ANL/EVS/AGEM/TR-12-02

Annual Report of Monitoring at Barnes, Kansas, in 2011

Environmental Science Division

United States Department of Agriculture

Work sponsored by Commodity Credit Corporation,
United States Department of Agriculture

About Argonne National Laboratory
Argonne is a U.S. Department of Energy laboratory managed by UChicago Argonne, LLC under contract DE-AC02-06CH11357. The Laboratory's main facility is outside Chicago, at 9700 South Cass Avenue, Argonne, Illinois 60439. For information about Argonne and its pioneering science and technology programs, see www.anl.gov.

Availability of This Report
This report is available, at no cost, at http://www.osti.gov/bridge. It is also available on paper to the U.S. Department of Energy and its contractors, for a processing fee, from:

U.S. Department of Energy
Office of Scientific and Technical Information
P.O. Box 62
Oak Ridge, TN 37831-0062
phone (865) 576-8401
fax (865) 576-5728
reports@adonis.osti.gov

ANL/EVS/AGEM/TR-12-02

Annual Report of Monitoring at Barnes, Kansas, in 2011

by
Applied Geosciences and Environmental Management Section
Environmental Science Division, Argonne National Laboratory

February 2012

United States Department of Agriculture

Work sponsored by Commodity Credit Corporation,
United States Department of Agriculture

Contents

Figures

Tables

Tables (Cont.)

Notation

AGEM	Applied Geosciences and Environmental Management
AMSL	above mean sea level
BGL	below ground level
BTOC	below top of casing
°C	degree(s) Celsius
CCC	Commodity Credit Corporation
CD	compact disc
COC	chain of custody
EPA	U.S. Environmental Protection Agency
ft	foot (feet)
gal	gallon(s)
hr	hour(s)
in.	inch(es)
KDHE	Kansas Department of Health and Environment
L	liter(s)
µg/kg	microgram(s) per kilogram
µg/L	microgram(s) per liter
µS/cm	microsiemen(s) per centimeter
mg/L	milligram(s) per liter
min	minute
mV	millivolt(s)
ND	not detected
PWS	public water supply
RBSL	risk-based screening level
USDA	U.S. Department of Agriculture
VOC	volatile organic compound

Annual Report of Monitoring at Barnes, Kansas, in 2011

1 Introduction and Background

Barnes, Kansas, is a small rural community (population approximately 150) located in Washington County, in north-central Kansas (Figure 1.1). Barnes is located in Section 9, Township 4 South, Range 5 East, at approximate latitude 39°43′0″ north and longitude 96°52′25″ west (USGS 1968). The city lies in a transition zone between the Flint Hills and the glaciated region. The area's topography consists of gently sloping hills of Pleistocene loess (< 20 ft) overlying a shale unit and interbedded shale, limestone, and siltstone of the Permian Chase Group. Groundwater for the public water supply is obtained from wells PWS2 and PWS3 at reported depths of 155 ft and 160 ft, respectively, located in the northwestern portion of the city. The water is produced from the bedrock aquifer of the Chase Group. Section 2 summarizes of the hydrogeologic conceptual site model.

In 1986, low levels of carbon tetrachloride were detected in public supply wells PWS2 (2.1 μg/L) and PWS3 (0.5 μg/L), below the maximum contaminant level of 5.0 μg/L for carbon tetrachloride in drinking water. Multiple samplings of the wells in 1986-1996 found repeated sporadic detections of carbon tetrachloride at low concentrations.

In 1996-1999, the Kansas Department of Health and Environment (KDHE) conducted two investigations to identify potential sources for the carbon tetrachloride in groundwater and to determine the extent of the contamination, as follows:

1. In 1996, a Phase I comprehensive investigation was conducted to identify potential sources for the contamination in wells PWS2 and PWS3. The KDHE activities focused on the two following potential source areas closest to the public wells:

   - The site of the former high school, including an agricultural vocational building where chemicals including carbon tetrachloride and chloroform had been mixed and stored as part of the high school curriculum and then dumped outside (PRC 1996). Subsequently, the chemicals were inventoried and disposed of as hazardous waste through the KDHE (USD 233 1989). This site is less than 250 ft from the public wells.

- The site of the grain storage facility formerly operated by the Commodity Credit Corporation of the U.S. Department of Agriculture (CCC/USDA), approximately 800 ft downgradient from the public wells. The CCC/USDA facility was in operation in 1949-1974. During this time, carbon tetrachloride-based fumigants were used for preservation of the stored grain.

As part of the 1996 comprehensive investigation, soil gas and soil samples were collected at the sites of the former high school and the former CCC/USDA grain storage facility. Groundwater samples from the public wells and local private wells were also collected. Low levels of carbon tetrachloride and chloroform were detected in the soil gas samples at both the former high school and the former CCC/USDA grain storage facility. Carbon tetrachloride was not detected in the soil samples or the water samples.

2. In 1998-1999, the KDHE conducted a Phase II comprehensive investigation to determine the extent of the groundwater contamination and the local groundwater gradient. Five monitoring wells (MW1S, MW1D, MW2D, MW3D, and MW4D) were installed to delineate the contamination previously detected in wells PWS2 and PWS3. Carbon tetrachloride was detected in well MW4D, on the former CCC/USDA grain storage property.

In 2006, the CCC/USDA assumed responsibility for the site investigation of the carbon tetrachloride contamination, which could in part potentially be linked to historical use of carbon tetrachloride-based fumigants at its former facility. Initially, the CCC/USDA developed and implemented a work plan for targeted groundwater sampling and monitoring well installation (Argonne 2006). The investigation and subsequent monitoring (Argonne 2008a-d, 2009a-b, 2010, 2011) were performed by the Environmental Science Division of Argonne National Laboratory. The reports of environmental investigations at Barnes are summarized in Table 1.1. The results have been reported in detail in the cited references.

The CCC/USDA activities at Barnes have been as follows:

1. In 2006-2007, the CCC/USDA conducted a comprehensive targeted investigation at and near its former property. A network of 28 monitoring

wells was established at 19 locations (including the 5 wells previously installed by the KDHE; Argonne 2008a). The investigation results indicated that carbon tetrachloride contamination is present in groundwater at low to moderate levels in the vicinity of the former CCC/USDA grain storage facility and extends westward at diminishing concentrations toward the public wells.

2. In November 2007, the CCC/USDA began periodic sampling to monitor the identified carbon tetrachloride contamination in groundwater. The sampling was initially conducted quarterly to verify that the contaminant migration pattern does not pose an imminent risk to the public wells. The sampling is now conducted annually.

3. In 2009, a contingency interim measure (Argonne 2009c) was approved by the KDHE (2009).

4. Through 2010, sampling was conducted in a network of 28 individual monitoring wells (at 19 distinct locations), 2 public water supply wells, and 1 private well (Figure 1.2). On the basis of an evaluation of the data collected in 2006-2009 (Argonne 2010), including a trend analysis of the site contamination and its migration, the KDHE (2010b) concurred that future monitoring will occur annually, with twice-yearly sampling of the two public water supply wells in service. The KDHE (2010a) also agreed to decrease the number of wells to be sampled.

The key results and findings of prior investigations at Barnes indicate the following:

- *No soil contamination at concentrations above the method quantitation limit of 10 μg/kg has been detected on the former CCC/USDA property.* Trace concentrations of carbon tetrachloride (< 10 μg/kg) were detected at three locations on the former CCC/USDA property. These trace concentrations will not result in higher concentrations in groundwater, and therefore the soil on the former CCC/USDA property is not an ongoing significant source for carbon tetrachloride contamination.

- *The levels of carbon tetrachloride contamination detected in groundwater are relatively low and limited in extent, and the boundaries of the carbon tetrachloride plume have been defined.* The results of the 2006-2007 targeted investigation and the subsequent monitoring events (Argonne 2008a-d, 2009a,b, 2010, 2011) demonstrated the presence of carbon tetrachloride contamination in groundwater at levels exceeding the RBSL of 5.0 μg/L for this compound. The contaminant plume extends from the former CCC/USDA property northwestward, toward the Barnes public water supply wells. Long-term monitoring of the groundwater levels and the contaminant distribution has confirmed that pumping of the public wells affects the direction of groundwater flow. When these wells are not pumping, the direction of groundwater flow is to the northeast. However, when the wells are pumping, groundwater flow is directed to the northwest, toward the public wells.

- *The distribution of carbon tetrachloride and chloroform in both soil and groundwater suggests that natural degradation has occurred.* The highest level of carbon tetrachloride in soil was found at location MW5, which lies between the former CCC/USDA facility and a surface drainage ditch extending toward the northeast (in the direction of natural groundwater flow when the public wells are not pumping). Carbon tetrachloride was distributed throughout the MW5 soil profile at 28-71 ft BGL (below ground level), from a maximum concentration of 40 μg/kg at 39 ft BGL to an estimated concentration (below the method quantitation limit) of 2.3 μg/kg at 71.5 ft BGL. Concentrations of chloroform (the primary degradation product of carbon tetrachloride) showed an increasing trend with depth. Only low-level residual concentrations of carbon tetrachloride remained in soils on the former CCC/USDA property. The highest levels of carbon tetrachloride in groundwater are found on the former CCC/USDA property, but the highest chloroform concentrations are found at well locations to the northeast (in the direction of groundwater flow when the public wells are not pumping). At these locations, relatively lower dissolved oxygen and oxidation-reduction potential values (conducive to reductive dechlorination) have consistently been measured.

- *Barnes residents have access to an uncontaminated public water supply.* Residents obtain their water from two public water supply wells northwest of the former CCC/USDA property. The carbon tetrachloride plume is well defined downgradient, between the former CCC/USDA property and the public wells. Although trace levels of carbon tetrachloride have been detected in well PWS2, no increasing trend of contaminant migration toward the public wells has been indicated. Sentinel wells MW1D and MW17 provide data sufficient to monitor contaminant migration. A contingency interim measure work plan (Argonne 2009c) approved by the KDHE (2009) involving a granular activated carbon system could be implemented if necessary.

This present report documents the results of monitoring conducted in 2011. Sampling of the approved monitoring well network and the two public water supply wells was conducted on September 28-29 2011. The two public wells were sampled again on December 12, 2011.

TABLE 1.1 Summary of environmental investigation reports for Barnes.

Report	Reference
KDHE reports	
Comprehensive investigation of the public water supply	BE&K 1999
Results of quarterly monitoring of the public water supply in March 2000	BE&K 2000
CCC/USDA reports	
Work plan for targeted groundwater sampling	Argonne 2006
Results of the 2006-2007 investigation	Argonne 2008a
Results of groundwater monitoring in November 2007	Argonne 2008b
Results of groundwater monitoring in March 2008	Argonne 2008c
Results of groundwater monitoring in July 2008	Argonne 2008d
Results of groundwater monitoring in October 2008	Argonne 2009a
Results of groundwater monitoring in March-June 2009	Argonne 2009b
Contingency interim measure for the public water supply	Argonne 2009c
Results of groundwater monitoring in July-December 2009	Argonne 2010
Results of groundwater monitoring in 2010	Argonne 2011

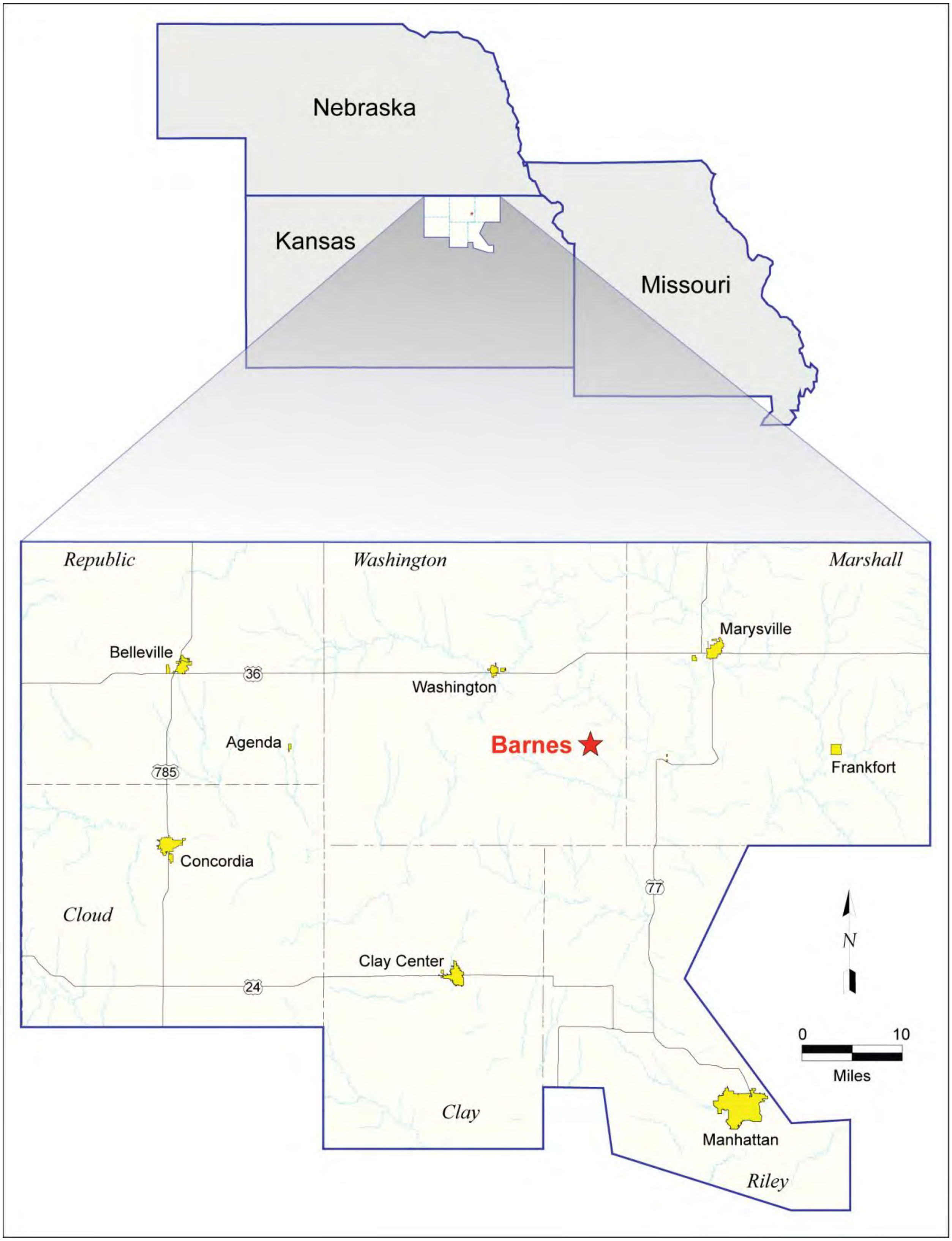

FIGURE 1.1 Location of Washington County and Barnes, Kansas.

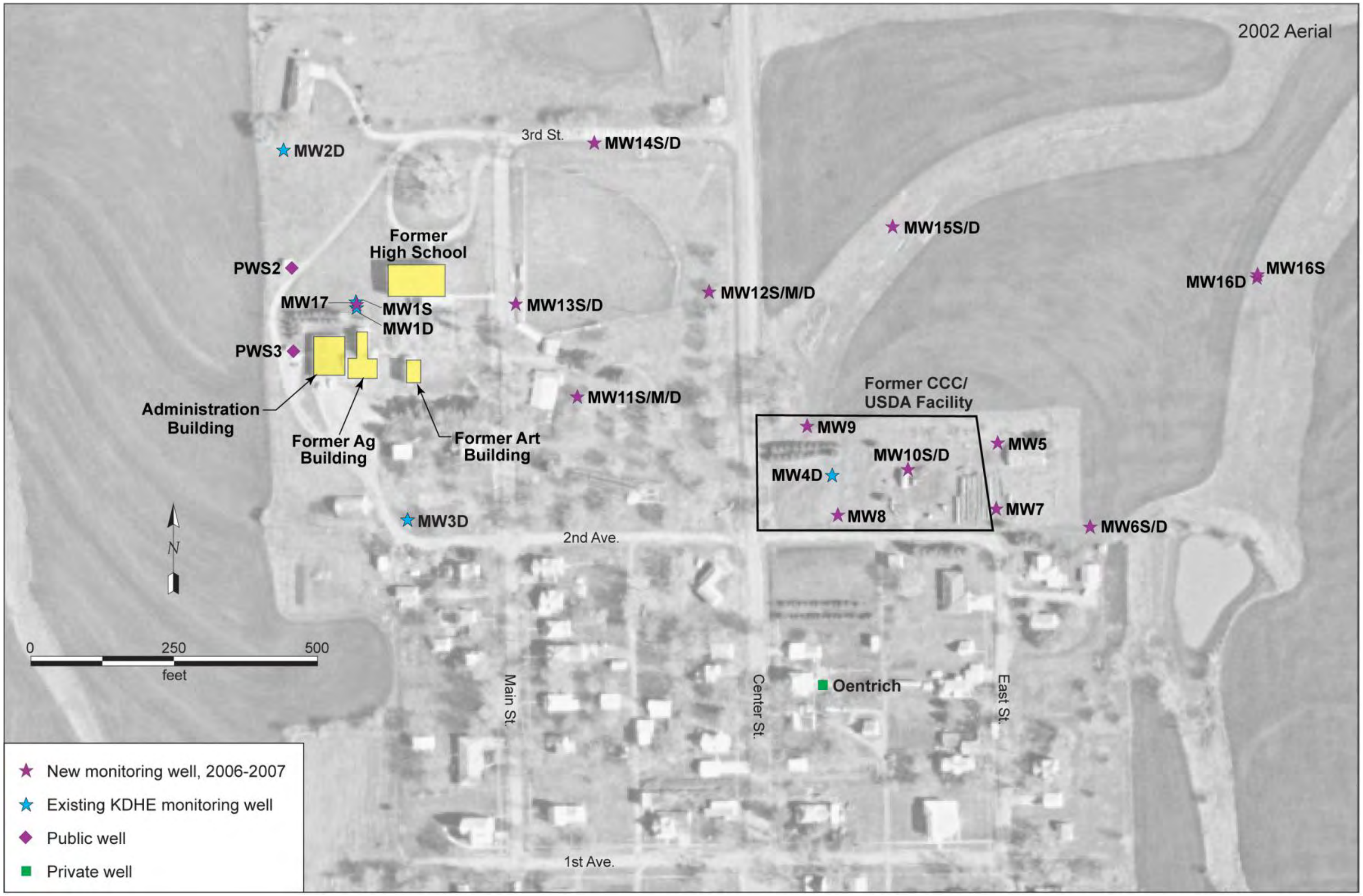

FIGURE 1.2 Groundwater sampling locations in 2010. Source of photograph: NAPP (2002).

2 Conceptual Site Model

Barnes lies in a transition zone between the Flint Hills and the glaciated region. The area's topography consists of gently sloping hills of Pleistocene loess (with variations in elevation < 50 ft) overlying a shale unit and interbedded shale, limestone, and siltstone of the Permian Chase Group. Groundwater for the public water supply is produced from the bedrock aquifer of the Chase Group.

The site lithology and subsurface contaminant conditions were determined in the 2006-2007 investigation through the collection of continuous-core samples at 13 locations (MW5-MW17) extending from east of the former CCC/USDA grain storage facility and westward, across the area of concern, toward the public water supply wells (Argonne 2008a). The predominant lithology consists of a thin layer of silty clay to clayey silt with fine sand in the upper 2-20 ft. This layer is underlain by highly weathered shale interbedded with thin layers of fractured limestone at depths of approximately 18-132 ft BGL. No soil contamination at concentrations above the current RBSL of 73.4 µg/kg for the soil-to-groundwater protection pathway was detected at any of the 13 locations. Trace concentrations (< 10 µg/kg) of carbon tetrachloride were detected in soil at 3 locations on the former CCC/USDA property. These low concentrations would not result in higher concentrations in groundwater, and therefore the soil on the former CCC/USDA property is not considered to be a source for the carbon tetrachloride contamination in groundwater.

Groundwater is present predominantly in fractured limestone layers. Monitoring wells were installed and screened at various depths, with several locations completed as nested wells to determine contaminant concentrations at depths where water-bearing zones were indicated. Throughout the monitoring program, a detailed evaluation of the hand-measured water levels and carbon tetrachloride data has been conducted to investigate the stratigraphy of the saturated zone. The accumulated water level data confirm that three vertically distinct aquifer zones are present: shallow, intermediate, and deep. The vertical distribution of the carbon tetrachloride in groundwater indicates that the highest concentrations (approximately 50-80 µg/L over the course of the monitoring program to date) occur in the intermediate aquifer zone. Lower concentrations have been detected in the deep aquifer zone, and no carbon tetrachloride has been detected in the shallow zone. Trace levels of carbon tetrachloride have been detected periodically in the two public water supply wells; these wells are believed to be screened over all three aquifer zones.

Extensive documentation of the potentiometric surface at Barnes during the targeted investigation and subsequent monitoring events (Argonne 2008a-d, 2009a,b, 2010, 2011) indicates that operation of the public water supply wells strongly influences the groundwater flow direction. The data accumulated through 2010 documented a predominant direction of groundwater flow to the northeast under non-pumping conditions. In contrast, flow was toward the northwest, in the approximate direction of the public wells, when the wells were pumping. The data demonstrated that the daily operation of the public water supply wells corresponded with drawdowns of as much as 2.25 ft during pumping. Pumping and subsequent water level recovery periods typically ranged from 3 hr to 7 hr in duration, resulting in groundwater levels (and apparent flow directions) that shifted relatively continuously throughout much of each day. For this reason, water level data collected by the automatic recorders, which are coincident in time at all monitored locations, provided the primary basis for determining the topology of the potentiometric surface at any point in the cycles of groundwater pumping and recovery.

The automatic recorder data have also provided critical information needed to evaluate the hydrologic regime. The data accumulated for recorders installed in deep-zone wells indicate the presence of both vertical and lateral influences on the local hydraulic gradients. Intermediate-zone wells equipped with automatic water level recorders have obtained detailed data on the potential temporal variability of the hydraulic heads in this aquifer zone.

3 Sampling and Analysis in 2011

3.1 Measurement of Groundwater Levels

Since 2006, data recorders have been gathering long-term data on the groundwater elevation and gradient at selected monitoring wells across the investigation area. The data loggers record water levels continuously at 60-min intervals. Water level data collected by the automatic recorders, which are coincident in time at all monitored locations, have provided the primary basis for determination of the topology of the potentiometric surface at any point in the cycles of groundwater pumping and recovery. In addition, manual water level measurements are made in conjunction with sampling and recorder downloads.

In 2011, a total of 12 wells were monitored for water levels, at the locations shown in Figure 3.1. The hand-measured and automatically recorded groundwater level data are presented and discussed in Section 4.1. After multiple recorder failures in 2010, the CCC/USDA recommended restoring a network of 12 recorders (Argonne 2011). This was completed in November 2011. The network will be maintained at this level.

3.2 Well Sampling and Analyses

The groundwater sampling event on September 28-29, 2011, involved 12 monitoring wells (MW1D, MW2D, MW4D, MW5, MW8, MW10S, MW10D, MW12M, MW13S, MW13D, MW14S, MW17) and the two operating public wells (PWS2 and PWS3). Sampling of the two public water supply wells was also conducted on December 12, 2011. The well locations are shown in Figure 3.2. A chronological summary of the field activities in 2011 is in Appendix A, Table A.1.

Before implementation of the low-flow sampling, a hand-held water level indicator was used to measure the depth to groundwater and the total depth of each well, to within 0.01 ft, from the top of the well casing. After measurement of water levels, the low-flow groundwater sampling technique, according to U.S. Environmental Protection Agency (EPA) guidelines (Puls and Barcelona 1996; Yeskis and Zavala 2002), was used to purge and sample the monitoring wells. The public water supply wells were sampled at their respective faucets after purging for 5 min (Table A.1 in Appendix A). The field measurements are in Appendix A, Table A.2. For public wells PWS2 and PWS3, samples of untreated ("raw") produced water were collected at the wellheads prior to mixing and introduction into the public distribution system.

Groundwater samples designated for analyses for volatile organic compounds (VOCs) were collected in appropriate laboratory containers, labeled, packaged, and chilled to 4°C by placement in ice-filled coolers. The samples were shipped via an overnight delivery service to the Applied Geosciences and Environmental Management (AGEM) Laboratory at Argonne for VOCs analyses with 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 according to EPA Contract Laboratory Program protocols.

The analytical results are presented and discussed in Section 4.2.

3.3 Handling and Disposal of Investigation-Derived Waste

Purge water generated as potentially contaminated investigation-derived waste was containerized on-site. The accumulated purge water was sampled on October 31, 2011 (along with wastewater from several other CCC/USDA sites in Kansas), and analyzed by Pace Analytical Services, Inc., Lenexa, Kansas, on November 4, 2011. Methods used were EPA Method 5030/8260 for VOCs, EPA Method 504.1 for ethylene dibromide, and EPA Method 353.2 for nitrate/nitrite nitrogen. Carbon tetrachloride was detected at 1.1 µg.L. No other VOCs were detected. Nitrate/nitrite nitrogen was present at 6.1 mg/L. The laboratory results are in Supplement 1, on the compact disc (CD) inside the back cover of this report. The water was delivered on December 19, 2011 (together with purge water from several other CCC/USDA investigation sites in Kansas), for disposal at the Sabetha publicly owned wastewater treatment plant.

3.4 Quality Control for Sample Collection, Handling, and Analysis

Quality assurance/quality control procedures followed during the 2011 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 sent to the AGEM Laboratory were analyzed within the required holding times.

- Quality control samples collected to monitor sample-handling activities (a field blank, equipment rinsates, and trip blanks) and method blanks analyzed with the samples to monitor analytical methodologies were all free of carbon tetrachloride and chloroform contamination. Analytical results for quality control samples collected to monitor sample-handling activities are in Appendix B, Table B.1.

- Groundwater samples were analyzed for VOCs at the AGEM Laboratory by the purge-and-trap method on a gas chromatograph-mass spectrometer system. Calibration checks analyzed 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.

- Results from the AGEM Laboratory for dual analyses of the groundwater samples are in Appendix B, Table B.1. The results of the dual analyses compare well, with average relative percent difference values for carbon tetrachloride and chloroform of approximately 2% and 1%, respectively, indicating consistency in the sampling and analytical methodologies.

- In accordance with the procedures defined in the *Master Work Plan* (Argonne 2002), groundwater samples were submitted to a second laboratory (TestAmerica) for verification analysis according to the protocols of the EPA's Contract Laboratory Program. Documentation is in Supplement 2 (on CD). The results from the two laboratories compare favorably (Appendix B,

Table B.2), with average relative percent difference values for carbon tetrachloride and chloroform of 10% and 1%, respectively.

FIGURE 3.1 Wells equipped with data loggers for automatic water level monitoring in November 2011. Source of photograph: NAPP (2002).

