ANL/EVS/AGEM/TR-10-07

Argonne NATIONAL LABORATORY

Annual Report of Groundwater Monitoring at Centralia, Kansas, in 2009

Environmental Science Division

USDA United States Department of Agriculture

Work sponsored by Commodity Credit Corporation,
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by
Applied Geosciences and Environmental Management Section
Environmental Science Division, Argonne National Laboratory

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Contents

Tables

Figures

Notation

AGEM	Applied Geosciences and Environmental Management
AMSL	above mean sea level
BGL	below ground level
°C	degree(s) Celsius
CAS	Corrective Action Study
CCC	Commodity Credit Corporation
COC	chain of custody
DO	dissolved oxygen
EPA	U.S. Environmental Protection Agency
ft	foot (feet)
IM	interim measure
in.	inch(es)
ISCR	*in situ* chemical reduction
KDHE	Kansas Department of Health and Environment
L	liter(s)
µg/L	microgram(s) per liter
µS/cm	microsiemen(s) per centimeter
mg/L	milligram(s) per liter
mi	mile(s)
mV	millivolt(s)
ORP	oxidation-reduction potential
RBSL	risk-based screening level
TOC	top of casing
USDA	U.S. Department of Agriculture
VOC	volatile organic compound

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1 Introduction and Background

In September 2005, periodic sampling of groundwater was initiated by the Commodity Credit Corporation of the U.S. Department of Agriculture (CCC/USDA) in the vicinity of a grain storage facility formerly operated by the CCC/USDA at Centralia, Kansas. The sampling at Centralia is being performed on behalf of the CCC/USDA by Argonne National Laboratory, in accord with a monitoring program approved by the Kansas Department of Health and Environment (KDHE). The objective is to monitor levels of carbon tetrachloride contamination identified in the groundwater at Centralia (Argonne 2003, 2004, 2005a).

Under the KDHE-approved monitoring plan (Argonne 2005b), the groundwater was sampled twice yearly from September 2005 until September 2007 for analyses for volatile organic compounds (VOCs), as well as measurement of selected geochemical parameters to aid in the evaluation of possible natural contaminant degradation (reductive dechlorination) processes in the subsurface environment. The results from the two-year sampling program demonstrated the presence of carbon tetrachloride contamination at levels exceeding the KDHE Tier 2 risk-based screening level (RBSL) of 5 μg/L for this compound in a localized groundwater plume that has shown little movement. The relative concentrations of chloroform, the primary degradation product of carbon tetrachloride, suggested that some degree of reductive dechlorination or natural biodegradation was talking place *in situ* at the former CCC/USDA facility on a localized scale.

The CCC/USDA subsequently developed an *Interim Measure Conceptual Design* (Argonne 2007b), proposing a pilot test of the Adventus EHC technology for *in situ* chemical reduction (ISCR). The proposed interim measure (IM) was approved by the KDHE in November 2007 (KDHE 2007). Implementation of the pilot test occurred in November-December 2007. The objective was to create highly reducing conditions that would enhance both chemical and biological reductive dechlorination in the injection test area (Argonne 2009a).

The KDHE (2008a) has requested that sitewide monitoring continue at Centralia until a final remedy has been selected (as part of a Corrective Action Study [CAS] evaluation) and implemented for this site. In response to this request, twice-yearly sampling of 10 monitoring wells and 6 piezometers (Figure 1.1) previously approved by the KDHE for monitoring of the

groundwater at Centralia (KDHE 2005a,b) was continued in 2008. The sampling events under this extension of the two-year (2005-2007) monitoring program occurred in March and September 2008 (Argonne 2008b, 2009b). Additional piezometers specifically installed to evaluate the progress of the IM pilot test (PMP1-PMP9; Figure 1.2) were also sampled in 2008; the results of these analyses were reported and discussed separately (Argonne 2009a).

On the basis of results of the 2005-2008 sitewide monitoring and the 2008 IM pilot test monitoring, the CCC/USDA recommended a revised sampling program to address both of the continuing monitoring objectives until a CAS for Centralia is developed (Section 4.2 in Argonne 2009b). The elements of this *interim monitoring plan* are as follows:

- Annual sampling of
    - Twelve previously established (before the pilot test) monitoring points (locations identified in Figure 1.3) and
    - The five outlying pilot test monitoring points (PMP4, PMP5, PMP6, PMP7, PMP9; Figure 1.4).
- Sampling twice yearly at the five pilot test monitoring points inside the injection area (PMP1-PMP3, PMP8, MW02; Figure 1.4).

With the approval of the KDHE (2009), groundwater sampling for analyses of VOCs and selected other geochemical parameters was conducted at Centralia under the interim monitoring program outlined above in April and October 2009. This report documents the findings of the 2009 monitoring events.

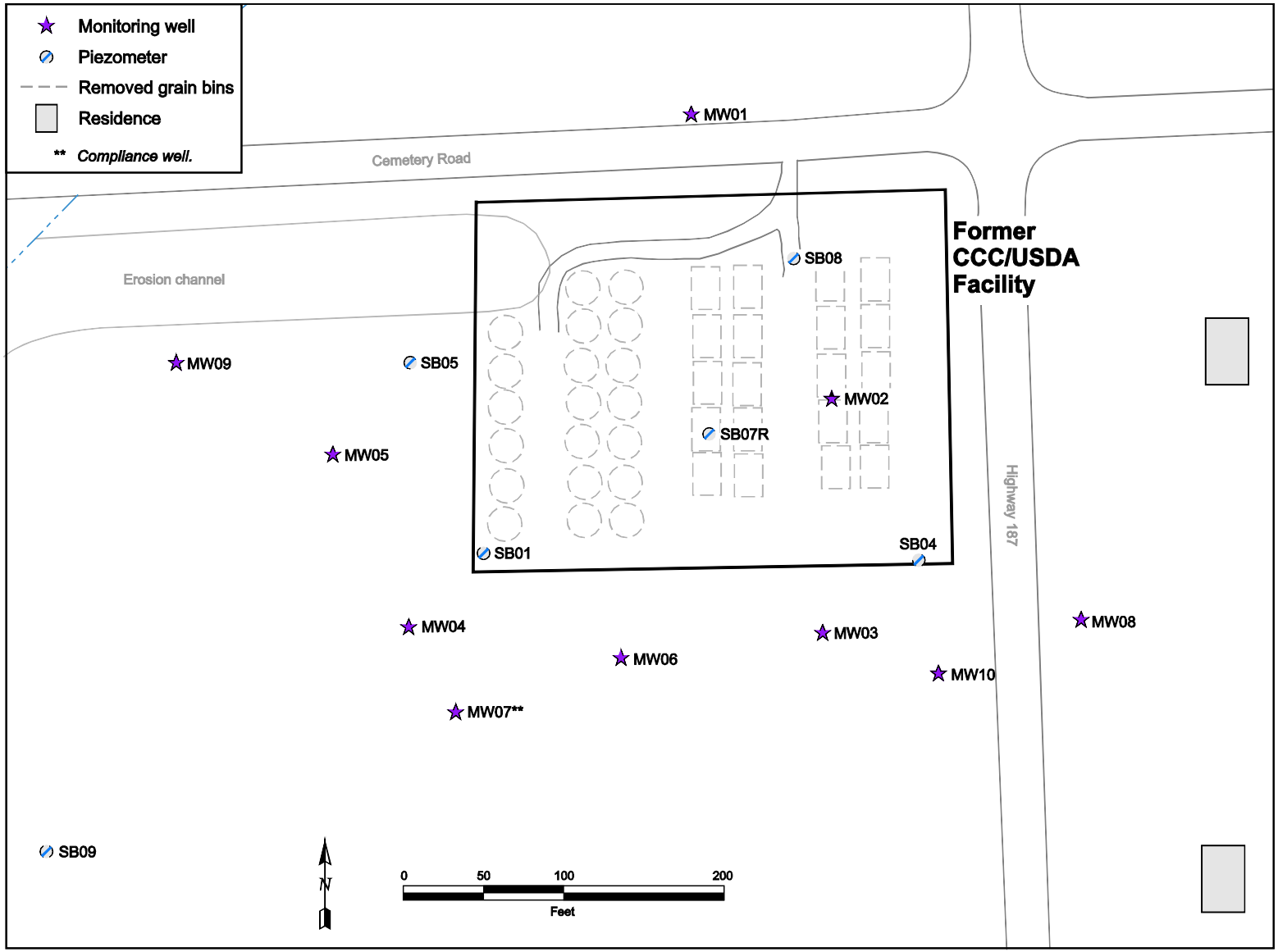

FIGURE 1.1 Approved sitewide monitoring network at Centralia, 2004 to 2008.

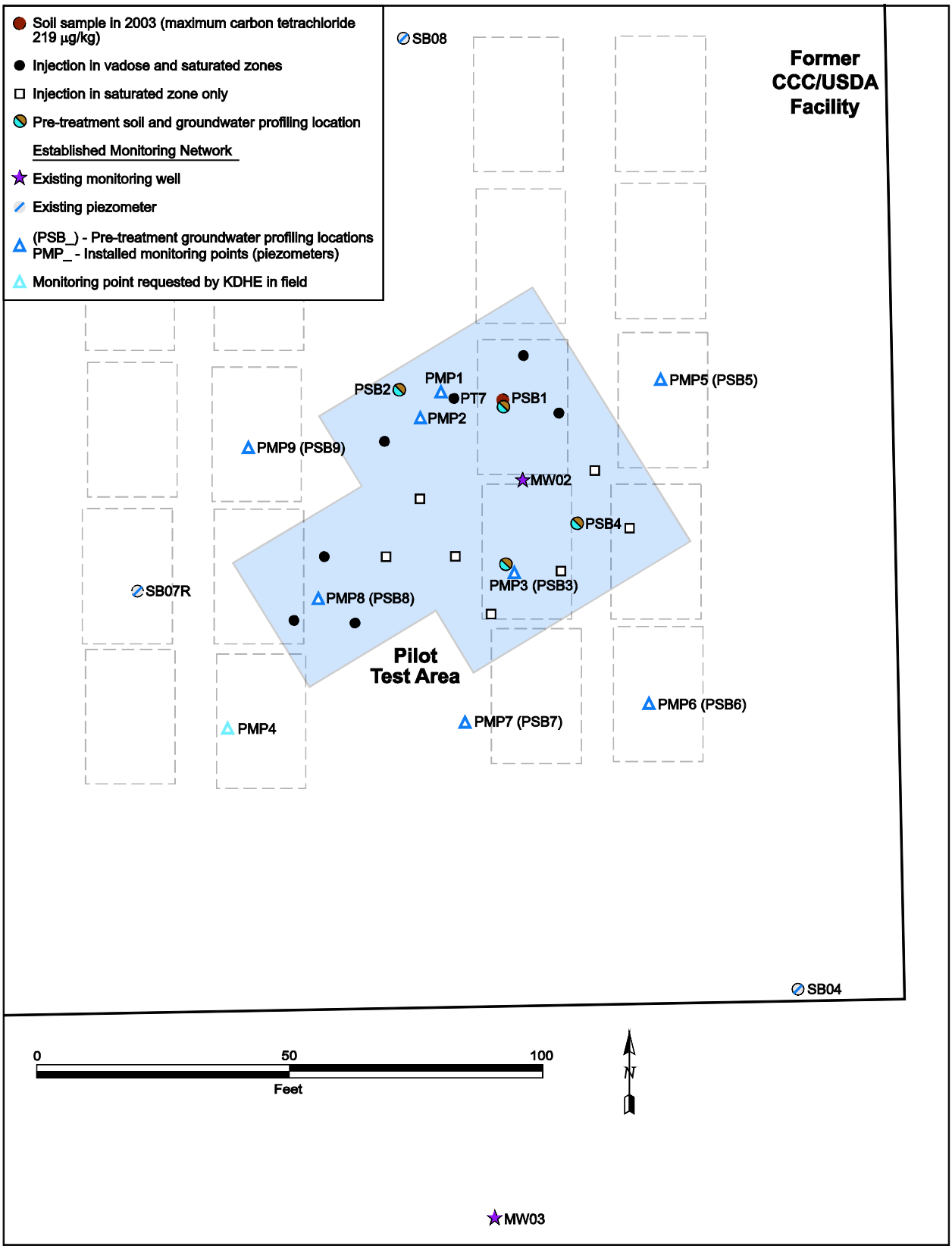

FIGURE 1.2 Locations of IM pilot test injection points and post-injection groundwater monitoring points PMP1-PMP9.

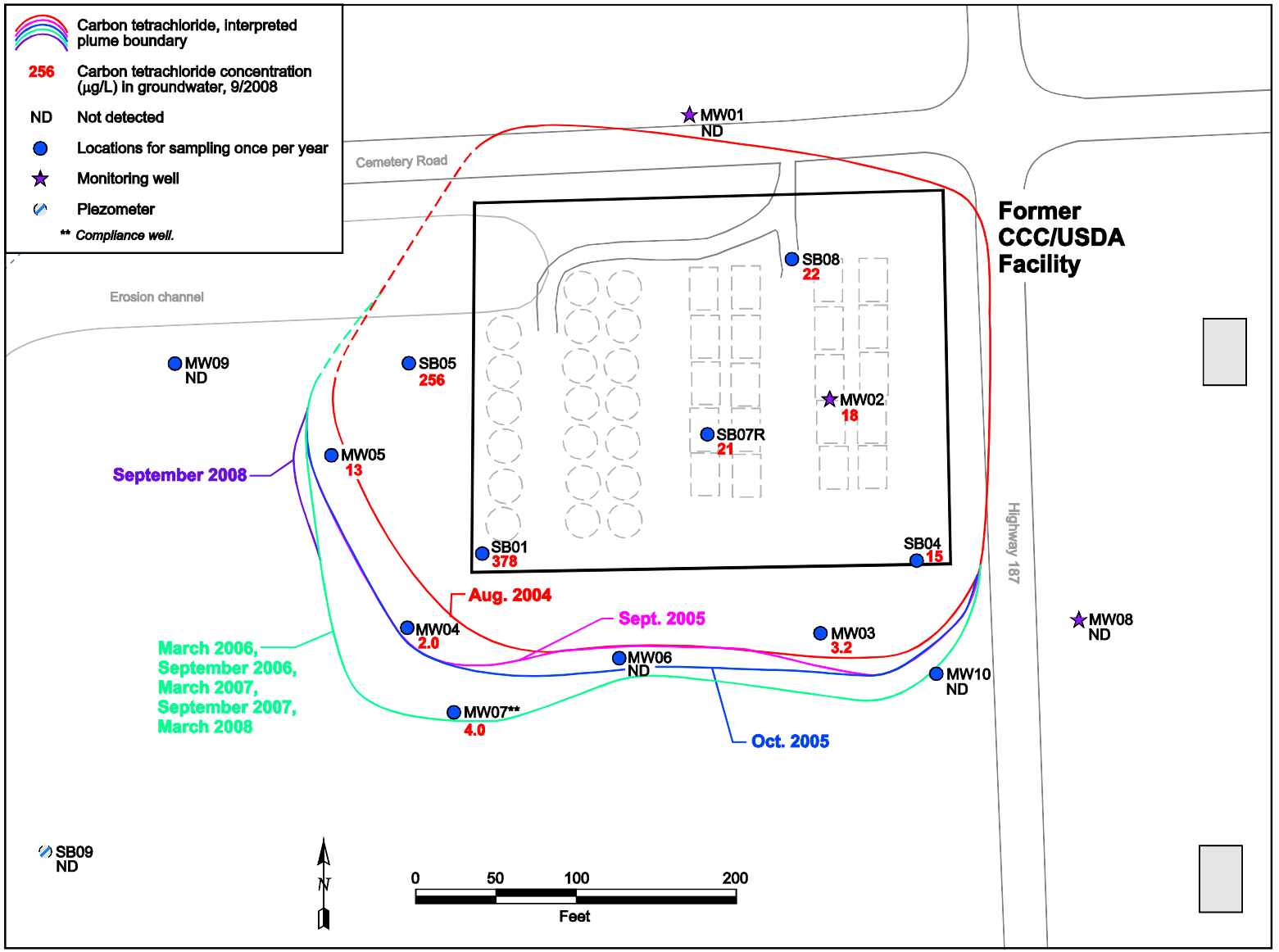

FIGURE 1.3 Previously established (before the IM pilot test) sitewide monitoring points selected for continued annual sampling under the KDHE-approved interim monitoring plan (Section 4.2 in Argonne 2009b).

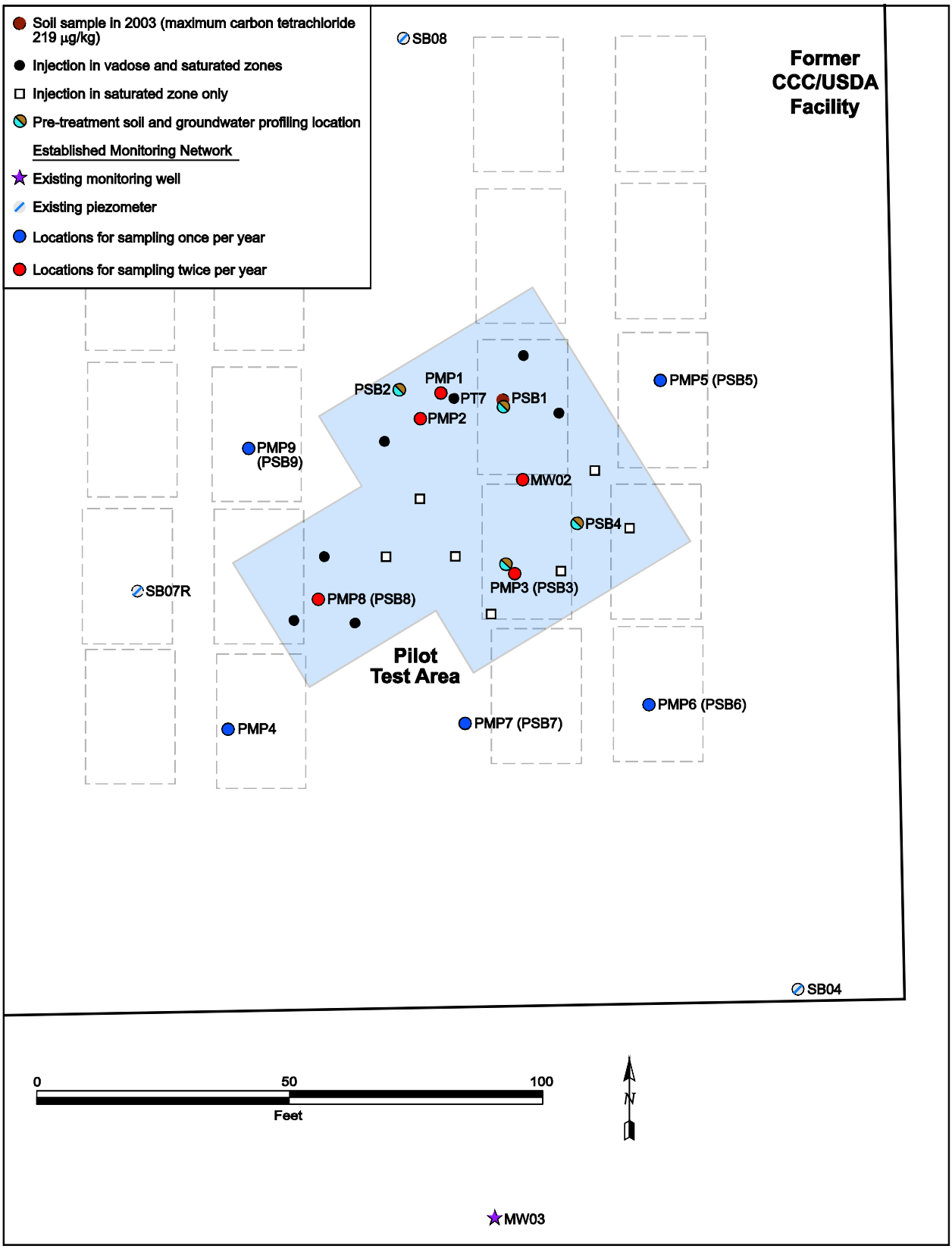

FIGURE 1.4 Pilot test monitoring points selected for continued annual or twice-yearly sampling under the KDHE-approved interim monitoring plan (Section 4.2 in Argonne 2009b).

2 Sampling and Analysis Activities

2.1 Measurement of Groundwater Levels

Pilot test monitoring points PMP1-PMP3, PMP8, and MW02 (Figure 1.4) were sampled on April 22, 2009. Pilot test monitoring points PMP1-PMP9 and MW02 (Figure 1.4) and sitewide monitoring points MW03-MW07, MW09, MW10, SB01, SB04, SB05, SB07R, and SB08 (Figure 1.3) were sampled on October 6-8, 2009. Before each well or piezometer was sampled, a water level indicator was used to measure the depth to groundwater and the total depth of each well from the top of the well casing.

Downhole pressure sensors equipped with automatic data loggers are currently installed in wells MW01 and MW03-MW06 to gather long-term data on the groundwater elevation and gradient at Centralia. The recorded water level data for the 2009 observation period were retrieved from the loggers on January 21 and August 27, 2009, and on April 28, 2010. Water levels were measured manually during the current (2009) review period in selected wells in conjunction with the data downloads on January 21 and August 27, 2009.

The groundwater level data are presented and discussed in Section 3.1.

2.2 Monitoring Well and Piezometer Sampling and Analyses

After measurement of water levels, each monitoring point was purged of a small volume by using a bladder pump or a Waterra pump. With the approval of the KDHE (2008b), the purging was performed by using low-flow techniques in accord with U.S. Environmental Protection Agency (EPA) procedure EPA/540/S-95/504 (Puls and Barcelona 1996) and the equipment manufacturers' instructions. Field measurements of temperature, pH, conductivity, dissolved oxygen (DO), and oxidation reduction potential (ORP) were taken during purging until the measurements stabilized. Field measurements of iron(II) and carbon dioxide were made as outlined in the (2005-2007) monitoring plan (Argonne 2005b), in accord with procedures in the *Master Work Plan* (Argonne 2002). The sequence of activities during each of the 2009 sampling events (in April and October) is summarized in Appendix A.

Groundwater samples designated for VOCs analyses were collected in appropriate laboratory containers, labeled, packaged, and chilled to 4°C by placement in ice-filled coolers.

The samples were shipped by an overnight delivery service to the Applied Geosciences and Environmental Management (AGEM) Laboratory at Argonne for VOCs analyses by EPA Method 524.2 (EPA 1995). Aliquots of selected samples (chosen in the field) were also shipped to TestAmerica Laboratories, Inc., South Burlington, Vermont, for verification VOCs analyses.

The analytical results for groundwater samples are discussed in Section 3.2.

2.3 Handling and Disposal of Investigation-Derived Waste

The small volumes of purge water generated during each of the 2009 sampling events (April and October) were containerized on-site. Samples of the combined waters were analyzed by a KDHE-certified laboratory (Pace Analytical Services, Inc., Lenexa, Kansas) and found to be free of carbon tetrachloride, chloroform, 1,2 dibromoethane, and nitrate at levels exceeding the KDHE Tier 2 RBSL values for these compounds. With the approval of the KDHE, the accumulated purge water was taken to the Sabetha, Kansas, publicly owned treatment works on November 18, 2009, for disposal. Documentation of the purge water analyses and disposal is in Appendix B.

2.4 Quality Control for Sample Collection, Handling, and Analysis

Quality assurance/quality control procedures followed during the April and October 2009 monitoring events are described in detail in the *Master Work Plan* (Argonne 2002). The results are summarized as follows:

- Sample collection and handling activities were monitored by the documentation of samples as they were collected and the use of chain-of-custody forms and custody seals to ensure sample integrity during handling and shipment.

- Samples designated for VOCs analyses were received with custody seals intact and at the appropriate preservation temperature. All samples were analyzed within the required holding times.

- Quality control samples collected to monitor sample collection and handling activities included equipment rinsates and trip blanks. In addition, method blanks

were analyzed with the samples to monitor analytical methodologies. All quality control samples analyzed at the AGEM Laboratory were free of carbon tetrachloride and chloroform contamination.

- Groundwater samples were analyzed for VOCs at the AGEM Laboratory with the purge-and-trap method on a gas chromatograph-mass spectrometer system. Calibration checks with each sample delivery group were required to be within ±20% of the standard. Surrogate standard determinations performed on samples and blanks were within the specified range of 80-120% for all samples, in either the initial analysis or a successful reanalysis.

- In accordance with the quality control procedures defined in the *Master Work Plan* (Argonne 2002), the analyses of water samples at the AGEM Laboratory were verified by a second laboratory. Two groundwater samples collected during the April 2009 monitoring event (from MW02 and PMP8) and three samples from the October 2009 event (from MW05, MW10, and PMP8) were submitted for verification organic analysis according to EPA Contract Laboratory Program methodology by TestAmerica. Results showed good agreement over the range of contaminant concentrations detected, with average relative percent difference values of 24% for carbon tetrachloride and 11% for chloroform. The detection of methylene chloride, a secondary dechlorination by-product of carbon tetrachloride, was confirmed in the verification analyses. Summary pages for the verification organic analyses by TestAmerica for the samples collected on April 22 and October 6-8, 2009 are in Appendix C.

3 Results and Discussion

3.1 Groundwater Level Data

Depths to groundwater were measured manually in each of the wells sampled during the monitoring events on April 22 and October 6-8, 2009. Water levels were also measured manually in conjunction with the data logger downloads performed during the current (2009) review period on January 21 and August 27, 2009. The hand-measured water level data are in Table 3.1.

Hydrographs depicting the variations in water levels in monitored wells MW01 and MW03-MW06 during the current (2009) and previous (2008) review periods are in Figure 3.1. The data logger that was formerly in well MW02 was removed in January 2008 because of corrosion, and its trace appears only briefly in Figure 3.1. The water level traces are shown in conjunction with daily precipitation data obtained from the Kansas State University recording weather station in Powhattan, Kansas, approximately 26 mi east of Centralia (http://wdl.agron.ksu.edu/). Figure 3.1 indicates that the groundwater levels at Centralia have fluctuated by approximately 2-4 ft in response to both seasonal and shorter-term rainfall events but showed little net change in 2008-2009. The pronounced, transient water level "spikes" indicated in the hydrograph for monitoring well MW06 are believed to reflect localized flooding at the location of this (flush-mounted) monitoring well that occurs during heavy rainfall events, particularly in the spring and early summer.

The potentiometric surface at Centralia, interpreted from manual measurements on August 27, 2009, is depicted in Figure 3.2. The recent results are consistent with previous measurements (Argonne 2006, 2007a, 2008a,b, 2009b), indicating an apparent groundwater flow direction toward the southwest across much of the former CCC/USDA facility. Like previous depictions of the potentiometric surface, Figure 3.2 indicates that groundwater flow appears focused toward a localized low in the potentiometric surface, defined by the water level measurements at SB01, MW04, MW06, and MW07. Argonne's earlier investigations (Argonne 2003, 2004) suggested that the increased hydraulic gradients observed near these wells are a reflection of relatively low-permeability silts and clays that compose the aquifer unit in this portion of the study area, in comparison to the coarser-grained deposits identified in the northern and eastern portions of the site. The results of the sitewide groundwater analyses discussed in Section 3.2.1 support an interpretation of slow groundwater flow (and carbon tetrachloride migration) to the south-southwest, in keeping with the observed water level patterns.

3.2 Groundwater Analysis Results

As outlined in Section 1, groundwater sampling and VOCs analyses were conducted from 2005 to 2008 in a network of 16 monitoring points (Figures 1.1) distributed across the investigation area at Centralia. The data from these locations were used to track the natural changes in the concentrations and areal extent of the carbon tetrachloride contamination in groundwater. In October 2009, groundwater sampling was performed, with the approval of the KDHE (2009), in a more limited suite of 12 monitoring points (Figure 1.3) to continue sitewide monitoring of the carbon tetrachloride distribution at Centralia.

In January 2008, 9 additional piezometers (PMP1-PMP9; Figure 1.2) were installed to facilitate more detailed monitoring of the effects of the ISCR treatment technology on the groundwater geochemistry and contaminant distribution in the immediate vicinity of the IM pilot test injection area (Argonne 2009a). Sampling for further assessment of the impacts of the ISCR pilot treatment was conducted in April and October 2009, in accord with the interim monitoring plan (Section 4.2 in Argonne 2009b).

The results of these monitoring efforts are summarized, respectively, in Section 3.2.1 and Section 3.2.2.

3.2.1 Sitewide Monitoring Results

The analytical data for VOCs in the groundwater samples collected in the network of sitewide monitoring wells in October 2009 are in Table 3.2, together with data for the previous sampling events at Centralia since sampling of the monitoring wells began in 2004. The October 2009 data for carbon tetrachloride are illustrated in Figure 3.3, along with the lateral margins of the contaminant distribution, as interpreted on the basis of each of the sitewide groundwater sampling events summarized in Table 3.2.

