August 13, 2012

Ms. Michelle Kaysen
U.S. Environmental Protection Agency
Region V
77 W Jackson Blvd
Mail Code: LU-9J
Chicago, Illinois 60604

RE: Groundwater Investigation Report
Dort Highway Land, Grand Blanc, Michigan

FILE: 15388/ 48631

Dear Ms. Kaysen:

On behalf of Revitalizing Auto Communities Environmental Response Trust (RACER Trust), O'Brien & Gere Engineers, Inc. (O'Brien & Gere) is pleased to present this summary of the groundwater investigation activities conducted during the months of May through July 2012 at the Dort Hwy Land Site (Site) located in Grand Blanc, Michigan (see Figure 1 Site Location Map). The groundwater investigation activities were performed to assess groundwater quality and flow conditions at the Site.

The groundwater investigation activities were performed in accordance with the methods outlined in the Groundwater Investigation Work Plan (O'Brien & Gere, 2012) and the Dort Highway Land – Sampling and Analysis Plan (SAP) (O'Brien & Gere, 2011).

SECTION 1 – GROUNDWATER TEMPORARY MONITORING WELL INSTALLATION AND DEVELOPMENT

During the weeks of May 28, 2012 and June 4, 2012, O'Brien & Gere installed 9 temporary monitoring wells to assess Site-specific groundwater flow conditions and potential impacts to groundwater. The locations of the monitoring wells are shown on Figure 2.

Soil borings were advanced utilizing direct push drilling techniques (Geoprobe®) using 5-ft long, 1.5 in diameter Macro-Core® samplers, with soil samples collected continuously from grade to the bottom of the boring. Once the sampling depth was reached for the sample run, the sampler was removed from the borehole, detached from the drill rods, and the acetate sleeve was cut length-wise and opened to allow observation of the subsurface soil.

The soil samples were visually inspected and logged by an O'Brien & Gere geologist in accordance with the Unified Soil Classification System (USCS). The soil boring logs are provided in Attachment A. A portion of the sample was retained for soil headspace screening to monitor for the presence of volatile organic compounds (VOCs) using a photoionization detector (PID). Soil borings were terminated at depths ranging from 10 to 24 feet below grade (fbg).

Temporary monitoring wells were installed by overdrilling the Geoprobe® borings with 4.25-inch hollow stem auger drilling methods. The temporary monitoring wells were constructed of 2-in diameter flush-joint PVC casing and a 5-ft length of 0.010-in slot PVC well screen. The well screen and riser assembly was placed into the hollow stem augers to the desired depth and a washed graded silica sand pack was placed around the well screen and extended a minimum of one foot above the top of the screen. Coarse granular bentonite was then added to the annular space to the ground surface. The well construction logs are included in Attachment B.

A 1/16th inch weep hole was drilled in the well casing approximately 6 inches above grade to allow the well to equilibrate to atmospheric pressure while the wells were capped with an internal locking (J-plug) cap secured to the top of the well. The monitoring wells were left as temporary wells with no protective casing.

The newly installed monitoring wells were developed during the week of June 11, 2012 to remove fine-grained materials that may have entered the well or sand pack during construction. The monitoring wells were developed in accordance with the SAP using a surge and purge method. Monitoring well MW2-1 was also redeveloped in conjunction with the development of the newly installed monitoring wells.

SECTION 2 – GROUNDWATER SAMPLING ACTIVITIES

Groundwater samples were collected from monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW-8, MW-9 and existing well MW2-1 (see Figure 2 for locations) between June 27 through July 2, 2012.

Static water levels were recorded from all ten Site monitoring wells prior to sample collection, and the elevation data is summarized in Table 1. Using these data, a groundwater elevation contour map was prepared and is included as Figure 3.

The groundwater samples were collected using low flow sampling methods as described in the O'Brien & Gere protocol in the SAP. These low flow sampling methods involve using a stainless steel bladder pump attached to polyethylene tubing, inserting the pump to the midpoint of the screened interval of the well, and purging at a rate of approximately 100 milliliters/minute. While the well was being purged, field indicator parameters consisting of pH, conductivity, temperature, oxidation-reduction potential (ORP), turbidity, and dissolved oxygen (DO) were monitored continuously using an in-line meter. The field indicator parameters were recorded on sampling logs at five minute intervals and are provided in Attachment C.

Samples were collected directly from the tubing once the parameters stabilized in accordance with the O'Brien & Gere protocol in the SAP. Samples collected for laboratory analyses were placed in pre-cleaned, pre-preserved and laboratory-supplied sample containers, labeled, and placed in an ice filled cooler. QC samples were also collected in accordance with the SAP. The QC samples consisted of a field duplicate, matrix spike/matrix spike duplicate, co-located duplicate, field blank, and equipment blank. A trip blank was also included in the sample cooler shipment.

Chain-of-custody (COC) forms were maintained and accompanied the samples to Merit Laboratories, Inc. in East Lansing, Michigan. Copies of the COC forms are included in Attachment D along with the laboratory analytical reports. The samples were analyzed for the presence of VOCs, semi-volatile organic compounds (SVOCs), RCRA dissolved metals (if the turbidity did not stabilize below 20 NTUs, in accordance with the Section 4.8 of the SAP) and total metals. The groundwater samples from monitoring wells MW-1, MW-2, MW-7, MW-9 and MW2-1 were analyzed for both dissolved and total metals due to final turbidities of greater than 20 NTUs.

SECTION 3 – FIELD OBSERVATIONS, GEOLOGY AND HYDROGEOLOGY

PID readings were generally not detected in the soil borings from the groundwater investigation; however, where detected PID reading varied from 0.1 parts per million (ppm) to 4.7 ppm. In some cases, the PID readings appeared to be affected by the presence of groundwater within the soil samples (*i.e.*, were affected by the moisture content of the headspace soil samples). No olfactory or visual observations of impacts were recognized/observed during drilling or sampling.

The Site geology based on the soil borings installed during the groundwater investigation generally consisted of a layer of medium stiff to hard, moist, brown with gray mottling, silty CLAY, little to some sand and little gravel with a Unified Soil Classification System (USCS) symbol of CL from the ground surface to depths of up to 16.5 fbg. From about 5.6 to 16.5 fbg the soil became less mottled or was not mottled and generally consisted of a moist to wet, stiff to medium plasticity, gray, silty CLAY, little to some sand, and trace to some gravel with a USCS symbol of CL down to at least 24 fbg (the deepest depth investigated during the Groundwater Investigation), which based on the Groundwater Resources Map Series for Grand Blanc Township (U of M – Flint,

Nov. 1994)(Attachment E) extends to a depths of about 80 fbg in the Site area. Thin and apparently discontinuous sand seams were observed in the temporary monitoring well borings, except in the boring for monitoring well MW-5 where no sand seams were observed. The sand seams ranged in thickness from approximately a half inch to 3.6 feet thick, and were observed at depths ranging from 4.1 fbg to 21.1 fbg. The sand seams generally consisted of moist to wet, brown, coarse to fine (sometimes predominantly medium to fine), silty SAND, with trace to some gravel with a USCS symbol of SM.

The depths to groundwater measured within the monitoring wells at the Site on June 27, 2012 ranged from 3.95 ft below top of casing (fbTOC) or 1.57 fbg at MW-6 to 21.00 fbTOC or 18.85 fbg at MW-5 (Table 1); however, typically the depth to groundwater in the wells ranged from approximately 3 to 6 fbg. However, this may not correspond to the depth to the true (unconfined) groundwater table or phreatic surface, as the saturated sand seams observed at the Site may constitute semi-confined saturated zones and therefore be considered artesian zones. This is supported by field observations of unsaturated soils during drilling and sampling, and the depth to which groundwater was observed in monitoring well MW-5, which had no sand seams.

The resulting groundwater elevations ranged from 827.83 ft above mean sea level (aMSL) at MW-8 to 808.58 ft aMSL at MW-5 (Table 1). The groundwater elevation at MW-5 is abnormally low, and may not have been completely equilibrated despite two weeks of stabilization prior to sampling. However, it is also unlikely that the water level in MW-5 will rise about 15 ft such that it would exhibit a groundwater elevation that would coincide with other groundwater elevations at the Site. Therefore, the groundwater elevation observed at MW-5 was not utilized in the preparation of the groundwater contour map for the Site (Figure 3). The remaining groundwater elevations range from 827.83 ft aMSL at MW-8 to 818.43 ft aMSL at MW-4, and are considered a reasonable representation of the piezometric heads (vs. groundwater table) for the Site, and provide an indication of the groundwater flow direction at the Site.

The groundwater contours indicate a flow pattern originating from the southeastern and northern portions of the Site with a general overall westerly/south westerly flow direction. The inclusion of the groundwater level for the shallow sand seam at MW-1 in the contour map provides a more southerly flow component near the northern portion of the Site. The groundwater flow pattern in many shallow perched/primarily clayey near surface hydrogeologic settings can be complex, locally variable, and in some cases contours of groundwater elevations may even indicate that the groundwater elevations should not be contoured. However, the groundwater flow direction indicated by the contours of the groundwater elevations in the monitoring wells at the Site agrees with the predicted flow direction based on topographic and surface water information for the Site area. Local shallow groundwater in the Site area may discharge to Storm Water Lagoon #2 located south of the Site and ultimately to Gibson Drain located west of the Site.

SECTION 4 – GROUNDWATER ANALYTICAL RESULTS

As noted in Section 2 above, groundwater samples were analyzed for the presence of VOCs, SVOCs, RCRA dissolved metals (if the turbidity did not stabilize below 20 NTUs) and total metals. Table 2 presents a summary of groundwater analytical results for detected constituents.

Three VOC constituents were detected during the sampling, but all detections were below the MDEQ criteria. 1,1-Dichloroethane was detected in MW-3 at 6 micrograms per liter (µg/L), which is much less than its associated cleanup criteria. Bromodichloromethane was detected in the equipment blank at 2 µg/L, and chloroform was detected in the equipment blank at 9 µg/L and the trip blank (TB-3) at 5 µg/L, and their detections are considered laboratory artifacts (*i.e.*, contamination).

Dimethyl phthalate was the only SVOC detected, and was detected at MW-1, MW-2 MW2-1, MW-5, MW-8, and the field blank (FB-1) at concentrations ranging from 5 to 10 µg/L, but was also detected in the associated laboratory method blank. Therefore, dimethyl phthalate is considered a laboratory contaminant.

Arsenic, barium and lead were the only metals detected during the Groundwater Investigation sampling event. Arsenic was detected above the Michigan Department of Environmental Quality (MDEQ) nonresidential drinking water and groundwater surface water interface (GSI) criteria of 0.01 mg/L at MW-2, MW2-1 and MW-7. The

total arsenic detections ranged from 0.018 mg/L at MW2-1 to 0.029 mg/L at MW-7 (Co-Located sample). The dissolved arsenic detections ranged from 0.020 mg/L at MW2-1 to 0.027 mg/L at MW-2. The dissolved and total results were within acceptable relative percent differences (RPD) and indicate that the turbidity of the samples did not affect the overall results. Elevated arsenic in groundwater is common in southeast Michigan due to glacial till (clayey) soils that naturally contain arsenic (see Attachment E for a couple of the numerous references on arsenic in Southeast Michigan). It is noted that detections of arsenic in wells MW-2, MW2-1, MW-7 are upgradient and away from areas where elevated arsenic in soils was historically detected (in the southern, former Floor Block area – see Figures 5 and 7, and Table 2 of the Site History and Current Conditions Report [O'Brien & Gere, 2011]).

Barium was detected in monitoring wells MW-1 through MW-9 and MW2-1, but was below the MDEQ criteria. The total barium detections ranged from 0.045 mg/L at MW-2 to 0.135 mg/L at MW-4. The dissolved barium detections ranged from 0.042 mg/L at MW-2 to 0.090 mg/L at MW-7.

Lead was only detected at one monitoring well, MW-9, above its detection limit, and was detected at a concentration above the MDEQ nonresidential drinking water criterion of 0.004 mg/L, but was below the GSI criterion of 0.014 mg/L. The total lead detection at MW-9 was 0.006 mg/L and the dissolved lead detection was 0.004 mg/L. The Phase II Investigation (O'Brien & Gere, 2007) analytical results, which were summarized in the Groundwater Investigation Work Plan (O'Brien & Gere, 2012 – Table 1) did not indicate that lead was a constituent of concern in the area surrounding MW-9, and in fact was only detected above the MDEQ nonresidential drinking water criteria at one soil sampling location (SS2-14) during the Phase II Investigation. SS2-14 was located near MW-5, and was excavated during the soil stripping activities conducted by GM to fill in the former Press Room basement.

The analytical data reports provided by Merit Laboratories for the sample analyses are included in Attachment D.

SECTION 5 – CONCLUSIONS

The results of the Groundwater Investigation at the Dort Highway Land Site demonstrates that groundwater at the Site does not present a significant risk under current or future uses of the Site nor do the detected exceedances in the groundwater pose a significant risk due to potential off-site migration. RACER hereby requests USEPA concurrence to finalize CA 725 and 750 EI reports and a Corrective Measures Study/Proposal.

If you have questions or would like additional information, please contact David Favero at (217) 741-6235 or Clifford Yantz at (248) 477-5701. We suggest holding a meeting or conference call after you have had time to review the report to discuss the findings/results, if you deem it necessary.

Very truly yours,

O'BRIEN & GERE ENGINEERS, INC.

Clifford S. Yantz
Technical Associate

ENCLOSURES:
Table 1 – Water Level Elevation Data
Table 2 – Summary of Groundwater Analytical Results
Figure 1 – Site Location Map
Figure 2 – Monitoring Well Location Map

Figure 3 – Groundwater Contour Map (June 27, 2012)
Figure 4 – Groundwater Contour Map (June 27, 2012) with Exceedances
Attachment A – Soil Boring Logs
Attachment B – Well Construction Logs
Attachment C – Groundwater Sampling Logs
Attachment D – Analytical Laboratory Reports, COC Form
Attachment E – Reference Materials

cc: Mr. Gary Cygan – USEPA
Ms. Bhooma Sundar – USEPA
Mr. Grant Trigger – RACER Trust
Mr. David Favero – RACER Trust
Mr. Kevin Schneider – O'Brien & Gere
Mr. Todd Krone – O'Brien & Gere

TABLES

Table 1
RACER Trust- Dort Hwy Land
Depth to Ground Water Levels in Monitoring Wells
June 27, 2012

Well	Top Of Casing Elev. (ft) *	Top of Sand Pack Elev. (ft)	Bottom of Sand Pack Elev. (ft)	Depth To Water (ft)	Static Water Elev. (ft)
MW-1	831.76	825.69	819.69	6.06	825.70
MW-2	829.31	814.64	806.84	7.09	822.22
MW2-1	832.33	821.05	812.35	8.69	823.64
MW-3	824.99	816.81	807.81	5.30	819.69
MW-4	824.03	818.12	812.12	5.60	818.43
MW-5	829.58	811.43	803.43	21.00	808.58
MW-6	828.63	816.25	808.25	3.95	824.68
MW-7	834.20	818.26	811.86	9.51	824.69
MW-8	833.22	820.20	811.20	5.39	827.83
MW-9	835.45	817.48	809.98	8.05	827.40

Notes

* Casing elevations were provided by CTI Engineers and are in feet relative to National Geodetic Vertical Datum

Table 2
Summary of Detected Groundwater Analytical Results
RACER Trust
Grand Blanc, Michigan

Parameter		MDEQ Criteria: Nonresidential Drinking Water Criteria & RBSLs	MDEQ Criteria: Groundwater Surface Water Interface Criteria & RBSLs	MDEQ Criteria: Non-Residential Groundwater Volatilization to Indoor Air Inhalation Criteria & RBSLs	MDEQ Criteria: Groundwater Contact Criteria & RBSLs	MW-1 (Dissolved)	MW-1 (Total)	MW-2 (Dissolved)	MW-2 (Total)	MW2-1 (Dissolved)	MW2-1 (Total)	MW-3 (Total)	MW-4 (Total)	MW-5 (Total)	MW-6 (Total)
Metals															
Arsenic	mg/L	0.01 (A)	0.01	NLV	4.3	<0.002	<0.002	0.027	0.028	0.020	0.018	<0.002	<0.002	<0.002	<0.002
Barium	mg/L	2 (A)	0.67 (G,X)	NLV	14000	0.084	0.098	0.042	0.045	0.081	0.083	0.094	0.135	0.054	0.046
Lead (Total)	mg/L	0.004 (L)	0.014 (G,X)	NLV	ID	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
SVOCs															
Dimethyl phthalate	µg/L	210,000	NA	NLV	4.2E+06 (S)	<5	10*	<5	5*	<5	8*	<5	<5	8*	<5
VOCs															
Bromodichloromethane	µg/L	80 (A,W)	ID	37,000	14,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	µg/L	80 (A,W)	350	1.80E+05	1.50E+05	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	µg/L	2,500	740	2.30E+06	2.40E+06	<1	<1	<1	<1	<1	<1	6	<1	<1	<1

Notes:

Exceeds residential drinking water criteria or both GSI and drinking water criteria

* Compound also found in associated method blank.

(A) Criterion is the state of Michigan drinking water standard.

(G) Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness of the receiving surface water

(S) Criterion defaults to the hazardous substance-specific water solubility limit.

(L) Criteria for lead are derived using a biologically based model, as allowed for under Section 20120a(10) of the NREPA, and are not calculated using the algorithms and assumptions specified in pathway-specific rules.

(W) Concentrations of trihalomethanes in groundwater shall be added together to determine compliance with the Michigan drinking water standard of 80 µg/L.

(X) The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source.

(NLV) Means hazardous substance is not likely to volatilize under most conditions.

(ID) Means insufficient data to develop criterion.

(ND) Not detected.

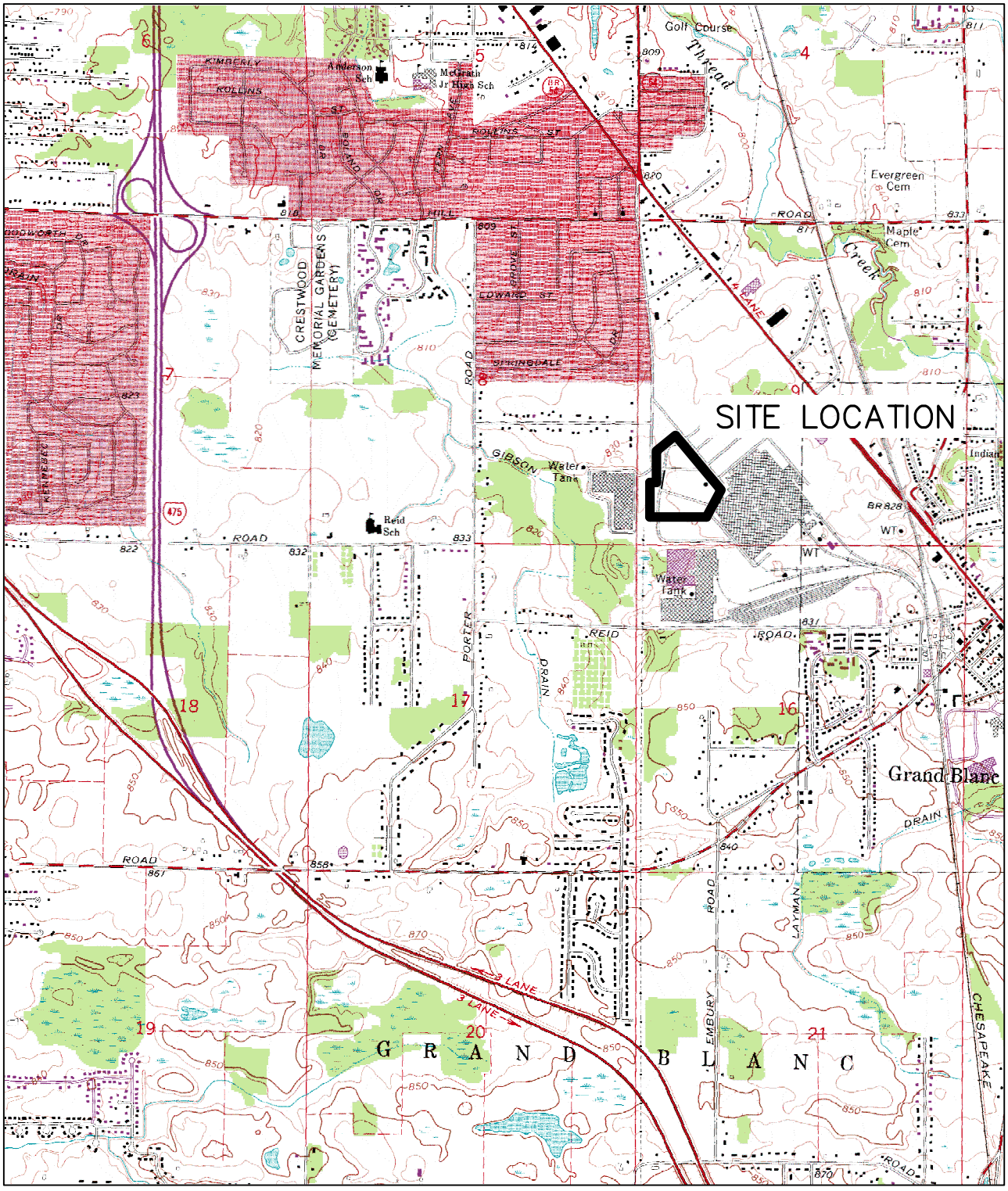
Table 2
Summary of Detected Groundwater Analytical Results
RACER Trust
Grand Blanc, Michigan

Parameter		MDEQ Criteria: Nonresidential Drinking Water Criteria & RBSLs	MDEQ Criteria: Groundwater Surface Water Interface Criteria & RBSLs	MDEQ Criteria: Non-Residential Groundwater Volatilization to Indoor Air Inhalation Criteria & RBSLs	MDEQ Criteria: Groundwater Contact Criteria & RBSLs	MW-7 (Dissolved)	MW-7 (Total)	MW-7 (Co-Located) (Dissolved)	MW-7 (Co-Located) (Total)	MW-8 (Total)	MW-8 (DUP-1) (Total)	MW-9 (Dissolved)	MW-9 (Total)	FB-1 (Field Blank) (Total)	EB-1 (Equipment Blank) (Total)	TB-3 (Trip Blank) (Total)
Metals																
Arsenic	mg/L	0.01 (A)	0.01	NLV	4.3	0.023	0.024	0.024	0.029	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002
Barium	mg/L	2 (A)	0.67 (G,X)	NLV	14000	0.090	0.092	0.090	0.112	0.105	0.111	0.076	0.086	<0.005	<0.005	<0.005
Lead (Total)	mg/L	0.004 (L)	0.014 (G,X)	NLV	ID	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	0.004	0.006	<0.003	<0.003	<0.003
SVOCs																
Dimethyl phthalate	µg/L	210,000	NA	NLV	4.2E+06 (S)	<5	<5	<5	<5	8*	10*	<5	<5	9*	<5	<5
VOCs																
Bromodichloromethane	µg/L	80 (A,W)	ID	37,000	14,000	<1	<1	<1	<1	<1	<1	<1	<1	<1	2	<1
Chloroform	µg/L	80 (A,W)	350	1.80E+05	1.50E+05	<1	<1	<1	<1	<1	<1	<1	<1	<1	9	5
1,1-Dichloroethane	µg/L	2,500	740	2.30E+06	2.40E+06	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1

Notes:
Exceeds residential drinking water criteria or both GSI and drinking water criteria
* Compound also found in associated method blank.
(A) Criterion is the state of Michigan drinking water standard.
(G) Groundwater surface water interface (GSI) criterion depends on the pH or water hardness, or both, of the receiving surface water. The final chronic value (FCV) for the protection of aquatic life shall be calculated based on the pH or hardness of the receiving surface water
(S) Criterion defaults to the hazardous substance-specific water solubility limit.
(L) Criteria for lead are derived using a biologically based model, as allowed for under Section 20120a(10) of the NREPA, and are not calculated using the algorithms and assumptions specified in pathway-specific rules.
(W) Concentrations of trihalomethanes in groundwater shall be added together to determine compliance with the Michigan drinking water standard of 80 µg/L.
(X) The GSI criterion shown in the generic cleanup criteria tables is not protective for surface water that is used as a drinking water source.
(NLV) Means hazardous substance is not likely to volatilize under most conditions.
(ID) Means insufficient data to develop criterion.
(ND) Not detected.

FIGURES

FIGURE 1



MICHIGAN
QUADRANGLE LOCATION

15388/48631-008
APRIL 2012

RACER TRUST
DORT HIGHWAY LAND
GRAND BLANC, MICHIGAN

SITE LOCATION MAP

0 1
APPROXIMATE SCALE
ONE MILE

TRUE NORTH

O'BRIEN & GERE
ENGINEERS INC.

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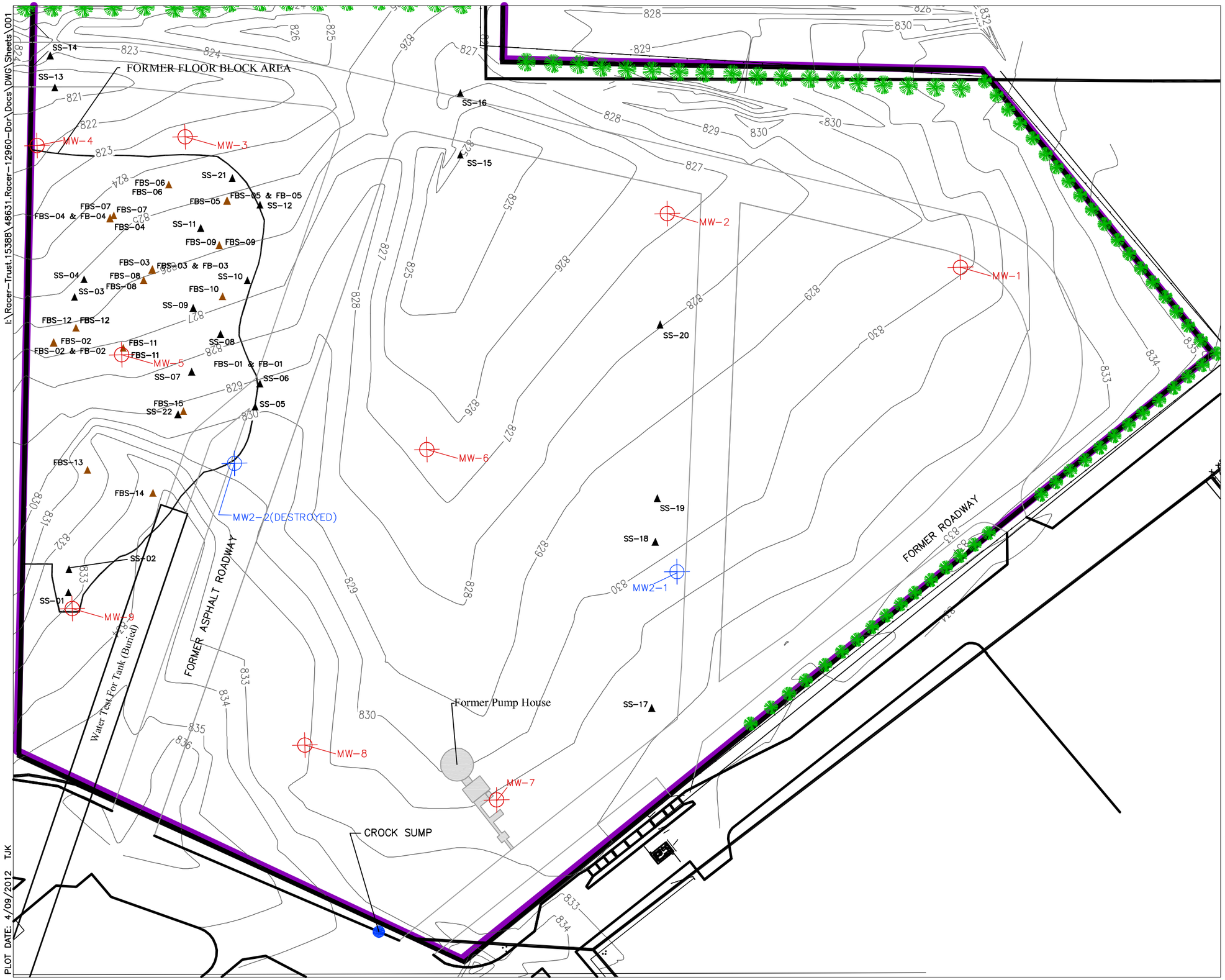
04/11/2012 TJK

FIGURE 2



LEGEND

- TEMPORARY MONITORING WELL LOCATION
- MONITORING WELL LOCATION
- APPROXIMATE RACER TRUST PROPERTY LINE
- FORMER TANK TEST TRACK AND DIE STORAGE ACCESS ROADS
- APPROXIMATE FENCE LOCATION
- DELINEATION/ CONFIRMATION SOIL SAMPLE LOCATION
- FLOOR BLOCK AREA SOIL SAMPLE LOCATION

RACER TRUST
DORT HIGHWAY LAND
GRAND BLANC, MICHIGAN

MONITORING WELL
LOCATION MAP

1"=200' 200 0 200

15388/48631.007
JULY 2012

O'BRIEN & GERE
ENGINEERS INC.

PLOT DATE: 4/09/2012 TJK
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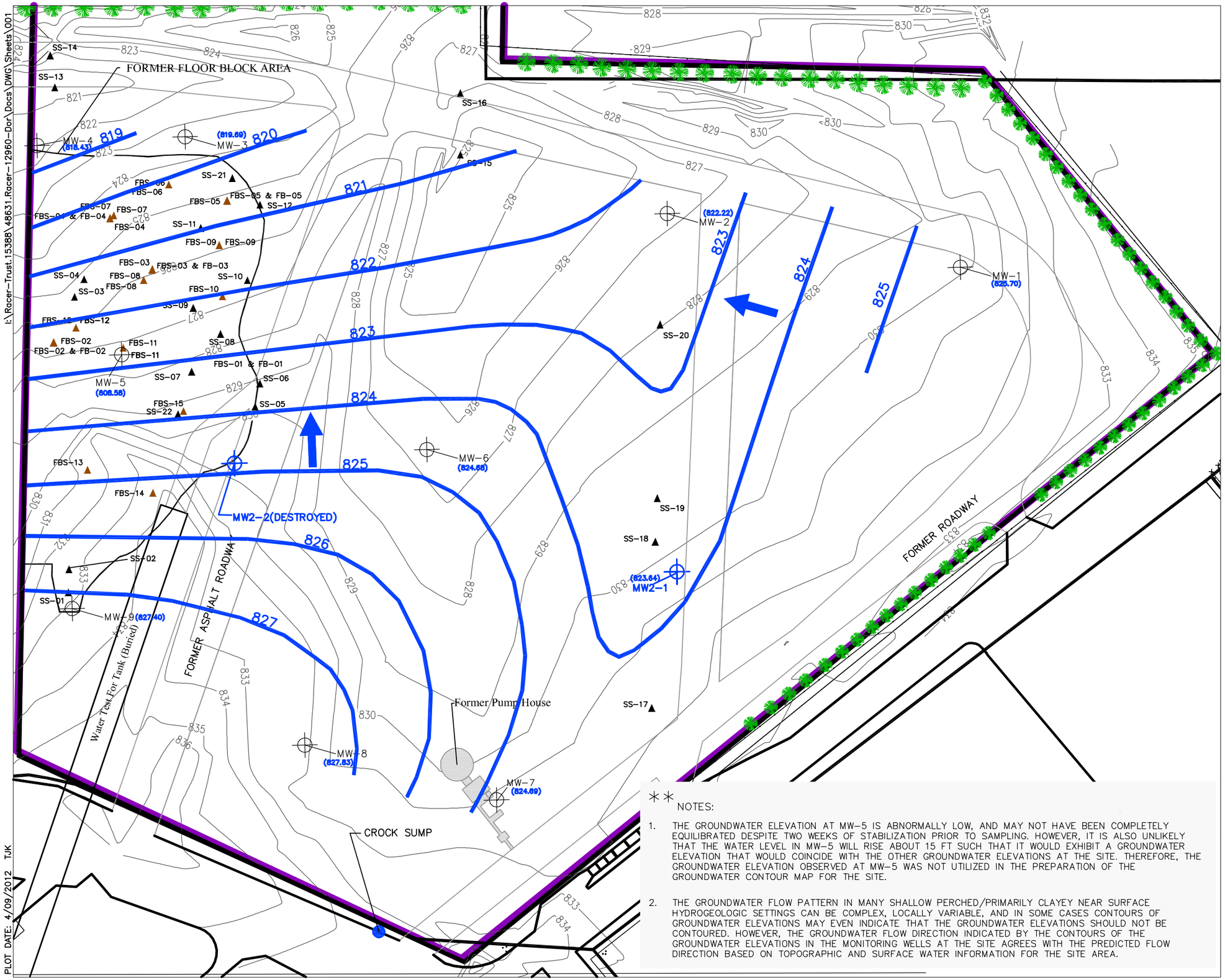
FIGURE 3



LEGEND

- TEMPORARY MONITORING WELL LOCATION
- MONITORING WELL LOCATION
- APPROXIMATE RACER TRUST PROPERTY LINE
- FORMER TANK TEST TRACK AND DIE STORAGE ACCESS ROADS
- APPROXIMATE FENCE LOCATION
- DELINEATION/ CONFIRMATION SOIL SAMPLE LOCATION
- FLOOR BLOCK AREA SOIL SAMPLE LOCATION
- GROUND WATER CONTOUR
- GROUND WATER FLOW

TRUE NORTH

** NOTES:

1. THE GROUNDWATER ELEVATION AT MW-5 IS ABNORMALLY LOW, AND MAY NOT HAVE BEEN COMPLETELY EQUILIBRATED DESPITE TWO WEEKS OF STABILIZATION PRIOR TO SAMPLING. HOWEVER, IT IS ALSO UNLIKELY THAT THE WATER LEVEL IN MW-5 WILL RISE ABOUT 15 FT SUCH THAT IT WOULD EXHIBIT A GROUNDWATER ELEVATION THAT WOULD COINCIDE WITH THE OTHER GROUNDWATER ELEVATIONS AT THE SITE. THEREFORE, THE GROUNDWATER ELEVATION OBSERVED AT MW-5 WAS NOT UTILIZED IN THE PREPARATION OF THE GROUNDWATER CONTOUR MAP FOR THE SITE.

2. THE GROUNDWATER FLOW PATTERN IN MANY SHALLOW PERCHED/PRIMARILY CLAYEY NEAR SURFACE HYDROGEOLOGIC SETTINGS CAN BE COMPLEX, LOCALLY VARIABLE, AND IN SOME CASES CONTOURS OF GROUNDWATER ELEVATIONS MAY EVEN INDICATE THAT THE GROUNDWATER ELEVATIONS SHOULD NOT BE CONTOURED. HOWEVER, THE GROUNDWATER FLOW DIRECTION INDICATED BY THE CONTOURS OF THE GROUNDWATER ELEVATIONS IN THE MONITORING WELLS AT THE SITE AGREES WITH THE PREDICTED FLOW DIRECTION BASED ON TOPOGRAPHIC AND SURFACE WATER INFORMATION FOR THE SITE AREA.

RACER TRUST
DORT HIGHWAY LAND
GRAND BLANC, MICHIGAN

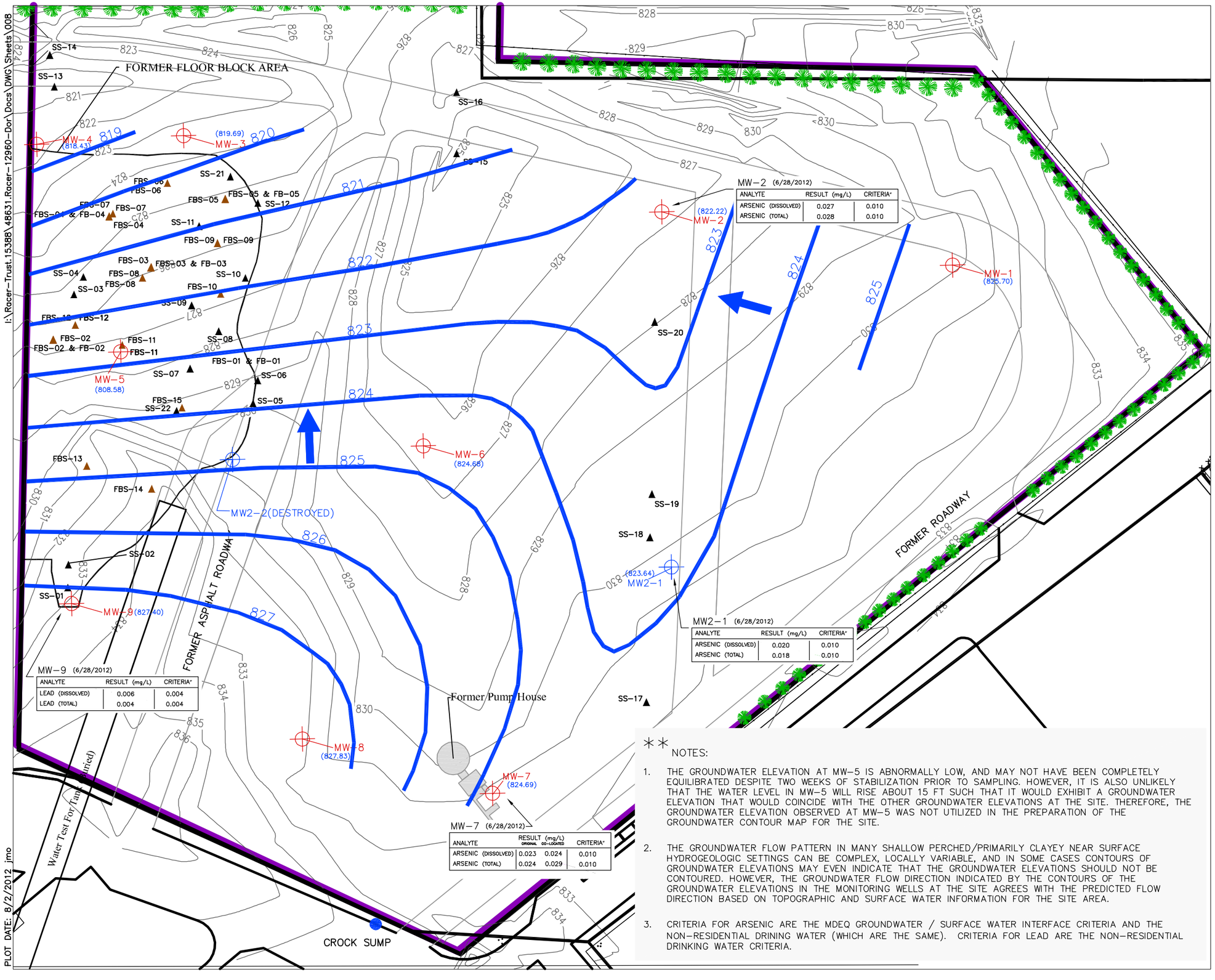
GROUNDWATER CONTOUR MAP (JUNE 27, 2012)

1"=200' 200 0 200

15388/48631.007
JULY 2012

O'BRIEN & GERE ENGINEERS INC.

FIGURE 4



MW-2 (6/28/2012)

ANALYTE	RESULT (mg/L)	CRITERIA*
ARSENIC (DISSOLVED)	0.027	0.010
ARSENIC (TOTAL)	0.028	0.010

MW2-1 (6/28/2012)

ANALYTE	RESULT (mg/L)	CRITERIA*
ARSENIC (DISSOLVED)	0.020	0.010
ARSENIC (TOTAL)	0.018	0.010

MW-9 (6/28/2012)

ANALYTE	RESULT (mg/L)	CRITERIA*
LEAD (DISSOLVED)	0.006	0.004
LEAD (TOTAL)	0.004	0.004

MW-7 (6/28/2012)

ANALYTE	RESULT (mg/L) ORIGINAL	RESULT (mg/L) CO-LOCATED	CRITERIA*
ARSENIC (DISSOLVED)	0.023	0.024	0.010
ARSENIC (TOTAL)	0.024	0.029	0.010

LEGEND

- TEMPORARY MONITORING WELL LOCATION
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TRUE NORTH

** NOTES:

1. THE GROUNDWATER ELEVATION AT MW-5 IS ABNORMALLY LOW, AND MAY NOT HAVE BEEN COMPLETELY EQUILIBRATED DESPITE TWO WEEKS OF STABILIZATION PRIOR TO SAMPLING. HOWEVER, IT IS ALSO UNLIKELY THAT THE WATER LEVEL IN MW-5 WILL RISE ABOUT 15 FT SUCH THAT IT WOULD EXHIBIT A GROUNDWATER ELEVATION THAT WOULD COINCIDE WITH THE OTHER GROUNDWATER ELEVATIONS AT THE SITE. THEREFORE, THE GROUNDWATER ELEVATION OBSERVED AT MW-5 WAS NOT UTILIZED IN THE PREPARATION OF THE GROUNDWATER CONTOUR MAP FOR THE SITE.

2. THE GROUNDWATER FLOW PATTERN IN MANY SHALLOW PERCHED/PRIMARILY CLAYEY NEAR SURFACE HYDROGEOLOGIC SETTINGS CAN BE COMPLEX, LOCALLY VARIABLE, AND IN SOME CASES CONTOURS OF GROUNDWATER ELEVATIONS MAY EVEN INDICATE THAT THE GROUNDWATER ELEVATIONS SHOULD NOT BE CONTOURED. HOWEVER, THE GROUNDWATER FLOW DIRECTION INDICATED BY THE CONTOURS OF THE GROUNDWATER ELEVATIONS IN THE MONITORING WELLS AT THE SITE AGREES WITH THE PREDICTED FLOW DIRECTION BASED ON TOPOGRAPHIC AND SURFACE WATER INFORMATION FOR THE SITE AREA.

3. CRITERIA FOR ARSENIC ARE THE MDEQ GROUNDWATER / SURFACE WATER INTERFACE CRITERIA AND THE NON-RESIDENTIAL DRINING WATER (WHICH ARE THE SAME). CRITERIA FOR LEAD ARE THE NON-RESIDENTIAL DRINKING WATER CRITERIA.

RACER TRUST
DORT HIGHWAY LAND
GRAND BLANC, MICHIGAN

GROUNDWATER CONTOUR MAP (JUNE 27, 2012) WITH EXCEEDANCES

1"=200' 200 0 200

15388/48631.008
JULY 2012

O'BRIEN & GERE ENGINEERS INC.

PLOT DATE: 8/2/2012 jmo

I:\Racer-Trust.15388\48631.Racer-12960-Dor\Docs\DWG\Sheets\008

ATTACHMENT A

Soil Boring Logs

O'BRIEN & GERE

BORING LOG

WELL NO. MW-1

PROJECT: RACER Dort Hwy Land
CLIENT: RACER Trust
INSPECTOR: CSY/TJK

SHEET 1 OF 1

JOB NO. 48631

DRILLING CONTRACTOR: Boart Longyear
DRILLER: Greg Hampton
PURPOSE: Monitoring Well Installation
DRILLING METHOD: Direct Push, HSA
DRILL RIG TYPE: HSA

GROUND ELEV. 829.52

DATUM

DATE STARTED 5/30/2012

DATE FINISHED 5/30/2012

	SAMPLE	CORE	CASING
TYPE	SS	---	---
DIA.	2"	2"	---

DEPTH (ft)	Sample Type Number	Blows/6" (N Value)	Penetration/ Recovery	MATERIAL DESCRIPTION	Graphic Log	USCS Symbol	Stratum Change	Field Testing PID (ppm)	Well Graphic	REMARKS
2	SS-1		5.0'/ 5.0'	moist, brown with trace to little gray mottling, few desiccation cracks some with gray silt, silty CLAY, little to some sand, trace fine gravel		CL	CL	0 0 0 0		
4				825.4 4.1						
				wet, brown, medium to fine SAND, little silt, trace fine gravel,		SM	SM	0.4		
6	SS-2		5.0'/ 5.0'	3/8" CLAY seam, varved at 4.5'		SM		4.7		
				823.8 5.7						
8				moist to wet, gray, silty CLAY, some coarse to fine sand, predominatly medium to fine sand, trace fine gravel, (glacial till)		CL	CL	0 0 0 0		
10				819.5 10.0				0		
				End of Borehole at 10.0'.						
12										
14										
16										
18										
20										

Notes:

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

O'BRIEN & GERE

BORING LOG

WELL NO. MW-2

PROJECT: RACER Dort Hwy Land
CLIENT: RACER Trust
INSPECTOR: CSY/TJK

SHEET 1 OF 1

JOB NO. 48631

DRILLING CONTRACTOR: Boart Longyear
DRILLER: Greg Hampton
PURPOSE: Monitoring Well Installation
DRILLING METHOD: Direct Push, HSA
DRILL RIG TYPE: HSA

GROUND ELEV. 826.84

DATUM

DATE STARTED 5/30/2012

DATE FINISHED 5/30/2012

	SAMPLE	CORE	CASING
TYPE	SS	---	---
DIA.	2"	2"	---

DEPTH (ft)	Sample Type Number	Blows/6" (N Value)	Penetration/ Recovery	MATERIAL DESCRIPTION	Graphic Log	USCS Symbol	Stratum Change	Field Testing PID (ppm)	Well Graphic	REMARKS
0				moist, medium brown with little gray mottling, few horizontal and vertical desiccation cracks, silty CLAY, little to some coarse to fine sand (predominantly medium to fine sand), trace fine gravel (glacial till)				0		
2	SS-1		5.0'/ 5.0'			CL		0		
4								0		
6	SS-2		5.0'/ 5.0'	hard		CL		0.4		
8				same as above		CL	CL	0		
				817.5 9.3				0		
10				moist to wet, gray, silty CLAY, little to some coarse to fine sand, trace fine gravel (glacial till)				0		
12	SS-3		5.0'/ 5.0'			CL		0		
14								0		
16				stiff		CL		0		
				810.6 16.2						
				810.3 16.5 wet, gray, silty coarse to fine (predominantly medium to fine) SAND, little to some clay		SM	SM			
18	SS-4		5.0'/ 3.5'	wet, brown, medium to fine SAND, little silt		SP-SM	SP-SM	0		
				808.1 18.7						
				807.9 18.9 wet, brown, coarse to fine SAND, some fine gravel, some silt		SM	SM	0		
20				806.8 20.0 moist to wet, very stiff, gray, silty CLAY, little to some coarse to fine sand, trace fine gravel, (glacial till)		CL	CL	0		

End of Borehole at 20.0'.