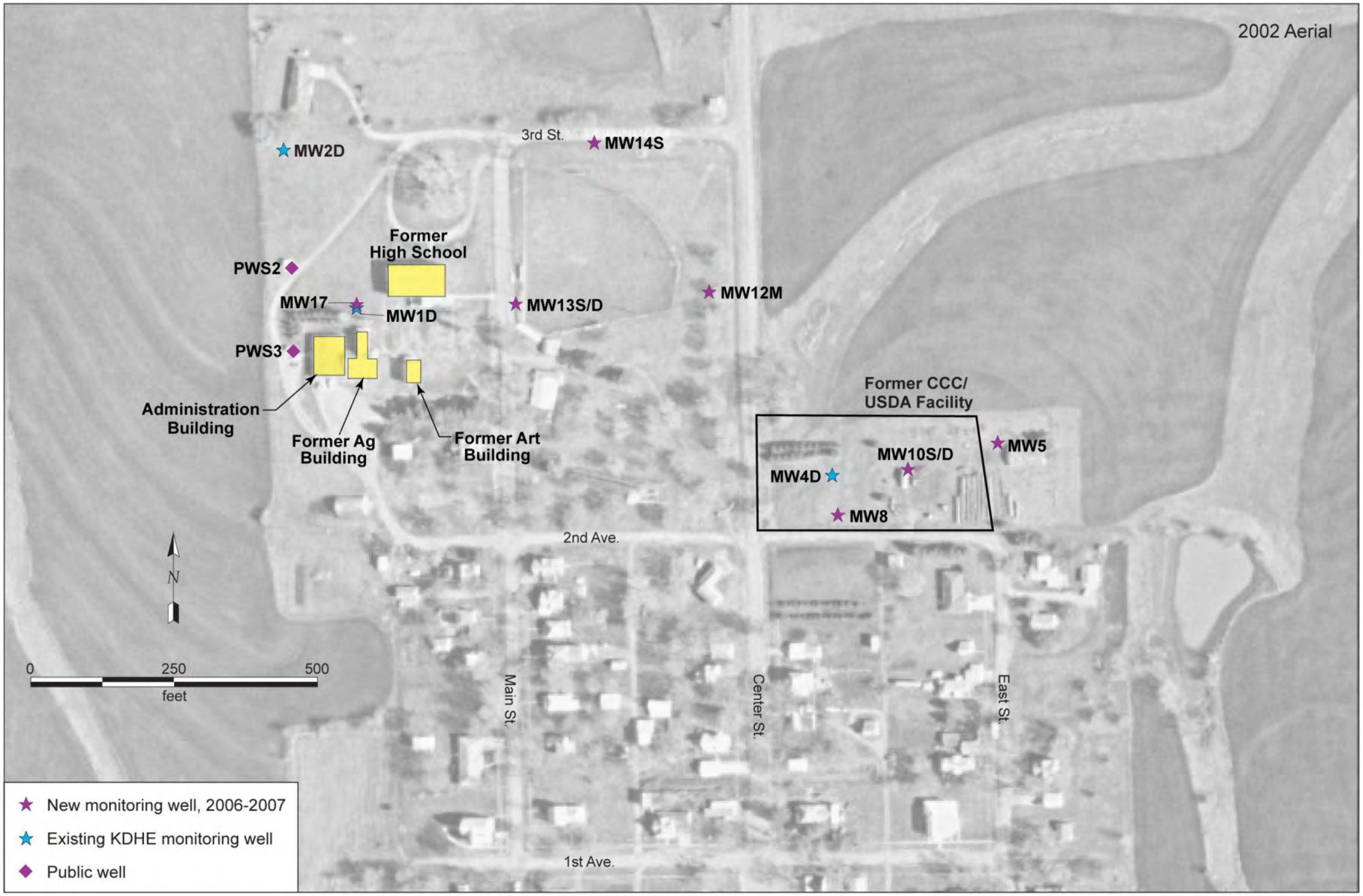

FIGURE 3.2 Groundwater sampling locations in September 2011. Source of photograph: NAPP (2002).

4 Results and Discussion

4.1 Groundwater Level Data

The manual water level measurements taken during 2011 are in Table 4.1. Included are measurements made during sampling of the monitoring well network on September 28-29, 2011, and hand measurements taken on March 16 and November 18, 2011, for all wells in the automatic water level monitoring network. Evaluation of manual water levels measurements (together with the contaminant distribution data discussed in Section 4.2) continues to suggest that three vertically distinguishable aquifer zones are present at Barnes: shallow, intermediate, and deep. The designations “S”, “M”, and “D” in monitoring well names (Table 4.1) were assigned at the time of well installation to indicate shallow-, medium-, and deep-screened wells within individual well clusters, and they do not necessarily correspond with the designations of the aquifer zones identified later.

Table 4.2 shows the approximate water level elevations for wells screened in the three aquifer zones, as indicated by the long-term monitoring data accumulated since 2007. As in prior monitoring events, three vertically distinguished aquifer zones are evident in the 2011 data.

Water level data collected by the automatic recorders, which are coincident in time at all monitored locations, provide the primary basis for determination of the topology of the potentiometric surface at any point in the cycles of groundwater pumping and recovery. The water levels measured by hand over a finite time period in the areally distributed network of monitoring wells do not capture the documented short-term, transient water level variations that are related to pumping of the public water supply wells. Figure 4.1 presents a potentiometric surface map (under non-pumping conditions) on November 18, 2011, for the network of wells in the deeper aquifer zone currently being monitored. For comparison, the maps in Figure 4.2a and Figure 4.2b were derived from measurements taken on February 2, 2010, under non-pumping and pumping conditions, respectively.

The hydrographs in Figure 4.3a and Figure 4.3b summarize data for the recording transducers in the deep-zone wells (January-November 2011). The hydrographs show that the groundwater levels in the deep zone declined steadily from January 1 to about mid-May, then rebounded very slightly or stabilized from May until late August, and finally declined again to the end of the data period. Over the entire period of automated monitoring, the water levels in the deep interval reached their transient (all-time) maximum in mid 2010. The decline observed through much of 2011 has returned the levels to elevations similar to those observed through 2008-2009, but the levels are still approximately 13 ft higher than the all-time lowest levels observed in 2006. Although the data from the intermediate zone are comparatively limited, the available results follow the trends noted in the deep zone.

Throughout the monitoring at Barnes — until June 20, 2011 — the hydrographs consistently showed relatively large and frequent (typically once or twice per day) drawdown spikes associated with pumping of the public wells (Figure 4.4). After this date, the clear cycling pattern is no longer present. Although the hydrographs continue to exhibit the pumping effect of the public wells, more frequent pumping, primarily during daytime, is apparent. This change in the pumping pattern of the public supply wells reflects a recent upgrade of the public water system (Oentrich 2011). In the past, the public wells were pumped manually when the level in the distribution water tower became low. Starting in June 2011, pumping of the wells is activated by a sensor in response to demand, to keep the water level in the tower more constant. As part of the system upgrade, the distribution lines were replaced to reduce leakage. This improvement is likely to result in reduced pumping of the public wells.

4.2 Analytical Results for Volatile Organic Compounds in Groundwater Samples and Lateral Distribution of the Contaminants

The analytical data for VOCs in the groundwater samples collected in 2011 are in Table 4.3, together with data for the previous sampling events at Barnes. The highest concentration of carbon tetrachloride in sitewide monitoring continues to be found at intermediate-zone well MW10S (located in the eastern portion of the former CCC/USDA facility and screened at 93-103 ft BGL). In this well, carbon tetrachloride was detected at 37 μg/L in September 2011, down from 78 μg/L in September 2010.

The lateral distribution of carbon tetrachloride in groundwater in sampling events in September 2009, September 2010, and September 2011 is illustrated in Figure 4.5. The distribution in 2011 is similar to the previous distribution. Contaminant concentrations at and near the public water supply wells remained low to undetectable. Because of the pulsing influence on groundwater flow patterns when the public wells are pumping, no clear migration trend toward these wells has been evident in sitewide monitoring to date. Carbon tetrachloride was not detected in either public well during sampling in December 2011.

The lateral distribution of chloroform in groundwater in 2011 (Figure 4.6) is also similar to the distribution during previous sampling events. The highest concentration of chloroform in sitewide sampling since 2007 has been found at well MW12M, located northwest of the former CCC/USDA facility and screened at 90-100 ft BGL (in the intermediate aquifer zone), with concentrations of 1.0-5.9 μg/L. Relatively lower dissolved oxygen and oxidation-reduction potential values have been measured consistently at this location (Table A.2 in Appendix A).

The vertical distribution of carbon tetrachloride in groundwater indicates that the highest concentrations are present in the intermediate zone, at wells MW10S (37 μg/L), MW12M (16 μg/L), and MW13S (8.1 μg/L), as measured in September 2011 (Table 4.3). The deep-zone wells at these locations showed little to no change in carbon tetrachloride concentrations between the 2010 and 2011 sampling events (Figure 4.5).

TABLE 4.1 Hand-measured water levels in 2011.

Well	Reference Elevation (ft AMSL)	March 16, 2011		September 28-29, 2011		November 18, 2011	
		ft TOC	ft AMSL	ft TOC	ft AMSL	ft TOC	ft AMSL
Shallow aquifer zone							
MW1S	1351.58	–	–	–	–	–	–
MW11S	1336.58	–	–	–	–	–	–
MW12S	1327.46	–	–	–	–	–	–
Intermediate aquifer zone							
MW10S	1331.33	72.18	1259.15	74.10	1257.23	75.11	1256.22
MW11M	1336.51	77.13	1259.38	–	–	79.76	1256.75
MW12M	1327.46	68.45	1259.01	71.25	1256.21	71.44	1256.02
MW13S	1342.36	–	–	87.55	1254.81	88.15	1254.21
MW17	1351.77	94.11	1257.66	96.23	1255.54	97.38	1254.39
Deep aquifer zone							
MW1D	1351.33	113.67	1237.66	119.12	1232.21	120.28	1231.05
MW2D	1348.85	–	–	116.22	1232.63	118.03	1230.82
MW3D	1345.99	108.20	1237.79	–	–	114.66	1231.33
MW4D	1326.32	89.84	1236.48	95.31	1231.01	–	–
MW5	1327.20	–	–	96.40	1230.80	–	–
MW6S	1323.13	–	–	–	–	–	–
MW6D	1323.15	–	–	–	–	–	–
MW7	1329.91	94.08	1235.83	–	–	99.74	1230.17
MW8	1330.06	–	–	98.42	1231.64	–	–
MW9	1321.86	85.45	1236.41	–	–	91.41	1230.45
MW10D	1331.33	–	–	99.65	1231.68	–	–
MW11D	1336.53	–	–	–	–	–	–
MW12D	1327.52	–	–	–	–	–	–
MW13D	1342.37	–	–	110.20	1232.17	–	–
MW14S	1332.69	–	–	101.40	1231.29	–	–
MW14D	1332.74	95.89	1236.85	–	–	103.91	1228.83
MW15S	1309.34	–	–	–	–	–	–
MW15D	1309.29	66.55	1242.74	–	–	–	–
MW16S	1299.47	–	–	–	–	–	–
MW16D	1299.52	65.18	1234.34	–	–	70.36	1229.16
Oentrich	1336.93	–	–	–	–	–	–

TABLE 4.2 Elevation ranges measured for the three aquifer zones, 2007-2011.

	Elevation of Aquifer Zone (ft AMSL)		
Date	Shallow	Intermediate	Deep
November 2011	–	1,254-1,257	1,229-1,231
September 2011	–	1,255-1,257	1,231-1,233
March 2011	–	1,258-1,259	1,234-1,243
September 2010	1,312	1,263-1,265	1,242-1,256
July 2010	–	1,267-1,269	1,244-1,254
March-April 2010	1,315	1,257-1,259	1,233-1,243
February 2010	1,311	1,255-1,257	1,230-1,238
October 2009	1,275-1,307	1,254-1,256	1,229-1,237
June 2009	1,274-1,310	1,255-1,258	1,232-1,241
March 2009	1,308	1,251-1,256	1,229-1,236
November 2008	–	1,257-1,259	1,233-1,242
October 2008	1,314	1,256-1,259	1,235-1,242
July 2008	1,312	1,255-1,258	1,229-1,239
March 2008	1,309	1,250-1,254	1,223-1,229
November 2007	1,307	1,249-1,254	1,220-1,239
June 2007	1,276-1,314	1,247-1,254	1,221-1,228

TABLE 4.3 Analytical results from the AGEM Laboratory for volatile organic compounds in groundwater samples, 2006-2011.

					Concentration (µg/L)		
Location	Screen Interval Depth (ft BGL)	Sample	Sample Date	Depth to Water (ft BTOC)[a]	Carbon Tetrachloride	Chloroform	Methylene Chloride
Previously existing monitoring wells							
MW1S	13.3-23.3	Not sampled (well dry)	7/19/06	–	–	–	–
		Not sampled (well dry)	4/4/07	–	–	–	–
		Not sampled (well dry)	11/18/07	–	–	–	–
		Not sampled (well dry)	3/4/08	–	–	–	–
		Not sampled (well dry)	7/9/08	–	–	–	–
		Not sampled (well dry)	10/22/08	–	–	–	–
		Not sampled (well dry)	3/4/09	–	–	–	–
		Not sampled (well dry)	6/17/09	–	–	–	–
		Not sampled (well dry)	9/30/09	–	–	–	–
		Not sampled (well dry)	3/31/10	–	–	–	–
		Not sampled (well dry)	9/17/10	–	–	–	–
MW1D	139.85-159.4	BAMW1D-W-21688	7/19/06	135.20	1.0	ND[a]	ND
		BAMW1D-W-22565	4/4/07	132.50	1.2	ND	ND
		BAMW1D-W-22593	11/18/07	124.89	ND	ND	ND
		BAMW1D-W-22627	3/4/08	127.66	0.2 J[b]	ND	ND
		BAMW1D-W-22668	7/9/08	119.40	0.2 J	ND	ND
		BAMW1D-W-27720	10/22/08	113.77	ND	ND	ND
		BAMW1D-W-22703	3/4/09	119.90	ND	ND	ND
		BAMW1D-W-28639	6/17/09	115.60	ND	ND	ND
		BAMW1D-W-28678	9/30/09	120.40	0.3 J	ND	ND
		BAMW1D-W-28718	3/31/10	114.55	ND	ND	ND
		BAMW1D-W-28761	9/17/10	105.28	ND	ND	ND
		BAMW1D-W-28806	9/28/11	119.12	ND	ND	ND
		BAMW1DDUP-W-28820	9/28/11	–	ND	ND	ND
MW2D	133.26-152.93	BAMW2D-W-21687	7/19/06	132.00	ND	ND	ND
		BAMW2D-W-22564	4/4/07	130.17	ND	ND	ND
		BAMW2D-W-22594	11/18/07	122.56	ND	ND	ND
		BAMW2D-W-22628	3/7/08	125.55	ND	ND	ND
		BAMW2D-W-22669	7/10/08	117.15	ND	ND	ND
		BAMW2D-W-27721	10/22/08	113.55	ND	ND	ND
		BAMW2D-W-22704	3/4/09	117.10	ND	ND	ND
		BAMW2D-W-28640	6/18/09	115.70	ND	ND	ND
		BAMW2D-W-28679	9/30/09	117.60	ND	ND	ND
		BAMW2D-W-28719	3/31/10	112.40	ND	ND	ND
		BAMW2D-W-28762	9/17/10	103.38	ND	ND	ND
		BAMW2D-W-28807	9/28/11	116.22	ND	ND	ND
MW3D	133.02-152.73	BAMW3D-W-21686	7/19/06	128.96	ND	ND	ND
		BAMW3D-W-22567	4/4/07	126.64	ND	ND	ND
		BAMW3D-W-22595	11/19/07	126.25	ND	ND	ND
		BAMW3D-W-22629	3/7/08	121.90	ND	ND	ND
		BAMW3D-W-22670	7/10/08	113.30	ND	ND	ND
		BAMW3D-W-27722	10/22/08	108.50	ND	ND	ND
		BAMW3D-W-22705	3/4/09	116.10	ND	ND	ND
		BAMW3D-W-28641	6/17/09	110.15	ND	ND	ND
		BAMW3D-W-28680	9/30/09	116.30	ND	ND	ND
		BAMW3D-W-28720	4/1/10	108.86	ND	ND	ND
		BAMW3D-W-28763	9/17/10	99.92	ND	ND	ND
MW4D	98.38-118.22	BAMW4D-W-21690	7/20/06	108.80	2.1	ND	ND
		BAMW4D-W-22583	4/6/07	108.00	3.5	0.1 J	ND
		BAMW4D-W-22596	11/19/07	101.39	1.7	0.4 J	ND
		BAMW4D-W-22642	3/9/08	101.74	18	0.4 J	ND
		BAMW4D-W-22671	7/12/08	93.60	9.4	0.5 J	ND

TABLE 4.3 (Cont.)

Location	Screen Interval Depth (ft BGL)	Sample	Sample Date	Depth to Water (ft BTOC)[a]	Concentration (µg/L) Carbon Tetrachloride	Chloroform	Methylene Chloride
Previously existing monitoring wells (cont.)							
MW4D	98.38-118.22	BAMW4D-W-27723	10/23/08	89.90	7.6	ND	ND
		BAMW4D-W-22706	3/5/09	94.75	7.2	0.3 J	ND
		BAMW4D-W-28642	6/18/09	92.25	9.1	ND	ND
		BAMW4D-W-28681	9/30/09	95.70	13	0.3 J	ND
		BAMW4D-W-28721	3/31/10	91.45	13	0.4 J	ND
		BAMW4D-W-28764	9/17/10	81.25	12	ND	ND
		BAMW4D-W-28808	9/28/11	95.31	10	ND	ND
CCC/USDA wells installed during the 2006-2007 investigation							
MW5	110-120	BAMW5-W-22589	4/6/07	108.40	0.6 J	ND	ND
		BAMW5-W-22597	11/19/07	102.78	0.6 J	ND	ND
		BAMW5-W-22637	3/8/08	102.00	0.7 J	ND	ND
		BAMW5-W-22672	7/11/08	93.80	ND	ND	ND
		BAMW5-W-27724	10/23/08	91.40	3.0	ND	ND
		BAMW5-W-22707	3/5/09	96.90	3.2	ND	ND
		BAMW5-W-28643	6/19/09	93.80	4.8	ND	ND
		BAMW5-W-28682	9/30/09	96.60	7.2	ND	ND
		BAMW5-W-28722	3/30/10	92.06	7.7	0.3 J	ND
		BAMW5-W-28765	9/17/10	83.10	11	ND	ND
		BAMW5-W-28809	9/28/11	96.40	10	ND	ND
MW6S	90.5-100.5	Not sampled (well dry)	4/4/07	–	–	–	–
		BAMW6S-W-22598	11/19/07	96.10	0.3 J	ND	ND
		BAMW6S-W-22635	3/8/08	94.50	0.4 J	ND	ND
		BAMW6S-W-22673	7/11/08	88.10	ND	ND	ND
		BAMW6S-W-27725	10/23/08	84.60	ND	ND	ND
		BAMW6S-W-22708	3/5/09	87.00	ND	ND	ND
		BAMW6S-W-28644	6/18/09	86.05	ND	ND	ND
		BAMW6S-W-28683	10/1/09	88.85	ND	ND	ND
		BAMW6S-W-28723	3/31/10	86.15	0.4 J	ND	ND
		BAMW6S-W-28766	9/18/10	76.46	ND	ND	ND
MW6D	105-115	BAMW6D-W-22573	4/5/07	105.00	ND	ND	ND
		BAMW6D-W-22599	11/19/07	98.50	0.5 J	ND	ND
		BAMW6D-W-22636	3/8/08	98.50	0.8 J	ND	ND
		BAMW6D-W-22674	7/11/08	89.50	0.9 J	ND	ND
		BAMW6D-W-27726	10/23/08	87.15	1.1	ND	ND
		BAMW6D-W-22709	3/5/09	93.00	1.4	ND	ND
		BAMW6D-W-28645	6/18/09	88.70	1.5	ND	ND
		BAMW6D-W-28684	10/1/09	91.92	1.5	ND	ND
		BAMW6D-W-28724	3/31/10	87.84	1.2	ND	ND
		BAMW6D-W-28767	9/18/10	79.35	2.0	ND	ND
MW7	116-126	BAMW7-W-22588	4/6/07	111.11	1.0	ND	ND
		BAMW7-W-22600	11/19/07	105.50	2.6	ND	ND
		BAMW7-W-22643	3/9/08	105.62	2.8	ND	ND
		BAMW7-W-22675	7/12/08	97.50	1.7	ND	ND
		BAMW7-W-27727	10/23/08	94.90	2.1	ND	ND
		BAMW7-W-22710	3/5/09	99.80	1.4	ND	ND
		BAMW7-W-28646	6/19/09	95.75	1.4	ND	ND
		BAMW7-W-28685	9/30/09	99.55	1.6	ND	ND
		BAMW7-W-28725	3/30/10	94.56	1.6	ND	ND
		BAMW7-W-28768	9/17/10	85.67	2.6	ND	ND

TABLE 4.3 (Cont.)

Location	Screen Interval Depth (ft BGL)	Sample	Sample Date	Depth to Water (ft BTOC)[a]	Concentration (µg/L) Carbon Tetrachloride	Chloroform	Methylene Chloride
CCC/USDA wells installed during the 2006-2007 investigation (cont.)							
MW8	110-120	BAMW8-W-22584	4/6/07	111.71	14	0.7 J	ND
		BAMW8-W-22601	11/19/07	105.17	23	0.6 J	ND
		BAMW8-W-22652	3/10/08	104.38	19	0.6 J	ND
		BAMW8-W-22676	7/11/08	95.75	21	0.6 J	ND
		BAMW8-W-27728	10/23/08	93.40	24	1.0	ND
		BAMW8-W-22711	3/5/09	98.60	20	1.3	ND
		BAMW8-W-28647	6/19/09	95.00	26	1.7	ND
		BAMW8-W-28686	9/30/09	99.20	29	2.2	ND
		BAMW8-W-28726	3/31/10	94.06	30	2.0	ND
		BAMW8-W-28769	9/17/10	84.95	31	2.1	ND
		BAMW8-W-28810	9/29/11	98.42	19	1.6	ND
MW9	100-110	BAMW9-W-22582	4/5/07	102.90	1.0	ND	ND
		BAMW9-W-22602	11/19/07	97.20	7.7	0.6 J	ND
		BAMW9-W-22647	3/9/08	96.40	3.0	0.3 J	ND
		BAMW9-W-22678	7/11/08	87.65	1.3	0.3 J	ND
		BAMW9-W-27729	10/24/08	86.60	2.2	0.2 J	ND
		BAMW9-W-22712	3/5/09	90.40	2.3	ND	ND
		BAMW9-W-28648	6/17/09	83.16	1.1	ND	ND
		BAMW9-W-28687	9/29/09	87.10	4.6	ND	ND
		BAMW9-W-28727	3/31/10	82.45	2.9	ND	ND
		BAMW9-W-28770	9/18/10	75.46	1.4	ND	ND
MW10S	93-103	BAMW10S-W-22586	4/6/07	82.55	20	1.4	ND
		BAMW10S-W-22603	11/19/07	77.81	11	0.7 J	ND
		BAMW10S-W-22649	3/10/08	77.47	56	2.0	ND
		BAMW10S-W-22679	7/11/08	73.40	49	1.8	ND
		BAMW10S-W-27730	10/23/08	72.00	68	2.3	ND
		BAMW10S-W-22713	3/5/09	76.00	49	2.1	ND
		BAMW10S-W-28649	6/19/09	73.40	76	2.5	ND
		BAMW10S-W-28688	9/30/09	75.65	53	2.4	ND
		BAMW10S-W-28728	3/30/10	71.96	73	3.0	ND
		BAMW10S-W-28771	9/17/10	65.95	78	2.9	ND
		BAMW10S-W-28811	9/28/11	74.10	37	2.1	ND
MW10D	115-125	BAMW10D-W-22585	4/6/07	113.14	2.4	0.2 J	ND
		BAMW10D-W-22604	11/19/07	106.22	6.3	0.5 J	ND
		BAMW10D-W-22646	3/9/08	106.36	5.7	0.5 J	ND
		BAMW10D-W-22680	7/11/08	97.30	3.9	0.7 J	ND
		BAMW10D-W-27731	10/23/08	95.00	4.4	0.6 J	ND
		BAMW10D-W-22714	3/5/09	101.30	5.3	0.4 J	ND
		BAMW10D-W-28650	6/19/09	96.75	4.8	0.6 J	ND
		BAMW10D-W-28689	9/30/09	100.45	4.3	0.4 J	ND
		BAMW10D-W-28729	3/30/10	96.86	4.4	0.4 J	ND
		BAMW10D-W-28772	9/17/10	86.92	4.8	ND	ND
		BAMW10D-W-28812	9/28/11	99.65	3.3	0.3 J	ND
MW11S	40-50	BAMW11S-W-22570	4/4/07	25.90	ND	1.1	ND
		BAMW11S-W-22605	11/19/07	29.20	ND	0.6 J	ND
		BAMW11S-W-22630	3/5/08	27.70	ND	0.6 J	ND
		BAMW11S-W-22681	7/10/08	24.80	ND	0.4 J	ND
		BAMW11S-W-27732	10/23/08	22.50	ND	0.3 J	ND
		BAMW11S-W-22715	3/4/09	28.00	ND	ND	ND
		BAMW11S-W-28651	6/19/09	26.64	ND	ND	ND
		BAMW11S-W-28690	10/1/09	29.50	ND	ND	ND
		BAMW11S-W-28730	3/31/10	21.50	ND	ND	ND
		BAMW11S-W-28773	9/18/10	24.71	ND	ND	ND

TABLE 4.3 (Cont.)

Location	Screen Interval Depth (ft BGL)	Sample	Sample Date	Depth to Water (ft BTOC)[a]	Concentration (µg/L) Carbon Tetrachloride	Chloroform	Methylene Chloride
CCC/USDA wells installed during the 2006-2007 investigation (cont.)							
MW11M	90-100	BAMW11M-W-22572	4/5/07	89.30	ND	ND	ND
		BAMW11M-W-22606	11/19/07	82.33	3.7	ND	ND
		BAMW11M-W-22644	3/6/08	82.65	2.4	0.5 J	ND
		BAMW11M-W-22682	7/10/08	78.85	2.4	0.7 J	ND
		BAMW11M-W-27733	10/23/08	77.80	1.7	2.1	ND
		BAMW11M-W-22716	3/4/09	80.30	0.6 J	1.2	ND
		BAMW11M-W-28652	6/19/09	78.90	ND	1.1	ND
		BAMW11M-W-28691	10/1/09	80.45	ND	0.5 J	ND
		BAMW11M-W-28731	3/31/10	77.90	0.5 J	0.8 J	ND
		BAMW11M-W-28774	9/18/10	71.22	ND	ND	ND
MW11D	125-135	BAMW11D-W-22571	4/4/07	117.15	1.1	ND	ND
		BAMW11D-W-22607	11/19/07	112.46	0.8 J	ND	ND
		BAMW11D-W-22639	3/5/08	110.50	0.4 J	ND	ND
		BAMW11D-W-22683	7/10/08	102.10	0.9 J	ND	ND
		BAMW11D-W-27734	10/23/08	101.03	0.9 J	0.2 J	ND
		BAMW11D-W-22717	3/4/09	105.03	0.8 J	ND	ND
		BAMW11D-W-28653	6/19/09	100.90	ND	ND	ND
		BAMW11D-W-28692	10/1/09	105.95	1.0	ND	ND
		BAMW11D-W-28732	4/1/10	100.10	0.5 J	ND	ND
		BAMW11D-W-28775	9/18/10	90.97	ND	ND	ND
MW12S	43-50	Not sampled (well dry)	4/5/07	–	–	–	–
		Not sampled (well dry)	11/19/07	–	–	–	–
		Not sampled (well dry)	3/10/08	–	–	–	–
		Not sampled (well dry)	7/10/08	–	–	–	–
		Not sampled (well dry)	10/22/08	–	–	–	–
		Not sampled (well dry)	3/4/09	–	–	–	–
		BAMW12S-W-28654	6/19/09	–	ND	ND	ND
		Not sampled (well dry)	10/1/09	–	–	–	–
		Not sampled (well dry)	3/31/10	–	–	–	–
		Not sampled (well dry)	9/18/10	–	–	–	–
MW12M	90-100	BAMW12M-W-22580	4/5/07	81.05	20	4.2	ND
		BAMW12M-W-22609	11/19/07	74.50	18	5.1	ND
		BAMW12M-W-22651	3/10/08	74.77	18	2.6	ND
		BAMW12M-W-22685	7/10/08	70.10	27	4.2	ND
		BAMW12M-W-27736	10/22/08	69.72	18	4.5	ND
		BAMW12M-W-22719	3/4/09	76.50	25	4.4	ND
		BAMW12M-W-28655	6/19/09	70.05	28	4.9	ND
		BAMW12M-W-28694	10/1/09	72.90	26	5.1	ND
		BAMW12M-W-28734	3/31/10	70.45	2.2	1.0	ND
		BAMW12M-W-28777	9/18/10	63.90	6.6	5.9	ND
		BAMW12M-W-28813	9/28/11	71.25	16	5.1	ND
		BAMW12MDUP-W-28821	9/28/11	–	17	5.2	ND
MW12D	115-125	BAMW12D-W-22576	4/5/07	110.20	0.6 J	ND	ND
		BAMW12D-W-22610	11/18/07	102.00	1.6	ND	ND
		BAMW12D-W-22641	3/9/08	103.30	1.0	ND	ND
		BAMW12D-W-22686	7/11/08	93.70	0.7 J	ND	ND
		BAMW12D-W-27737	10/22/08	91.12	0.9 J	ND	ND
		BAMW12D-W-22757	3/4/09	96.80	0.7 J	ND	ND
		BAMW12D-W-28656	6/19/09	93.65	ND	ND	ND
		BAMW12D-W-28695	10/1/09	96.90	1.5	ND	ND
		BAMW12D-W-28735	3/31/10	93.55	1.0	0.2 J	ND
		BAMW12D-W-28778	9/18/10	83.10	0.6 J	ND	ND

TABLE 4.3 (Cont.)

