

US EPA ARCHIVE DOCUMENT



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June 19, 2012

Mr. Peter Quackenbush
Senior Environmental Engineer
Hazardous Waste Section, Resource Management Division
Michigan Department of Environmental Quality
301 E. Louis Glick Highway
Jackson, Michigan 49201-1556

Subject: Former Tecumseh Products Company Site, Tecumseh, Michigan – Request to MDEQ for
Mixing Zone-Based GSI Criteria

Dear Mr. Quackenbush:

On behalf of Tecumseh Products Company (TPC), I am writing to formally request the Michigan Department of Environmental Quality (MDEQ) provide mixing zone-based groundwater/surface water interface (GSI) criteria for the former TPC site, located at 100 East Patterson Street, in Tecumseh, Michigan.

As you are aware, site clean-up and investigation activities at the former TPC site in Tecumseh, Michigan are being conducted under the direction of the United States Environmental Protection Agency (USEPA) as specified in Administrative Order on Consent dated March 29, 2010 (RCRA-05-2010-0012). During a March 2012 meeting, USEPA indicated that Michigan Part 201 guidance/rules would be used to assess the acceptability of any discharge of groundwater to surface water. The attached Request to MDEQ for Mixing Zone-Based GSI Criteria and supporting documentation were prepared in support of the groundwater stability determination and associated assessment of the significance of any discharge of groundwater to surface water. As shown in the attached, the concentration of trichloroethene (TCE) at a single GSI well (MW-31, 130 to 340 ug/L) fluctuates around the TCE GSI criterion (200 ug/L). Even using the lowest monthly 95-percent exceedence low flow at the discharge location, the surface water to groundwater mixing ratio is more the 2000:1. Therefore, I expect that the calculated mixing zone-based GSI criteria will be well above groundwater concentrations at GSI monitoring wells.

Mr. Peter Quackenbush
Michigan Department of Environmental Quality
June 19, 2012
Page 2

MDEQ's prompt processing of this request is greatly appreciated. If you have any questions or comments, please feel free to contact me by phone at (734) 585-7813, or by email at gcrockford@trcsolutions.com

Sincerely,

TRC Environmental Corporation



Graham Crockford, C.P.G.
Project Manager

Attachments: Attachment 1 – Request to MDEQ for Mixing Zone Based GSI Criteria

cc: Michelle Mullin, USEPA
Susan Perdomo, USEPA
Daniel Mazur, USEPA
Roger Jackson, Tecumseh Products Company
Jason Smith, Tecumseh Products Company
Douglas McClure, Conlin, McKenney & Philbrick, PC
Stacy Metz – TRC Environmental Corporation
Central Files

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Attachment 1

Request to MDEQ for Mixing Zone Based GSI Criteria



ATTACHMENT 1
REQUEST TO MDEQ FOR MIXING ZONE-BASED GSI CRITERIA

Shaded selections of this form should be completed with appropriate information, documentation or narrative to provide the necessary information for the MDEQ to process the request. Original sources of information, if not supplied, should be appended or clearly referenced.

TO: Peter Quackenbush, Project Manager
Hazardous Waste Section
Resource Management Division

FROM: Jason Smith
Corporate Environmental Director
Tecumseh Products Company
2700 W. Wood Street
Paris, TN 38242

SUBJECT: Request for Mixing Zone-Based Criteria
Facility Name: Former Tecumseh Products Company
RCRA Facility ID # MID-005-049-440
Part 201 Facility ID#: NA
Lenawee County

We are requesting mixing zone-based groundwater/surface water interface criteria for the above referenced facility, located in the W 1/2 of the SW 1/4 of Section 34, T5S, R4E in the city of Tecumseh, Michigan, where shown on Figure 1 (Attachment 1-A).

The facility characteristics include:

- 1. The name of the receiving surface water body and the location of the venting groundwater contaminant plume:

River Raisin, immediately north of Blood Road (abandoned), between monitoring well MW-17S and a seep downgradient of monitoring wells MW-31 and MW-14D.

This is a new increased or existing loading.

Recreational Use: Yes No (if no, provide an explanation of conditions that make recreation use not applicable to site conditions).

(See Attachment 1A).

- 2. The location, nature, and chemical characteristics of the source of the groundwater contamination plume:

Groundwater affected by constituents of concern (COCs) originating from the former Tecumseh Products Company Site located at 100 East Patterson Street. On-site investigation has identified two areas with comparably higher soil and groundwater concentrations: the Northern Source Area and the Southern Source Area. The Northern South Area is in the vicinity of soil borings NS-8, NS-9, and NS-10 (Figure 2 in Attachment 1-A) where the highest concentration of trichloroethene (TCE) was found in the soil, and upgradient of NS-1 where relatively higher concentrations of TCE were found in



the groundwater. There is no single known source for TCE in the Northern Source Area and TCE is detected at varying concentrations throughout the area. The Southern Source Area is in the vicinity of soil borings SS-1 through SS-7 where high concentrations of TCE and 1,1,1-trichloroethane (1,1,1-TCA) were found in the groundwater. Both source areas are approximately 3500 feet hydraulically upgradient of the River Raisin. Further details on these source areas can be found in "Current Conditions Report" (RMT, September 2009), and the January 2011 Technical Memorandum titled "Summary of 2010 Soil and Groundwater Source Area Investigation Activities" (RMT). References are included in Attachment 1-D. COCs identified above the Part 201 generic GSI criteria at the site during quarterly monitoring events include cis-1,2-dichloroethene; 1,1,1-TCA; TCE; and vinyl chloride (see Table 1 in Attachment 1-B).

In May 2011, TRC installed a permeable reactive barrier (PRB) along the eastern property boundary in the vicinity of soil gas sample locations SG-01, SG-02, and SG-03. The purpose of the PRB is to eliminate the potential vapor intrusion pathway downgradient of the southern source area by treating shallow chlorinated volatile organic compound-affected groundwater along the eastern (downgradient) property line before it migrates off site.

3. The name, Chemical Abstract Service (CAS) Number, and worst case maximum concentration of contaminants predicted to reach the groundwater/surface water interface (GSI). Generally the highest concentration of the contaminant found in the groundwater would be appropriate to represent the worst case maximum. If source contaminants have not yet reached the groundwater but are expected to do so, source concentrations should be identified and noted as such. Mixing zone-based GSI criteria will not be developed for contaminants that are not identified as having a reasonable potential to exceed water quality criteria.

The available data from the upgradient monitoring wells and from the GSI wells are summarized in Table 1 (Attachment 1-B). Of the GSI wells, only monitoring well MW-31 exhibits an exceedance of generic GSI criteria. TCE is present in MW-31 at concentrations that fluctuate around the generic GSI criteria of 200 ug/L. Eight quarterly rounds of groundwater data have been collected from MW-31 since its installation in June 2010, with TCE concentrations ranging from 130 and 340 ug/L. MW-31 is approximately 800 feet upgradient of the River Raisin. Additionally, a small seep downgradient of MW-31 along the River Raisin immediately north of Blood Road was analyzed for VOCs. There were no VOCs detected in the seep sample.

The following table illustrates all COCs consistently detected in groundwater on site. These data represent maximum plume concentrations from the most recent 13 quarters of sampling.

Chemical or General Chemistry Parameter	CAS #	Maximum Detected Groundwater Concentration	Predicted Worst Case Maximum GSI Discharge Concentration	Average Surface Water Conc. Upstream If available
1,1-Dichloroethane	75-35-3	150 (MW-32S)	18 (MW-31)	Unknown
1,1-Dichloroethene	75-35-4	14 (MW-34S)	<2.0 (MW-31)	Unknown
cis-1,2-Dichloroethene	156-59-2	2900 (MW-04S)	40 (MW-31)	Unknown
trans-1,2-Dichloroethene	156-60-5	110 (MW-03S)	3.4 (MW-31)	Unknown
Tetrachloroethene	127-18-4	6.3 (MW-05S)	<2.0 (MW-31)	Unknown
1,1,1-Trichloroethane	71-55-6	1600 (MW-34S)	48 (MW-31)	Unknown
Trichloroethene	79-01-6	7500 (MW-04S)	340 (MW-31)	Unknown
Trichlorofluoromethane	75-69-4	3.8 (MW-20S)	<2.0 (MW-31)	Unknown
Vinyl Chloride	75-01-4	520 (MW-04S)	2.5 (MW-31)	Unknown

4. The discharge rate of the venting groundwater contaminant plume in cubic feet per second (cfs).

Due to the reduced saturated thickness at GSI monitoring well MW-31 in comparison to the saturated thickness at the eastern boundary of the site (up horizontal gradient of MW-31), this calculation of groundwater discharge to the River Raisin was conservatively estimated using cross section area, gradient, and hydraulic conductivity measured along the eastern boundary of the site as opposed to that in the area of MW-31. See Figure 4 in Attachment 1-A for an illustration of the reduction in saturated thickness in proximity to the River Raisin.

The discharge rate of the venting groundwater contaminant plume was conservatively estimated using the following information:

- **Discharge Area (A)** - The maximum static water elevation at PRB-01 (778.96 feet) was measured during the April 2012 monitoring event. The elevation of the top of the basal clay near PRB-01 is approximately 748 feet. This results in the maximum saturated thickness (t_{sat}) of approximately 31 feet. The length of the discharge area (L) was measured perpendicular to groundwater flow in the area downgradient of MW-31, between MW-17S (below generic GSI) and the seep along Blood Road (below generic GSI), as shown on Figure 2 in Attachment 1-A. This length (L) is approximately 580 feet.

$$A = t_{sat}L$$

$$A = 31 \text{ ft} \times 580 \text{ ft} = 17,980 \text{ ft}^2$$

The calculated cross-sectional area of groundwater discharge is 17,980 square feet.

- **Horizontal Gradient (i)** – Using groundwater elevation data collected during the April 2012 groundwater monitoring event (provided in Table 2), the unconfined groundwater hydraulic gradient (i) across the site is estimated to be approximately 0.001. The groundwater horizontal gradient is roughly depicted in the attached groundwater contour map (Figure 3 in Attachment 1-A) and geologic cross-section (Figure 4 in Attachment 1-A);
- **Hydraulic Conductivity (k)** – In August 2011, single well response tests (slug tests) were conducted by TRC to determine the hydraulic conductivity within the saturated unconfined sand and gravel unit along the eastern perimeter of the site in the vicinity of the PRB. The slug tests were performed within the sand and gravel unit at all PRB monitoring well locations. In-barrier monitoring well locations were not used in calculations because their hydraulic conductivity is not representative of the native sand and gravel unit. The average hydraulic conductivity of the unconfined saturated sand and gravel unit at the site is 3.5×10^{-3} cm/sec (1.1×10^{-4} ft/sec) with a maximum hydraulic conductivity of 1.1×10^{-2} cm/sec (4.6×10^{-4} ft/sec). The hydraulic conductivity measured is consistent with what would be expected in the sand and gravel unit encountered at the PRB monitoring well locations. The maximum hydraulic conductivity (k_{max}) of 1.1×10^{-2} cm/sec (4.6×10^{-4} ft/sec) was used to conservatively calculate the discharge rate. The single well response test data and analysis sheets are provided as Attachment 1-C.



Michigan Department of Environmental Quality

- **Groundwater Discharge Rate (Q_{gw})** – The groundwater discharge rate (Q_{gw}) of the venting contaminant plume was estimated using Darcy's Law:

$$Q_{gw} = k_{max}iA$$

$$Q_{gw} = 4.6 \times 10^{-4} \text{ ft/s} \times 0.01 \times 17,980 \text{ ft}^2 = 8.3 \times 10^{-3} \text{ ft}^2/\text{s}$$

The calculated groundwater discharge rate to the River Raisin is 8.3×10^{-3} cubic feet per second (cfs), approximately 3.7 gallons per minute.

5. The location of other contaminant plumes entering the receiving surface water body, their constituents and concentrations, if available:

Unknown.

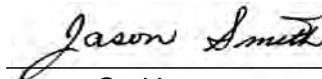
6. If available:

The lowest monthly 95 percent exceedance low flow at the discharge location:	19 CFS
The harmonic mean flow at the discharge location:	92 CFS
The 90dQ10 flow at the discharge location:	36 CFS

source:

- MDEQ Low Flow Data Base
- Determined by MDEQ Hydrologic Studies Unit (memo included in Attachment 1-E)
- Other

I certify under the penalty of law that I have personally examined and am familiar with the information submitted in this request and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information



Jason Smith
Corporate Environmental Director

Authorized signatures:

For a corporation, a principal executive officer of at least the level of vice president or his designated representative. If the designated representative is responsible for the overall operation of the facility from which the groundwater is venting, the designation of the representative must be in writing from a principal executive officer and provided to the MDEQ

For a partnership, a general partner

For a sole proprietorship, the proprietor

For a state, municipal, or other public facility, either a principal executive officer, the mayor, village president, city or village manager, or other authorized employee designated in writing from a principal executive officer and provided to the MDEQ

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If this is a new loading, or increased loading above previously authorized levels, an antidegradation demonstration, which includes the information in 8 and 9 below, or a demonstration of qualification for an exemption under Rule 323.1098 (7) or (8), is required.

7. Please check whether there is
- an antidegradation demonstration (Information for 8 and 9 is included.) **or**
 - a demonstration of qualification for an exemption (Refer to 323.1098 (7) and (8) for elements needed for this demonstration.)

Please identify below who prepared the antidegradation or exemption demonstration.

8. This is a new or increased loading from venting groundwater. The social or economic development and the benefits to the area in which the waters are located that would be foregone if the new or increased discharge is not allowed include:

- Employment increases:
- Production level increases:
- Employment reductions avoidance:
- Efficiency increases:
- Industrial, commercial, or residential growth:
- Environmental or public health problem corrections:
- Economic or social benefits to the community:
- Other relevant factors:

If the new or increased loading includes the following bioaccumulative chemicals of concern (BCCs), Chlordane, 4,4'-Dichlorodiphenyldichloroethane, 4,4'-Dichlorodiphenyldichloroethylene, 4,4'-Dichlorodiphenyltrichloroethane, Dieldrin, Hexachlorbenzene, Hexachlorobutadiene, Hexachlorocyclohexanes, alpha-Hexachlorocyclohexane, beta-Hexachlorocyclohexane, delta-Hexachlorocyclohexane, Lindane, Mercury, Mirex, Octachlorostyrene, Polychlorinated biphenyls, Pentachlorobenzene, Photomirex, 2,3,7,8-Tetrachlorodibenzodioxin, 1,2,3,4-Tetrachlorobenzene, 1,2,4,5-Tetrachlorobenzene, Toxaphene, complete the following:

9. Please check whether
- There is no BCC in the discharge **or**
 - BCCs are included in the discharge (information for 10. and 11. is included.)



10. The alternatives evaluated and the alternatives to be implemented that will comply with minimizing the discharge of the BCC by implementation of any cost-effective pollution prevention alternatives (such as source control) and techniques reasonably available that would eliminate or significantly reduce the discharge of the BCC are:

11. If pollution prevention alternatives would not eliminate the increased discharge of the BCC, the person making the demonstration must evaluate alternative or enhanced groundwater treatment techniques that would eliminate the discharge of the BCC. The techniques that have a cost that are reasonable relative to the cost of treatment necessary to achieve generic GSI criteria must be implemented. The alternatives evaluated and the alternatives to be implemented that will comply with this requirement are:

Attachment 1-A

Figures

PLOT DATA
 Drawing Name: J:_TRC\Tecumseh Products\MI004311000103\Mixing Zone Determination\004311.0001.03.01.dwg
 Operator Name: STEHLE, DIANAH
 Drawing Plot Scale: 0.386863
 Dwg Size: 2.27 Mb
 Plot Date: June 12, 2012
 Plot Time: 7:58 AM
 Attached Xrefs: FIG01 Site Location Plan & Vicinity
 Attached Images:
 Layout:



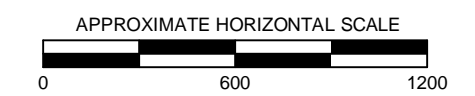
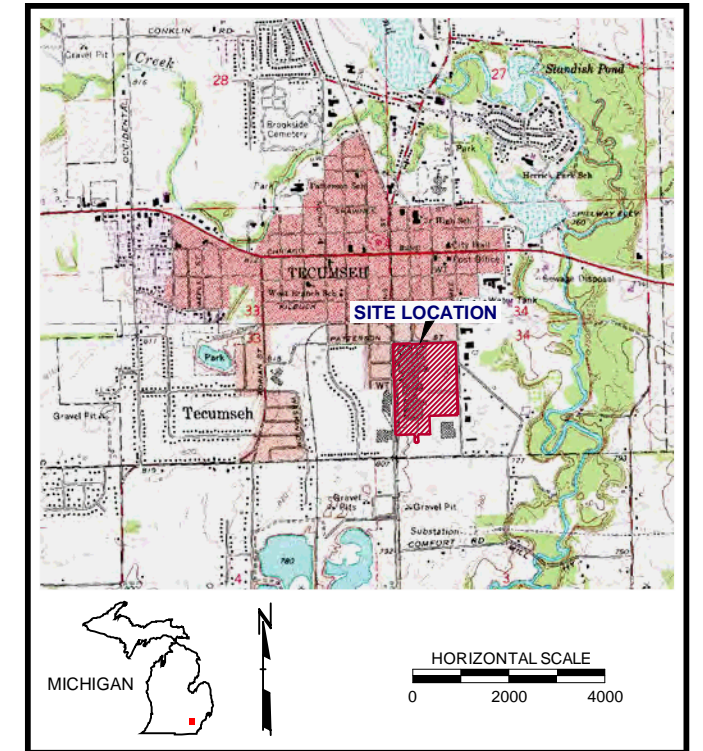
LEGEND

- FORMER TECUMSEH PRODUCTS SITE BOUNDARY
- PARCEL BOUNDARIES

NOTE

1. BASE MAP DEVELOPED FROM SITE PLAN PROVIDED BY THE CITY OF TECUMSEH, DRAWING NO. CITY.DWG, MARCH 2009. AERIAL PHOTOGRAPH PROVIDED FROM REMOTE SENSING & GIS RESEARCH AND OUTREACH SERVICES (RS&GIS), PUBLICATION_DATE: 06-29-2007, File:TECUMSEHSOUTH_NE.ECW.

SITE TOPOGRAPHY INSET MAP



PROJECT:		FORMER TECUMSEH PRODUCTS SITE TECUMSEH, MICHIGAN	
TITLE:		SITE LOCATION PLAN AND VICINITY	
DRAWN BY:	SJL/DGS	SCALE:	AS INDICATED
CHECKED BY:	SEM	PROJ. NO.:	004311.0001.03
APPROVED BY:	GC	FILE NO.:	004311.0001.03.01.dwg
DATE:	JUNE 2012	DATE PRINTED:	FIGURE 1

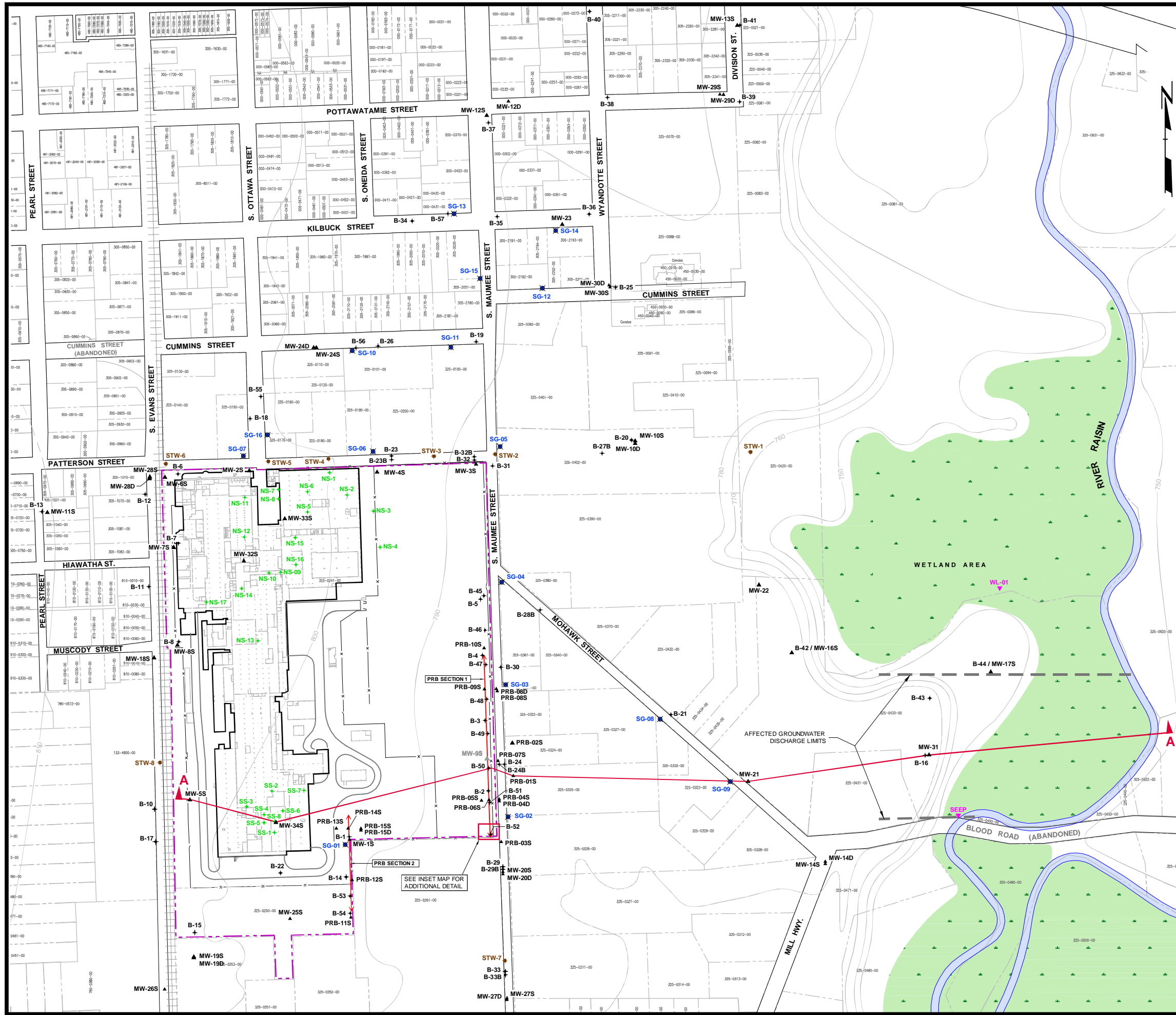


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Attached Xrefs: bm100110 (filled)
 Attached Images:
 Layout: FIG02 Samples & XS

Dwg Size: 1.41 Mb
 Plot Date: June 12, 2012
 Plot Time: 10:01 AM

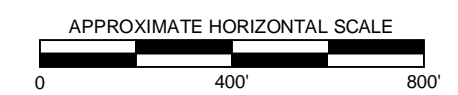
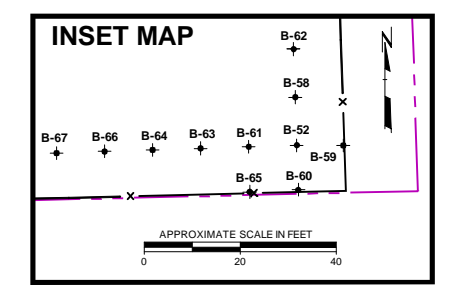
JA_TRC\Tecumseh Products\10004311\000103\Mixing Zone Determination\004311.0001.03.02.dwg
 Drawing Name: STEHLE, DIANA H
 Operator Name: 0.386863
 Drawing Plot Scale:



