



engineering and constructing a better tomorrow

February 10, 2011

Mr. Jeff Grow
Superfund Branch
Division of Waste Management
200 Fair Oaks Lane
Frankfort, KY 40601

**RE: Groundwater Monitoring Report - September 2010 Sampling Event
Former Vermont American Facility
500 East Main Street, Louisville, Jefferson County, Kentucky
AGENCY INTEREST # 51784
MACTEC Project No. 6680-08-9635**

Dear Mr. Grow:

On behalf of Robert Bosch Tool Corporation (RBTC, successor to Vermont American Corporation), MACTEC Engineering and Consulting, Inc. (MACTEC) has prepared this report to document recent groundwater monitoring and well abandonment activities at the former Vermont American Facility located at 500 East Main Street in Louisville, Jefferson County, Kentucky.

BACKGROUND

As described in MACTEC's *Management Plan, Former Vermont American Facility, 500 East Main Street, Louisville, Jefferson County, Kentucky, AI # 51784* dated May 20, 2010 (*Management Plan*) four groundwater monitoring wells were previously installed at the site, including one in the alley to the south of the site (W-1), two in the Main Street Building on the northern site boundary (W-2 and W-3), and one across Main Street to the north (W-4).

On September 29, 2010, Endris Engineering, PSC (Endris), under subcontract to MACTEC, surveyed the physical locations as well as the ground surface and top-of-casing elevations for all four wells. Monitoring well locations are shown on **Figure 1**. Monitoring well construction details (compiled from existing well construction logs) are summarized in **Table 1**, including the new survey data.

Demolition of all or part of the Main Street Building is planned as part of the future development activities on the property related to expansion of Interstate 65 (I-65). Due to the difficulty of access, and the planned demolition of the Main Street Building, MACTEC (on behalf of RBTC) proposed removal of the two interior wells (W-2 and W-3), and eventual replacement with exterior wells. MACTEC also proposed to collect a round of groundwater gauging data and groundwater samples in October 2010, as a baseline prior to removal of the two interior wells. The following sections describe the sampling protocols, well abandonment activities, and results of the groundwater sampling event.

FIELD METHODS – SEPTEMBER 2010 GROUNDWATER SAMPLING

MACTEC performed groundwater monitoring activities at the site on September 29, 2010. These activities included well gauging, purging, and groundwater sample collection. Prior to gauging and sampling, all of the monitoring wells were opened and allowed to equilibrate to atmospheric conditions for at least 20 minutes. Depth to groundwater measurements were collected in all four wells (W-1, W-2, W-3 and W-4) using a clean electronic water level indicator accurate to 0.01 feet. A summary of current and historical (where available) depth to water measurements and calculated groundwater elevations is provided in **Table 2**.

All four monitoring wells at the site (W-1, W-2, W-3 and W-4) were purged and sampled via low-flow sampling methods, using a 1.75-inch diameter stainless steel, submersible Monsoon-brand pump with a variable speed control mechanism capable of sustaining purge rates of 100 to 200 milliliters per minute (ml/min). Clean, disposable, high density polyethylene (HDPE) tubing was used in each well and the pump was decontaminated before each use. In each monitoring well, the pump intake was placed within the screened interval at least 1.5 feet above the bottom of the well and the monitoring wells were purged at flow rates ranging between 150 and 200 ml/min. Depth to groundwater measurements and groundwater quality parameters were recorded at five minute intervals.

Groundwater quality parameters during purging were measured with a calibrated Hannah (Model HI 991301) pH/temperature/conductivity meter and a separate, calibrated Hach 2100 P turbidity meter. Readings were recorded until stable conditions were established (temperature +/- 3%, specific conductance +/- 3%, pH +/- 0.1 units, turbidity, +/- 10%) at which time groundwater samples were collected from the pumped flow. At the time of sample collection, turbidity readings ranged from 34 to 100 nephelometric turbidity units (NTUs). The *Management Plan* indicated that turbidity at the time of sample collection

should be 10 NTUs or less. However, during purging, groundwater was observed to be visually clear, even though the calibrated turbidity meter yielded reading higher than 10 NTUs. Based on purge times, stability of the remaining parameters and the visual clarity of the groundwater during purging, a field decision was made to begin sample collection once the last three turbidity measurements were within 10% of one another.

During this sampling event, the maximum drawdown observed during purging was 0.02 feet, well below the 0.3 feet recommended for low-flow sampling in the United States Environmental Protection Agency (USEPA) Region 9 *Standard Operating Procedure For Low-Stress (Low Flow)/Minimal Drawdown Ground-Water Sample Collection*. The last three depths to groundwater measurements and groundwater quality readings collected from each well during sampling are summarized in **Table 3**. Copies of the field low-flow groundwater sampling forms are provided as **Attachment A**.

Groundwater samples were collected into laboratory supplied sample containers, packed in a cooler with ice, and shipped by overnight carrier with appropriate chain-of-custody documentation to ESC Lab Sciences (ESC) in Mt. Juliet, Tennessee for analysis of volatile organic compounds (VOCs) by USEPA SW846 Method 8260B, lead by USEPA Method SW846 Method 6020, total chromium by USEPA Method SW846 Method 6020 and hexavalent chromium by USEPA Method SW846 Method 3060A/7196A.

The total volume of wastewater generated during purging and decontamination activities was approximately 20 gallons. Purge water generated from monitoring wells W-2 and W-3 as well as wastewater from equipment decontamination were containerized in a Department of Transportation (DOT) approved 55-gallon steel drum. Purge water generated from monitoring wells W-1 and W-4 as well as wastewaters generated during initial indoor cleaning/clearing activities were containerized in an on-site polyethylene tank. All wastewater generated in cleaning and groundwater sampling was discharged to the Louisville Metropolitan Sewer District (MSD) sewer on November 22, 2010, under an approved Unusual Discharge Request (UDR).

ANALYTICAL RESULTS

A copy of the laboratory report and chain of custody for the September 2010 groundwater samples is provided in **Attachment B**. Groundwater analytical results are summarized in **Tables 4** and **5**. **Table 4** is

a summary of historical and current groundwater analytical results for the constituents of concern (COCs) in groundwater at the site, which have previously been established to include the metals chromium, hexavalent chromium, and lead, and the VOCs trichloroethene (TCE) and tetrachloroethene (also known as perchloroethylene, or PCE). **Table 5** is a summary of the full results for the samples collected on September 29, 2010, including all the compounds analyzed. The analytical results summarized in **Tables 4 and 5** are compared to the federal drinking water Maximum Contaminant Levels (MCLs) or (for compounds with no MCLs established) the USEPA 2002 Region 9 Preliminary Remediation Goal (PRGs) for tap water. Detected values are shown in bold, and concentrations exceeding the screening level (the MCL or, in the absence of a MCL, the PRG) are highlighted in yellow.

The analytical results for groundwater samples collected from monitoring wells W-1, W-2, W-3 and W-4 on September 29, 2010, including comparisons of the most recent (September 28, 2010) results to historic data, are discussed below:

Metals

- Metals concentrations exceeding the screening levels were reported in only one well sample: W-2 (chromium and hexavalent chromium).
- Total Chromium was detected above the laboratory reporting detection limit (RDL) of 0.0020 milligrams per liter (mg/L) in all of the monitoring wells. Concentrations of total chromium in W-1 (0.017 mg/L), W-3 (0.012 mg/L) and W-4 (0.0067 mg/L) were below the MCL of 0.10 mg/L. The concentration of total chromium detected in W-2 (1.8 mg/L) was above the MCL of 0.10 mg/L.
- Hexavalent chromium was not detected above the RDL of 0.010 mg/L in three wells (W-1, W-4 and W-3). In monitoring well W-2 the concentration of hexavalent chromium detected (1.8 mg/L) was above the MCL of 0.10 mg/L.
- Lead was not detected above the MCL (action level) of 0.015 mg/L in any of the samples. Lead was detected below the MCL and above the RDL of 0.0010 mg/L in monitoring wells W-1 (0.0020 mg/L), W-2 (0.0022 mg/L) and W-4 (0.0024 mg/L). Lead was not detected in W-3.
- In general, concentrations of metals detected in the samples collected in September 2010 were consistent with or lower than historic results. W-1, W-2 and W-3 have had historic concentrations exceeding the MCLs for one or more metals, whereas W-4 has never exhibited metals exceedances. In the last two rounds (March 2008 and September 2010), only W-2 had concentrations of metals (chromium and hexavalent chromium) exceeding MCLs.

Volatile Organic Compounds (VOCs)

- PCE was detected above the RDL of 0.0010 mg/L in all of the monitoring wells. Concentrations of PCE in monitoring wells W-1 (0.0014 mg/L) and W-3 (0.0032 mg/L) were below the MCL of 0.005 mg/L. The concentrations of PCE detected in monitoring wells W-2 (0.0076 mg/L) and W-4 (0.0056 mg/L) were slightly above the MCL.
- TCE was detected above the RDL of 0.0010 mg/L in all of the monitoring wells. Concentrations of TCE in monitoring wells W-1 (0.014 mg/L), W-2 (0.090 mg/L), W-3 (0.045 mg/L) and W-4 (0.53 mg/L) were above the MCL of 0.005 mg/L.
- 1,1-Dichloroethene (1,1-DCE) was detected at low (estimated) concentrations below the RDL of 0.0010 mg/L and below the MCL of 0.007 mg/L in all four wells.
- Cis-1,2-Dichloroethene (cis-1,2-DCE) was not detected in monitoring wells W-1 and W-4. Cis-1,2-DCE was detected above the RDL of 0.0010 mg/L and below the MCL of 0.07 mg/L in monitoring wells W-2 (0.00052 mg/L) and W-3 (0.011 mg/L).
- 1,1,1-Trichloroethane (1,1,1-TCA) was detected above the RDL of 0.0010 mg/L and below the MCL of 0.2 mg/L, in all four wells: W-1 (0.0088 mg/L), W-2 (0.012 mg/L), W-3 (0.011 mg/L) and W-4 (0.0093 mg/L).
- The concentrations of VOCs reported for the September 2010 samples were generally in the same order of magnitude or lower than historic concentrations in the same wells. In one well, W-4 (located north and downgradient of the site), the concentration of TCE reported in 2010 (0.53 mg/L) was about twice as high as the concentrations reported in 2003 and 2008 (0.213 to 0.284 mg/L) in that well.

MONITORING WELL ABANDONMENT

On October 5 and 6, 2010, MACTEC observed and documented abandonment of monitoring wells W-2 and W-3 (located in the Main Street Building) by AST Environmental (AST). Mr. Ted Keen of AST, a Kentucky Certified Monitoring Well Driller, performed the well abandonments. Due to limited access to the area where the wells were located, it was not possible to complete the abandonment using a full-size, truck-mounted drill rig capable of pulling the well casings. AST therefore submitted a variance request to Joe Moffitt of the Kentucky Division of Water on October 4, 2010, asking permission to over-drill the monitoring well casings if AST was unable to pull them using the Geoprobe® 7720DT rig. Mr. Moffitt approved the variance request on that date. The abandonment activity detailed below was performed in accordance with the approved variance. Photographs documenting the well abandonment activities are included in **Attachment C**. Copies of the monitoring well abandonment records, including the variance

request approved by Joe Moffitt on October 4, 2010 and the Kentucky well abandonment forms prepared by AST are provided in **Attachment D**.

Using a concrete coring machine with a 10-inch diameter bit, AST cored over the existing monitoring well vaults to aid in removal. Following removal of the well vaults, 3/8-inch bentonite chips were poured into each well from the bottom to approximately 3 feet below ground surface (bgs) through a funnel at the top of the casing. During placement, the bentonite chips were constantly depth checked using a weighted tape to verify that they were traveling to the bottom of each well and that bridging did not occur, and water was added for hydration after placement of each lift. Following placement of bentonite chips, AST attempted to pull the well casings with no success. Therefore, AST over-drilled both monitoring wells to a depth of 5 feet bgs (this was the depth to the first joint in the well casing) using a Geoprobe® 7720DT track-mounted drill rig equipped with 4.25-inch diameter hollow stem augers with a wooden plug.

During over-drilling, the polyvinyl chloride (PVC) casing and the Portland cement/bentonite grout seal were observed to come out of the boring in the cuttings. All cuttings and well casing fragments were containerized in an open-top, DOT approved 55-gallon steel drum. Following completion of over-drilling, AST backfilled the open, 8-inch boreholes to within one foot of the existing floor surface with 3/8-inch hydrated bentonite chips. The concrete core-hole where monitoring well W-2 was located was patched with concrete flush to the existing floor surface. The monitoring well W-3 core-hole was not patched with concrete as the floor in this area was to be removed.

WASTE DISPOSAL

Purge water and decontamination water generated during sampling were discharged with other wastewater to the Metropolitan Sewer District (MSD) sewer on November 22, 2010. A copy of the MSD letter approving the Unusual Discharge Request for the discharge is provided in **Attachment E**.

The drum containing well abandonment materials was removed from the site and disposed with other drummed waste on December 17, 2010. A copy of the manifest for the drummed waste disposal is also provided in **Attachment E**.

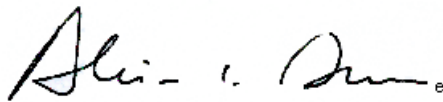
FUTURE ACTIVITIES

As discussed in the *Management Plan*, based on the planned demolition and construction activities related to expansion of I-65, it was anticipated that W-2 and W3 (and possibly additional wells) would have to be abandoned, and that a replacement monitoring well network would be completed once highway construction activities are finished. The options for immediately replacing W-2 and W-3 were reviewed prior to the abandonment of these wells. However, the current locations of both underground and overhead utilities serve to limit the options for monitoring well installations in the parking lane or on the sidewalk on the south side of Main Street. After discussions between Alison Dunn of MACTEC and Jeff Grow of the Kentucky Department of Waste Management (KDWM), the decision was made to defer well replacement and additional groundwater sampling for at least one year, and to review the plan for replacement wells in one or two years, once the schedule for highway construction is better established. Related email correspondence is provided in **Attachment F**.

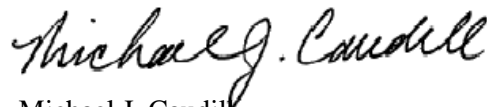
CLOSING

We hope this report contains all the information you require concerning groundwater monitoring performed on behalf of RBTC at the former Vermont American Facility in Louisville, Kentucky. Should you have any questions, please do not hesitate to contact either of the undersigned.

Sincerely,
MACTEC ENGINEERING AND CONSULTING, INC.



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Attachments:








- Figure 1 – Site Layout and Monitoring Well Locations
- Table 1 – Monitoring Well Construction Summary
- Table 2 - Water Level Gauging Data
- Table 3 – Groundwater Quality/Depth to Water Data
- Table 4 – Current and Historical Groundwater Analytical Results – COCs Only
- Table 5 – Current Groundwater Analytical Results

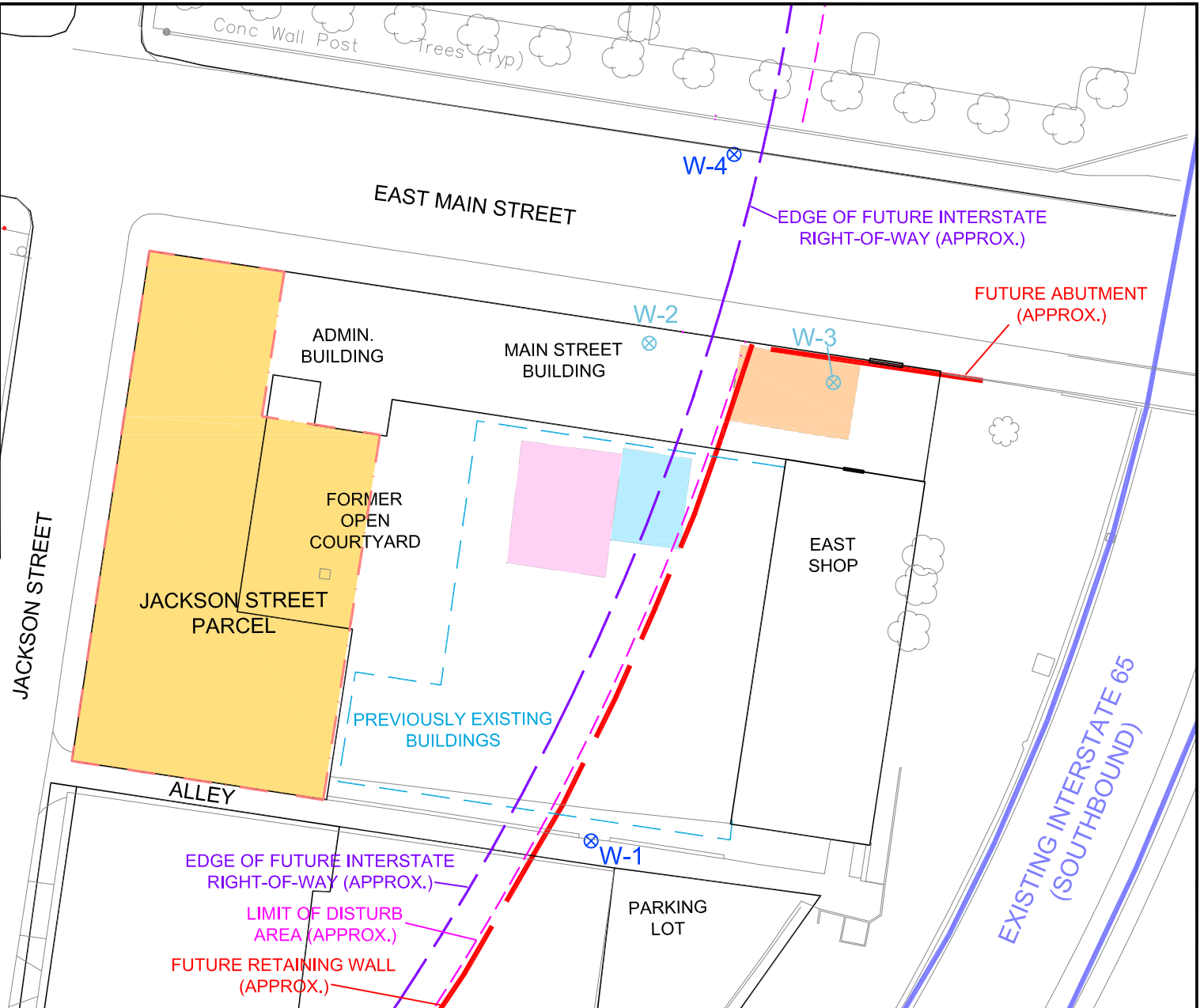
Attachment A – Low-Flow Groundwater Sampling Forms
Attachment B – Laboratory Report and Chain of Custody
Attachment C – Photographs of Monitoring Well Abandonment
Attachment D – Monitoring Well Abandonment Documentation
Attachment E – Disposal Documentation
Attachment F – E-Mail Correspondence Between KDWM and MACTEC

cc: David Luepke, RBTC
John Young, Robert Bosch, LLC
Paul S. Johnstone, MACTEC

FIGURE

LEGEND

-  EXISTING BUILDING
-  PREVIOUS BUILDING
-  PROPERTY LINE
-  EDGE OF FUTURE INTERSTATE RIGHT-OF-WAY (APPROX.)
-  MONITORING WELL (EXISTING)
-  MONITORING WELL (ABANDONED OCTOBER 2010)
-  SOIL MANAGEMENT AREA



SITE LAYOUT AND MONITORING WELL LOCATIONS

FORMER VERMONT AMERICAN FACILITY
500 EAST MAIN STREET, LOUISVILLE, KENTUCKY

PROJECT NUMBER: 6680-08-9635



MACTEC
2456 Fortune Drive, Suite 100
Lexington, KY 40509
(859) 255-3308

APPROX. SCALE	1" = 60'
DATE	10/25/2010
DRAWN BY	ALD
APPROVED BY	MJC

FIG. 1

TABLES

Table 1
Monitoring Well Construction Summary
Former Vermont American Facility
Louisville, Jefferson County, Kentucky
 MACTEC Project 6680-08-9635

Well ID	KDOW AKGWA #	Completion Date	Inner Casing Diameter (in)	Boring Depth (ft BGS)	Length of Perforated Section (ft)	Sounded Well Depth 1996 (ft BMP)	Measuring Point Elevation 1990 (ft MSL)	Measuring Point Elevation 2010 (ft NAVD)	Ground Surface Elevation 2010 (ft NAVD)	Top of Screen Elevation (ft NAVD)	Bottom of Well Elevation (ft NAVD)
W-1	8001-6703	9/26/1990	2	50.0	30	50.5	461.69	461.94	462.2	441.4	411.4
W-2	8001-6704	9/26/1990	2	55.0	30	53.8	462.12	462.45	462.7	438.7	408.7
W-3	8001-6705	9/26/1990	2	55.0	30	51.6	462.31	462.56	462.8	441.0	411.0
W-4	---	9/16/2003	2	70.0	10	---	---	460.82	461.1	401.1	391.1

Notes

--- = not available

MSL = Mean Sea Level, also known as National Geodetic Vertical Datum of 1929 (NGVD29)

NAVD = North American Vertical Datum of 1988

The conversion from NGVD to NAVD is -0.489 ft at this location (http://www.ngs.noaa.gov/cgi-bin/VERTCON/vert_con.prl)

MP = measuring point

GS = ground/floor surface

in = inches

ft = feet

BMP = below measuring point

BGS = below ground surface

2010 survey data by ENDRIS on September 29, 2010, under contract to MACTEC

Historic Sources: ERCE (1990b), KDWM Well Inspection Forms (1996), TTEMI (2003)

Prepared by: ALD 10/10/2010

Checked by: MJC 12/6/2010

Table 2
Water Level Gauging Data
Former Vermont American Facility, Louisville, Kentucky (AI# 51784)
 MACTEC Project No. 6680-08-9635

Well No.	W-1	W-2	W-3	W-4
MP Elevation (ft NAVD)	461.94	462.45	462.56	460.82
Sounded Depth (ft BMP)	50.5	53.79	51.58	--
Depth to Water (ft BMP)				
1996-03-16	41.52	42.08	42.21	--
1999-05	41.90	42.60	42.80	--
1999-11-15	43.91	44.59	44.84	--
2003-09-23	42.43	43.10	43.25	41.56
2010-09-29	43.65	44.27	44.38	42.67
Groundwater Elevation (ft NAVD)				
1996-03-16	420.42	420.37	420.35	--
1999-05	420.04	419.85	419.76	--
1999-11-15	418.03	417.86	417.72	--
2003-09-23	419.51	419.35	419.31	419.26
2010-09-29	418.29	418.18	418.18	418.15

Prepared by: MJC 11/12/2010

Checked by: ALD 12/6/2010

Notes:

ft feet
 NAVD North American Vertical Datum of 1988 (also known as NAVD88)
 BGS Below ground surface
 BMP Below surveyed measuring point
 MP Measuring point (top of PVC casing, north side)
 -- Data not available (no measurement taken)

Sounded well depths and depth to water measurements prior to September 29, 2010 were not collected by MACTEC, but were obtained from previous reports.