Location	Screen Interval Depth (ft BGL)	Sample	Sample Date	Depth to Water (ft BTOC)[a]	Concentration (µg/L) Carbon Tetrachloride	Chloroform	Methylene Chloride
CCC/USDA wells installed during the 2006-2007 investigation (cont.)							
MW13S	112-122	BAMW13S-W-22575	4/5/07	101.00	21	1.6	ND
		BAMW13S-W-22611	11/19/07	92.23	17	1.8	ND
		BAMW13S-W-22650	3/10/08	92.10	17	1.5	ND
		BAMW13S-W-22687	7/9/08	87.00	17	1.9	ND
		BAMW13S-W-27738	10/22/08	86.00	20	1.6	ND
		BAMW13S-W-22758	3/4/09	88.75	14	1.1	ND
		BAMW13S-W-28657	6/18/09	86.85	16	1.1	ND
		BAMW13S-W-28696	9/30/09	88.45	12	0.9 J	ND
		BAMW13S-W-28736	4/1/10	85.65	13	0.8 J	ND
		BAMW13S-W-28779	9/18/10	78.01	6.2	1.2	ND
		BAMW13S-W-28814	9/28/11	87.55	8.1	0.7 J	ND
MW13D	127-137	BAMW13D-W-22574	4/5/07	124.67	3.5	0.4 J	ND
		BAMW13D-W-22612	11/19/07	117.83	5.9	0.2 J	ND
		BAMW13D-W-22645	3/9/08	118.19	11	1.1	ND
		BAMW13D-W-22688	7/9/08	107.90	5.9	0.9 J	ND
		BAMW13D-W-27739	10/22/08	105.30	6.6	0.6 J	ND
		BAMW13D-W-22759	3/4/09	110.58	5.9	0.6 J	ND
		BAMW13D-W-28658	6/18/09	106.80	6.2	ND	ND
		BAMW13D-W-28697	9/30/09	112.85	7.2	1.0	ND
		BAMW13D-W-28737	4/1/10	105.75	5.5	0.5 J	ND
		BAMW13D-W-28780	9/18/10	96.88	5.8	0.6 J	ND
		BAMW13D-W-28815	9/28/11	110.20	2.4	ND	ND
MW14S	108-118	BAMW14S-W-22569	4/4/07	114.60	0.9 J	ND	ND
		BAMW14S-W-22613	11/18/07	106.75	1.2	ND	ND
		BAMW14S-W-22640	3/8/08	106.95	4.3	0.3 J	ND
		BAMW14S-W-22689	7/10/08	99.40	5.6	0.3 J	ND
		BAMW14S-W-27740	10/22/08	96.20	5.6	0.3 J	ND
		BAMW14S-W-28620	3/4/09	101.30	5.6	0.4 J	ND
		BAMW14S-W-28659	6/18/09	99.80	3.7	0.6 J	ND
		BAMW14S-W-28698	10/1/09	101.43	5.2	0.3 J	ND
		BAMW14S-W-28738	4/1/10	96.70	4.3	0.3 J	ND
		BAMW14S-W-28781	9/18/10	87.82	4.9	0.4 J	ND
		BAMW14S-W-28816	9/28/11	101.40	3.4	ND	ND
MW14D	123-133	BAMW14D-W-22568	4/4/07	114.00	1.2	ND	ND
		BAMW14D-W-22614	11/18/07	107.10	0.6 J	ND	ND
		BAMW14D-W-22638	3/8/08	106.95	0.7 J	ND	ND
		BAMW14D-W-22690	7/10/08	101.00	0.5 J	ND	ND
		BAMW14D-W-27741	10/22/08	96.10	ND	ND	ND
		BAMW14D-W-28621	3/5/09	103.20	0.6 J	ND	ND
		BAMW14D-W-28660	6/18/09	97.75	ND	ND	ND
		BAMW14D-W-28699	10/1/09	101.48	0.5 J	ND	ND
		BAMW14D-W-28739	4/1/10	96.50	0.4 J	ND	ND
		BAMW14D-W-28782	9/17/10	87.66	ND	ND	ND
MW15S	88-98	BAMW15S-W-22560	4/4/07	91.50	1.5	ND	ND
		BAMW15S-W-22615	11/18/07	84.33	8.7	0.4 J	ND
		BAMW15S-W-22648	3/10/08	84.66	1.8	0.2 J	ND
		BAMW15S-W-22691	7/12/08	80.30	2.2	0.3 J	ND
		BAMW15S-W-27742	10/23/08	73.20	1.9	ND	ND
		BAMW15S-W-28622	3/5/09	73.80	2.5	ND	ND
		BAMW15S-W-28661	6/17/09	75.92	3.2	0.5 J	ND
		BAMW15S-W-28700	9/29/09	79.45	2.6	ND	ND
		BAMW15S-W-28740	3/30/10	75.65	4.0	0.4 J	ND
		BAMW15S-W-28783	9/18/10	66.07	1.9	ND	ND

TABLE 4.3 (Cont.)

Location	Screen Interval Depth (ft BGL)	Sample	Sample Date	Depth to Water (ft BTOC)[a]	Concentration (µg/L)		
					Carbon Tetrachloride	Chloroform	Methylene Chloride
CCC/USDA wells installed during the 2006-2007 investigation (cont.)							
MW15D	105-115	BAMW15D-W-22561	4/4/07	88.30	ND	ND	ND
		BAMW15D-W-22616	11/18/07	70.20	ND	ND	ND
		BAMW15D-W-22631	3/8/08	80.80	0.2 J	ND	ND
		BAMW15D-W-22692	7/12/08	70.30	ND	ND	ND
		BAMW15D-W-27743	10/24/08	67.60	ND	ND	ND
		BAMW15D-W-28623	3/5/09	73.60	ND	ND	ND
		BAMW15D-W-28662	6/17/09	67.74	ND	ND	ND
		BAMW15D-W-28701	9/29/09	72.10	ND	ND	ND
		BAMW15D-W-28741	3/30/10	66.50	ND	ND	ND
		BAMW15D-W-28784	9/18/10	58.11	ND	ND	ND
MW16S	76-86	BAMW16S-W-22563	4/4/07	81.00	ND	ND	ND
		BAMW16S-W-22617	11/19/07	75.30	ND	ND	ND
		BAMW16S-W-22632	3/7/08	75.50	0.4 J	ND	ND
		BAMW16S-W-22693	7/11/08	67.35	ND	ND	ND
		BAMW16S-W-27744	10/23/08	64.80	0.9 J	ND	ND
		BAMW16S-W-28624	3/5/09	69.60	1.4	ND	ND
		BAMW16S-W-28663	6/18/09	66.93	1.6	ND	ND
		BAMW16S-W-28702	9/29/09	70.35	1.7	ND	ND
		BAMW16S-W-28742	3/30/10	66.10	1.6	ND	ND
		BAMW16S-W-28785	9/18/10	57.24	1.7	ND	ND
MW16D	90-100	BAMW16D-W-22562	4/4/07	79.71	ND	ND	ND
		BAMW16D-W-22618	11/19/07	74.50	ND	ND	ND
		BAMW16D-W-22633	3/7/08	75.00	ND	ND	ND
		BAMW16D-W-22694	7/11/08	66.30	ND	ND	ND
		BAMW16D-W-27745	10/23/08	63.90	ND	ND	ND
		BAMW16D-W-28625	3/5/09	69.00	ND	ND	ND
		BAMW16D-W-28664	6/18/09	66.49	ND	ND	ND
		BAMW16D-W-28703	9/29/09	70.00	ND	ND	ND
		BAMW16D-W-28743	3/30/10	65.95	ND	ND	ND
		BAMW16D-W-28786	9/18/10	57.65	ND	ND	ND
MW17	120-130	BAMW17D-W-22566	4/4/07	110.68	ND	ND	ND
		BAMW17D-W-22619	11/19/07	102.68	ND	ND	ND
		BAMW17-W-22634	3/5/08	101.75	0.3 J	ND	ND
		BAMW17-W-22695	7/9/08	96.60	0.4 J	ND	ND
		BAMW17-W-27746	10/22/08	95.15	0.7 J	ND	ND
		BAMW17-W-28626	3/4/09	98.10	1.0	ND	ND
		BAMW17-W-28665	6/17/09	95.75	1.0	ND	ND
		BAMW17-W-28704	9/30/09	98.00	ND	ND	ND
		BAMW17-W-28744	3/31/10	94.90	0.5 J	ND	ND
		BAMW17-W-28787	9/17/10	88.03	ND	ND	ND
		BAMW17-W-28817	9/28/11	96.23	0.4 J	ND	ND
Private wells							
Oentrich	150	BAOENT-W-21693	7/20/06	–	0.3 J	ND	ND
		BAOENT-W-21713	8/2/06	–	0.6 J	ND	ND
		BAOENTRICH-W-22579	4/5/07	–	0.6 J	ND	ND
		BAOENTRICH-W-22622	11/19/07	–	0.8 J	ND	ND
		BAOENTRICH-W-22654	3/6/08	–	1.3	ND	ND
		BAOENTRICH-W-22695	7/11/08	–	0.3 J	ND	ND
		BAOENTRICH-W-27747	10/23/08	–	0.9 J	ND	ND
		BAOENTRICH-W-28627	3/5/09	–	1.1	ND	ND
		BAOENTRICH-W-28666	6/18/09	–	0.9 J	ND	ND
		BAOENTRICH-W-28705	9/30/09	–	1.6	ND	ND
		BAOENTRICH-W-28745	4/1/10	–	1.2	ND	ND
		BAOENTRICH-W-28788	9/18/10	–	3.3	0.8 J	ND

TABLE 4.3 (Cont.)

Location	Screen Interval Depth (ft BGL)	Sample	Sample Date	Depth to Water (ft BTOC)[a]	Concentration (µg/L) Carbon Tetrachloride	Chloroform	Methylene Chloride
Private wells (cont.)							
Sedivy	138	BACW-W-21849	8/22/06	–	ND	ND	ND
		BASED2-W-21913	9/13/06	–	ND	ND	ND
Sedivy1	90	Not sampled (well dry)	9/13/06	–	–	–	–
Public water supply wells[d]							
PWS2	155	BAPWS2-W-22510	3/9/07	–	ND	ND	ND
		BAPW2-W-22578	4/5/07	–	ND	ND	ND
		BAPW2-W-22620	11/20/07	–	ND	ND	ND
		BAPWS2-W-22655	3/6/08	–	ND	ND	ND
		BAPWS2-W-22696	7/11/08	–	0.8 J	ND	ND
		BAPW2-W-27748	10/23/08	–	1.7	ND	ND
		BAPWS2-W-28628	3/5/09	–	0.9 J	ND	ND
		BAPWS2-W-28667	6/18/09	–	1.0	ND	ND
		BAPWS2-W-28706	9/30/09	–	ND	ND	ND
		BAPWS2-W-28715	12/14/09	–	ND	ND	ND
		BAPWS2-W-28746	3/31/10	–	0.9 J	ND	ND
		BAPWS2-W-28758	6/17/10	–	0.8 J	ND	ND
		BAPWS2-W-28789	9/18/10	–	1.1	ND	ND
		BAPWS2-W-28803	12/15/10	–	0.7 J	ND	ND
		BAPWS2-W-28818	9/28/11	–	0.6 J	ND	ND
		BAPWS2-W-28827	12/12/11	–	ND	ND	ND
PWS3	160	BAPWS3-W-22511	3/9/07	–	0.2 J	ND	ND
		BAPW3-W-22577	4/5/07	–	ND	ND	ND
		BAPW3-W-22621	11/20/07	–	ND	ND	ND
		BAPWS3-W-22656	3/6/08	–	ND	ND	ND
		BAPWS3-W-22697	7/11/08	–	0.2 J	ND	ND
		BAPW3-W-27749	10/23/08	–	ND	ND	ND
		BAPWS3-W-28629	3/5/09	–	ND	ND	ND
		BAPWS3-W-28668	6/18/09	–	ND	ND	ND
		BAPWS3-W-28707	9/30/09	–	ND	ND	ND
		BAPWS3-W-28716	12/14/09	–	ND	ND	ND
		BAPWS3-W-28747	3/31/10	–	ND	ND	ND
		BAPWS3-W-28759	6/17/10	–	ND	ND	ND
		BAPWS3-W-28790	9/18/10	–	ND	ND	ND
		BAPWS3-W-28804	12/15/10	–	ND	ND	ND
		BAPWS3-W-28819	9/28/11	–	ND	2.2	ND
		BAPWS3-W-28828	12/12/11	–	ND	ND	ND

Footnotes on next page

TABLE 4.3 (Cont.)

Location	Screen Interval Depth (ft BGL)	Sample	Sample Date	Depth to Water (ft BTOC)[a]	Concentration (µg/L) Carbon Tetrachloride	Chloroform	Methylene Chloride

[a] BTOC, below top of casing.

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

[c] Qualifier J indicates an estimated concentration below the purge-and-trap method quantitation limit of 1.0 µg/L.

[d] Pumping status of public wells:

Sampling Date	PWS2	PWS3
3/9/07	Well has been pumping today.	Well has been pumping today.
4/5/07	Sampled after letting run for 5-10 min.	Well has been pumping all day.
11/20/07	Well on at time of sampling.	Well on at time of sampling.
3/6/08	Let water run from tap for 2-3 min, then sampled.	Sample collected from tap in well house. Let water run from tap for 2-3 min, then sampled.
7/11/08	Running for 30 min.	Running for 30 min.
10/23/08	Well was pumping for 5 min.	Well was pumping for 30 min.
3/5/09	Well operating to fill water tower prior to sampling.	Ran for 5 min.
6/18/09	Well pumping since 6 a.m. on June 18. Let run from tap for 5 min, then sampled.	Well was used on June 17. Let pump run for 10 min, then sampled.
9/30/09	Well used on September 29. Let well run for 10 min, then sampled.	Well in use. Let tap run for 5 min, then sampled.
12/14/09	Well has been pumping today.	Well has been pumping today.
3/31/10	Well used on March 30. Let well run for 10 min, then sampled.	Well in use oversnight. Let tap run for 5 min, then sampled.
6/17/10	Recent use of well not recorded in log.	Recent use of well not recorded in log.
9/18/10	Well in use for past 2 days. Sampled from tap after purging for 5-10 min (approximately 500 gal).	Well in use for past 2 days. Sampled from tap after purging for 5-10 min (approximately 500 gal).
12/15/10	Recent use of well not recorded in log.	Recent use of well not recorded in log.
9/28/11	Sampled from tap after purging for 5 min.	Sampled from tap after purging for 5 min.
12/12/11	Sampled from tap after purging for 5 min.	Sampled from tap after purging for 5 min.

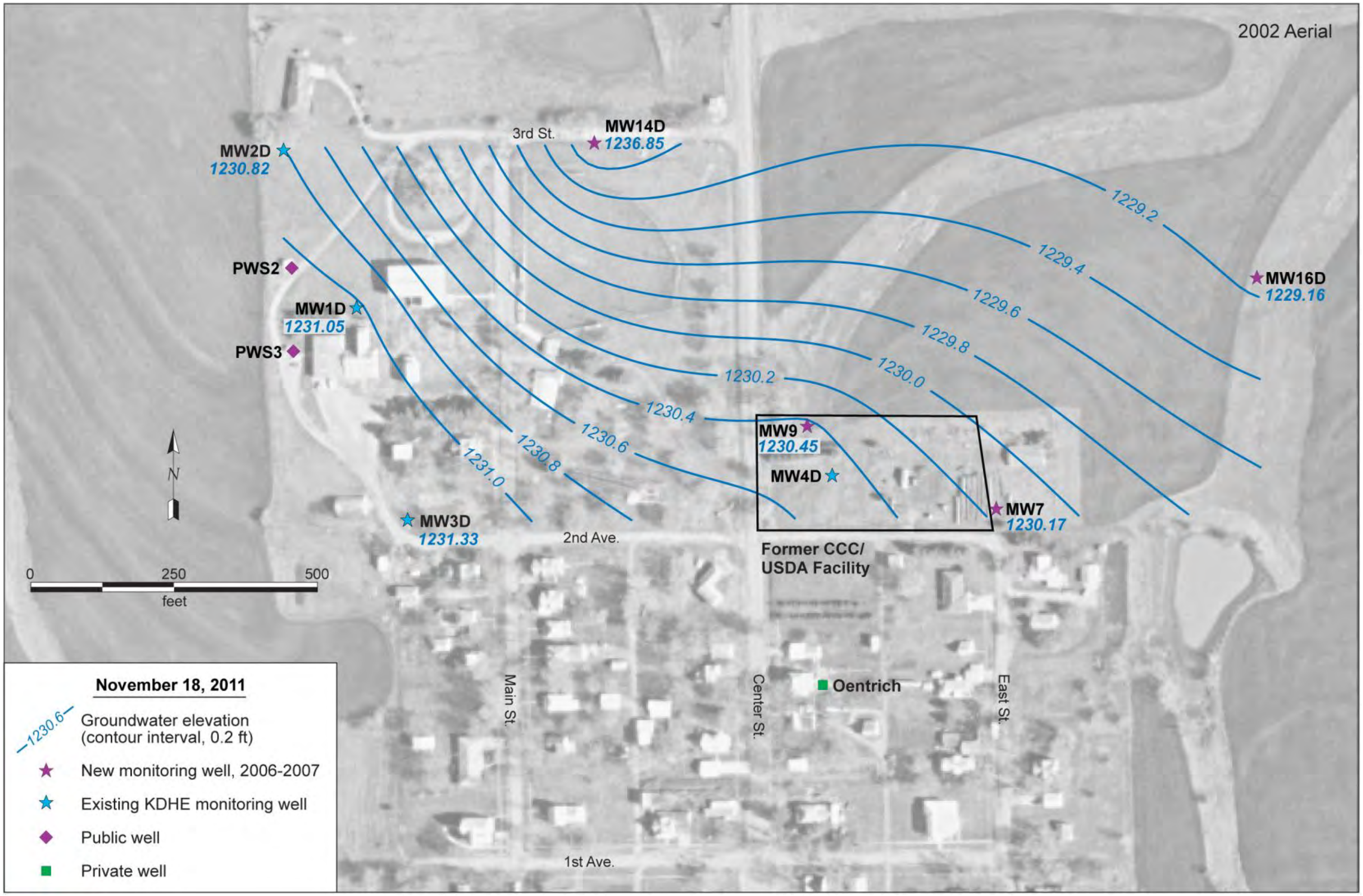

FIGURE 4.1 Potentiometric surface map depicting the groundwater flow direction in the deep aquifer zone under static (non-pumping) conditions on November 18, 2011. Source of photograph: NAPP (2002).

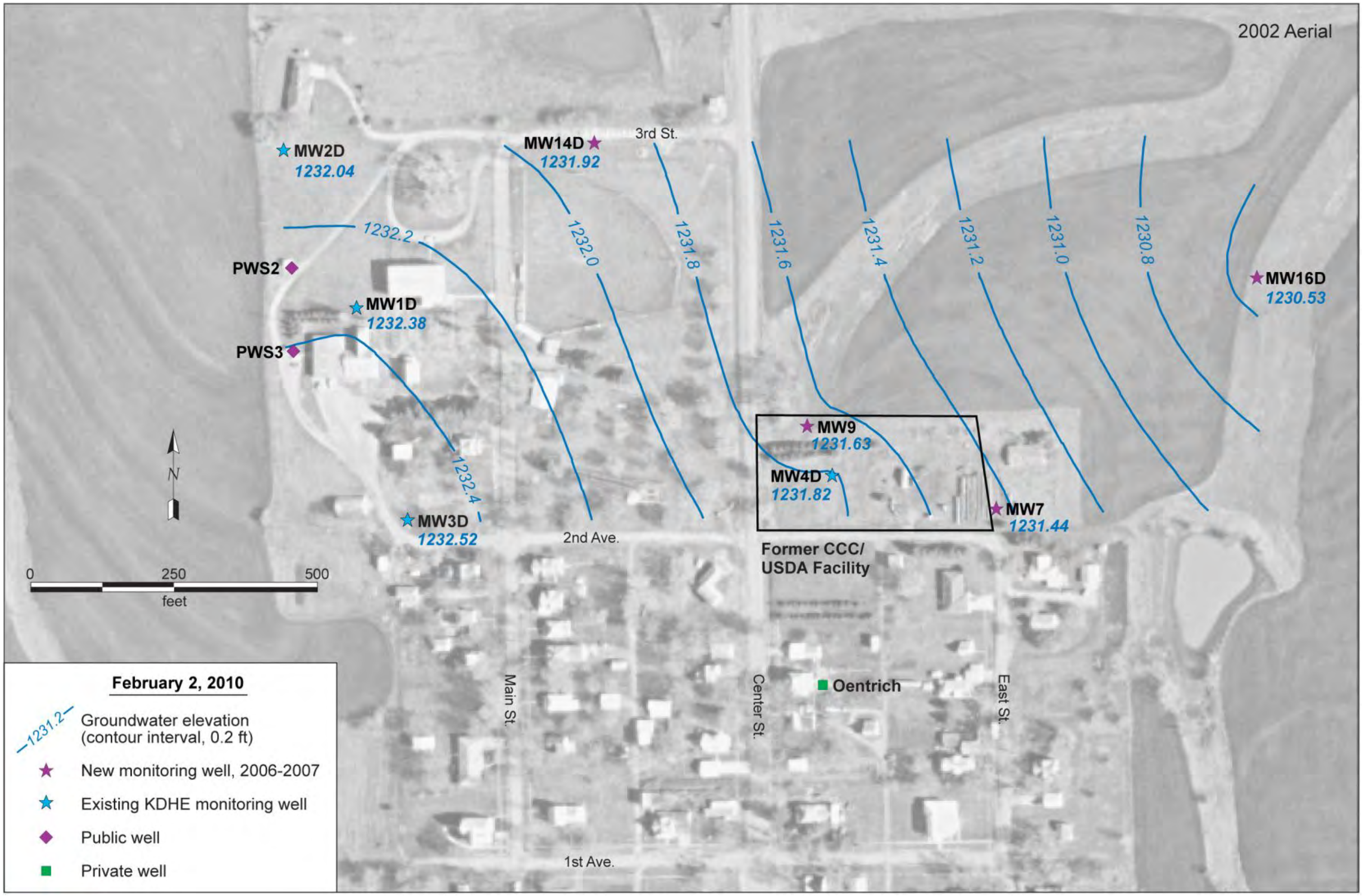

FIGURE 4.2a Potentiometric surface map depicting the groundwater flow direction in the deep aquifer zone under static (non-pumping) conditions on February 2, 2010. Source of photograph: NAPP (2002).

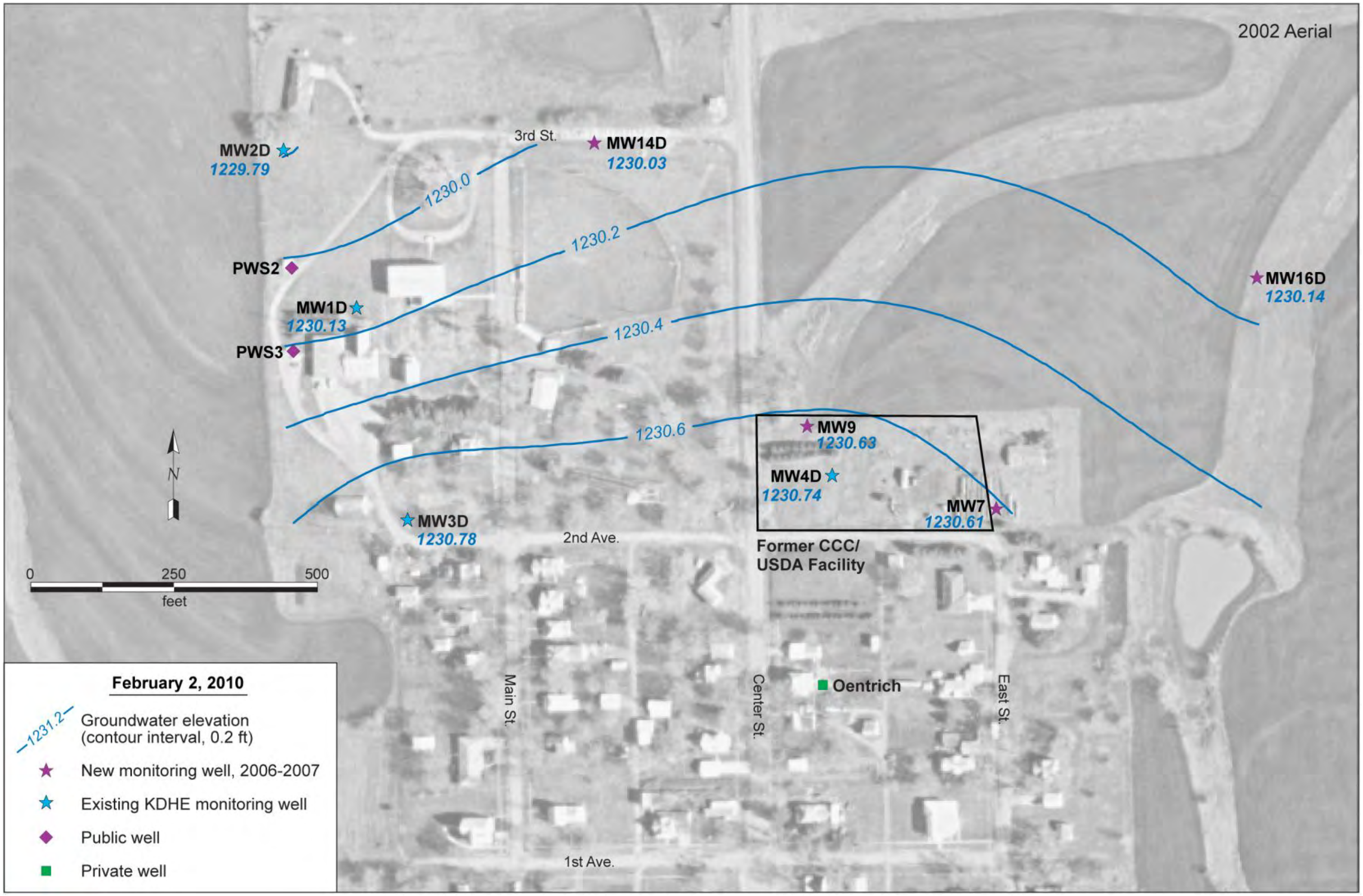

FIGURE 4.2b Potentiometric surface map depicting the groundwater flow direction in the deep aquifer zone under pumping conditions on February 2, 2010. Source of photograph: NAPP (2002).

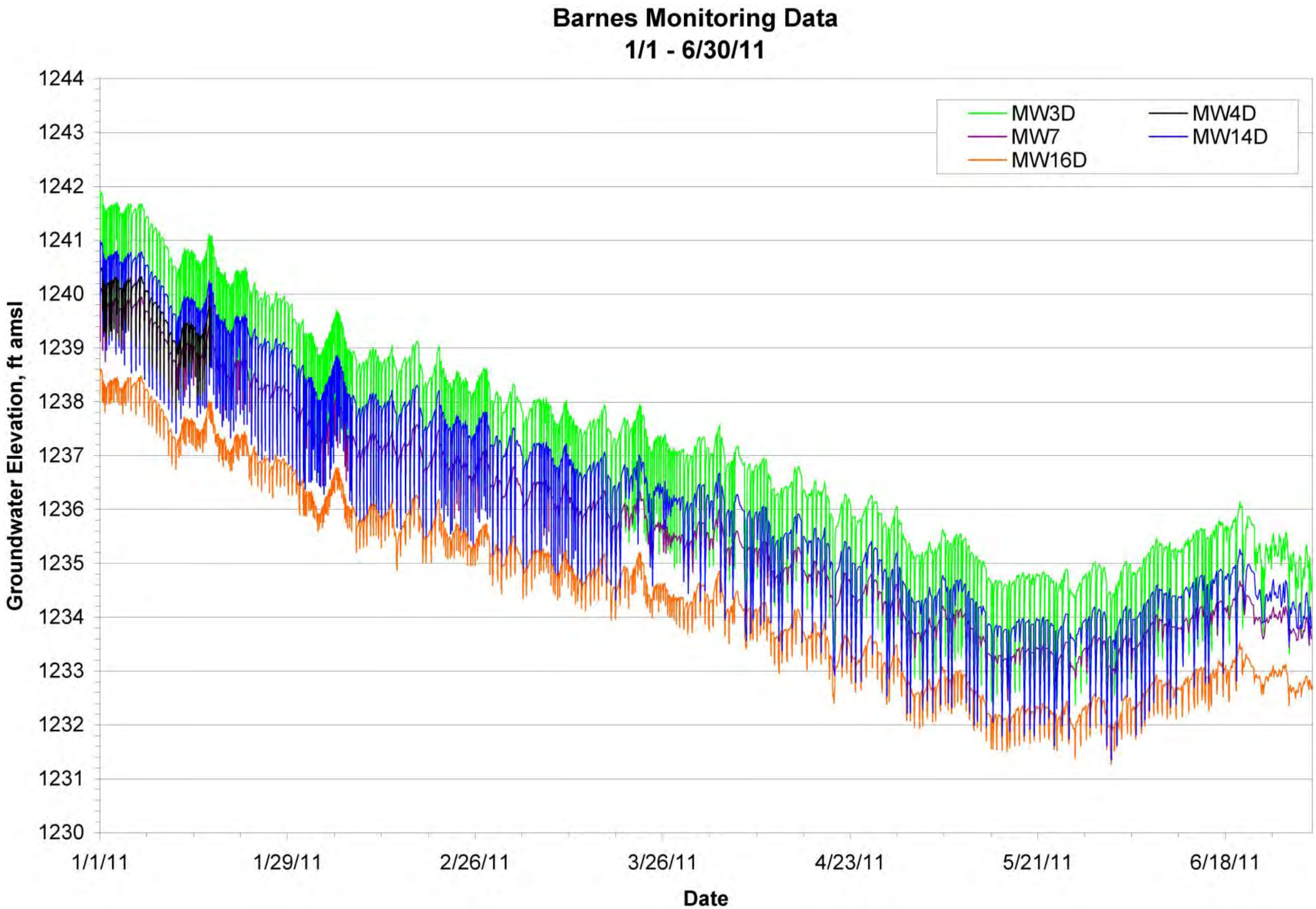

FIGURE 4.3a Hydrographs summarizing results of long-term water level monitoring in the deep-zone wells, January-June 2011.