LEGEND

- FORMER TECUMSEH PRODUCTS SITE BOUNDARY
- PARCEL BOUNDARY
- RAILROAD TRACKS (APPROXIMATE LOCATION)
- APPROXIMATE GROUND TOPOGRAPHY BASED OFF 7.5 MINUTE U.S.G.S. TOPOGRAPHIC QUADRANGLE MAP
- B-2 + PERIMETER / OFF-SITE INVESTIGATION SOIL BORING LOCATION AND NUMBER
- MW-4S ▲ MONITORING WELL LOCATION AND NUMBER
- MW-9S ▲ DECOMMISSIONED MONITORING WELL LOCATION AND NUMBER
- SS-2 + SOURCE AREA INVESTIGATION BORING LOCATION AND NUMBER
- SG-2 ✕ SOIL GAS SAMPLE LOCATION AND NUMBER
- STW-2 ● STORM WATER SEWER SAMPLE LOCATION AND NUMBER
- WL-01 ▼ APPROXIMATE SURFACE WATER SAMPLE LOCATION
- FLOODPLAIN / WOODED WETLAND AREA
- PRB LOCATION
- x FENCE LINE
- ▲ CROSS-SECTION LOCATION

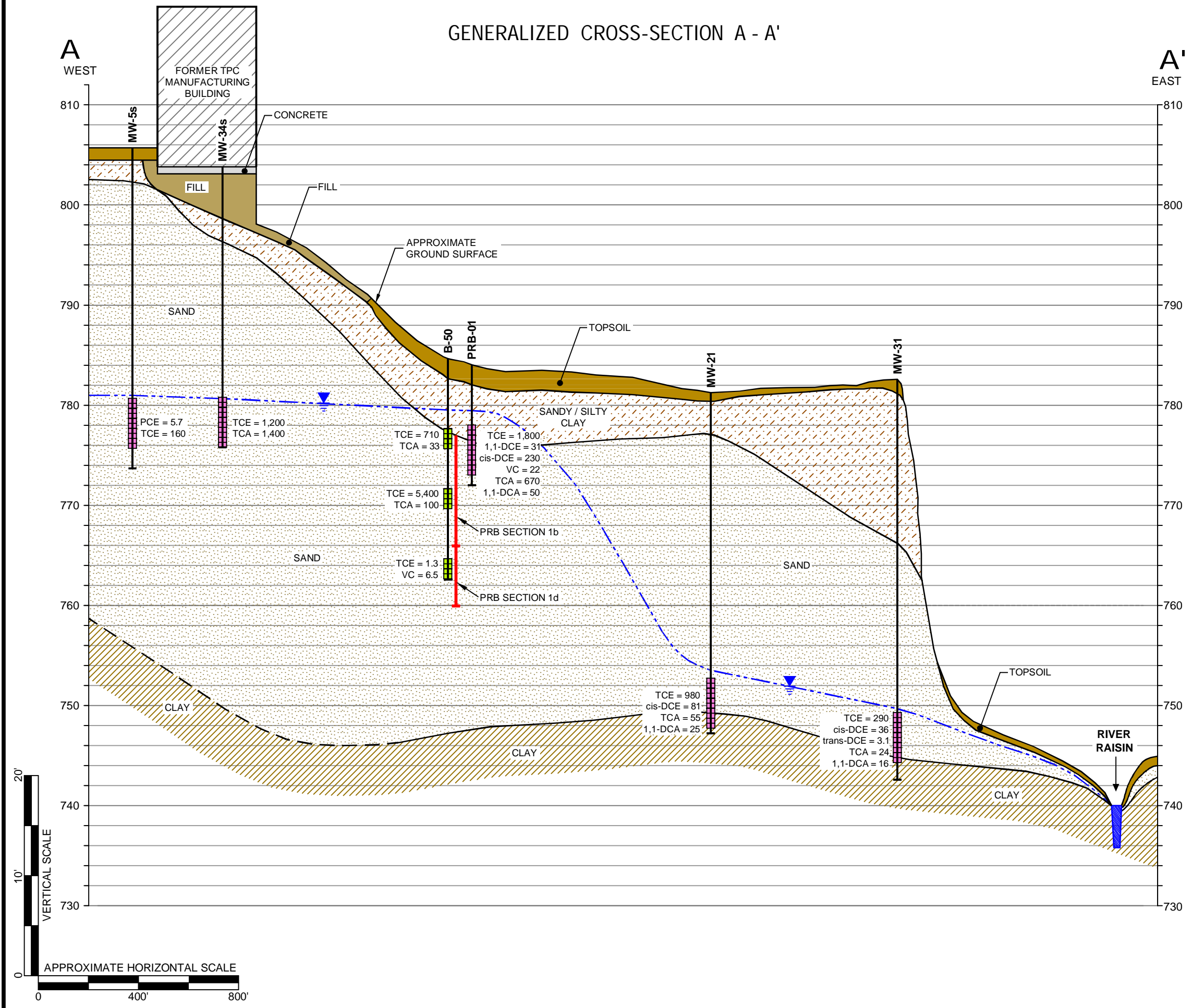
- ### NOTES
1. BASE MAP DEVELOPED FROM SITE PLAN PROVIDED BY THE CITY OF TECUMSEH, DRAWING NO. CITY.DWG, MARCH 2009.
 2. GROUND TOPOGRAPHY BASED OFF 7.5 MINUTE U.S.G.S TOPOGRAPHIC QUADRANGLE MAP AND GROUND SURVEY DATA.



PROJECT: FORMER TECUMSEH PRODUCTS SITE TECUMSEH, MICHIGAN			
TITLE: SAMPLE LOCATIONS AND CROSS-SECTION LOCATION MAP			
DRAWN BY: SJL/DGS	SCALE: AS INDICATED	PROJ. NO. 004311.0001.03	
CHECKED BY: SEM	DATE PRINTED:	FILE NO. 004311.0001.03.02.dwg	
APPROVED BY: GC		FIGURE 2	
DATE: JUNE 2012			

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GENERALIZED CROSS-SECTION A - A'



LEGEND

	TOPSOIL		SILT
	SAND		CONCRETE
	CLAY		FILL
	SANDY / SILTY CLAY		GRAVEL

STRATIGRAPHIC BOUNDARY BASED ON NEAREST SOIL BORING OR MONITORING WELL (DASHED WHERE INFERRED)
 APPROXIMATE GROUNDWATER ELEVATION
 PERCHED GROUNDWATER ELEVATION
 PIEZOMETRIC WATER LEVEL INDICATOR
 TEMPORARY WELL SCREEN
 WELL SCREEN

PCE = TETRACHLOROETHENE
 TCE = TRICHLOROETHENE
 TCA = 1,1,1-TRICHLOROETHANE
 1,1-DCE = 1,1-DICHLOROETHENE
 1,1-DCA = 1,1-DICHLOROETHANE
 cis-DCE = 1,2-cis-DICHLOROETHENE
 trans-DCE = 1,2-trans-DICHLOROETHENE
 VC = VINYL CHLORIDE
 ND = NOT DETECTED

- NOTES**
- GROUND SURFACE AND STRATIGRAPHIC CONTACTS ARE APPROXIMATE AND EXTRAPOLATED FROM NEAREST SOIL BORING DATA.
 - SEE FIGURE 2 FOR LOCATION / ORIENTATION OF THIS GEOLOGIC CROSS SECTION.
 - GROUNDWATER ANALYTICAL DATA REFLECTS MOST RECENT SAMPLE EVENT AS OF APRIL 2012.
 - DETECTED GROUNDWATER CONCENTRATIONS FOR CONSTITUENTS OF HIGHEST CONCERN ARE PROVIDED IN MICROGRAMS PER LITER.

PROJECT: FORMER TECUMSEH PRODUCTS SITE TECUMSEH, MICHIGAN		
TITLE: GEOLOGIC CROSS-SECTION A-A'		
DRAWN BY: METZA/DGS	SCALE: AS INDICATED	PROJ. NO. 004311.0001.03
CHECKED BY: SEM	DATE PRINTED:	FILE NO. 004311.0001.03.04.dwg
APPROVED BY: GC	FIGURE 4	
DATE: JUNE 2012		

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Attachment 1-B

Tables

Table 1
 Summary of Detected Volatile Organic Compounds in Groundwater and Surface Water
 Former Tecumseh Products Company Site
 Tecumseh, Michigan
 Second Quarter 2012

Analyte	2-Butanone	Chloroethane	1,1-Dichloroethane	1,1-Dichloroethene ⁽²⁾	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Tetrachloroethene	1,1,1-Trichloroethane	Trichloroethene	Trichloro-fluoromethane	Vinyl Chloride	
Residential DW Criteria	13,000	430	880	7.0	70	100	5.0	200	5.0	2,600	2.0	
Non-Residential DW Criteria	38,000	1,700	2,500	7.0	70	100	5.0	200	5.0	7,300	2.0	
GSI Criteria	2,200	1,100	740	130	620	1,500 ⁽¹⁾	60 ⁽¹⁾	89	200 ⁽¹⁾	NC	13 ⁽¹⁾	
Residential GWSLs for Vapor Intrusion	4.5E+06	NC	130	390	440	330	11	15,000	9.9	370	5.0	
Non-Residential GWSLs for Vapor Intrusion	1.9E+07	NC	670	1,600	1,800	1,400	55	63,000	42	1,600	50	
Groundwater Contact Criteria	2.4E+08	4.4E+05	2.4E+06	11,000	2.0E+05	2.2E+05	12,000	1.3E+06	22,000	1.1E+06	1,000	
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
MW-01s (16-21')	3/13/2009	<100	<100	<20	<20	<20	<20	750	2,700	<20	<20	
	4/20/2009	NA	<500	<100	<100	<100	<100	1,100	2,200	NA	<100	
	12/9/2009	<100	<100	<20	<20	<20	<20	1,000	3,400	<20	<20	
	3/17/2010	<100	<100	<20	<20	<20	<20	1,400	2,500	<20	<20	
	5/18/2010	<100	<100	<20	<20	<20	<20	1,000	2,700	<20	<20	
	9/10/2010	<100	<100	<20	<20	<20	<20	750	2,400	<20	<20	
	12/28/2010	<100	<100	<20	<20	<20	<20	1,100	2,500	<20	<20	
	2/25/2011	<50	<50	<10	<10	<10	<10	560	1,300	<10	<10	
	5/11/2011 ⁽³⁾	<50	<50	<10	<10	<10	<10	860	1,900	<10	<10	
	7/28/2011	<100	<100	<20	<20	<20	<20	500	1,900	<20	<20	
	10/6/2011	<100	<100	<20	<20	<20	<20	540	2,000	<20	<20	
1/9/2012	<100	<100	<20	<20	31	<20	<20	530	2,000	<20	<20	
4/4/2012	<100	<100	<20	<20	38	<20	<20	480	1,900	<20	<20	
DUP-01 (MW-01s)	3/13/2009	<20	<20	<20	<20	<20	<20	720	2,700	<20	<20	
MW-02s (23-28')	3/13/2009	<10	<10	<2.0	<2.0	2.4	<2.0	2.2	2.5	280	<2.0	<2.0
	4/20/2009	NA	<50	<10	<10	<10	<10	<10	130	NA	<10	
	12/9/2009	<10	<10	<2.0	<2.0	3.7	<2.0	2.7	2.9	250	<2.0	<2.0
	3/17/2010	13	<10	<2.0	<2.0	4.1	<2.0	2.3	3.1	290	<2.0	<2.0
	5/18/2010	<10	<10	<2.0	<2.0	2.3	<2.0	2.4	2.6	210	<2.0	<2.0
	9/10/2010	<10	<10	<2.0	<2.0	2.3	<2.0	2.3	2.3	220	<2.0	<2.0
	12/22/2010	<10	<10	<2.0	<2.0	2.4	<2.0	2.3	3.1	240	<2.0	<2.0
	2/24/2011	<10	<10	<2.0	<2.0	2.0	<2.0	<2.0	2.6	240	<2.0	<2.0
	5/10/2011 ⁽³⁾	<10	<10	<2.0	<2.0	<2.0	<2.0	<2.0	2.3	250	<2.0	<2.0
	7/28/2011 ⁽⁴⁾	<10	<10	<2.0	<2.0	2.0	<2.0	2.2	2.4	280	<2.0	<2.0
	10/7/2011	<10	<10	<2.0	<2.0	<2.0	<2.0	2.5	2.5	220	<2.0	<2.0
1/10/2012	<10	<10	<2.0	<2.0	<2.0	<2.0	2.8	2.5	190	<2.0	<2.0	
4/5/2012	<10	<10	<2.0	<2.0	2.7	<2.0	3.5	3.4	210	<2.0	<2.0	

Notes:

Residential and Non-Residential Drinking Water (DW) Criteria, Groundwater Surface Water Interface (GSI) Criteria, and Groundwater Contact Criteria from MDEQ RRD Op Memo 1 Part 201 Generic Cleanup Criteria/Part 213 Risk Based Cleanup Levels, January 23, 2006, as amended March 25, 2011.
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ug/L = micrograms per liter

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Bold font denotes concentrations detected above laboratory reporting limits

 Denotes concentrations above generic GSI criteria

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US EPA ARCHIVE DOCUMENT

Table 1
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 Former Tecumseh Products Company Site
 Tecumseh, Michigan
 Second Quarter 2012

Analyte	2-Butanone	Chloroethane	1,1-Dichloroethane	1,1-Dichloroethene ⁽²⁾	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Tetrachloroethene	1,1,1-Trichloroethane	Trichloroethene	Trichloro-fluoromethane	Vinyl Chloride
Residential DW Criteria	13,000	430	880	7.0	70	100	5.0	200	5.0	2,600	2.0
Non-Residential DW Criteria	38,000	1,700	2,500	7.0	70	100	5.0	200	5.0	7,300	2.0
GSI Criteria	2,200	1,100	740	130	620	1,500 ⁽¹⁾	60 ⁽¹⁾	89	200 ⁽¹⁾	NC	13 ⁽¹⁾
Residential GWSLs for Vapor Intrusion	4.5E+06	NC	130	390	440	330	11	15,000	9.9	370	5.0
Non-Residential GWSLs for Vapor Intrusion	1.9E+07	NC	670	1,600	1,800	1,400	55	63,000	42	1,600	50
Groundwater Contact Criteria	2.4E+08	4.4E+05	2.4E+06	11,000	2.0E+05	2.2E+05	12,000	1.3E+06	22,000	1.1E+06	1,000
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-03s (9-14')	3/13/2009	<10	<10	9.1	<2.0	240	9.1	<2.0	<2.0	<2.0	140
	4/20/2009	NA	<50	18	<10	490	18	<10	<10	NA	210
	12/8/2009	<120	<120	46	<25	2,200	83	<25	<25	<25	130
	3/17/2010	<25	<25	11	<5.0	460	17	<5.0	<5.0	<5.0	42
	5/18/2010	<25	<25	14	<5.0	630	24	<5.0	<5.0	<5.0	34
	9/10/2010	<50	<50	29	<10	1,600	63	<10	<10	<10	83
	12/22/2010	<50	<50	32	<10	1,800	82	<10	<10	<10	70
	2/25/2011	<100	<100	33	<20	2,200	110	<20	<20	<20	75
	5/10/2011 ⁽³⁾	<100	<100	25	<20	1,600	77	<20	<20	<20	52
	7/28/2011	<100	<100	23	<20	1,700	78	<20	<20	<20	65
	10/6/2011	<100	<100	24	<20	2,100	100	<20	<20	<20	91
1/10/2012	<50	<50	22	<10	1,300	81	<10	<10	<10	51	
4/4/2012	<100	<100	<20	<20	1,600	84	<20	<20	20	170	
DUP-01 (MW-03s)	12/8/2009	<120	<120	42	<25	2,000	73	<25	<25	<25	120
MW-04s (15-20')	3/13/2009	<120	<120	<25	<25	2,100	70	<25	<25	5,000	460
	4/20/2009	NA	<500	<100	<100	1,700	<100	<100	<100	4,000	520
	12/9/2009	<250	<250	<50	<50	2,500	90	<50	<50	7,100	270
	3/17/2010	<250	<250	<50	<50	2,900	82	<50	<50	7,500	520
	5/18/2010	<250	<250	<50	<50	2,100	58	<50	<50	4,700	280
	9/17/2010	<250	<250	<50	<50	2,400	70	<50	<50	5,200	200
	12/22/2010	<250	<250	<50	<50	2,700	91	<50	<50	6,700	270
	2/25/2011	<250	<250	<50	<50	2,500	82	<50	<50	5,900	280
	5/11/2011 ⁽³⁾	<250	<250	<50	<50	1,900	58	<50	<50	4,600	270
	7/28/2011	<250	<250	<50	<50	1,700	50	<50	<50	4,600	190
	10/6/2011	<250	<250	<50	<50	2,000	58	<50	<50	4,600	190
1/10/2012	<250	<250	<50	<50	1,800	72	<50	<50	4,800	190	
4/4/2012	<250	<250	<50	<50	1,600	54	<50	<50	4,300	170	

Notes:

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 Former Tecumseh Products Company Site
 Tecumseh, Michigan
 Second Quarter 2012

Analyte	2-Butanone	Chloroethane	1,1-Dichloroethane	1,1-Dichloroethene ⁽²⁾	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Tetrachloroethene	1,1,1-Trichloroethane	Trichloroethene	Trichloro-fluoromethane	Vinyl Chloride	
Residential DW Criteria	13,000	430	880	7.0	70	100	5.0	200	5.0	2,600	2.0	
Non-Residential DW Criteria	38,000	1,700	2,500	7.0	70	100	5.0	200	5.0	7,300	2.0	
GSI Criteria	2,200	1,100	740	130	620	1,500 ⁽¹⁾	60 ⁽¹⁾	89	200 ⁽¹⁾	NC	13 ⁽¹⁾	
Residential GWSLs for Vapor Intrusion	4.5E+06	NC	130	390	440	330	11	15,000	9.9	370	5.0	
Non-Residential GWSLs for Vapor Intrusion	1.9E+07	NC	670	1,600	1,800	1,400	55	63,000	42	1,600	50	
Groundwater Contact Criteria	2.4E+08	4.4E+05	2.4E+06	11,000	2.0E+05	2.2E+05	12,000	1.3E+06	22,000	1.1E+06	1,000	
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
MW-05s (25-30')	3/13/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	3.5	<1.0	120	<1.0	<1.0
	4/20/2009	NA	<25	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	140	NA	<5.0
	12/10/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	5.3	<1.0	190	<1.0	<1.0
	3/17/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	6.3	<1.0	160	<1.0	<1.0
	5/17/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	4.6	<1.0	160	<1.0	<1.0
	9/9/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	4.6	<1.0	140	<1.0	<1.0
	12/21/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	4.9	<1.0	160	<1.0	<1.0
	2/24/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	4.4	<1.0	130	<1.0	<1.0
	5/13/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	4.9	<1.0	160	<1.0	<1.0
	7/27/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	4.8	<1.0	150	<1.0	<1.0
	10/10/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	5.1	<1.0	150	<1.0	<1.0
1/9/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	5.8	<1.0	150	<1.0	<1.0	
4/9/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	5.7	<1.0	160	<1.0	<1.0	
MW-06s (24-29')	3/16/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	21	<1.0	<1.0
	4/20/2009	NA	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	23	NA	<1.0
	12/9/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	37	<1.0	<1.0
	3/18/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	31	<1.0	<1.0
	5/17/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	33	<1.0	<1.0
	9/10/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	29	<1.0	<1.0
	12/21/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	34	<1.0	<1.0
	2/18/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	35	<1.0	<1.0
	5/10/2011 ⁽³⁾	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	27	<1.0	<1.0
	7/27/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	27	<1.0	<1.0
	10/5/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	30	<1.0	<1.0
1/9/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	31	<1.0	<1.0	
4/3/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	32	<1.0	<1.0	

Notes:

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 Second Quarter 2012

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Residential DW Criteria	13,000	430	880	7.0	70	100	5.0	200	5.0	2,600	2.0	
Non-Residential DW Criteria	38,000	1,700	2,500	7.0	70	100	5.0	200	5.0	7,300	2.0	
GSI Criteria	2,200	1,100	740	130	620	1,500 ⁽¹⁾	60 ⁽¹⁾	89	200 ⁽¹⁾	NC	13 ⁽¹⁾	
Residential GWSLs for Vapor Intrusion	4.5E+06	NC	130	390	440	330	11	15,000	9.9	370	5.0	
Non-Residential GWSLs for Vapor Intrusion	1.9E+07	NC	670	1,600	1,800	1,400	55	63,000	42	1,600	50	
Groundwater Contact Criteria	2.4E+08	4.4E+05	2.4E+06	11,000	2.0E+05	2.2E+05	12,000	1.3E+06	22,000	1.1E+06	1,000	
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
MW-07s (23.5-28.5')	3/16/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.1	10	<1.0	<1.0
	4/20/2009	NA	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.6	11	NA	<1.0
	12/10/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.8	14	<1.0	<1.0
	3/17/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.9	13	<1.0	<1.0
	5/17/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.9	13	<1.0	<1.0
	9/10/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.4	12	<1.0	<1.0
	12/21/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.1	16	<1.0	<1.0
	2/24/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.6	12	<1.0	<1.0
	5/13/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.5	12	<1.0	<1.0
	7/27/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	11	<1.0	<1.0
	10/10/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.4	13	<1.0	<1.0
1/9/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.6	14	<1.0	<1.0	
4/9/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.3	12	<1.0	<1.0	
MW-08s (23.5-28.5')	3/16/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	11	<1.0	<1.0
	4/20/2009	NA	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	10	NA	<1.0
	12/10/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	11	<1.0	<1.0
DUP-01 (MW-08s)	4/20/2009	NA	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	10	NA	<1.0
MW-09s (7-12')	3/16/2009	<100	<100	<20	<20	<20	<20	<20	160	1,700	<20	<20
	4/20/2009	NA	<500	<100	<100	<100	<100	<100	220	2,100	NA	<100
	12/9/2009	<100	<100	<20	<20	<20	<20	<20	150	2,400	<20	<20
	3/18/2010	<100	<100	<20	<20	<20	<20	<20	120	1,500	<20	<20
	5/18/2010	<100	<100	<20	<20	<20	<20	<20	120	1,700	<20	<20
	9/17/2010	<100	<100	<20	<20	<20	<20	<20	120	1,700	<20	<20
	2/25/2011	<50	<50	<10	<10	<10	<10	<10	84	1,100	<10	<10
5/11/2011 ⁽³⁾	<50	<50	<10	<10	<10	<10	<10	83	1,200	<10	<10	

Notes:

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Residential DW Criteria	13,000	430	880	7.0	70	100	5.0	200	5.0	2,600	2.0
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Groundwater Contact Criteria	2.4E+08	4.4E+05	2.4E+06	11,000	2.0E+05	2.2E+05	12,000	1.3E+06	22,000	1.1E+06	1,000
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-10s (8-13')	5/15/2009	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/9/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	3/16/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/12/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	9/3/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/16/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	2/15/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/9/2011 ⁽³⁾	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	7/20/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	10/4/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1/4/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
4/2/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
DUP-02 (MW-10s)	5/15/2009	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-10d (14-19')	12/9/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-11s (29-34')	5/14/2009	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	1/13/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	3/15/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/14/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	9/3/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/17/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	2/17/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/12/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	7/22/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	10/7/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1/4/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
4/5/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
DUP-02 (MW-11s)	5/14/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
DUP-01 (MW-11s)	9/3/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:

Residential and Non-Residential Drinking Water (DW) Criteria, Groundwater Surface Water Interface (GSI) Criteria, and Groundwater Contact Criteria from MDEQ RRD Op Memo 1 Part 201 Generic Cleanup Criteria/Part 213 Risk Based Cleanup Levels, January 23, 2006, as amended March 25, 2011.
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ug/L = micrograms per liter

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Bold font denotes concentrations detected above laboratory reporting limits

Denotes concentrations above generic GSI criteria

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- 2) Compound may exhibit characteristic ignitability as defined in 40 C.F.R. § 261.21
- 3) The average temperature in this sample shipment exceeded the recommended temperature range. Sample results are approximate.
- 4) Quality control results for trichloroethene are outside the established control limits, the result is approximate.
- 5) Headspace present in the sample, results are approximate.