Notes:

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

O'BRIEN & GERE

BORING LOG

WELL NO. MW-3

PROJECT: RACER Dort Hwy Land
CLIENT: RACER Trust
INSPECTOR: CSY/TJK

SHEET 1 OF 1

JOB NO. 48631

DRILLING CONTRACTOR: Boart Longyear
DRILLER: Greg Hampton
PURPOSE: Monitoring Well Installation
DRILLING METHOD: Direct Push, HSA
DRILL RIG TYPE: HSA

GROUND ELEV. 822.81

DATUM

DATE STARTED 5/30/2012

DATE FINISHED 5/30/2012

	SAMPLE	CORE	CASING
TYPE	SS	---	---
DIA.	2"	2"	---

DEPTH (ft)	Sample Type Number	Blows/6" (N Value)	Penetration/ Recovery	MATERIAL DESCRIPTION	Graphic Log	USCS Symbol	Stratum Change	Field Testing PID (ppm)	Well Graphic	REMARKS
0				topsoil, silty SAND		SM	SM	0		
				821.0 1.8						
2	SS-1		5.0'/ 5.0'	moist, medium brown, CLAY, some sand, trace gravel		CL		0		
				820.2 2.6						
				moist, gray, sandy CLAY, some silt, trace gravel		CL		0		
				819.4 3.4						
4				moist, brown, silty CLAY, some sand, vertical and horizontal desiccation cracks		CL	CL	0		
								0		
6				816.3 6.5				0		
				816.1 moist, brown, silty SAND 6.7		SM	SM	0		
	SS-2		5.0'/ 5.0'	moist, brown, silty CLAY, with mottling		CL	CL	0		
8				814.8 8.0				0		
				moist, brown, silty CLAY, some sand		CL		0		
				814.0 8.8						
				813.9 silty fine to very fine SAND 8.9		SM	SM	0		
				813.3 moist, brown, silty CLAY, little gravel 9.5		CL	CL	0		
10				moist to wet, brown, silty SAND		SM	SM	0		
				812.5 silty SAND, some gravel 10.3		SM		0		
				moist to wet, gray, CLAY, trace coarse gravel				0		
12	SS-3		5.0'/ 5.0'			CL	CL	0		
								0		
14				807.8 15.0				0		
				End of Borehole at 15.0'.				0		
16										
18										
20										

Notes:

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

O'BRIEN & GERE

BORING LOG

WELL NO. MW-4

PROJECT: RACER Dort Hwy Land
CLIENT: RACER Trust
INSPECTOR: CSY/TJK

SHEET 1 OF 1

JOB NO. 48631

DRILLING CONTRACTOR: Boart Longyear
DRILLER: Greg Hampton
PURPOSE: Monitoring Well Installation
DRILLING METHOD: Direct Push, HSA
DRILL RIG TYPE: HSA

GROUND ELEV. 822.12

DATUM

DATE STARTED 5/31/2012

DATE FINISHED 5/31/2012

	SAMPLE	CORE	CASING
TYPE	SS	---	---
DIA.	2"	2"	---

DEPTH (ft)	Sample Type Number	Blows/6" (N Value)	Penetration/ Recovery	MATERIAL DESCRIPTION	Graphic Log	USCS Symbol	Stratum Change	Field Testing PID (ppm)	Well Graphic	REMARKS
2	SS-1		5.0'/ 5.0'	moist, medium brown, silty CLAY, trace gravel 820.0 — 2.1		CL	CL	0		
4				moist, brown and gray, silty CLAY, mottling and verical desiccation cracks 817.1 — 5.0		CL		0		
6	SS-2		5.0'/ 5.0'	moist to wet, brown, silty SAND, trace coarse gravel 814.7 — 7.4		SM	SM	0		
8				moist, medium brown, silty CLAY, little gravel 813.1 — 9.0		CL	CL	0		
10				moist, gray, silty CLAY, trace coarse gravel 812.1 — 10.0		CL		0		
12				End of Borehole at 10.0'.						
14										
16										
18										
20										

Notes:

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

O'BRIEN & GERE

BORING LOG

WELL NO. MW-5

PROJECT: RACER Dort Hwy Land
CLIENT: RACER Trust
INSPECTOR: CSY/TJK

SHEET 1 OF 2

JOB NO. 48631

DRILLING CONTRACTOR: Boart Longyear
DRILLER: Greg Hampton
PURPOSE: Monitoring Well Installation
DRILLING METHOD: Direct Push, HSA
DRILL RIG TYPE: HSA

GROUND ELEV. 827.43

DATUM

DATE STARTED 5/31/2012

DATE FINISHED 5/31/2012

	SAMPLE	CORE	CASING
TYPE	SS	---	---
DIA.	2"	2"	---

DEPTH (ft)	Sample Type	Number	Blows/6" (N Value)	Penetration/ Recovery	MATERIAL DESCRIPTION	Graphic Log	USCS Symbol	Stratum Change	Field Testing PID (ppm)	Well Graphic	REMARKS
					moist, brown, sandy CLAY, with coarse gravel		CL		0		
					moist, brown, sandy CLAY, some coarse gravel				0		
2		SS-1		5.0'/ 5.0'			CL		0.2		
					moist, brown, silty CLAY, little gravel				0		
4							CL		0		
					822.4 5.0				0		
					moist, gray, silty CLAY, some gravel		CL		0		
6					821.5 5.9				0		
					moist, brown, silty CLAY, little gravel				0		
8		SS-2		5.0'/ 5.0'			CL		0		
									0		
10					moist, brown, silty CLAY, some gravel				0		
									0		
12		SS-3		5.0'/ 4.0'			CL	CL	0		
									0		
14									0		
					same as above				0		
16					810.9 16.5		CL		0		
					moist to wet, gray, silty sandy CLAY, some gravel				0		
		SS-4		5.0'/ 5.0'			CL		0		
18									0		
					moist to wet, gray, silty CLAY, some gravel				0		
20							CL		0		

Notes:

(Continued Next Page)

O'BRIEN & GERE

BORING LOG

WELL NO. **MW-5**

PROJECT: RACER Dort Hwy Land
CLIENT: RACER Trust
INSPECTOR: CSY/TJK

SHEET 2 OF 2

JOB NO. 48631

DEPTH (ft)	Sample Type	Number	Blows/6" (N Value)	Penetration/ Recovery	MATERIAL DESCRIPTION	Graphic Log	USCS Symbol	Stratum Change	Field Testing PID (ppm)	Well Graphic	REMARKS
22		SS-5		4.0'/ 4.0'	moist to wet, gray, silty CLAY, some gravel *(continued)*		CL		0		
									0		
									0		
24					803.4 24.0				0		
					End of Borehole at 24.0'.						
26											
28											
30											
32											
34											
36											
38											
40											
42											
44											
46											

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

O'BRIEN & GERE

BORING LOG

WELL NO. MW-6

PROJECT: RACER Dort Hwy Land
CLIENT: RACER Trust
INSPECTOR: CSY/TJK

SHEET 1 OF 1

JOB NO. 48631

DRILLING CONTRACTOR: Boart Longyear
DRILLER: Greg Hampton
PURPOSE: Monitoring Well Installation
DRILLING METHOD: Direct Push, HSA
DRILL RIG TYPE: HSA

GROUND ELEV. 826.25

DATUM

DATE STARTED 6/8/2012

DATE FINISHED 6/8/2012

	SAMPLE	CORE	CASING
TYPE	SS	---	---
DIA.	2"	2"	---

DEPTH (ft)	Sample Type Number	Blows/6" (N Value)	Penetration/ Recovery	MATERIAL DESCRIPTION	Graphic Log	USCS Symbol	Stratum Change	Field Testing PID (ppm)	Well Graphic	REMARKS
				825.8 top soil, sandy, some small gravel 0.5		SM	SM	0		
2	SS-1		5.0'/ 5.0'	moist, brown, silty CLAY, vertical desiccation cracks, trace gravel		CL	CL	0		
4								0		
				820.9 moist, brown, silty CLAY 5.4		CL		0		
				820.7 moist, light brown and gray, silty SAND, 5.6		SM	SM			
6				moist, gray, silty CLAY, trace fine gravel				0		
8	SS-2		5.0'/ 5.0'			CL	CL	0		
10								0		
				815.8 moist, gray, silty CLAY, trace fine gravel 10.5		CL		0		
				815.3 moist, brown, silty SAND 11.0		SM	SM			
				moist, gray, silty CLAY, trace fine gravel				0		
12	SS-3		5.0'/ 5.0'			CL	CL	0.2		
				812.8 13.5				0		
14				wet, brown, silty SAND, trace fine gravel		SM	SM	0.2		
								0.2		
16	SS-4		3.0'/ 3.0'	810.3 16.0 moist, gray, silty CLAY		CL	CL	0		
18				808.3 18.0 End of Borehole at 18.0'.				0		
20										

Notes:

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

O'BRIEN & GERE

BORING LOG

WELL NO. MW-7

PROJECT: RACER Dort Hwy Land
CLIENT: RACER Trust
INSPECTOR: CSY/TJK

SHEET 1 OF 1
JOB NO. 48631
GROUND ELEV. 831.86
DATUM
DATE STARTED 6/8/2012
DATE FINISHED 6/8/2012

DRILLING CONTRACTOR: Boart Longyear
DRILLER: Greg Hampton
PURPOSE: Monitoring Well Installation
DRILLING METHOD: Direct Push, HSA
DRILL RIG TYPE: HSA

	SAMPLE	CORE	CASING
TYPE	SS	---	---
DIA.	2"	2"	---

DEPTH (ft)	Sample Type Number	Blows/6" (N Value)	Penetration/ Recovery	MATERIAL DESCRIPTION	Graphic Log	USCS Symbol	Stratum Change	Field Testing PID (ppm)	Well Graphic	REMARKS
0				moist, brown, silty CLAY, some coarse gravel, gray desiccation cracks		CL		0		
2	SS-1		5.0'/ 5.0'	moist, brown, silty CLAY, some sand, trace fine gravel				0		
4						CL		0		
6	SS-2		5.0'/ 5.0'	moist, brown, silty CLAY with mottling, trace coarse gravel		CL	CL	0		
8								0		
10				moist, light brown, silty CLAY, gray desiccation cracks, little sand		CL		0		
				moist, brown, silty CLAY, little sand		CL		0		
				820.5 — 11.4						
12	SS-3		5.0'/ 5.0'	moist, gray, silty CLAY, little fine gravel		CL		0		
14								0		
16				moist, gray, silty CLAY, trace fine gravel		CL		0		
				814.9 — 17.0						
	SS-4		5.0'/ 5.0'	814.7 — 17.2 moist to wet, brown, SAND, some fine gravel		SM	SM	0		
18				814.2 — 17.7 moist, gray, silty CLAY		CL	CL			
				813.7 — 18.2 wet, gray, silty SAND, trace coarse gravel		SM	SM	0		
				moist, gray, silty CLAY, trace fine gravel		CL	CL	0.2		
20				811.9 — 20.0						
				End of Borehole at 20.0'.				0		

Notes:

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

O'BRIEN & GERE

BORING LOG

WELL NO. MW-8

PROJECT: RACER Dort Hwy Land
CLIENT: RACER Trust
INSPECTOR: CSY/TJK

SHEET 1 OF 1
JOB NO. 48631
GROUND ELEV. 831.2
DATUM
DATE STARTED 6/8/2012
DATE FINISHED 6/8/2012

DRILLING CONTRACTOR: Boart Longyear
DRILLER: Greg Hampton
PURPOSE: Monitoring Well Installation
DRILLING METHOD: Direct Push, HSA
DRILL RIG TYPE: HSA

	SAMPLE	CORE	CASING
TYPE	SS	---	---
DIA.	2"	2"	---

DEPTH (ft)	Sample Type Number	Blows/6" (N Value)	Penetration/ Recovery	MATERIAL DESCRIPTION	Graphic Log	USCS Symbol	Stratum Change	Field Testing PID (ppm)	Well Graphic	REMARKS
0				moist, brown, silty CLAY, vertical desiccation cracks, trace gravel				0		
2	SS-1		5.0'/ 5.0'			CL		0		
4				moist, brown, silty CLAY, some sand, gray mottling		CL		0		
6				moist, brown, silty CLAY, vertical desiccation cracks, gray mottling		CL	CL	0		
8	SS-2		5.0'/ 5.0'					0		
10				moist, brown, silty CLAY, some fine gravel		CL		0		
12	SS-3		5.0'/ 5.0'	same as above		CL		0		
				818.9 — 12.3				0		
				moist, light brown and grayish silty CLAY, trace gravel		CL		0		
				818.1 — 13.1				0		
				817.8 — 13.4		SM	SM	0		
14				moist to wet, brown, silty SAND				0		
				moist, gray, silty CLAY		CL		0		
				816.2 — 15.0				0		
16				14.8' to 14.9' SAND seam				0		
				moist, brown, silty CLAY, trace coarse gravel		CL		0		
				814.8 — 16.4				0		
				wet, light brown and gray, silty CLAY, some sand		CL	CL	0		
				813.8 — 17.4				0		
18	SS-4		5.0'/ 5.0'	moist, gray, silty CLAY, some coarse gravel and sand		CL		0		
				moist, gray, silty CLAY, some coarse gravel		CL		0		
20				811.2 — 20.0				0		
				End of Borehole at 20.0'.						

Notes:

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

O'BRIEN & GERE

BORING LOG

WELL NO. MW-9

PROJECT: RACER Dort Hwy Land
CLIENT: RACER Trust
INSPECTOR: CSY/TJK

SHEET 1 OF 2

JOB NO. 48631

DRILLING CONTRACTOR: Boart Longyear
DRILLER: Greg Hampton
PURPOSE: Monitoring Well Installation
DRILLING METHOD: Direct Push, HSA
DRILL RIG TYPE: HSA

GROUND ELEV. 833.48

DATUM

DATE STARTED 5/31/2012

DATE FINISHED 5/31/2012

	SAMPLE	CORE	CASING
TYPE	SS	---	---
DIA.	2"	2"	---

DEPTH (ft)	Sample Type Number	Blows/6" (N Value)	Penetration/ Recovery	MATERIAL DESCRIPTION	Graphic Log	USCS Symbol	Stratum Change	Field Testing PID (ppm)	Well Graphic	REMARKS
0				moist, light brown, sandy CLAY, with coarse gravel		CL		0		
				832.0 1.5				0		
2	SS-1		5.0'/ 3.5'	moist, gray, sandy CLAY, with coarse gravel, mottling		CL		0		
4				(excavation from floor block area remediation)				0		
				828.0 wet, gray, sandy CLAY, with gravel (fill) 5.5		CL		0		
6				moist, brown, silty CLAY, some sand and gravel				0.2		
8	SS-2		5.0'/ 5.0'			CL	CL	0		
10				same as above				0		
12	SS-3		5.0'/ 5.0'			CL		0.1		
				819.6 13.9				0		
14				moist, gray, silty CLAY, little gravel and sand		CL		0		
16				moist, gray, silty CLAY, trace gravel		CL		0		
	SS-4		5.0'/ 5.0'	816.0 17.5				0		
18				wet to moist, brown, silty SAND, little gravel		SM		0		
20				wet, brown, silty SAND, little gravel		SM	SM	0		

Notes:

(Continued Next Page)

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

O'BRIEN & GERE

BORING LOG

WELL NO. **MW-9**

PROJECT: RACER Dort Hwy Land
CLIENT: RACER Trust
INSPECTOR: CSY/TJK

SHEET 2 OF 2

JOB NO. 48631

DEPTH (ft)	Sample Type	Number	Blows/6" (N Value)	Penetration/ Recovery	MATERIAL DESCRIPTION	Graphic Log	USCS Symbol	Stratum Change	Field Testing PID (ppm)	Well Graphic	REMARKS
22		SS-5		4.0'/ 4.0'	812.4 moist, gray, silty CLAY, with gravel 21.1		CL	CL	0		
24					809.5 moist, gray, silty CLAY 24.0		CL		0		
					End of Borehole at 24.0'.				0		
									0.1		
26											
28											
30											
32											
34											
36											
38											
40											
42											
44											
46											

Report Name: NEW OBG BORING LOG Data Template: OBG GINT STD US.GDT

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	REPORT OF BORING MW2-1
Client: ENCORE Site: MFD Plant Proj. Loc: Grand Blanc, MI File No.: 4966/37404	Drill Method: 4.25" Hollow Stem Augers Sampler: 5 ft stainless steel w/ disposable acetate liner	Page 1 of 1 Location: Area 2 Start Date: 11/20/06 End Date: 11/20/06
Boring Company: Prosonic Corporation Foreman: Don Bond Drill Rig: Geoprobe 6600 truck-mounted rig OBG Geologist: Mike Robison		Screen Riser Sand Pack Bentonite Bent/grout

Depth Below Grade	No.	Depth (feet)	Penetr/ Recovery	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm)	Field Testing Lab samples
0				Blind drilled to 10 ft, see boring log for adjacent boring SB2-11 for a description of the stratigraphy from 0-10 ft.				
1								
2								
3				2.68 ft of soil stripped from this location by GM, this line denotes existing ground surface.				
4								
5								
6								
7								
8							0.0	
9								
10	1	10-15'	5 ft/ 5 ft	brown w/orange grey mottling, damp stiff silty CLAY, little gravel	10' CL			
11							0.0	
12								
13							0.0	
14				half-inch seam of moist very firm SAND	14' SP			
15	2	15-20'	5 ft/ 5 ft	grey, damp firm silty CLAY, trace gravel medium plasticity	14.5' CL	===	0.0	
16								
17				same as above, little sand	17'		0.0	
18				grey, damp firm silty CLAY, trace gravel	17.5' CL			
19								
20				End of boring at 20 fbg				
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

Notes:

1. Subsequent to soil sampling activities a flushmount monitoring well was installed (see well construction detail for MW2-1) using 2 inch dia. flush-threaded PVC riser and a 5 ft long 0.010 inch slot PVC well screen.
2. 5 ft hydraulic probe macro core sampler used, therefore no blow counts.

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	REPORT OF BORING SB2-11

Client: ENCORE
Site: MFD Plant

Proj. Loc: Grand Blanc, MI
File No.: 4966/37404

Drill Method: hydraulic probe
Sampler: 5 ft stainless steel w/ disposable acetate liner

Page 1 of 1
Location: Area 2

Start Date: 10/24/06
End Date: 10/24/06

Boring Company: Prosonic Corporation
Foreman: Don Bond
Drill Rig: Geoprobe 6600 truck-mounted rig
OBG Geologist: Mike Robison

Screen ===
Riser
Sand Pack
Bentonite
Bent/grout

Depth Below Grade	No.	Depth (feet)	Penetr/ Recovery	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm)	Field Testing Lab samples
0	1	0-5'	5 ft/ 5 ft	brown, damp silty CLAY, little roots and gravel	CL			
1								
2				brown with grey mottling, damp silty CLAY, trace gravel, stiff	2' CL		0.0	2'-4' soil (DUP-02 also)
3				2.68 ft of soil stripped from this location by GM, this line denotes existing ground surface.				
4							0.0	
5	2	5-8'	3 ft / 3 ft	same as above	5' CL			
6							0.0	
7								
8				End of boring at 8 fbg				
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

Notes:

1. Subsequent to soil sampling activities the borehole was backfilled with bentonite, and asphalt patch at surface.
2. 5 ft hydraulic probe macro core sampler used, therefore no blow counts.

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	REPORT OF BORING MW2-2
Client: ENCORE Site: MFD Plant Proj. Loc: Grand Blanc, MI File No.: 4966/37404	Drill Method: 4.25" Hollow Stem Augers Sampler: 5 ft stainless steel w/ disposable acetate liner	Page 1 of 1 Location: Area 2 Start Date: 11/20/06 End Date: 11/20/06
Boring Company: Prosonic Corporation Foreman: Don Bond Drill Rig: Geoprobe 6600 truck-mounted rig OBG Geologist: Mike Robison		Screen Riser Sand Pack Bentonite Bent/grout

Depth Below Grade	No.	Depth (feet)	Penetr/ Recovery	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm)	Field Testing Lab samples
0				asphalt/concrete/gravel mix				
				Blind drilled to 3 ft, see boring log for adjacent boring SB2-7 for a description of the				
1				stratigraphy from 0-3 ft.				
2								
3				brown w/orange mottling, damp silty CLAY, little gravel	3' CL			
4				olive brown w/grey mottling, damp silty CLAY, little gravel and roots, medium plasticity	4' CL			
5	1	5-10'	5 ft/ 5 ft	brown w/grey mottling, damp silty CLAY, little gravel (non-plastic)	5' CL			
6								
7								
8							0.0	
9								
10	2	10-12'	5 ft/ 5 ft	same as above, stiff	10'			
11							0.0	
12								
13							0.0	
14								
15	3	15-20'	5 ft/ 5 ft	same as above	15'		0.0	
16								
17							0.0	
				brown, wet sandy CLAY, little silt	17.5' CL			
18				brown w/grey mottling, damp stiff silty CLAY, little gravel	18' CL			
19								
				brown, moist sandy CLAY, little silt and gravel	19.5' CL			
20				End of boring at 20 fbg				
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

3 ft of soil stripped from this location by GM, this line denotes existing ground surface.

Notes:

1. Subsequent to soil sampling activities a flushmount monitoring well was installed (see well construction detail for MW2-2) using 2 inch dia. flush-threaded PVC riser and a 5 ft long 0.010 inch slot PVC well screen.
2. 5 ft hydraulic probe macro core sampler used, therefore no blow counts.

O'BRIEN & GERE ENGINEERS, INC.	TEST BORING LOG	REPORT OF BORING SB2-7
Client: ENCORE **Site: MFD Plant** **Proj. Loc: Grand Blanc, MI** **File No.: 4966/37404**	**Drill Method: hydraulic probe** **Sampler: 5 ft stainless steel w/ disposable acetate liner**	**Page 1 of 1** **Location: Area 2** **Start Date: 10/23/06** **End Date: 10/23/06**
Boring Company: Prosonic Corporation **Foreman: Don Bond** **Drill Rig: Geoprobe 6600 truck-mounted rig** **OBG Geologist: Mike Robison**		**Screen** === **Riser** **Sand Pack** **Bentonite** **Bent/grout**

Depth Below Grade	No.	Depth (feet)	Penetr/ Recovery	Sample Description	Stratum Change General Descript	Equip. Installed	Field Testing PID (ppm)	Field Testing Lab samples
0	1	0-5'	5 ft/ 5 ft	asphalt at surface				
				brown with orange mottling, damp, silty CLAY, little gravel	8" CL			
1				3 ft of soil stripped from this location by GM, this line denotes existing ground surface.				
2							0.0	
3								
4				olive brown w/ grey mottling, damp, stiff silty CLAY, little gravel and roots, medium plasticity	4' CL		0.0	
5	2	5-10'	5 ft / 5 ft	same as above, not-plastic	5'			
6							0.0	
7								
8							0.0	8'-10' soil
9								
10				End of boring at 10 fbg				
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

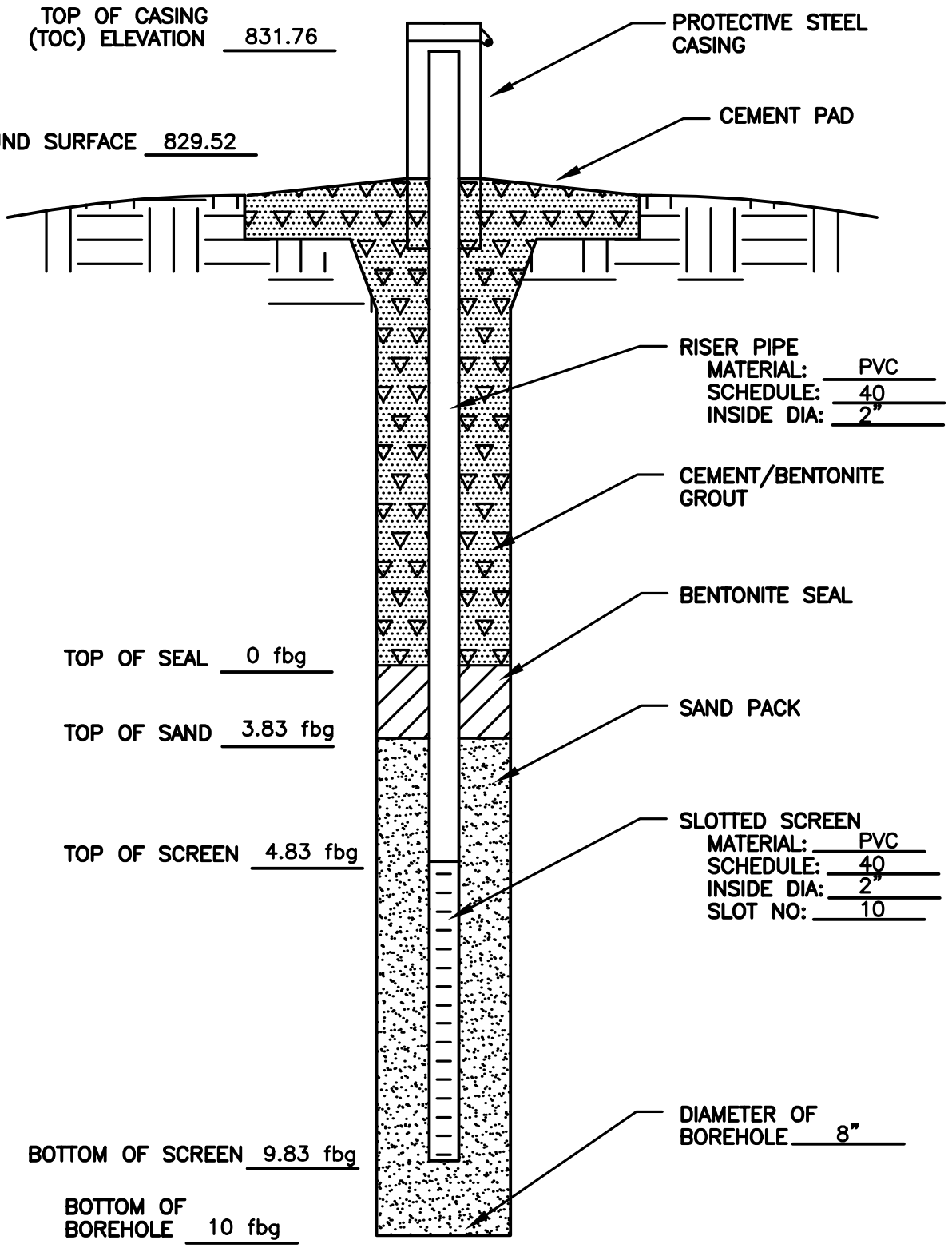
Notes:

1. Subsequent to soil sampling activities the borehole was backfilled with bentonite and soil at surface.
2. 5 ft hydraulic probe macro core sampler used, therefore no blow counts.

ATTACHMENT B

Well Construction Logs

O'BRIEN & GERE



DORT HIGHWAY LAND
GRAND BLANC, MICHIGAN
MONITORING WELL MW-1

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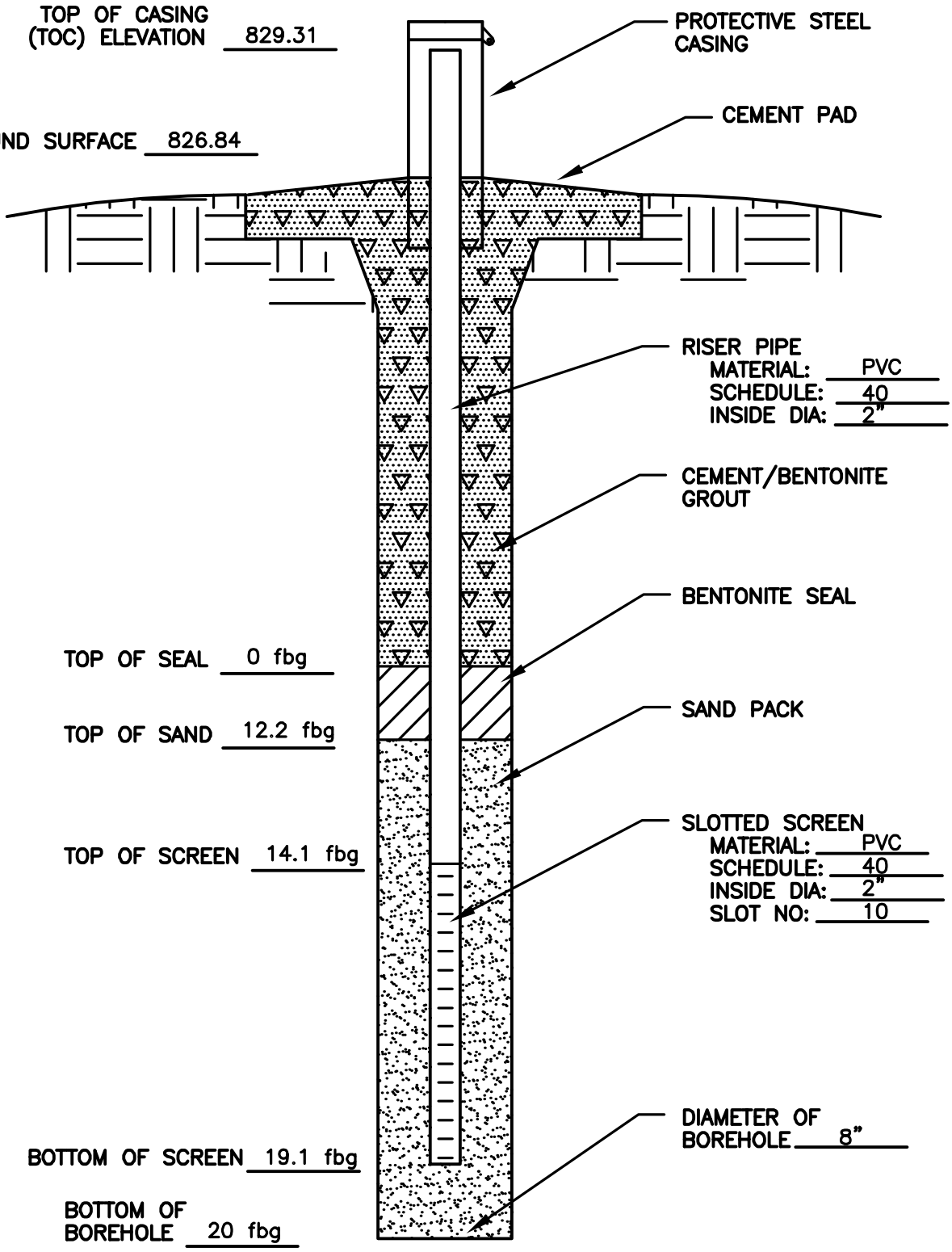
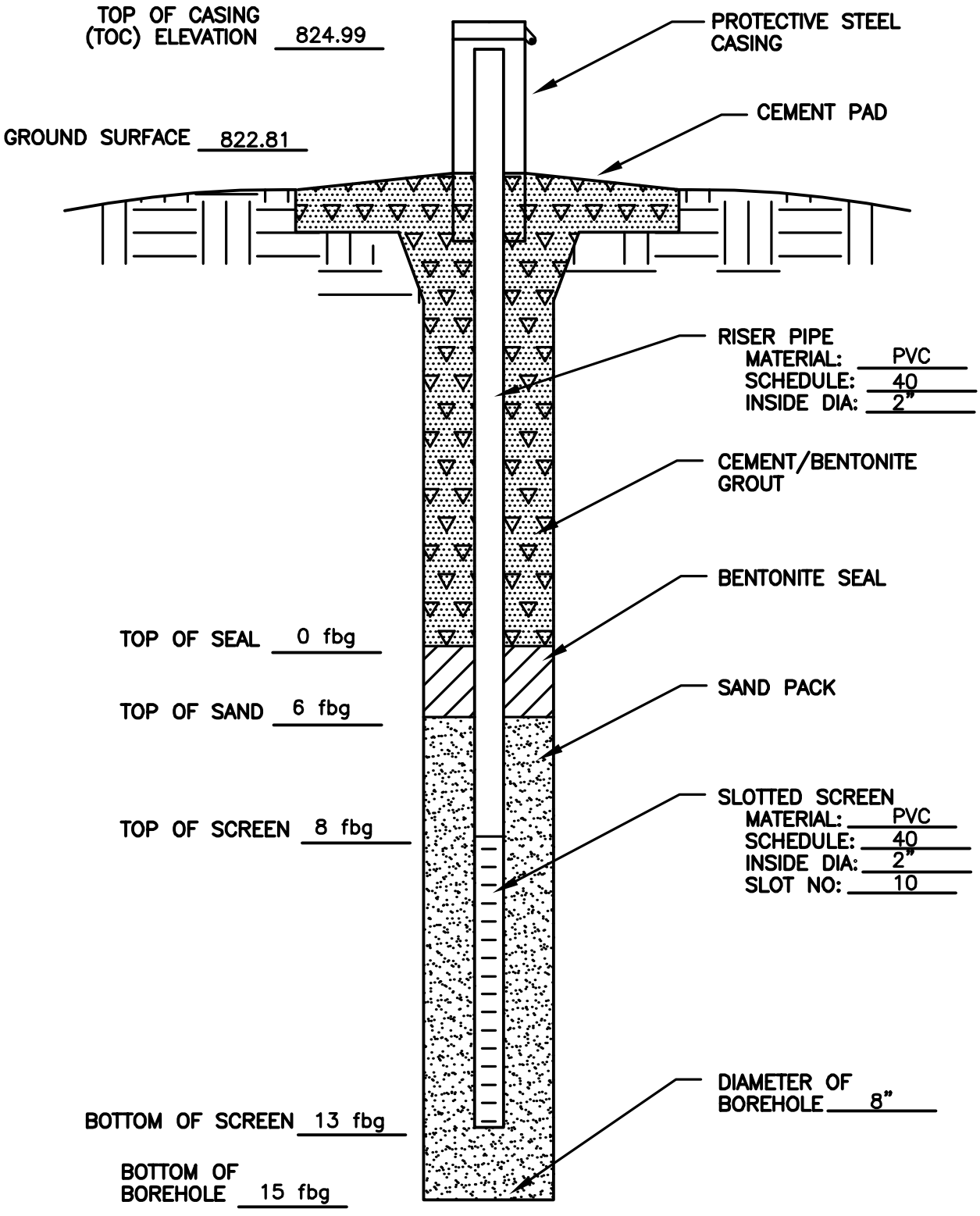
O'BRIEN & GERE



DORT HIGHWAY LAND
GRAND BLANC, MICHIGAN
MONITORING WELL MW-2

i\projects\15388\48631\dwg\MW Details\MW-1.dwg

O'BRIEN & GERE



DORT HIGHWAY LAND
GRAND BLANC, MICHIGAN
MONITORING WELL MW-3

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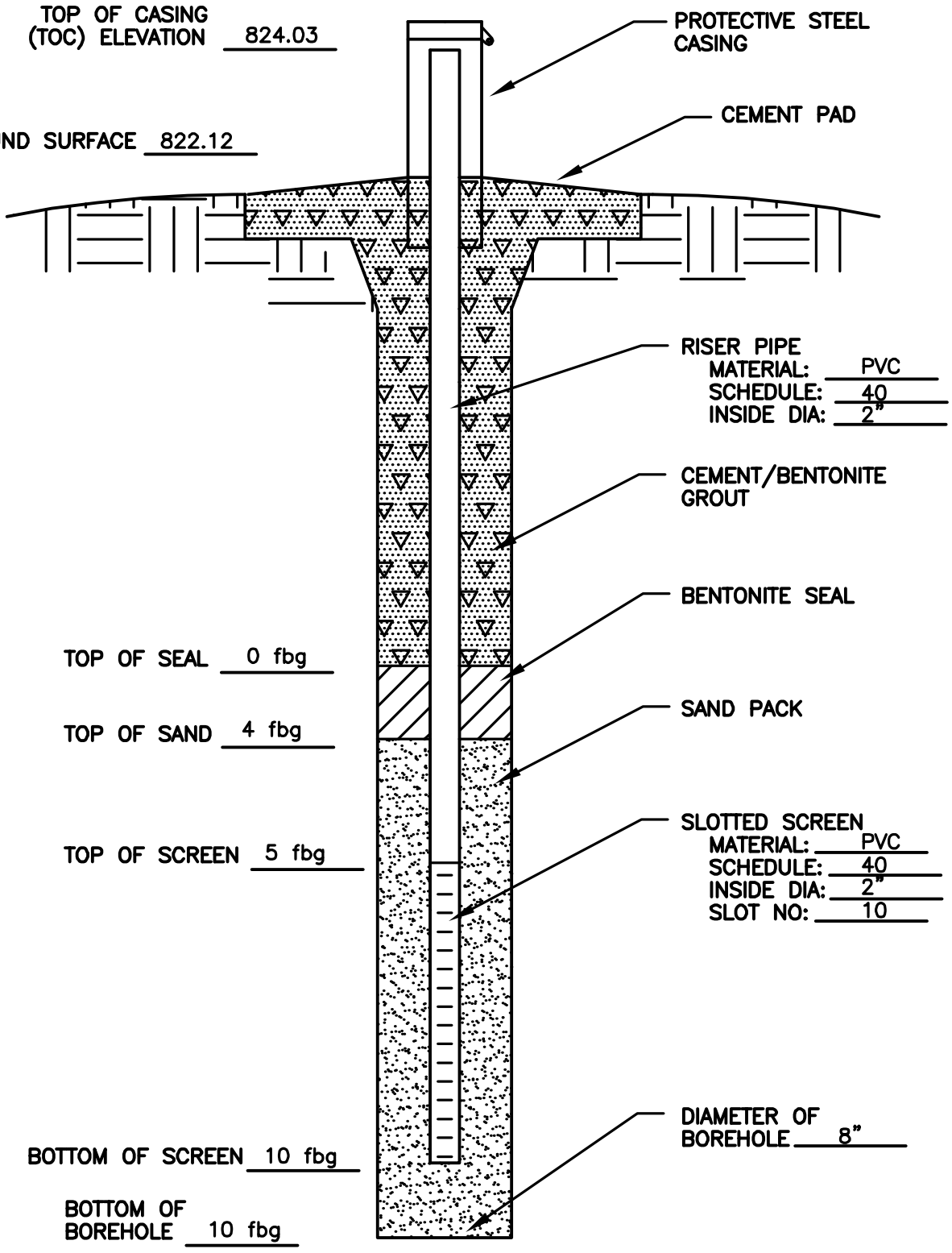
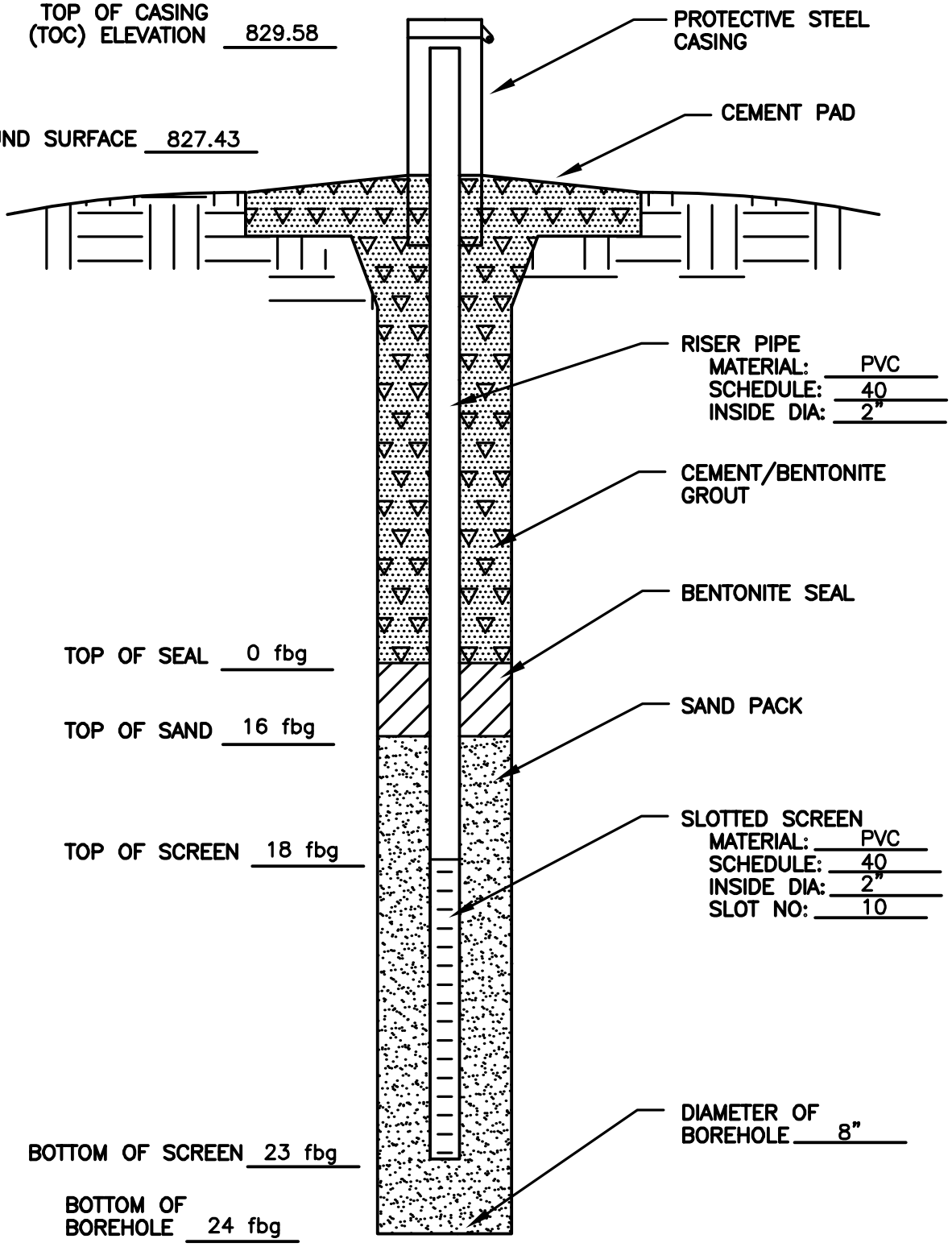
O'BRIEN & GERE



DORT HIGHWAY LAND
GRAND BLANC, MICHIGAN
MONITORING WELL MW-4

i\projects\15388\48631\dwg\MW Details\MW-1.dwg

O'BRIEN & GERE



DORT HIGHWAY LAND
GRAND BLANC, MICHIGAN
MONITORING WELL MW-5

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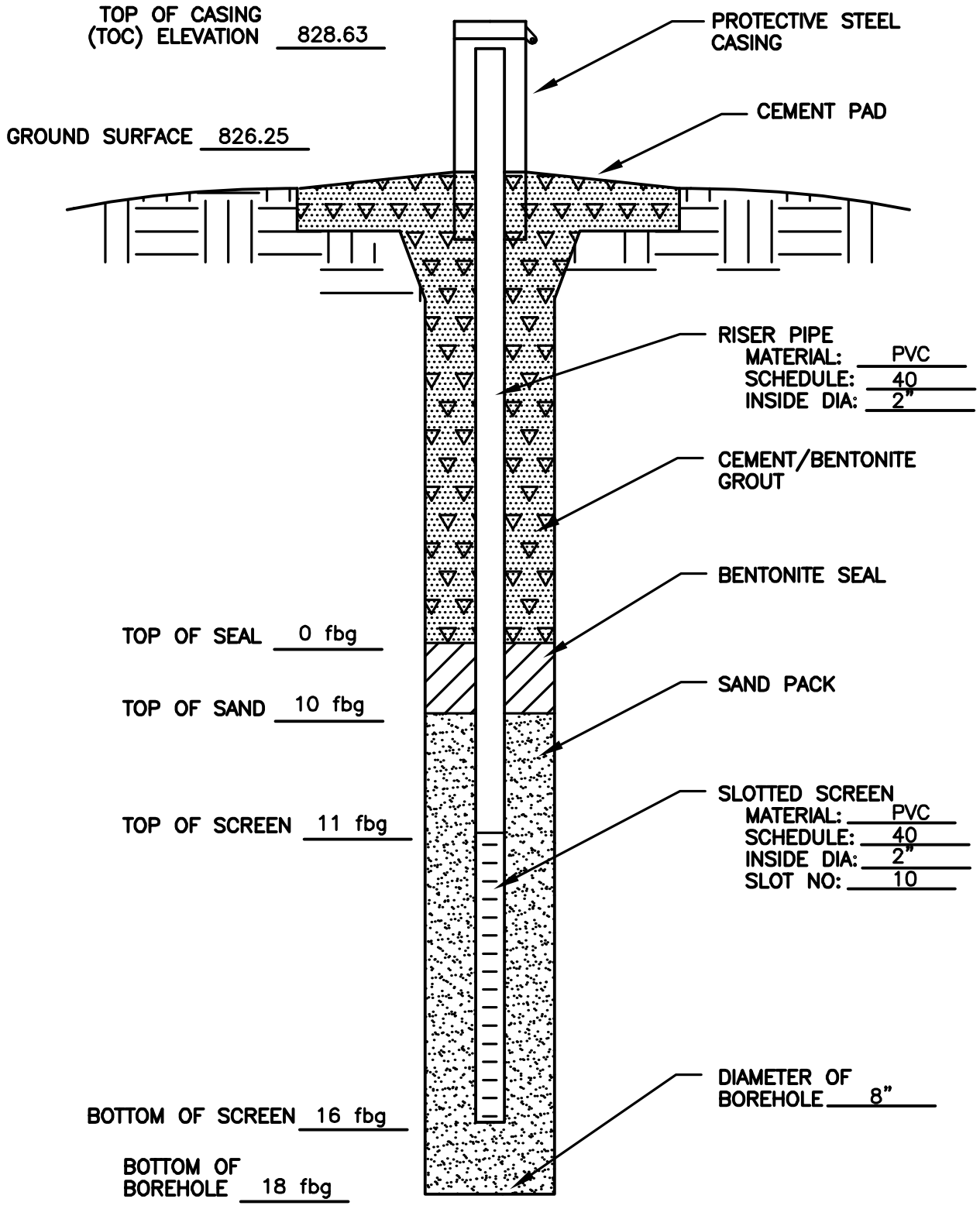
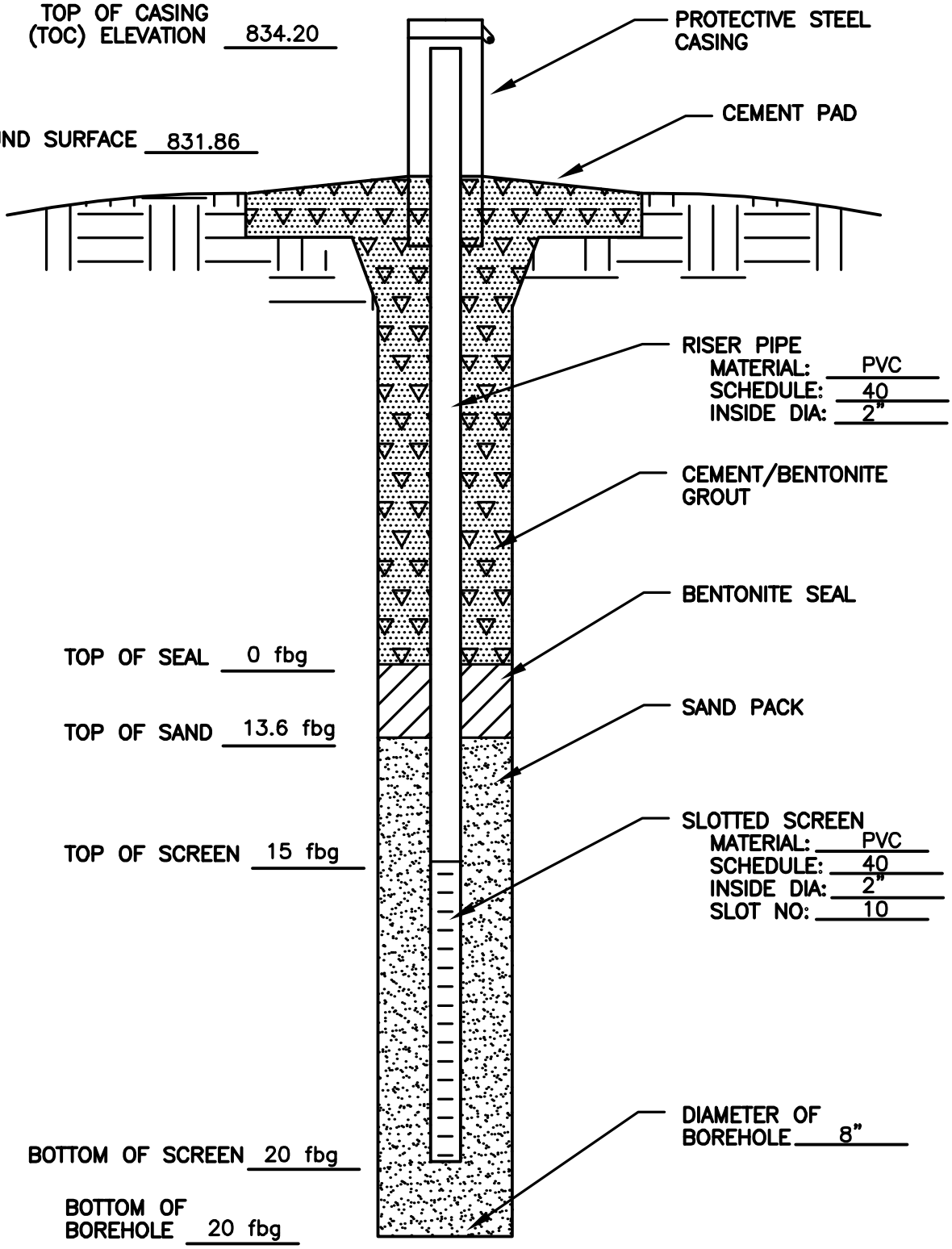
O'BRIEN & GERE



DORT HIGHWAY LAND
GRAND BLANC, MICHIGAN
MONITORING WELL MW-6

i\projects\15388\48631\dwg\MW Details\MW-1.dwg

O'BRIEN & GERE



DORT HIGHWAY LAND
GRAND BLANC, MICHIGAN
MONITORING WELL MW-7

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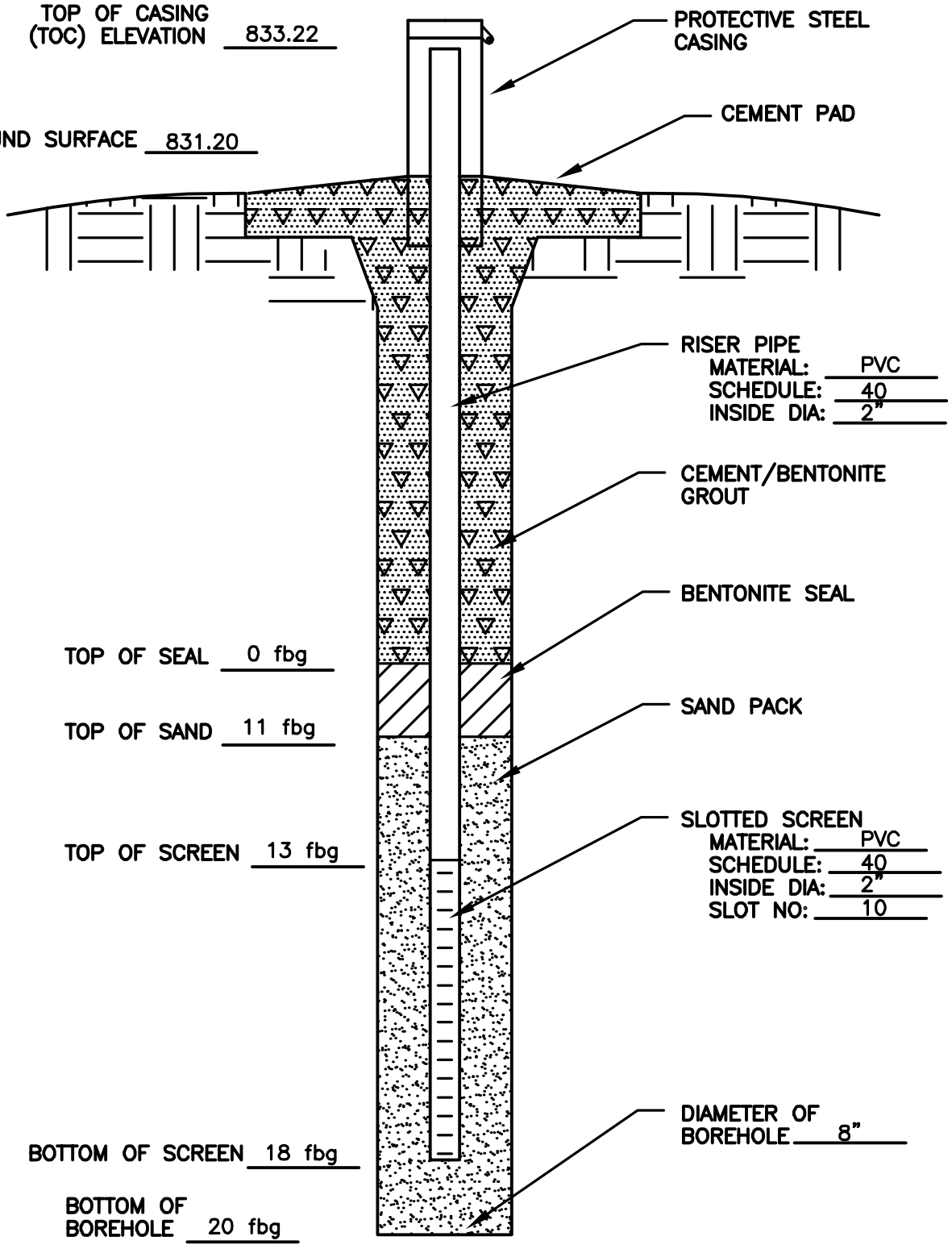
O'BRIEN & GERE