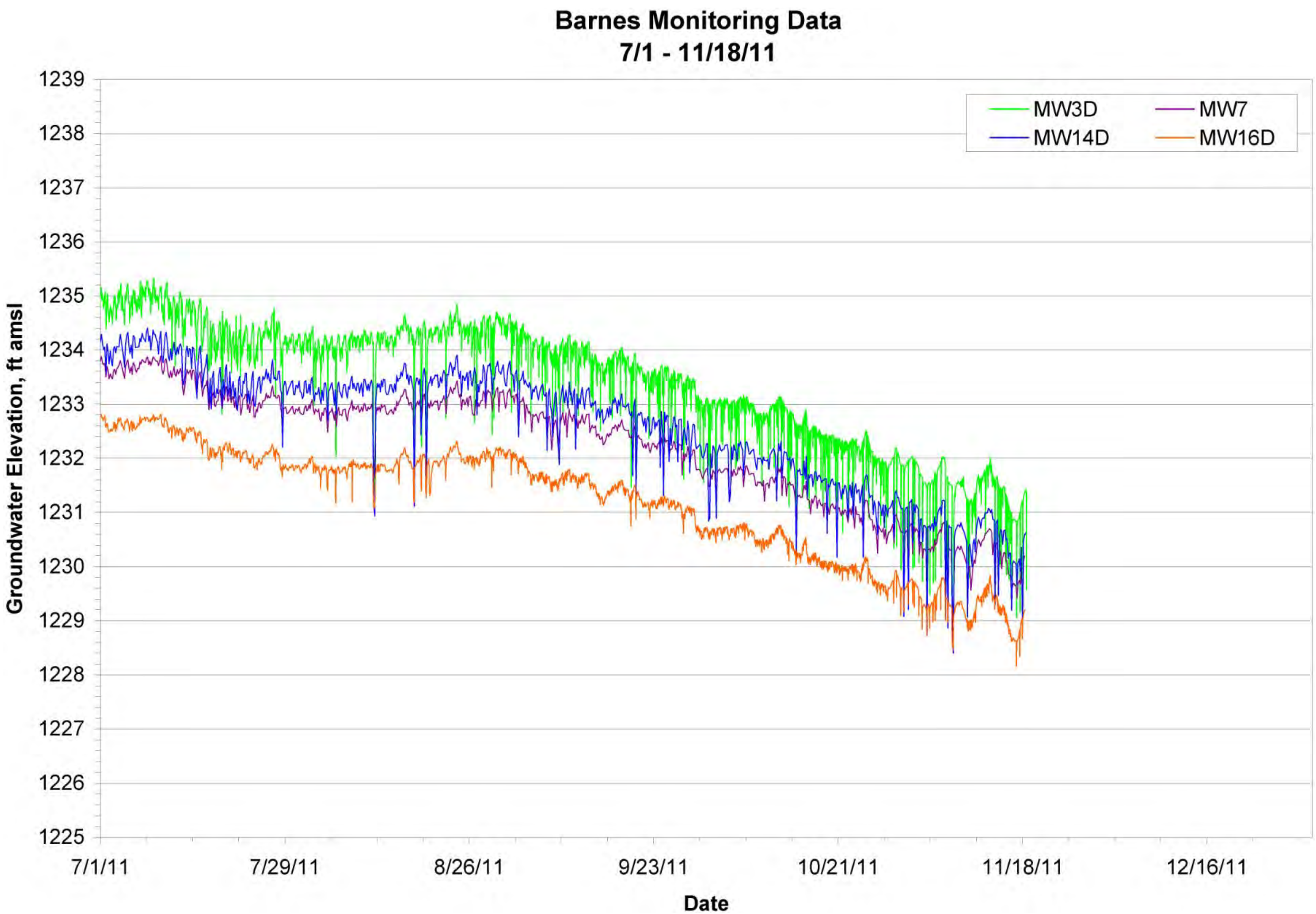

FIGURE 4.3b Hydrographs summarizing results of long-term water level monitoring in the deep-zone wells, July-November 2011.

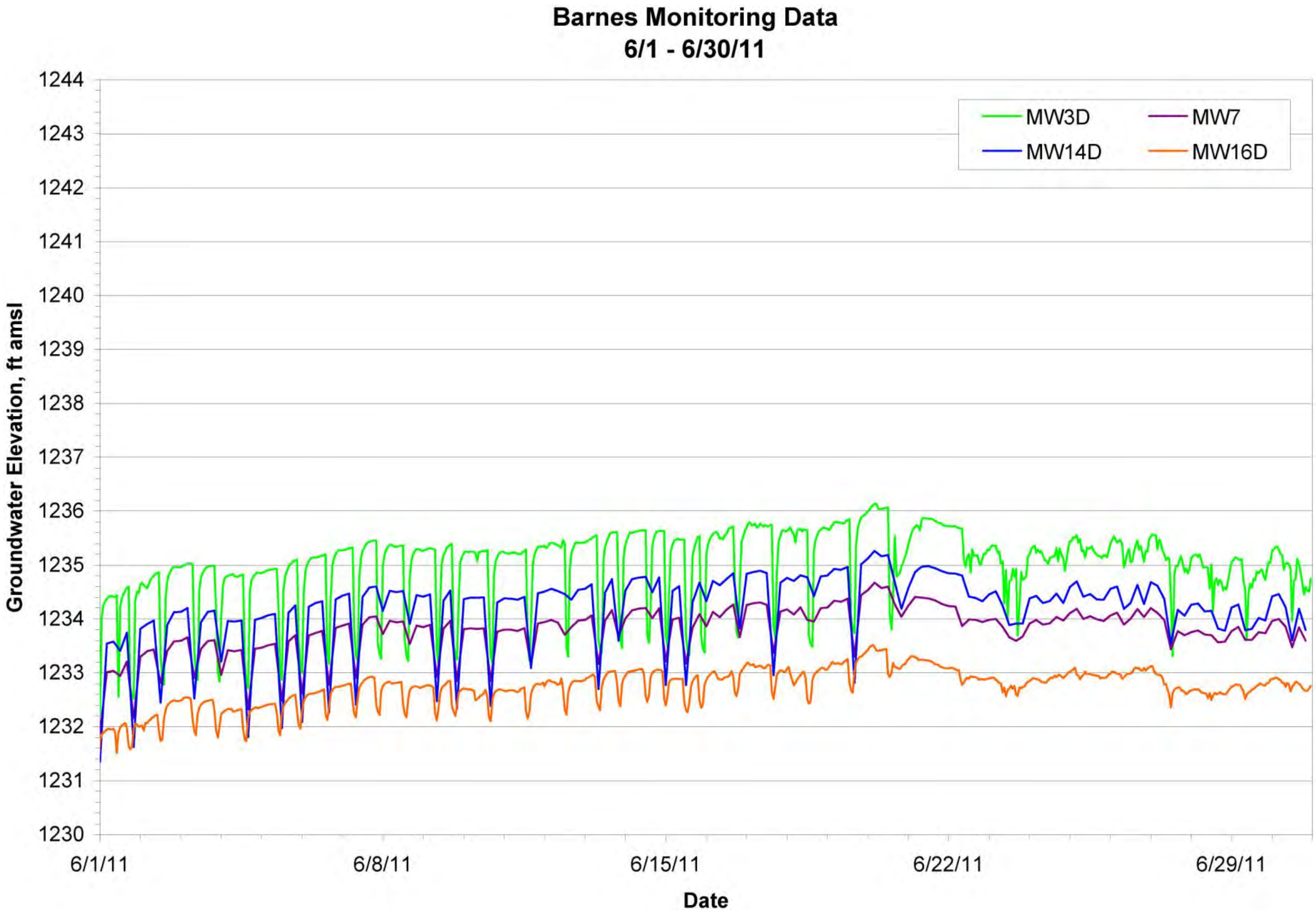

FIGURE 4.4 Hydrographs summarizing results of water level monitoring in the deep-zone wells, June 2011.

FIGURE 4.5 Analytical results for carbon tetrachloride in groundwater samples collected in 2009-2011. Source of photograph: NAPP (2002).

FIGURE 4.6 Analytical results for chloroform in groundwater samples collected in 2009-2011. Source of photograph: NAPP (2002).

5 Conclusions, Observations, and Recommendations

5.1 Conclusions

The findings of the monitoring events at Barnes in 2011 continued to support the following previous conclusions:

- Measurements of groundwater levels obtained manually and through the use of automatic recorders have consistently indicated that the flow direction is strongly influenced by pumping of the public water supply wells. The results have demonstrated

  - An apparent groundwater flow direction to the northeast when the public wells *are not pumping* and

  - A northwesterly groundwater flow trend when the public wells *are pumping*.

- Evaluation of manual water level measurements and carbon tetrachloride concentrations continues to suggest that three vertically distinguishable aquifer zones are present at Barnes: shallow, intermediate, and deep (Table 4.1). The highest concentration of carbon tetrachloride occurs in the intermediate zone, in wells near the former CCC/USDA grain storage facility. Lower concentrations have been detected in the deep aquifer zone (where the public water supply wells are screened), and no carbon tetrachloride has been detected in the shallow zone.

- The conceptual model of the groundwater flow system at Barnes, as postulated on the basis of the accumulated results, suggests that the observed vertical hydraulic gradients and higher carbon tetrachloride concentrations in the intermediate zone might reflect generally lower permeability and hence less effective groundwater and contaminant migration in the intermediate zone than in the deep aquifer zone.

- As it has since March 2008, intermediate-zone well MW10S, in the eastern portion of the former CCC/USDA facility, contained the highest concentrations of carbon tetrachloride.

- Overall, the lateral distribution of carbon tetrachloride in groundwater in 2011 is similar to the distribution during previous sampling events. The accumulated data, including a trend analysis conducted in 2009, indicate stable contaminant concentrations, with no imminent impact to the public wells.

5.2 Observations in 2011

The frequency and magnitude of the cyclic drawdown events historically observed in the hydrographs for the Barnes site changed in June 2011. Information from the city (Oentrich 2011) indicates that the changes are due to an upgrade of the municipal water delivery system during the summer. Whereas the municipal wells were previously switched on and off manually, sensors now control the pumping and maintain a more consistent water level in the city's water tower. The wells now operate more frequently than before, but for a much shorter duration during each pumping episode. Leaks in the former system were also repaired, thus reducing water usage.

These changes should minimize or eliminate the very appreciable drawdowns (up to 2.5 ft during pumping) that previously caused transient reversal of the local groundwater flow pattern, from northeasterly under ambient conditions to northwesterly (toward the public wells) during pumping. The modified operating scheme might also moderate or prevent further movement of the contaminant plume across the site toward the northwest, ultimately reducing the risk of contamination to public water supply wells PWS2 and PWS3.

Continued groundwater sampling under the existing monitoring program will be required to determine the potential impacts of the operational changes on the distribution and concentrations of carbon tetrachloride at the site and the time frame over which such impacts might occur. In December 2011, no carbon tetrachloride was detected in the public wells.

5.3 Recommendations

- Continue automatic water level measurements across the site investigation area (Figure 3.1).

- Continue annual sampling of the monitoring wells and semi-annual sampling of the public water supply wells (Figure 3.2).

- Through continued sampling and analysis, evaluate the potential impacts of operational changes in the public water distribution system.

6 References

Argonne, 2002, *Final Master Work Plan: Environmental Investigations at Former CCC/USDA Facilities in Kansas, 2002 Revision*, ANL/ER/TR-02/004, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, December.

Argonne, 2006, *Final Work Plan: Targeted Groundwater Sampling and Monitoring Well Installation for Potential Site Reclassification at Barnes, Kansas*, ANL/EVS/AGEM/TR-06-04, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, by Argonne National Laboratory, Argonne, Illinois, May.

Argonne, 2008a, *Final Report: Results of the 2006-2007 Investigation of Potential Contamination at the Former CCC/USDA Facility in Barnes, Kansas*, ANL/EVS/AGEM/TR-07-12, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, August.

Argonne, 2008b, *November 2007 Monitoring Results for Barnes, Kansas*, ANL/EVS/AGEM/TR-08-04, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, February.

Argonne, 2008c, *March 2008 Monitoring Results for Barnes, Kansas*, ANL/EVS/AGEM/TR-08-11, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, August.

Argonne, 2008d, *July 2008 Monitoring Results for Barnes, Kansas*, ANL/EVS/AGEM/TR-08-17, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, September.

Argonne, 2009a, *October 2008 Monitoring Results for Barnes, Kansas*, ANL/EVS/AGEM/TR-09-04, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, February.

Argonne, 2009b, *March-June 2009 Monitoring Results for Barnes, Kansas*, ANL/EVS/AGEM/TR-09-09, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, February.

Argonne, 2009c, *Contingency Interim Measure for the Public Water Supply at Barnes, Kansas*, ANL/EVS/AGEM/TR-08-19, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, June.

Argonne, 2010, *Semi-Annual Monitoring Report for Barnes, Kansas, for 2010*, ANL/EVS/AGEM/TR-10-02, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, April.

Argonne, 2011, *Annual Report of Monitoring at Barnes, Kansas, in 2010*, ANL/EVS/AGEM/TR-11-04, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, May.

BE&K, 1999, *Public Water Supply Site Comprehensive Investigation Barnes, Kansas*, prepared for the Kansas Department of Health and Environment, Topeka, Kansas, by BE&K/Terranext, March.

BE&K, 2000, *March 2000 Quarterly Monitoring Report: Barnes Public Water Supply Site Barnes, Kansas,* prepared for the Kansas Department of Health and Environment, Topeka, Kansas, by BE&K/Terranext, May.

EPA, 1995, *Method 524.2: Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry, Revision 4.1*, edited by J.W. Munch, National Exposure Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Cincinnati, Ohio.

KDHE, 2009, letter from E. Finzer (Bureau of Environmental Remediation, Kansas Department of Health and Environment, Topeka, Kansas) to C. Roe (Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C.), regarding *Contingency Interim Measure for the Public Water Supply at Barnes, Kansas*, August 24.

KDHE, 2010a, letter from M. Townsend (Bureau of Environmental Remediation, Kansas Department of Health and Environment, Topeka, Kansas) to C. Roe (Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C.), regarding selection of monitoring wells, August 23.

KDHE, 2010b, letter from M. Townsend (Bureau of Environmental Remediation, Kansas Department of Health and Environment, Topeka, Kansas) to C. Roe (Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C.), regarding request for annual monitoring, December 27.

NAPP, 2002, aerial image NAPP 12897 222, National Aerial Photography Program, U.S. Geological Survey (available from Kansas Geospatial Community Commons [http://www.kansasgis.org/]), April 9.

Oentrich, D., 2011, personal communication from Oentrich (City of Barnes, Kansas) to T. Kamler (TCW Construction, Lincoln, Nebraska), December 12.

PRC, 1996, *Barnes Public Water Supply Site, Barnes, Washington County, Final Phase I Comprehensive Investigation Report,* prepared for the Kansas Department of Health and Environment, Topeka, Kansas, by PRC Environmental Management, Inc., August.

Puls, R.W., and M.J. Barcelona, 1996, "Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures," EPA/540/S-95/504, in *Ground Water Issue*, Superfund Technology Support Center for Ground Water, National Risk Management Research Laboratory, U.S. Environmental Protection Agency, Ada, Oklahoma, April (www.epa.gov/tio/tsp/download/lwflw2a.pdf).

USD 223, 1989, *Inventory of Chemical Waste Accumulated*, transmitted from D.L. Johnson (district superintendent) to J. Goetz (Hazardous Waste Section, Kansas Department of Health and Environment, Topeka, Kansas).

USGS, 1968, Barnes Quadrangle, Kansas, 7.5 Minute Series Topographical Map, photorevised 1983.

Yeskis, D., and B. Zavala, 2002, *Ground-Water Sampling Guidelines for Superfund and RCRA Project Managers: Ground Water Forum Issue Paper*, EPA 542-S-02-001, Technology Innovative Office, Office of Solid Waste and Emergency Response, U.S. Environmental Protection Agency, Washington, D.C., May (http://www.epa.gov/tio/tsp/download/gw_sampling_guide.pdf).

Appendix A:

Sampling Activities and Field Measurements in 2011

TABLE A.1 Sequence of groundwater sampling activities in 2011.

Sample Date and Time	Sample	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Sample Description
9/28/11 10:52	BAMW13S-W-28814	MW	MW13S	112-122	6631	9/28/11	Depth to water = 87.55 ft. Depth of 2-in. well = 122 ft. Sample collected by using low-flow bladder pump after purging of 5 L. Pump intake positioned at 117 ft.
9/28/11 12:10	BAMW2D-W-28807	MW	MW2D	133.26-152.93	6631	9/28/11	Depth to water = 116.22 ft. Depth of 2-in. well = 152.93 ft. Sample collected by using low-flow bladder pump after purging of 8.5 L. Pump intake positioned at 143.10 ft.
9/28/11 12:52	BAMW13D-W-28815	MW	MW13D	127-137	6631	9/28/11	Depth to water = 110.20 ft. Depth of 2-in. well = 137 ft. Sample collected by using low-flow bladder pump after purging of 5 L. Pump intake positioned at 132 ft.
9/28/11 15:10	BAMW17-W-28817	MW	MW17	120-130	6631	9/28/11	Depth to water = 96.23 ft. Depth of 2-in. well = 130 ft. Sample collected by using low-flow bladder pump after purging of 4.5 L. Pump intake positioned at 125 ft.
9/28/11 15:36	BAMW1D-W-28806	MW	MW1D	139.85-159.4	6631	9/28/11	Depth to water = 119.12 ft. Depth of 2-in. well = 159.4 ft. Sample collected by using low-flow bladder pump after purging of 7 L. Pump intake positioned at 149.63 ft.
9/28/11 15:37	BAMW1DDUP-W-28820[b]	MW	MW1D	139.85-159.4	6631	9/28/11	Replicate of sample BAMW1D-W-28806.
9/28/11 16:40	BAMW14S-W-28816	MW	MW14S	108-118	6631	9/28/11	Depth to water = 101.40 ft. Depth of 2-in. well = 118 ft. Sample collected by using low-flow bladder pump after purging of 5 L. Pump intake positioned at 113 ft.
9/28/11 17:19	BAMW12M-W-28813	MW	MW12M	90-100	6631	9/28/11	Depth to water = 71.25 ft. Depth of 2-in. well = 100 ft. Sample collected by using low-flow bladder pump after purging of 11 L. Pump intake positioned at 95 ft.
9/28/11 17:20	BAMW12MDUP-W-28821[b]	MW	MW12M	90-100	6631	9/28/11	Replicate of sample BAMW12M-W-28813.
9/28/11 17:45	BAQCIR-W-28822[b]	RI	QC	–	6633	9/29/11	Rinsate of decontaminated sampling line after collection of sample BAMW12M-W-28813 and replicate BAMW12MDUP-W-28821.
9/28/11 17:54	BAMW10D-W-28812	MW	MW10D	115-125	6631	9/28/11	Depth to water = 99.65 ft. Depth of 2-in. well = 125 ft. Sample collected by using low-flow bladder pump after purging of 7 L. Pump intake positioned at 120 ft.
9/28/11 18:03	BAQCIR-W-28823[b]	RI	QC	–	6633	9/29/11	Rinsate of decontaminated sampling line after collection of sample BAMW10D-W-28812.
9/28/11 18:34	BADIH2O-W-28824[b]	FB	QC	–	6633	9/29/11	Field blank of water used for equipment decontamination during September 2011 sampling event.

TABLE A.1 (Cont.)

Sample Date and Time	Sample	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Sample Description
9/28/11 18:40	BAQCTB-W-28825[b]	TB	QC	–	6633	9/29/11	Trip blank sent to the AGEM Laboratory for VOCs analyses with water samples listed on chain of custody forms (COCs) 6631 and 6633.
9/28/11 18:56	BAMW10S-W-28811	MW	MW10S	93-103	6631	9/28/11	Depth to water = 74.10 ft. Depth of 2-in. well = 103 ft. Sample collected by using low-flow bladder pump after purging of 6 L. Pump intake positioned at 98 ft.
9/28/11 18:59	BAMW4D-W-28808	MW	MW4D	98.38-118.22	6631	9/28/11	Depth to water = 95.31 ft. Depth of 2-in. well = 118.22 ft. Sample collected by using low-flow bladder pump after purging of 5 L. Pump intake positioned at 108.30 ft.
9/28/11 19:19	BAPWS3-W-28819	PW	PWS3	160	6631	9/28/11	Well converted to run on demand. Sampled from tap after purging for 5 min.
9/28/11 19:30	BAPWS2-W-28818	PW	PWS2	155	6631	9/28/11	Well runs when the water tower needs replenishing. Sampled from tap after purging for 5 min.
9/28/11 20:00	BAMW5-W-28809	MW	MW5	110-120	6631	9/28/11	Depth to water = 96.40 ft. Depth of 2-in. well = 120 ft. Sample collected by using low-flow bladder pump after purging of 6.5 L. Pump intake positioned at 115 ft.
9/29/11 9:50	BAMW8-W-28810	MW	MW8	110-120	6633	9/29/11	Depth to water = 98.42 ft. Depth of 2-in. well = 120 ft. Sample collected by using low-flow bladder pump after purging of 4.5 L. Pump intake positioned at 115 ft.
12/12/11 15:24	BAPWS2-W-28827	PW	PWS2	155	6646	12/12/11	Well runs on demand via sensor in water tower. Sampled from tap after purging for 5 min.
12/12/11 15:28	BAPWS3-W-28828	PW	PWS3	160	6646	12/12/11	Well runs on demand via sensor in water tower. Sampled from tap after purging for 5 min.
12/12/11 17:30	BAQCTB-W-28829[b]	TB	QC	–	6646	12/12/11	Trip blank sent to the AGEM Laboratory for VOC analyses with water samples listed on COC 6646.

[a] Sample types: FB, field blank; MW, monitoring well; PW, public water supply well; RI, rinsate; TB, trip blank.

[b] Quality control sample.

TABLE A.2 Field measurements for groundwater samples, 2006-2011.

Well	Screen Interval (ft BGL)	Sample Date	Temperature (°C)	pH	Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	Oxygen Reduction Potential (mV)
Previously existing KDHE monitoring wells							
MW1S	13.3-23.3	7/19/06[a]	–	–	–	–	–
		4/4/07[a]	–	–	–	–	–
		11/18/07[a]	–	–	–	–	–
		3/4/08[a]	–	–	–	–	–
		7/9/08[a]	–	–	–	–	–
		10/22/08[a]	–	–	–	–	–
		3/4/09[a]	–	–	–	–	–
		6/17/09[a]	–	–	–	–	–
		9/30/09[a]	–	–	–	–	–
		3/31/10[a]	–	–	–	–	–
		9/17/10[a]	–	–	–	–	–
MW1D	139.85-159.4	7/19/06	22.8	7.15	945	–	–
		4/4/07	15.7	6.30	855	–	–
		11/18/07	12.7	7.62	712	–	–
		3/4/08	5.5	7.22	1167	11.6	244
		7/9/08	18.1	7.05	992	16.2	98
		10/22/08	12.6	7.07	937	9.0	108
		3/4/09	13.8	7.07	962	8.9	253
		6/17/09	23.3	7.07	1021	5.4	106
		9/30/09	16.3	6.87	1007	6.7	268
		3/31/10	16.6	7.08	760	6.6	-25
		9/17/10	17.5	7.14	851	8.2	160
		9/28/11	18.1	7.47	799	5.8	102
MW2D	133.26-152.93	7/19/06	24.7	7.72	946	–	–
		4/4/07	15.1	6.32	887	–	–
		11/18/07	12.1	6.96	1448	–	–
		3/7/08	6.5	7.22	1198	4.6	197
		7/10/08	18.4	6.91	1163	5.0	155
		10/22/08	11.6	7.07	931	6.2	132
		3/4/09	14.5	7.06	1126	5.6	243
		6/18/09	18.7	6.97	1235	3.6	116
		9/30/09	17.0	6.15	1196	3.4	25
		3/31/10	16.2	7.09	827	5.2	-37
		9/17/10	20.1	7.13	945	5.0	150
		9/28/11	18.6	7.72	988	12.4	297
MW3D	133.02-152.73	7/19/06	23.0	7.06	976	–	–
		4/4/07	15.6	6.37	989	–	–
		11/19/07	10.5	7.16	1093	–	–
		3/7/08	8.2	7.09	1195	5.3	255
		7/10/08	19.8	6.99	1177	13.8	110
		10/22/08	13.5	7.01	1238	4.5	84
		3/4/09	12.8	7.08	1062	7.0	210
		6/17/09	18.5	6.65	1038	5.9	110
		9/30/09	15.2	6.87	1057	6.0	209
		4/1/10	18.2	7.11	789	5.6	-60
		9/17/10	20.0	7.00	953	4.9	77

TABLE A.2 (Cont.)

Well	Screen Interval (ft BGL)	Sample Date	Temperature (°C)	pH	Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	Oxygen Reduction Potential (mV)
Previously existing KDHE monitoring wells (cont.)							
MW4D	98.38-118.22	7/20/06	23.5	6.26	968	–	–
		4/6/07	11.3	6.21	1018	–	–
		11/19/07	15.7	6.98	1022	–	–
		3/9/08	11.5	7.14	859	6.6	201
		7/12/08	14.4	6.94	1001	6.8	149
		10/23/08	13.0	7.02	973	5.6	94
		3/5/09	15.9	7.61	1402	4.0	17
		6/18/09	18.5	7.03	975	5.7	127
		9/30/09	17.3	6.85	925	7.9	150
		3/31/10	15.1	7.09	785	7.2	22
		9/17/10	16.5	7.01	900	7.2	259
		9/28/11	11.6	8.09	665	7.2	186
CCC/USDA wells installed during 2006-2007 investigation							
MW5	110-120	4/6/07	13.9	6.17	1705	–	–
		11/19/07	15.2	6.74	3070	–	–
		3/8/08	9.9	6.76	2770	0.7	123
		7/11/08	18.8	6.66	2930	1.3	37
		10/23/08	12.8	6.78	2384	0.7	20
		3/5/09	15.9	6.86	2146	2.4	56
		6/19/09	16.4	6.71	2292	1.0	45
		9/30/09	16.1	6.66	1780	3.1	72
		3/30/10	15.2	6.58	907	4.7	17
		9/17/10	17.2	6.96	1093	4.0	-20
		9/28/11	14.0	7.46	1049	4.1	53
MW6S	90.5-100.5	4/4/07[a]	–	–	–	–	–
		11/19/07	12.0	7.60	723	–	–
		3/8/08	4.7	7.77	673	6.7	272
		7/11/08	28.2	7.61	753	9.9	92
		10/23/08	11.9	11.17	582	5.1	91
		3/5/09	13.9	7.88	603	5.2	18
		6/18/09	19.5	7.70	698	4.5	27
		10/1/09	14.6	6.30	618	5.8	88
		3/31/10	16.4	7.52	584	5.8	-25
		9/18/10	15.8	11.16	568	2.3	35
MW6D	105-115	4/5/07	6.2	6.11	936	–	–
		11/19/07	13.6	7.00	1103	–	–
		3/8/08	9.1	7.15	908	5.6	241
		7/11/08	19.8	7.05	999	12.8	100
		10/23/08	12.0	7.18	957	6.3	128
		3/5/09	13.4	7.22	903	3.1	21
		6/18/09	19.0	6.86	992	4.4	114
		10/1/09	16.0	6.41	910	4.2	98
		3/31/10	17.6	7.10	821	5.0	-2
		9/18/10	15.9	7.06	981	4.9	147

TABLE A.2 (Cont.)

