Date		**7/28/2010**		**10/29/2010**		**1/26/2011**		**4/28/2011**		**7/28/2010**		**10/29/2010**		**1/26/2011**		**4/28/2011**		**7/28/2010**		**10/29/2010**		**1/26/2011**		**4/28/2011**		**7/28/2010**		**10/29/2010**		**1/26/2011**		**4/28/2011**	
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**
Dissolved Organic Carbon	mg/L	5.2		0.53						1.8		1.2						1.3		0.26	F					1.5		0.61					
Total Organic Carbon	mg/L	3.5		0.30	F					2.7		0						1.9		0						2.1		0					
Methane	µg/L	162		0		0		12.3		0		0		0		0		1.1		1.2		0		0		0.50	J	2.0		0		0.90	F
Ethene	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	
Ethane	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	
Carbon Dioxide	µg/L	67,200		12,200		25,700		27,000		36,500		31,300		9,340		10,700		24,700		28,600		7,140		8,400		9,140		41,300		7,690		9,450	
Alkalinity, Total (as CACO3)	mg/L	328		323						340		334						294		293						303		300					
Nitrate/Nitrite	mg/L	0.36		0.39						0.37		0.21						0.039	J	0						0.047	J	0.064	F				
Sulfate	mg/L	25.8		29.5						22.6		26.5						26.6		25.2						19.8		19.4					
Chloride	mg/L	14.1		14.0						12.5		13.6						10		9.9						12.1		12.1					
Ferrous Iron	mg/L	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	
Manganese	µg/L	129		6.8		4.2	F	8.6		0		7.9		2.3	F	4.0	F	0		0		1.5	F	0		0		0		0		0	
Hydrogen	nM																																
Hydrogen Sulfide																																	
Total Dissolved Solids	mg/L	398		389		339		394		391		397		377		402		320		344		289		350		319		341		317		342	
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		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	
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		0		0		0		0		0		0		0		0		0.55	F	0.18	F
Dichloroethene, cis-1,2-	µg/L	290		71.3		79		68		49		32.6		51		37		18		19.4		13.6		25		190		166		272		180	
Dichloroethene, trans-1,2-	µg/L	1.5		0.54	F	0.86		0.47	F	0.64		0.26	F	1.0		0.67		1.0		0.75		0.95		0.77		1.9		0.90		3.1		1.2	
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	27		26		18		23		27		6.4		24		27		5.4		6.1		6.4		4.9		75		47.3		107		56	
Toluene	µg/L	0		0		0		0		0		0		0		0		0		0		0		0.080	F	0		0		0		0.070	F
Trichloroethene	µg/L	34		36		31		34		27		9.4		26		30		7.6		8.1		8.3		8.8		100		71.2		144		83	
Vinyl chloride	µg/L	3.5		0.24	F	0		0		0.35	J	0		0		0		0		0		0.27	F	0.32	F	0		0		0		0	
Arsenic	µg/L	0		0		0		1.1	F	0		0		0		2.0	F	7.5		0		0		1.1	F	6.7		0		0		1.8	F
Barium	µg/L	49.5		40.7						55.1		54.5						71.4		76.3						26.2		27.8					
Cadmium	µg/L	0		0						0		0						0		0						0.53	J	0					
Chromium	µg/L	8.6		7.5						6.3		9.7						1.8	J	4.7	F					2.1	J	0					
Copper	µg/L	13.7	B	0						15.7	B	0						0		0						4.0	J	0					
Lead	µg/L	0		0						0		0						0		0						0		0					
Mercury	µg/L	0		0						0		0						0		0						0		0					
Nickel	µg/L	11.7		6.1						7		7.6						0.66	J	5.1						2.7	J	3.5	F				
Zinc	µg/L	14.4	J	0						75.9		22	F					19.2	J	17	F					40.3	J	15	F				
		Q13- Month 39		Q14- Month 42		Q15- Month 45		Q16 - Month 48		Q13- Month 39		Q14- Month 42		Q15- Month 45		Q16 - Month 48		Q13- Month 39		Q14- Month 42		Q15- Month 45		Q16 - Month 48		Q13- Month 39		Q14- Month 42		Q15- Month 45		Q16 - Month 48	

Well ID		**CS-WB06-LGR03B**																								**CS-WB06-LGR04**							
Sample Date		**5/17/2010**		**6/21/2010**		**7/19/2010**		**8/16/2010**		**9/20/2010**		**10/18/2010**		**11/17/2010**		**12/20/2010**		**1/18/2011**		**2/23/2011**		**3/21/2011**		**4/18/2011**		**7/28/2010**		**10/29/2010**		**1/26/2011**		**4/28/2011**	
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**
Dissolved Organic Carbon	mg/L					0.94		0		0.83		0.68		0.21	F			0.26	F					0		1.6		0.68					
Total Organic Carbon	mg/L					1.2		0		0.38	F	0.52		0				0						0		2.4		0					
Methane	µg/L					0.80	J	1.0		1.0	F	1.8		3.2		1.2		3.5		1.6		3.2		3.9		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					15,500		25,900		12,600		24,100		26,100		14,500		36,500		19,500		28,600		25,000		23,100		53,700		77,000		47,900	
Alkalinity, Total (as CACO3)	mg/L					299		289		296		302		280												298		291					
Nitrate/Nitrite	mg/L					0		0.011	J	0.053	F	0.039	F	0												0.97		0.96					
Sulfate	mg/L					19.4		19.7		20.6		19.4		20				21.4						21		11		10.9					
Chloride	mg/L					12.1		12.3		12.5		12.1		12				12.1						11.6		13		12.8					
Ferrous Iron	mg/L					0		0		0		0		0		0		0		0		0		0		0		0		0		0	
Manganese	µg/L					0		0		0		0		1.3	F	0		0		0		0		0		0		0		0		3.1	F
Hydrogen	nM																																
Hydrogen Sulfide																																	
Total Dissolved Solids	mg/L	313		334		335		362		349		347		191		373		369		332		326		353		340		347		306		367	
Benzene	µg/L	0		0		0		0		0		0		0		0		0		0		0.11	F	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		0		0		0		0		0		0		0		0		0		0		0		0		0.18	F	0.11	F	0.080	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		0.22	F
Dichloroethene, 1,1-	µg/L	0		0		0		0		0		0		0		0		0.37	F	0.39	F	0.30	F	0.37	F	0		0.32	F	0.31	F	0.30	F
Dichloroethene, cis-1,2-	µg/L	230		230		180		170		91		174		179		137		216		230		233		283		260		344		339		214	
Dichloroethene, trans-1,2-	µg/L	2.4		5.7		7.9		18		0.41	F	14.6		3.7		3.2		2.5		1.8		2.0		2.0		3.4		3.3		3.2		2.5	
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	100		130		73		63		28		72.5		127		111		114		95		89		83		150		209		128		150	
Toluene	µg/L	0		0		0		0		0		0		0		0		0.11	F	0		0		0		0		0		0		0	
Trichloroethene	µg/L	130		150		97		86		43		98.6		128		153		157		133		140		114		140		173		121		97	
Vinyl chloride	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	
Arsenic	µg/L					6.8		7.2		9.9		3.2	F	0		5.7		0.60	F	0		2.7	F	0.50	F	6.5		0		0		1.5	F
Barium	µg/L					26.9		26.2		27.2		28.1		43												28		30.1					
Cadmium	µg/L					0		0.59	J	0		0		0												1.1	J	0					
Chromium	µg/L					2.5	J	4.3	J	1.3	F	0		0												2.7	J	0					
Copper	µg/L					0		13.4		0		0		12												0		0					
Lead	µg/L					0		0		0		0		6.3												0		0					
Mercury	µg/L					0		0.084	J	0.050	F	0.14	F	0.060	F											0		0					
Nickel	µg/L					1.9	J	3.2	J	2.4	F	3.1	F	3.2	F											0		1.6	F				
Zinc	µg/L					22.7	J	38.2	J	0		12	F	39	F											46.3	J	0					
		Quarter 13						Quarter 14						Quarter 15						Quarter 16						Q13- Month 39		Q14- Month 42		Q15- Month 45		Q16 - Month 48	