DORT HIGHWAY LAND
GRAND BLANC, MICHIGAN
MONITORING WELL MW-8

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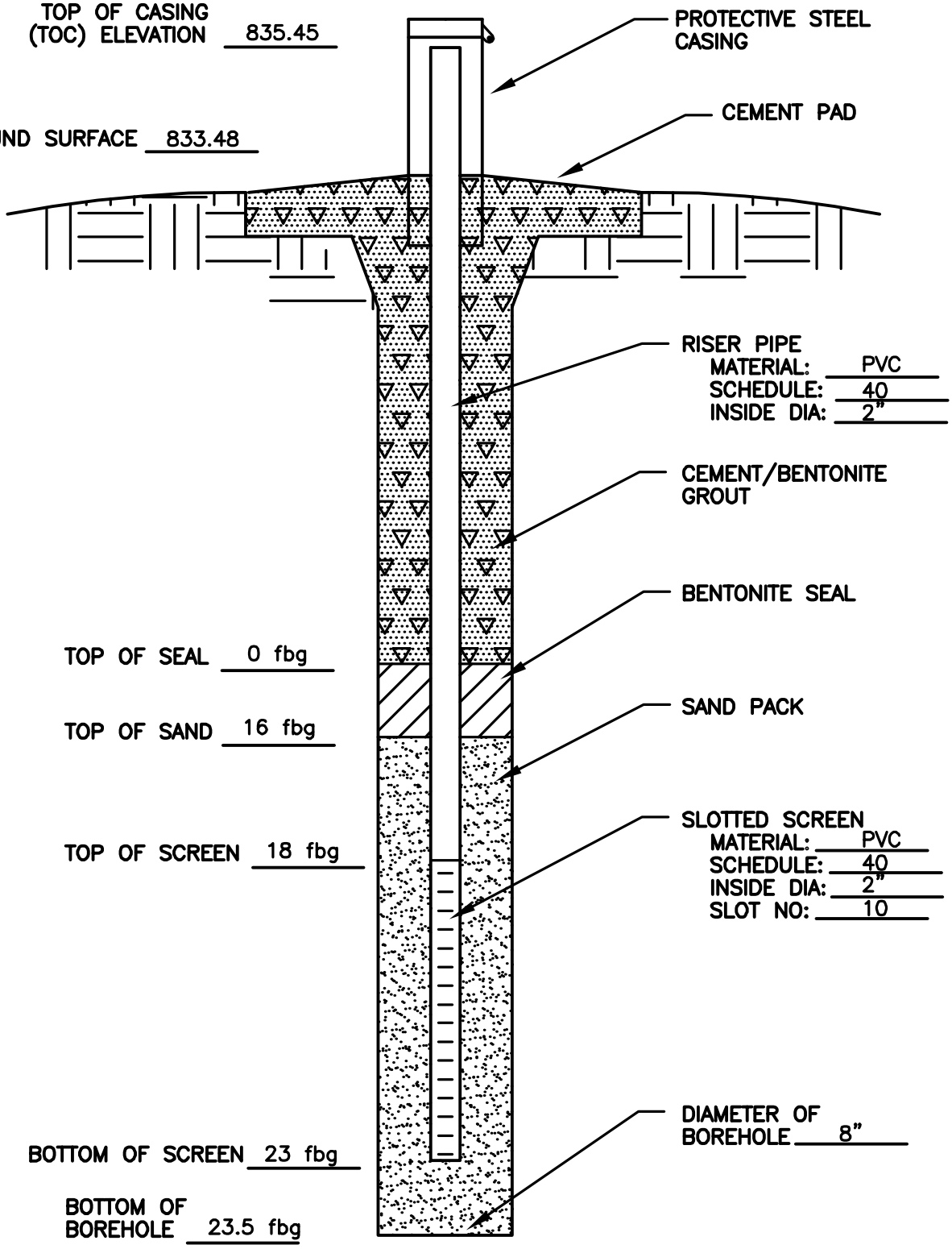
O'BRIEN & GERE



DORT HIGHWAY LAND
GRAND BLANC, MICHIGAN
MONITORING WELL MW-9

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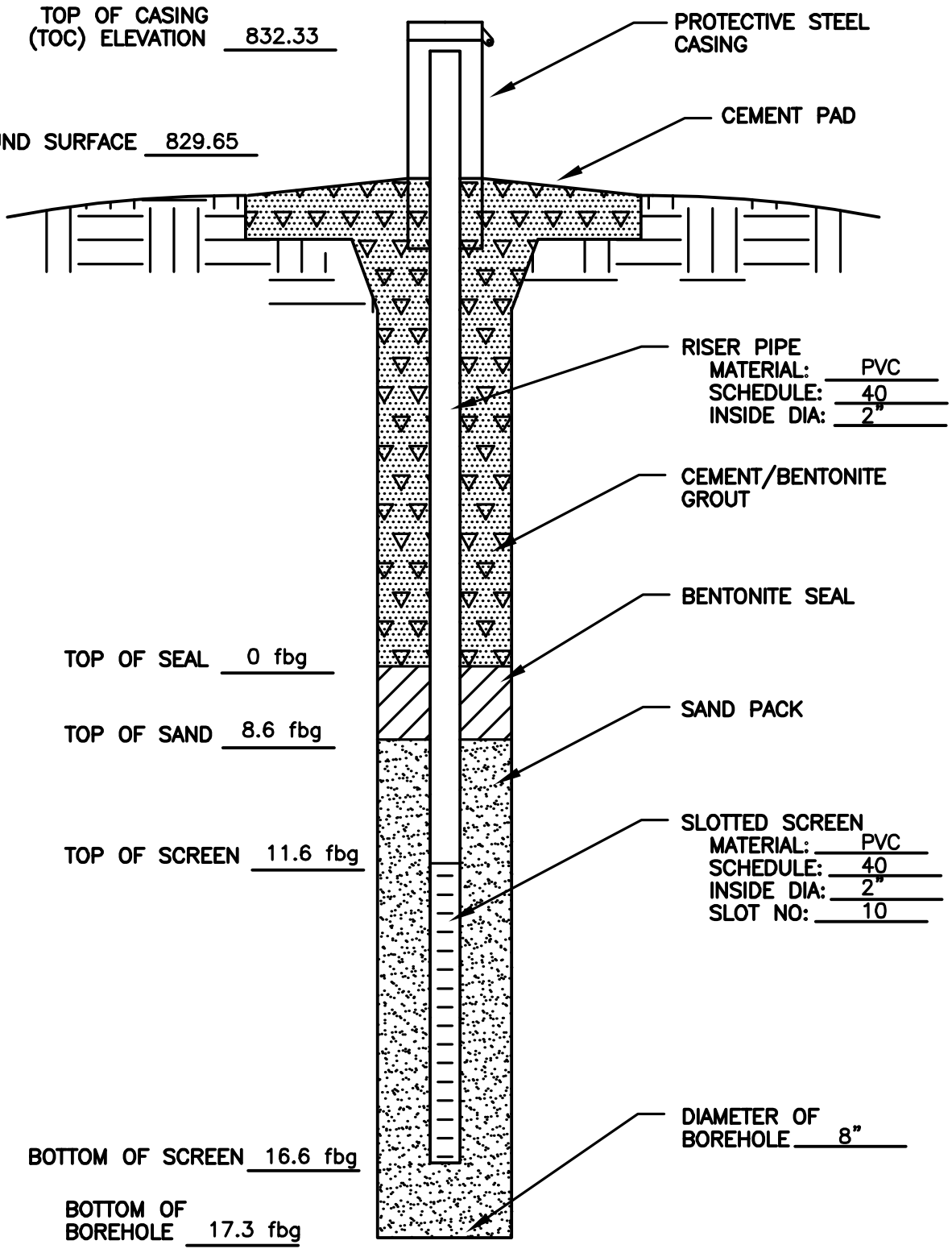
O'BRIEN & GERE



DORT HIGHWAY LAND
GRAND BLANC, MICHIGAN
MONITORING WELL MW2-1

i\projects\15388\48631\dwg\MW Details\MW-1.dwg

ATTACHMENT C

Groundwater Sample Logs

O'Brien & Gere Engineers, Inc. — **Ground Water Sampling Log**

Date	6/28/12	Weather	Sunny 95°F
Site Name	Dort Highway Land	Well #	MW-1
Location	Grand Blanc, MI	Evacuation Method	Bladder Pump
Project No.	48631	Sampling Method	Low-flow
Personnel	KBS		

Well Information:

Depth of Well *	12.05 ft.	Water Volume /ft. for:	
Depth to Water *	6.09 ft.	X	2" Diameter Well = 0.163 X LWC
Length of Water Column	ft.		4" Diameter Well = 0.653 X LWC
Volume of Water in Well	gal.(s)		6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 2 gal.(s)
Did well go dry? ND

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

Instrument Calibration: Calibrated within Range

pH	Yes
ORP	Yes
Conductivity	Yes
DO	Yes

Water parameters:

Time	Pumping Rate (ml/min.)	Drawdown (ft) 0.3 feet or less	Temperature (Celsius) ±10 percent	Conductivity (mS/cm) ±10 percent	Dissolved Oxygen (mg/L) ±10 percent	pH ±10 percent	ORP (mV) ±10 percent	Turbidity (NTUs) ±10 percent
1305 initial	<100	6.50	23.55	0.975	2.72	5.87	-44.1	1100
1310	↑	6.68	22.74	0.946	1.23	6.13	-53.8	1100
1315		6.80	22.98	0.935	1.31	6.46	-59.1	1100
1320		6.85	23.03	0.929	1.34	6.50	-68.3	1100
1325		6.90	23.13	0.921	1.44	6.75	-78.2	1100
1330		6.91	23.23	0.916	1.48	6.82	-82.2	672
1335		6.93	23.24	0.913	1.57	6.94	-79.5	487
1340		6.95	23.19	0.913	1.36	6.96	-80.5	320
1345		6.93	22.93	0.920	1.27	6.98	-87.2	241
1350		6.99	22.36	0.930	1.01	6.96	-94.4	163
1355	↓	6.99	22.54	0.932	0.80	6.96	-99.5	119

Water Sample:
Time Collected: 1435

OVER ⇒

Physical Appearance at Start		Physical Appearance at Sampling	
Color	Brown	Color	Clear
Odor	None	Odor	None
Turbidity (> 100 NTU)	High	Turbidity (> 100 NTU)	Low
Sheen/Free Product	None	Sheen/Free Product	None

Samples collected:

Analyses	# Bottles	Bottle Size/Type	Preservative	Field Filtered
VOCs	2	40 ml Glass	HCL	
Dissolved RCRA Metals	1	125 ml Plastic	HNO_3	yes
Total RCRA Metals	1	125 ml Plastic	HNO_3	
SVOCs	2	1 l Amber	None	

Notes: Turbidity increased during sampling - Collected Dissolved Metals

MW-1

Time	Pump	DO	Temp	Con	Do	pH	ORP	Turb
1400	<100	6.99	23.00	0.941	0.64	6.98	-106.4	85
1405	↓	6.99	23.00	0.943	0.59	6.98	-108.6	54
1410		6.99	22.99	0.947	0.51	6.98	-113.5	43
1415		6.99	22.98	0.949	0.49	6.98	-116.6	35
1420		6.99	23.01	0.950	0.45	6.98	-117.6	31
1425		6.99	22.66	0.950	0.46	6.98	-120.4	25
1430		6.99	22.77	0.947	0.42	6.97	-121.0	22
1435		6.99	22.97	0.947	0.45	6.97	-119.7	20

O'Brien & Gere Engineers, Inc. — **Ground Water Sampling Log**

Date	6/28/12		
Site Name	Dort Highway Land	Weather	Sunny 95°F
Location	Grand Blanc, MI	Well #	MW-2
Project No.	48631	Evacuation Method	Bladder Pump
Personnel	KBS	Sampling Method	Low-flow

Well Information:

Depth of Well *	21.55 ft.	Water Volume /ft. for:	
Depth to Water *	7.00 ft.	X	2" Diameter Well = 0.163 X LWC
Length of Water Column	ft.		4" Diameter Well = 0.653 X LWC
Volume of Water in Well	gal.(s)		6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 2½ gal.(s)

Did well go dry? NO

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

Instrument Calibration:

	Calibrated within Range
pH	Yes
ORP	Yes
Conductivity	Yes
DO	Yes

Water parameters:

Time	Pumping Rate (ml/min.)	Drawdown (ft) 0.3 feet or less	Temperature (Celsius) ±10 percent	Conductivity (mS/cm) ±10 percent	Dissolved Oxygen (mg/L) ±10 percent	pH ±10 percent	ORP (mV) ±10 percent	Turbidity (NTUs) ±10 percent
1535	initial 100	initial 7.05	initial 21.28	initial 1.817	initial 0.75	initial 5.96	initial -65.2	initial 1100
1540			21.19	1.807	0.54	6.11	-78.7	1074
1545			21.27	1.810	0.51	6.35	-94.9	881
1550			21.14	1.813	0.44	6.53	-108.1	613
1555			21.18	1.806	0.39	6.62	-115.6	524
1600			21.33	1.803	0.38	6.71	-120.9	337
1605			21.25	1.804	0.35	6.76	-123.2	215
1610			21.30	1.805	0.33	6.79	-126.7	189
1615			20.20	1.800	0.30	6.72	-118.9	161
1620			20.31	1.795	0.28	6.74	-118.7	134
1625	↓	↓	19.48	1.807	0.28	6.81	-129.1	115

Water Sample: Time Collected 1700

OVER =>

Physical Appearance at Start		Physical Appearance at Sampling	
Color	Brown	Color	clear
Odor	NONE	Odor	NONE
Turbidity (> 100 NTU)	HIGH	Turbidity (> 100 NTU)	LOW
Sheen/Free Product	NONE	Sheen/Free Product	NONE

Samples collected:

Analyses	# Bottles	Bottle Size/Type	Preservative	Field Filtered
VOCs	2	40 ml Glass	HCL	
Dissolved RCRA Metals	1	125 ml Plastic	HNO_3	yes
Total RCRA Metals	1	125 ml Plastic	HNO_3	
SVOCs	2	1 l Amber	None	

Notes:

MW-2

Time	Pump	DD	Temp	Con	Do	pH	ORP	Turb
1630	100	7.05	18.63	1.791	0.29	6.74	-124.5	84
1635	↓	↓	17.22	1.782	0.27	6.58	-110.8	60
1640			17.06	1.779	0.25	6.00	-92.2	59
1645			16.74	1.773	0.25	6.14	-96.3	51
1650			16.33	1.771	0.26	6.11	-98.2	48
1655			16.53	1.773	0.28	6.41	-99.0	46
1700	↓	↓	16.38	1.774	0.25	6.49	-110.9	44

O'Brien & Gere Engineers, Inc. — **Ground Water Sampling Log**

Date	6/28/12	Weather	Mostly cloudy 95°F
Site Name	Dort Highway Land	Well #	MW2-1
Location	Grand Blanc, MI	Evacuation Method	Bladder Pump
Project No.	48631	Sampling Method	Low-flow
Personnel	KBS		

Well Information:

Depth of Well *	18.85 ft.	Water Volume /ft. for:	
Depth to Water *	8.71 ft.	X	2" Diameter Well = 0.163 X LWC
Length of Water Column	ft.		4" Diameter Well = 0.653 X LWC
Volume of Water in Well	gal.(s)		6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 1½ gal.(s)
Did well go dry? NO

* Measurements taken from [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

Instrument Calibration:

	Calibrated within Range
pH	Yes
ORP	Yes
Conductivity	Yes
DO	Yes

Water parameters:

Time	Pumping Rate (ml/min.)	Drawdown (ft) 0.3 feet or less	Temperature (Celsius) ±10 percent	Conductivity (mS/cm) ±10 percent	Dissolved Oxygen (mg/L) ±10 percent	pH ±10 percent	ORP (mV) ±10 percent	Turbidity (NTUs) ±10 percent
1740	initial 100	initial 8.91	initial 22.92	initial 1.444	initial 2.04	initial 6.98	initial -69.5	initial 136
1745	<100	9.03	22.52	1.418	1.01	6.61	-58.1	128
1750		9.39	21.36	1.386	0.89	6.42	-59.9	98
1755		9.70	20.78	1.379	0.63	6.40	-72.4	72
1800		9.91	22.39	1.420	0.52	6.87	-86.7	82
1805		9.93	23.22	1.446	0.47	6.99	-102.1	95
1810		10.13	21.86	1.607	0.47	6.96	-115.2	69
1815		10.18	19.74	1.629	0.53	6.91	-111.7	67
1820		10.35	18.78	1.517	0.74	6.59	-81.5	68
1825		10.39	19.04	1.505	0.59	6.58	-82.9	47
1830	↓	10.43	19.03	1.572	0.50	6.66	-93.2	40

over =>

Water Sample:
Time Collected: 1840

Physical Appearance at Start		Physical Appearance at Sampling	
Color	Slightly cloudy	Color	clear
Odor	NONE	Odor	NONE
Turbidity (> 100 NTU)	MED	Turbidity (> 100 NTU)	LOW
Sheen/Free Product	NONE	Sheen/Free Product	NONE

Samples collected:

Analyses	# Bottles	Bottle Size/Type	Preservative	Field Filtered
VOCs	2	40 ml Glass	HCL	
Dissolved RCRA Metals	1	125 ml Plastic	HNO_3	yes
Total RCRA Metals	1	125 ml Plastic	HNO_3	
SVOCs	2	1 l Amber	None	

Notes:

MW2-1

Time	PUMP	DD	Temp	Con	Do	pH	ORP	Turb
1835	0100	10.49	18.92	1.618	0.45	6.20	-99.6	35
1840		10.53	18.85	1.637	0.43	6.20	-101.7	32

O'Brien & Gere Engineers, Inc. — **Ground Water Sampling Log**

Date	6/29/12		
Site Name	Dort Highway Land	Weather	Sunny 80°F
Location	Grand Blanc, MI	Well #	MW-3
Project No.		Evacuation Method	Bladder Pump
Personnel	KBS	Sampling Method	Low-flow

Well Information:

Depth of Well *	15.15 ft.	Water Volume /ft. for:	
Depth to Water *	5.35 ft.	X	2" Diameter Well = 0.163 X LWC
Length of Water Column	ft.		4" Diameter Well = 0.653 X LWC
Volume of Water in Well	gal.(s)		6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 2 gal.(s)
Did well go dry? ND

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

Instrument Calibration: Calibrated within Range

pH	Yes
ORP	Yes
Conductivity	Yes
DO	Yes

Water parameters:

Time	Pumping Rate (ml/min.)	Drawdown (ft) 0.3 feet or less	Temperature (Celsius) ±10 percent	Conductivity (mS/cm) ±10 percent	Dissolved Oxygen (mg/L) ±10 percent	pH ±10 percent	ORP (mV) ±10 percent	Turbidity (NTUs) ±10 percent
1010 initial	100 initial	5.55 initial	21.79 initial	1.477 initial	5.62 initial	6.87 initial	-48.2 initial	1100 initial
1015	100	5.67	20.86	1.488	1.50	6.67	-57.2	864
1020	<100	5.80	21.00	1.486	1.06	6.56	-66.4	1100
1025		5.85	21.07	1.484	0.88	6.59	-69.6	1100
1030		5.89	21.03	1.474	0.66	6.64	-81.5	1058
1035		5.93	21.04	1.453	0.51	6.68	-96.3	756
1040		5.99	20.75	1.432	0.41	6.69	-104.1	623
1045		5.99	20.55	1.428	0.39	6.70	-108.3	446
1050		6.00	20.72	1.418	0.35	6.69	-107.9	334
1055		6.00	20.88	1.415	0.33	6.74	-116.5	212
1100	↓	6.00	20.84	1.413	0.32	6.75	-111.5	169

Water Sample:
Time Collected: 1150

OVER =>

Physical Appearance at Start		Physical Appearance at Sampling	
Color	Brown	Color	clear
Odor	None	Odor	None
Turbidity (> 100 NTU)	High	Turbidity (> 100 NTU)	Low
Sheen/Free Product	None	Sheen/Free Product	None

Samples collected:

Analyses	# Bottles	Bottle Size/Type	Preservative	Field Filtered
VOCs	2	40 ml Glass	HCL	
Dissolved RCRA Metals	1	125 ml Plastic	HNO_3	yes
Total RCRA Metals	1	125 ml Plastic	HNO_3	
SVOCs	2	1 l Amber	None	

Notes:

MW-3

Time	Pump	DD	Temp	Con	DO	pH	GRP	Turb
1105	< 100	6.00	20.92	1.410	0.31	6.75	-110.7	124
1110	↓	6.00	21.07	1.406	0.33	6.75	-108.9	92
1115		6.00	20.94	1.407	0.30	6.76	-110.3	76
1120		6.00	20.79	1.406	0.30	6.77	-122.5	60
1125		6.00	20.31	1.401	0.34	6.73	-119.9	48
1130		6.00	20.01	1.398	0.32	6.71	-117.0	38
1135		6.00	20.84	1.399	0.30	6.76	-120.7	34
1140		6.00	20.81	1.399	0.30	6.77	-120.3	21
1145		6.00	20.76	1.398	0.31	6.76	-118.2	22
1150		600	20.88	1.397	0.31	6.77	-117.3	20

O'Brien & Gere Engineers, Inc. — **Ground Water Sampling Log**

Date	6/29/12	Weather	Sunny 80 °F
Site Name	Dort Highway Land	Well #	MW-4
Location	Grand Blanc, MI	Evacuation Method	Bladder Pump
Project No.	48103	Sampling Method	Low-flow
Personnel	KBS		

Well Information:

Depth of Well *	12.15 ft.	Water Volume /ft. for:	
Depth to Water *	5.67 ft.	X	2" Diameter Well = 0.163 X LWC
Length of Water Column	ft.		4" Diameter Well = 0.653 X LWC
Volume of Water in Well	gal.(s)		6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 2 gal.(s)
Did well go dry? NO

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

Instrument Calibration:

	Calibrated within Range
pH	yes
ORP	yes
Conductivity	yes
DO	yes

Water parameters:

Time	Pumping Rate (ml/min.)	Drawdown (ft) 0.3 feet or less	Temperature (Celsius) ±10 percent	Conductivity (mS/cm) ±10 percent	Dissolved Oxygen (mg/L) ±10 percent	pH ±10 percent	ORP (mV) ±10 percent	Turbidity (NTUs) ±10 percent
830 initial	100 initial	5.99 initial	17.83 initial	1.482 initial	1.83 initial	6.21 initial	273.1 initial	1100 initial
835		5.99	18.17	1.448	1.08	5.81	287.0	1100
840		6.09	18.59	1.393	0.87	6.09	242.7	752
845		6.09	18.70	1.334	0.81	6.33	174.0	485
850		6.16	18.80	1.291	0.76	6.49	115.1	286
855		6.16	18.87	1.262	0.66	6.61	66.4	184
900		6.24	18.66	1.231	0.52	6.68	24.0	89
905		6.24	18.72	1.217	0.53	6.71	3.9	68
910		6.30	18.85	1.206	0.53	6.78	-18.7	55
915		6.30	18.89	1.197	0.52	6.84	-39.1	33
920	↓	6.30	19.07	1.189	0.52	6.85	-47.7	16

OVER =7

Water Sample:
Time Collected: 940

Physical Appearance at Start		Physical Appearance at Sampling	
Color	Brown	Color	Clear
Odor	NONE	Odor	NONE
Turbidity (> 100 NTU)	High	Turbidity (> 100 NTU)	Low
Sheen/Free Product	NONE	Sheen/Free Product	NONE

Samples collected:

Analyses	# Bottles	Bottle Size/Type	Preservative	Field Filtered
VOCs	2	40 ml Glass	HCL	
Dissolved RCRA Metals	1	125 ml Plastic	HNO_3	yes
Total RCRA Metals	1	125 ml Plastic	HNO_3	
SVOCs	2	1 l Amber	None	

Notes:

MW-4

Time	Pump	DD	Temp	Con	Do	pH	ORP	Turb
925	100	6.30	19.14	1.180	0.56	6.89	-63.5	14
930	↓	↓	19.16	1.176	0.54	6.76	-69.1	9
935			19.33	1.171	0.53	6.89	-73.5	9
940			19.35	1.170	0.51	6.89	-76.1	5

O'Brien & Gere Engineers, Inc. — **Ground Water Sampling Log**

Date	6/28/12	Weather	Sunny 75°F
Site Name	Dort Highway Land	Well #	MW-5
Location	Grand Blanc, MI	Evacuation Method	Bladder Pump
Project No.		Sampling Method	Low-flow
Personnel	KBS		

Well Information:

Depth of Well *	6/29/12 25.15	ft.	Water Volume /ft. for:
Depth to Water *	23.20 20.81	ft.	X 2" Diameter Well = 0.163 X LWC
Length of Water Column		ft.	4" Diameter Well = 0.653 X LWC
Volume of Water in Well		gal.(s)	6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 1 gal.(s)
Did well go dry? yes

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

Instrument Calibration: Calibrated within Range

pH	yes
ORP	yes
Conductivity	yes
DO	yes

Water parameters:

Time	Pumping Rate (ml/min.)	Drawdown (ft) 0.3 feet or less	Temperature (Celsius) ±10 percent	Conductivity (mS/cm) ±10 percent	Dissolved Oxygen (mg/L) ±10 percent	pH ±10 percent	ORP (mV) ±10 percent	Turbidity (NTUs) ±10 percent
815	initial 100	initial 21.15	initial 15.21	initial 2.641	initial 5.79	initial 6.61	initial 133.4	initial 168
820	<100	21.50	14.15	2.648	4.82	6.18	106.4	124
825		21.69	14.42	2.682	4.81	6.48	71.2	56
830		21.80	14.74	2.689	4.79	6.66	53.2	36
835		21.91	15.09	2.699	4.70	6.83	30.3	33
840		22.00	15.29	2.700	4.59	6.88	19.1	23
845			15.12	2.710	4.55	6.89	11.0	20
850			15.41	2.679	4.41	6.87	4.5	19
855			15.88	2.703	4.32	6.90	-3.5	18
900			16.30	2.702	4.28	6.91	-8.5	16
905			16.11	2.708	4.25	6.89	-12.4	13

Water Sample: Time Collected: ~~925~~ 1235

OVER =>

Physical Appearance at Start		Physical Appearance at Sampling	
Color	Slightly cloudy	Color	clear
Odor	NONE	Odor	NONE
Turbidity (> 100 NTU)	HIGH	Turbidity (> 100 NTU)	LOW
Sheen/Free Product	NONE	Sheen/Free Product	NONE

Samples collected:

Analyses	# Bottles	Bottle Size/Type	Preservative	Field Filtered
VOCs	2	40 ml Glass	HCL	
Dissolved RCRA Metals	1	125 ml Plastic	HNO_3	yes
Total RCRA Metals	1	125 ml Plastic	HNO_3	
SVOCs	2	1 l Amber	None	

Notes:

well went DRY during sampling
will attempt again once well recharges

collected sample 6/29/12 1235 turbidity 13 NTU
before metals collection

MW-5

Time	Pump	DD	Temp	Con	Do	pH	ORP	Turb
910	c100		16.42	2.685	4.22	6.88	-16.6	15
915	↓		16.25	2.705	4.16	6.88	- 24.9	16
920			15.19	2.684	4.01	6.83	- 26.5	16
925			14.82	2.669	3.93	6.79	- 27.1	18

O'Brien & Gere Engineers, Inc. — **Ground Water Sampling Log**

Date	7/2/12	Weather	Sunny 85°F
Site Name	Dort Highway Land	Well #	MW-10
Location	Grand Blanc, MI	Evacuation Method	Bladder Pump
Project No.	48631	Sampling Method	Low-flow
Personnel	KBS		

Well Information:

Depth of Well *	18.40 ft.	Water Volume /ft. for:	
Depth to Water *	4.20 ft.	X	2" Diameter Well = 0.163 X LWC
Length of Water Column	ft.		4" Diameter Well = 0.653 X LWC
Volume of Water in Well	gal.(s)		6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 2 gal.(s)
Did well go dry? No

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

Instrument Calibration: Calibrated within Range

pH	Yes
ORP	Yes
Conductivity	Yes
DO	Yes

Water parameters:

Time	Pumping Rate (ml/min.)	Drawdown (ft) 0.3 feet or less	Temperature (Celsius) ±10 percent	Conductivity (mS/cm) ±10 percent	Dissolved Oxygen (mg/L) ±10 percent	pH ±10 percent	ORP (mV) ±10 percent	Turbidity (NTUs) ±10 percent
1120 initial	100	4.40	22.60	1.724	6.57	6.87	-59.4	1100
1125	<100	4.68	20.89	1.708	0.85	6.08	-41.4	1100
1130		4.95	20.65	1.710	0.58	6.17	-68.5	895
1135		5.01	20.63	1.710	0.50	6.37	-88.7	473
1140		5.06	20.92	1.708	0.45	6.57	-100.4	358
1145		5.09	21.22	1.711	0.40	6.68	-107.0	224
1150		5.09	21.20	1.709	0.37	6.74	-116.2	169
1155		5.09	21.53	1.716	0.34	6.76	-122.0	102
1200		5.09	21.10	1.714	0.30	6.78	-126.2	78
1205		5.09	21.00	1.713	0.29	6.76	-129.1	41
1210	↓	5.09	20.72	1.708	0.26	6.74	-140.4	39

Water Sample:
Time Collected: 1240

OVER ⇒

Physical Appearance at Start		Physical Appearance at Sampling	
Color	Brown	Color	clear
Odor	NONE	Odor	NONE
Turbidity (> 100 NTU)	HIGH	Turbidity (> 100 NTU)	LOW
Sheen/Free Product	NONE	Sheen/Free Product	NONE

Samples collected:

Analyses	# Bottles	Bottle Size/Type	Preservative	Field Filtered
VOCs	2	40 ml Glass	HCL	
Dissolved RCRA Metals	1	125 ml Plastic	HNO_3	yes
Total RCRA Metals	1	125 ml Plastic	HNO_3	
SVOCs	2	1 l Amber	None	

Notes:

MW-6

Time	PUMP	UD	TEMP	con	DO	pH	ORP	Turb
1215	<100	5.16	21.70	1.708	0.24	6.79	-141.2	34
1220	↓	5.16	21.95	1.711	0.24	6.81	-137.1	30
1225		5.16	21.77	1.716	0.24	6.82	-126.2	25
1230		5.20	21.33	1.715	0.24	6.81	-128.4	22
1235		5.20	21.17	1.713	0.24	6.79	-134.6	20
1240		5.20	21.66	1.709	0.25	6.81	-156.0	19

O'Brien & Gere Engineers, Inc. — **Ground Water Sampling Log**

Date	6/28/12		
Site Name	Dort Highway Land	Weather	SUNNY
Location	Grand Blanc, MI	Well #	MW-7
Project No.	48631	Evacuation Method	Bladder Pump
Personnel	KBS	Sampling Method	Low-flow

Well Information:

			Water Volume /ft. for:
Depth of Well *	ft.		
Depth to Water *	9.44 ft.	X	2" Diameter Well = 0.163 X LWC
Length of Water Column	ft.		4" Diameter Well = 0.653 X LWC
Volume of Water in Well	gal.(s)		6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 2 1/2 gal.(s)
Did well go dry? NO

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

Instrument Calibration:

	Calibrated within Range
pH	Yes
ORP	Yes
Conductivity	Yes
DO	Yes

Water parameters:

Time		Pumping Rate (ml/min.)		Drawdown (ft) 0.3 feet or less		Temperature (Celsius) ±10 percent		Conductivity (mS/cm) ±10 percent		Dissolved Oxygen (mg/L) ±10 percent		pH ±10 percent		ORP (mV) ±10 percent		Turbidity (NTUs) ±10 percent
1000	initial	100	initial	9.94	initial	16.84	initial	1.641	initial	2.01	initial	5.97	initial	-25.1	initial	1100
1005		<100		10.01		17.92		1.640		1.71		6.15		-38.1		1100
1010				10.09		18.36		1.646		1.14		6.58		-71.9		1100
1015				10.15		18.36		1.648		0.86		6.69		-80.7		1100
1020				10.15		18.44		1.649		0.74		6.74		-94.9		1058
1025				10.19		18.37		1.651		0.55		6.80		-108.2		631
1030				10.21		18.29		1.651		0.48		6.80		-113.3		511
1035				10.25		18.31		1.653		0.42		6.83		-119.7		388
1040				10.33		17.97		1.650		0.38		6.80		-122.8		290
1045				10.39		19.48		1.650		0.35		6.90		-114.1		242
1050		↓		10.44		19.20		1.660		0.33		6.94		-116.9		201

Water Sample:
Time Collected: 1130

OVER =7

Physical Appearance at Start		Physical Appearance at Sampling	
Color	Brown	Color	slightly cloudy
Odor	NONE	Odor	NONE
Turbidity (> 100 NTU)	HIGH	Turbidity (> 100 NTU)	LOW
Sheen/Free Product	NONE	Sheen/Free Product	NONE

Samples collected:

Analyses	# Bottles	Bottle Size/Type	Preservative	Field Filtered
VOCs	2	40 ml Glass	HCL	
Dissolved RCRA Metals	1	125 ml Plastic	HNO_3	yes
Total RCRA Metals	1	125 ml Plastic	HNO_3	
SVOCs	2	1 l Amber	None	

Notes:
CO-LOCATED collected

MW-7

Time	Pump	DD	Temp	Con	Do	pH	ORP	Turb
1055	0100	10.47	18.13	1.652	0.31	6.87	-120.9	141
1100	↓	10.55	18.02	1.649	0.28	6.85	-125.8	116
1105		10.58	17.90	1.648	0.26	6.85	-127.6	87
1110		10.64	17.98	1.650	0.26	6.86	-125.8	80
1115		10.69	17.77	1.654	0.26	6.87	-129.5	66
1120		10.75	17.97	1.649	0.25	6.87	-126.6	53
1125		10.78	18.57	1.650	0.23	6.91	-125.9	48
1130		10.80	18.54	1.655	0.24	6.93	-130.7	46

O'Brien & Gere Engineers, Inc. — **Ground Water Sampling Log**

Date	7/2/12	Weather	Sunny 80°F
Site Name	Dort Highway Land	Well #	MW-8
Location	Grand Blanc, MI	Evacuation Method	Bladder Pump
Project No.	48631	Sampling Method	Low-flow
Personnel	KBS		

Well Information:

Depth of Well *	20.00 ft.	Water Volume /ft. for:	
Depth to Water *	5.75 ft.	X	2" Diameter Well = 0.163 X LWC
Length of Water Column	ft.		4" Diameter Well = 0.653 X LWC
Volume of Water in Well	gal.(s)		6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 2 gal.(s)
Did well go dry? NO

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

Instrument Calibration: Calibrated within Range

pH	Yes
ORP	Yes
Conductivity	Yes
DO	Yes

Water parameters:

Time	Pumping Rate (ml/min.)	Drawdown (ft) 0.3 feet or less	Temperature (Celsius) ±10 percent	Conductivity (mS/cm) ±10 percent	Dissolved Oxygen (mg/L) ±10 percent	pH ±10 percent	ORP (mV) ±10 percent	Turbidity (NTUs) ±10 percent
915 initial	100 initial	6.21 initial	18.40 initial	1.449 initial	7.62 initial	6.81 initial	233.1 initial	1166 initial
920		6.97	17.29	1.440	5.06	5.82	248.6	720
925		7.15	16.41	1.435	4.43	5.87	182.0	377
930		7.55	16.77	1.428	4.31	6.24	112.1	173
935		7.89	17.34	1.431	4.35	6.81	48.2	124
940		8.18	18.21	1.432	4.39	7.08	9.3	89
945		8.62	18.52	1.434	4.52	7.10	-8.9	61
950		8.94	18.98	1.433	4.55	7.11	-22.5	31
955		9.18	19.17	1.435	4.62	7.12	-27.4	27
1000		9.35	19.16	1.437	4.64	7.11	-30.4	21
1005		9.51	19.94	1.436	4.37	7.12	-33.9	15

Water Sample:
Time Collected: 1015

OVER =>

Physical Appearance at Start		Physical Appearance at Sampling	
Color	Brown	Color	Clear
Odor	NONE	Odor	NONE
Turbidity (> 100 NTU)	HIGH	Turbidity (> 100 NTU)	LOW
Sheen/Free Product	NONE	Sheen/Free Product	NONE

Samples collected:

Analyses	# Bottles	Bottle Size/Type	Preservative	Field Filtered
VOCs	2	40 ml Glass	HCL	
Dissolved RCRA Metals	1	125 ml Plastic	HNO_3	yes
Total RCRA Metals	1	125 ml Plastic	HNO_3	
SVOCs	2	1 l Amber	None	

Notes: DUP-1 collected

Field Blank collected

MW-8

Time	Pump	DO	Temp	Con	Do	pH	ORP	Turb
1010	600	9.63	20.64	1.437	4.55	7.12	-33.6	16
1015	↓	9.80	21.28	1.442	4.55	7.13	-33.1	13

O'Brien & Gere Engineers, Inc. — **Ground Water Sampling Log**

Date	6/27/12	Weather	Sunny 87°F
Site Name	Dort Highway Land	Well #	MW-9
Location	Grand Blanc, MI	Evacuation Method	Bladder Pump
Project No.	48631	Sampling Method	Low-flow
Personnel	KBS		

Well Information:

Depth of Well *	ft.	Water Volume /ft. for:	
Depth to Water *	8.05 ft.	X	2" Diameter Well = 0.163 X LWC
Length of Water Column	ft.		4" Diameter Well = 0.653 X LWC
Volume of Water in Well	gal.(s)		6" Diameter Well = 1.469 X LWC

Volume removed before sampling: 3½ gal.(s)
Did well go dry? NO

* Measurements taken from: [X] Well Casing [ ] Protective Casing [ ] (Other, Specify)

Instrument Calibration:

	Calibrated within Range
pH	Yes
ORP	Yes
Conductivity	Yes
DO	Yes

Water parameters:

Time	Pumping Rate (ml/min.)	Drawdown (ft) 0.3 feet or less	Temperature (Celsius) ±10 percent	Conductivity (mS/cm) ±10 percent	Dissolved Oxygen (mg/L) ±10 percent	pH ±10 percent	ORP (mV) ±10 percent	Turbidity (NTUs) ±10 percent
1520 initial	200 initial	8.18 initial	17.62 initial	5.170 initial	3.95 initial	6.47 initial	-85.8 initial	>1100
1525	150	8.29	17.77	5.218	0.94	6.45	-120.8	>1100
1530		8.29	16.64	5.217	0.55	6.42	-137.3	>1100
1535		8.29	15.97	5.217	0.40	6.42	-154.7	>1100
1540		8.29	16.78	5.193	0.32	6.48	-176.3	>1100
1545		8.29	16.12	5.249	0.27	6.59	-197.4	>1100
1550		8.29	15.98	5.246	0.24	6.59	-205.8	>1100
1555		8.29	15.83	5.271	0.23	6.64	-213.9	>1100
1600		8.29	15.11	5.274	0.20	6.54	-215.8	846
1605		8.29	17.56	5.277	0.21	6.75	-204.2	542
1610		8.29	18.46	5.301	0.22	6.82	-184.1	492

Water Sample:
Time Collected: 1700

OVER =>

Physical Appearance at Start		Physical Appearance at Sampling	
Color	Brown	Color	Slightly cloudy
Odor	None	Odor	None
Turbidity (> 100 NTU)	High	Turbidity (> 100 NTU)	Med
Sheen/Free Product	None	Sheen/Free Product	None

Samples collected:

Analyses	# Bottles	Bottle Size/Type	Preservative	Field Filtered
VOCs	2	40 ml Glass	HCL	
Dissolved RCRA Metals	1	125 ml Plastic	HNO_3	yes
Total RCRA Metals	1	125 ml Plastic	HNO_3	
SVOCs	2	1 l Amber	None	

Notes: MS/MSD collected. Dissolved metals collected

MW-9

Time	Pump	DD	Temp	Con	DO	pH	ORP	Turb
	~~150~~	8.29						
1615	↓	↓	17.82	5.306	0.21	6.81	-184.9	319
1620			17.65	5.303	0.20	6.79	-182.1	256
1625			17.81	5.280	0.19	6.79	-175.3	176
1630			17.91	5.284	0.18	6.80	-163.0	135
1635			16.33	5.289	0.18	6.75	-176.9	103
1640			16.90	5.243	0.18	6.74	-166.0	91
1645			16.96	5.251	0.18	6.76	-156.7	82
1650			17.19	5.248	0.18	6.78	-142.0	76
1655			17.38	5.252	0.18	6.78	-136.3	76
1700			17.14	5.260	0.18	6.78	-146.3	73

ATTACHMENT D

Analytical Report

Analytical Laboratory Report

Report ID: S53042.01(01)
Generated on 07/12/2012

Report to

Attention: Clifford Yantz
O'Brien & Gere Engineers, Inc.
37000 Grand River Ave.
Suite 260
Farmington, MI 48335

Phone: 248-477-5701 FAX:
Email: YantzCS@obg.com/

Report produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S53042.01-S53042.06
Project: RACER Dort Hwy Land
Collected Date: 06/27/2012 - 06/28/2012
Submitted Date/Time: 06/28/2012 14:15
Sampled by: Kevin Schneider
P.O. #: PO125045

Report Notes

Results relate only to items tested as received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
"Not detected" indicates that parameter was not found at a level equal to or greater than the RL.
Samples are held by the lab for 30 days from the sample submittal date unless a written request to hold longer is provided by the client.

Laboratory Certifications:
Michigan DNRE (#9956), DOD/ISO 17025 (#L11-184), WBENC (#2005110032)
Ohio EPA (#CL0002), IN Drinking Water (#C-MI-07), NELAC NY (#11814), NELAC FL (#E871045)
Some analytes reported may not be certified. Full certification lists are available upon request.

Violetta F. Murshak
Laboratory Director

Sample Summary (6 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S53042.01	MW-9	Groundwater	06/27/2012 17:00
S53042.02	MW-9 MS	Groundwater	06/27/2012 17:00
S53042.03	MW-9 MSD	Groundwater	06/27/2012 17:00
S53042.04	MW-7	Groundwater	06/28/2012 11:30
S53042.05	MW-7 Co-Located	Groundwater	06/28/2012 11:30
S53042.06	TB-1 (Trip Blank)	Groundwater	06/28/2012 00:01

Analytical Laboratory Report

Lab Sample ID: S53042.01
Sample Tag: MW-9
Collected Date/Time: 06/27/2012 17:00
Matrix: Groundwater
COC Reference: 69294

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	5.3	IR
2	125ml Plastic	HNO3	Yes	5.3	IR
2	1L Amber	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
BNA Extraction	Completed			3510C	07/03/12 21:48	EMR		
Mercury Digestion	Completed			E245.1	07/05/12 12:25	JRH		
Mercury Digestion	Completed			E245.1	07/05/12 12:25	JRH		
Metal Digestion	Completed			3015A	07/11/12 01:00	SLR		
Metal Digestion	Completed			3015A	07/11/12 01:00	SLR		
Metals								
Arsenic, Dissolved	Not detected	mg/L	0.002	E200.8	07/11/12 16:27	SLS	7440-38-2	
Arsenic	0.002	mg/L	0.002	E200.8	07/11/12 14:10	SLS	7440-38-2	
Barium, Dissolved	0.076	mg/L	0.005	E200.8	07/11/12 16:27	SLS	7440-39-3	
Barium	0.086	mg/L	0.005	E200.8	07/11/12 14:10	SLS	7440-39-3	
Cadmium, Dissolved	Not detected	mg/L	0.0005	E200.8	07/11/12 16:27	SLS	7440-43-9	
Cadmium	Not detected	mg/L	0.0005	E200.8	07/11/12 14:10	SLS	7440-43-9	
Chromium, Dissolved	Not detected	mg/L	0.005	E200.8	07/11/12 16:27	SLS	7440-47-3	
Chromium	Not detected	mg/L	0.005	E200.8	07/11/12 14:10	SLS	7440-47-3	
Lead, Dissolved	0.004	mg/L	0.003	E200.8	07/11/12 16:27	SLS	7439-92-1	
Lead	0.006	mg/L	0.003	E200.8	07/11/12 14:10	SLS	7439-92-1	
Mercury, Dissolved	Not detected	mg/L	0.0002	E245.1	07/05/12 15:57	JRT	7439-97-6	
Mercury	Not detected	mg/L	0.0002	E245.1	07/05/12 15:25	JRH	7439-97-6	
Selenium, Dissolved	Not detected	mg/L	0.005	E200.8	07/11/12 16:27	SLS	7782-49-2	
Selenium	Not detected	mg/L	0.005	E200.8	07/11/12 14:10	SLS	7782-49-2	
Silver, Dissolved	Not detected	mg/L	0.0005	E200.8	07/11/12 16:27	SLS	7440-22-4	
Silver	Not detected	mg/L	0.0005	E200.8	07/11/12 14:10	SLS	7440-22-4	
Organics - Semi-Volatiles								
Semi-Volatile Organics - MDEQ								
Acenaphthene	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	83-32-9	
Acenaphthylene	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	208-96-8	
Anthracene	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/L	1	SW8270C	07/05/12 14:36	PL	56-55-3	
Benzo(b)fluoranthene	Not detected	ug/L	1	SW8270C	07/05/12 14:36	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/L	1	SW8270C	07/05/12 14:36	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/L	1	SW8270C	07/05/12 14:36	PL	191-24-2	
Benzo(a)pyrene	Not detected	ug/L	1	SW8270C	07/05/12 14:36	PL	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	111-91-1	
bis(2-Chloroethyl)ether	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	111-44-4	
bis(2-Chloroisopropyl)ether	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	117-81-7	
4-Bromophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	101-55-3	
Butyl benzyl phthalate	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	85-68-7	
4-Chloroaniline	Not detected	ug/L	10	SW8270C	07/05/12 14:36	PL	106-47-8	

Lab Sample ID: S53042.01 (continued)
Sample Tag: MW-9

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
2-Chloronaphthalene	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	91-58-7	
4-Chloro-3-methylphenol	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	59-50-7	
2-Chlorophenol	Not detected	ug/L	10	SW8270C	07/05/12 14:36	PL	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	7005-72-3	
Chrysene	Not detected	ug/L	1	SW8270C	07/05/12 14:36	PL	218-01-9	
p,m-Cresol	Not detected	ug/L	20	SW8270C	07/05/12 14:36	PL	3/4-Cresol	
o-Cresol	Not detected	ug/L	10	SW8270C	07/05/12 14:36	PL	95-48-7	
Dibenzo(ah)anthracene	Not detected	ug/L	2	SW8270C	07/05/12 14:36	PL	53-70-3	
Dibenzofuran	Not detected	ug/L	4	SW8270C	07/05/12 14:36	PL	132-64-9	
di-n-Butyl phthalate	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	84-74-2	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/05/12 14:36	PL	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/05/12 14:36	PL	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/05/12 14:36	PL	106-46-7	
3,3'-Dichlorobenzidine	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	91-94-1	
2,4-Dichlorophenol	Not detected	ug/L	10	SW8270C	07/05/12 14:36	PL	120-83-2	
Diethyl phthalate	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	84-66-2	
2,4-Dimethylphenol	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	105-67-9	
Dimethyl phthalate	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	ug/L	20	SW8270C	07/05/12 14:36	PL	534-52-1	
2,4-Dinitrophenol	Not detected	ug/L	25	SW8270C	07/05/12 14:36	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	121-14-2	
2,6-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	606-20-2	
1,2-Diphenylhydrazine	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	122-66-7	
di-n-Octyl phthalate	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	117-84-0	
Fluoranthene	Not detected	ug/L	1	SW8270C	07/05/12 14:36	PL	206-44-0	
Fluorene	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	86-73-7	
Hexachlorobenzene	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	118-74-1	
Hexachlorobutadiene	Not detected	ug/L	10	SW8270C	07/05/12 14:36	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	77-47-4	
Hexachloroethane	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	2	SW8270C	07/05/12 14:36	PL	193-39-5	
Isophorone	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	91-57-6	
Naphthalene	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	91-20-3	
2-Nitroaniline	Not detected	ug/L	25	SW8270C	07/05/12 14:36	PL	88-74-4	
3-Nitroaniline	Not detected	ug/L	25	SW8270C	07/05/12 14:36	PL	99-09-2	
4-Nitroaniline	Not detected	ug/L	25	SW8270C	07/05/12 14:36	PL	100-01-6	
Nitrobenzene	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	98-95-3	
2-Nitrophenol	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	88-75-5	
4-Nitrophenol	Not detected	ug/L	25	SW8270C	07/05/12 14:36	PL	100-02-7	
N-Nitrosodiphenylamine	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	621-64-7	
Pentachlorophenol	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	87-86-5	
Phenanthrene	Not detected	ug/L	2	SW8270C	07/05/12 14:36	PL	85-01-8	
Phenol	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	108-95-2	
Pyrene	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	129-00-0	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	120-82-1	
2,4,5-Trichlorophenol	Not detected	ug/L	5	SW8270C	07/05/12 14:36	PL	95-95-4	
2,4,6-Trichlorophenol	Not detected	ug/L	4	SW8270C	07/05/12 14:36	PL	88-06-2	

Lab Sample ID: S53042.01 (continued)
Sample Tag: MW-9

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles								
Volatile Organics - DEQ List								
Diethyl ether	Not detected	ug/L	10	SW8260B	07/10/12 14:52	WAT	60-29-7	
Acetone	Not detected	ug/L	50	SW8260B	07/10/12 14:52	WAT	67-64-1	
Methyl iodide	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	74-88-4	
Carbon disulfide	Not detected	ug/L	5	SW8260B	07/10/12 14:52	WAT	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW8260B	07/10/12 14:52	WAT	1634-04-4	
Acrylonitrile	Not detected	ug/L	2	SW8260B	07/10/12 14:52	WAT	107-13-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW8260B	07/10/12 14:52	WAT	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	5	SW8260B	07/10/12 14:52	WAT	75-71-8	
Chloromethane	Not detected	ug/L	5	SW8260B	07/10/12 14:52	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	75-01-4	
Bromomethane	Not detected	ug/L	5	SW8260B	07/10/12 14:52	WAT	74-83-9	
Chloroethane	Not detected	ug/L	5	SW8260B	07/10/12 14:52	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	5	SW8260B	07/10/12 14:52	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	156-59-2	
Tetrahydrofuran	Not detected	ug/L	90	SW8260B	07/10/12 14:52	WAT	109-99-9	
Chloroform	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	67-66-3	
Bromochloromethane	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW8260B	07/10/12 14:52	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	50	SW8260B	07/10/12 14:52	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	56-23-5	
Benzene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	75-27-4	
Dibromomethane	Not detected	ug/L	5	SW8260B	07/10/12 14:52	WAT	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	110-57-6	
Dibromochloromethane	Not detected	ug/L	5	SW8260B	07/10/12 14:52	WAT	124-48-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	106-93-4	
Chlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	630-20-6	
Ethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	100-41-4	
p,m-Xylene	Not detected	ug/L	2	SW8260B	07/10/12 14:52	WAT		
o-Xylene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	95-47-6	
Styrene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	100-42-5	
Isopropylbenzene	Not detected	ug/L	5	SW8260B	07/10/12 14:52	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	79-34-5	
1,2,3-Trichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	96-18-4	

Lab Sample ID: S53042.01 (continued)
Sample Tag: MW-9

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
n-Propylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	103-65-1	
Bromobenzene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	108-86-1	
1,3,5-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	108-67-8	
tert-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	95-63-6	
sec-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	135-98-8	
p-Isopropyltoluene	Not detected	ug/L	5	SW8260B	07/10/12 14:52	WAT	99-87-6	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	526-73-8	
n-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 14:52	WAT	104-51-8	
Hexachloroethane	Not detected	ug/L	5	SW8260B	07/10/12 14:52	WAT	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW8260B	07/10/12 14:52	WAT	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 14:52	WAT	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 14:52	WAT	87-61-6	
Naphthalene	Not detected	ug/L	5	SW8260B	07/10/12 14:52	WAT	91-20-3	
2-Methylnaphthalene	Not detected	ug/L	5	SW8260B	07/10/12 14:52	WAT	91-57-6	

Analytical Laboratory Report

Lab Sample ID: S53042.02
Sample Tag: MW-9 MS
Collected Date/Time: 06/27/2012 17:00
Matrix: Groundwater
COC Reference: 69294