Carbon tetrachloride was detected in October 2009 at 9 of the 12 approved sitewide monitoring locations (KDHE 2009) on and downgradient from the former CCC/USDA facility (Figure 3.3), at concentrations ranging from 2.9 μg/L (at MW04) to a maximum of 396 μg/L (at SB01). Chloroform concentrations ranging from < 1 μg/L to 19 μg/L were detected at 7 of the 12 sampled locations (Table 3.2).

The carbon tetrachloride concentrations identified in the sitewide monitoring wells in October 2009 were generally consistent with previous measurements; however, the concentrations at all of the sampled points having detectable carbon tetrachloride showed a slight increase relative to the most recent previous (September 2008) monitoring results. The data in Table 3.2 and Figure 3.3 continue to indicate the longer-term trends (observed previously) of slightly increasing carbon tetrachloride levels at monitoring points SB05, MW03, MW04, and MW07, along the western and southern margins of the groundwater plume and in the apparent direction of groundwater flow.

The results of field measurements on the groundwater samples from wells in the sitewide monitoring network are summarized in Table 3.3. The detection of trace to relatively low levels of chloroform in association with the carbon tetrachloride identified at monitoring points MW05, MW07, SB01, SB04, SB05, SB07R, and SB08 (Table 3.2) suggests that some degradation of carbon tetrachloride is occurring at these locations. With only one possible exception (at MW06), however, the relatively high DO concentrations (1.42-9.66 mg/L) and positive ORP levels (53 mV to 238 mV) identified at the sitewide monitoring points (Table 3.3) do not support the widespread occurrence of anaerobic reducing conditions within the Centralia aquifer.

3.2.2 Monitoring Results for the IM Pilot Test Area

Baseline groundwater sampling was conducted within and adjacent to the IM pilot test area (Figure 1.2) in September and November 2007, prior to the injection of the ISCR materials, to provide a basis for assessment of the ISCR treatment technology over time. The pre-treatment concentrations of carbon tetrachloride and the values of DO and ORP identified during this sampling (Argonne 2009a) are illustrated in Figures 3.4-3.6, respectively.

Injection of the ISCR materials (in December 2007) initially generated extremely reducing, oxygen-depleted groundwater conditions (conducive to the reductive dechlorination of carbon tetrachloride) within the injection field, while less dramatic reductions in DO and ORP were observed at monitoring points outside the treatment area. The extremely low DO and ORP levels were, however, maintained for only approximately 5-7 weeks after injection. Subsequent monitoring in 2008 (Argonne 2009a,b) demonstrated that the DO and ORP levels within the injection field remained consistently lower than those at monitoring points outside the injection area, but the results showed no clear indication of further geochemical effects beyond the limits of the injection field.

Reductions of 96-99% in the concentrations of carbon tetrachloride in groundwater within the injection field and of 20-70% at most monitoring points near the injection area were observed in the first 5-7 weeks after injection. Continued monitoring in 2008 showed that carbon tetrachloride concentrations in the injection field generally remained near the initial post-injection levels or decreased slightly more, while the concentrations at points bordering or outside the injection area showed little consistency and variably decreased, increased, or remained relatively unchanged (Argonne 2009a) after the initial 5-7 weeks following the injection.

The analytical data for VOCs in the groundwater samples collected from the IM pilot test monitoring points (PMP1-PMP9 and MW02; Figure 1.4) in April and October 2009 are in Table 3.4, together with data for the most recent previous sampling event (September 2008) at these locations. The corresponding field measurements for these locations and sampling events are in Table 3.5. Time series diagrams summarizing the complete sequence of analysis results for selected parameters (carbon tetrachloride, chloroform, methylene chloride, DO, ORP) at each IM monitoring point since the ISCR pilot test was implemented in November 2007 are in Appendix D, Figures D.1-D.10.

Carbon tetrachloride was detected at each of the points sampled in the pilot test area during the April and October 2009 monitoring events, except for monitoring well MW02 (Table 3.4). In April 2009, carbon tetrachloride concentrations ranging from 3.2 μg/L to 1,398 μg/L were identified at PMP1-PMP3 and PMP8. In October 2009, concentrations ranging from < 1 μg/L (at PMP3) to 1,384 μg/L (at PMP2) were detected at piezometers PMP1-PMP9.

The results of the September 2008 and October 2009 analyses for carbon tetrachloride are illustrated in Figure 3.7. The data indicate that, except for location PMP1, the carbon tetrachloride concentrations in groundwater in the pilot test injection field (shaded area in Figure 3.8) continued to decrease during the 2009 review period. This observation is qualitatively consistent with the DO concentrations and ORP levels identified in the pilot test area in 2009 (Table 3.5 and Figures 3.8 and 3.9, respectively), which indicate that oxygen-depleted, chemically reducing conditions were maintained in the injection field throughout the present review period.

Relatively high and persistent levels of chloroform (relative to carbon tetrachloride; Table 3.4 and Appendix D) were also observed at PMP1-PMP9 during the current review period,

and low levels of methylene chloride were detected at four of the pilot test monitoring locations (PMP2, PMP5, PMP7, PMP8) in the October 2009 sampling event. Together, these findings confirm that geochemical conditions favorable to the degradation of carbon tetrachloride, via reductive dechlorination, persist in the pilot test area as a result of the November 2007 ISCR injections.

Figures 3.8 and 3.9 indicate that DO and ORP values decreased from September 2008 to October 2009 at monitoring points PMP4, PMP7, and PMP9 to the southwest and downgradient of the pilot test injection field, and also at nearby point PMP6 (to the southeast). Slightly lower concentrations of carbon tetrachloride were also identified at the PMP4 and PMP7 locations in October 2009 (Figure 3.7). These relationships are empirically consistent with possible slow expansion of the range of influence of the ISCR treatment technology with time. Additional monitoring in the pilot test area will be necessary, however, to substantiate these observations, as increased carbon tetrachloride concentrations were observed in the apparent direction of groundwater flow at PMP9 and nearby monitoring point SB07R (see Section 3.2.1 and Table 3.2) during the current review period, as well as at PMP6 and more upgradient monitoring points PMP1 and PMP5.

TABLE 3.1 Hand-measured water levels at Centralia in January, April, August, and October 2009.

		January 21, 2009		April 22, 2009[a]		August 27, 2009		October 6-8, 2009[a]	
Well	Top of Casing Elevation[b] (ft AMSL)	Depth to Groundwater[c] (ft TOC)	Groundwater Elevation (ft AMSL)	Depth to Groundwater (ft TOC)	Groundwater Elevation (ft AMSL)	Depth to Groundwater (ft TOC)	Groundwater Elevation (ft AMSL)	Depth to Groundwater (ft TOC)	Groundwater Elevation (ft AMSL)
MW01	1329.17	13.19	1315.98			11.35	1317.82	10.31	1318.86
MW02	1334.67			20.8	1313.87	20.07	1314.60	20.98	1313.69
MW03	1334.51	21.37	1313.14			19.93	1314.58	20.43	1314.08
MW04	1322.57	24.53	1298.04			22.92	1299.65	23.75	1298.82
MW05	1317.97	10.44	1307.53			8.15	1309.82	11.98	1305.99
MW06	1329.63	36.80	1292.83			35.15	1294.48	36.23	1293.40
MW07	1324.76					26.48	1298.28	27.97	1296.79
MW08	1332.34					17.77	1314.57	18.85	1313.49
MW09	1310.41					0.47	1309.94	3.92	1306.49
MW10	1334.39					19.75	1314.64	20.59	1313.80
SB01	1325.15					17.76	1307.39	17.42	1307.73
SB04	1335.67					21.02	1314.65	21.73	1313.94
SB05	1321.28					9.11	1312.17	11.12	1310.16
SB07R	1331.57					16.91	1314.66	18.43	1313.14
SB08	1332.48					17.83	1314.65	18.51	1313.97
SB09	1311.07					4.82	1306.25	7.32	1303.75
PMP1	1333.70			20.0	1313.70			21.08	1312.62
PMP2	1333.67			20.0	1313.67			19.84	1313.83
PMP3	1334.57			22.4	1312.17			21.15	1313.42
PMP4	1331.99							18.59	1313.40
PMP5	1335.07							21.73	1313.34
PMP6	1335.19							21.53	1313.66
PMP7	1334.06							20.54	1313.52
PMP8	1332.94			19.4	1313.54			19.87	1313.07
PMP9	1331.83							15.83	1316.00

[a] Measurements made during sampling.

[b] 2009 surveyed elevations.

[c] Depths measured from the top of the casing (TOC).

TABLE 3.2 Analytical results from the AGEM Laboratory for volatile organic compounds in groundwater samples collected at the sitewide monitoring points at Centralia, August 2004 to October 2009.

Well	Screen Interval (ft BGL)	Sample	Sample Date	Concentration[a] (μg/L) Carbon Tetrachloride	Chloroform	Methylene Chloride
MW01	54.5-64.5	CNMW01-W-16158	8/24/04	ND[b]	ND	ND
		CNMW01-W-19276	9/10/05	ND	ND	ND
		CNMW01-W-16308	10/11/05	ND	ND	ND
		CNMW01-W-19890	3/15/06	ND	ND	ND
		CNMW01-W-22501	9/25/06	ND	ND	ND
		CNMW01-W-16326	3/29/07	ND	ND	ND
		CNMW01-W-16228	9/26/07	1.0 R[c]	ND	ND
		CNMW01-W-26023	3/19/08	ND	ND	ND
		CNMW01-W-26673	9/9/08	ND	ND	ND
MW02[d]	49.5-59.5	CNMW02-W-16159	8/26/04	215	6.2	ND
		CNMW02-W-19282	9/11/05	776	33	ND
		CNMW02-W-16309	10/12/05	528	21	ND
		CNMW02-W-19908	3/16/06	847	21	ND
		CNMW02-W-22508	9/26/06	1233	25	ND
		CNMW02-W-15489	3/26/07	829	14	ND
		CNMW02-W-16227	9/26/07	1138	18	ND
MW03	50.5-60.5	CNMW03-W-16178	8/24/04	1.2	ND	ND
		CNMW03-W-19277	9/10/05	1.6	ND	ND
		CNMW03-W-16310	10/11/05	1.8	ND	ND
		CNMW03-W-19909	3/17/06	2.6	0.2 J[e]	ND
		CNMW03-W-22513	9/26/06	2.7	ND	ND
		CNMW03-W-15494	3/27/07	2.5	ND	ND
		CNMW03-W-16223	9/25/07	3.5	ND	ND
		CNMW03-W-26001	3/12/08	2.3	ND	ND
		CNMW03-W-26675	9/9/08	3.2	0.3 J	ND
		CNMW03-W-27151	10/6/09	6.2	ND	ND
MW04	37.5-47.5	CNMW04-W-16180	8/24/04	ND	ND	ND
		CNMW04-W-19280	9/11/05	0.9 J	ND	ND
		CNMW04-W-16311	10/11/05	0.8 J	ND	ND
		CNMW04-W-19891	3/15/06	1.3	ND	ND
		CNMW04-W-22506	9/25/06	1.4	0.1 J	ND
		CNMW04-W-16210	3/28/07	2.1	ND	ND
		CNMW04-W-16220	9/24/07	2.0	ND	ND
		CNMW04-W-26024	3/19/08	1.3	ND	ND
		CNMW04-W-26676	9/9/08	2.0	ND	ND
		CNMW04-W-27152	10/7/09	2.9	ND	ND
MW05	34.5-44.5	CNMW05-W-16183	8/25/04	ND	ND	ND
		CNMW05-W-19279	9/10/05	1.9	ND	ND
		CNMW05-W-16312	10/11/05	1.5	ND	ND
		CNMW05-W-19976	3/15/06	1.3	ND	ND
		CNMW05-W-22505	9/25/06	1.3	ND	ND
		CNMW05-W-16213	3/28/07	0.5 J	ND	ND
		CNMW05-W-16218	9/24/07	1.2	ND	ND
		CNMW05-W-26025	3/19/08	1.9	ND	ND
		CNMW05-W-26677	9/10/08	13	0.7 J	ND
		CNMW05-W-27153	10/7/09	18	1.1	ND

TABLE 3.2 (Cont.)

Well	Screen Interval (ft BGL)	Sample	Sample Date	Concentration (μg/L) Carbon Tetrachloride	Chloroform	Methylene Chloride
MW06	46.5-56.5	CNMW06-W-16184	8/25/04	ND	ND	ND
		CNMW06-W-19278	9/10/05	ND	ND	ND
		CNMW06-W-16313	10/11/05	0.3 J	ND	ND
		CNMW06-W-19889	3/15/06	0.2 J	ND	ND
		CNMW06-W-22511	9/27/06	ND	ND	ND
		CNMW06-W-16208	3/27/07	ND	ND	ND
		CNMW06-W-16222	9/24/07	ND	ND	ND
		CNMW06-W-26026	3/19/08	ND	ND	ND
		CNMW06-W-26678	9/9/08	ND	ND	ND
		CNMW06-W-27154	10/6/09	ND	ND	ND
MW07	45-55	CNMW07-W-19887	3/14/06	0.4 J	0.6 J	ND
		CNMW07-W-22512	9/26/06	1.1	ND	ND
		CNMW07-W-15492	3/26/07	1.8	ND	ND
		CNMW07-W-16221	9/24/07	2.4	ND	ND
		CNMW07-W-26027	3/19/08	3.0	ND	ND
		CNMW07-W-26679	9/9/08	4.0	0.2 J	ND
		CNMW07-W-27155	10/6/09	5.1	0.6 J	ND
MW08	38-53	CNMW08-W-19284	3/14/06	ND	ND	ND
		CNMW08-W-22507	9/26/06	ND	ND	ND
		CNMW08-W-15493	3/27/07	ND	ND	ND
		CNMW08-W-16226	9/25/07	ND	ND	ND
		CNMW08-W-26028	3/20/08	ND	ND	ND
		CNMW08-W-26680	9/10/08	ND	ND	ND
MW09	25-35	CNMW09-W-19285	3/15/06	ND	ND	ND
		CNMW09-W-22504	9/25/06	ND	ND	ND
		CNMW09-W-16209	3/27/07	ND	ND	ND
		CNMW09-W-16219	9/24/07	ND	ND	ND
		CNMW09-W-26029	3/20/08	ND	ND	ND
		CNMW09-W-26681	9/10/08	ND	ND	ND
		CNMW09-W-27157	10/6/09	ND	ND	ND
MW10	30-45	CNMW10-W-19886	3/14/06	ND	ND	ND
		CNMW10-W-22510	9/26/06	ND	ND	ND
		CNMW10-W-16215	3/28/07	ND	ND	ND
		CNMW10-W-16224	9/25/07	ND	ND	ND
		CNMW10-W-26030	3/20/08	ND	ND	ND
		CNMW10-W-26682	9/9/08	ND	ND	ND
		CNMW10-W-27158	10/6/09	ND	ND	ND
SB01	40-50	CNSB01-W-16188	8/26/04	186	6.5	ND
		CNSB01-W-19274	9/9/05	269	6.8	ND
		CNSB01-W-16314	10/12/05	288	6.6	ND
		CNSB01-W-19979	3/17/06	320	5.7	ND
		CNSB01-W-22516	9/27/06	267	6.3	ND
		CNSB01-W-15491	3/27/07	222	4.9	ND
		CNSB01-W-16232	9/27/07	283	4.6	ND
		CNSB01-W-26031	3/20/08	325	4.8	ND
		CNSB01-W-26683	9/10/08	378	4.1	ND
		CNSB01-W-27159	10/7/09	396	5.0	ND

TABLE 3.2 (Cont.)

Well	Screen Interval (ft BGL)	Sample	Sample Date	Concentration (µg/L) Carbon Tetrachloride	Chloroform	Methylene Chloride
SB04	51-61	CNSB04-W-16189	8/26/04	30	ND	ND
		CNSB04-W-19273	9/9/05	47	0.6 J	ND
		CNSB04-W-16315	10/12/05	44	0.5 J	ND
		CNSB04-W-19906	3/16/06	51	0.5 J	0.4 J B[f]
		CNSB04-W-22503	9/25/06	54	0.7 J	ND
		CNSB04-W-16216	3/28/07	44	0.5 J	ND
		CNSB04-W-16230	9/26/07	36	0.4 J	ND
		CNSB04-W-26002	3/12/08	30	0.3 J	ND
		CNSB04-W-26684	9/9/08	15	0.3 J	ND
		CNSB04-W-27160	10/8/09	17	0.3 J	ND
SB05	32-42	CNSB05-W-16190	8/26/04	59	5.5	ND
		CNSB05-W-19275	9/9/05	77	7.2	ND
		CNSB05-W-16323	10/12/05	54	5.5	ND
		CNSB05-W-19904	3/17/06	104	7.2	ND
		CNSB05-W-19940	9/27/06	139	12	ND
		CNSB05-W-16212	3/28/07	138	12	ND
		CNSB05-W-16233	9/26/07	221	16	ND
		CNSB05-W-26032	3/20/08	224	17	ND
		CNSB05-W-26685	9/9/08	256	20	ND
		CNSB05-W-27161	10/8/09	289	19	ND
SB07R	45-60	CNSB07R-W-19978	3/15/06	41	2.7	ND
		CNSB07R-W-19924	9/26/06	30	1.7	ND
		CNSB07R-W-15490	3/26/07	30	1.7	ND
		CNSB07R-W-16225	9/25/07	50	2.4	ND
		CNSB07R-W-26003	3/12/08	13	0.9 J	ND
		CNSB07R-W-26686	9/9/08	21	1.4	ND
		CNSB07R-W-27162	10/7/09	38	1.7	ND
SB08	52-62	CNSB08-W-16192	8/26/04	79	3.1	ND
		CNSB08-W-19272	9/8/05	80	2.6	ND
		CNSB08-W-16317	10/12/05	77	2.8	ND
		CNSB08-W-19903	3/17/06	91	2.7	ND
		CNSB08-W-22500	9/21/06	53	1.6	ND
		CNSB08-W-16214	3/28/07	64	2.0	ND
		CNSB08-W-16229	9/26/07	68	1.8	ND
		CNSB08-W-26004	3/12/08	28	1.1	ND
		CNSB08-W-26687	9/8/08	22	1.2	ND
		CBSB08-W-27163	10/8/09	29	1.2	ND
SB09	32-42	CNSB09-W-16193	8/26/04	ND	ND	ND
		CNSB09-W-19281	9/11/05	ND	ND	ND
		CNSB09-W-16318	10/11/05	ND	ND	ND
		CNSB09-W-19902	3/17/06	ND	ND	ND
		CNSB09-W-22502	9/25/06	ND	ND	ND
		CNSB09-W-16211	3/28/07	ND	ND	ND
		CNSB09-W-16231	9/26/07	ND	ND	ND
		CNSB09-W-26033	3/20/08	ND	ND	ND
		CNSB09-W-26688	9/10/08	ND	ND	ND

TABLE 3.2 (Cont.)

Well	Screen Interval (ft BGL)	Sample	Sample Date	Concentration (µg/L) Carbon Tetrachloride	Chloroform	Methylene Chloride

[a] Regulatory levels (KDHE Tier 2 RSBL values):

Compound	Concentration (µg/L)
Carbon tetrachloride	5.0
Chloroform	80
Methylene chloride	5.0

[b] ND, not detected at an instrument detection limit of 0.1 µg/L.

[c] Qualifier R indicates that the contaminant was present in the associated equipment rinsate.

[d] Data are for samples collected prior to implementation of the IM ISCR pilot test in November 2007. More recent results are in Table 3.4.

[e] Qualifier J indicates an estimated concentration below the method quantitation limit of 1.0 µg/L.

[f] Qualifier B indicates that the contaminant was present in the associated method blank.

TABLE 3.3 Field measurements for groundwater samples collected from the sitewide monitoring points at Centralia, August 2004 to October 2009.

Well	Screen Interval (ft BGL)	Sample Date	Temperature (°C)	pH	Conductivity (µS/cm)	Concentration (mg/L) Dissolved Oxygen	Carbon Dioxide	Iron(II)	ORP (mV)
MW01	54.5-64.5	8/24/04	16.3	7.39	652	0.06	25	0.00	230
		9/10/05	16.3	7.26	599	6.31	–[a]	0.00	104
		10/11/05	16.4	6.45	634	–	–	–	–
		3/15/06	14.3	7.56	621	9.33	30	0.04	297
		9/25/06	13.3	7.01	782	6.82	50	0.31	92
		3/29/07	16.5	6.54	629	4.39	–	0.00	174
		9/26/07	17.8	7.06	630	0.89	35	0.09	146
		3/19/08	9.5	7.31	613	3.34	–	–	122
		9/9/08	13.9	7.28	595	5.18	20	0.03	28
MW02[b]	49.5-59.5	8/26/04	14.4	7.31	729	0.16	20	0.12	235
		9/11/05	15.3	7.02	739	1.28	–	–	–
		10/12/05	14.8	6.60	766	–	–	–	–
		3/16/06	14.2	6.78	759	1.24	–	0.00	295
		9/26/06	13.2	6.98	957	3.05	40	0.06	67
		3/26/07	15.7	6.39	739	2.29	50	–	67
		9/26/07	15.4	7.04	763	3.39	25	0.00	156
MW03	50.5-60.5	8/24/04	13.1	7.28	783	0.10	55	0.21	230
		9/10/05	15.1	7.05	715	10.42	65	0.00	142
		10/11/05	16.3	6.46	765	–	–	–	–
		3/17/06	13.8	6.75	753	9.39	77	0.00	290
		9/26/06	13.2	6.92	960	11.57	45	0.08	251
		3/27/07	15.3	6.40	774	7.73	25	–	268
		9/25/07	14.3	6.97	738	8.44	30	0.00	162
		3/12/08	14.6	7.12	777	7.90	–	3.13	88
		9/9/08	14.9	7.13	763	9.60	110	0.12	66
		10/6/09	13.8	7.08	770	9.66	95	0.03	216
MW04	37.5-47.5	8/24/04	16.2	7.39	717	0.11	40	0.04	210
		9/11/05	15.4	7.18	665	8.43	60	0.00	226
		10/11/05	14.4	7.14	811	–	–	–	–
		3/15/06	13.5	7.78	675	6.82	55	0.06	283
		9/25/06	–	7.02	613	9.13	40	0.19	46
		3/28/07	15.4	6.47	678	5.46	–	0.00	197
		9/24/07	17.4	7.10	667	6.94	35	0.24	261
		3/19/08	11.2	7.32	636	7.55	–	–	164
		9/9/08	14.2	7.14	648	8.68	100	0.00	72
		10/7/09	13.9	7.17	671	8.64	100	0.02	183
MW05	34.5-44.5	8/25/04	14.3	7.14	613	0.08	25	0.06	215
		9/10/05	14.2	6.80	620	1.40	110	0.00	160
		10/11/05	14.8	6.35	610	–	–	–	–
		3/15/06	14.3	6.90	701	0.90	30	0.06	156
		9/25/06	13.6	6.95	768	0.09	50	0.02	55
		3/28/07	14.4	6.44	573	4.53	35	0.00	295
		9/24/07	15.8	7.06	368	3.09	45	0.00	182
		3/19/08	12.9	7.42	642	5.42	–	–	177
		9/10/08	13.9	7.11	663	7.14	95	0.00	130
		10/7/09	14.2	7.11	672	7.05	90	0.00	194

TABLE 3.3 (Cont.)

Well	Screen Interval (ft BGL)	Sample Date	Temperature (°C)	pH	Conductivity (µS/cm)	Concentration (mg/L) Dissolved Oxygen	Carbon Dioxide	Iron(II)	ORP (mV)
MW06	46.5-56.5	8/25/04	15.9	7.50	637	0.05	15	0.00	215
		9/10/05	14.6	7.23	659	0.04	60	0.00	41
		10/11/05	15.8	6.99	638	–	–	–	–
		3/15/06	14.1	7.38	630	9.87	35	0.02	263
		9/27/06	13.1	6.16	652	0.05	45	1.12	63
		3/27/07	19.0	6.42	466	0.11	20	0.00	13
		9/24/07	16.8	7.11	463	8.00	25	0.41	191
		3/19/08	14.1	7.01	552	7.00	–	–	172
		9/9/08	14.4	7.20	437	0.36	105	0.07	-96
		10/6/09	13.5	6.69	255	0.61	110	0.06	-72
MW07	45-55	3/14/06	14.7	6.61	709	0.34	–	0.03	143
		9/26/06	13.1	7.23	642	2.91	50	0.00	–
		3/26/07	15.8	6.50	642	1.87	30	0.00	261
		9/24/07	19.0	7.18	609	9.05	60	0.18	190
		3/19/08	12.5	7.29	647	2.70	–	–	215
		9/9/08	15.6	7.10	629	1.41	68	0.00	16
		10/6/09	13.9	7.19	618	1.42	70	0.00	53
MW08	38-53	3/14/06	13.5	6.35	854	5.32	–	0.00	145
		9/26/06	13.3	6.75	1095	0.16	50	0.18	37
		3/27/07	15.8	6.31	874	1.49	30	0.21	237
		9/25/07	15.8	6.92	627	1.42	45	0.14	219
		3/20/08	13.5	7.19	869	2.11	–	–	185
		9/10/08	16.3	7.03	864	1.17	100	0.03	117
MW09	25-35	3/15/06	17.7	7.33	664	0.95	55	0.09	214
		9/25/06	12.8	6.87	859	1.59	45	0.18	90
		3/27/07	14.9	6.35	689	4.10	30	0.69	152
		9/24/07	16.6	6.94	1999	3.86	55	0.14	186
		3/20/08	13.5	7.17	720	4.70	–	–	173
		9/10/08	14.7	7.02	706	3.68	110	0.07	120
		10/6/09	13.2	7.00	715	3.73	110	0.08	148
MW10	30-45	3/14/06	14.8	6.60	834	6.42	65	0.00	166
		9/26/06	13.6	6.87	1058	6.94	50	0.50	51
		3/28/07	17.0	6.36	834	5.09	35	0.00	270
		9/25/07	15.8	6.94	827	6.64	35	0.21	199
		3/20/08	10.9	7.18	898	6.12	–	–	187
		9/9/08	14.8	7.05	879	7.18	100	0.06	94
		10/6/09	13.7	7.04	883	6.67	95	0.08	201
SB01	40-50	8/26/04	26.0	7.46	699	5.21	30	0.00	210
		9/9/05	25.0	7.11	674	6.25	95	0.00	140
		10/12/05	13.8	7.23	686	–	–	–	–
		3/17/06	12.4	7.30	692	5.98	55	0.00	185
		9/27/06	14.4	7.03	832	6.54	40	0.52	198
		3/27/07	18.0	6.37	659	3.81	25	0.23	173
		9/27/07	13.5	7.24	720	6.55	45	1.04	143
		3/20/08	15.6	7.29	783	8.02	–	–	182
		9/10/08	16.5	7.10	676	2.89	100	0.17	100
		10/7/09	14.8	7.11	761	7.69	105	0.07	215

TABLE 3.3 (Cont.)

Well	Screen Interval (ft BGL)	Sample Date	Temperature (°C)	pH	Conductivity (µS/cm)	Concentration (mg/L) Dissolved Oxygen	Carbon Dioxide	Iron(II)	ORP (mV)
SB04	51-61	8/26/04	17.9	7.14	765	3.78	55	0.37	230
		9/9/05	16.0	7.09	708	8.67	100	–	206
		10/12/05	13.9	7.17	813	–	–	–	–
		3/16/06	13.0	7.57	799	5.96	30	–	276
		9/25/06	14.9	7.16	791	9.32	70	1.18	64
		3/28/07	16.2	6.45	850	6.18	–	0.23	266
		9/26/07	19.8	7.03	760	6.61	30	0.00	202
		3/12/08	15.5	7.04	819	6.16	–	0.09	154
		9/9/08	16.5	7.11	802	6.48	100	0.02	70
		10/8/09	12.2	7.11	797	7.43	95	0.09	238
SB05	32-42	8/26/04	15.7	7.25	761	–	25	0.06	220
		9/9/05	16.9	6.98	687	7.58	100	–	–
		10/12/05	14.0	7.00	728	–	–	–	–
		3/17/06	13.3	7.67	718	4.80	40	0.18	253
		9/27/06	13.7	6.58	763	4.70	50	0.25	78
		3/28/07	16.7	4.03	1100	2.58	35	0.07	296
		9/26/07	15.1	6.98	810	4.10	30	0.50	221
		3/20/08	14.5	7.11	870	5.56	–	–	206
		9/9/08	13.7	6.79	890	7.60	90	0.09	56
		10/8/09	12.7	7.09	874	6.63	100	0.08	209
SB07R	45-60	3/15/06	16.8	7.24	685	7.41	60	0.08	83
		9/26/06	13.2	6.89	842	6.17	55	0.26	67
		3/26/07	19.0	6.38	668	5.08	40	0.07	237
		9/25/07	17.4	7.06	642	6.30	35	0.11	170
		3/12/08	17.3	7.18	639	5.33	–	0.00	108
		9/9/08	14.1	7.06	631	5.08	100	0.07	55
		10/7/09	13.3	7.11	629	6.67	110	0.10	224
SB08	52-62	8/26/04	19.5	7.31	635	0.16	20	0.53	235
		9/8/05	21.2	7.27	598	3.21	75	0.00	111
		10/12/05	13.9	7.15	630	–	–	–	–
		3/17/06	12.9	7.14	645	3.40	40	0.00	246
		9/21/06	14.1	6.96	809	4.53	40	0.00	37
		3/28/07	15.8	6.53	645	3.57	35	0.24	208
		9/26/07	17.4	7.11	617	4.56	40	0.77	156
		3/12/08	17.1	7.17	642	3.63	–	0.14	102
		9/8/08	13.6	7.14	626	2.70	90	0.00	230
		10/8/09	12.3	7.22	617	4.43	95	0.00	221
SB09	32-42	8/26/04	30.9	7.09	910	0.26	75	0.00	185
		9/11/05	14.6	6.71	877	0.13	225	0.00	–
		10/11/05	13.9	6.85	910	–	–	–	–
		3/17/06	11.7	7.03	969	1.53	99	0.00	206
		9/25/06	14.2	7.00	976	0.29	70	0.38	86
		3/28/07	14.3	6.32	957	0.89	40	0.09	236
		9/26/07	15.2	6.77	969	1.53	45	0.12	199
		3/20/08	10.1	6.94	1000	1.57	–	–	221
		9/10/08	18.4	6.87	977	0.56	160	0.11	109

TABLE 3.3 (Cont.)