Table 3
Groundwater Quality and Depth to Water Readings Prior to Sample Collection
Former Vermont American Facility, Louisville, Kentucky (AI# 51784)
 MACTEC Project No. 6680-08-9635

Well	Date	Time	Temp- erature	SC	pH	Turbidity	Depth to Water
			°C	mS/cm	SU	NTU	ft BMP
W-1	9/29/2010	0956	--	--	--	--	43.65
		1043 (start)	--	--	--	--	43.65
		1118	20.8	1.63	6.70	125	43.67
		1123	20.1	1.64	6.71	105	43.67
		1128	20.1	1.65	6.70	100	43.66
W-2	9/29/2010	0947	--	--	--	--	44.27
		1327 (start)	--	--	--	--	--
		1407	19.0	1.44	6.75	119	--
		1412	18.9	1.47	6.76	93	--
		1417	18.9	1.48	6.70	77	--
W-3	9/29/2010	0949	--	--	--	--	44.38
		1427 (start)	--	--	--	--	44.38
		1500	18.7	1.20	6.71	38	44.37
		1505	18.4	1.20	6.69	42	44.37
		1510	18.4	1.21	6.64	40	44.38
W-4	9/29/2010	1001	--	--	--	--	42.67
		1202 (start)	--	--	--	--	42.65
		1232	21.7	1.39	6.67	53	42.67
		1237	21.8	1.36	6.70	44	42.67
		1242	21.8	1.37	6.71	34	42.67

Prepared By: MJC 11/12/2010

Checkd By: ALD 12/06/2010

Notes:

- ft feet
- BMP Below surveyed measuring point
- °C Degrees Centigrade
- mS/cm Millisiemens per centimeter
- SC Specific Conductance
- S.U. Standard Units for pH
- NTU Nephelometric Turbidity Units
- Data not available (no measurement taken)

Table 4
Current and Historical Groundwater Analytical Results - COCs Only
Former Vermont American Facility, Louisville, Kentucky (AI# 51784)
 MACTEC Project No. 6680-08-9635

Well/Date	Chromium	Hexavalent Chromium	Lead	PCE	TCE
Units:	mg/L	mg/L	mg/L	mg/L	mg/L
MCL:	0.1	0.1	0.015	0.005	0.005
W-1					
Oct-90	0.030	--	0.006	0.010	0.081
Nov-90	--	--	--	--	0.219
Jun-96	0.005	--	0.009	ND	0.548
Jun-97	0.030	--	0.046	0.007	0.248
17-May-99	0.008	--	0.010	0.004	0.062
23-Sep-03	ND	ND	ND	0.0064	0.0987
29-Feb-08	--	--	--	<0.0050	0.0505
4-Mar-08	0.0356	<0.010	0.0563	--	--
18-Mar-08	<0.0100	--	<0.0100	--	--
29-Sep-10	0.017	< 0.010	0.0020	0.0014	0.014
W-2					
Oct-90	0.07	--	ND	0.032	0.343
Nov-90	NA	--	NA	--	0.333
Jun-96	0.744	--	0.018	0.023	0.240
Jun-97	0.390	--	0.011	0.021	0.281
19-May-99	0.119	--	0.004	0.023	0.165
23-Sep-03	1.68	1.41	ND	0.0092	0.179
29-Feb-08	--	--	--	0.0059	0.0782
4-Mar-08	0.125	0.019	0.0537	--	--
18-Mar-08	1.310	--	<0.0100	--	--
29-Sep-10	1.8	1.8	0.0022	0.0076	0.090
W-3					
Oct-90	0.12	--	ND	0.034	0.538
Nov-90	--	--	--	0.028	0.780
Jun-96	1.420	--	0.044	ND	0.132
Jun-97	1.300	--	0.018	ND	0.100
19-May-99	0.978	--	0.009	0.008	0.165
23-Sep-03	1.97	1.56	0.008	0.0054	0.088
29-Feb-08	--	--	--	<0.0050	0.0515
4-Mar-08	0.118	0.024	0.0843	--	--
18-Mar-08	<0.0100	--	<0.0100	--	--
29-Sep-10	0.012	< 0.010	< 0.0010	0.0032	0.045
W-4					
23-Sep-03	ND	ND	0.007	0.0042	0.213
23-Sep-03 (dup)	ND	ND	0.007	0.0040	0.215
29-Feb-08	--	--	--	<0.0050	0.284
4-Mar-08	<0.0100	<0.010	<0.0100	--	--
18-Mar-08	<0.0100	--	<0.0100	--	--
29-Sep-10	0.0067	< 0.010	0.0024	0.0056	0.53

Notes:

PCE = tetrachloroethene

TCE = trichloroethene

mg/L = milligrams per liter, or parts per million (ppm)

-- = not analyzed or not available

ND = not detected Values exceeding the MCL are shaded

Detected values shown in **bold**

Results in this table are summarized from tables included in previous reports

Prepared By: MJC 11/11/2010

Checkd By: VM 11/12/2010

Table 5
Groundwater Analytical Results, Samples Collected September 29, 2010
Former Vermont American Facility, Louisville, Kentucky (AI# 51784)
 MACTEC Project No. 6680-08-9635

	Method	Units	Field ID:		W-1	W-4	W-2	W-3
			Collection Date:	PRGs	MCLs	9/29/2010	9/29/2010	9/29/2010
Metals								
Chromium, Hexavalent	7196A	mg/L		0.1	<0.010	<0.010	1.8	<0.010
Chromium	6020	mg/L		0.1	0.017	0.0067	1.8	0.012
Lead	6020	mg/L		0.015 *	0.0020	0.0024	0.0022	<0.0010
Volatile Organic Compounds (VOCs)								
Acetone	8260B	mg/L	0.61	--	<0.050	<0.050	<0.050	<0.050
Acrolein	8260B	mg/L	0.000042	--	<0.050	<0.050	<0.050	<0.050
Acrylonitrile	8260B	mg/L	0.000039	--	<0.010	<0.010	<0.010	<0.010
Benzene	8260B	mg/L	0.00034	0.005	<0.0010	<0.0010	<0.0010	<0.0010
Bromobenzene	8260B	mg/L	0.020	--	<0.0010	<0.0010	<0.0010	<0.0010
Bromodichloromethane	8260B	mg/L	0.00018	0.080 **	<0.0010	<0.0010	<0.0010	<0.0010
Bromoform	8260B	mg/L	0.0085	0.080 **	<0.0010	<0.0010	<0.0010	<0.0010
Bromomethane	8260B	mg/L	0.0087	--	<0.0050	<0.0050	<0.0050	<0.0050
n-Butylbenzene	8260B	mg/L	0.24	--	<0.0010	<0.0010	<0.0010	<0.0010
sec-Butylbenzene	8260B	mg/L	0.24	--	<0.0010	<0.0010	<0.0010	<0.0010
tert-Butylbenzene	8260B	mg/L	0.24	--	<0.0010	<0.0010	<0.0010	<0.0010
Carbon tetrachloride	8260B	mg/L	0.00017	0.005	<0.0010	<0.0010	<0.0010	<0.0010
Chlorobenzene	8260B	mg/L	0.11	0.1	<0.0010	<0.0010	<0.0010	<0.0010
Chlorodibromomethane	8260B	mg/L		0.080 **	<0.0010	<0.0010	<0.0010	<0.0010
Chloroethane	8260B	mg/L	0.0046	--	<0.0050	<0.0050	<0.0050	<0.0050
2-Chloroethyl vinyl ether	8260B	mg/L	--	--	<0.050	<0.050	<0.050	<0.050
Chloroform	8260B	mg/L	0.0062	0.080 **	<0.0050	<0.0050	<0.0050	<0.0050
Chloromethane	8260B	mg/L	0.0015	--	<0.0025	<0.0025	<0.0025	<0.0025
2-Chlorotoluene	8260B	mg/L	--	--	<0.0010	<0.0010	<0.0010	<0.0010
4-Chlorotoluene	8260B	mg/L	--	--	<0.0010	<0.0010	<0.0010	<0.0010
1,2-Dibromo-3-Chloropropane	8260B	mg/L	0.000048	--	<0.0050	<0.0050	<0.0050	<0.0050
1,2-Dibromoethane	8260B	mg/L	0.00000076	--	<0.0010	<0.0010	<0.0010	<0.0010
Dibromomethane	8260B	mg/L		--	<0.0010	<0.0010	<0.0010	<0.0010
1,2-Dichlorobenzene	8260B	mg/L	0.37	0.6	<0.0010	<0.0010	<0.0010	<0.0010
1,3-Dichlorobenzene	8260B	mg/L	0.0055	--	<0.0010	<0.0010	<0.0010	<0.0010
1,4-Dichlorobenzene	8260B	mg/L	0.00050	0.075	<0.0010	<0.0010	<0.0010	<0.0010
Dichlorodifluoromethane	8260B	mg/L	0.39	--	<0.0050	<0.0050	<0.0050	<0.0050
1,1-Dichloroethane	8260B	mg/L	0.81	--	<0.0010	<0.0010	<0.0010	<0.0010
1,2-Dichloroethane	8260B	mg/L	0.00012	--	<0.0010	<0.0010	<0.0010	<0.0010
1,1-Dichloroethene	8260B	mg/L	0.34	0.007	0.00042 J	0.00092 J	0.00083 J	0.00059 J
cis-1,2-Dichloroethene	8260B	mg/L	0.061	0.07	<0.0010	<0.0010	0.00052 J	0.011
trans-1,2-Dichloroethene	8260B	mg/L	0.12	0.1	<0.0010	<0.0010	<0.0010	<0.0010
1,2-Dichloropropane	8260B	mg/L	0.00016	0.005	<0.0010	<0.0010	<0.0010	<0.0010
1,1-Dichloropropene	8260B	mg/L	--	--	<0.0010	<0.0010	<0.0010	<0.0010
1,3-Dichloropropene	8260B	mg/L	--	--	<0.0010	<0.0010	<0.0010	<0.0010
cis-1,3-Dichloropropene	8260B	mg/L	--	--	<0.0010	<0.0010	<0.0010	<0.0010
trans-1,3-Dichloropropene	8260B	mg/L	--	--	<0.0010	<0.0010	<0.0010	<0.0010
2,2-Dichloropropane	8260B	mg/L	--	--	<0.0010	<0.0010	<0.0010	<0.0010
Di-isopropyl ether	8260B	mg/L	--	--	<0.0010	<0.0010	<0.0010	<0.0010
Ethylbenzene	8260B	mg/L	0.0029	0.7	<0.0010	<0.0010	<0.0010	<0.0010
Hexachloro-1,3-butadiene	8260B	mg/L	0.00086	--	<0.0010	<0.0010	<0.0010	<0.0010
Isopropylbenzene	8260B	mg/L	0.66	--	<0.0010	<0.0010	<0.0010	<0.0010
p-Isopropyltoluene	8260B	mg/L	--	--	<0.0010	<0.0010	<0.0010	<0.0010
2-Butanone (MEK)	8260B	mg/L	--	--	<0.010	<0.010	<0.010	<0.010
Methylene Chloride	8260B	mg/L	0.0043	0.005	<0.0050	<0.0050	<0.0050	<0.0050
4-Methyl-2-pentanone (MIBK)	8260B	mg/L	--	--	<0.010	<0.010	<0.010	<0.010
Methyl tert-butyl ether	8260B	mg/L	0.013	--	<0.0010	<0.0010	<0.0010	<0.0010
Naphthalene	8260B	mg/L	0.0062	--	<0.0050	<0.0050	<0.0050	<0.0050
n-Propylbenzene	8260B	mg/L	0.24	--	<0.0010	<0.0010	<0.0010	<0.0010
Styrene	8260B	mg/L	1.6	--	<0.0010 J4	<0.0010 J4	<0.0010 J4	<0.0010 J4
1,1,1,2-Tetrachloroethane	8260B	mg/L	0.00043	--	<0.0010	<0.0010	<0.0010	<0.0010
1,1,1,2,2-Tetrachloroethane	8260B	mg/L	0.000055	--	<0.0010	<0.0010	<0.0010	<0.0010

Table 5
Groundwater Analytical Results, Samples Collected September 29, 2010
Former Vermont American Facility, Louisville, Kentucky (AI# 51784)
 MACTEC Project No. 6680-08-9635

	Field ID:				W-1	W-4	W-2	W-3
	Method	Units	PRGs	MCLs	9/29/2010	9/29/2010	9/29/2010	9/29/2010
1,1,2-Trichloro-1,2,2-trifluoroethane	8260B	mg/L		--	<0.0010	<0.0010	<0.0010	<0.0010
Tetrachloroethene	8260B	mg/L	0.00066	0.005	0.0014	0.0056	0.0076	0.0032
Toluene	8260B	mg/L	0.72	1	<0.0050	<0.0050	<0.0050	<0.0050
1,2,3-Trichlorobenzene	8260B	mg/L	--	--	<0.0010	<0.0010	<0.0010	<0.0010
1,2,4-Trichlorobenzene	8260B	mg/L	0.19	0.07	<0.0010	<0.0010	<0.0010	<0.0010
1,1,1-Trichloroethane	8260B	mg/L	3.2	0.2	0.0088	0.0093	0.012	0.011
1,1,2-Trichloroethane	8260B	mg/L	0.00020	0.005	<0.0010	<0.0010	0.00041 J	<0.0010
Trichloroethene	8260B	mg/L	0.000028	0.005	0.014	0.53	0.09	0.045
Trichlorofluoromethane	8260B	mg/L	1.3	--	<0.0050	<0.0050	<0.0050	<0.0050
1,2,3-Trichloropropane	8260B	mg/L	0.0000056	--	<0.0010	<0.0010	<0.0010	<0.0010
1,2,4-Trimethylbenzene	8260B	mg/L	0.012	--	<0.0010	<0.0010	<0.0010	<0.0010
1,2,3-Trimethylbenzene	8260B	mg/L	--	--	<0.0010	<0.0010	<0.0010	<0.0010
1,3,5-Trimethylbenzene	8260B	mg/L	0.012	--	<0.0010	<0.0010	<0.0010	<0.0010
Vinyl chloride	8260B	mg/L	0.000020	0.002	<0.0010	<0.0010	<0.0010	<0.0010
Xylenes, Total	8260B	mg/L	0.21	10	<0.0030	<0.0030	<0.0030	<0.0030

Prepared By: MJC 11/11/2010

Checked By: VM 11/12/2010

Notes

Detected values shown in **bold**

MCL USEPA Maximum Contaminant Level for drinking water

PRG USEPA Region 9 Preliminary Remediation Goal (2002) for tap water

* The MCL value shown is an Action Level for lead in drinking water

** The MCL value shown is for total trihalomethanes (TTHMs) including this compound

Values exceeding the MCL (or, in the absence of a MCL, the PRG) are shaded in yellow

Laboratory Qualifiers:

J4 The associated batch QC was outside the established quality control range for accuracy.

J (EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.

ATTACHMENT A

LOW-FLOW GROUNDWATER SAMPLING FIELD FORMS

Low-Flow Ground Water Sample Collection Form

Well Number: <u>W-1</u>	Sample Date: <u>9/29/10</u>
Field Sample ID.: <u>W-1, 92910</u>	MACTEC Personnel: <u>M. Caudill</u>
Weather: <u>Warm, 70's</u>	Other Personnel: _____

Measuring Point: Top of casing Reported Depth to Top of Screen (ft BMP): _____

Reported Well Depth (ft BMP): _____ **Do not sound well bottom or touch bottom with pump!**

Initial Depth to Water (ft BMP): 43.65 Time 0956

Pump Used: ~~QED Sample Pro MicroPurge Stainless Steel 1.75-inch Bladder Pump~~ Monsoon high performance pump, 1.75" stainless Yes ___ No ___

If no, describe: _____

Well where pump was last used: NA 1130 Time when pump was decontaminated

Setup Procedures

- | | |
|---|--|
| <input type="checkbox"/> Lay out clean PE sheet for equipment | _____ Time when photo taken of this location |
| <input type="checkbox"/> Lower pump to within 2 to 5 feet of bottom and secure. | |
| <input type="checkbox"/> Connect pump to controller and controller to gas supply. | |
| <input type="checkbox"/> Assemble multi-parameter meter and connect flow-thru chamber to pump discharge line. | |
| <input type="checkbox"/> Make sure Y-connection is available to draw turbidity sample outside flow-thru chamber. Prepare turbidity meter. | |
| <input type="checkbox"/> Secure discharge line to receiving bucket so that discharge is higher than flow-thru chamber | |

Purging Procedures (record readings on attached sheet)

- | | |
|---|--|
| <input type="checkbox"/> Take water level reading after pump is secured | |
| <input type="checkbox"/> Start pump at lowest speed setting and slowly increase speed until discharge occurs. NOTE TIME PUMP IS STARTED. | |
| <input type="checkbox"/> Check water level, drawdown should stay less than 0.3 ft. If drawdown is more, adjust pump speed downward until it stabilizes. | |
| <input type="checkbox"/> Check pumping rate by time to fill a known volume. Target pumping rate: 250 to 300 mL/min for 2-inch, 150-200 mL/min for 1.5-inch wells. | |
| <input type="checkbox"/> If target pumping rate cannot be reached, or drawdown exceeds 0.3 ft, consult detailed procedures | |
| <input type="checkbox"/> DO NOT DRAW WATER LEVEL BELOW TOP OF SCREEN (See Depth to Top of Screen above) | |
| <input type="checkbox"/> Once pumping rate is stable, take field parameter readings (CHECK TO MAKE SURE THERE IS NO AIR IN FLOW-THRU CHAMBER) | |
| <input type="checkbox"/> Purging is complete once three consecutive readings are within limits | |

Sampling Procedures

- | | |
|---|--|
| <input type="checkbox"/> Disconnect pump discharge line from flow-thru chamber, position so pumped water can flow into bottles without touching lip of bottle. | |
| <input type="checkbox"/> Fill all containers by allowing pump discharge to flow gently down the inside of the container with minimal turbulence. | |
| <input type="checkbox"/> Fill all containers (including bottles for FD or MS/MSD) in following order:
VOCs, SVOCs, PAHs, Pesticides/PCBs, Metals, Arsenic, Cyanide and chloride. | |
| <input type="checkbox"/> If using a peristaltic pump, do not collect VOCs from pump, use a bailer after tubing is removed and drop it to level purged. | |

Low-Flow Ground Water Sample Collection Form

Well Number: N-1 Sample Date: 9/29/10 MACTEC Personnel: M. Cassidy

Clock Time (24 HR)	Water Depth (Ft BMP)	Pump Settings			Purge Rate (mL/min)	Cum. Vol Purged (Liters)	Temp. (°C)	Spec. Cond. (uS/cm)	DO (mg/L)	pH (S.U.)	ORP/Eh mv	Turbidity (NTU)	Comments	
		CPM	Pres.											
							MS							
							Stabilization Limits:	3%	3%	10%	+/- 0.1	+/- 10	10% or 5	

Last three readings, date:

Current readings

10:43	43.65			150-200 ml/min		22.1	1.63 1.64		7.69		452	turbid gray/bn.
10:48	43.65					20.0	1.64		6.81		359	
10:53	43.67					19.9	1.65		6.70		326	
10:58	43.67			175 ml/min		19.9	1.65		6.73		266	
11:03	43.67					20.2	1.64		6.67		165	slightly turbid w/ light gray br.
11:08	43.67			200 ml/min		20.1	1.63		6.73		154	
11:13	43.66					20.08	1.64		6.68		128	
11:18	43.67					20.8	1.63		6.70		125	
11:23	43.67			200 ml/min		20.1	1.64		6.71		105	
Ⓢ 11:28	43.66					20.1	1.65		6.70		100	clear
Sampled @ 1128 ~15L (4 gal)												

Low-Flow Ground Water Sample Collection Form

Well Number: <u>W-4</u>	Sample Date: <u>9/29/10</u>
Field Sample ID.: <u>W-4, 92910</u>	MACTEC Personnel: <u>M. Caudell</u>
Weather: <u>warm, 70's</u>	Other Personnel: _____

Measuring Point: Top of casing

Reported Depth to Top of Screen (ft BMP): _____

Reported Well Depth (ft BMP): _____

Do not sound well bottom or touch bottom with pump!