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	5.3	IR
2	125ml Plastic	HNO3	Yes	5.3	IR
2	1L Amber	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
BNA Extraction	Completed			3510C	07/03/12 21:48	EMR		
Mercury Digestion	Completed			E245.1	07/05/12 12:25	JRH		
Mercury Digestion	Completed			E245.1	07/05/12 12:25	JRH		
Metal Digestion	Completed			3015A	07/11/12 01:00	SLR		
Metal Digestion	Completed			3015A	07/11/12 01:00	SLR		
Metals								
Arsenic, Dissolved	0.112	mg/L	0.002	E200.8	07/11/12 16:29	SLS	7440-38-2	
Arsenic	0.110	mg/L	0.002	E200.8	07/11/12 14:13	SLS	7440-38-2	
Barium, Dissolved	0.182	mg/L	0.005	E200.8	07/11/12 16:29	SLS	7440-39-3	
Barium	0.191	mg/L	0.005	E200.8	07/11/12 14:13	SLS	7440-39-3	
Cadmium, Dissolved	0.1003	mg/L	0.0005	E200.8	07/11/12 16:29	SLS	7440-43-9	
Cadmium	0.0996	mg/L	0.0005	E200.8	07/11/12 14:13	SLS	7440-43-9	
Chromium, Dissolved	0.110	mg/L	0.005	E200.8	07/11/12 16:29	SLS	7440-47-3	
Chromium	0.106	mg/L	0.005	E200.8	07/11/12 14:13	SLS	7440-47-3	
Lead, Dissolved	0.100	mg/L	0.003	E200.8	07/11/12 16:29	SLS	7439-92-1	
Lead	0.096	mg/L	0.003	E200.8	07/11/12 14:13	SLS	7439-92-1	
Mercury, Dissolved	0.0019	mg/L	0.0002	E245.1	07/05/12 15:59	JRT	7439-97-6	
Mercury	0.0019	mg/L	0.0002	E245.1	07/05/12 15:27	JRT	7439-97-6	
Selenium, Dissolved	0.126	mg/L	0.005	E200.8	07/11/12 16:29	SLS	7782-49-2	
Selenium	0.123	mg/L	0.005	E200.8	07/11/12 14:13	SLS	7782-49-2	
Silver, Dissolved	0.0994	mg/L	0.0005	E200.8	07/11/12 16:29	SLS	7440-22-4	
Silver	0.0970	mg/L	0.0005	E200.8	07/11/12 14:13	SLS	7440-22-4	
Organics - Semi-Volatiles								
Semi-Volatile Organics - MDEQ								
Acenaphthene	43	ug/L	5	SW8270C	07/05/12 15:10	PL	83-32-9	1
Acenaphthylene	49	ug/L	5	SW8270C	07/05/12 15:10	PL	208-96-8	1
Anthracene	43	ug/L	5	SW8270C	07/05/12 15:10	PL	120-12-7	1
Benzo(a)anthracene	47	ug/L	1	SW8270C	07/05/12 15:10	PL	56-55-3	1
Benzo(b)fluoranthene	45	ug/L	1	SW8270C	07/05/12 15:10	PL	205-99-2	1
Benzo(k)fluoranthene	44	ug/L	1	SW8270C	07/05/12 15:10	PL	207-08-9	1
Benzo(ghi)perylene	46	ug/L	1	SW8270C	07/05/12 15:10	PL	191-24-2	1
Benzo(a)pyrene	46	ug/L	1	SW8270C	07/05/12 15:10	PL	50-32-8	1
bis(2-Chloroethoxy)methane	36	ug/L	5	SW8270C	07/05/12 15:10	PL	111-91-1	1
bis(2-Chloroethyl)ether	33	ug/L	5	SW8270C	07/05/12 15:10	PL	111-44-4	1
bis(2-Chloroisopropyl)ether	32	ug/L	5	SW8270C	07/05/12 15:10	PL	108-60-1	1
bis(2-Ethylhexyl)phthalate	46	ug/L	5	SW8270C	07/05/12 15:10	PL	117-81-7	1
4-Bromophenyl phenyl ether	36	ug/L	5	SW8270C	07/05/12 15:10	PL	101-55-3	1
Butyl benzyl phthalate	53	ug/L	5	SW8270C	07/05/12 15:10	PL	85-68-7	1

1-Sample spiked at 0.051 mg/l

Lab Sample ID: S53042.02 (continued)
Sample Tag: MW-9 MS

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
4-Chloroaniline	28	ug/L	10	SW8270C	07/05/12 15:10	PL	106-47-8	1
2-Chloronaphthalene	37	ug/L	5	SW8270C	07/05/12 15:10	PL	91-58-7	1
4-Chloro-3-methylphenol	44	ug/L	5	SW8270C	07/05/12 15:10	PL	59-50-7	1
2-Chlorophenol	36	ug/L	10	SW8270C	07/05/12 15:10	PL	95-57-8	1
4-Chlorophenyl phenyl ether	42	ug/L	5	SW8270C	07/05/12 15:10	PL	7005-72-3	1
Chrysene	48	ug/L	1	SW8270C	07/05/12 15:10	PL	218-01-9	1
p,m-Cresol	71	ug/L	20	SW8270C	07/05/12 15:10	PL	3/4-Cresol	1
o-Cresol	37	ug/L	10	SW8270C	07/05/12 15:10	PL	95-48-7	1
Dibenzo(ah)anthracene	40	ug/L	2	SW8270C	07/05/12 15:10	PL	53-70-3	1
Dibenzofuran	43	ug/L	4	SW8270C	07/05/12 15:10	PL	132-64-9	1
di-n-Butyl phthalate	46	ug/L	5	SW8270C	07/05/12 15:10	PL	84-74-2	1
1,2-Dichlorobenzene	29	ug/L	1	SW8270C	07/05/12 15:10	PL	95-50-1	1
1,3-Dichlorobenzene	27	ug/L	1	SW8270C	07/05/12 15:10	PL	541-73-1	1
1,4-Dichlorobenzene	26	ug/L	1	SW8270C	07/05/12 15:10	PL	106-46-7	1
3,3'-Dichlorobenzidine	19	ug/L	5	SW8270C	07/05/12 15:10	PL	91-94-1	1
2,4-Dichlorophenol	40	ug/L	10	SW8270C	07/05/12 15:10	PL	120-83-2	1
Diethyl phthalate	45	ug/L	5	SW8270C	07/05/12 15:10	PL	84-66-2	1
2,4-Dimethylphenol	40	ug/L	5	SW8270C	07/05/12 15:10	PL	105-67-9	1
Dimethyl phthalate	52	ug/L	5	SW8270C	07/05/12 15:10	PL	131-11-3	1B
4,6-Dinitro-2-methylphenol	37	ug/L	20	SW8270C	07/05/12 15:10	PL	534-52-1	1
2,4-Dinitrophenol	43	ug/L	25	SW8270C	07/05/12 15:10	PL	51-28-5	1
2,4-Dinitrotoluene	38	ug/L	5	SW8270C	07/05/12 15:10	PL	121-14-2	1
2,6-Dinitrotoluene	42	ug/L	5	SW8270C	07/05/12 15:10	PL	606-20-2	1
1,2-Diphenylhydrazine	49	ug/L	5	SW8270C	07/05/12 15:10	PL	122-66-7	1
di-n-Octyl phthalate	57	ug/L	5	SW8270C	07/05/12 15:10	PL	117-84-0	1
Fluoranthene	46	ug/L	1	SW8270C	07/05/12 15:10	PL	206-44-0	1
Fluorene	44	ug/L	5	SW8270C	07/05/12 15:10	PL	86-73-7	1
Hexachlorobenzene	42	ug/L	5	SW8270C	07/05/12 15:10	PL	118-74-1	1
Hexachlorobutadiene	28	ug/L	10	SW8270C	07/05/12 15:10	PL	87-68-3	1
Hexachlorocyclopentadiene	43	ug/L	5	SW8270C	07/05/12 15:10	PL	77-47-4	1
Hexachloroethane	26	ug/L	5	SW8270C	07/05/12 15:10	PL	67-72-1	1
Indeno(1,2,3-cd)pyrene	43	ug/L	2	SW8270C	07/05/12 15:10	PL	193-39-5	1
Isophorone	50	ug/L	5	SW8270C	07/05/12 15:10	PL	78-59-1	1
2-Methylnaphthalene	36	ug/L	5	SW8270C	07/05/12 15:10	PL	91-57-6	1
Naphthalene	32	ug/L	5	SW8270C	07/05/12 15:10	PL	91-20-3	1
2-Nitroaniline	42	ug/L	25	SW8270C	07/05/12 15:10	PL	88-74-4	1
3-Nitroaniline	31	ug/L	25	SW8270C	07/05/12 15:10	PL	99-09-2	1
4-Nitroaniline	37	ug/L	25	SW8270C	07/05/12 15:10	PL	100-01-6	1
Nitrobenzene	36	ug/L	5	SW8270C	07/05/12 15:10	PL	98-95-3	1
2-Nitrophenol	32	ug/L	5	SW8270C	07/05/12 15:10	PL	88-75-5	1
4-Nitrophenol	38	ug/L	25	SW8270C	07/05/12 15:10	PL	100-02-7	1
N-Nitrosodiphenylamine	42	ug/L	5	SW8270C	07/05/12 15:10	PL	86-30-6	1
N-Nitrosodi-n-propylamine	39	ug/L	5	SW8270C	07/05/12 15:10	PL	621-64-7	1
Pentachlorophenol	32	ug/L	5	SW8270C	07/05/12 15:10	PL	87-86-5	1
Phenanthrene	45	ug/L	2	SW8270C	07/05/12 15:10	PL	85-01-8	1
Phenol	25	ug/L	5	SW8270C	07/05/12 15:10	PL	108-95-2	1
Pyrene	50	ug/L	5	SW8270C	07/05/12 15:10	PL	129-00-0	1

1-Sample spiked at 0.051 mg/l
B-Compound also found in associated method blank

Lab Sample ID: S53042.02 (continued)
Sample Tag: MW-9 MS

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
1,2,4-Trichlorobenzene	31	ug/L	5	SW8270C	07/05/12 15:10	PL	120-82-1	1
2,4,5-Trichlorophenol	41	ug/L	5	SW8270C	07/05/12 15:10	PL	95-95-4	1
2,4,6-Trichlorophenol	39	ug/L	4	SW8270C	07/05/12 15:10	PL	88-06-2	1
Organics - Volatiles								
Volatile Organics - DEQ List								
Diethyl ether	41	ug/L	10	SW8260B	07/10/12 21:06	WAT	60-29-7	2
Acetone	Not detected	ug/L	50	SW8260B	07/10/12 21:06	WAT	67-64-1	2
Methyl iodide	46	ug/L	1	SW8260B	07/10/12 21:06	WAT	74-88-4	2
Carbon disulfide	45	ug/L	5	SW8260B	07/10/12 21:06	WAT	75-15-0	2
tert-Methyl butyl ether (MTBE)	44	ug/L	5	SW8260B	07/10/12 21:06	WAT	1634-04-4	2
Acrylonitrile	37	ug/L	2	SW8260B	07/10/12 21:06	WAT	107-13-1	2
2-Butanone (MEK)	28	ug/L	25	SW8260B	07/10/12 21:06	WAT	78-93-3	2
Dichlorodifluoromethane	33	ug/L	5	SW8260B	07/10/12 21:06	WAT	75-71-8	2
Chloromethane	43	ug/L	5	SW8260B	07/10/12 21:06	WAT	74-87-3	2
Vinyl chloride	39	ug/L	1	SW8260B	07/10/12 21:06	WAT	75-01-4	2
Bromomethane	39	ug/L	5	SW8260B	07/10/12 21:06	WAT	74-83-9	2
Chloroethane	43	ug/L	5	SW8260B	07/10/12 21:06	WAT	75-00-3	2
Trichlorofluoromethane	48	ug/L	1	SW8260B	07/10/12 21:06	WAT	75-69-4	2
1,1-Dichloroethene	45	ug/L	1	SW8260B	07/10/12 21:06	WAT	75-35-4	2
Methylene chloride	47	ug/L	5	SW8260B	07/10/12 21:06	WAT	75-09-2	2
trans-1,2-Dichloroethene	46	ug/L	1	SW8260B	07/10/12 21:06	WAT	156-60-5	2
1,1-Dichloroethane	46	ug/L	1	SW8260B	07/10/12 21:06	WAT	75-34-3	2
cis-1,2-Dichloroethene	47	ug/L	1	SW8260B	07/10/12 21:06	WAT	156-59-2	2
Tetrahydrofuran	Not detected	ug/L	90	SW8260B	07/10/12 21:06	WAT	109-99-9	2
Chloroform	47	ug/L	1	SW8260B	07/10/12 21:06	WAT	67-66-3	2
Bromochloromethane	47	ug/L	1	SW8260B	07/10/12 21:06	WAT	74-97-5	2
1,1,1-Trichloroethane	49	ug/L	1	SW8260B	07/10/12 21:06	WAT	71-55-6	2
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW8260B	07/10/12 21:06	WAT	108-10-1	2
2-Hexanone	Not detected	ug/L	50	SW8260B	07/10/12 21:06	WAT	591-78-6	2
Carbon tetrachloride	48	ug/L	1	SW8260B	07/10/12 21:06	WAT	56-23-5	2
Benzene	46	ug/L	1	SW8260B	07/10/12 21:06	WAT	71-43-2	2
1,2-Dichloroethane	46	ug/L	1	SW8260B	07/10/12 21:06	WAT	107-06-2	2
Trichloroethene	47	ug/L	1	SW8260B	07/10/12 21:06	WAT	79-01-6	2
1,2-Dichloropropane	46	ug/L	1	SW8260B	07/10/12 21:06	WAT	78-87-5	2
Bromodichloromethane	48	ug/L	1	SW8260B	07/10/12 21:06	WAT	75-27-4	2
Dibromomethane	46	ug/L	5	SW8260B	07/10/12 21:06	WAT	74-95-3	2
cis-1,3-Dichloropropene	46	ug/L	1	SW8260B	07/10/12 21:06	WAT	10061-01-5	2
Toluene	47	ug/L	1	SW8260B	07/10/12 21:06	WAT	108-88-3	2
trans-1,3-Dichloropropene	46	ug/L	1	SW8260B	07/10/12 21:06	WAT	10061-02-6	2
1,1,2-Trichloroethane	45	ug/L	1	SW8260B	07/10/12 21:06	WAT	79-00-5	2
Tetrachloroethene	43	ug/L	1	SW8260B	07/10/12 21:06	WAT	127-18-4	2
trans-1,4-Dichloro-2-butene	36	ug/L	1	SW8260B	07/10/12 21:06	WAT	110-57-6	2
Dibromochloromethane	47	ug/L	5	SW8260B	07/10/12 21:06	WAT	124-48-1	2
1,2-Dibromoethane	43	ug/L	1	SW8260B	07/10/12 21:06	WAT	106-93-4	2
Chlorobenzene	46	ug/L	1	SW8260B	07/10/12 21:06	WAT	108-90-7	2
1,1,1,2-Tetrachloroethane	48	ug/L	1	SW8260B	07/10/12 21:06	WAT	630-20-6	2

1-Sample spiked at 0.051 mg/l
2-Spiked at 50ug/l

Lab Sample ID: S53042.02 (continued)
Sample Tag: MW-9 MS

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
Ethylbenzene	47	ug/L	1	SW8260B	07/10/12 21:06	WAT	100-41-4	1
p,m-Xylene	89	ug/L	2	SW8260B	07/10/12 21:06	WAT		1
o-Xylene	47	ug/L	1	SW8260B	07/10/12 21:06	WAT	95-47-6	1
Styrene	44	ug/L	1	SW8260B	07/10/12 21:06	WAT	100-42-5	1
Isopropylbenzene	48	ug/L	5	SW8260B	07/10/12 21:06	WAT	98-82-8	1
Bromoform	39	ug/L	1	SW8260B	07/10/12 21:06	WAT	75-25-2	1
1,1,2,2-Tetrachloroethane	40	ug/L	1	SW8260B	07/10/12 21:06	WAT	79-34-5	1
1,2,3-Trichloropropane	39	ug/L	1	SW8260B	07/10/12 21:06	WAT	96-18-4	1
n-Propylbenzene	50	ug/L	1	SW8260B	07/10/12 21:06	WAT	103-65-1	1
Bromobenzene	48	ug/L	1	SW8260B	07/10/12 21:06	WAT	108-86-1	1
1,3,5-Trimethylbenzene	46	ug/L	1	SW8260B	07/10/12 21:06	WAT	108-67-8	1
tert-Butylbenzene	47	ug/L	1	SW8260B	07/10/12 21:06	WAT	98-06-6	1
1,2,4-Trimethylbenzene	46	ug/L	1	SW8260B	07/10/12 21:06	WAT	95-63-6	1
sec-Butylbenzene	48	ug/L	1	SW8260B	07/10/12 21:06	WAT	135-98-8	1
p-Isopropyltoluene	49	ug/L	5	SW8260B	07/10/12 21:06	WAT	99-87-6	1
1,3-Dichlorobenzene	47	ug/L	1	SW8260B	07/10/12 21:06	WAT	541-73-1	1
1,4-Dichlorobenzene	48	ug/L	1	SW8260B	07/10/12 21:06	WAT	106-46-7	1
1,2-Dichlorobenzene	48	ug/L	1	SW8260B	07/10/12 21:06	WAT	95-50-1	1
1,2,3-Trimethylbenzene	48	ug/L	1	SW8260B	07/10/12 21:06	WAT	526-73-8	1
n-Butylbenzene	49	ug/L	1	SW8260B	07/10/12 21:06	WAT	104-51-8	1
Hexachloroethane	50	ug/L	5	SW8260B	07/10/12 21:06	WAT	67-72-1	1
1,2-Dibromo-3-chloropropane	38	ug/L	5	SW8260B	07/10/12 21:06	WAT	96-12-8	1
1,2,4-Trichlorobenzene	46	ug/L	5	SW8260B	07/10/12 21:06	WAT	120-82-1	1
1,2,3-Trichlorobenzene	45	ug/L	5	SW8260B	07/10/12 21:06	WAT	87-61-6	1
Naphthalene	40	ug/L	5	SW8260B	07/10/12 21:06	WAT	91-20-3	1
2-Methylnaphthalene	39	ug/L	5	SW8260B	07/10/12 21:06	WAT	91-57-6	1

1-Spiked at 50ug/l

Analytical Laboratory Report

Lab Sample ID: S53042.03
Sample Tag: MW-9 MSD
Collected Date/Time: 06/27/2012 17:00
Matrix: Groundwater
COC Reference: 69294

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	5.3	IR
2	125ml Plastic	HNO3	Yes	5.3	IR
2	1L Amber	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
BNA Extraction	Completed			3510C	07/03/12 21:48	EMR		
Mercury Digestion	Completed			E245.1	07/05/12 12:25	JRH		
Mercury Digestion	Completed			E245.1	07/05/12 12:25	JRH		
Metal Digestion	Completed			3015A	07/11/12 01:00	SLR		
Metal Digestion	Completed			3015A	07/11/12 01:00	SLR		
Metals								
Arsenic, Dissolved	0.110	mg/L	0.002	E200.8	07/11/12 16:32	SLS	7440-38-2	
Arsenic	0.107	mg/L	0.002	E200.8	07/11/12 14:16	SLS	7440-38-2	
Barium, Dissolved	0.171	mg/L	0.005	E200.8	07/11/12 16:32	SLS	7440-39-3	
Barium	0.187	mg/L	0.005	E200.8	07/11/12 14:16	SLS	7440-39-3	
Cadmium, Dissolved	0.0980	mg/L	0.0005	E200.8	07/11/12 16:32	SLS	7440-43-9	
Cadmium	0.0996	mg/L	0.0005	E200.8	07/11/12 14:16	SLS	7440-43-9	
Chromium, Dissolved	0.107	mg/L	0.005	E200.8	07/11/12 16:32	SLS	7440-47-3	
Chromium	0.105	mg/L	0.005	E200.8	07/11/12 14:16	SLS	7440-47-3	
Lead, Dissolved	0.096	mg/L	0.003	E200.8	07/11/12 16:32	SLS	7439-92-1	
Lead	0.096	mg/L	0.003	E200.8	07/11/12 14:16	SLS	7439-92-1	
Mercury, Dissolved	0.0019	mg/L	0.0002	E245.1	07/05/12 16:01	JRT	7439-97-6	
Mercury	0.0019	mg/L	0.0002	E245.1	07/05/12 15:29	JRT	7439-97-6	
Selenium, Dissolved	0.127	mg/L	0.005	E200.8	07/11/12 16:32	SLS	7782-49-2	
Selenium	0.121	mg/L	0.005	E200.8	07/11/12 14:16	SLS	7782-49-2	
Silver, Dissolved	0.0975	mg/L	0.0005	E200.8	07/11/12 16:32	SLS	7440-22-4	
Silver	0.0980	mg/L	0.0005	E200.8	07/11/12 14:16	SLS	7440-22-4	
Organics - Semi-Volatiles								
Semi-Volatile Organics - MDEQ								
Acenaphthene	37	ug/L	5	SW8270C	07/05/12 15:45	PL	83-32-9	1
Acenaphthylene	44	ug/L	5	SW8270C	07/05/12 15:45	PL	208-96-8	1
Anthracene	37	ug/L	5	SW8270C	07/05/12 15:45	PL	120-12-7	1
Benzo(a)anthracene	40	ug/L	1	SW8270C	07/05/12 15:45	PL	56-55-3	1
Benzo(b)fluoranthene	39	ug/L	1	SW8270C	07/05/12 15:45	PL	205-99-2	1
Benzo(k)fluoranthene	36	ug/L	1	SW8270C	07/05/12 15:45	PL	207-08-9	1
Benzo(ghi)perylene	38	ug/L	1	SW8270C	07/05/12 15:45	PL	191-24-2	1
Benzo(a)pyrene	39	ug/L	1	SW8270C	07/05/12 15:45	PL	50-32-8	1
bis(2-Chloroethoxy)methane	34	ug/L	5	SW8270C	07/05/12 15:45	PL	111-91-1	1
bis(2-Chloroethyl)ether	33	ug/L	5	SW8270C	07/05/12 15:45	PL	111-44-4	1
bis(2-Chloroisopropyl)ether	33	ug/L	5	SW8270C	07/05/12 15:45	PL	108-60-1	1
bis(2-Ethylhexyl)phthalate	39	ug/L	5	SW8270C	07/05/12 15:45	PL	117-81-7	1
4-Bromophenyl phenyl ether	30	ug/L	5	SW8270C	07/05/12 15:45	PL	101-55-3	1
Butyl benzyl phthalate	46	ug/L	5	SW8270C	07/05/12 15:45	PL	85-68-7	1

1-Sample spiked at 0.051 mg/l

Lab Sample ID: S53042.03 (continued)
Sample Tag: MW-9 MSD

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
4-Chloroaniline	24	ug/L	10	SW8270C	07/05/12 15:45	PL	106-47-8	1
2-Chloronaphthalene	34	ug/L	5	SW8270C	07/05/12 15:45	PL	91-58-7	1
4-Chloro-3-methylphenol	37	ug/L	5	SW8270C	07/05/12 15:45	PL	59-50-7	1
2-Chlorophenol	35	ug/L	10	SW8270C	07/05/12 15:45	PL	95-57-8	1
4-Chlorophenyl phenyl ether	36	ug/L	5	SW8270C	07/05/12 15:45	PL	7005-72-3	1
Chrysene	41	ug/L	1	SW8270C	07/05/12 15:45	PL	218-01-9	1
p,m-Cresol	65	ug/L	20	SW8270C	07/05/12 15:45	PL	3/4-Cresol	1
o-Cresol	35	ug/L	10	SW8270C	07/05/12 15:45	PL	95-48-7	1
Dibenzo(ah)anthracene	33	ug/L	2	SW8270C	07/05/12 15:45	PL	53-70-3	1
Dibenzofuran	37	ug/L	4	SW8270C	07/05/12 15:45	PL	132-64-9	1
di-n-Butyl phthalate	39	ug/L	5	SW8270C	07/05/12 15:45	PL	84-74-2	1
1,2-Dichlorobenzene	31	ug/L	1	SW8270C	07/05/12 15:45	PL	95-50-1	1
1,3-Dichlorobenzene	30	ug/L	1	SW8270C	07/05/12 15:45	PL	541-73-1	1
1,4-Dichlorobenzene	29	ug/L	1	SW8270C	07/05/12 15:45	PL	106-46-7	1
3,3'-Dichlorobenzidine	15	ug/L	5	SW8270C	07/05/12 15:45	PL	91-94-1	1
2,4-Dichlorophenol	35	ug/L	10	SW8270C	07/05/12 15:45	PL	120-83-2	1
Diethyl phthalate	38	ug/L	5	SW8270C	07/05/12 15:45	PL	84-66-2	1
2,4-Dimethylphenol	36	ug/L	5	SW8270C	07/05/12 15:45	PL	105-67-9	1
Dimethyl phthalate	42	ug/L	5	SW8270C	07/05/12 15:45	PL	131-11-3	1B
4,6-Dinitro-2-methylphenol	31	ug/L	20	SW8270C	07/05/12 15:45	PL	534-52-1	1
2,4-Dinitrophenol	36	ug/L	25	SW8270C	07/05/12 15:45	PL	51-28-5	1
2,4-Dinitrotoluene	32	ug/L	5	SW8270C	07/05/12 15:45	PL	121-14-2	1
2,6-Dinitrotoluene	36	ug/L	5	SW8270C	07/05/12 15:45	PL	606-20-2	1
1,2-Diphenylhydrazine	42	ug/L	5	SW8270C	07/05/12 15:45	PL	122-66-7	1
di-n-Octyl phthalate	49	ug/L	5	SW8270C	07/05/12 15:45	PL	117-84-0	1
Fluoranthene	39	ug/L	1	SW8270C	07/05/12 15:45	PL	206-44-0	1
Fluorene	37	ug/L	5	SW8270C	07/05/12 15:45	PL	86-73-7	1
Hexachlorobenzene	35	ug/L	5	SW8270C	07/05/12 15:45	PL	118-74-1	1
Hexachlorobutadiene	29	ug/L	10	SW8270C	07/05/12 15:45	PL	87-68-3	1
Hexachlorocyclopentadiene	42	ug/L	5	SW8270C	07/05/12 15:45	PL	77-47-4	1
Hexachloroethane	29	ug/L	5	SW8270C	07/05/12 15:45	PL	67-72-1	1
Indeno(1,2,3-cd)pyrene	36	ug/L	2	SW8270C	07/05/12 15:45	PL	193-39-5	1
Isophorone	45	ug/L	5	SW8270C	07/05/12 15:45	PL	78-59-1	1
2-Methylnaphthalene	34	ug/L	5	SW8270C	07/05/12 15:45	PL	91-57-6	1
Naphthalene	32	ug/L	5	SW8270C	07/05/12 15:45	PL	91-20-3	1
2-Nitroaniline	36	ug/L	25	SW8270C	07/05/12 15:45	PL	88-74-4	1
3-Nitroaniline	27	ug/L	25	SW8270C	07/05/12 15:45	PL	99-09-2	1
4-Nitroaniline	31	ug/L	25	SW8270C	07/05/12 15:45	PL	100-01-6	1
Nitrobenzene	36	ug/L	5	SW8270C	07/05/12 15:45	PL	98-95-3	1
2-Nitrophenol	30	ug/L	5	SW8270C	07/05/12 15:45	PL	88-75-5	1
4-Nitrophenol	33	ug/L	25	SW8270C	07/05/12 15:45	PL	100-02-7	1
N-Nitrosodiphenylamine	35	ug/L	5	SW8270C	07/05/12 15:45	PL	86-30-6	1
N-Nitrosodi-n-propylamine	37	ug/L	5	SW8270C	07/05/12 15:45	PL	621-64-7	1
Pentachlorophenol	26	ug/L	5	SW8270C	07/05/12 15:45	PL	87-86-5	1
Phenanthrene	37	ug/L	2	SW8270C	07/05/12 15:45	PL	85-01-8	1
Phenol	23	ug/L	5	SW8270C	07/05/12 15:45	PL	108-95-2	1
Pyrene	43	ug/L	5	SW8270C	07/05/12 15:45	PL	129-00-0	1

1-Sample spiked at 0.051 mg/l
B-Compound also found in associated method blank

Lab Sample ID: S53042.03 (continued)
Sample Tag: MW-9 MSD

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
1,2,4-Trichlorobenzene	31	ug/L	5	SW8270C	07/05/12 15:45	PL	120-82-1	1
2,4,5-Trichlorophenol	34	ug/L	5	SW8270C	07/05/12 15:45	PL	95-95-4	1
2,4,6-Trichlorophenol	34	ug/L	4	SW8270C	07/05/12 15:45	PL	88-06-2	1
Organics - Volatiles								
Volatile Organics - DEQ List								
Diethyl ether	40	ug/L	10	SW8260B	07/10/12 21:28	WAT	60-29-7	2
Acetone	Not detected	ug/L	50	SW8260B	07/10/12 21:28	WAT	67-64-1	2
Methyl iodide	45	ug/L	1	SW8260B	07/10/12 21:28	WAT	74-88-4	2
Carbon disulfide	45	ug/L	5	SW8260B	07/10/12 21:28	WAT	75-15-0	2
tert-Methyl butyl ether (MTBE)	44	ug/L	5	SW8260B	07/10/12 21:28	WAT	1634-04-4	2
Acrylonitrile	36	ug/L	2	SW8260B	07/10/12 21:28	WAT	107-13-1	2
2-Butanone (MEK)	27	ug/L	25	SW8260B	07/10/12 21:28	WAT	78-93-3	2
Dichlorodifluoromethane	33	ug/L	5	SW8260B	07/10/12 21:28	WAT	75-71-8	2
Chloromethane	42	ug/L	5	SW8260B	07/10/12 21:28	WAT	74-87-3	2
Vinyl chloride	38	ug/L	1	SW8260B	07/10/12 21:28	WAT	75-01-4	2
Bromomethane	39	ug/L	5	SW8260B	07/10/12 21:28	WAT	74-83-9	2
Chloroethane	43	ug/L	5	SW8260B	07/10/12 21:28	WAT	75-00-3	2
Trichlorofluoromethane	48	ug/L	1	SW8260B	07/10/12 21:28	WAT	75-69-4	2
1,1-Dichloroethene	45	ug/L	1	SW8260B	07/10/12 21:28	WAT	75-35-4	2
Methylene chloride	45	ug/L	5	SW8260B	07/10/12 21:28	WAT	75-09-2	2
trans-1,2-Dichloroethene	46	ug/L	1	SW8260B	07/10/12 21:28	WAT	156-60-5	2
1,1-Dichloroethane	45	ug/L	1	SW8260B	07/10/12 21:28	WAT	75-34-3	2
cis-1,2-Dichloroethene	46	ug/L	1	SW8260B	07/10/12 21:28	WAT	156-59-2	2
Tetrahydrofuran	Not detected	ug/L	90	SW8260B	07/10/12 21:28	WAT	109-99-9	2
Chloroform	47	ug/L	1	SW8260B	07/10/12 21:28	WAT	67-66-3	2
Bromochloromethane	47	ug/L	1	SW8260B	07/10/12 21:28	WAT	74-97-5	2
1,1,1-Trichloroethane	49	ug/L	1	SW8260B	07/10/12 21:28	WAT	71-55-6	2
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW8260B	07/10/12 21:28	WAT	108-10-1	2
2-Hexanone	Not detected	ug/L	50	SW8260B	07/10/12 21:28	WAT	591-78-6	2
Carbon tetrachloride	49	ug/L	1	SW8260B	07/10/12 21:28	WAT	56-23-5	2
Benzene	47	ug/L	1	SW8260B	07/10/12 21:28	WAT	71-43-2	2
1,2-Dichloroethane	46	ug/L	1	SW8260B	07/10/12 21:28	WAT	107-06-2	2
Trichloroethene	48	ug/L	1	SW8260B	07/10/12 21:28	WAT	79-01-6	2
1,2-Dichloropropane	46	ug/L	1	SW8260B	07/10/12 21:28	WAT	78-87-5	2
Bromodichloromethane	49	ug/L	1	SW8260B	07/10/12 21:28	WAT	75-27-4	2
Dibromomethane	46	ug/L	5	SW8260B	07/10/12 21:28	WAT	74-95-3	2
cis-1,3-Dichloropropene	47	ug/L	1	SW8260B	07/10/12 21:28	WAT	10061-01-5	2
Toluene	47	ug/L	1	SW8260B	07/10/12 21:28	WAT	108-88-3	2
trans-1,3-Dichloropropene	47	ug/L	1	SW8260B	07/10/12 21:28	WAT	10061-02-6	2
1,1,2-Trichloroethane	45	ug/L	1	SW8260B	07/10/12 21:28	WAT	79-00-5	2
Tetrachloroethene	44	ug/L	1	SW8260B	07/10/12 21:28	WAT	127-18-4	2
trans-1,4-Dichloro-2-butene	36	ug/L	1	SW8260B	07/10/12 21:28	WAT	110-57-6	2
Dibromochloromethane	49	ug/L	5	SW8260B	07/10/12 21:28	WAT	124-48-1	2
1,2-Dibromoethane	44	ug/L	1	SW8260B	07/10/12 21:28	WAT	106-93-4	2
Chlorobenzene	47	ug/L	1	SW8260B	07/10/12 21:28	WAT	108-90-7	2
1,1,1,2-Tetrachloroethane	49	ug/L	1	SW8260B	07/10/12 21:28	WAT	630-20-6	2

1-Sample spiked at 0.051 mg/l
2-Spiked at 50ug/l

Lab Sample ID: S53042.03 (continued)
Sample Tag: MW-9 MSD

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
Ethylbenzene	48	ug/L	1	SW8260B	07/10/12 21:28	WAT	100-41-4	1
p,m-Xylene	91	ug/L	2	SW8260B	07/10/12 21:28	WAT		1
o-Xylene	49	ug/L	1	SW8260B	07/10/12 21:28	WAT	95-47-6	1
Styrene	45	ug/L	1	SW8260B	07/10/12 21:28	WAT	100-42-5	1
Isopropylbenzene	49	ug/L	5	SW8260B	07/10/12 21:28	WAT	98-82-8	1
Bromoform	41	ug/L	1	SW8260B	07/10/12 21:28	WAT	75-25-2	1
1,1,2,2-Tetrachloroethane	41	ug/L	1	SW8260B	07/10/12 21:28	WAT	79-34-5	1
1,2,3-Trichloropropane	40	ug/L	1	SW8260B	07/10/12 21:28	WAT	96-18-4	1
n-Propylbenzene	51	ug/L	1	SW8260B	07/10/12 21:28	WAT	103-65-1	1
Bromobenzene	49	ug/L	1	SW8260B	07/10/12 21:28	WAT	108-86-1	1
1,3,5-Trimethylbenzene	48	ug/L	1	SW8260B	07/10/12 21:28	WAT	108-67-8	1
tert-Butylbenzene	49	ug/L	1	SW8260B	07/10/12 21:28	WAT	98-06-6	1
1,2,4-Trimethylbenzene	47	ug/L	1	SW8260B	07/10/12 21:28	WAT	95-63-6	1
sec-Butylbenzene	48	ug/L	1	SW8260B	07/10/12 21:28	WAT	135-98-8	1
p-Isopropyltoluene	49	ug/L	5	SW8260B	07/10/12 21:28	WAT	99-87-6	1
1,3-Dichlorobenzene	47	ug/L	1	SW8260B	07/10/12 21:28	WAT	541-73-1	1
1,4-Dichlorobenzene	48	ug/L	1	SW8260B	07/10/12 21:28	WAT	106-46-7	1
1,2-Dichlorobenzene	48	ug/L	1	SW8260B	07/10/12 21:28	WAT	95-50-1	1
1,2,3-Trimethylbenzene	48	ug/L	1	SW8260B	07/10/12 21:28	WAT	526-73-8	1
n-Butylbenzene	49	ug/L	1	SW8260B	07/10/12 21:28	WAT	104-51-8	1
Hexachloroethane	52	ug/L	5	SW8260B	07/10/12 21:28	WAT	67-72-1	1
1,2-Dibromo-3-chloropropane	37	ug/L	5	SW8260B	07/10/12 21:28	WAT	96-12-8	1
1,2,4-Trichlorobenzene	47	ug/L	5	SW8260B	07/10/12 21:28	WAT	120-82-1	1
1,2,3-Trichlorobenzene	45	ug/L	5	SW8260B	07/10/12 21:28	WAT	87-61-6	1
Naphthalene	39	ug/L	5	SW8260B	07/10/12 21:28	WAT	91-20-3	1
2-Methylnaphthalene	40	ug/L	5	SW8260B	07/10/12 21:28	WAT	91-57-6	1

1-Spiked at 50ug/l

Analytical Laboratory Report

Lab Sample ID: S53042.04
Sample Tag: MW-7
Collected Date/Time: 06/28/2012 11:30
Matrix: Groundwater
COC Reference: 69294

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	5.3	IR
2	125ml Plastic	HNO3	Yes	5.3	IR
2	1L Amber	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
BNA Extraction	Completed			3510C	07/03/12 21:48	EMR		
Mercury Digestion	Completed			E245.1	07/05/12 12:25	JRH		
Mercury Digestion	Completed			E245.1	07/05/12 12:25	JRH		
Metal Digestion	Completed			3015A	07/11/12 01:00	SLR		
Metal Digestion	Completed			3015A	07/11/12 01:00	SLR		
Metals								
Arsenic, Dissolved	0.023	mg/L	0.002	E200.8	07/11/12 14:02	SLS	7440-38-2	
Arsenic	0.024	mg/L	0.002	E200.8	07/11/12 13:59	SLS	7440-38-2	
Barium, Dissolved	0.090	mg/L	0.005	E200.8	07/11/12 14:02	SLS	7440-39-3	
Barium	0.092	mg/L	0.005	E200.8	07/11/12 13:59	SLS	7440-39-3	
Cadmium, Dissolved	Not detected	mg/L	0.0005	E200.8	07/11/12 14:02	SLS	7440-43-9	
Cadmium	Not detected	mg/L	0.0005	E200.8	07/11/12 13:59	SLS	7440-43-9	
Chromium, Dissolved	Not detected	mg/L	0.005	E200.8	07/11/12 14:02	SLS	7440-47-3	
Chromium	Not detected	mg/L	0.005	E200.8	07/11/12 13:59	SLS	7440-47-3	
Lead, Dissolved	Not detected	mg/L	0.003	E200.8	07/11/12 14:02	SLS	7439-92-1	
Lead	Not detected	mg/L	0.003	E200.8	07/11/12 13:59	SLS	7439-92-1	
Mercury, Dissolved	Not detected	mg/L	0.0002	E245.1	07/05/12 15:18	JRT	7439-97-6	
Mercury	Not detected	mg/L	0.0002	E245.1	07/05/12 15:16	JRT	7439-97-6	
Selenium, Dissolved	Not detected	mg/L	0.005	E200.8	07/11/12 14:02	SLS	7782-49-2	
Selenium	Not detected	mg/L	0.005	E200.8	07/11/12 13:59	SLS	7782-49-2	
Silver, Dissolved	Not detected	mg/L	0.0005	E200.8	07/11/12 14:02	SLS	7440-22-4	
Silver	Not detected	mg/L	0.0005	E200.8	07/11/12 13:59	SLS	7440-22-4	
Organics - Semi-Volatiles								
Semi-Volatile Organics - MDEQ								
Acenaphthene	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	83-32-9	
Acenaphthylene	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	208-96-8	
Anthracene	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/L	1	SW8270C	07/05/12 16:19	PL	56-55-3	
Benzo(b)fluoranthene	Not detected	ug/L	1	SW8270C	07/05/12 16:19	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/L	1	SW8270C	07/05/12 16:19	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/L	1	SW8270C	07/05/12 16:19	PL	191-24-2	
Benzo(a)pyrene	Not detected	ug/L	1	SW8270C	07/05/12 16:19	PL	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	111-91-1	
bis(2-Chloroethyl)ether	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	111-44-4	
bis(2-Chloroisopropyl)ether	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	117-81-7	
4-Bromophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	101-55-3	
Butyl benzyl phthalate	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	85-68-7	
4-Chloroaniline	Not detected	ug/L	10	SW8270C	07/05/12 16:19	PL	106-47-8	

Lab Sample ID: S53042.04 (continued)
Sample Tag: MW-7

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
2-Chloronaphthalene	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	91-58-7	
4-Chloro-3-methylphenol	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	59-50-7	
2-Chlorophenol	Not detected	ug/L	10	SW8270C	07/05/12 16:19	PL	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	7005-72-3	
Chrysene	Not detected	ug/L	1	SW8270C	07/05/12 16:19	PL	218-01-9	
p,m-Cresol	Not detected	ug/L	20	SW8270C	07/05/12 16:19	PL	3/4-Cresol	
o-Cresol	Not detected	ug/L	10	SW8270C	07/05/12 16:19	PL	95-48-7	
Dibenzo(ah)anthracene	Not detected	ug/L	2	SW8270C	07/05/12 16:19	PL	53-70-3	
Dibenzofuran	Not detected	ug/L	4	SW8270C	07/05/12 16:19	PL	132-64-9	
di-n-Butyl phthalate	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	84-74-2	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/05/12 16:19	PL	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/05/12 16:19	PL	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/05/12 16:19	PL	106-46-7	
3,3'-Dichlorobenzidine	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	91-94-1	
2,4-Dichlorophenol	Not detected	ug/L	10	SW8270C	07/05/12 16:19	PL	120-83-2	
Diethyl phthalate	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	84-66-2	
2,4-Dimethylphenol	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	105-67-9	
Dimethyl phthalate	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	ug/L	20	SW8270C	07/05/12 16:19	PL	534-52-1	
2,4-Dinitrophenol	Not detected	ug/L	25	SW8270C	07/05/12 16:19	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	121-14-2	
2,6-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	606-20-2	
1,2-Diphenylhydrazine	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	122-66-7	
di-n-Octyl phthalate	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	117-84-0	
Fluoranthene	Not detected	ug/L	1	SW8270C	07/05/12 16:19	PL	206-44-0	
Fluorene	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	86-73-7	
Hexachlorobenzene	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	118-74-1	
Hexachlorobutadiene	Not detected	ug/L	10	SW8270C	07/05/12 16:19	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	77-47-4	
Hexachloroethane	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	2	SW8270C	07/05/12 16:19	PL	193-39-5	
Isophorone	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	91-57-6	
Naphthalene	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	91-20-3	
2-Nitroaniline	Not detected	ug/L	25	SW8270C	07/05/12 16:19	PL	88-74-4	
3-Nitroaniline	Not detected	ug/L	25	SW8270C	07/05/12 16:19	PL	99-09-2	
4-Nitroaniline	Not detected	ug/L	25	SW8270C	07/05/12 16:19	PL	100-01-6	
Nitrobenzene	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	98-95-3	
2-Nitrophenol	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	88-75-5	
4-Nitrophenol	Not detected	ug/L	25	SW8270C	07/05/12 16:19	PL	100-02-7	
N-Nitrosodiphenylamine	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	621-64-7	
Pentachlorophenol	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	87-86-5	
Phenanthrene	Not detected	ug/L	2	SW8270C	07/05/12 16:19	PL	85-01-8	
Phenol	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	108-95-2	
Pyrene	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	129-00-0	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	120-82-1	
2,4,5-Trichlorophenol	Not detected	ug/L	5	SW8270C	07/05/12 16:19	PL	95-95-4	
2,4,6-Trichlorophenol	Not detected	ug/L	4	SW8270C	07/05/12 16:19	PL	88-06-2	

Lab Sample ID: S53042.04 (continued)
Sample Tag: MW-7

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles								
Volatile Organics - DEQ List								
Diethyl ether	Not detected	ug/L	10	SW8260B	07/10/12 15:14	WAT	60-29-7	
Acetone	Not detected	ug/L	50	SW8260B	07/10/12 15:14	WAT	67-64-1	
Methyl iodide	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	74-88-4	
Carbon disulfide	Not detected	ug/L	5	SW8260B	07/10/12 15:14	WAT	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW8260B	07/10/12 15:14	WAT	1634-04-4	
Acrylonitrile	Not detected	ug/L	2	SW8260B	07/10/12 15:14	WAT	107-13-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW8260B	07/10/12 15:14	WAT	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	5	SW8260B	07/10/12 15:14	WAT	75-71-8	
Chloromethane	Not detected	ug/L	5	SW8260B	07/10/12 15:14	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	75-01-4	
Bromomethane	Not detected	ug/L	5	SW8260B	07/10/12 15:14	WAT	74-83-9	
Chloroethane	Not detected	ug/L	5	SW8260B	07/10/12 15:14	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	5	SW8260B	07/10/12 15:14	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	156-59-2	
Tetrahydrofuran	Not detected	ug/L	90	SW8260B	07/10/12 15:14	WAT	109-99-9	
Chloroform	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	67-66-3	
Bromochloromethane	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW8260B	07/10/12 15:14	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	50	SW8260B	07/10/12 15:14	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	56-23-5	
Benzene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	75-27-4	
Dibromomethane	Not detected	ug/L	5	SW8260B	07/10/12 15:14	WAT	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	110-57-6	
Dibromochloromethane	Not detected	ug/L	5	SW8260B	07/10/12 15:14	WAT	124-48-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	106-93-4	
Chlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	630-20-6	
Ethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	100-41-4	
p,m-Xylene	Not detected	ug/L	2	SW8260B	07/10/12 15:14	WAT		
o-Xylene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	95-47-6	
Styrene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	100-42-5	
Isopropylbenzene	Not detected	ug/L	5	SW8260B	07/10/12 15:14	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	79-34-5	
1,2,3-Trichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	96-18-4	

Lab Sample ID: S53042.04 (continued)
Sample Tag: MW-7

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
n-Propylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	103-65-1	
Bromobenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	108-86-1	
1,3,5-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	108-67-8	
tert-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	95-63-6	
sec-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	135-98-8	
p-Isopropyltoluene	Not detected	ug/L	5	SW8260B	07/10/12 15:14	WAT	99-87-6	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	526-73-8	
n-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:14	WAT	104-51-8	
Hexachloroethane	Not detected	ug/L	5	SW8260B	07/10/12 15:14	WAT	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW8260B	07/10/12 15:14	WAT	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 15:14	WAT	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 15:14	WAT	87-61-6	
Naphthalene	Not detected	ug/L	5	SW8260B	07/10/12 15:14	WAT	91-20-3	
2-Methylnaphthalene	Not detected	ug/L	5	SW8260B	07/10/12 15:14	WAT	91-57-6	

Analytical Laboratory Report

Lab Sample ID: S53042.05
Sample Tag: MW-7 Co-Located
Collected Date/Time: 06/28/2012 11:30
Matrix: Groundwater
COC Reference: 69294

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	5.3	IR
2	125ml Plastic	HNO3	Yes	5.3	IR
2	1L Amber	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
BNA Extraction	Completed			3510C	07/03/12 21:48	EMR		
Mercury Digestion	Completed			E245.1	07/05/12 12:25	JRH		
Mercury Digestion	Completed			E245.1	07/05/12 12:25	JRH		
Metal Digestion	Completed			3015A	07/11/12 01:00	SLR		
Metal Digestion	Completed			3015A	07/11/12 01:00	SLR		
Metals								
Arsenic, Dissolved	0.024	mg/L	0.002	E200.8	07/11/12 16:35	SLS	7440-38-2	
Arsenic	0.029	mg/L	0.002	E200.8	07/11/12 14:05	SLS	7440-38-2	
Barium, Dissolved	0.090	mg/L	0.005	E200.8	07/11/12 16:35	SLS	7440-39-3	
Barium	0.112	mg/L	0.005	E200.8	07/11/12 14:05	SLS	7440-39-3	
Cadmium, Dissolved	Not detected	mg/L	0.0005	E200.8	07/11/12 16:35	SLS	7440-43-9	
Cadmium	Not detected	mg/L	0.0005	E200.8	07/11/12 14:05	SLS	7440-43-9	
Chromium, Dissolved	Not detected	mg/L	0.005	E200.8	07/11/12 16:35	SLS	7440-47-3	
Chromium	Not detected	mg/L	0.005	E200.8	07/11/12 14:05	SLS	7440-47-3	
Lead, Dissolved	Not detected	mg/L	0.003	E200.8	07/11/12 16:35	SLS	7439-92-1	
Lead	Not detected	mg/L	0.003	E200.8	07/11/12 14:05	SLS	7439-92-1	
Mercury, Dissolved	Not detected	mg/L	0.0002	E245.1	07/05/12 15:23	JRT	7439-97-6	
Mercury	Not detected	mg/L	0.0002	E245.1	07/05/12 15:20	JRT	7439-97-6	
Selenium, Dissolved	Not detected	mg/L	0.005	E200.8	07/11/12 16:35	SLS	7782-49-2	
Selenium	Not detected	mg/L	0.005	E200.8	07/11/12 14:05	SLS	7782-49-2	
Silver, Dissolved	Not detected	mg/L	0.0005	E200.8	07/11/12 16:35	SLS	7440-22-4	
Silver	Not detected	mg/L	0.0005	E200.8	07/11/12 14:05	SLS	7440-22-4	
Organics - Semi-Volatiles								
Semi-Volatile Organics - MDEQ								
Acenaphthene	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	83-32-9	
Acenaphthylene	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	208-96-8	
Anthracene	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/L	1	SW8270C	07/05/12 16:54	PL	56-55-3	
Benzo(b)fluoranthene	Not detected	ug/L	1	SW8270C	07/05/12 16:54	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/L	1	SW8270C	07/05/12 16:54	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/L	1	SW8270C	07/05/12 16:54	PL	191-24-2	
Benzo(a)pyrene	Not detected	ug/L	1	SW8270C	07/05/12 16:54	PL	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	111-91-1	
bis(2-Chloroethyl)ether	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	111-44-4	
bis(2-Chloroisopropyl)ether	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	117-81-7	
4-Bromophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	101-55-3	
Butyl benzyl phthalate	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	85-68-7	
4-Chloroaniline	Not detected	ug/L	10	SW8270C	07/05/12 16:54	PL	106-47-8	

Lab Sample ID: S53042.05 (continued)
Sample Tag: MW-7 Co-Located

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
2-Chloronaphthalene	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	91-58-7	
4-Chloro-3-methylphenol	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	59-50-7	
2-Chlorophenol	Not detected	ug/L	10	SW8270C	07/05/12 16:54	PL	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	7005-72-3	
Chrysene	Not detected	ug/L	1	SW8270C	07/05/12 16:54	PL	218-01-9	
p,m-Cresol	Not detected	ug/L	20	SW8270C	07/05/12 16:54	PL	3/4-Cresol	
o-Cresol	Not detected	ug/L	10	SW8270C	07/05/12 16:54	PL	95-48-7	
Dibenzo(ah)anthracene	Not detected	ug/L	2	SW8270C	07/05/12 16:54	PL	53-70-3	
Dibenzofuran	Not detected	ug/L	4	SW8270C	07/05/12 16:54	PL	132-64-9	
di-n-Butyl phthalate	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	84-74-2	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/05/12 16:54	PL	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/05/12 16:54	PL	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/05/12 16:54	PL	106-46-7	
3,3'-Dichlorobenzidine	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	91-94-1	
2,4-Dichlorophenol	Not detected	ug/L	10	SW8270C	07/05/12 16:54	PL	120-83-2	
Diethyl phthalate	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	84-66-2	
2,4-Dimethylphenol	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	105-67-9	
Dimethyl phthalate	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	ug/L	20	SW8270C	07/05/12 16:54	PL	534-52-1	
2,4-Dinitrophenol	Not detected	ug/L	25	SW8270C	07/05/12 16:54	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	121-14-2	
2,6-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	606-20-2	
1,2-Diphenylhydrazine	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	122-66-7	
di-n-Octyl phthalate	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	117-84-0	
Fluoranthene	Not detected	ug/L	1	SW8270C	07/05/12 16:54	PL	206-44-0	
Fluorene	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	86-73-7	
Hexachlorobenzene	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	118-74-1	
Hexachlorobutadiene	Not detected	ug/L	10	SW8270C	07/05/12 16:54	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	77-47-4	
Hexachloroethane	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	2	SW8270C	07/05/12 16:54	PL	193-39-5	
Isophorone	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	91-57-6	
Naphthalene	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	91-20-3	
2-Nitroaniline	Not detected	ug/L	25	SW8270C	07/05/12 16:54	PL	88-74-4	
3-Nitroaniline	Not detected	ug/L	25	SW8270C	07/05/12 16:54	PL	99-09-2	
4-Nitroaniline	Not detected	ug/L	25	SW8270C	07/05/12 16:54	PL	100-01-6	
Nitrobenzene	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	98-95-3	
2-Nitrophenol	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	88-75-5	
4-Nitrophenol	Not detected	ug/L	25	SW8270C	07/05/12 16:54	PL	100-02-7	
N-Nitrosodiphenylamine	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	621-64-7	
Pentachlorophenol	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	87-86-5	
Phenanthrene	Not detected	ug/L	2	SW8270C	07/05/12 16:54	PL	85-01-8	
Phenol	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	108-95-2	
Pyrene	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	129-00-0	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	120-82-1	
2,4,5-Trichlorophenol	Not detected	ug/L	5	SW8270C	07/05/12 16:54	PL	95-95-4	
2,4,6-Trichlorophenol	Not detected	ug/L	4	SW8270C	07/05/12 16:54	PL	88-06-2	

