

Sitewide Monitoring at Agra, Kansas, June 2009

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

Disclaimer

This report was prepared as an account of work sponsored by an agency of the United States Government. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of document authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof, Argonne National Laboratory, or UChicago Argonne, LLC.

Sitewide Monitoring at Agra, Kansas, June 2009

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

June 2010



United States Department of Agriculture

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

Contents

Notation.....	iv
1 Introduction and Background	1-1
2 Sampling and Analysis Activities.....	2-1
2.1 Monitoring Well Sampling and Analyses.....	2-1
2.2 Measurement of Groundwater Levels.....	2-3
2.3 Handling and Disposal of Investigation-Derived Waste	2-3
2.4 Quality Control for Sample Collection, Handling, and Analysis	2-3
3 Results and Discussion	3-1
3.1 Analytical Results for Volatile Organic Compounds in Groundwater Samples and Lateral Distribution of the Contaminants.....	3-1
3.2 Groundwater Level Data.....	3-2
4 Future Actions.....	4-1
5 References.....	5-1
Appendix A: <i>Joint Work Plan for Sitewide Monitoring, Agra, Kansas</i>	A-1
Appendix B: Sequence of Activities during the May-June 2009 Sitewide Monitoring Event and Field Measurements on Groundwater Samples	B-1
Appendix C: Data from Pace Analytical Services for Wastewater Sample.....	C-1
Appendix D: Quality Control Data.....	D-1

Figures

2.1	Proposed locations for joint yearly monitoring	2-5
2.2	Proposed locations of large-diameter borehole installations on the former CCC/USDA facility at Agra, with proposed locations for IM-related groundwater monitoring wells and soil gas monitoring wells	2-6
2.3	Permanent groundwater sampling locations and data logger locations at Agra, as of June 2009.....	2-7
3.1	Distribution of carbon tetrachloride in groundwater at Agra, as determined in May-June 2009 annual sitewide monitoring.....	3-5
3.2	Groundwater level elevations at Agra on July 30, 2009, as interpreted from automatically recorded data	3-6

Tables

1.1	Wells to be sampled in the annual sitewide monitoring and IM monitoring programs at Agra.....	1-3
3.1	Results of CCC/USDA annual sitewide groundwater monitoring and IM-related monitoring in May-June 2009.....	3-3
3.2	Summary of results of CCC/USDA sitewide groundwater monitoring in 2005-2009	3-4
B.1	Sequence of sitewide monitoring activities at Agra in May-June 2009	B-2
B.2	Field measurements made during sitewide monitoring in May-June	B-5
D.1	Quality control results for organic analyses of water samples by the purge-and-trap method at the AGEM Laboratory	D-2
D.2	Analytical results for quality control samples collected during sitewide monitoring in May-June 2009	D-4

Notation

AGEM	Applied Geosciences and Environmental Management
AS	air sparging
BGL	below ground level
°C	degree(s) Celsius
CCC	Commodity Credit Corporation
COC	chain of custody
DO	dissolved oxygen
EPA	U.S. Environmental Protection Agency
ft	foot (feet)
gal	gallon(s)
IM	interim measure
in.	inch(es)
KDHE	Kansas Department of Health and Environment
L	liter(s)
LDB	large-diameter borehole
µg/L	microgram(s) per liter
µS/cm	microsiemen(s) per centimeter
mg/L	milligram(s) per liter
mL	milliliter(s)
min	minute(s)
mV	millivolt(s)
ORP	oxidation-reduction potential
ppb	part(s) per billion
PWS	public water supply
SVE	soil vapor extraction
TOC	top of casing
USDA	U.S. Department of Agriculture
VOC	volatile organic compound

Sitewide Monitoring at Agra, Kansas, June 2009

1 Introduction and Background

In 1985, carbon tetrachloride was discovered in the groundwater at Agra, Kansas, during routine sampling of public water supply wells. Two of Agra's four public water supply wells contained low but detectable levels of carbon tetrachloride; the concentrations in wells PWS-3 and PWS-4 exceeded the maximum contaminant level. These wells were removed from service in 1986, although they remain available for uses other than drinking water. Other public wells, outside the area of contamination, supply drinking water for the city of Agra.

In 1987-2005, the Kansas Department of Health and Environment (KDHE) and the Commodity Credit Corporation of the U.S. Department of Agriculture (CCC/USDA) conducted investigations to delineate the contaminant plume and to identify source areas for the contamination — which results from the past use of grain fumigants containing carbon tetrachloride. Source areas were identified on the former CCC/USDA grain storage facility property and on the Producers Agricultural Marketing Association, Inc., property located to the south (Argonne 2006). The contaminant plume extends to the southeast, toward well PWS-3, from the identified source areas.

Both the CCC/USDA and Pro-Ag Marketing are currently implementing KDHE-approved interim measures (IMs). To address the contamination identified on its former property, the CCC/USDA is implementing a source control IM consisting of large-diameter boreholes (LDBs) coupled with soil vapor extraction (SVE) and air sparging (AS). Pro-Ag Marketing plans to use groundwater extraction to address the downgradient plume. The CCC/USDA and Pro-Ag completed installation of the two interim measures in May 2009 and August 2009, respectively. The performance and assessments of the effectiveness of the IMs are being reported separately by the responsible entities.

As part of the IM process, the KDHE (2008) requested the development of a joint sitewide groundwater monitoring plan to allow periodic assessment of the effectiveness of the separate IMs being implemented by the CCC/USDA and Pro-Ag, through monitoring of the level of contamination and the resulting change in both the extent and internal configuration of the downgradient plume. A *Joint Work Plan for Sitewide Monitoring* was developed by the CCC/USDA through its technical consultant, Argonne National Laboratory, and was reviewed,

approved, and signed by Pro-Ag Marketing and subsequently submitted to the KDHE on May 12, 2009.

The KDHE (2009a) provided comments on the *Joint Work Plan* on May 27, 2009, requesting submission of a revised version. To minimize delays, the KDHE allowed the CCC/USDA to proceed with the scheduled annual sampling proposed in the *Joint Work Plan*. The sampling was to be conducted according to the previously approved low-flow sampling methodology (Argonne 2009). Argonne conducted the first annual sampling event for the CCC/USDA on June 15-16, 2009. The finalized, signed version of the *Joint Work Plan* provided to the KDHE on November 9, 2009, is in Appendix A.

Table 1.1 lists the monitoring and public water supply wells to be sampled under the *Joint Work Plan*, plus the wells being sampled to monitor the respective IMs. The entity responsible for each monitoring element is indicated, along with well completion dates and well registration numbers.

The subject of this report is the initial sitewide groundwater sampling event that occurred on June 15-16, 2009, under the *Joint Work Plan*.

TABLE 1.1 Wells to be sampled in the annual sitewide monitoring and IM monitoring programs at Agra.

Sampling Responsibility	Well	Well Type	Casing Diameter (in.)	Depth (ft BGL)			Completion Date	Registration Number
				Screen Interval	Filter Pack Interval	Total		
<i>Joint sitewide monitoring — 11 wells</i>								
Joint	KMW02	Monitoring	2	57-97	20-97	99	9/30/1987	45580
Joint	MW-C	Monitoring	2	35-55	33-55	55	6/3/1997	118623
Joint	MW-H	Monitoring	2	43-53	41-53	53	6/5/1997	118620
Joint	MW-J	Monitoring	2	54-66	54-66	66	6/13/1997	118618
Joint	MW-L	Monitoring	2	66-76 ^a	64-76 ^a	80	6/14/1997	118616
Joint	MW-M	Monitoring	2	54.5-68.5 ^b	52.5-68.5 ^b	75	6/15/1997	118510
Joint	MW-R	Monitoring	2	46.5-66 ^c	40-66 ^c	66	2/25/1998	353498
Joint	SB23S	Monitoring	1	49-55	48-55	55	5/10/2001	321229
Joint	SB36	Monitoring	4	42.7-62.7	40-64.7	62.7	7/15/1996	108165
Joint	PWS-3	Public	12	65-125	—	—	4/30/1954	—
Joint	DW98	Domestic	8	—	—	59.5	—	—
<i>Monitoring for CCC/USDA source area IM — 8 wells</i>								
CCC/USDA	KMW03	Monitoring	2	74-89	NR	89	10/2/1987	45583
CCC/USDA	MW-P	Monitoring	2	39.5-59 ^d	34-59 ^d	59	2/25/1998	353496
CCC/USDA	MW-Q	Monitoring	2	49.5-69 ^e	44-69 ^e	69	2/25/1998	353497
CCC/USDA	GW-1	Monitoring	1	43-53	41-53	53	7/1/2009	426347
CCC/USDA	GW-2	Monitoring	1	43-53	41-53	53	7/1/2009	426346
CCC/USDA	GW-3	Monitoring	1	43-53	41-53	53	7/1/2009	426345
CCC/USDA	GW-4	Monitoring	1	43-53	41-53	53	7/1/2009	426344
CCC/USDA	GW-5	Monitoring	1	43-53	41-53	53	7/1/2009	426343
<i>Monitoring for Pro-Ag source area IM — 13 wells</i>								
Pro-Ag	KMW01	Monitoring	2	43-53	20-63	63	10/7/1987	45581
Pro-Ag	MW-2	Monitoring	2	39-59 ^f	37-59 ^f	59 ^f	5/31/1997	118626
Pro-Ag	MW-F	Monitoring	2	65-75 ^g	64-75 ^g	75 ^g	6/2/1997	118622
Pro-Ag	MW-G	Monitoring	2	89-99	87-99	100	6/13/1997	118621
Pro-Ag	MW-I	Monitoring	2	36-71	34-71	71	6/4/1997	118619
Pro-Ag	MW-O	Monitoring	2	38-58	36-58	58	8/29/1997	119090
Pro-Ag	PMW-01	Monitoring	2	49-59	47-59	59	8/21/2009	427877
Pro-Ag	PMW-02	Monitoring	2	49-59	47-59	59	8/21/2009	427825
Pro-Ag	PMW-03	Monitoring	2	52.5-62.5	50.5-62.5	62.5	8/21/2009	427824
Pro-Ag	PMW-04	Monitoring	2	53-63	51-63	63	8/21/2009	427963
Pro-Ag	PMW-05	Monitoring	2	54.5-64.5	52.5-64.5	64.5	8/21/2009	427962
Pro-Ag	PMW-06	Monitoring	2	49-59	47-59	59	8/21/2009	427964
Pro-Ag	PMW-07	Monitoring	2	70-75	68-75	75	8/21/2009	427961

^a Reported screen interval for MW-L = 70-80 ft BGL; reported filter pack interval = 68-80 ft BGL.

^b Reported screen interval for MW-M = 59-69 ft BGL; reported filter pack interval = 57-75 ft BGL.

^c Reported screen interval for MW-R = 44.45-63.95 ft BGL; reported filter pack interval = 38-66 ft BGL.

^d Reported screen interval for MW-P = 35.42-54.92 ft BGL; reported filter pack interval = 31-59 ft BGL.

^e Reported screen interval for MW-Q = 43.28-62.78 ft BGL; reported filter pack interval = 38-69 ft BGL.

^g Reported screen interval for MW-F = 65-75 ft BGL; reported filter pack interval = 63-85 ft BGL; total depth = 85 ft BGL.

2 Sampling and Analysis Activities

2.1 Monitoring Well Sampling and Analyses

The sitewide groundwater sampling event conducted by the CCC/USDA on June 15-16, 2009, involved the 11 designated joint sitewide groundwater monitoring wells (marked with purple boxes in Figure 2.1), plus wells MW-P, MW-Q, and KMW03 (being sampled by the CCC/USDA to monitor its IM — also shown in Figure 2.1). Per agreement with the KDHE (2009b), the May 2009 results for the 5 groundwater wells installed on the former CCC/USDA property to monitor the source control IM (GW-1 through GW-5) are considered part of the June 2009 annual monitoring event; resampling of those wells in June was not required, although the water levels were measured. Wells GW-1 through GW-5 lie close together in the CCC/USDA remediation area, near well MW-P; they are shown in Figure 2.2.

The May-June sampling began with measurement of water levels in the monitoring wells. Low-flow groundwater sampling techniques were then used to purge and sample the wells in accordance with U.S. Environmental Protection Agency (EPA) guidelines (Puls and Barcelona 1996; Yeskis and Zavala, 2002). The low-flow sampling of monitoring wells involved the use of a bladder pump and field measurement equipment designed to determine when representative formation water was entering the well screen. Stabilization of formation water in the screened area of the well was determined by measuring the static water levels and monitoring the levels of pH, temperature, specific conductivity, oxidation-reduction potential (ORP), and dissolved oxygen (DO) during pumping through the in-line flow cell.

The following procedure was followed for each well sampled:

1. A bladder pump was inserted into the well to a depth midway between the top and bottom of the screen. To minimize disturbance of the solids that are typically present at the bottom of a well, care was taken not to lower the pump to the bottom of the casing.
2. The pumping rate for the bladder pump was set to ensure that minimal drawdown occurred in each well during pumping. The rate was monitored by measuring the static water level periodically throughout pumping and was modified as appropriate to minimize fluctuations in water levels.

3. Polyethylene tubing was used to connect the bladder pump to an in-line flow cell. Formation parameters, including pH, temperature, specific conductivity, ORP, and DO, were measured continuously in the in-line flow cell during pumping. Measurements were recorded every 4 min until three successive measurements for each parameter were within a range indicating that the formation water was stable. The range for formation stabilization varies for each parameter, as follows: pH, within 0.1; temperature, within 3%; specific conductivity, within 3%; ORP, within 10 mV; and DO, within 10%.
4. After stabilization of the formation water parameters, the polyethylene tubing was disconnected from the in-line flow cell, and a representative groundwater sample was pumped through the tubing into laboratory-approved containers.
5. The polyethylene tubing for each well was kept and dedicated for reuse at that specific well. In addition, pumping rate data were recorded for each well as a reference for subsequent sampling events.

The sequence of activities during the May-June 2009 sampling event is summarized in Appendix B, Table B.1. The field measurements — depth, temperature, pH, conductivity, DO, and ORP — recovered during the sampling event are in Appendix B, Table B.2.

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 3.1.

2.2 Measurement of Groundwater Levels

In addition to the manual water level measurements made during the May-June 2009 sampling event, data recorders have been gathering long-term data on groundwater elevations at selected locations throughout the investigation area (Figure 2.3) since 2005. This effort continues to provide information regarding potential changes in groundwater flow and gradient that is useful in the interpretation of inferred downgradient movement of the carbon tetrachloride plume. The groundwater level data are presented and discussed in Section 3.2.

2.3 Handling and Disposal of Investigation-Derived Waste

Purge water generated as potentially contaminated investigation-derived waste was containerized on-site in 55-gal drums during the annual sampling event. The accumulated purge and development water (approximately 190 gal) was sampled on September 24, 2009, and analyzed at a KDHE-certified laboratory (Pace Analytical Services, Lenexa, Kansas) for VOCs (including ethylene dibromide) and nitrates. The analytical results are in Appendix C. The concentrations of carbon tetrachloride, chloroform, ethylene dibromide, and nitrate were below the KDHE standards. No VOCs were detected, and the nitrate value was 3.4 mg/L. On November 18, 2009, the wastewater was taken to the Sabetha municipal water treatment facility for disposal, although KDHE (2009c) guidance would permit its release on the site.

2.4 Quality Control for Sample Collection, Handling, and Analysis

Quality assurance/quality control procedures followed during the June 2009 monitoring event 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 (trip blanks and equipment rinsates) and method blanks analyzed with the samples to monitor analytical methodologies were all free of carbon tetrachloride and chloroform contamination.
- 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 $\pm 20\%$ of the standard. Surrogate standard determinations performed on samples and blanks, as shown in Appendix D, Table D.1, 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 D, Table D.2. The results of the dual analyses compare well, with average relative percent difference values for carbon tetrachloride and chloroform of approximately 5% and 13%, respectively, indicating consistency in the sampling and analytical methodologies. Analytical results for quality control samples are also in Appendix D, Table D.2.
- 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 Appendix D. The results from the two laboratories compare favorably over the range of contaminant concentrations detected.