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

Table 16.2.3c

SWMU B-3 Bioreactor Multi-port Well CS-WB07
May 2010 - April 2011

Q16		CS-WB07																							
Well ID		CS-WB07-UGR01						CS-WB07-LGR01						CS-WB07-LGR02						CS-WB08-LGR03A					
Sample Date		7/29/2010		10/27/2010		2/1/2011		7/29/2010		10/27/2010		2/1/2011		7/29/2010		10/27/2010		2/1/2011		7/29/2010		10/27/2010		2/1/2011	
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**
Dissolved Organic Carbon	mg/L	4.7		4.1				1.8		0.94				1.1		1.1				1.4		0.45	F		
Total Organic Carbon	mg/L	4.8		3.2				0.70		0				0.27	J	0				0.57		0			
Methane	µg/L	4,620		6,570		834		0		0		0		0.70	J	0		0		15.7		5.1		6.0	
Ethene	µg/L	11		14.6		3.9		0		0		0		0		0		0		0		0		0	
Ethane	µg/L	0		0		0		0		0		0		0		0		0		0		0		0	
Carbon Dioxide	µg/L	223,000		343,000		65,300		38,700		43,300		68,500		8,570		5,230		9,300		43,800		24,500		26,100	
Alkalinity, Total (as CACO3)	mg/L	431		953				394		876				311		750				301		274			
Nitrate/Nitrite	mg/L	0.043	J	0				0.055	J	0				0		0.15	B			0		0.084	F		
Sulfate	mg/L	5.2		1.2				100		105				37.7		35.2				20.7		19.3			
Chloride	mg/L	16.3		16.2				18.5		16.8				13.4		12.8				10.3		10.0			
Ferrous Iron	mg/L	3.8		5.6		5.0		0.17	J	0		0		0.40	J	0.20	F	0.18	F	0.21	J	0		0	
Manganese	µg/L	1,310		1,501		1,199		0		0		0		0		0		0		0		0		0	
Hydrogen	nM																								
Hydrogen Sulfide																									
Total Dissolved Solids	mg/L	486		42,200		493		560		62,000		575		383		40,400		373		325		35,800		335	
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	2.1		0.61	F	1.3		0		0		0		0		0		0.30	F	29		25.6		28	
Dichloroethene, trans-1,2-	µg/L	4.5		1.3		4.0		0		0		0		0		0		0		0.41	J	0		0.40	F
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		0.24	J	0.24	F	0.37	F	0		0		0		0.40	J	3.3		3.0	
Toluene	µg/L	0		0		0		0		0		0		0		0		0		0		0		0	
Trichloroethene	µg/L	0.45	J	0		0.29	F	0.40	J	0.39	F	0.56	F	0		0		0		0.91	J	4.2		4.3	
Vinyl chloride	µg/L	17		1.4		9.57		0		0		0		0		0		0		0		0		0	
Arsenic	µg/L	7.5		4.8	F	2.1	F	4.8	J	0.60	F	0		4.1	J	0.90	F	0		6.3		0		0	
Barium	µg/L	94.7		108				101		116				98.8		102				32.5		34.2			
Cadmium	µg/L	0.69	J	0				0		0				0		0				0		0			
Chromium	µg/L	7.1		3.6	F			24		0				11.1		0				2	J	0			
Copper	µg/L	0		0				0		0				0		0				0		0			
Lead	µg/L	0		0				0		0				0		0				0		0			
Mercury	µg/L	0		0.050	F			0		0.050	F			0		0.060	F			0		0			
Nickel	µg/L	4.1	J	3.6	F			17.4		5.3				4.5	J	0				0		1.2	F		
Zinc	µg/L	25.2	J	10	F			30.5	J	22	F			61.9		12	F			17	J	12	F		
		Q13 - Month 39		Q14- Month 42		Q15- Month 45		Q13 - Month 39		Q14- Month 42		Q15- Month 45		Q13 - Month 39		Q14- Month 42		Q15- Month 45		Q13 - Month 39		Q14- Month 42		Q15- Month 45	