Lab Sample ID: S53042.05 (continued)
Sample Tag: MW-7 Co-Located

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles								
Volatile Organics - DEQ List								
Diethyl ether	Not detected	ug/L	10	SW8260B	07/10/12 15:36	WAT	60-29-7	
Acetone	Not detected	ug/L	50	SW8260B	07/10/12 15:36	WAT	67-64-1	
Methyl iodide	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	74-88-4	
Carbon disulfide	Not detected	ug/L	5	SW8260B	07/10/12 15:36	WAT	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW8260B	07/10/12 15:36	WAT	1634-04-4	
Acrylonitrile	Not detected	ug/L	2	SW8260B	07/10/12 15:36	WAT	107-13-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW8260B	07/10/12 15:36	WAT	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	5	SW8260B	07/10/12 15:36	WAT	75-71-8	
Chloromethane	Not detected	ug/L	5	SW8260B	07/10/12 15:36	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	75-01-4	
Bromomethane	Not detected	ug/L	5	SW8260B	07/10/12 15:36	WAT	74-83-9	
Chloroethane	Not detected	ug/L	5	SW8260B	07/10/12 15:36	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	5	SW8260B	07/10/12 15:36	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	156-59-2	
Tetrahydrofuran	Not detected	ug/L	90	SW8260B	07/10/12 15:36	WAT	109-99-9	
Chloroform	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	67-66-3	
Bromochloromethane	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW8260B	07/10/12 15:36	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	50	SW8260B	07/10/12 15:36	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	56-23-5	
Benzene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	75-27-4	
Dibromomethane	Not detected	ug/L	5	SW8260B	07/10/12 15:36	WAT	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	110-57-6	
Dibromochloromethane	Not detected	ug/L	5	SW8260B	07/10/12 15:36	WAT	124-48-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	106-93-4	
Chlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	630-20-6	
Ethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	100-41-4	
p,m-Xylene	Not detected	ug/L	2	SW8260B	07/10/12 15:36	WAT		
o-Xylene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	95-47-6	
Styrene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	100-42-5	
Isopropylbenzene	Not detected	ug/L	5	SW8260B	07/10/12 15:36	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	79-34-5	
1,2,3-Trichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	96-18-4	

Lab Sample ID: S53042.05 (continued)
Sample Tag: MW-7 Co-Located

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
n-Propylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	103-65-1	
Bromobenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	108-86-1	
1,3,5-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	108-67-8	
tert-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	95-63-6	
sec-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	135-98-8	
p-Isopropyltoluene	Not detected	ug/L	5	SW8260B	07/10/12 15:36	WAT	99-87-6	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	526-73-8	
n-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:36	WAT	104-51-8	
Hexachloroethane	Not detected	ug/L	5	SW8260B	07/10/12 15:36	WAT	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW8260B	07/10/12 15:36	WAT	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 15:36	WAT	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 15:36	WAT	87-61-6	
Naphthalene	Not detected	ug/L	5	SW8260B	07/10/12 15:36	WAT	91-20-3	
2-Methylnaphthalene	Not detected	ug/L	5	SW8260B	07/10/12 15:36	WAT	91-57-6	

Analytical Laboratory Report

Lab Sample ID: S53042.06
Sample Tag: TB-1 (Trip Blank)
Collected Date/Time: 06/28/2012 00:01
Matrix: Groundwater
COC Reference: 69294

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles								
Volatile Organics - DEQ List								
Diethyl ether	Not detected	ug/L	10	SW8260B	07/10/12 15:58	WAT	60-29-7	
Acetone	Not detected	ug/L	50	SW8260B	07/10/12 15:58	WAT	67-64-1	
Methyl iodide	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	74-88-4	
Carbon disulfide	Not detected	ug/L	5	SW8260B	07/10/12 15:58	WAT	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW8260B	07/10/12 15:58	WAT	1634-04-4	
Acrylonitrile	Not detected	ug/L	2	SW8260B	07/10/12 15:58	WAT	107-13-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW8260B	07/10/12 15:58	WAT	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	5	SW8260B	07/10/12 15:58	WAT	75-71-8	
Chloromethane	Not detected	ug/L	5	SW8260B	07/10/12 15:58	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	75-01-4	
Bromomethane	Not detected	ug/L	5	SW8260B	07/10/12 15:58	WAT	74-83-9	
Chloroethane	Not detected	ug/L	5	SW8260B	07/10/12 15:58	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	5	SW8260B	07/10/12 15:58	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	156-59-2	
Tetrahydrofuran	Not detected	ug/L	90	SW8260B	07/10/12 15:58	WAT	109-99-9	
Chloroform	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	67-66-3	
Bromochloromethane	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW8260B	07/10/12 15:58	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	50	SW8260B	07/10/12 15:58	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	56-23-5	
Benzene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	75-27-4	
Dibromomethane	Not detected	ug/L	5	SW8260B	07/10/12 15:58	WAT	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	110-57-6	
Dibromochloromethane	Not detected	ug/L	5	SW8260B	07/10/12 15:58	WAT	124-48-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	106-93-4	
Chlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	630-20-6	
Ethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	100-41-4	

Lab Sample ID: S53042.06 (continued)
Sample Tag: TB-1 (Trip Blank)

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
p,m-Xylene	Not detected	ug/L	2	SW8260B	07/10/12 15:58	WAT		
o-Xylene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	95-47-6	
Styrene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	100-42-5	
Isopropylbenzene	Not detected	ug/L	5	SW8260B	07/10/12 15:58	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	79-34-5	
1,2,3-Trichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	96-18-4	
n-Propylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	103-65-1	
Bromobenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	108-86-1	
1,3,5-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	108-67-8	
tert-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	95-63-6	
sec-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	135-98-8	
p-Isopropyltoluene	Not detected	ug/L	5	SW8260B	07/10/12 15:58	WAT	99-87-6	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	526-73-8	
n-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 15:58	WAT	104-51-8	
Hexachloroethane	Not detected	ug/L	5	SW8260B	07/10/12 15:58	WAT	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW8260B	07/10/12 15:58	WAT	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 15:58	WAT	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 15:58	WAT	87-61-6	
Naphthalene	Not detected	ug/L	5	SW8260B	07/10/12 15:58	WAT	91-20-3	
2-Methylnaphthalene	Not detected	ug/L	5	SW8260B	07/10/12 15:58	WAT	91-57-6	

Merit Laboratories, Inc.

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Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

69294

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz
COMPANY: O'Brien & Gere
ADDRESS: 37000 Grand River Ste 260
CITY: Farmington Hills STATE: MI ZIP CODE: 48335
PHONE NO.: 248-477-5701 FAX NO.:
P.O. NO.: 125045.07.07
E-MAIL ADDRESS: clifford.yantz@obg.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Dave Favero ☐ SAME
COMPANY: RACER Trust
ADDRESS: 2930 Ecorse Rd
CITY: Ypsilanti STATE: MI ZIP CODE: 48197
PHONE NO.: 217-741-6235 E-MAIL ADDRESS:

PROJECT NO./NAME: RACER Dort Hwy Land
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Karin Schneider

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ LEVEL II ☒ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☒ Other RBS ~~FMS~~ Grand Blanc, MI

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCl	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs	SVOCs	Total RCRA Metals	Dissolved RCRA Metals
53042.01	6/27/12	1700	MW-9	GW	6	2	2	2					X	X	X	X
.02/.03	6/27/12	1700	MW-9 MS/MSD	GW	12	4	4	4					X	X	X	X
.04	6/28/12	1130	MW-7	GW	6	2	2	2					X	X	X	X
.05	6/28/12	1130	MW-7 CO-LOCATED	GW	6	2	2	2					X	X	X	X
.06	6/28/12	—	TB-1 (Trip Blank)	QC	1		1						X			

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
	☒ Sampler		
RELINQUISHED BY: SIGNATURE/ORGANIZATION	O'Brien + Gere	6/28/12	1310
RELINQUISHED BY: SIGNATURE/ORGANIZATION		6-28-12	1315
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION	DATE	TIME
	6.28.12	1415
RELINQUISHED BY: SIGNATURE/ORGANIZATION	6-28-12	1415

SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS

NOTES: TEMP. ON ARRIVAL 5.8

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 1.15.12

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
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C.O.C. PAGE # 1 OF 1

69294

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz
COMPANY: O'Brien & Gere
ADDRESS: 37000 Grand River Ste 260
CITY: Farmington Hills STATE: MI ZIP CODE: 48335
PHONE NO.: 248-477-5701 FAX NO.:
P.O. NO.: 125045.07.07
E-MAIL ADDRESS: clifford.yantz@obg.com 7/2/12
QUOTE NO.:

INVOICE TO

CONTACT NAME: Dave Favero ☐ SAME
COMPANY: RACER Trust
ADDRESS: 2930 Ecorse Rd
CITY: Ypsilanti STATE: MI ZIP CODE: 48197
PHONE NO.: 217-741-6235 E-MAIL ADDRESS:

PROJECT NO./NAME: RACER Dort Hwy Land #12960 Task 07
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Karn Schneider

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☐ 3 DAYS ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ LEVEL II ☒ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW-GROUNDWATER WW-WASTEWATER S-SOIL L-LIQUID SD-SOLID SL-SLUDGE DW-DRINKING WATER O-OIL WP-WIPE A-AIR W-WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☒ Other KBS FDMS, MI (Grand Blanc)

Special Instructions

MERIT LAB NO. (FOR LAB USE ONLY)	YEAR DATE	TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCL	NaOH	HNO3	H2SO4	MEOH	OTHER	VOCs	SVOCs	Total RCRA METALS	Dissolved RCRA METALS
530401	6/27/12	1700	MW-9	GW	6	2	2	2					X	X	X	X
-02	6/27/12	1700	MW-9 MS/MSD	GW	12	4	4	4					X	X	X	X
-04	6/28/12	1130	MW-7	GW	6	2	2	2					X	X	X	X
-05	6/28/12	1130	MW-7 CO-LOCATED	GW	6	2	2	2					X	X	X	X
-06	6/28/12	—	TB-1 (Trip Blank)	QC	1		1						X			

RELINQUISHED BY: SIGNATURE/ORGANIZATION	☒Sampler O'Brien + Gere	DATE 6/28/12	TIME 1310
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 6/28/12	TIME 1315
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 6.28.12	TIME 1415
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE 6.28.12	TIME 1415

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 5.1

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 1.15.12

Analytical Laboratory Report

Report ID: S53059.01(01)
Generated on 07/12/2012

Report to

Attention: Clifford Yantz
O'Brien & Gere Engineers, Inc.
37000 Grand River Ave.
Suite 260
Farmington, MI 48335

Phone: 248-477-5701 FAX:
Email: YantzCS@obg.com/

Report produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S53059.01-S53059.07
Project: RACER Dort Hwy Land
Collected Date: 06/28/2012 - 06/29/2012
Submitted Date/Time: 06/29/2012 14:40
Sampled by: Kevin Schneider
P.O. #: PO125045

Report Notes

Results relate only to items tested as received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
"Not detected" indicates that parameter was not found at a level equal to or greater than the RL.
Samples are held by the lab for 30 days from the sample submittal date unless a written request to hold longer is provided by the client.

Laboratory Certifications:
Michigan DNRE (#9956), DOD/ISO 17025 (#L11-184), WBENC (#2005110032)
Ohio EPA (#CL0002), IN Drinking Water (#C-MI-07), NELAC NY (#11814), NELAC FL (#E871045)
Some analytes reported may not be certified. Full certification lists are available upon request.

Violetta F. Murshak
Laboratory Director

Sample Summary (7 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S53059.01	MW-1	Groundwater	06/28/2012 14:35
S53059.02	MW-2	Groundwater	06/28/2012 17:00
S53059.03	MW2-1	Groundwater	06/28/2012 18:40
S53059.04	MW-4	Groundwater	06/29/2012 09:40
S53059.05	MW-3	Groundwater	06/29/2012 11:50
S53059.06	MW-5	Groundwater	06/29/2012 12:35
S53059.07	TB-2 (Trip Blank)	Groundwater	06/29/2012 00:01

Analytical Laboratory Report

Lab Sample ID: S53059.01
Sample Tag: MW-1
Collected Date/Time: 06/28/2012 14:35
Matrix: Groundwater
COC Reference: 65462

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	5.3	IR
2	125ml Plastic	HNO3	Yes	5.3	IR
2	1L Amber	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
BNA Extraction	Completed			3510C	07/05/12 18:32	EMR		
Mercury Digestion	Completed			E245.1	07/05/12 12:25	JRH		
Mercury Digestion	Completed			E245.1	07/05/12 12:25	JRH		
Metal Digestion	Completed			3015A	07/11/12 01:00	SLR		
Metal Digestion	Completed			3015A	07/11/12 01:00	SLR		
Metals								
Arsenic, Dissolved	Not detected	mg/L	0.002	E200.8	07/11/12 16:03	SLS	7440-38-2	
Arsenic	Not detected	mg/L	0.002	E200.8	07/11/12 16:00	SLS	7440-38-2	
Barium, Dissolved	0.084	mg/L	0.005	E200.8	07/11/12 16:03	SLS	7440-39-3	
Barium	0.098	mg/L	0.005	E200.8	07/11/12 16:00	SLS	7440-39-3	
Cadmium, Dissolved	Not detected	mg/L	0.0005	E200.8	07/11/12 16:03	SLS	7440-43-9	
Cadmium	Not detected	mg/L	0.0005	E200.8	07/11/12 16:00	SLS	7440-43-9	
Chromium, Dissolved	Not detected	mg/L	0.005	E200.8	07/11/12 16:03	SLS	7440-47-3	
Chromium	Not detected	mg/L	0.005	E200.8	07/11/12 16:00	SLS	7440-47-3	
Lead, Dissolved	Not detected	mg/L	0.003	E200.8	07/11/12 16:03	SLS	7439-92-1	
Lead	Not detected	mg/L	0.003	E200.8	07/11/12 16:00	SLS	7439-92-1	
Mercury, Dissolved	Not detected	mg/L	0.0002	E245.1	07/05/12 15:38	JRT	7439-97-6	
Mercury	Not detected	mg/L	0.0002	E245.1	07/05/12 15:36	JRT	7439-97-6	
Selenium, Dissolved	Not detected	mg/L	0.005	E200.8	07/11/12 16:03	SLS	7782-49-2	
Selenium	Not detected	mg/L	0.005	E200.8	07/11/12 16:00	SLS	7782-49-2	
Silver, Dissolved	Not detected	mg/L	0.0005	E200.8	07/11/12 16:03	SLS	7440-22-4	
Silver	Not detected	mg/L	0.0005	E200.8	07/11/12 16:00	SLS	7440-22-4	
Organics - Semi-Volatiles								
Semi-Volatile Organics - MDEQ								
Acenaphthene	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	83-32-9	
Acenaphthylene	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	208-96-8	
Anthracene	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/L	1	SW8270C	07/06/12 13:48	PL	56-55-3	
Benzo(b)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 13:48	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 13:48	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/L	1	SW8270C	07/06/12 13:48	PL	191-24-2	
Benzo(a)pyrene	Not detected	ug/L	1	SW8270C	07/06/12 13:48	PL	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	111-91-1	
bis(2-Chloroethyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	111-44-4	
bis(2-Chloroisopropyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	117-81-7	
4-Bromophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	101-55-3	
Butyl benzyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	85-68-7	
4-Chloroaniline	Not detected	ug/L	10	SW8270C	07/06/12 13:48	PL	106-47-8	

Lab Sample ID: S53059.01 (continued)
Sample Tag: MW-1

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
2-Chloronaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	91-58-7	
4-Chloro-3-methylphenol	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	59-50-7	
2-Chlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 13:48	PL	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	7005-72-3	
Chrysene	Not detected	ug/L	1	SW8270C	07/06/12 13:48	PL	218-01-9	
p,m-Cresol	Not detected	ug/L	20	SW8270C	07/06/12 13:48	PL	3/4-Cresol	
o-Cresol	Not detected	ug/L	10	SW8270C	07/06/12 13:48	PL	95-48-7	
Dibenzo(ah)anthracene	Not detected	ug/L	2	SW8270C	07/06/12 13:48	PL	53-70-3	
Dibenzofuran	Not detected	ug/L	4	SW8270C	07/06/12 13:48	PL	132-64-9	
di-n-Butyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	84-74-2	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 13:48	PL	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 13:48	PL	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 13:48	PL	106-46-7	
3,3'-Dichlorobenzidine	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	91-94-1	
2,4-Dichlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 13:48	PL	120-83-2	
Diethyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	84-66-2	
2,4-Dimethylphenol	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	105-67-9	
Dimethyl phthalate	10	ug/L	5	SW8270C	07/06/12 13:48	PL	131-11-3	B
4,6-Dinitro-2-methylphenol	Not detected	ug/L	20	SW8270C	07/06/12 13:48	PL	534-52-1	
2,4-Dinitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 13:48	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	121-14-2	
2,6-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	606-20-2	
1,2-Diphenylhydrazine	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	122-66-7	
di-n-Octyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	117-84-0	
Fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 13:48	PL	206-44-0	
Fluorene	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	86-73-7	
Hexachlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	118-74-1	
Hexachlorobutadiene	Not detected	ug/L	10	SW8270C	07/06/12 13:48	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	77-47-4	
Hexachloroethane	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	2	SW8270C	07/06/12 13:48	PL	193-39-5	
Isophorone	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	91-57-6	
Naphthalene	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	91-20-3	
2-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 13:48	PL	88-74-4	
3-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 13:48	PL	99-09-2	
4-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 13:48	PL	100-01-6	
Nitrobenzene	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	98-95-3	
2-Nitrophenol	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	88-75-5	
4-Nitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 13:48	PL	100-02-7	
N-Nitrosodiphenylamine	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	621-64-7	
Pentachlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	87-86-5	
Phenanthrene	Not detected	ug/L	2	SW8270C	07/06/12 13:48	PL	85-01-8	
Phenol	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	108-95-2	
Pyrene	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	129-00-0	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	120-82-1	
2,4,5-Trichlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 13:48	PL	95-95-4	

B-Compound also found in associated method blank

Lab Sample ID: S53059.01 (continued)
Sample Tag: MW-1

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
2,4,6-Trichlorophenol	Not detected	ug/L	4	SW8270C	07/06/12 13:48	PL	88-06-2	
Organics - Volatiles								
Volatile Organics - DEQ List								
Diethyl ether	Not detected	ug/L	10	SW8260B	07/10/12 16:20	WAT	60-29-7	
Acetone	Not detected	ug/L	50	SW8260B	07/10/12 16:20	WAT	67-64-1	
Methyl iodide	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	74-88-4	
Carbon disulfide	Not detected	ug/L	5	SW8260B	07/10/12 16:20	WAT	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW8260B	07/10/12 16:20	WAT	1634-04-4	
Acrylonitrile	Not detected	ug/L	2	SW8260B	07/10/12 16:20	WAT	107-13-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW8260B	07/10/12 16:20	WAT	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	5	SW8260B	07/10/12 16:20	WAT	75-71-8	
Chloromethane	Not detected	ug/L	5	SW8260B	07/10/12 16:20	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	75-01-4	
Bromomethane	Not detected	ug/L	5	SW8260B	07/10/12 16:20	WAT	74-83-9	
Chloroethane	Not detected	ug/L	5	SW8260B	07/10/12 16:20	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	5	SW8260B	07/10/12 16:20	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	156-59-2	
Tetrahydrofuran	Not detected	ug/L	90	SW8260B	07/10/12 16:20	WAT	109-99-9	
Chloroform	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	67-66-3	
Bromochloromethane	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW8260B	07/10/12 16:20	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	50	SW8260B	07/10/12 16:20	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	56-23-5	
Benzene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	75-27-4	
Dibromomethane	Not detected	ug/L	5	SW8260B	07/10/12 16:20	WAT	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	110-57-6	
Dibromochloromethane	Not detected	ug/L	5	SW8260B	07/10/12 16:20	WAT	124-48-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	106-93-4	
Chlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	630-20-6	
Ethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	100-41-4	
p,m-Xylene	Not detected	ug/L	2	SW8260B	07/10/12 16:20	WAT		
o-Xylene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	95-47-6	
Styrene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	100-42-5	

Lab Sample ID: S53059.01 (continued)
Sample Tag: MW-1

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
Isopropylbenzene	Not detected	ug/L	5	SW8260B	07/10/12 16:20	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	79-34-5	
1,2,3-Trichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	96-18-4	
n-Propylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	103-65-1	
Bromobenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	108-86-1	
1,3,5-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	108-67-8	
tert-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	95-63-6	
sec-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	135-98-8	
p-Isopropyltoluene	Not detected	ug/L	5	SW8260B	07/10/12 16:20	WAT	99-87-6	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	526-73-8	
n-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:20	WAT	104-51-8	
Hexachloroethane	Not detected	ug/L	5	SW8260B	07/10/12 16:20	WAT	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW8260B	07/10/12 16:20	WAT	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 16:20	WAT	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 16:20	WAT	87-61-6	
Naphthalene	Not detected	ug/L	5	SW8260B	07/10/12 16:20	WAT	91-20-3	
2-Methylnaphthalene	Not detected	ug/L	5	SW8260B	07/10/12 16:20	WAT	91-57-6	

Lab Sample ID: S53059.02
Sample Tag: MW-2
Collected Date/Time: 06/28/2012 17:00
Matrix: Groundwater
COC Reference: 65462

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	5.3	IR
2	125ml Plastic	HNO3	Yes	5.3	IR
2	1L Amber	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
BNA Extraction	Completed			3510C	07/05/12 18:32	EMR		
Mercury Digestion	Completed			E245.1	07/05/12 12:25	JRH		
Mercury Digestion	Completed			E245.1	07/05/12 12:25	JRH		
Metal Digestion	Completed			3015A	07/11/12 01:00	SLR		
Metal Digestion	Completed			3015A	07/11/12 01:00	SLR		
Metals								
Arsenic, Dissolved	0.027	mg/L	0.002	E200.8	07/11/12 16:09	SLS	7440-38-2	
Arsenic	0.028	mg/L	0.002	E200.8	07/11/12 16:06	SLS	7440-38-2	
Barium, Dissolved	0.042	mg/L	0.005	E200.8	07/11/12 16:09	SLS	7440-39-3	
Barium	0.045	mg/L	0.005	E200.8	07/11/12 16:06	SLS	7440-39-3	
Cadmium, Dissolved	Not detected	mg/L	0.0005	E200.8	07/11/12 16:09	SLS	7440-43-9	
Cadmium	Not detected	mg/L	0.0005	E200.8	07/11/12 16:06	SLS	7440-43-9	
Chromium, Dissolved	Not detected	mg/L	0.005	E200.8	07/11/12 16:09	SLS	7440-47-3	
Chromium	Not detected	mg/L	0.005	E200.8	07/11/12 16:06	SLS	7440-47-3	
Lead, Dissolved	Not detected	mg/L	0.003	E200.8	07/11/12 16:09	SLS	7439-92-1	
Lead	Not detected	mg/L	0.003	E200.8	07/11/12 16:06	SLS	7439-92-1	
Mercury, Dissolved	Not detected	mg/L	0.0002	E245.1	07/05/12 15:43	JRT	7439-97-6	
Mercury	Not detected	mg/L	0.0002	E245.1	07/05/12 15:41	JRT	7439-97-6	
Selenium, Dissolved	Not detected	mg/L	0.005	E200.8	07/11/12 16:09	SLS	7782-49-2	
Selenium	Not detected	mg/L	0.005	E200.8	07/11/12 16:06	SLS	7782-49-2	
Silver, Dissolved	Not detected	mg/L	0.0005	E200.8	07/11/12 16:09	SLS	7440-22-4	
Silver	Not detected	mg/L	0.0005	E200.8	07/11/12 16:06	SLS	7440-22-4	
Organics - Semi-Volatiles								
Semi-Volatile Organics - MDEQ								
Acenaphthene	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	83-32-9	
Acenaphthylene	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	208-96-8	
Anthracene	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/L	1	SW8270C	07/06/12 14:24	PL	56-55-3	
Benzo(b)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 14:24	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 14:24	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/L	1	SW8270C	07/06/12 14:24	PL	191-24-2	
Benzo(a)pyrene	Not detected	ug/L	1	SW8270C	07/06/12 14:24	PL	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	111-91-1	
bis(2-Chloroethyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	111-44-4	
bis(2-Chloroisopropyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	117-81-7	
4-Bromophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	101-55-3	
Butyl benzyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	85-68-7	
4-Chloroaniline	Not detected	ug/L	10	SW8270C	07/06/12 14:24	PL	106-47-8	

Lab Sample ID: S53059.02 (continued)
Sample Tag: MW-2

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
2-Chloronaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	91-58-7	
4-Chloro-3-methylphenol	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	59-50-7	
2-Chlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 14:24	PL	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	7005-72-3	
Chrysene	Not detected	ug/L	1	SW8270C	07/06/12 14:24	PL	218-01-9	
p,m-Cresol	Not detected	ug/L	20	SW8270C	07/06/12 14:24	PL	3/4-Cresol	
o-Cresol	Not detected	ug/L	10	SW8270C	07/06/12 14:24	PL	95-48-7	
Dibenzo(ah)anthracene	Not detected	ug/L	2	SW8270C	07/06/12 14:24	PL	53-70-3	
Dibenzofuran	Not detected	ug/L	4	SW8270C	07/06/12 14:24	PL	132-64-9	
di-n-Butyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	84-74-2	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 14:24	PL	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 14:24	PL	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 14:24	PL	106-46-7	
3,3'-Dichlorobenzidine	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	91-94-1	
2,4-Dichlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 14:24	PL	120-83-2	
Diethyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	84-66-2	
2,4-Dimethylphenol	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	105-67-9	
Dimethyl phthalate	5	ug/L	5	SW8270C	07/06/12 14:24	PL	131-11-3	B
4,6-Dinitro-2-methylphenol	Not detected	ug/L	20	SW8270C	07/06/12 14:24	PL	534-52-1	
2,4-Dinitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 14:24	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	121-14-2	
2,6-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	606-20-2	
1,2-Diphenylhydrazine	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	122-66-7	
di-n-Octyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	117-84-0	
Fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 14:24	PL	206-44-0	
Fluorene	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	86-73-7	
Hexachlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	118-74-1	
Hexachlorobutadiene	Not detected	ug/L	10	SW8270C	07/06/12 14:24	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	77-47-4	
Hexachloroethane	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	2	SW8270C	07/06/12 14:24	PL	193-39-5	
Isophorone	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	91-57-6	
Naphthalene	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	91-20-3	
2-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 14:24	PL	88-74-4	
3-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 14:24	PL	99-09-2	
4-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 14:24	PL	100-01-6	
Nitrobenzene	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	98-95-3	
2-Nitrophenol	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	88-75-5	
4-Nitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 14:24	PL	100-02-7	
N-Nitrosodiphenylamine	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	621-64-7	
Pentachlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	87-86-5	
Phenanthrene	Not detected	ug/L	2	SW8270C	07/06/12 14:24	PL	85-01-8	
Phenol	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	108-95-2	
Pyrene	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	129-00-0	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	120-82-1	
2,4,5-Trichlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 14:24	PL	95-95-4	

B-Compound also found in associated method blank

Lab Sample ID: S53059.02 (continued)
Sample Tag: MW-2

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
2,4,6-Trichlorophenol	Not detected	ug/L	4	SW8270C	07/06/12 14:24	PL	88-06-2	
Organics - Volatiles								
Volatile Organics - DEQ List								
Diethyl ether	Not detected	ug/L	10	SW8260B	07/10/12 16:43	WAT	60-29-7	
Acetone	Not detected	ug/L	50	SW8260B	07/10/12 16:43	WAT	67-64-1	
Methyl iodide	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	74-88-4	
Carbon disulfide	Not detected	ug/L	5	SW8260B	07/10/12 16:43	WAT	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW8260B	07/10/12 16:43	WAT	1634-04-4	
Acrylonitrile	Not detected	ug/L	2	SW8260B	07/10/12 16:43	WAT	107-13-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW8260B	07/10/12 16:43	WAT	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	5	SW8260B	07/10/12 16:43	WAT	75-71-8	
Chloromethane	Not detected	ug/L	5	SW8260B	07/10/12 16:43	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	75-01-4	
Bromomethane	Not detected	ug/L	5	SW8260B	07/10/12 16:43	WAT	74-83-9	
Chloroethane	Not detected	ug/L	5	SW8260B	07/10/12 16:43	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	5	SW8260B	07/10/12 16:43	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	156-59-2	
Tetrahydrofuran	Not detected	ug/L	90	SW8260B	07/10/12 16:43	WAT	109-99-9	
Chloroform	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	67-66-3	
Bromochloromethane	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW8260B	07/10/12 16:43	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	50	SW8260B	07/10/12 16:43	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	56-23-5	
Benzene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	75-27-4	
Dibromomethane	Not detected	ug/L	5	SW8260B	07/10/12 16:43	WAT	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	110-57-6	
Dibromochloromethane	Not detected	ug/L	5	SW8260B	07/10/12 16:43	WAT	124-48-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	106-93-4	
Chlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	630-20-6	
Ethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	100-41-4	
p,m-Xylene	Not detected	ug/L	2	SW8260B	07/10/12 16:43	WAT		
o-Xylene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	95-47-6	
Styrene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	100-42-5	

Lab Sample ID: S53059.02 (continued)
Sample Tag: MW-2

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
Isopropylbenzene	Not detected	ug/L	5	SW8260B	07/10/12 16:43	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	79-34-5	
1,2,3-Trichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	96-18-4	
n-Propylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	103-65-1	
Bromobenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	108-86-1	
1,3,5-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	108-67-8	
tert-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	95-63-6	
sec-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	135-98-8	
p-Isopropyltoluene	Not detected	ug/L	5	SW8260B	07/10/12 16:43	WAT	99-87-6	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	526-73-8	
n-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 16:43	WAT	104-51-8	
Hexachloroethane	Not detected	ug/L	5	SW8260B	07/10/12 16:43	WAT	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW8260B	07/10/12 16:43	WAT	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 16:43	WAT	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 16:43	WAT	87-61-6	
Naphthalene	Not detected	ug/L	5	SW8260B	07/10/12 16:43	WAT	91-20-3	
2-Methylnaphthalene	Not detected	ug/L	5	SW8260B	07/10/12 16:43	WAT	91-57-6	

Lab Sample ID: S53059.03
Sample Tag: MW2-1
Collected Date/Time: 06/28/2012 18:40
Matrix: Groundwater
COC Reference: 65462

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	5.3	IR
2	125ml Plastic	HNO3	Yes	5.3	IR
2	1L Amber	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
BNA Extraction	Completed			3510C	07/05/12 18:32	EMR		
Mercury Digestion	Completed			E245.1	07/05/12 12:25	JRH		
Mercury Digestion	Completed			E245.1	07/05/12 12:25	JRH		
Metal Digestion	Completed			3015A	07/11/12 01:00	SLR		
Metal Digestion	Completed			3015A	07/11/12 01:00	SLR		
Metals								
Arsenic, Dissolved	0.020	mg/L	0.002	E200.8	07/11/12 16:15	SLS	7440-38-2	
Arsenic	0.018	mg/L	0.002	E200.8	07/11/12 16:12	SLS	7440-38-2	
Barium, Dissolved	0.081	mg/L	0.005	E200.8	07/11/12 16:15	SLS	7440-39-3	
Barium	0.083	mg/L	0.005	E200.8	07/11/12 16:12	SLS	7440-39-3	
Cadmium, Dissolved	Not detected	mg/L	0.0005	E200.8	07/11/12 16:15	SLS	7440-43-9	
Cadmium	Not detected	mg/L	0.0005	E200.8	07/11/12 16:12	SLS	7440-43-9	
Chromium, Dissolved	Not detected	mg/L	0.005	E200.8	07/11/12 16:15	SLS	7440-47-3	
Chromium	Not detected	mg/L	0.005	E200.8	07/11/12 16:12	SLS	7440-47-3	
Lead, Dissolved	Not detected	mg/L	0.003	E200.8	07/11/12 16:15	SLS	7439-92-1	
Lead	Not detected	mg/L	0.003	E200.8	07/11/12 16:12	SLS	7439-92-1	
Mercury, Dissolved	Not detected	mg/L	0.0002	E245.1	07/05/12 15:45	JRT	7439-97-6	
Mercury	Not detected	mg/L	0.0002	E245.1	07/05/12 15:47	JRT	7439-97-6	
Selenium, Dissolved	Not detected	mg/L	0.005	E200.8	07/11/12 16:15	SLS	7782-49-2	
Selenium	Not detected	mg/L	0.005	E200.8	07/11/12 16:12	SLS	7782-49-2	
Silver, Dissolved	Not detected	mg/L	0.0005	E200.8	07/11/12 16:15	SLS	7440-22-4	
Silver	Not detected	mg/L	0.0005	E200.8	07/11/12 16:12	SLS	7440-22-4	
Organics - Semi-Volatiles								
Semi-Volatile Organics - MDEQ								
Acenaphthene	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	83-32-9	
Acenaphthylene	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	208-96-8	
Anthracene	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/L	1	SW8270C	07/06/12 14:59	PL	56-55-3	
Benzo(b)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 14:59	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 14:59	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/L	1	SW8270C	07/06/12 14:59	PL	191-24-2	
Benzo(a)pyrene	Not detected	ug/L	1	SW8270C	07/06/12 14:59	PL	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	111-91-1	
bis(2-Chloroethyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	111-44-4	
bis(2-Chloroisopropyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	117-81-7	
4-Bromophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	101-55-3	
Butyl benzyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	85-68-7	
4-Chloroaniline	Not detected	ug/L	10	SW8270C	07/06/12 14:59	PL	106-47-8	

Lab Sample ID: S53059.03 (continued)
Sample Tag: MW2-1

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
2-Chloronaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	91-58-7	
4-Chloro-3-methylphenol	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	59-50-7	
2-Chlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 14:59	PL	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	7005-72-3	
Chrysene	Not detected	ug/L	1	SW8270C	07/06/12 14:59	PL	218-01-9	
p,m-Cresol	Not detected	ug/L	20	SW8270C	07/06/12 14:59	PL	3/4-Cresol	
o-Cresol	Not detected	ug/L	10	SW8270C	07/06/12 14:59	PL	95-48-7	
Dibenzo(ah)anthracene	Not detected	ug/L	2	SW8270C	07/06/12 14:59	PL	53-70-3	
Dibenzofuran	Not detected	ug/L	4	SW8270C	07/06/12 14:59	PL	132-64-9	
di-n-Butyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	84-74-2	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 14:59	PL	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 14:59	PL	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 14:59	PL	106-46-7	
3,3'-Dichlorobenzidine	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	91-94-1	
2,4-Dichlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 14:59	PL	120-83-2	
Diethyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	84-66-2	
2,4-Dimethylphenol	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	105-67-9	
Dimethyl phthalate	8	ug/L	5	SW8270C	07/06/12 14:59	PL	131-11-3	B
4,6-Dinitro-2-methylphenol	Not detected	ug/L	20	SW8270C	07/06/12 14:59	PL	534-52-1	
2,4-Dinitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 14:59	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	121-14-2	
2,6-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	606-20-2	
1,2-Diphenylhydrazine	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	122-66-7	
di-n-Octyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	117-84-0	
Fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 14:59	PL	206-44-0	
Fluorene	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	86-73-7	
Hexachlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	118-74-1	
Hexachlorobutadiene	Not detected	ug/L	10	SW8270C	07/06/12 14:59	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	77-47-4	
Hexachloroethane	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	2	SW8270C	07/06/12 14:59	PL	193-39-5	
Isophorone	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	91-57-6	
Naphthalene	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	91-20-3	
2-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 14:59	PL	88-74-4	
3-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 14:59	PL	99-09-2	
4-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 14:59	PL	100-01-6	
Nitrobenzene	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	98-95-3	
2-Nitrophenol	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	88-75-5	
4-Nitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 14:59	PL	100-02-7	
N-Nitrosodiphenylamine	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	621-64-7	
Pentachlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	87-86-5	
Phenanthrene	Not detected	ug/L	2	SW8270C	07/06/12 14:59	PL	85-01-8	
Phenol	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	108-95-2	
Pyrene	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	129-00-0	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	120-82-1	
2,4,5-Trichlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 14:59	PL	95-95-4	

B-Compound also found in associated method blank

Lab Sample ID: S53059.03 (continued)
Sample Tag: MW2-1

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
2,4,6-Trichlorophenol	Not detected	ug/L	4	SW8270C	07/06/12 14:59	PL	88-06-2	
Organics - Volatiles								
Volatile Organics - DEQ List								
Diethyl ether	Not detected	ug/L	10	SW8260B	07/10/12 17:04	WAT	60-29-7	
Acetone	Not detected	ug/L	50	SW8260B	07/10/12 17:04	WAT	67-64-1	
Methyl iodide	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	74-88-4	
Carbon disulfide	Not detected	ug/L	5	SW8260B	07/10/12 17:04	WAT	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW8260B	07/10/12 17:04	WAT	1634-04-4	
Acrylonitrile	Not detected	ug/L	2	SW8260B	07/10/12 17:04	WAT	107-13-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW8260B	07/10/12 17:04	WAT	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	5	SW8260B	07/10/12 17:04	WAT	75-71-8	
Chloromethane	Not detected	ug/L	5	SW8260B	07/10/12 17:04	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	75-01-4	
Bromomethane	Not detected	ug/L	5	SW8260B	07/10/12 17:04	WAT	74-83-9	
Chloroethane	Not detected	ug/L	5	SW8260B	07/10/12 17:04	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	5	SW8260B	07/10/12 17:04	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	156-59-2	
Tetrahydrofuran	Not detected	ug/L	90	SW8260B	07/10/12 17:04	WAT	109-99-9	
Chloroform	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	67-66-3	
Bromochloromethane	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW8260B	07/10/12 17:04	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	50	SW8260B	07/10/12 17:04	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	56-23-5	
Benzene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	75-27-4	
Dibromomethane	Not detected	ug/L	5	SW8260B	07/10/12 17:04	WAT	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	110-57-6	
Dibromochloromethane	Not detected	ug/L	5	SW8260B	07/10/12 17:04	WAT	124-48-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	106-93-4	
Chlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	630-20-6	
Ethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	100-41-4	
p,m-Xylene	Not detected	ug/L	2	SW8260B	07/10/12 17:04	WAT		
o-Xylene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	95-47-6	
Styrene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	100-42-5	

Lab Sample ID: S53059.03 (continued)
Sample Tag: MW2-1

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
Isopropylbenzene	Not detected	ug/L	5	SW8260B	07/10/12 17:04	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	79-34-5	
1,2,3-Trichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	96-18-4	
n-Propylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	103-65-1	
Bromobenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	108-86-1	
1,3,5-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	108-67-8	
tert-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	95-63-6	
sec-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	135-98-8	
p-Isopropyltoluene	Not detected	ug/L	5	SW8260B	07/10/12 17:04	WAT	99-87-6	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	526-73-8	
n-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:04	WAT	104-51-8	
Hexachloroethane	Not detected	ug/L	5	SW8260B	07/10/12 17:04	WAT	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW8260B	07/10/12 17:04	WAT	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 17:04	WAT	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 17:04	WAT	87-61-6	
Naphthalene	Not detected	ug/L	5	SW8260B	07/10/12 17:04	WAT	91-20-3	
2-Methylnaphthalene	Not detected	ug/L	5	SW8260B	07/10/12 17:04	WAT	91-57-6	

Analytical Laboratory Report

Lab Sample ID: S53059.04
Sample Tag: MW-4
Collected Date/Time: 06/29/2012 09:40
Matrix: Groundwater
COC Reference: 65462

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	5.3	IR
1	125ml Plastic	HNO3	Yes	5.3	IR
2	1L Amber	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
BNA Extraction	Completed			3510C	07/05/12 18:32	EMR		
Mercury Digestion	Completed			E245.1	07/05/12 12:25	JRH		
Metal Digestion	Completed			3015A	07/11/12 01:00	SLR		
Metals								
Arsenic	Not detected	mg/L	0.002	E200.8	07/11/12 16:43	SLS	7440-38-2	
Barium	0.135	mg/L	0.005	E200.8	07/11/12 16:43	SLS	7440-39-3	
Cadmium	Not detected	mg/L	0.0005	E200.8	07/11/12 16:43	SLS	7440-43-9	
Chromium	Not detected	mg/L	0.005	E200.8	07/11/12 16:43	SLS	7440-47-3	
Lead	Not detected	mg/L	0.003	E200.8	07/11/12 16:43	SLS	7439-92-1	
Mercury	Not detected	mg/L	0.0002	E245.1	07/05/12 15:50	JRT	7439-97-6	
Selenium	Not detected	mg/L	0.005	E200.8	07/11/12 16:43	SLS	7782-49-2	
Silver	Not detected	mg/L	0.0005	E200.8	07/11/12 16:43	SLS	7440-22-4	
Organics - Semi-Volatiles								
Semi-Volatile Organics - MDEQ								
Acenaphthene	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	83-32-9	
Acenaphthylene	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	208-96-8	
Anthracene	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/L	1	SW8270C	07/06/12 15:35	PL	56-55-3	
Benzo(b)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 15:35	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 15:35	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/L	1	SW8270C	07/06/12 15:35	PL	191-24-2	
Benzo(a)pyrene	Not detected	ug/L	1	SW8270C	07/06/12 15:35	PL	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	111-91-1	
bis(2-Chloroethyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	111-44-4	
bis(2-Chloroisopropyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	117-81-7	
4-Bromophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	101-55-3	
Butyl benzyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	85-68-7	
4-Chloroaniline	Not detected	ug/L	10	SW8270C	07/06/12 15:35	PL	106-47-8	
2-Chloronaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	91-58-7	
4-Chloro-3-methylphenol	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	59-50-7	
2-Chlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 15:35	PL	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	7005-72-3	
Chrysene	Not detected	ug/L	1	SW8270C	07/06/12 15:35	PL	218-01-9	
p,m-Cresol	Not detected	ug/L	20	SW8270C	07/06/12 15:35	PL	3/4-Cresol	
o-Cresol	Not detected	ug/L	10	SW8270C	07/06/12 15:35	PL	95-48-7	
Dibenzo(ah)anthracene	Not detected	ug/L	2	SW8270C	07/06/12 15:35	PL	53-70-3	
Dibenzofuran	Not detected	ug/L	4	SW8270C	07/06/12 15:35	PL	132-64-9	
di-n-Butyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	84-74-2	

Lab Sample ID: S53059.04 (continued)
Sample Tag: MW-4

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 15:35	PL	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 15:35	PL	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 15:35	PL	106-46-7	
3,3'-Dichlorobenzidine	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	91-94-1	
2,4-Dichlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 15:35	PL	120-83-2	
Diethyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	84-66-2	
2,4-Dimethylphenol	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	105-67-9	
Dimethyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	ug/L	20	SW8270C	07/06/12 15:35	PL	534-52-1	
2,4-Dinitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 15:35	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	121-14-2	
2,6-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	606-20-2	
1,2-Diphenylhydrazine	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	122-66-7	
di-n-Octyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	117-84-0	
Fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 15:35	PL	206-44-0	
Fluorene	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	86-73-7	
Hexachlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	118-74-1	
Hexachlorobutadiene	Not detected	ug/L	10	SW8270C	07/06/12 15:35	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	77-47-4	
Hexachloroethane	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	2	SW8270C	07/06/12 15:35	PL	193-39-5	
Isophorone	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	91-57-6	
Naphthalene	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	91-20-3	
2-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 15:35	PL	88-74-4	
3-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 15:35	PL	99-09-2	
4-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 15:35	PL	100-01-6	
Nitrobenzene	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	98-95-3	
2-Nitrophenol	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	88-75-5	
4-Nitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 15:35	PL	100-02-7	
N-Nitrosodiphenylamine	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	621-64-7	
Pentachlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	87-86-5	
Phenanthrene	Not detected	ug/L	2	SW8270C	07/06/12 15:35	PL	85-01-8	
Phenol	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	108-95-2	
Pyrene	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	129-00-0	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	120-82-1	
2,4,5-Trichlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 15:35	PL	95-95-4	
2,4,6-Trichlorophenol	Not detected	ug/L	4	SW8270C	07/06/12 15:35	PL	88-06-2	
Organics - Volatiles								
Volatile Organics - DEQ List								
Diethyl ether	Not detected	ug/L	10	SW8260B	07/10/12 17:26	WAT	60-29-7	
Acetone	Not detected	ug/L	50	SW8260B	07/10/12 17:26	WAT	67-64-1	
Methyl iodide	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	74-88-4	
Carbon disulfide	Not detected	ug/L	5	SW8260B	07/10/12 17:26	WAT	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW8260B	07/10/12 17:26	WAT	1634-04-4	
Acrylonitrile	Not detected	ug/L	2	SW8260B	07/10/12 17:26	WAT	107-13-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW8260B	07/10/12 17:26	WAT	78-93-3	

Lab Sample ID: S53059.04 (continued)
Sample Tag: MW-4

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
Dichlorodifluoromethane	Not detected	ug/L	5	SW8260B	07/10/12 17:26	WAT	75-71-8	
Chloromethane	Not detected	ug/L	5	SW8260B	07/10/12 17:26	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	75-01-4	
Bromomethane	Not detected	ug/L	5	SW8260B	07/10/12 17:26	WAT	74-83-9	
Chloroethane	Not detected	ug/L	5	SW8260B	07/10/12 17:26	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	5	SW8260B	07/10/12 17:26	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	156-59-2	
Tetrahydrofuran	Not detected	ug/L	90	SW8260B	07/10/12 17:26	WAT	109-99-9	
Chloroform	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	67-66-3	
Bromochloromethane	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW8260B	07/10/12 17:26	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	50	SW8260B	07/10/12 17:26	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	56-23-5	
Benzene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	75-27-4	
Dibromomethane	Not detected	ug/L	5	SW8260B	07/10/12 17:26	WAT	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	110-57-6	
Dibromochloromethane	Not detected	ug/L	5	SW8260B	07/10/12 17:26	WAT	124-48-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	106-93-4	
Chlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	630-20-6	
Ethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	100-41-4	
p,m-Xylene	Not detected	ug/L	2	SW8260B	07/10/12 17:26	WAT		
o-Xylene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	95-47-6	
Styrene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	100-42-5	
Isopropylbenzene	Not detected	ug/L	5	SW8260B	07/10/12 17:26	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	79-34-5	
1,2,3-Trichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	96-18-4	
n-Propylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	103-65-1	
Bromobenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	108-86-1	
1,3,5-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	108-67-8	
tert-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	95-63-6	
sec-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	135-98-8	
p-Isopropyltoluene	Not detected	ug/L	5	SW8260B	07/10/12 17:26	WAT	99-87-6	

Lab Sample ID: S53059.04 (continued)
Sample Tag: MW-4

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	526-73-8	
n-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:26	WAT	104-51-8	
Hexachloroethane	Not detected	ug/L	5	SW8260B	07/10/12 17:26	WAT	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW8260B	07/10/12 17:26	WAT	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 17:26	WAT	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 17:26	WAT	87-61-6	
Naphthalene	Not detected	ug/L	5	SW8260B	07/10/12 17:26	WAT	91-20-3	
2-Methylnaphthalene	Not detected	ug/L	5	SW8260B	07/10/12 17:26	WAT	91-57-6	

Analytical Laboratory Report

Lab Sample ID: S53059.05
Sample Tag: MW-3
Collected Date/Time: 06/29/2012 11:50
Matrix: Groundwater
COC Reference: 65462

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	5.3	IR
1	125ml Plastic	HNO3	Yes	5.3	IR
2	1L Amber	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
BNA Extraction	Completed			3510C	07/05/12 18:32	EMR		
Mercury Digestion	Completed			E245.1	07/05/12 12:25	JRH		
Metal Digestion	Completed			3015A	07/11/12 01:00	SLR		
Metals								
Arsenic	Not detected	mg/L	0.002	E200.8	07/11/12 16:21	SLS	7440-38-2	
Barium	0.094	mg/L	0.005	E200.8	07/11/12 16:21	SLS	7440-39-3	
Cadmium	Not detected	mg/L	0.0005	E200.8	07/11/12 16:21	SLS	7440-43-9	
Chromium	Not detected	mg/L	0.005	E200.8	07/11/12 16:21	SLS	7440-47-3	
Lead	Not detected	mg/L	0.003	E200.8	07/11/12 16:21	SLS	7439-92-1	
Mercury	Not detected	mg/L	0.0002	E245.1	07/05/12 15:52	JRT	7439-97-6	
Selenium	Not detected	mg/L	0.005	E200.8	07/11/12 16:21	SLS	7782-49-2	
Silver	Not detected	mg/L	0.0005	E200.8	07/11/12 16:21	SLS	7440-22-4	
Organics - Semi-Volatiles								
Semi-Volatile Organics - MDEQ								
Acenaphthene	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	83-32-9	
Acenaphthylene	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	208-96-8	
Anthracene	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/L	1	SW8270C	07/06/12 16:10	PL	56-55-3	
Benzo(b)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 16:10	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 16:10	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/L	1	SW8270C	07/06/12 16:10	PL	191-24-2	
Benzo(a)pyrene	Not detected	ug/L	1	SW8270C	07/06/12 16:10	PL	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	111-91-1	
bis(2-Chloroethyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	111-44-4	
bis(2-Chloroisopropyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	117-81-7	
4-Bromophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	101-55-3	
Butyl benzyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	85-68-7	
4-Chloroaniline	Not detected	ug/L	10	SW8270C	07/06/12 16:10	PL	106-47-8	
2-Chloronaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	91-58-7	
4-Chloro-3-methylphenol	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	59-50-7	
2-Chlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 16:10	PL	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	7005-72-3	
Chrysene	Not detected	ug/L	1	SW8270C	07/06/12 16:10	PL	218-01-9	
p,m-Cresol	Not detected	ug/L	20	SW8270C	07/06/12 16:10	PL	3/4-Cresol	
o-Cresol	Not detected	ug/L	10	SW8270C	07/06/12 16:10	PL	95-48-7	
Dibenzo(ah)anthracene	Not detected	ug/L	2	SW8270C	07/06/12 16:10	PL	53-70-3	
Dibenzofuran	Not detected	ug/L	4	SW8270C	07/06/12 16:10	PL	132-64-9	
di-n-Butyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	84-74-2	