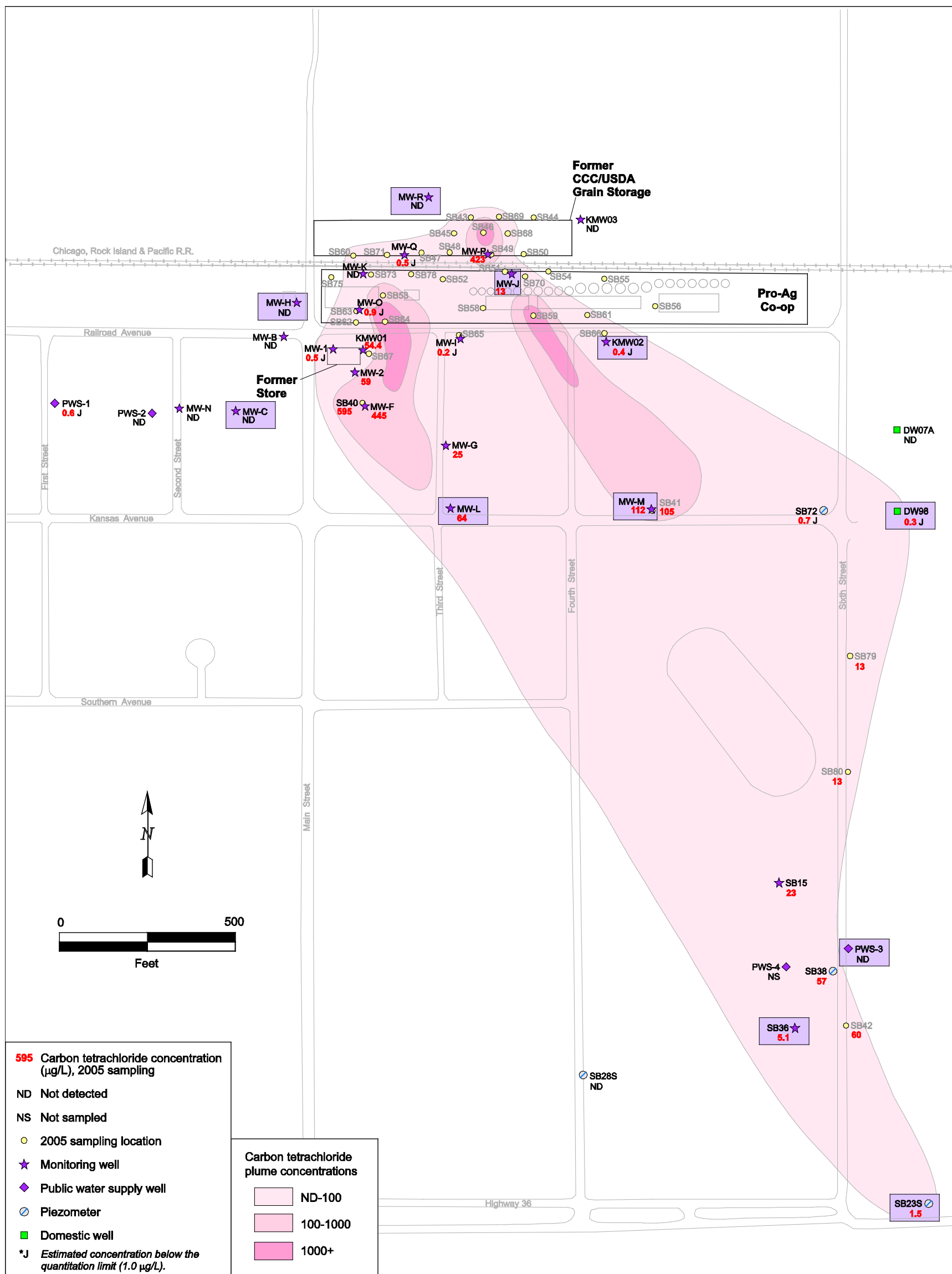


FIGURE 2.1 Proposed locations (purple boxes) for joint yearly monitoring. Also shown are wells KMW03, MW-P, and MW-Q, which are sampled to monitor the CCC/USDA source control IM, and wells KMW01, MW-2, MW-F, MW-G, MW-I, and MW-O, which are sampled to monitor the Pro-Ag Marketing IM.

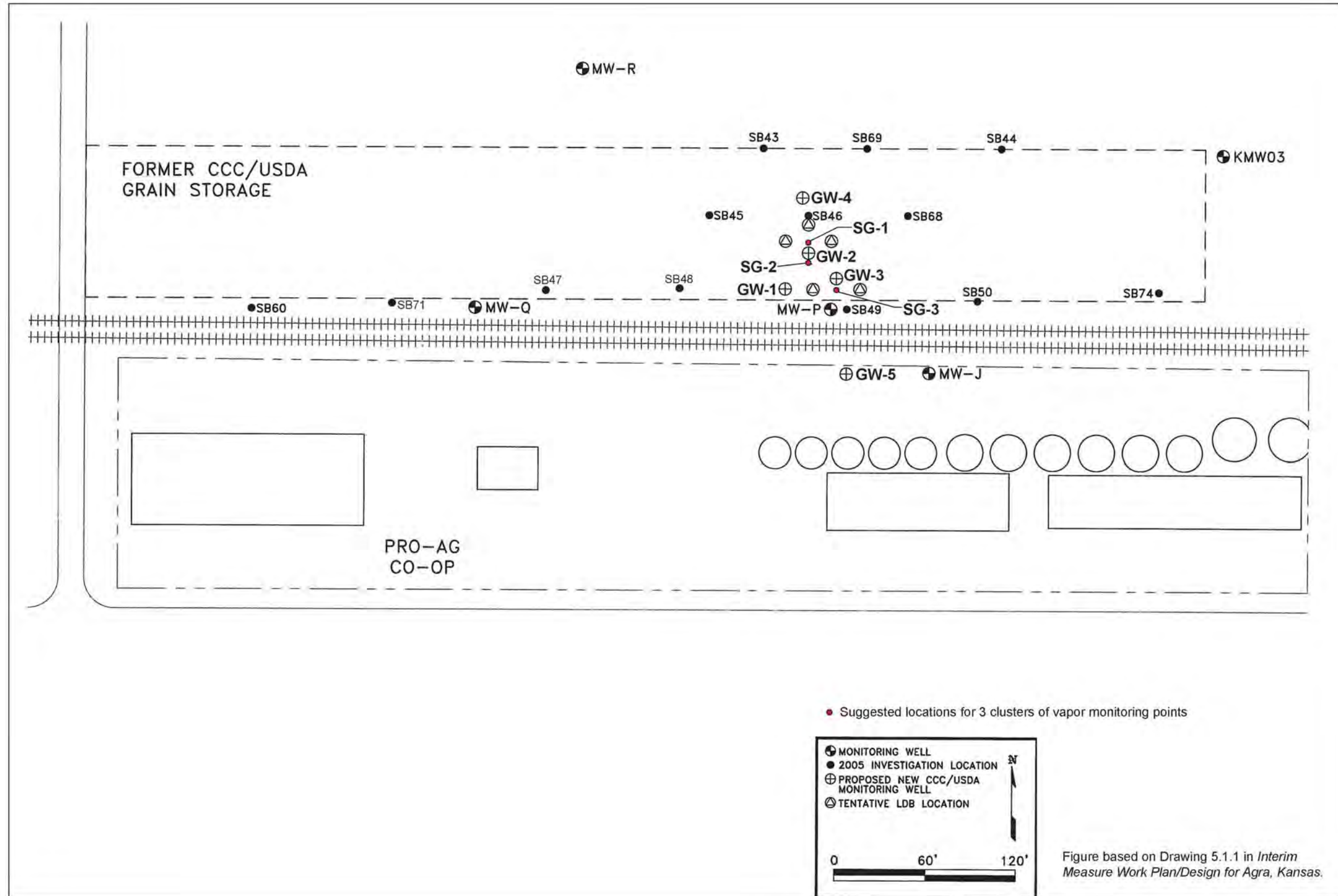


FIGURE 2.2 Proposed locations of large-diameter borehole installations on the former CCC/USDA facility at Agra, with proposed locations for IM-related groundwater monitoring wells and soil gas monitoring wells.

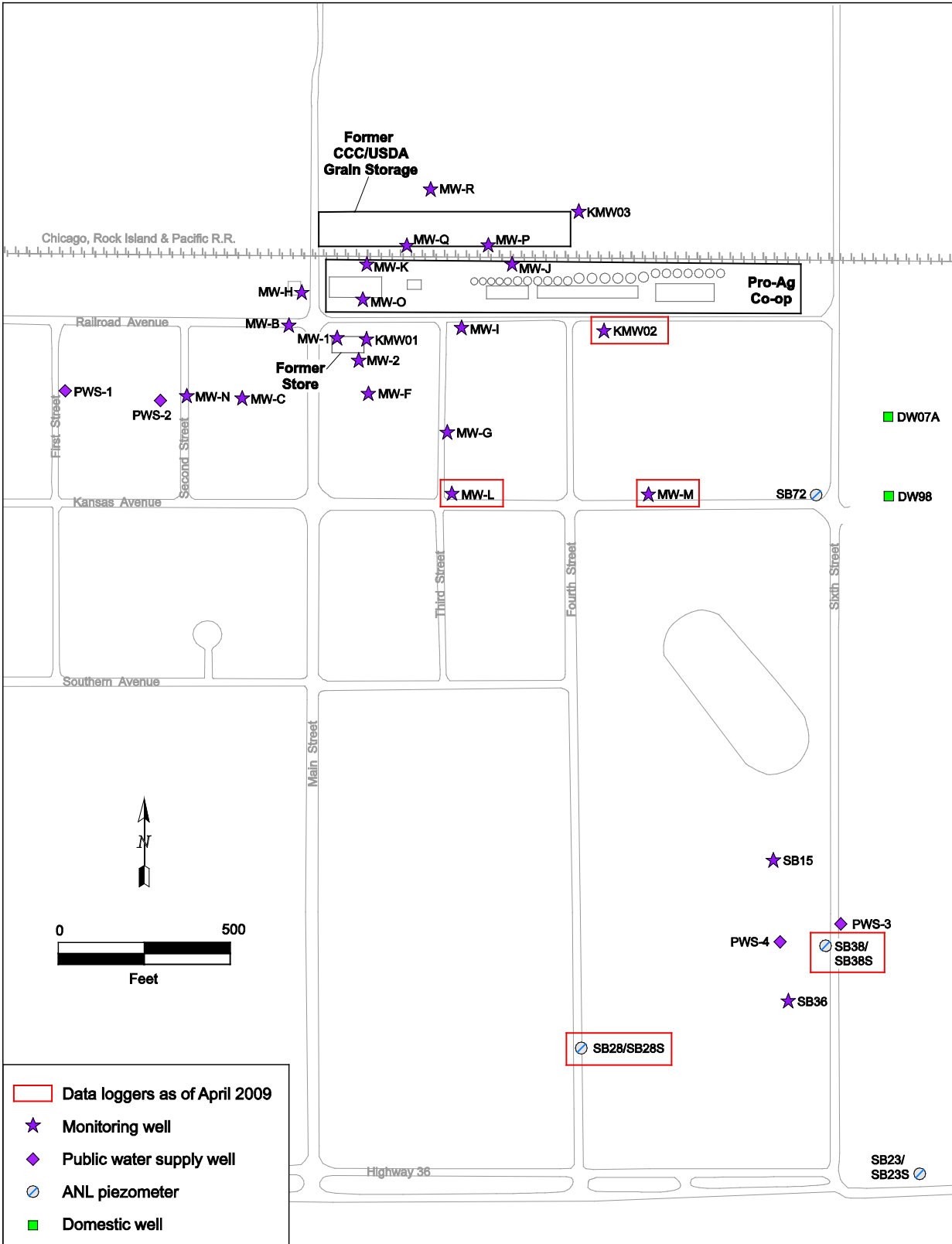


FIGURE 2.3 Permanent groundwater sampling locations and data logger locations at Agra, as of June 2009.

3 Results and Discussion

3.1 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 by Argonne for the CCC/USDA in conjunction with the annual sitewide groundwater monitoring event in May-June 2009 are in Table 3.1. For comparison, Table 3.2 represents a comprehensive summary of CCC/USDA results for carbon tetrachloride and chloroform in groundwater, beginning with the 2005 targeted investigation and continuing through the October 2008 pre-remedial baseline study and the May-June 2009 sitewide monitoring. A map illustrating the current levels and distribution of carbon tetrachloride contamination in groundwater, based on the results of the May-June 2009 sitewide sampling, is in Figure 3.1. This map includes the locations of the September 2009 Pro-Ag Marketing monitoring well installations for the sake of completeness. A separate report of the results of the September 2009 sampling event will be provided to the KDHE by Pro-Ag.

Comparison of the carbon tetrachloride levels in groundwater during the 2008 pre-remedial baseline study and in May-June 2009, after the installation of the SVE/AS remedial system (Table 3.2), indicates mixed results to date. Installation of the LDB/SVE/AS pilot test was initiated in December 2008 and completed in January 2009. Subsequently, during the period May 13-16, 2009, five groundwater monitoring wells (GW-1 through GW-5) were installed on the former CCC/USDA property to track the performance of the approved pilot system. The official start-up date for the SVE/AS system was May 29, 2009.

At the time of the initial annual sitewide sampling event, the CCC/USDA pilot test had been in operation for a period of less than one month (May 29 to June 15-16, 2009). The sitewide monitoring in June 2009 was the initial sampling event (Table 3.2) for newly installed wells GW-1 through GW-5, at the treatment area locations shown in Figure 2.2. The nearest previous groundwater sampling occurred at location SB46 during the 2005 investigation. The maximum carbon tetrachloride concentration in groundwater at location SB46 in 2005 was 1,710 µg/L (Argonne 2006). The higher concentrations measured in June 2009 in wells GW-2 (6,090 µg/L) and GW-3 (9,198 µg/L) are consistent with the interpretation illustrated in Figure 2.1 (based on the 2005 results) of a high-concentration area centered slightly to the south of location SB46.

Continuing monitoring of the treatment area wells will indicate the progress of the CCC/USDA source control effort.

In general, the slight reductions in the levels of carbon tetrachloride observed in the downgradient wells nearest the remedial system could potentially be attributable to the effects of the SVE/AS system. Well MW-P, located along the southern margin of the former facility, exhibited a subtle reduction in contaminant levels, from 318 µg/L during the 2008 baseline study to 260 µg/L in the June 2009 sampling (Table 3.2). The proximity of MW-P to the recently installed SVE/AS remediation pilot could account for this early indication of contaminant reduction. Subsequent sampling events will be necessary to verify this hypothesis. Additional reductions noted in downgradient locations proximal to the pilot test area, such as MW-Q and MW-J, are too low to be considered of significance at this time (Table 3.2 and Figure 3.1).

The results of the May-June 2009 annual sampling event revealed more significant changes in the internal configuration and extent of the carbon tetrachloride plume than the subtle changes observed proximal to the remediation pilot test area on the former CCC/USDA facility. Results for monitoring wells MW-L and MW-M, located along the farthest extent of the bi-lobate plume structures internal to the plume, showed minor reductions in carbon tetrachloride levels from 64 µg/L to 23 µg/L and from 112 µg/L to 84 µg/L, respectively, between 2005 and 2009.

The most significant changes were observed at locations farther downgradient. Public water supply well PWS-3, in which carbon tetrachloride had previously (2005) not been detectable, showed an increase to 7.6 µg/L in 2009 (Table 3.2); this concentration is above the KDHE risk-based standard for carbon tetrachloride. The concentration at location SB36 remained unchanged. The carbon tetrachloride concentration at location SB23S, at the farthest downgradient position (toe) of the plume as currently defined, increased, from 1.5 µg/L in the 2005 investigation to 59 µg/L during the 2009 annual sitewide sampling event (Table 3.2). This increase might indicate an extension of the plume to the southeast. Wells SB36, PWS-3, and SB23S were not sampled during the 2008 baseline event, as the scope of the targeted investigation at that time focused on the former CCC/USDA facility and its immediate environs.

3.2 Groundwater Level Data

Observations made during interpretation of the results from the recent groundwater monitoring event indicate that the groundwater flow direction and gradients did not change significantly from that depicted in the report of the 2005 investigation (Argonne 2006), remaining consistent with a predominant groundwater flow direction to the south-southeast from the vicinity of the former CCC/USDA facility and the Pro-Ag Marketing facility. Groundwater elevation data were recovered on July 30, 2009. The water level contour map in Figure 3.2 confirms the south to southeasterly flow direction identified in previous investigations.