Initial Depth to Water (ft BMP): 42.67

1001 Time

Pump Used: QED Sample Pro MicroPurge Stainless Steel 1.75-inch Bladder Pump

Yes No

If no, describe: Monsoon high performance pump, 1.75" stainless

Well where pump was last used: W-1

1248 Time when pump was decontaminated

Setup Procedures

- Lay out clean PE sheet for equipment
- Lower pump to within 2 to 5 feet of bottom and secure.
- Connect pump to controller and controller to gas supply.
- Assemble multi-parameter meter and connect flow-thru chamber to pump discharge line.
- Make sure Y-connection is available to draw turbidity sample outside flow-thru chamber. Prepare turbidity meter.
- Secure discharge line to receiving bucket so that discharge is higher than flow-thru chamber

_____ Time when photo taken of this location

Purging Procedures (record readings on attached sheet)

- Take water level reading after pump is secured
- Start pump at lowest speed setting and slowly increase speed until discharge occurs. NOTE TIME PUMP IS STARTED.
- Check water level, drawdown should stay less than 0.3 ft. If drawdown is more, adjust pump speed downward until it stabilizes.
- Check pumping rate by time to fill a known volume. Target pumping rate: 250 to 300 mL/min for 2-inch, 150-200 mL/min for 1.5-inch wells.
- If target pumping rate cannot be reached, or drawdown exceeds 0.3 ft, consult detailed procedures
- DO NOT DRAW WATER LEVEL BELOW TOP OF SCREEN (See Depth to Top of Screen above)
- Once pumping rate is stable, take field parameter readings (CHECK TO MAKE SURE THERE IS NO AIR IN FLOW-THRU CHAMBER)
- Purging is complete once three consecutive readings are within limits

Sampling Procedures

- Disconnect pump discharge line from flow-thru chamber, position so pumped water can flow into bottles without touching lip of bottle.
- Fill all containers by allowing pump discharge to flow gently down the inside of the container with minimal turbulence.
- Fill all containers (including bottles for FD or MS/MSD) in following order:
VOCs, SVOCs, PAHs, Pesticides/PCBs, Metals, Arsenic, Cyanide and chloride.
- If using a peristaltic pump, do not collect VOCs from pump, use a bailer after tubing is removed and drop it to level purged.

Low-Flow Ground Water Sample Collection Form

Well Number: W-4 Sample Date: 9/29/10 MACTEC Personnel: M. Cavdell

Clock Time (24 HR)	Water Depth (Ft BMP)	Pump Settings		Purge Rate (mL/min)	Cum. Vol Purged (Liters)	Temp. (°C)	Spec. Cond. (uS/cm)	DO (mg/L)	pH (S.U.)	ORP/Eh mv	Turbidity (NTU)	Comments
		CPM	Pres.									
Stabilization Limits:						3%	3%	10%	+/- 0.1	+/- 10	10% or 5	

Last three readings, date:

Current readings

1202	42.65			150 ml/min	23.6	1.31	6.77	382	slightly turbid light br.			
1207	42.67			175 ml/min	21.0	1.40	6.73	252				
1212	42.68			150 ml/min	21.0	1.39	6.74	181				
1217	42.65			175 ml/min	21.0	1.40	6.69	119				
1222	42.65			175 ml/min	20.8	1.40	6.73	93	clean			
1227	42.67			200 ml/min	21.4	1.41	6.80	63				
1232	42.67			200 ml/min	21.7	1.39	6.67	53				
1237	42.67			200 ml/min	21.8	1.36	6.70	44	very clear			
1242	42.67			200 ml/min	21.8	1.37	6.71	34	"			
*1248 sample collected ~9.5 (3yrs)												

Low-Flow Ground Water Sample Collection Form

Well Number: <u>W-2</u>	Sample Date: <u>9/29/10</u>
Field Sample ID.: <u>W-2, 92910</u>	MACTEC Personnel: <u>M. Candia</u>
Weather: <u>Warm, sunny 90's</u>	Other Personnel: <u>—</u>

Measuring Point: Top of casing Reported Depth to Top of Screen (ft BMP): _____

Reported Well Depth (ft BMP): _____ **Do not sound well bottom or touch bottom with pump!**

Initial Depth to Water (ft BMP): 44.27 0947 Time

Pump Used: QED Sample Pro MicroPurge Stainless Steel 1.75-inch Bladder Pump Yes No

If no, describe: monsoon high performance pump, 1.75" stainless

Well where pump was last used: W-4 1423 Time when pump was decontaminated

Setup Procedures

- Lay out clean PE sheet for equipment _____ Time when photo taken of this location
- Lower pump to within 2 to 5 feet of bottom and secure.
- Connect pump to controller and controller to gas supply.
- Assemble multi-parameter meter and connect flow-thru chamber to pump discharge line.
- Make sure Y-connection is available to draw turbidity sample outside flow-thru chamber. Prepare turbidity meter.
- Secure discharge line to receiving bucket so that discharge is higher than flow-thru chamber

Purging Procedures (record readings on attached sheet)

- Take water level reading after pump is secured
- Start pump at lowest speed setting and slowly increase speed until discharge occurs. NOTE TIME PUMP IS STARTED.
- Check water level, drawdown should stay less than 0.3 ft. If drawdown is more, adjust pump speed downward until it stabilizes.
- Check pumping rate by time to fill a known volume. Target pumping rate: 250 to 300 mL/min for 2-inch, 150-200 mL/min for 1.5-inch wells.
- If target pumping rate cannot be reached, or drawdown exceeds 0.3 ft, consult detailed procedures
- DO NOT DRAW WATER LEVEL BELOW TOP OF SCREEN (See Depth to Top of Screen above)
- Once pumping rate is stable, take field parameter readings (CHECK TO MAKE SURE THERE IS NO AIR IN FLOW-THRU CHAMBER)
- Purging is complete once three consecutive readings are within limits

Sampling Procedures

- Disconnect pump discharge line from flow-thru chamber, position so pumped water can flow into bottles without touching lip of bottle.
- Fill all containers by allowing pump discharge to flow gently down the inside of the container with minimal turbulence.
- Fill all containers (including bottles for FD or MS/MSD) in following order:
 VOCs, SVOCs, PAHs, Pesticides/PCBs, Metals, Arsenic, Cyanide and chloride.
- If using a peristaltic pump, do not collect VOCs from pump, use a bailer after tubing is removed and drop it to level purged.

Low-Flow Ground Water Sample Collection Form

Well Number: N-2 Sample Date: 9/29/10 MACTEC Personnel: M. Cavallari

Clock Time (24 HR)	Water Depth (Ft BMP)	Pump Settings			Purge Rate (mL/min)	Cum. Vol Purged (Liters)	Temp. (°C)	Spec. Cond. (uS/cm)	DO (mg/L)	pH (S.U.)	ORP/Eh mv	Turbidity (NTU)	Comments
		CPM	Pres.										
Stabilization Limits:							3%	3%	10%	+/- 0.1	+/- 10	10% or 5	

Last three readings, date:

Current readings

1327				<i>Drop from</i>	26.1	1.25		6.93		21000	turbid, brown
1332					19.6	1.32		6.76		71000	
1337					19.3	1.35		6.75		562	
1342					19.3	1.37		6.68		362	
1347					19.3	1.35		6.68		477	
1352					19.2	1.43		6.75		275	slightly turbid
1357					19.2	1.43		6.76		213	turbid
1402					19.2	1.40		6.73		187	
1407					19.0	1.44		6.75		119	clear
1412					18.9	1.47		6.76		93	
1417					18.9	1.48		6.70		77	v-clear

* Sampled @ 1420 *Drop from 295 (April)*

Low-Flow Ground Water Sample Collection Form

Well Number:	<u>W-3</u>	Sample Date:	<u>9/29/10</u>
Field Sample ID.:	<u>W-3, 92910</u>	MACTEC Personnel:	<u>M. Caudill</u>
Weather:	<u>warm, 70's</u>	Other Personnel:	<u>_____</u>

Measuring Point: Top of casing Reported Depth to Top of Screen (ft BMP): _____

Reported Well Depth (ft BMP): _____ **Do not sound well bottom or touch bottom with pump!**

Initial Depth to Water (ft BMP): 44.38 0949 Time

Pump Used: QED Sample Pro MicroPurge Stainless Steel 1.75-inch Bladder Pump Yes ___ No ___

If no, describe: Monsoon high performance pump, 1.75" stainless steel

Well where pump was last used: W-2 1315 Time when pump was decontaminated

Setup Procedures

- Lay out clean PE sheet for equipment _____ Time when photo taken of this location
- Lower pump to within 2 to 5 feet of bottom and secure.
- Connect pump to controller and controller to gas supply.
- Assemble multi-parameter meter and connect flow-thru chamber to pump discharge line.
- Make sure Y-connection is available to draw turbidity sample outside flow-thru chamber. Prepare turbidity meter.
- Secure discharge line to receiving bucket so that discharge is higher than flow-thru chamber

Purging Procedures (record readings on attached sheet)

- Take water level reading after pump is secured
- Start pump at lowest speed setting and slowly increase speed until discharge occurs. NOTE TIME PUMP IS STARTED.
- Check water level, drawdown should stay less than 0.3 ft. If drawdown is more, adjust pump speed downward until it stabilizes.
- Check pumping rate by time to fill a known volume. Target pumping rate: 250 to 300 mL/min for 2-inch, 150-200 mL/min for 1.5-inch wells.
- If target pumping rate cannot be reached, or drawdown exceeds 0.3 ft, consult detailed procedures
- DO NOT DRAW WATER LEVEL BELOW TOP OF SCREEN (See Depth to Top of Screen above)
- Once pumping rate is stable, take field parameter readings (CHECK TO MAKE SURE THERE IS NO AIR IN FLOW-THRU CHAMBER)
- Purging is complete once three consecutive readings are within limits

Sampling Procedures

- Disconnect pump discharge line from flow-thru chamber, position so pumped water can flow into bottles without touching lip of bottle.
- Fill all containers by allowing pump discharge to flow gently down the inside of the container with minimal turbulence.
- Fill all containers (including bottles for FD or MS/MSD) in following order:
VOCs, SVOCs, PAHs, Pesticides/PCBs, Metals, Arsenic, Cyanide and chloride.
- If using a peristaltic pump, do not collect VOCs from pump, use a bailer after tubing is removed and drop it to level purged.

ATTACHMENT B

LABORATORY REPORT FOR SAMPLES COLLECTED SEPTEMBER 29, 2010



12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Mr. Scott Kelly
MACTEC - Louisville, KY
13425 Eastpoint Center Dr. Ste. 122
Louisville, KY 40223

Report Summary

Wednesday October 06, 2010

Report Number: L481452

Samples Received: 09/30/10

Client Project: 6680-08-9635

Description: RBTC-500 VAC - Leitchfield, KY

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Leslie Newton , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704, ND - R-140
NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032008A,
TX - T104704245, OK-9915

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Mr. Scott Kelly
 MACTEC - Louisville, KY
 13425 Eastpoint Center Dr. Ste. 122
 Louisville, KY 40223

October 06, 2010

Date Received : September 30, 2010
 Description : RBTC-500 VAC - Leitchfield, KY
 Sample ID : W-1 92910
 Collected By :
 Collection Date : 09/29/10 11:20

ESC Sample # : L481452-01
 Site ID :
 Project # : 6680-08-9635

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chromium,Hexavalent	U	0.0025	0.010	mg/l		7196A	09/30/10	1
Chromium	0.017	0.00054	0.0020	mg/l		6020	10/05/10	1
Lead	0.0020	0.00024	0.0010	mg/l		6020	10/05/10	1
Volatile Organics								
Acetone	U	0.016	0.050	mg/l		8260B	10/01/10	1
Acrolein	U	0.0076	0.050	mg/l		8260B	10/01/10	1
Acrylonitrile	U	0.0019	0.010	mg/l		8260B	10/01/10	1
Benzene	U	0.00023	0.0010	mg/l		8260B	10/01/10	1
Bromobenzene	U	0.00023	0.0010	mg/l		8260B	10/01/10	1
Bromodichloromethane	U	0.00023	0.0010	mg/l		8260B	10/01/10	1
Bromoform	U	0.00037	0.0010	mg/l		8260B	10/01/10	1
Bromomethane	U	0.0016	0.0050	mg/l		8260B	10/01/10	1
n-Butylbenzene	U	0.00031	0.0010	mg/l		8260B	10/01/10	1
sec-Butylbenzene	U	0.00022	0.0010	mg/l		8260B	10/01/10	1
tert-Butylbenzene	U	0.00020	0.0010	mg/l		8260B	10/01/10	1
Carbon tetrachloride	U	0.00020	0.0010	mg/l		8260B	10/01/10	1
Chlorobenzene	U	0.00030	0.0010	mg/l		8260B	10/01/10	1
Chlorodibromomethane	U	0.00024	0.0010	mg/l		8260B	10/01/10	1
Chloroethane	U	0.00087	0.0050	mg/l		8260B	10/01/10	1
2-Chloroethyl vinyl ether	U	0.0057	0.050	mg/l		8260B	10/01/10	1
Chloroform	U	0.00027	0.0050	mg/l		8260B	10/01/10	1
Chloromethane	U	0.00076	0.0025	mg/l		8260B	10/01/10	1
2-Chlorotoluene	U	0.00028	0.0010	mg/l		8260B	10/01/10	1
4-Chlorotoluene	U	0.00020	0.0010	mg/l		8260B	10/01/10	1
1,2-Dibromo-3-Chloropropane	U	0.0013	0.0050	mg/l		8260B	10/01/10	1
1,2-Dibromoethane	U	0.00027	0.0010	mg/l		8260B	10/01/10	1
Dibromomethane	U	0.00035	0.0010	mg/l		8260B	10/01/10	1
1,2-Dichlorobenzene	U	0.00029	0.0010	mg/l		8260B	10/01/10	1
1,3-Dichlorobenzene	U	0.00029	0.0010	mg/l		8260B	10/01/10	1
1,4-Dichlorobenzene	U	0.00031	0.0010	mg/l		8260B	10/01/10	1
Dichlorodifluoromethane	U	0.0016	0.0050	mg/l		8260B	10/01/10	1
1,1-Dichloroethane	U	0.00032	0.0010	mg/l		8260B	10/01/10	1
1,2-Dichloroethane	U	0.00025	0.0010	mg/l		8260B	10/01/10	1
1,1-Dichloroethene	0.00042	0.00041	0.0010	mg/l	J	8260B	10/01/10	1
cis-1,2-Dichloroethene	U	0.00034	0.0010	mg/l		8260B	10/01/10	1
trans-1,2-Dichloroethene	U	0.00026	0.0010	mg/l		8260B	10/01/10	1
1,2-Dichloropropane	U	0.00039	0.0010	mg/l		8260B	10/01/10	1
1,1-Dichloropropene	U	0.00026	0.0010	mg/l		8260B	10/01/10	1
1,3-Dichloropropane	U	0.00028	0.0010	mg/l		8260B	10/01/10	1
cis-1,3-Dichloropropene	U	0.00025	0.0010	mg/l		8260B	10/01/10	1
trans-1,3-Dichloropropene	U	0.00024	0.0010	mg/l		8260B	10/01/10	1

U = ND (Not Detected)
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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Mr. Scott Kelly
 MACTEC - Louisville, KY
 13425 Eastpoint Center Dr. Ste. 122
 Louisville, KY 40223

October 06, 2010

Date Received : September 30, 2010
 Description : RBTC-500 VAC - Leitchfield, KY
 Sample ID : W-1 92910
 Collected By :
 Collection Date : 09/29/10 11:20

ESC Sample # : L481452-01
 Site ID :
 Project # : 6680-08-9635

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
2,2-Dichloropropane	U	0.00036	0.0010	mg/l		8260B	10/01/10	1
Di-isopropyl ether	U	0.00026	0.0010	mg/l		8260B	10/01/10	1
Ethylbenzene	U	0.00022	0.0010	mg/l		8260B	10/01/10	1
Hexachloro-1,3-butadiene	U	0.00038	0.0010	mg/l		8260B	10/01/10	1
Isopropylbenzene	U	0.00020	0.0010	mg/l		8260B	10/01/10	1
p-Isopropyltoluene	U	0.00031	0.0010	mg/l		8260B	10/01/10	1
2-Butanone (MEK)	U	0.0034	0.010	mg/l		8260B	10/01/10	1
Methylene Chloride	U	0.00091	0.0050	mg/l		8260B	10/01/10	1
4-Methyl-2-pentanone (MIBK)	U	0.0017	0.010	mg/l		8260B	10/01/10	1
Methyl tert-butyl ether	U	0.00063	0.0010	mg/l		8260B	10/01/10	1
Naphthalene	U	0.00098	0.0050	mg/l		8260B	10/01/10	1
n-Propylbenzene	U	0.00031	0.0010	mg/l		8260B	10/01/10	1
Styrene	U	0.00024	0.0010	mg/l	J4	8260B	10/01/10	1
1,1,1,2-Tetrachloroethane	U	0.00032	0.0010	mg/l		8260B	10/01/10	1
1,1,2,2-Tetrachloroethane	U	0.00025	0.0010	mg/l		8260B	10/01/10	1
1,1,2-Trichloro-1,2,2-trifluoro	U	0.00039	0.0010	mg/l		8260B	10/01/10	1
Tetrachloroethene	0.0014	0.00032	0.0010	mg/l		8260B	10/01/10	1
Toluene	U	0.00032	0.0050	mg/l		8260B	10/01/10	1
1,2,3-Trichlorobenzene	U	0.00032	0.0010	mg/l		8260B	10/01/10	1
1,2,4-Trichlorobenzene	U	0.00035	0.0010	mg/l		8260B	10/01/10	1
1,1,1-Trichloroethane	0.0088	0.00031	0.0010	mg/l		8260B	10/01/10	1
1,1,2-Trichloroethane	U	0.00029	0.0010	mg/l		8260B	10/01/10	1
Trichloroethene	0.014	0.00031	0.0010	mg/l		8260B	10/01/10	1
Trichlorofluoromethane	U	0.0011	0.0050	mg/l		8260B	10/01/10	1
1,2,3-Trichloropropane	U	0.00074	0.0010	mg/l		8260B	10/01/10	1
1,2,4-Trimethylbenzene	U	0.00018	0.0010	mg/l		8260B	10/01/10	1
1,2,3-Trimethylbenzene	U	0.00030	0.0010	mg/l		8260B	10/01/10	1
1,3,5-Trimethylbenzene	U	0.00033	0.0010	mg/l		8260B	10/01/10	1
Vinyl chloride	U	0.00034	0.0010	mg/l		8260B	10/01/10	1
Xylenes, Total	U	0.00086	0.0030	mg/l		8260B	10/01/10	1
Surrogate Recovery								
Toluene-d8	104.			% Rec.		8260B	10/01/10	1
Dibromofluoromethane	103.			% Rec.		8260B	10/01/10	1
4-Bromofluorobenzene	94.9			% Rec.		8260B	10/01/10	1

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REPORT OF ANALYSIS

Mr. Scott Kelly
 MACTEC - Louisville, KY
 13425 Eastpoint Center Dr. Ste. 122
 Louisville, KY 40223

October 06, 2010

Date Received : September 30, 2010
 Description : RBTC-500 VAC - Leitchfield, KY
 Sample ID : W-4 92910
 Collected By :
 Collection Date : 09/29/10 12:45