Well	Screen Interval (ft BGL)	Sample Date	Temperature (°C)	pH	Conductivity (μS/cm)	Dissolved Oxygen (mg/L)	Oxygen Reduction Potential (mV)
CCC/USDA wells installed during 2006-2007 investigation (cont.)							
MW7	116-126	4/6/07	14.1	6.30	1051	–	–
		11/19/07	14.6	7.16	890	–	–
		3/9/08	13.1	7.10	1068	4.2	186
		7/12/08	14.4	6.95	1238	4.4	98
		10/23/08	12.7	7.16	1191	8.6	122
		3/5/09	15.3	7.11	1141	9.9	126
		6/19/09	16.3	7.05	1174	4.3	48
		9/30/09	16.2	6.86	1132	8.2	216
		3/30/10	16.4	7.04	923	7.3	-48
		9/17/10	17.2	6.88	1149	4.2	104
MW8	110-120	4/6/07	12.1	6.23	974	–	–
		11/19/07	14.6	7.03	909	–	–
		3/10/08	13.1	7.09	961	6.7	182
		7/11/08	18.6	6.38	1049	6.2	152
		10/23/08	12.9	7.06	948	8.7	97
		3/5/09	16.2	7.12	985	9.4	165
		6/19/09	18.0	7.07	972	6.7	102
		9/30/09	16.7	6.15	889	6.2	33
		3/31/10	14.0	7.07	815	7.5	23
		9/17/10	17.4	7.05	940	6.9	231
		9/29/11	15.8	7.69	801	7.3	253
MW9	100-110	4/5/07	12.9	6.20	976	–	–
		11/19/07	16.5	7.21	1066	–	–
		3/9/08	11.2	7.07	928	5.8	239
		7/11/08	17.7	6.58	1010	5.6	189
		10/24/08	13.0	7.06	888	5.4	79
		3/5/09	16.2	7.10	939	8.4	173
		6/17/09	15.9	6.87	907	5.6	146
		9/29/09	13.9	6.79	871	7.8	135
		3/31/10	15.4	6.88	754	7.3	123
		9/18/10	14.7	7.14	879	7.2	188
MW10S	93-103	4/6/07	13.2	6.36	1004	–	–
		11/19/07	14.5	7.22	942	–	–
		3/10/08	12.7	7.08	912	5.2	176
		7/11/08	17.3	6.91	975	12.8	119
		10/23/08	13.4	7.08	913	5.4	78
		3/5/09	15.3	7.25	895	2.7	13
		6/19/09	16.0	7.12	925	5.4	104
		9/30/09	15.8	6.58	829	4.6	31
		3/30/10	15.3	7.08	776	6.9	-25
		9/17/10	17.2	7.02	865	5.2	164
		9/28/11	14.6	7.44	677	5.6	125

TABLE A.2 (Cont.)

Well	Screen Interval (ft BGL)	Sample Date	Temperature (°C)	pH	Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	Oxygen Reduction Potential (mV)
CCC/USDA wells installed during 2006-2007 investigation (cont.)							
MW10D	115-125	4/6/07	12.1	6.21	992	–	–
		11/19/07	14.5	7.42	1175	–	–
		3/9/08	13.7	7.01	1024	5.1	236
		7/11/08	17.4	6.78	1090	12.6	117
		10/23/08	13.5	7.01	1000	5.0	93
		3/5/09	15.9	7.20	969	4.4	12
		6/19/09	16.9	7.08	1035	5.7	109
		9/30/09	15.8	6.62	922	5.5	32
		3/30/10	15.1	7.00	835	6.4	-34
		9/17/10	17.6	6.97	955	5.7	204
		9/28/11	15.7	7.36	735	6.1	138
MW11S	40-50	4/4/07	12.8	6.14	1027	–	–
		11/19/07	11.2	7.15	1174	–	–
		3/5/08	9.4	6.81	1122	2.3	241
		7/10/08	19.5	6.47	1224	1.9	166
		10/23/08	10.2	6.99	1085	5.8	146
		3/4/09	14.5	7.11	1186	4.3	37
		6/19/09	15.0	6.81	1159	3.1	173
		10/1/09	15.9	6.67	1114	2.2	203
		3/31/10	18.0	6.81	958	6.1	84
		9/18/10	15.8	6.98	1178	2.0	185
MW11M	90-100	4/5/07	7.5	7.60	1097	–	–
		11/19/07	11.9	7.17	1144	–	–
		3/6/08	10.8	7.06	997	2.7	254
		7/10/08	31.9	7.08	1124	3.9	149
		10/23/08	12.4	7.06	962	3.2	116
		3/4/09	13.6	7.33	910	4.9	28
		6/19/09	14.7	6.92	973	4.8	185
		10/1/09	14.5	6.85	919	6.7	153
		3/31/10	17.4	6.96	742	5.5	67
		9/18/10	16.0	7.22	846	8.8	174
MW11D	125-135	4/4/07	13.8	6.18	990	–	–
		11/19/07	13.1	7.22	987	–	–
		3/5/08	6.0	7.06	872	6.9	252
		7/10/08	17.5	6.25	957	7.1	177
		10/23/08	12.3	7.11	863	8.7	123
		3/4/09	14.3	7.23	848	4.5	27
		6/19/09	17.4	6.96	885	5.9	131
		10/1/09	14.7	6.85	854	6.9	154
		4/1/10	17.4	6.91	750	7.4	99
		9/18/10	15.8	7.11	871	6.5	189

TABLE A.2 (Cont.)

Well	Screen Interval (ft BGL)	Sample Date	Temperature (°C)	pH	Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	Oxygen Reduction Potential (mV)
CCC/USDA wells installed during 2006-2007 investigation (cont.)							
MW12S	43-53	4/5/07[a]	–	–	–	–	–
		11/19/07[a]	–	–	–	–	–
		3/10/08[a]	–	–	–	–	–
		7/10/08[a]	–	–	–	–	–
		10/22/08[a]	–	–	–	–	–
		3/4/09[a]	–	–	–	–	–
		6/19/09	20.5	7.00	1436	–	–
		10/1/09[a]	–	–	–	–	–
		3/31/10[a]	–	–	–	–	–
		9/18/10[a]	–	–	–	–	–
MW12M	90-100	4/5/07	12.6	6.42	867	–	–
		11/19/07	14.9	7.13	835	–	–
		3/10/08	12.6	7.13	665	1.8	212
		7/10/08	16.9	7.09	878	8.2	87
		10/22/08	12.2	7.20	785	8.9	126
		3/4/09	14.1	7.24	851	2.2	20
		6/19/09	17.0	6.99	856	2.3	112
		10/1/09	14.4	6.81	840	3.4	52
		3/31/10	17.5	7.05	334	0.4	36
		9/18/10	15.8	7.13	649	0.2	-61
		9/28/11	14.8	7.82	648	1.8	39
MW12D	115-125	4/5/07	14.0	6.36	930	–	–
		11/18/07	15.6	6.95	571	–	–
		3/9/08	8.8	7.13	881	5.3	237
		7/11/08	19.9	6.01	987	4.7	197
		10/22/08	12.3	7.09	873	8.0	136
		3/4/09	14.4	7.25	923	4.1	21
		6/19/09	16.4	6.96	895	5.1	150
		10/1/09	15.8	6.85	869	6.7	154
		3/31/10	16.6	6.89	753	6.6	103
		9/18/10	15.5	6.97	872	6.2	139
MW13S	112-122	4/5/07	9.8	6.42	946	–	–
		11/19/07	16.5	7.21	893	–	–
		3/10/08	12.2	7.13	810	6.2	199
		7/9/08	17.4	6.99	875	7.7	116
		10/22/08	13.5	7.08	793	5.1	100
		3/4/09	13.8	7.23	818	4.4	29
		6/18/09	17.6	7.04	803	6.1	104
		9/30/09	15.4	5.74	721	6.1	177
		4/1/10	15.0	7.14	667	7.5	64
		9/18/10	16.7	7.42	772	12.9	186
		9/28/11	16.8	7.60	633	6.8	154

TABLE A.2 (Cont.)

Well	Screen Interval (ft BGL)	Sample Date	Temperature (°C)	pH	Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	Oxygen Reduction Potential (mV)
CCC/USDA wells installed during 2006-2007 investigation (cont.)							
MW13D	127-137	4/5/07	14.9	6.25	397	–	–
		11/19/07	17.0	7.00	763	–	–
		3/9/08	13.1	7.09	758	6.0	213
		7/9/08	18.6	7.07	848	18.1	57
		10/22/08	13.3	7.06	824	5.3	98
		3/4/09	14.5	7.19	833	4.0	25
		6/18/09	17.5	6.93	828	5.6	117
		9/30/09	17.4	5.99	706	5.6	142
		4/1/10	16.3	7.09	694	6.6	21
		9/18/10	17.3	7.14	803	6.3	189
		9/28/11	18.0	7.59	687	16.1	137
MW14S	108-118	4/4/07	13.4	6.50	704	–	–
		11/18/07	12.9	7.26	966	–	–
		3/8/08	13.2	7.20	729	6.6	208
		7/10/08	17.4	7.16	775	16.4	87
		10/22/08	13.2	7.11	716	5.8	90
		3/4/09	13.8	7.15	736	9.0	268
		6/18/09	17.5	7.01	742	5.2	97
		10/1/09	16.0	6.25	663	5.8	99
		4/1/10	17.8	6.96	625	7.7	73
		9/18/10	16.4	7.11	705	6.8	193
		9/28/11	17.2	7.62	592	7.0	118
MW14D	123-133	4/4/07	14.7	6.34	932	–	–
		11/18/07	13.2	7.47	739	–	–
		3/8/08	12.0	7.06	1424	2.0	282
		7/10/08	17.7	7.07	1459	14.5	86
		10/22/08	13.0	7.00	1212	1.4	79
		3/5/09	13.6	7.06	1339	2.2	69
		6/18/09	19.8	7.04	1523	2.0	46
		10/1/09	15.5	6.21	1154	1.6	90
		4/1/10	17.8	6.93	1189	1.8	67
		9/17/10	16.1	7.09	1162	6.5	45
MW15S	88-98	4/4/07	13.1	8.03	854	–	–
		11/18/07	13.9	NR	1883	–	–
		3/10/08	12.1	8.67	697	5.5	173
		7/12/08	14.0	8.88	660	11.6	94
		10/23/08	13.0	8.00	789	5.3	67
		3/5/09	15.7	8.78	589	7.5	163
		6/17/09	18.2	9.13	386	4.8	62
		9/29/09	15.4	7.40	786	6.9	181
		3/30/10	15.7	7.81	467	6.7	63
		9/18/10	16.4	7.49	776	5.8	127

TABLE A.2 (Cont.)

Well	Screen Interval (ft BGL)	Sample Date	Temperature (°C)	pH	Conductivity (μS/cm)	Dissolved Oxygen (mg/L)	Oxygen Reduction Potential (mV)
CCC/USDA wells installed during 2006-2007 investigation (cont.)							
MW15D	105-115	4/4/07	14.8	6.15	2980	–	–
		11/18/07	13.1	6.85	2190	–	–
		3/8/08	9.0	6.85	2912	0.6	131
		7/12/08	14.1	6.80	3067	1.1	90
		10/24/08	13.0	6.81	2876	0.3	27
		3/5/09	15.8	6.82	2945	0.4	-15
		6/17/09	18.6	6.71	2887	0.6	51
		9/29/09	15.6	6.53	2848	0.3	92
		3/30/10	17.3	6.68	2486	0.3	54
		9/18/10	16.2	6.75	2778	0.2	-38
MW16S	76-86	4/4/07	12.8	6.35	1708	–	–
		11/19/07	15.0	6.94	1616	–	–
		3/7/08	7.3	6.96	1968	3.5	184
		7/11/08	18.8	6.71	2883	1.1	52
		10/23/08	11.6	7.01	1350	6.0	136
		3/5/09	16.3	7.19	1505	2.5	12
		6/18/09	15.9	7.03	971	5.6	101
		9/29/09	14.3	6.76	963	7.5	123
		3/30/10	16.6	6.92	828	6.9	90
		9/18/10	17.0	6.84	966	5.6	106
MW16D	90-100	4/4/07	14.1	6.17	2910	–	–
		11/19/07	12.5	6.78	2400	–	–
		3/7/08	7.0	6.86	2866	0.5	140
		7/11/08	18.9	6.64	3134	0.4	32
		10/23/08	11.3	6.79	2791	0.5	37
		3/5/09	15.6	6.94	2926	0.3	14
		6/18/09	18.3	6.77	2867	0.3	46
		9/29/09	14.4	6.67	2583	0.6	17
		3/30/10	16.3	6.59	2429	0.2	78
		9/18/10	15.7	6.68	2759	0.2	-53
MW17	120-130	4/4/07	16.0	6.44	861	–	–
		11/19/07	8.3	7.15	610	–	–
		3/5/08	5.5	7.12	804	7.0	239
		7/9/08	17.5	7.11	843	20.6	89
		10/22/08	13.1	7.10	777	8.4	110
		3/4/09	14.1	7.12	823	8.5	258
		6/17/09	18.4	7.01	825	5.7	103
		9/30/09	14.8	6.89	800	7.7	248
		3/31/10	14.1	7.15	687	7.0	-66
		9/17/10	19.2	7.22	790	9.6	153
		9/28/11	13.9	7.83	634	5.2	351

TABLE A.2 (Cont.)

Well	Screen Interval (ft BGL)	Sample Date	Temperature (°C)	pH	Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	Oxygen Reduction Potential (mV)
Private wells							
Oentrich	150	7/20/06	–	–	–	–	–
		8/2/06	–	–	–	–	–
		4/5/07	–	–	–	–	–
		11/19/07	12.1	8.26	1830	–	–
		3/6/08	–	–	–	–	–
		7/11/08	–	–	–	–	–
		10/23/08	–	–	–	–	–
		3/5/09	–	–	–	–	–
		6/18/09	15.3	7.15	1270	–	–
		9/30/09	15.6	7.14	1275	–	–
		4/1/10	12.8	7.41	1017	–	–
		9/18/10	–	–	–	–	–
Sedivy	138	8/22/06	–	–	–	–	–
		9/13/06	22.5	6.57	739	–	–
Public wells							
PWS2	155	11/20/07	–	–	955	–	–
		6/18/09	–	–	863	–	–
		9/30/09	–	–	851	–	–
		12/14/09	–	–	857	–	–
		3/31/10	–	–	853	–	–
		6/17/10	–	–	866	–	–
		9/28/11	15.2	8.04	694	–	–
		12/12/11	15.1	7.88	694	–	–
PWS3	160	11/20/07	–	–	999	–	–
		6/18/09	–	–	867	–	–
		9/30/09	–	–	858	–	–
		12/14/09	–	–	859	–	–
		3/31/10	–	–	867	–	–
		6/17/10	–	–	880	–	–
		9/28/11	15.7	7.97	721	–	–
		12/12/11	15.0	7.83	718	–	–

[a] Not sampled (well dry).

Appendix B:

Results from the AGEM Laboratory for Dual Analyses of Samples Collected in 2011 and for Quality Control Samples

TABLE B.1 Analytical results from the AGEM Laboratory for quality control samples collected to monitor sample collection and handling activities in 2011.

Sample Date and Time	Location	Sample	Depth (ft BGL)	Concentration (μg/L) Carbon Tetrachloride	Chloroform	Methylene Chloride	Type
9/28/11 17:19	MW12M	BAMW12M-W-28813	90-100	16	5.1	ND[a]	Primary sample
9/28/11 17:20	MW12M	BAMW12MDUP-W-28821	90-100	17	5.2	ND	Replicate sample
9/28/11 10:52	MW13S	BAMW13S-W-28814	112-122	8.1	0.7 J[b]	ND	Primary sample
9/28/11 10:52	MW13S	BAMW13S-W-28814DUP	112-122	8.2	0.7 J	ND	Duplicate analysis
9/28/11 15:36	MW1D	BAMW1D-W-28806	139.85-159.4	ND	ND	ND	Primary sample
9/28/11 15:37	MW1D	BAMW1DDUP-W-28820	139.85-159.4	ND	ND	ND	Replicate sample
9/28/11 17:45	QC	BAQCIR-W-28822	–	ND	ND	ND	Equipment rinsate
9/28/11 18:03	QC	BAQCIR-W-28823	–	ND	ND	ND	Equipment rinsate
9/28/11 18:34	QC	BADIH2O-W-28824	–	ND	ND	ND	Field blank
9/28/11 18:40	QC	BAQCTB-W-28825	–	ND	ND	ND	Trip blank
12/12/11 15:24	PWS2	BAPWS2-W-28827	155	ND	ND	ND	Primary sample
12/12/11 15:28	PWS2	BAPWS2-W-28827DUP	155	ND	ND	ND	Duplicate analysis
12/12/11 17:30	QC	BAQCTB-W-28829	–	ND	ND	ND	Trip blank

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

[b] J, estimated concentration below the purge-and-trap method quantitation limit of 1.0 μg/L.

TABLE B.2 Results for verification organic analyses during groundwater monitoring in 2011.

			Concentration (µg/L)					
			AGEM Laboratory			TestAmerica		
Location	Sample	Sample Date and Time	Carbon Tetrachloride	Chloroform	Methylene Chloride	Carbon Tetrachloride	Chloroform	Methylene Chloride
MW13S	BAMW13S-W-28814	9/28/11 10:52	8.1	0.7 J	ND[a]	8.3	0.69	ND
MW14S	BAMW14S-W-28816	9/28/11 16:40	3.4	ND	ND	2.8	0.21 J[b]	ND
MW17	BAMW17-W-28817	9/28/11 15:10	0.4 J	ND	ND	0.33 J	ND	ND
QC	BAQCTB-W-28825	9/28/11 18:40	ND	ND	ND	ND	ND	ND

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

[b] J, estimated concentration below the method quantitation limit of 1.0 µg/L at the AGEM Laboratatory (for modified EPA Method 524.2) or 0.5 µg/L at TestAmerica (for EPA Method SOM01 — trace volatiles).

Supplement 1:

Waste Characterization Data

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

November 11, 2011

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

RE: Project: KS/MO Waste Water
Pace Project No.: 60109211

Dear Mr. Kamler:

Enclosed are the analytical results for sample(s) received by the laboratory on November 01, 2011. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted 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

trudy.gipson@pacelabs.com
Project Manager

Enclosures

cc: Mr. David Surgnier

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

CERTIFICATIONS

Project: KS/MO Waste Water
Pace Project No.: 60109211

Kansas Certification IDs
9608 Loiret Boulevard, Lenexa, KS 66219
A2LA Certification #: 2456.01
Arkansas Certification #: 05-008-0
Illinois Certification #: 001191
Iowa Certification #: 118
Kansas/NELAP Certification #: E-10116
Louisiana Certification #: 03055
Nevada Certification #: KS000212008A
Oklahoma Certification #: 9205/9935
Texas Certification #: T104704407-08-TX
Utah Certification #: 9135995665

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE SUMMARY

Project: KS/MO Waste Water
Pace Project No.: 60109211

Lab ID	Sample ID	Matrix	Date Collected	Date Received
60109211001	**AGPURGE-W-10111**	Water	10/31/11 09:00	11/01/11 09:20
60109211002	**BAPURGE-W-10112**	Water	10/31/11 12:55	11/01/11 09:20
60109211003	**CNPURGE-W-10113**	Water	10/31/11 14:02	11/01/11 09:20
60109211004	**EUPURGE-W-10114**	Water	10/31/11 15:52	11/01/11 09:20
60109211005	**HAPURGE-W-10115**	Water	10/31/11 12:27	11/01/11 09:20
60109211006	**MRPURGE-W-10116**	Water	10/31/11 14:42	11/01/11 09:20
60109211007	**SVPURGE-W-10117**	Water	10/31/11 18:30	11/01/11 09:20

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ANALYTE COUNT

Project: KS/MO Waste Water
Pace Project No.: 60109211

Lab ID	Sample ID	Method	Analysts	Analytes Reported
60109211001	**AGPURGE-W-10111**	EPA 504.1	NAW	1
		EPA 5030B/8260	HMW	70
		EPA 353.2	AJM	1
60109211002	**BAPURGE-W-10112**	EPA 504.1	NAW	1
		EPA 5030B/8260	HMW	70
		EPA 353.2	AJM	1
60109211003	**CNPURGE-W-10113**	EPA 504.1	NAW	1
		EPA 5030B/8260	HMW	70
		EPA 353.2	AJM	1
60109211004	**EUPURGE-W-10114**	EPA 504.1	NAW	1
		EPA 5030B/8260	HMW	70
		EPA 353.2	AJM	1
60109211005	**HAPURGE-W-10115**	EPA 504.1	NAW	1
		EPA 5030B/8260	HMW	70
		EPA 353.2	AJM	1
60109211006	**MRPURGE-W-10116**	EPA 504.1	NAW	1
		EPA 5030B/8260	HMW	70
		EPA 353.2	AJM	1
60109211007	**SVPURGE-W-10117**	EPA 504.1	NAW	1
		EPA 5030B/8260	HMW	70
		EPA 353.2	AJM	1

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: KS/MO Waste Water
Pace Project No.: 60109211

Sample: AGPURGE-W-10111 **Lab ID: 60109211001** Collected: 10/31/11 09:00 Received: 11/01/11 09:20 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	11/07/11 00:00	11/08/11 00:52	106-93-4	
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	10.0	1		11/04/11 20:18	67-64-1	
Benzene	ND	ug/L	1.0	1		11/04/11 20:18	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/04/11 20:18	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/04/11 20:18	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/04/11 20:18	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/04/11 20:18	75-25-2	
Bromomethane	ND	ug/L	1.0	1		11/04/11 20:18	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	1		11/04/11 20:18	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		11/04/11 20:18	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		11/04/11 20:18	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		11/04/11 20:18	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		11/04/11 20:18	75-15-0	
Carbon tetrachloride	**21.8**	ug/L	1.0	1		11/04/11 20:18	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/04/11 20:18	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/04/11 20:18	75-00-3	
Chloroform	**1.6**	ug/L	1.0	1		11/04/11 20:18	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/04/11 20:18	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/04/11 20:18	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/04/11 20:18	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		11/04/11 20:18	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/04/11 20:18	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/04/11 20:18	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/04/11 20:18	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 20:18	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 20:18	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 20:18	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/04/11 20:18	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/04/11 20:18	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/04/11 20:18	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		11/04/11 20:18	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/04/11 20:18	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/04/11 20:18	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/04/11 20:18	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/04/11 20:18	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/04/11 20:18	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/04/11 20:18	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/04/11 20:18	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/04/11 20:18	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/04/11 20:18	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		11/04/11 20:18	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/04/11 20:18	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		11/04/11 20:18	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		11/04/11 20:18	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/04/11 20:18	99-87-6	

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: KS/MO Waste Water
Pace Project No.: 60109211

Sample: AGPURGE-W-10111 **Lab ID: 60109211001** Collected: 10/31/11 09:00 Received: 11/01/11 09:20 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		11/04/11 20:18	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		11/04/11 20:18	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/04/11 20:18	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		11/04/11 20:18	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		11/04/11 20:18	103-65-1	
Styrene	ND	ug/L	1.0	1		11/04/11 20:18	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/04/11 20:18	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/04/11 20:18	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/04/11 20:18	127-18-4	
Toluene	ND	ug/L	1.0	1		11/04/11 20:18	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/04/11 20:18	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/04/11 20:18	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/04/11 20:18	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/04/11 20:18	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/04/11 20:18	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/04/11 20:18	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		11/04/11 20:18	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		11/04/11 20:18	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		11/04/11 20:18	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		11/04/11 20:18	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		11/04/11 20:18	1330-20-7	
4-Bromofluorobenzene (S)	104	%	87-113	1		11/04/11 20:18	460-00-4	
Dibromofluoromethane (S)	103	%	86-112	1		11/04/11 20:18	1868-53-7	
1,2-Dichloroethane-d4 (S)	109	%	82-119	1		11/04/11 20:18	17060-07-0	
Toluene-d8 (S)	103	%	90-110	1		11/04/11 20:18	2037-26-5	
Preservation pH	**7.0**		0.10	1		11/04/11 20:18		
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**14.6**	mg/L	0.50	1		11/02/11 08:48		

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: KS/MO Waste Water
Pace Project No.: 60109211

Sample: BAPURGE-W-10112 **Lab ID: 60109211002** Collected: 10/31/11 12:55 Received: 11/01/11 09:20 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	0.029	1	11/07/11 00:00	11/08/11 01:04	106-93-4	
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	10.0	1		11/04/11 20:35	67-64-1	
Benzene	ND	ug/L	1.0	1		11/04/11 20:35	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/04/11 20:35	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/04/11 20:35	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/04/11 20:35	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/04/11 20:35	75-25-2	
Bromomethane	ND	ug/L	1.0	1		11/04/11 20:35	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	1		11/04/11 20:35	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		11/04/11 20:35	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		11/04/11 20:35	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		11/04/11 20:35	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		11/04/11 20:35	75-15-0	
Carbon tetrachloride	**1.1**	ug/L	1.0	1		11/04/11 20:35	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/04/11 20:35	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/04/11 20:35	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/04/11 20:35	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/04/11 20:35	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/04/11 20:35	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/04/11 20:35	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		11/04/11 20:35	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/04/11 20:35	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/04/11 20:35	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/04/11 20:35	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 20:35	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 20:35	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 20:35	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/04/11 20:35	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/04/11 20:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/04/11 20:35	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		11/04/11 20:35	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/04/11 20:35	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/04/11 20:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/04/11 20:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/04/11 20:35	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/04/11 20:35	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/04/11 20:35	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/04/11 20:35	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/04/11 20:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/04/11 20:35	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		11/04/11 20:35	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/04/11 20:35	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		11/04/11 20:35	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		11/04/11 20:35	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/04/11 20:35	99-87-6	

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: KS/MO Waste Water
Pace Project No.: 60109211

Sample: BAPURGE-W-10112 **Lab ID: 60109211002** Collected: 10/31/11 12:55 Received: 11/01/11 09:20 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		11/04/11 20:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		11/04/11 20:35	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/04/11 20:35	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		11/04/11 20:35	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		11/04/11 20:35	103-65-1	
Styrene	ND	ug/L	1.0	1		11/04/11 20:35	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/04/11 20:35	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/04/11 20:35	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/04/11 20:35	127-18-4	
Toluene	ND	ug/L	1.0	1		11/04/11 20:35	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/04/11 20:35	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/04/11 20:35	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/04/11 20:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/04/11 20:35	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/04/11 20:35	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/04/11 20:35	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		11/04/11 20:35	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		11/04/11 20:35	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		11/04/11 20:35	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		11/04/11 20:35	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		11/04/11 20:35	1330-20-7	
4-Bromofluorobenzene (S)	102	%	87-113	1		11/04/11 20:35	460-00-4	
Dibromofluoromethane (S)	98	%	86-112	1		11/04/11 20:35	1868-53-7	
1,2-Dichloroethane-d4 (S)	101	%	82-119	1		11/04/11 20:35	17060-07-0	
Toluene-d8 (S)	95	%	90-110	1		11/04/11 20:35	2037-26-5	
Preservation pH	**7.0**		0.10	1		11/04/11 20:35		
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**6.1**	mg/L	0.20	1		11/02/11 09:17		

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: KS/MO Waste Water
Pace Project No.: 60109211

Sample: CNPURGE-W-10113 **Lab ID: 60109211003** Collected: 10/31/11 14:02 Received: 11/01/11 09:20 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	11/07/11 00:00	11/08/11 01:17	106-93-4	
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	10.0	1		11/04/11 20:51	67-64-1	
Benzene	ND	ug/L	1.0	1		11/04/11 20:51	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/04/11 20:51	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/04/11 20:51	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/04/11 20:51	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/04/11 20:51	75-25-2	
Bromomethane	ND	ug/L	1.0	1		11/04/11 20:51	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	1		11/04/11 20:51	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		11/04/11 20:51	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		11/04/11 20:51	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		11/04/11 20:51	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		11/04/11 20:51	75-15-0	
Carbon tetrachloride	**1.3**	ug/L	1.0	1		11/04/11 20:51	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/04/11 20:51	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/04/11 20:51	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/04/11 20:51	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/04/11 20:51	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/04/11 20:51	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/04/11 20:51	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		11/04/11 20:51	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/04/11 20:51	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/04/11 20:51	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/04/11 20:51	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 20:51	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 20:51	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 20:51	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/04/11 20:51	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/04/11 20:51	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/04/11 20:51	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		11/04/11 20:51	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/04/11 20:51	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/04/11 20:51	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/04/11 20:51	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/04/11 20:51	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/04/11 20:51	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/04/11 20:51	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/04/11 20:51	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/04/11 20:51	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/04/11 20:51	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		11/04/11 20:51	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/04/11 20:51	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		11/04/11 20:51	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		11/04/11 20:51	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/04/11 20:51	99-87-6	