Well ID		CS-WB07-LGR03B																		CS-WB07-LGR04					
Sample Date		5/17/2010		6/21/2010		7/20/2010		8/16/2010		9/20/2010		10/18/2010		11/17/2010		12/20/2010		1/18/2011		2/23/2011		7/29/2010		10/27/2010		2/1/2011	
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**
Dissolved Organic Carbon	mg/L	0.61		1.1		1.2		0.24	J	0.98		0.62		0.29	F			0.24	F			1.0		0			
Total Organic Carbon	mg/L	0		1.6		1.4		0		2.5		0.66		0				0				0.87		0.87			
Methane	µg/L	1.9		4.2		5.9		6.1		4.6		5.8		6.6		5.3		4.8		11		0		0		2.1	
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	11,100		29,200		21,100		38,200		22,300		27,800		20,100		30,600		20,400		26,500		70,900		6,460		10,500	
Alkalinity, Total (as CACO3)	mg/L	311		313		295		285		295		293		277								287		258			
Nitrate/Nitrite	mg/L	0.059	BJ	0		0		0.011	J	0.030	F	0.039	F	0								1.1		1.2	B		
Sulfate	mg/L	19.4		19.6		20.4		21		21.0		19.8		20				20				9.4		8.6			
Chloride	mg/L	10.1		11.1		10.3		10.4		10.6		10.4		10				10				12.3		11.9			
Ferrous Iron	mg/L	0		0.19	J	0		0		0		0		0		0		0		0		0		0		0	
Manganese	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0	
Hydrogen	nM																										
Hydrogen Sulfide																											
Total Dissolved Solids	mg/L	304		337		336		362		329		337		330		359		338		309		340		34,800		341	
Benzene	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0.12	F
Bromodichloromethane	µg/L	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	
Chloroform	µg/L	0		0		0		0		0		0		0		0		0		0		0		0.26	F	0.30	
Dibromochloromethane	µg/L	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	
Dichloroethene, 1,1-	µg/L	0		0		0		0		0		0		0		0		0		0		0.38	J	0.21	F	0.42	F
Dichloroethene, cis-1,2-	µg/L	32		23		37		36		21		27.4		32		27		38		32		500		389		572	
Dichloroethene, trans-1,2-	µg/L	0.55	J	0.81		0.72		0.74		0.52	F	1.7		0.84		0.53	F	0.61		0.47	F	3.3		3.6		1.7	
Methylene chloride	µg/L	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	
Tetrachloroethene	µg/L	0.50	J	0		0		3.0		0.33	F	0		0		0.73	F	0.71	F	0.13	F	380		189		445	
Toluene	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0	
Trichloroethene	µg/L	2.0		0.77	J	1.1		1.1		1.8		1.4		1.6		2.3		3.2		2.3		440		254		452	
Vinyl chloride	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0	
Arsenic	µg/L	0		3.3	J	7.9		4.8	J	7.8		2.3	F	0		6.0		0.70	F	0		5.5		0		0	
Barium	µg/L	32.5		35.7		31.9		27		31.8		31.9		40								30.2		29.5			
Cadmium	µg/L	0		0		0		0		0		0		0								1.1	J	0			
Chromium	µg/L	2.8	J	3.9	J	1.7	J	3.7	J	1.3	F	2.4	F	0								2.2	J	3.4	F		
Copper	µg/L	1.3	J	3.3	J	0		13.3		0		0		14								0		0			
Lead	µg/L	0		0		0		0		0		0		6.2								0		0			
Mercury	µg/L	0		0		0		0.096	J	0.050	F	0.13	F	0.080	F							0		0.050	F		
Nickel	µg/L	1.7	J	1.6	J	0		0		0		1.8	F	1.5	F							0.61	J	2.9	F		
Zinc	µg/L	12.6	J	26.9	J	15.9	J	28.9	J	0		0		32	F							24.4	J	11	F		
		Quarter 13						Quarter 14						Quarter 15						Q16 Month 46		Q13 - Month 39		Q14- Month 42		Q15- Month 45	

Note: 0 sample value indicates a non-detect analyte value
Note: CS-WB07 was damaged during the March sampling event, therefore, no samples were collected during the March and April 2011 sampling events.

Table 16.2.3d

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		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																															
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		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		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						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		Q16- Month 48		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		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**	**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						0		2.9		0.99					
Methane	µg/L					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	
Ethane	µg/L					0		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				15						16.5		22.5		27.2					
Chloride	mg/L					13.1		12.3		13.5		12.9		12				12						11.2		14.7		14.8					
Ferrous Iron	mg/L					0		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		0		0		11.4		16.1		3.9	F	8.1	
Hydrogen	nM																																
Hydrogen Sulfide																																	
Total Dissolved Solids	mg/L	357		370		370		382		372		350		279		371		364		331		328		352		416		391		374		396	
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	0.11	J	0.12	J	0.14	J	0.19	J	0		0		0.17	F	0.20	F	0.16	F	0.20	F	0.21	F	0.16	F	0		0		0.080	F	0	
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		0		0		0		0		0		0		0		0		0		0	
Dichloroethene, cis-1,2-	µg/L	120		130		180		210		83		81		185		217		184		351		226		205		120		57.2		81		51	
Dichloroethene, trans-1,2-	µg/L	1.9		4.1		8.4		22		0.71		5.7		3.9		6.7		1.7		2.5		3.9		3.6		0.71		0		1.2		0.29	F
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	74		130		150		220		47		56		216		185		140		261		147		184		11		7.6		31		13.7	
Toluene	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0		0		0		0	
Trichloroethene	µg/L	76		130		180		230		61		60		213		233		162		308		197		191		20		13.6		51		22.4	
Vinyl chloride	µg/L	0		0		0		0		0		0		0		0		0		0		0		0		0.40	J	0		0		0	
Arsenic	µg/L					4.6	J	4.6	J	1.6	F	1.2	F	0		5.2		0.40	F	0		0.80	F	0		0		0		0		1.6	F
Barium	µg/L					36.7		32.9		34.1		34.8		40												45.1		46.2					
Cadmium	µg/L					0.57	J	0.71	J	0		0		0												0		0					
Chromium	µg/L					3.9	J	4.2	J	1.9	F	1.5	F	1.1	F											5.2		0					
Copper	µg/L					0		12.5		0		0		13												36.6	B	32					
Lead	µg/L					0		0		0		0		5.9												2.4	J	0					
Mercury	µg/L					0		0.092	J	0.050	F	0.13	F	0.070	F											0		0.050	F				
Nickel	µg/L					2.2	J	8.1		2.2	F	3.1	F	3.5	F											6.6		3.0	F				
Zinc	µg/L					33.9	J	48.9	J	0		22	F	31	F											19.7	J	54					
		Quarter 13						Quarter 14						Quarter 15						Quarter 16						Q13- Month 39		Q14- Month 42		Q15- Month 45		Q16- Month 48	

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

Table 16.3.3

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

Q16		Monitoring Wells																							
Well ID		CS-MW1-LGR								CS-D						CS-B3-MW01								CS-4	
Sample Date		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	
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	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		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				
Dehalococcoides spp (1)	(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				
Dehalococcoides spp (1)	(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				
Dehalococcoides spp (1)	(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			
Dehalococcoides spp (1)	(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			
Dehalococcoides spp (1)	(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			
Dehalococcoides spp (1)	(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 16.5.3

SWMU B3-UIC Analytical Summary Table
May 2010 - April 2011

Q16		B3-UIC											
Well ID		**B3-UIC**		**B3-UIC**		**B3-UIC**		**B3-UIC**		**B3-UIC**		**B3-UIC**	
Sample Date		**5/19/2010**		**6/22/2010**		**7/20/2010**		**8/17/2010**		**9/21/2010**		**10/19/2010**	
Compound	**Units**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**
Total Dissolved Solids	mg/L	308		363		364		392		377		364	
Benzene	µg/L	0		0		0		0		0		0	
Bromodichloromethane	µg/L	0		0		0		0		0		0	
Bromoform	µg/L	0		0		0		0		0		0	
Chloroform	µg/L	0		0		0		0		0		0	
Dibromochloromethane	µg/L	0		0		0		0		0		0	
Dichlorodifluoromethane	µg/L	0		0		0		0		0		0	
Dichloroethene, 1,1-	µg/L	0		0		0		0		0		0	
Dichloroethene, cis-1,2-	µg/L	75		110		100		100		92		83	
Dichloroethene, trans-1,2-	µg/L	4.6		5.0		5.6		15		1.5		6.3	
Methylene chloride	µg/L	0		0		0		0		0		0	
Naphthalene	µg/L	0		0		0		0		0		0	
Tetrachloroethene	µg/L	57		79		72		76		52		65	
Toluene	µg/L	0		0		0		0		0		0	
Trichloroethene	µg/L	86		110		100		100		84		81	
Vinyl chloride	µg/L	0		0		0		0		0		0	