Well	Screen Interval (ft BGL)	Sample Date	Temperature (°C)	pH	Conductivity (µS/cm)	Concentration (mg/L) Dissolved Oxygen	Carbon Dioxide	Iron(II)	ORP (mV)

[a] No measurement obtained.

[b] Data are for samples collected prior to implementation of the IM ISCR pilot test in November 2007.

TABLE 3.4 Analytical results from the AGEM Laboratory for volatile organic compounds in groundwater samples collected from the IM pilot test monitoring points at Centralia, September 2008 to October 2009.

Well	Screen Interval (ft BGL)	Sample	Sample Date	Concentration (µg/L) Carbon Tetrachloride	Chloroform	Methylene Chloride
MW02[a]	49.5-59.5	CNMW02-W-26674	9/8/08	18	57	11
		CNMW02-W-27140	4/22/09	ND[b]	ND	1.8
		CNMW02-W-27150	10/8/09	ND	ND	ND
PMP1	50-60	CNPMP1-W-26689	9/9/08	136	30	ND
		CNPMP1-W-27141	4/22/09	102	21	ND
		CNPMP1-W-27165	10/7/09	167	20	ND
PMP2	50-60	CNPMP2-W-26690	9/9/08	1,854	318	5.6
		CNPMP2-W-27142	4/22/09	1,398	299	NA[c]
		CNPMP2-W-27166	10/7/09	1,384	272	6.6
PMP3	50-60	CNPMP3-W-26691	9/9/08	21	57	6.2
		CNPMP3-W-27143	4/22/09	3.2	5.8	ND
		CNPMP3-W-27167	10/7/09	0.5 J[d]	3.9	ND
PMP4	48.75-58.75	CNPMP4-W-26692	9/9/08	49	4.2	ND
		CNPMP4-W-27168	10/6/09	39	2.9	ND
PMP5	50-60	CNPMP5-W-26693	9/10/08	418	46	1.6
		CNPMP5-W-27169	10/8/09	728	43	1.2
PMP6	50-60	CNPMP6-W-26694	9/8/08	110	7.8	ND
		CNPMP6-W-27170	10/6/09	199	12	ND
PMP7	50-60	CNPMP7-W-26695	9/9/08	119	13	ND
		CNPMP7-W-27171	10/6/09	84	23	1.8
PMP8	50-60	CNPMP8-W-26696	9/9/08	72	125	3.4
		CNPMP8-W-27144	4/22/09	3.2	5.6	1.9
		CNPMP8-W-27172	10/7/09	16	21	1.8
PMP9	50-60	CNPMP9-W-26697	9/9/08	7.6	0.4 J	ND
		CNPMP9-W-27173	10/7/09	29	0.5 J	ND

[a] Data are for samples collected after implementation of the IM ISCR pilot test in November 2007.

[b] ND, not detected at an instrument detection limit of 0.1 µg/L.

[c] NA, no analysis.

[d] Qualifier J indicates an estimated concentration below the method quantitation limit of 1.0 µg/L.

TABLE 3.5 Field measurements for groundwater samples collected from the IM pilot test monitoring points at Centralia, September 2008 to October 2009.

Well	Screen Interval (ft BGL)	Sample Date	Temperature (°C)	pH	Conductivity (µS/cm)	Concentration (mg/L) Dissolved Oxygen	Carbon Dioxide	Iron(II)	ORP (mV)
MW02[a]	49.5-59.5	9/8/08	13.1	6.12	6,821	0.40	50	3.30[b]	-74
		4/22/09	14.8	6.71	2,943	0.60	110	2.70	-131
		10/8/09	12.7	6.98	1,829	0.44	50	3.06	-138
PMP1	50-60	9/9/08	14.4	5.54	700	1.37	115	0.23	40
		4/22/09	15.1	6.97	667	3.62	115	0.60	-79
		10/7/09	13.8	7.30	623	0.56	110	0.33	-34
PMP2	50-60	9/9/08	14.4	7.09	997	0.05	180	1.68	-41
		4/22/09	15.0	6.91	829	3.57	150	1.36	-101
		10/7/09	13.9	7.65	775	0.19	160	1.53	-89
PMP3	50-60	9/9/08	14.5	6.98	1301	0.03	150	3.30[b]	-150
		4/22/09	14.3	7.13	506	2.64	130	2.51	-114
		10/7/09	14.0	8.06	472	0.17	140	0.37	-129
PMP4	48.75-58.75	9/9/08	14.3	4.97	738	4.87	100	0.49	134
		10/6/09	13.2	6.46	705	2.20	110	0.08	43
PMP5	50-60	9/10/08	16.9	7.20	875	2.51	105	0.18	117
		10/8/09	10.7	7.10	839	3.18	100	0.00	43
PMP6	50-60	9/8/08	13.2	6.87	787	3.32	75	0.09	173
		10/6/09	13.5	6.80	692	2.30	80	0.07	159
PMP7	50-60	9/9/08	14.2	6.30	807	2.18	70	0.18	15
		10/6/09	13.4	6.74	655	0.46	70	0.12	-13
PMP8	50-60	9/9/08	14.4	7.05	1388	0.03	60	2.72	-129
		4/22/09	15.2	7.30	776	1.74	150	2.03	-139
		10/7/09	13.9	7.69	688	0.81	120	0.27	-155
PMP9	50-60	9/9/08	14.0	6.36	606	7.78	120	0.10	45
		10/7/09	13.7	7.50	568	5.82	125	0.06	-1

[a] Data are for samples collected after implementation of the IM ISCR pilot test in November 2007.

[b] Maximum reading from instrument.

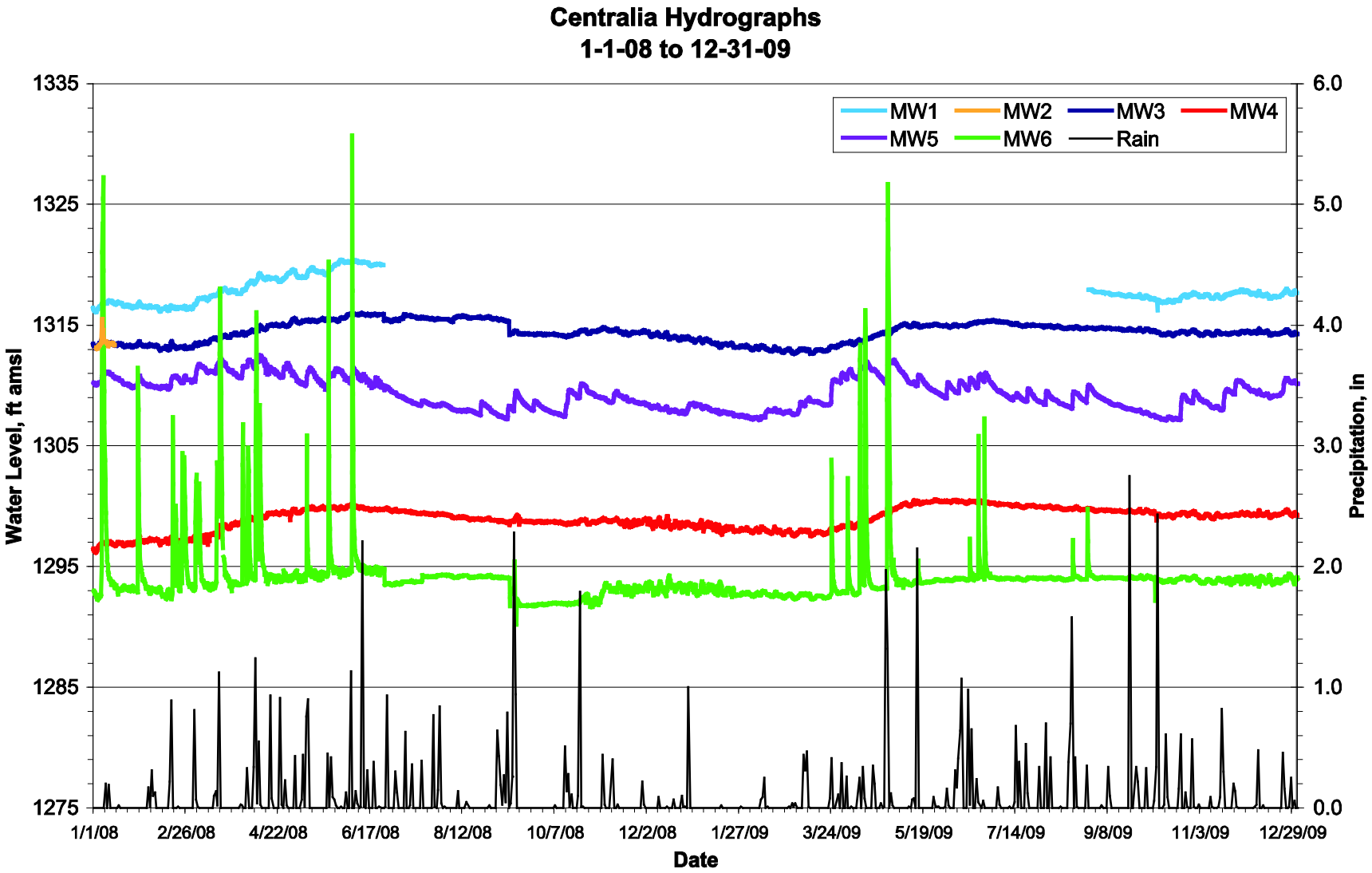

FIGURE 3.1 Hydrographs summarizing results of long-term water level monitoring at Centralia, January 2008 to December 2009.

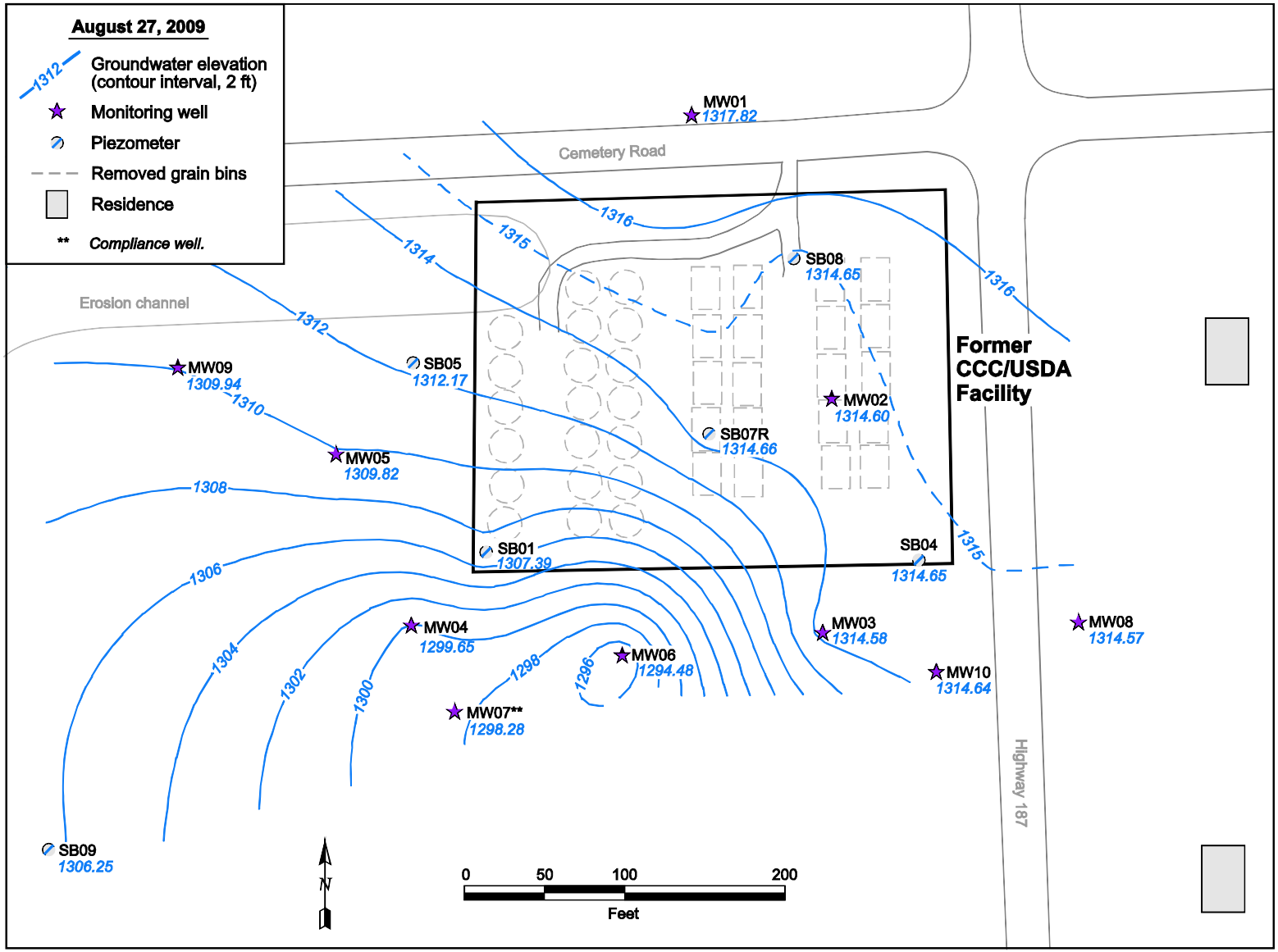

FIGURE 3.2 Potentiometric surface at Centralia, based on water levels measured manually on August 27, 2009.

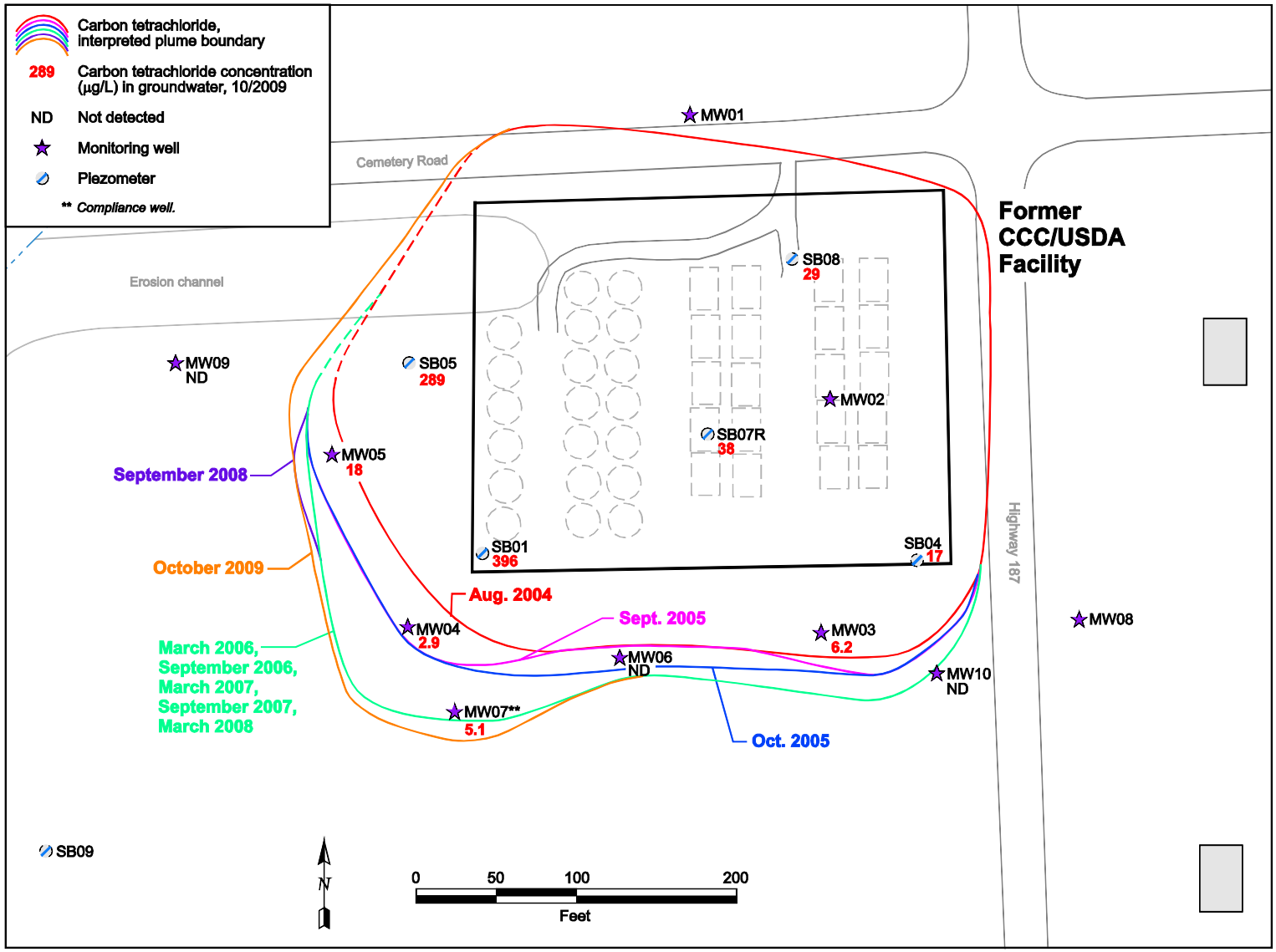

FIGURE 3.3 Carbon tetrachloride levels in groundwater in the KDHE-approved network of sitewide monitoring wells sampled at Centralia in October 2009, with the interpreted lateral extent of the contaminant at intervals during the period August 2004 to October 2009.

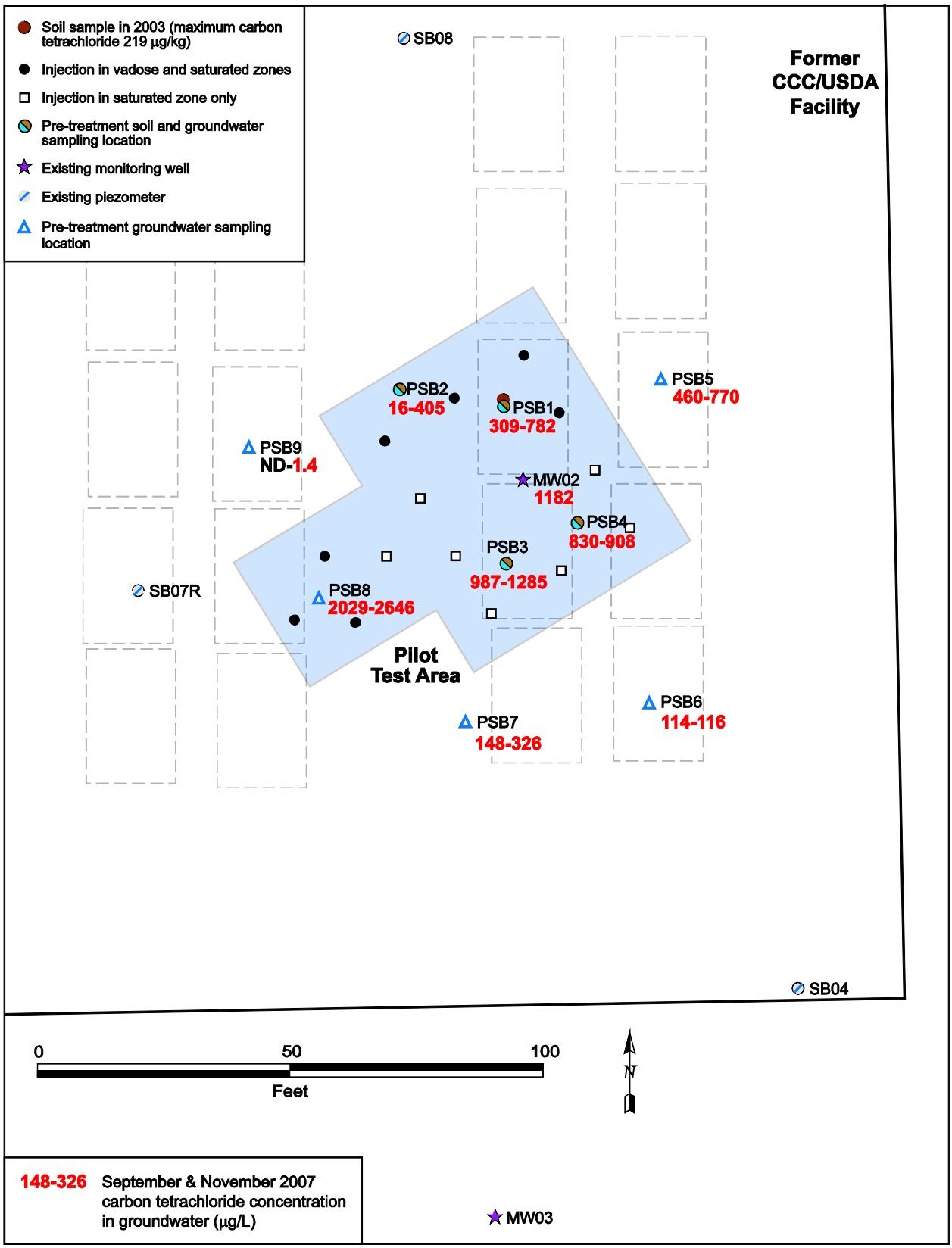

FIGURE 3.4 Carbon tetrachloride in groundwater samples collected during the pre-injection baseline sampling, September and November 2007

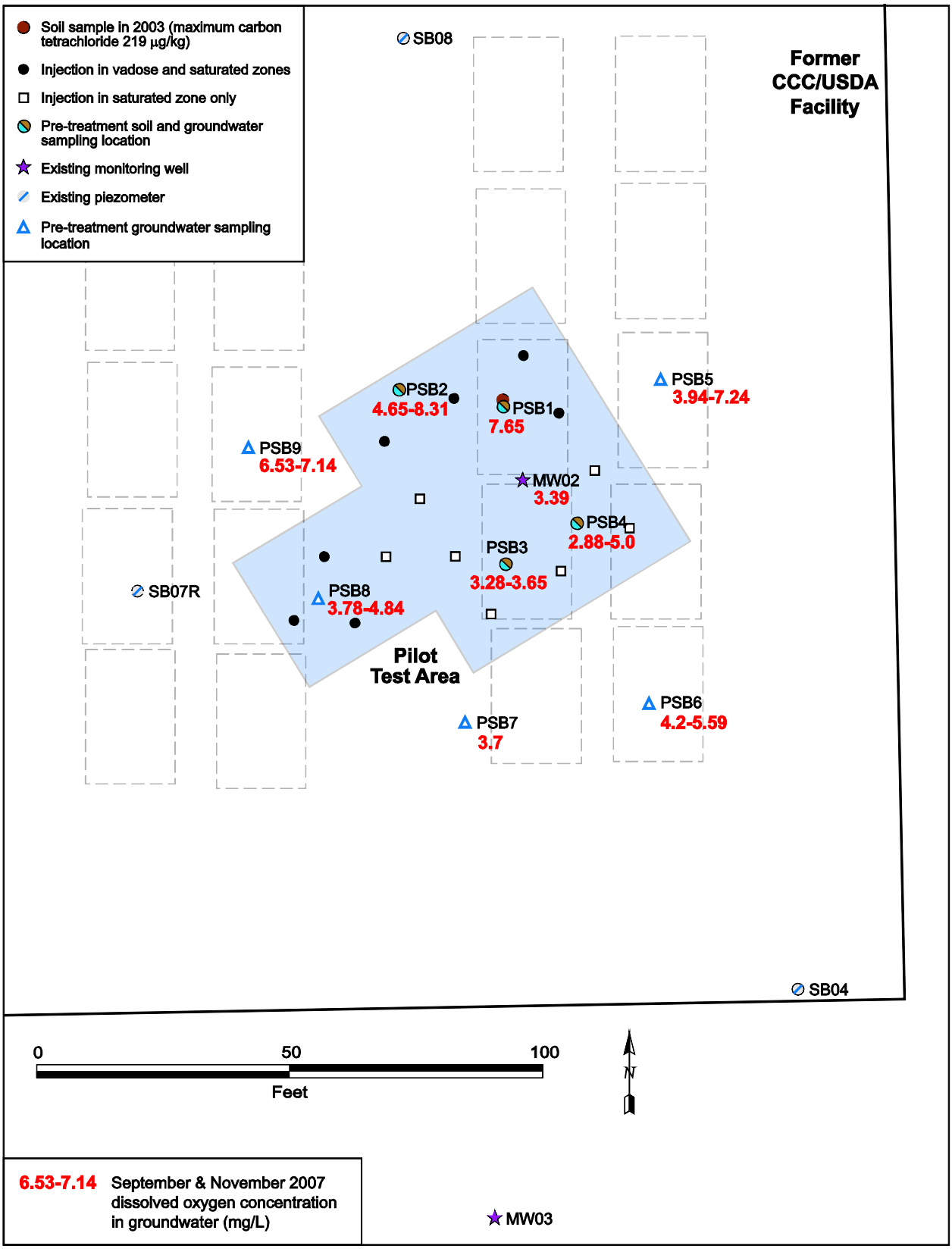

FIGURE 3.5 Field-measured results for DO in groundwater samples collected during the pre-injection baseline sampling, September and November 2007

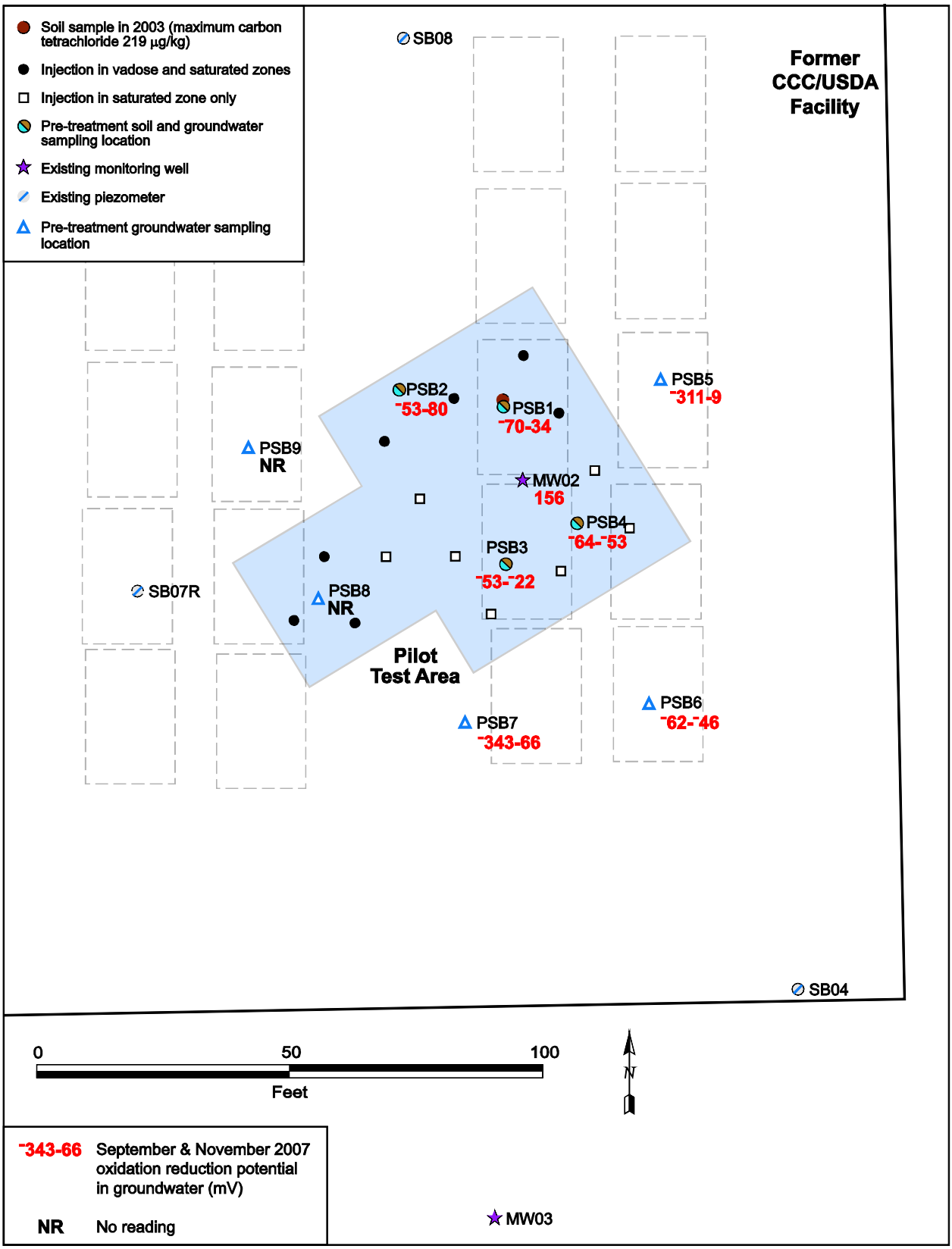

FIGURE 3.6 Field-measured results for ORP in groundwater samples collected during the pre-injection baseline sampling, September and November 2007