ESC Sample # : L481452-02
 Site ID :
 Project # : 6680-08-9635

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chromium,Hexavalent	U	0.0025	0.010	mg/l		7196A	09/30/10	1
Chromium	0.0067	0.00054	0.0020	mg/l		6020	10/05/10	1
Lead	0.0024	0.00024	0.0010	mg/l		6020	10/05/10	1
Volatile Organics								
Acetone	U	0.016	0.050	mg/l		8260B	10/01/10	1
Acrolein	U	0.0076	0.050	mg/l		8260B	10/01/10	1
Acrylonitrile	U	0.0019	0.010	mg/l		8260B	10/01/10	1
Benzene	U	0.00023	0.0010	mg/l		8260B	10/01/10	1
Bromobenzene	U	0.00023	0.0010	mg/l		8260B	10/01/10	1
Bromodichloromethane	U	0.00023	0.0010	mg/l		8260B	10/01/10	1
Bromoform	U	0.00037	0.0010	mg/l		8260B	10/01/10	1
Bromomethane	U	0.0016	0.0050	mg/l		8260B	10/01/10	1
n-Butylbenzene	U	0.00031	0.0010	mg/l		8260B	10/01/10	1
sec-Butylbenzene	U	0.00022	0.0010	mg/l		8260B	10/01/10	1
tert-Butylbenzene	U	0.00020	0.0010	mg/l		8260B	10/01/10	1
Carbon tetrachloride	U	0.00020	0.0010	mg/l		8260B	10/01/10	1
Chlorobenzene	U	0.00030	0.0010	mg/l		8260B	10/01/10	1
Chlorodibromomethane	U	0.00024	0.0010	mg/l		8260B	10/01/10	1
Chloroethane	U	0.00087	0.0050	mg/l		8260B	10/01/10	1
2-Chloroethyl vinyl ether	U	0.0057	0.050	mg/l		8260B	10/01/10	1
Chloroform	U	0.00027	0.0050	mg/l		8260B	10/01/10	1
Chloromethane	U	0.00076	0.0025	mg/l		8260B	10/01/10	1
2-Chlorotoluene	U	0.00028	0.0010	mg/l		8260B	10/01/10	1
4-Chlorotoluene	U	0.00020	0.0010	mg/l		8260B	10/01/10	1
1,2-Dibromo-3-Chloropropane	U	0.0013	0.0050	mg/l		8260B	10/01/10	1
1,2-Dibromoethane	U	0.00027	0.0010	mg/l		8260B	10/01/10	1
Dibromomethane	U	0.00035	0.0010	mg/l		8260B	10/01/10	1
1,2-Dichlorobenzene	U	0.00029	0.0010	mg/l		8260B	10/01/10	1
1,3-Dichlorobenzene	U	0.00029	0.0010	mg/l		8260B	10/01/10	1
1,4-Dichlorobenzene	U	0.00031	0.0010	mg/l		8260B	10/01/10	1
Dichlorodifluoromethane	U	0.0016	0.0050	mg/l		8260B	10/01/10	1
1,1-Dichloroethane	U	0.00032	0.0010	mg/l		8260B	10/01/10	1
1,2-Dichloroethane	U	0.00025	0.0010	mg/l		8260B	10/01/10	1
1,1-Dichloroethene	0.00092	0.00041	0.0010	mg/l	J	8260B	10/01/10	1
cis-1,2-Dichloroethene	U	0.00034	0.0010	mg/l		8260B	10/01/10	1
trans-1,2-Dichloroethene	U	0.00026	0.0010	mg/l		8260B	10/01/10	1
1,2-Dichloropropane	U	0.00039	0.0010	mg/l		8260B	10/01/10	1
1,1-Dichloropropene	U	0.00026	0.0010	mg/l		8260B	10/01/10	1
1,3-Dichloropropane	U	0.00028	0.0010	mg/l		8260B	10/01/10	1
cis-1,3-Dichloropropene	U	0.00025	0.0010	mg/l		8260B	10/01/10	1
trans-1,3-Dichloropropene	U	0.00024	0.0010	mg/l		8260B	10/01/10	1

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REPORT OF ANALYSIS

Mr. Scott Kelly
 MACTEC - Louisville, KY
 13425 Eastpoint Center Dr. Ste. 122
 Louisville, KY 40223

October 06, 2010

Date Received : September 30, 2010
 Description : RBTC-500 VAC - Leitchfield, KY
 Sample ID : W-4 92910
 Collected By :
 Collection Date : 09/29/10 12:45

ESC Sample # : L481452-02
 Site ID :
 Project # : 6680-08-9635

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
2,2-Dichloropropane	U	0.00036	0.0010	mg/l		8260B	10/01/10	1
Di-isopropyl ether	U	0.00026	0.0010	mg/l		8260B	10/01/10	1
Ethylbenzene	U	0.00022	0.0010	mg/l		8260B	10/01/10	1
Hexachloro-1,3-butadiene	U	0.00038	0.0010	mg/l		8260B	10/01/10	1
Isopropylbenzene	U	0.00020	0.0010	mg/l		8260B	10/01/10	1
p-Isopropyltoluene	U	0.00031	0.0010	mg/l		8260B	10/01/10	1
2-Butanone (MEK)	U	0.0034	0.010	mg/l		8260B	10/01/10	1
Methylene Chloride	U	0.00091	0.0050	mg/l		8260B	10/01/10	1
4-Methyl-2-pentanone (MIBK)	U	0.0017	0.010	mg/l		8260B	10/01/10	1
Methyl tert-butyl ether	U	0.00063	0.0010	mg/l		8260B	10/01/10	1
Naphthalene	U	0.00098	0.0050	mg/l		8260B	10/01/10	1
n-Propylbenzene	U	0.00031	0.0010	mg/l		8260B	10/01/10	1
Styrene	U	0.00024	0.0010	mg/l	J4	8260B	10/01/10	1
1,1,1,2-Tetrachloroethane	U	0.00032	0.0010	mg/l		8260B	10/01/10	1
1,1,2,2-Tetrachloroethane	U	0.00025	0.0010	mg/l		8260B	10/01/10	1
1,1,2-Trichloro-1,2,2-trifluoro	U	0.00039	0.0010	mg/l		8260B	10/01/10	1
Tetrachloroethene	0.0056	0.00032	0.0010	mg/l		8260B	10/01/10	1
Toluene	U	0.00032	0.0050	mg/l		8260B	10/01/10	1
1,2,3-Trichlorobenzene	U	0.00032	0.0010	mg/l		8260B	10/01/10	1
1,2,4-Trichlorobenzene	U	0.00035	0.0010	mg/l		8260B	10/01/10	1
1,1,1-Trichloroethane	0.0093	0.00031	0.0010	mg/l		8260B	10/01/10	1
1,1,2-Trichloroethane	U	0.00029	0.0010	mg/l		8260B	10/01/10	1
Trichloroethene	0.53	0.0015	0.0050	mg/l		8260B	10/05/10	5
Trichlorofluoromethane	U	0.0011	0.0050	mg/l		8260B	10/01/10	1
1,2,3-Trichloropropane	U	0.00074	0.0010	mg/l		8260B	10/01/10	1
1,2,4-Trimethylbenzene	U	0.00018	0.0010	mg/l		8260B	10/01/10	1
1,2,3-Trimethylbenzene	U	0.00030	0.0010	mg/l		8260B	10/01/10	1
1,3,5-Trimethylbenzene	U	0.00033	0.0010	mg/l		8260B	10/01/10	1
Vinyl chloride	U	0.00034	0.0010	mg/l		8260B	10/01/10	1
Xylenes, Total	U	0.00086	0.0030	mg/l		8260B	10/01/10	1
Surrogate Recovery								
Toluene-d8	123.			% Rec.	J1	8260B	10/01/10	1
Dibromofluoromethane	104.			% Rec.		8260B	10/01/10	1
4-Bromofluorobenzene	93.3			% Rec.		8260B	10/01/10	1

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REPORT OF ANALYSIS

Mr. Scott Kelly
 MACTEC - Louisville, KY
 13425 Eastpoint Center Dr. Ste. 122
 Louisville, KY 40223

October 06, 2010

Date Received : September 30, 2010
 Description : RBTC-500 VAC - Leitchfield, KY
 Sample ID : W-2 92910
 Collected By :
 Collection Date : 09/29/10 14:20

ESC Sample # : L481452-03
 Site ID :
 Project # : 6680-08-9635

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chromium,Hexavalent	1.8	0.025	0.10	mg/l		7196A	09/30/10	10
Chromium	1.8	0.0027	0.010	mg/l		6020	10/05/10	5
Lead	0.0022	0.00024	0.0010	mg/l		6020	10/05/10	1
Volatile Organics								
Acetone	U	0.016	0.050	mg/l		8260B	10/01/10	1
Acrolein	U	0.0076	0.050	mg/l		8260B	10/01/10	1
Acrylonitrile	U	0.0019	0.010	mg/l		8260B	10/01/10	1
Benzene	U	0.00023	0.0010	mg/l		8260B	10/01/10	1
Bromobenzene	U	0.00023	0.0010	mg/l		8260B	10/01/10	1
Bromodichloromethane	U	0.00023	0.0010	mg/l		8260B	10/01/10	1
Bromoform	U	0.00037	0.0010	mg/l		8260B	10/01/10	1
Bromomethane	U	0.0016	0.0050	mg/l		8260B	10/01/10	1
n-Butylbenzene	U	0.00031	0.0010	mg/l		8260B	10/01/10	1
sec-Butylbenzene	U	0.00022	0.0010	mg/l		8260B	10/01/10	1
tert-Butylbenzene	U	0.00020	0.0010	mg/l		8260B	10/01/10	1
Carbon tetrachloride	U	0.00020	0.0010	mg/l		8260B	10/01/10	1
Chlorobenzene	U	0.00030	0.0010	mg/l		8260B	10/01/10	1
Chlorodibromomethane	U	0.00024	0.0010	mg/l		8260B	10/01/10	1
Chloroethane	U	0.00087	0.0050	mg/l		8260B	10/01/10	1
2-Chloroethyl vinyl ether	U	0.0057	0.050	mg/l		8260B	10/01/10	1
Chloroform	U	0.00027	0.0050	mg/l		8260B	10/01/10	1
Chloromethane	U	0.00076	0.0025	mg/l		8260B	10/01/10	1
2-Chlorotoluene	U	0.00028	0.0010	mg/l		8260B	10/01/10	1
4-Chlorotoluene	U	0.00020	0.0010	mg/l		8260B	10/01/10	1
1,2-Dibromo-3-Chloropropane	U	0.0013	0.0050	mg/l		8260B	10/01/10	1
1,2-Dibromoethane	U	0.00027	0.0010	mg/l		8260B	10/01/10	1
Dibromomethane	U	0.00035	0.0010	mg/l		8260B	10/01/10	1
1,2-Dichlorobenzene	U	0.00029	0.0010	mg/l		8260B	10/01/10	1
1,3-Dichlorobenzene	U	0.00029	0.0010	mg/l		8260B	10/01/10	1
1,4-Dichlorobenzene	U	0.00031	0.0010	mg/l		8260B	10/01/10	1
Dichlorodifluoromethane	U	0.0016	0.0050	mg/l		8260B	10/01/10	1
1,1-Dichloroethane	U	0.00032	0.0010	mg/l		8260B	10/01/10	1
1,2-Dichloroethane	U	0.00025	0.0010	mg/l		8260B	10/01/10	1
1,1-Dichloroethene	0.00083	0.00041	0.0010	mg/l	J	8260B	10/01/10	1
cis-1,2-Dichloroethene	0.00052	0.00034	0.0010	mg/l	J	8260B	10/01/10	1
trans-1,2-Dichloroethene	U	0.00026	0.0010	mg/l		8260B	10/01/10	1
1,2-Dichloropropane	U	0.00039	0.0010	mg/l		8260B	10/01/10	1
1,1-Dichloropropene	U	0.00026	0.0010	mg/l		8260B	10/01/10	1
1,3-Dichloropropane	U	0.00028	0.0010	mg/l		8260B	10/01/10	1
cis-1,3-Dichloropropene	U	0.00025	0.0010	mg/l		8260B	10/01/10	1
trans-1,3-Dichloropropene	U	0.00024	0.0010	mg/l		8260B	10/01/10	1

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Reported: 10/06/10 13:25 Printed: 10/06/10 13:25



12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Mr. Scott Kelly
 MACTEC - Louisville, KY
 13425 Eastpoint Center Dr. Ste. 122
 Louisville, KY 40223

October 06, 2010

Date Received : September 30, 2010
 Description : RBTC-500 VAC - Leitchfield, KY
 Sample ID : W-2 92910
 Collected By :
 Collection Date : 09/29/10 14:20

ESC Sample # : L481452-03
 Site ID :
 Project # : 6680-08-9635

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
2,2-Dichloropropane	U	0.00036	0.0010	mg/l		8260B	10/01/10	1
Di-isopropyl ether	U	0.00026	0.0010	mg/l		8260B	10/01/10	1
Ethylbenzene	U	0.00022	0.0010	mg/l		8260B	10/01/10	1
Hexachloro-1,3-butadiene	U	0.00038	0.0010	mg/l		8260B	10/01/10	1
Isopropylbenzene	U	0.00020	0.0010	mg/l		8260B	10/01/10	1
p-Isopropyltoluene	U	0.00031	0.0010	mg/l		8260B	10/01/10	1
2-Butanone (MEK)	U	0.0034	0.010	mg/l		8260B	10/01/10	1
Methylene Chloride	U	0.00091	0.0050	mg/l		8260B	10/01/10	1
4-Methyl-2-pentanone (MIBK)	U	0.0017	0.010	mg/l		8260B	10/01/10	1
Methyl tert-butyl ether	U	0.00063	0.0010	mg/l		8260B	10/01/10	1
Naphthalene	U	0.00098	0.0050	mg/l		8260B	10/01/10	1
n-Propylbenzene	U	0.00031	0.0010	mg/l		8260B	10/01/10	1
Styrene	U	0.00024	0.0010	mg/l		8260B	10/01/10	1
1,1,1,2-Tetrachloroethane	U	0.00032	0.0010	mg/l	J4	8260B	10/01/10	1
1,1,2,2-Tetrachloroethane	U	0.00025	0.0010	mg/l		8260B	10/01/10	1
1,1,2-Trichloro-1,2,2-trifluoro	U	0.00039	0.0010	mg/l		8260B	10/01/10	1
Tetrachloroethene	0.0076	0.00032	0.0010	mg/l		8260B	10/01/10	1
Toluene	U	0.00032	0.0050	mg/l		8260B	10/01/10	1
1,2,3-Trichlorobenzene	U	0.00032	0.0010	mg/l		8260B	10/01/10	1
1,2,4-Trichlorobenzene	U	0.00035	0.0010	mg/l		8260B	10/01/10	1
1,1,1-Trichloroethane	0.012	0.00031	0.0010	mg/l		8260B	10/01/10	1
1,1,2-Trichloroethane	0.00041	0.00029	0.0010	mg/l	J	8260B	10/01/10	1
Trichloroethene	0.090	0.00031	0.0010	mg/l		8260B	10/01/10	1
Trichlorofluoromethane	U	0.0011	0.0050	mg/l		8260B	10/01/10	1
1,2,3-Trichloropropane	U	0.00074	0.0010	mg/l		8260B	10/01/10	1
1,2,4-Trimethylbenzene	U	0.00018	0.0010	mg/l		8260B	10/01/10	1
1,2,3-Trimethylbenzene	U	0.00030	0.0010	mg/l		8260B	10/01/10	1
1,3,5-Trimethylbenzene	U	0.00033	0.0010	mg/l		8260B	10/01/10	1
Vinyl chloride	U	0.00034	0.0010	mg/l		8260B	10/01/10	1
Xylenes, Total	U	0.00086	0.0030	mg/l		8260B	10/01/10	1
Surrogate Recovery								
Toluene-d8	110.			% Rec.		8260B	10/01/10	1
Dibromofluoromethane	102.			% Rec.		8260B	10/01/10	1
4-Bromofluorobenzene	93.4			% Rec.		8260B	10/01/10	1

U = ND (Not Detected)
 MDL = Minimum Detection Limit = LOD
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Est. 1970

REPORT OF ANALYSIS

Mr. Scott Kelly
 MACTEC - Louisville, KY
 13425 Eastpoint Center Dr. Ste. 122
 Louisville, KY 40223

October 06, 2010

Date Received : September 30, 2010
 Description : RBTC-500 VAC - Leitchfield, KY
 Sample ID : W-3 92910
 Collected By :
 Collection Date : 09/29/10 15:12

ESC Sample # : L481452-04
 Site ID :
 Project # : 6680-08-9635

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
Chromium,Hexavalent	U	0.0025	0.010	mg/l		7196A	09/30/10	1
Chromium	0.012	0.00054	0.0020	mg/l		6020	10/05/10	1
Lead	U	0.00024	0.0010	mg/l		6020	10/05/10	1
Volatile Organics								
Acetone	U	0.016	0.050	mg/l		8260B	10/01/10	1
Acrolein	U	0.0076	0.050	mg/l		8260B	10/01/10	1
Acrylonitrile	U	0.0019	0.010	mg/l		8260B	10/01/10	1
Benzene	U	0.00023	0.0010	mg/l		8260B	10/01/10	1
Bromobenzene	U	0.00023	0.0010	mg/l		8260B	10/01/10	1
Bromodichloromethane	U	0.00023	0.0010	mg/l		8260B	10/01/10	1
Bromoform	U	0.00037	0.0010	mg/l		8260B	10/01/10	1
Bromomethane	U	0.0016	0.0050	mg/l		8260B	10/01/10	1
n-Butylbenzene	U	0.00031	0.0010	mg/l		8260B	10/01/10	1
sec-Butylbenzene	U	0.00022	0.0010	mg/l		8260B	10/01/10	1
tert-Butylbenzene	U	0.00020	0.0010	mg/l		8260B	10/01/10	1
Carbon tetrachloride	U	0.00020	0.0010	mg/l		8260B	10/01/10	1
Chlorobenzene	U	0.00030	0.0010	mg/l		8260B	10/01/10	1
Chlorodibromomethane	U	0.00024	0.0010	mg/l		8260B	10/01/10	1
Chloroethane	U	0.00087	0.0050	mg/l		8260B	10/01/10	1
2-Chloroethyl vinyl ether	U	0.0057	0.050	mg/l		8260B	10/01/10	1
Chloroform	U	0.00027	0.0050	mg/l		8260B	10/01/10	1
Chloromethane	U	0.00076	0.0025	mg/l		8260B	10/01/10	1
2-Chlorotoluene	U	0.00028	0.0010	mg/l		8260B	10/01/10	1
4-Chlorotoluene	U	0.00020	0.0010	mg/l		8260B	10/01/10	1
1,2-Dibromo-3-Chloropropane	U	0.0013	0.0050	mg/l		8260B	10/01/10	1
1,2-Dibromoethane	U	0.00027	0.0010	mg/l		8260B	10/01/10	1
Dibromomethane	U	0.00035	0.0010	mg/l		8260B	10/01/10	1
1,2-Dichlorobenzene	U	0.00029	0.0010	mg/l		8260B	10/01/10	1
1,3-Dichlorobenzene	U	0.00029	0.0010	mg/l		8260B	10/01/10	1
1,4-Dichlorobenzene	U	0.00031	0.0010	mg/l		8260B	10/01/10	1
Dichlorodifluoromethane	U	0.0016	0.0050	mg/l		8260B	10/01/10	1
1,1-Dichloroethane	U	0.00032	0.0010	mg/l		8260B	10/01/10	1
1,2-Dichloroethane	U	0.00025	0.0010	mg/l		8260B	10/01/10	1
1,1-Dichloroethene	0.00059	0.00041	0.0010	mg/l	J	8260B	10/01/10	1
cis-1,2-Dichloroethene	0.011	0.00034	0.0010	mg/l		8260B	10/01/10	1
trans-1,2-Dichloroethene	U	0.00026	0.0010	mg/l		8260B	10/01/10	1
1,2-Dichloropropane	U	0.00039	0.0010	mg/l		8260B	10/01/10	1
1,1-Dichloropropene	U	0.00026	0.0010	mg/l		8260B	10/01/10	1
1,3-Dichloropropane	U	0.00028	0.0010	mg/l		8260B	10/01/10	1
cis-1,3-Dichloropropene	U	0.00025	0.0010	mg/l		8260B	10/01/10	1
trans-1,3-Dichloropropene	U	0.00024	0.0010	mg/l		8260B	10/01/10	1

U = ND (Not Detected)
 MDL = Minimum Detection Limit = LOD
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REPORT OF ANALYSIS

Mr. Scott Kelly
 MACTEC - Louisville, KY
 13425 Eastpoint Center Dr. Ste. 122
 Louisville, KY 40223

October 06, 2010

Date Received : September 30, 2010
 Description : RBTC-500 VAC - Leitchfield, KY
 Sample ID : W-3 92910
 Collected By :
 Collection Date : 09/29/10 15:12