		B3-UIC		B3-UIC		B3-UIC		B3-UIC		B3-UIC		B3-UIC	
Sample Date		**11/18/2010**		**12/21/2010**		**1/19/2011**		**2/24/2011**		**3/22/2011**		**4/19/2011**	
Compound	**Units**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**	**Value**	**Flag**
Total Dissolved Solids	mg/L	221		376		368		290		344		364	
Benzene	µg/L	0		0		0		0		0		0	
Bromodichloromethane	µg/L	0		0		0		0		0		0	
Bromoform	µg/L	0		0		0		0		0		0	
Chloroform	µg/L	0		0		0		0.12	F	0		0.080	F
Dibromochloromethane	µg/L	0		0		0		0		0		0	
Dichlorodifluoromethane	µg/L	0		0		0		0		0		0	
Dichloroethene, 1,1-	µg/L	0		0		0		0		0		0	
Dichloroethene, cis-1,2-	µg/L	82		109		137		156		118		181	
Dichloroethene, trans-1,2-	µg/L	1.7		2.2		2.0		1.6		2.3		2.8	
Methylene chloride	µg/L	0		0		0		0		0		0	
Naphthalene	µg/L	0		0		0		0		0		0	
Tetrachloroethene	µg/L	68		87		86		94		68		80	
Toluene	µg/L	0		0		0		0		0		0	
Trichloroethene	µg/L	79		114		134		126		100		164	
Vinyl chloride	µg/L	0		0		0		0		0		0	

Table 16.5.6

B3 - UIC Analytical Results
May 2010 - April 2011

			Sample ID	B3-UIC			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	Flags	Dilution	Results	Flags	Dilution	Results	Flags	Dilution	Results	Flags	Dilution	Results	Flags	Dilution	Results	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			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	Flags	Dilution	Results	Flags	Dilution	Results	Flags	Dilution	Results	Flags	Dilution	Results	Flags	Dilution	Results	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

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

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.

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**	**4/25/11**
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

Table 16.6.3

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

Q16		Extraction Wells																													
Well ID		CS-MW16-LGR								CS-MW16-CC								B3-EXW01								B3-EXW02					
Sample Date		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**	**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		0.38	F	0		0		0.62		0		0		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		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		0.39	F	0.21	F	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					
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

Table 16.7.1

SWMU B-3 Shallow UGR Well - Field Measurement Data

May 2010 - April 2011

B3-MW-26								
Elev (ft. MSL)	***1238.49***	Total Depth:	20.32 *feet BTOC*					
Sample Date	**Sample Time**	**Depth to H_20**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**H_20 Elevation**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(feet)*
5/6/2010								
5/19/2010								
5/20/2010	928	9.21	6.50	19.57	0.714	1.27	-58.1	1229.28
5/27/2010		10.42	7.06	20.31	0.535	1.70	-90.3	1228.07
6/4/2010	1530	11.11	6.73	20.78	0.764	1.70	-70.7	1227.38
6/11/2010	1236	11.54	6.80	19.59	0.743	0.56	-68.5	1226.95
6/16/2010	1430	12.25	6.50	21.58	0.753	1.06	-56.9	1226.24
6/23/2010	1120	12.91	6.53	20.72	0.776	1.95	-76.0	1225.58
6/29/2010	1121	13.30	6.62	20.78	0.780	1.72	-98.4	1225.19
7/7/2010	1425	13.20	6.76	21.81	0.783	2.25	-76.2	1225.29
7/14/2010	950	13.53	6.55	19.98	0.816	0.56	-259.2	1224.96
7/23/2010	1215	14.00	6.69	20.13	0.798	0.38	-218.4	1224.49
7/29/2010	1122	14.10	6.61	20.26	0.472	0.35	-239.8	1224.39
8/2/2010	920	14.16	6.57	20.25	0.698	0.79	-24.8	1224.33
8/9/2010	1008	14.21	6.58	20.40	0.816	0.41	-296.4	1224.28
8/18/2010	1226	14.28	6.63	21.55	0.477	0.73	-161.8	1224.21
8/26/2010	1146	14.31	6.71	21.10	0.469	0.33	-185.1	1224.18
9/2/2010	1745	14.32	6.72	20.75	0.470	0.21	-277.9	1224.17
9/10/2010	1500	13.69	6.65	20.90	0.469	0.34	-281.3	1224.80
9/17/2010	1310	13.32	6.63	21.00	0.476	0.35	-286.6	1225.17
9/23/2010*	1312	13.25	6.58	21.4	0.794	0.58	-158.6	1225.24
9/29/2010	1135	13.02	6.67	21.43	0.816	0.63	-243.50	1225.47
10/7/2010	1425	13.30	6.62	22.00	0.532	0.55	-200.70	1225.19
10/13/2010	1149	13.52	6.57	21.45	0.462	0.83	-228.40	1224.97
10/22/2010	1520	13.80	6.75	25.31	0.559	1.71	-162.00	1224.69
10/28/2010	954	13.97	6.59	21.42	0.812	0.48	-243.10	1224.52
11/4/2010	1417	14.04	6.70	22.24	0.774	0.46	-33.70	1224.45
11/11/2010	1508	14.08	6.63	21.83	0.784	0.30	-281.90	1224.41
11/19/2010	948	14.13	6.72	21.99	0.542	0.60	-96.80	1224.36
11/23/2010	1152	14.12	6.65	22.08	0.531	0.53	-116.30	1224.37
12/1/2010	1418	14.13	6.75	21.92	0.465	0.63	15.10	1224.36
12/15/2010	1338	13.52	6.61	21.52	0.867	0.40	-148.10	1224.97
12/23/2010	1122	13.36	6.64	21.50	0.697	0.31	-47.80	1225.13
1/20/2011	1045	12.85	6.72	20.61	0.632	0.57	63.00	1225.64
2/25/2011	920	13.20	6.76	19.89	0.533	0.35	-1.20	1225.29
3/24/2011	1327	13.95	6.66	19.52	0.766	0.42	-25.20	1224.54
4/26/2011	1315	14.30	6.62	19.55	0.579	0.22	-150.70	1224.19
5/20/2011	1055	14.32	6.41	19.79	0.657	0.33	-20.90	1224.17
*reading from MW-29 and MW-26 may have been switched								