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: KS/MO Waste Water
Pace Project No.: 60109211

Sample: CNPURGE-W-10113 **Lab ID: 60109211003** Collected: 10/31/11 14:02 Received: 11/01/11 09:20 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		11/04/11 20:51	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		11/04/11 20:51	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/04/11 20:51	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		11/04/11 20:51	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		11/04/11 20:51	103-65-1	
Styrene	ND	ug/L	1.0	1		11/04/11 20:51	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/04/11 20:51	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/04/11 20:51	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/04/11 20:51	127-18-4	
Toluene	ND	ug/L	1.0	1		11/04/11 20:51	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/04/11 20:51	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/04/11 20:51	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/04/11 20:51	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/04/11 20:51	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/04/11 20:51	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/04/11 20:51	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		11/04/11 20:51	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		11/04/11 20:51	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		11/04/11 20:51	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		11/04/11 20:51	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		11/04/11 20:51	1330-20-7	
4-Bromofluorobenzene (S)	107	%	87-113	1		11/04/11 20:51	460-00-4	
Dibromofluoromethane (S)	110	%	86-112	1		11/04/11 20:51	1868-53-7	
1,2-Dichloroethane-d4 (S)	114	%	82-119	1		11/04/11 20:51	17060-07-0	
Toluene-d8 (S)	108	%	90-110	1		11/04/11 20:51	2037-26-5	
Preservation pH	**7.0**		0.10	1		11/04/11 20:51		
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**4.4**	mg/L	0.10	1		11/02/11 09:06		

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: KS/MO Waste Water
Pace Project No.: 60109211

Sample: EUPURGE-W-10114 **Lab ID: 60109211004** Collected: 10/31/11 15:52 Received: 11/01/11 09:20 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	0.029	1	11/07/11 00:00	11/08/11 01:30	106-93-4	
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	10.0	1		11/04/11 21:07	67-64-1	
Benzene	ND	ug/L	1.0	1		11/04/11 21:07	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/04/11 21:07	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/04/11 21:07	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/04/11 21:07	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/04/11 21:07	75-25-2	
Bromomethane	ND	ug/L	1.0	1		11/04/11 21:07	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	1		11/04/11 21:07	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		11/04/11 21:07	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		11/04/11 21:07	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		11/04/11 21:07	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		11/04/11 21:07	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	1		11/04/11 21:07	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/04/11 21:07	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/04/11 21:07	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/04/11 21:07	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/04/11 21:07	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/04/11 21:07	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/04/11 21:07	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		11/04/11 21:07	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/04/11 21:07	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/04/11 21:07	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/04/11 21:07	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 21:07	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 21:07	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 21:07	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/04/11 21:07	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/04/11 21:07	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/04/11 21:07	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		11/04/11 21:07	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/04/11 21:07	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/04/11 21:07	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/04/11 21:07	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/04/11 21:07	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/04/11 21:07	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/04/11 21:07	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/04/11 21:07	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/04/11 21:07	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/04/11 21:07	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		11/04/11 21:07	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/04/11 21:07	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		11/04/11 21:07	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		11/04/11 21:07	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/04/11 21:07	99-87-6	

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: KS/MO Waste Water
Pace Project No.: 60109211

Sample: EUPURGE-W-10114 **Lab ID: 60109211004** Collected: 10/31/11 15:52 Received: 11/01/11 09:20 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		11/04/11 21:07	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		11/04/11 21:07	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/04/11 21:07	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		11/04/11 21:07	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		11/04/11 21:07	103-65-1	
Styrene	ND	ug/L	1.0	1		11/04/11 21:07	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/04/11 21:07	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/04/11 21:07	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/04/11 21:07	127-18-4	
Toluene	ND	ug/L	1.0	1		11/04/11 21:07	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/04/11 21:07	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/04/11 21:07	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/04/11 21:07	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/04/11 21:07	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/04/11 21:07	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/04/11 21:07	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		11/04/11 21:07	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		11/04/11 21:07	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		11/04/11 21:07	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		11/04/11 21:07	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		11/04/11 21:07	1330-20-7	
4-Bromofluorobenzene (S)	106	%	87-113	1		11/04/11 21:07	460-00-4	
Dibromofluoromethane (S)	108	%	86-112	1		11/04/11 21:07	1868-53-7	
1,2-Dichloroethane-d4 (S)	113	%	82-119	1		11/04/11 21:07	17060-07-0	
Toluene-d8 (S)	105	%	90-110	1		11/04/11 21:07	2037-26-5	
Preservation pH	**7.0**		0.10	1		11/04/11 21:07		
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**10.6**	mg/L	0.50	1		11/02/11 09:21		

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: KS/MO Waste Water
Pace Project No.: 60109211

Sample: HAPURGE-W-10115 **Lab ID: 60109211005** Collected: 10/31/11 12:27 Received: 11/01/11 09:20 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	11/07/11 00:00	11/08/11 01:43	106-93-4	
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	10.0	1		11/04/11 21:24	67-64-1	
Benzene	ND	ug/L	1.0	1		11/04/11 21:24	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/04/11 21:24	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/04/11 21:24	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/04/11 21:24	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/04/11 21:24	75-25-2	
Bromomethane	ND	ug/L	1.0	1		11/04/11 21:24	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	1		11/04/11 21:24	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		11/04/11 21:24	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		11/04/11 21:24	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		11/04/11 21:24	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		11/04/11 21:24	75-15-0	
Carbon tetrachloride	**6.1**	ug/L	1.0	1		11/04/11 21:24	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/04/11 21:24	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/04/11 21:24	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/04/11 21:24	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/04/11 21:24	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/04/11 21:24	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/04/11 21:24	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		11/04/11 21:24	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/04/11 21:24	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/04/11 21:24	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/04/11 21:24	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 21:24	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 21:24	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 21:24	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/04/11 21:24	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/04/11 21:24	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/04/11 21:24	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		11/04/11 21:24	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/04/11 21:24	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/04/11 21:24	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/04/11 21:24	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/04/11 21:24	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/04/11 21:24	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/04/11 21:24	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/04/11 21:24	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/04/11 21:24	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/04/11 21:24	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		11/04/11 21:24	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/04/11 21:24	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		11/04/11 21:24	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		11/04/11 21:24	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/04/11 21:24	99-87-6	

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: KS/MO Waste Water
Pace Project No.: 60109211

Sample: HAPURGE-W-10115 | **Lab ID: 60109211005** | Collected: 10/31/11 12:27 | Received: 11/01/11 09:20 | 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		11/04/11 21:24	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		11/04/11 21:24	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/04/11 21:24	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		11/04/11 21:24	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		11/04/11 21:24	103-65-1	
Styrene	ND	ug/L	1.0	1		11/04/11 21:24	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/04/11 21:24	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/04/11 21:24	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/04/11 21:24	127-18-4	
Toluene	ND	ug/L	1.0	1		11/04/11 21:24	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/04/11 21:24	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/04/11 21:24	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/04/11 21:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/04/11 21:24	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/04/11 21:24	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/04/11 21:24	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		11/04/11 21:24	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		11/04/11 21:24	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		11/04/11 21:24	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		11/04/11 21:24	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		11/04/11 21:24	1330-20-7	
4-Bromofluorobenzene (S)	106	%	87-113	1		11/04/11 21:24	460-00-4	
Dibromofluoromethane (S)	103	%	86-112	1		11/04/11 21:24	1868-53-7	
1,2-Dichloroethane-d4 (S)	106	%	82-119	1		11/04/11 21:24	17060-07-0	
Toluene-d8 (S)	100	%	90-110	1		11/04/11 21:24	2037-26-5	
Preservation pH	**7.0**		0.10	1		11/04/11 21:24		
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**5.7**	mg/L	0.20	1		11/02/11 09:16		

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: KS/MO Waste Water
Pace Project No.: 60109211

Sample: MRPURGE-W-10116 **Lab ID: 60109211006** Collected: 10/31/11 14:42 Received: 11/01/11 09:20 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	0.029	1	11/07/11 00:00	11/08/11 01:55	106-93-4	
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	10.0	1		11/04/11 21:40	67-64-1	
Benzene	ND	ug/L	1.0	1		11/04/11 21:40	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/04/11 21:40	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/04/11 21:40	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/04/11 21:40	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/04/11 21:40	75-25-2	
Bromomethane	ND	ug/L	1.0	1		11/04/11 21:40	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	1		11/04/11 21:40	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		11/04/11 21:40	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		11/04/11 21:40	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		11/04/11 21:40	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		11/04/11 21:40	75-15-0	
Carbon tetrachloride	**3.4**	ug/L	1.0	1		11/04/11 21:40	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/04/11 21:40	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/04/11 21:40	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/04/11 21:40	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/04/11 21:40	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/04/11 21:40	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/04/11 21:40	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		11/04/11 21:40	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/04/11 21:40	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/04/11 21:40	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/04/11 21:40	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 21:40	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 21:40	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 21:40	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/04/11 21:40	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/04/11 21:40	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/04/11 21:40	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		11/04/11 21:40	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/04/11 21:40	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/04/11 21:40	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/04/11 21:40	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/04/11 21:40	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/04/11 21:40	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/04/11 21:40	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/04/11 21:40	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/04/11 21:40	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/04/11 21:40	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		11/04/11 21:40	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/04/11 21:40	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		11/04/11 21:40	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		11/04/11 21:40	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/04/11 21:40	99-87-6	

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: KS/MO Waste Water
Pace Project No.: 60109211

Sample: MRPURGE-W-10116 **Lab ID: 60109211006** Collected: 10/31/11 14:42 Received: 11/01/11 09:20 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		11/04/11 21:40	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		11/04/11 21:40	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/04/11 21:40	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		11/04/11 21:40	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		11/04/11 21:40	103-65-1	
Styrene	ND	ug/L	1.0	1		11/04/11 21:40	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/04/11 21:40	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/04/11 21:40	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/04/11 21:40	127-18-4	
Toluene	ND	ug/L	1.0	1		11/04/11 21:40	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/04/11 21:40	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/04/11 21:40	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/04/11 21:40	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/04/11 21:40	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/04/11 21:40	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/04/11 21:40	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		11/04/11 21:40	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		11/04/11 21:40	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		11/04/11 21:40	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		11/04/11 21:40	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		11/04/11 21:40	1330-20-7	
4-Bromofluorobenzene (S)	105	%	87-113	1		11/04/11 21:40	460-00-4	
Dibromofluoromethane (S)	108	%	86-112	1		11/04/11 21:40	1868-53-7	
1,2-Dichloroethane-d4 (S)	114	%	82-119	1		11/04/11 21:40	17060-07-0	
Toluene-d8 (S)	109	%	90-110	1		11/04/11 21:40	2037-26-5	
Preservation pH	**7.0**		0.10	1		11/04/11 21:40		
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**13.8**	mg/L	0.50	1		11/02/11 09:20		

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: KS/MO Waste Water
Pace Project No.: 60109211

Sample: SVPURGE-W-10117 **Lab ID: 60109211007** Collected: 10/31/11 18:30 Received: 11/01/11 09:20 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	0.029	1	11/07/11 00:00	11/08/11 02:09	106-93-4	
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	10.0	1		11/04/11 21:56	67-64-1	
Benzene	ND	ug/L	1.0	1		11/04/11 21:56	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/04/11 21:56	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/04/11 21:56	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/04/11 21:56	75-27-4	
Bromoform	ND	ug/L	1.0	1		11/04/11 21:56	75-25-2	
Bromomethane	ND	ug/L	1.0	1		11/04/11 21:56	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	1		11/04/11 21:56	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		11/04/11 21:56	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		11/04/11 21:56	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		11/04/11 21:56	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		11/04/11 21:56	75-15-0	
Carbon tetrachloride	**6.9**	ug/L	1.0	1		11/04/11 21:56	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/04/11 21:56	108-90-7	
Chloroethane	ND	ug/L	1.0	1		11/04/11 21:56	75-00-3	
Chloroform	**3.3**	ug/L	1.0	1		11/04/11 21:56	67-66-3	
Chloromethane	ND	ug/L	1.0	1		11/04/11 21:56	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/04/11 21:56	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/04/11 21:56	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		11/04/11 21:56	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/04/11 21:56	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/04/11 21:56	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		11/04/11 21:56	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 21:56	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 21:56	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/04/11 21:56	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/04/11 21:56	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/04/11 21:56	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/04/11 21:56	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		11/04/11 21:56	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/04/11 21:56	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/04/11 21:56	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/04/11 21:56	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		11/04/11 21:56	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/04/11 21:56	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		11/04/11 21:56	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/04/11 21:56	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		11/04/11 21:56	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		11/04/11 21:56	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		11/04/11 21:56	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/04/11 21:56	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		11/04/11 21:56	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		11/04/11 21:56	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/04/11 21:56	99-87-6	

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

ANALYTICAL RESULTS

Project: KS/MO Waste Water
Pace Project No.: 60109211

Sample: SVPURGE-W-10117 **Lab ID: 60109211007** Collected: 10/31/11 18:30 Received: 11/01/11 09:20 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		11/04/11 21:56	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		11/04/11 21:56	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/04/11 21:56	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		11/04/11 21:56	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		11/04/11 21:56	103-65-1	
Styrene	ND	ug/L	1.0	1		11/04/11 21:56	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/04/11 21:56	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/04/11 21:56	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/04/11 21:56	127-18-4	
Toluene	ND	ug/L	1.0	1		11/04/11 21:56	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/04/11 21:56	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/04/11 21:56	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/04/11 21:56	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/04/11 21:56	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		11/04/11 21:56	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		11/04/11 21:56	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		11/04/11 21:56	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		11/04/11 21:56	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		11/04/11 21:56	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		11/04/11 21:56	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		11/04/11 21:56	1330-20-7	
4-Bromofluorobenzene (S)	90	%	87-113	1		11/04/11 21:56	460-00-4	
Dibromofluoromethane (S)	106	%	86-112	1		11/04/11 21:56	1868-53-7	
1,2-Dichloroethane-d4 (S)	111	%	82-119	1		11/04/11 21:56	17060-07-0	
Toluene-d8 (S)	110	%	90-110	1		11/04/11 21:56	2037-26-5	
Preservation pH	**7.0**		0.10	1		11/04/11 21:56		
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2							
Nitrogen, Nitrate	**0.41**	mg/L	0.10	1		11/02/11 09:11		

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: KS/MO Waste Water
Pace Project No.: 60109211

QC Batch: OEXT/31027 Analysis Method: EPA 504.1
QC Batch Method: EPA 504.1 Analysis Description: GCS 504 EDB DBCP
Associated Lab Samples: 60109211001, 60109211002, 60109211003, 60109211004, 60109211005, 60109211006, 60109211007

METHOD BLANK: 906554 Matrix: Water
Associated Lab Samples: 60109211001, 60109211002, 60109211003, 60109211004, 60109211005, 60109211006, 60109211007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.030	11/07/11 20:35	

LABORATORY CONTROL SAMPLE & LCSD: 906555 906556

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	0.23	0.21	94	85	70-130	10	20	

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: KS/MO Waste Water
Pace Project No.: 60109211

QC Batch: MSV/41422 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 7 day
Associated Lab Samples: 60109211001, 60109211002, 60109211003, 60109211004, 60109211005, 60109211006, 60109211007

METHOD BLANK: 905182 Matrix: Water
Associated Lab Samples: 60109211001, 60109211002, 60109211003, 60109211004, 60109211005, 60109211006, 60109211007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/04/11 17:52	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/04/11 17:52	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/04/11 17:52	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/04/11 17:52	
1,1-Dichloroethane	ug/L	ND	1.0	11/04/11 17:52	
1,1-Dichloroethene	ug/L	ND	1.0	11/04/11 17:52	
1,1-Dichloropropene	ug/L	ND	1.0	11/04/11 17:52	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	11/04/11 17:52	
1,2,3-Trichloropropane	ug/L	ND	2.5	11/04/11 17:52	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/04/11 17:52	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	11/04/11 17:52	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.5	11/04/11 17:52	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/04/11 17:52	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/04/11 17:52	
1,2-Dichloroethane	ug/L	ND	1.0	11/04/11 17:52	
1,2-Dichloroethene (Total)	ug/L	ND	1.0	11/04/11 17:52	
1,2-Dichloropropane	ug/L	ND	1.0	11/04/11 17:52	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	11/04/11 17:52	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/04/11 17:52	
1,3-Dichloropropane	ug/L	ND	1.0	11/04/11 17:52	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/04/11 17:52	
2,2-Dichloropropane	ug/L	ND	1.0	11/04/11 17:52	
2-Butanone (MEK)	ug/L	ND	10.0	11/04/11 17:52	
2-Chlorotoluene	ug/L	ND	1.0	11/04/11 17:52	
2-Hexanone	ug/L	ND	10.0	11/04/11 17:52	
4-Chlorotoluene	ug/L	ND	1.0	11/04/11 17:52	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	11/04/11 17:52	
Acetone	ug/L	ND	10.0	11/04/11 17:52	
Benzene	ug/L	ND	1.0	11/04/11 17:52	
Bromobenzene	ug/L	ND	1.0	11/04/11 17:52	
Bromochloromethane	ug/L	ND	1.0	11/04/11 17:52	
Bromodichloromethane	ug/L	ND	1.0	11/04/11 17:52	
Bromoform	ug/L	ND	1.0	11/04/11 17:52	
Bromomethane	ug/L	ND	1.0	11/04/11 17:52	
Carbon disulfide	ug/L	ND	5.0	11/04/11 17:52	
Carbon tetrachloride	ug/L	ND	1.0	11/04/11 17:52	
Chlorobenzene	ug/L	ND	1.0	11/04/11 17:52	
Chloroethane	ug/L	ND	1.0	11/04/11 17:52	
Chloroform	ug/L	ND	1.0	11/04/11 17:52	
Chloromethane	ug/L	ND	1.0	11/04/11 17:52	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/04/11 17:52	
cis-1,3-Dichloropropene	ug/L	ND	1.0	11/04/11 17:52	
Dibromochloromethane	ug/L	ND	1.0	11/04/11 17:52	

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: KS/MO Waste Water
Pace Project No.: 60109211

METHOD BLANK: 905182 Matrix: Water

Associated Lab Samples: 60109211001, 60109211002, 60109211003, 60109211004, 60109211005, 60109211006, 60109211007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromomethane	ug/L	ND	1.0	11/04/11 17:52	
Dichlorodifluoromethane	ug/L	ND	1.0	11/04/11 17:52	
Ethylbenzene	ug/L	ND	1.0	11/04/11 17:52	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/04/11 17:52	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	11/04/11 17:52	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/04/11 17:52	
Methylene chloride	ug/L	ND	1.0	11/04/11 17:52	
n-Butylbenzene	ug/L	ND	1.0	11/04/11 17:52	
n-Propylbenzene	ug/L	ND	1.0	11/04/11 17:52	
Naphthalene	ug/L	ND	10.0	11/04/11 17:52	
p-Isopropyltoluene	ug/L	ND	1.0	11/04/11 17:52	
sec-Butylbenzene	ug/L	ND	1.0	11/04/11 17:52	
Styrene	ug/L	ND	1.0	11/04/11 17:52	
tert-Butylbenzene	ug/L	ND	1.0	11/04/11 17:52	
Tetrachloroethene	ug/L	ND	1.0	11/04/11 17:52	
Toluene	ug/L	ND	1.0	11/04/11 17:52	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/04/11 17:52	
trans-1,3-Dichloropropene	ug/L	ND	1.0	11/04/11 17:52	
Trichloroethene	ug/L	ND	1.0	11/04/11 17:52	
Trichlorofluoromethane	ug/L	ND	1.0	11/04/11 17:52	
Vinyl chloride	ug/L	ND	1.0	11/04/11 17:52	
Xylene (Total)	ug/L	ND	3.0	11/04/11 17:52	
1,2-Dichloroethane-d4 (S)	%	107	82-119	11/04/11 17:52	
4-Bromofluorobenzene (S)	%	97	87-113	11/04/11 17:52	
Dibromofluoromethane (S)	%	105	86-112	11/04/11 17:52	
Toluene-d8 (S)	%	103	90-110	11/04/11 17:52	

LABORATORY CONTROL SAMPLE: 905183

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	17.3	86	81-121	
1,1,1-Trichloroethane	ug/L	20	17.6	88	82-119	
1,1,2,2-Tetrachloroethane	ug/L	20	18.1	91	78-124	
1,1,2-Trichloroethane	ug/L	20	20.3	102	79-121	
1,1-Dichloroethane	ug/L	20	18.3	91	73-119	
1,1-Dichloroethene	ug/L	20	17.7	89	75-120	
1,1-Dichloropropene	ug/L	20	18.5	93	79-123	
1,2,3-Trichlorobenzene	ug/L	20	17.8	89	73-122	
1,2,3-Trichloropropane	ug/L	20	18.1	91	77-124	
1,2,4-Trichlorobenzene	ug/L	20	17.4	87	75-120	
1,2,4-Trimethylbenzene	ug/L	20	18.7	94	77-120	
1,2-Dibromo-3-chloropropane	ug/L	20	16.7	84	69-125	
1,2-Dibromoethane (EDB)	ug/L	20	18.8	94	85-121	
1,2-Dichlorobenzene	ug/L	20	19.2	96	82-115	
1,2-Dichloroethane	ug/L	20	19.3	96	77-125	

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: KS/MO Waste Water
Pace Project No.: 60109211

LABORATORY CONTROL SAMPLE: 905183

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethene (Total)	ug/L	40	40.0	100	79-120	
1,2-Dichloropropane	ug/L	20	18.8	94	83-119	
1,3,5-Trimethylbenzene	ug/L	20	18.1	91	79-121	
1,3-Dichlorobenzene	ug/L	20	17.7	88	79-117	
1,3-Dichloropropane	ug/L	20	19.2	96	78-116	
1,4-Dichlorobenzene	ug/L	20	18.7	94	83-115	
2,2-Dichloropropane	ug/L	20	16.3	82	66-123	
2-Butanone (MEK)	ug/L	100	101	101	43-165	
2-Chlorotoluene	ug/L	20	18.6	93	81-117	
2-Hexanone	ug/L	100	98.3	98	47-159	
4-Chlorotoluene	ug/L	20	18.8	94	84-116	
4-Methyl-2-pentanone (MIBK)	ug/L	100	90.7	91	71-129	
Acetone	ug/L	100	111	111	18-192	
Benzene	ug/L	20	19.5	97	82-117	
Bromobenzene	ug/L	20	18.5	92	83-116	
Bromochloromethane	ug/L	20	18.9	94	79-121	
Bromodichloromethane	ug/L	20	18.5	92	79-114	
Bromoform	ug/L	20	17.8	89	78-121	
Bromomethane	ug/L	20	20.6	103	36-146	
Carbon disulfide	ug/L	20	20.6	103	75-138	
Carbon tetrachloride	ug/L	20	19.3	96	80-123	
Chlorobenzene	ug/L	20	18.2	91	83-121	
Chloroethane	ug/L	20	19.6	98	42-166	
Chloroform	ug/L	20	20.1	100	82-116	
Chloromethane	ug/L	20	17.7	88	32-127	
cis-1,2-Dichloroethene	ug/L	20	18.2	91	80-119	
cis-1,3-Dichloropropene	ug/L	20	17.0	85	76-119	
Dibromochloromethane	ug/L	20	17.9	89	81-123	
Dibromomethane	ug/L	20	19.2	96	79-123	
Dichlorodifluoromethane	ug/L	20	15.2	76	10-163	
Ethylbenzene	ug/L	20	17.7	88	79-121	
Hexachloro-1,3-butadiene	ug/L	20	18.5	92	78-125	
Isopropylbenzene (Cumene)	ug/L	20	18.7	93	80-120	
Methyl-tert-butyl ether	ug/L	20	18.1	91	78-119	
Methylene chloride	ug/L	20	19.6	98	75-118	
n-Butylbenzene	ug/L	20	18.2	91	80-126	
n-Propylbenzene	ug/L	20	18.3	91	83-116	
Naphthalene	ug/L	20	16.8	84	66-133	
p-Isopropyltoluene	ug/L	20	17.9	89	77-120	
sec-Butylbenzene	ug/L	20	17.8	89	81-120	
Styrene	ug/L	20	18.8	94	84-115	
tert-Butylbenzene	ug/L	20	18.0	90	80-117	
Tetrachloroethene	ug/L	20	19.8	99	80-124	
Toluene	ug/L	20	19.1	95	80-120	
trans-1,2-Dichloroethene	ug/L	20	21.8	109	79-120	
trans-1,3-Dichloropropene	ug/L	20	18.5	92	76-118	
Trichloroethene	ug/L	20	17.5	88	76-122	
Trichlorofluoromethane	ug/L	20	19.0	95	72-120	

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: KS/MO Waste Water
Pace Project No.: 60109211

LABORATORY CONTROL SAMPLE: 905183

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Vinyl chloride	ug/L	20	17.5	88	57-163	
Xylene (Total)	ug/L	60	53.9	90	75-120	
1,2-Dichloroethane-d4 (S)	%			103	82-119	
4-Bromofluorobenzene (S)	%			104	87-113	
Dibromofluoromethane (S)	%			101	86-112	
Toluene-d8 (S)	%			99	90-110	

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: KS/MO Waste Water
Pace Project No.: 60109211

QC Batch: WETA/18128
QC Batch Method: EPA 353.2
Associated Lab Samples: 60109211001

Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, Unpres.

METHOD BLANK: 903260
Matrix: Water
Associated Lab Samples: 60109211001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	11/02/11 08:39	

LABORATORY CONTROL SAMPLE: 903261

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1.6	1.6	97	90-110	

MATRIX SPIKE SAMPLE: 903262

Parameter	Units	60109214001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	ND	1.6	1.5	93	90-110	

MATRIX SPIKE SAMPLE: 903263

Parameter	Units	60109214002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	ND	1.6	1.6	102	90-110	

SAMPLE DUPLICATE: 903264

Parameter	Units	60109214008 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	ND	ND		15	

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: KS/MO Waste Water
Pace Project No.: 60109211

QC Batch: WETA/18129 | Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 | Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 60109211002, 60109211003, 60109211004, 60109211005, 60109211006, 60109211007

METHOD BLANK: 903266 | Matrix: Water
Associated Lab Samples: 60109211002, 60109211003, 60109211004, 60109211005, 60109211006, 60109211007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Nitrate	mg/L	ND	0.10	11/02/11 09:03	

LABORATORY CONTROL SAMPLE: 903267

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	1.6	1.6	98	90-110	

MATRIX SPIKE SAMPLE: 903268

Parameter	Units	60109211007 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	mg/L	0.41	1.6	1.9	95	90-110	

SAMPLE DUPLICATE: 903269

Parameter	Units	60109238001 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, Nitrate	mg/L	6.8	6.8	0	15	

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

QUALIFIERS

Project: KS/MO Waste Water
Pace Project No.: 60109211

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

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

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

BATCH QUALIFIERS

Batch: MSV/41422

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

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

1334694

Section A Required Client Information:

Company: TCW Construction
Address: 141 M Street
Lincoln NE 68508
Email To: tkamler@tcwconstruction.com
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: KS/MO Waste Water
Project Number:

Section C Invoice Information:

Attention: Travis Kamler
Company Name: TCW Construction
Address:
Pace Quote Reference:
Pace Project Manager: Trudy Gipson
Pace Profile #:

REGULATORY AGENCY

- [ ] NPDES
- [x] GROUND WATER
- [ ] DRINKING WATER
- [ ] UST
- [ ] RCRA
- [ ] OTHER

Site Location STATE: KS/MO

Section D Required Client Information

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

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

Requested Analysis Filtered (Y/N)

Pace Project No./ Lab I.D.: 60109211

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test	40 ml VOC	40 ml EDB	250 ml NITRATES	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	AGPURGE-W-10111	WW	C	3-18		10-30	9:00	60	5	3					2				2	2	1		1(BP3N) 2(DE9W) 2(DG9T) 01
2	BAPURGE-W-10112	WW	C	9-28		10-31	12:55	60	5	3					2				2	2	1		02
3	CNPURGE-W-10113	WW	C	4-19		10-31	14:02	60	5	3					2				2	2	1		03
4	EVBURGE-W-10114	WW	C	4-27		10-31	15:52	60	5	3					2				2	2	1		04
5	HAPURGE-W-10115	WW	C	6-13		10-31	12:27	60	5	3					2				2	2	1		05
6	MRPURGE-W-10116	WW	C	4-20		10-31	14:42	60	5	3					2				2	2	1		06
7	SVPURGE-W-10117	WW	C	8-9		10-31	18:30	60	5	3					2				2	2	1		07
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
All samples collected from drums holding purge water at sites sampled during the 2011 Year	[signature] / TCW	10-31-11	18:45	[signature]	11/1/11	920	4.2	Y	Y	Y

SAMPLE CONDITIONS

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Travis Kamler
SIGNATURE of SAMPLER: [signature]
DATE Signed (MM/DD/YY): 10-31-2011

*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.