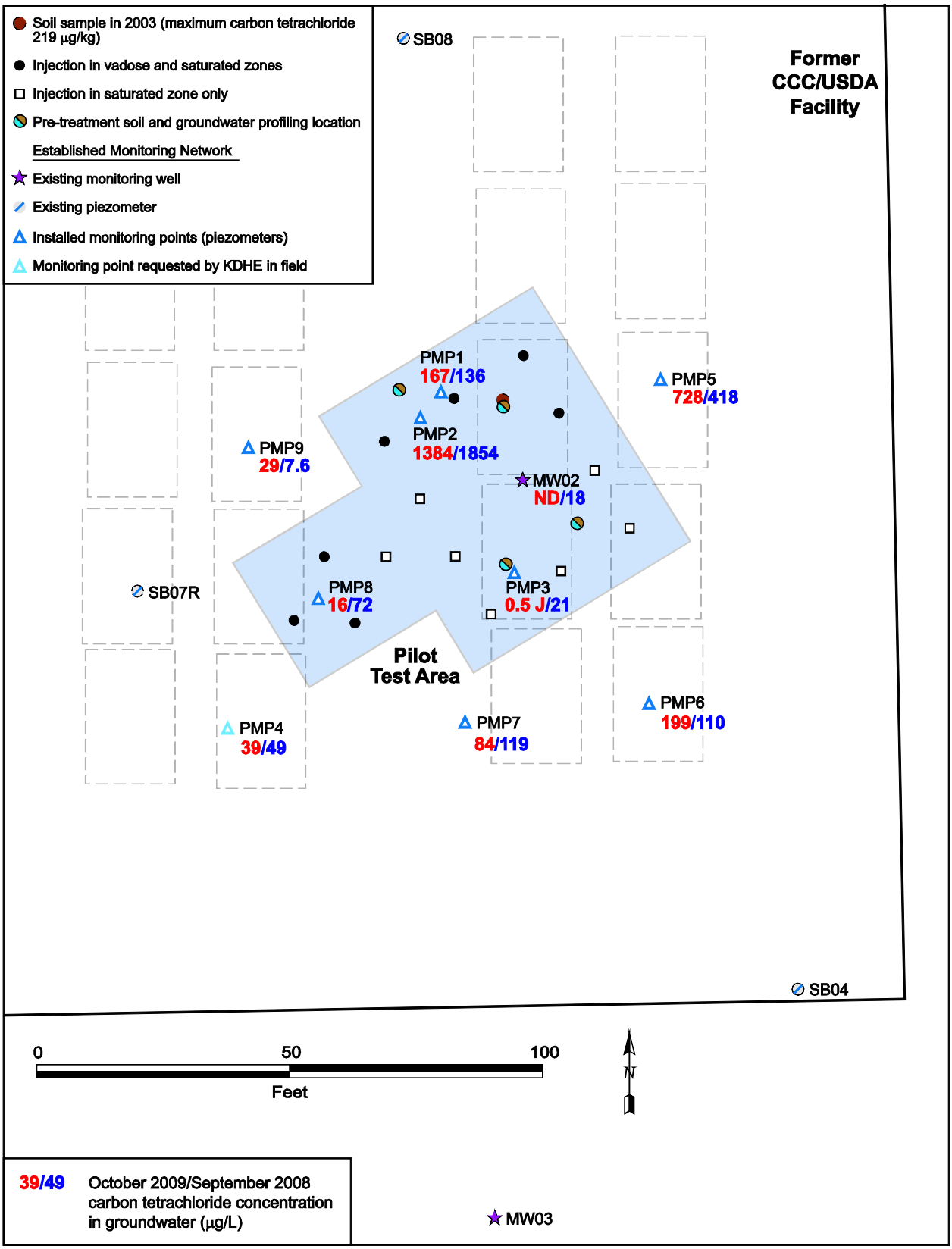

FIGURE 3.7 Analytical results for carbon tetrachloride in groundwater samples collected in October 2009 and September 2008 at the IM pilot test monitoring points.

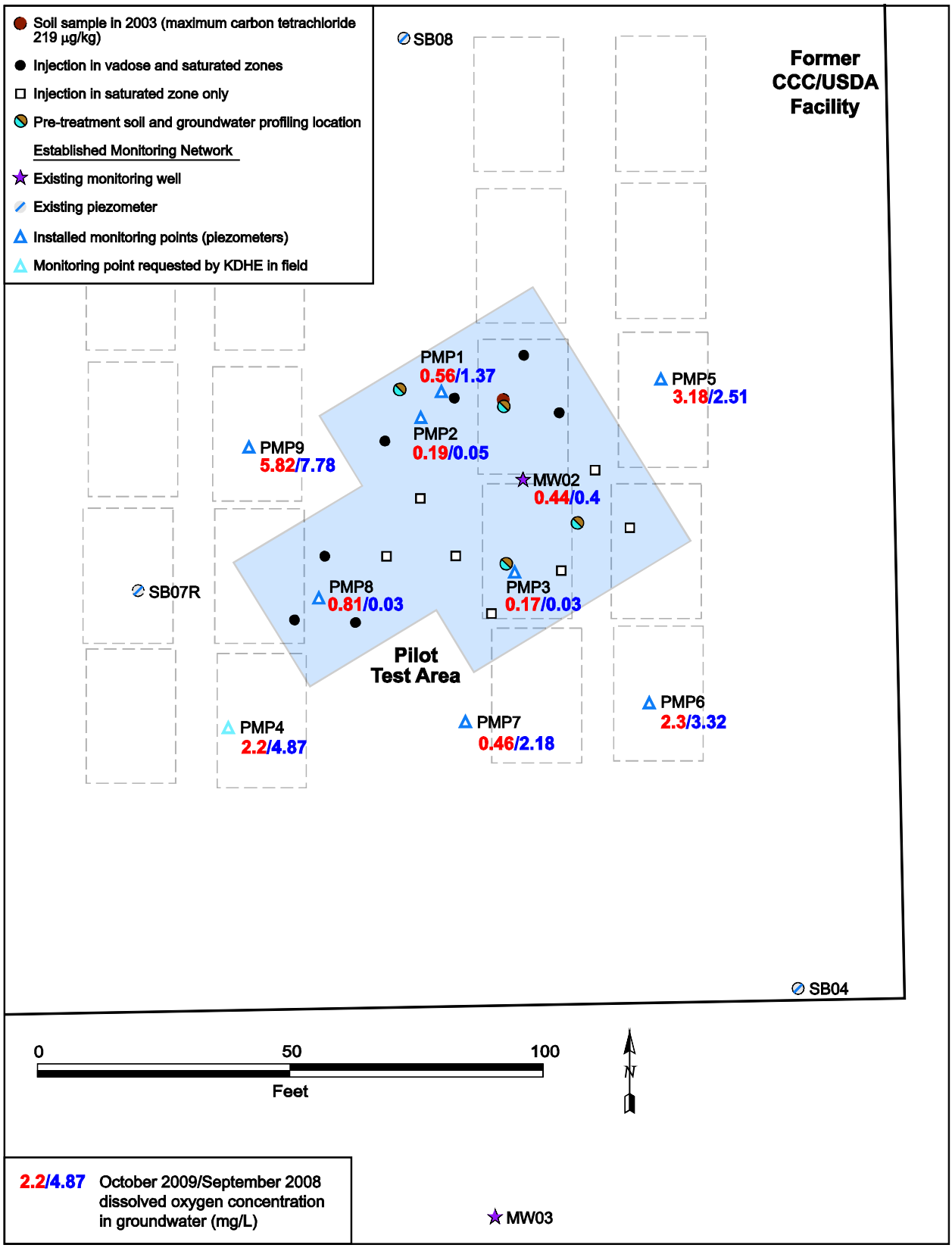

FIGURE 3.8 Field-measured results for DO in groundwater samples collected in October 2009 and September 2008 at the IM pilot test monitoring points.

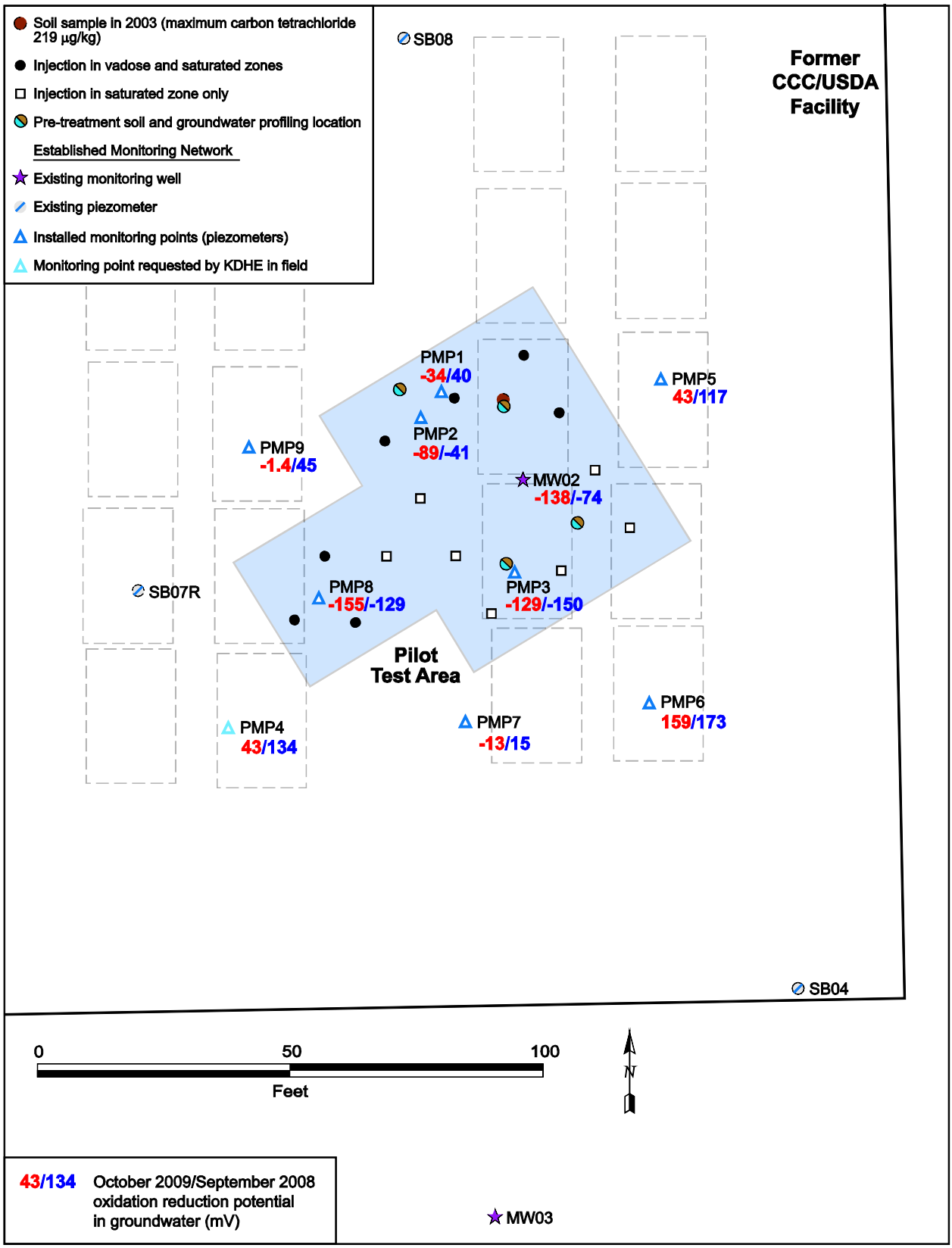

FIGURE 3.9 Field-measured results for ORP in groundwater samples collected in October 2009 and September 2008 at the IM pilot test monitoring points.

4 Conclusions and Recommendations

4.1 Conclusions

The findings of the April 2009 and October 2009 monitoring events at Centralia support the following conclusions:

- Measurements of groundwater levels obtained manually and through the use of automatic recorders have consistently indicated an apparent direction of groundwater flow to the south-southwest across the former CCC/USDA facility.

- The October 2009 carbon tetrachloride data for monitoring points in the approved sitewide network were generally consistent with previous results, although a slight increase relative to the concentrations identified in September 2008 was observed at most locations. Longer-term trends of slightly increasing carbon tetrachloride concentrations continue to be observed at monitoring points SB05, MW03, MW04, and MW07, along the western and southern margins of the contaminant distribution in groundwater. These trends suggest very slow expansion of the plume at the downgradient locations.

- Trace to low levels of chloroform identified at sitewide monitoring points MW05, MW07, SB01, SB04, SB05, SB07R, and SB08 suggest that limited natural degradation of carbon tetrachloride is occurring at these locations. The relatively high DO concentrations and positive ORP levels identified at these and most of the other sitewide monitoring points indicate, however, that anaerobic reducing conditions conducive to the reductive dechlorination of carbon tetrachloride are not widely developed, sitewide, within the Centralia aquifer.

- The results of sampling in April and October 2009 indicate that (with one exception, at PMP1) the concentrations of carbon tetrachloride identified in groundwater within the IM pilot test injection field continued to decrease during the present review period. The results also confirmed that oxygen-

depleted, chemically reducing conditions persist in the injection field as a result of the ISCR injections in November-December 2007.

- From September 2008 to October 2009, DO and ORP values decreased at pilot test monitoring points PMP4, PMP6, PMP7, and PMP9. Carbon tetrachloride concentrations also decreased at PMP4 and PMP7. Monitoring points PMP4, PMP7, and PMP9 lie immediately to the southwest and downgradient of the pilot test injection field, and PMP6 lies near the southern margin of the injection field. These relationships qualitatively suggest that the range of influence of the injected ISCR treatment technology might be increasing slowly with time, as a consequence of natural groundwater flow. Additional monitoring in the pilot test area will be required, however, to confirm these observations.

4.2 Recommendations

The groundwater sampling conducted at Centralia in April and October 2009 represented the first monitoring events performed under the interim site monitoring plan (Section 4.2 in Argonne 2009b) approved by the KDHE (2009). The results of these sampling activities continue to support the interpretation that the movement of groundwater and contaminant migration at Centralia are occurring very slowly, in a predictable manner. These findings demonstrate that the KDHE-approved frequency for monitoring of the groundwater at Centralia is sufficient to remain protective of human health and the environment.

In keeping with the approved interim monitoring program, the following sampling events at Centralia are scheduled for 2010:

- *April 2010* — Sampling at IM pilot test monitoring points PMP1-PMP3, PMP8, and MW02 (Figure 1.4) inside the injection area.

- *September 2010* — Sampling at sitewide monitoring points MW03-MW07, MW09, MW10, SB01, SB04, SB05, SB07R, and SB08 (Figure 1.3), as well as at IM pilot test monitoring points PMP1-PMP9 and MW02 (Figure 1.4).

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Appendix A:

Sequence of Sampling Activities in 2009

TABLE A.1 Sequence of sampling activities at Centralia, April 2009 and October 2009.

Date	Time	Sample	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Sample Description
April 2009 sampling event								
4/22/09	11:18	CNMW02-W-27140	MW	MW02	49.5-59.5	2820	4/22/09	Depth to water = 20.8 ft. Depth of 4-in. well = 59.5 ft. Sample collected by using low-flow bladder pump positioned at 54.5 ft after purging of 7 L.
4/22/09	11:30	CNQCIR-W-27147[b]	RI	QC		2820	4/22/09	Rinsate of decontaminated pump purge line after collection of sample CNMW02-W-27140.
4/22/09	12:20	CNPMP2-W-27142	MW	PMP2	50-60	2820	4/22/09	Depth to water = 20 ft. Depth of 0.5-in. well = 60 ft. Sample collected by using low-flow bladder pump positioned at 55 ft after purging of 5.5 L.
4/22/09	12:21	CNPMP2DUP-W-27145[b]	MW	PMP2	50-60	2820	4/22/09	Replicate of sample CNPMP2-W-27142.
4/22/09	12:45	CNPMP1-W-27141	MW	PMP1	50-60	2820	4/22/09	Depth to water = 20 ft. Depth of 0.5-in. well = 60 ft. Sample collected by using low-flow bladder pump positioned at 55 ft after purging of 5.8 L.
4/22/09	13:15	CNPMP3-W-27143	MW	PMP3	50-60	2820	4/22/09	Depth to water = 22.4 ft. Depth of 0.5-in. well = 60 ft. Sample collected by using low-flow bladder pump positioned at 55 ft after purging of 5.2 L.
4/22/09	13:16	CNPMP3DUP-W-27146[b]	MW	PMP3	50-60	2820	4/22/09	Replicate of sample CNPMP3-W-27143.
4/22/09	13:38	CNPMP8-W-27144	MW	PMP8	50-60	2820	4/22/09	Depth to water = 19.4 ft. Depth of 0.5-in. well = 60 ft. Sample collected by using low-flow bladder pump positioned at 55 ft after purging of 5.3 L.
4/22/09	14:14	CNQCTB-W-27148[b]	TB	QC		2820	4/22/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on chain-of-custody form (COC) 2820 and to TestAmerica for verification organic analysis with samples listed on COC 2819.
October 2009 sampling event								
10/6/09	11:22	CNMW10-W-27158	MW	MW10	30-45	2610	10/7/09	Depth to water = 20.59 ft. Depth of 2-in. well = 45 ft. Sample collected by using low-flow bladder pump positioned at 37.5 ft after purging of 10.25 L.

TABLE A.1 (Cont.)

Date	Time	Sample	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Sample Description
October 2009 sampling event (cont.)								
10/6/09	13:01	CNMW03-W-27151	MW	MW03	50.5-60.5	2610	10/7/09	Depth to water = 20.43 ft. Depth of 4-in. well = 60.5 ft. Sample collected by using low-flow bladder pump positioned at 55.5 ft after purging of 6.5 L.
10/6/09	13:02	CNMW03DUP-W-27174[b]	MW	MW03	50.5-60.5	2610	10/7/09	Replicate of sample CNMW3-W-27151.
10/6/09	14:38	CNMW06-W-27154	MW	MW06	46.5-56.5	2610	10/7/09	Depth to water = 36.23 ft. Depth of 4-in. well = 56.5 ft. Sample collected by using low-flow bladder pump positioned at 51.5 ft after purging of 11 L. Goldish-yellow tint.
10/6/09	16:16	CNMW07-W-27155	MW	MW07	45-55	2610	10/7/09	Depth to water = 27.97 ft. Depth of 2-in. well = 55 ft. Sample collected by using low-flow bladder pump positioned at 50 ft after purging of 9 L.
10/6/09	16:38	CNPMP6-W-27170	MW	PMP6	50-60	2610	10/7/09	Depth to water = 21.53 ft. Depth of 0.5-in. well = 60 ft. Sample collected by using Waterra pump positioned at 55 ft after purging of 7 L. Light brown and silty.
10/6/09	17:28	CNPMP7-W-27171	MW	PMP7	50-60	2610	10/7/09	Depth to water = 20.54 ft. Depth of 0.5-in. well = 60 ft. Sample collected by using Waterra pump positioned at 55 ft after purging of 6 L. Cloudy to clear.
10/6/09	18:16	CNPMP4-W-27168	MW	PMP4	48.75-58.75	2610	10/7/09	Depth to water = 18.59 ft. Depth of 0.5-in. well = 58.75 ft. Sample collected by using Waterra pump positioned at 53.75 ft after purging of 6.5 L. Tannish brown in color.
10/6/09	18:20	CNMW09-W-27157	MW	MW09	25-35	2610	10/7/09	Depth to water = 3.92 ft. Depth of 2-in. well = 35 ft. Sample collected by using low-flow bladder pump positioned at 30 ft after purging of 12.25 L.
10/6/09	18:40	CNQCIR-W-27176[b]	RI	QC	–	2611	10/7/09	Rinsate of decontaminated sampling line after collection of sample CNMW09-W-27157.
10/7/09	11:13	CNSB07R-W-27162	CPT/P	SB07R	45-60	2611	10/7/09	Depth to water = 18.43 ft. Depth of 2-in. well = 60 ft. Sample collected by using low-flow bladder pump positioned at 52.5 ft after purging of 6.75 L.

TABLE A.1 (Cont.)

Date	Time	Sample	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Sample Description
October 2009 sampling event (cont.)								
10/7/09	12:50	CNSB01-W-27159	CPT/P	SB01	40-50	2611	10/7/09	Depth to water = 17.42 ft. Depth of 1-in. well = 50 ft. Sample collected by using low-flow bladder pump positioned at 45 ft after purging of 3 L.
10/7/09	12:51	CNSB01DUP-W-27175	CPT/P	SB01	40-50	2611	10/7/09	Replicate of sample CNSB01-W-27159.
10/7/09	13:02	CNPMP8-W-27172	MW	PMP8	50-60	2611	10/7/09	Depth to water = 19.87 ft. Depth of 0.5-in. well = 60 ft. Sample collected by using Waterra pump positioned at 55 ft after purging of 7 L.
10/7/09	13:54	CNMW05-W-27153	MW	MW05	34.5-44.5	2611	10/7/09	Depth to water = 11.98 ft. Depth of 4-in. well = 44.5 ft. Sample collected by using low-flow bladder pump positioned at 39.5 ft after purging of 7 L.
10/7/09	14:18	CNPMP3-W-27167	MW	PMP3	50-60	2611	10/7/09	Depth to water = 21.15 ft. Depth of 0.5-in. well = 60 ft. Sample collected by using Waterra pump positioned at 55 ft after purging of 7 L. Grayish in color.
10/7/09	14:48	CNMW04-W-27152	MW	MW04	37.5-47.5	2611	10/7/09	Depth to water = 23.75 ft. Depth of 4-in. well = 47.5 ft. Sample collected by using low-flow bladder pump positioned at 42.5 ft after purging of 6.5 L.
10/7/09	15:22	CNPMP9-W-27173	MW	PMP9	50-60	2611	10/7/09	Depth to water = 15.83 ft. Depth of 0.5-in. well = 60 ft. Sample collected by using Waterra pump positioned at 55 ft after purging of 7 L.
10/7/09	16:04	CNPMP2-W-27166	MW	PMP2	50-60	2611	10/7/09	Depth to water = 19.84 ft. Depth of 0.5-in. well = 60 ft. Sample collected by using Waterra pump positioned at 55 ft after purging of 7 L. Grayish tint with odor.
10/7/09	16:19	CNSB09-W-27164	CPT/P	SB09	32-42	2611	10/7/09	Depth to water = 7.32 ft. Depth of 1-in. well = 42 ft. Sample collected by using low-flow bladder pump positioned at 37 ft after purging of 3.25 L.
10/7/09	16:36	CNPMP1-W-27165	MW	PMP1	50-60	2611	10/7/09	Depth to water = 21.08 ft. Depth of 0.5-in. well = 60 ft. Sample collected by using Waterra pump positioned at 55 ft after purging of 7 L. Light brown with odor; silty.

TABLE A.1 (Cont.)

Date	Time	Sample	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Sample Description
October 2009 sampling event (cont.)								
10/7/09	17:22	CNMW08-W-27156	MW	MW08	38-53	2611	10/7/09	Depth to water = 18.85 ft. Depth of 2-in. well = 53 ft. Sample collected by using low-flow bladder pump positioned at 45.5 ft after purging of 8 L.
10/7/09	18:17	CNQCIR-W-27177[b]	RI	QC	–	2611	10/7/09	Rinsate of decontaminated sampling line after collection of sample CNMW08-W-27156.
10/7/09	18:30	CNQCTB-W-27178[b]	TB	QC	–	2611	10/7/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COCs 2610 and 2611 and to TestAmerica for verification organic analysis with samples listed on COC 2613.
10/7/09	18:31	CNQCTB-W-27178A[b]	TB	QC	–	2615	10/8/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2615.
10/8/09	9:48	CNSB05-W-27161	CPT/P	SB05	32-42	2615	10/8/09	Depth to water = 11.12 ft. Depth of 1-in. well = 42 ft. Sample collected by using low-flow bladder pump positioned at 37 ft after purging of 16 L.
10/8/09	11:10	CNMW01-W-27149	MW	MW01	54.5-64.5	2615	10/8/09	Depth to water = 10.31 ft. Depth of 4-in. well = 64.5 ft. Sample collected by using low-flow bladder pump positioned at 59.5 ft after purging of 6 L.
10/8/09	12:20	CNMW02-W-27150	MW	MW02	49.5-59.5	2615	10/8/09	Depth to water = 20.98 ft. Depth of 4-in. well = 59.5 ft. Sample collected by using low-flow bladder pump positioned at 54.5 ft after purging of 8 L. Light gray; offensive odor.
10/8/09	12:34	CNSB08-W-27163	CPT/P	SB08	52-62	2615	10/8/09	Depth to water = 18.51 ft. Depth of 1-in. well = 62 ft. Sample collected by using low-flow bladder pump positioned at 57 ft after purging of 3 L.
10/8/09	13:41	CNSB04-W-27160	CPT/P	SB04	51-61	2615	10/8/09	Depth to water = 21.73 ft. Depth of 1-in. well = 61 ft. Sample collected by using low-flow bladder pump positioned at 56 ft after purging of 2 L.

TABLE A.1 (Cont.)

Date	Time	Sample	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Sample Description
October 2009 sampling event (cont.)								
10/8/09	13:42	CNPMP5-W-27169	MW	PMP5	50-60	2615	10/8/09	Depth to water = 21.73 ft. Depth of 1-in. well = 60 ft. Sample collected by using low-flow bladder pump positioned at 55 ft after purging of 2.4 L. Light brown in color.

[a] Sample types: CPT/P, piezometer; MW, monitoring well; RI, rinsate; TB, trip blank.

[b] Quality control sample.