Lab Sample ID: S53059.05 (continued)
Sample Tag: MW-3

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 16:10	PL	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 16:10	PL	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 16:10	PL	106-46-7	
3,3'-Dichlorobenzidine	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	91-94-1	
2,4-Dichlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 16:10	PL	120-83-2	
Diethyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	84-66-2	
2,4-Dimethylphenol	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	105-67-9	
Dimethyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	ug/L	20	SW8270C	07/06/12 16:10	PL	534-52-1	
2,4-Dinitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 16:10	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	121-14-2	
2,6-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	606-20-2	
1,2-Diphenylhydrazine	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	122-66-7	
di-n-Octyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	117-84-0	
Fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 16:10	PL	206-44-0	
Fluorene	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	86-73-7	
Hexachlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	118-74-1	
Hexachlorobutadiene	Not detected	ug/L	10	SW8270C	07/06/12 16:10	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	77-47-4	
Hexachloroethane	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	2	SW8270C	07/06/12 16:10	PL	193-39-5	
Isophorone	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	91-57-6	
Naphthalene	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	91-20-3	
2-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 16:10	PL	88-74-4	
3-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 16:10	PL	99-09-2	
4-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 16:10	PL	100-01-6	
Nitrobenzene	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	98-95-3	
2-Nitrophenol	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	88-75-5	
4-Nitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 16:10	PL	100-02-7	
N-Nitrosodiphenylamine	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	621-64-7	
Pentachlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	87-86-5	
Phenanthrene	Not detected	ug/L	2	SW8270C	07/06/12 16:10	PL	85-01-8	
Phenol	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	108-95-2	
Pyrene	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	129-00-0	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	120-82-1	
2,4,5-Trichlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 16:10	PL	95-95-4	
2,4,6-Trichlorophenol	Not detected	ug/L	4	SW8270C	07/06/12 16:10	PL	88-06-2	
Organics - Volatiles								
Volatile Organics - DEQ List								
Diethyl ether	Not detected	ug/L	10	SW8260B	07/10/12 17:48	WAT	60-29-7	
Acetone	Not detected	ug/L	50	SW8260B	07/10/12 17:48	WAT	67-64-1	
Methyl iodide	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	74-88-4	
Carbon disulfide	Not detected	ug/L	5	SW8260B	07/10/12 17:48	WAT	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW8260B	07/10/12 17:48	WAT	1634-04-4	
Acrylonitrile	Not detected	ug/L	2	SW8260B	07/10/12 17:48	WAT	107-13-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW8260B	07/10/12 17:48	WAT	78-93-3	

Lab Sample ID: S53059.05 (continued)
Sample Tag: MW-3

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
Dichlorodifluoromethane	Not detected	ug/L	5	SW8260B	07/10/12 17:48	WAT	75-71-8	
Chloromethane	Not detected	ug/L	5	SW8260B	07/10/12 17:48	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	75-01-4	
Bromomethane	Not detected	ug/L	5	SW8260B	07/10/12 17:48	WAT	74-83-9	
Chloroethane	Not detected	ug/L	5	SW8260B	07/10/12 17:48	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	5	SW8260B	07/10/12 17:48	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	156-60-5	
1,1-Dichloroethane	6	ug/L	1	SW8260B	07/10/12 17:48	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	156-59-2	
Tetrahydrofuran	Not detected	ug/L	90	SW8260B	07/10/12 17:48	WAT	109-99-9	
Chloroform	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	67-66-3	
Bromochloromethane	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW8260B	07/10/12 17:48	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	50	SW8260B	07/10/12 17:48	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	56-23-5	
Benzene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	75-27-4	
Dibromomethane	Not detected	ug/L	5	SW8260B	07/10/12 17:48	WAT	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	110-57-6	
Dibromochloromethane	Not detected	ug/L	5	SW8260B	07/10/12 17:48	WAT	124-48-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	106-93-4	
Chlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	630-20-6	
Ethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	100-41-4	
p,m-Xylene	Not detected	ug/L	2	SW8260B	07/10/12 17:48	WAT		
o-Xylene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	95-47-6	
Styrene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	100-42-5	
Isopropylbenzene	Not detected	ug/L	5	SW8260B	07/10/12 17:48	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	79-34-5	
1,2,3-Trichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	96-18-4	
n-Propylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	103-65-1	
Bromobenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	108-86-1	
1,3,5-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	108-67-8	
tert-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	95-63-6	
sec-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	135-98-8	
p-Isopropyltoluene	Not detected	ug/L	5	SW8260B	07/10/12 17:48	WAT	99-87-6	

Lab Sample ID: S53059.05 (continued)
Sample Tag: MW-3

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	526-73-8	
n-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 17:48	WAT	104-51-8	
Hexachloroethane	Not detected	ug/L	5	SW8260B	07/10/12 17:48	WAT	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW8260B	07/10/12 17:48	WAT	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 17:48	WAT	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 17:48	WAT	87-61-6	
Naphthalene	Not detected	ug/L	5	SW8260B	07/10/12 17:48	WAT	91-20-3	
2-Methylnaphthalene	Not detected	ug/L	5	SW8260B	07/10/12 17:48	WAT	91-57-6	

Analytical Laboratory Report

Lab Sample ID: S53059.06
Sample Tag: MW-5
Collected Date/Time: 06/29/2012 12:35
Matrix: Groundwater
COC Reference: 65462

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	5.3	IR
1	125ml Plastic	HNO3	Yes	5.3	IR
2	1L Amber	None	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
BNA Extraction	Completed			3510C	07/05/12 18:32	EMR		
Mercury Digestion	Completed			E245.1	07/05/12 12:25	JRH		
Metal Digestion	Completed			3015A	07/11/12 01:00	SLR		
Metals								
Arsenic	Not detected	mg/L	0.002	E200.8	07/11/12 16:24	SLS	7440-38-2	
Barium	0.054	mg/L	0.005	E200.8	07/11/12 16:24	SLS	7440-39-3	
Cadmium	Not detected	mg/L	0.0005	E200.8	07/11/12 16:24	SLS	7440-43-9	
Chromium	Not detected	mg/L	0.005	E200.8	07/11/12 16:24	SLS	7440-47-3	
Lead	Not detected	mg/L	0.003	E200.8	07/11/12 16:24	SLS	7439-92-1	
Mercury	Not detected	mg/L	0.0002	E245.1	07/05/12 15:54	JRT	7439-97-6	
Selenium	Not detected	mg/L	0.005	E200.8	07/11/12 16:24	SLS	7782-49-2	
Silver	Not detected	mg/L	0.0005	E200.8	07/11/12 16:24	SLS	7440-22-4	
Organics - Semi-Volatiles								
Semi-Volatile Organics - MDEQ								
Acenaphthene	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	83-32-9	
Acenaphthylene	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	208-96-8	
Anthracene	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/L	1	SW8270C	07/06/12 16:45	PL	56-55-3	
Benzo(b)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 16:45	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 16:45	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/L	1	SW8270C	07/06/12 16:45	PL	191-24-2	
Benzo(a)pyrene	Not detected	ug/L	1	SW8270C	07/06/12 16:45	PL	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	111-91-1	
bis(2-Chloroethyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	111-44-4	
bis(2-Chloroisopropyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	117-81-7	
4-Bromophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	101-55-3	
Butyl benzyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	85-68-7	
4-Chloroaniline	Not detected	ug/L	10	SW8270C	07/06/12 16:45	PL	106-47-8	
2-Chloronaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	91-58-7	
4-Chloro-3-methylphenol	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	59-50-7	
2-Chlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 16:45	PL	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	7005-72-3	
Chrysene	Not detected	ug/L	1	SW8270C	07/06/12 16:45	PL	218-01-9	
p,m-Cresol	Not detected	ug/L	20	SW8270C	07/06/12 16:45	PL	3/4-Cresol	
o-Cresol	Not detected	ug/L	10	SW8270C	07/06/12 16:45	PL	95-48-7	
Dibenzo(ah)anthracene	Not detected	ug/L	2	SW8270C	07/06/12 16:45	PL	53-70-3	
Dibenzofuran	Not detected	ug/L	4	SW8270C	07/06/12 16:45	PL	132-64-9	
di-n-Butyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	84-74-2	

Lab Sample ID: S53059.06 (continued)
Sample Tag: MW-5

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 16:45	PL	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 16:45	PL	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 16:45	PL	106-46-7	
3,3'-Dichlorobenzidine	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	91-94-1	
2,4-Dichlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 16:45	PL	120-83-2	
Diethyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	84-66-2	
2,4-Dimethylphenol	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	105-67-9	
Dimethyl phthalate	8	ug/L	5	SW8270C	07/06/12 16:45	PL	131-11-3	B
4,6-Dinitro-2-methylphenol	Not detected	ug/L	20	SW8270C	07/06/12 16:45	PL	534-52-1	
2,4-Dinitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 16:45	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	121-14-2	
2,6-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	606-20-2	
1,2-Diphenylhydrazine	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	122-66-7	
di-n-Octyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	117-84-0	
Fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 16:45	PL	206-44-0	
Fluorene	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	86-73-7	
Hexachlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	118-74-1	
Hexachlorobutadiene	Not detected	ug/L	10	SW8270C	07/06/12 16:45	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	77-47-4	
Hexachloroethane	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	2	SW8270C	07/06/12 16:45	PL	193-39-5	
Isophorone	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	91-57-6	
Naphthalene	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	91-20-3	
2-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 16:45	PL	88-74-4	
3-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 16:45	PL	99-09-2	
4-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 16:45	PL	100-01-6	
Nitrobenzene	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	98-95-3	
2-Nitrophenol	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	88-75-5	
4-Nitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 16:45	PL	100-02-7	
N-Nitrosodiphenylamine	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	621-64-7	
Pentachlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	87-86-5	
Phenanthrene	Not detected	ug/L	2	SW8270C	07/06/12 16:45	PL	85-01-8	
Phenol	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	108-95-2	
Pyrene	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	129-00-0	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	120-82-1	
2,4,5-Trichlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 16:45	PL	95-95-4	
2,4,6-Trichlorophenol	Not detected	ug/L	4	SW8270C	07/06/12 16:45	PL	88-06-2	
Organics - Volatiles								
Volatile Organics - DEQ List								
Diethyl ether	Not detected	ug/L	10	SW8260B	07/10/12 18:10	WAT	60-29-7	
Acetone	Not detected	ug/L	50	SW8260B	07/10/12 18:10	WAT	67-64-1	
Methyl iodide	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	74-88-4	
Carbon disulfide	Not detected	ug/L	5	SW8260B	07/10/12 18:10	WAT	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW8260B	07/10/12 18:10	WAT	1634-04-4	
Acrylonitrile	Not detected	ug/L	2	SW8260B	07/10/12 18:10	WAT	107-13-1	

B-Compound also found in associated method blank

Lab Sample ID: S53059.06 (continued)
Sample Tag: MW-5

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
2-Butanone (MEK)	Not detected	ug/L	25	SW8260B	07/10/12 18:10	WAT	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	5	SW8260B	07/10/12 18:10	WAT	75-71-8	
Chloromethane	Not detected	ug/L	5	SW8260B	07/10/12 18:10	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	75-01-4	
Bromomethane	Not detected	ug/L	5	SW8260B	07/10/12 18:10	WAT	74-83-9	
Chloroethane	Not detected	ug/L	5	SW8260B	07/10/12 18:10	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	5	SW8260B	07/10/12 18:10	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	156-59-2	
Tetrahydrofuran	Not detected	ug/L	90	SW8260B	07/10/12 18:10	WAT	109-99-9	
Chloroform	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	67-66-3	
Bromochloromethane	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW8260B	07/10/12 18:10	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	50	SW8260B	07/10/12 18:10	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	56-23-5	
Benzene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	75-27-4	
Dibromomethane	Not detected	ug/L	5	SW8260B	07/10/12 18:10	WAT	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	110-57-6	
Dibromochloromethane	Not detected	ug/L	5	SW8260B	07/10/12 18:10	WAT	124-48-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	106-93-4	
Chlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	630-20-6	
Ethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	100-41-4	
p,m-Xylene	Not detected	ug/L	2	SW8260B	07/10/12 18:10	WAT		
o-Xylene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	95-47-6	
Styrene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	100-42-5	
Isopropylbenzene	Not detected	ug/L	5	SW8260B	07/10/12 18:10	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	79-34-5	
1,2,3-Trichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	96-18-4	
n-Propylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	103-65-1	
Bromobenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	108-86-1	
1,3,5-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	108-67-8	
tert-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	95-63-6	
sec-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	135-98-8	

Lab Sample ID: S53059.06 (continued)
Sample Tag: MW-5

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
p-Isopropyltoluene	Not detected	ug/L	5	SW8260B	07/10/12 18:10	WAT	99-87-6	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	526-73-8	
n-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:10	WAT	104-51-8	
Hexachloroethane	Not detected	ug/L	5	SW8260B	07/10/12 18:10	WAT	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW8260B	07/10/12 18:10	WAT	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 18:10	WAT	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 18:10	WAT	87-61-6	
Naphthalene	Not detected	ug/L	5	SW8260B	07/10/12 18:10	WAT	91-20-3	
2-Methylnaphthalene	Not detected	ug/L	5	SW8260B	07/10/12 18:10	WAT	91-57-6	

Analytical Laboratory Report

Lab Sample ID: S53059.07
Sample Tag: TB-2 (Trip Blank)
Collected Date/Time: 06/29/2012 00:01
Matrix: Groundwater
COC Reference: 65462

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	5.3	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles								
Volatile Organics - DEQ List								
Diethyl ether	Not detected	ug/L	10	SW8260B	07/10/12 18:33	WAT	60-29-7	
Acetone	Not detected	ug/L	50	SW8260B	07/10/12 18:33	WAT	67-64-1	
Methyl iodide	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	74-88-4	
Carbon disulfide	Not detected	ug/L	5	SW8260B	07/10/12 18:33	WAT	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW8260B	07/10/12 18:33	WAT	1634-04-4	
Acrylonitrile	Not detected	ug/L	2	SW8260B	07/10/12 18:33	WAT	107-13-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW8260B	07/10/12 18:33	WAT	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	5	SW8260B	07/10/12 18:33	WAT	75-71-8	
Chloromethane	Not detected	ug/L	5	SW8260B	07/10/12 18:33	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	75-01-4	
Bromomethane	Not detected	ug/L	5	SW8260B	07/10/12 18:33	WAT	74-83-9	
Chloroethane	Not detected	ug/L	5	SW8260B	07/10/12 18:33	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	5	SW8260B	07/10/12 18:33	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	156-59-2	
Tetrahydrofuran	Not detected	ug/L	90	SW8260B	07/10/12 18:33	WAT	109-99-9	
Chloroform	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	67-66-3	
Bromochloromethane	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW8260B	07/10/12 18:33	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	50	SW8260B	07/10/12 18:33	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	56-23-5	
Benzene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	75-27-4	
Dibromomethane	Not detected	ug/L	5	SW8260B	07/10/12 18:33	WAT	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	110-57-6	
Dibromochloromethane	Not detected	ug/L	5	SW8260B	07/10/12 18:33	WAT	124-48-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	106-93-4	
Chlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	630-20-6	
Ethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	100-41-4	

Lab Sample ID: S53059.07 (continued)
Sample Tag: TB-2 (Trip Blank)

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
p,m-Xylene	Not detected	ug/L	2	SW8260B	07/10/12 18:33	WAT		
o-Xylene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	95-47-6	
Styrene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	100-42-5	
Isopropylbenzene	Not detected	ug/L	5	SW8260B	07/10/12 18:33	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	79-34-5	
1,2,3-Trichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	96-18-4	
n-Propylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	103-65-1	
Bromobenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	108-86-1	
1,3,5-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	108-67-8	
tert-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	95-63-6	
sec-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	135-98-8	
p-Isopropyltoluene	Not detected	ug/L	5	SW8260B	07/10/12 18:33	WAT	99-87-6	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	526-73-8	
n-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:33	WAT	104-51-8	
Hexachloroethane	Not detected	ug/L	5	SW8260B	07/10/12 18:33	WAT	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW8260B	07/10/12 18:33	WAT	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 18:33	WAT	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 18:33	WAT	87-61-6	
Naphthalene	Not detected	ug/L	5	SW8260B	07/10/12 18:33	WAT	91-20-3	
2-Methylnaphthalene	Not detected	ug/L	5	SW8260B	07/10/12 18:33	WAT	91-57-6	

Merit Laboratories, Inc.
2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-6333
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

65462

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz
COMPANY: O'Brien & Gere
ADDRESS: 27000 Grand River Ave Ste 260
CITY: Farmington Hills STATE: MI ZIP CODE: 48335
PHONE NO.: 248-477-5701 FAX NO.: P.O. NO.: 125045.07.07
E-MAIL ADDRESS: clifford.yantz@OBG.com 6/27/12 QUOTE NO.:

INVOICE TO

CONTACT NAME: Dave Favero ☐ SAME
COMPANY: RACER Trust
ADDRESS: 2930 Ecorse Rd
CITY: Ypsilanti STATE: MI ZIP CODE: 48197
PHONE NO.: 217-741-6235 FAX NO.: P.O. NO.:

PROJECT NO./NAME: RACER Dort Hwy Land RACER #12960 Task 07
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schneider

TURNAROUND TIME REQUIRED: ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED: ☐ STANDARD ☐ LEVEL II ☒ LEVEL III ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE O=OIL A=AIR W=WASTE M=MISC

ANALYSIS (ATTACH LIST IF MORE SPACE REQUIRED)

MERIT LAB NO.	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCL	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs	SVOCs	TOTAL RCRA METALS	Dissolved RCRA METALS	SPECIAL INSTRUCTIONS/NOTES
530590 01	6/28/12	1435	MW-1	GW	6	2	2	2					X	X	X	X	
.02	↓	1700	MW-2	GW	6	2	2	2					X	X	X	X	
.03	↓	1840	MW2-1	GW	6	2	2	2					X	X	X	X	
.04	6/29/12	940	MW-4	GW	5	2	2	1					X	X	X		
.05	↓	1150	MW-3	GW	5	2	2	1					X	X	X		
.06	↓	1235	MW-5	GW	5	2	2	1					X	X	X		
.07	↓	—	TB-2 (Trip Blank)	QC	1		1						X				

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
	O'Brien & Gere	6/29/12	1340
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		6-29-12	1340
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		6/29/12	1440
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME
		6/29/12	1440

SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS
SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS

NOTES: TEMP. ON ARRIVAL 3.6

PLEASE NOTE: SIGNING ACKNOWLEDGES ACCEPTANCE OF TERMS & CONDITIONS ON REVERSE SIDE

Analytical Laboratory Report

Report ID: S53069.01(01)
Generated on 07/11/2012

Report to

Attention: Clifford Yantz
O'Brien & Gere Engineers, Inc.
37000 Grand River Ave.
Suite 260
Farmington, MI 48335

Phone: 248-477-5701 FAX:
Email: YantzCS@obg.com/

Report produced by

Merit Laboratories
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Report Summary

Lab Sample ID(s): S53069.01-S53069.06
Project: RACER Dort Hwy Land
Collected Date: 07/02/2012
Submitted Date/Time: 07/02/2012 14:30
Sampled by: Kevin Schneider
P.O. #: PO125045

Report Notes

Results relate only to items tested as received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
"Not detected" indicates that parameter was not found at a level equal to or greater than the RL.
Samples are held by the lab for 30 days from the sample submittal date unless a written request to hold longer is provided by the client.

Laboratory Certifications:
Michigan DNRE (#9956), DOD/ISO 17025 (#L11-184), WBENC (#2005110032)
Ohio EPA (#CL0002), IN Drinking Water (#C-MI-07), NELAC NY (#11814), NELAC FL (#E871045)
Some analytes reported may not be certified. Full certification lists are available upon request.

Violetta F. Murshak
Laboratory Director

Analytical Laboratory Report

Sample Summary (6 samples)

Sample ID	Sample Tag	Matrix	Collected Date/Time
S53069.01	MW-8	Groundwater	07/02/2012 10:15
S53069.02	DUP-1	Groundwater	07/02/2012 00:01
S53069.03	FB-1 (Field Blank)	Quality Control	07/02/2012 10:45
S53069.04	MW-6	Groundwater	07/02/2012 12:40
S53069.05	EB-1 (Equipment Blank)	Quality Control	07/02/2012 13:20
S53069.06	TB-3 (Trip Blank)	Quality Control	07/02/2012 00:01

Analytical Laboratory Report

Lab Sample ID: S53069.01
Sample Tag: MW-8
Collected Date/Time: 07/02/2012 10:15
Matrix: Groundwater
COC Reference: 63586

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	5.2	IR
1	125ml Plastic	HNO3	Yes	5.2	IR
2	1L Amber	None	Yes	5.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
BNA Extraction	Completed			3510C	07/05/12 18:32	EMR		
Mercury Digestion	Completed			E245.1	07/09/12 12:00	JRH		
Metal Digestion	Completed			3015A	07/05/12 01:00	SLR		
Metals								
Arsenic	Not detected	mg/L	0.002	E200.8	07/05/12 20:56	SLS	7440-38-2	
Barium	0.105	mg/L	0.005	E200.8	07/05/12 20:56	SLS	7440-39-3	
Cadmium	Not detected	mg/L	0.0005	E200.8	07/05/12 20:56	SLS	7440-43-9	
Chromium	Not detected	mg/L	0.005	E200.8	07/05/12 20:56	SLS	7440-47-3	
Lead	Not detected	mg/L	0.003	E200.8	07/05/12 20:56	SLS	7439-92-1	
Mercury	Not detected	mg/L	0.0002	E245.1	07/09/12 14:53	JRT	7439-97-6	
Selenium	Not detected	mg/L	0.005	E200.8	07/05/12 20:56	SLS	7782-49-2	
Silver	Not detected	mg/L	0.0005	E200.8	07/05/12 20:56	SLS	7440-22-4	
Organics - Semi-Volatiles								
Semi-Volatile Organics - MDEQ								
Acenaphthene	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	83-32-9	
Acenaphthylene	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	208-96-8	
Anthracene	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/L	1	SW8270C	07/06/12 17:20	PL	56-55-3	
Benzo(b)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 17:20	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 17:20	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/L	1	SW8270C	07/06/12 17:20	PL	191-24-2	
Benzo(a)pyrene	Not detected	ug/L	1	SW8270C	07/06/12 17:20	PL	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	111-91-1	
bis(2-Chloroethyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	111-44-4	
bis(2-Chloroisopropyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	117-81-7	
4-Bromophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	101-55-3	
Butyl benzyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	85-68-7	
4-Chloroaniline	Not detected	ug/L	10	SW8270C	07/06/12 17:20	PL	106-47-8	
2-Chloronaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	91-58-7	
4-Chloro-3-methylphenol	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	59-50-7	
2-Chlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 17:20	PL	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	7005-72-3	
Chrysene	Not detected	ug/L	1	SW8270C	07/06/12 17:20	PL	218-01-9	
p,m-Cresol	Not detected	ug/L	20	SW8270C	07/06/12 17:20	PL	3/4-Cresol	
o-Cresol	Not detected	ug/L	10	SW8270C	07/06/12 17:20	PL	95-48-7	
Dibenzo(ah)anthracene	Not detected	ug/L	2	SW8270C	07/06/12 17:20	PL	53-70-3	
Dibenzofuran	Not detected	ug/L	4	SW8270C	07/06/12 17:20	PL	132-64-9	
di-n-Butyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	84-74-2	

Lab Sample ID: S53069.01 (continued)
Sample Tag: MW-8

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 17:20	PL	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 17:20	PL	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 17:20	PL	106-46-7	
3,3'-Dichlorobenzidine	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	91-94-1	
2,4-Dichlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 17:20	PL	120-83-2	
Diethyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	84-66-2	
2,4-Dimethylphenol	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	105-67-9	
Dimethyl phthalate	8	ug/L	5	SW8270C	07/06/12 17:20	PL	131-11-3	B
4,6-Dinitro-2-methylphenol	Not detected	ug/L	20	SW8270C	07/06/12 17:20	PL	534-52-1	
2,4-Dinitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 17:20	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	121-14-2	
2,6-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	606-20-2	
1,2-Diphenylhydrazine	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	122-66-7	
di-n-Octyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	117-84-0	
Fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 17:20	PL	206-44-0	
Fluorene	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	86-73-7	
Hexachlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	118-74-1	
Hexachlorobutadiene	Not detected	ug/L	10	SW8270C	07/06/12 17:20	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	77-47-4	
Hexachloroethane	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	2	SW8270C	07/06/12 17:20	PL	193-39-5	
Isophorone	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	91-57-6	
Naphthalene	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	91-20-3	
2-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 17:20	PL	88-74-4	
3-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 17:20	PL	99-09-2	
4-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 17:20	PL	100-01-6	
Nitrobenzene	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	98-95-3	
2-Nitrophenol	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	88-75-5	
4-Nitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 17:20	PL	100-02-7	
N-Nitrosodiphenylamine	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	621-64-7	
Pentachlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	87-86-5	
Phenanthrene	Not detected	ug/L	2	SW8270C	07/06/12 17:20	PL	85-01-8	
Phenol	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	108-95-2	
Pyrene	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	129-00-0	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	120-82-1	
2,4,5-Trichlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 17:20	PL	95-95-4	
2,4,6-Trichlorophenol	Not detected	ug/L	4	SW8270C	07/06/12 17:20	PL	88-06-2	
Organics - Volatiles								
Volatile Organics - DEQ List								
Diethyl ether	Not detected	ug/L	10	SW8260B	07/10/12 18:55	WAT	60-29-7	
Acetone	Not detected	ug/L	50	SW8260B	07/10/12 18:55	WAT	67-64-1	
Methyl iodide	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	74-88-4	
Carbon disulfide	Not detected	ug/L	5	SW8260B	07/10/12 18:55	WAT	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW8260B	07/10/12 18:55	WAT	1634-04-4	
Acrylonitrile	Not detected	ug/L	2	SW8260B	07/10/12 18:55	WAT	107-13-1	

B-Compound also found in associated method blank

Lab Sample ID: S53069.01 (continued)
Sample Tag: MW-8

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
2-Butanone (MEK)	Not detected	ug/L	25	SW8260B	07/10/12 18:55	WAT	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	5	SW8260B	07/10/12 18:55	WAT	75-71-8	
Chloromethane	Not detected	ug/L	5	SW8260B	07/10/12 18:55	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	75-01-4	
Bromomethane	Not detected	ug/L	5	SW8260B	07/10/12 18:55	WAT	74-83-9	
Chloroethane	Not detected	ug/L	5	SW8260B	07/10/12 18:55	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	5	SW8260B	07/10/12 18:55	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	156-59-2	
Tetrahydrofuran	Not detected	ug/L	90	SW8260B	07/10/12 18:55	WAT	109-99-9	
Chloroform	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	67-66-3	
Bromochloromethane	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW8260B	07/10/12 18:55	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	50	SW8260B	07/10/12 18:55	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	56-23-5	
Benzene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	75-27-4	
Dibromomethane	Not detected	ug/L	5	SW8260B	07/10/12 18:55	WAT	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	110-57-6	
Dibromochloromethane	Not detected	ug/L	5	SW8260B	07/10/12 18:55	WAT	124-48-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	106-93-4	
Chlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	630-20-6	
Ethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	100-41-4	
p,m-Xylene	Not detected	ug/L	2	SW8260B	07/10/12 18:55	WAT		
o-Xylene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	95-47-6	
Styrene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	100-42-5	
Isopropylbenzene	Not detected	ug/L	5	SW8260B	07/10/12 18:55	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	79-34-5	
1,2,3-Trichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	96-18-4	
n-Propylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	103-65-1	
Bromobenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	108-86-1	
1,3,5-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	108-67-8	
tert-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	95-63-6	
sec-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	135-98-8	

Lab Sample ID: S53069.01 (continued)
Sample Tag: MW-8

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
p-Isopropyltoluene	Not detected	ug/L	5	SW8260B	07/10/12 18:55	WAT	99-87-6	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	526-73-8	
n-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 18:55	WAT	104-51-8	
Hexachloroethane	Not detected	ug/L	5	SW8260B	07/10/12 18:55	WAT	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW8260B	07/10/12 18:55	WAT	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 18:55	WAT	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 18:55	WAT	87-61-6	
Naphthalene	Not detected	ug/L	5	SW8260B	07/10/12 18:55	WAT	91-20-3	
2-Methylnaphthalene	Not detected	ug/L	5	SW8260B	07/10/12 18:55	WAT	91-57-6	

Analytical Laboratory Report

Lab Sample ID: S53069.02
Sample Tag: DUP-1
Collected Date/Time: 07/02/2012 00:01
Matrix: Groundwater
COC Reference: 63586

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	5.2	IR
1	125ml Plastic	HNO3	Yes	5.2	IR
2	1L Amber	None	Yes	5.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
BNA Extraction	Completed			3510C	07/05/12 18:32	EMR		
Mercury Digestion	Completed			E245.1	07/09/12 12:00	JRH		
Metal Digestion	Completed			3015A	07/05/12 01:00	SLR		
Metals								
Arsenic	Not detected	mg/L	0.002	E200.8	07/05/12 21:00	SLS	7440-38-2	
Barium	0.111	mg/L	0.005	E200.8	07/05/12 21:00	SLS	7440-39-3	
Cadmium	Not detected	mg/L	0.0005	E200.8	07/05/12 21:00	SLS	7440-43-9	
Chromium	Not detected	mg/L	0.005	E200.8	07/05/12 21:00	SLS	7440-47-3	
Lead	Not detected	mg/L	0.003	E200.8	07/05/12 21:00	SLS	7439-92-1	
Mercury	Not detected	mg/L	0.0002	E245.1	07/09/12 14:55	JRT	7439-97-6	
Selenium	Not detected	mg/L	0.005	E200.8	07/05/12 21:00	SLS	7782-49-2	
Silver	Not detected	mg/L	0.0005	E200.8	07/05/12 21:00	SLS	7440-22-4	
Organics - Semi-Volatiles								
Semi-Volatile Organics - MDEQ								
Acenaphthene	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	83-32-9	
Acenaphthylene	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	208-96-8	
Anthracene	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/L	1	SW8270C	07/06/12 17:56	PL	56-55-3	
Benzo(b)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 17:56	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 17:56	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/L	1	SW8270C	07/06/12 17:56	PL	191-24-2	
Benzo(a)pyrene	Not detected	ug/L	1	SW8270C	07/06/12 17:56	PL	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	111-91-1	
bis(2-Chloroethyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	111-44-4	
bis(2-Chloroisopropyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	117-81-7	
4-Bromophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	101-55-3	
Butyl benzyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	85-68-7	
4-Chloroaniline	Not detected	ug/L	10	SW8270C	07/06/12 17:56	PL	106-47-8	
2-Chloronaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	91-58-7	
4-Chloro-3-methylphenol	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	59-50-7	
2-Chlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 17:56	PL	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	7005-72-3	
Chrysene	Not detected	ug/L	1	SW8270C	07/06/12 17:56	PL	218-01-9	
p,m-Cresol	Not detected	ug/L	20	SW8270C	07/06/12 17:56	PL	3/4-Cresol	
o-Cresol	Not detected	ug/L	10	SW8270C	07/06/12 17:56	PL	95-48-7	
Dibenzo(ah)anthracene	Not detected	ug/L	2	SW8270C	07/06/12 17:56	PL	53-70-3	
Dibenzofuran	Not detected	ug/L	4	SW8270C	07/06/12 17:56	PL	132-64-9	
di-n-Butyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	84-74-2	

Lab Sample ID: S53069.02 (continued)
Sample Tag: DUP-1

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 17:56	PL	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 17:56	PL	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 17:56	PL	106-46-7	
3,3'-Dichlorobenzidine	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	91-94-1	
2,4-Dichlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 17:56	PL	120-83-2	
Diethyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	84-66-2	
2,4-Dimethylphenol	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	105-67-9	
Dimethyl phthalate	10	ug/L	5	SW8270C	07/06/12 17:56	PL	131-11-3	B
4,6-Dinitro-2-methylphenol	Not detected	ug/L	20	SW8270C	07/06/12 17:56	PL	534-52-1	
2,4-Dinitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 17:56	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	121-14-2	
2,6-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	606-20-2	
1,2-Diphenylhydrazine	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	122-66-7	
di-n-Octyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	117-84-0	
Fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 17:56	PL	206-44-0	
Fluorene	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	86-73-7	
Hexachlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	118-74-1	
Hexachlorobutadiene	Not detected	ug/L	10	SW8270C	07/06/12 17:56	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	77-47-4	
Hexachloroethane	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	2	SW8270C	07/06/12 17:56	PL	193-39-5	
Isophorone	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	91-57-6	
Naphthalene	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	91-20-3	
2-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 17:56	PL	88-74-4	
3-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 17:56	PL	99-09-2	
4-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 17:56	PL	100-01-6	
Nitrobenzene	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	98-95-3	
2-Nitrophenol	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	88-75-5	
4-Nitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 17:56	PL	100-02-7	
N-Nitrosodiphenylamine	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	621-64-7	
Pentachlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	87-86-5	
Phenanthrene	Not detected	ug/L	2	SW8270C	07/06/12 17:56	PL	85-01-8	
Phenol	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	108-95-2	
Pyrene	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	129-00-0	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	120-82-1	
2,4,5-Trichlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 17:56	PL	95-95-4	
2,4,6-Trichlorophenol	Not detected	ug/L	4	SW8270C	07/06/12 17:56	PL	88-06-2	
Organics - Volatiles								
Volatile Organics - DEQ List								
Diethyl ether	Not detected	ug/L	10	SW8260B	07/10/12 19:17	WAT	60-29-7	
Acetone	Not detected	ug/L	50	SW8260B	07/10/12 19:17	WAT	67-64-1	
Methyl iodide	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	74-88-4	
Carbon disulfide	Not detected	ug/L	5	SW8260B	07/10/12 19:17	WAT	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW8260B	07/10/12 19:17	WAT	1634-04-4	
Acrylonitrile	Not detected	ug/L	2	SW8260B	07/10/12 19:17	WAT	107-13-1	

B-Compound also found in associated method blank

Lab Sample ID: S53069.02 (continued)
Sample Tag: DUP-1

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
2-Butanone (MEK)	Not detected	ug/L	25	SW8260B	07/10/12 19:17	WAT	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	5	SW8260B	07/10/12 19:17	WAT	75-71-8	
Chloromethane	Not detected	ug/L	5	SW8260B	07/10/12 19:17	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	75-01-4	
Bromomethane	Not detected	ug/L	5	SW8260B	07/10/12 19:17	WAT	74-83-9	
Chloroethane	Not detected	ug/L	5	SW8260B	07/10/12 19:17	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	5	SW8260B	07/10/12 19:17	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	156-59-2	
Tetrahydrofuran	Not detected	ug/L	90	SW8260B	07/10/12 19:17	WAT	109-99-9	
Chloroform	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	67-66-3	
Bromochloromethane	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW8260B	07/10/12 19:17	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	50	SW8260B	07/10/12 19:17	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	56-23-5	
Benzene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	75-27-4	
Dibromomethane	Not detected	ug/L	5	SW8260B	07/10/12 19:17	WAT	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	110-57-6	
Dibromochloromethane	Not detected	ug/L	5	SW8260B	07/10/12 19:17	WAT	124-48-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	106-93-4	
Chlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	630-20-6	
Ethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	100-41-4	
p,m-Xylene	Not detected	ug/L	2	SW8260B	07/10/12 19:17	WAT		
o-Xylene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	95-47-6	
Styrene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	100-42-5	
Isopropylbenzene	Not detected	ug/L	5	SW8260B	07/10/12 19:17	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	79-34-5	
1,2,3-Trichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	96-18-4	
n-Propylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	103-65-1	
Bromobenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	108-86-1	
1,3,5-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	108-67-8	
tert-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	95-63-6	
sec-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	135-98-8	

Lab Sample ID: S53069.02 (continued)
Sample Tag: DUP-1

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
p-Isopropyltoluene	Not detected	ug/L	5	SW8260B	07/10/12 19:17	WAT	99-87-6	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	526-73-8	
n-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:17	WAT	104-51-8	
Hexachloroethane	Not detected	ug/L	5	SW8260B	07/10/12 19:17	WAT	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW8260B	07/10/12 19:17	WAT	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 19:17	WAT	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 19:17	WAT	87-61-6	
Naphthalene	Not detected	ug/L	5	SW8260B	07/10/12 19:17	WAT	91-20-3	
2-Methylnaphthalene	Not detected	ug/L	5	SW8260B	07/10/12 19:17	WAT	91-57-6	

Lab Sample ID: S53069.03
Sample Tag: FB-1 (Field Blank)
Collected Date/Time: 07/02/2012 10:45
Matrix: Quality Control
COC Reference: 63586

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	5.2	IR
1	125ml Plastic	HNO3	Yes	5.2	IR
2	1L Amber	None	Yes	5.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
BNA Extraction	Completed			3510C	07/05/12 18:32	EMR		
Mercury Digestion	Completed			E245.1	07/09/12 12:00	JRH		
Metal Digestion	Completed			3015A	07/05/12 01:00	SLR		
Metals								
Arsenic	Not detected	mg/L	0.002	E200.8	07/05/12 21:04	SLS	7440-38-2	
Barium	Not detected	mg/L	0.005	E200.8	07/05/12 21:04	SLS	7440-39-3	
Cadmium	Not detected	mg/L	0.0005	E200.8	07/05/12 21:04	SLS	7440-43-9	
Chromium	Not detected	mg/L	0.005	E200.8	07/05/12 21:04	SLS	7440-47-3	
Lead	Not detected	mg/L	0.003	E200.8	07/05/12 21:04	SLS	7439-92-1	
Mercury	Not detected	mg/L	0.0002	E245.1	07/09/12 14:57	JRT	7439-97-6	
Selenium	Not detected	mg/L	0.005	E200.8	07/05/12 21:04	SLS	7782-49-2	
Silver	Not detected	mg/L	0.0005	E200.8	07/05/12 21:04	SLS	7440-22-4	
Organics - Semi-Volatiles								
Semi-Volatile Organics - MDEQ								
Acenaphthene	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	83-32-9	
Acenaphthylene	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	208-96-8	
Anthracene	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/L	1	SW8270C	07/06/12 18:31	PL	56-55-3	
Benzo(b)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 18:31	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 18:31	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/L	1	SW8270C	07/06/12 18:31	PL	191-24-2	
Benzo(a)pyrene	Not detected	ug/L	1	SW8270C	07/06/12 18:31	PL	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	111-91-1	
bis(2-Chloroethyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	111-44-4	
bis(2-Chloroisopropyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	117-81-7	
4-Bromophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	101-55-3	
Butyl benzyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	85-68-7	
4-Chloroaniline	Not detected	ug/L	10	SW8270C	07/06/12 18:31	PL	106-47-8	
2-Chloronaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	91-58-7	
4-Chloro-3-methylphenol	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	59-50-7	
2-Chlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 18:31	PL	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	7005-72-3	
Chrysene	Not detected	ug/L	1	SW8270C	07/06/12 18:31	PL	218-01-9	
p,m-Cresol	Not detected	ug/L	20	SW8270C	07/06/12 18:31	PL	3/4-Cresol	
o-Cresol	Not detected	ug/L	10	SW8270C	07/06/12 18:31	PL	95-48-7	
Dibenzo(ah)anthracene	Not detected	ug/L	2	SW8270C	07/06/12 18:31	PL	53-70-3	
Dibenzofuran	Not detected	ug/L	4	SW8270C	07/06/12 18:31	PL	132-64-9	
di-n-Butyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	84-74-2	

Lab Sample ID: S53069.03 (continued)
Sample Tag: FB-1 (Field Blank)

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 18:31	PL	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 18:31	PL	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 18:31	PL	106-46-7	
3,3'-Dichlorobenzidine	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	91-94-1	
2,4-Dichlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 18:31	PL	120-83-2	
Diethyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	84-66-2	
2,4-Dimethylphenol	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	105-67-9	
Dimethyl phthalate	9	ug/L	5	SW8270C	07/06/12 18:31	PL	131-11-3	B
4,6-Dinitro-2-methylphenol	Not detected	ug/L	20	SW8270C	07/06/12 18:31	PL	534-52-1	
2,4-Dinitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 18:31	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	121-14-2	
2,6-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	606-20-2	
1,2-Diphenylhydrazine	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	122-66-7	
di-n-Octyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	117-84-0	
Fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 18:31	PL	206-44-0	
Fluorene	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	86-73-7	
Hexachlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	118-74-1	
Hexachlorobutadiene	Not detected	ug/L	10	SW8270C	07/06/12 18:31	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	77-47-4	
Hexachloroethane	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	2	SW8270C	07/06/12 18:31	PL	193-39-5	
Isophorone	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	91-57-6	
Naphthalene	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	91-20-3	
2-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 18:31	PL	88-74-4	
3-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 18:31	PL	99-09-2	
4-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 18:31	PL	100-01-6	
Nitrobenzene	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	98-95-3	
2-Nitrophenol	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	88-75-5	
4-Nitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 18:31	PL	100-02-7	
N-Nitrosodiphenylamine	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	621-64-7	
Pentachlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	87-86-5	
Phenanthrene	Not detected	ug/L	2	SW8270C	07/06/12 18:31	PL	85-01-8	
Phenol	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	108-95-2	
Pyrene	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	129-00-0	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	120-82-1	
2,4,5-Trichlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 18:31	PL	95-95-4	
2,4,6-Trichlorophenol	Not detected	ug/L	4	SW8270C	07/06/12 18:31	PL	88-06-2	
Organics - Volatiles								
Volatile Organics - DEQ List								
Diethyl ether	Not detected	ug/L	10	SW8260B	07/10/12 19:39	WAT	60-29-7	
Acetone	Not detected	ug/L	50	SW8260B	07/10/12 19:39	WAT	67-64-1	
Methyl iodide	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	74-88-4	
Carbon disulfide	Not detected	ug/L	5	SW8260B	07/10/12 19:39	WAT	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW8260B	07/10/12 19:39	WAT	1634-04-4	
Acrylonitrile	Not detected	ug/L	2	SW8260B	07/10/12 19:39	WAT	107-13-1	

B-Compound also found in associated method blank

Lab Sample ID: S53069.03 (continued)
Sample Tag: FB-1 (Field Blank)

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
2-Butanone (MEK)	Not detected	ug/L	25	SW8260B	07/10/12 19:39	WAT	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	5	SW8260B	07/10/12 19:39	WAT	75-71-8	
Chloromethane	Not detected	ug/L	5	SW8260B	07/10/12 19:39	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	75-01-4	
Bromomethane	Not detected	ug/L	5	SW8260B	07/10/12 19:39	WAT	74-83-9	
Chloroethane	Not detected	ug/L	5	SW8260B	07/10/12 19:39	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	5	SW8260B	07/10/12 19:39	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	156-59-2	
Tetrahydrofuran	Not detected	ug/L	90	SW8260B	07/10/12 19:39	WAT	109-99-9	
Chloroform	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	67-66-3	
Bromochloromethane	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW8260B	07/10/12 19:39	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	50	SW8260B	07/10/12 19:39	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	56-23-5	
Benzene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	75-27-4	
Dibromomethane	Not detected	ug/L	5	SW8260B	07/10/12 19:39	WAT	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	110-57-6	
Dibromochloromethane	Not detected	ug/L	5	SW8260B	07/10/12 19:39	WAT	124-48-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	106-93-4	
Chlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	630-20-6	
Ethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	100-41-4	
p,m-Xylene	Not detected	ug/L	2	SW8260B	07/10/12 19:39	WAT		
o-Xylene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	95-47-6	
Styrene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	100-42-5	
Isopropylbenzene	Not detected	ug/L	5	SW8260B	07/10/12 19:39	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	79-34-5	
1,2,3-Trichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	96-18-4	
n-Propylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	103-65-1	
Bromobenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	108-86-1	
1,3,5-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	108-67-8	
tert-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	95-63-6	
sec-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	135-98-8	

Lab Sample ID: S53069.03 (continued)
Sample Tag: FB-1 (Field Blank)

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
p-Isopropyltoluene	Not detected	ug/L	5	SW8260B	07/10/12 19:39	WAT	99-87-6	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	526-73-8	
n-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 19:39	WAT	104-51-8	
Hexachloroethane	Not detected	ug/L	5	SW8260B	07/10/12 19:39	WAT	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW8260B	07/10/12 19:39	WAT	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 19:39	WAT	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 19:39	WAT	87-61-6	
Naphthalene	Not detected	ug/L	5	SW8260B	07/10/12 19:39	WAT	91-20-3	
2-Methylnaphthalene	Not detected	ug/L	5	SW8260B	07/10/12 19:39	WAT	91-57-6	

Analytical Laboratory Report

Lab Sample ID: S53069.04
Sample Tag: MW-6
Collected Date/Time: 07/02/2012 12:40
Matrix: Groundwater
COC Reference: 63586

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	5.2	IR
1	125ml Plastic	HNO3	Yes	5.2	IR
2	1L Amber	None	Yes	5.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
BNA Extraction	Completed			3510C	07/05/12 18:32	EMR		
Mercury Digestion	Completed			E245.1	07/09/12 12:00	JRH		
Metal Digestion	Completed			3015A	07/05/12 01:00	SLR		
Metals								
Arsenic	Not detected	mg/L	0.002	E200.8	07/05/12 21:08	SLS	7440-38-2	
Barium	0.046	mg/L	0.005	E200.8	07/05/12 21:08	SLS	7440-39-3	
Cadmium	Not detected	mg/L	0.0005	E200.8	07/05/12 21:08	SLS	7440-43-9	
Chromium	Not detected	mg/L	0.005	E200.8	07/05/12 21:08	SLS	7440-47-3	
Lead	Not detected	mg/L	0.003	E200.8	07/05/12 21:08	SLS	7439-92-1	
Mercury	Not detected	mg/L	0.0002	E245.1	07/09/12 14:59	JRT	7439-97-6	
Selenium	Not detected	mg/L	0.005	E200.8	07/05/12 21:08	SLS	7782-49-2	
Silver	Not detected	mg/L	0.0005	E200.8	07/05/12 21:08	SLS	7440-22-4	
Organics - Semi-Volatiles								
Semi-Volatile Organics - MDEQ								
Acenaphthene	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	83-32-9	
Acenaphthylene	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	208-96-8	
Anthracene	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/L	1	SW8270C	07/06/12 19:07	PL	56-55-3	
Benzo(b)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 19:07	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 19:07	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/L	1	SW8270C	07/06/12 19:07	PL	191-24-2	
Benzo(a)pyrene	Not detected	ug/L	1	SW8270C	07/06/12 19:07	PL	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	111-91-1	
bis(2-Chloroethyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	111-44-4	
bis(2-Chloroisopropyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	117-81-7	
4-Bromophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	101-55-3	
Butyl benzyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	85-68-7	
4-Chloroaniline	Not detected	ug/L	10	SW8270C	07/06/12 19:07	PL	106-47-8	
2-Chloronaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	91-58-7	
4-Chloro-3-methylphenol	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	59-50-7	
2-Chlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 19:07	PL	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	7005-72-3	
Chrysene	Not detected	ug/L	1	SW8270C	07/06/12 19:07	PL	218-01-9	
p,m-Cresol	Not detected	ug/L	20	SW8270C	07/06/12 19:07	PL	3/4-Cresol	
o-Cresol	Not detected	ug/L	10	SW8270C	07/06/12 19:07	PL	95-48-7	
Dibenzo(ah)anthracene	Not detected	ug/L	2	SW8270C	07/06/12 19:07	PL	53-70-3	
Dibenzofuran	Not detected	ug/L	4	SW8270C	07/06/12 19:07	PL	132-64-9	
di-n-Butyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	84-74-2	

Lab Sample ID: S53069.04 (continued)
Sample Tag: MW-6

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 19:07	PL	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 19:07	PL	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 19:07	PL	106-46-7	
3,3'-Dichlorobenzidine	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	91-94-1	
2,4-Dichlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 19:07	PL	120-83-2	
Diethyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	84-66-2	
2,4-Dimethylphenol	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	105-67-9	
Dimethyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	ug/L	20	SW8270C	07/06/12 19:07	PL	534-52-1	
2,4-Dinitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 19:07	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	121-14-2	
2,6-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	606-20-2	
1,2-Diphenylhydrazine	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	122-66-7	
di-n-Octyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	117-84-0	
Fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 19:07	PL	206-44-0	
Fluorene	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	86-73-7	
Hexachlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	118-74-1	
Hexachlorobutadiene	Not detected	ug/L	10	SW8270C	07/06/12 19:07	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	77-47-4	
Hexachloroethane	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	2	SW8270C	07/06/12 19:07	PL	193-39-5	
Isophorone	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	91-57-6	
Naphthalene	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	91-20-3	
2-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 19:07	PL	88-74-4	
3-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 19:07	PL	99-09-2	
4-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 19:07	PL	100-01-6	
Nitrobenzene	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	98-95-3	
2-Nitrophenol	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	88-75-5	
4-Nitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 19:07	PL	100-02-7	
N-Nitrosodiphenylamine	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	621-64-7	
Pentachlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	87-86-5	
Phenanthrene	Not detected	ug/L	2	SW8270C	07/06/12 19:07	PL	85-01-8	
Phenol	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	108-95-2	
Pyrene	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	129-00-0	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	120-82-1	
2,4,5-Trichlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 19:07	PL	95-95-4	
2,4,6-Trichlorophenol	Not detected	ug/L	4	SW8270C	07/06/12 19:07	PL	88-06-2	
Organics - Volatiles								
Volatile Organics - DEQ List								
Diethyl ether	Not detected	ug/L	10	SW8260B	07/10/12 20:01	WAT	60-29-7	
Acetone	Not detected	ug/L	50	SW8260B	07/10/12 20:01	WAT	67-64-1	
Methyl iodide	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	74-88-4	
Carbon disulfide	Not detected	ug/L	5	SW8260B	07/10/12 20:01	WAT	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW8260B	07/10/12 20:01	WAT	1634-04-4	
Acrylonitrile	Not detected	ug/L	2	SW8260B	07/10/12 20:01	WAT	107-13-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW8260B	07/10/12 20:01	WAT	78-93-3	