US EPA ARCHIVE DOCUMENT

Table 1
 Summary of Detected Volatile Organic Compounds in Groundwater and Surface Water
 Former Tecumseh Products Company Site
 Tecumseh, Michigan
 Second Quarter 2012

Analyte	2-Butanone	Chloroethane	1,1-Dichloroethane	1,1-Dichloroethene ⁽²⁾	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Tetrachloroethene	1,1,1-Trichloroethane	Trichloroethene	Trichloro-fluoromethane	Vinyl Chloride
Residential DW Criteria	13,000	430	880	7.0	70	100	5.0	200	5.0	2,600	2.0
Non-Residential DW Criteria	38,000	1,700	2,500	7.0	70	100	5.0	200	5.0	7,300	2.0
GSI Criteria	2,200	1,100	740	130	620	1,500 ⁽¹⁾	60 ⁽¹⁾	89	200 ⁽¹⁾	NC	13 ⁽¹⁾
Residential GWSLs for Vapor Intrusion	4.5E+06	NC	130	390	440	330	11	15,000	9.9	370	5.0
Non-Residential GWSLs for Vapor Intrusion	1.9E+07	NC	670	1,600	1,800	1,400	55	63,000	42	1,600	50
Groundwater Contact Criteria	2.4E+08	4.4E+05	2.4E+06	11,000	2.0E+05	2.2E+05	12,000	1.3E+06	22,000	1.1E+06	1,000
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-12s (12-17')	5/15/2009	NA	<1.0	<1.0	<1.0	<1.0	<1.0	1.4	<1.0	<1.0	<1.0
	12/30/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	1.4	<1.0	<1.0	<1.0
	3/15/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/14/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	1.0	<1.0	<1.0	<1.0
	9/3/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	1.6	<1.0	<1.0	<1.0
	12/14/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	2/14/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/12/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	1.6	<1.0	<1.0	<1.0
	7/20/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	1.4	<1.0	<1.0	<1.0
	10/7/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	1.9	<1.0	<1.0	<1.0
1/4/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	2.2	<1.0	<1.0	<1.0	
4/5/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	1.2	<1.0	<1.0	<1.0	
MW-12d (33-38')	3/18/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/14/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	9/3/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/14/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	2/14/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/12/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	7/20/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	10/7/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	1/4/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4/5/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	

Notes:

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Bold font denotes concentrations detected above laboratory reporting limits

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3) The average temperature in this sample shipment exceeded the recommended temperature range. Sample results are approximate.

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 Former Tecumseh Products Company Site
 Tecumseh, Michigan
 Second Quarter 2012

Analyte	2-Butanone	Chloroethane	1,1-Dichloroethane	1,1-Dichloroethene ⁽²⁾	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Tetrachloroethene	1,1,1-Trichloroethane	Trichloroethene	Trichloro-fluoromethane	Vinyl Chloride
Residential DW Criteria	13,000	430	880	7.0	70	100	5.0	200	5.0	2,600	2.0
Non-Residential DW Criteria	38,000	1,700	2,500	7.0	70	100	5.0	200	5.0	7,300	2.0
GSI Criteria	2,200	1,100	740	130	620	1,500 ⁽¹⁾	60 ⁽¹⁾	89	200 ⁽¹⁾	NC	13 ⁽¹⁾
Residential GWSLs for Vapor Intrusion	4.5E+06	NC	130	390	440	330	11	15,000	9.9	370	5.0
Non-Residential GWSLs for Vapor Intrusion	1.9E+07	NC	670	1,600	1,800	1,400	55	63,000	42	1,600	50
Groundwater Contact Criteria	2.4E+08	4.4E+05	2.4E+06	11,000	2.0E+05	2.2E+05	12,000	1.3E+06	22,000	1.1E+06	1,000
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-13s (13-18')	5/15/2009	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/10/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	3/15/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/14/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	9/3/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/14/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	2/14/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/12/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	7/20/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	10/10/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1/4/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
4/9/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
MW-14s (4-9)	5/14/2009	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/8/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	3/15/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/12/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	9/3/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/20/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	2/16/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/11/2011 ⁽³⁾	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	7/21/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	10/7/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1/4/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
4/5/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	

Notes:

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Residential DW Criteria	13,000	430	880	7.0	70	100	5.0	200	5.0	2,600	2.0
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Groundwater Contact Criteria	2.4E+08	4.4E+05	2.4E+06	11,000	2.0E+05	2.2E+05	12,000	1.3E+06	22,000	1.1E+06	1,000
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-14d (37.5-42.5')	3/23/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/14/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	9/3/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/16/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	2/16/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/9/2011 ⁽³⁾	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	7/21/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	10/5/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	1/4/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4/2/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
DUP-01 (MW-14d)	2/16/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/9/2011 ⁽³⁾	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	7/21/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	10/5/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	1/4/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4/2/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
MW-15s (30-35')	5/15/2009	NA	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/30/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	3/15/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/14/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	9/8/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/17/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	2/17/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/12/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	7/25/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	10/7/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	1/5/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4/5/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	

Notes:

Residential and Non-Residential Drinking Water (DW) Criteria, Groundwater Surface Water Interface (GSI) Criteria, and Groundwater Contact Criteria from MDEQ RRD Op Memo 1 Part 201 Generic Cleanup Criteria/Part 213 Risk Based Cleanup Levels, January 23, 2006, as amended March 25, 2011.
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Bold font denotes concentrations detected above laboratory reporting limits

Denotes concentrations above generic GSI criteria

- 1) Criterion is not protective for surface water used as a drinking water source as described in footnote (X) of MDEQ Op Memo 1 Part 201, Attachment 1.
- 2) Compound may exhibit characteristic ignitability as defined in 40 C.F.R. § 261.21
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US EPA ARCHIVE DOCUMENT

Table 1
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 Former Tecumseh Products Company Site
 Tecumseh, Michigan
 Second Quarter 2012

Analyte	2-Butanone	Chloroethane	1,1-Dichloroethane	1,1-Dichloroethene ⁽²⁾	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Tetrachloroethene	1,1,1-Trichloroethane	Trichloroethene	Trichloro-fluoromethane	Vinyl Chloride
Residential DW Criteria	13,000	430	880	7.0	70	100	5.0	200	5.0	2,600	2.0
Non-Residential DW Criteria	38,000	1,700	2,500	7.0	70	100	5.0	200	5.0	7,300	2.0
GSI Criteria	2,200	1,100	740	130	620	1,500 ⁽¹⁾	60 ⁽¹⁾	89	200 ⁽¹⁾	NC	13 ⁽¹⁾
Residential GWSLs for Vapor Intrusion	4.5E+06	NC	130	390	440	330	11	15,000	9.9	370	5.0
Non-Residential GWSLs for Vapor Intrusion	1.9E+07	NC	670	1,600	1,800	1,400	55	63,000	42	1,600	50
Groundwater Contact Criteria	2.4E+08	4.4E+05	2.4E+06	11,000	2.0E+05	2.2E+05	12,000	1.3E+06	22,000	1.1E+06	1,000
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-17s (3-8')	7/23/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/7/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	3/18/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/12/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	9/8/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/16/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	2/15/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/11/2011 ⁽³⁾	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	7/21/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	10/4/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-18s (26-31')	12/8/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	3/16/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/12/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	9/8/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/20/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	2/17/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/9/2011 ⁽³⁾	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	7/22/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	10/5/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	1/5/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4/3/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	

Notes:

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 Tecumseh, Michigan
 Second Quarter 2012

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Residential DW Criteria	13,000	430	880	7.0	70	100	5.0	200	5.0	2,600	2.0	
Non-Residential DW Criteria	38,000	1,700	2,500	7.0	70	100	5.0	200	5.0	7,300	2.0	
GSI Criteria	2,200	1,100	740	130	620	1,500 ⁽¹⁾	60 ⁽¹⁾	89	200 ⁽¹⁾	NC	13 ⁽¹⁾	
Residential GWSLs for Vapor Intrusion	4.5E+06	NC	130	390	440	330	11	15,000	9.9	370	5.0	
Non-Residential GWSLs for Vapor Intrusion	1.9E+07	NC	670	1,600	1,800	1,400	55	63,000	42	1,600	50	
Groundwater Contact Criteria	2.4E+08	4.4E+05	2.4E+06	11,000	2.0E+05	2.2E+05	12,000	1.3E+06	22,000	1.1E+06	1,000	
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
MW-19s (25-30')	12/8/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	1.8	31	<1.0	<1.0	
	1/13/2010	<5.0	<5.0	<1.0	<1.0	<1.0	1.2	2.3	36	<1.0	<1.0	
	3/16/2010	<5.0	<5.0	<1.0	<1.0	<1.0	1.1	1.7	36	<1.0	<1.0	
	5/18/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	1.6	32	<1.0	<1.0	
	9/10/2010	<5.0	<5.0	<1.0	<1.0	<1.0	1.2	1.8	33	<1.0	<1.0	
	12/20/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	1.8	37	<1.0	<1.0	
	2/18/2011	<5.0	<5.0	<1.0	<1.0	<1.0	1.1	1.8	41	<1.0	<1.0	
	5/10/2011 ⁽³⁾	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	1.5	28	<1.0	<1.0	
	7/25/2011	<5.0	<5.0	<1.0	<1.0	<1.0	1.0	1.4	27	<1.0	<1.0	
	10/5/2011	<5.0	<5.0	<1.0	<1.0	<1.0	1.1	1.7	28	<1.0	<1.0	
1/9/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	1.2	1.9	34	<1.0	<1.0	
4/3/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	1.1	1.5	32	<1.0	<1.0	
DUP-03 (MW-19s)	9/10/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	1.0	1.7	32	<1.0	<1.0
DUP-02 (MW-19s)	2/18/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	1.1	1.8	39	<1.0	<1.0
	5/10/2011 ⁽³⁾	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	1.6	29	<1.0	<1.0	
	7/25/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	1.1	1.4	27	<1.0	<1.0
	10/5/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	1.1	1.6	28	<1.0	<1.0
	1/9/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	1.2	1.8	34	<1.0	<1.0
4/3/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	1.1	1.6	32	<1.0	<1.0	
MW-19d (40-45')	12/8/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
	3/16/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
	5/12/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
	9/8/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
	12/20/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
	2/18/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
	5/10/2011 ⁽³⁾	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
	7/25/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
	10/5/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
	1/5/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
4/3/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
DUP-01 (MW-19d)	5/12/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	

Notes:

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 Second Quarter 2012

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Residential DW Criteria	13,000	430	880	7.0	70	100	5.0	200	5.0	2,600	2.0	
Non-Residential DW Criteria	38,000	1,700	2,500	7.0	70	100	5.0	200	5.0	7,300	2.0	
GSI Criteria	2,200	1,100	740	130	620	1,500 ⁽¹⁾	60 ⁽¹⁾	89	200 ⁽¹⁾	NC	13 ⁽¹⁾	
Residential GWSLs for Vapor Intrusion	4.5E+06	NC	130	390	440	330	11	15,000	9.9	370	5.0	
Non-Residential GWSLs for Vapor Intrusion	1.9E+07	NC	670	1,600	1,800	1,400	55	63,000	42	1,600	50	
Groundwater Contact Criteria	2.4E+08	4.4E+05	2.4E+06	11,000	2.0E+05	2.2E+05	12,000	1.3E+06	22,000	1.1E+06	1,000	
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
MW-20s (8-13')	12/30/2009	<5.0	<5.0	48	4.0	9.6	<1.0	<1.0	150	71	2.9	<1.0
	1/13/2010	<5.0	<5.0	50	3.5	9.0	<1.0	<1.0	170	70	2.8	<1.0
	3/17/2010	<5.0	<5.0	51	3.8	9.4	<1.0	<1.0	160	64	3.2	<1.0
	5/18/2010	<10	<10	58	5.1	12	<2.0	<2.0	210	94	3.4	<2.0
	9/10/2010	<10	<10	34	4.2	9.7	<2.0	<2.0	230	110	3.8	<2.0
	12/21/2010	<10	<10	24	3.6	6.1	<2.0	<2.0	200	89	3.6	<2.0
	2/18/2011	<10	<10	19	3.3	5.5	<2.0	<2.0	190	93	3.5	<2.0
	5/13/2011	<10	<10	14	2.8	4.1	<2.0	<2.0	190	91	2.9	<2.0
	7/25/2011	<10	<10	6.5	<2.0	2.4	<2.0	<2.0	190	100	2.3	<2.0
	10/10/2011	<10	<10	5.8	<2.0	<2.0	<2.0	<2.0	190	110	3.1	<2.0
1/9/2012	<5.0	<5.0	6.0	1.4	1.9	<1.0	<1.0	190	100	3.2	<1.0	
4/9/2012	<5.0	<5.0	11	1.1	2.0	<1.0	<1.0	180	100	2.6	<1.0	
MW-20d (38.5-43.5')	12/30/2009	<5.0	<5.0	1.2	<1.0	86	<1.0	<1.0	1.9	<1.0	<1.0	3.5
	1/13/2010	<5.0	<5.0	<1.0	<1.0	94	2.0	<1.0	<1.0	<1.0	<1.0	3.7
	3/17/2010	<5.0	<5.0	<1.0	<1.0	85	<1.0	<1.0	<1.0	<1.0	<1.0	4.4
	5/18/2010	<5.0	<5.0	<1.0	<1.0	120	<1.0	<1.0	<1.0	<1.0	<1.0	3.7
	9/10/2010	<5.0	<5.0	<1.0	<1.0	95	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/21/2010	<5.0	<5.0	<1.0	<1.0	200	<1.0	<1.0	<1.0	<1.0	<1.0	3.5
	2/18/2011	<10	<10	<2.0	<2.0	190	<2.0	<2.0	<2.0	<2.0	<2.0	3.2
	5/13/2011	<10	<10	<2.0	<2.0	170	<2.0	<2.0	<2.0	<2.0	<2.0	2.6
	7/25/2011	<5.0	<5.0	<1.0	<1.0	170	<1.0	<1.0	<1.0	<1.0	<1.0	2.6
	10/10/2011	<10	<10	<2.0	<2.0	200	<2.0	<2.0	<2.0	<2.0	<2.0	2.5
1/9/2012	<5.0	<5.0	<1.0	<1.0	140	<1.0	<1.0	<1.0	<1.0	<1.0	6.0	
4/9/2012	<5.0	<5.0	<1.0	<1.0	190	<1.0	<1.0	<1.0	1.0	<1.0	10	
DUP-03 (MW-20d)	5/18/2010	<5.0	<5.0	<1.0	<1.0	120	1.0	<1.0	<1.0	<1.0	<1.0	3.7

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Residential DW Criteria	13,000	430	880	7.0	70	100	5.0	200	5.0	2,600	2.0	
Non-Residential DW Criteria	38,000	1,700	2,500	7.0	70	100	5.0	200	5.0	7,300	2.0	
GSI Criteria	2,200	1,100	740	130	620	1,500 ⁽¹⁾	60 ⁽¹⁾	89	200 ⁽¹⁾	NC	13 ⁽¹⁾	
Residential GWSLs for Vapor Intrusion	4.5E+06	NC	130	390	440	330	11	15,000	9.9	370	5.0	
Non-Residential GWSLs for Vapor Intrusion	1.9E+07	NC	670	1,600	1,800	1,400	55	63,000	42	1,600	50	
Groundwater Contact Criteria	2.4E+08	4.4E+05	2.4E+06	11,000	2.0E+05	2.2E+05	12,000	1.3E+06	22,000	1.1E+06	1,000	
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
MW-21 (28.5-33.5')	12/8/2009	<50	<50	31	<10	59	<10	<10	54	840	<10	<10
	1/13/2010	<50	<50	28	<10	62	<10	<10	56	730	<10	<10
	3/23/2010	<5.0	<5.0	33	2.2	81	7.5	<1.0	62	850	<1.0	<1.0
	5/18/2010	<50	<50	35	<10	89	<10	<10	63	830	<10	<10
	10/15/2010	<50	<50	26	<10	80	<10	<10	59	810	<10	<10
	12/22/2010	<50	<50	25	<10	69	<10	<10	55	730	<10	<10
	2/24/2011	<50	<50	25	<10	66	<10	<10	52	730	<10	<10
	5/11/2011 ⁽³⁾	<50	<50	24	<10	65	<10	<10	49	740	<10	<10
	7/28/2011	<50	<50	22	<10	77	<10	<10	54	1,000	<10	<10
	10/6/2011	<50	<50	22	<10	74	<10	<10	55	960	<10	<10
1/10/2012	<50	<50	27	<10	79	<10	<10	64	990	<10	<10	
4/4/2012	<50	<50	25	<10	81	<10	<10	55	980	<10	<10	
DUP-02 (MW-21)	3/23/2010	<5.0	<5.0	33	2.2	79	7.8	<1.0	61	810	<1.0	<1.0
DUP-03 (MW-21)	2/24/2011	<50	<50	24	<10	66	<10	<10	50	740	<10	<10
	5/11/2011 ⁽³⁾	<50	<50	24	<10	66	<10	<10	49	750	<10	<10
	7/28/2011	<50	<50	23	<10	78	<10	<10	57	1,000	<10	<10
	10/6/2011	<50	<50	21	<10	73	<10	<10	52	910	<10	<10
	1/10/2012	<50	<50	27	<10	85	<10	<10	66	1,000	<10	<10
4/4/2012	<50	<50	24	<10	81	<10	<10	61	970	<10	<10	
MW-22 (25-30')	12/7/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	10	
	3/18/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	8.5	
	5/18/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.0	
	9/10/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4.3	
	12/22/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.0	
	2/24/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.3	
	5/11/2011 ⁽³⁾	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.4	
	7/21/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.8	
	10/4/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6.2	
	1/9/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	8.4	
4/5/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	12		

Notes:

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Bold font denotes concentrations detected above laboratory reporting limits

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3) The average temperature in this sample shipment exceeded the recommended temperature range. Sample results are approximate.

4) Quality control results for trichloroethene are outside the established control limits, the result is approximate.

5) Headspace present in the sample, results are approximate.

US EPA ARCHIVE DOCUMENT

Table 1
 Summary of Detected Volatile Organic Compounds in Groundwater and Surface Water
 Former Tecumseh Products Company Site
 Tecumseh, Michigan
 Second Quarter 2012

Analyte	2-Butanone	Chloroethane	1,1-Dichloroethane	1,1-Dichloroethene ⁽²⁾	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Tetrachloroethene	1,1,1-Trichloroethane	Trichloroethene	Trichloro-fluoromethane	Vinyl Chloride
Residential DW Criteria	13,000	430	880	7.0	70	100	5.0	200	5.0	2,600	2.0
Non-Residential DW Criteria	38,000	1,700	2,500	7.0	70	100	5.0	200	5.0	7,300	2.0
GSI Criteria	2,200	1,100	740	130	620	1,500 ⁽¹⁾	60 ⁽¹⁾	89	200 ⁽¹⁾	NC	13 ⁽¹⁾
Residential GWSLs for Vapor Intrusion	4.5E+06	NC	130	390	440	330	11	15,000	9.9	370	5.0
Non-Residential GWSLs for Vapor Intrusion	1.9E+07	NC	670	1,600	1,800	1,400	55	63,000	42	1,600	50
Groundwater Contact Criteria	2.4E+08	4.4E+05	2.4E+06	11,000	2.0E+05	2.2E+05	12,000	1.3E+06	22,000	1.1E+06	1,000
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-23 (17-22')	12/8/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.2
	1/13/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	7.6
	3/16/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4.0
	5/18/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6.1
	9/10/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	9.0
	12/21/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	17
	2/18/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	18
	5/10/2011 ⁽³⁾	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	25
	7/25/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	23
	10/5/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	56
	11/4/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	11
1/9/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	48	
4/3/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	85	
MW-24s (18.5'-23.5')	12/8/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	3/15/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/12/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	9/8/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/14/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	2/14/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/9/2011 ⁽³⁾	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	7/19/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	10/4/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	1/5/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4/2/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	

Notes:

Residential and Non-Residential Drinking Water (DW) Criteria, Groundwater Surface Water Interface (GSI) Criteria, and Groundwater Contact Criteria from MDEQ RRD Op Memo 1 Part 201 Generic Cleanup Criteria/Part 213 Risk Based Cleanup Levels, January 23, 2006, as amended March 25, 2011.
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Bold font denotes concentrations detected above laboratory reporting limits

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- 1) Criterion is not protective for surface water used as a drinking water source as described in footnote (X) of MDEQ Op Memo 1 Part 201, Attachment 1.
- 2) Compound may exhibit characteristic ignitability as defined in 40 C.F.R. § 261.21
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 Former Tecumseh Products Company Site
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 Second Quarter 2012

Analyte	2-Butanone	Chloroethane	1,1-Dichloroethane	1,1-Dichloroethene ⁽²⁾	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Tetrachloroethene	1,1,1-Trichloroethane	Trichloroethene	Trichloro-fluoromethane	Vinyl Chloride
Residential DW Criteria	13,000	430	880	7.0	70	100	5.0	200	5.0	2,600	2.0
Non-Residential DW Criteria	38,000	1,700	2,500	7.0	70	100	5.0	200	5.0	7,300	2.0
GSI Criteria	2,200	1,100	740	130	620	1,500 ⁽¹⁾	60 ⁽¹⁾	89	200 ⁽¹⁾	NC	13 ⁽¹⁾
Residential GWSLs for Vapor Intrusion	4.5E+06	NC	130	390	440	330	11	15,000	9.9	370	5.0
Non-Residential GWSLs for Vapor Intrusion	1.9E+07	NC	670	1,600	1,800	1,400	55	63,000	42	1,600	50
Groundwater Contact Criteria	2.4E+08	4.4E+05	2.4E+06	11,000	2.0E+05	2.2E+05	12,000	1.3E+06	22,000	1.1E+06	1,000
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-24d (39-44')	12/8/2009	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	3/15/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/12/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	9/8/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/14/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	2/14/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/9/2011 ⁽³⁾	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	7/19/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	10/4/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	1/5/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-25s (20-25')	4/2/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/10/2009	<5.0	<5.0	1.7	<1.0	8.8	<1.0	<1.0	4.8	<1.0	<1.0
	3/16/2010	<5.0	<5.0	1.2	<1.0	<1.0	<1.0	<1.0	17	1.1	<1.0
	5/14/2010	<5.0	<5.0	1.2	<1.0	<1.0	<1.0	<1.0	18	1.0	<1.0
	9/8/2010	<5.0	<5.0	1.0	<1.0	<1.0	<1.0	<1.0	19	1.4	<1.0
	12/22/2010	<5.0	<5.0	1.2	<1.0	<1.0	<1.0	<1.0	26	2.4	<1.0
	2/24/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	19	2.2	<1.0
	5/13/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	21	2.2	<1.0
	7/28/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	19	2.5	<1.0
	10/10/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	20	2.8	<1.0
DUP-01 (MW-25s)	1/5/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	20	3.0	<1.0
	4/9/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	20	3.6	<1.0
DUP-01 (MW-25s)	3/16/2010	<5.0	<5.0	1.3	<1.0	<1.0	<1.0	<1.0	18	1.0	<1.0

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Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-26s (28-33')	4/6/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/14/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	9/8/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/17/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	2/17/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/12/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	7/25/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	10/7/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	1/5/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4/5/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
MW-27s (7-12')	3/23/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/17/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.0	<1.0	<1.0
	9/9/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/20/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	2/16/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.4	<1.0	<1.0
	5/9/2011 ⁽³⁾	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	<1.0	<1.0
	7/21/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	10/5/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	1/6/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4/3/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
DUP-02 (MW-27s)	9/9/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
MW-27d (37.5-42.5')	3/23/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/17/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	9/9/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/20/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	2/16/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/9/2011 ⁽³⁾	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	7/22/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	10/5/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	1/6/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4/3/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	

Notes:

Residential and Non-Residential Drinking Water (DW) Criteria, Groundwater Surface Water Interface (GSI) Criteria, and Groundwater Contact Criteria from MDEQ RRD Op Memo 1 Part 201 Generic Cleanup Criteria/Part 213 Risk Based Cleanup Levels, January 23, 2006, as amended March 25, 2011.
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ug/L = micrograms per liter

NC = No criteria

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Bold font denotes concentrations detected above laboratory reporting limits

 Denotes concentrations above generic GSI criteria

1) Criterion is not protective for surface water used as a drinking water source as described in footnote (X) of MDEQ Op Memo 1 Part 201, Attachment 1.

2) Compound may exhibit characteristic ignitability as defined in 40 C.F.R. § 261.21

3) The average temperature in this sample shipment exceeded the recommended temperature range. Sample results are approximate.

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5) Headspace present in the sample, results are approximate.