Table 16.7.1

SWMU B-3 Shallow UGR Well - Field Measurement Data

May 2010 - April 2011

B3-MW-27								
Elev (ft. MSL)	***1233.42***	Total Depth:	17.00 *feet BTOC*					
Sample Date	**Sample Time**	**Depth to H_20**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**H_20 Elevation**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(feet)*
5/6/2010	1000	7.85	6.60	19.14	0.823	0.47	-94.7	1225.57
5/19/2010	900	6.28	6.57	19.68	0.799	0.53	-82.7	1227.14
5/20/2010	933	6.34	6.52	19.85	0.750	0.51	-81.0	1227.08
5/27/2010		6.83	6.97	21.93	0.526	1.11	-97.3	1226.59
6/4/2010	1542	7.28	6.60	22.33	0.816	1.28	-71.8	1226.14
6/11/2010	1244	7.31	6.78	21.35	0.820	0.46	-69.6	1226.11
6/16/2010	1430	7.89	6.42	21.54	0.822	0.32	-58.3	1225.53
6/23/2010	1140	8.55	6.61	22.40	0.823	1.39	-57.5	1224.87
6/29/2010	1126	9.11	6.54	21.64	0.820	1.43	-110.9	1224.31
7/72010	1450	8.80	6.65	26.44	0.833	1.83	-53.5	1224.62
7/14/2010	957	9.27	6.59	22.73	0.842	0.22	-151.9	1224.15
7/23/2010	1207	10.70	6.63	22.75	0.821	0.36	-121.5	1222.72
7/29/2010	1135	11.20	6.58	22.94	0.488	0.28	-169.5	1222.22
8/2/2010	1015	11.34	6.64	23.66	0.739	1.50	-140.8	1222.08
8/9/2010	1017	11.84	6.82	22.90	0.817	4.92	39.9	1221.58
8/18/2010	1213	11.74	6.69	24.27	0.498	4.67	109.4	1221.68
8/26/2010	1130	11.70	6.65	22.88	0.487	1.44	31.0	1221.72
9/2/2010	1721	11.90	6.66	22.12	0.489	0.23	-301.0	1221.52
9/10/2010	1450	9.07	6.27	21.98	0.486	0.41	-272.2	1224.35
9/17/2010	1254	9.35	6.56	22.41	0.484	0.38	-240.6	1224.07
9/23/2010	1257	8.93	6.65	25.10	0.783	1.06	29.7	1224.49
9/29/2010	1143	8.80	6.64	24.87	0.831	0.63	55.9	1224.62
10/7/2010	1438	9.32	6.57	22.60	0.574	0.50	-263.8	1224.10
10/13/2010	1200	9.50	6.60	24.53	0.464	0.76	-38.2	1223.92
10/22/2010	1120	9.90	6.64	24.32	0.841	0.91	121..3	1223.52
10/28/2010	1000	10.39	6.57	22.66	0.863	0.46	-227.1	1223.03
11/4/2010	1410	10.40	6.65	23.60	0.834	2.00	146.5	1223.02
11/11/2010	1458	10.54	6.58	23.46	0.840	2.88	122.7	1222.88
11/19/2010	958	10.53	6.64	22.69	0.586	3.48	60.7	1222.89
11/23/2010	1203	10.62	6.58	22.86	0.572	3.00	43.7	1222.80
12/1/2010	1429	11.03	6.65	22.26	0.506	4.14	70.3	1222.39
12/15/2010	1326	9.28	6.58	22.01	0.880	0.41	-10.5	1224.14
12/23/2010	1128	9.08	6.61	21.66	0.702	0.30	-172.6	1224.34
1/20/2011	1110	8.40	6.67	19.14	0.652	0.29	26.0	1225.02
2/25/2011	900	8.90	6.69	18.11	0.534	0.69	53.9	1224.52
3/24/2011	1308	9.55	6.56	18.42	0.727	0.75	14.1	1223.87
4/26/2011	1335	11.45	6.67	20.21	0.568	2.13	27.5	1221.97
5/20/2011	1045	11.76	6.45	20.70	0.671	2.37	176.5	1221.66

Table 16.7.1

SWMU B-3 Shallow UGR Well - Field Measurement Data

May 2010 - April 2011

B3-MW-28								
Elev (ft. MSL)	***1226.67***	Total Depth:	18.33 *feet BTOC*					
Sample Date	**Sample Time**	**Depth to H_20**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**H_20 Elevation**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(feet)*
5/20/2010	937	Dry						Dry
5/27/2010		Dry						Dry
6/4/2010	1555	Dry						Dry
6/11/2010	1244	Dry						Dry
6/16/2010	1430	Dry						Dry
6/23/2010	1120	Dry						Dry
6/29/2010	1129	Dry						Dry
7/7/2010	1500	Dry						Dry
7/14/2010		Dry						Dry
7/23/2010		Dry						Dry
7/29/2010		Dry						Dry
8/2/2010		Dry						Dry
8/9/2010		Dry						Dry
8/18/2010		Dry						Dry
8/26/2010	1127	Dry						Dry
9/2/2010	1721	Dry						Dry
9/10/2010	1443	Dry						Dry
9/17/2010	1246	Dry						Dry
9/23/2010		Dry						Dry
9/29/2010		Dry						Dry
10/7/2010	1415	Dry						Dry
10/13/2010	1210	Dry						Dry
10/22/2010	1145	Dry						Dry
10/28/2010	1006	Dry						Dry
11/4/2010	1405	18.31	Not enough water for field readings					1208.36
11/11/2010	1448	18.31	Not enough water for field readings					1208.36
11/19/2010	1002	Dry						Dry
11/23/2010	1210	Dry						Dry
12/1/2010	1435	Dry						Dry
12/15/2010	1320	Dry						Dry
12/23/2010		Dry						Dry
1/20/2011	1120	Dry						Dry
2/25/2011	1108	Dry						Dry
3/24/2011		Dry						Dry
4/26/2011		Dry						Dry
5/20/2011	1315	Dry						Dry