TABLE 3.1 Results of CCC/USDA annual sitewide groundwater monitoring and IM-related monitoring in May-June 2009.

Sampling Responsibility	Well	Sampling Date	Concentration (µg/L)				Nitrate Nitrogen (mg/L)
			Carbon Tetrachloride	Chloroform	Methylene Chloride	1,2-Dichloroethane	
Joint	KMW02	6/16/09	0.2 J ^a	0.3 J	ND ^b	ND	–
Joint	MW-C	6/15/09	ND	ND	ND	ND	–
Joint	MW-H	6/15/09	ND	0.3 J	ND	ND	–
Joint	MW-J	6/16/09	13	0.1 J	ND	ND	–
Joint	MW-L	6/16/09	23	1.1	ND	ND	–
Joint	MW-M	6/15/09	84	1.5	ND	ND	–
Joint	MW-R	6/15/09	ND	ND	ND	ND	–
Joint	PWS-3	6/16/09	7.6	ND	ND	ND	–
Joint	SB23S	6/16/09	59	0.8 J	ND	ND	–
Joint	SB36	6/16/09	5.1	0.4 J	ND	ND	–
Joint	DW98	6/16/09	0.4 J	0.4 J	ND	ND	–
Argonne	KMW03	6/16/09	ND	ND	ND	ND	–
Argonne	MW-P	6/16/09	260	11	ND	ND	–
Argonne	MW-Q	6/16/09	0.8 J	ND	ND	ND	–
Argonne	GW-1	5/20/09	114	8.1	ND	ND	–
Argonne	GW-2	5/20/09	6090	46	ND	ND	–
Argonne	GW-3	5/20/09	9198	28	ND	ND	–
Argonne	GW-4	5/20/09	127	2.3	ND	ND	–
Argonne	GW-5	5/20/09	ND	ND	ND	ND	–

^a Qualifier J indicates an estimated concentration below the quantitation limit of 1.0 µg/L for purge-and-trap analyses at the AGEM Laboratory.

^b ND, not detected at instrument detection limit of 0.1 µg/L for analyses at the AGEM Laboratory or a reporting limit of 1.0 µg/L for analyses at Pace Analytical.

^c 1,2-Dichloroethane detected at 5.8 µg/kg in a soil sample collected during well installation at 49.5-50 ft BGL.

TABLE 3.2 Summary of results of CCC/USDA sitewide groundwater monitoring in 2005-2009.

Sampling Responsibility	Well	2005 Targeted Investigation					2008 Plume Update/Baseline Event					2009 Initial Sitewide Monitoring				
		Sample Date	Depth (ft TOC)		Concentration (µg/L)		Sample Date	Depth (ft TOC)		Concentration (µg/L)		Sample Date	Depth (ft TOC)		Concentration (µg/L)	
			To Water	Total	Carbon Tetrachloride	Chloroform		To Water	Total Depth	Carbon Tetrachloride	Chloroform		To Water	Total Depth	Carbon Tetrachloride	Chloroform
Joint	KMW02	5/19/05	47.7	98.34	0.4 J	0.3 J	10/29/08	45	97	ND	ND	6/16/09	41.8	97	0.2 J	0.3 J
Joint	MW-C	5/22/05	43.59	52.93	ND	ND	10/29/08	40.4	55	ND	ND	6/15/09	39	55	ND	ND
Joint	MW-H	5/25/05	46.26	51.95	ND	0.7 J	10/28/08	43.3	53	ND	ND	6/15/09	42.1	53	ND	0.3 J
Joint	MW-J	5/21/05	44.2	65.14	13	ND	10/29/08	40	66	32	0.3 J	6/16/09	39.45	66	13	0.1 J
Joint	MW-L	5/22/05	46.21	74.5	64	1.7	10/28/08	43.6	75	21	0.9 J	6/16/09	42.05	75.8	23	1.1
Joint	MW-M	5/25/05	46.52	66.52	112	1.9	10/29/08	44.6	69	106	2.4	6/15/09	42.8	69	84	1.5
Joint	MW-R	5/20/05	46.88	65.5	ND	ND	10/28/08	41.5	63.95	ND	ND	6/15/09	39.22	63.95	ND	ND
Joint	PWS-3	6/3/05	-	-	ND	ND	-	-	-	-	-	6/16/09	-	-	7.6	ND
Joint	SB23S	5/20/05	34	51.1	1.5	ND	-	-	-	-	-	6/16/09	30.5	55	59	0.8 J
Joint	SB36	6/2/05	40.73	61.25	5.1	0.4 J	-	-	-	-	-	6/16/09	37.15	62.7	5.1	0.4 J
Joint	DW98	6/3/09	-	-	0.3 J	0.2 J	-	-	-	-	-	6/16/09	39.4	59.5	0.4 J	0.4 J
Argonne	KMW03	5/21/05	46.71	89.92	ND	ND	10/28/08	43.3	89	2.1	ND	6/16/09	39.47	89	ND	ND
Argonne	MW-P	6/13/05	46.38	58.7	423	3.5	10/28/08	42.35	54.92	318	5.5	6/16/09	38.65	54.92	260	11
Argonne	MW-Q	5/21/05	46.58	66.36	0.5 J	ND	10/28/08	42.3	62.78	1.3	ND	6/16/09	39.11	62.78	0.8 J	ND
Argonne	GW-1	-	-	-	-	-	-	-	-	-	-	5/20/09	38.75	53	114	8.1
Argonne	GW-2	-	-	-	-	-	-	-	-	-	-	5/20/09	39.15	53	6090	46
Argonne	GW-3	-	-	-	-	-	-	-	-	-	-	5/20/09	39	53	9198	28
Argonne	GW-4	-	-	-	-	-	-	-	-	-	-	5/20/09	40.1	53	127	2.3
Argonne	GW-5	-	-	-	-	-	-	-	-	-	-	5/20/09	39.05	53	ND	ND

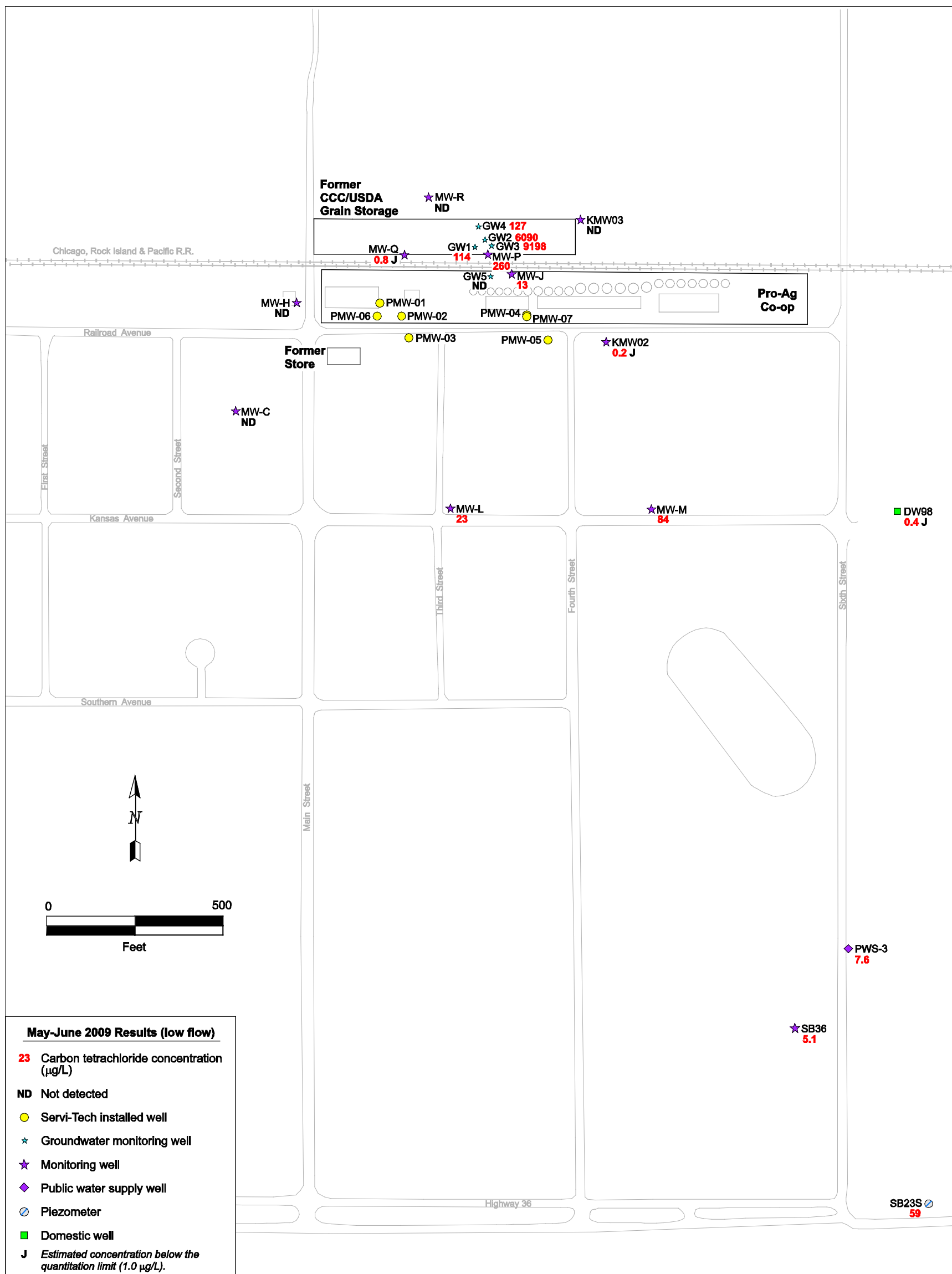


FIGURE 3.1 Distribution of carbon tetrachloride in groundwater at Agra, as determined in May-June 2009 annual sitewide monitoring.

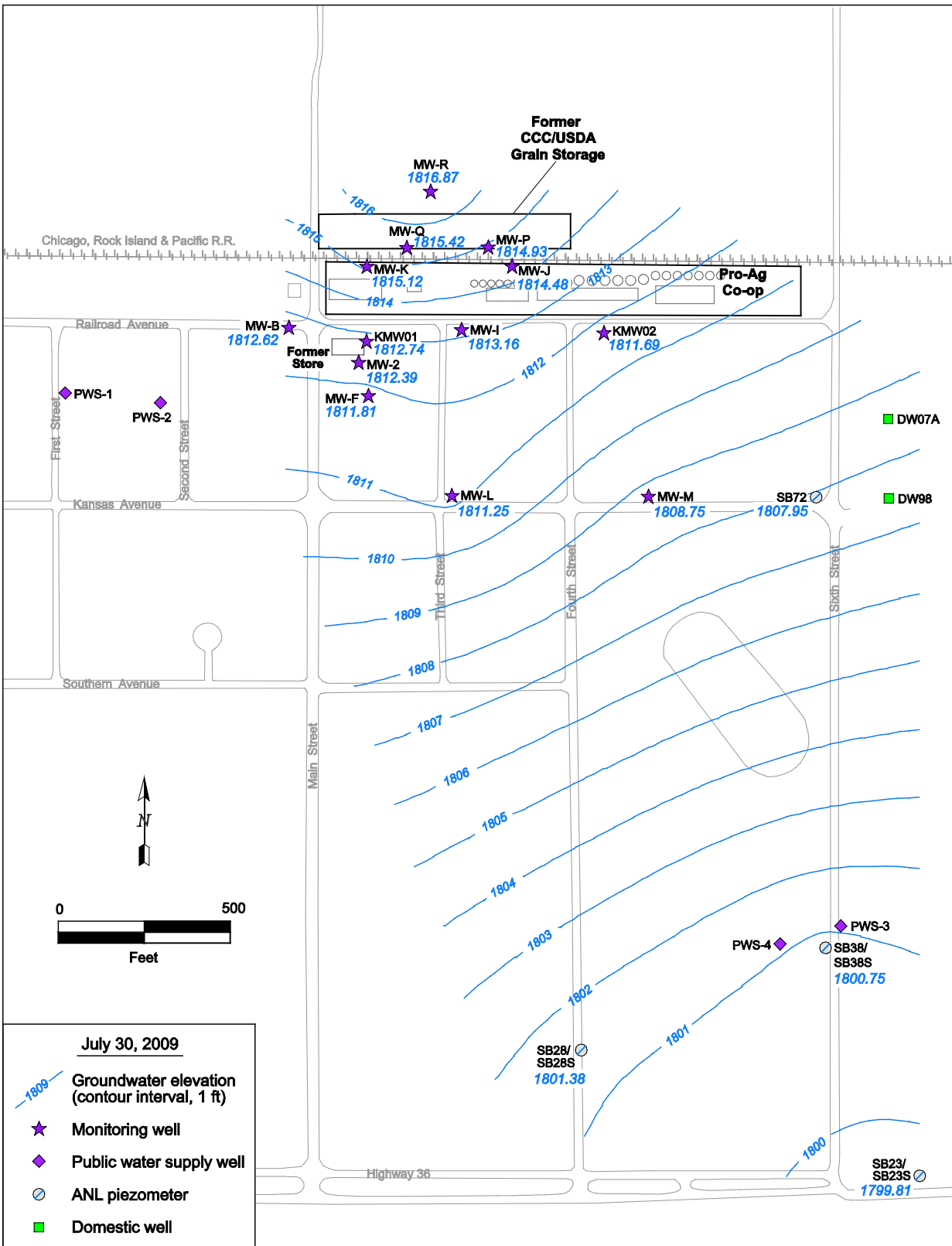


FIGURE 3.2 Groundwater level elevations at Agra on July 30, 2009, as interpreted from automatically recorded data.

4 Future Actions

The next KDHE-approved joint sitewide groundwater monitoring event is scheduled for June 2010. In keeping with the joint agreement, Pro-Ag Marketing and its technical consultants will be conducting the sampling effort. The 2010 effort will include the wells to be jointly reported, as well as the monitoring wells installed in support of the Pro-Ag remediation efforts.

5 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, by Argonne National Laboratory, Argonne, Illinois, December.

Argonne, 2006, *Final Report: Results of the 2005 Investigation of Contaminant Sources at Agra, Kansas*, ANL/EVS/AGEM/TR-06-02, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, July.

Argonne 2009, *Low-Flow Sampling Procedure*, ANL/EVS/AGEM/CHRON-1227, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, by Argonne National Laboratory, Argonne, Illinois, February 2.

KDHE, 2008, 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 the *Interim Measure Work Plan/Design* for Agra, November 21.

KDHE, 2009a, letter from E. Finzer and C. Jaeger (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.) and J. Jirak (Pro-Ag Marketing Association, Kensington, Kansas), regarding the joint sitewide monitoring plan for Agra, May 27.

KDHE, 2009b, electronic mail message from E. Finzer (Bureau of Environmental Remediation, Kansas Department of Health and Environment, Topeka, Kansas) to L.M. LaFreniere (Argonne National Laboratory, Argonne, Illinois), agreeing that wells GW1-GW5 did not need to be resampled in the sitewide monitoring event but requesting measurement of water levels in those wells, June 10.

KDHE, 2009c, electronic mail message 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.) and L.M. LaFreniere (Argonne National Laboratory, Argonne, Illinois), with guidelines for handling of investigation-derived waste, October 29.

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).

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:

Joint Work Plan for Sitewide Monitoring, Agra, Kansas

Agra Joint Sitewide Monitoring
March 8, 2010

1

Joint Work Plan for Sitewide Monitoring, Agra, Kansas

Background:

The objective of CCC/USDA investigations at Agra in 1995-2005 was to characterize the subsurface geologic and hydrologic conditions that exist at and adjacent to the former facility, including conditions at the private grain storage facility directly to the south, which is currently operated by the Pro-Ag Co-op. During these investigations, the presence of carbon tetrachloride was identified at levels exceeding the Kansas Tier 2 Risk-Based Screening Level and the EPA maximum contaminant level of 5.0 µg/L in groundwater. The most recent comprehensive investigation of the presence, levels, and distribution of this contaminant in the soil and groundwater at Agra was conducted in 2005.