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Table 1
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 Former Tecumseh Products Company Site
 Tecumseh, Michigan
 Second Quarter 2012

Analyte	2-Butanone	Chloroethane	1,1-Dichloroethane	1,1-Dichloroethene ⁽²⁾	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Tetrachloroethene	1,1,1-Trichloroethane	Trichloroethene	Trichloro-fluoromethane	Vinyl Chloride
Residential DW Criteria	13,000	430	880	7.0	70	100	5.0	200	5.0	2,600	2.0
Non-Residential DW Criteria	38,000	1,700	2,500	7.0	70	100	5.0	200	5.0	7,300	2.0
GSI Criteria	2,200	1,100	740	130	620	1,500 ⁽¹⁾	60 ⁽¹⁾	89	200 ⁽¹⁾	NC	13 ⁽¹⁾
Residential GWSLs for Vapor Intrusion	4.5E+06	NC	130	390	440	330	11	15,000	9.9	370	5.0
Non-Residential GWSLs for Vapor Intrusion	1.9E+07	NC	670	1,600	1,800	1,400	55	63,000	42	1,600	50
Groundwater Contact Criteria	2.4E+08	4.4E+05	2.4E+06	11,000	2.0E+05	2.2E+05	12,000	1.3E+06	22,000	1.1E+06	1,000
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-28s (25-30')	3/23/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/17/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	9/9/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/17/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	2/16/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/12/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	7/22/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	10/7/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	1/6/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.1	<1.0	<1.0
4/5/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
MW-28d (49-54')	3/23/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/17/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	9/9/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/17/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	2/16/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/12/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	7/22/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	10/7/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	1/6/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4/5/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
MW-29s (13-18')	3/18/2010	<5.0	<5.0	<1.0	<1.0	1.3	<1.0	<1.0	<1.0	<1.0	<1.0
	5/17/2010	<5.0	<5.0	<1.0	<1.0	1.2	<1.0	<1.0	<1.0	<1.0	<1.0
	9/9/2010	<5.0	<5.0	<1.0	<1.0	1.4	<1.0	<1.0	<1.0	<1.0	<1.0
	12/15/2010	<5.0	<5.0	<1.0	<1.0	1.5	<1.0	<1.0	<1.0	<1.0	<1.0
	2/15/2011	<5.0	<5.0	<1.0	<1.0	1.7	<1.0	<1.0	<1.0	<1.0	<1.0
	5/12/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	7/20/2011	<5.0	<5.0	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0
	10/10/2011	<5.0	<5.0	<1.0	<1.0	1.3	<1.0	<1.0	<1.0	<1.0	<1.0
	1/6/2012	<5.0	<5.0	<1.0	<1.0	1.2	<1.0	<1.0	<1.0	<1.0	<1.0
4/5/2012	<5.0	<5.0	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	

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Residential DW Criteria	13,000	430	880	7.0	70	100	5.0	200	5.0	2,600	2.0
Non-Residential DW Criteria	38,000	1,700	2,500	7.0	70	100	5.0	200	5.0	7,300	2.0
GSI Criteria	2,200	1,100	740	130	620	1,500 ⁽¹⁾	60 ⁽¹⁾	89	200 ⁽¹⁾	NC	13 ⁽¹⁾
Residential GWSLs for Vapor Intrusion	4.5E+06	NC	130	390	440	330	11	15,000	9.9	370	5.0
Non-Residential GWSLs for Vapor Intrusion	1.9E+07	NC	670	1,600	1,800	1,400	55	63,000	42	1,600	50
Groundwater Contact Criteria	2.4E+08	4.4E+05	2.4E+06	11,000	2.0E+05	2.2E+05	12,000	1.3E+06	22,000	1.1E+06	1,000
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
MW-29d (58.5-63.5')	3/18/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/17/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	9/9/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/15/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	2/15/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/12/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	7/20/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	10/10/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	1/6/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4/5/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
MW-30s (11-16')	3/23/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/17/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	9/9/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/16/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	2/15/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/13/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	7/20/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	10/10/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	1/6/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4/9/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
MW-30d (25.5-30.5')	3/23/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/17/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	9/9/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/16/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	2/15/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	5/13/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	7/20/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	10/10/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	1/6/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4/9/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	

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Residential DW Criteria	13,000	430	880	7.0	70	100	5.0	200	5.0	2,600	2.0	
Non-Residential DW Criteria	38,000	1,700	2,500	7.0	70	100	5.0	200	5.0	7,300	2.0	
GSI Criteria	2,200	1,100	740	130	620	1,500 ⁽¹⁾	60 ⁽¹⁾	89	200 ⁽¹⁾	NC	13 ⁽¹⁾	
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Groundwater Contact Criteria	2.4E+08	4.4E+05	2.4E+06	11,000	2.0E+05	2.2E+05	12,000	1.3E+06	22,000	1.1E+06	1,000	
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
MW-31 (33.3-38.3')	6/18/2010	<5.0	<5.0	14	<1.0	19	2.2	<1.0	20	180	<1.0	<1.0
	9/17/2010	<10	<10	<2.0	<2.0	15	<2.0	<2.0	48	220	<2.0	2.5
	12/22/2010 ⁽⁴⁾	<10	<10	16	<2.0	29	2.9	<2.0	27	260	<2.0	<2.0
	2/24/2011	<10	<10	16	<2.0	31	3.1	<2.0	26	300	<2.0	<2.0
	5/11/2011 ⁽³⁾	<10	<10	15	<2.0	24	3.0	<2.0	22	250	<2.0	<2.0
	7/21/2011	<5.0	<5.0	7.4	<1.0	14	1.2	<1.0	11	130	<1.0	<1.0
	10/4/2011	<5.0	<5.0	18	<1.0	40	3.4	<1.0	28	340	<1.0	<1.0
	1/10/2012	<10	<10	17	<2.0	35	3.1	<2.0	24	290	<2.0	<2.0
	4/5/2012	<10	<10	16	<2.0	36	3.1	<2.0	24	290	<2.0	<2.0
DUP-01 (MW-31)	6/18/2010	<5.0	<5.0	12	<1.0	19	2.3	<1.0	21	170	<1.0	<1.0
MW-32s (23-28')	9/17/2010	<100	<100	150	<20	270	26	<20	220	2,400	<20	<20
	11/18/2010	<100	<100	<20	<20	190	<20	<20	560	2,800	<20	<20
	12/28/2010	<100	<100	<20	<20	200	<20	<20	510	2,300	<20	<20
	2/25/2011	<100	<100	<20	<20	190	<20	<20	420	2,300	<20	<20
	5/10/2011 ⁽³⁾	<100	<100	<20	<20	170	<20	<20	380	2,300	<20	31
	7/28/2011	<100	<100	<20	<20	140	<20	<20	380	2,400	<20	<20
	10/6/2011	<100	<100	<20	<20	160	<20	<20	350	2,200	<20	<20
	1/10/2012	<100	<100	<20	<20	170	<20	<20	400	2,300	<20	<20
	4/4/2012	<100	<100	<20	<20	130	<20	<20	340	2,200	<20	<20
MW-33s (21-26')	9/17/2010	<5.0	<5.0	12	<1.0	13	<1.0	<1.0	<1.0	76	<1.0	64
	11/18/2010	<5.0	<5.0	14	<1.0	22	<1.0	<1.0	1.1	150	<1.0	56
	12/22/2010	<5.0	<5.0	14	<1.0	22	1.2	<1.0	1.0	130	<1.0	57
	2/24/2011	<5.0	<5.0	12	<1.0	20	1.0	<1.0	<1.0	110	<1.0	60
	5/10/2011 ⁽³⁾	<10	<10	11	<2.0	21	<2.0	<2.0	<2.0	220	<2.0	55
	7/28/2011	<10	<10	8.9	<2.0	18	<2.0	<2.0	<2.0	260	<2.0	22
	10/6/2011	<10	<10	11	<2.0	19	<2.0	<2.0	<2.0	220	<2.0	48
	1/9/2012 ⁽⁵⁾	<5.0	8.9	15	<1.0	20	1.0	<1.0	1.3	170	<1.0	51
	4/4/2012	<5.0	5.6	17	<1.0	21	<1.0	<1.0	1.2	170	<1.0	48

Notes:

Residential and Non-Residential Drinking Water (DW) Criteria, Groundwater Surface Water Interface (GSI) Criteria, and Groundwater Contact Criteria from MDEQ RRD Op Memo 1 Part 201 Generic Cleanup Criteria/Part 213 Risk Based Cleanup Levels, January 23, 2006, as amended March 25, 2011.
 Groundwater Screening Levels (GWSLs) for Vapor Intrusion were calculated in accordance with the MDEQ Remediation and Redevelopment Division Program Redesign 2009 document titled *Background Document: Draft Proposed Vapor Intrusion Indoor Air Criteria (IAC), Soil Gas Criteria (SGC), and Groundwater Screening Levels (GWSLs) for Vapor Intrusion*, using both residential and non-residential exposure scenarios and the most recent chemical specific toxicity values accepted and/or published by the United States Environmental Protection Agency (USEPA) as of February 1, 2012.

ug/L = micrograms per liter

NC = No criteria

NA = Not analyzed

Bold font denotes concentrations detected above laboratory reporting limits

Denotes concentrations above generic GSI criteria

- 1) Criterion is not protective for surface water used as a drinking water source as described in footnote (X) of MDEQ Op Memo 1 Part 201, Attachment 1.
- 2) Compound may exhibit characteristic ignitability as defined in 40 C.F.R. § 261.21
- 3) The average temperature in this sample shipment exceeded the recommended temperature range. Sample results are approximate.
- 4) Quality control results for trichloroethene are outside the established control limits, the result is approximate.
- 5) Headspace present in the sample, results are approximate.

US EPA ARCHIVE DOCUMENT

Table 1
 Summary of Detected Volatile Organic Compounds in Groundwater and Surface Water
 Former Tecumseh Products Company Site
 Tecumseh, Michigan
 Second Quarter 2012

Analyte		2-Butanone	Chloroethane	1,1-Dichloroethane	1,1-Dichloroethene ⁽²⁾	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Tetrachloroethene	1,1,1-Trichloroethane	Trichloroethene	Trichloro-fluoromethane	Vinyl Chloride
Residential DW Criteria		13,000	430	880	7.0	70	100	5.0	200	5.0	2,600	2.0
Non-Residential DW Criteria		38,000	1,700	2,500	7.0	70	100	5.0	200	5.0	7,300	2.0
GSI Criteria		2,200	1,100	740	130	620	1,500 ⁽¹⁾	60 ⁽¹⁾	89	200 ⁽¹⁾	NC	13 ⁽¹⁾
Residential GWSLs for Vapor Intrusion		4.5E+06	NC	130	390	440	330	11	15,000	9.9	370	5.0
Non-Residential GWSLs for Vapor Intrusion		1.9E+07	NC	670	1,600	1,800	1,400	55	63,000	42	1,600	50
Groundwater Contact Criteria		2.4E+08	4.4E+05	2.4E+06	11,000	2.0E+05	2.2E+05	12,000	1.3E+06	22,000	1.1E+06	1,000
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
DUP-01 (MW-33s)	11/18/2010	<5.0	<5.0	14	<1.0	23	<1.0	<1.0	1.2	150	<1.0	55
MW-34s (23-28')	9/17/2010	<100	<100	<20	<20	<20	<20	<20	1,600	1,100	<20	<20
	11/18/2010	<100	<100	<20	<20	<20	<20	<20	1,600	1,200	<20	<20
	12/28/2010	<50	<50	<10	13	<10	<10	<10	1,400	1,000	<10	<10
	2/25/2011	<50	<50	<10	<10	<10	<10	<10	1,100	900	<10	<10
	5/10/2011 ⁽³⁾	<50	<50	<10	<10	<10	<10	<10	1,200	970	<10	<10
	7/28/2011	<50	<50	<10	<10	<10	<10	<10	1,300	1,100	<10	<10
	10/6/2011	<50	<50	<10	<10	<10	<10	<10	1,200	1,000	<10	<10
	1/10/2012	<50	<50	<10	14	<10	<10	<10	1,500	1,100	<10	<10
4/4/2012	<50	<50	<10	<10	<10	<10	<10	1,400	1,200	<10	<10	
WL-01	4/6/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	6/18/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	9/8/2010	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	12/10/2010 ⁽⁶⁾	--	--	--	--	--	--	--	--	--	--	--
	2/25/2011 ⁽⁶⁾	--	--	--	--	--	--	--	--	--	--	--
	5/11/2011	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
	1/5/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4/2/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Seep	4/3/2012	<5.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0

Notes:

Residential and Non-Residential Drinking Water (DW) Criteria, Groundwater Surface Water Interface (GSI) Criteria, and Groundwater Contact Criteria from MDEQ RRD Op Memo 1 Part 201 Generic Cleanup Criteria/Part 213 Risk Based Cleanup Levels, January 23, 2006, as amended March 25, 2011.
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Bold font denotes concentrations detected above laboratory reporting limits

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- 2) Compound may exhibit characteristic ignitability as defined in 40 C.F.R. § 261.21
- 3) The average temperature in this sample shipment exceeded the recommended temperature range. Sample results are approximate.
- 4) Quality control results for trichloroethene are outside the established control limits, the result is approximate.
- 5) Headspace present in the sample, results are approximate.
- 6) WL-01 was frozen and unable to be sampled.

Table 2
Groundwater and Surface Water Elevations
Former Tecumseh Products Company Site
Tecumseh, Michigan
Second Quarter 2012

Well Location	Top of Well Casing (ft MSL)	Measurement Date	Depth to Groundwater (ft BTOC)	Groundwater Elevation (ft MSL)
MW-01s	796.53	3/16/2009	16.13	780.40
		4/20/2009	15.95	780.58
		6/4/2009	16.14	780.39
		12/7/2009	17.34	779.19
		3/23/2010	17.58	778.95
		5/10/2010	17.40	779.13
		9/2/2010	17.55	778.98
		12/10/2010	18.13	778.40
		2/14/2011	18.45	778.08
		4/25/2011	17.53	779.00
		7/19/2011	16.89	779.64
		10/3/2011	17.30	779.23
1/3/2012	16.70	779.83		
4/2/2012	16.46	780.07		
MW-02s	802.14	3/16/2009	21.94	780.20
		4/20/2009	21.60	780.54
		6/4/2009	21.53	780.61
		12/7/2009	22.87	779.27
		3/23/2010	23.27	778.87
		5/10/2010	23.10	779.04
		9/2/2010	23.00	779.14
		12/10/2010	23.64	778.50
		2/14/2011	24.04	778.10
		4/25/2011	23.23	778.91
		7/19/2011	22.48	779.66
		10/3/2011	22.78	779.36
1/3/2012	22.30	779.84		
4/2/2012	21.96	780.18		
MW-03s	787.00	3/16/2009	7.63	779.37
		4/20/2009	7.45	779.55
		6/4/2009	7.63	779.37
		12/7/2009	8.57	778.43
		3/23/2010	8.79	778.21
		5/10/2010	8.60	778.40
		9/2/2010	8.70	778.30
		12/10/2010	9.20	777.80
		2/14/2011	9.58	777.42
		4/25/2011	8.71	778.29
		7/19/2011	8.26	778.74
		10/3/2011	8.51	778.49
1/3/2012	8.09	778.91		
4/2/2012	7.85	779.15		

Notes:

- Survey conducted to feet mean sea level by Midwestern Consultants, Inc. (2009 - 2010)
- ft MSL - feet above mean sea level
- ft BTOC - feet below top of casing
- NI - Not installed at time of measurement
- Dry - Insufficient groundwater present for measurement
- NM - Not measured
- * Measured depth to water is anomalous. Datum was not used.

Table 2
 Groundwater and Surface Water Elevations
 Former Tecumseh Products Company Site
 Tecumseh, Michigan
 Second Quarter 2012

Well Location	Top of Well Casing (ft MSL)	Measurement Date	Depth to Groundwater (ft BTOC)	Groundwater Elevation (ft MSL)
MW-04s	794.42	3/16/2009	14.64	779.78
		4/20/2009	14.40	780.02
		6/4/2009	14.48	779.94
		12/7/2009	15.65	778.77
		3/23/2010	12.91*	781.51*
		5/10/2010	15.80	778.62
		9/2/2010	15.80	778.62
		12/10/2010	16.40	778.02
		2/14/2011	16.75	777.67
		4/25/2011	15.90	778.52
		7/19/2011	15.26	779.16
		10/3/2011	15.54	778.88
1/3/2012	15.09	779.33		
4/2/2012	14.80	779.62		
MW-05s	805.59	3/16/2009	24.73	780.86
		4/20/2009	24.40	781.19
		6/4/2009	24.41	781.18
		12/7/2009	25.77	779.82
		3/23/2010	26.16	779.43
		5/10/2010	26.00	779.59
		9/2/2010	26.00	779.59
		12/10/2010	26.62	778.97
		2/14/2011	26.95	778.64
		4/25/2011	26.20	779.39
		7/19/2011	25.29	780.30
		10/3/2011	25.74	779.85
1/3/2012	25.19	780.40		
4/2/2012	24.86	780.73		
MW-06s	803.73	3/16/2009	23.26	780.47
		4/20/2009	22.85	780.88
		6/4/2009	22.72	781.01
		12/7/2009	24.18	779.55
		3/23/2010	24.65	779.08
		5/10/2010	24.58	779.15
		9/2/2010	24.35	779.38
		12/10/2010	24.99	778.74
		2/14/2011	25.40	778.33
		4/25/2011	24.64	779.09
		7/19/2011	23.80	779.93
		10/3/2011	24.05	779.68
1/3/2012	23.61	780.12		
4/2/2012	23.23	780.50		

Notes:

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Table 2
 Groundwater and Surface Water Elevations
 Former Tecumseh Products Company Site
 Tecumseh, Michigan
 Second Quarter 2012

Well Location	Top of Well Casing (ft MSL)	Measurement Date	Depth to Groundwater (ft BTOC)	Groundwater Elevation (ft MSL)
MW-07s	804.40	3/16/2009	23.85	780.55
		4/20/2009	23.40	781.00
		6/4/2009	23.24	781.16
		12/7/2009	24.75	779.65
		3/23/2010	25.19	779.21
		5/10/2010	25.08	779.32
		9/2/2010	25.00	779.40
		12/10/2010	25.59	778.81
		2/14/2011	25.53	778.87
		4/25/2011	25.18	779.22
		7/19/2011	24.32	780.08
		10/3/2011	24.64	779.76
1/3/2012	24.20	780.20		
4/2/2012	23.82	780.58		
MW-08s	804.39	3/16/2009	23.61	780.78
		4/20/2009	23.30	781.09
		6/4/2009	23.24	781.15
		12/7/2009	24.61	779.78
		3/23/2010	25.00	779.39
		5/10/2010	25.06	779.33
		9/2/2010	24.80	779.59
		12/10/2010	25.47	778.92
		2/14/2011	25.79	778.60
		4/25/2011	25.00	779.39
		7/19/2011	24.18	780.21
		10/3/2011	24.59	779.80
1/3/2012	24.06	780.33		
4/2/2012	23.73	780.66		
MW-09s	783.97	3/16/2009	4.46	779.51
		4/20/2009	4.30	779.67
		6/4/2009	4.63	779.34
		12/7/2009	5.65	778.32
		3/23/2010	5.78	778.19
		5/10/2010	5.60	778.37
		9/2/2010	5.85	778.12
		12/10/2010	6.98	776.99
		3/1/2011	6.04	777.93
		4/25/2011	5.48	778.49
		7/19/2011	Well Removed	
		10/3/2011	Well Removed	
1/3/2012	Well Removed			
4/2/2012	Well Removed			

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Table 2
 Groundwater and Surface Water Elevations
 Former Tecumseh Products Company Site
 Tecumseh, Michigan
 Second Quarter 2012

Well Location	Top of Well Casing (ft MSL)	Measurement Date	Depth to Groundwater (ft BTOC)	Groundwater Elevation (ft MSL)
MW-10s	788.65	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	10.46	778.19
		12/7/2009	11.57	777.08
		3/23/2010	11.55	777.10
		5/10/2010	11.20	777.45
		9/2/2010	11.85	776.80
		12/10/2010	12.15	776.50
		2/14/2011	12.46	776.19
		4/25/2011	11.09	777.56
		7/19/2011	11.34	777.31
		10/3/2011	11.54	777.11
1/3/2012	10.76	777.89		
4/2/2012	10.60	778.05		
MW-10d	788.40	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	12.10	776.30
		3/23/2010	11.98	776.42
		5/10/2010	11.60	776.80
		9/2/2010	12.41	775.99
		12/10/2010	12.68	775.72
		2/14/2011	12.99	775.41
		4/25/2011	11.48	776.92
		7/19/2011	12.05	776.35
		10/3/2011	12.30	776.10
1/3/2012	11.50	776.90		
4/2/2012	11.57	776.83		
MW-11s	809.64	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	28.09	781.55
		12/7/2009	29.69	779.95
		3/23/2010	30.29	779.35
		5/10/2010	30.20	779.44
		9/2/2010	29.90	779.74
		12/10/2010	30.49	779.15
		2/14/2011	30.95	778.69
		4/25/2011	30.21	779.43
		7/19/2011	29.43	780.21
		10/3/2011	29.50	780.14
1/3/2012	29.15	780.49		
4/2/2012	28.75	780.89		

Notes:

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Table 2
Groundwater and Surface Water Elevations
Former Tecumseh Products Company Site
Tecumseh, Michigan
Second Quarter 2012

Well Location	Top of Well Casing (ft MSL)	Measurement Date	Depth to Groundwater (ft BTOC)	Groundwater Elevation (ft MSL)
MW-12s	790.90	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	12.40	778.50
		12/7/2009	13.67	777.23
		3/23/2010	14.06	776.84
		5/10/2010	13.90	777.00
		9/2/2010	13.85	777.05
		12/10/2010	14.34	776.56
		2/14/2011	14.70	776.20
		4/25/2011	13.95	776.95
		7/19/2011	13.34	777.56
		10/3/2011	13.61	777.29
1/3/2012	13.06	777.84		
4/2/2012	12.75	778.15		
MW-12d	790.48	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	NI	NI
		3/23/2010	13.93	776.55
		5/10/2010	13.81	776.67
		9/2/2010	12.70	777.78
		12/10/2010	14.23	776.25
		2/14/2011	14.61	775.87
		4/25/2011	13.90	776.58
		7/19/2011	13.24	777.24
		10/3/2011	13.49	776.99
1/3/2012	13.01	777.47		
4/2/2012	12.66	777.82		
MW-13s	787.35	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	14.88	772.47
		12/7/2009	15.81	771.54
		3/23/2010	15.82	771.53
		5/10/2010	15.50	771.85
		9/2/2010	15.70	771.65
		12/10/2010	16.15	771.20
		2/14/2011	16.89	770.46
		4/25/2011	15.50	771.85
		7/19/2011	15.21	772.14
		10/3/2011	15.69	771.66
1/3/2012	15.20	772.15		
4/2/2012	14.94	772.41		

Notes:

Survey conducted to feet mean sea level by Midwestern Consultants, Inc. (2009 - 2010)

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Table 2
Groundwater and Surface Water Elevations
Former Tecumseh Products Company Site
Tecumseh, Michigan
Second Quarter 2012

Well Location	Top of Well Casing (ft MSL)	Measurement Date	Depth to Groundwater (ft BTOC)	Groundwater Elevation (ft MSL)
MW-14s	780.67	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	5.12	775.55
		12/7/2009	6.20	774.47
		3/23/2010	3.62	777.05
		5/10/2010	3.60	777.07
		9/2/2010	7.05	773.62
		12/10/2010	6.80	773.87
		2/14/2011	6.36	774.31
		4/25/2011	2.43	778.24
		7/19/2011	5.88	774.79
		10/3/2011	6.29	774.38
1/3/2012	2.90	777.77		
4/2/2012	4.11	776.56		
MW-14d	780.51	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	NI	NI
		3/23/2010	29.97	750.54
		5/10/2010	29.85	750.66
		9/2/2010	30.10	750.41
		12/10/2010	30.19	750.32
		2/14/2011	30.28	750.23
		4/25/2011	29.73	750.78
		7/19/2011	29.78	750.73
		10/3/2011	30.06	750.45
1/3/2012	29.51	751.00		
4/2/2012	29.56	750.95		
MW-15s	811.72	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	29.59	782.13
		12/7/2009	31.09	780.63
		3/23/2010	31.48	780.24
		5/10/2010	31.50	780.22
		9/2/2010	31.25	780.47
		12/10/2010	32.03	779.69
		2/14/2011	32.33	779.39
		4/25/2011	31.63	780.09
		7/19/2011	30.61	781.11
		10/3/2011	31.10	780.62
1/3/2012	30.61	781.11		
4/2/2012	30.21	781.51		

Notes:

Survey conducted to feet mean sea level by Midwestern Consultants, Inc. (2009 - 2010)

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Table 2
 Groundwater and Surface Water Elevations
 Former Tecumseh Products Company Site
 Tecumseh, Michigan
 Second Quarter 2012

Well Location	Top of Well Casing (ft MSL)	Measurement Date	Depth to Groundwater (ft BTOC)	Groundwater Elevation (ft MSL)
MW-16s	782.90	3/16/2009	NI	NI
		4/20/2009	NI	NI
		7/23/2009	Dry	NM
		12/7/2009	Dry	NM
		3/23/2010	Dry	NM
		5/10/2010	Dry	NM
		9/2/2010	Dry	NM
		12/10/2010	Dry	NM
		2/14/2011	Dry	NM
		4/25/2011	Dry	NM
		7/21/2011	Dry	NM
		10/3/2011	Dry	NM
MW-17s	754.49	3/16/2009	NI	NI
		4/20/2009	NI	NI
		7/23/2009	5.33	749.16
		12/7/2009	5.40	749.09
		3/23/2010	5.25	749.24
		5/10/2010	5.18	749.31
		9/2/2010	5.50	748.99
		12/10/2010	5.44	749.05
		2/14/2011	5.41	749.08
		4/25/2011	5.05	749.44
		7/21/2011	5.31	749.18
		10/3/2011	5.40	749.09
MW-18s	805.49	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	25.66	779.83
		3/23/2010	26.02	779.47
		5/10/2010	25.95	779.54
		9/2/2010	25.80	779.69
		12/10/2010	26.50	778.99
		2/14/2011	26.82	778.67
		4/25/2011	26.10	779.39
		7/19/2011	25.31	780.18
		10/3/2011	25.61	779.88
1/3/2012	25.07	780.42		
4/2/2012	24.77	780.72		

Notes:
 Survey conducted to feet mean sea level by Midwestern Consultants, Inc. (2009 - 2010)
 ft MSL - feet above mean sea level
 ft BTOC - feet below top of casing
 NI - Not installed at time of measurement
 Dry - Insufficient groundwater present for measurement
 NM - Not measured
 * Measured depth to water is anomalous. Datum was not used.