ESC Sample # : L481452-04
 Site ID :
 Project # : 6680-08-9635

Parameter	Result	MDL	RDL	Units	Qualifier	Method	Date	Dil.
2,2-Dichloropropane	U	0.00036	0.0010	mg/l		8260B	10/01/10	1
Di-isopropyl ether	U	0.00026	0.0010	mg/l		8260B	10/01/10	1
Ethylbenzene	U	0.00022	0.0010	mg/l		8260B	10/01/10	1
Hexachloro-1,3-butadiene	U	0.00038	0.0010	mg/l		8260B	10/01/10	1
Isopropylbenzene	U	0.00020	0.0010	mg/l		8260B	10/01/10	1
p-Isopropyltoluene	U	0.00031	0.0010	mg/l		8260B	10/01/10	1
2-Butanone (MEK)	U	0.0034	0.010	mg/l		8260B	10/01/10	1
Methylene Chloride	U	0.00091	0.0050	mg/l		8260B	10/01/10	1
4-Methyl-2-pentanone (MIBK)	U	0.0017	0.010	mg/l		8260B	10/01/10	1
Methyl tert-butyl ether	U	0.00063	0.0010	mg/l		8260B	10/01/10	1
Naphthalene	U	0.00098	0.0050	mg/l		8260B	10/01/10	1
n-Propylbenzene	U	0.00031	0.0010	mg/l		8260B	10/01/10	1
Styrene	U	0.00024	0.0010	mg/l	J4	8260B	10/01/10	1
1,1,1,2-Tetrachloroethane	U	0.00032	0.0010	mg/l		8260B	10/01/10	1
1,1,2,2-Tetrachloroethane	U	0.00025	0.0010	mg/l		8260B	10/01/10	1
1,1,2-Trichloro-1,2,2-trifluoro	U	0.00039	0.0010	mg/l		8260B	10/01/10	1
Tetrachloroethene	0.0032	0.00032	0.0010	mg/l		8260B	10/01/10	1
Toluene	U	0.00032	0.0050	mg/l		8260B	10/01/10	1
1,2,3-Trichlorobenzene	U	0.00032	0.0010	mg/l		8260B	10/01/10	1
1,2,4-Trichlorobenzene	U	0.00035	0.0010	mg/l		8260B	10/01/10	1
1,1,1-Trichloroethane	0.011	0.00031	0.0010	mg/l		8260B	10/01/10	1
1,1,2-Trichloroethane	U	0.00029	0.0010	mg/l		8260B	10/01/10	1
Trichloroethene	0.045	0.00031	0.0010	mg/l		8260B	10/01/10	1
Trichlorofluoromethane	U	0.0011	0.0050	mg/l		8260B	10/01/10	1
1,2,3-Trichloropropane	U	0.00074	0.0010	mg/l		8260B	10/01/10	1
1,2,4-Trimethylbenzene	U	0.00018	0.0010	mg/l		8260B	10/01/10	1
1,2,3-Trimethylbenzene	U	0.00030	0.0010	mg/l		8260B	10/01/10	1
1,3,5-Trimethylbenzene	U	0.00033	0.0010	mg/l		8260B	10/01/10	1
Vinyl chloride	U	0.00034	0.0010	mg/l		8260B	10/01/10	1
Xylenes, Total	U	0.00086	0.0030	mg/l		8260B	10/01/10	1
Surrogate Recovery								
Toluene-d8	107.			% Rec.		8260B	10/01/10	1
Dibromofluoromethane	101.			% Rec.		8260B	10/01/10	1
4-Bromofluorobenzene	94.8			% Rec.		8260B	10/01/10	1

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Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L481452-01	WG500977	SAMP	1,1-Dichloroethene	R1408488	J
	WG500977	SAMP	Styrene	R1408488	J4
L481452-02	WG500977	SAMP	1,1-Dichloroethene	R1408488	J
	WG500977	SAMP	Styrene	R1408488	J4
L481452-03	WG500977	SAMP	Toluene-d8	R1408488	J1
	WG500977	SAMP	1,1-Dichloroethene	R1408488	J
	WG500977	SAMP	cis-1,2-Dichloroethene	R1408488	J
	WG500977	SAMP	Styrene	R1408488	J4
L481452-04	WG500977	SAMP	1,1,2-Trichloroethane	R1408488	J
	WG500977	SAMP	1,1-Dichloroethene	R1408488	J
	WG500977	SAMP	Styrene	R1408488	J4

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits
J4	The associated batch QC was outside the established quality control range for accuracy.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy** - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision** - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate** - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC** - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
10/06/10 at 13:25:59

TSR Signing Reports: 044
R5 - Desired TAT

Alison's direct dial 859-566-3729

Sample: L481452-01 Account: MACTEClOU Received: 09/30/10 09:00 Due Date: 10/07/10 00:00 RPT Date: 10/06/10 13:25

Sample: L481452-02 Account: MACTEClOU Received: 09/30/10 09:00 Due Date: 10/07/10 00:00 RPT Date: 10/06/10 13:25

Sample: L481452-03 Account: MACTEClOU Received: 09/30/10 09:00 Due Date: 10/07/10 00:00 RPT Date: 10/06/10 13:25

Sample: L481452-04 Account: MACTEClOU Received: 09/30/10 09:00 Due Date: 10/07/10 00:00 RPT Date: 10/06/10 13:25



YOUR LAB OF CHOICE

MACTEC - Louisville, KY
 Mr. Scott Kelly
 13425 Eastpoint Center Dr. Ste. 122
 Louisville, KY 40223

Quality Assurance Report
 Level II

L481452

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 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

October 06, 2010

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Chromium, Hexavalent	< .01	mg/l			WG500958	09/30/10 11:26
1,1,1,2-Tetrachloroethane	< .001	mg/l			WG500977	10/01/10 14:16
1,1,1-Trichloroethane	< .001	mg/l			WG500977	10/01/10 14:16
1,1,2,2-Tetrachloroethane	< .001	mg/l			WG500977	10/01/10 14:16
1,1,2-Trichloroethane	< .001	mg/l			WG500977	10/01/10 14:16
1,1,2-Trichloro-1,2,2-trifluoroethane	< .001	mg/l			WG500977	10/01/10 14:16
1,1-Dichloroethane	< .001	mg/l			WG500977	10/01/10 14:16
1,1-Dichloroethene	< .001	mg/l			WG500977	10/01/10 14:16
1,1-Dichloropropene	< .001	mg/l			WG500977	10/01/10 14:16
1,2,3-Trichlorobenzene	< .001	mg/l			WG500977	10/01/10 14:16
1,2,3-Trichloropropane	< .001	mg/l			WG500977	10/01/10 14:16
1,2,3-Trimethylbenzene	< .001	mg/l			WG500977	10/01/10 14:16
1,2,4-Trichlorobenzene	< .001	mg/l			WG500977	10/01/10 14:16
1,2,4-Trimethylbenzene	< .001	mg/l			WG500977	10/01/10 14:16
1,2-Dibromo-3-Chloropropane	< .005	mg/l			WG500977	10/01/10 14:16
1,2-Dibromoethane	< .001	mg/l			WG500977	10/01/10 14:16
1,2-Dichlorobenzene	< .001	mg/l			WG500977	10/01/10 14:16
1,2-Dichloroethane	< .001	mg/l			WG500977	10/01/10 14:16
1,2-Dichloropropane	< .001	mg/l			WG500977	10/01/10 14:16
1,3,5-Trimethylbenzene	< .001	mg/l			WG500977	10/01/10 14:16
1,3-Dichlorobenzene	< .001	mg/l			WG500977	10/01/10 14:16
1,3-Dichloropropane	< .001	mg/l			WG500977	10/01/10 14:16
1,4-Dichlorobenzene	< .001	mg/l			WG500977	10/01/10 14:16
2,2-Dichloropropane	< .001	mg/l			WG500977	10/01/10 14:16
2-Butanone (MEK)	< .01	mg/l			WG500977	10/01/10 14:16
2-Chloroethyl vinyl ether	< .05	mg/l			WG500977	10/01/10 14:16
2-Chlorotoluene	< .001	mg/l			WG500977	10/01/10 14:16
4-Chlorotoluene	< .001	mg/l			WG500977	10/01/10 14:16
4-Methyl-2-pentanone (MIBK)	< .01	mg/l			WG500977	10/01/10 14:16
Acetone	< .05	mg/l			WG500977	10/01/10 14:16
Acrolein	< .05	mg/l			WG500977	10/01/10 14:16
Acrylonitrile	< .01	mg/l			WG500977	10/01/10 14:16
Benzene	< .001	mg/l			WG500977	10/01/10 14:16
Bromobenzene	< .001	mg/l			WG500977	10/01/10 14:16
Bromodichloromethane	< .001	mg/l			WG500977	10/01/10 14:16
Bromoform	< .001	mg/l			WG500977	10/01/10 14:16
Bromomethane	< .005	mg/l			WG500977	10/01/10 14:16
Carbon tetrachloride	< .001	mg/l			WG500977	10/01/10 14:16
Chlorobenzene	< .001	mg/l			WG500977	10/01/10 14:16
Chlorodibromomethane	< .001	mg/l			WG500977	10/01/10 14:16
Chloroethane	< .001	mg/l			WG500977	10/01/10 14:16
Chloroform	< .005	mg/l			WG500977	10/01/10 14:16
Chloromethane	< .001	mg/l			WG500977	10/01/10 14:16
cis-1,2-Dichloroethene	< .001	mg/l			WG500977	10/01/10 14:16
cis-1,3-Dichloropropene	< .001	mg/l			WG500977	10/01/10 14:16
Di-isopropyl ether	< .001	mg/l			WG500977	10/01/10 14:16
Dibromomethane	< .001	mg/l			WG500977	10/01/10 14:16
Dichlorodifluoromethane	< .005	mg/l			WG500977	10/01/10 14:16
Ethylbenzene	< .001	mg/l			WG500977	10/01/10 14:16
Hexachloro-1,3-butadiene	< .001	mg/l			WG500977	10/01/10 14:16
Isopropylbenzene	< .001	mg/l			WG500977	10/01/10 14:16
Methyl tert-butyl ether	< .001	mg/l			WG500977	10/01/10 14:16
Methylene Chloride	< .005	mg/l			WG500977	10/01/10 14:16
n-Butylbenzene	< .001	mg/l			WG500977	10/01/10 14:16
n-Propylbenzene	< .001	mg/l			WG500977	10/01/10 14:16
Naphthalene	< .005	mg/l			WG500977	10/01/10 14:16
p-Isopropyltoluene	< .001	mg/l			WG500977	10/01/10 14:16

* Performance of this Analyte is outside of established criteria.
 For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

MACTEC - Louisville, KY
 Mr. Scott Kelly
 13425 Eastpoint Center Dr. Ste. 122
 Louisville, KY 40223

Quality Assurance Report
 Level II

L481452

12065 Lebanon Rd.
 Mt. Juliet, TN 37122
 (615) 758-5858
 1-800-767-5859
 Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

October 06, 2010

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
sec-Butylbenzene	< .001	mg/l			WG500977	10/01/10 14:16
Styrene	< .001	mg/l			WG500977	10/01/10 14:16
tert-Butylbenzene	< .001	mg/l			WG500977	10/01/10 14:16
Tetrachloroethene	< .001	mg/l			WG500977	10/01/10 14:16
Toluene	< .005	mg/l			WG500977	10/01/10 14:16
trans-1,2-Dichloroethene	< .001	mg/l			WG500977	10/01/10 14:16
trans-1,3-Dichloropropene	< .001	mg/l			WG500977	10/01/10 14:16
Trichloroethene	< .001	mg/l			WG500977	10/01/10 14:16
Trichlorofluoromethane	< .005	mg/l			WG500977	10/01/10 14:16
Vinyl chloride	< .001	mg/l			WG500977	10/01/10 14:16
Xylenes, Total	< .003	mg/l			WG500977	10/01/10 14:16
4-Bromofluorobenzene		% Rec.	95.37	75-128	WG500977	10/01/10 14:16
Dibromofluoromethane		% Rec.	103.4	79-125	WG500977	10/01/10 14:16
Toluene-d8		% Rec.	101.5	87-114	WG500977	10/01/10 14:16
Chromium	< .002	mg/l			WG501523	10/05/10 10:54
Lead	< .001	mg/l			WG501523	10/05/10 10:54
Trichloroethene	< .001	mg/l			WG501534	10/05/10 11:35
4-Bromofluorobenzene		% Rec.	94.53	75-128	WG501534	10/05/10 11:35
Dibromofluoromethane		% Rec.	107.7	79-125	WG501534	10/05/10 11:35
Toluene-d8		% Rec.	101.5	87-114	WG501534	10/05/10 11:35

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Chromium,Hexavalent	mg/l	0	0	0	20	L481452-01	WG500958
Chromium	mg/l	0.00320	0.00270	16.6	20	L481331-03	WG501523
Lead	mg/l	0	0.00119	NA	20	L481331-03	WG501523

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Chromium,Hexavalent	mg/l	.6	0.598	99.7	85-115	WG500958
1,1,1,2-Tetrachloroethane	mg/l	.025	0.0262	105.	75-134	WG500977
1,1,1-Trichloroethane	mg/l	.025	0.0225	90.1	67-137	WG500977
1,1,2,2-Tetrachloroethane	mg/l	.025	0.0287	115.	72-128	WG500977
1,1,2-Trichloroethane	mg/l	.025	0.0258	103.	79-123	WG500977
1,1,2-Trichloro-1,2,2-trifluoroethane	mg/l	.025	0.0240	96.0	51-149	WG500977
1,1-Dichloroethane	mg/l	.025	0.0222	88.9	67-133	WG500977
1,1-Dichloroethene	mg/l	.025	0.0227	90.8	60-130	WG500977
1,1-Dichloropropene	mg/l	.025	0.0207	82.8	68-132	WG500977
1,2,3-Trichlorobenzene	mg/l	.025	0.0265	106.	63-138	WG500977
1,2,3-Trichloropropane	mg/l	.025	0.0268	107.	68-130	WG500977
1,2,3-Trimethylbenzene	mg/l	.025	0.0261	104.	70-127	WG500977
1,2,4-Trichlorobenzene	mg/l	.025	0.0253	101.	65-137	WG500977
1,2,4-Trimethylbenzene	mg/l	.025	0.0277	111.	72-135	WG500977
1,2-Dibromo-3-Chloropropane	mg/l	.025	0.0222	88.9	55-134	WG500977
1,2-Dibromoethane	mg/l	.025	0.0235	94.2	75-126	WG500977
1,2-Dichlorobenzene	mg/l	.025	0.0259	104.	75-122	WG500977
1,2-Dichloroethane	mg/l	.025	0.0223	89.2	63-137	WG500977
1,2-Dichloropropane	mg/l	.025	0.0247	98.7	74-122	WG500977
1,3,5-Trimethylbenzene	mg/l	.025	0.0265	106.	73-134	WG500977

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Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
1,3-Dichlorobenzene	mg/l	.025	0.0267	107.	73-131	WG500977
1,3-Dichloropropane	mg/l	.025	0.0235	94.2	77-119	WG500977
1,4-Dichlorobenzene	mg/l	.025	0.0245	98.1	70-121	WG500977
2,2-Dichloropropane	mg/l	.025	0.0225	90.1	46-151	WG500977
2-Butanone (MEK)	mg/l	.125	0.126	101.	53-132	WG500977
2-Chloroethyl vinyl ether	mg/l	.125	0.0927	74.1	0-171	WG500977
2-Chlorotoluene	mg/l	.025	0.0256	102.	74-128	WG500977
4-Chlorotoluene	mg/l	.025	0.0263	105.	74-130	WG500977
4-Methyl-2-pentanone (MIBK)	mg/l	.125	0.137	109.	60-142	WG500977
Acetone	mg/l	.125	0.125	99.6	48-134	WG500977
Acrolein	mg/l	.125	0.130	104.	6-182	WG500977
Acrylonitrile	mg/l	.125	0.122	97.9	60-140	WG500977
Benzene	mg/l	.025	0.0215	85.8	67-126	WG500977
Bromobenzene	mg/l	.025	0.0259	104.	76-123	WG500977
Bromodichloromethane	mg/l	.025	0.0254	102.	68-133	WG500977
Bromoform	mg/l	.025	0.0234	93.4	60-139	WG500977
Bromomethane	mg/l	.025	0.0214	85.6	45-175	WG500977
Carbon tetrachloride	mg/l	.025	0.0216	86.5	64-141	WG500977
Chlorobenzene	mg/l	.025	0.0249	99.8	77-125	WG500977
Chlorodibromomethane	mg/l	.025	0.0251	100.	73-138	WG500977
Chloroethane	mg/l	.025	0.0256	103.	49-155	WG500977
Chloroform	mg/l	.025	0.0230	92.2	66-126	WG500977
Chloromethane	mg/l	.025	0.0167	66.7	45-152	WG500977
cis-1,2-Dichloroethene	mg/l	.025	0.0220	88.0	72-128	WG500977
cis-1,3-Dichloropropene	mg/l	.025	0.0248	99.3	73-131	WG500977
Di-isopropyl ether	mg/l	.025	0.0234	93.5	63-139	WG500977
Dibromomethane	mg/l	.025	0.0235	94.1	73-125	WG500977
Dichlorodifluoromethane	mg/l	.025	0.0150	60.0	39-189	WG500977
Ethylbenzene	mg/l	.025	0.0251	100.	76-129	WG500977
Hexachloro-1,3-butadiene	mg/l	.025	0.0285	114.	67-135	WG500977
Isopropylbenzene	mg/l	.025	0.0248	99.0	73-132	WG500977
Methyl tert-butyl ether	mg/l	.025	0.0217	86.6	51-142	WG500977
Methylene Chloride	mg/l	.025	0.0214	85.4	64-125	WG500977
n-Butylbenzene	mg/l	.025	0.0279	112.	63-142	WG500977
n-Propylbenzene	mg/l	.025	0.0271	109.	71-132	WG500977
Naphthalene	mg/l	.025	0.0277	111.	56-145	WG500977
p-Isopropyltoluene	mg/l	.025	0.0276	110.	68-138	WG500977
sec-Butylbenzene	mg/l	.025	0.0278	111.	70-135	WG500977
Styrene	mg/l	.025	0.0324	130.	78-130	WG500977
tert-Butylbenzene	mg/l	.025	0.0270	108.	72-134	WG500977
Tetrachloroethene	mg/l	.025	0.0226	90.3	67-135	WG500977
Toluene	mg/l	.025	0.0228	91.4	72-122	WG500977
trans-1,2-Dichloroethene	mg/l	.025	0.0183	73.2	67-129	WG500977
trans-1,3-Dichloropropene	mg/l	.025	0.0248	99.1	66-137	WG500977
Trichloroethene	mg/l	.025	0.0225	90.1	74-126	WG500977
Trichlorofluoromethane	mg/l	.025	0.0259	104.	54-156	WG500977
Vinyl chloride	mg/l	.025	0.0213	85.3	55-153	WG500977
Xylenes, Total	mg/l	.075	0.0749	99.8	75-128	WG500977
4-Bromofluorobenzene				103.4	75-128	WG500977
Dibromofluoromethane				104.5	79-125	WG500977
Toluene-d8				102.9	87-114	WG500977
Chromium	mg/l	.0567	0.0529	93.3	85-115	WG501523
Lead	mg/l	.0567	0.0532	93.8	85-115	WG501523
Trichloroethene	mg/l	.025	0.0231	92.4	74-126	WG501534
4-Bromofluorobenzene				97.22	75-128	WG501534

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Analyte	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
	Units	Result	Ref %Rec				
Dibromofluoromethane				105.9		79-125	
Toluene-d8				101.8		87-114	