Table 16.7.1

SWMU B-3 Shallow UGR Well - Field Measurement Data

May 2010 - April 2011

B3-MW-29								
Elev (ft. MSL)	***1233.25***	Total Depth:	20.40 *feet BTOC*					
Sample Date	**Sample Time**	**Depth to H_20**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**H_20 Elevation**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(feet)*
5/20/2010	948	15.70	6.68	19.81	0.703	3.25	-23.3	1217.55
5/27/2010		12.38	7.27	20.60	0.389	4.50	-90.0	1220.87
6/4/2010	1609	14.32	6.96	20.81	0.601	3.99	-69.1	1218.93
6/11/2010	1252	15.34	7.17	21.89	0.599	4.21	-67.5	1217.91
6/16/2010		15.96	6.80	21.50	0.602	2.70	-57.8	1217.29
6/23/2010	1155	16.54	7.05	21.08	0.603	2.49	-52.2	1216.71
6/29/2010	1133	17.75	6.85	20.81	0.606	2.17	-57.4	1215.50
7/7/2010	1510	18.05	6.96	22.91	0.628	2.21	-47.4	1215.20
7/14/2010	1005	18.32	7.00	19.69	0.642	0.68	78.1	1214.93
7/23/2010	1200	19.28	7.02	19.91	0.633	1.22	36.0	1213.97
7/29/2010	1140	18.80	6.92	20.01	0.378	1.04	-21.4	1214.45
8/2/2010	1115	18.95	6.73	20.02	0.559	2.08	103.2	1214.30
8/9/2010	1015	20.02	Not enough water for field readings					1213.23
8/18/2010		20.01	Not enough water for field readings					1213.24
8/26/2010	1121	20.03	Not enough water for field readings					1213.22
9/2/2010	1703	20.02	Not enough water for field readings					1213.23
9/10/2010	1200	20.03	Not enough water for field readings					1213.22
9/17/2010	1240	20.03	Not enough water for field readings					1213.22
9/23/2010	1252	20.02	Not enough water for field readings					1213.23
9/29/2010	1143	20.02	Not enough water for field readings					1213.23
10/7/2010	1423	20.03	Not enough water for field readings					1213.22
10/13/2010	1212	20.03	Not enough water for field readings					1213.22
10/22/2010	1140	20.02	Not enough water for field readings					1213.23
10/28/2010	1009	20.14	Not enough water for field readings					1213.11
11/4/2010	1400	20.14	Not enough water for field readings					1213.11
11/11/2010	1445	20.13	Not enough water for field readings					1213.12
11/19/2010	927	20.13	Not enough water for field readings					1213.12
11/23/2010	1155	20.15	Not enough water for field readings					1213.10
12/1/2010	1310	20.14	Not enough water for field readings					1213.11
12/15/2010	1315	20.13	Not enough water for field readings					1213.12
12/23/2010	1030	20.14	Not enough water for field readings					1213.11
1/20/2011	1135	20.20	Not enough water for field readings					1213.05
2/25/2011	955	20.20	Not enough water for field readings					1213.05
3/24/2011	1034	20.18	Not enough water for field readings					1213.07
4/26/2011	1346	20.16	Not enough water for field readings					1213.09
5/20/2011	1307	20.18	Not enough water for field readings					1213.07

Table 16.7.1

SWMU B-3 Shallow UGR Well - Field Measurement Data

May 2010 - April 2011

B3-MW-31								
Elev (ft. MSL)	***1257.20***	Total Depth:	39.06 *feet BTOC*					
Sample Date	**Sample Time**	**Depth to H_20**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**H_20 Elevation**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(feet)*
5/20/2010	851	29.26	6.74	21.54	0.653	4.06	-12.5	1227.94
5/27/2010		31.88	7.05	22.51	0.459	4.20	-80.9	1225.32
6/4/2010	1634	32.70	6.76	22.70	0.640	5.01	-69.9	1224.50
6/11/2010	1200	33.13	7.09	22.71	0.637	3.85	-87.2	1224.07
6/16/2010	1355	33.47	6.84	24.25	0.644	1.92	-63.2	1223.73
6/23/2010	850	33.61	6.81	21.76	0.668	1.63	-30.6	1223.59
6/29/2010	1103	34.20	6.93	22.77	0.689	1.12	-63.9	1223.00
7/7/2010	1540	33.11	6.74	24.38	0.712	2.18	-47.6	1224.09
7/14/2010	919	33.59	6.77	21.17	0.722	0.50	89.9	1223.61
7/23/2010	1140	33.84	6.79	21.03	0.723	0.65	32.9	1223.36
7/29/2010	1045	34.20	6.16	21.33	0.435	0.58	61.2	1223.00
8/2/2010	910	34.20	6.60	21.48	0.649	0.70	85.6	1223.00
8/9/2010	925	34.75	6.25	21.29	0.774	0.82	9.6	1222.45
8/18/2010	1122	34.93	6.73	21.01	0.471	1.10	104.7	1222.27
8/26/2010	1108	35.05	6.76	21.04	0.459	0.94	25.4	1222.15
9/2/2010	1635	35.19	6.74	21.90	0.464	0.72	96.1	1222.01
9/10/2010	1130	32.98	6.51	21.42	0.492	1.02	168.9	1224.22
9/17/2010	1207	33.02	6.77	21.13	0.480	0.72	-39.4	1224.18
9/23/2010	1200	33.02	6.48	21.18	0.801	0.53	101.5	1224.18
9/29/2010	1050	33.10	6.54	20.97	0.817	0.56	95.9	1224.10
10/7/2010	1340	33.13	6.69	20.98	0.510	0.67	-44.2	1224.07
10/13/2010	1106	33.28	6.58	21.01	0.456	0.56	-46.5	1223.92
10/22/2010	1000	33.54	6.75	21.01	0.795	0.55	148.7	1223.66
10/28/2010	1012	33.62	6.80	20.94	0.778	0.52	131.7	1223.58
11/4/2010	1350	33.59	6.79	20.94	0.762	0.61	131.1	1223.61
11/11/2010	1430	33.62	6.72	21.00	0.734	0.38	106.1	1223.58
11/19/2010	910	33.74	6.82	17.66	0.002	6.00	21.8	1223.46
11/23/2010	1110	33.73	6.72	21.06	0.512	0.28	-26.9	1223.47
12/1/2010	1328	33.98	6.91	20.80	0.459	0.44	103.5	1223.22
12/15/2010	1250	32.24	6.76	21.01	0.790	0.46	-138.4	1224.96
12/23/2010	1024	32.16	6.80	21.25	0.533	1.73	180.5	1225.04
1/20/2011	925	32.50	6.82	20.99	0.584	0.58	74.5	1224.70
2/25/2011	1015	33.50	6.84	20.11	0.526	0.40	-102.5	1223.70
3/24/2011	1043	34.05	6.68	21.17	0.721	0.60	-114.4	1223.15
4/26/2011	1400	34.72	6.76	21.19	0.548	0.59	28.9	1222.48
5/20/2011	1211	35.64	6.70	21.24	0.662	0.50	-65.8	1221.56