Table 2
Groundwater and Surface Water Elevations
Former Tecumseh Products Company Site
Tecumseh, Michigan
Second Quarter 2012

Well Location	Top of Well Casing (ft MSL)	Measurement Date	Depth to Groundwater (ft BTOC)	Groundwater Elevation (ft MSL)
MW-19s	803.92	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	24.05	779.87
		3/23/2010	24.26	779.66
		5/10/2010	24.25	779.67
		9/2/2010	24.25	779.67
		12/10/2010	24.91	779.01
		2/14/2011	25.20	778.72
		4/25/2011	24.38	779.54
		7/19/2011	23.58	780.34
		10/3/2011	24.08	779.84
1/3/2012	23.43	780.49		
4/2/2012	23.16	780.76		
MW-19d	804.04	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	24.17	779.87
		3/23/2010	24.41	779.63
		5/10/2010	24.35	779.69
		9/2/2010	24.40	779.64
		12/10/2010	25.03	779.01
		2/14/2011	25.34	778.70
		4/25/2011	24.50	779.54
		7/19/2011	23.70	780.34
		10/3/2011	24.18	779.86
1/3/2012	23.54	780.50		
4/2/2012	23.23	780.81		
MW-20s	783.16	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	4.85	778.31
		3/23/2010	4.97	778.19
		5/10/2010	4.80	778.36
		9/2/2010	5.00	778.16
		12/10/2010	5.53	777.63
		2/14/2011	5.81	777.35
		4/25/2011	4.86	778.30
		7/19/2011	4.38	778.78
		10/3/2011	4.73	778.43
1/3/2012	4.11	779.05		
4/2/2012	3.96	779.20		

Notes:
 Survey conducted to feet mean sea level by Midwestern Consultants, Inc. (2009 - 2010)
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 NM - Not measured
 * Measured depth to water is anomalous. Datum was not used.

Table 2
Groundwater and Surface Water Elevations
Former Tecumseh Products Company Site
Tecumseh, Michigan
Second Quarter 2012

Well Location	Top of Well Casing (ft MSL)	Measurement Date	Depth to Groundwater (ft BTOC)	Groundwater Elevation (ft MSL)
MW-20d	783.29	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	11.98	771.31
		3/23/2010	12.62	770.67
		5/10/2010	12.80	770.49
		9/2/2010	14.10	769.19
		12/10/2010	14.91	768.38
		2/14/2011	15.17	768.12
		4/25/2011	14.55	768.74
		7/19/2011	14.57	768.72
		10/3/2011	11.28	772.01
1/3/2012	13.71	769.58		
4/2/2012	13.68	769.61		
MW-21	780.85	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	29.69	751.16
		3/23/2010	29.51	751.34
		5/10/2010	29.35	751.50
		9/2/2010	29.60	751.25
		12/10/2010	29.75	751.10
		2/14/2011	29.87	750.98
		4/25/2011	29.34	751.51
		7/19/2011	29.19	751.66
		10/3/2011	29.54	751.31
1/3/2012	28.91	751.94		
4/2/2012	29.00	751.85		
MW-22	782.62	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	24.62	758.00
		3/23/2010	24.88	757.74
		5/10/2010	24.88	757.74
		9/2/2010	25.15	757.47
		12/10/2010	25.03	757.59
		2/14/2011	24.91	757.71
		4/25/2011	24.76	757.86
		7/21/2011	24.98	757.64
		10/3/2011	24.96	757.66
1/3/2012	24.86	757.76		
4/2/2012	24.85	757.77		

Notes:

Survey conducted to feet mean sea level by Midwestern Consultants, Inc. (2009 - 2010)

ft MSL - feet above mean sea level

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Dry - Insufficient groundwater present for measurement

NM - Not measured

* Measured depth to water is anomalous. Datum was not used.

Table 2
 Groundwater and Surface Water Elevations
 Former Tecumseh Products Company Site
 Tecumseh, Michigan
 Second Quarter 2012

Well Location	Top of Well Casing (ft MSL)	Measurement Date	Depth to Groundwater (ft BTOC)	Groundwater Elevation (ft MSL)
MW-23	787.10	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	9.27	777.83
		3/23/2010	9.50	777.60
		5/10/2010	9.45	777.65
		9/2/2010	9.45	777.65
		12/10/2010	9.97	777.13
		2/14/2011	10.32	776.78
		4/25/2011	9.47	777.63
		7/19/2011	9.00	778.10
		10/3/2011	9.20	777.90
1/3/2012	8.68	778.42		
4/2/2012	8.41	778.69		
MW-24s	797.83	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	19.10	778.73
		3/23/2010	19.49	778.34
		5/10/2010	19.37	778.46
		9/2/2010	19.30	778.53
		12/10/2010	19.83	778.00
		2/14/2011	20.24	777.59
		4/25/2011	19.43	778.40
		7/19/2011	18.73	779.10
		10/3/2011	19.04	778.79
1/3/2012	18.45	779.38		
4/2/2012	18.03	779.80		
MW24d	797.93	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	19.20	778.73
		3/23/2010	19.58	778.35
		5/10/2010	19.45	778.48
		9/2/2010	19.35	778.58
		12/10/2010	19.95	777.98
		2/14/2011	20.31	777.62
		4/25/2011	19.52	778.41
		7/19/2011	18.85	779.08
		10/3/2011	19.15	778.78
1/3/2012	18.60	779.33		
4/2/2012	18.14	779.79		

Notes:
 Survey conducted to feet mean sea level by Midwestern Consultants, Inc. (2009 - 2010)
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 ft BTOC - feet below top of casing
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 NM - Not measured
 * Measured depth to water is anomalous. Datum was not used.

Table 2
Groundwater and Surface Water Elevations
Former Tecumseh Products Company Site
Tecumseh, Michigan
Second Quarter 2012

Well Location	Top of Well Casing (ft MSL)	Measurement Date	Depth to Groundwater (ft BTOC)	Groundwater Elevation (ft MSL)
MW-25s	798.23	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	18.77	779.46
		3/23/2010	18.97	779.26
		5/12/2010	18.80	779.43
		9/2/2010	19.00	779.23
		12/10/2010	19.60	778.63
		2/14/2011	19.90	778.33
		4/25/2011	18.96	779.27
		7/19/2011	18.31	779.92
		10/3/2011	18.76	779.47
1/3/2012	18.11	780.12		
4/2/2012	17.87	780.36		
MW-26s	805.73	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	NI	NI
		4/6/2010	26.10	779.63
		5/10/2010	26.00	779.73
		9/2/2010	26.00	779.73
		12/10/2010	26.68	779.05
		2/14/2011	26.95	778.78
		4/25/2011	26.11	779.62
		7/19/2011	25.31	780.42
		10/3/2011	25.80	779.93
1/3/2012	25.15	780.58		
4/2/2012	24.92	780.81		
MW-27s	781.39	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	NI	NI
		3/23/2010	3.12	778.27
		5/10/2010	2.83	778.56
		9/2/2010	3.15	778.24
		12/10/2010	3.58	777.81
		2/14/2011	3.77	777.62
		4/25/2011	2.79	778.60
		7/19/2011	2.45	778.94
		10/3/2011	2.84	778.55
1/3/2012	2.31	779.08		
4/2/2012	2.30	779.09		

Notes:
 Survey conducted to feet mean sea level by Midwestern Consultants, Inc. (2009 - 2010)
 ft MSL - feet above mean sea level
 ft BTOC - feet below top of casing
 NI - Not installed at time of measurement
 Dry - Insufficient groundwater present for measurement
 NM - Not measured
 * Measured depth to water is anomalous. Datum was not used.

Table 2
 Groundwater and Surface Water Elevations
 Former Tecumseh Products Company Site
 Tecumseh, Michigan
 Second Quarter 2012

Well Location	Top of Well Casing (ft MSL)	Measurement Date	Depth to Groundwater (ft BTOC)	Groundwater Elevation (ft MSL)
MW-27d	781.40	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	NI	NI
		3/23/2010	23.63	757.77
		5/10/2010	23.50	757.90
		9/2/2010	23.65	757.75
		12/10/2010	23.94	757.46
		2/14/2011	24.08	757.32
		4/25/2011	23.40	758.00
		7/19/2011	23.22	758.18
		10/3/2011	23.55	757.85
1/3/2012	23.11	758.29		
4/2/2012	23.13	758.27		
MW-28s	804.68	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	NI	NI
		3/23/2010	25.53	779.15
		5/10/2010	25.45	779.23
		9/2/2010	25.20	779.48
		12/10/2010	25.86	778.82
		2/14/2011	26.30	778.38
		4/25/2011	25.47	779.21
		7/19/2011	24.70	779.98
		10/3/2011	24.92	779.76
1/3/2012	24.49	780.19		
4/2/2012	24.09	780.59		
MW-28d	804.92	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	NI	NI
		3/23/2010	25.81	779.11
		5/10/2010	25.70	779.22
		9/2/2010	25.50	779.42
		12/10/2010	26.10	778.82
		2/14/2011	26.54	778.38
		4/25/2011	25.75	779.17
		7/19/2011	24.95	779.97
		10/3/2011	25.16	779.76
1/3/2012	24.71	780.21		
4/2/2012	24.33	780.59		

Notes:
 Survey conducted to feet mean sea level by Midwestern Consultants, Inc. (2009 - 2010)
 ft MSL - feet above mean sea level
 ft BTOC - feet below top of casing
 NI - Not installed at time of measurement
 Dry - Insufficient groundwater present for measurement
 NM - Not measured
 * Measured depth to water is anomalous. Datum was not used.

Table 2
Groundwater and Surface Water Elevations
Former Tecumseh Products Company Site
Tecumseh, Michigan
Second Quarter 2012

Well Location	Top of Well Casing (ft MSL)	Measurement Date	Depth to Groundwater (ft BTOC)	Groundwater Elevation (ft MSL)
MW-29s	788.16	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	NI	NI
		3/23/2010	15.80	772.36
		5/10/2010	15.50	772.66
		9/2/2010	15.55	772.61
		12/10/2010	16.18	771.98
		2/14/2011	16.22	771.94
		4/25/2011	15.40	772.76
		7/19/2011	15.50	772.66
		10/3/2011	15.48	772.68
1/3/2012	11.30*	776.86*		
4/2/2012	14.92	773.24		
MW-29d	788.16	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	NI	NI
		3/23/2010	18.74	769.42
		5/10/2010	18.60	769.56
		9/2/2010	18.55	769.61
		12/10/2010	18.28	769.88
		2/14/2011	18.95	769.21
		4/25/2011	18.90	769.26
		7/19/2011	18.28	769.88
		10/3/2011	18.23	769.93
1/3/2012	18.16	770.00		
4/2/2012	17.75	770.41		
MW-30s	787.69	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	NI	NI
		3/23/2010	9.89	777.80
		5/10/2010	9.75	777.94
		9/2/2010	9.90	777.79
		12/10/2010	10.36	777.33
		2/14/2011	10.74	776.95
		4/25/2011	9.58	778.11
		7/19/2011	9.40	778.29
		10/3/2011	9.66	778.03
1/3/2012	9.08	778.61		
4/2/2012	8.88	778.81		

Notes:
 Survey conducted to feet mean sea level by Midwestern Consultants, Inc. (2009 - 2010)
 ft MSL - feet above mean sea level
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 NM - Not measured
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Table 2
Groundwater and Surface Water Elevations
Former Tecumseh Products Company Site
Tecumseh, Michigan
Second Quarter 2012

Well Location	Top of Well Casing (ft MSL)	Measurement Date	Depth to Groundwater (ft BTOC)	Groundwater Elevation (ft MSL)
MW-30d	787.66	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	NI	NI
		3/23/2010	9.85	777.81
		5/10/2010	9.68	777.98
		9/2/2010	9.80	777.86
		12/10/2010	10.27	777.39
		2/14/2011	10.63	777.03
		4/25/2011	9.25	778.41
		7/19/2011	9.29	778.37
		10/3/2011	9.54	778.12
1/3/2012	9.02	778.64		
4/2/2012	8.75	778.91		
MW-31	782.36	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	NI	NI
		3/23/2010	NI	NI
		6/18/2010	32.60	749.76
		9/2/2010	33.00	749.36
		12/10/2010	33.03	749.33
		2/14/2011	33.03	749.33
		4/25/2011	31.62	750.74
		7/21/2011	32.76	749.60
		10/3/2011	32.91	749.45
1/3/2012	32.51	749.85		
4/2/2012	32.57	749.79		
MW-32s	802.59	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	NI	NI
		3/23/2010	NI	NI
		6/18/2010	NI	NI
		9/17/2010	23.45	779.14
		12/10/2010	23.96	778.63
		2/14/2011	24.35	778.24
		4/25/2011	23.54	779.05
		7/19/2011	22.81	779.78
		10/3/2011	23.15	779.44
1/3/2012	21.59*	781.00*		
4/2/2012	22.33	780.26		

Notes:

Survey conducted to feet mean sea level by Midwestern Consultants, Inc. (2009 - 2010)

ft MSL - feet above mean sea level

ft BTOC - feet below top of casing

NI - Not installed at time of measurement

Dry - Insufficient groundwater present for measurement

NM - Not measured

* Measured depth to water is anomalous. Datum was not used.

Table 2
Groundwater and Surface Water Elevations
Former Tecumseh Products Company Site
Tecumseh, Michigan
Second Quarter 2012

Well Location	Top of Well Casing (ft MSL)	Measurement Date	Depth to Groundwater (ft BTOC)	Groundwater Elevation (ft MSL)
MW-33s	799.49	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	NI	NI
		3/23/2010	NI	NI
		6/18/2010	NI	NI
		9/17/2010	20.62	778.87
		12/10/2010	21.11	778.38
		2/14/2011	21.36	778.13
		4/25/2011	20.68	778.81
		7/19/2011	19.95	779.54
		10/3/2011	19.30*	780.19*
1/3/2012	19.77	779.72		
4/2/2012	19.50	779.99		
MW-34s	802.78	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	NI	NI
		3/23/2010	NI	NI
		6/18/2010	NI	NI
		9/17/2010	23.60	779.18
		12/10/2010	24.15	778.63
		2/14/2011	24.49	778.29
		4/25/2011	23.63	779.15
		7/19/2011	22.89	779.89
		10/3/2011	23.35	779.43
1/3/2012	22.70	780.08		
4/2/2012	22.43	780.35		
PRB-01s	784.06	7/19/2011	5.49	778.57
		10/3/2011	5.85	778.21
		1/3/2012	5.20	778.86
		4/2/2012	5.10	778.96
PRB-02s	784.07	7/19/2011	5.52	778.55
		10/3/2011	5.82	778.25
		1/3/2012	5.20	778.87
		4/2/2012	5.06	779.01

Notes:

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- Dry - Insufficient groundwater present for measurement
- NM - Not measured
- * Measured depth to water is anomalous. Datum was not used.

Table 2
Groundwater and Surface Water Elevations
Former Tecumseh Products Company Site
Tecumseh, Michigan
Second Quarter 2012

Well Location	Top of Well Casing (ft MSL)	Measurement Date	Depth to Groundwater (ft BTOC)	Groundwater Elevation (ft MSL)
E. Chicago Blvd (River Raisin)	756.50	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	14.00	742.51
		3/23/2010	13.32	743.18
		6/18/2010	13.42	743.08
		9/2/2010	14.90	741.60
		12/10/2010	13.89	742.61
		2/14/2011	14.46	742.04
		4/25/2011	11.50*	745.00
		7/19/2011	14.60	741.90
		10/3/2011	14.15	742.35
1/3/2012	13.17	743.33		
4/2/2012	13.87	742.63		
Russell Road (River Raisin)	755.23	3/16/2009	NI	NI
		4/20/2009	NI	NI
		6/4/2009	NI	NI
		12/7/2009	19.36	735.87
		3/23/2010	18.50	736.73
		6/18/2010	18.65	736.58
		9/2/2010	20.40	734.83
		12/10/2010	22.04	733.19
		2/14/2011	19.99	735.24
		4/25/2011	19.50	735.73
		7/19/2011	22.65	732.58
		10/3/2011	21.70	733.53
		1/3/2012	20.75	734.48
4/2/2012	18.96	736.27		

Notes:

Survey conducted to feet mean sea level by Midwestern Consultants, Inc. (2009 - 2010)

ft MSL - feet above mean sea level

ft BTOC - feet below top of casing

NI - Not installed at time of measurement

Dry - Insufficient groundwater present for measurement

NM - Not measured

* Measured depth to water is anomalous. Datum was not used.

Attachment 1-C

Slug Tests

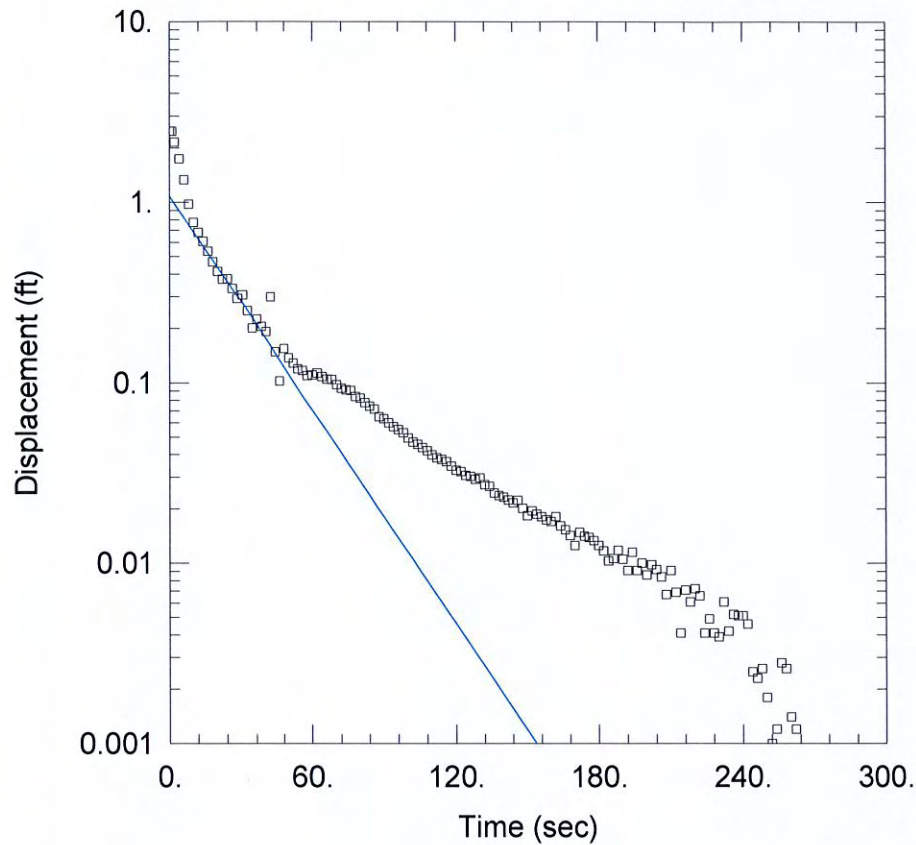
Table 1C
 Summary of Single Well Response Test Results
 Former Tecumseh Products Company Site
 Tecumseh, Michigan

Monitoring Well ID	Screened Interval Lithology	Test Type	Average	
			Hydraulic Conductivity (ft/day)	Hydraulic Conductivity (cm/sec)
PRB-03s	Coarse Sand and Gravel	SLUG IN	5.84E+00	2.06E-03
		SLUG OUT		
PRB-04s	Coarse Sand and Gravel	SLUG IN	1.21E+01	4.27E-03
		SLUG OUT		
PRB-04d	Coarse Sand and Gravel	SLUG IN	3.11E+01	1.10E-02
		SLUG OUT		
PRB-05s	Coarse Sand and Gravel	SLUG IN	1.41E+01	4.96E-03
		SLUG OUT		
PRB-07s	Coarse Sand and Gravel	SLUG IN	5.80E+00	2.04E-03
		SLUG OUT		
PRB-08s	Coarse Sand and Gravel	SLUG IN	6.32E+00	2.23E-03
		SLUG OUT		
PRB-08d	Coarse Sand and Gravel	SLUG IN	1.49E+01	5.27E-03
		SLUG OUT		
PRB-10s	Coarse Sand and Gravel	SLUG IN	4.81E+00	1.70E-03
		SLUG OUT		
PRB-11s	Coarse Sand and Gravel	SLUG IN	2.80E+00	9.89E-04
		SLUG OUT		
PRB-12s	Coarse Sand and Gravel	SLUG IN	7.98E+00	2.81E-03
		SLUG OUT		
PRB-13s	Coarse Sand and Gravel	SLUG IN	1.40E+00	4.94E-04
		SLUG OUT		
PRB-15s	Coarse Sand and Gravel	SLUG IN	5.86E+00	2.07E-03
		SLUG OUT		
PRB-15d	Coarse Sand and Gravel	SLUG IN	1.60E+01	5.66E-03
		SLUG OUT		

Minimum Hydraulic Conductivity	1.40E+00	4.94E-04
Maximum Hydraulic Conductivity	3.11E+01	1.10E-02
Average Hydraulic Conductivity	9.93E+00	3.50E-03

Notes

Bouwer-Rice method used to calculate hydraulic conductivity values.