Analyte	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
	Units	Result	Ref %Rec				
Chromium,Hexavalent	mg/l	0.594	0.598 99.0	85-115	0.671	20	WG500958
1,1,1,2-Tetrachloroethane	mg/l	0.0273	0.0262 109.	75-134	3.87	20	WG500977
1,1,1-Trichloroethane	mg/l	0.0253	0.0225 101.	67-137	11.8	20	WG500977
1,1,2,2-Tetrachloroethane	mg/l	0.0284	0.0287 114.	72-128	1.26	20	WG500977
1,1,2-Trichloroethane	mg/l	0.0264	0.0258 105.	79-123	2.04	20	WG500977
1,1,2-Trichloro-1,2,2-trifluoroethane	mg/l	0.0260	0.0240 104.	51-149	8.02	20	WG500977
1,1-Dichloroethane	mg/l	0.0238	0.0222 95.0	67-133	6.83	20	WG500977
1,1-Dichloroethene	mg/l	0.0240	0.0227 96.0	60-130	5.55	20	WG500977
1,1-Dichloropropene	mg/l	0.0225	0.0207 90.0	68-132	8.35	20	WG500977
1,2,3-Trichlorobenzene	mg/l	0.0271	0.0265 108.	63-138	2.45	20	WG500977
1,2,3-Trichloropropane	mg/l	0.0273	0.0268 109.	68-130	1.59	20	WG500977
1,2,3-Trimethylbenzene	mg/l	0.0268	0.0261 107.	70-127	2.77	20	WG500977
1,2,4-Trichlorobenzene	mg/l	0.0254	0.0253 102.	65-137	0.640	20	WG500977
1,2,4-Trimethylbenzene	mg/l	0.0290	0.0277 116.	72-135	4.42	20	WG500977
1,2-Dibromo-3-Chloropropane	mg/l	0.0214	0.0222 85.0	55-134	3.98	20	WG500977
1,2-Dibromoethane	mg/l	0.0242	0.0235 97.0	75-126	2.61	20	WG500977
1,2-Dichlorobenzene	mg/l	0.0266	0.0259 106.	75-122	2.66	20	WG500977
1,2-Dichloroethane	mg/l	0.0233	0.0223 93.0	63-137	4.28	20	WG500977
1,2-Dichloropropane	mg/l	0.0256	0.0247 102.	74-122	3.61	20	WG500977
1,3,5-Trimethylbenzene	mg/l	0.0275	0.0265 110.	73-134	3.71	20	WG500977
1,3-Dichlorobenzene	mg/l	0.0280	0.0267 112.	73-131	4.99	20	WG500977
1,3-Dichloropropane	mg/l	0.0238	0.0235 95.0	77-119	1.11	20	WG500977
1,4-Dichlorobenzene	mg/l	0.0255	0.0245 102.	70-121	3.91	20	WG500977
2,2-Dichloropropane	mg/l	0.0266	0.0225 106.	46-151	16.6	20	WG500977
2-Butanone (MEK)	mg/l	0.132	0.126 105.	53-132	4.27	20	WG500977
2-Chloroethyl vinyl ether	mg/l	0.0985	0.0927 79.0	0-171	6.14	27	WG500977
2-Chlorotoluene	mg/l	0.0274	0.0256 110.	74-128	6.91	20	WG500977
4-Chlorotoluene	mg/l	0.0275	0.0263 110.	74-130	4.49	20	WG500977
4-Methyl-2-pentanone (MIBK)	mg/l	0.137	0.137 110.	60-142	0.320	20	WG500977
Acetone	mg/l	0.128	0.125 102.	48-134	2.55	20	WG500977
Acrolein	mg/l	0.134	0.130 108.	6-182	3.62	39	WG500977
Acrylonitrile	mg/l	0.125	0.122 100.	60-140	2.15	20	WG500977
Benzene	mg/l	0.0228	0.0215 91.0	67-126	5.99	20	WG500977
Bromobenzene	mg/l	0.0271	0.0259 108.	76-123	4.60	20	WG500977
Bromodichloromethane	mg/l	0.0262	0.0254 105.	68-133	2.95	20	WG500977
Bromoform	mg/l	0.0234	0.0234 93.0	60-139	0	20	WG500977
Bromomethane	mg/l	0.0219	0.0214 88.0	45-175	2.20	20	WG500977
Carbon tetrachloride	mg/l	0.0248	0.0216 99.0	64-141	13.7	20	WG500977
Chlorobenzene	mg/l	0.0257	0.0249 103.	77-125	2.89	20	WG500977
Chlorodibromomethane	mg/l	0.0252	0.0251 101.	73-138	0.450	20	WG500977
Chloroethane	mg/l	0.0263	0.0256 105.	49-155	2.51	20	WG500977
Chloroform	mg/l	0.0244	0.0230 98.0	66-126	5.83	20	WG500977
Chloromethane	mg/l	0.0175	0.0167 70.0	45-152	4.64	20	WG500977
cis-1,2-Dichloroethene	mg/l	0.0236	0.0220 94.0	72-128	6.86	20	WG500977
cis-1,3-Dichloropropene	mg/l	0.0251	0.0248 100.	73-131	1.03	20	WG500977
Di-isopropyl ether	mg/l	0.0248	0.0234 99.0	63-139	5.96	20	WG500977
Dibromomethane	mg/l	0.0233	0.0235 93.0	73-125	0.920	20	WG500977
Dichlorodifluoromethane	mg/l	0.0161	0.0150 64.0	39-189	7.07	24	WG500977
Ethylbenzene	mg/l	0.0266	0.0251 106.	76-129	5.56	20	WG500977
Hexachloro-1,3-butadiene	mg/l	0.0294	0.0285 118.	67-135	3.23	20	WG500977
Isopropylbenzene	mg/l	0.0260	0.0248 104.	73-132	4.86	20	WG500977

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Analyte	Units	Laboratory Control		Sample Duplicate		Limit	RPD	Limit	Batch
		Result	Ref	%Rec					
Methyl tert-butyl ether	mg/l	0.0226	0.0217	90.0		51-142	4.29	20	WG500977
Methylene Chloride	mg/l	0.0222	0.0214	89.0		64-125	3.81	20	WG500977
n-Butylbenzene	mg/l	0.0293	0.0279	117.		63-142	5.02	20	WG500977
n-Propylbenzene	mg/l	0.0286	0.0271	114.		71-132	5.29	20	WG500977
Naphthalene	mg/l	0.0283	0.0277	113.		56-145	2.11	20	WG500977
p-Isopropyltoluene	mg/l	0.0289	0.0276	116.		68-138	4.77	20	WG500977
sec-Butylbenzene	mg/l	0.0295	0.0278	118.		70-135	5.97	20	WG500977
Styrene	mg/l	0.0342	0.0324	137*		78-130	5.17	20	WG500977
tert-Butylbenzene	mg/l	0.0291	0.0270	116.		72-134	7.32	20	WG500977
Tetrachloroethene	mg/l	0.0236	0.0226	94.0		67-135	4.66	20	WG500977
Toluene	mg/l	0.0240	0.0228	96.0		72-122	5.04	20	WG500977
trans-1,2-Dichloroethene	mg/l	0.0194	0.0183	78.0		67-129	6.03	20	WG500977
trans-1,3-Dichloropropene	mg/l	0.0256	0.0248	102.		66-137	3.44	20	WG500977
Trichloroethene	mg/l	0.0244	0.0225	98.0		74-126	7.89	20	WG500977
Trichlorofluoromethane	mg/l	0.0288	0.0259	115.		54-156	10.7	20	WG500977
Vinyl chloride	mg/l	0.0220	0.0213	88.0		55-153	3.17	20	WG500977
Xylenes, Total	mg/l	0.0794	0.0749	106.		75-128	5.89	20	WG500977
4-Bromofluorobenzene				101.4		75-128			WG500977
Dibromofluoromethane				105.9		79-125			WG500977
Toluene-d8				102.7		87-114			WG500977
Trichloroethene	mg/l	0.0232	0.0231	93.0		74-126	0.330	20	WG501534
4-Bromofluorobenzene				99.18		75-128			WG501534
Dibromofluoromethane				107.0		79-125			WG501534
Toluene-d8				100.6		87-114			WG501534

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Chromium, Hexavalent	mg/l	0.491	0	.5	98.2	85-115	L481451-01	WG500958
1,1,1,2-Tetrachloroethane	mg/l	0.0258	0	.025	103.	45-152	L481452-01	WG500977
1,1,1-Trichloroethane	mg/l	0.0357	0.00880	.025	108.	31-161	L481452-01	WG500977
1,1,2,2-Tetrachloroethane	mg/l	0.0291	0	.025	116.	49-149	L481452-01	WG500977
1,1,2-Trichloroethane	mg/l	0.0263	0	.025	105.	46-145	L481452-01	WG500977
1,1,2-Trichloro-1,2,2-trifluoroethane	mg/l	0.0244	0	.025	97.4	14-168	L481452-01	WG500977
1,1-Dichloroethane	mg/l	0.0224	0	.025	89.8	30-159	L481452-01	WG500977
1,1-Dichloroethene	mg/l	0.0241	0.000420	.025	94.7	10-162	L481452-01	WG500977
1,1-Dichloropropene	mg/l	0.0206	0	.025	82.3	14-162	L481452-01	WG500977
1,2,3-Trichlorobenzene	mg/l	0.0271	0	.025	108.	32-143	L481452-01	WG500977
1,2,3-Trichloropropane	mg/l	0.0279	0	.025	112.	48-148	L481452-01	WG500977
1,2,3-Trimethylbenzene	mg/l	0.0265	0	.025	106.	36-141	L481452-01	WG500977
1,2,4-Trichlorobenzene	mg/l	0.0257	0	.025	103.	27-142	L481452-01	WG500977
1,2,4-Trimethylbenzene	mg/l	0.0265	0	.025	106.	29-153	L481452-01	WG500977
1,2-Dibromo-3-Chloropropane	mg/l	0.0235	0	.025	94.2	37-148	L481452-01	WG500977
1,2-Dibromoethane	mg/l	0.0248	0	.025	99.4	41-149	L481452-01	WG500977
1,2-Dichlorobenzene	mg/l	0.0264	0	.025	106.	40-139	L481452-01	WG500977
1,2-Dichloroethane	mg/l	0.0227	0	.025	91.0	29-167	L481452-01	WG500977
1,2-Dichloropropane	mg/l	0.0252	0	.025	101.	39-148	L481452-01	WG500977
1,3,5-Trimethylbenzene	mg/l	0.0251	0	.025	100.	33-149	L481452-01	WG500977
1,3-Dichlorobenzene	mg/l	0.0259	0	.025	104.	32-148	L481452-01	WG500977
1,3-Dichloropropane	mg/l	0.0239	0	.025	95.8	44-142	L481452-01	WG500977
1,4-Dichlorobenzene	mg/l	0.0250	0	.025	100.	32-136	L481452-01	WG500977
2,2-Dichloropropane	mg/l	0.0230	0	.025	92.1	14-158	L481452-01	WG500977
2-Butanone (MEK)	mg/l	0.134	0	.125	108.	32-151	L481452-01	WG500977
2-Chloroethyl vinyl ether	mg/l	0.0555	0	.125	44.4	0-175	L481452-01	WG500977
2-Chlorotoluene	mg/l	0.0245	0	.025	98.1	35-147	L481452-01	WG500977

* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Quality Assurance Report
 Level II

L481452

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Tax I.D. 62-0814289

Est. 1970

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
4-Chlorotoluene	mg/l	0.0254	0	.025	102.	33-147	L481452-01	WG500977
4-Methyl-2-pentanone (MIBK)	mg/l	0.147	0	.125	117.	40-160	L481452-01	WG500977
Acetone	mg/l	0.128	0	.125	102.	25-157	L481452-01	WG500977
Acrolein	mg/l	0.139	0	.125	112.	0-179	L481452-01	WG500977
Acrylonitrile	mg/l	0.131	0	.125	105.	37-162	L481452-01	WG500977
Benzene	mg/l	0.0218	0	.025	87.2	16-158	L481452-01	WG500977
Bromobenzene	mg/l	0.0256	0	.025	102.	37-147	L481452-01	WG500977
Bromodichloromethane	mg/l	0.0264	0	.025	106.	45-147	L481452-01	WG500977
Bromoform	mg/l	0.0235	0	.025	93.8	38-152	L481452-01	WG500977
Bromomethane	mg/l	0.0230	0	.025	92.0	0-191	L481452-01	WG500977
Carbon tetrachloride	mg/l	0.0232	0	.025	92.9	22-168	L481452-01	WG500977
Chlorobenzene	mg/l	0.0245	0	.025	98.0	33-148	L481452-01	WG500977
Chlorodibromomethane	mg/l	0.0257	0	.025	103.	48-151	L481452-01	WG500977
Chloroethane	mg/l	0.0278	0	.025	111.	4-176	L481452-01	WG500977
Chloroform	mg/l	0.0232	0	.025	92.6	37-147	L481452-01	WG500977
Chloromethane	mg/l	0.0196	0	.025	78.2	10-174	L481452-01	WG500977
cis-1,2-Dichloroethene	mg/l	0.0221	0	.025	88.3	29-156	L481452-01	WG500977
cis-1,3-Dichloropropene	mg/l	0.0259	0	.025	104.	35-148	L481452-01	WG500977
Di-isopropyl ether	mg/l	0.0237	0	.025	94.9	39-160	L481452-01	WG500977
Dibromomethane	mg/l	0.0249	0	.025	99.6	36-152	L481452-01	WG500977
Dichlorodifluoromethane	mg/l	0.0203	0	.025	81.4	0-200	L481452-01	WG500977
Ethylbenzene	mg/l	0.0245	0	.025	98.1	29-150	L481452-01	WG500977
Hexachloro-1,3-butadiene	mg/l	0.0292	0	.025	117.	28-144	L481452-01	WG500977
Isopropylbenzene	mg/l	0.0239	0	.025	95.8	35-147	L481452-01	WG500977
Methyl tert-butyl ether	mg/l	0.0225	0	.025	90.1	24-167	L481452-01	WG500977
Methylene Chloride	mg/l	0.0192	0	.025	76.9	23-151	L481452-01	WG500977
n-Butylbenzene	mg/l	0.0281	0	.025	112.	22-151	L481452-01	WG500977
n-Propylbenzene	mg/l	0.0258	0	.025	103.	26-150	L481452-01	WG500977
Naphthalene	mg/l	0.0275	0	.025	110.	24-160	L481452-01	WG500977
p-Isopropyltoluene	mg/l	0.0261	0	.025	104.	28-151	L481452-01	WG500977
sec-Butylbenzene	mg/l	0.0264	0	.025	106.	32-149	L481452-01	WG500977
Styrene	mg/l	0.0319	0	.025	128.	38-149	L481452-01	WG500977
tert-Butylbenzene	mg/l	0.0265	0	.025	106.	36-149	L481452-01	WG500977
Tetrachloroethene	mg/l	0.0240	0.00140	.025	90.5	13-157	L481452-01	WG500977
Toluene	mg/l	0.0234	0	.025	93.5	22-152	L481452-01	WG500977
trans-1,2-Dichloroethene	mg/l	0.0191	0	.025	76.4	11-160	L481452-01	WG500977
trans-1,3-Dichloropropene	mg/l	0.0261	0	.025	104.	33-153	L481452-01	WG500977
Trichloroethene	mg/l	0.0435	0.0140	.025	118.	18-163	L481452-01	WG500977
Trichlorofluoromethane	mg/l	0.0290	0	.025	116.	10-177	L481452-01	WG500977
Vinyl chloride	mg/l	0.0240	0	.025	96.1	0-179	L481452-01	WG500977
Xylenes, Total	mg/l	0.0731	0	.075	97.4	27-151	L481452-01	WG500977
4-Bromofluorobenzene					97.32	75-128		WG500977
Dibromofluoromethane					104.3	79-125		WG500977
Toluene-d8					106.9	87-114		WG500977
Chromium	mg/l	0.0524	0.00270	.0567	87.6	75-125	L481331-03	WG501523
Lead	mg/l	0.0531	0.00119	.0567	91.6	75-125	L481331-03	WG501523
Trichloroethene	mg/l	0.0236	0	.025	94.5	18-163	L481517-01	WG501534
4-Bromofluorobenzene					95.73	75-128		WG501534
Dibromofluoromethane					109.6	79-125		WG501534
Toluene-d8					100.8	87-114		WG501534

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Chromium,Hexavalent	mg/l	0.532	0.491	106.	85-115	8.02	20	L481451-01	WG500958
* Performance of this Analyte is outside of established criteria. For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'									



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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit Ref	Samp	Batch
			Ref	%Rec					
1,1,1,2-Tetrachloroethane	mg/l	0.0273	0.0258	109.	45-152	5.56	21	L481452-01	WG500977
1,1,1-Trichloroethane	mg/l	0.0355	0.0357	107.	31-161	0.520	23	L481452-01	WG500977
1,1,2,2-Tetrachloroethane	mg/l	0.0286	0.0291	114.	49-149	1.68	22	L481452-01	WG500977
1,1,2-Trichloroethane	mg/l	0.0271	0.0263	108.	46-145	3.01	20	L481452-01	WG500977
1,1,2-Trichloro-1,2,2-trifluoroethane	mg/l	0.0233	0.0244	93.3	14-168	4.34	24	L481452-01	WG500977
1,1-Dichloroethane	mg/l	0.0222	0.0224	89.0	30-159	0.890	21	L481452-01	WG500977
1,1-Dichloroethene	mg/l	0.0230	0.0241	90.3	10-162	4.63	23	L481452-01	WG500977
1,1-Dichloropropene	mg/l	0.0204	0.0206	81.5	14-162	0.900	23	L481452-01	WG500977
1,2,3-Trichlorobenzene	mg/l	0.0263	0.0271	105.	32-143	3.03	33	L481452-01	WG500977
1,2,3-Trichloropropane	mg/l	0.0282	0.0279	113.	48-148	1.00	23	L481452-01	WG500977
1,2,3-Trimethylbenzene	mg/l	0.0259	0.0265	103.	36-141	2.45	25	L481452-01	WG500977
1,2,4-Trichlorobenzene	mg/l	0.0251	0.0257	100.	27-142	2.40	30	L481452-01	WG500977
1,2,4-Trimethylbenzene	mg/l	0.0268	0.0265	107.	29-153	1.34	27	L481452-01	WG500977
1,2-Dibromo-3-Chloropropane	mg/l	0.0218	0.0235	87.2	37-148	7.76	27	L481452-01	WG500977
1,2-Dibromoethane	mg/l	0.0243	0.0248	97.2	41-149	2.22	21	L481452-01	WG500977
1,2-Dichlorobenzene	mg/l	0.0259	0.0264	103.	40-139	2.03	23	L481452-01	WG500977
1,2-Dichloroethane	mg/l	0.0232	0.0227	92.8	29-167	1.97	21	L481452-01	WG500977
1,2-Dichloropropane	mg/l	0.0254	0.0252	102.	39-148	0.620	20	L481452-01	WG500977
1,3,5-Trimethylbenzene	mg/l	0.0257	0.0251	103.	33-149	2.39	26	L481452-01	WG500977
1,3-Dichlorobenzene	mg/l	0.0264	0.0259	106.	32-148	1.84	24	L481452-01	WG500977
1,3-Dichloropropane	mg/l	0.0241	0.0239	96.4	44-142	0.620	20	L481452-01	WG500977
1,4-Dichlorobenzene	mg/l	0.0245	0.0250	98.0	32-136	2.15	23	L481452-01	WG500977
2,2-Dichloropropane	mg/l	0.0214	0.0230	85.7	14-158	7.17	23	L481452-01	WG500977
2-Butanone (MEK)	mg/l	0.128	0.134	102.	32-151	5.04	26	L481452-01	WG500977
2-Chloroethyl vinyl ether	mg/l	0.0328	0.0555	26.2	0-175	51.4	75	L481452-01	WG500977
2-Chlorotoluene	mg/l	0.0256	0.0245	102.	35-147	4.05	24	L481452-01	WG500977
4-Chlorotoluene	mg/l	0.0256	0.0254	102.	33-147	0.800	25	L481452-01	WG500977
4-Methyl-2-pentanone (MIBK)	mg/l	0.140	0.147	112.	40-160	4.83	28	L481452-01	WG500977
Acetone	mg/l	0.125	0.128	100.	25-157	2.36	26	L481452-01	WG500977
Acrolein	mg/l	0.152	0.139	122.	0-179	8.86	39	L481452-01	WG500977
Acrylonitrile	mg/l	0.127	0.131	102.	37-162	3.09	24	L481452-01	WG500977
Benzene	mg/l	0.0215	0.0218	86.1	16-158	1.32	21	L481452-01	WG500977
Bromobenzene	mg/l	0.0258	0.0256	103.	37-147	0.590	23	L481452-01	WG500977
Bromodichloromethane	mg/l	0.0260	0.0264	104.	45-147	1.48	20	L481452-01	WG500977
Bromoform	mg/l	0.0230	0.0235	91.9	38-152	2.09	20	L481452-01	WG500977
Bromomethane	mg/l	0.0213	0.0230	85.2	0-191	7.66	35	L481452-01	WG500977
Carbon tetrachloride	mg/l	0.0231	0.0232	92.5	22-168	0.520	24	L481452-01	WG500977
Chlorobenzene	mg/l	0.0248	0.0245	99.0	33-148	1.11	22	L481452-01	WG500977
Chlorodibromomethane	mg/l	0.0254	0.0257	102.	48-151	0.910	21	L481452-01	WG500977
Chloroethane	mg/l	0.0253	0.0278	101.	4-176	9.45	27	L481452-01	WG500977
Chloroform	mg/l	0.0235	0.0232	94.0	37-147	1.50	21	L481452-01	WG500977
Chloromethane	mg/l	0.0184	0.0196	73.5	10-174	6.24	28	L481452-01	WG500977
cis-1,2-Dichloroethene	mg/l	0.0224	0.0221	89.5	29-156	1.35	22	L481452-01	WG500977
cis-1,3-Dichloropropene	mg/l	0.0262	0.0259	105.	35-148	0.960	21	L481452-01	WG500977
Di-isopropyl ether	mg/l	0.0236	0.0237	94.3	39-160	0.640	21	L481452-01	WG500977
Dibromomethane	mg/l	0.0241	0.0249	96.3	36-152	3.36	20	L481452-01	WG500977
Dichlorodifluoromethane	mg/l	0.0195	0.0203	77.9	0-200	4.36	26	L481452-01	WG500977
Ethylbenzene	mg/l	0.0246	0.0245	98.3	29-150	0.260	24	L481452-01	WG500977
Hexachloro-1,3-butadiene	mg/l	0.0278	0.0292	111.	28-144	4.91	33	L481452-01	WG500977
Isopropylbenzene	mg/l	0.0239	0.0239	95.4	35-147	0.380	25	L481452-01	WG500977
Methyl tert-butyl ether	mg/l	0.0209	0.0225	83.6	24-167	7.48	22	L481452-01	WG500977
Methylene Chloride	mg/l	0.0216	0.0192	86.6	23-151	11.9	21	L481452-01	WG500977
n-Butylbenzene	mg/l	0.0269	0.0281	108.	22-151	4.17	29	L481452-01	WG500977
n-Propylbenzene	mg/l	0.0263	0.0258	105.	26-150	1.82	25	L481452-01	WG500977
Naphthalene	mg/l	0.0264	0.0275	106.	24-160	4.10	37	L481452-01	WG500977
p-Isopropyltoluene	mg/l	0.0268	0.0261	107.	28-151	2.55	27	L481452-01	WG500977
sec-Butylbenzene	mg/l	0.0268	0.0264	107.	32-149	1.68	26	L481452-01	WG500977
Styrene	mg/l	0.0321	0.0319	128.	38-149	0.590	23	L481452-01	WG500977
tert-Butylbenzene	mg/l	0.0263	0.0265	105.	36-149	0.480	26	L481452-01	WG500977