Appendix B:

Waste Characterization and Disposal Documentation

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1272137

Section A Required Client Information:

Company: TCW Construction
Address: 141 M Street Lincoln NE 68508
Email To: tkamler@tcwconstruction
Phone: (402) 416 7255 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: tkamler@tcwconstruction.com
Copy To: surgnier@prodigy.net
Purchase Order No.:
Project Name: Kansas Waste Water
Project Number:

Section C Invoice Information:

Attention: Travis Kamler
Company Name: TCW Construction
Address: 141 M Street Lincoln NE 68508
Pace Quote Reference:
Pace Project Manager: Trudy Gipson
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: KS

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: VOC	EDB	NITRATES	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	AG PURGE-W-924091	WW	C	1/09		9-24-09	0800	60	5	3					2			2	2	1		
2	BA PURGE-W-924092	WW	C	3/09		9/09	1115	65	5	3					2			2	2	1		
3	CN PURGE-W-924093	WW	C	4/09		9/09	1240	71	5	3					2			2	2	1		
4	EV PURGE-W-924094	WW	C	4/09		9/09	1333	71	5	3					2			2	2	1		
5	MR PURGE-W-924095	WW	C	4/09		9/09	1422	71	5	3					2			2	2	1		
6	QCTB - W - 924096	WT	G			9/09	1640	75	2	2								2				
7																						
8																						
9																						
10																						
11																						
12																						

Cooler 709

1 (0690) 2 (0697) 8830

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	/TCW	9-24-09	17:00		9/25	850	4.9	Y	Y	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Travis Kamler

SIGNATURE of SAMPLER:

DATE Signed (MM/DD/YY): 9-24-2009

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Sample Condition Upon Receipt

Pace Analytical® www.pacelabs.com

Client Name: TCW Project # 6006709

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

Tracking #: 5558 7682 9061

Initials: _____ Proj. Due Date: 10/7 Proj. Name: _____

Custody Seal on Cooler/Box Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other _____

Thermometer Used T-192 / T-194 **Type of Ice:** (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 4.9 **Biological Tissue is Frozen:** Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: BW 9/25

Comments:

Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☑Yes ☐No ☐N/A	6. NO3
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	BW ~~☑Yes~~ ☑No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☑No ☐N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		ALL SAMPLES COLLECTED 9/24 ACCORDING TO LABELS
All containers needing preservation have been checked.	☐Yes ☐No ☑N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐Yes ☐No ☑N/A	
exceptions: (VOA), coliform, TOC, O&G, WI-DRO (water)	☑Yes ☐No	Initial when completed: _____ Lot # of added preservative: _____
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	15.
Trip Blank Present:	☑Yes ☐No ☐N/A	16.
Trip Blank Custody Seals Present	☑Yes ☐No ☐N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: Copy COC to Client? Y / (N) Field Data Required? Y / N

Person Contacted: Travis Kamler Date/Time: 9-25-09

Comments/ Resolution: Per client- all samples collected on 9-24-09. JPS

Project Manager Review: JPS 9-28-09 **Date:** _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

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SAMPLE ACKNOWLEDGMENT

Samples Submitted By: TCW Construction Inc
Client Project ID: Kansas Waste Water
Client PO#: Credit Card

Pace Project Manager: Trudy Gipson
Phone 1(913)563-1405
trudy.gipson@pacelabs.com
Pace Analytical Project ID: 6066709
Samples Received: September 25, 2009
Estimated Completion: October 07, 2009

Customer Sample ID	Pace Analytical Lab ID	Matrix	Date/Time Collected	Method
AGPURGE-W-924091	6066709001	Water	09/24/09 08:00	300.0 IC Anions 504 GCS EDB and DBCP 8260 MSV
BAPURGE-W-924092	6066709002	Water	09/24/09 11:15	300.0 IC Anions 504 GCS EDB and DBCP 8260 MSV
CNPURGE-W-924093	6066709003	Water	09/24/09 12:40	300.0 IC Anions 504 GCS EDB and DBCP 8260 MSV
EUPURGE-W-924094	6066709004	Water	09/24/09 13:33	300.0 IC Anions 504 GCS EDB and DBCP 8260 MSV
MRPURGE-W-924095	6066709005	Water	09/24/09 14:22	300.0 IC Anions 504 GCS EDB and DBCP 8260 MSV
QCTB-W-924096	6066709006	Water	09/24/09 16:40	8260 MSV

Please contact your project manager if you recognize any discrepancy in this form or have any questions about your project.

Thank you for choosing Pace Analytical Services, Inc.

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October 13, 2009

Mr. Travis Kamler
TCW Construction Inc
141 M Street
Lincoln, NE 68508

RE: Project: Kansas Waste Water
Pace Project No.: 6066709

Dear Mr. Kamler:
Enclosed are the analytical results for sample(s) received by the laboratory on September 25, 2009. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Trudy Gipson

trudy.gipson@pacelabs.com
Project Manager

Enclosures

cc: Mr. David Surgnier

Pace Analytical Services, Inc.
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CERTIFICATIONS

Project: Kansas Waste Water
Pace Project No.: 6066709

Kansas Certification IDs

Washington Certification #: C2069
Utah Certification #: 9135995665
Texas Certification #: T104704407-08-TX
Oregon Certification #: KS200001
Oklahoma Certification #: 9205/9935
Nevada Certification #: KS000212008A
Louisiana Certification #: 03055
Kansas/NELAP Certification #: E-10116
Iowa Certification #: 118
Illinois Certification #: 001191
Arkansas Certification #: 05-008-0
A2LA Certification #: 2456.01

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SAMPLE SUMMARY

Project: Kansas Waste Water
Pace Project No.: 6066709

Lab ID	Sample ID	Matrix	Date Collected	Date Received
6066709001	**AGPURGE-W-924091**	Water	09/24/09 08:00	09/25/09 08:50
6066709002	**BAPURGE-W-924092**	Water	09/24/09 11:15	09/25/09 08:50
6066709003	**CNPURGE-W-924093**	Water	09/24/09 12:40	09/25/09 08:50
6066709004	**EUPURGE-W-924094**	Water	09/24/09 13:33	09/25/09 08:50
6066709005	**MRPURGE-W-924095**	Water	09/24/09 14:22	09/25/09 08:50
6066709006	**QCTB-W-924096**	Water	09/24/09 16:40	09/25/09 08:50

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SAMPLE ANALYTE COUNT

Project: Kansas Waste Water
Pace Project No.: 6066709

Lab ID	Sample ID	Method	Analysts	Analytes Reported
6066709001	**AGPURGE-W-924091**	EPA 300.0	RAB	1
		EPA 5030B/8260	NPM	70
		EPA 504.1	WAW	1
6066709002	**BAPURGE-W-924092**	EPA 300.0	RAB	1
		EPA 5030B/8260	NPM	70
		EPA 504.1	WAW	1
6066709003	**CNPURGE-W-924093**	EPA 300.0	RAB	1
		EPA 5030B/8260	NPM	70
		EPA 504.1	WAW	1
6066709004	**EUPURGE-W-924094**	EPA 300.0	RAB	1
		EPA 5030B/8260	NPM	70
		EPA 504.1	WAW	1
6066709005	**MRPURGE-W-924095**	EPA 300.0	RAB	1
		EPA 5030B/8260	NPM	70
		EPA 504.1	WAW	1
6066709006	**QCTB-W-924096**	EPA 5030B/8260	NPM	70

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6066709

Sample: CNPURGE-W-924093 **Lab ID: 6066709003** Collected: 09/24/09 12:40 Received: 09/25/09 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
504 GCS EDB and DBCP	Analytical Method: EPA 504.1 Preparation Method: EPA 504.1							
1,2-Dibromoethane (EDB)	ND	ug/L	0.046	1	10/08/09 00:00	10/10/09 04:04	106-93-4	
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	10.0	1		09/28/09 21:37	67-64-1	
Benzene	ND	ug/L	1.0	1		09/28/09 21:37	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		09/28/09 21:37	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		09/28/09 21:37	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		09/28/09 21:37	75-27-4	
Bromoform	ND	ug/L	1.0	1		09/28/09 21:37	75-25-2	
Bromomethane	ND	ug/L	1.0	1		09/28/09 21:37	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	1		09/28/09 21:37	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		09/28/09 21:37	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		09/28/09 21:37	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		09/28/09 21:37	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		09/28/09 21:37	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	1		09/28/09 21:37	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		09/28/09 21:37	108-90-7	
Chloroethane	ND	ug/L	1.0	1		09/28/09 21:37	75-00-3	
Chloroform	ND	ug/L	1.0	1		09/28/09 21:37	67-66-3	
Chloromethane	ND	ug/L	1.0	1		09/28/09 21:37	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		09/28/09 21:37	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		09/28/09 21:37	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		09/28/09 21:37	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		09/28/09 21:37	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		09/28/09 21:37	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		09/28/09 21:37	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		09/28/09 21:37	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		09/28/09 21:37	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		09/28/09 21:37	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		09/28/09 21:37	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		09/28/09 21:37	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		09/28/09 21:37	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		09/28/09 21:37	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		09/28/09 21:37	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		09/28/09 21:37	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		09/28/09 21:37	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		09/28/09 21:37	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		09/28/09 21:37	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		09/28/09 21:37	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		09/28/09 21:37	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		09/28/09 21:37	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		09/28/09 21:37	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		09/28/09 21:37	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		09/28/09 21:37	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		09/28/09 21:37	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		09/28/09 21:37	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		09/28/09 21:37	99-87-6	

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6066709

Sample: CNPURGE-W-924093 **Lab ID: 6066709003** Collected: 09/24/09 12:40 Received: 09/25/09 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Methylene chloride	ND	ug/L	1.0	1		09/28/09 21:37	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		09/28/09 21:37	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		09/28/09 21:37	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		09/28/09 21:37	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		09/28/09 21:37	103-65-1	
Styrene	ND	ug/L	1.0	1		09/28/09 21:37	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		09/28/09 21:37	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		09/28/09 21:37	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		09/28/09 21:37	127-18-4	
Toluene	ND	ug/L	1.0	1		09/28/09 21:37	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		09/28/09 21:37	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		09/28/09 21:37	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		09/28/09 21:37	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		09/28/09 21:37	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		09/28/09 21:37	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		09/28/09 21:37	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		09/28/09 21:37	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		09/28/09 21:37	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		09/28/09 21:37	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		09/28/09 21:37	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		09/28/09 21:37	1330-20-7	
4-Bromofluorobenzene (S)	103	%	87-115	1		09/28/09 21:37	460-00-4	
Dibromofluoromethane (S)	107	%	87-113	1		09/28/09 21:37	1868-53-7	
1,2-Dichloroethane-d4 (S)	109	%	81-121	1		09/28/09 21:37	17060-07-0	
Toluene-d8 (S)	107	%	89-111	1		09/28/09 21:37	2037-26-5	
Preservation pH	**7.0**		0.10	1		09/28/09 21:37		
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**0.15**	mg/L	0.10	1		09/26/09 04:47	14797-55-8	

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6066709

Sample: QCTB-W-924096 **Lab ID: 6066709006** Collected: 09/24/09 16:40 Received: 09/25/09 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	**15.4**	ug/L	10.0	1		09/28/09 22:23	67-64-1	
Benzene	ND	ug/L	1.0	1		09/28/09 22:23	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		09/28/09 22:23	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		09/28/09 22:23	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		09/28/09 22:23	75-27-4	
Bromoform	ND	ug/L	1.0	1		09/28/09 22:23	75-25-2	
Bromomethane	ND	ug/L	1.0	1		09/28/09 22:23	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	1		09/28/09 22:23	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		09/28/09 22:23	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		09/28/09 22:23	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		09/28/09 22:23	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		09/28/09 22:23	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	1		09/28/09 22:23	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		09/28/09 22:23	108-90-7	
Chloroethane	ND	ug/L	1.0	1		09/28/09 22:23	75-00-3	
Chloroform	ND	ug/L	1.0	1		09/28/09 22:23	67-66-3	
Chloromethane	ND	ug/L	1.0	1		09/28/09 22:23	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		09/28/09 22:23	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		09/28/09 22:23	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		09/28/09 22:23	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		09/28/09 22:23	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		09/28/09 22:23	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		09/28/09 22:23	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		09/28/09 22:23	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		09/28/09 22:23	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		09/28/09 22:23	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		09/28/09 22:23	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		09/28/09 22:23	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		09/28/09 22:23	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		09/28/09 22:23	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		09/28/09 22:23	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		09/28/09 22:23	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		09/28/09 22:23	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		09/28/09 22:23	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		09/28/09 22:23	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		09/28/09 22:23	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		09/28/09 22:23	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		09/28/09 22:23	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		09/28/09 22:23	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		09/28/09 22:23	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		09/28/09 22:23	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		09/28/09 22:23	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		09/28/09 22:23	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		09/28/09 22:23	99-87-6	
Methylene chloride	ND	ug/L	1.0	1		09/28/09 22:23	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		09/28/09 22:23	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		09/28/09 22:23	1634-04-4	

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6066709

Sample: QCTB-W-924096 **Lab ID: 6066709006** Collected: 09/24/09 16:40 Received: 09/25/09 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Naphthalene	ND	ug/L	10.0	1		09/28/09 22:23	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		09/28/09 22:23	103-65-1	
Styrene	ND	ug/L	1.0	1		09/28/09 22:23	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		09/28/09 22:23	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		09/28/09 22:23	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		09/28/09 22:23	127-18-4	
Toluene	ND	ug/L	1.0	1		09/28/09 22:23	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		09/28/09 22:23	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		09/28/09 22:23	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		09/28/09 22:23	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		09/28/09 22:23	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		09/28/09 22:23	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		09/28/09 22:23	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		09/28/09 22:23	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		09/28/09 22:23	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		09/28/09 22:23	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		09/28/09 22:23	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		09/28/09 22:23	1330-20-7	
4-Bromofluorobenzene (S)	103	%	87-115	1		09/28/09 22:23	460-00-4	
Dibromofluoromethane (S)	107	%	87-113	1		09/28/09 22:23	1868-53-7	
1,2-Dichloroethane-d4 (S)	109	%	81-121	1		09/28/09 22:23	17060-07-0	
Toluene-d8 (S)	107	%	89-111	1		09/28/09 22:23	2037-26-5	
Preservation pH	**7.0**		0.10	1		09/28/09 22:23		

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6066709

QC Batch: WETA/10995 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 6066709001, 6066709002, 6066709003, 6066709004, 6066709005

METHOD BLANK: 541949 Matrix: Water
Associated Lab Samples: 6066709001, 6066709002, 6066709003, 6066709004, 6066709005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.10	09/25/09 21:46	

LABORATORY CONTROL SAMPLE: 541950

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	5	4.9	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 541951 541952

Parameter	Units	6066657003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	2.5	5	5	5.7	5.7	65	64	73-114	0	5	M0

MATRIX SPIKE SAMPLE: 542080

Parameter	Units	6066707001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	0.21	5	4.8	92	73-114	

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6066709

QC Batch: MSV/23759 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 7 day
Associated Lab Samples: 6066709001, 6066709002, 6066709003, 6066709004, 6066709005, 6066709006

METHOD BLANK: 548226 Matrix: Water
Associated Lab Samples: 6066709001, 6066709002, 6066709003, 6066709004, 6066709005, 6066709006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	09/28/09 20:06	
1,1,1-Trichloroethane	ug/L	ND	1.0	09/28/09 20:06	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	09/28/09 20:06	
1,1,2-Trichloroethane	ug/L	ND	1.0	09/28/09 20:06	
1,1-Dichloroethane	ug/L	ND	1.0	09/28/09 20:06	
1,1-Dichloroethene	ug/L	ND	1.0	09/28/09 20:06	
1,1-Dichloropropene	ug/L	ND	1.0	09/28/09 20:06	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	09/28/09 20:06	
1,2,3-Trichloropropane	ug/L	ND	2.5	09/28/09 20:06	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	09/28/09 20:06	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	09/28/09 20:06	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.5	09/28/09 20:06	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	09/28/09 20:06	
1,2-Dichlorobenzene	ug/L	ND	1.0	09/28/09 20:06	
1,2-Dichloroethane	ug/L	ND	1.0	09/28/09 20:06	
1,2-Dichloroethene (Total)	ug/L	ND	1.0	09/28/09 20:06	
1,2-Dichloropropane	ug/L	ND	1.0	09/28/09 20:06	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	09/28/09 20:06	
1,3-Dichlorobenzene	ug/L	ND	1.0	09/28/09 20:06	
1,3-Dichloropropane	ug/L	ND	1.0	09/28/09 20:06	
1,4-Dichlorobenzene	ug/L	ND	1.0	09/28/09 20:06	
2,2-Dichloropropane	ug/L	ND	1.0	09/28/09 20:06	
2-Butanone (MEK)	ug/L	ND	10.0	09/28/09 20:06	
2-Chlorotoluene	ug/L	ND	1.0	09/28/09 20:06	
2-Hexanone	ug/L	ND	10.0	09/28/09 20:06	
4-Chlorotoluene	ug/L	ND	1.0	09/28/09 20:06	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	09/28/09 20:06	
Acetone	ug/L	ND	10.0	09/28/09 20:06	
Benzene	ug/L	ND	1.0	09/28/09 20:06	
Bromobenzene	ug/L	ND	1.0	09/28/09 20:06	
Bromochloromethane	ug/L	ND	1.0	09/28/09 20:06	
Bromodichloromethane	ug/L	ND	1.0	09/28/09 20:06	
Bromoform	ug/L	ND	1.0	09/28/09 20:06	
Bromomethane	ug/L	ND	1.0	09/28/09 20:06	
Carbon disulfide	ug/L	ND	5.0	09/28/09 20:06	
Carbon tetrachloride	ug/L	ND	1.0	09/28/09 20:06	
Chlorobenzene	ug/L	ND	1.0	09/28/09 20:06	
Chloroethane	ug/L	ND	1.0	09/28/09 20:06	
Chloroform	ug/L	ND	1.0	09/28/09 20:06	
Chloromethane	ug/L	ND	1.0	09/28/09 20:06	
cis-1,2-Dichloroethene	ug/L	ND	1.0	09/28/09 20:06	
cis-1,3-Dichloropropene	ug/L	ND	1.0	09/28/09 20:06	
Dibromochloromethane	ug/L	ND	1.0	09/28/09 20:06	

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6066709

METHOD BLANK: 548226 Matrix: Water

Associated Lab Samples: 6066709001, 6066709002, 6066709003, 6066709004, 6066709005, 6066709006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromomethane	ug/L	ND	1.0	09/28/09 20:06	
Dichlorodifluoromethane	ug/L	ND	1.0	09/28/09 20:06	
Ethylbenzene	ug/L	ND	1.0	09/28/09 20:06	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	09/28/09 20:06	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	09/28/09 20:06	
Methyl-tert-butyl ether	ug/L	ND	1.0	09/28/09 20:06	
Methylene chloride	ug/L	ND	1.0	09/28/09 20:06	
n-Butylbenzene	ug/L	ND	1.0	09/28/09 20:06	
n-Propylbenzene	ug/L	ND	1.0	09/28/09 20:06	
Naphthalene	ug/L	ND	10.0	09/28/09 20:06	
p-Isopropyltoluene	ug/L	ND	1.0	09/28/09 20:06	
sec-Butylbenzene	ug/L	ND	1.0	09/28/09 20:06	
Styrene	ug/L	ND	1.0	09/28/09 20:06	
tert-Butylbenzene	ug/L	ND	1.0	09/28/09 20:06	
Tetrachloroethene	ug/L	ND	1.0	09/28/09 20:06	
Toluene	ug/L	ND	1.0	09/28/09 20:06	
trans-1,2-Dichloroethene	ug/L	ND	1.0	09/28/09 20:06	
trans-1,3-Dichloropropene	ug/L	ND	1.0	09/28/09 20:06	
Trichloroethene	ug/L	ND	1.0	09/28/09 20:06	
Trichlorofluoromethane	ug/L	ND	1.0	09/28/09 20:06	
Vinyl chloride	ug/L	ND	1.0	09/28/09 20:06	
Xylene (Total)	ug/L	ND	3.0	09/28/09 20:06	
1,2-Dichloroethane-d4 (S)	%	105	81-121	09/28/09 20:06	
4-Bromofluorobenzene (S)	%	102	87-115	09/28/09 20:06	
Dibromofluoromethane (S)	%	104	87-113	09/28/09 20:06	
Toluene-d8 (S)	%	106	89-111	09/28/09 20:06	

LABORATORY CONTROL SAMPLE: 548227

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	10	7.6	76	75-121	
1,1,1-Trichloroethane	ug/L	10	8.8	88	73-120	
1,1,2,2-Tetrachloroethane	ug/L	10	10	100	73-128	
1,1,2-Trichloroethane	ug/L	10	10.4	104	83-125	
1,1-Dichloroethane	ug/L	10	9.8	98	79-115	
1,1-Dichloroethene	ug/L	10	10.2	102	76-122	
1,1-Dichloropropene	ug/L	10	10.5	105	80-119	
1,2,3-Trichlorobenzene	ug/L	10	9.5	95	70-138	
1,2,3-Trichloropropane	ug/L	10	10.3	103	74-129	
1,2,4-Trichlorobenzene	ug/L	10	9.0	90	72-131	
1,2,4-Trimethylbenzene	ug/L	10	9.2	92	78-123	
1,2-Dibromo-3-chloropropane	ug/L	10	8.9	89	61-139	
1,2-Dibromoethane (EDB)	ug/L	10	10	100	80-124	
1,2-Dichlorobenzene	ug/L	10	9.4	94	82-113	
1,2-Dichloroethane	ug/L	10	10.9	109	78-118	

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6066709

LABORATORY CONTROL SAMPLE: 548227

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethene (Total)	ug/L	20	21.5	107	79-120	
1,2-Dichloropropane	ug/L	10	10.9	109	83-117	
1,3,5-Trimethylbenzene	ug/L	10	9.3	93	79-116	
1,3-Dichlorobenzene	ug/L	10	9.1	91	82-112	
1,3-Dichloropropane	ug/L	10	10.4	104	82-121	
1,4-Dichlorobenzene	ug/L	10	9.1	91	81-111	
2,2-Dichloropropane	ug/L	10	6.3	63	55-139	
2-Butanone (MEK)	ug/L	25	29.6	119	61-136	
2-Chlorotoluene	ug/L	10	9.1	91	81-115	
2-Hexanone	ug/L	25	27.8	111	65-137	
4-Chlorotoluene	ug/L	10	9.2	92	81-111	
4-Methyl-2-pentanone (MIBK)	ug/L	25	32.1	129	65-133	
Acetone	ug/L	25	27.7	111	58-126	
Benzene	ug/L	10	10.8	108	81-114	
Bromobenzene	ug/L	10	9.3	93	84-113	
Bromochloromethane	ug/L	10	11.2	112	79-120	
Bromodichloromethane	ug/L	10	10.0	100	75-119	
Bromoform	ug/L	10	6.8	68	66-132	
Bromomethane	ug/L	10	5.8	58	58-151	
Carbon disulfide	ug/L	10	10.9	109	49-148	
Carbon tetrachloride	ug/L	10	7.4	74	62-137	
Chlorobenzene	ug/L	10	9.9	99	81-113	
Chloroethane	ug/L	10	12.4	124	65-119	L3
Chloroform	ug/L	10	10.4	104	76-118	
Chloromethane	ug/L	10	9.6	96	40-132	
cis-1,2-Dichloroethene	ug/L	10	10.8	108	80-119	
cis-1,3-Dichloropropene	ug/L	10	9.5	95	75-122	
Dibromochloromethane	ug/L	10	8.4	84	72-124	
Dibromomethane	ug/L	10	11.0	110	79-121	
Dichlorodifluoromethane	ug/L	10	8.1	81	11-156	
Ethylbenzene	ug/L	10	9.6	96	82-115	
Hexachloro-1,3-butadiene	ug/L	10	8.3	83	72-139	
Isopropylbenzene (Cumene)	ug/L	10	8.4	84	69-103	
Methyl-tert-butyl ether	ug/L	10	9.4	94	65-113	
Methylene chloride	ug/L	10	10.0	100	76-124	
n-Butylbenzene	ug/L	10	9.1	91	77-121	
n-Propylbenzene	ug/L	10	8.9	89	79-116	
Naphthalene	ug/L	10	10.6	106	66-132	
p-Isopropyltoluene	ug/L	10	8.8	88	77-114	
sec-Butylbenzene	ug/L	10	9.1	91	80-119	
Styrene	ug/L	10	10.1	101	81-115	
tert-Butylbenzene	ug/L	10	9.2	92	77-121	
Tetrachloroethene	ug/L	10	9.2	92	73-122	
Toluene	ug/L	10	10.6	106	82-114	
trans-1,2-Dichloroethene	ug/L	10	10.7	107	75-122	
trans-1,3-Dichloropropene	ug/L	10	6.5	65	66-114	L2
Trichloroethene	ug/L	10	10.6	106	78-119	
Trichlorofluoromethane	ug/L	10	9.7	97	71-120	

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6066709

LABORATORY CONTROL SAMPLE: 548227

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Vinyl chloride	ug/L	10	9.2	92	67-139	
Xylene (Total)	ug/L	30	26.9	90	81-116	
1,2-Dichloroethane-d4 (S)	%			104	81-121	
4-Bromofluorobenzene (S)	%			101	87-115	
Dibromofluoromethane (S)	%			105	87-113	
Toluene-d8 (S)	%			105	89-111	

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6066709

QC Batch: OEXT/19948 Analysis Method: EPA 504.1
QC Batch Method: EPA 504.1 Analysis Description: GCS 504 EDB DBCP
Associated Lab Samples: 6066709001, 6066709002, 6066709003, 6066709004, 6066709005

METHOD BLANK: 548830 Matrix: Water
Associated Lab Samples: 6066709001, 6066709002, 6066709003, 6066709004, 6066709005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.050	10/09/09 15:13	

LABORATORY CONTROL SAMPLE & LCSD: 548831 548832

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	.25	0.29	0.30	117	121	70-130	4	20	

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QUALIFIERS

Project: Kansas Waste Water
Pace Project No.: 6066709

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

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U - Indicates the compound was analyzed for, but not detected.

BATCH QUALIFIERS

Batch: MSV/23759

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

L2	Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.
L3	Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

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Lenexa, KS 66219
(913)599-5665

October 30, 2009

Mr. Travis Kamler
TCW Construction Inc
141 M Street
Lincoln, NE 68508

RE: Project: Kansas Waste Water
Pace Project No.: 6068053

Dear Mr. Kamler:
Enclosed are the analytical results for sample(s) received by the laboratory on October 20, 2009. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Trudy Gipson

trudy.gipson@pacelabs.com
Project Manager

Enclosures

cc: Mr. David Surgnier

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CERTIFICATIONS

Project:	Kansas Waste Water
Pace Project No.:	6068053

Kansas Certification IDs

Washington Certification #: C2069
Utah Certification #: 9135995665
Texas Certification #: T104704407-08-TX
Oregon Certification #: KS200001
Oklahoma Certification #: 9205/9935
Nevada Certification #: KS000212008A
Louisiana Certification #: 03055
Kansas/NELAP Certification #: E-10116
Iowa Certification #: 118
Illinois Certification #: 001191
Arkansas Certification #: 05-008-0
A2LA Certification #: 2456.01

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SAMPLE SUMMARY

Project: Kansas Waste Water
Pace Project No.: 6068053

Lab ID	Sample ID	Matrix	Date Collected	Date Received
6068053001	**CNPURGE-W-1019091**	Water	10/19/09 11:00	10/20/09 09:05
6068053002	**BAPURGE-W-1019092**	Water	10/19/09 12:28	10/20/09 09:05
6068053003	**HAPURGE-W-1019093**	Water	10/19/09 13:52	10/20/09 09:05
6068053004	**QCTB-W-1019094**	Water	10/19/09 17:40	10/20/09 09:05

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SAMPLE ANALYTE COUNT

Project: Kansas Waste Water
Pace Project No.: 6068053

Lab ID	Sample ID	Method	Analysts	Analytes Reported
6068053001	**CNPURGE-W-1019091**	EPA 300.0	RAB	1
		EPA 5030B/8260	AJA	70
		EPA 504.1	NAW	1
6068053002	**BAPURGE-W-1019092**	EPA 300.0	RAB	1
		EPA 5030B/8260	AJA	70
		EPA 504.1	NAW	1
6068053003	**HAPURGE-W-1019093**	EPA 300.0	RAB	1
		EPA 5030B/8260	AJA	70
		EPA 504.1	NAW	1
6068053004	**QCTB-W-1019094**	EPA 5030B/8260	AJA	70

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6068053

Sample: CNPURGE-W-1019091 **Lab ID: 6068053001** Collected: 10/19/09 11:00 Received: 10/20/09 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
504 GCS EDB and DBCP	Analytical Method: EPA 504.1 Preparation Method: EPA 504.1							
1,2-Dibromoethane (EDB)	ND	ug/L	0.028	1	10/27/09 00:00	10/27/09 17:43	106-93-4	
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	10.0	1		10/24/09 19:10	67-64-1	
Benzene	ND	ug/L	1.0	1		10/24/09 19:10	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		10/24/09 19:10	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		10/24/09 19:10	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		10/24/09 19:10	75-27-4	
Bromoform	ND	ug/L	1.0	1		10/24/09 19:10	75-25-2	
Bromomethane	ND	ug/L	1.0	1		10/24/09 19:10	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	1		10/24/09 19:10	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		10/24/09 19:10	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		10/24/09 19:10	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		10/24/09 19:10	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		10/24/09 19:10	75-15-0	
Carbon tetrachloride	**2.3**	ug/L	1.0	1		10/24/09 19:10	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		10/24/09 19:10	108-90-7	
Chloroethane	ND	ug/L	1.0	1		10/24/09 19:10	75-00-3	
Chloroform	ND	ug/L	1.0	1		10/24/09 19:10	67-66-3	
Chloromethane	ND	ug/L	1.0	1		10/24/09 19:10	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		10/24/09 19:10	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		10/24/09 19:10	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		10/24/09 19:10	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		10/24/09 19:10	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		10/24/09 19:10	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		10/24/09 19:10	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:10	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:10	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:10	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		10/24/09 19:10	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		10/24/09 19:10	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		10/24/09 19:10	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		10/24/09 19:10	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		10/24/09 19:10	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		10/24/09 19:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		10/24/09 19:10	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		10/24/09 19:10	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		10/24/09 19:10	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		10/24/09 19:10	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		10/24/09 19:10	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		10/24/09 19:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		10/24/09 19:10	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		10/24/09 19:10	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		10/24/09 19:10	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		10/24/09 19:10	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		10/24/09 19:10	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		10/24/09 19:10	99-87-6	