PRB-03S FALLING HEAD

Data Set: \...\PRB-03s Falling Head.aqt
 Date: 05/10/12 Time: 13:28:59

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Company
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-03s
 Test Date: 8/5/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 7.265 ft/day
 y0 = 1.08 ft

AQUIFER DATA

Saturated Thickness: 40. ft

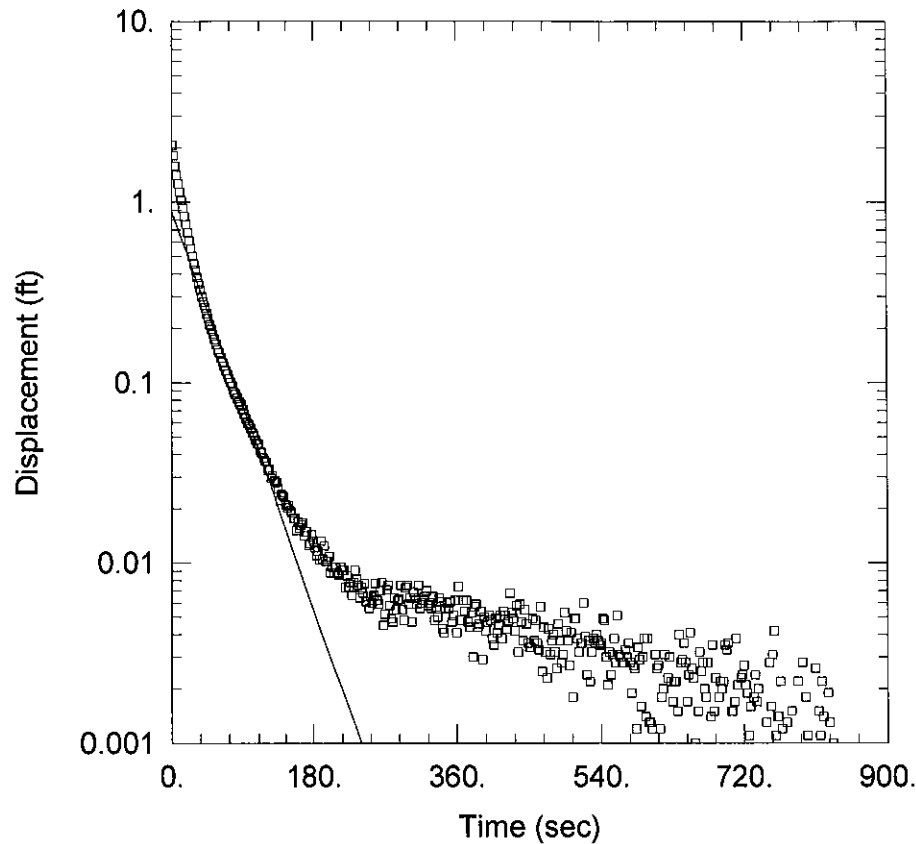
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-03s)

Initial Displacement: 2.475 ft
 Total Well Penetration Depth: 5.51 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 5.51 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft
 Gravel Pack Porosity: 0.3

Screened Lithology: **Native Coarse Sand and Gravel**



PRB-03S RISING HEAD

Data Set: \\.\PRB-03s Rising Head.aqt
 Date: 05/10/12 Time: 13:29:12

PROJECT INFORMATION

Company: TRC, Inc.
 Client: Tecumseh Products Company
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-03s
 Test Date: 8/5/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 $K = 4.421$ ft/day
 $y_0 = 0.8913$ ft

AQUIFER DATA

Saturated Thickness: 40 ft

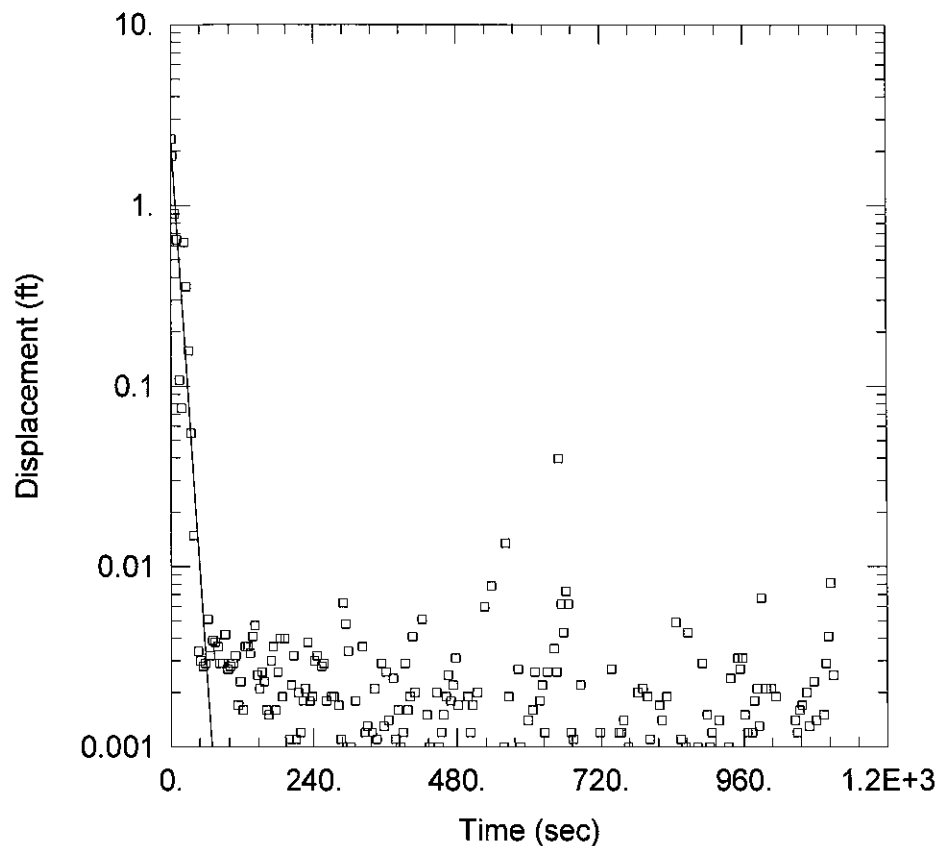
Anisotropy Ratio (K_z/K_r): 1

WELL DATA (PRB-03s)

Initial Displacement: 2.064 ft
 Total Well Penetration Depth: 4.84 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 4.84 ft
 Screen Length: 5 ft
 Wellbore Radius: 0.083 ft
 Gravel Pack Porosity: 0.3

Screened Lithology: Native Coarse Sand and Gravel



PRB-04D FALLING HEAD

Data Set: \...\PRB-04d Falling Head.aqt
 Date: 05/10/12 Time: 13:29:19

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Company
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-04d
 Test Date: 8/5/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 22.4 ft/day
 y0 = 2.285 ft

AQUIFER DATA

Saturated Thickness: 40 ft

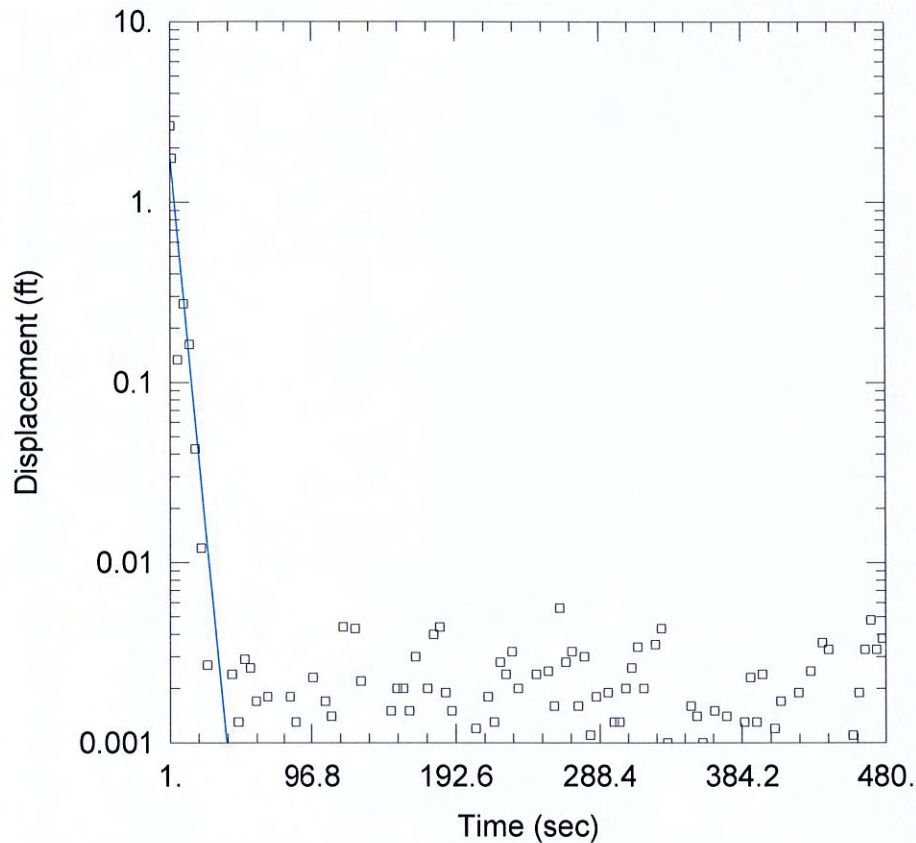
Anisotropy Ratio (Kz/Kr): 1

WELL DATA (PRB-04d)

Initial Displacement: 2.335 ft
 Total Well Penetration Depth: 23.78 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 23.78 ft
 Screen Length: 5 ft
 Wellbore Radius: 0.083 ft

Screened Lithology: Native Coarse Sand and Gravel



PRB-04D RISING HEAD

Data Set: \...\PRB-04d Rising Head.aqt
 Date: 05/10/12 Time: 13:29:26

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Company
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-04d
 Test Date: 8/5/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 39.74 ft/day
 y0 = 2.175 ft

AQUIFER DATA

Saturated Thickness: 40. ft

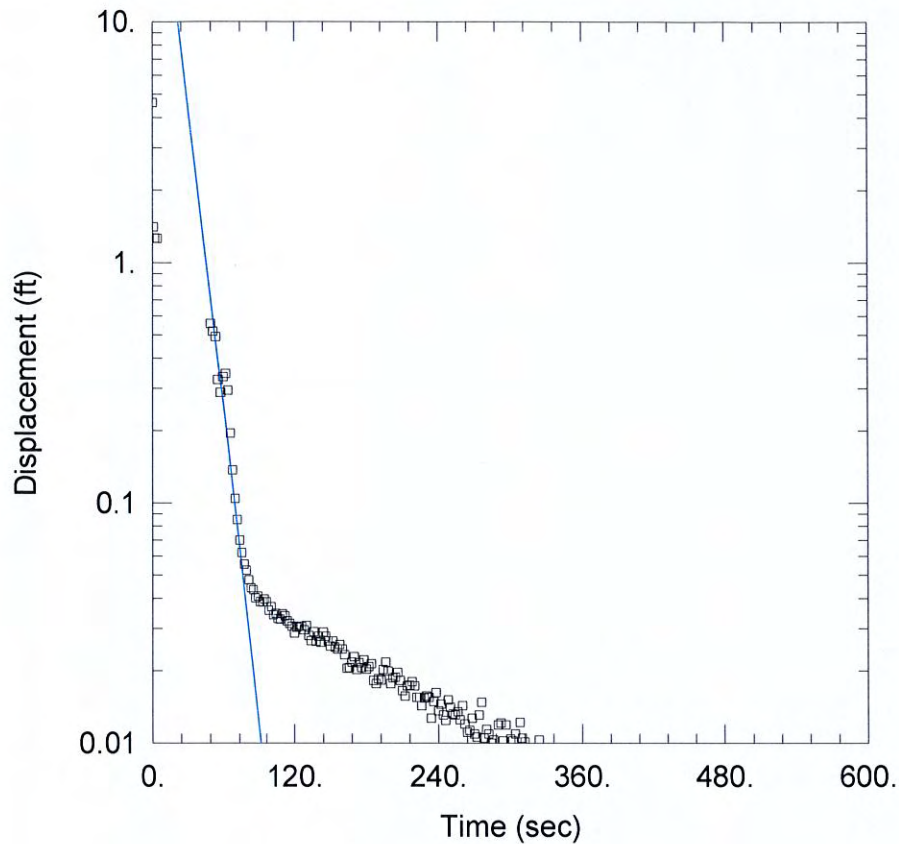
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-04d)

Initial Displacement: 2.654 ft
 Total Well Penetration Depth: 23.78 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 23.78 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft

Screened Lithology: Native Coarse Sand and Gravel



PRB-04S FALLING HEAD

Data Set: \...\PRB-04s Falling Head.aqt
 Date: 05/10/12 Time: 13:29:34

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Company
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-04s
 Test Date: 8/5/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 15.4 ft/day
 y0 = 83.56 ft

AQUIFER DATA

Saturated Thickness: 40. ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-04s)

Initial Displacement: 4.62 ft
 Total Well Penetration Depth: 4.62 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 4.62 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft
 Gravel Pack Porosity: 0.3

Screened Lithology: **Native Coarse Sand and Gravel**

PRB-04S RISING HEAD

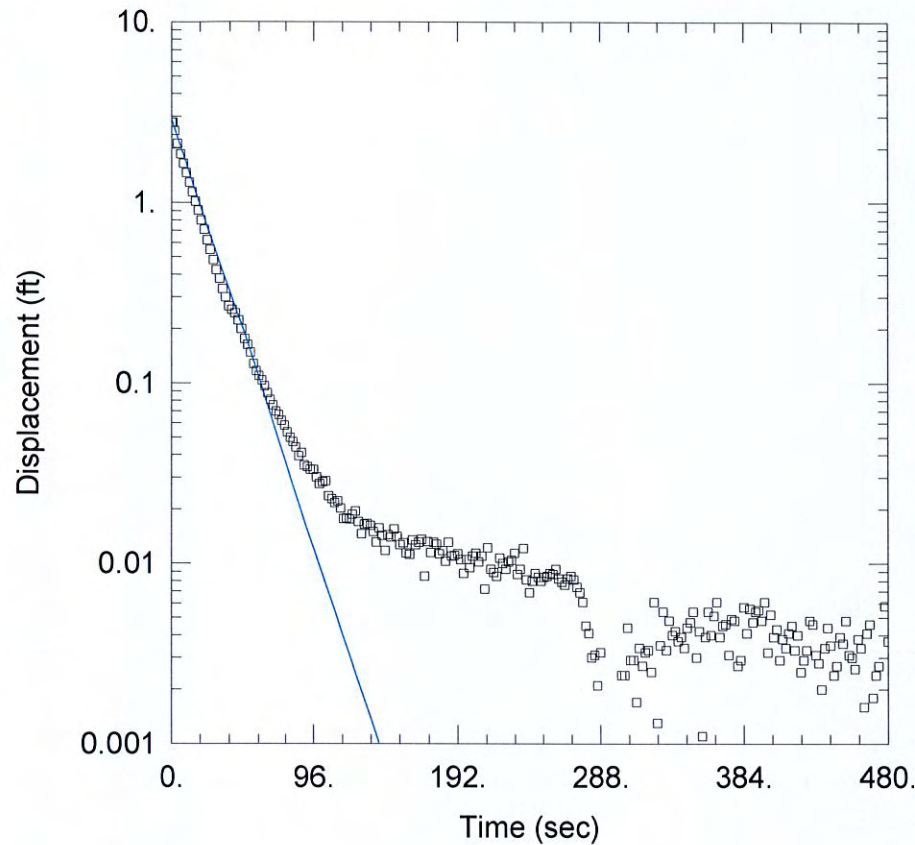
Data Set: \...\PRB-04s Rising Head.aqt
Date: 05/10/12 Time: 13:29:40

PROJECT INFORMATION

Company: TRC Env. Corp.
Client: Tecumseh Products Company
Project: 02751.20.001
Location: Tecumseh, Michigan
Test Well: PRB-04s
Test Date: 8/5/2011

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 8.835 ft/day
y0 = 2.89 ft



AQUIFER DATA

Saturated Thickness: 40. ft

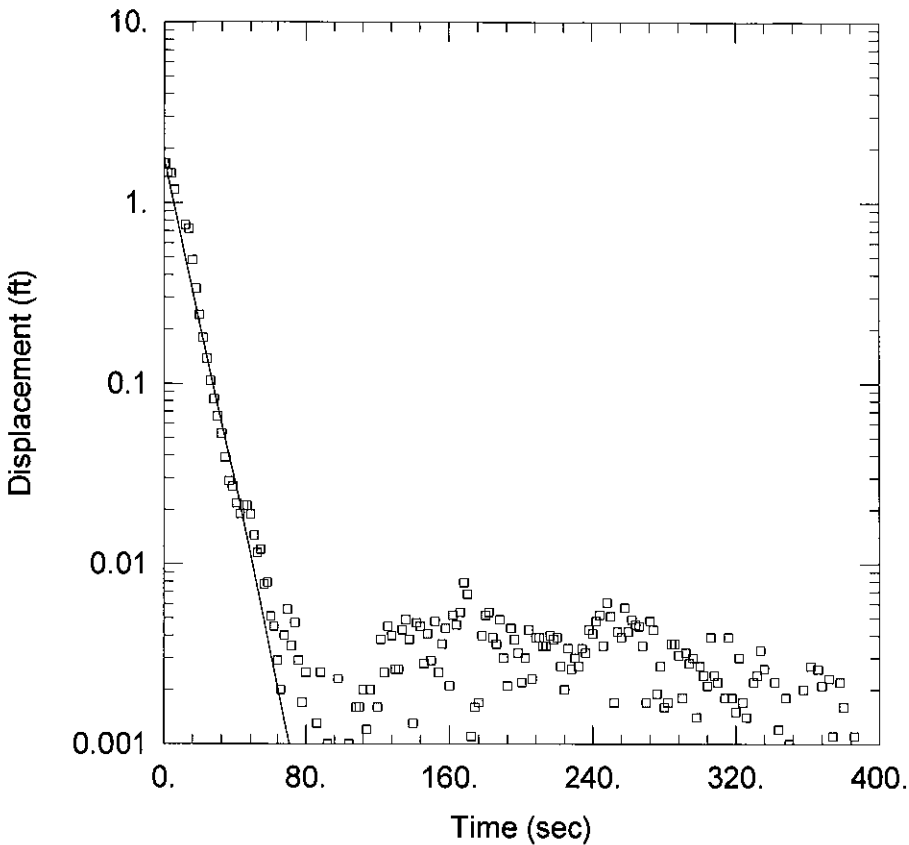
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-04s)

Initial Displacement: 2.777 ft
Total Well Penetration Depth: 4.62 ft
Casing Radius: 0.083 ft

Static Water Column Height: 4.62 ft
Screen Length: 5. ft
Wellbore Radius: 0.083 ft
Gravel Pack Porosity: 0.3

Screened Lithology: Native Coarse Sand and Gravel



PRB-05S FALLING HEAD

Data Set: \\...\PRB-05s Falling Head.aqt
 Date: 05/10/12 Time: 13:29:47

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Company
 Project: 02751.20.001
 Location: Tecumseh, MI
 Test Well: PRB-05s
 Test Date: 8/5/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 16.46 ft/day
 y0 = 1.756 ft

AQUIFER DATA

Saturated Thickness: 40. ft

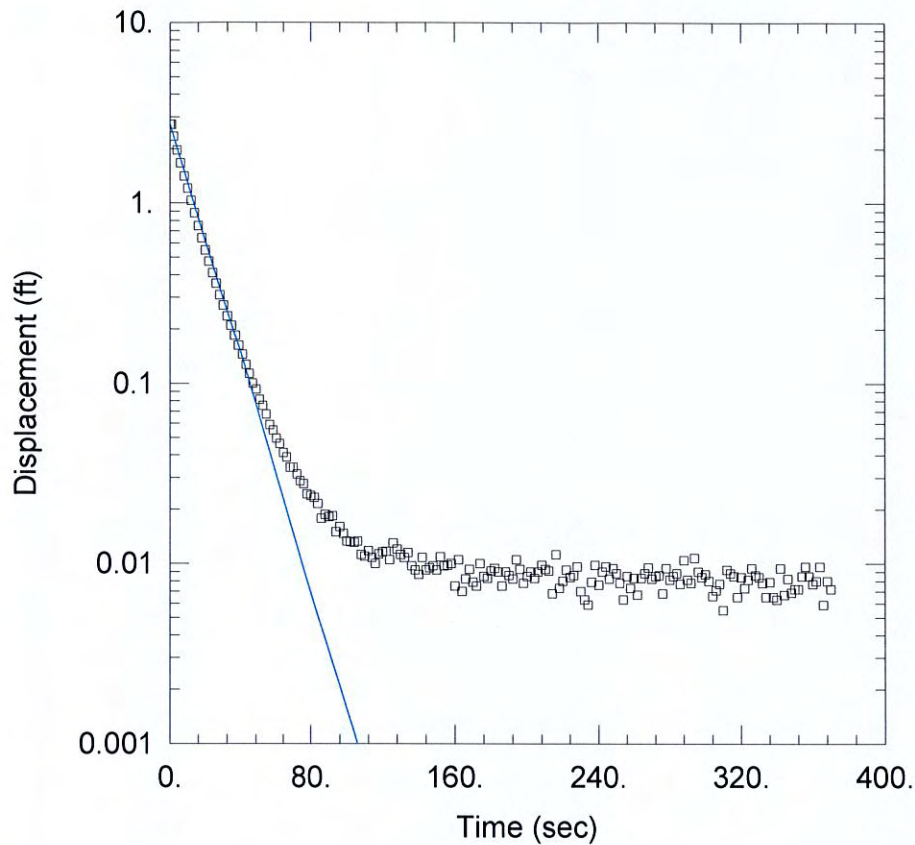
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-05s)

Initial Displacement: 1.658 ft
 Total Well Penetration Depth: 4.82 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 4.82 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft
 Gravel Pack Porosity: 0.3

Screened Lithology: **Native Coarse Sand and Gravel**



PRB-05S RISING HEAD

Data Set: \...\PRB-05s Rising Head.aqt
 Date: 05/10/12 Time: 13:29:54

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Comapny
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-05s
 Test Date: 8/5/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 11.68 ft/day
 y0 = 2.737 ft

AQUIFER DATA

Saturated Thickness: 40. ft

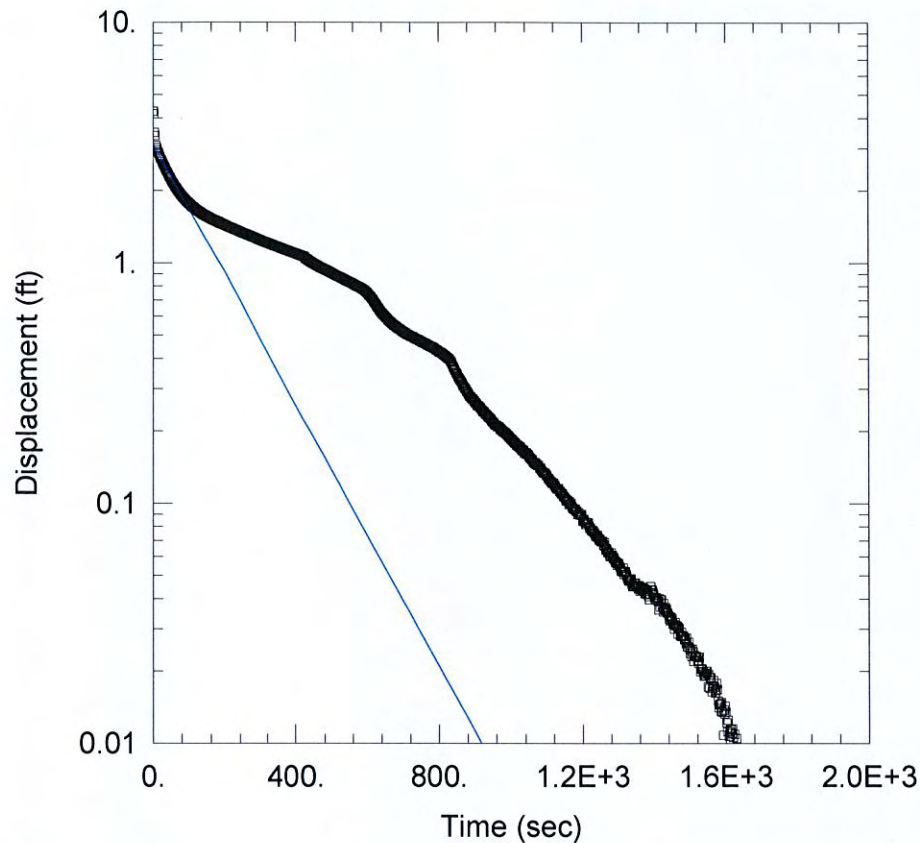
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-05s)