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
Tetrachloroethene	mg/l	0.0247	0.0240	93.3	13-157	2.86	24	L481452-01	WG500977	
Toluene	mg/l	0.0230	0.0234	91.8	22-152	1.83	22	L481452-01	WG500977	
trans-1,2-Dichloroethene	mg/l	0.0184	0.0191	73.7	11-160	3.61	23	L481452-01	WG500977	
trans-1,3-Dichloropropene	mg/l	0.0257	0.0261	103.	33-153	1.38	22	L481452-01	WG500977	
Trichloroethene	mg/l	0.0434	0.0435	118.	18-163	0.250	21	L481452-01	WG500977	
Trichlorofluoromethane	mg/l	0.0282	0.0290	113.	10-177	2.83	24	L481452-01	WG500977	
Vinyl chloride	mg/l	0.0223	0.0240	89.0	0-179	7.63	26	L481452-01	WG500977	
Xylenes, Total	mg/l	0.0740	0.0731	98.7	27-151	1.31	23	L481452-01	WG500977	
4-Bromofluorobenzene				104.1	75-128				WG500977	
Dibromofluoromethane				105.3	79-125				WG500977	
Toluene-d8				106.6	87-114				WG500977	
Chromium	mg/l	0.0518	0.0524	86.6	75-125	1.15	20	L481331-03	WG501523	
Lead	mg/l	0.0530	0.0531	91.4	75-125	0.189	20	L481331-03	WG501523	
Trichloroethene	mg/l	0.0223	0.0236	89.2	18-163	5.71	21	L481517-01	WG501534	
4-Bromofluorobenzene				98.72	75-128				WG501534	
Dibromofluoromethane				110.4	79-125				WG501534	
Toluene-d8				102.6	87-114				WG501534	

Batch number /Run number / Sample number cross reference

WG500958: R1402008: L481452-01 02 03 04
 WG500977: R1408488: L481452-01 02 03 04
 WG501523: R1410848: L481452-01 02 03 04
 WG501534: R1411628: L481452-02

* * Calculations are performed prior to rounding of reported values .
 * Performance of this Analyte is outside of established criteria.
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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

MACTEC - Louisville, KY

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Billing information:
MACTEC
AP Processing
1105 Lakewood, Ste. 300
Alpharetta, GA 30009

Analysis/Container/Preservative

Chain of Custody
Page 1 of 1



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B109

Report to: **Mr. Scott Kelly**
Email: **tskelly@mactec.com**

Project Description: **RBTC-500 VAC - Leitchfield, KY**
City/State Collected:
Client Project #: **6680-08-9635**
Lab Project #: **MACTECLOU-RBTC500**

Collected by (print):
Site/Facility ID#: **201013396 9/24/10**
P.O.#:

Collected by (signature):
Rush? (Lab MUST Be Notified)
 ___ Same Day200%
 ___ Next Day100%
 ___ Two Day50%
 ___ Three Day25%
 Date Results Needed:
 Email? ___No ___Yes
 FAX? ___No ___Yes
 No. of Cntrs

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	CR6	**SHORT HOLD**	250mlHDPE-NoPres	CrG, PbG	500mlHDPE-HNO3	V8260	40mlAmb-HCl
W-1, 92910	G	GW	NA	9/29/10	1200	4	X	X	X				
W-4, 92910	G	GW			1245	4	X	X	X				
W-2, 92910	G	GW			1420	4	X	X	X				
W-3, 92910	G	GW			1512	4	X	X	X				

Acctnum: **MACTECLOU** (lab use only)
 Template/Prelogin: **T67345/P333616**
 Cooler #:
 Shipped Via: **FedEx Ground**

Remarks/Contaminant Sample # (lab only)
 L481452-01
 .02
 .03
 .04

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other _____

pH _____ Temp _____

Remarks: Please collect Chromium Hex samples late in the day and ship on same day of collection - SHORT HOLD Sample

Flow _____ Other _____

435593081272

Relinquished by: (Signature) <i>Michael Gaudin</i>	Date: 9/29/10	Time: 1800	Received by: (Signature)	Samples returned via: <input checked="" type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/>	Condition: DIC (lab use only)
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.50	Bottles Received: 16 + TB
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature) <i>John</i>	Date: 9/30/10	Time: 0900
					COC Seal Intact: ___ Y ___ N NA pH Checked: 2.2 NCF:

ATTACHMENT C

MONITORING WELL ABANDONMENT PHOTOGRAPHS



PHOTO 1:

View looking west at monitoring well W-2, illustrating coring over the monitoring well vault using a 10-inch diameter concrete coring bit.



PHOTO 2:

View of well W-2 following over-coring.



PHOTO 3:

The casings in both wells were backfilled with bentonite chips, and an attempt was then made to pull the casing. The casing could not be pulled, therefore the casings were over-drilled down to 5 feet using a hollow-stem auger.

During over-drilling, the drilled-out materials were containerized in a drum, as shown here at W-2.



PHOTO 4:

View of well W-2 after over-drilling had been completed down to five feet, using a 4.25-inch diameter hollow stem auger with a wooden auger plug on the end, turned by a Geoprobe® rig.



PHOTO 5:

View looking west toward W-2. After monitoring well W-2 was over-drilled, 3/8-inch bentonite chips were placed into the open borehole to approximately one foot below ground surface.



PHOTO 6:

After placing 3/8-inch bentonite chips into the open W-2 borehole to within approximately one foot of ground surface, concrete was placed into the boring and finished level with the existing floor surface.



PHOTO 7:

Placement of 3/8-inch diameter bentonite chips into well W-3 using a funnel to guide the chips into the riser. The bentonite level was constantly depth-checked using a weighted tape to verify bridging did not occur during placement. Chips were hydrated by adding water intermittently as they were placed.



PHOTO 8:

Several attempts were made to pull the casing in both monitoring wells. This is a view of monitoring well W-3 after it was backfilled with bentonite chips, showing the clamp and cable used for pulling.



PHOTO 9:

View of W-3 well casing after multiple attempts to pull the casing.



PHOTO 10:

Over-drilling monitoring well W-3 after several attempts to pull the casing failed. The Portland cement-bentonite grout seal material is visible in the cuttings. The water on the floor is from nearby concrete coring activities related to soil borings. After over-drilling, the borehole for W-3 was backfilled to the surface with hydrated bentonite chips.

ATTACHMENT D

MONITORING WELL ABANDONMENT DOCUMENTATION

KENTUCKY MONITORING WELL VARIANCE REQUEST

Pursuant to 401 KAR 6:350

<p style="text-align: center;">GENERAL INFORMATION</p> <p>Requested by: <u>Theodore Keen</u> Received by: <u>JM</u></p> <p>Certification Number: <u>433-0495-00</u> Date of Request: 09 29 2010 <small>Month Day Year</small></p> <p>Drilling Company: <u>AST</u> Time of Request: Hour Min am/pm</p>	<p style="text-align: center;">WELL LOCATION</p> <p>Quadrangle: <u>Jeffersonville, IN</u></p> <p>County: <u>Jefferson, KY</u></p> <p style="text-align: center;">8001-6704</p> <p>AKGWA Number: <u>8001-6705</u></p>
--	---

<p style="text-align: center;">WELL OWNER IDENTIFICATION</p> <p>Well Owner: <u>500 Associates</u> Telephone: <u>502-719-0163</u></p> <p>Address: <u>333 E. Main St, Suite 500 (Potter & Assoc)</u></p> <p>City: <u>Louisville</u> State: <u>KY</u> Zip Code: <u>40202</u></p>	<p style="text-align: center;">EFFECTIVE DATES</p> <p>Well Construction Date: 09 26-28 1990 <small>Month Day Year</small></p> <p style="text-align: center;">abandoned</p> <p>Well must be completed on or before: 10 07 2010 <small>Month Day Year</small></p>
---	--

<p style="text-align: center;">REASON FOR VARIANCE</p> <p>Two wells were installed inside building in 1990. Building can no longer be accessed by truck-mounted rig.</p> <p>Applicable Regulation: _____ Section: _____</p>	<p style="text-align: center;">WELL CHARACTERISTICS</p> <p>Depth to: Estimated Exact</p> <p>Bedrock: >55 ft <input checked="" type="checkbox"/> <input type="checkbox"/></p> <p>Water Bearing Unit: <u>45</u> ft <input checked="" type="checkbox"/> <input type="checkbox"/></p> <p>Type of Bedrock: _____</p>
---	--

WELL CONSTRUCTION REQUIREMENTS

The Kentucky Division of Water is issuing you a one time temporary water well variance as a certified monitoring well driller to plug a water well located at the following location: 500 East Main Street, Louisville, Kentucky
Remove casing if possible. Permit bentonite from bottom of well upward.
 Please include a copy of this variance request along with the plugging record that you submit.

The Kentucky Division of Water is issuing you a one time temporary monitoring well construction variance due to the shallow water zone to be monitored at this site. This monitoring well construction variance is for the approval of the shorter intervals of the sand/filter packs and the Bentonite seals installed at _____
 Please include a copy of this variance request along with the monitoring well records that you submit.

The Kentucky Division of Water is issuing you a one time temporary _____ variance due to _____ at this site. This variance is for the approval of _____ for wells installed at _____
 Please include a copy of this variance request along with the records that you submit.

<p style="text-align: center;">SEALING MATERIALS REQUIRED FOR PLUGGING</p> <p>Type: <u>Bentonite pellets</u></p>	<p style="text-align: center;">ADDITIONAL REQUIREMENTS</p> <p style="text-align: center;">Sketch map <u>must be provided.</u></p>
---	--

THIS VARIANCE IS NOT VALID UNLESS SIGNED BY THE CERTIFIED WELL DRILLER AND THE WELL OWNER

<p style="text-align: center;">DRILLER AFFIRMATION</p> <p>I, the undersigned, agree to construct the above described well in accordance with all water well construction practices and standards established by the Kentucky Environmental and Public Protection Cabinet and in accordance with those conditions described in this variance request. I will be held financially responsible for remedial measures for this well if I fail to construct the well in compliance with the conditions established in this variance request.</p> <p>Signature: <u>[Signature]</u> Date: 09 29 2010 <small>Month Day Year</small></p>	<p style="text-align: center;">WELL OWNER AFFIRMATION</p> <p>I, the undersigned, understand the above described well is not in compliance with the water well construction practices and standards established by the Kentucky Environmental and Public Protection Cabinet. I acknowledge that the driller has requested a variance to allow the well to be constructed according to the conditions described in this variance request. By signing below, I give my permission for the well to be constructed as described above. If this variance well is constructed to the specifications of this variance and results in degradation of groundwater quality, I will be financially responsible for remedial measures for this well, including plugging, if necessary.</p> <p>Signature: _____ Date: Month Day Year</p>
<p style="text-align: center;">DIVISION OF WATER AFFIRMATION</p> <p>Signature: <u>[Signature]</u> Date: 10 04 10 <small>Month Day Year</small></p>	<p>Signature: _____ Date: Month Day Year</p>

Division of Water - Watershed Management Branch, 200 Fair Oaks Lane, Frankfort, KY 40601 (502) 564-3410 rev 04/11/2008

Distribution: One copy to Division of Water, one copy to well owner, one copy to driller's files.

ERCE

W2
8001-6704

LOG OF BORING NO. W2
Sheet 1 of 1

PROJECT VERMONT AMERICAN - LEVEL II
PROJECT NO. D907-019 DATE 9/28/90
BORING LOCATION On the east side of the Bonded
Warehouse along the north wall

DRILLER Cross Drilling Co. - Pat Highley
HELPER Marcie Highley

DRILLED FOR ERCE
RIG CME-55

SURFACE ELEVATION _____
REFUSAL DEPTH _____ ELEV _____
FOOTAGE SAMPLED 3-13 1/2
TOP OF ROCK DEPTH _____ ELEV _____
BEGAN CORING DEPTH _____ ELEV _____
FOOTAGE CORED _____
BOTTOM OF HOLE DEPTH 55' ELEV _____

DURING
DRILLING:
AFTER HRS: _____
LDW AT: _____

WATER LEVEL DATA

DEPTH 45 feet ELEV _____
DEPTH _____ ELEV _____
DEPTH _____ ELEV _____

SAMPLE NO.	DEPTH		SAMPLE BLOW*	DESCRIPTIONS AND REMARKS
	FROM	TO		
	0	3		Concrete (9") to silty clay, brown, moist
1	3	4 1/2	6,6,9	Silty clay, brown with light brown mottling, moist, stiff
	4 1/2	6		Silty clay, brown with light brown mottling, moist, stiff
2	6	7 1/2	3,4,5	Silty clay, brown, with slight light brown mottling, very moist
	7 1/2	9		Silty clay, brown, very moist
3	9	10 1/2	3,3,4	Sand, brown, very moist
	10 1/2	20		Sand, brown, moist
	20	30		Sand, brown, very moist
	30	45		Sand, brown, very moist
	45	55		Sand, brown, wet
		55		Bottom of hole

* Number of Blows per 6" Intervals, to drive 1-3/8 I.D., 2" O.D. Split Barrel Sampler with 140 Pound Hammer Falling 30 inches

COMMENTS:

KENTUCKY WELL INSPECTION FORM

(1) AKGWA NUMBER <div style="display: flex; justify-content: space-between; align-items: center;"> 8 0 0 1 - 6 7 0 4 </div>		8001-6704											
(2) OWNER/FACILITY INFORMATION Well Owner's Name: <u>500 Associates, Inc.</u> Mailing Address: <u>600 E. Main St.</u> City: <u>Louisville</u> State: <u>KY</u> Zip: <u>40202</u> Well Address (if different) <u>500 E. Main St.</u> City: <u>Louisville</u> State: <u>KY</u> Zip: <u>40202</u> Phone: <u>(502) 456-2044</u>		--- monitoring well labels begin with "8". --- (3) WELL RECORD LABEL LOCATION: <input checked="" type="checkbox"/> well casing <input type="checkbox"/> pressure tank <input type="checkbox"/> water pipe <input type="checkbox"/> well cap <input type="checkbox"/> electric box <input type="checkbox"/> not labeled <input type="checkbox"/> pump <input checked="" type="checkbox"/> other well cover											
(4) USGS Quadrangle Name: <u>Jeffersonville, Ind., Ky.</u> County: <u>Jefferson</u> WELL LOCATION: Latitude <u>38 15 18</u> Longitude <u>85 44 37</u>		(5) PHYSIOGRAPHIC OR HYDROLOGIC REGION <input type="checkbox"/> Blue Grass <input checked="" type="checkbox"/> Ohio River Alluvium <input type="checkbox"/> E. Coal Field <input type="checkbox"/> W. Coal Field <input type="checkbox"/> Miss. Plateau <input type="checkbox"/> Jackson Purchase											
(6) DRILLER INFORMATION Who Constructed Well? <input checked="" type="checkbox"/> unknown Address: _____ City: _____ State: _____ Zip: _____ Date Well Completed: _____ () unknown		(13) WELL USE (check all that apply) <input type="checkbox"/> domestic <input type="checkbox"/> livestock <input type="checkbox"/> not used <input type="checkbox"/> public <input type="checkbox"/> irrigation <input type="checkbox"/> abandoned <input type="checkbox"/> industrial <input checked="" type="checkbox"/> monitoring <input type="checkbox"/> other PWSID# _____ Water Withdrawal Permit # _____											
(7) GENERAL Type of Construction: <input checked="" type="checkbox"/> drilled/augered <input type="checkbox"/> excavate & backfill <input type="checkbox"/> hand dug/blasted Depth of Well: <u>53' 7.5"</u> <input checked="" type="checkbox"/> measured <input type="checkbox"/> reported <input type="checkbox"/> unknown Static Water Level, ft. below surface: <u>42' 1.0"</u> <input checked="" type="checkbox"/> measured <input type="checkbox"/> reported <input type="checkbox"/> not measured <input type="checkbox"/> can't be measured Well Yield: <input type="checkbox"/> gpm () gph () gpd <input type="checkbox"/> measured <input type="checkbox"/> estimated <input checked="" type="checkbox"/> unknown		(18) ELEVATION <u>462.12</u> ft. AMSL From <input type="checkbox"/> ground surface <input checked="" type="checkbox"/> top of casing By <input type="checkbox"/> map <input type="checkbox"/> survey <input checked="" type="checkbox"/> report <input type="checkbox"/> GPS											
(8) SURFACE ANNULAR MATERIAL: <input checked="" type="checkbox"/> clay <input type="checkbox"/> drill cuttings <input type="checkbox"/> cement <input type="checkbox"/> unknown <input type="checkbox"/> open <input type="checkbox"/> sand <input type="checkbox"/> gravel <input type="checkbox"/> concrete pad		(14) WELL SERVICE Number of People Served: <u>N/A</u> Number of Service Connections: Any Quantity Problems? <input type="checkbox"/> yes () no Any Quality Problems? <input type="checkbox"/> yes () no If "yes", describe in COMMENTS section, below.											
(9) WELLHEAD Is Well Located in a Pit? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> unknown Wellhead (casing top): <input type="checkbox"/> well cap <input type="checkbox"/> sanitary seal <input type="checkbox"/> flush mount <input checked="" type="checkbox"/> locking cap <input type="checkbox"/> open <input type="checkbox"/> unknown Casing Above Ground Level? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> unknown _____ inches above ground. Discharge Pipe Below Surface? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> unknown Pitless Adapter Used? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> unknown		(15) COMPLIANCE TO STANDARDS Construction in Compliance with KY Standards? <input type="checkbox"/> yes <input type="checkbox"/> no <input type="checkbox"/> unknown <input checked="" type="checkbox"/> pre-law If "no", describe in COMMENTS section, below.											
(10) PUMP DETAILS Date Installed: _____ Pump Type: <input type="checkbox"/> submersible <input type="checkbox"/> bailer <input type="checkbox"/> turbine <input type="checkbox"/> jet <input type="checkbox"/> hand pump <input checked="" type="checkbox"/> none <input type="checkbox"/> other <input type="checkbox"/> unknown Intake Level: _____ ft. below surface Electric Connection: <input type="checkbox"/> 2 wire <input type="checkbox"/> 3 wire <input type="checkbox"/> unknown		(16) RELATIVE LOCATION <input type="checkbox"/> upgradient <input type="checkbox"/> sidegradient <input checked="" type="checkbox"/> unknown <input type="checkbox"/> downgradient <input type="checkbox"/> varying <input type="checkbox"/> N/A Treatment Bypass Available? <input type="checkbox"/> yes () no											
(11) WELL CONSTRUCTION DETAILS <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Feet Below Surface From</td> <td style="width: 15%;">To</td> <td style="width: 15%;">Casing Inside Dia. (in.)</td> <td style="width: 15%;">Casing Type</td> <td style="width: 15%;">Casing Wall Thickness (in.)</td> </tr> <tr> <td>0</td> <td></td> <td>2</td> <td>PVC</td> <td>Sched 40</td> </tr> </table>		Feet Below Surface From	To	Casing Inside Dia. (in.)	Casing Type	Casing Wall Thickness (in.)	0		2	PVC	Sched 40	(17) INSPECTION INFORMATION Date of Inspection: <u>3 13 96</u> Water Quality Sample Taken: <input checked="" type="checkbox"/> yes () no Reason for Inspection: <input type="checkbox"/> general survey <input type="checkbox"/> specific complaint investigation <input type="checkbox"/> spill or incident response <input checked="" type="checkbox"/> contamination site investigation <input type="checkbox"/> enforcement <input type="checkbox"/> general water quality analysis <input type="checkbox"/> ambient groundwater monitoring <input type="checkbox"/> other Program Name and Facility ID#: <u>Superfund, KYD074075441</u> Alternate Well ID#: <u>MW 2</u>	
Feet Below Surface From	To	Casing Inside Dia. (in.)	Casing Type	Casing Wall Thickness (in.)									
0		2	PVC	Sched 40									
(12) SKETCH MAP OF VICINITY 		(20) OPTIONAL USE Will Owner Allow State Access? <input checked="" type="checkbox"/> yes () no () unknown Extent of Monitoring Allowed: <input type="checkbox"/> collect sample <input type="checkbox"/> measure SWL <input type="checkbox"/> pump well <input type="checkbox"/> complete access <input checked="" type="checkbox"/> notification required <input type="checkbox"/> other (describe below) Monitoring Feasibility: <u>inside bldg.</u>											
(21) COMMENTS: <u>114 ft west of eastern wall of bldg</u> <u>4 1/2 ft south of northern wall of bldg</u>		(22) INSPECTOR IDENTIFICATION Name: <u>Petitjean Herbert C</u> <u>BEBO-046</u> Agency: <input type="checkbox"/> DOW <input checked="" type="checkbox"/> DWM <input type="checkbox"/> CHR <input type="checkbox"/> KGS <input type="checkbox"/> other Signature of Inspector: <u>Herbert Petitjean</u> Date: <u>3/13/96</u>											

Distribution: White copy to DOW, pink copy to inspecting Agency, yellow copy to Owner.

Printed with State Funds.