During the investigation conducted by Argonne in 2005 on behalf of the CCC/USDA, three soil source areas were identified. Figure 1 illustrates the locations of these sources, the distribution of investigation/sampling points, the analytical results, and the interpreted extent of the carbon tetrachloride plume emanating from these identified source areas. A single source was identified on the former CCC/USDA facility. Two source areas were likewise identified on the property to the south that is currently operated by the Pro-Ag Co-op.

In response to a KDHE request in a letter dated July 17, 2006, the CCC/USDA developed the document *Interim Measure Conceptual Design for Remediation of Source Area Contamination at Agra, Kansas*. Upon KDHE approval of the conceptual design, a second document, *Interim Measure Work Plan/Design for Agra, Kansas*, was submitted to the KDHE in August 2008 and approved on November 21, 2008.

The interim measure (IM) at Agra was implemented in December 2008 and January 2009. As presented to and approved by the KDHE, a system of large-diameter boreholes and associated soil vapor extraction and air sparging wells was installed at the former CCC/USDA facility as part of this action (Figure 2). The system is expected to be completed, tested, and operational in April 2009.

In recent months, Pro-Ag has been negotiating an IM plan for the Co-op property with KDHE. The most recent draft received conditional approval from KDHE in March 2009.

Proposed Monitoring Plan:

As part of the IM process, the KDHE requested the development of a sitewide monitoring plan to allow periodic assessment of the success of the IM remediation system, as well as the level of contamination and potential changes in both the extent and internal configuration of the carbon tetrachloride plume. The KDHE envisioned that the proposed monitoring plan would be developed and implemented jointly by CCC and the Pro-Ag Co-op.

The CCC/USDA proposes to conduct groundwater sampling at the 11 locations shown in Figure 3, as follows: MW-R, MW-J, KMW02, DW-98, PWS-3, SB23S, SB36, MW-C, MW-H,

Agra Joint Sitewide Monitoring
March 8, 2010

2

MW-M, and MW-L. Pro-Ag will sample the same locations. The frequency of monitoring will be yearly. The CCC/USDA will take the initial round of samples in June 2009, coincident with the CCC/USDA IM monitoring program. Pro-Ag will sample the following year (June 2010). Argonne will arrange for access at these locations, as necessary, for sampling by the CCC/USDA and Pro-Ag. The CCC/USDA will sample in odd-numbered years beginning in 2009, and the Pro-Ag Co-op will sample in even-numbered years beginning in 2010. After 2010, modifications to the locations and schedule will be negotiated if results of the monitoring program warrant.

In the case of the CCC/USDA, additional groundwater data will be available and presented from the CCC/USDA IM monitoring program (Figure 2). In addition to the 11 locations to be sampled as proposed above, the following wells will be also be sampled per the CCC/USDA IM monitoring program: groundwater monitoring wells MW-Q, MW-P, KMW03, and GW-1 through GW-5, plus soil gas monitoring wells.

In the case of Pro-Ag, additional groundwater data will be available as part of the Pro-Ag IM response currently being negotiated with the KDHE. Existing wells that may be included in the Pro-Ag IM monitoring program are (Figure 4) MW-O, KMW01, MW-2, MW-F, MW-I, and MW-G. As part of the IM, Pro-Ag may also be installing some new wells.

On behalf of the CCC/USDA, Argonne will sample the wells according to the approved low-flow procedure dated February 2, 2009. Argonne will also follow the procedures for preservation, shipment, and analysis of samples described in Sections 6.2 and 6.3 of Argonne's *Master Work Plan* for investigations in Kansas. Pro-Ag will use the same low-flow sampling protocol.

The CCC/USDA-Argonne will report the results of the CCC/USDA sitewide monitoring in 2009 and beyond within 90 days of the sampling. The sitewide monitoring report will include the elements in Section 3.0 of policy BER-RS-036, except that full reporting of items specific to monitoring of the CCC/USDA remediation system at Agra will occur separately, as described in the approved *Interim Measure Work Plan/Design* for the CCC/USDA remediation project.

The Pro-Ag Co-op will report the results of its sitewide monitoring in 2010 and beyond within 90 days of the sampling. The sitewide monitoring report will include the elements in Section 3.0 of policy BER-RS-036, except that full reporting of items specific to monitoring for the Pro-Ag IM will occur separately, as approved for that project.

The CCC/USDA-Argonne monitoring will be subject to all of the quality control provisions in the approved *Master Work Plan* for investigations in Kansas. In addition to the controls on sample collection and analysis at the Applied Geosciences and Environmental Management Laboratory at Argonne, 10% of the samples will be subjected to verification analysis by Contract Laboratory Program procedures at a second laboratory.

The Pro-Ag sitewide monitoring will be subject to the quality control provisions approved for the Pro-Ag IM project.

Agra Joint Sitewide Monitoring
March 8, 2010

3

This plan has been developed by the CCC/USDA in coordination with Pro-Ag. The CCC/USDA and Pro-Ag agree to implement the plan as written, subject to any revisions negotiated between the KDHE, the CCC/USDA, and Pro-Ag.

Choc for Steve Gilmore

For CCC/USDA Signature

3/8/10

Date

[Handwritten Signature]

For Pro-Ag Co-op Signature

5/28/10

Date

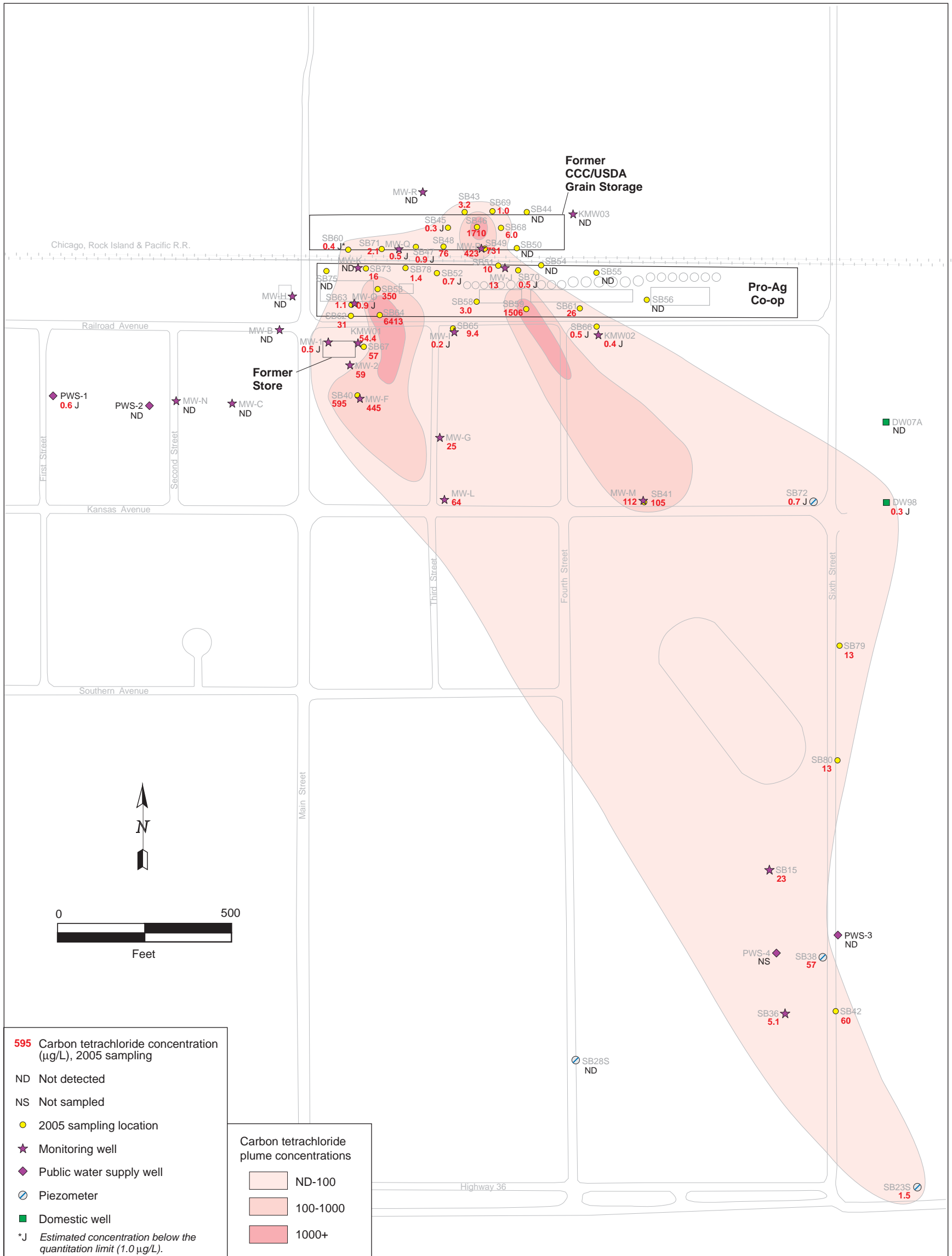


FIGURE 1 Results of the 2005 investigation at Agra, with interpreted plume configuration and soil source areas.

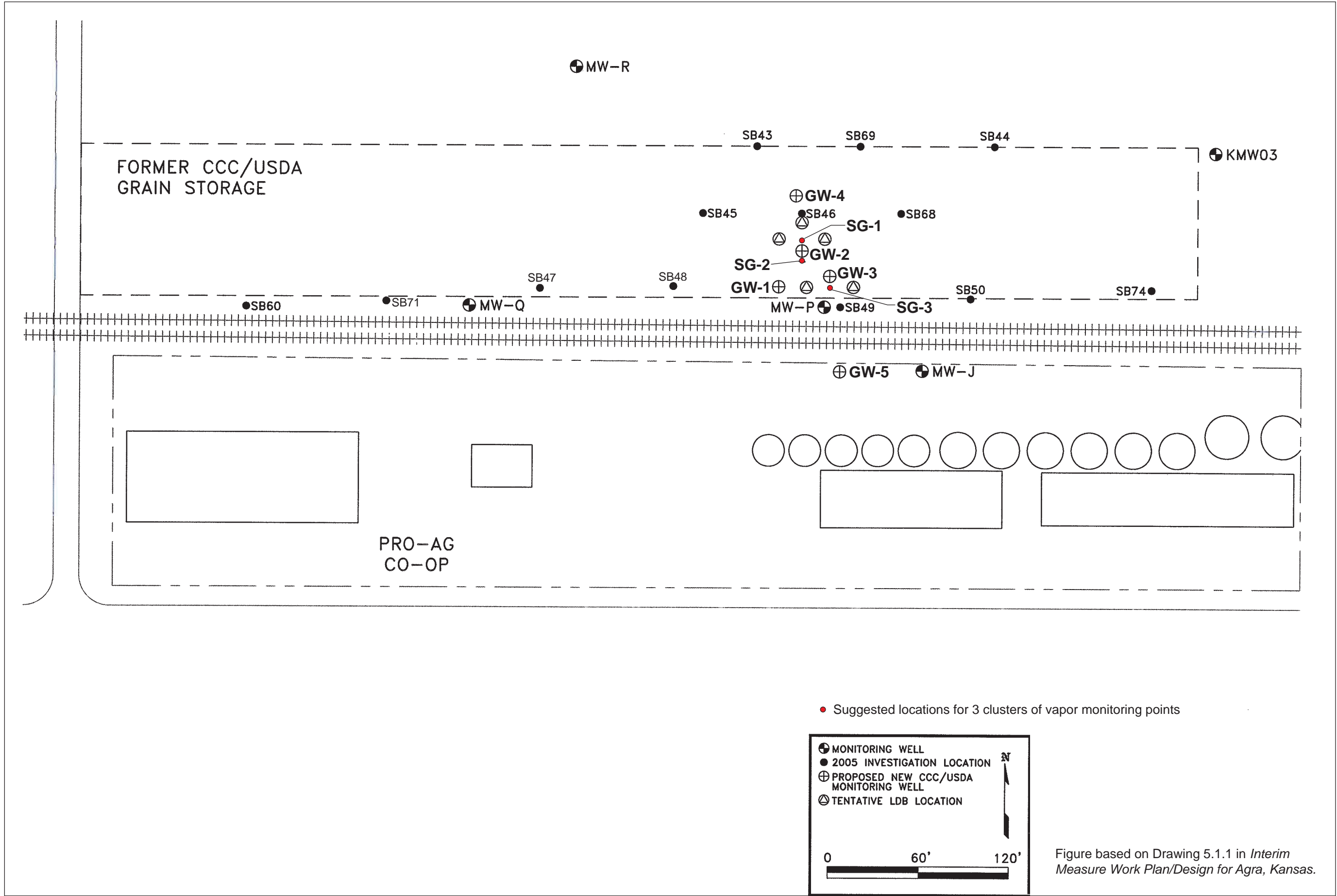


FIGURE 2 Locations of large-diameter borehole installations on the former CCC/USDA facility at Agra, with locations for IM monitoring wells and soil gas monitoring installations.

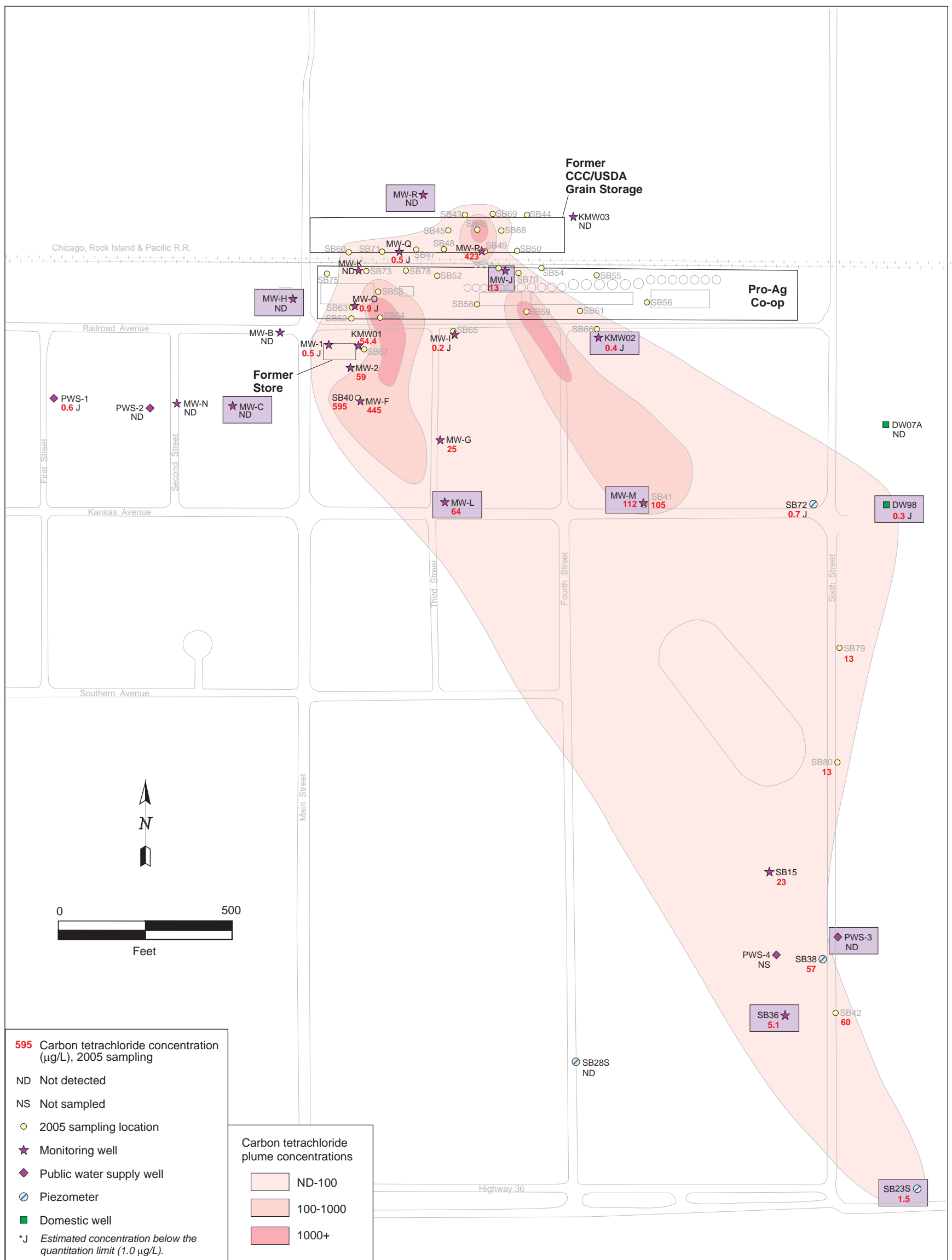


FIGURE 3 Proposed locations (purple box) for yearly monitoring.