Initial Displacement: 2.723 ft
 Total Well Penetration Depth: 4.82 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 4.82 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft
 Gravel Pack Porosity: 0.3

Screened Lithology: **Native Coarse Sand and Gravel**



PRB-06S FALLING HEAD

Data Set: \...\PRB-06s Falling Head.aqt
 Date: 05/10/12 Time: 13:30:05

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Company
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-06s
 Test Date: 8/5/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 $K = 0.9792$ ft/day
 $y_0 = 3.121$ ft

AQUIFER DATA

Saturated Thickness: 40. ft

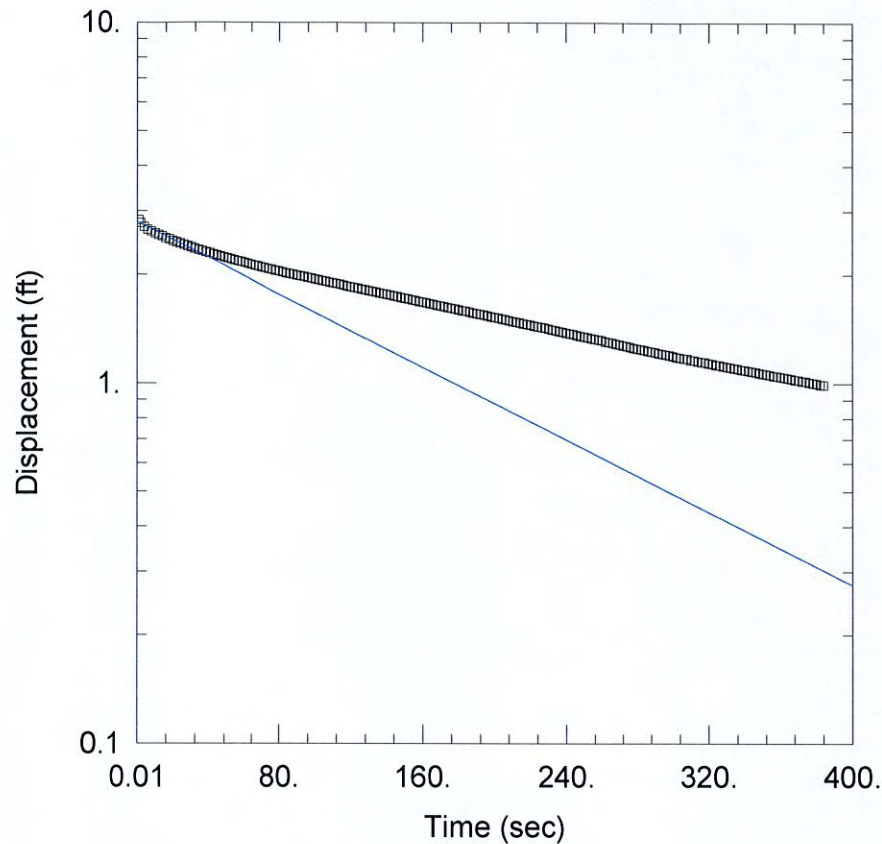
Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (PRB-06s)

Initial Displacement: 4.268 ft
 Total Well Penetration Depth: 4.89 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 4.89 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft
 Gravel Pack Porosity: 0.3

Screened Lithology: **Installed Permeable Reactive Barrier**



PRB-06S RISING HEAD

Data Set: \...\PRB-06s Rising Head.aqt
 Date: 05/10/12 Time: 13:30:19

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Company
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-06s
 Test Date: 8/5/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 0.9084 ft/day
 y0 = 2.801 ft

AQUIFER DATA

Saturated Thickness: 40. ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-06s)

Initial Displacement: 2.831 ft
 Total Well Penetration Depth: 4.89 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 4.89 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft
 Gravel Pack Porosity: 0.3

PRB-07S FALLING HEAD

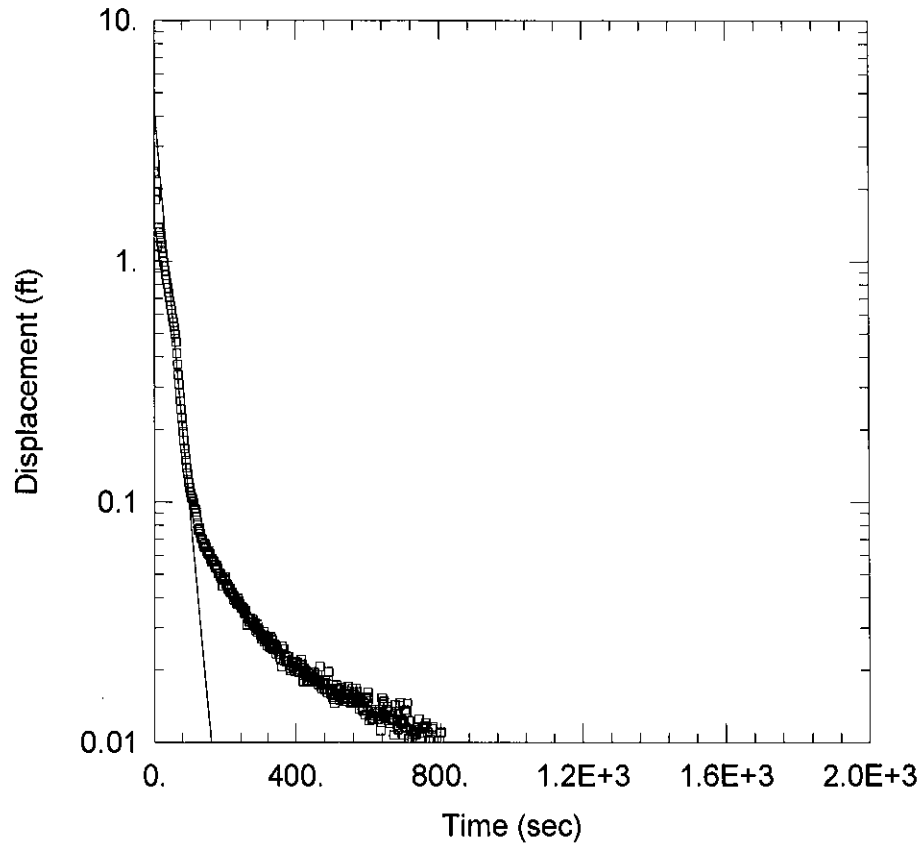
Data Set: \...\PRB-07s Falling Head.aqt
Date: 05/10/12 Time: 13:30:26

PROJECT INFORMATION

Company: TRC Env. Corp.
Client: Tecumseh Products Company
Project: 02751.20.001
Location: Tecumseh, Michigan
Test Well: PRB-07s
Test Date: 8/8/2011

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice
K = 6.146 ft/day
y0 = 4.331 ft



AQUIFER DATA

Saturated Thickness: 40. ft

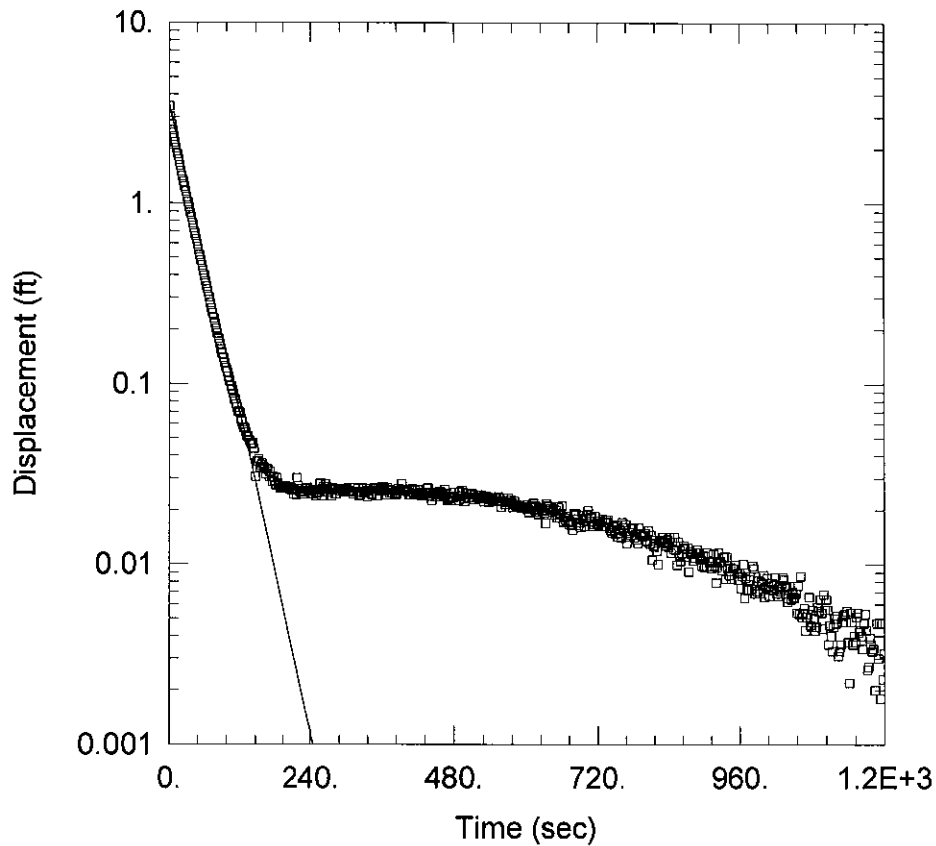
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-07s)

Initial Displacement: 2.35 ft
Total Well Penetration Depth: 6.26 ft
Casing Radius: 0.083 ft

Static Water Column Height: 6.26 ft
Screen Length: 5. ft
Wellbore Radius: 0.083 ft

Screened Lithology: **Native Coarse Sand and Gravel**



PRB-07S RISING HEAD

Data Set: \...\PRB-07s Rising Head.aqt
 Date: 05/10/12 Time: 13:30:33

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Comapny
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-07s
 Test Date: 8/8/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 5.446 ft/day
 y0 = 3.518 ft

AQUIFER DATA

Saturated Thickness: 40. ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-07s)

Initial Displacement: 3.442 ft
 Total Well Penetration Depth: 6.26 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 6.26 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft

Screened Lithology: Native Coarse Sand and Gravel

PRB-08D FALLING HEAD

Data Set: \...\PRB-08d Falling Head.aqt

Date: 05/10/12

Time: 13:30:40

PROJECT INFORMATION

Company: TRC Env. Corp.

Client: Tecumseh Products Company

Project: 02751.20.001

Location: Tecumseh, Michigan

Test Well: PRB-08d

Test Date: 8/8/2011

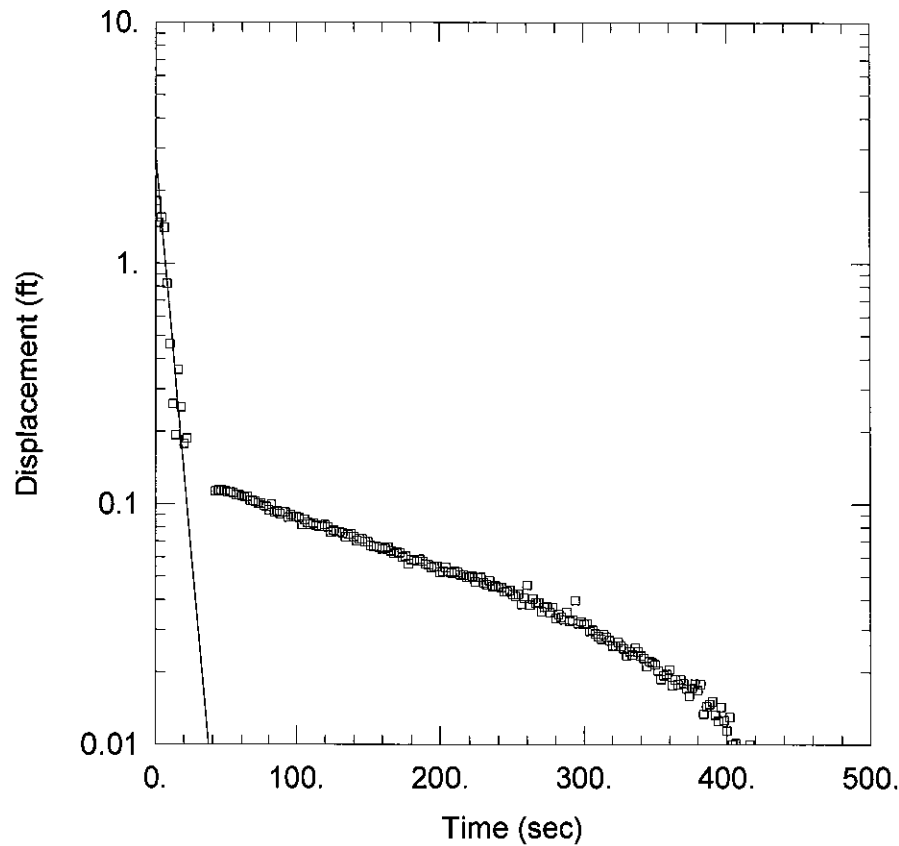
SOLUTION

Aquifer Model: Unconfined

Solution Method: Bouwer-Rice

$K = 28.64$ ft/day

$y_0 = 2.815$ ft



AQUIFER DATA

Saturated Thickness: 40 ft

Anisotropy Ratio (K_z/K_r): 1

WELL DATA (PRB-08d)

Initial Displacement: 1.809 ft

Total Well Penetration Depth: 16.67 ft

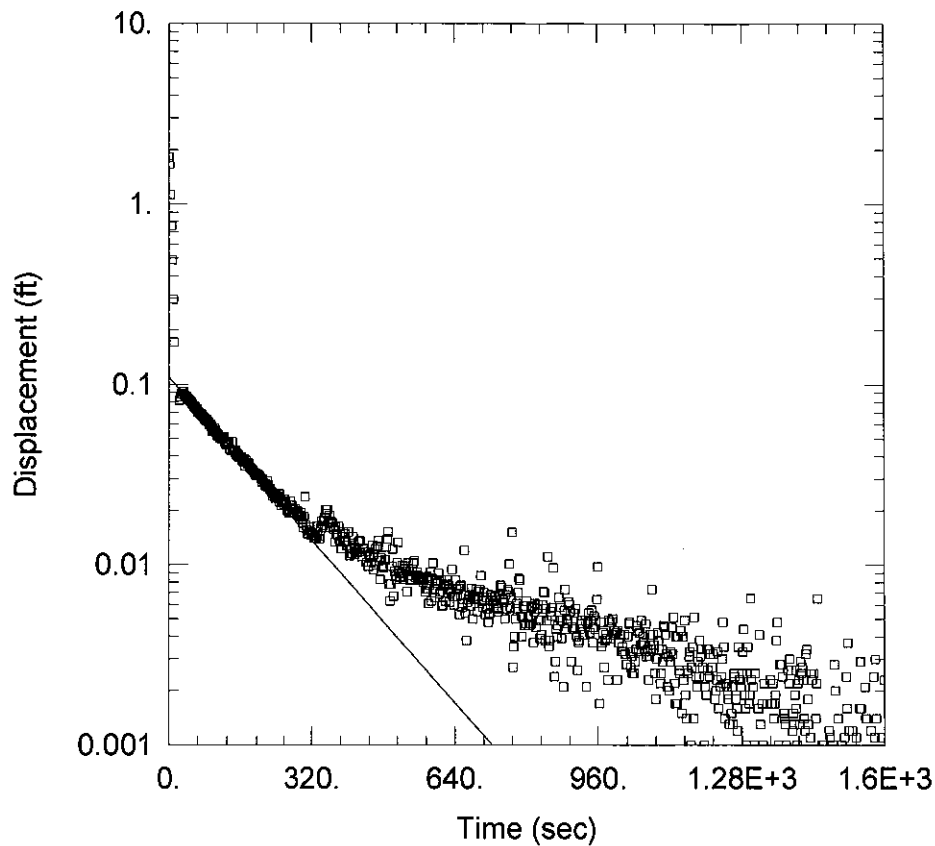
Casing Radius: 0.083 ft

Static Water Column Height: 16.67 ft

Screen Length: 5 ft

Wellbore Radius: 0.083 ft

Screened Lithology: Native Coarse Sand and Gravel



PRB-08D RISING HEAD

Data Set: \...\PRB-08d Rising Head.aqt
 Date: 05/10/12 Time: 13:30:47

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Company
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-08d
 Test Date: 8/8/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 1.231 ft/day
 y0 = 0.1097 ft

AQUIFER DATA

Saturated Thickness: 40. ft

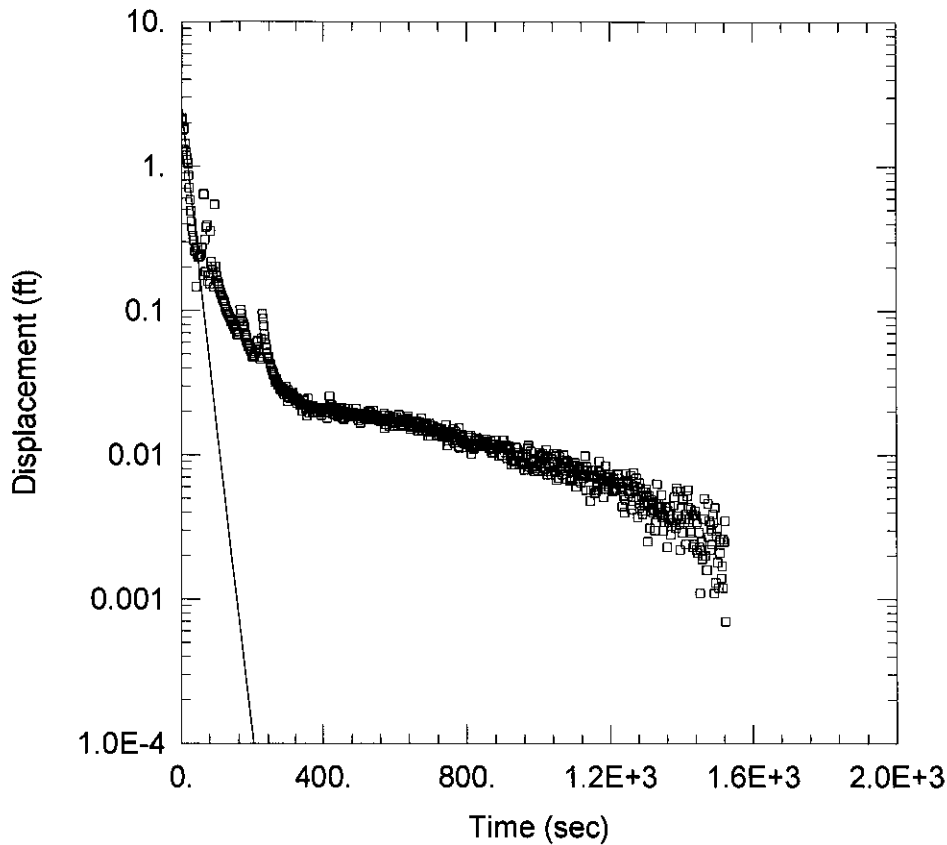
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-08d)

Initial Displacement: 1.807 ft
 Total Well Penetration Depth: 16.67 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 16.67 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft

Screened Lithology: **Native Coarse Sand and Gravel**



PRB-08S FALLING HEAD

Data Set: \\...\PRB-08s Falling Head.aqt
 Date: 05/10/12 Time: 13:30:55

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Company
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-08s
 Test Date: 8/8/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 $K = 7.838$ ft/day
 $y_0 = 2.48$ ft

AQUIFER DATA

Saturated Thickness: 40. ft

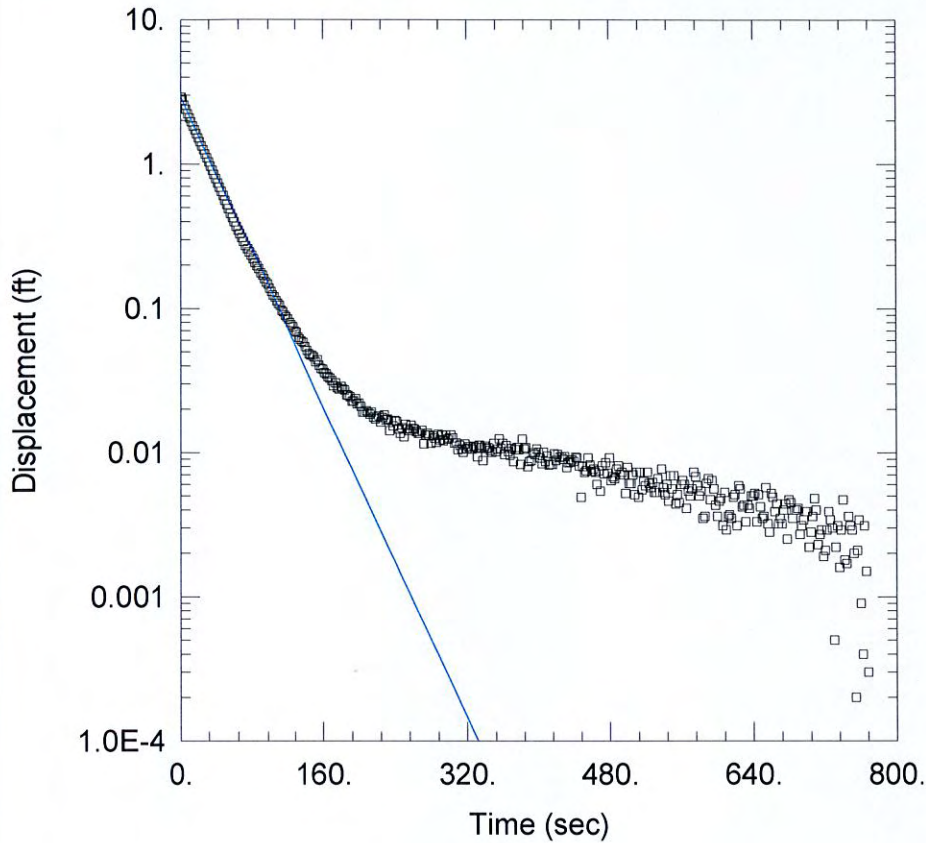
Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (PRB-08s)

Initial Displacement: 2.152 ft
 Total Well Penetration Depth: 4.58 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 4.58 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft
 Gravel Pack Porosity: 0.3

Screened Lithology: **Native Coarse Sand and Gravel**



PRB-08S RISING HEAD

Data Set: \\...\PRB-08s Rising Head.aqt
 Date: 05/10/12 Time: 13:31:01

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Company
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-08s
 Test Date: 8/8/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 4.794 ft/day
 y0 = 2.926 ft