Table 16.7.1

SWMU B-3 Shallow UGR Well - Field Measurement Data

May 2010 - April 2011

B3-MW-30								
Elev (ft. MSL)	***1246.01***	Total Depth:	23.90 *feet BTOC*					
Sample Date	**Sample Time**	**Depth to H_20**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**H_20 Elevation**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(feet)*
5/20/2010	956	18.55	6.63	19.97	0.670	4.43	-17.9	1227.46
5/27/2010		21.34						1224.67
6/4/2010	1621	21.51	6.81	22.08	0.696	4.83	-68.4	1224.50
6/11/2010	1300	21.55	7.01	22.76	0.695	5.09	-67.0	1224.46
6/16/2010	1441	21.68	6.64	21.10	0.696	3.74	-56.4	1224.33
6/23/2010	1220	22.02	6.96	21.31	0.711	4.30	-47.4	1223.99
6/29/2010	1139	22.72	6.67	20.67	0.715	5.14	-54.4	1223.29
7/7/2010	1525	22.70	6.84	23.15	0.744	4.03	-45.9	1223.31
7/14/2010	1012	22.91	6.88	20.40	0.772	3.69	90.5	1223.10
7/23/2010	1151	23.00	6.91	20.47	0.760	4.14	46.9	1223.01
7/29/2010	1148	23.00	6.83	20.40	0.453	3.73	31.2	1223.01
8/2/2010	1300	23.09	6.72	20.49	0.670	3.59	111.4	1222.92
8/9/2010	1031	23.47	Not enough water for field readings					1222.54
8/18/2010	1140	23.44	Not enough water for field readings					1222.57
8/26/2010	1116	23.42	Not enough water for field readings					1222.59
9/2/2010	1648	23.41	6.84	21.28	0.463	4.23	103.1	1222.60
9/10/2010	1145	23.41	6.77	21.14	0.463	4.46	174.1	1222.60
9/17/2010	1225	23.40	6.87	21.15	0.47	5.26	18.6	1222.61
9/23/2010	1145	23.39	Not enough water for field readings					1222.62
9/29/2010	1146	23.38	Not enough water for field readings					1222.63
10/7/2010	1425	23.36	Not enough water for field readings					1222.65
10/13/2010	1214	23.35	Not enough water for field readings					1222.66
10/22/2010	930	23.34	6.85	21.33	0.435	4.72	98.7	1222.67
10/28/2010	1009	23.44	Not enough water for field readings					1222.57
11/4/2010	1355	23.43	Not enough water for field readings					1222.58
11/11/2010	1440	23.42	Not enough water for field readings					1222.59
11/19/2010	915	23.40	Not enough water for field readings					1222.61
11/23/2010	1215	23.40	Not enough water for field readings					1222.61
12/1/2010	1315	23.40	Not enough water for field readings					1222.61
12/15/2010	1258	23.88	Not enough water for field readings					1222.13
12/23/2010	1026	23.36	Not enough water for field readings					1222.65
1/20/2011	1137	23.35	Not enough water for field readings					1222.66
2/25/2011	1000	23.40	6.95	20.5	0.578	5.12	49.3	1222.61
3/24/2011	1037	23.38	Not enough water for field readings					1222.63
4/26/2011	1350	23.42	Not enough water for field readings					1222.59
5/20/2011	1310	23.41	Not enough water for field readings					1222.60

Table 16.7.1

SWMU B-3 Shallow UGR Well - Field Measurement Data

May 2010 - April 2011

B3-MW-32								
Elev (ft. MSL)	***1266.98***	Total Depth:	58.45 *feet BTOC*					
Sample Date	**Sample Time**	**Depth to H_20**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**H_20 Elevation**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(feet)*
5/20/2010	904	35.79	6.80	21.45	0.666	4.41	-9.6	1231.19
5/27/2010		38.00	7.26	22.39	0.485	4.92	-76.5	1228.98
6/4/2010	1647	38.51	6.86	22.07	0.631	6.51	-68.9	1228.47
6/11/2010	1212	38.87	7.05	22.63	0.611	6.10	-76.6	1228.11
6/16/2010	1403	39.66	6.77	22.56	0.615	5.00	-58.6	1227.32
6/23/2010	915	40.34	7.10	22.22	0.496	6.10	3.4	1226.64
6/29/2010	1109	40.62	7.03	22.27	0.543	5.54	-57.1	1226.36
7/7/2010	1555	41.45	6.94	24.17	0.591	5.14	-46.7	1225.53
7/14/2010	927	44.28	5.71	21.07	0.579	2.43	-50.7	1222.70
7/23/2010	1125	46.60	6.76	21.02	0.543	3.85	47.1	1220.38
7/29/2010	1050	47.31	6.43	21.14	0.321	5.22	-8.4	1219.67
8/2/2010	1000	48.05	7.00	21.18	0.492	5.50	8.7	1218.93
8/9/2010	935	48.95	6.79	21.20	0.583	4.50	4.5	1218.03
8/18/2010	1047	49.90	6.85	21.12	0.342	4.92	34.8	1217.08
8/26/2010	1058	50.56	6.80	20.98	0.339	6.17	25.4	1216.42
9/2/2010	1620	50.95	7.05	21.27	0.346	4.40	25.4	1216.03
9/10/2010	1428	38.88	6..39	20.95	0.339	4.74	73.9	1228.10
9/17/2010	1147	39.46	6.37	20.98	0.338	4.84	35.6	1227.52
9/23/2010	1215	39.28	6.19	21.03	0.563	4.90	121.4	1227.70
9/29/2010	1105	39.00	6.08	20.95	0.582	4.65	151.4	1227.98
10/7/2010	1348	39.75	6.43	20.91	0.387	4.69	47.2	1227.23
10/13/2010	1117	40.84	6.97	20.85	0.296	5.60	44.2	1226.14
10/22/2010	1015	46.18	7.08	20.94	0.532	5.12	124.9	1220.80
10/28/2010	1025	47.90	7.19	20.93	0.561	6.25	116.7	1219.08
11/4/2010	1330	49.21	7.12	20.93	0.554	3.84	130.1	1217.77
11/11/2010	1415	49.98	6.98	20.96	0.577	3.85	106.2	1217.00
11/19/2010	930	50.88	6.91	20.75	0.415	3.24	56.8	1216.10
11/23/2010	1122	50.98	6.92	20.96	0.407	2.94	37.6	1216.00
12/1/2010	1340	51.87	6.92	20.81	0.368	3.92	111.5	1215.11
12/15/2010	1235	40.04	6.90	20.58	0.630	4.18	45.1	1226.94
12/23/2010	1044	39.93	6.90	20.83	0.515	3.42	168.3	1227.05
1/20/2011	940	40.00	6.97	20.89	0.484	4.32	143.7	1226.98
2/25/2011	1100	52.70	7.17	20.74	0.377	3.94	173.1	1214.28
3/24/2011	1057	54.13	6.90	20.87	0.560	3.53	45.8	1212.85
4/26/2011	1440	54.69	6.92	20.92	0.448	3.18	24.3	1212.29
5/20/2011	1156	55.27	6.81	20.99	0.543	2.36	-8.7	1211.71