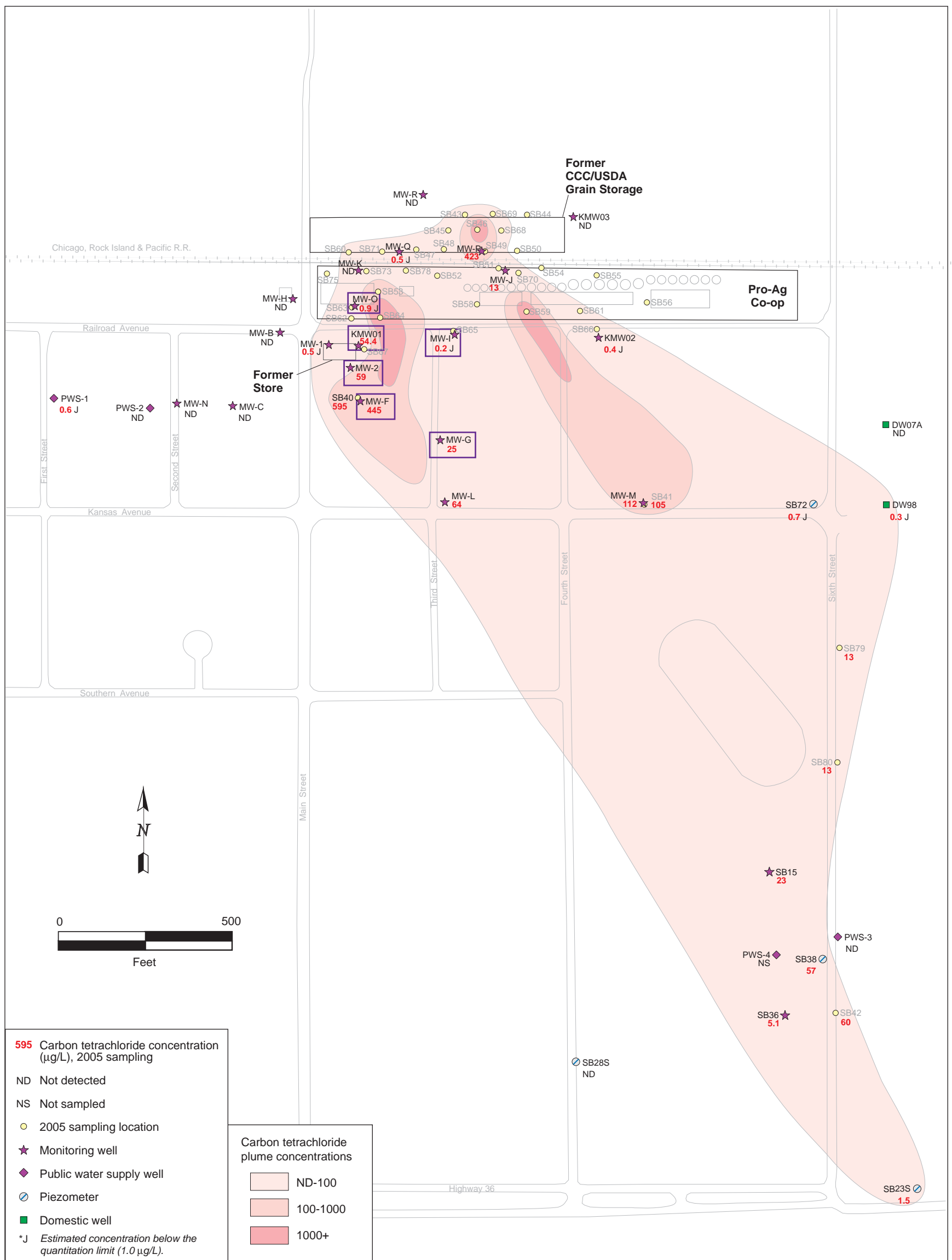


FIGURE 4 Anticipated locations (purple outline) of Pro-Ag IM monitoring.

Appendix B:

**Sequence of Activities during the May-June 2009 Sitewide Monitoring Event
and Field Measurements on Groundwater Samples**

TABLE B.1 Sequence of sitewide monitoring activities at Agra in May-June 2009.

Sample Date	Time	Sample Location	Depth (ft BGL)	Sample	Chain of Custody	Shipping Date	Sample Description
5/20/09	10:13	GW-5	43-53	AGGW5-W-17925	4396	5/21/09	South of railroad track. Depth to water = 39.05 ft on May18. Purged dry with Waterra pump on May 18 and May 19 to develop. Purged dry again morning of May 20. Sampled with bailer in the afternoon after water level returned to 39.08 ft.
5/20/09	11:09	GW-3	43-53	AGGW3-W-17894	4396	5/21/09	Between LDB1 and LDB3. Depth to water = 39.0 ft on May18. Purged dry with Waterra pump on May 18 and May 19 to develop. Purged dry again morning of May 20. Sampled later in the day with bailer after water level returned to 39.10 ft.
5/20/09	12:53	GW-4	43-53	AGGW4-W-17895	4396	5/21/09	North of LDB5. Depth to water = 40.10 ft on May18. Purged dry with Waterra pump on May 18 and May 19 to develop. Purged dry again morning of May 20. Sampled later in the day with bailer after water level returned to 40.12 ft.
5/20/09	13:41	GW-2	43-53	AGGW2-W-17806	4396	5/21/09	Between LDB2 and LDB5. Depth to water = 39.15 ft on May18. Purged dry with Waterra pump on May 18 and May 19 to develop. Purged dry again morning of May 20. Sampled later in the day with bailer after water level returned to 41.52 ft.
5/20/09	13:51	GW-2	43-53	AGGW2-W-17893	4396	5/21/09	Replicate of sample AGGW2-W-17806.
5/20/09	15:35	GW-1	43-53	AGGW1-W-17896	4396	5/21/09	West of LDB2. Depth to water = 38.75 ft on May 18. Purged dry with Waterra pump on May 18 and May 19 to develop. Purged dry again morning of May 20. Sampled later in the day with bailer after water level returned to 42.05 ft.
5/20/09	15:59	QC	–	AGQCBR-W-17926	4396	5/21/09	Rinsate of decontaminated sampling bailer after collection of sample AGGW1-W-17896.
5/20/09	16:03	QC	–	AGQCTB-W-17807	4396	5/21/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 4396.
6/15/09	15:47	GW-5	43-53	AGGW5-Jun15-WL	–	–	Sample not collected. Depth to water from TOC = 39.23 ft. Depth of well = 53 ft.
6/15/09	16:04	GW-1	43-53	AGGW1-Jun15-WL	–	–	Sample not collected. Depth to water from TOC = 39.11 ft. Depth of well = 53 ft.
6/15/09	16:11	GW-3	43-53	AGGW3-Jun15-WL	–	–	Sample not collected. Depth to water from TOC = 39.51 ft. Depth of well = 53 ft.
6/15/09	16:26	GW-2	43-53	AGGW2-Jun15-WL	–	–	Sample not collected. Depth to water from TOC = 38.95 ft. Depth of well = 53 ft.
6/15/09	16:45	MW-H	43-53	AGMWH-W-17944	2519	6/17/09	Depth to water = 42.1 ft. Depth of 2-in. well = 53 ft. Sample collected by using low-flow bladder pump after purging of 15 L. Pump intake positioned at 48 ft.
6/15/09	16:46	GW-4	43-53	AGGW4-Jun15-WL	–	–	Sample not collected. Depth to water from TOC = 39.55 ft. Depth of well = 53 ft.

TABLE B.1 (Cont.)

Sample Date	Time	Sample Location	Depth (ft BGL)	Sample	Chain of Custody	Shipping Date	Sample Description
6/15/09	17:55	MW-C	35-55	AGMWC-W-17943	2519	6/17/09	Depth to water = 39.0 ft. Depth of 2-in. well = 55 ft. Sample collected by using low-flow bladder pump after purging of 6.5 L. Pump intake positioned at 45 ft.
6/15/09	18:24	MW-R	44.45-63.95	AGMWR-W-17950	2519	6/17/09	Depth to water = 39.22 ft. Depth of 2-in. well = 63.95 ft. Sample collected by using low-flow bladder pump after purging of 7 L. Pump intake positioned at 54.20 ft.
6/15/09	20:27	MW-M	59-69	AGMWM-W-17947	2519	6/17/09	Depth to water = 42.8 ft. Depth of 2-in. well = 69 ft. Sample collected by using low-flow bladder pump after purging of 8 L. Pump intake positioned at 64 ft. Water was silty.
6/15/09	20:29	MW-M	59-69	AGMWM-DUP-W-17955	2519	6/17/09	Replicate of sample AGMWM-W-17947.
6/16/09	8:42	MW-L	70-80	AGMWL-W-17946	2519	6/17/09	Depth to water = 42.05 ft. Depth of 2-in. well = 75.8 ft. Sample collected by using low-flow bladder pump after purging of 6 L. Pump intake positioned at 73.8 ft. Bottom silted in to 73.8 ft during purge.
6/16/09	9:02	KMW03	74-89	AGKMW3-W-17942	2519	6/17/09	Depth to water = 39.47 ft. Depth of 2-in. well = 89 ft. Sample collected by using low-flow bladder pump after purging of 6.5 L. Pump intake positioned at 81.5 ft.
6/16/09	11:08	KMW02	57-97	AGKMW2-W-17941	2519	6/17/09	Depth to water = 41.8 ft. Depth of 2-in. well = 97 ft. Sample collected by using low-flow bladder pump after purging of 6 L. Pump intake positioned at 77 ft.
6/16/09	11:14	QC	-	AGQCIR-W-17957	2519	6/17/09	Rinsate of decontaminated sampling line after collection of sample AGKMW2-W-17941.
6/16/09	11:26	MW-Q	43.28-62.78	AGMWQ-W-17949	2519	6/17/09	Depth to water = 39.11 ft. Depth of 2-in. well = 62.78 ft. Sample collected by using low-flow bladder pump after purging of 6 L. Pump intake positioned at 53.03 ft.
6/16/09	12:26	MW-J	56-66	AGMWJ-W-17945	2519	6/17/09	Depth to water = 39.45 ft. Depth of 2-in. well = 66 ft. Sample collected by using low-flow bladder pump after purging of 9.4 L. Pump intake positioned at 61 ft.
6/16/09	13:22	MW-P	35.42-54.92	AGMWP-W-17948	2519	6/17/09	Depth to water = 38.65 ft. Depth of 2-in. well = 54.92 ft. Sample collected by using low-flow bladder pump after purging of 6 L. Pump intake positioned at 45.78 ft.
6/16/09	13:40	QC	-	AGQCIR-W-17958	2524	6/17/09	Rinsate of decontaminated sampling line after collection of sample AGMWP-W-17948.
6/16/09	14:15	QC	-	AGQCTB-W-17959	2519	6/17/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COCs 2519 and 2524.
6/16/09	15:16	PWS-3	65-125	AGPWS3-W-17953	2524	6/17/09	Allowed well to run for 5 min prior to field measurement and sample collection.

TABLE B.1 (Cont.)

Sample Date	Time	Sample Location	Depth (ft BGL)	Sample	Chain of Custody	Shipping Date	Sample Description
6/16/09	16:58	SB23S	49-55	AGSB23S-W-17951	2524	6/17/09	Depth to water = 30.5 ft. Depth of 1 in. well = 55 ft. Sample collected with Waterra pump after purging of 11.32 L (3 well volumes). Pump intake positioned at 52.00 ft.
6/16/09	18:43	SB36	42.7-62.7	AGSB36-W-17952	2524	6/17/09	Depth to water = 37.15 ft. Depth of 4 in. well = 62.7 ft. Sample collected by using low-flow bladder pump after purging of 11.5 L. Pump intake positioned at 52.70 ft.
6/16/09	18:44	SB36	42.7-62.7	AGSB36DUP-W-17956	2524	6/17/09	Replicate of sample AGBS36-W-17952.
6/16/09	20:34	DW98		AGDW98-W-17954	2524	6/17/09	Depth to water = 39.4 ft. Depth of 8 in. well = 59.5 ft. Sample collected by using low-flow bladder pump after purging of 26.5 L. Pump intake positioned at 53 ft.

TABLE B.2 Field measurements made during sitewide monitoring in May-June 2009.

Location	Sample	Sampling Date	Depth to Water (ft TOC) ^a	Temperature (°C)	pH	Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	Oxidation-Reduction Potential (mV)
GW-1	AGGW1-W-17896	5/20/09	38.75	16.6	7.31	1570	9.54	200
GW-2	AGGW2-W-17806	5/20/09	39.15	17.5	7.31	1313	9.81	195
GW-3	AGGW3-W-17894	5/20/09	39.00	16.8	7.31	1205	9.85	207
GW-4	AGGW4-W-17895	5/20/09	40.10	17.0	7.25	995	10.06	194
GW-5	AGGW5-W-17925	5/20/09	39.05	16.2	7.11	1778	9.28	210
GW-1	Not sampled	6/15/09	39.11	–	–	–	–	–
GW-2	Not sampled	6/15/09	38.95	–	–	–	–	–
GW-3	Not sampled	6/15/09	39.51	–	–	–	–	–
GW-4	Not sampled	6/15/09	39.55	–	–	–	–	–
GW-5	Not sampled	6/15/09	39.23	–	–	–	–	–
KMW02	AGKMW2-W-17941	6/16/09	41.80	19.3	6.96	1144	8.26	143
KMW03	AGKMW3-W-17942	6/16/09	39.47	15.1	7.13	785	5.93	229
MW-C	AGMWC-W-17943	6/15/09	39.00	18.1	7.00	1925	8.39	87
MW-H	AGMWH-W-17944	6/15/09	42.10	16.6	7.02	1802	6.05	49
MW-J	AGMWJ-W-17945	6/16/09	39.45	15.7	7.04	1052	8.25	127
MW-L	AGMWL-W-17946	6/16/09	42.05	15.3	6.92	1133	3.51	212
MW-M	AGMWM-W-17947	6/15/09	42.80	15.9	6.41	898	6.35	135
MW-P	AGMWP-W-17948	6/16/09	38.65	17.3	7.13	1261	7.73	121
MW-Q	AGMWQ-W-17949	6/16/09	39.11	17.9	7.20	750	6.31	170
MW-R	AGMWR-W-17950	6/15/09	39.22	17.1	7.11	806	5.70	188
PWS-3	AGPWS3-W-17953	6/16/09	–	15.2	7.23	861	–	–
SB23S	AGSB23S-W-17951	6/16/09	30.50	14.5	NR ^b	892	7.35	–
SB36	AGSB36-W-17952	6/16/09	37.15	16.7	6.20	975	8.01	111
DW98	AGDW98-W-17954	6/16/09	39.40	14.5	6.82	1142	2.10	74

^a Depth is measured in feet below the top of the well casing.

^b NR, not recorded.