Lab Sample ID: S53069.04 (continued)
Sample Tag: MW-6

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
Dichlorodifluoromethane	Not detected	ug/L	5	SW8260B	07/10/12 20:01	WAT	75-71-8	
Chloromethane	Not detected	ug/L	5	SW8260B	07/10/12 20:01	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	75-01-4	
Bromomethane	Not detected	ug/L	5	SW8260B	07/10/12 20:01	WAT	74-83-9	
Chloroethane	Not detected	ug/L	5	SW8260B	07/10/12 20:01	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	5	SW8260B	07/10/12 20:01	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	156-59-2	
Tetrahydrofuran	Not detected	ug/L	90	SW8260B	07/10/12 20:01	WAT	109-99-9	
Chloroform	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	67-66-3	
Bromochloromethane	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW8260B	07/10/12 20:01	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	50	SW8260B	07/10/12 20:01	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	56-23-5	
Benzene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	75-27-4	
Dibromomethane	Not detected	ug/L	5	SW8260B	07/10/12 20:01	WAT	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	110-57-6	
Dibromochloromethane	Not detected	ug/L	5	SW8260B	07/10/12 20:01	WAT	124-48-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	106-93-4	
Chlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	630-20-6	
Ethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	100-41-4	
p,m-Xylene	Not detected	ug/L	2	SW8260B	07/10/12 20:01	WAT		
o-Xylene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	95-47-6	
Styrene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	100-42-5	
Isopropylbenzene	Not detected	ug/L	5	SW8260B	07/10/12 20:01	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	79-34-5	
1,2,3-Trichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	96-18-4	
n-Propylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	103-65-1	
Bromobenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	108-86-1	
1,3,5-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	108-67-8	
tert-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	95-63-6	
sec-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	135-98-8	
p-Isopropyltoluene	Not detected	ug/L	5	SW8260B	07/10/12 20:01	WAT	99-87-6	

Lab Sample ID: S53069.04 (continued)
Sample Tag: MW-6

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	526-73-8	
n-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:01	WAT	104-51-8	
Hexachloroethane	Not detected	ug/L	5	SW8260B	07/10/12 20:01	WAT	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW8260B	07/10/12 20:01	WAT	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 20:01	WAT	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 20:01	WAT	87-61-6	
Naphthalene	Not detected	ug/L	5	SW8260B	07/10/12 20:01	WAT	91-20-3	
2-Methylnaphthalene	Not detected	ug/L	5	SW8260B	07/10/12 20:01	WAT	91-57-6	

Lab Sample ID: S53069.05
Sample Tag: EB-1 (Equipment Blank)
Collected Date/Time: 07/02/2012 13:20
Matrix: Quality Control
COC Reference: 63586

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
2	40ml Glass	HCL	Yes	5.2	IR
1	125ml Plastic	HNO3	Yes	5.2	IR
2	1L Amber	None	Yes	5.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Extraction / Prep.								
BNA Extraction	Completed			3510C	07/05/12 18:32	EMR		
Mercury Digestion	Completed			E245.1	07/09/12 12:00	JRH		
Metal Digestion	Completed			3015A	07/05/12 01:00	SLR		
Metals								
Arsenic	Not detected	mg/L	0.002	E200.8	07/05/12 21:12	SLS	7440-38-2	
Barium	Not detected	mg/L	0.005	E200.8	07/05/12 21:12	SLS	7440-39-3	
Cadmium	Not detected	mg/L	0.0005	E200.8	07/05/12 21:12	SLS	7440-43-9	
Chromium	Not detected	mg/L	0.005	E200.8	07/05/12 21:12	SLS	7440-47-3	
Lead	Not detected	mg/L	0.003	E200.8	07/05/12 21:12	SLS	7439-92-1	
Mercury	Not detected	mg/L	0.0002	E245.1	07/09/12 15:11	JRT	7439-97-6	
Selenium	Not detected	mg/L	0.005	E200.8	07/05/12 21:12	SLS	7782-49-2	
Silver	Not detected	mg/L	0.0005	E200.8	07/05/12 21:12	SLS	7440-22-4	
Organics - Semi-Volatiles								
Semi-Volatile Organics - MDEQ								
Acenaphthene	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	83-32-9	
Acenaphthylene	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	208-96-8	
Anthracene	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	120-12-7	
Benzo(a)anthracene	Not detected	ug/L	1	SW8270C	07/06/12 19:43	PL	56-55-3	
Benzo(b)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 19:43	PL	205-99-2	
Benzo(k)fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 19:43	PL	207-08-9	
Benzo(ghi)perylene	Not detected	ug/L	1	SW8270C	07/06/12 19:43	PL	191-24-2	
Benzo(a)pyrene	Not detected	ug/L	1	SW8270C	07/06/12 19:43	PL	50-32-8	
bis(2-Chloroethoxy)methane	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	111-91-1	
bis(2-Chloroethyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	111-44-4	
bis(2-Chloroisopropyl)ether	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	108-60-1	
bis(2-Ethylhexyl)phthalate	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	117-81-7	
4-Bromophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	101-55-3	
Butyl benzyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	85-68-7	
4-Chloroaniline	Not detected	ug/L	10	SW8270C	07/06/12 19:43	PL	106-47-8	
2-Chloronaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	91-58-7	
4-Chloro-3-methylphenol	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	59-50-7	
2-Chlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 19:43	PL	95-57-8	
4-Chlorophenyl phenyl ether	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	7005-72-3	
Chrysene	Not detected	ug/L	1	SW8270C	07/06/12 19:43	PL	218-01-9	
p,m-Cresol	Not detected	ug/L	20	SW8270C	07/06/12 19:43	PL	3/4-Cresol	
o-Cresol	Not detected	ug/L	10	SW8270C	07/06/12 19:43	PL	95-48-7	
Dibenzo(ah)anthracene	Not detected	ug/L	2	SW8270C	07/06/12 19:43	PL	53-70-3	
Dibenzofuran	Not detected	ug/L	4	SW8270C	07/06/12 19:43	PL	132-64-9	
di-n-Butyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	84-74-2	

Lab Sample ID: S53069.05 (continued)
Sample Tag: EB-1 (Equipment Blank)

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Semi-Volatiles (continued)								
Semi-Volatile Organics - MDEQ (continued)								
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 19:43	PL	95-50-1	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 19:43	PL	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8270C	07/06/12 19:43	PL	106-46-7	
3,3'-Dichlorobenzidine	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	91-94-1	
2,4-Dichlorophenol	Not detected	ug/L	10	SW8270C	07/06/12 19:43	PL	120-83-2	
Diethyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	84-66-2	
2,4-Dimethylphenol	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	105-67-9	
Dimethyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	131-11-3	
4,6-Dinitro-2-methylphenol	Not detected	ug/L	20	SW8270C	07/06/12 19:43	PL	534-52-1	
2,4-Dinitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 19:43	PL	51-28-5	
2,4-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	121-14-2	
2,6-Dinitrotoluene	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	606-20-2	
1,2-Diphenylhydrazine	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	122-66-7	
di-n-Octyl phthalate	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	117-84-0	
Fluoranthene	Not detected	ug/L	1	SW8270C	07/06/12 19:43	PL	206-44-0	
Fluorene	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	86-73-7	
Hexachlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	118-74-1	
Hexachlorobutadiene	Not detected	ug/L	10	SW8270C	07/06/12 19:43	PL	87-68-3	
Hexachlorocyclopentadiene	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	77-47-4	
Hexachloroethane	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	67-72-1	
Indeno(1,2,3-cd)pyrene	Not detected	ug/L	2	SW8270C	07/06/12 19:43	PL	193-39-5	
Isophorone	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	78-59-1	
2-Methylnaphthalene	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	91-57-6	
Naphthalene	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	91-20-3	
2-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 19:43	PL	88-74-4	
3-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 19:43	PL	99-09-2	
4-Nitroaniline	Not detected	ug/L	25	SW8270C	07/06/12 19:43	PL	100-01-6	
Nitrobenzene	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	98-95-3	
2-Nitrophenol	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	88-75-5	
4-Nitrophenol	Not detected	ug/L	25	SW8270C	07/06/12 19:43	PL	100-02-7	
N-Nitrosodiphenylamine	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	86-30-6	
N-Nitrosodi-n-propylamine	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	621-64-7	
Pentachlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	87-86-5	
Phenanthrene	Not detected	ug/L	2	SW8270C	07/06/12 19:43	PL	85-01-8	
Phenol	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	108-95-2	
Pyrene	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	129-00-0	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	120-82-1	
2,4,5-Trichlorophenol	Not detected	ug/L	5	SW8270C	07/06/12 19:43	PL	95-95-4	
2,4,6-Trichlorophenol	Not detected	ug/L	4	SW8270C	07/06/12 19:43	PL	88-06-2	
Organics - Volatiles								
Volatile Organics - DEQ List								
Diethyl ether	Not detected	ug/L	10	SW8260B	07/10/12 20:23	WAT	60-29-7	
Acetone	Not detected	ug/L	50	SW8260B	07/10/12 20:23	WAT	67-64-1	
Methyl iodide	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	74-88-4	
Carbon disulfide	Not detected	ug/L	5	SW8260B	07/10/12 20:23	WAT	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW8260B	07/10/12 20:23	WAT	1634-04-4	
Acrylonitrile	Not detected	ug/L	2	SW8260B	07/10/12 20:23	WAT	107-13-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW8260B	07/10/12 20:23	WAT	78-93-3	

Lab Sample ID: S53069.05 (continued)
Sample Tag: EB-1 (Equipment Blank)

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
Dichlorodifluoromethane	Not detected	ug/L	5	SW8260B	07/10/12 20:23	WAT	75-71-8	
Chloromethane	Not detected	ug/L	5	SW8260B	07/10/12 20:23	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	75-01-4	
Bromomethane	Not detected	ug/L	5	SW8260B	07/10/12 20:23	WAT	74-83-9	
Chloroethane	Not detected	ug/L	5	SW8260B	07/10/12 20:23	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	5	SW8260B	07/10/12 20:23	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	156-59-2	
Tetrahydrofuran	Not detected	ug/L	90	SW8260B	07/10/12 20:23	WAT	109-99-9	
Chloroform	9	ug/L	1	SW8260B	07/10/12 20:23	WAT	67-66-3	
Bromochloromethane	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW8260B	07/10/12 20:23	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	50	SW8260B	07/10/12 20:23	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	56-23-5	
Benzene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	78-87-5	
Bromodichloromethane	2	ug/L	1	SW8260B	07/10/12 20:23	WAT	75-27-4	
Dibromomethane	Not detected	ug/L	5	SW8260B	07/10/12 20:23	WAT	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	110-57-6	
Dibromochloromethane	Not detected	ug/L	5	SW8260B	07/10/12 20:23	WAT	124-48-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	106-93-4	
Chlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	630-20-6	
Ethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	100-41-4	
p,m-Xylene	Not detected	ug/L	2	SW8260B	07/10/12 20:23	WAT		
o-Xylene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	95-47-6	
Styrene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	100-42-5	
Isopropylbenzene	Not detected	ug/L	5	SW8260B	07/10/12 20:23	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	79-34-5	
1,2,3-Trichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	96-18-4	
n-Propylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	103-65-1	
Bromobenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	108-86-1	
1,3,5-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	108-67-8	
tert-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	95-63-6	
sec-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	135-98-8	
p-Isopropyltoluene	Not detected	ug/L	5	SW8260B	07/10/12 20:23	WAT	99-87-6	

Lab Sample ID: S53069.05 (continued)
Sample Tag: EB-1 (Equipment Blank)

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	526-73-8	
n-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:23	WAT	104-51-8	
Hexachloroethane	Not detected	ug/L	5	SW8260B	07/10/12 20:23	WAT	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW8260B	07/10/12 20:23	WAT	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 20:23	WAT	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 20:23	WAT	87-61-6	
Naphthalene	Not detected	ug/L	5	SW8260B	07/10/12 20:23	WAT	91-20-3	
2-Methylnaphthalene	Not detected	ug/L	5	SW8260B	07/10/12 20:23	WAT	91-57-6	

Analytical Laboratory Report

Lab Sample ID: S53069.06
Sample Tag: TB-3 (Trip Blank)
Collected Date/Time: 07/02/2012 00:01
Matrix: Quality Control
COC Reference: 63586

Sample Containers

#	Type	Preservative(s)	Refrigerated?	Arrival Temp. (C)	Thermometer #
1	40ml Glass	HCL	Yes	5.2	IR

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles								
Volatile Organics - DEQ List								
Diethyl ether	Not detected	ug/L	10	SW8260B	07/10/12 20:44	WAT	60-29-7	
Acetone	Not detected	ug/L	50	SW8260B	07/10/12 20:44	WAT	67-64-1	
Methyl iodide	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	74-88-4	
Carbon disulfide	Not detected	ug/L	5	SW8260B	07/10/12 20:44	WAT	75-15-0	
tert-Methyl butyl ether (MTBE)	Not detected	ug/L	5	SW8260B	07/10/12 20:44	WAT	1634-04-4	
Acrylonitrile	Not detected	ug/L	2	SW8260B	07/10/12 20:44	WAT	107-13-1	
2-Butanone (MEK)	Not detected	ug/L	25	SW8260B	07/10/12 20:44	WAT	78-93-3	
Dichlorodifluoromethane	Not detected	ug/L	5	SW8260B	07/10/12 20:44	WAT	75-71-8	
Chloromethane	Not detected	ug/L	5	SW8260B	07/10/12 20:44	WAT	74-87-3	
Vinyl chloride	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	75-01-4	
Bromomethane	Not detected	ug/L	5	SW8260B	07/10/12 20:44	WAT	74-83-9	
Chloroethane	Not detected	ug/L	5	SW8260B	07/10/12 20:44	WAT	75-00-3	
Trichlorofluoromethane	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	75-69-4	
1,1-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	75-35-4	
Methylene chloride	Not detected	ug/L	5	SW8260B	07/10/12 20:44	WAT	75-09-2	
trans-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	156-60-5	
1,1-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	75-34-3	
cis-1,2-Dichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	156-59-2	
Tetrahydrofuran	Not detected	ug/L	90	SW8260B	07/10/12 20:44	WAT	109-99-9	
Chloroform	5	ug/L	1	SW8260B	07/10/12 20:44	WAT	67-66-3	
Bromochloromethane	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	74-97-5	
1,1,1-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	71-55-6	
4-Methyl-2-pentanone (MIBK)	Not detected	ug/L	50	SW8260B	07/10/12 20:44	WAT	108-10-1	
2-Hexanone	Not detected	ug/L	50	SW8260B	07/10/12 20:44	WAT	591-78-6	
Carbon tetrachloride	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	56-23-5	
Benzene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	71-43-2	
1,2-Dichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	107-06-2	
Trichloroethene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	79-01-6	
1,2-Dichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	78-87-5	
Bromodichloromethane	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	75-27-4	
Dibromomethane	Not detected	ug/L	5	SW8260B	07/10/12 20:44	WAT	74-95-3	
cis-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	10061-01-5	
Toluene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	108-88-3	
trans-1,3-Dichloropropene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	10061-02-6	
1,1,2-Trichloroethane	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	79-00-5	
Tetrachloroethene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	127-18-4	
trans-1,4-Dichloro-2-butene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	110-57-6	
Dibromochloromethane	Not detected	ug/L	5	SW8260B	07/10/12 20:44	WAT	124-48-1	
1,2-Dibromoethane	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	106-93-4	
Chlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	108-90-7	
1,1,1,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	630-20-6	
Ethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	100-41-4	

Lab Sample ID: S53069.06 (continued)
Sample Tag: TB-3 (Trip Blank)

Analysis	Results	Units	RL	Method	Run Date/Time	Analyst	CAS #	Flags
Organics - Volatiles (continued)								
Volatile Organics - DEQ List (continued)								
p,m-Xylene	Not detected	ug/L	2	SW8260B	07/10/12 20:44	WAT		
o-Xylene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	95-47-6	
Styrene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	100-42-5	
Isopropylbenzene	Not detected	ug/L	5	SW8260B	07/10/12 20:44	WAT	98-82-8	
Bromoform	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	75-25-2	
1,1,2,2-Tetrachloroethane	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	79-34-5	
1,2,3-Trichloropropane	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	96-18-4	
n-Propylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	103-65-1	
Bromobenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	108-86-1	
1,3,5-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	108-67-8	
tert-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	98-06-6	
1,2,4-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	95-63-6	
sec-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	135-98-8	
p-Isopropyltoluene	Not detected	ug/L	5	SW8260B	07/10/12 20:44	WAT	99-87-6	
1,3-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	541-73-1	
1,4-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	106-46-7	
1,2-Dichlorobenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	95-50-1	
1,2,3-Trimethylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	526-73-8	
n-Butylbenzene	Not detected	ug/L	1	SW8260B	07/10/12 20:44	WAT	104-51-8	
Hexachloroethane	Not detected	ug/L	5	SW8260B	07/10/12 20:44	WAT	67-72-1	
1,2-Dibromo-3-chloropropane	Not detected	ug/L	5	SW8260B	07/10/12 20:44	WAT	96-12-8	
1,2,4-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 20:44	WAT	120-82-1	
1,2,3-Trichlorobenzene	Not detected	ug/L	5	SW8260B	07/10/12 20:44	WAT	87-61-6	
Naphthalene	Not detected	ug/L	5	SW8260B	07/10/12 20:44	WAT	91-20-3	
2-Methylnaphthalene	Not detected	ug/L	5	SW8260B	07/10/12 20:44	WAT	91-57-6	

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-6333
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

63586

CHAIN OF CUSTODY RECORD

REPORT TO

CONTACT NAME: Clifford Yantz
COMPANY: O'Brien + Gere
ADDRESS: 37000 Grand River, Ste 260
CITY: Farmington Hills STATE: MI ZIP CODE: 48335
PHONE NO.: 248-477-5701 FAX NO.: P.O. NO.: 125045.07.07
E-MAIL ADDRESS: clifford.yantz@obg.com QUOTE NO.:

INVOICE TO

CONTACT NAME: Dave Favero ☐ SAME
COMPANY: RACER Trust
ADDRESS: 2930 Ecorse Rd
CITY: Ypsilanti STATE: MI ZIP CODE: 48197
PHONE NO.: 217-741-6235 FAX NO.: P.O. NO.:

PROJECT NO./NAME: RACER Dort Hwy Land site # 129600-07
SAMPLER(S) - PLEASE PRINT/SIGN NAME: Kevin Schneider

TURNAROUND TIME REQUIRED ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STANDARD ☐ LEVEL II ☒ LEVEL III ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE O=OIL A=AIR W=WASTE M=MISC

ANALYSIS (ATTACH LIST IF MORE SPACE REQUIRED)

MERIT LAB NO.	YEAR DATE	YEAR TIME	SAMPLE TAG IDENTIFICATION-DESCRIPTION	MATRIX	# OF BOTTLES	# Containers & Preservatives: NONE	HCL	HNO_3	H_2SO_4	NaOH	MeOH	OTHER	VOCs	SVOCs	TOTAL RCRA METALS	SPECIAL INSTRUCTIONS/NOTES
53069.01	7/2/12	1015	MW-8	GW	5	2	2	1					X	X	X	
.02		—	DUP-1	GW	5	2	2	1					X	X	X	
.03		1045	FB-1 (Field Blank)	QC	5	2	2	1					X	X	X	
.04		1240	MW-6	GW	5	2	2	1					X	X	X	
.05		1320	EB-1 (Equipment Blank)	QC	5	2	2	1					X	X	X	
.06	↓	—	TB-3 (Trip Blank)	QC	1		1						X			

		DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION	O'Brien + Gere	7/2/12	1330
RECEIVED BY: SIGNATURE/ORGANIZATION		7-2-12	1330
RELINQUISHED BY: SIGNATURE/ORGANIZATION		DATE	TIME
RECEIVED BY: SIGNATURE/ORGANIZATION		DATE	TIME

		DATE	TIME
RELINQUISHED BY: SIGNATURE/ORGANIZATION		7-2-12	1830
RECEIVED BY: SIGNATURE/ORGANIZATION		7-2-12	1430

SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	NOTES: TEMP. ON ARRIVAL 5.2
SEAL NO.	SEAL INTACT YES ☐ NO ☐	INITIALS	

PLEASE NOTE: SIGNING ACKNOWLEDGES ACCEPTANCE OF TERMS & CONDITIONS ON REVERSE SIDE

ATTACHMENT E

Reference Materials

Groundwater Resources Map Series
Grand Blanc Township, Genesee County, Michigan.

Prepared by:
Regional Groundwater Center
University of Michigan-Flint

Millions of years ago the Grand Blanc area of Michigan was covered by an ocean that deposited thick layers of clay and sand which eventually became the rocks that we call the **Saginaw formation**, one of several rock formations found beneath Grand Blanc Township. This formation was found at the land surface until about 18,000 years ago when glaciers moved in from the north bringing with them much debris in the form of sand, gravel, silt and clay that was subsequently left when the glaciers melted. By using records from wells and test holes (well logs) we can determine the depth of the bedrock and location and depth of the various types of glacial material. This material, which can range from clay to boulders depending on where and how the material was deposited is referred to as **glacial drift**. The **Drift Thickness Map** was compiled using data from well logs and indicates drift can range from slightly less than 80 feet northwest of Grand Blanc to more than 220 feet south of Grand Blanc and along the west edge of the township. These variations in drift thickness occur where there are hills and valleys on the pre-existing surface that were covered by the glacial material.

The uppermost layers of glacial drift at the land surface combine with organic material to form soil. Since the composition of the glacial material is highly variable, the composition of soil can vary from clay to boulders. Fine-grained material such as clay inhibits the movement of water through the soil so the **relative soil permeability** is termed **slow**. Sandy or gravelly soil allows water to move through much more quickly so the relative soil permeability is termed **rapid**. **The Relative Soil Permeability Map** was developed using soil maps and permeability ratings developed by the Soil Conservation Service. The map appears complex because soil types vary widely under natural conditions however the majority of the township's soil has moderate to moderately slow permeability.

When the soils data is combined with slope and land use an **Infiltration Potential Map** can be derived. It is similar to the soil permeability map but takes into account not only natural soil conditions but land use, which very much affects the ability of water to infiltrate the soil. For example, precipitation falling on cropland would infiltrate much faster than if it fell on a shopping center parking

lot. Glacial drift found below the soil can contain significant amounts of clay that inhibits water movement. Most of the township ranges from moderate to slow soil infiltration. The **Clay Thickness Map** indicates where there are significant occurrences of clay in the upper 100' of glacial deposits. This information is meaningful because it indicates areas where downward movement of water or contaminants would be slowed and underlying ground water would be protected to some degree. The well logs indicate much of the township is covered with 60-90 feet of clay in the upper 100 feet of drift.

The glacial drift as well as the underlying Saginaw formation are saturated with water derived from the infiltration (**recharge**) of precipitation falling on the region. As recharge infiltrates the upper part of the glacial drift it passes through a zone that is not saturated with water (the **unsaturated zone**) and reaches the part of the deposits where all the pore spaces between the material are filled with water (the **saturated zone**). Water in the zone of saturation is called groundwater. A geologic formation that can provide a consistent source of water which can be used for drinking or other uses is referred to as an **aquifer**.

The upper surface of the groundwater is called the potentiometric surface and the distance between the land surface and the potentiometric surface is called the **depth to water**. The shape of this surface can be mapped using data obtained from water level measurements in wells. If the data are plotted on a map and lines drawn through equal elevations, a map that looks similar to a topographic map of the land surface results. Using the equal elevation lines, called **contours**, one can determine the direction, slope and elevation of the potentiometric surface that tells us which way the ground water is flowing. **The Potentiometric Surface Map** shows ground water elevations range from a high of 900 feet in the southeast corner of the township to 740 feet in the northwest corner. This indicates a general groundwater flow direction toward the northwest. The contours are not evenly spaced indicating irregularities in the potentiometric surface caused by pumping wells, variations in the aquifer material or inaccuracies in the data.

Groundwater not only flows horizontally underground but upward and downward also. **The Recharge/ Discharge Map** indicates areas where there are differences (residuals) between water levels in "shallow" and "deep" wells. **Discharge** (residual greater than -20 feet) indicates areas where water is flowing from the lower parts of the aquifer to the upper parts. **Recharge** (residuals greater than 20 feet) indicates zones of flow from upper to lower parts of the aquifer. Recharge areas are potentially more vulnerable to the transport of surface contaminants to the groundwater. Most of the recharge area for the township occurs along the southeast side.

Since the Saginaw formation was the land surface before the glaciers arrived, its surface should look similar to a present-day land surface, with hills and valleys formed by streams. This surface, called the **bedrock surface**, can be mapped using the data from well logs in the area, much like the potentiometric surface. The **Bedrock Surface Map** indicates the direction, slope and elevation of the bedrock surface. Like the potentiometric surface, the highest point is in the southeast corner of the township with a general slope toward the northwest. A buried river valley trends from south to north along the western edge of the township.

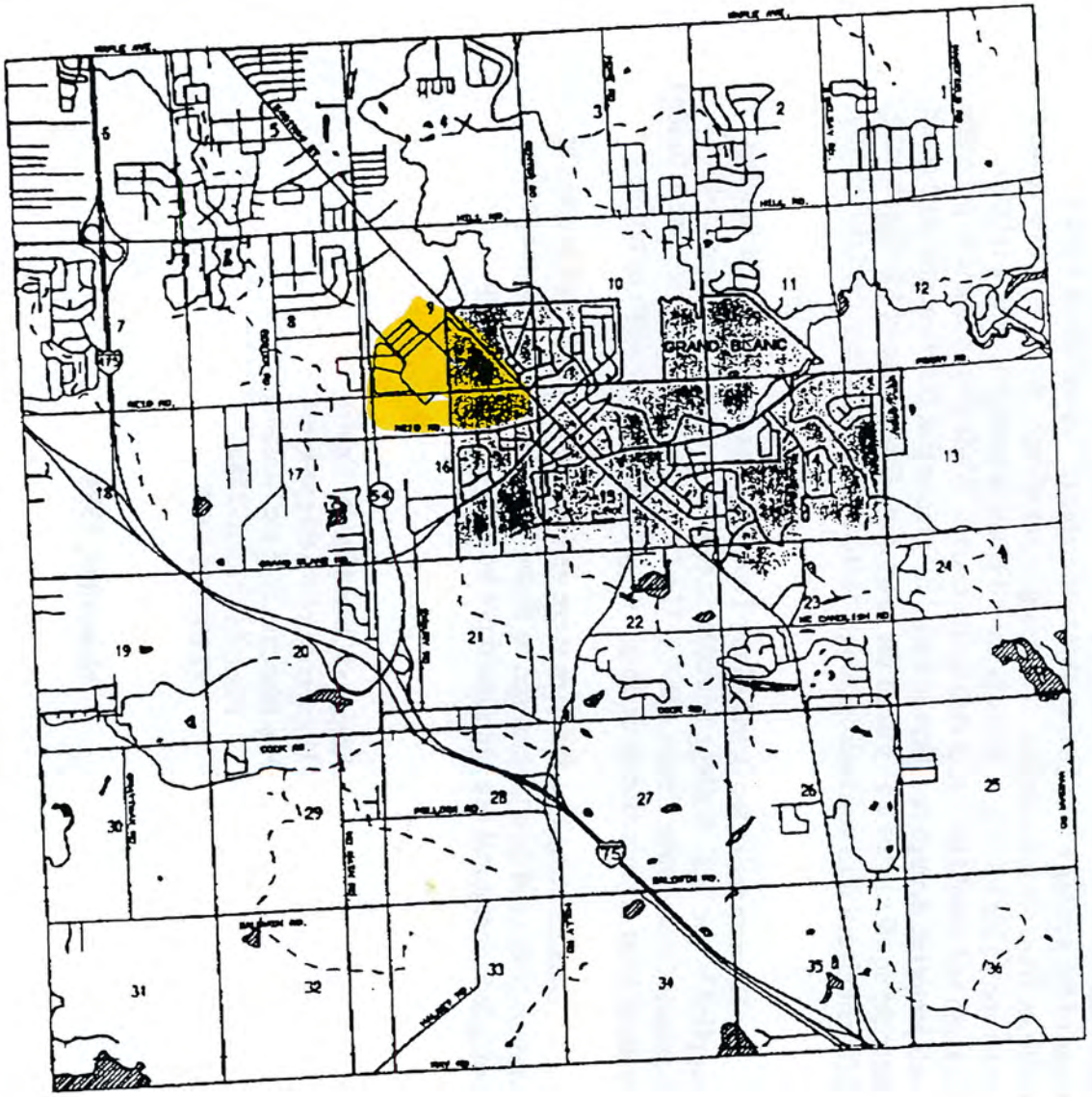
Finally, when the glacial drift and hydrogeologic factors are combined, a **Risk of Groundwater Contamination Map** can be produced. Clay Thickness, Recharge/Discharge and Infiltration Potential data were given variously weighted values then combined to form one map. This map gives an indication of which areas of the aquifer would be the most vulnerable if a contaminant were to infiltrate from the land surface. The assignment of high, medium or low ground water contamination risk to areas in Grand Blanc township is only a relative measure and should be interpreted with caution. While Grand Blanc is generally well protected throughout, there is a slightly greater risk that contaminants could enter the aquifer in the S.E. part of the township. Other areas of Michigan have different glacial drift and hydrogeologic factors and would be scored differently.

The map series for Grand Blanc Township was compiled with funding supplied by the W.K. Kellogg Foundation to the University of Michigan-Flint's Regional Groundwater Center (RGC). The Center and four other like were funded to assist local organization in dealing with groundwater problems in regions.

Data for compiling the maps were derived from a number of sources at various scales and then generalized to fit the 1"= 1 mile scale. The maps were compiled for regional use and should not be used for site planning.

Regional Groundwater Center
University of Michigan-Flint
518 Murchie Science Building
Flint, MI 48502-2186
(810) 766-6608

November, 1994



GRAND BLANC TOWNSHIP

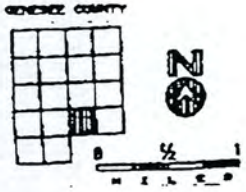
BASE MAP

- City Boundary
- 12 Township Sections
- Highways
- County Roads
- Residential Streets
- Lakes
- Rivers and Drains

SOURCES

Base map data:
Michigan Department of Natural Resources,
Michigan Resource Information System, 1981

Base map updates:
Regional Groundwater Center,
The University of Michigan-Flint, 1993



*REGIONAL GROUNDWATER CENTER, UM-FLINT - OCTOBER 1994

GRAND BLANC TOWNSHI

BEDROCK SURFACE MA

Contour Line

Depressions

Contour Interval
20 ft.

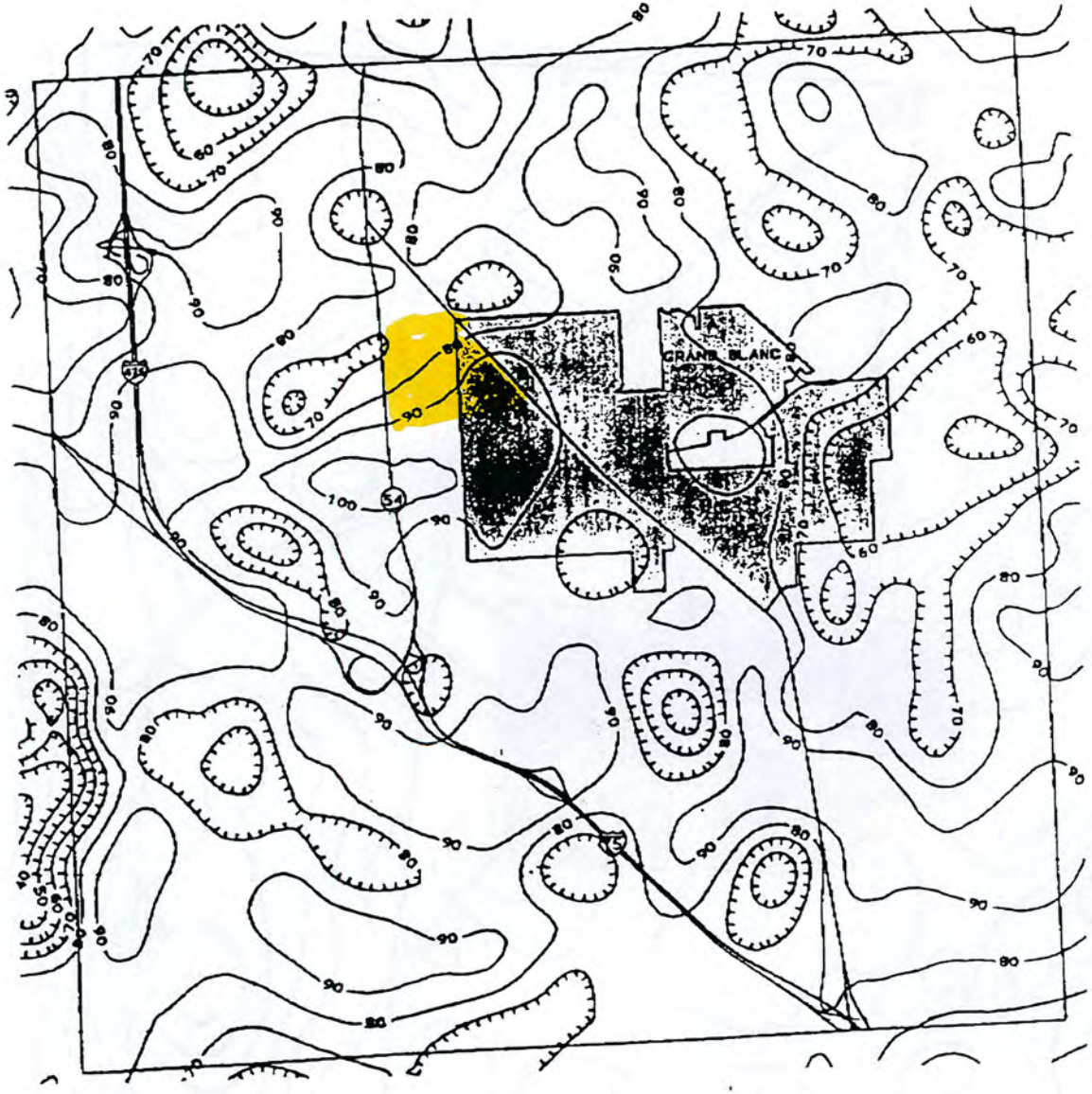
SOURCES

Well log data:
- Genesee County Health Department Environmental Health Division
- Oakland County Department of Institutional and Human Services Health Division
- MDNR, Geological Survey Division Statewide Groundwater Database

Base map data: MDNR, MIRIS, 1981

GENESEE COUNTY

*REGIONAL GROUNDWATER CENTER, UM-FLINT - OCTOB



GRAND BLANC TOWNSHIP

CLAY THICKNESS

to a 100' depth

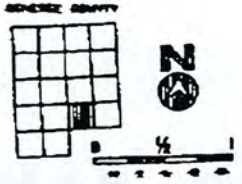
Contour Line

Contour Interval
10 ft.

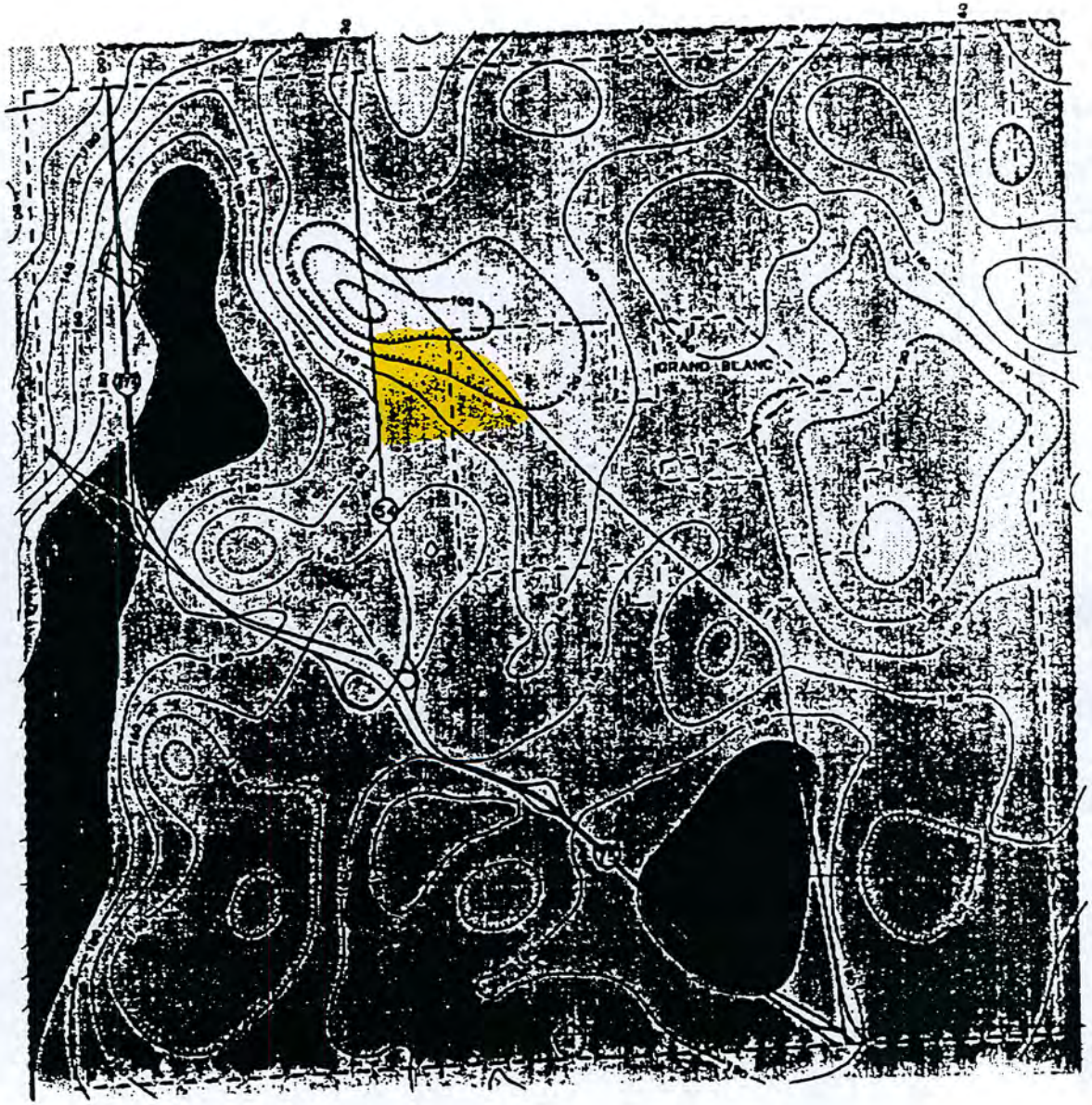
SOURCES

Well log data:
- Genesee County Health Department Environmental Health Division
- Oakland County Department of Institutional and Human Services Health Division
- MDNR, Geological Survey Division Statewide Groundwater Database

Base map data: MDNR, RIKIS, 1987



REGIONAL GROUNDWATER CENTER, UM-FLINT - OCTOBER 1994



GRAND BLANC TOWNSHIP

DRIFT THICKNESS

Contour Line

0 - 50 feet

51 - 100 feet

101 - 200 feet

200 + feet

Contour Interval
20 ft.

SOURCES

Well log data:
- Genesee County Health Department Environmental Health Division
- Oakland County Department of Institutional and Human Services Health Division
- MDNR, Geological Survey Division, Statewide Groundwater Database

Base map data: MDNR, MIRIS, 1981

GENESEE COUNTY

20

0 ½ 1 MILE

*REGIONAL GROUNDWATER CENTER, UM-FLINT - OCTOBER 1

313 394 2699

BOC GRAND BLANC

08

GRAND BLANC TOWNSHIP

INFILTRATION POTENTIAL

Slow and Moderately Slow

Moderate

Moderately Rapid and Rapid

SOURCES

Soil data:
- U.S. Department of Agriculture, Soil Conservation Service

Base Map and Land Use data:
- Michigan Dept. of Natural Resources Michigan Resource Information System 1981
- Updates by Regional Groundwater Center the University of Michigan-Flint, 1993

Well Log and Elevation data:
- Genesee County Health Dept. Environmental Health Division
- MDNR, Geological Survey Division Statewide Groundwater Database
- U.S. Geological Survey

GENESEE COUNTY

N

0 ½ 1

REGIONAL GROUNDWATER CENTER, UM-FLINT -OCTOBER 1994

GRAND BLANC TOWNSHIP
POTENTIOMETRIC SURFACE MAP
DIRECTION OF FLOW

Contour Line

Depressions

Flow

Contour Interval
10 ft.

SOURCES

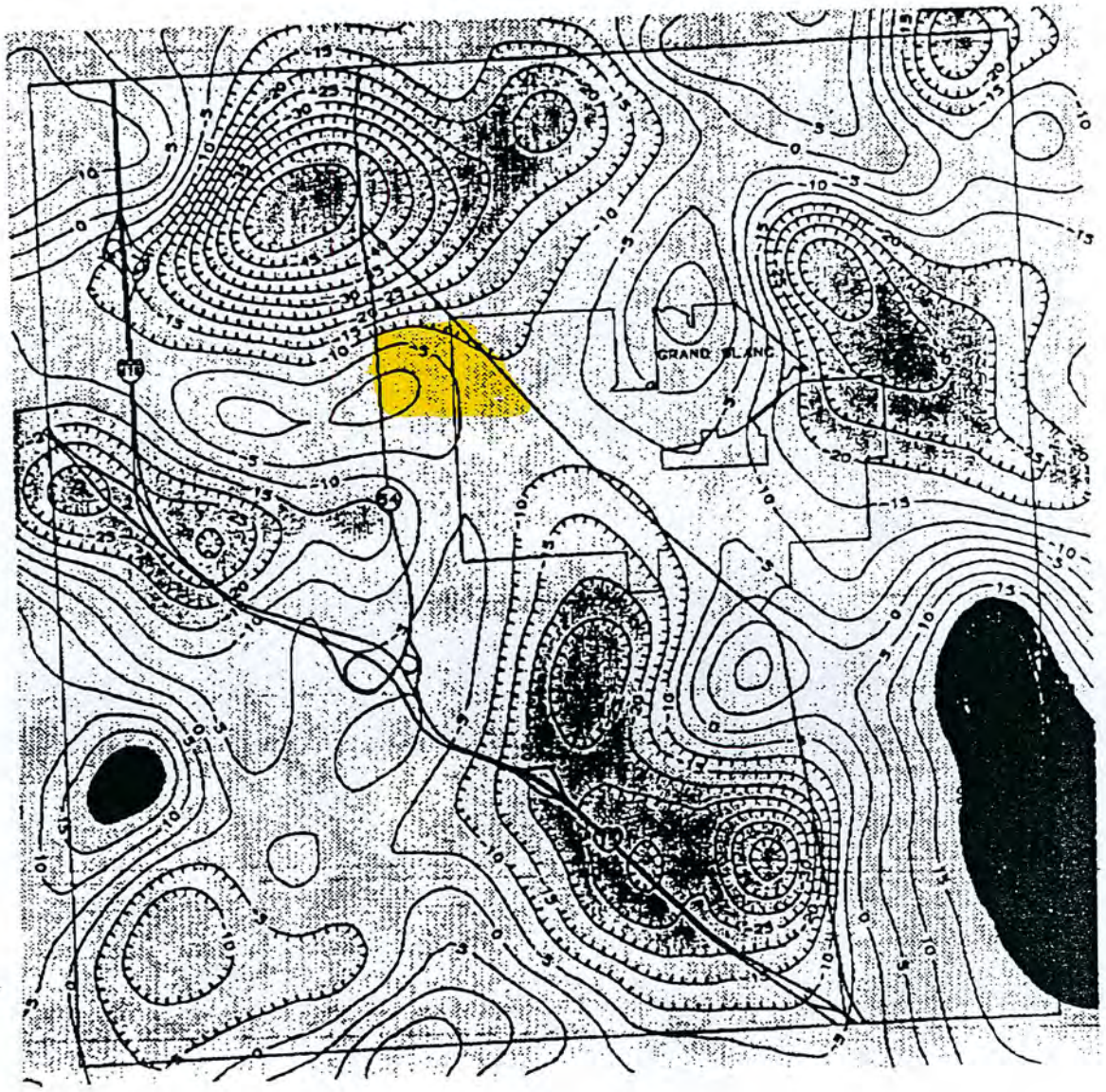
Well log data:
- Genesee County Environmental Health Department
- Oakland County Department of Institutional and Human Services Health Division
- MDNR, Geological Survey Division Statewide Groundwater Database

Base map data: MDNR, MIRIS, 1987

GENESEE COUNTY

0 ½ 1

*REGIONAL GROUNDWATER CENTER, UM-FLINT - OCTOBER 1994



GRAND BLANC TOWNSHIP

RECHARGE. DISCHARGE

Contour Line

< -20 feet Discharge

-20 to 20 feet Transition

> 20 feet Recharge

Contour Interval

5 ft.

SOURCES

Well log data:
- Genesee County Health Department Environmental Health Division
- Oakland County Department of Institutional and Human Services Health Division
- MDNR, Geological Survey Division Statewide Groundwater Database

Base map data: MDNR, MIRIS, 1981

GENESEE COUNTY

N

0 ½ 1

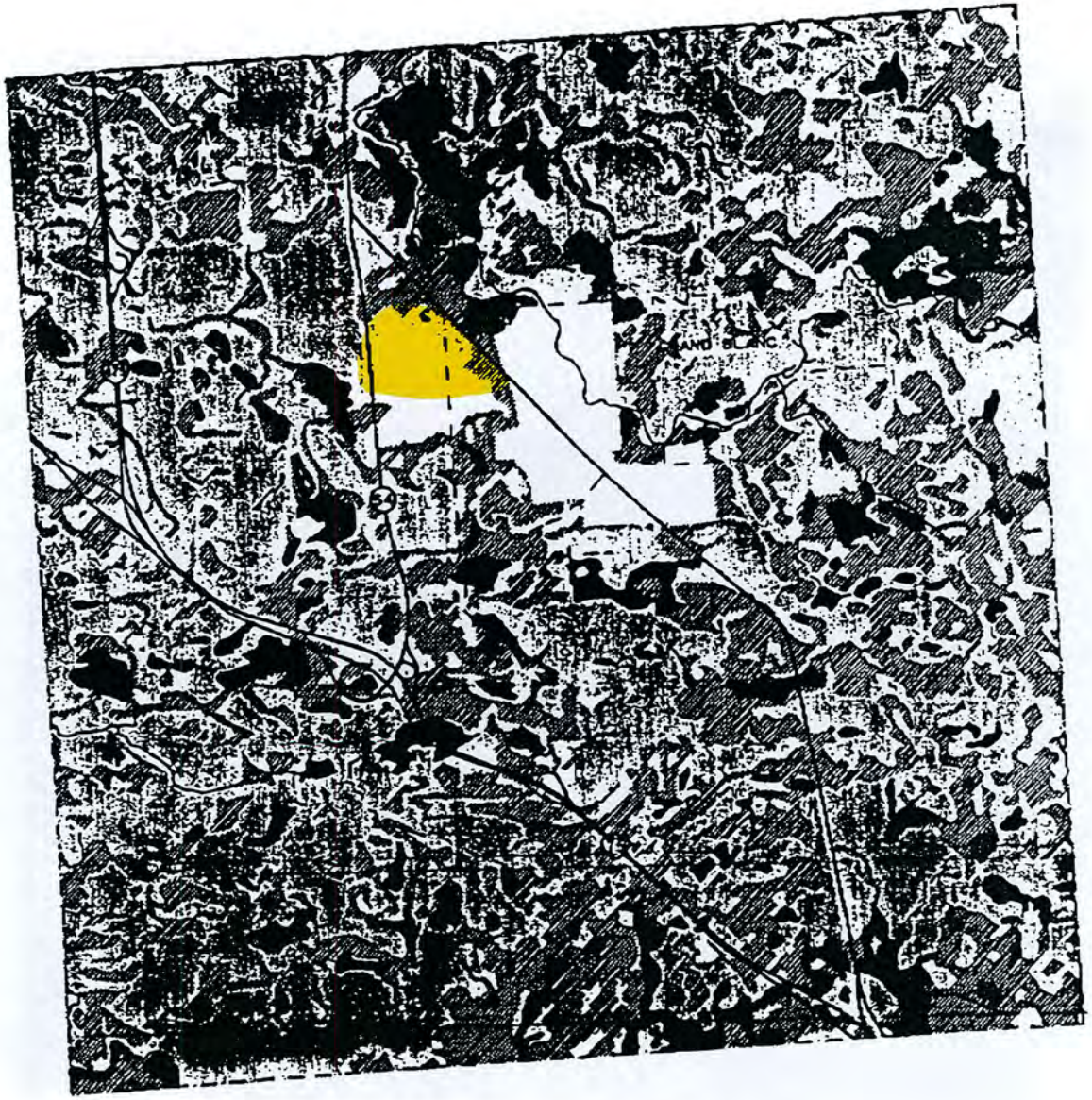
MILES

REGIONAL GROUNDWATER CENTER, UM-FLINT OCTOBER 1994

313 394 2699

BOC GRAND BLANC

11



GRAND BLANC TOWNSHIP

RELATIVE SOIL PERMEABILITY

- Moderately Slow
- Moderate
- Moderately Rapid
- Rapid
- Not Available

SOURCES

Soil data:
- U.S. Department of Agriculture, Soil Conservation Service

Base map data:
- Michigan Dept. of Natural Resources, Michigan Resource Information System

Soils digitization and base map update by the Regional Groundwater Center

GENESEE COUNTY

N

0 ½ 1

MILES

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☎ 313 394 2699

BOC GRAND BLANC

GRAND BLANC TOWNSHIP

RISK OF GROUNDWATER CONTAMINATION

- High Risk
- Medium Risk
- Low Risk

SOURCES

Well log data:
- Genesee County Health Department Environmental Health Division
- MDNR, Geological Survey Division, Statewide Groundwater Database Health Division

Soil data:
USDA Soil Conservation Service

Base map data: MDNR, MIRIS, 1981

GENESEE COUNTY

N

0 ½ 1
MILES

*REGIONAL GROUNDWATER CENTER, UM-FLINT - OCTOBER 1994

Hydrogeologic Influence on Spatial Variability of Arsenic Levels in Drinking Water[a]

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ABSTRACT

Objective: Geo-spatial models are developed to estimate arsenic concentrations in drinking water at selected locations in 11 counties of Southeast Michigan. Such models depend on an understanding of the sources and mechanisms of arsenic release into water. Arsenic-bearing minerals (including pyrite, arsenopyrite, and oxide/hydroxide phases) have been identified in the primary aquifer formations, namely, Marshall Sandstone and glacial till, but the mechanism responsible for arsenic mobilization into groundwater is unclear. Here it is proposed that arsenic-containing minerals release arsenic in the glacial till into the groundwater. This arsenic, from glacial till may be introduced into the bedrock aquifers during recharge. The profiles of arsenic concentrations in wells in the region seem consistent with this proposition.

Methods: Arsenic measurements (332 from Genesee and 370 from Huron County) supplied by Michigan Department of Environmental Quality and Genesee County Health Department (GCHD), were linked to well characteristics by the United States Geological Survey and GCHD. The relationship between arsenic and estimates of recharge, proximity to Marshall Sandstone, and distance between casing-depth and bedrock-surficial interface were evaluated in linear and exponential regression models.

Results: Significant associations were found between arsenic and proximity to recharge zone, distance between casing-depth and bedrock-surficial interface, higher elevation, and proximity to Marshall Sandstone in Genesee ($F=135.97$, $p<0.0001$, $R^2=0.81$) and Huron County ($F=36.48$, $p<0.0001$, $R^2=0.34$) using exponential and linear regression models.