Table 16.7.1

SWMU B-3 Shallow UGR Well - Field Measurement Data

May 2010 - April 2011

B3-MW-33								
Elev (ft. MSL)	***1249.55***	Total Depth:	29.55 *feet BTOC*					
Sample Date	**Sample Time**	**Depth to H_20**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**H_20 Elevation**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(feet)*
5/20/2010	915	17.94	6.72	20.31	0.526	5.21	-3.1	1231.61
5/27/2010		20.15	7.23	21.93	0.409	5.22	-74.5	1229.40
6/4/2010	1700	20.66	6.76	21.04	0.578	6.23	-70.8	1228.89
6/11/2010	1223	21.05	7.00	21.60	0.574	5.49	-71.8	1228.50
6/16/2010	1410	22.55	6.67	21.06	0.604	5.52	-56.5	1227.00
6/23/2010	1040	23.37	6.87	22.63	0.618	4.10	-13.7	1226.18
6/29/2010	1113	23.67	6.78	21.29	0.619	3.70	-57.0	1225.88
7/7/2010	1605	23.88	6.74	23.75	0.631	3.57	-45.8	1225.67
7/14/2010	935	23.85	6.89	20.26	0.641	3.03	95.5	1225.70
7/23/2010	1118	24.49	6.90	20.30	0.648	2.04	20.9	1225.06
7/29/2010	1102	24.50	6.72	20.28	0.393	1.29	113.4	1225.05
8/2/2010	1030	24.48	6.64	20.27	0.587	1.28	77.0	1225.07
8/9/2010	946	24.88	6.75	20.78	0.704	1.29	97.3	1224.67
8/18/2010	1056	24.64	6.72	20.32	0.432	1.73	103.8	1224.91
8/26/2010	1043	24.62	6.70	20.42	0.421	1.41	-4.6	1224.93
9/2/2010	1605	24.71	6.76	21.36	0.422	1.14	71.4	1224.84
9/10/2010	1415	21.17	6.49	20.54	0.427	1.28	9.3	1228.38
9/17/2010	1130	23.38	6.74	20.58	0.428	0.57	-112.7	1226.17
9/23/2010	1223	23.31	6.82	20.50	0.715	0.60	-116.2	1226.24
9/29/2010	1117	21.40	6.84	20.77	0.648	3.50	113.1	1228.15
10/7/2010	1358	23.42	6.75	20.61	0.470	0.49	-39.5	1226.13
10/13/2010	1128	23.74	6.80	20.65	0.402	1.22	-2.0	1225.81
10/22/2010	1050	24.13	6.88	20.61	0.717	0.34	-174.7	1225.42
10/28/2010	1033	24.25	6.89	20.59	0.720	0.61	65.1	1225.30
11/4/2010	1320	24.26	6.71	21.89	0.003	5.45	265.1	1225.29
11/11/2010	1401	24.31	6.77	20.75	0.701	0.50	-235.5	1225.24
11/19/2010	941	24.30	6.89	20.62	0.490	0.55	32.0	1225.25
11/23/2010	1134	24.30	6.79	20.80	0.479	0.66	34.4	1225.25
12/1/2010	1352	24.43	6.37	20.19	0.020	5.03	210.1	1225.12
12/15/2010	1220	23.69	6.64	21.19	0.879	0.39	-246.7	1225.86
12/23/2010	1102	23.49	6.88	20.95	0.589	0.75	133.7	1226.06
1/20/2011	1000	22.98	6.91	20.74	0.571	0.85	5.2	1226.57
2/25/2011	1035	23.50	6.91	20.77	0.492	0.23	-10.5	1226.05
3/24/2011	1101	24.24	6.73	20.77	0.677	1.43	33.0	1225.31
4/26/2011	1510	24.52	6.67	20.57	0.545	1.40	63.1	1225.03
5/20/2011	1140	26.84	6.68	20.57	0.676	0.97	21.9	1222.71

Table 16.7.1

SWMU B-3 Shallow UGR Well - Field Measurement Data

May 2010 - April 2011

B3-MW-34								
Elev (ft. MSL)	***1244.51***	Total Depth:	25.40 *feet BTOC*					
Sample Date	**Sample Time**	**Depth to H_20**	**pH**	**Temperature**	**Specific Conductivity**	**Dissolved Oxygen**	**ORP**	**H_20 Elevation**
		(feet BTOC)		*(°C)*	*(m-mho/cm)*	*(mg/L)*	*(eV)*	*(feet)*
5/20/2010	923	13.70	6.48	19.92	0.739	2.88	-24.5	1230.81
5/27/2010		15.36	7.18	23.90	0.557	2.98	-83.2	1229.15
6/4/2010	1515	16.05	6.78	22.84	0.789	3.86	-74.4	1228.46
6/11/2010	1230	16.70	6.83	21.85	0.706	1.50	-71.2	1227.81
6/16/2010	1420	17.54	6.50	21.39	0.691	1.03	-56.3	1226.97
6/23/2010	1100	18.32	6.75	21.50	0.710	1.21	-47.7	1226.19
6/29/2010	1117	18.62	6.61	21.27	0.716	1.27	-79.9	1225.89
7/7/2010	1620	18.41	6.60	23.76	0.775	1.98	-49.5	1226.10
7/14/2010	941	18.84	6.48	20.60	0.766	0.27	-137.9	1225.67
7/23/2010	1100	19.29	6.63	20.64	0.766	0.52	-192.8	1225.22
7/29/2010	1111	19.40	6.48	20.64	0.458	0.33	-141.8	1225.11
8/2/2010	1100	19.38	6.57	20.80	0.680	0.40	-219.1	1225.13
8/9/2010	957	19.47	6.47	20.77	0.800	0.55	-234.7	1225.04
8/18/2010	1030	19.53	6.27	20.81	0.482	0.88	-185.5	1224.98
8/26/2010	1030	19.57	6.12	20.74	0.486	0.29	-206.3	1224.94
9/2/2010	1515	19.53	6.45	20.75	0.466	0.17	-223.5	1224.98
9/10/2010	1400	18.55	6.42	20.87	0.488	0.61	-255.8	1225.96
9/17/2010	1115	18.43	6.26	20.82	0.485	0.37	257.0	1226.08
9/23/2010	1237	18.40	6.28	22.82	0.055	4.64	-195.1	1226.11
9/29/2010	1128	18.01	6.76	21.23	0.781	0.61	-210.9	1226.50
10/7/2010	1404	18.45	6.66	21.07	0.529	0.43	-213.1	1226.06
10/13/2010	1137	18.75	6.65	21.07	0.462	0.75	-198.0	1225.76
10/22/2010	1500	19.08	6.78	25.00	0.547	1.73	-122.7	1225.43
10/28/2010	1040	19.23	6.78	21.20	0.783	0.49	-192.8	1225.28
11/4/2010	1222	19.26	6.80	21.16	0.769	0.48	-119.4	1225.25
11/11/2010	1325	19.29	6.69	21.25	0.785	0.40	-235.5	1225.22
11/19/2010	855	19.31	6.79	21.23	0.532	0.48	-94.2	1225.20
11/23/2010	1142	19.34	6.71	21.29	0.527	0.34	-184.0	1225.17
12/1/2010	1407	19.34	6.04	20.93	0.221	2.43	213.6	1225.17
12/15/2010	1205	18.72	6.86	20.77	0.148	0.68	-155.2	1225.79
12/23/2010	1112	18.56	6.68	21.78	0.658	0.40	60.7	1225.95
1/20/2011	1020	18.04	6.63	17.92	0.002	7.78	238.3	1226.47
2/25/2011	935	18.40	6.76	21.42	0.578	0.27	-201.9	1226.11
3/24/2011	1117	19.25	6.59	21.14	0.754	0.49	-112.2	1225.26
4/26/2011	1015	19.58	6.61	21.02	0.543	0.27	-28.7	1224.93
5/20/2011	1110	19.56	6.62	20.97	0.635	0.27	-100.2	1224.95