Appendix C:

Data from Pace Analytical Services for Wastewater Sample



CHAIN-OF-CUSTODY / Analytical Request Document
 The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:	Section B Required Project Information:	Section C Invoice Information:	Page: <u>1</u> of <u>1</u>
Company: <u>TCW Construction</u>	Report To: <u>+kamler@tcwconstruction.com</u>	Attention: <u>Travis Kamler</u>	1272137
Address: <u>141 M Street</u> <u>Lincoln NE 68508</u>	Copy To: <u>surgnier@prodigy.net</u>	Company Name: <u>TCW Construction</u>	
Email To: <u>+kamler@tcwconstruction.com</u>	Purchase Order No.:	Address: <u>141 M Street Lincoln NE 68508</u>	REGULATORY AGENCY
Phone: <u>(402) 416 7255</u> Fax:	Project Name: <u>Kansas Waste Water</u>	Pace Quote Reference: <u>68508</u>	<input type="checkbox"/> NPDES <input checked="" type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER
Requested Due Date/TAT:	Project Number:	Pace Project Manager: <u>Trudy Gipson</u>	<input type="checkbox"/> UST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER
		Pace Profile #:	Site Location: <u>KS</u>
			STATE: <u>KS</u>

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives						Analysis Test ↓ Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)		
					COMPOSITE START		COMPOSITE END/GRAB				Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃				Methanol	Other
					DATE	TIME	DATE	TIME													
1	AG PURGE-W-924091	WW	C	1/09	9-24-09	0800	60	5	2									Collected Pace Project No./ Lab I.D. 2(0640) 2(0641) 8930 (05)			
2	BA PURGE-W-924092	WW	C	3/09	9/09	1115	65	5	3												
3	CN PURGE-W-924093	WW	C	4/09	9/09	1240	71	5	3												
4	EUPURGE-W-924094	WW	C	4/09	9/09	1333	71	5	3												
5	MR PURGE-W-924095	WW	C	4/09	9/09	1422	71	5	3												
6	GCTB - W-924096	WT	G		9/09	1640	75	2	2												
7	/																				
8	/																				
9	/																				
10	/																				
11	/																				
12	/																				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	<u>[Signature]</u> / TCW	9-24-09	17:00	<u>[Signature]</u>	9/25	850	4.9	Y	Y	Y

ORIGINAL	SAMPLER NAME AND SIGNATURE			Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	PRINT Name of SAMPLER: <u>Travis Kamler</u>						
	SIGNATURE of SAMPLER: <u>[Signature]</u>						
				DATE Signed (MM/DD/YY): <u>9-24-2009</u>			

*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

Client Name: TCW Project # Cod66709

Courier: Fed Ex UPS USPS Client Commercial Pace Other _____

Tracking #: 5558 7682 9061

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

Packing Material: Bubble Wrap Bubble Bags None Other _____

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

Cooler Temperature 4.9 Biological Tissue is Frozen: Yes No Date and Initials of person examining contents: bm 9/25
Temp should be above freezing to 6°C

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

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

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

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

Project Manager Review: JPK 9-28-09 Date: _____

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



9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

SAMPLE ACKNOWLEDGMENT

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

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

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

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

Thank you for choosing Pace Analytical Services, Inc.



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

October 13, 2009

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

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

Dear Mr. Kamler:

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

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

Sincerely,

Trudy Gipson

trudy.gipson@pacelabs.com
Project Manager

Enclosures

cc: Mr. David Surgnier

REPORT OF LABORATORY ANALYSIS

Page 1 of 23

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..





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

CERTIFICATIONS

Project: Kansas Waste Water
Pace Project No.: 6066709

Kansas Certification IDs

Washington Certification #: C2069
Utah Certification #: 9135995665
Texas Certification #: T104704407-08-TX
Oregon Certification #: KS200001
Oklahoma Certification #: 9205/9935
Nevada Certification #: KS000212008A

Louisiana Certification #: 03055
Kansas/NELAP Certification #: E-10116
Iowa Certification #: 118
Illinois Certification #: 001191
Arkansas Certification #: 05-008-0
A2LA Certification #: 2456.01

REPORT OF LABORATORY ANALYSIS

Page 2 of 23

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



SAMPLE SUMMARY

Project: Kansas Waste Water
Pace Project No.: 6066709

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

REPORT OF LABORATORY ANALYSIS

Page 3 of 23

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



SAMPLE ANALYTE COUNT

Project: Kansas Waste Water
Pace Project No.: 6066709

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

REPORT OF LABORATORY ANALYSIS

Page 4 of 23

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..





ANALYTICAL RESULTS

Project: Kansas Waste Water
 Pace Project No.: 6066709

Sample: AGPURGE-W-924091 Lab ID: 6066709001 Collected: 09/24/09 08:00 Received: 09/25/09 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
504 GCS EDB and DBCP		Analytical Method: EPA 504.1 Preparation Method: EPA 504.1						
1,2-Dibromoethane (EDB)	ND	ug/L	0.047	1	10/08/09 00:00	10/10/09 03:27	106-93-4	
8260 MSV		Analytical Method: EPA 5030B/8260						
Acetone	ND	ug/L	10.0	1		09/28/09 21:07	67-64-1	
Benzene	ND	ug/L	1.0	1		09/28/09 21:07	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		09/28/09 21:07	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		09/28/09 21:07	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		09/28/09 21:07	75-27-4	
Bromoform	ND	ug/L	1.0	1		09/28/09 21:07	75-25-2	
Bromomethane	ND	ug/L	1.0	1		09/28/09 21:07	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	1		09/28/09 21:07	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		09/28/09 21:07	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		09/28/09 21:07	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		09/28/09 21:07	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		09/28/09 21:07	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	1		09/28/09 21:07	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		09/28/09 21:07	108-90-7	
Chloroethane	ND	ug/L	1.0	1		09/28/09 21:07	75-00-3	
Chloroform	ND	ug/L	1.0	1		09/28/09 21:07	67-66-3	
Chloromethane	ND	ug/L	1.0	1		09/28/09 21:07	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		09/28/09 21:07	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		09/28/09 21:07	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		09/28/09 21:07	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		09/28/09 21:07	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		09/28/09 21:07	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		09/28/09 21:07	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		09/28/09 21:07	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		09/28/09 21:07	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		09/28/09 21:07	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		09/28/09 21:07	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		09/28/09 21:07	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		09/28/09 21:07	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		09/28/09 21:07	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		09/28/09 21:07	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		09/28/09 21:07	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		09/28/09 21:07	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		09/28/09 21:07	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		09/28/09 21:07	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		09/28/09 21:07	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		09/28/09 21:07	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		09/28/09 21:07	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		09/28/09 21:07	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		09/28/09 21:07	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		09/28/09 21:07	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		09/28/09 21:07	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		09/28/09 21:07	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		09/28/09 21:07	99-87-6	

Date: 10/13/2009 03:25 PM

REPORT OF LABORATORY ANALYSIS

Page 5 of 23

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc..



ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6066709

Sample: AGPURGE-W-924091 Lab ID: 6066709001 Collected: 09/24/09 08:00 Received: 09/25/09 08:50 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 5030B/8260						
Methylene chloride	ND	ug/L	1.0	1		09/28/09 21:07	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		09/28/09 21:07	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		09/28/09 21:07	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		09/28/09 21:07	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		09/28/09 21:07	103-65-1	
Styrene	ND	ug/L	1.0	1		09/28/09 21:07	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		09/28/09 21:07	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		09/28/09 21:07	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		09/28/09 21:07	127-18-4	
Toluene	ND	ug/L	1.0	1		09/28/09 21:07	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		09/28/09 21:07	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		09/28/09 21:07	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		09/28/09 21:07	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		09/28/09 21:07	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		09/28/09 21:07	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		09/28/09 21:07	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		09/28/09 21:07	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		09/28/09 21:07	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		09/28/09 21:07	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		09/28/09 21:07	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		09/28/09 21:07	1330-20-7	
4-Bromofluorobenzene (S)	102	%	87-115	1		09/28/09 21:07	460-00-4	
Dibromofluoromethane (S)	108	%	87-113	1		09/28/09 21:07	1868-53-7	
1,2-Dichloroethane-d4 (S)	110	%	81-121	1		09/28/09 21:07	17060-07-0	
Toluene-d8 (S)	107	%	89-111	1		09/28/09 21:07	2037-26-5	
Preservation pH	7.0		0.10	1		09/28/09 21:07		
300.0 IC Anions		Analytical Method: EPA 300.0						
Nitrate as N	3.4	mg/L	0.10	1		09/26/09 03:36	14797-55-8	

ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6066709

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

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

Date: 10/13/2009 03:25 PM

REPORT OF LABORATORY ANALYSIS

Page 15 of 23

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6066709

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

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



QUALITY CONTROL DATA

Project: Kansas Waste Water
 Pace Project No.: 6066709

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

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

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

LABORATORY CONTROL SAMPLE: 541950

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

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 541951 541952

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

MATRIX SPIKE SAMPLE: 542080

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





QUALITY CONTROL DATA

Project: Kansas Waste Water
 Pace Project No.: 6066709

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

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

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

Date: 10/13/2009 03:25 PM

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
 without the written consent of Pace Analytical Services, Inc..



QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6066709

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

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

LABORATORY CONTROL SAMPLE: 548227

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

Date: 10/13/2009 03:25 PM

REPORT OF LABORATORY ANALYSIS

Page 19 of 23

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6066709

LABORATORY CONTROL SAMPLE: 548227

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

Date: 10/13/2009 03:25 PM

REPORT OF LABORATORY ANALYSIS

Page 20 of 23

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6066709

LABORATORY CONTROL SAMPLE: 548227

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

QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6066709

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

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

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

LABORATORY CONTROL SAMPLE & LCSD: 548831 548832

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

QUALIFIERS

Project: Kansas Waste Water
Pace Project No.: 6066709

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

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

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

BATCH QUALIFIERS

Batch: MSV/23759

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

ANALYTE QUALIFIERS

L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results for this analyte in associated samples may be biased low.

L3 Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

**Appendix D:
Quality Control Data**

TABLE D.1 Quality control results for organic analyses of water samples by the purge-and-trap method at the AGEM Laboratory.

Sample	Recovery of Surrogate Compounds ^a (%)			Measured Concentration and RPD Value for Calibration Check Standard					
	Fluorobenzene	Bromo- fluorobenzene	1,4-Dichloro- benzene-d ₄	Carbon Tetrachloride		Chloroform		Methylene Chloride	
				ppb	RPD ^b	ppb	RPD ^b	ppb	RPD ^b
<i>SDG 09-5-22, analysis date May 22, 2009</i>									
20-ppb standard	100	100	100	20.68	3.3	19.42	2.9	22.57	12.1
Laboratory blank	120	120	116						
AGGW2-W-17806	97	104	100	Outside calibration range for carbon tetrachloride at zero dilution.					
AGQCTB-W-17807	100	104	106						
AGGW5-W-17925	98	102	105						
AGQCBR-W-17926	91	98	100						
AGGW2-W-17893	95			Outside calibration range for carbon tetrachloride at zero dilution.					
		104	101	Outside calibration range for carbon tetrachloride at zero dilution.					
AGGW3-W-17894	92			Outside calibration range for carbon tetrachloride at zero dilution.					
		109	97	Outside calibration range for carbon tetrachloride at zero dilution.					
AGGW4-W-17895	88	90	92						
AGGW1-W-17896	87	86	86						
AGGW2-W-17893	83	93	92	Analysis at dilution factor (DF) 100 for carbon tetrachloride.					
AGGW3-W-17894	93	104	106	Analysis at DF 100 for carbon tetrachloride.					
AGGW2-W-17806	89	102	103	Analysis at DF 100 for carbon tetrachloride.					
<i>SDG 09-6-18, analysis date June 18, 2009</i>									
20-ppb standard	85	120	111	24	18.2	23.72	17.0	23.78	17.3
Laboratory blank	100	100	100						
AGKMW2-W-17941	108	114	107						
AGKMW3-W-17942	108	119	109						
AGMWC-W-17943	106	116	119						
AGMWH-W-17944	106	111	107						
AGMWJ-W-17945	118	111	113						
AGMWL-W-17946	113	113	114						
AGMWM-W-17947	97	91	88						

TABLE D.1 (Cont.)

Sample	Recovery of Surrogate Compounds ^a (%)			Measured Concentration and RPD Value for Calibration Check Standard					
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichlorobenzene-d ₄	Carbon Tetrachloride		Chloroform		Methylene Chloride	
				ppb	RPD ^b	ppb	RPD ^b	ppb	RPD ^b
<i>SDG 09-6-18, analysis date June 18, 2009 (cont.)</i>									
AGMWP-W-17948	108			Outside calibration range at zero dilution. Reanalyzed at dilution in SDG 09-6-19.					
AGMWQ-W-17949	109	107	102						
AGMWR-W-17950	103	98	99						
AGSB23S-W-17951	93	88	94						
AGSB23S-W-17951DUP	100	92	91						
AGSB36-W-17952	105	98	96						
AGPWS3-W-17953	103	85	88						
AGDW98-W-17954	96	80	84						
<i>SDG 09-6-19, analysis date June 19, 2009</i>									
20-ppb standard	100	100	100	16.99	16.3	23.35	15.5	23.28	15.2
Laboratory blank	100	100	100						
AGMWMDUP-W-17955	91	92	93						
AGSB36DUP-W-17956	102	99	116						
AGQCIR-W-17957	99	104	103						
AGQCIR-W-17958	103	108	111						
AGQCTB-W-17959	99	100	104						
AGMWP-W-17948	104	105	112	Analysis at DF 10.					
AGMWP-W-17948DUP	104	104	103	Duplicate analysis at DF 10.					

^a Quality control range for recovery = 80-120%.

^b Quality control range for RPD = ±20%.

TABLE D.2 Analytical results for quality control samples collected during sitewide monitoring in May-June 2009.

Location	Depth (ft BGL)	Sampling Date	Sample	Sample Type	Concentration (µg/L)			
					Carbon Tetrachloride	Chloroform	Methylene Chloride	1,2-Dichloroethane
GW-2	43-53	5/20/09	AGGW2-W-17806	Primary sample	6090	46	ND ^a	ND
			AGGW2-W-17893	Replicate sample	6393	42	ND	ND
MW-M	59-69	6/15/09	AGMWM-W-17947	Primary sample	84	1.5	ND	ND
			AGMWMDUP-W-17955	Replicate sample	80	3.5	ND	ND
MW-P	35.42-54.92	6/16/09	AGMWP-W-17948	Primary sample	260	11	ND	ND
			AGMWP-W-17948DUP	Duplicate analysis	249	11	ND	ND
SB23S	49-55	6/16/09	AGSB23S-W-17951	Primary sample	59	0.8 J ^b	ND	ND
			AGSB23S-W-17951DUP	Duplicate analysis	56	0.8 J	ND	ND
SB36	42.7-62.7	6/16/09	AGSB36-W-17952	Primary sample	5.1	0.4 J	ND	ND
			AGSB36DUP-W-17956	Replicate sample	4.6	0.7 J	ND	ND
QC	–	5/20/09	AGQCBR-W-17926	Equipment rinsate	ND	ND	ND	ND
QC	–	5/20/09	AGQCTB-W-17807	Trip blank	ND	ND	ND	ND
QC	–	6/16/09	AGQCIR-W-17957	Equipment rinsate	ND	ND	ND	ND
QC	–	6/16/09	AGQCIR-W-17958	Equipment rinsate	ND	ND	ND	ND
QC	–	6/16/09	AGQCTB-W-17959	Trip blank	ND	ND	ND	ND

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

^b Qualifier J indicates an estimated concentration below the quantitation limit of 1.0 µg/L for the purge-and-trap method.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

June 9, 2009

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

Re: Laboratory Project No. 21005
Case: AGRA; SDG: 131854

Dear Mr. Dennis:

Enclosed are analytical results for samples that were received by TestAmerica Burlington on May 22nd, 2009. Laboratory identification numbers were assigned, and designated as follows:

<u>Lab ID</u>	<u>Client Sample ID</u>	<u>Sample Date</u>	<u>Sample Matrix</u>
	Received: 05/22/09 ETR No: 131854		
796165	AG-GW2-W-17806	05/20/09	WATER
796166	AG-QCTB-W-17807	05/20/09	WATER
796167	VHBLK01	05/22/09	WATER

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

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

SOM01.2 Volatile Organics (Trace Level Water)

A storage blank was prepared for volatile organics analysis, and stored in association with the

storage of the samples. That storage blank, identified as VHBLK01, was carried through the holding period with the samples, and analyzed.

Sample AG-GW2-W-17806 was analyzed at a dilution, based on the results of preliminary screening. An additional, more concentrated analysis was performed on the sample in order to provide a lower reporting limit for those target analytes that were not identified as constituents in the primary analysis. Both sets of results for the analysis of sample AG-GW2-W-17806 are included in this submittal. Each of the analyses associated with the sample set exhibited an acceptable internal standard performance. There was an acceptable recovery of each deuterated monitoring compound (DMC) in the analysis each method blank associated with the analytical work, in the analysis of the storage blank associated with the sample set, and in the analysis of each field sample. Matrix spike and matrix spike duplicate analyses were not performed on the samples in this sample set. A trace concentration of acetone was identified in the analysis of each method blank associated with the analytical work. The concentration level in each analysis was below the established reporting limit, and each 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 analytical work. The concentration level 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 represented a compound that is related to the DMC formulation. The fact that the presence of this compound is not within the laboratory's control is at issue. The derived results for that compound have been qualified with an "X" qualifier to reflect the source of the contamination.