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6068053

Sample: CNPURGE-W-1019091 **Lab ID: 6068053001** Collected: 10/19/09 11:00 Received: 10/20/09 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Methylene chloride	ND	ug/L	1.0	1		10/24/09 19:10	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		10/24/09 19:10	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/24/09 19:10	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		10/24/09 19:10	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		10/24/09 19:10	103-65-1	
Styrene	ND	ug/L	1.0	1		10/24/09 19:10	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		10/24/09 19:10	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		10/24/09 19:10	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		10/24/09 19:10	127-18-4	
Toluene	ND	ug/L	1.0	1		10/24/09 19:10	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:10	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:10	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		10/24/09 19:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		10/24/09 19:10	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		10/24/09 19:10	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		10/24/09 19:10	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		10/24/09 19:10	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		10/24/09 19:10	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		10/24/09 19:10	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		10/24/09 19:10	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		10/24/09 19:10	1330-20-7	
4-Bromofluorobenzene (S)	103	%	87-115	1		10/24/09 19:10	460-00-4	
Dibromofluoromethane (S)	99	%	87-113	1		10/24/09 19:10	1868-53-7	
1,2-Dichloroethane-d4 (S)	101	%	81-121	1		10/24/09 19:10	17060-07-0	
Toluene-d8 (S)	101	%	89-111	1		10/24/09 19:10	2037-26-5	
Preservation pH	**6.0**		0.10	1		10/24/09 19:10		
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**2.1**	mg/L	0.10	1		10/20/09 18:55	14797-55-8	

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6068053

Sample: QCTB-W-1019094 **Lab ID: 6068053004** Collected: 10/19/09 17:40 Received: 10/20/09 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	10.0	1		10/24/09 19:59	67-64-1	
Benzene	ND	ug/L	1.0	1		10/24/09 19:59	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		10/24/09 19:59	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		10/24/09 19:59	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		10/24/09 19:59	75-27-4	
Bromoform	ND	ug/L	1.0	1		10/24/09 19:59	75-25-2	
Bromomethane	ND	ug/L	1.0	1		10/24/09 19:59	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	1		10/24/09 19:59	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		10/24/09 19:59	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		10/24/09 19:59	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		10/24/09 19:59	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		10/24/09 19:59	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	1		10/24/09 19:59	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		10/24/09 19:59	108-90-7	
Chloroethane	ND	ug/L	1.0	1		10/24/09 19:59	75-00-3	
Chloroform	ND	ug/L	1.0	1		10/24/09 19:59	67-66-3	
Chloromethane	ND	ug/L	1.0	1		10/24/09 19:59	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		10/24/09 19:59	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		10/24/09 19:59	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		10/24/09 19:59	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		10/24/09 19:59	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		10/24/09 19:59	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		10/24/09 19:59	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:59	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:59	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:59	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		10/24/09 19:59	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		10/24/09 19:59	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		10/24/09 19:59	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		10/24/09 19:59	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		10/24/09 19:59	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		10/24/09 19:59	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		10/24/09 19:59	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		10/24/09 19:59	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		10/24/09 19:59	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		10/24/09 19:59	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		10/24/09 19:59	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		10/24/09 19:59	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		10/24/09 19:59	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		10/24/09 19:59	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		10/24/09 19:59	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		10/24/09 19:59	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		10/24/09 19:59	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		10/24/09 19:59	99-87-6	
Methylene chloride	ND	ug/L	1.0	1		10/24/09 19:59	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		10/24/09 19:59	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/24/09 19:59	1634-04-4	

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6068053

Sample: QCTB-W-1019094 **Lab ID: 6068053004** Collected: 10/19/09 17:40 Received: 10/20/09 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Naphthalene	ND	ug/L	10.0	1		10/24/09 19:59	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		10/24/09 19:59	103-65-1	
Styrene	ND	ug/L	1.0	1		10/24/09 19:59	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		10/24/09 19:59	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		10/24/09 19:59	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		10/24/09 19:59	127-18-4	
Toluene	ND	ug/L	1.0	1		10/24/09 19:59	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:59	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:59	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		10/24/09 19:59	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		10/24/09 19:59	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		10/24/09 19:59	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		10/24/09 19:59	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		10/24/09 19:59	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		10/24/09 19:59	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		10/24/09 19:59	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		10/24/09 19:59	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		10/24/09 19:59	1330-20-7	
4-Bromofluorobenzene (S)	102	%	87-115	1		10/24/09 19:59	460-00-4	
Dibromofluoromethane (S)	98	%	87-113	1		10/24/09 19:59	1868-53-7	
1,2-Dichloroethane-d4 (S)	101	%	81-121	1		10/24/09 19:59	17060-07-0	
Toluene-d8 (S)	102	%	89-111	1		10/24/09 19:59	2037-26-5	
Preservation pH	**6.0**		0.10	1		10/24/09 19:59		

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6068053

QC Batch: WETA/11239 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 6068053001, 6068053002, 6068053003

METHOD BLANK: 554827 Matrix: Water
Associated Lab Samples: 6068053001, 6068053002, 6068053003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.10	10/20/09 18:20	

LABORATORY CONTROL SAMPLE: 554828

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	5	4.7	94	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 554829 554830

Parameter	Units	6068053001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	2.1	5	5	7.2	7.3	104	104	68-120	1	16	

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6068053

QC Batch: MSV/24399 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 7 day
Associated Lab Samples: 6068053001, 6068053002, 6068053003, 6068053004

METHOD BLANK: 557805 Matrix: Water
Associated Lab Samples: 6068053001, 6068053002, 6068053003, 6068053004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	10/24/09 18:38	
1,1,1-Trichloroethane	ug/L	ND	1.0	10/24/09 18:38	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	10/24/09 18:38	
1,1,2-Trichloroethane	ug/L	ND	1.0	10/24/09 18:38	
1,1-Dichloroethane	ug/L	ND	1.0	10/24/09 18:38	
1,1-Dichloroethene	ug/L	ND	1.0	10/24/09 18:38	
1,1-Dichloropropene	ug/L	ND	1.0	10/24/09 18:38	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	10/24/09 18:38	
1,2,3-Trichloropropane	ug/L	ND	2.5	10/24/09 18:38	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	10/24/09 18:38	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	10/24/09 18:38	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.5	10/24/09 18:38	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	10/24/09 18:38	
1,2-Dichlorobenzene	ug/L	ND	1.0	10/24/09 18:38	
1,2-Dichloroethane	ug/L	ND	1.0	10/24/09 18:38	
1,2-Dichloroethene (Total)	ug/L	ND	1.0	10/24/09 18:38	
1,2-Dichloropropane	ug/L	ND	1.0	10/24/09 18:38	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	10/24/09 18:38	
1,3-Dichlorobenzene	ug/L	ND	1.0	10/24/09 18:38	
1,3-Dichloropropane	ug/L	ND	1.0	10/24/09 18:38	
1,4-Dichlorobenzene	ug/L	ND	1.0	10/24/09 18:38	
2,2-Dichloropropane	ug/L	ND	1.0	10/24/09 18:38	
2-Butanone (MEK)	ug/L	ND	10.0	10/24/09 18:38	
2-Chlorotoluene	ug/L	ND	1.0	10/24/09 18:38	
2-Hexanone	ug/L	ND	10.0	10/24/09 18:38	
4-Chlorotoluene	ug/L	ND	1.0	10/24/09 18:38	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	10/24/09 18:38	
Acetone	ug/L	ND	10.0	10/24/09 18:38	
Benzene	ug/L	ND	1.0	10/24/09 18:38	
Bromobenzene	ug/L	ND	1.0	10/24/09 18:38	
Bromochloromethane	ug/L	ND	1.0	10/24/09 18:38	
Bromodichloromethane	ug/L	ND	1.0	10/24/09 18:38	
Bromoform	ug/L	ND	1.0	10/24/09 18:38	
Bromomethane	ug/L	ND	1.0	10/24/09 18:38	
Carbon disulfide	ug/L	ND	5.0	10/24/09 18:38	
Carbon tetrachloride	ug/L	ND	1.0	10/24/09 18:38	
Chlorobenzene	ug/L	ND	1.0	10/24/09 18:38	
Chloroethane	ug/L	ND	1.0	10/24/09 18:38	
Chloroform	ug/L	ND	1.0	10/24/09 18:38	
Chloromethane	ug/L	ND	1.0	10/24/09 18:38	
cis-1,2-Dichloroethene	ug/L	ND	1.0	10/24/09 18:38	
cis-1,3-Dichloropropene	ug/L	ND	1.0	10/24/09 18:38	
Dibromochloromethane	ug/L	ND	1.0	10/24/09 18:38	

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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6068053

METHOD BLANK: 557805 Matrix: Water

Associated Lab Samples: 6068053001, 6068053002, 6068053003, 6068053004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromomethane	ug/L	ND	1.0	10/24/09 18:38	
Dichlorodifluoromethane	ug/L	ND	1.0	10/24/09 18:38	
Ethylbenzene	ug/L	ND	1.0	10/24/09 18:38	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	10/24/09 18:38	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	10/24/09 18:38	
Methyl-tert-butyl ether	ug/L	ND	1.0	10/24/09 18:38	
Methylene chloride	ug/L	ND	1.0	10/24/09 18:38	
n-Butylbenzene	ug/L	ND	1.0	10/24/09 18:38	
n-Propylbenzene	ug/L	ND	1.0	10/24/09 18:38	
Naphthalene	ug/L	ND	10.0	10/24/09 18:38	
p-Isopropyltoluene	ug/L	ND	1.0	10/24/09 18:38	
sec-Butylbenzene	ug/L	ND	1.0	10/24/09 18:38	
Styrene	ug/L	ND	1.0	10/24/09 18:38	
tert-Butylbenzene	ug/L	ND	1.0	10/24/09 18:38	
Tetrachloroethene	ug/L	ND	1.0	10/24/09 18:38	
Toluene	ug/L	ND	1.0	10/24/09 18:38	
trans-1,2-Dichloroethene	ug/L	ND	1.0	10/24/09 18:38	
trans-1,3-Dichloropropene	ug/L	ND	1.0	10/24/09 18:38	
Trichloroethene	ug/L	ND	1.0	10/24/09 18:38	
Trichlorofluoromethane	ug/L	ND	1.0	10/24/09 18:38	
Vinyl chloride	ug/L	ND	1.0	10/24/09 18:38	
Xylene (Total)	ug/L	ND	3.0	10/24/09 18:38	
1,2-Dichloroethane-d4 (S)	%	99	81-121	10/24/09 18:38	
4-Bromofluorobenzene (S)	%	101	87-115	10/24/09 18:38	
Dibromofluoromethane (S)	%	95	87-113	10/24/09 18:38	
Toluene-d8 (S)	%	102	89-111	10/24/09 18:38	

LABORATORY CONTROL SAMPLE: 557806

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	10	10.1	101	75-121	
1,1,1-Trichloroethane	ug/L	10	9.6	96	73-120	
1,1,2,2-Tetrachloroethane	ug/L	10	10.8	108	73-128	
1,1,2-Trichloroethane	ug/L	10	10.1	101	83-125	
1,1-Dichloroethane	ug/L	10	9.7	97	79-115	
1,1-Dichloroethene	ug/L	10	9.5	95	76-122	
1,1-Dichloropropene	ug/L	10	10.0	100	80-119	
1,2,3-Trichlorobenzene	ug/L	10	11.6	116	70-138	
1,2,3-Trichloropropane	ug/L	10	11.5	115	74-129	
1,2,4-Trichlorobenzene	ug/L	10	10.7	107	72-131	
1,2,4-Trimethylbenzene	ug/L	10	10.0	100	78-123	
1,2-Dibromo-3-chloropropane	ug/L	10	11.3	113	61-139	
1,2-Dibromoethane (EDB)	ug/L	10	10.2	102	80-124	
1,2-Dichlorobenzene	ug/L	10	10	100	82-113	
1,2-Dichloroethane	ug/L	10	9.6	96	78-118	

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6068053

LABORATORY CONTROL SAMPLE: 557806

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethene (Total)	ug/L	20	19.4	97	79-120	
1,2-Dichloropropane	ug/L	10	10.9	109	83-117	
1,3,5-Trimethylbenzene	ug/L	10	8.5	85	79-116	
1,3-Dichlorobenzene	ug/L	10	10.1	101	82-112	
1,3-Dichloropropane	ug/L	10	10.2	102	82-121	
1,4-Dichlorobenzene	ug/L	10	9.9	99	81-111	
2,2-Dichloropropane	ug/L	10	9.2	92	55-139	
2-Butanone (MEK)	ug/L	25	26.7	107	61-136	
2-Chlorotoluene	ug/L	10	10.0	100	81-115	
2-Hexanone	ug/L	25	25.6	102	65-137	
4-Chlorotoluene	ug/L	10	9.9	99	81-111	
4-Methyl-2-pentanone (MIBK)	ug/L	25	22.9	92	65-133	
Acetone	ug/L	25	28.8	115	58-126	
Benzene	ug/L	10	9.6	96	81-114	
Bromobenzene	ug/L	10	10.0	100	84-113	
Bromochloromethane	ug/L	10	9.3	93	79-120	
Bromodichloromethane	ug/L	10	9.4	94	75-119	
Bromoform	ug/L	10	9.7	97	66-132	
Bromomethane	ug/L	10	13.0	130	58-151	
Carbon disulfide	ug/L	10	11.1	111	49-148	
Carbon tetrachloride	ug/L	10	9.8	98	62-137	
Chlorobenzene	ug/L	10	9.2	92	81-113	
Chloroethane	ug/L	10	10	100	65-119	
Chloroform	ug/L	10	9.9	99	76-118	
Chloromethane	ug/L	10	10.2	102	40-132	
cis-1,2-Dichloroethene	ug/L	10	9.4	94	80-119	
cis-1,3-Dichloropropene	ug/L	10	10.1	101	75-122	
Dibromochloromethane	ug/L	10	9.5	95	72-124	
Dibromomethane	ug/L	10	9.8	98	79-121	
Dichlorodifluoromethane	ug/L	10	10.0	100	11-156	
Ethylbenzene	ug/L	10	9.2	92	82-115	
Hexachloro-1,3-butadiene	ug/L	10	11.8	118	72-139	
Isopropylbenzene (Cumene)	ug/L	10	8.3	83	69-103	
Methyl-tert-butyl ether	ug/L	10	10.4	104	65-113	
Methylene chloride	ug/L	10	10.6	106	76-124	
n-Butylbenzene	ug/L	10	10.4	104	77-121	
n-Propylbenzene	ug/L	10	10.0	100	79-116	
Naphthalene	ug/L	10	11.2	112	66-132	
p-Isopropyltoluene	ug/L	10	9.8	98	77-114	
sec-Butylbenzene	ug/L	10	10.4	104	80-119	
Styrene	ug/L	10	9.6	96	81-115	
tert-Butylbenzene	ug/L	10	10.2	102	77-121	
Tetrachloroethene	ug/L	10	9.1	91	73-122	
Toluene	ug/L	10	9.5	95	82-114	
trans-1,2-Dichloroethene	ug/L	10	9.9	99	75-122	
trans-1,3-Dichloropropene	ug/L	10	9.1	91	66-114	
Trichloroethene	ug/L	10	10.1	101	78-119	
Trichlorofluoromethane	ug/L	10	9.7	97	71-120	

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(913)599-5665

QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6068053

LABORATORY CONTROL SAMPLE: 557806

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Vinyl chloride	ug/L	10	11.2	112	67-139	
Xylene (Total)	ug/L	30	28.3	94	81-116	
1,2-Dichloroethane-d4 (S)	%			99	81-121	
4-Bromofluorobenzene (S)	%			103	87-115	
Dibromofluoromethane (S)	%			98	87-113	
Toluene-d8 (S)	%			102	89-111	

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6068053

QC Batch: OEXT/20399 Analysis Method: EPA 504.1
QC Batch Method: EPA 504.1 Analysis Description: GCS 504 EDB DBCP
Associated Lab Samples: 6068053001, 6068053002, 6068053003

METHOD BLANK: 558502 Matrix: Water
Associated Lab Samples: 6068053001, 6068053002, 6068053003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.030	10/27/09 00:00	

LABORATORY CONTROL SAMPLE & LCSD: 558503 558504

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	.25	0.24	0.24	97	94	70-130	3	20	

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QUALIFIERS

Project: Kansas Waste Water
Pace Project No.: 6068053

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

U - Indicates the compound was analyzed for, but not detected.

BATCH QUALIFIERS

Batch: MSV/24399

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

AGEM 40 L

GENERAL RECEIPT

Office of City Clerk

037934

City of Sabetha, Kansas, 11-18, 20 09

Received of Matt 4 TCW Const. $ 50.00

Fifty +00/100 DOLLARS

For Purged Water

Distribution:

_____ Fund

_____ Fund

_____ Fund

SC by KO

City Clerk

Appendix C:

Data Summaries for Verification VOCs Analyses by TestAmerica Laboratories, Inc.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

May 8, 2009

Mr. Clyde Dennis
Argonne National Laboratory
9700 S. Cass Avenue
Building 203, Office B149
Argonne, IL 60439

Re: Laboratory Project No. 21005
Case: CENTRLIA; SDG: 131359

Dear Mr. Dennis:

Enclosed are analytical results for samples that were received by TestAmerica Burlington on April 23rd, 2009. Laboratory identification numbers were assigned, and designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 04/23/09 ETR No: 131359		
793268	CNMW02-W-27140	04/22/09	WATER
793269	CNPMP8-W-27144	04/22/09	WATER
793270	CNQCTB-W-27148	04/22/09	WATER
793271	VHBLK01	04/23/09	WATER

Documentation of the condition of the samples at the time of their receipt and any exception to the laboratory's Sample Acceptance Policy is documented in the Sample Handling section of this submittal. The samples, as received, were not acid preserved. On that basis, the laboratory did provide for the analytical work to be performed within seven days of sample collection.

In order to accommodate field length limitations in processing the data summary forms, the laboratory did, in certain instances, abbreviate the sample identifier. The electronically formatted data provides for the full sample identifier.

SOM01.2 Volatile Organics (Trace Level Water)

A storage blank was prepared for volatile organics analysis, and stored in association with the storage of the sample. That storage blank, identified as VHBLK01, was carried through the holding period with the samples, and analyzed.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Samples CNMW02-W-27140 and CNPMP8-W-27144 were analyzed at a dilution, based on the results of preliminary screening. An additional, more concentrated analysis was performed on each sample in order to provide a lower reporting limit for those target analytes that were not identified as constituents in the primary analysis. Both sets of results for the analysis of samples CNMW02-W-27140 and CNPMP8-W-27144 are included in this submittal. Each of the analyses associated with the sample set exhibited an acceptable internal standard performance. There was an acceptable recovery of each deuterated monitoring compound (DMC) in the analysis the method blank associated with the analytical work, and in the analysis of the storage blank. The analysis of the samples in this sample set did meet the technical acceptance criteria specific to DMC recoveries, although not all DMC recoveries were within the control range in each analysis. The technical acceptance criteria does provide for the recovery of up to three DMCs to fall outside of the control range in the analysis of field samples. The derived recoveries of 2-butanone-d_5 and 2-hexanone-d_5 were elevated in each analysis of samples CNMW02-W-27140 and CNPMP8-W-27144. Matrix spike and matrix spike duplicate analyses were not performed on the samples in this sample set. A trace concentration of acetone was identified in the analysis of one of the method blanks associated with the analytical work (VBLKY8). The concentration level in that analysis was below the established reporting limit, and the acquisition did meet the technical acceptance criteria for an acceptable method blank analysis. The analysis of the storage blank associated with the sample set was free of target analyte contamination. Present in the storage blank and method blank analyses was a non-target constituent that represented a compound that is related to the DMC formulation. The fact that the presence of this compound is not within the laboratory's control is at issue. The derived results for that compound have been qualified with an "X" qualifier to reflect the source of the contamination. An instrument blank (VIBLKN1) was analyzed following the more concentrated analysis of sample CNMW02-W-27140. There was an acceptable recovery of each deuterated monitoring compound in that analysis. A trace concentration of acetone was identified in the analysis of the instrument blank. The concentration level in that analysis was below the established reporting limit, and the acquisition did meet the technical acceptance criteria for an acceptable instrument blank analysis.

The responses for each target analyte met the relative standard deviation criterion in the initial calibration. The response for each target analyte met the percent difference criterion in the continuing calibration check acquisition. The response for each target analyte met the 50.0 percent difference criterion in the closing calibration check acquisition.

The primary quantitation mass for methylcyclohexane that is specified in the Statement of Work is mass 83. The laboratory did identify a contribution to mass 83 from 1,2-dichloropropane-d_6, one of the deuterated monitoring compounds (DMCs). The laboratory did change the primary quantitation mass assignment to mass 55 for the quantification of methylcyclohexane.

Manual integration was employed in deriving certain of the analytical results. The values that have been derived from manual integration are qualified on the quantitation reports. Extracted ion current profiles for each manual integration are included in the data package, and further documented in the Sample Preparation section of this submittal.

Any reference within this report to Severn Trent Laboratories, Inc. or STL, should be understood to refer to TestAmerica Laboratories, Inc. (formerly known as Severn Trent Laboratories, Inc.) The analytical results associated with the samples presented in this test report were generated

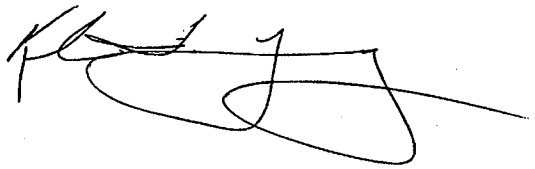
TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

under a quality system that adheres to requirements specified in the NELAC standard. Release of the data in this test report and any associated electronic deliverables is authorized by the Laboratory Director's designee as verified by the following signature.

If there are any questions regarding this submittal, please contact me at 802 660-1990.

Sincerely,



Kirk F. Young
Project Manager

KFY/hsf
Enclosure

TestAmerica Burlington Data Qualifier Definitions

Organic

U: Compound analyzed but not detected at a concentration above the reporting limit.

J: Estimated value.

N: Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds (TICs) where the identification of a compound is based on a mass spectral library search.

P: SW-846: The relative percent difference for detected concentrations between two GC columns is greater than 40%. Unless otherwise specified the higher of the two values is reported on the Form I.

CLP SOW: Greater than 25% difference for detected concentrations between two GC columns. Unless otherwise specified the lower of the two values is reported on the Form I.

C: Pesticide result whose identification has been confirmed by GC/MS.

B: Analyte is found in the sample and the associated method blank. The flag is used for tentatively identified compounds as well as positively identified compounds.

E: Compounds whose concentrations exceed the upper limit of the calibration range of the instrument for that specific analysis.

D: Concentrations identified from analysis of the sample at a secondary dilution.

A: Tentatively identified compound is a suspected aldol condensation product.

X,Y,Z: Laboratory defined flags that may be used alone or combined, as needed. If used, the description of the flag is defined in the project narrative.

Inorganic/Metals

E: Reported value is estimated due to the presence of interference.

N: Matrix spike sample recovery is not within control limits.

* Duplicate sample analysis is not within control limits.

B: The result reported is less than the reporting limit but greater than the instrument detection limit.

U: Analyte was analyzed for but not detected above the reporting limit.

Method Codes:

P	ICP-AES
MS	ICP-MS
CV	Cold Vapor AA
AS	Semi-Automated Spectrophotometric

MATRIX: Water
RECEIVING LAB: Test America
PROJECT/SITE: Centralia, KS
SAMPLER(S) (Signature): Matt Mill

ARGONNE NATIONAL LABORATORY
CHAIN OF CUSTODY RECORD*

Shipping Container No.
Shipping Info:
ANL Field Contact (Name & Temporary Phone): Travis Kamler

DATE OF COLLECTION	SAMPLE ID NUMBER(S)	Number of containers	ANALYSIS: VOC	REMARKS
4-22-09	CNMW02-W-27140	2	2	2x40ml for VOC to Test Am.
	CNPMP8-W-27144	2	2	2x40ml for VOC to Test Am.
4-22-09	CNQCTB-W-27148	1	1	1x40ml for VOC to Test Am.

Relinquished by (Signature)	Date	Time	Received by (Signature)	Relinquished by (Signature)	Date	Time	Received by (Signature)
Matt Mill	4-22	17:23					
Relinquished by (Signature)	Date	Time	Received for Laboratory by	Date	Time	Remarks	
			TA	04/23/09	1530		

Y	N	FOR LAB USE ONLY
X		Custody seal was intact when shipment received.
X		Sample containers were intact when received.
X		Shipment was at required temperature when received.
	X	Sample labels, Tags and COC agree.

*A sample is under custody if:
1. It is in your possession; or,
2. It is in your view, after having been in your possession; or,
3. It was in your possession and you locked it up; or,
4. It is in a designated secure area.