F-ALL-Q-020rev.07, 15-May-2007

Sample Condition Upon Receipt

Pace Analytical® www.pacelabs.com

Client Name: TCW Const. Project # 6010921

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ____

Tracking #: 8758 2746 3563 Pace Shipping Label Used? ☐ Yes ☒ No

Custody Seal on Cooler/Box Present: ☒ Yes ☐ No Seals intact: ☒ Yes ☐ No

Optional
Proj. Due Date: 11/4
Proj. Name:

Packing Material: ☒ Bubble Wrap ☐ Bubble Bags ☐ Foam ☐ None ☐ Other ____

Thermometer Used: T-191 / T-194 Type of Ice: Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature: 4.2

Temperature should be above freezing to 6°C

Date and Initials of person examining contents: JWD 11/1/11 1025

		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 holding time:	☒Yes ☐No ☐N/A	5.
Short Hold Time analyses (<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:	☒Yes ☐No ☐N/A	
Containers intact:	☒Yes ☐No ☐N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐Yes ☐No ☒N/A	11.
Filtered volume received for dissolved tests	☐Yes ☐No ☒N/A	12.
Sample labels match COC: -Includes date/time/ID/analyses Matrix: water	☒Yes ☐No ☐N/A	13.
All containers needing preservation have been checked.	☐Yes ☐No ☒N/A	14.
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), Phenolics	☒Yes ☐No	Initial when completed N/A — Lot # of added preservative ____
Trip Blank present:	☐Yes ☒No ☐N/A	15.
Pace Trip Blank lot # (if purchased): N/A		
Headspace in VOA vials (>6mm):	☐Yes ☒No ☐N/A	16.
Project sampled in USDA Regulated Area:	☐Yes ☐No ☒N/A	17. List State: ____

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

Person Contacted: ____ Date/Time: ____

Comments/ Resolution: ____

Project Manager Review: [signature] Date: 11-1-11

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)

F-KS-C-003-Rev.05, 19February2010

Supplement 2:

Sample Documentation from TestAmerica Laboratories, Inc.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

Job Number: 200-7268-1

SDG Number: 200-7268

Job Description: Barnes (200-7268)

Contract Number: 1E-30401

For:

Argonne National Laboratory
9700 South Cass Avenue
Building 203
Office B-149
Argonne, IL 60439

Attention: Mr. Clyde Dennis

Approved for release.
Kirk F Young
Project Manager I
10/6/2011 8:30 AM

Kirk F Young
Project Manager I
kirk.young@testamericainc.com
10/06/2011

The test results in this report relate only to sample(s) as received by the laboratory. These test results were derived under a quality system that adheres to the requirements of NELAC. Pursuant to NELAC, this report may not be produced in full without written approval from the laboratory

TestAmerica Laboratories, Inc.
TestAmerica Burlington 30 Community Drive, Suite 11, South Burlington, VT 05403
Tel (802) 660-1990 Fax (802) 660-1919 www.testamericainc.com

ACCREDITED IN ACCORDANCE WITH nelac

Table of Contents

Table of Contents

CASE NARRATIVE

Client: Argonne National Laboratory

Project: Barnes (200-7268)

Report Number: 200-7268-1

Enclosed is the data set for the referenced project work. With the exceptions noted as flags or footnotes, standard analytical protocols were followed in performing the analytical work and the applied control limits were met.

Calculations were performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

Receipt

The samples were received on 09/30/2011. 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 Shipping and Receiving 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.

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 sample in the sample set was analyzed without a dilution. 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. Matrix spike and matrix spike duplicate analyses were not performed on samples in this sample set. Trace concentrations of acetone, carbon disulfide, toluene, 1,3-dichlorobenzene, and 1,2,4-trichlorobenzene were identified in the analysis of the method blank associated with the analytical work. The concentration of each analyte in that analysis was below the established reporting limit, and the analysis did meet the technical acceptance criteria for a compliant method blank analysis. A trace concentration of acetone was identified in the analysis of the storage blank associated with the sample set. The concentration of acetone in that analysis was below the established reporting limit, and the analysis did meet the technical acceptance criteria for a compliant storage blank analysis. Present in the method blank and storage blank analyses was a non-target constituent that represents 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 responses for each of the target analytes met the relative standard deviation criterion in the initial calibration. The response for each target analyte met the percent difference criterion in the opening/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 at the end of this submittal.

DATA REPORTING QUALIFIERS

Client: Argonne National Laboratory

Job Number: 200-7268-1
Sdg Number: 200-7268

Lab Section	Qualifier	Description
GC/MS VOA		
	U	Analyzed for but not detected.
	J	Indicates an Estimated Value for TICs
	J	Indicates an estimated value.
	X	See case narrative notes for explanation of the 'X' flag
	*	Surrogate exceeds the control limit
	B	The analyte was found in an associated blank, as well as in the sample.

Argonne NATIONAL LABORATORY

6632

ARGONNE NATIONAL LABORATORY
CHAIN OF CUSTODY RECORD*

MATRIX: Water
RECEIVING LAB: Test America
PROJECT/SITE: Barnes KS
SAMPLER(S) (Signature) Travis Kamler /

Shipping Container:
Shipping Info:
Field Contact (Name & Temporary Phone): Dave Surgnier 630 408 7114

DATE OF COLLECTION	SAMPLE ID NUMBER(S)	Number of containers	ANALYSIS: VOC									REMARKS
Sept 28, 2011	BAMW13S-W-28814	2	2									2 x 40 mL for VOC
|	BAMW14S-W-28816	2	2									|
|	BAMW17-W-28817	2	2									|
Sept 28, 2011	BAQCTB-W-28825	2	2									2 x 40 mL for VOC

Relinquished by (Signature)	Date	Time	Received by (Signature)	Relinquished by (Signature)	Date	Time	Received by (Signature)
[signature]	9/28/11	19:00					

Relinquished by (Signature)	Date	Time	Received by (Signature)	Date	Time	Remarks
			[signature]	9/30/11	1020	

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 Science Division, 9700 S. Cass Avenue, Argonne, IL 60439

EVS-160 (6-07)

TestAmerica Burlington

INTERNAL CHAIN OF CUSTODY LOG (ICOC)

Project Information:

Log In #: 200-7268	**Method:** SOM01.2_Vol_Tr
Client: ARGLAB	**LAB IDs:** 200-7268-1 THRU 4

Samples associated with this log-in were placed into storage on 9/30/2011 (Date) 1435 (Time[2]) by: [illegible] Sample Custodian Signature

Storage Location: VOA FRIDGE B, SHELF 8 *Specify storage location (refrigerator, freezer ID or lab location) for original sample containers*

Storage Condition: ☒ Refrigeration ☐ Frozen ☐ Ambient

Internal Transfer Information

Sample Type		Lab ID(s)	Transfer	Transfer	Purpose of Transfer			Relinquished	Received	Storage Location
Original	Prepared[1]		Date	Time[2]	Prep	Analysis	Storage	By:	By:	Prepared Sample[1]
✓		7268 1-4	10/3/11	0855	✓			[illegible]	[illegible]	Screen
✓		"	10/3/11	0905			✓	[illegible]	[illegible]	Storage
		"	10/3/11	0955		✓		[illegible]	[illegible]	Analysis
		"	10/3/11	1005			✓	[illegible]	[illegible]	Storage

[1] Extract, digestate, or any other prepared sample that is no longer in original sample container

[2] Military Time

BRFSR012:07.09.10:2
TestAmerica

TestAmerica Burlington

INTERNAL CHAIN OF CUSTODY LOG (ICOC)

Project Information:

Log In #: 200-7268	**Method:** SOM01.2_Vol_Tr
Client: ARGLAB	**LAB IDs:** 200-7268-5

Samples associated with this log-in were placed into storage on 9/30/2011 (Date) 1435 (Time[2]) by: [signature] Sample Custodian Signature

Storage Location: VOA FRIDGE B, SHELF 8 *Specify storage location (refrigerator, freezer ID or lab location) for original sample containers*

Storage Condition: ☒ Refrigeration ☐ Frozen ☐ Ambient

Internal Transfer Information

Sample Type		Lab ID(s)	Transfer Date	Transfer Time[2]	Purpose of Transfer			Relinquished By:	Received By:	Storage Location Prepared Sample[1]
Original	Prepared[1]				Prep	Analysis	Storage			
✓		7268-5	10/3/11	0959		✓		[signature]	[signature]	Analysis
✓		11	10/3/11	1005			✓	[signature]	[signature]	Storage

[1] Extract, digestate, or any other prepared sample that is no longer in original sample container

[2] Military Time

BRFSR012:07.09.10:2
TestAmerica

Shipping and Receiving Documents

Barnes

fedex.com 1.800.GoFedEx 1.800.463.3339

FedEx Express ***NEW** Package* *US Airbill*

FedEx Tracking Number 8757 9219 2622

0200 Form ID No.

FedEx Retrieval

1 From

Date 9-29-2011 Sender's FedEx Account Number C 6646 3520

Sender's Name Travis Karl Phone 402 416 7355

Company Argonne National Lab

Address 4101 Progressive Ave Dept./Floor/Suite/Room

City Lincoln State NE ZIP 68504

2 Your Internal Billing Reference SA727 33-167

3 To

Recipient's Name Kirk Young Phone [illegible] 676 1930

Company Test America

Address 30 Community Drive

We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept./Floor/Suite/Room

HOLD Weekday FedEx location address REQUIRED. NOT available for FedEx First Overnight. 01

Address Suite 11

Use this line for the HOLD location address or for continuation of your shipping address

HOLD Saturday FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations. 31

City South Burlington State VT ZIP 05403

4 Express Package Service *To most locations. **Packages up t**... *For packages over 150 lbs. FedEx Express Freig*...

NOTE: Service order has changed. Please select carefully.

Next Business Day

- 06 FedEx First Overnight — Earliest next business morning delivery to select locations. Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- 01 ☒ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- 05 FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

2 or 3 Business Days

- 49 NEW FedEx 2Day A.M. — Second business morning.* Saturday Delivery NOT available.
- 03 FedEx 2Day — Second business afternoon.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- 20 FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

5 Packaging *Declared value limit $500.

06 FedEx Envelope* 02 FedEx Pak* 03 FedEx Box 04 FedEx Tube 01

6 Special Handling and Delivery Signature Options

03 SATURDAY DELIVERY

☒ No Signature Required — Package may be left without obtaining a signature for delivery.

10 Direct Signature — Someone at recipient's address may sign for delivery. *Fee applies.*

34 Indirect Signature — If no one is available at re... address, someone at a n... address may sign for deli... residential deliveries only

Does this shipment contain dangerous goods?

One box must be checked.

☒ No 04 Yes As per attached Shipper's Declaration. Yes Shipper's Declaration not required 06 Dry Ice Dry Ice, 9, UN 1845 ___ x ___

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box. Cargo Aircraft Only

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below. Obtain re... Acct.

1 ☒ Sender Acct. No. in Section 1 will be billed. 2 Recipient 3 Third Party 4 Credit Card 5 Ca...

[redacted]

Total Packages Total Weight lbs [redacted] Credit Card Auth. 0/06/2011

*Our liability is limited to $100 unless you declare a higher value. See the current FedEx Service Guide for details.

Page 11 of 47

61

Login Sample Receipt Checklist

Client: Argonne National Laboratory

Job Number: 200-7268-1
SDG Number: 200-7268

Login Number: 7268
List Number: 1
Creator: Holt, Jamie

List Source: TestAmerica Burlington

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	NO CUSTODY SEAL NUMBERS
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.6°C, IR GUN ID: 96, CF: 0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	Sample volumes received unpreserved.
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Sample Login Acknowledgement

Job 200-7268-1

Client Job Description:	Barnes (200-7268)	**Report To:**	Argonne National Laboratory Jorge Alvarado 9700 South Cass Avenue Building 203 Office B-149 Argonne, IL 60439
Purchase Order #:	1E-30401		
Work Order #:	1E-30401		
Project Manager:	Kirk F Young		
Job Due Date:	10/14/2011		
Job TAT:	14 Days		
Max Deliverable Level:	IV	**Bill To:**	Argonne National Laboratory Accounts Payable Chief Financial Offices 9700 S. Cass Ave. Building 201 Argonne, IL 60439
Earliest Deliverable Due:	10/14/2011		

Login 200-7268

Sample Receipt:	9/30/2011 10:20:00 AM	**Number of Coolers:**	1
Method of Delivery:	FedEx Priority Overnight	**Cooler Temperature(s) (C°):**	0.6;

Lab Sample # / Method	Client Sample ID / Method Description / Work Location	Date Sampled	Matrix	Rpt Basis	Dry / Wet **
200-7268-1	**BAMW13S-W-28814**	**9/28/2011 12:00:00 AM**	**Water**		
SOM01.2_Vol_Tr	SOM01.2 Trace Volatile Organics / In-Lab			Total	Wet
200-7268-2	**BAMW14S-W-28816**	**9/28/2011 12:00:00 AM**	**Water**		
SOM01.2_Vol_Tr	SOM01.2 Trace Volatile Organics / In-Lab			Total	Wet
200-7268-3	**BAMW17-W-28817**	**9/28/2011 12:00:00 AM**	**Water**		
SOM01.2_Vol_Tr	SOM01.2 Trace Volatile Organics / In-Lab			Total	Wet
200-7268-4	**BAQCTB-W-28825**	**9/28/2011 12:00:00 AM**	**Water**		
SOM01.2_Vol_Tr	SOM01.2 Trace Volatile Organics / In-Lab			Total	Wet
200-7268-5	**VHBLK01**	**9/30/2011 2:30:00 PM**	**Water**		
SOM01.2_Vol_Tr	SOM01.2 Trace Volatile Organics / In-Lab			Total	Wet

* Method on-hold

** Wet/Dry indicates whether the reported results will be corrected for moisture content, and based on sample Wet weight or Dry

METHODOLOGY SUMMARY

Laboratory:	TestAmerica Laboratories	Project No:	
Location:	South Burlington, Vermont	SDG No:	200-7268

VOA

Volatile Organics Trace - USEPA CLP SOM01.2

2A - FORM II VOA-1

WATER VOLATILE DEUTERATED MONITORING COMPOUND RECOVERY

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: BARNES Mod. Ref No.: SDG No.: 200-7268

Level: (TRACE or LOW) TRACE

	EPA SAMPLE NO.	VDMC1 (VCL) #	VDMC2 (CLA) #	VDMC3 (DCE) #	VDMC4 (BUT) #	VDMC5 (CLF) #	VDMC6 (DCA) #	VDMC7 (BEN) #
01	VBLKDG	113	123	84	107	91	96	92
02	BAQCTB-W-28825	107	119	85	106	91	94	92
03	BAMW13S-W-2881 4	104	114	82	191 *	90	94	89
04	BAMW145-W-2881 6	97	108	78	180 *	83	87	84
05	BAMW17-W-28817	108	116	86	189 *	90	92	90
06	VHBLK01	100	110	79	101	85	93	84

			QC LIMITS
VDMC1	(VCL)	= Vinyl Chloride-d3	(65-131)
VDMC2	(CLA)	= Chloroethane-d5	(71-131)
VDMC3	(DCE)	= 1,1-Dichloroethene-d2	(55-104)
VDMC4	(BUT)	= 2-Butanone-d5	(49-155)
VDMC5	(CLF)	= Chloroform-d	(78-121)
VDMC6	(DCA)	= 1,2-Dichloroethane-d4	(78-129)
VDMC7	(BEN)	= Benzene-d6	(77-124)

Column to be used to flag recovery values

* Values outside of contract required QC limits

2B - FORM II VOA-2

WATER VOLATILE DEUTERATED MONITORING COMPOUND RECOVERY

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: BARNES Mod. Ref No.: SDG No.: 200-7268

Level: (TRACE or LOW) TRACE

	EPA SAMPLE NO.	VDMC8 (DPA) #	VDMC9 (TOL) #	VDMC10 (TDP) #	VDMC11 (HEX) #	VDMC12 (TCA) #	VDMC13 (DCZ) #	OTHER	TOT OUT
01	VBLKDG	96	89	86	93	92	96		0
02	BAQCTB-W-28825	97	89	88	95	94	90		0
03	BAMW13S-W-2881 4	94	87	82	177 *	88	90		2
04	BAMW145-W-2881 6	88	82	76	171 *	82	88		2
05	BAMW17-W-28817	93	87	81	174 *	89	93		2
06	VHBLK01	88	81	76	81	85	92		0

			QC LIMITS
VDMC8	(DPA)	= 1,2-Dichloropropane-d6	(79-124)
VDMC9	(TOL)	= Toluene-d8	(77-121)
VDMC10	(TDP)	= trans-1,3-Dichloropropene-d4	(73-121)
VDMC11	(HEX)	= 2-Hexanone-d5	(28-135)
VDMC12	(TCA)	= 1,1,2,2-Tetrachloroethane-d2	(73-125)
VDMC13	(DCZ)	= 1,2-Dichlorobenzene-d4	(80-131)

Column to be used to flag recovery values

* Values outside of contract required QC limits

Report 1,4-Dioxane-d8 for Low-Medium VOA analysis only

4A - FORM IV VOA
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

VBLKDG

Lab Name: TESTAMERICA BURLINGTON   Contract: 8E-00302

Lab Code: STLV   Case No.: BARNES   Mod. Ref No.:   SDG No.: 200-7268

Lab File ID: DHSD03.D   Lab Sample ID: MB 200-26126/3

Instrument ID: D.i

Matrix: (SOIL/SED/WATER) Water   Date Analyzed: 10/03/2011

Level: (TRACE or LOW/MED) TRACE   Time Analyzed: 0919

GC Column: DB-624   ID: 0.20 (mm)   Heated Purge: (Y/N) N

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	BAQCTB-W-288 25	200-7268-4	DHSD05.D	1010
02	BAMW13S-W-28 814	200-7268-1	DHSD06.D	1035
03	BAMW145-W-28 816	200-7268-2	DHSD07.D	1100
04	BAMW17-W-288 17	200-7268-3	DHSD08.D	1125
05	VHBLK01	200-7268-5	DHSD15.D	1456

COMMENTS:

5A - FORM V VOA
VOLATILE ORGANICS INSTRUMENT
PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

EPA SAMPLE NO.: BFBDB

Lab Name: TESTAMERICA BURLINGTON   Contract: 8E-00302

Lab Code: STLV   Case No.: BARNES   Mod. Ref No.: ______   SDG No.: 200-7268

Lab File Id: DHS02.D   BFB Injection Date: 09/22/2011

Instrument Id: D.i   BFB Injection Time: 0751

GC Column: DB-624   ID: 0.20   (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	20.6
75	30.0 - 80.0% of mass 95	43.2
95	Base peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	7.1
173	Less than 2.0% of mass 174	0.4 (0.6)1
174	50.0 - 120% of mass 95	71.4
175	5.0 - 9.0% of mass 174	5.1 (7.1)1
176	95.0 - 101% of mass 174	69.8 (97.7)1
177	5.0 - 9.0% of mass 176	4.5 (6.4)2

1 - Value is %mass 174   2 - Value is %mass 176

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD0.5DB	IC 200-25802/5	DHS05.D	09/22/2011	0848
02	VSTD001DB	IC 200-25802/6	DHS06.D	09/22/2011	0913
03	VSTD005DB	ICIS 200-25802/7	DHS07.D	09/22/2011	0938
04	VSTD010DB	IC 200-25802/8	DHS08.D	09/22/2011	1002
05	VSTD020DB	IC 200-25802/9	DHS09.D	09/22/2011	1038

5A - FORM V VOA
VOLATILE ORGANICS INSTRUMENT
PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

EPA SAMPLE NO.: BFBDG

Lab Name: TESTAMERICA BURLINGTON   Contract: 8E-00302

Lab Code: STLV   Case No.: BARNES   Mod. Ref No.: ______   SDG No.: 200-7268

Lab File Id: DHSD01.D   BFB Injection Date: 10/03/2011

Instrument Id: D.i   BFB Injection Time: 0835

GC Column: DB-624   ID: 0.20   (mm)

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of mass 95	25.7
75	30.0 - 80.0% of mass 95	42.9
95	Base peak, 100% relative abundance	100
96	5.0 - 9.0% of mass 95	6.8
173	Less than 2.0% of mass 174	0.4 (0.5)1
174	50.0 - 120% of mass 95	82.2
175	5.0 - 9.0% of mass 174	5.5 (6.7)1
176	95.0 - 101% of mass 174	78.2 (95.2)1
177	5.0 - 9.0% of mass 176	4.7 (6.0)2

1 - Value is %mass 174   2 - Value is %mass 176

	EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTD005DG	CCVIS 200-26126/2	DHSD02.D	10/03/2011	0854
02	VBLKDG	MB 200-26126/3	DHSD03.D	10/03/2011	0919
03	BAQCTB-W-28825	200-7268-4	DHSD05.D	10/03/2011	1010
04	BAMW13S-W-28814	200-7268-1	DHSD06.D	10/03/2011	1035
05	BAMW145-W-28816	200-7268-2	DHSD07.D	10/03/2011	1100
06	BAMW17-W-28817	200-7268-3	DHSD08.D	10/03/2011	1125
07	VHBLK01	200-7268-5	DHSD15.D	10/03/2011	1456
08	VSTD005GD	CCVC 200-26126/16	DHSD16.D	10/03/2011	1521

8A - FORM VIII VOA
VOLATILE INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: BARNES Mod. Ref No.: SDG No.: 200-7268

GC Column: DB-624 ID: 0.20 (mm) Init. Calib. Date(s): 09/22/2011 09/22/2011

EPA Sample No.(VSTD#####): VSTD005DG Date Analyzed: 10/03/2011

Lab File ID (Standard): DHSD02.D Time Analyzed: 0854

Instrument ID: D.i Heated Purge: (Y/N) N

		IS1 (CBZ) AREA #	RT #	IS2 (DFB) AREA #	RT #	IS3 (DCB) AREA #	RT #
	12 HOUR STD	203303	8.73	239176	5.37	100305	11.56
	UPPER LIMIT	284624	9.06	334846	5.70	140427	11.89
	LOWER LIMIT	121982	8.40	143506	5.04	60183	11.23
	EPA SAMPLE NO.						
01	VBLKDG	192667	8.73	223517	5.37	82863	11.56
02	BAQCTB-W-28825	175366	8.73	204518	5.37	78960	11.56
03	BAMW13S-W-2881 4	174948	8.73	205714	5.37	72759	11.56
04	BAMW145-W-2881 6	184082	8.73	216076	5.37	75905	11.56
05	BAMW17-W-28817	177767	8.73	204092	5.37	72714	11.56
06	VHBLK01	163937	8.73	184959	5.37	66069	11.56

IS1 (CBZ) = Chlorobenzene-d5
IS2 (DFB) = 1,4-Difluorobenzene
IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = 140% (Trace Volatiles) of internal standard area
AREA LOWER LIMIT = 60% (Trace Volatiles) of internal standard area
RT UPPER LIMIT = + 0.33 (Trace Volatiles) minutes of internal standard RT
RT LOWER LIMIT = - 0.33 (Trace Volatiles) minutes of internal standard RT

Column used to flag values outside contract required QC limits with an asterisk.

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

EPA SAMPLE NO.

BAMW13S-W-28814

Lab Name: TESTAMERICA BURLINGTON   Contract: 8E-00302

Lab Code: STLV   Case No.: BARNES   Mod. Ref No.:   SDG No.: 200-7268

Matrix: (SOIL/SED/WATER) Water   Lab Sample ID: 200-7268-1

Sample wt/vol: 25.0 (g/mL) mL   Lab File ID: DHSD06.D

Level: (TRACE/LOW/MED) TRACE   Date Received: 09/30/2011

% Moisture: not dec.   Date Analyzed: 10/03/2011

GC Column: DB-624 ID: 0.20 (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	1.9	J B
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	0.69	
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	8.3	
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

SOM01.2 (4/2007)

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

EPA SAMPLE NO.
BAMW13S-W-28814

Lab Name: TESTAMERICA BURLINGTON   Contract: 8E-00302

Lab Code: STLV   Case No.: BARNES   Mod. Ref No.: ______   SDG No.: 200-7268

Matrix: (SOIL/SED/WATER) Water   Lab Sample ID: 200-7268-1

Sample wt/vol: 25.0 (g/mL) mL   Lab File ID: DHSD06.D

Level: (TRACE/LOW/MED) TRACE   Date Received: 09/30/2011

% Moisture: not dec. ______   Date Analyzed: 10/03/2011

GC Column: DB-624   ID: 0.20 (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	0.026	J B
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

SOM01.2 (4/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BAMW13S-W-28814

Lab Name: TESTAMERICA BURLINGTON   Contract: 8E-00302

Lab Code: STLV   Case No.: BARNES   Mod. Ref No.: ______   SDG No.: 200-7268

Matrix: (SOIL/SED/WATER) Water   Lab Sample ID: 200-7268-1

Sample wt/vol: 25.0 (g/mL) mL   Lab File ID: DHSD06.D

Level: (TRACE or LOW/MED) TRACE   Date Received: 09/30/2011

% Moisture: not dec. ______   Date Analyzed: 10/03/2011

GC Column: DB-624 ID: 0.20 (mm)   Dilution Factor: 1.0

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

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L   Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown	6.69	3.0	B X J
02	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

SOM01.2 (4/2007)

10/06/2011

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAMW145-W-28816

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: BARNES Mod. Ref No.: SDG No.: 200-7268

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 200-7268-2

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DHSD07.D

Level: (TRACE/LOW/MED) TRACE Date Received: 09/30/2011

% Moisture: not dec. Date Analyzed: 10/03/2011

GC Column: DB-624 ID: 0.20 (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	0.21	J
71-55-6	1,1,1-Trichloroethane	0.50	U
110-82-7	Cyclohexane	0.50	U
56-23-5	Carbon tetrachloride	2.8	
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

SOM01.2 (4/2007)

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

EPA SAMPLE NO.

BAMW145-W-28816

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: BARNES Mod. Ref No.: SDG No.: 200-7268

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 200-7268-2

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DHSD07.D

Level: (TRACE/LOW/MED) TRACE Date Received: 09/30/2011

% Moisture: not dec. Date Analyzed: 10/03/2011

GC Column: DB-624 ID: 0.20 (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	0.0071	J B
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

SOM01.2 (4/2007)

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BAMW145-W-28816

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: BARNES Mod. Ref No.: SDG No.: 200-7268

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 200-7268-2

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DHSD07.D

Level: (TRACE or LOW/MED) TRACE Date Received: 09/30/2011

% Moisture: not dec. Date Analyzed: 10/03/2011

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

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

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown	6.69	2.8	B X J
02	E966796 [1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (4/2007)

10/06/2011

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

EPA SAMPLE NO.

BAMW17-W-28817

Lab Name: TESTAMERICA BURLINGTON   Contract: 8E-00302

Lab Code: STLV   Case No.: BARNES   Mod. Ref No.:   SDG No.: 200-7268

Matrix: (SOIL/SED/WATER) Water   Lab Sample ID: 200-7268-3

Sample wt/vol: 25.0 (g/mL) mL   Lab File ID: DHSD08.D

Level: (TRACE/LOW/MED) TRACE   Date Received: 09/30/2011

% Moisture: not dec.   Date Analyzed: 10/03/2011

GC Column: DB-624 ID: 0.20 (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	0.33	J
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.