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

The primary quantitation mass for methylcyclohexane that is specified in the Statement of Work is mass 83. The laboratory did identify a contribution to mass 83 from 1,2-dichloropropane-d₆, one of the deuterated monitoring compounds (DMCs). The laboratory did change the primary quantitation mass assignment to mass 55 for the quantification of methylcyclohexane.

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

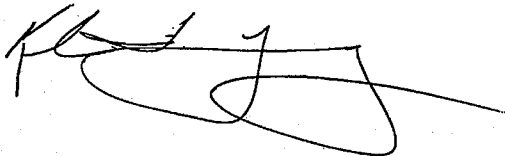
Any reference within this report to Severn Trent Laboratories, Inc. or STL, should be understood to refer to TestAmerica Laboratories, Inc. (formerly known as Severn Trent Laboratories, Inc.) The analytical results associated with the samples presented in this test report were generated under a quality system that adheres to requirements specified in the NELAC standard. Release of the data in this test report and any associated electronic deliverables is authorized by the Laboratory Director's designee as verified by the following signature.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Kirk F. Young', with a large, stylized flourish at the end.

Kirk F. Young
Project Manager

KFY/hsf
Enclosure

TestAmerica Burlington Data Qualifier Definitions

Organic

- U: Compound analyzed but not detected at a concentration above the reporting limit.
- J: Estimated value.
- N: Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds (TICs) where the identification of a compound is based on a mass spectral library search.
- P: SW-846: The relative percent difference for detected concentrations between two GC columns is greater than 40%. Unless otherwise specified, the higher of the two values is reported on the Form I.
- CLP SOW: Greater than 25% difference for detected concentrations between two GC columns. Unless otherwise specified the lower of the two values is reported on the Form I.
- C: Pesticide result whose identification has been confirmed by GC/MS.
- B: Analyte is found in the sample and the associated method blank. The flag is used for tentatively identified compounds as well as positively identified compounds.
- E: Compounds whose concentrations exceed the upper limit of the calibration range of the instrument for that specific analysis.
- D: Concentrations identified from analysis of the sample at a secondary dilution.
- A: Tentatively identified compound is a suspected aldol condensation product.
- X,Y,Z: Laboratory defined flags that may be used alone or combined, as needed. If used, the description of the flag is defined in the project narrative.

Inorganic/Metals

- E: Reported value is estimated due to the presence of interference.
- N: Matrix spike sample recovery is not within control limits.
- * Duplicate sample analysis is not within control limits.
- B: The result reported is less than the reporting limit but greater than the instrument detection limit.
- U: Analyte was analyzed for but not detected above the reporting limit.

Method Codes:

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

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

EPA SAMPLE NO.

AGGW2W17806

Lab Name: TESTAMERICA BURLINGTON

Contract: 21005

Lab Code: STLV Case No.: AGRA

Mod. Ref No.:

SDG No.: 131854

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 796165

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 796165D2

Level: (TRACE/LOW/MED) TRACE

Date Received: 05/22/2009

% Moisture: not dec.

Date Analyzed: 05/27/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 19.1

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/L	
75-71-8	Dichlorodifluoromethane		9.6	U
74-87-3	Chloromethane		9.6	U
75-01-4	Vinyl chloride		9.6	U
74-83-9	Bromomethane		9.6	U
75-00-3	Chloroethane		9.6	U
75-69-4	Trichlorofluoromethane		9.6	U
75-35-4	1,1-Dichloroethene		9.6	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		9.6	U
67-64-1	Acetone		83	JB
75-15-0	Carbon disulfide		9.6	U
79-20-9	Methyl acetate		9.6	U
75-09-2	Methylene chloride		9.6	U
156-60-5	trans-1,2-Dichloroethene		9.6	U
1634-04-4	Methyl tert-butyl ether		9.6	U
75-34-3	1,1-Dichloroethane		9.6	U
156-59-2	cis-1,2-Dichloroethene		9.6	U
78-93-3	2-Butanone		210	
74-97-5	Bromochloromethane		9.6	U
67-66-3	Chloroform		25	
71-55-6	1,1,1-Trichloroethane		9.6	U
110-82-7	Cyclohexane		9.6	U
56-23-5	Carbon tetrachloride		2500	E
71-43-2	Benzene		9.6	U
107-06-2	1,2-Dichloroethane		9.6	U

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

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

EPA SAMPLE NO.

AGGW2W17806

Lab Name: TESTAMERICA BURLINGTON

Contract: 21005

Lab Code: STLV

Case No.: AGRA

Mod. Ref No.:

SDG No.: 131854

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 796165

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 796165D2

Level: (TRACE/LOW/MED) TRACE

Date Received: 05/22/2009

% Moisture: not dec.

Date Analyzed: 05/27/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 19.1

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/L	
79-01-6	Trichloroethene		9.6	U
108-87-2	Methylcyclohexane		9.6	U
78-87-5	1,2-Dichloropropane		9.6	U
75-27-4	Bromodichloromethane		9.6	U
10061-01-5	cis-1,3-Dichloropropene		9.6	U
108-10-1	4-Methyl-2-pentanone		96	U
108-88-3	Toluene		9.6	U
10061-02-6	trans-1,3-Dichloropropene		9.6	U
79-00-5	1,1,2-Trichloroethane		9.6	U
127-18-4	Tetrachloroethene		9.6	U
591-78-6	2-Hexanone		96	U
124-48-1	Dibromochloromethane		9.6	U
106-93-4	1,2-Dibromoethane		9.6	U
108-90-7	Chlorobenzene		9.6	U
100-41-4	Ethylbenzene		9.6	U
95-47-6	o-Xylene		9.6	U
179601-23-1	m,p-Xylene		9.6	U
100-42-5	Styrene		9.6	U
75-25-2	Bromoform		9.6	U
98-82-8	Isopropylbenzene		9.6	U
79-34-5	1,1,2,2-Tetrachloroethane		9.6	U
541-73-1	1,3-Dichlorobenzene		9.6	U
106-46-7	1,4-Dichlorobenzene		9.6	U
95-50-1	1,2-Dichlorobenzene		9.6	U
96-12-8	1,2-Dibromo-3-chloropropane		9.6	U
120-82-1	1,2,4-Trichlorobenzene		9.6	U
87-61-6	1,2,3-Trichlorobenzene		9.6	U

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

EPA SAMPLE NO.

AGGW2W17806D

Lab Name: TESTAMERICA BURLINGTON

Contract: 21005

Lab Code: STLV

Case No.: AGRA

Mod. Ref No.:

SDG No.: 131854

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 796165D1

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 796165D

Level: (TRACE/LOW/MED) TRACE

Date Received: 05/22/2009

% Moisture: not dec.

Date Analyzed: 05/27/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 191.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/L	
75-71-8	Dichlorodifluoromethane		96	U
74-87-3	Chloromethane		96	U
75-01-4	Vinyl chloride		96	U
74-83-9	Bromomethane		96	U
75-00-3	Chloroethane		96	U
75-69-4	Trichlorofluoromethane		96	U
75-35-4	1,1-Dichloroethene		96	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		96	U
67-64-1	Acetone		450	DJB
75-15-0	Carbon disulfide		96	U
79-20-9	Methyl acetate		96	U
75-09-2	Methylene chloride		96	U
156-60-5	trans-1,2-Dichloroethene		96	U
1634-04-4	Methyl tert-butyl ether		96	U
75-34-3	1,1-Dichloroethane		96	U
156-59-2	cis-1,2-Dichloroethene		96	U
78-93-3	2-Butanone		320	DJ
74-97-5	Bromochloromethane		96	U
67-66-3	Chloroform		96	U
71-55-6	1,1,1-Trichloroethane		96	U
110-82-7	Cyclohexane		96	U
56-23-5	Carbon tetrachloride		3000	D
71-43-2	Benzene		96	U
107-06-2	1,2-Dichloroethane		96	U

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

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

EPA SAMPLE NO.

AGGW2W17806D

Lab Name: TESTAMERICA BURLINGTON

Contract: 21005

Lab Code: STLV

Case No.: AGRA

Mod. Ref No.:

SDG No.: 131854

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 796165D1

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 796165D

Level: (TRACE/LOW/MED) TRACE

Date Received: 05/22/2009

% Moisture: not dec.

Date Analyzed: 05/27/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 191.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/L	
79-01-6	Trichloroethene		96	U
108-87-2	Methylcyclohexane		96	U
78-87-5	1,2-Dichloropropane		96	U
75-27-4	Bromodichloromethane		96	U
10061-01-5	cis-1,3-Dichloropropene		96	U
108-10-1	4-Methyl-2-pentanone		960	U
108-88-3	Toluene		96	U
10061-02-6	trans-1,3-Dichloropropene		96	U
79-00-5	1,1,2-Trichloroethane		96	U
127-18-4	Tetrachloroethene		96	U
591-78-6	2-Hexanone		960	U
124-48-1	Dibromochloromethane		96	U
106-93-4	1,2-Dibromoethane		96	U
108-90-7	Chlorobenzene		96	U
100-41-4	Ethylbenzene		96	U
95-47-6	o-Xylene		96	U
179601-23-1	m,p-Xylene		96	U
100-42-5	Styrene		96	U
75-25-2	Bromoform		96	U
98-82-8	Isopropylbenzene		96	U
79-34-5	1,1,2,2-Tetrachloroethane		96	U
541-73-1	1,3-Dichlorobenzene		96	U
106-46-7	1,4-Dichlorobenzene		96	U
95-50-1	1,2-Dichlorobenzene		96	U
96-12-8	1,2-Dibromo-3-chloropropane		96	U
120-82-1	1,2,4-Trichlorobenzene		96	U
87-61-6	1,2,3-Trichlorobenzene		96	U

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

EPA SAMPLE NO.

AGQCTBW17807

Lab Name: TESTAMERICA BURLINGTON

Contract: 21005

Lab Code: STLV Case No.: AGRA

Mod. Ref No.:

SDG No.: 131854

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 796166

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 796166

Level: (TRACE/LOW/MED) TRACE

Date Received: 05/22/2009

% Moisture: not dec.

Date Analyzed: 05/27/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/L	
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		4.4	JB
75-15-0	Carbon disulfide		0.50	U
79-20-9	Methyl acetate		0.50	U
75-09-2	Methylene chloride		0.50	U
156-60-5	trans-1,2-Dichloroethene		0.50	U
1634-04-4	Methyl tert-butyl ether		0.50	U
75-34-3	1,1-Dichloroethane		0.50	U
156-59-2	cis-1,2-Dichloroethene		0.50	U
78-93-3	2-Butanone		5.0	U
74-97-5	Bromochloromethane		0.50	U
67-66-3	Chloroform		0.50	U
71-55-6	1,1,1-Trichloroethane		0.50	U
110-82-7	Cyclohexane		0.50	U
56-23-5	Carbon tetrachloride		0.50	U
71-43-2	Benzene		0.50	U
107-06-2	1,2-Dichloroethane		0.50	U

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

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

EPA SAMPLE NO.

AGQCTBW17807

Lab Name: TESTAMERICA BURLINGTON

Contract: 21005

Lab Code: STLV Case No.: AGRA

Mod. Ref No.:

SDG No.: 131854

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 796166

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 796166

Level: (TRACE/LOW/MED) TRACE

Date Received: 05/22/2009

% Moisture: not dec.

Date Analyzed: 05/27/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

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

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

EPA SAMPLE NO.

VHBLK01

Lab Name: TESTAMERICA BURLINGTON

Contract: 21005

Lab Code: STLV Case No.: AGRA

Mod. Ref No.:

SDG No.: 131854

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 796167

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 796167

Level: (TRACE/LOW/MED) TRACE

Date Received:

% Moisture: not dec.

Date Analyzed: 05/29/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/L	
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		2.7	JB
75-15-0	Carbon disulfide		0.50	U
79-20-9	Methyl acetate		0.50	U
75-09-2	Methylene chloride		0.50	U
156-60-5	trans-1,2-Dichloroethene		0.50	U
1634-04-4	Methyl tert-butyl ether		0.50	U
75-34-3	1,1-Dichloroethane		0.50	U
156-59-2	cis-1,2-Dichloroethene		0.50	U
78-93-3	2-Butanone		5.0	U
74-97-5	Bromochloromethane		0.50	U
67-66-3	Chloroform		0.50	U
71-55-6	1,1,1-Trichloroethane		0.50	U
110-82-7	Cyclohexane		0.50	U
56-23-5	Carbon tetrachloride		0.50	U
71-43-2	Benzene		0.50	U
107-06-2	1,2-Dichloroethane		0.50	U

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

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

EPA SAMPLE NO.

VHBLK01

Lab Name: TESTAMERICA BURLINGTON

Contract: 21005

Lab Code: STLV Case No.: AGRA

Mod. Ref No.:

SDG No.: 131854

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 796167

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 796167

Level: (TRACE/LOW/MED) TRACE

Date Received:

% Moisture: not dec.

Date Analyzed: 05/29/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

June 26, 2009

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

Re: Laboratory Project No. 21005
Case: AGRA; SDG: 132257

Dear Mr. Dennis:

Enclosed are analytical results for samples that were received by TestAmerica Burlington on June 18th, 2009. Laboratory identification numbers were assigned, and designated as follows:

<u>Lab ID</u>	<u>Client Sample ID</u>	<u>Sample Date</u>	<u>Sample Matrix</u>
	Received: 06/18/09 ETR No: 132257		
798627	AGMWC-W-17943	06/15/09	WATER
798628	AGMWJ-W-17945	06/16/09	WATER
798629	AGMWP-W-17948	06/16/09	WATER
798630	AGMWQ-W-17949	06/16/09	WATER
798631	AGQCTB-W-17959	06/16/09	WATER
798632	VHBLK01	06/18/09	WATER

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

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

SOM01.2 Volatile Organics (Trace Level Water)

A storage blank was prepared for volatile organics analysis, and stored in association with the

storage of the samples. That storage blank, identified as VHBLK01, was carried through the holding period with the samples, and analyzed.

Sample AGMWP-W-17948 was analyzed at a dilution, based on the results of preliminary screening. An additional, more concentrated analysis was performed on the sample in order to provide a lower reporting limit for those target analytes that were not identified as constituents in the primary analysis. Both sets of results for the analysis of sample AGMWP-W-17948 are included in this submittal. Each of the analyses associated with the sample set exhibited an acceptable internal standard performance. There was an acceptable recovery of each deuterated monitoring compound (DMC) in the analysis the method blank and instrument blank associated with the analytical work. The analysis of the samples in this sample set did meet the technical acceptance criteria specific to DMC recoveries, although not all DMC recoveries were within the control range in each analysis. The technical acceptance criteria does provide for the recovery of up to three DMCs to fall outside of the control range in the analysis of field samples. The derived recovery of 2-hexanone-d₅ was elevated in the analysis of samples AGMWC-W-17943 and AGMWQ-W-17949, and in the dilution analysis of sample AGMWP-W-17948. Matrix spike and matrix spike duplicate analyses were not performed on the samples in this sample set. The analysis of the method blank associated with the analytical work was free of contamination, as was the analysis of the instrument blank. The analysis of the storage blank associated with the sample set was free of contamination. Present in the method blank, instrument blank, and storage blank analyses was a non-target constituent that represented a compound that is related to the DMC formulation. The fact that the presence of this compound is not within the laboratory's control is at issue. The derived results for that compound have been qualified with an "X" qualifier to reflect the source of the contamination.

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

The primary quantitation mass for methylcyclohexane that is specified in the Statement of Work is mass 83. The laboratory did identify a contribution to mass 83 from 1,2-dichloropropane-d₆, one of the deuterated monitoring compounds (DMCs). The laboratory did change the primary quantitation mass assignment to mass 55 for the quantification of methylcyclohexane.

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

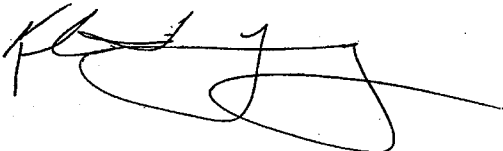
Any reference within this report to Severn Trent Laboratories, Inc. or STL, should be understood to refer to TestAmerica Laboratories, Inc. (formerly known as Severn Trent Laboratories, Inc.) The analytical results associated with the samples presented in this test report were generated under a quality system that adheres to requirements specified in the NELAC standard. Release of the data in this test report and any associated electronic deliverables is authorized by the Laboratory Director's designee as verified by the following signature.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Kirk F. Young', with a large, stylized flourish at the end.