Argonne National Laboratory, Applied Geosciences & Environmental Mgt. Group, Environmental Research Division, 9700 S. Cass Avenue, Argonne, IL 60439

ER-160 (12-94)

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Sample Data Summary – SOM01.2 Volatiles – Trace

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
MW02W27140

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 131359

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 793268

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 793268D2

Level: (TRACE/LOW/MED) TRACE Date Received: 04/23/2009

% Moisture: not dec. Date Analyzed: 04/27/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 67.7

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	34	U
74-87-3	Chloromethane	34	U
75-01-4	Vinyl chloride	34	U
74-83-9	Bromomethane	34	U
75-00-3	Chloroethane	34	U
75-69-4	Trichlorofluoromethane	34	U
75-35-4	1,1-Dichloroethene	34	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	34	U
67-64-1	Acetone	450	
75-15-0	Carbon disulfide	34	U
79-20-9	Methyl acetate	34	U
75-09-2	Methylene chloride	34	U
156-60-5	trans-1,2-Dichloroethene	34	U
1634-04-4	Methyl tert-butyl ether	34	U
75-34-3	1,1-Dichloroethane	34	U
156-59-2	cis-1,2-Dichloroethene	34	U
78-93-3	2-Butanone	2500	
74-97-5	Bromochloromethane	34	U
67-66-3	Chloroform	34	U
71-55-6	1,1,1-Trichloroethane	34	U
110-82-7	Cyclohexane	34	U
56-23-5	Carbon tetrachloride	34	U
71-43-2	Benzene	34	U
107-06-2	1,2-Dichloroethane	34	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
MW02W27140

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 131359

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 793268

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 793268D2

Level: (TRACE/LOW/MED) TRACE Date Received: 04/23/2009

% Moisture: not dec. Date Analyzed: 04/27/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 67.7

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	34	U
108-87-2	Methylcyclohexane	34	U
78-87-5	1,2-Dichloropropane	34	U
75-27-4	Bromodichloromethane	34	U
10061-01-5	cis-1,3-Dichloropropene	34	U
108-10-1	4-Methyl-2-pentanone	340	U
108-88-3	Toluene	3600	E
10061-02-6	trans-1,3-Dichloropropene	34	U
79-00-5	1,1,2-Trichloroethane	34	U
127-18-4	Tetrachloroethene	34	U
591-78-6	2-Hexanone	340	U
124-48-1	Dibromochloromethane	34	U
106-93-4	1,2-Dibromoethane	34	U
108-90-7	Chlorobenzene	34	U
100-41-4	Ethylbenzene	24	J
95-47-6	o-Xylene	34	U
179601-23-1	m,p-Xylene	34	U
100-42-5	Styrene	34	U
75-25-2	Bromoform	34	U
98-82-8	Isopropylbenzene	34	U
79-34-5	1,1,2,2-Tetrachloroethane	34	U
541-73-1	1,3-Dichlorobenzene	34	U
106-46-7	1,4-Dichlorobenzene	34	U
95-50-1	1,2-Dichlorobenzene	34	U
96-12-8	1,2-Dibromo-3-chloropropane	34	U
120-82-1	1,2,4-Trichlorobenzene	34	U
87-61-6	1,2,3-Trichlorobenzene	34	U

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
MW02W27140DL

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 131359

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 793268D1

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 793268D

Level: (TRACE/LOW/MED) TRACE Date Received: 04/23/2009

% Moisture: not dec. Date Analyzed: 04/27/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 677.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	340	U
74-87-3	Chloromethane	340	U
75-01-4	Vinyl chloride	340	U
74-83-9	Bromomethane	340	U
75-00-3	Chloroethane	340	U
75-69-4	Trichlorofluoromethane	340	U
75-35-4	1,1-Dichloroethene	340	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	340	U
67-64-1	Acetone	3900	D
75-15-0	Carbon disulfide	340	U
79-20-9	Methyl acetate	340	U
75-09-2	Methylene chloride	340	U
156-60-5	trans-1,2-Dichloroethene	340	U
1634-04-4	Methyl tert-butyl ether	340	U
75-34-3	1,1-Dichloroethane	340	U
156-59-2	cis-1,2-Dichloroethene	340	U
78-93-3	2-Butanone	2600	DJ
74-97-5	Bromochloromethane	340	U
67-66-3	Chloroform	340	U
71-55-6	1,1,1-Trichloroethane	340	U
110-82-7	Cyclohexane	340	U
56-23-5	Carbon tetrachloride	340	U
71-43-2	Benzene	340	U
107-06-2	1,2-Dichloroethane	340	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
MW02W27140DL

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 131359

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 793268D1

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 793268D

Level: (TRACE/LOW/MED) TRACE Date Received: 04/23/2009

% Moisture: not dec. Date Analyzed: 04/27/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 677.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	340	U
108-87-2	Methylcyclohexane	340	U
78-87-5	1,2-Dichloropropane	340	U
75-27-4	Bromodichloromethane	340	U
10061-01-5	cis-1,3-Dichloropropene	340	U
108-10-1	4-Methyl-2-pentanone	3400	U
108-88-3	Toluene	9400	D
10061-02-6	trans-1,3-Dichloropropene	340	U
79-00-5	1,1,2-Trichloroethane	340	U
127-18-4	Tetrachloroethene	340	U
591-78-6	2-Hexanone	3400	U
124-48-1	Dibromochloromethane	340	U
106-93-4	1,2-Dibromoethane	340	U
108-90-7	Chlorobenzene	340	U
100-41-4	Ethylbenzene	340	U
95-47-6	o-Xylene	340	U
179601-23-1	m,p-Xylene	340	U
100-42-5	Styrene	340	U
75-25-2	Bromoform	340	U
98-82-8	Isopropylbenzene	340	U
79-34-5	1,1,2,2-Tetrachloroethane	340	U
541-73-1	1,3-Dichlorobenzene	340	U
106-46-7	1,4-Dichlorobenzene	340	U
95-50-1	1,2-Dichlorobenzene	340	U
96-12-8	1,2-Dibromo-3-chloropropane	340	U
120-82-1	1,2,4-Trichlorobenzene	340	U
87-61-6	1,2,3-Trichlorobenzene	340	U

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
PMP8W27144

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 131359

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 793269

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 793269

Level: (TRACE/LOW/MED) TRACE Date Received: 04/23/2009

% Moisture: not dec. Date Analyzed: 04/27/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	540	E
75-15-0	Carbon disulfide	0.46	J
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	3.3	
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	460	E
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	3.6	
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	1.2	
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
PMP8W27144

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 131359

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 793269

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 793269

Level: (TRACE/LOW/MED) TRACE Date Received: 04/23/2009

% Moisture: not dec. Date Analyzed: 04/27/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	0.92	
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.44	J
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
PMP8W27144DL

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 131359

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 793269D1

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 793269D

Level: (TRACE/LOW/MED) TRACE Date Received: 04/23/2009

% Moisture: not dec. Date Analyzed: 04/27/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 6.3

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	3.2	U
74-87-3	Chloromethane	3.2	U
75-01-4	Vinyl chloride	3.2	U
74-83-9	Bromomethane	3.2	U
75-00-3	Chloroethane	3.2	U
75-69-4	Trichlorofluoromethane	3.2	U
75-35-4	1,1-Dichloroethene	3.2	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	3.2	U
67-64-1	Acetone	570	D
75-15-0	Carbon disulfide	3.2	U
79-20-9	Methyl acetate	3.2	U
75-09-2	Methylene chloride	2.5	DJ
156-60-5	trans-1,2-Dichloroethene	3.2	U
1634-04-4	Methyl tert-butyl ether	3.2	U
75-34-3	1,1-Dichloroethane	3.2	U
156-59-2	cis-1,2-Dichloroethene	3.2	U
78-93-3	2-Butanone	460	D
74-97-5	Bromochloromethane	3.2	U
67-66-3	Chloroform	4.9	D
71-55-6	1,1,1-Trichloroethane	3.2	U
110-82-7	Cyclohexane	3.2	U
56-23-5	Carbon tetrachloride	1.9	DJ
71-43-2	Benzene	3.2	U
107-06-2	1,2-Dichloroethane	3.2	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
PMP8W27144DL

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 131359

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 793269D1

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 793269D

Level: (TRACE/LOW/MED) TRACE Date Received: 04/23/2009

% Moisture: not dec. Date Analyzed: 04/27/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 6.3

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	3.2	U
108-87-2	Methylcyclohexane	3.2	U
78-87-5	1,2-Dichloropropane	3.2	U
75-27-4	Bromodichloromethane	3.2	U
10061-01-5	cis-1,3-Dichloropropene	3.2	U
108-10-1	4-Methyl-2-pentanone	32	U
108-88-3	Toluene	3.2	U
10061-02-6	trans-1,3-Dichloropropene	3.2	U
79-00-5	1,1,2-Trichloroethane	3.2	U
127-18-4	Tetrachloroethene	3.2	U
591-78-6	2-Hexanone	32	U
124-48-1	Dibromochloromethane	3.2	U
106-93-4	1,2-Dibromoethane	3.2	U
108-90-7	Chlorobenzene	3.2	U
100-41-4	Ethylbenzene	3.2	U
95-47-6	o-Xylene	3.2	U
179601-23-1	m,p-Xylene	3.2	U
100-42-5	Styrene	3.2	U
75-25-2	Bromoform	3.2	U
98-82-8	Isopropylbenzene	3.2	U
79-34-5	1,1,2,2-Tetrachloroethane	3.2	U
541-73-1	1,3-Dichlorobenzene	3.2	U
106-46-7	1,4-Dichlorobenzene	3.2	U
95-50-1	1,2-Dichlorobenzene	3.2	U
96-12-8	1,2-Dibromo-3-chloropropane	3.2	U
120-82-1	1,2,4-Trichlorobenzene	3.2	U
87-61-6	1,2,3-Trichlorobenzene	3.2	U

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
QCTBW27148

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 131359

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 793270

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 793270

Level: (TRACE/LOW/MED) TRACE Date Received: 04/23/2009

% Moisture: not dec. Date Analyzed: 04/27/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	4.3	J
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	1.0	J
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
QCTBW27148

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 131359

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 793270

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 793270

Level: (TRACE/LOW/MED) TRACE Date Received: 04/23/2009

% Moisture: not dec. Date Analyzed: 04/27/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
VHBLK01

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 131359

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 793271

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 793271

Level: (TRACE/LOW/MED) TRACE Date Received:

% Moisture: not dec. Date Analyzed: 04/27/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
VHBLK01

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 131359

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 793271

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 793271

Level: (TRACE/LOW/MED) TRACE Date Received:

% Moisture: not dec. Date Analyzed: 04/27/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

November 2, 2009

Mr. Clyde Dennis
Argonne National Laboratory
9700 S. Cass Avenue
Bldg. 203, Office B149
Argonne, IL 60439

Re: Laboratory Project No. 21005
Case: CENTRLIA; SDG: 134016

Dear Mr. Dennis:

Enclosed are analytical results for samples that were received by TestAmerica Burlington on October 8th, 2009. Laboratory identification numbers were assigned, and designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 10/08/09 ETR No: 134016		
809271	CNMW10-W-27158	10/06/09	WATER
809272	CNMW05-W-27153	10/06/09	WATER
809273	CNPMP8-W-27172	10/07/09	WATER
809274	CNQCTB-W-27178	10/07/09	WATER
809275	VHBLK01	10/09/09	WATER

Documentation of the condition of the samples at the time of their receipt and any exception to the laboratory's Sample Acceptance Policy is documented in the Sample Handling section of this submittal. The samples, as received, were not acid preserved. On that basis, the laboratory attempted to provide for the analytical work to be performed within seven days of sample collection. The analysis of sample CNMW10-W-27158 did occur on the eighth day from the date that the sample was collected, and the analysis of sample CNMW05-W-27153 and did occur on the ninth day from the date that the sample was collected.

In order to accommodate field length limitations in processing the data summary forms, the laboratory did, in certain instances, abbreviate the sample identifier. The electronically formatted data provides for the full sample identifier.

SOM01.2 Volatile Organics (Trace Level Water)

A storage blank was prepared for volatile organics analysis, and stored in association with the storage of the samples. That storage blank, identified as VHBLK01, was carried through the

holding period with the samples, and analyzed.

Each of the analyses associated with the sample set exhibited an acceptable internal standard performance. There was an acceptable recovery of each deuterated monitoring compound (DMC) in the analysis of the method blank associated with the analytical work, and in the analysis of the storage blank associated with the sample set. The analysis of the samples in this sample set did meet the technical acceptance criteria specific to DMC recoveries, although not all DMC recoveries were within the control range in each analysis. The technical acceptance criteria does provide for the recovery of up to three DMCs to fall outside of the control range in the analysis of field samples. With the exception of that performed on sample CNMW05-W-27153, the analysis of each field sample did yield elevated recoveries of 2-butanone-d_5 and 2-hexanone-d_5. Matrix spike and matrix spike duplicate analyses were not performed on samples in this sample set. The analysis of each method blank associated with the analytical work was free of contamination, as was the analysis of the storage blank. Present in the method blank and storage blank analyses was a non-target constituent that represented a compound that is related to the DMC formulation. The fact that the presence of this compound is not within the laboratory's control is at issue. The derived results for that compound have been qualified with an "X" qualifier to reflect the source of the contamination.

The reported result for acetone from the analysis of sample CNPMP8-W-27172 was derived from a response that exceeded the range of calibrated instrument response. The derived concentration of acetone in that analysis was 220 ug/L. The concentration of acetone in the high concentration standard in the initial calibration is 200 ug/L. Given the compound at issue, and the fact that the derived concentration was within 10 percent of that in the high concentration standard, a secondary analysis of the sample was not performed.

With the exception of those for bromomethane in the initial calibration identified as "MZT", the responses for each of the target analytes met the relative standard deviation criterion in each initial calibration. The relative standard deviation of the responses for bromomethane in the referenced initial calibration was 35.2 percent. Although above the 30.0 percent relative standard deviation criterion established for that compound, the technical acceptance criteria for a compliant initial calibration were met. The response for each target analyte met the percent difference criterion in each continuing calibration check acquisition. The response for each target analyte met the 50.0 percent difference criterion in each closing calibration check acquisition.

The primary quantitation mass for methylcyclohexane that is specified in the Statement of Work is mass 83. The laboratory did identify a contribution to mass 83 from 1,2-dichloropropane-d_6, one of the deuterated monitoring compounds (DMCs). The laboratory did change the primary quantitation mass assignment to mass 55 for the quantification of methylcyclohexane.

Manual integration was employed in deriving certain of the analytical results. The values that have been derived from manual integration are qualified on the quantitation reports. Extracted ion current profiles for each manual integration are included in the data package, and further documented in the Sample Preparation section of this submittal.

Any reference within this report to Severn Trent Laboratories, Inc. or STL, should be understood to refer to TestAmerica Laboratories, Inc. (formerly known as Severn Trent Laboratories, Inc.) The analytical results associated with the samples presented in this test report were generated

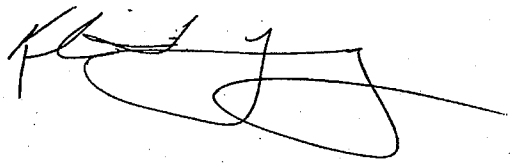
TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

under a quality system that adheres to requirements specified in the NELAC standard. Release of the data in this test report and any associated electronic deliverables is authorized by the Laboratory Director's designee as verified by the following signature.

If there are any questions regarding this submittal, please contact me at 802 660-1990.

Sincerely,



Kirk F. Young
Project Manager

KFY/hsf
Enclosure

TestAmerica Burlington Data Qualifier Definitions

Organic

U: Compound analyzed but not detected at a concentration above the reporting limit.

J: Estimated value.

N: Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds (TICs) where the identification of a compound is based on a mass spectral library search.

P: SW-846: The relative percent difference for detected concentrations between two GC columns is greater than 40%. Unless otherwise specified the higher of the two values is reported on the Form I.

CLP SOW: Greater than 25% difference for detected concentrations between two GC columns. Unless otherwise specified the lower of the two values is reported on the Form I.

C: Pesticide result whose identification has been confirmed by GC/MS.

B: Analyte is found in the sample and the associated method blank. The flag is used for tentatively identified compounds as well as positively identified compounds.

E: Compounds whose concentrations exceed the upper limit of the calibration range of the instrument for that specific analysis.

D: Concentrations identified from analysis of the sample at a secondary dilution.

A: Tentatively identified compound is a suspected aldol condensation product.

X,Y,Z: Laboratory defined flags that may be used alone or combined, as needed. If used, the description of the flag is defined in the project narrative.

Inorganic/Metals

E: Reported value is estimated due to the presence of interference.

N: Matrix spike sample recovery is not within control limits.

*: Duplicate sample analysis is not within control limits.

B: The result reported is less than the reporting limit but greater than the instrument detection limit.

U: Analyte was analyzed for but not detected above the reporting limit.

Method Codes:

P	ICP-AES
MS	ICP-MS
CV	Cold Vapor AA
AS	Semi-Automated Spectrophotometric

FedEx # 8558 7682 9109

2613

MATRIX: Water	**ARGONNE NATIONAL LABORATORY CHAIN OF CUSTODY RECORD***	Shipping Container No.
RECEIVING LAB: Test America		Shipping Info:
PROJECT/SITE: Centralia KS	ANALYSIS	ANL Field Contact (Name & Temporary Phone): Dave Surgnier 630 408 7114
SAMPLER(S) (Signature)		

DATE OF COLLECTION	SAMPLE ID NUMBER(S)	Number of containers	VOC	REMARKS
Oct 6, 2009	CNMW06-W-27154	2	2	2 x 40 mL for VOC
Oct 7, 2009	CNMW05-W-27153	2	2	2 x 40 mL for VOC
" "	CNPMP8-W-27172	2	2	" "
Oct 7, 2009	CNQCTB-W-27176	2	2	2 x 40 mL for VOC

Relinquished by (Signature)	Date	Time	Received by (Signature)	Relinquished by (Signature)	Date	Time	Received by (Signature)
	10-7-09	18:50					
Relinquished by (Signature)	Date	Time	Received for Laboratory by	Date	Time	Remarks	
			10/8/09 1000				

Y	N	FOR LAB USE ONLY
		Custody seal was intact when shipment received.
		Sample containers were intact when received.
		Shipment was at required temperature when received.
		Sample labels, Tags and COC agree.

*A sample is under custody if:
1. It is in your possession; or,
2. It is in your view, after having been in your possession; or,
3. It was in your possession and you locked it up; or,
4. It is in a designated secure area.

Argonne National Laboratory, Applied Geosciences & Environmental Mgt. Group, Environmental Research Division, 9700 S. Cass Avenue, Argonne, IL 60439

ER-160 (12-94)

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Sample Data Summary – SOM01.2 Volatiles – Trace

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
CNMW05W27153

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 134016

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 809272

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 809272

Level: (TRACE/LOW/MED) TRACE Date Received: 10/08/2009

% Moisture: not dec. Date Analyzed: 10/15/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	1.1	
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	14	
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
CNMW05W27153

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 134016

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 809272

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 809272

Level: (TRACE/LOW/MED) TRACE Date Received: 10/08/2009

% Moisture: not dec. Date Analyzed: 10/15/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.51	
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
CNMW10W27158

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 134016

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 809271

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 809271

Level: (TRACE/LOW/MED) TRACE Date Received: 10/08/2009

% Moisture: not dec. Date Analyzed: 10/14/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
CNMW10W27158

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 134016

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 809271

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 809271

Level: (TRACE/LOW/MED) TRACE Date Received: 10/08/2009

% Moisture: not dec. Date Analyzed: 10/14/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
CNPMP8W27172

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 134016

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 809273

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 809273

Level: (TRACE/LOW/MED) TRACE Date Received: 10/08/2009

% Moisture: not dec. Date Analyzed: 10/14/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	220	E
75-15-0	Carbon disulfide	0.56	
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.98	
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	120	
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	18	
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	18	
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
CNPMP8W27172

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 134016

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 809273

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 809273

Level: (TRACE/LOW/MED) TRACE Date Received: 10/08/2009

% Moisture: not dec. Date Analyzed: 10/14/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	2.6	
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
CNQCTBW27178

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 134016

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 809274

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 809274

Level: (TRACE/LOW/MED) TRACE Date Received: 10/08/2009

% Moisture: not dec. Date Analyzed: 10/14/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	2.4	J
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
CNQCTBW27178

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 134016

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 809274

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 809274

Level: (TRACE/LOW/MED) TRACE Date Received: 10/08/2009

% Moisture: not dec. Date Analyzed: 10/14/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	0.30	J
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
VHBLK01

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 134016

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 809275

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 809275

Level: (TRACE/LOW/MED) TRACE Date Received:

% Moisture: not dec. Date Analyzed: 10/17/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	0.50	U
74-87-3	Chloromethane	0.50	U
75-01-4	Vinyl chloride	0.50	U
74-83-9	Bromomethane	0.50	U
75-00-3	Chloroethane	0.50	U
75-69-4	Trichlorofluoromethane	0.50	U
75-35-4	1,1-Dichloroethene	0.50	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	0.50	U
67-64-1	Acetone	5.0	U
75-15-0	Carbon disulfide	0.50	U
79-20-9	Methyl acetate	0.50	U
75-09-2	Methylene chloride	0.50	U
156-60-5	trans-1,2-Dichloroethene	0.50	U
1634-04-4	Methyl tert-butyl ether	0.50	U
75-34-3	1,1-Dichloroethane	0.50	U
156-59-2	cis-1,2-Dichloroethene	0.50	U
78-93-3	2-Butanone	5.0	U
74-97-5	Bromochloromethane	0.50	U
67-66-3	Chloroform	0.50	U
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	0.50	U
71-43-2	Benzene	0.50	U
107-06-2	1,2-Dichloroethane	0.50	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
VHBLK01

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: CENTRLIA Mod. Ref No.: SDG No.: 134016

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 809275

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: 809275

Level: (TRACE/LOW/MED) TRACE Date Received:

% Moisture: not dec. Date Analyzed: 10/17/2009

GC Column: DB-624 ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	0.50	U
108-87-2	Methylcyclohexane	0.50	U
78-87-5	1,2-Dichloropropane	0.50	U
75-27-4	Bromodichloromethane	0.50	U
10061-01-5	cis-1,3-Dichloropropene	0.50	U
108-10-1	4-Methyl-2-pentanone	5.0	U
108-88-3	Toluene	0.50	U
10061-02-6	trans-1,3-Dichloropropene	0.50	U
79-00-5	1,1,2-Trichloroethane	0.50	U
127-18-4	Tetrachloroethene	0.50	U
591-78-6	2-Hexanone	5.0	U
124-48-1	Dibromochloromethane	0.50	U
106-93-4	1,2-Dibromoethane	0.50	U
108-90-7	Chlorobenzene	0.50	U
100-41-4	Ethylbenzene	0.50	U
95-47-6	o-Xylene	0.50	U
179601-23-1	m,p-Xylene	0.50	U
100-42-5	Styrene	0.50	U
75-25-2	Bromoform	0.50	U
98-82-8	Isopropylbenzene	0.50	U
79-34-5	1,1,2,2-Tetrachloroethane	0.50	U
541-73-1	1,3-Dichlorobenzene	0.50	U
106-46-7	1,4-Dichlorobenzene	0.50	U
95-50-1	1,2-Dichlorobenzene	0.50	U
96-12-8	1,2-Dibromo-3-chloropropane	0.50	U
120-82-1	1,2,4-Trichlorobenzene	0.50	U
87-61-6	1,2,3-Trichlorobenzene	0.50	U

Appendix D:

Time Series Diagrams for Selected Parameters at IM Monitoring Points

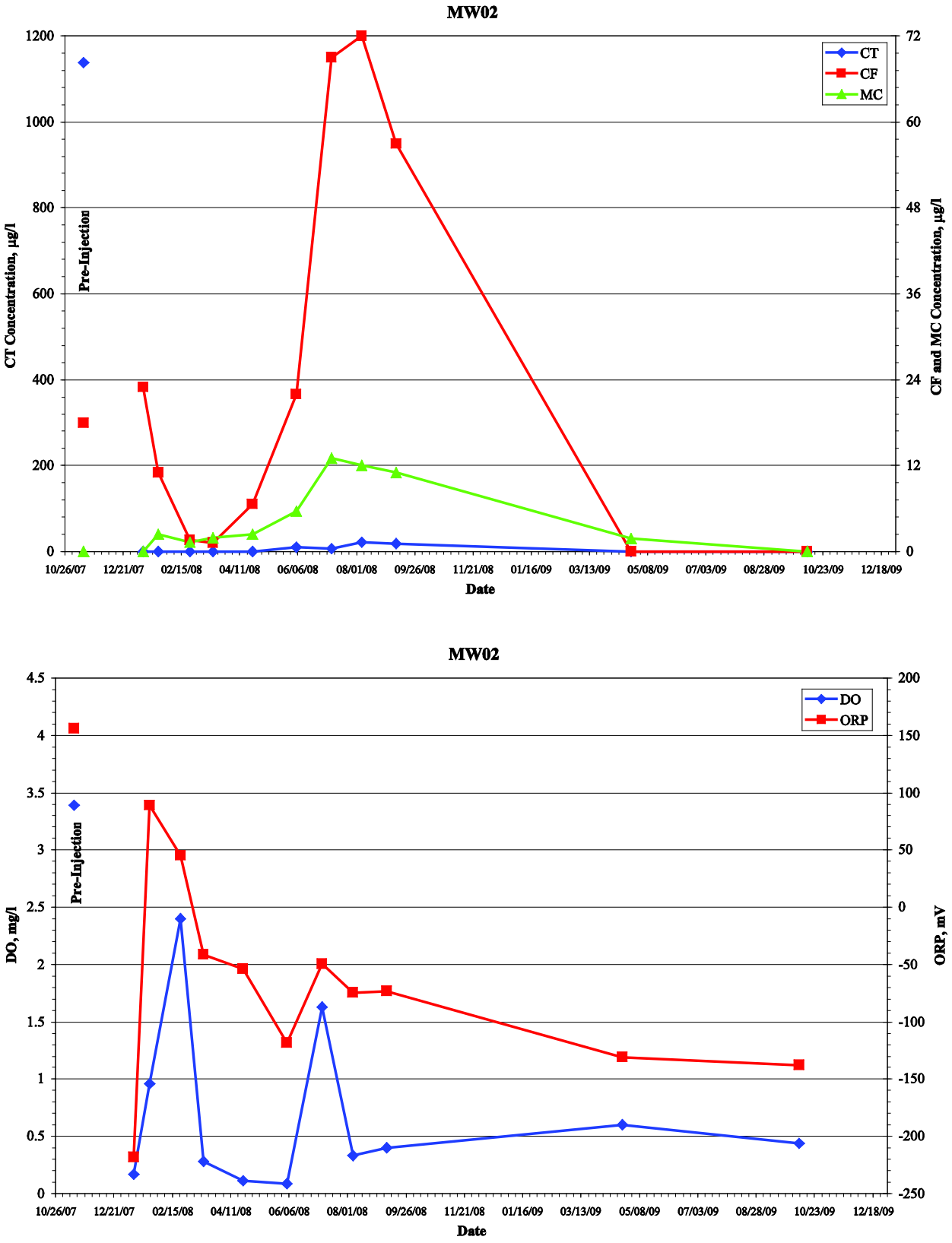


FIGURE D.1 Analytical results for VOCs, DO, and ORP in groundwater samples collected at location MW02, November 2007 to October 2009.

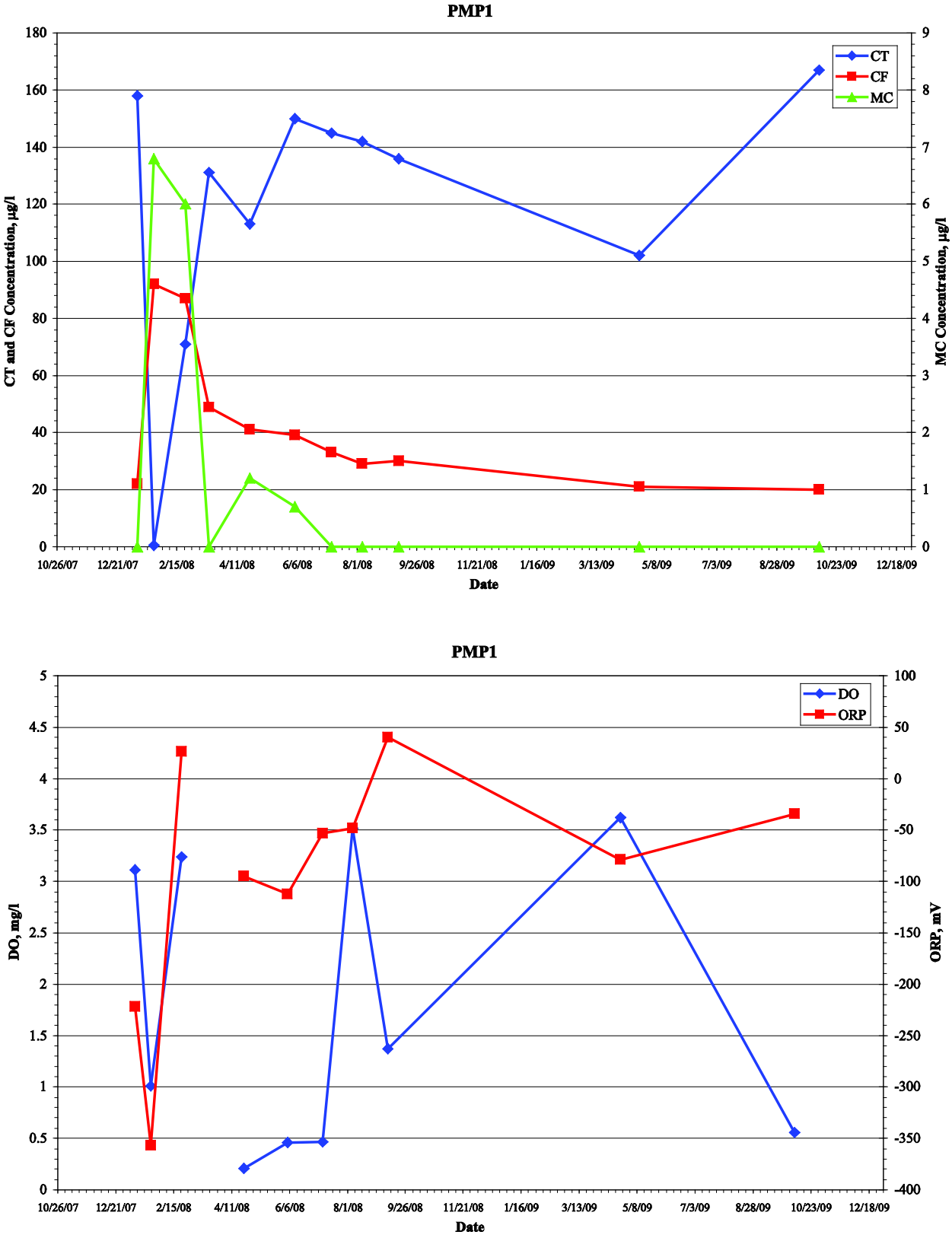


FIGURE D.2 Analytical results for VOCs, DO, and ORP in groundwater samples collected at location PMP1, January 2008 to October 2009.