BAMW17-W-28817

Lab Name: TESTAMERICA BURLINGTON   Contract: 8E-00302

Lab Code: STLV   Case No.: BARNES   Mod. Ref No.: ______   SDG No.: 200-7268

Matrix: (SOIL/SED/WATER) Water   Lab Sample ID: 200-7268-3

Sample wt/vol: 25.0 (g/mL) mL   Lab File ID: DHSD08.D

Level: (TRACE/LOW/MED) TRACE   Date Received: 09/30/2011

% Moisture: not dec. ______   Date Analyzed: 10/03/2011

GC Column: DB-624 ID: 0.20 (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	0.0070	J B
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

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BAMW17-W-28817

Lab Name: TESTAMERICA BURLINGTON   Contract: 8E-00302

Lab Code: STLV   Case No.: BARNES   Mod. Ref No.:   SDG No.: 200-7268

Matrix: (SOIL/SED/WATER) Water   Lab Sample ID: 200-7268-3

Sample wt/vol: 25.0 (g/mL) mL   Lab File ID: DHSD08.D

Level: (TRACE or LOW/MED) TRACE   Date Received: 09/30/2011

% Moisture: not dec.   Date Analyzed: 10/03/2011

GC Column: DB-624 ID: 0.20 (mm)   Dilution Factor: 1.0

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

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L   Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown	6.69	3.1	B X J
02	E966796 [1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (4/2007)

10/06/2011

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

BAQCTB-W-28825

Lab Name: TESTAMERICA BURLINGTON   Contract: 8E-00302

Lab Code: STLV   Case No.: BARNES   Mod. Ref No.:   SDG No.: 200-7268

Matrix: (SOIL/SED/WATER) Water   Lab Sample ID: 200-7268-4

Sample wt/vol: 25.0 (g/mL) mL   Lab File ID: DHSD05.D

Level: (TRACE/LOW/MED) TRACE   Date Received: 09/30/2011

% Moisture: not dec.   Date Analyzed: 10/03/2011

GC Column: DB-624   ID: 0.20 (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	4.6	J B
75-15-0	Carbon disulfide	0.056	J B
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	0.078	J
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.

BAQCTB-W-28825

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: BARNES Mod. Ref No.: SDG No.: 200-7268

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: 200-7268-4

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DHSD05.D

Level: (TRACE/LOW/MED) TRACE Date Received: 09/30/2011

% Moisture: not dec. Date Analyzed: 10/03/2011

GC Column: DB-624 ID: 0.20 (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	0.53	B
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	0.030	J
95-47-6	o-Xylene	0.024	J
179601-23-1	m,p-Xylene	0.085	J
100-42-5	Styrene	0.18	J
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

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

BAQCTB-W-28825

Lab Name: TESTAMERICA BURLINGTON   Contract: 8E-00302

Lab Code: STLV   Case No.: BARNES   Mod. Ref No.:   SDG No.: 200-7268

Matrix: (SOIL/SED/WATER) Water   Lab Sample ID: 200-7268-4

Sample wt/vol: 25.0 (g/mL) mL   Lab File ID: DHSD05.D

Level: (TRACE or LOW/MED) TRACE   Date Received: 09/30/2011

% Moisture: not dec.   Date Analyzed: 10/03/2011

GC Column: DB-624 ID: 0.20 (mm)   Dilution Factor: 1.0

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

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L   Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown	6.69	3.2	B X J
02	E966796 [1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (4/2007)

10/06/2011

6A - FORM VI VOA-1

VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: BARNES Mod. Ref No.: SDG No.: 200-7268

Instrument ID: D.i Calibration Date(s): 09/22/2011 09/22/2011

Heated Purge: (Y/N) N Calibration Time(s): 0848 1038

Purge Volume: 25.0 (mL)

GC Column: DB-624 ID: 0.20 (mm) Length: 25 (m)

LAB FILE ID:	RRF0.5 = DHS05.D	RRF1.0 = DHS06.D
RRF5.0 = DHS07.D	RRF10 = DHS08.D	RRF20 = DHS09.D

COMPOUND	RRF0.5	RRF1.0	RRF5.0	RRF10	RRF20	$\overline{RRF}$	%RSD
Dichlorodifluoromethane	0.507	0.475	0.480	0.489	0.487	0.488	2.5
Chloromethane	0.801	0.648	0.594	0.593	0.584	0.644	14.2
Vinyl chloride	0.452	0.427	0.424	0.442	0.437	0.436	2.6
Bromomethane	0.206	0.200	0.187	0.193	0.193	0.196	3.7
Chloroethane	0.267	0.214	0.205	0.221	0.215	0.224	11.0
Trichlorofluoromethane	0.542	0.522	0.528	0.542	0.542	0.535	1.7
1,1-Dichloroethene	0.257	0.254	0.260	0.261	0.253	0.257	1.3
1,1,2-Trichloro-1,2,2-trifluoroethane	0.304	0.307	0.305	0.308	0.299	0.305	1.2
Acetone	0.029	0.026	0.022	0.023	0.021	0.024	13.5
Carbon disulfide	0.758	0.658	0.663	0.696	0.711	0.697	5.8
Methyl acetate	0.066	0.060	0.057	0.062	0.058	0.060	5.5
Methylene Chloride	0.226	0.213	0.209	0.221	0.209	0.216	3.5
trans-1,2-Dichloroethene	0.305	0.308	0.304	0.321	0.315	0.311	2.3
Methyl tert-butyl ether	0.373	0.361	0.364	0.385	0.354	0.367	3.3
1,1-Dichloroethane	0.600	0.585	0.592	0.617	0.608	0.600	2.1
cis-1,2-Dichloroethene	0.330	0.299	0.305	0.317	0.312	0.313	3.7
2-Butanone	0.040	0.040	0.039	0.042	0.039	0.040	3.7
Bromochloromethane	0.113	0.103	0.103	0.107	0.102	0.106	4.1
Chloroform	0.500	0.463	0.480	0.502	0.488	0.487	3.3
1,1,1-Trichloroethane	0.547	0.528	0.530	0.567	0.578	0.550	4.0
Cyclohexane	0.846	0.839	0.869	0.918	0.917	0.878	4.3
Carbon tetrachloride	0.509	0.475	0.509	0.535	0.547	0.515	5.4
Benzene	1.568	1.515	1.482	1.544	1.514	1.525	2.2
1,2-Dichloroethane	0.272	0.252	0.271	0.279	0.268	0.268	3.7
Trichloroethene	0.394	0.385	0.377	0.396	0.397	0.390	2.2
Methylcyclohexane	0.721	0.692	0.715	0.753	0.755	0.727	3.7

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

SOM01.2 (4/2007)

10/06/2011

6B - FORM VI VOA-2
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: BARNES Mod. Ref No.: SDG No.: 200-7268

Instrument ID: D.i Calibration Date(s): 09/22/2011 09/22/2011

Heated Purge: (Y/N) N Calibration Time(s): 0848 1038

Purge Volume: 25.0 (mL)

GC Column: DB-624 ID: 0.20 (mm) Length: 25 (m)

LAB FILE ID:		
	RRF0.5 = DHS05.D	RRF1.0 = DHS06.D
RRF5.0 = DHS07.D	RRF10 = DHS08.D	RRF20 = DHS09.D

COMPOUND	RRF0.5	RRF1.0	RRF5.0	RRF10	RRF20	$\overline{RRF}$	%RSD
1,2-Dichloropropane	0.366	0.346	0.353	0.373	0.363	0.360	3.0
Bromodichloromethane	0.299	0.296	0.319	0.345	0.342	0.320	7.2
cis-1,3-Dichloropropene	0.383	0.394	0.423	0.461	0.445	0.421	7.8
4-Methyl-2-pentanone	0.104	0.106	0.116	0.125	0.116	0.113	7.8
Toluene	1.677	1.641	1.626	1.715	1.684	1.669	2.1
trans-1,3-Dichloropropene	0.266	0.275	0.304	0.330	0.317	0.298	9.1
1,1,2-Trichloroethane	0.169	0.158	0.162	0.169	0.158	0.163	3.2
Tetrachloroethene	0.322	0.307	0.308	0.321	0.319	0.315	2.3
2-Hexanone	0.072	0.074	0.081	0.086	0.078	0.078	6.9
Dibromochloromethane	0.170	0.166	0.183	0.206	0.203	0.186	10.0
1,2-Dibromoethane	0.146	0.143	0.146	0.157	0.149	0.148	3.4
Chlorobenzene	1.087	1.060	1.019	1.063	1.036	1.053	2.5
Ethylbenzene	1.819	1.784	1.862	1.965	1.939	1.874	4.1
o-Xylene	0.675	0.660	0.704	0.746	0.721	0.701	4.9
m,p-Xylene	0.741	0.722	0.754	0.796	0.782	0.759	3.9
Styrene	0.934	0.954	1.052	1.115	1.078	1.027	7.7
Bromoform	0.105	0.123	0.136	0.150	0.153	0.133	14.9
Isopropylbenzene	1.782	1.820	1.941	2.045	2.033	1.924	6.3
1,1,2,2-Tetrachloroethane	0.150	0.146	0.151	0.164	0.149	0.152	4.5
1,3-Dichlorobenzene	1.703	1.573	1.651	1.731	1.687	1.669	3.6
1,4-Dichlorobenzene	1.858	1.629	1.627	1.691	1.626	1.686	5.9
1,2-Dichlorobenzene	1.450	1.331	1.370	1.417	1.352	1.384	3.5
1,2-Dibromo-3-Chloropropane	0.043	0.036	0.038	0.043	0.042	0.040	8.2
1,2,4-Trichlorobenzene	0.793	0.688	0.756	0.806	0.785	0.766	6.1
1,2,3-Trichlorobenzene	0.568	0.536	0.576	0.603	0.584	0.573	4.3

6C - FORM VI VOA-3
VOLATILE ORGANICS INITIAL CALIBRATION DATA

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: BARNES Mod. Ref No.: SDG No.: 200-7268

Instrument ID: D.i Calibration Date(s): 09/22/2011 09/22/2011

Heated Purge: (Y/N) N Calibration Time(s): 0848 1038

Purge Volume: 25.0 (mL)

GC Column: DB-624 ID: 0.20 (mm) Length: 25 (m)

LAB FILE ID:	RRF0.5 = DHS05.D	RRF1.0 = DHS06.D
RRF5.0 = DHS07.D	RRF10 = DHS08.D	RRF20 = DHS09.D

COMPOUND	RRF0.5	RRF1.0	RRF5.0	RRF10	RRF20	$\overline{RRF}$	%RSD
Vinyl Chloride-d3	0.431	0.382	0.368	0.377	0.370	0.385	6.8
Chloroethane-d5	0.247	0.237	0.229	0.231	0.225	0.234	3.6
1,1-Dichloroethene-d2	0.649	0.614	0.609	0.633	0.620	0.625	2.6
2-Butanone-d5	0.040	0.037	0.039	0.041	0.036	0.039	5.0
Chloroform-d	0.505	0.487	0.489	0.507	0.495	0.497	1.8
1,2-Dichloroethane-d4	0.210	0.195	0.193	0.197	0.188	0.196	4.1
Benzene-d6	1.524	1.480	1.440	1.494	1.481	1.484	2.0
1,2-Dichloropropane-d6	0.379	0.352	0.354	0.379	0.368	0.366	3.6
Toluene-d8	1.466	1.376	1.393	1.459	1.434	1.426	2.8
trans-1,3-Dichloropropene-d4	0.266	0.247	0.262	0.287	0.281	0.269	5.9
2-Hexanone-d5	0.031	0.034	0.038	0.042	0.038	0.037	11.1
1,1,2,2-Tetrachloroethane-d2	0.156	0.149	0.151	0.161	0.149	0.153	3.6
1,2-Dichlorobenzene-d4	0.910	0.811	0.804	0.833	0.798	0.831	5.5

Report 1,4-Dioxane-d8 for Low-Medium VOA analysis only

7A - FORM VII VOA-1
VOLATILE CONTINUING CALIBRATION DATA

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: BARNES Mod. Ref No.: SDG No.: 200-7268

Instrument ID: D.i Calibration Date: 10/03/2011 Time: 0854

Lab File Id: DHSD02.D Init. Calib. Date(s): 09/22/2011 09/22/2011

EPA Sample No.(VSTD####): VSTD005DG Init. Calib. Time(s): 0848 1038

Heated Purge: (Y/N) N GC Column: DB-624 ID: 0.20 (mm) Length: 25 (m)

Purge Volume: 25.0 (mL)

COMPOUND	$\overline{RRF}$	RRF5.0	MIN RRF	%D	MAX %D
Dichlorodifluoromethane	0.488	0.465	0.010	-4.6	40.0
Chloromethane	0.644	0.678	0.010	5.3	40.0
Vinyl chloride	0.436	0.515	0.010	17.9	30.0
Bromomethane	0.196	0.172	0.010	-12.3	30.0
Chloroethane	0.224	0.264	0.010	17.5	40.0
Trichlorofluoromethane	0.535	0.555	0.010	3.6	40.0
1,1-Dichloroethene	0.257	0.297	0.010	15.6	30.0
1,1,2-Trichloro-1,2,2-trifluoroethane	0.305	0.338	0.010	10.7	40.0
Acetone	0.024	0.023	0.010	-3.1	40.0
Carbon disulfide	0.697	0.798	0.010	14.5	40.0
Methyl acetate	0.060	0.064	0.010	6.0	40.0
Methylene Chloride	0.216	0.221	0.010	2.4	40.0
trans-1,2-Dichloroethene	0.311	0.295	0.010	-5.0	40.0
Methyl tert-butyl ether	0.367	0.282	0.010	-23.3	40.0
1,1-Dichloroethane	0.600	0.582	0.010	-3.1	30.0
cis-1,2-Dichloroethene	0.313	0.285	0.010	-9.0	40.0
2-Butanone	0.040	0.037	0.010	-8.2	40.0
Bromochloromethane	0.106	0.092	0.010	-13.4	30.0
Chloroform	0.487	0.444	0.010	-8.8	30.0
1,1,1-Trichloroethane	0.550	0.475	0.010	-13.5	30.0
Cyclohexane	0.878	0.875	0.010	-0.4	40.0
Carbon tetrachloride	0.515	0.447	0.010	-13.1	30.0
Benzene	1.525	1.415	0.010	-7.2	30.0
1,2-Dichloroethane	0.268	0.241	0.010	-10.0	30.0
Trichloroethene	0.390	0.336	0.010	-13.8	30.0
Methylcyclohexane	0.727	0.719	0.010	-1.1	40.0

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

SOM01.2 (4/2007)

7B - FORM VII VOA-2
VOLATILE CONTINUING CALIBRATION DATA

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: BARNES Mod. Ref No.: SDG No.: 200-7268

Instrument ID: D.i Calibration Date: 10/03/2011 Time: 0854

Lab File Id: DHSD02.D Init. Calib. Date(s): 09/22/2011 09/22/2011

EPA Sample No.(VSTD####): VSTD005DG Init. Calib. Time(s): 0848 1038

Heated Purge: (Y/N) N GC Column: DB-624 ID: 0.20 (mm) Length: 25 (m)

Purge Volume: 25.0 (mL)

COMPOUND	$\overline{RRF}$	RRF5.0	MIN RRF	%D	MAX %D
1,2-Dichloropropane	0.360	0.347	0.010	-3.7	40.0
Bromodichloromethane	0.320	0.274	0.010	-14.3	30.0
cis-1,3-Dichloropropene	0.421	0.372	0.010	-11.6	30.0
4-Methyl-2-pentanone	0.113	0.105	0.010	-7.6	40.0
Toluene	1.669	1.531	0.010	-8.3	30.0
trans-1,3-Dichloropropene	0.298	0.262	0.010	-12.3	30.0
1,1,2-Trichloroethane	0.163	0.140	0.010	-14.6	30.0
Tetrachloroethene	0.315	0.286	0.010	-9.3	30.0
2-Hexanone	0.078	0.071	0.010	-9.0	40.0
Dibromochloromethane	0.186	0.157	0.010	-15.7	30.0
1,2-Dibromoethane	0.148	0.120	0.010	-18.8	40.0
Chlorobenzene	1.053	0.950	0.010	-9.7	30.0
Ethylbenzene	1.874	1.755	0.010	-6.4	30.0
o-Xylene	0.701	0.681	0.010	-2.9	30.0
m,p-Xylene	0.759	0.722	0.010	-4.8	30.0
Styrene	1.027	0.966	0.010	-5.9	30.0
Bromoform	0.133	0.114	0.010	-14.8	30.0
Isopropylbenzene	1.924	1.892	0.010	-1.7	40.0
1,1,2,2-Tetrachloroethane	0.152	0.136	0.010	-10.6	30.0
1,3-Dichlorobenzene	1.669	1.454	0.010	-12.9	30.0
1,4-Dichlorobenzene	1.686	1.451	0.010	-14.0	30.0
1,2-Dichlorobenzene	1.384	1.219	0.010	-11.9	30.0
1,2-Dibromo-3-Chloropropane	0.040	0.029	0.010	-27.7	40.0
1,2,4-Trichlorobenzene	0.766	0.626	0.010	-18.2	30.0
1,2,3-Trichlorobenzene	0.573	0.460	0.010	-19.7	30.0

7C - FORM VII VOA-3
VOLATILE CONTINUING CALIBRATION DATA

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: BARNES Mod. Ref No.: SDG No.: 200-7268

Instrument ID: D.i Calibration Date: 10/03/2011 Time: 0854

Lab File Id: DHSD02.D Init. Calib. Date(s): 09/22/2011 09/22/2011

EPA Sample No.(VSTD####): VSTD005DG Init. Calib. Time(s): 0848 1038

Heated Purge: (Y/N) N GC Column: DB-624 ID: 0.20 (mm) Length: 25 (m)

Purge Volume: 25.0 (mL)

COMPOUND	RRF	RRF5.0	MIN RRF	%D	MAX %D
Vinyl Chloride-d3	0.385	0.446	0.010	15.6	30.0
Chloroethane-d5	0.234	0.281	0.010	20.1	40.0
1,1-Dichloroethene-d2	0.625	0.686	0.010	9.8	30.0
2-Butanone-d5	0.039	0.035	0.010	-9.2	40.0
Chloroform-d	0.497	0.447	0.010	-10.0	30.0
1,2-Dichloroethane-d4	0.196	0.167	0.010	-14.8	30.0
Benzene-d6	1.484	1.340	0.010	-9.7	30.0
1,2-Dichloropropane-d6	0.366	0.335	0.010	-8.5	40.0
Toluene-d8	1.426	1.297	0.010	-9.0	30.0
trans-1,3-Dichloropropene-d4	0.269	0.217	0.010	-19.3	30.0
2-Hexanone-d5	0.037	0.029	0.010	-21.6	40.0
1,1,2,2-Tetrachloroethane-d2	0.153	0.133	0.010	-13.2	30.0
1,2-Dichlorobenzene-d4	0.831	0.697	0.010	-16.1	30.0

Report 1,4-Dioxane-d8 for Low/Medium VOA analysis only

VOLATILE CONTINUING CALIBRATION DATA

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: BARNES Mod. Ref No.: SDG No.: 200-7268

Instrument ID: D.i Calibration Date: 10/03/2011 Time: 1521

Lab File Id: DHSD16.D Init. Calib. Date(s): 09/22/2011 09/22/2011

EPA Sample No.(VSTD####): VSTD005GD Init. Calib. Time(s): 0848 1038

Heated Purge: (Y/N) N GC Column: DB-624 ID: 0.20 (mm) Length: 25 (m)

Purge Volume: 25.0 (mL)

COMPOUND	$\overline{RRF}$	RRF5.0	MIN RRF	%D	MAX %D
Dichlorodifluoromethane	0.488	0.477	0.010	-2.2	50.0
Chloromethane	0.644	0.717	0.010	11.3	50.0
Vinyl chloride	0.436	0.516	0.100	18.2	50.0
Bromomethane	0.196	0.189	0.100	-3.2	50.0
Chloroethane	0.224	0.275	0.010	22.5	50.0
Trichlorofluoromethane	0.535	0.584	0.010	9.1	50.0
1,1-Dichloroethene	0.257	0.298	0.100	16.0	50.0
1,1,2-Trichloro-1,2,2-trifluoroethane	0.305	0.350	0.010	14.8	50.0
Acetone	0.024	0.030	0.010	25.7	50.0
Carbon disulfide	0.697	0.776	0.010	11.3	50.0
Methyl acetate	0.060	0.082	0.010	36.3	50.0
Methylene Chloride	0.216	0.242	0.010	12.4	50.0
trans-1,2-Dichloroethene	0.311	0.309	0.010	-0.6	50.0
Methyl tert-butyl ether	0.367	0.346	0.010	-5.7	50.0
1,1-Dichloroethane	0.600	0.611	0.200	1.8	50.0
cis-1,2-Dichloroethene	0.313	0.299	0.010	-4.5	50.0
2-Butanone	0.040	0.048	0.010	20.2	50.0
Bromochloromethane	0.106	0.100	0.050	-5.4	50.0
Chloroform	0.487	0.473	0.200	-2.7	50.0
1,1,1-Trichloroethane	0.550	0.455	0.100	-17.3	50.0
Cyclohexane	0.878	0.834	0.010	-5.0	50.0
Carbon tetrachloride	0.515	0.437	0.100	-15.1	50.0
Benzene	1.525	1.377	0.400	-9.7	50.0
1,2-Dichloroethane	0.268	0.285	0.100	6.4	50.0
Trichloroethene	0.390	0.319	0.300	-18.1	50.0
Methylcyclohexane	0.727	0.704	0.010	-3.2	50.0

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

7B - FORM VII VOA-2
VOLATILE CONTINUING CALIBRATION DATA

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: BARNES Mod. Ref No.: SDG No.: 200-7268

Instrument ID: D.i Calibration Date: 10/03/2011 Time: 1521

Lab File Id: DHSD16.D Init. Calib. Date(s): 09/22/2011 09/22/2011

EPA Sample No.(VSTD####): VSTD005GD Init. Calib. Time(s): 0848 1038

Heated Purge: (Y/N) N GC Column: DB-624 ID: 0.20 (mm) Length: 25 (m)

Purge Volume: 25.0 (mL)

COMPOUND	$\overline{RRF}$	RRF5.0	MIN RRF	%D	MAX %D
1,2-Dichloropropane	0.360	0.356	0.010	-1.2	50.0
Bromodichloromethane	0.320	0.294	0.200	-8.1	50.0
cis-1,3-Dichloropropene	0.421	0.388	0.200	-7.9	50.0
4-Methyl-2-pentanone	0.113	0.128	0.010	12.9	50.0
Toluene	1.669	1.540	0.400	-7.7	50.0
trans-1,3-Dichloropropene	0.298	0.280	0.100	-6.1	50.0
1,1,2-Trichloroethane	0.163	0.151	0.100	-7.7	50.0
Tetrachloroethene	0.315	0.285	0.100	-9.8	50.0
2-Hexanone	0.078	0.089	0.010	13.8	50.0
Dibromochloromethane	0.186	0.183	0.100	-1.2	50.0
1,2-Dibromoethane	0.148	0.134	0.010	-9.8	50.0
Chlorobenzene	1.053	0.984	0.500	-6.6	50.0
Ethylbenzene	1.874	1.759	0.100	-6.1	50.0
o-Xylene	0.701	0.690	0.300	-1.6	50.0
m,p-Xylene	0.759	0.743	0.300	-2.1	50.0
Styrene	1.027	1.042	0.300	1.5	50.0
Bromoform	0.133	0.130	0.050	-2.7	50.0
Isopropylbenzene	1.924	1.855	0.010	-3.6	50.0
1,1,2,2-Tetrachloroethane	0.152	0.158	0.100	4.2	50.0
1,3-Dichlorobenzene	1.669	1.417	0.400	-15.1	50.0
1,4-Dichlorobenzene	1.686	1.516	0.400	-10.1	50.0
1,2-Dichlorobenzene	1.384	1.290	0.400	-6.8	50.0
1,2-Dibromo-3-Chloropropane	0.040	0.034	0.010	-16.4	50.0
1,2,4-Trichlorobenzene	0.766	0.609	0.200	-20.4	50.0
1,2,3-Trichlorobenzene	0.573	0.485	0.200	-15.5	50.0

7C - FORM VII VOA-3
VOLATILE CONTINUING CALIBRATION DATA

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: BARNES Mod. Ref No.: ______ SDG No.: 200-7268

Instrument ID: D.i Calibration Date: 10/03/2011 Time: 1521

Lab File Id: DHSD16.D Init. Calib. Date(s): 09/22/2011 09/22/2011

EPA Sample No.(VSTD####): VSTD005GD Init. Calib. Time(s): 0848 1038

Heated Purge: (Y/N) N GC Column: DB-624 ID: 0.20 (mm) Length: 25 (m)

Purge Volume: 25.0 (mL)

COMPOUND	$\overline{RRF}$	RRF5.0	MIN RRF	%D	MAX %D
Vinyl Chloride-d3	0.385	0.429	0.010	11.2	50.0
Chloroethane-d5	0.234	0.279	0.010	19.4	50.0
1,1-Dichloroethene-d2	0.625	0.719	0.010	15.0	50.0
2-Butanone-d5	0.039	0.043	0.010	12.1	50.0
Chloroform-d	0.497	0.481	0.010	-3.1	50.0
1,2-Dichloroethane-d4	0.196	0.194	0.010	-1.5	50.0
Benzene-d6	1.484	1.315	0.010	-11.4	50.0
1,2-Dichloropropane-d6	0.366	0.342	0.010	-6.7	50.0
Toluene-d8	1.426	1.292	0.010	-9.4	50.0
trans-1,3-Dichloropropene-d4	0.269	0.232	0.010	-13.5	50.0
2-Hexanone-d5	0.037	0.035	0.010	-4.3	50.0
1,1,2,2-Tetrachloroethane-d2	0.153	0.160	0.010	4.2	50.0
1,2-Dichlorobenzene-d4	0.831	0.747	0.010	-10.2	50.0

Report 1,4-Dioxane-d8 for Low/Medium VOA analysis only

1A - FORM I VOA-1

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLKDG

Lab Name: TESTAMERICA BURLINGTON Contract: 8E-00302

Lab Code: STLV Case No.: BARNES Mod. Ref No.: SDG No.: 200-7268

Matrix: (SOIL/SED/WATER) Water Lab Sample ID: MB 200-26126/3

Sample wt/vol: 25.0 (g/mL) mL Lab File ID: DHSD03.D

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

% Moisture: not dec. Date Analyzed: 10/03/2011

GC Column: DB-624 ID: 0.20 (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	2.8	J
75-15-0	Carbon disulfide	0.10	J
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.

VBLKDG

Lab Name: TESTAMERICA BURLINGTON   Contract: 8E-00302

Lab Code: STLV   Case No.: BARNES   Mod. Ref No.: ______   SDG No.: 200-7268

Matrix: (SOIL/SED/WATER) Water   Lab Sample ID: MB 200-26126/3

Sample wt/vol: 25.0 (g/mL) mL   Lab File ID: DHSD03.D

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

% Moisture: not dec. ______   Date Analyzed: 10/03/2011

GC Column: DB-624   ID: 0.20 (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	0.0087	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	0.030	J
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	0.057	J
87-61-6	1,2,3-Trichlorobenzene	0.50	U

SOM01.2 (4/2007)

10/06/2011

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKDG

Lab Name: TESTAMERICA BURLINGTON | Contract: 8E-00302

Lab Code: STLV | Case No.: BARNES | Mod. Ref No.: | SDG No.: 200-7268

Matrix: (SOIL/SED/WATER) Water | Lab Sample ID: MB 200-26126/3

Sample wt/vol: 25.0 (g/mL) mL | Lab File ID: DHSD03.D

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

% Moisture: not dec. | Date Analyzed: 10/03/2011

GC Column: DB-624 ID: 0.20 (mm) | Dilution Factor: 1.0

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

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L | Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown	6.69	3.2	X J
02	E966796 [1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (4/2007)

10/06/2011

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.: BARNES   Mod. Ref No.:   SDG No.: 200-7268

Matrix: (SOIL/SED/WATER) Water   Lab Sample ID: 200-7268-5

Sample wt/vol: 25.0 (g/mL) mL   Lab File ID: DHSD15.D

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

% Moisture: not dec.   Date Analyzed: 10/03/2011

GC Column: DB-624 ID: 0.20 (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 B
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

SOM01.2 (4/2007)

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.: BARNES   Mod. Ref No.:   SDG No.: 200-7268

Matrix: (SOIL/SED/WATER) Water   Lab Sample ID: 200-7268-5

Sample wt/vol: 25.0 (g/mL) mL   Lab File ID: DHSD15.D

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

% Moisture: not dec.   Date Analyzed: 10/03/2011

GC Column: DB-624   ID: 0.20 (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

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VHBLK01

Lab Name: TESTAMERICA BURLINGTON   Contract: 8E-00302

Lab Code: STLV   Case No.: BARNES   Mod. Ref No.:   SDG No.: 200-7268

Matrix: (SOIL/SED/WATER) Water   Lab Sample ID: 200-7268-5

Sample wt/vol: 25.0 (g/mL) mL   Lab File ID: DHSD15.D

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

% Moisture: not dec.   Date Analyzed: 10/03/2011

GC Column: DB-624 ID: 0.20 (mm)   Dilution Factor: 1.0

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

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L   Purge Volume: 25.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown	6.69	2.8	B X J
02	E966796 [1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (4/2007)

10/06/2011

Argonne NATIONAL LABORATORY

Environmental Science Division
Argonne National Laboratory
9700 South Cass Avenue, Bldg. 203
Argonne, IL 60439-4843
www.anl.gov