Kirk F. Young
Project Manager

KFY/hsf
Enclosure

TestAmerica Burlington Data Qualifier Definitions

Organic

- U: Compound analyzed but not detected at a concentration above the reporting limit.
- J: Estimated value.
- N: Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds (TICs) where the identification of a compound is based on a mass spectral library search.
- P: SW-846: The relative percent difference for detected concentrations between two GC columns is greater than 40%. Unless otherwise specified the higher of the two values is reported on the Form I.
- CLP SOW: Greater than 25% difference for detected concentrations between two GC columns. Unless otherwise specified the lower of the two values is reported on the Form I.
- C: Pesticide result whose identification has been confirmed by GC/MS.
- B: Analyte is found in the sample and the associated method blank. The flag is used for tentatively identified compounds as well as positively identified compounds.
- E: Compounds whose concentrations exceed the upper limit of the calibration range of the instrument for that specific analysis.
- D: Concentrations identified from analysis of the sample at a secondary dilution.
- A: Tentatively identified compound is a suspected aldol condensation product.
- X,Y,Z: Laboratory defined flags that may be used alone or combined, as needed. If used, the description of the flag is defined in the project narrative.

Inorganic/Metals

- E: Reported value is estimated due to the presence of interference.
- N: Matrix spike sample recovery is not within control limits.
- * Duplicate sample analysis is not within control limits.
- B: The result reported is less than the reporting limit but greater than the instrument detection limit.
- U: Analyte was analyzed for but not detected above the reporting limit.

Method Codes:

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

MATRIX: <i>Water</i>		ARGONNE NATIONAL LABORATORY CHAIN OF CUSTODY RECORD*				Shipping Container No.				
RECEIVING LAB: <i>Test America</i>						Shipping Info:				
PROJECT/SITE: <i>Agra, KS</i>		ANALYSIS				ANL Field Contact (Name & Temporary Phone):				
SAMPLER(S) (Signature) <i>Matt Mills</i>						Number of containers			REMARKS	
DATE OF COLLECTION	SAMPLE ID NUMBER(S)	V	C							
<i>6-15-09</i>	<i>AGMWL-W-17943</i>	<i>2</i>	<i>2</i>				<i>2x 40ml for VOC to Test Am.</i>			
<i>6-16-09</i>	<i>AGMWS-W-17945</i>	<i>2</i>	<i>2</i>							
<i>6-16-09</i>	<i>AGMWP-W-17948</i>	<i>2</i>	<i>2</i>							
<i>6-16-09</i>	<i>AGMWR-W-17949</i>	<i>2</i>	<i>2</i>							
<i>6-16-09</i>	<i>AGQCTB-W-17959</i>	<i>2</i>	<i>2</i>				<i>2x 40ml for VOC to Test Am.</i>			
Relinquished by (Signature)		Date	Time	Received by (Signature)		Date	Time	Received by (Signature)		
<i>Matt Mills</i>		<i>6-16</i>	<i>14:24</i>	<i>Chen Koll</i>						
Relinquished by (Signature)		Date	Time	Received for Laboratory by		Date	Time	Remarks		
<i>Chen Koll</i>				<i>Chen Koll</i>		<i>6/18/09</i>	<i>1015</i>	<i>4.8</i>		
Y	N	FOR LAB USE ONLY			*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.					
<input checked="" type="checkbox"/>		Custody seal was intact when shipment received.								
<input checked="" type="checkbox"/>		Sample containers were intact when received.								
<input checked="" type="checkbox"/>		Shipment was at required temperature when received.								
		Sample labels, Tags and COC agree.								

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

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

EPA SAMPLE NO.

AGMWCW17943

Lab Name: TESTAMERICA BURLINGTON

Contract: 8E-00302

Lab Code: STLV Case No.: AGRA

Mod. Ref No.:

SDG No.: 132257

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 798627

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 798627

Level: (TRACE/LOW/MED) TRACE

Date Received: 06/18/2009

% Moisture: not dec.

Date Analyzed: 06/19/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

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

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

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

EPA SAMPLE NO.

AGMWCW17943

Lab Name: TESTAMERICA BURLINGTON

Contract: 8E-00302

Lab Code: STLV Case No.: AGRA

Mod. Ref No.:

SDG No.: 132257

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 798627

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 798627

Level: (TRACE/LOW/MED) TRACE

Date Received: 06/18/2009

% Moisture: not dec.

Date Analyzed: 06/19/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

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

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

EPA SAMPLE NO.

AGMWJW17945

Lab Name: TESTAMERICA BURLINGTON

Contract: 8E-00302

Lab Code: STLV Case No.: AGRA

Mod. Ref No.:

SDG No.: 132257

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 798628

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 798628

Level: (TRACE/LOW/MED) TRACE

Date Received: 06/18/2009

% Moisture: not dec.

Date Analyzed: 06/19/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/L	
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		19	
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.

AGMWJW17945

Lab Name: TESTAMERICA BURLINGTON

Contract: 8E-00302

Lab Code: STLV Case No.: AGRA

Mod. Ref No.:

SDG No.: 132257

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 798628

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 798628

Level: (TRACE/LOW/MED) TRACE

Date Received: 06/18/2009

% Moisture: not dec.

Date Analyzed: 06/19/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

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

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

EPA SAMPLE NO.

GMWPW17948

Lab Name: TESTAMERICA BURLINGTON

Contract: 8E-00302

Lab Code: STLV

Case No.: AGRA

Mod. Ref No.:

SDG No.: 132257

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 798629

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 798629D2

Level: (TRACE/LOW/MED) TRACE

Date Received: 06/18/2009

% Moisture: not dec.

Date Analyzed: 06/19/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 2.8

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/L	
75-71-8	Dichlorodifluoromethane		1.4	U
74-87-3	Chloromethane		1.4	U
75-01-4	Vinyl chloride		1.4	U
74-83-9	Bromomethane		1.4	U
75-00-3	Chloroethane		1.4	U
75-69-4	Trichlorofluoromethane		1.4	U
75-35-4	1,1-Dichloroethene		1.4	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		1.4	U
67-64-1	Acetone		14	U
75-15-0	Carbon disulfide		1.4	U
79-20-9	Methyl acetate		1.4	U
75-09-2	Methylene chloride		1.4	U
156-60-5	trans-1,2-Dichloroethene		1.4	U
1634-04-4	Methyl tert-butyl ether		1.4	U
75-34-3	1,1-Dichloroethane		1.4	U
156-59-2	cis-1,2-Dichloroethene		1.4	U
78-93-3	2-Butanone		14	U
74-97-5	Bromochloromethane		1.4	U
67-66-3	Chloroform		6.6	
71-55-6	1,1,1-Trichloroethane		1.4	U
110-82-7	Cyclohexane		1.4	U
56-23-5	Carbon tetrachloride		340	E
71-43-2	Benzene		1.4	U
107-06-2	1,2-Dichloroethane		1.4	U

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

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

EPA SAMPLE NO.

GMWPW17948

Lab Name: TESTAMERICA BURLINGTON

Contract: 8E-00302

Lab Code: STLV Case No.: AGRA

Mod. Ref No.:

SDG No.: 132257

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 798629

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 798629D2

Level: (TRACE/LOW/MED) TRACE

Date Received: 06/18/2009

% Moisture: not dec.

Date Analyzed: 06/19/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 2.8

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/L	
79-01-6	Trichloroethene		1.4	U
108-87-2	Methylcyclohexane		1.4	U
78-87-5	1,2-Dichloropropane		1.4	U
75-27-4	Bromodichloromethane		1.4	U
10061-01-5	cis-1,3-Dichloropropene		1.4	U
108-10-1	4-Methyl-2-pentanone		14	U
108-88-3	Toluene		1.4	U
10061-02-6	trans-1,3-Dichloropropene		1.4	U
79-00-5	1,1,2-Trichloroethane		1.4	U
127-18-4	Tetrachloroethene		1.4	U
591-78-6	2-Hexanone		14	U
124-48-1	Dibromochloromethane		1.4	U
106-93-4	1,2-Dibromoethane		1.4	U
108-90-7	Chlorobenzene		1.4	U
100-41-4	Ethylbenzene		1.4	U
95-47-6	o-Xylene		1.4	U
179601-23-1	m,p-Xylene		1.4	U
100-42-5	Styrene		1.4	U
75-25-2	Bromoform		1.4	U
98-82-8	Isopropylbenzene		1.4	U
79-34-5	1,1,2,2-Tetrachloroethane		1.4	U
541-73-1	1,3-Dichlorobenzene		1.4	U
106-46-7	1,4-Dichlorobenzene		1.4	U
95-50-1	1,2-Dichlorobenzene		1.4	U
96-12-8	1,2-Dibromo-3-chloropropane		1.4	U
120-82-1	1,2,4-Trichlorobenzene		1.4	U
87-61-6	1,2,3-Trichlorobenzene		1.4	U

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

EPA SAMPLE NO.

GMWPW17948DL

Lab Name: TESTAMERICA BURLINGTON

Contract: 8E-00302

Lab Code: STLV Case No.: AGRA

Mod. Ref No.:

SDG No.: 132257

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 798629D1

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 798629D

Level: (TRACE/LOW/MED) TRACE

Date Received: 06/18/2009

% Moisture: not dec.

Date Analyzed: 06/19/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 27.5

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/L	
75-71-8	Dichlorodifluoromethane		14	U
74-87-3	Chloromethane		14	U
75-01-4	Vinyl chloride		14	U
74-83-9	Bromomethane		14	U
75-00-3	Chloroethane		14	U
75-69-4	Trichlorofluoromethane		14	U
75-35-4	1,1-Dichloroethene		14	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane		14	U
67-64-1	Acetone		140	U
75-15-0	Carbon disulfide		14	U
79-20-9	Methyl acetate		14	U
75-09-2	Methylene chloride		14	U
156-60-5	trans-1,2-Dichloroethene		14	U
1634-04-4	Methyl tert-butyl ether		14	U
75-34-3	1,1-Dichloroethane		14	U
156-59-2	cis-1,2-Dichloroethene		14	U
78-93-3	2-Butanone		140	U
74-97-5	Bromochloromethane		14	U
67-66-3	Chloroform		7.5	DJ
71-55-6	1,1,1-Trichloroethane		14	U
110-82-7	Cyclohexane		14	U
56-23-5	Carbon tetrachloride		340	D
71-43-2	Benzene		14	U
107-06-2	1,2-Dichloroethane		14	U

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

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

EPA SAMPLE NO.

GMWPW17948DL

Lab Name: TESTAMERICA BURLINGTON

Contract: 8E-00302

Lab Code: STLV Case No.: AGRA

Mod. Ref No.:

SDG No.: 132257

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 798629D1

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 798629D

Level: (TRACE/LOW/MED) TRACE

Date Received: 06/18/2009

% Moisture: not dec.

Date Analyzed: 06/19/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 27.5

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/L	
79-01-6	Trichloroethene		14	U
108-87-2	Methylcyclohexane		14	U
78-87-5	1,2-Dichloropropane		14	U
75-27-4	Bromodichloromethane		14	U
10061-01-5	cis-1,3-Dichloropropene		14	U
108-10-1	4-Methyl-2-pentanone		140	U
108-88-3	Toluene		14	U
10061-02-6	trans-1,3-Dichloropropene		14	U
79-00-5	1,1,2-Trichloroethane		14	U
127-18-4	Tetrachloroethene		14	U
591-78-6	2-Hexanone		140	U
124-48-1	Dibromochloromethane		14	U
106-93-4	1,2-Dibromoethane		14	U
108-90-7	Chlorobenzene		14	U
100-41-4	Ethylbenzene		14	U
95-47-6	o-Xylene		14	U
179601-23-1	m,p-Xylene		14	U
100-42-5	Styrene		14	U
75-25-2	Bromoform		14	U
98-82-8	Isopropylbenzene		14	U
79-34-5	1,1,2,2-Tetrachloroethane		14	U
541-73-1	1,3-Dichlorobenzene		14	U
106-46-7	1,4-Dichlorobenzene		14	U
95-50-1	1,2-Dichlorobenzene		14	U
96-12-8	1,2-Dibromo-3-chloropropane		14	U
120-82-1	1,2,4-Trichlorobenzene		14	U
87-61-6	1,2,3-Trichlorobenzene		14	U

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

EPA SAMPLE NO.

AGMWQW17949

Lab Name: TESTAMERICA BURLINGTON

Contract: 8E-00302

Lab Code: STLV Case No.: AGRA

Mod. Ref No.:

SDG No.: 132257

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 798630

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 798630

Level: (TRACE/LOW/MED) TRACE

Date Received: 06/18/2009

% Moisture: not dec.

Date Analyzed: 06/19/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/L	
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		0.83	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.

AGMWQW17949

Lab Name: TESTAMERICA BURLINGTON

Contract: 8E-00302

Lab Code: STLV Case No.: AGRA

Mod. Ref No.:

SDG No.: 132257

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 798630

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 798630

Level: (TRACE/LOW/MED) TRACE

Date Received: 06/18/2009

% Moisture: not dec.

Date Analyzed: 06/19/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

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

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

EPA SAMPLE NO.

AGQCTBW17959

Lab Name: TESTAMERICA BURLINGTON

Contract: 8E-00302

Lab Code: STLV Case No.: AGRA

Mod. Ref No.:

SDG No.: 132257

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 798631

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 798631

Level: (TRACE/LOW/MED) TRACE

Date Received: 06/18/2009

% Moisture: not dec.

Date Analyzed: 06/19/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/L	
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		8.8	
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		0.97	J
74-97-5	Bromochloromethane		0.50	U
67-66-3	Chloroform		0.50	U
71-55-6	1,1,1-Trichloroethane		0.50	U
110-82-7	Cyclohexane		0.50	U
56-23-5	Carbon tetrachloride		0.50	U
71-43-2	Benzene		0.50	U
107-06-2	1,2-Dichloroethane		0.50	U

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

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

EPA SAMPLE NO.

AGQCTBW17959

Lab Name: TESTAMERICA BURLINGTON

Contract: 8E-00302

Lab Code: STLV Case No.: AGRA

Mod. Ref No.:

SDG No.: 132257

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 798631

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 798631

Level: (TRACE/LOW/MED) TRACE

Date Received: 06/18/2009

% Moisture: not dec.

Date Analyzed: 06/19/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/L	
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		0.53	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		0.94	U
75-25-2	Bromoform		0.50	U
98-82-8	Isopropylbenzene		0.50	U
79-34-5	1,1,2,2-Tetrachloroethane		0.50	U
541-73-1	1,3-Dichlorobenzene		0.50	U
106-46-7	1,4-Dichlorobenzene		0.50	U
95-50-1	1,2-Dichlorobenzene		0.50	U
96-12-8	1,2-Dibromo-3-chloropropane		0.50	U
120-82-1	1,2,4-Trichlorobenzene		0.50	U
87-61-6	1,2,3-Trichlorobenzene		0.50	U

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

EPA SAMPLE NO.

VHBLK01

Lab Name: TESTAMERICA BURLINGTON

Contract: 8E-00302

Lab Code: STLV Case No.: AGRA

Mod. Ref No.:

SDG No.: 132257

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 798632

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 798632

Level: (TRACE/LOW/MED) TRACE

Date Received:

% Moisture: not dec.

Date Analyzed: 06/19/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

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

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

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

EPA SAMPLE NO.

VHBLK01

Lab Name: TESTAMERICA BURLINGTON

Contract: 8E-00302

Lab Code: STLV Case No.: AGRA

Mod. Ref No.:

SDG No.: 132257

Matrix: (SOIL/SED/WATER) Water

Lab Sample ID: 798632

Sample wt/vol: 25.0 (g/mL) mL

Lab File ID: 798632

Level: (TRACE/LOW/MED) TRACE

Date Received:

% Moisture: not dec.

Date Analyzed: 06/19/2009

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL)

Soil Aliquot Volume: (uL)

Purge Volume: 25.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS:		Q
		(ug/L or ug/kg)	ug/L	
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



Environmental Science Division

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



U.S. DEPARTMENT OF
ENERGY

Argonne National Laboratory is a U.S. Department of Energy
laboratory managed by UChicago Argonne, LLC