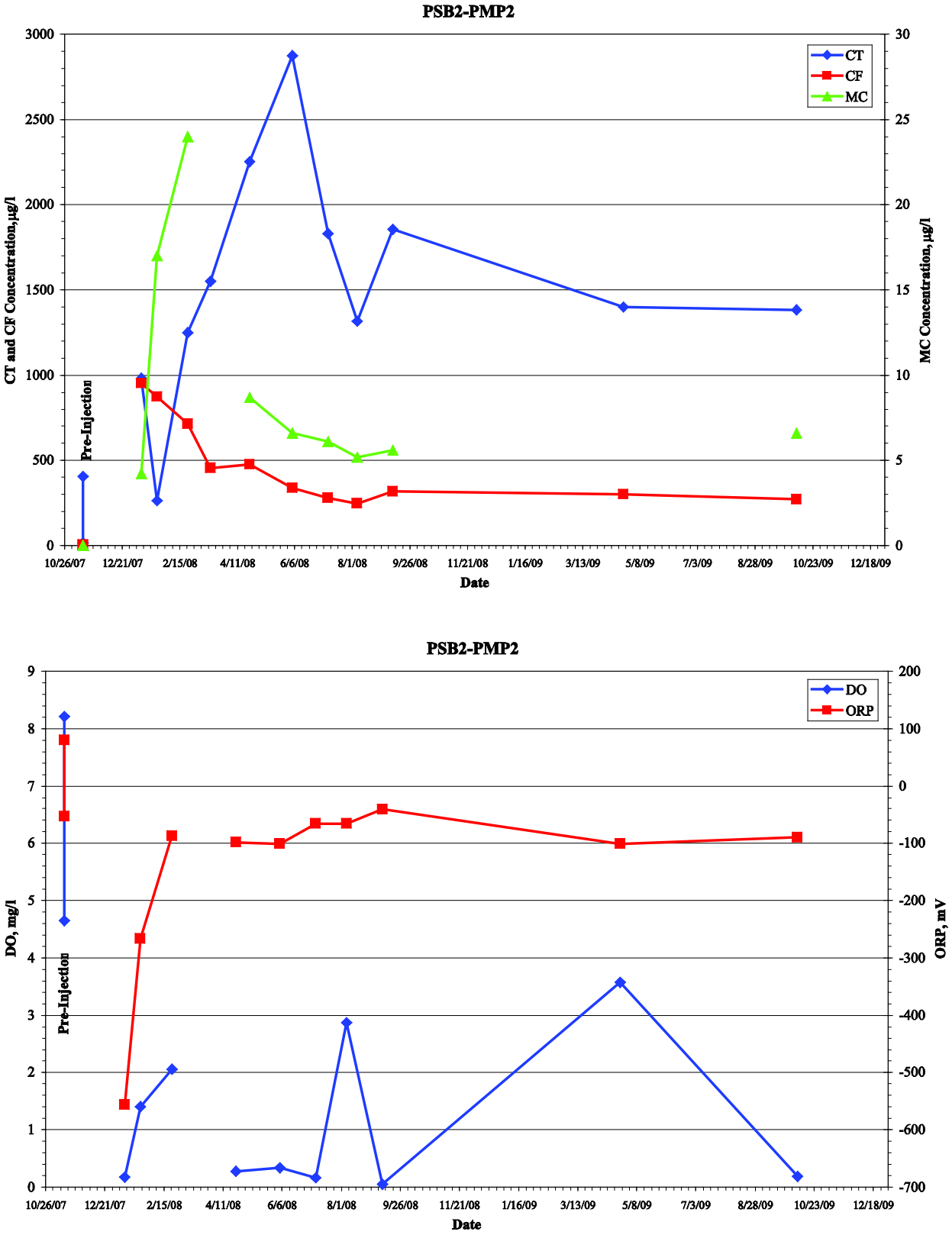


FIGURE D.3 Analytical results for VOCs, DO, and ORP in groundwater samples collected at locations PSB2 and PMP2, November 2007 to October 2009.

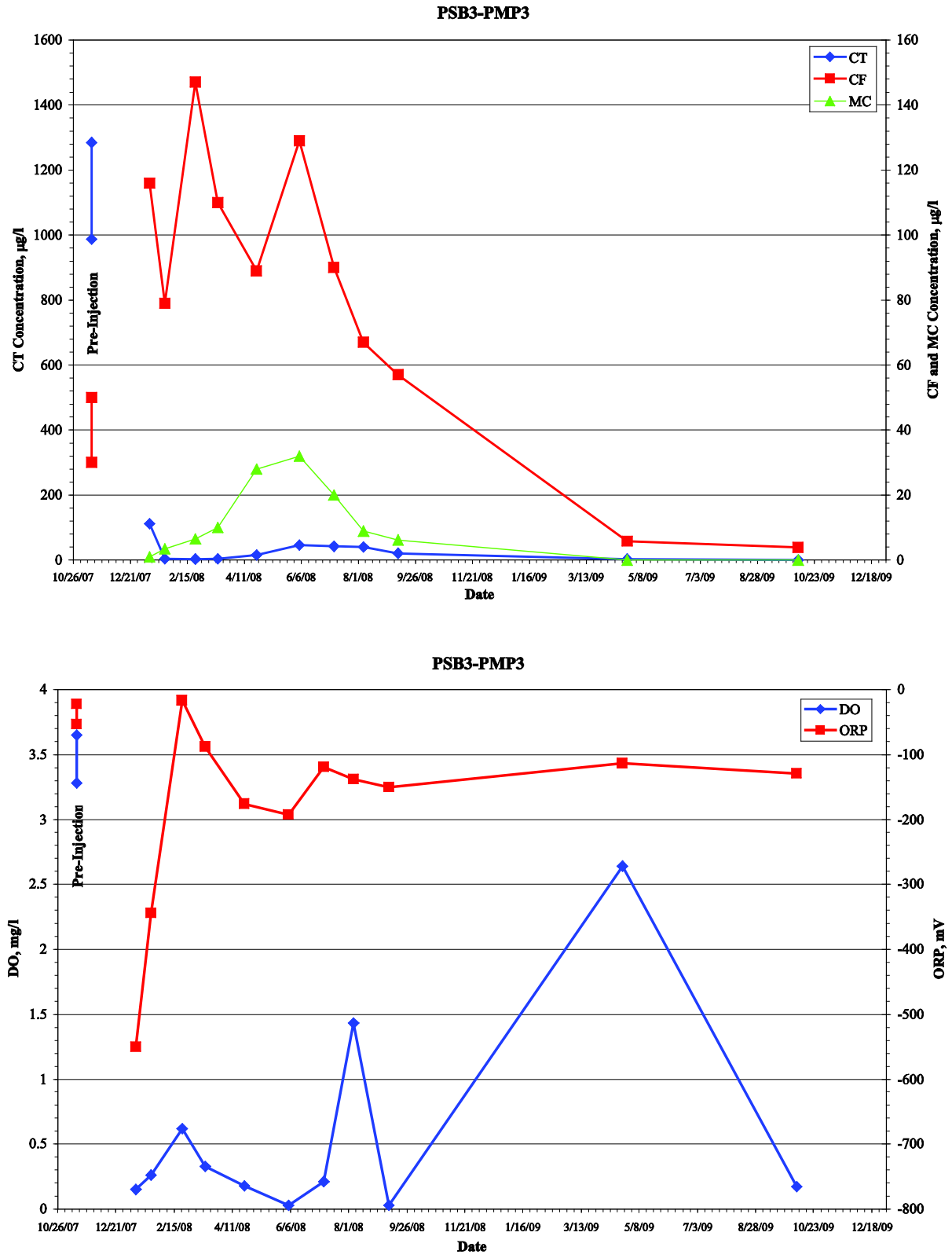


FIGURE D.4 Analytical results for VOCs, DO, and ORP in groundwater samples collected at locations PSB3 and PMP3, November 2007 to October 2009.

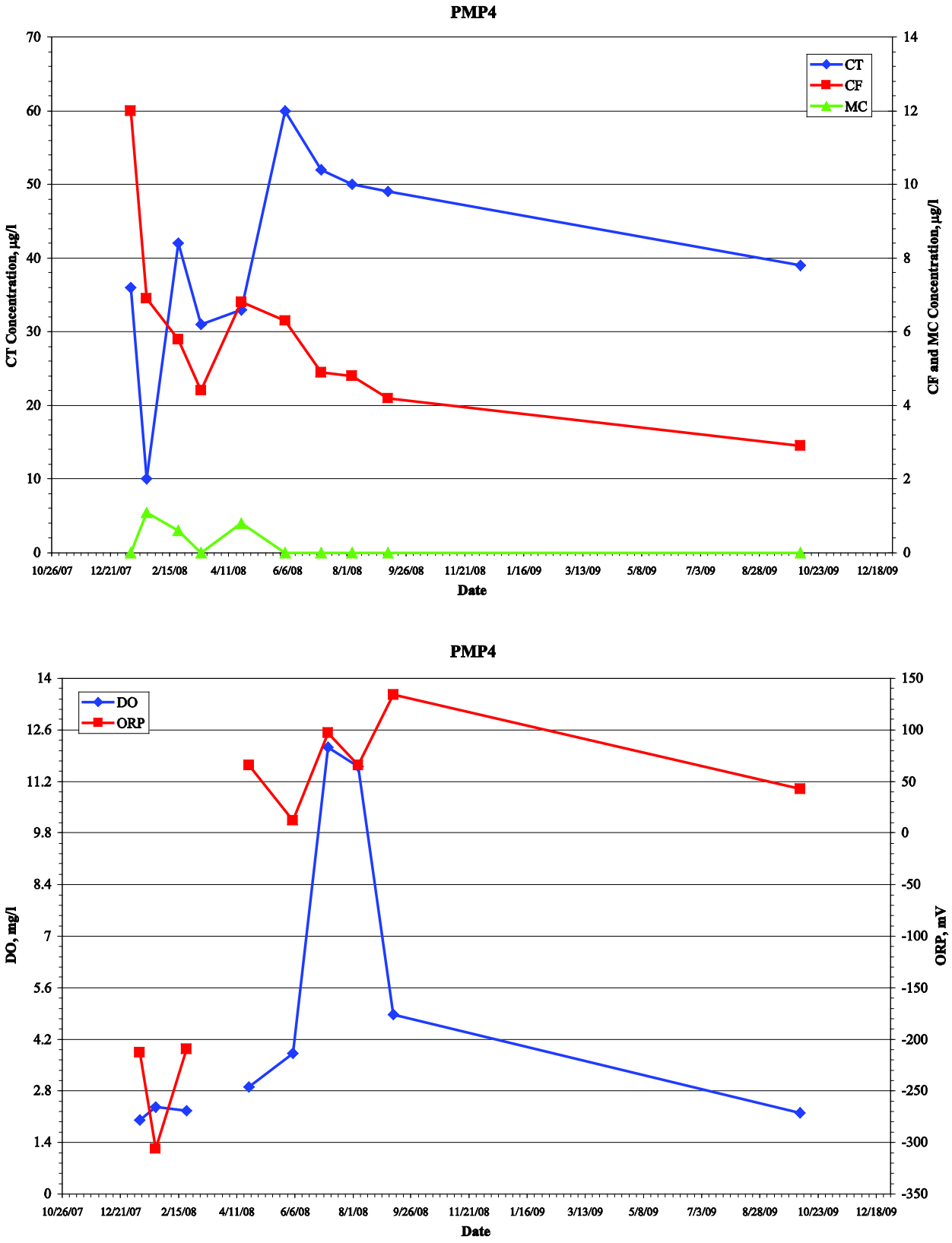


FIGURE D.5 Analytical results for VOCs, DO, and ORP in groundwater samples collected at location PMP4, January 2008 to October 2009.

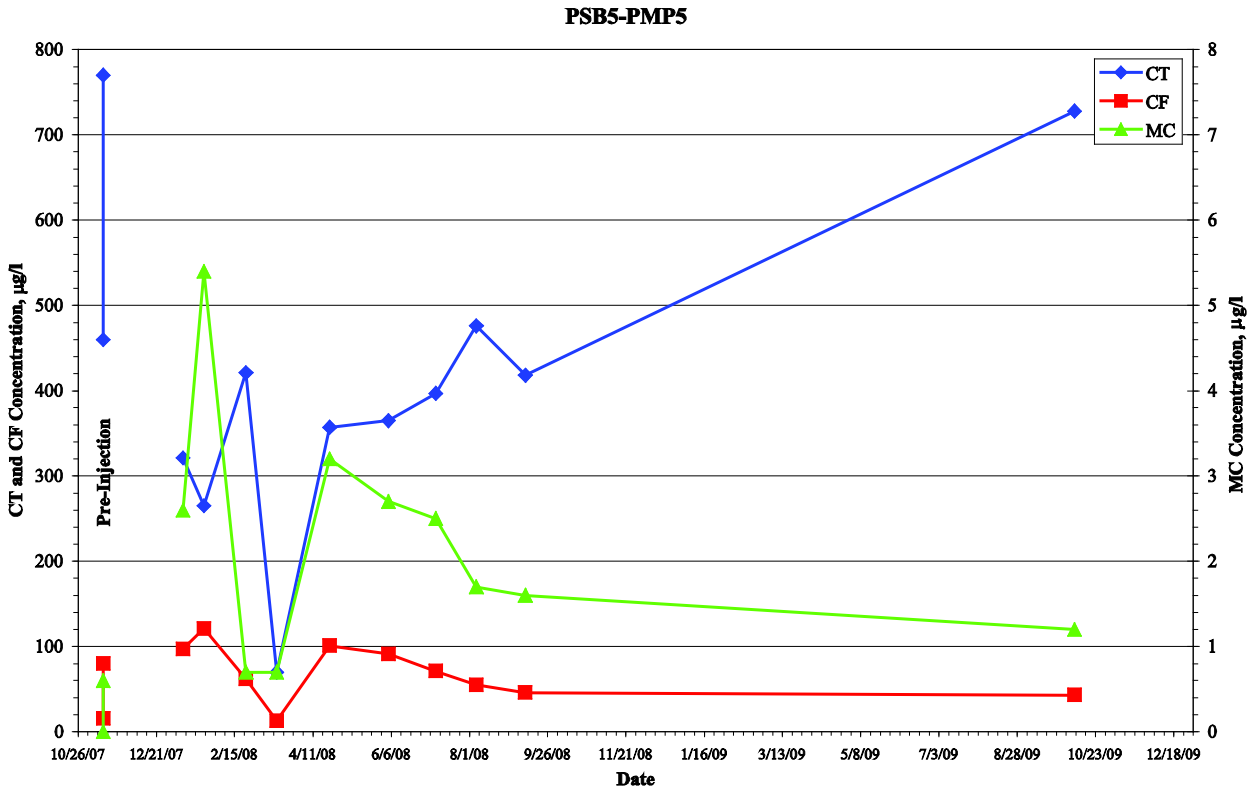


FIGURE D.6 Analytical results for VOCs, DO, and ORP in groundwater samples collected at locations PSB5 and PMP5, November 2007 to October 2009.

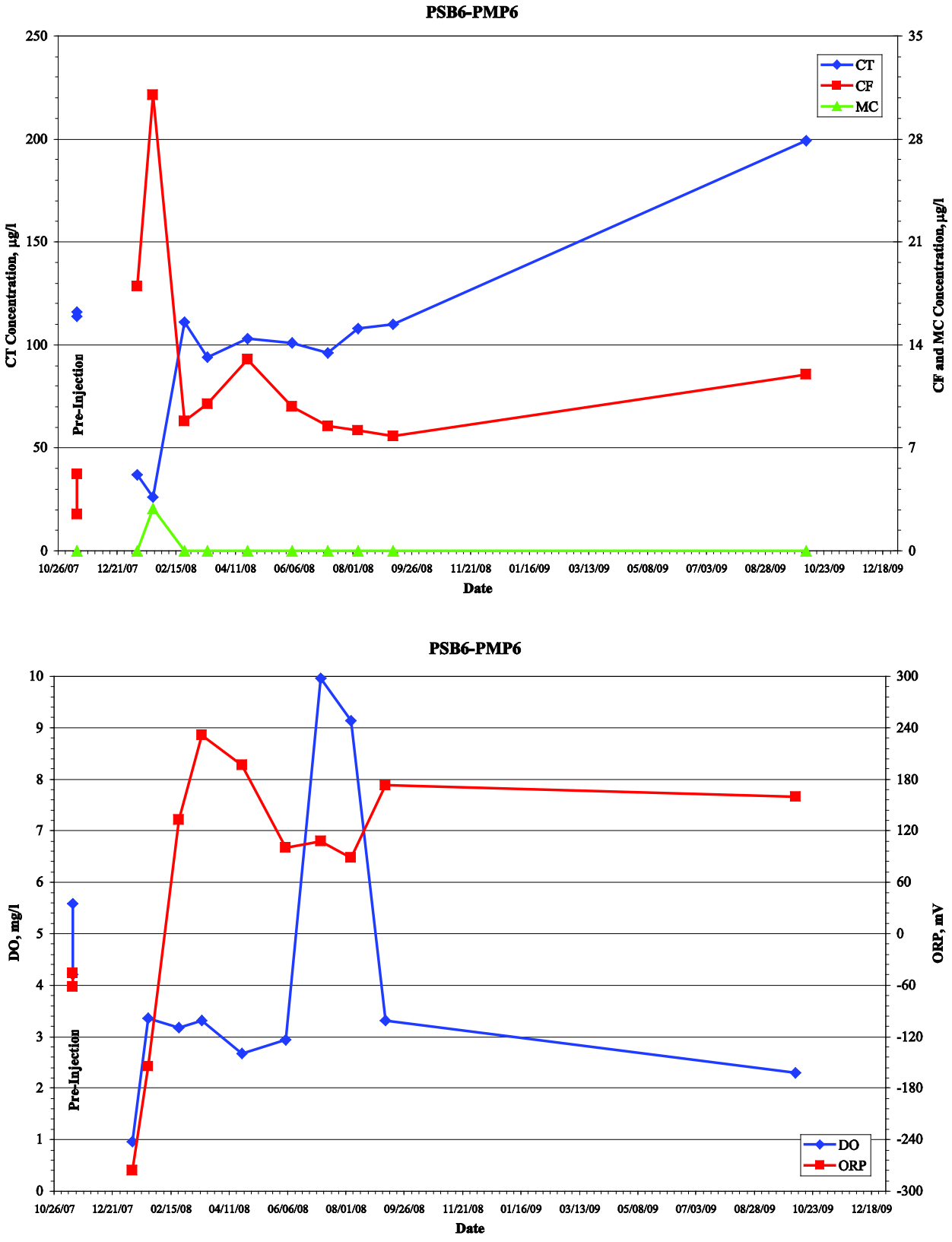


FIGURE D.7 Analytical results for VOCs, DO, and ORP in groundwater samples collected at locations PSB6 and PMP6, November 2007 to October 2009.

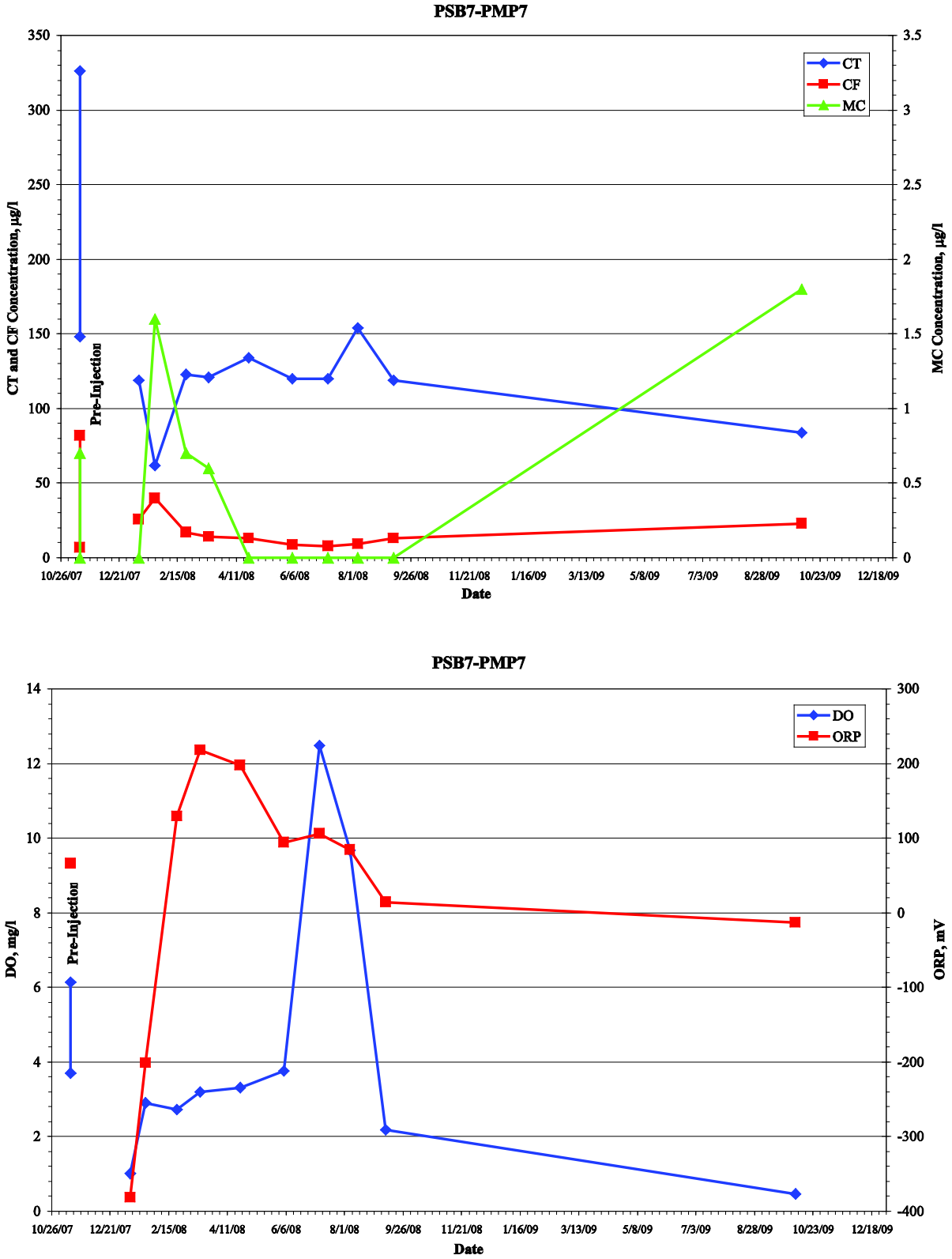


FIGURE D.8 Analytical results for VOCs, DO, and ORP in groundwater samples collected at locations PSB7 and PMP7, November 2007 to October 2009.

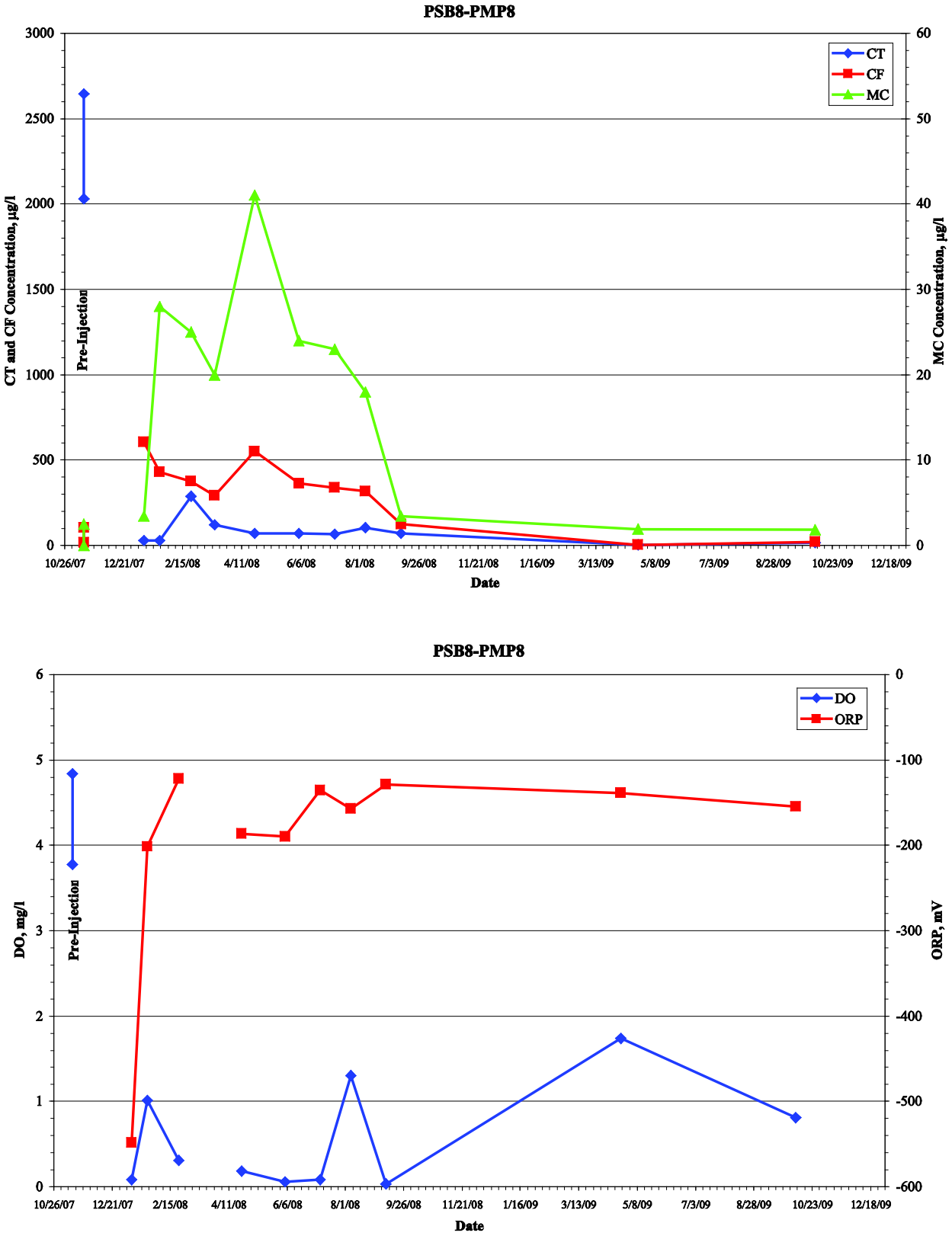


FIGURE D.9 Analytical results for VOCs, DO, and ORP in groundwater samples collected at locations PSB8 and PMP8, November 2007 to October 2009.

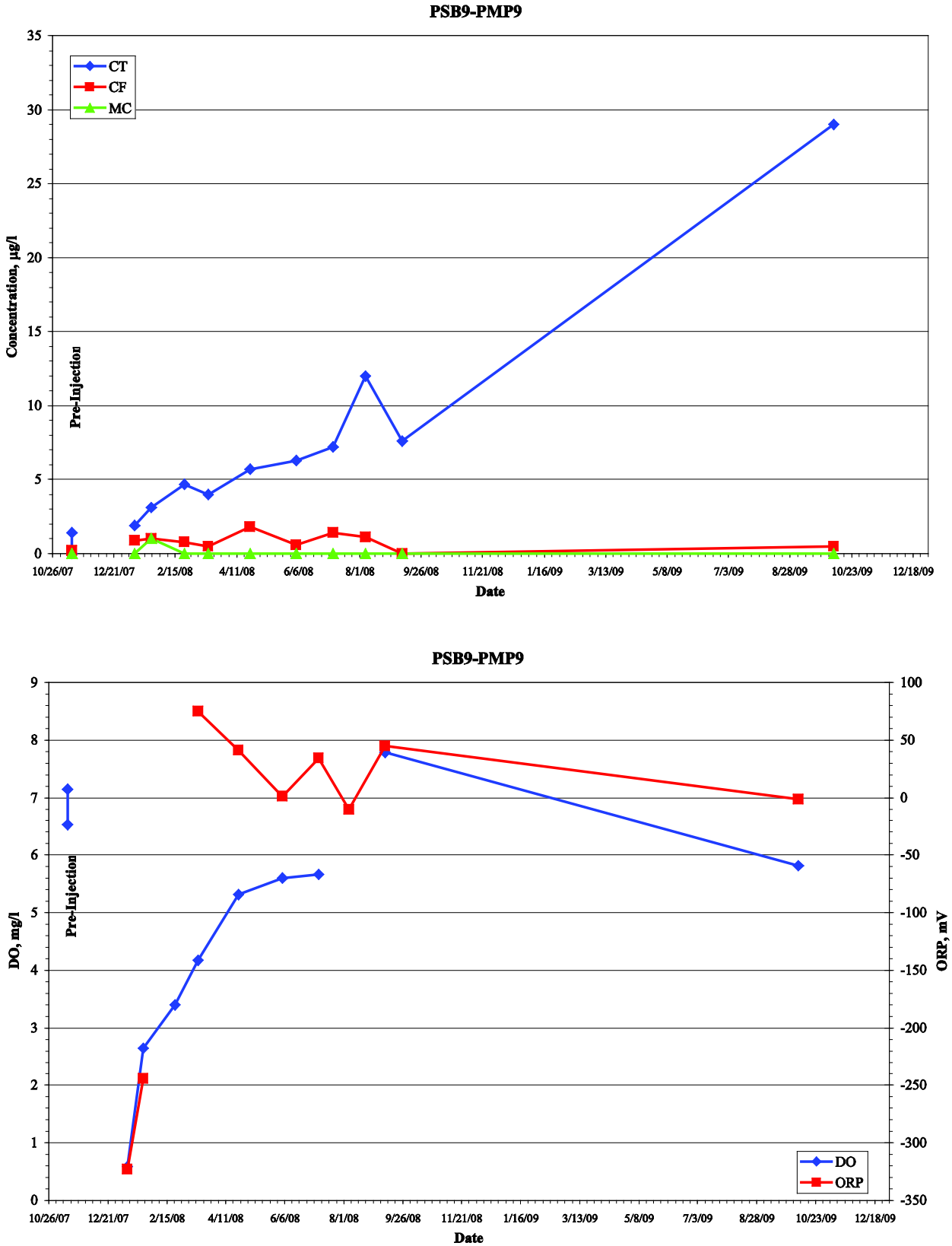


FIGURE D.10 Analytical results for VOCs, DO, and ORP in groundwater samples collected at locations PSB9 and PMP9, November 2007 to October 2009.

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