Conclusion: Elevated arsenic levels are found in areas of greatest recharge potential, high elevation, and in close proximity to bedrock-surficial interface and Marshall Sandstone. Detailed chemical analyses in individual wells are necessary to better understand the influence of redox

cycle in the spatial distribution of arsenic. This application of geo-spatial methods to estimate arsenic concentrations can be used with ecological models to assess the risks of exposure to arsenic in groundwater in the region.

INTRODUCTION

In the United States, an estimated 54,200 cases of urinary bladder cancer are diagnosed which result in 12,100 deaths each year (McKean-Cowdin et al., 2000). Although epidemiological studies have suggested that chronic ingestion of inorganic arsenic in drinking water is associated with bladder cancer, few studies have assessed the risks associated with exposure to low levels of arsenic (typically 5-100 μg/L) most commonly found in drinking water in the United States (Cantor, 2001; Calderon, 2000). In 2001, the U.S. Environmental Protection Agency (USEPA) recommended a maximum contaminant level (MCL) of 10 μg/L for arsenic in US public drinking water supplies scheduled to go into effect in 2006 (USEPA, 2001). The new MCL of 10 μg/L is similar to the provisional guideline recommended by the World Health Organization (WHO, 1993). The new MCL is being contested on the grounds that it is not supported by sound science. The National Cancer Institute is currently funding a case-control study at the University of Michigan to study the relationship between bladder cancer and exposure to arsenic in the 5-50 μg/L range.

Elevated levels of naturally-occurring arsenic have been identified in regional patterns within the United States and are attributed to geochemistry, geology, climate, and glacial history (Welch et al., 2000). In the Michigan thumb region, arsenian pyrite has been identified in the bedrock of the Marshall Sandstone aquifer, one of the region's most productive aquifers (Westjohn et al., 1998). Geochemical analyses, however, reveal that arsenic is not likely to be oxidized out of the bedrock since the groundwater is reducing (Kolker et al., 1998). Most of the arsenic (53-98%) is in the reduced, As(III) form (Kim et al., 2002). Arsenian pyrite grains have also been identified in the glacial till, where the conditions are more favorable for the oxidation of arsenic into the

water (Kolker et al., 2001). The oxidation of arsenopyrite is well established and may be written as

$$FeAsS + 7/2O_2 + 4H_2O \rightarrow Fe(OH)_3 + H_3AsO_4 + H_2SO_4$$

The presence of the bacteria *Thiobacillus ferrooxidans* enhances the oxidation reaction (Fernandez et al., 1995) by facilitating the oxidation of ferrous ion to ferric ion:

$$4Fe^{2+} + 4H^{+} + O_2 \rightarrow 4Fe^{3+} + 2H_20$$

The ferric ions generated by the biologic activity can oxidize arsenopyrite grains and release arsenate to solution as follows:

$$FeAsS + 7Fe^{3+} + 4H_20 \rightarrow H_3AsO_4 + 8Fe^{2+} + S^{0}_{(surface)} + 5H^{+}$$

In addition to arsenian pyrite, arseniferrous iron oxy-hydroxides have been identified in Marshall Sandstone till fragments (Kolker et al., 2001). A complimentary explanation to the arsenian pyrite oxidation is the reduction of arsenic-rich iron oxy-hydroxides in Marshall Sandstone fragments in the zone of fluctuating oxidation and reduction, close to the water table.

While the mechanisms responsible for arsenic release are not known, we propose that arsenic is released into the groundwater in the glacial till and introduced into the bedrock aquifers during recharge. If the recharge proposition is correct, then higher levels of arsenic are expected in shallow bedrock wells beneath recharge zones. Arsenic concentrations are expected to decrease both as water infiltrates deeper into the bedrock aquifer and as water flows away from the recharge zone. This paper will illustrate geo-spatial hydrogeologic models of arsenic in drinking water, designed to assist in the estimation of arsenic concentrations at selected locations in 11 counties of Southeast Michigan.

METHODS

Historic arsenic data were acquired from the Genesee County Health Department (GCHD) and Michigan Department of Environmental Quality (MDEQ). The GCHD database links arsenic data from 1988-1989 with characteristics of 332 wells, and categorizes the aquifers that supply the water for those wells. The Genesee County data were collected as part of the Michigan Groundwater Survey and were analyzed at Michigan State University. The sample design accomplished a fairly uniform geographic spread of approximately 20 wells from each of the 18 townships in Genesee County. The MDEQ database encompasses 14,588 arsenic measurements (requested by home owners) in the 11-county study area. As the database only includes samples requested by home owners, some areas are densely sampled while others have sparse sampling. The analysis was done in the MDEQ state laboratory with ICP/MS (Inductively coupled plasma/mass spectrometry) procedure, which limited the database to samples collected between 1993 and 2002. The United States Geological Survey (USGS) created a database (N=2179) which geocoded the MDEQ database from January, 1997 through February, 1999 in 9 of the 11 counties in the study area. In Huron County, the USGS arsenic database was linked to a database with well characteristics for 370 drinking wells. Non-detects were assigned a value equal to half of the detection limit (2.5 μg/L for GCHD and 0.5 μg/L for other datasets).

To visualize the spatial pattern throughout the study area, the MDEQ arsenic data were aggregated at the township-level. The township is the smallest geographic unit in the database. The mean, median, maximum, minimum, and standard deviation were calculated for all 288 townships in Genesee, Huron, Ingham, Jackson, Lapeer, Livingston, Oakland, Sanilac, Shiawassee, Tuscola, and Washtenaw Counties. Probability distribution functions also were

created for each township. Spatial autocorrelation at the township-level was evaluated using Moran's I, first order neighbors, available in the S-Plus spatial analysis extension of ArcView 3.3. The Moran's I is a spatial correlation test that evaluates if points near each other are more similar than would be expected at random (Cullen et al., 2001).

Arsenic values in Huron and Genesee Counties were compared with surficial material and bedrock geology to evaluate spatial pattern with underlying geology. Geology layers are available from Michigan Center for Geographic Information, Geographic Data Library, and were generated by Michigan Department of Natural Resources. The shape file of surficial rock formation represents the top layer of surficial material, beneath the topsoil. The bedrock geology shapefile represents the subcrop of the bedrock geology beneath the surficial geology. Neither of these shape files includes information about the depth of the geologic types. In ArcGIS 8.2, these geology files were overlain with arsenic data to determine if a spatial pattern exists. Using SAS "proc glm", a 2-way analysis of variance was conducted on Huron and Genesee datasets. Surficial material, bedrock geology, and aquifer were evaluated for bedrock and surficial wells. Spatial autocorrelation at the individual wells was evaluated by constructing a semivariogram using Gslib software package. Anisotropy was evaluated and the lag size was chosen such that no lag size was greater than one-half the maximum lag between observations.

Estimates of recharge in the 11-county study area were provided by a USGS-developed model of ground-water recharge rates in the lower peninsula of Michigan (Holtschlag et al., 1997). The recharge model accounts for discrete changes in recharge rate associated with streamflow, rainfall, basin characteristics, land-use classifications of deciduous and coniferous forests, and

surficial material classifications of outwash sand and coarse-textured till. In the study area, the model estimates ranged from 0-13 inches per year (Figure 1) with an associated uncertainty of 4.2-5.5 inches per year. The computed output was provided by the USGS and georectified in ArcGIS 8.2. The recharge model was overlain by the Marshall Sandstone subcrop and different arsenic datasets. Using tools from the spatial analysis extension in ArcGIS 8.2 (zonal statistics), each arsenic location was assigned a recharge estimate. Buffering and selecting with different options was employed for the following recharge estimates: continuous estimate (inches per year), categorical estimate (<5, 5-8, >8 inches per year), and proximity to the >8 inches per year recharge zone (kilometers).

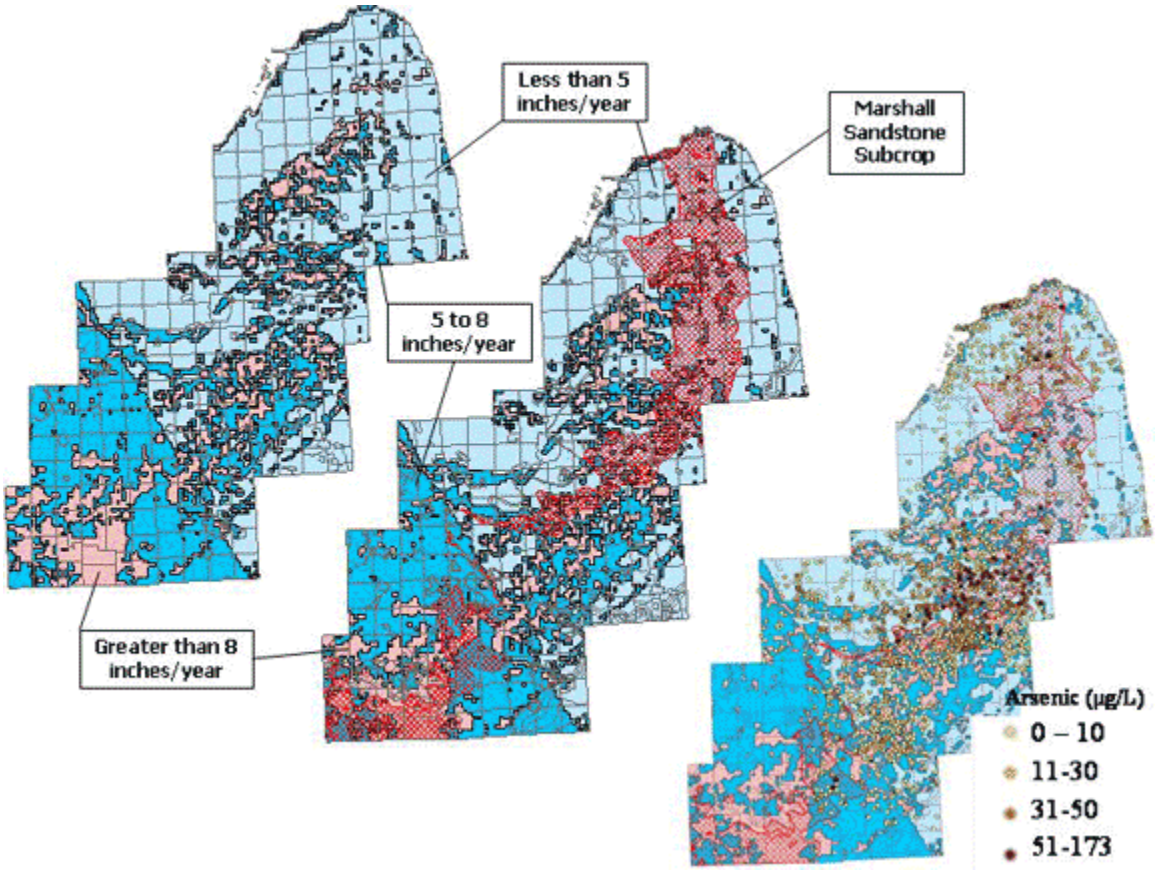

Figure 1: The USGS-developed recharge model in units of inches per year (Holtschlag et al., 1997), overlain by Marshall Sandstone subcrop (from Michigan Center for Geographic Inofrmation) and arsenic data (N= 2179) in units of µg/L, analyzed by MDEQ and geocoded by USGS. Note the apparent association between arsenic and the higher recharge zone along with the Marshall Sandstone subcrop.

With large uncertainty in the recharge model, other surrogates of recharge were evaluated. One indication of recharge potential is the hydraulic head, defined as the difference between elevation and standing water level, which is used to calculate the potentiometric surface specific to an aquifer. Since groundwater flows down a hydraulic gradient from points of higher to lower hydraulic head, water can generally be thought of as recharging close to the higher hydraulic head values. Our hydraulic head estimate, however, is not aquifer-specific since different aquifers are not categorized throughout the study area. Elevation, which is highly correlated with hydraulic head is also evaluated; this surrogate for recharge does not need to be aquifer-specific. In addition to its relationship with recharge, elevation may also indicate areas where there is a greater distance for oxidation to occur during infiltration. The water table is a subdued replica of the ground surface elevation; therefore, in general, there is a greater distance between ground surface and water table in higher elevation areas.

Other parameters evaluated include proximity of the well to Marshall Sandstone subcrop and distance between casing depth and interface between bedrock and surficial rock formations. Marshall Sandstone was evaluated because of high levels of arsenic in sandstone bedrock and in arsenian pyrite grains and arseniferrous iron oxy-hydroxides, located in the surficial material, above or close to the sandstone bedrock. Proximity to Marshall Sandstone was calculated with a buffer technique, similar to that described above for recharge, and was calculated in units of kilometers. Databases of well logs were required to calculate casing depth, depth of interface between bedrock and surficial rock formations, and hydraulic head. The distance between casing depth and bedrock-surficial interface is an indication of proximity of well intake to glacial till

material and was previously identified as a significant parameter in our study area (Haack, 2002). Well logs were also utilized to distinguish wells drilled into bedrock from those drilled into surficial rock formations.

The proposition that arsenic is introduced into the bedrock aquifers during recharge was evaluated in wells of Huron (N=370) and Genesee (N=332) counties and in the 9 counties of the USGS database (N=2179). A stepwise linear regression procedure, performed in SAS, enabled selection of the most significant parameters. Both linear and exponential regression models were adopted to evaluate the relationship between the selected parameters and arsenic. Linear regression was performed with SAS, "reg" procedure, using log-transformed arsenic values, while exponential regression utilized untransformed arsenic values with SAS, "proc nlin". For the exponential model, exponential decay was combined with exponential growth. Elevation and hydraulic head follow an exponential growth curve; their values were subtracted by the maximum value for each variable in a county, such that all hydraulic head and elevation values were assigned a negative value, except for the maximum value which was assigned a value of zero. By reassigning the values of elevation and hydraulic head in this manner, the arsenic level will be at its maximum when all parameters equal zero. For the exponential models, the intercept was assigned the maximum observed value: 161 μg/L in Huron; 69 μg/L in Genesee; 173 μg/L in USGS 9 Counties.

RESULTS

Available data indicates a regional pattern of the arsenic concentration accompanied by local variability within the study area. This short-range variability results in a semivariogram with large nugget effect and unreliable kriging estimates (Figure 2).

Directional semivariograms indicate that anisotropy is not present in the first 15 kilometers. The upward trend between the nugget and the sill, indicates some regional spatial trend in the arsenic data. The regional pattern can be characterized using township-level estimates of arsenic (Figure 3), as confirmed by a Moran's I value of 0.47 ($p<0.05$). The arsenic value in Figure 1 is the township mean + 2 standard deviations. The low-arsenic townships tend to have small amounts of variance, suggesting that a township-level estimate may be satisfactory for these townships. The high-arsenic townships are accompanied by high levels of variance, however, indicating the need for better understanding of the mechanism of arsenic release and transport to enhance predictive capability.

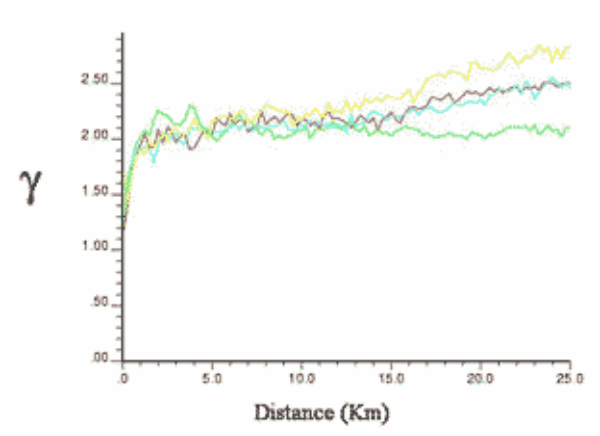

Figure 2: Directional semivariograms of log (Arsenic) created with Gslib software package Minimal anisotropy exists during the first 15 kilometers and high nugget effect exemplifies extreme short-range variability.

In Genesee County, GCHD categorized 332 wells by aquifer, as part of the Michigan Groundwater Survey in 1987 (Michigan Groundwater Survey, 1989). Stratifying the arsenic values by aquifer (Table 1) demonstrates that there is elevated arsenic in most aquifers, be they bedrock or surficial. Aquifers A1, A2, A3, A4, Drift, and Unclassified Drift are surficial aquifers; Coldwater, Marshall, Michigan, and Saginaw are bedrock aquifers. In the GCHD database, the non-detect limit was 5 µg/L, and was reported in each aquifer. The Saginaw aquifer is home to both the lowest mean and the highest maximum arsenic value in Genesee County. The largest mean arsenic value is in the Marshall aquifer, followed by the A2 surficial aquifer.

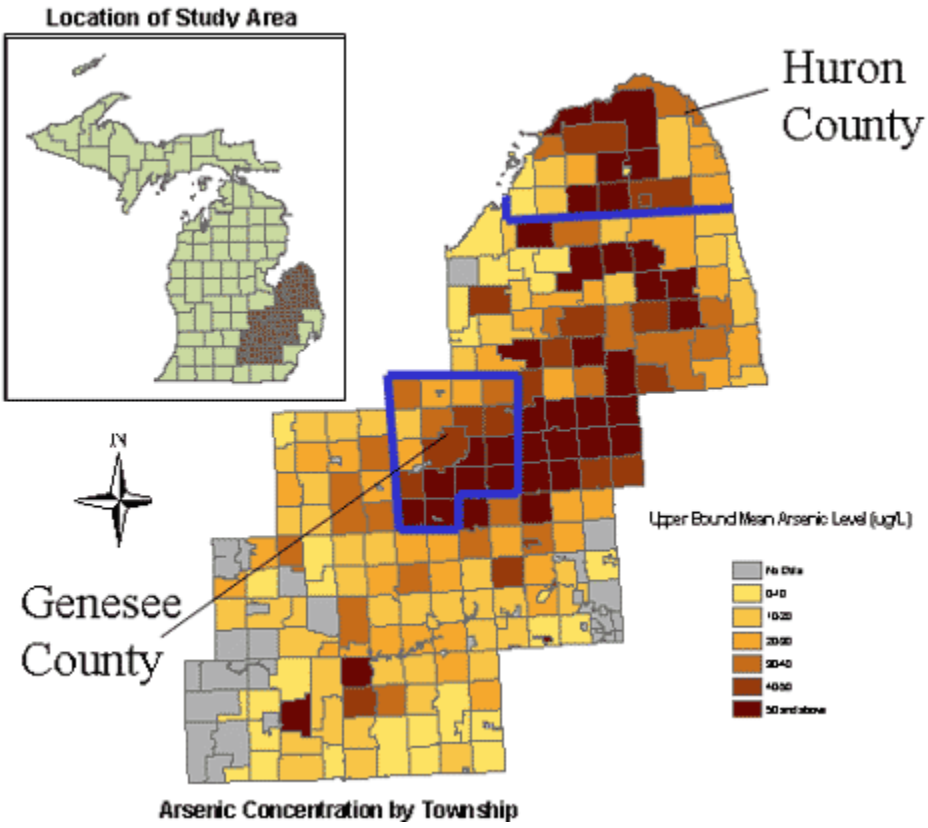

Figure 3: The 288 townships in the 11 county study area in the Michigan Thumb region. The arsenic values for each township represent the mean township value + 2 standard deviations; a rough estimate of the maximum arsenic concentration for each township. Regional spatial pattern is evident, as indicated by the cluster of dark townships and the Moran's I, first order neighbors, of 0.47.

Analogous to the spread of arsenic across all aquifers, elevated arsenic is identified in most types of surficial geologic formations in Huron (Figure 4a) and Genesee (Figure 4b) counties. The darker points in the figures represent higher concentrations of arsenic. As can be seen from Figures 4a and 4b, there are high levels of arsenic associated with almost all of the surficial material types in Huron and Genesee County. Data on surficial geologic formations were used as input to the USGS-developed recharge model. In Huron County, almost all of the elevated arsenic values are above the Marshall Sandstone subcrop (Figure 5a). In Genesee County, many of the high arsenic values are above both the Marshall Sandstone and Michigan Formation

Table 1: Genesee County Arsenic Value (µg/L) by Aquifer Type

	Count	Mean	Min	Max
A1	3	11.33	ND	23
A2	18	20.30	ND	43
A3	4	11.00	ND	29
A4	6	13.50	ND	23
Drift	20	16.40	ND	39
Unclassified Drift	11	22.36	ND	46
Coldwater	9	19.30	ND	42
Marshall	25	23.48	ND	55
Michigan	17	19.00	ND	45
Saginaw	219	10.96	ND	69
Total	332	13.60	ND	69

Data provided by Genesee County Health Department, collected in 1987 with a detection limit of 5 µg/L. ND stands for non-detectable levels. Surficial aquifers include A1, A2, A3, A4, Drift, and Unclassified Drift. Bedrock aquifers include Coldwater, Marshall, Michigan, and Saginaw.

subcrops (Figure 5b). Results of the analysis of variance tests for bedrock and surficial geologic formations and aquifer type for Huron and Genesee datasets are shown in Table 2. The ANOVA results indicate that bedrock geology, surficial material, and aquifer type can explain up to 16% of the variance in the arsenic. Investigation of these trends suggests that of all of the aquifers

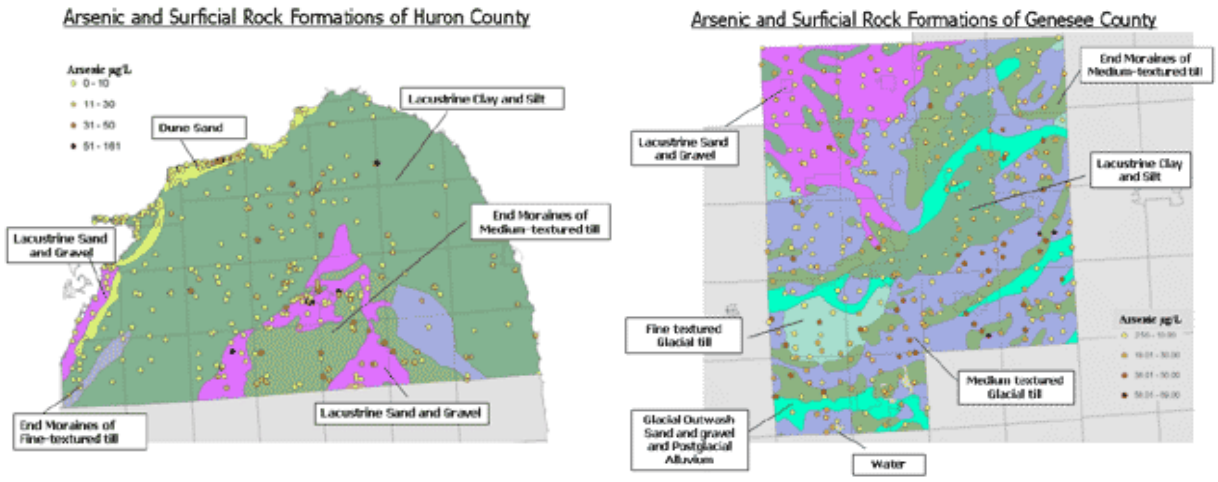

Figure 4: The spatial relationship between upper layer of surficial rock formation (beneath topsoil) and arsenic in groundwater is illustrated for (a) Huron and (b) Genesee counties. No spatial relationship appears to be evident between arsenic and any particular type of surficial material. The depth of the types of surficial material is unknown.

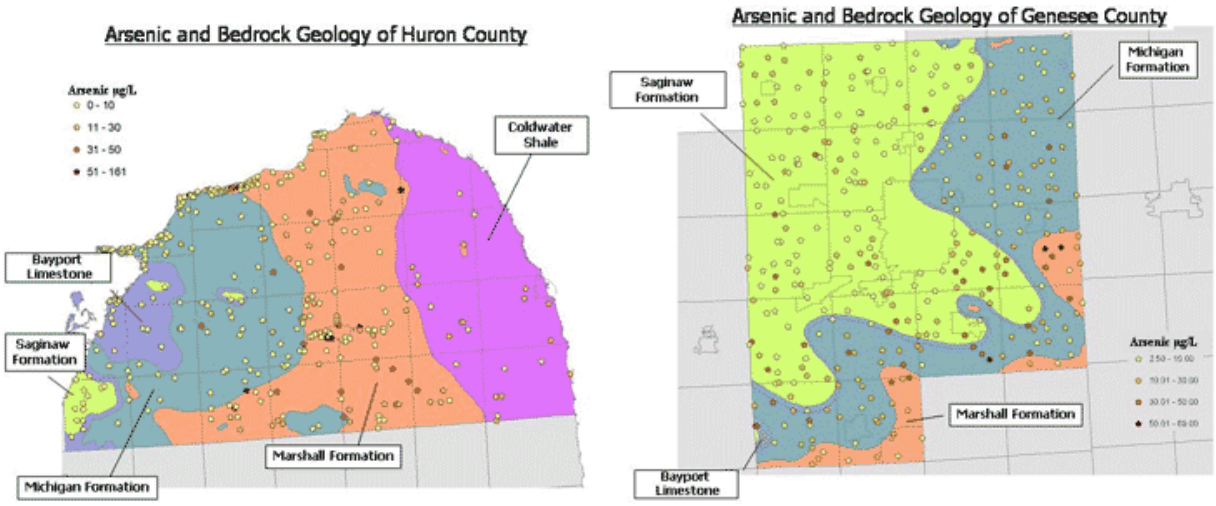

Figure 5: The spatial relationship between upper layer of the bedrock geology and arsenic in groundwater is illustrated for (a) Huron and (b) Genesee counties. There does appear to be an association between arsenic and the Marshall Sandstone in Huron County. In Genesee County, the Michigan formation and Marshall Sandstone appear to have the strongest relationship with arsenic. The depth of the bedrock geology types is unknown.

and geology types, Marshall Sandstone is most strongly associated with the arsenic (Figures 5a and 5b).

The proposition that arsenic is introduced into the bedrock aquifers during recharge was evaluated in separate regression models using the Genesee, Huron, and USGS 9 County

Table 2: Analysis of Variance Results

County	Well Type	Predictor Variable	F-Value	R^2	p-value
Genesee	Surficial and Bedrock	Aquifer	5.43	0.13	<.0001
Genesee	Bedrock	Surficial Material	2.45	0.05	0.0251
Genesee	Bedrock	Bedrock Geology	17.41	0.16	<.0001
Genesee	Surficial	Surficial Material	1.34	0.13	0.2548
Huron	Bedrock	Surficial Material	3.39	0.05	0.0028
Huron	Bedrock	Bedrock Geology	8.15	0.07	<.0001

Surficial Material was not a predictor of arsenic levels in surficial wells. All other ANOVA analyses were significant at $p<0.05$. Bedrock geology (principally Marshall Sandstone) is a predictor of arsenic levels in bedrock wells.

databases. Different measures of recharge, bedrock and surficial rock formations, and well characteristics were evaluated in stepwise linear regression and the following four variables were most often found to be significant: proximity to highest recharge zone (kilometers), proximity to Marshall Sandstone subcrop (kilometers), surface elevation (meters), and casing depth minus bedrock-surficial interface (meters). The best models in Huron, Genesee and USGS 9 Counties are shown in Table 3. In Genesee and Huron County models, the direction of the parameters was consistent and most of the estimates of the parameters were significant. The negative parameter estimate of casing depth minus interface indicates that higher arsenic is associated with a shorter distance between casing depth and bedrock-surficial interface. Higher levels of arsenic are associated with higher surface elevation. A negative parameter estimate for proximity to Marshall Sandstone subcrop, indicates that observations closer to this subcrop are associated with higher levels of arsenic. Similarly, observations closer to recharge zones are associated with higher levels of arsenic, as indicated by the negative parameter estimate. In Genesee County, the exponential model did a better job of capturing the variability in the data, compared with the linear model. A plot of predicted compared with observed is shown in Figure 6a for the exponential model in Genesee County. The R^2 value for the exponential model is calculated by dividing the sum of squares due to regression (SSR) by the sum of squares total (SST). A corresponding plot for the results of the linear model in Huron County can be seen in Figure 6b. These plots indicate that both models capture some of the variance in the datasets. The wide prediction interval, however, suggests that there is still uncertainty associated with using the model for prediction purposes. The low R^2 value of the counties in the USGS 9 database (Table 3) supports this assessment.

Table 3: Exponential and Linear Regression Results

					Parameters				Model	
Data Set	**Observations Included**	**Model Type**	**Dependent Variable**	**N▪**	**Casing Depth Minus Interface□**	**Elevation**	**Proximity to Marshall Sandstone Subcrop**	**Proximity to Recharge Zones**	**Adj. $R^{2◊}$**	**F****
Genesee County (GCHD)	Bedrock Wells All Detects (≥5 µg/L)	Linear	Log (As)	134	-.0029	.0035*	-.013*	.0049	0.18	8.26
		Expon -ential	As	134	-.032*	.021*	-.030*	-.040*	0.76	104.68
Huron County	Bedrock Wells All Detects (≥1 µg/L)	Linear	Log (As)	271	-.011*	.0073*	-.0063	-.0099	0.34	35.22
		Expon -ential	As	271	-.044*	.058*	-.17	-.36*	0.15	11.79
USGS 9 Counties	All Wells All Detects (≥1 µg/L)	Linear	Log (As)	1763		.0019*	-.036*	.011*	0.10	67.81
		Expon -ential	As	1763		.032*	-.25*	.12*	0.088	56.48

▪ Number of Samples

* $p<.05$

**$p<.0001$; All Models are significant at this level.

□ Wells logs were only available for Huron County from the USGS dataset so the casing depth minus interface variable could not be included in the USGS 9 Counties analyses.

◊ For the exponential models, the R^2 was calculated by SSR/SST (sum of squares due to regression / sum of squares total

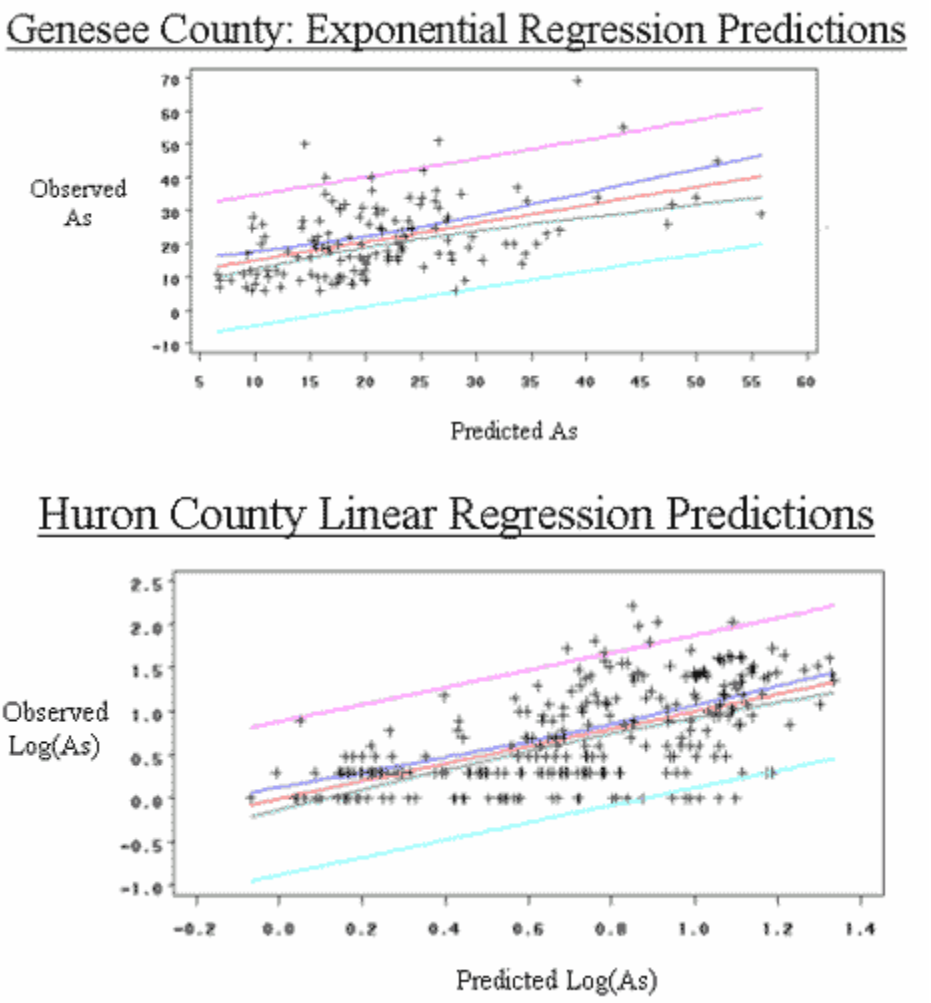

Figure 6: Regression results for (a) Genesee and (b) Huron counties. Results in Genesee are from exponential regression model in Table 3, and show predicted arsenic and observed arsenic. Results in Huron County are from linear regression model in Table 3, and show predicted log(arsenic) and observed log(arsenic). In both plots, the middle line is the estimation. The set of curves around the estimation is the confidence interval. The farther set of lines is the prediction interval. Most of the data fall within the prediction interval.

Normal probability plot of residuals indicated a non-normal error distribution when including the non-detects (assigned a value of one-half the detection limit). This deviation from normality was corrected by eliminating the non-detects (using quantifiable measurements) and by either taking a log transformation of the arsenic values, or using an exponential model. Bedrock wells were

evaluated separately from all wells because recharge is hypothesized to influence bedrock wells differently from surficial wells. Interaction terms were evaluated but were not significant; no spatial autocorrelation was found in the residuals.

DISCUSSION

The ultimate aim of this project is to predict arsenic levels in well water at past residences and places of occupation of participants in a bladder cancer case-control study in Michigan (http://epi.grants.cancer.gov/GIS/nriagu.html). A necessary component of the prediction model is an understanding of the hydrogeologic and geochemical mechanisms responsible for the mobilization of arsenic into groundwater. Genesee County provides a unique database for analysis because it includes arsenic measurements, well characteristics, and aquifer categorization. To the authors' knowledge, this is the only database in the 11-county study area that includes all this information. There are elevated levels of arsenic in several different bedrock and surficial aquifers in Genesee County (Table 1). The presence of elevated levels of arsenic in surficial aquifers lends credence to the suggestion that arsenic is released into groundwater from the surficial rock formations. Following mobilization, arsenic is available for infiltration to the bedrock aquifers where there is recharge, and the process may be referred to as the recharge hypothesis.

Several variables proved helpful in predicting arsenic levels in groundwater in the study area: proximity to recharge zones, proximity to Marshall Sandstone subcrop, elevation, and distance between casing depth and bedrock-surficial interface. Surface elevation and proximity to recharge zones represent recharge. In some models both variables are significant, but in other

models, only elevation is significant. Higher elevation may indicate regions where there is greater distance for oxidation to occur in the surficial material. Relationship between arsenic and distance between casing depth and bedrock-surficial interface suggests that well intakes closer to the till have higher levels of arsenic. Conversely, well intakes farther from the till have lower arsenic, suggesting the till as a source of arsenic in bedrock aquifers in the study area.

Another observation is that higher levels of arsenic are associated with a close proximity to Marshall Sandstone subcrop. Previous research has demonstrated that although arsenian pyrite is present in Marshall Sandstone bedrock, it is stable in anoxic groundwater and therefore is not a source of arsenic to bedrock aquifers (Kolker et al., 1998). The Marshall Sandstone bedrock, however, may be a proxy for the location of overlying glacial deposits which contain till derived from the Marshall Sandstone. Marshall Sandstone fragments were deposited in the till many years ago, when glaciers retreated. Arseniferrous iron oxy-hydroxides, in addition to arsenian pyrite, have been identified in Marshall Sandstone till fragments (Kolker et al., 2001). Iron oxide reduction in alluvial environments can lead to high-arsenic groundwaters through reductive desorption and/or reductive dissolution, although the precise mechanisms remain uncertain (Smedley and Kinniburgh, 2002). In the deltaic environment of Bangladesh, at least one source of the arsenic in the groundwater appears to be reductive dissolution, driven by microbial degradation of sedimentary organic matter (Nickson et al., 2000). In the high-arsenic region of Michigan, both arsenian pyrite oxidation and reduction of arsenic-rich iron oxy-hydroxides are possible in the zone of fluctuating oxidation and reduction, close to the water table. Both oxidation and reduction mechanisms will release arsenic to solution which would then infiltrate into anoxic bedrock aquifers, through a recharge process. To successfully evaluate

the roles of arsenian pyrite oxidation and arseniferrous iron oxy-hydroxide reduction, further research is required in the region of elevated arsenic levels in groundwater in Michigan.

The plots of predicted vs. observed arsenic concentrations from Genesee (Figure 6a) and Huron (Figure 6b) counties demonstrate an ability to capture trend in the data. Yet prediction intervals are wide and some variability remains unexplained, as emphasized with the USGS 9 Counties database (Table 3). The parameter estimate for proximity to recharge zones is significantly positive in the USGS 9 counties database, contrary to that observed in Genesee and Huron counties and contrary to the recharge hypothesis. High levels of recharge and low levels of arsenic in the groundwater in the southern region of the study area appear to be driving this association in the USGS 9 Counties database. Possibly, there is less arsenic in the glacial till material in this region of the study area, such that even if there are high levels of recharge, there is less arsenic available to enter the groundwater from the rocks. An alternative explanation is the role of sorption of arsenic back into the till. Under oxidizing conditions, in addition to release of arsenic into solution through the oxidation of arsenian pyrite, there is a counteracting force of sorption of the liberated As(V) species. In waters with a pH of 4-9, as is groundwater in the study area, As(V) occurs as negatively charged $H_2AsO_4^-$ or $HAsO_4^{2-}$ which easily reacts with charged surfaces such as iron, manganese, and aluminum oxides and will become adsorbed. For the recharge hypothesis to hold true, as the groundwater infiltrates deeper into anoxic bedrock aquifers, some As(V) needs to remain in the water and get reduced to As(III) or arsenite, the more soluble form of arsenic and the more prominent form of arsenic in Michigan bedrock aquifers. The adsorption phenomenon has been ignored in the statistical model.

In the Genesee and Huron County/USGS data, sample acquisition goals and protocols were not consistent, thereby resulting in potential sources of error and bias. Huron County/USGS data were collected by MDEQ and represent only those samples requested by homeowners over a 2-year period. The Genesee County dataset, on the other hand, was sampled specifically for the Michigan Groundwater Survey and holds a purposeful uniform geographic spread over the entire county. These differences in data acquisition and sample handling may partially explain why the parameter estimates are different between the models. The high non-detect level (5 μg/L) in the Genesee County dataset is a limitation of the study. By removing the non-detects, the regression model no longer violated normality assumptions, but the model failed to predict arsenic at levels below the non-detect level, as to be expected. In the Huron County database the detection limit was 1 μg/L and therefore is less of a concern. Prediction at low levels may be difficult even if non-detects are included in the model, as subtle differences are likely a result of slight changes in the redox potential/geochemistry.

Within the context of predicting exposure, elevation, proximity to recharge, and proximity to Marshall Sandstone are readily available parameters, given an XY coordinate for one's house and place of employment. Calculation of casing depth minus bedrock-surficial interface and determination of bedrock/surficial well status is obtained from a well log. Collection of well logs for historic locations is both time-intensive and impossible to acquire in a complete fashion. Logs for wells created before 1960 are rarely available and are only sporadically available before the 1980s, when the database was converted to electronic format. Regression results without the information provided by the well log were similar in Genesee and Huron counties (results not shown). In the exponential model in Genesee, the parameter estimates were still significant, the

R^2 dropped to 0.71, and the model F-statistic increased to 107.88. In the linear model in Huron, proximity to Marshall Sandstone subcrop became significant, the R^2 dropped to 0.26, and the model F-statistic fell to 31.83. Removal of the well log information produced larger changes in Huron County results, compared with Genesee County. In both counties, the removal of well log information yielded models that were still significant, demonstrating that information from well logs may not be a necessary component in the present models.

One goal of this research is to incorporate these geospatial predictions in a retrospective exposure assessment component of a bladder cancer case-control study. The township-level analyses provide useful estimates of arsenic concentrations in the low-arsenic, low variability townships. In the townships with higher arsenic levels, the regression results will be applied to aid in predictions of arsenic levels at residences and places of employment. Future research includes repeated sampling of drinking water at selected locations to monitor for arsenic, an examination of temporal variability of arsenic levels in groundwater in the study area, and an evaluation and validation of the models of arsenic distribution in Michigan drinking water. This study demonstrates that spatial pattern analyses, well characteristics, and a geochemical understanding of arsenic mobilization and transport can be combined in a novel way to approximate the site-specific concentrations of arsenic in well water. This information can be used in first-level exposure assessment.

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Joe Lovato of MDEQ, Sheridan Haack of USGS, and Brian McKenzie of GCHD proved invaluable both in supplying historical arsenic data, and in helping locate characteristics of the

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Arsenic in Ground Water in Genesee County, Michigan

INTRODUCTION

Previous studies of ground-water resources in Michigan by the Michigan Department of Community Health (MDCH), the Michigan Department of Environmental Quality (MDEQ), and the U.S. Geological Survey (USGS) indicate that in several counties in the southeastern part of the State the concentrations of arsenic in ground water may exceed the U.S. Environmental Protection Agency (USEPA) maximum contaminant level (MCL) of 50 micrograms per liter [µg/L]. This MCL was established in 1986. The Safe Drinking Water Act, as amended in 1996, requires USEPA to revise this standard in 2000. In June 2000, the USEPA proposed a revised MCL of 5 µg/L.

In 1996, the USGS, in cooperation with the MDEQ and the Health Departments of Genesee, Huron, Lapeer, Livingston, Oakland, Sanilac, Shiawassee, Tuscola and Washtenaw counties, began a study of the factors controlling arsenic occurrence and concentrations in ground water in southeastern Michigan. This study is one of four USGS Drinking Water Initiative projects throughout the United States.

SOURCE OF ARSENIC

Arsenic is a common, naturally-occurring element in the Earth's crust. Arsenic in ground water is often a result of arsenic-bearing minerals dissolving naturally over time. Historical well-water data for southeastern Michigan indicated that where arsenic concentrations of ground water were elevated, wells were commonly, though not exclusively, completed in the Marshall Sandstone. The Marshall Sandstone is a fluvial to marginal marine geologic unit that is present below glacial materials in part of the study area (fig. 1). Drinking-water wells in the study area often draw water from one or more additional geologic units – the Saginaw Formation, the Michigan Formation, or the Coldwater Shale (fig. 1), as well as from the glacial materials that overlie these bedrock units. Figure 1 shows the arsenic concentration of 3,022 wells in the study area. Data for figure 1 were taken from recent and historical USGS records, as well as from MDEQ records of well-water analyses for domestic and public water supplies from 1997 to 1999. The USGS collected water samples from 76 domestic and public drinking-water wells in southeastern Michigan as part of this study. The wells were chosen to represent various aquifers in the study area and to avoid any possible source of human contamination. The highest arsenic concentration measured by the USGS (220 µg/L) occurred in a well drawing water from the Marshall Sandstone. However, the USGS measured arsenic concentrations exceeding the current USEPA standard of 50 µg/L in well water from all aquifer units except the glacial sand and gravel deposits, and arsenic concentrations equal to or exceeding 40 µg/L were measured in wells completed in glacial sediments in three counties.

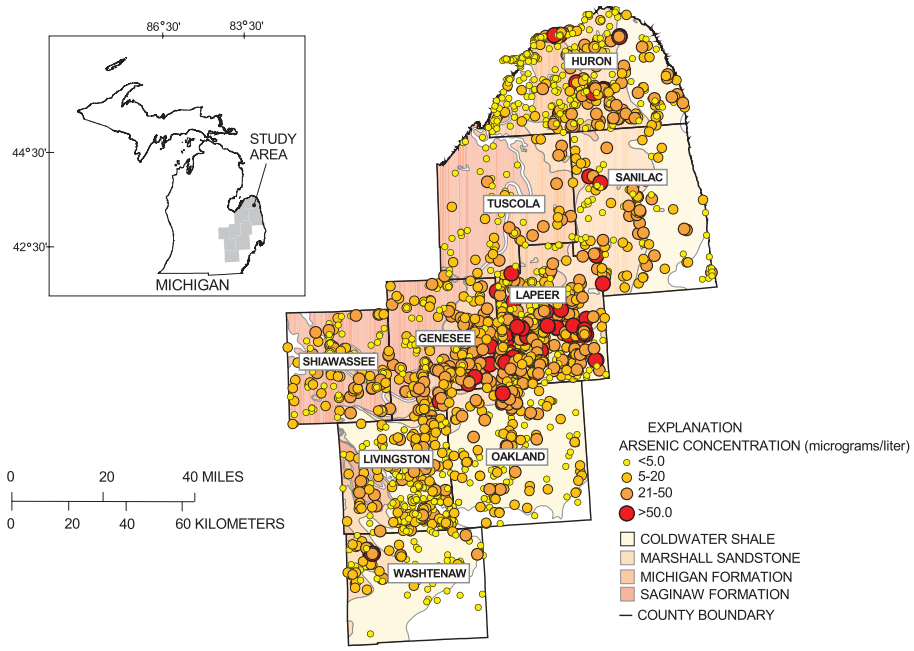

Figure 1. Locations of selected wells in southeastern Michigan and their concentrations of arsenic.

DISTRIBUTION OF ARSENIC IN GROUND WATER IN GENESEE COUNTY

Information on ground-water arsenic concentrations in Genesee County was available from the MDEQ, the USGS, and the county. The USGS sampled eight drinking water wells in Genesee County as part of this study. The 224 analyses shown in figure 2 represent recent (1997 or later) MDEQ well-water analyses for total arsenic, as well as USGS analyses for total or dissolved arsenic. Of these, 14 exceeded the USEPA standard of 50 µg/L (table 1). Eighty-one of the 224 wells (36.2 percent) had arsenic concentrations less than or equal to 10 µg/L, and 52 wells had arsenic concentrations less than 5 µg/L. Well-drilling records were available for all 224 wells. The highest arsenic concentration recorded for a well of known construction was 96 µg/L for a well in Davison Township completed in the Marshall Sandstone at a depth of 260 ft. The second highest concentration (86.1 µg/L) was recorded in

Atlas Township in a well completed at 200 ft. depth in the Marshall Sandstone.

HEALTH EFFECTS OF ARSENIC

The Agency for Toxic Substances and Disease Registry (ATSDR, 1998) Toxicological Profile for Arsenic describes some possible health effects from arsenic exposure. Consumption of arsenic doses greater than 60,000 µg/L in food or water can be lethal (ATSDR, 1998). Doses between 300 and 30,000 µg/L may cause stomach pain, nausea, vomiting, or diarrhea (ATSDR, 1998). Long-term exposure to arsenic may produce other effects. Arsenic is classified as a known human carcinogen by the USEPA, and it has been linked to skin, bladder, lung, and prostate cancer. In addition, non-cancer effects of long-term exposure may include darkening and thickening of the skin (especially on the palms of the hands, the soles of the feet, and the torso) as well as numbness of the feet and hands, anemia, or cardiovascular changes. The concentrations of arsenic that result in these long-term effects have not been clearly established.

FOR MORE INFORMATION

For more information on arsenic in drinking water in Genesee County, contact the Genesee County Health Department, Environmental Health Division, 630 S. Saginaw, Flint, MI, 48502 (phone: 810-257-3603). For more information on arsenic in drinking water in Michigan, contact the Michigan Department of Environmental Quality, Drinking Water and Radiological Protection Division, 3423 N. Martin Luther King Jr. Blvd., P.O. Box 30195, Lansing, MI, 48909 (phone: 517-335-9218)or contact the Michigan Department of Community Health, Division of Environmental Epidemiology, 3423 N. Martin Luther King Jr. Blvd., Lansing, MI 48909. MDCH can be reached toll free by calling 1-800-648-6942. MDCH can also be reached by calling 517-335-8350.

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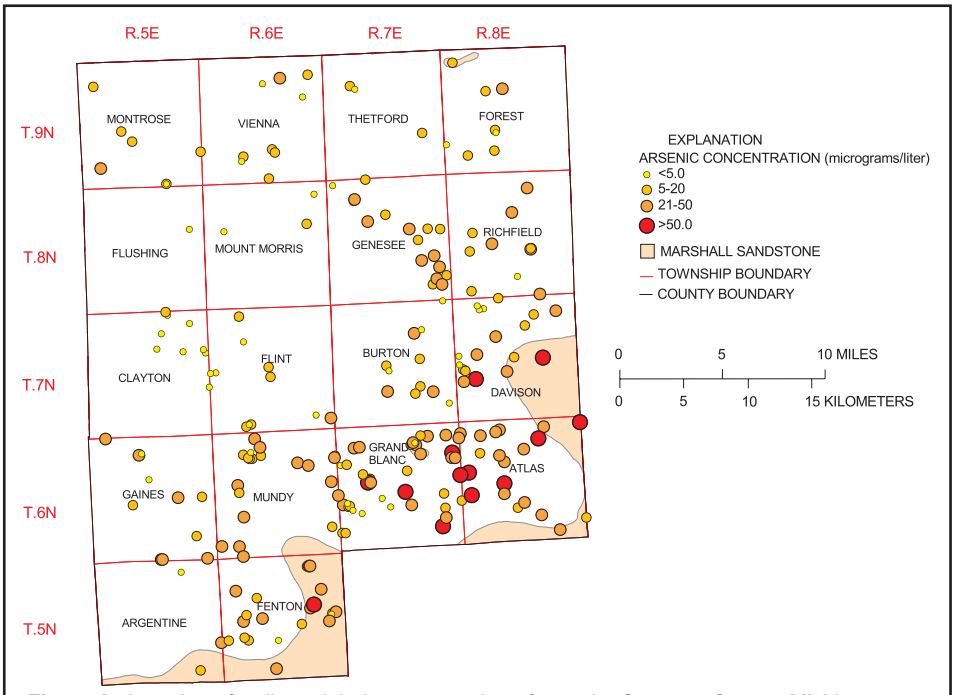

Figure 2. Location of wells and their concentration of arsenic, Genesee County, Michigan.

Table 1. Arsenic summary by township [µg/L = micrograms per liter; detection limit = 1µg/L]

Township	*Number of wells*	*Median Arsenic Concentration (µg/L)*	*Percent <5 µg/L (%)*	*Percent >50 µg/L (%)*
Argentine	3	18.7	33.3	0.0
Atlas	20	36.9	0.0	25.0
Burton	11	12.6	36.4	0.0
Clayton	9	2.4	88.9	0.0
Davison	18	11.2	27.8	11.1
Fenton	21	22.1	9.5	9.5
Flint	11	8.6	45.5	0.0
Flushing	1	2.3	100.0	0.0
Forest	8	7.5	25.0	0.0
Gaines	11	20.9	18.2	0.0
Genesee	17	20.2	5.9	0.0
Grand Blanc	40	17.0	17.5	12.5
Montrose	8	9.1	25.0	0.0
Mt. Morris	3	1.5	66.7	0.0
Mundy	21	21.4	4.8	0.0
Richfield	10	22.6	10.0	0.0
Thetford	3	6.8	33.3	0.0
Vienna	9	7.4	33.3	0.0
Total	224	16.6	23.2	6.3

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