DEP 4051
Revised 3/1/1993

KENTUCKY MONITORING WELL RECORD

Please read all instructions prior to completing this form. Do not write in shaded area. The original copy of this form must be submitted within 30 days of well completion to the Kentucky Natural Resources and Environmental Protection Cabinet, Division of Water - Groundwater Branch, 14 Reilly Road, Frankfort, KY 40601. Telephone (502) 564-3410.

(1) Attach Monitoring Well Identification Number Label Here (if applicable)

(TYPE OR PRINT CLEARLY)

(2) GENERAL INFORMATION:

Facility Name 500 ASSOCIATES Facility Address 500 E. MAIN ST
Mailing Address 333 E. MAIN ST City LOUISVILLE
City LOUISVILLE State KY Zip 40202
State KY Zip 40202 Owner's Phone (502) 719-0163

(3) IDENTIFICATION NUMBER

8 0 0 1 - 6 7 0 9

(4) WELL LOCATION: USGS Quadrangle Name JEFFERSONVILLE, IN County JEFFERSON, KY

(5) GENERAL-WELL CONSTRUCTION:
Start Date: 10-8-10
Finish Date: 10-8-10
Drilling Method:
 Auger HS () Reverse Rotary (Push/probe
() Auger SS () Cable Tool () Excavation
() Air Rotary () Hand Auger () Sonic
() Mud Rotary () Other:
Work Type:
() New Well () Nested Well () Rework (Plug
Surface Elevation: 462.3' Total Depth: 51.3'
Depth to Bedrock: _____ Static Water Level: N/A
Wellhead:
 Flush Mount (Locking Cap () No Cap
() Stickup; inches above surface: _____

(6) FACILITY TYPE:
() RCRA () Mining
() CERCLA (Site Assessment
() TSCA () Solid Waste Landfill
() UST () Landfarm
() Other: _____
(7) WELL USE: (check all that apply)
 Water Quality () Dry Hole
() Ambient Monitoring () Not Used
() Water Level Monitoring (Abandoned
() Remediation () Destroyed
() Other: _____

(8) PHYSIOGRAPHIC REGION:
() Blue Grass (Ohio River Alluvium
() E. Coal Field () W. Coal Field
() Miss. Plateau () Jackson Purchase
(9) ATTACHMENTS:
Required
1. Site plan or sketch map ()
2. Well construction diagram ()
3. Well location
On topographic map, or
Obtained by GPS unit ()
Optional
4. Laboratory analysis report ()
5. Other: KY INSPECTION PERM

(10) WELL COMPLETION INFORMATION

Feet Below Surface	Borehole	Casing			Casing Type
From	To	Diameter	Diameter		

Well Screens:

I.D. (in.)	From	To	Type	Slot Size

Annulus Fill and Seal:

Feet Below Surface			Material
From	To		

(11) LITHOLOGIC LOG

Feet Below Surface			Description
From	To		

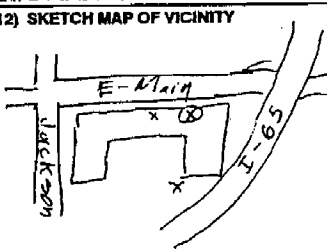
KY VARIANCE PERM

(12) COMMENTS TRIEMIED BENTONITE PELLETS TO SURFACE
HYDRATED PELLTS, OVERDRILLED 1ST 10' OF CASING,
CHIPPED BOREHOLE WITH BENTONITE TO 1' BELOW
SURFACE. CHIPPED WITH CONCRETE TO SURFACE

(13) AFFIRMATION: The work described above was done under my supervision, and this report is true and correct to the best of my knowledge.

Drilling Company <u>AST</u>	State Certification Number or Rig Operator's Number <u>0433-0495-00</u>	Signature of Responsible Certified Driller <u>[Signature]</u>		
Company Mailing Address <u>70 COMMERCIAL WAY</u>	City <u>SPRINGBORO</u>	State <u>OH</u>	Zip Code <u>45066</u>	Date <u>10-8-2010</u> Month, Day, Year
Number of Attached Sheets <u>9</u>	White Copy to Division of Water, Yellow Copy to Owner, Pink Copy to Driller's Files			DEP-8043 Printed with State Funds. Jan. 1, 1991

KENTUCKY WELL INSPECTION FORM

(1) AKGWA NUMBER 8 0 0 1 - 6 7 0 5		8001-6705											
(2) OWNER/FACILITY INFORMATION Well Owner's Name: <u>500 Associates, Inc.</u> Mailing Address: <u>600 E. Main St.</u> City: <u>Louisville</u> State: <u>KY</u> Zip: <u>40202</u> Well Address (if different) <u>500 E. Main St.</u> City: <u>Louisville</u> State: <u>KY</u> Zip: <u>40202</u> Phone: (502) <u>456-2044</u>		Monitoring well labels begin with "8". (3) WELL RECORD LABEL LOCATION: <input checked="" type="checkbox"/> well casing <input type="checkbox"/> pressure tank <input type="checkbox"/> water pipe <input type="checkbox"/> well cap <input type="checkbox"/> electric box <input type="checkbox"/> not labeled <input type="checkbox"/> pump <input checked="" type="checkbox"/> other <u>well cover</u>											
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(6) DRILLER INFORMATION Who Constructed Well? () unknown Address: _____ City: _____ State: _____ Zip: _____ Date Well Completed: Month <u>1</u> Day <u>1</u> Year <u>1990</u> () unknown		(13) WELL USE (check all that apply) <input type="checkbox"/> domestic <input type="checkbox"/> livestock <input type="checkbox"/> not used <input type="checkbox"/> public <input type="checkbox"/> irrigation <input type="checkbox"/> abandoned <input type="checkbox"/> industrial <input checked="" type="checkbox"/> monitoring <input type="checkbox"/> other _____ PWSID# _____ Water Withdrawal Permit # _____											
(7) GENERAL Type of Construction: <input checked="" type="checkbox"/> drilled/augered <input type="checkbox"/> excavate & backfill <input type="checkbox"/> hand dug/blasted Depth of Well: <u>51' 7"</u> ft. <input checked="" type="checkbox"/> measured <input type="checkbox"/> reported <input type="checkbox"/> unknown Static Water Level, ft. below surface: <u>42' 25"</u> <input checked="" type="checkbox"/> measured <input type="checkbox"/> reported <input type="checkbox"/> not measured <input type="checkbox"/> can't be measured Well Yield: <input type="checkbox"/> gpm () gpd () gpd <input type="checkbox"/> measured <input type="checkbox"/> estimated <input checked="" type="checkbox"/> unknown		(14) WELL SERVICE Number of People Served: <u>N/A</u> Number of Service Connections: Any Quantity Problems? () yes () no Any Quality Problems? () yes () no If 'yes', describe in COMMENTS section, below. (15) COMPLIANCE TO STANDARDS Construction in Compliance with KY Standards? <input type="checkbox"/> yes () no () unknown <input checked="" type="checkbox"/> pre-law If 'no', describe in COMMENTS section, below. (16) RELATIVE LOCATION <input type="checkbox"/> upgradient <input type="checkbox"/> sidegradient <input checked="" type="checkbox"/> unknown <input type="checkbox"/> downgradient <input type="checkbox"/> varying <input type="checkbox"/> N/A											
(8) SURFACE ANNULAR MATERIAL: <input type="checkbox"/> clay <input type="checkbox"/> drill cuttings <input checked="" type="checkbox"/> cement <input type="checkbox"/> unknown <input type="checkbox"/> open <input type="checkbox"/> sand <input type="checkbox"/> gravel <input type="checkbox"/> concrete pad		(9) WELLHEAD Is Well Located in a Pit? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> unknown Wellhead (casing top): <input type="checkbox"/> well cap <input type="checkbox"/> sanitary seal <input type="checkbox"/> flush mount <input checked="" type="checkbox"/> locking cap <input type="checkbox"/> open <input type="checkbox"/> unknown Casing Above Ground Level? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> unknown Discharge Pipe Below Surface? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> unknown Pitless Adapter Used? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> unknown											
(10) PUMP DETAILS Date Installed: _____ <input type="checkbox"/> unknown Month _____ Day _____ Year _____ Pump Type: <input type="checkbox"/> submersible <input type="checkbox"/> bailer <input type="checkbox"/> turbine <input type="checkbox"/> jet <input type="checkbox"/> hand pump <input checked="" type="checkbox"/> none <input type="checkbox"/> other <input type="checkbox"/> unknown Intake Level: _____ ft. below surface Electric Connection: <input type="checkbox"/> 2 wire <input type="checkbox"/> 3 wire <input type="checkbox"/> unknown		(17) INSPECTION INFORMATION Date of Inspection: <u>3 16 96</u> Month Day Year Water Quality Sample Taken: <input checked="" type="checkbox"/> yes () no Reason for Inspection: <input type="checkbox"/> general survey <input type="checkbox"/> specific complaint investigation <input type="checkbox"/> spill or incident response <input checked="" type="checkbox"/> contamination site investigation <input type="checkbox"/> enforcement <input type="checkbox"/> general water quality analysis <input type="checkbox"/> ambient groundwater monitoring <input type="checkbox"/> other _____ Program Name and Facility ID#: <u>Superfund, KYD07407541</u> Alternate Well ID#: <u>MW3</u>											
(11) WELL CONSTRUCTION DETAILS <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Feet Below Surface From</th> <th style="width: 25%;">To</th> <th style="width: 25%;">Casing Inside Dia. (in.)</th> <th style="width: 25%;">Casing Type</th> <th style="width: 25%;">Casing Wall Thickness (in.)</th> </tr> </thead> <tbody> <tr> <td><u>0</u></td> <td><u>2 in.</u></td> <td><u>PVC</u></td> <td><u>Sched. 40</u></td> <td><u>46</u></td> </tr> </tbody> </table>		Feet Below Surface From	To	Casing Inside Dia. (in.)	Casing Type	Casing Wall Thickness (in.)	<u>0</u>	<u>2 in.</u>	<u>PVC</u>	<u>Sched. 40</u>	<u>46</u>	(18) ELEVATION <u>462.31</u> ft. AMSL From () ground surface <input checked="" type="checkbox"/> top of casing By () map <input type="checkbox"/> survey <input checked="" type="checkbox"/> report <input type="checkbox"/> GPS	
Feet Below Surface From	To	Casing Inside Dia. (in.)	Casing Type	Casing Wall Thickness (in.)									
<u>0</u>	<u>2 in.</u>	<u>PVC</u>	<u>Sched. 40</u>	<u>46</u>									
(12) SKETCH MAP OF VICINITY 		(19) TREATMENT SYSTEM <input checked="" type="checkbox"/> none <input type="checkbox"/> water softener <input type="checkbox"/> ultraviolet <input type="checkbox"/> chlorination <input type="checkbox"/> aeration <input type="checkbox"/> charcoal filter <input type="checkbox"/> sand filter <input type="checkbox"/> iron treatment <input type="checkbox"/> fluoridation <input type="checkbox"/> other _____ Treatment Bypass Available? () yes () no											
(20) OPTIONAL USE Will Owner Allow State Access? <input checked="" type="checkbox"/> yes () no () unknown Extent of Monitoring Allowed: <input type="checkbox"/> collect sample <input type="checkbox"/> measure SWL <input type="checkbox"/> pump well <input type="checkbox"/> complete access <input checked="" type="checkbox"/> notification required <input type="checkbox"/> other (describe below) _____ Monitoring Feasibility: <u>inside bldg.</u>		(21) COMMENTS: <u>40 ft west of eastern wall of bldg</u> <u>9 ft south of northern wall of bldg.</u>											
(22) INSPECTOR IDENTIFICATION Name: <u>Petitjean Herbert C</u> <u>BE80-046</u> Last First MI Inspector ID# Agency: () DOW <input checked="" type="checkbox"/> DWM () CHR () KGS () other Signature of Inspector: <u>Herbert Petitjean</u> Date: <u>3/13/96</u>													

Distribution: White copy to DOW, pink copy to Inspecting Agency, yellow copy to Owner.

Printed with State Funds.

DEP 4051
Revised 3/1/1988

ERCE

W-3
8001-6705

LOG OF BORING NO. W3
Sheet 1 of 1

PROJECT VERMONT AMERICAN - LEVEL II
PROJECT NO. D907-019 DATE 9/26/90
BORING LOCATION On the eastside of the Bonded
Warehouse along the north wall

DRILLER Cross Drilling Co. - Pat Highley
HELPER Marcie Highley

DRILLED FOR ERCE
RIG CME-55

SURFACE ELEVATION _____
REFUSAL DEPTH _____ ELEV _____
FOOTAGE SAMPLED 3-13 1/2
TOP OF ROCK DEPTH _____ ELEV _____
BEGAN CORING DEPTH _____ ELEV _____
FOOTAGE CORED _____
BOTTOM OF HOLE DEPTH 55' ELEV _____

WATER LEVEL DATA
DURING DRILLING: DEPTH 45 feet ELEV _____
AFTER HRS: DEPTH _____ ELEV _____
LDW AT: DEPTH _____ ELEV _____

SAMPLE NO.	DEPTH		SAMPLE BLOW*	DESCRIPTIONS AND REMARKS
	FROM	TO		
	0	3		Concrete (6") to silty clay, brown,
1	3	4 1/2	3,3,4	Silty clay, brown with light brown mottling
	4 1/2	6		Silty clay, brown,
2	6	7 1/2	2,3,3	Silty clay, brown, very moist
	7 1/2	9		Silty clay, brown
3	9	10 1/2	1,3,3	Sand, brown, moist
	10 1/2	12		Sand, brown
4	12	13 1/2	3,1,3	Sand, brown with gray mottling
	13 1/2	21		Sand, brown, moist
	21	40		Sand, brown, very moist
	40	55		Sand, brown, very moist to wet
		55		Bottom of hole

* Number of Blows per 6" Intervals, to drive 1-3/8 LD., 2" O.D. Split Barrel Sampler with 140 Pound Hammer Falling 30 inches

COMMENTS:

ATTACHMENT E
DISPOSAL DOCUMENTATION



Louisville and Jefferson County Metropolitan Sewer District
700 West Liberty Street
Louisville, KY 40203-1911
502-540-6000
www.msdlouky.org

November 08, 2010

FAX 224 232-2702

Mr. David Luepke
Robert Bosch Tool Corporation
1800 West Central Road
Mount Prospect, IL 60056

Subject: U.D.R. # 28895 – Approximately 160 gallons of wastewater that was generated from sampling and cleanup activities related to groundwater monitoring wells at 500 E. Main St., Louisville, Ky. 40202.

Dear Mr. Luepke:

This correspondence approves your request to discharge the above referenced material to an on-site combined sewer connection. The discharge window is from November 8 through 24, 2010. The terms of your approval are listed below.

The Standard Terms of your approval are as follows:

- screen/remove grit prior to discharge;
- if IWD inspection of the material prior to or during discharge reveals a violation of MSD's Wastewater Discharge Regulations, and/or the conditions outline herein, approval will be revoked and not reinstated until corrective action is taken;
- failure to comply with MSD Wastewater Discharge Regulations or violations of conditions outlined herein may result in enforcement action;
- should MSD determine at any time that the discharge herein approved may cause an adverse effect to MSD operations, including but not limited to WDR Sections 2.01(a)(7), Danger to life or safety of any person; 2.01(a)(8), A strong or offensive odor which prevents the effective maintenance or operation of the treatment works; or 2.01(a)(10), Interference with operation, maintenance or performance of the treatment works, this approval may be revoked.



Beneficial Use of Louisville's Biosolids
www.louisvillegreen.com

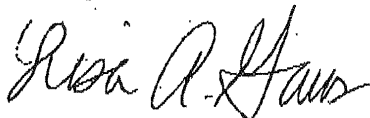
Mr. David Luepke
November 8, 2010
Page 2

In addition, the following Special Conditions shall apply to this discharge:

- any discharges into this combined sewer system should not exceed 50 gpm;
- no discharge is allowed within 72 hours of a .3 inches or greater precipitation event within a 24 hour moving window.

Please call me at 540-6910 if you have any questions or if the discharge cannot be completed in the above specified discharge time.

Sincerely,



Lisa A. Gaus
Emergency Response Pretreatment Administrator

gik/LAG
2010 11 02 Robt Bosch MACTEC UDR 28895

cc: UDR file
Scott Kelly, MACTEC Engineering & Consulting, Inc., 13425 Eastpoint Centre Dr., Ste. 122,
Louisville, Ky. 40223, ph. 502 253-2541 fax 502 253-2501



Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number KYD074075441	2. Page 1 of 1	3. Emergency Response Phone (800)326-1221	4. Manifest Tracking Number 000374090WAS
---	--	-------------------	--	---

5. Generator's Name and Mailing Address ROBERT BOSCH TOOL CORP / DAVID LUEPKE 1800 WEST CENTRAL ROAD MOUNT PROSPECT, IL 60056 Generator's Phone: (224)232-2201	Generator's Site Address (if different than mailing address) ROBERT BOSCH TOOL CORP / DAVID LUEPKE 500 EAST MAIN STREET LOUISVILLE, KY 40202 GEN: 127503
--	--

6. Transporter 1 Company Name HERITAGE TRANSPORT, LLC	U.S. EPA ID Number IND058484114
--	------------------------------------

7. Transporter 2 Company Name	U.S. EPA ID Number
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8. Designated Facility Name and Site Address HERITAGE ENVIRONMENTAL SERVICES LLC 7901 WEST MORRIS STREET INDIANAPOLIS, IN 46231 Facility's Phone: (317)243-0811	U.S. EPA ID Number IND093219012
---	------------------------------------

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
		No.	Type					
X	RD NA3077 HAZARDOUS WASTE, SOLID, N.O.S., 9, PG III, (F007), ERG#171	002	Pm	110	G	F007		
X	RD NA3077 HAZARDOUS WASTE, SOLID, N.O.S., 9, PG III, (F007), ERG#171	004	Dm	220	G	F007		
X	RQ NA3077, HAZARDOUS WASTE, SOLID N.O.S., 9, PG III, (F007), ERG#171	001	DF	005	G	F007		

14. Special Handling Instructions and Additional Information 1. W2_Q583099_LDR 2. W3_Q583100_LDR 3, WS2
--

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.	ERI:HERITAGE [1454777]
---	------------------------

Generator's/Offerer's Printed/Typed Name DAVID ROACH	Signature <i>David Roach</i>	Month Day Year 12/17/10
---	---------------------------------	----------------------------

16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S.	Port of entry/exit: Date leaving U.S.:
--	---

17. Transporter Acknowledgment of Receipt of Materials Transporter 1 Printed/Typed Name HALLID DAVIS	Signature <i>Abner D...</i>	Month Day Year 12/17/10
--	--------------------------------	----------------------------

18. Discrepancy 18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection

18b. Alternate Facility (or Generator) Facility's Phone: 18c. Signature of Alternate Facility (or Generator)	Manifest Reference Number: U.S. EPA ID Number	Month Day Year 12/17/10
--	--	----------------------------

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a Printed/Typed Name Signature Month Day Year 12/17/10

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

ATTACHMENT F

E-MAIL CORRESPONDENCE BETWEEN KDWM AND MACTEC

Dunn, Alison

From: Grow, Jeff (EEC) [Jeff.Grow@ky.gov]
Sent: Friday, October 08, 2010 12:06 PM
To: Dunn, Alison
Subject: RE: AI # 51784 (VAC/500) - Status of groundwater monitoring wells

Alison – the proposal for deferring the monitoring well installations is acceptable. As mentioned below, after a year or so the decision on locations can be re-evaluated when we have a better idea of the available space on the 500 Associates property; alternatively, (at that time) a final decision on the well locations may need to be deferred again for some appropriate length of time, which we can decide on at that point. Thanks.

From: Dunn, Alison [<mailto:ALDUNN@mactec.com>]
Sent: Thursday, October 07, 2010 4:28 PM
To: Grow, Jeff (EEC)
Subject: AI # 51784 (VAC/500) - Status of groundwater monitoring wells

Dear Jeff,

I am writing this email to confirm our telephone conversation this afternoon. As we discussed, MACTEC sampled all four monitoring wells on the site (W-1 through W-4) last week (9/29/2010), and proceeded with abandoning the two interior wells (W-2 and W-3) this week.

Based on the presence of overhead utilities and a gas line that runs right down the middle of the southern parking lane on East Main Street, it will not be possible to install replacement wells in the parking lane. We considered installing the replacement wells on the sidewalk (assuming we could get approval from Louisville-Metro Public Works Dept), but we are concerned that wells installed on the sidewalk would get damaged during demolition of the building.

Based on this information, you have agreed that installation of replacement wells can be deferred for the time being, along with additional groundwater monitoring. The need for and location of replacement wells will be evaluated in a year or so, once the schedule for building demolition and highway construction is more defined. In the meantime, we will prepare a Groundwater Monitoring Report summarizing the results of the sampling performed last week.

Please let me know if this email is consistent with your understanding. I very much appreciate your assistance in this matter!

Alison

Alison L. Dunn, P.G. | Principal Hydrogeologist
MACTEC Engineering and Consulting, Inc.
2456 Fortune Drive, Suite 100, Lexington, KY 40509
Office (859) 255-3308 | Direct Dial (859) 566-3729 | Mobile (859) 421-5921 | Fax (859) 254-2327
E-mail aldunn@mactec.com | Web www.mactec.com

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