AQUIFER DATA

Saturated Thickness: 40. ft

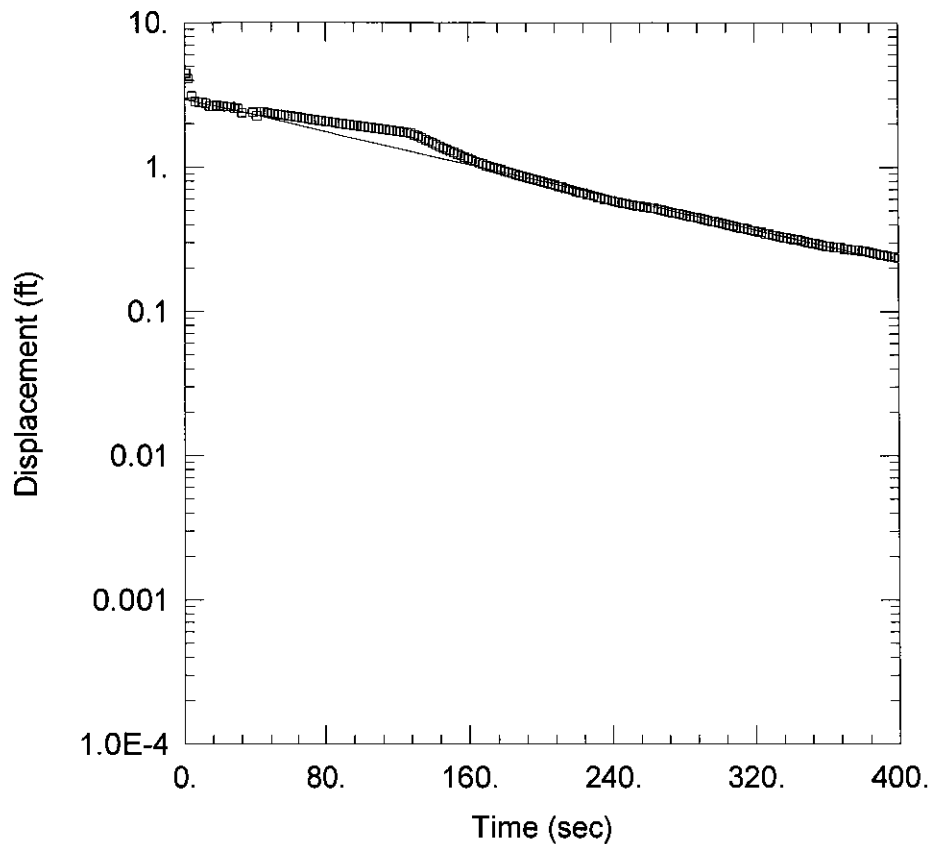
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-08s)

Initial Displacement: 2.897 ft
 Total Well Penetration Depth: 4.58 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 4.58 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft
 Gravel Pack Porosity: 0.3

Screened Lithology: Native Coarse Sand and Gravel



PRB-09S FALLING HEAD

Data Set: \\...\PRB-09s Falling Head.aqt
 Date: 05/10/12 Time: 13:31:07

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Comapny
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-09s
 Test Date: 8/5/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 1.016 ft/day
 y0 = 2.94 ft

AQUIFER DATA

Saturated Thickness: 40. ft

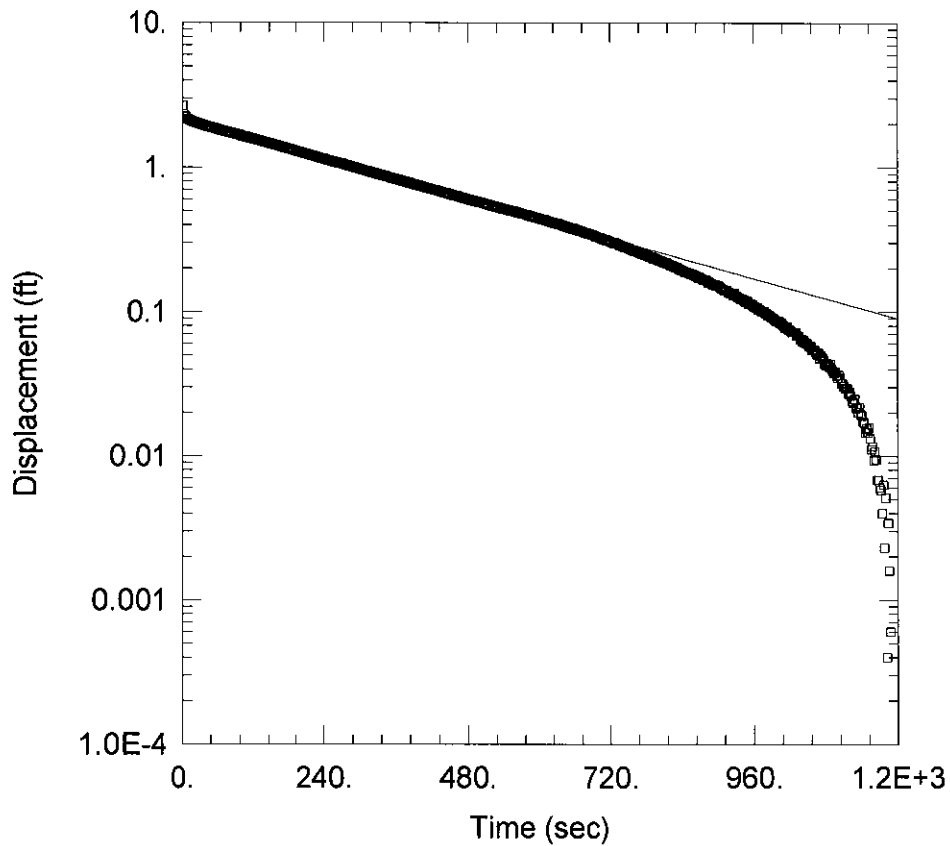
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-09s)

Initial Displacement: 4.462 ft
 Total Well Penetration Depth: 4.8 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 4.8 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft
 Gravel Pack Porosity: 0.3

Screened Lithology: **Installed Permeable Reactive Barrier**



PRB-09S RISING HEAD

Data Set: \...\PRB-09s Rising Head.aqt
 Date: 05/10/12 Time: 13:31:13

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Company
 Project: 2751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-09s
 Test Date: 8/5/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 0.414 ft/day
 y0 = 2.154 ft

AQUIFER DATA

Saturated Thickness: 40 ft

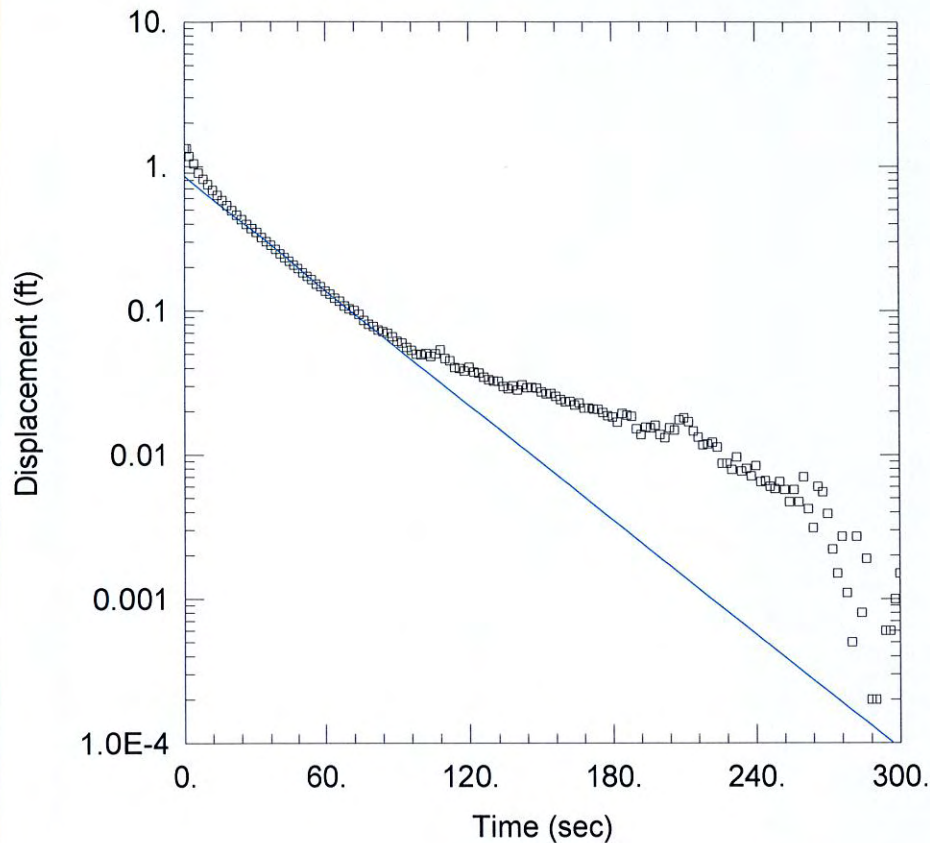
Anisotropy Ratio (Kz/Kr): 1

WELL DATA (PRB-09s)

Initial Displacement: 2.647 ft
 Total Well Penetration Depth: 4.8 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 4.8 ft
 Screen Length: 5 ft
 Wellbore Radius: 0.083 ft

Screened Lithology: **Installed Permeable Reactive Barrier**



PRB-10S FALLING HEAD

Data Set: \...\PRB-10s Falling Head.aqt
 Date: 05/10/12 Time: 13:31:20

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Company
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-10s
 Test Date: 8/5/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 4.6 ft/day
 y0 = 0.8494 ft

AQUIFER DATA

Saturated Thickness: 40. ft

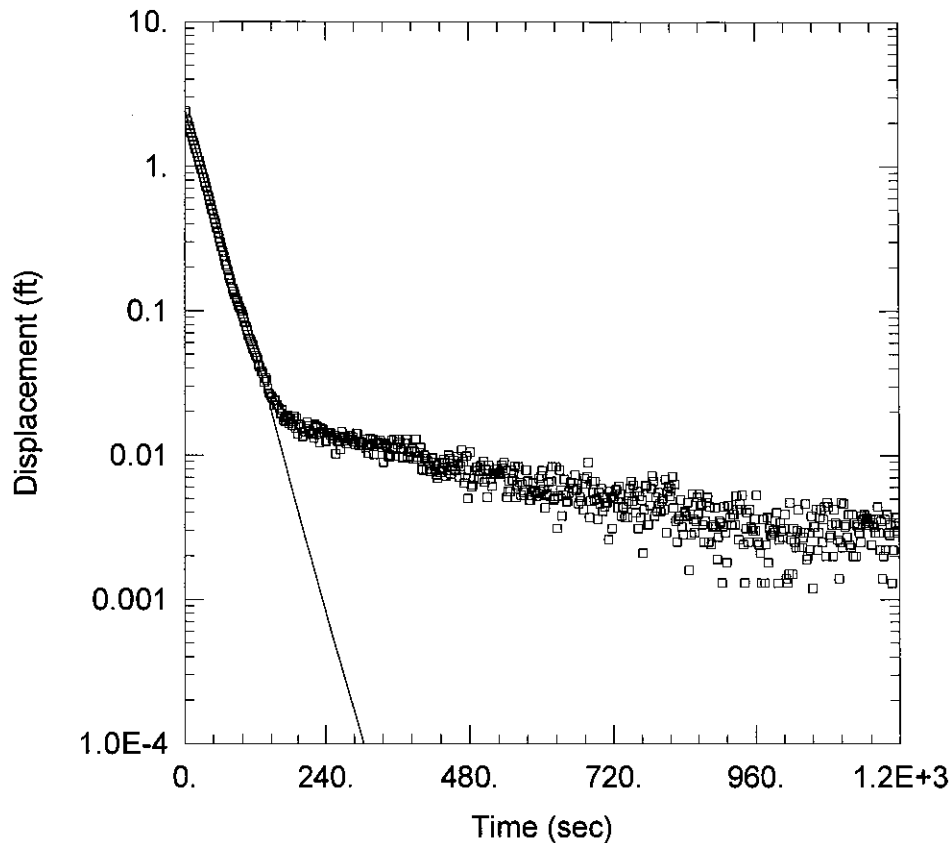
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-10s)

Initial Displacement: 1.33 ft
 Total Well Penetration Depth: 3.99 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 3.99 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft
 Gravel Pack Porosity: 0.3

Screened Lithology: **Native Coarse Sand and Gravel**



PRB-10S RISING HEAD

Data Set: \\...\PRB-10s Rising Head.aqt
 Date: 05/10/12 Time: 13:31:27

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Comapny
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-10s
 Test Date: 8/5/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 5.011 ft/day
 y0 = 2.41 ft

AQUIFER DATA

Saturated Thickness: 40. ft

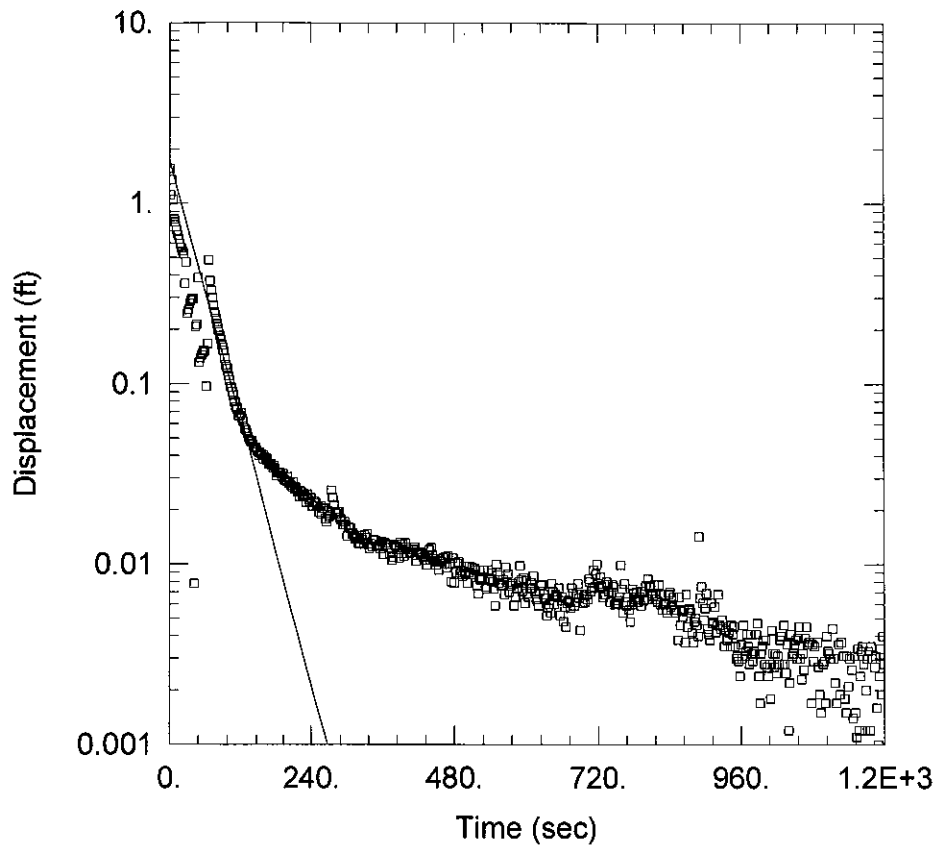
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-10s)

Initial Displacement: 2.422 ft
 Total Well Penetration Depth: 3.99 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 3.99 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft
 Gravel Pack Porosity: 0.3

Screened Lithology: **Native Coarse Sand and Gravel**



PRB-11S FALLING HEAD

Data Set: \\.\PRB-11s Falling Head.aqt
 Date: 05/10/12 Time: 13:31:35

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Company
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-11s
 Test Date: 8/8/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 4.248 ft/day
 y0 = 1.731 ft

AQUIFER DATA

Saturated Thickness: 40. ft

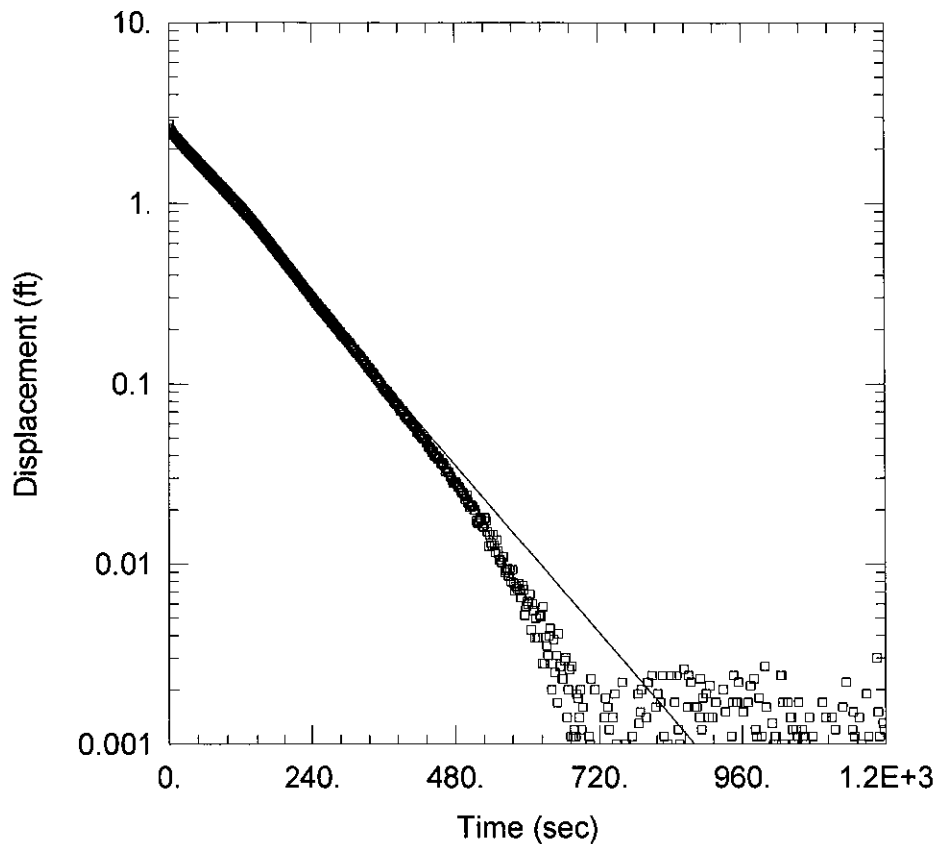
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-11s)

Initial Displacement: 1.558 ft
 Total Well Penetration Depth: 4.15 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 4.15 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft

Screened Lithology: **Native Coarse Sand and Gravel**



PRB-11S RISING HEAD

Data Set: \...\PRB-11s Rising Head.aqt
 Date: 05/10/12 Time: 13:31:42

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Comapny
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-11s
 Test Date: 8/8/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 1.359 ft/day
 y0 = 2.588 ft

AQUIFER DATA

Saturated Thickness: 40 ft

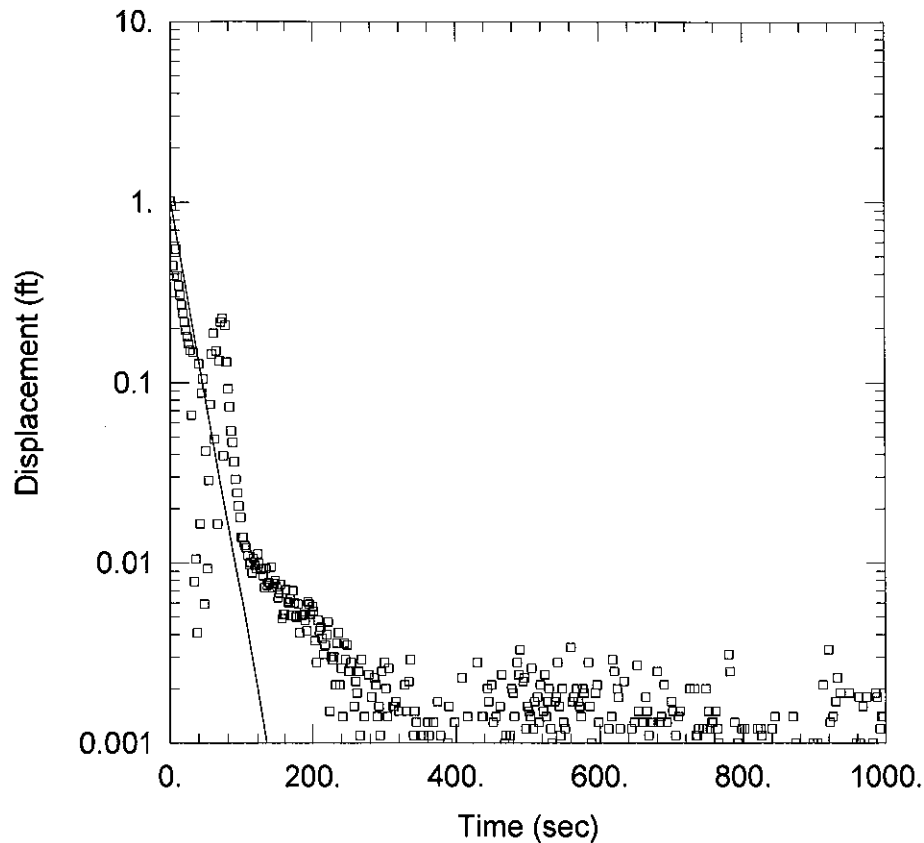
Anisotropy Ratio (Kz/Kr): 1

WELL DATA (PRB-11s)

Initial Displacement: 2.738 ft
 Total Well Penetration Depth: 4.15 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 4.15 ft
 Screen Length: 5 ft
 Wellbore Radius: 0.083 ft
 Gravel Pack Porosity: 0.3

Screened Lithology: Native Coarse Sand and Gravel



PRB-12S FALLING HEAD

Data Set: \...PRB-12s Falling Head.aqt
 Date: 05/10/12 Time: 13:31:49

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Company
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-12s
 Test Date: 8/8/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 $K = 7.822$ ft/day
 $y_0 = 1.053$ ft

AQUIFER DATA

Saturated Thickness: 40 ft

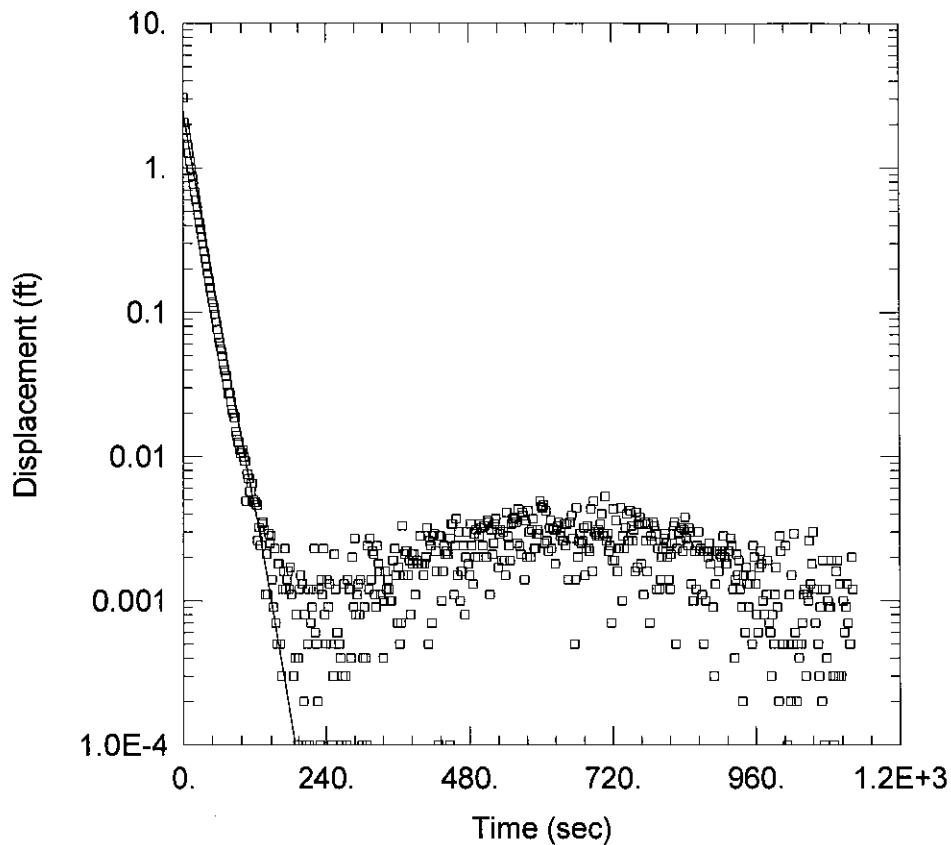
Anisotropy Ratio (K_z/K_r): 1

WELL DATA (PRB-12s)

Initial Displacement: 1.013 ft
 Total Well Penetration Depth: 3.86 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 3.86 ft
 Screen Length: 5 ft
 Wellbore Radius: 0.083 ft
 Gravel Pack Porosity: 0.3

Screened Lithology: Native Coarse Sand and Gravel



PRB-12S RISING HEAD

Data Set: \...\PRB-12s Rising Head.aqt
 Date: 05/10/12 Time: 13:31:55

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Comapny
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-12s
 Test Date: 8/8/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 $K = 8.132$ ft/day
 $y_0 = 2.448$ ft

AQUIFER DATA

Saturated Thickness: 40 ft

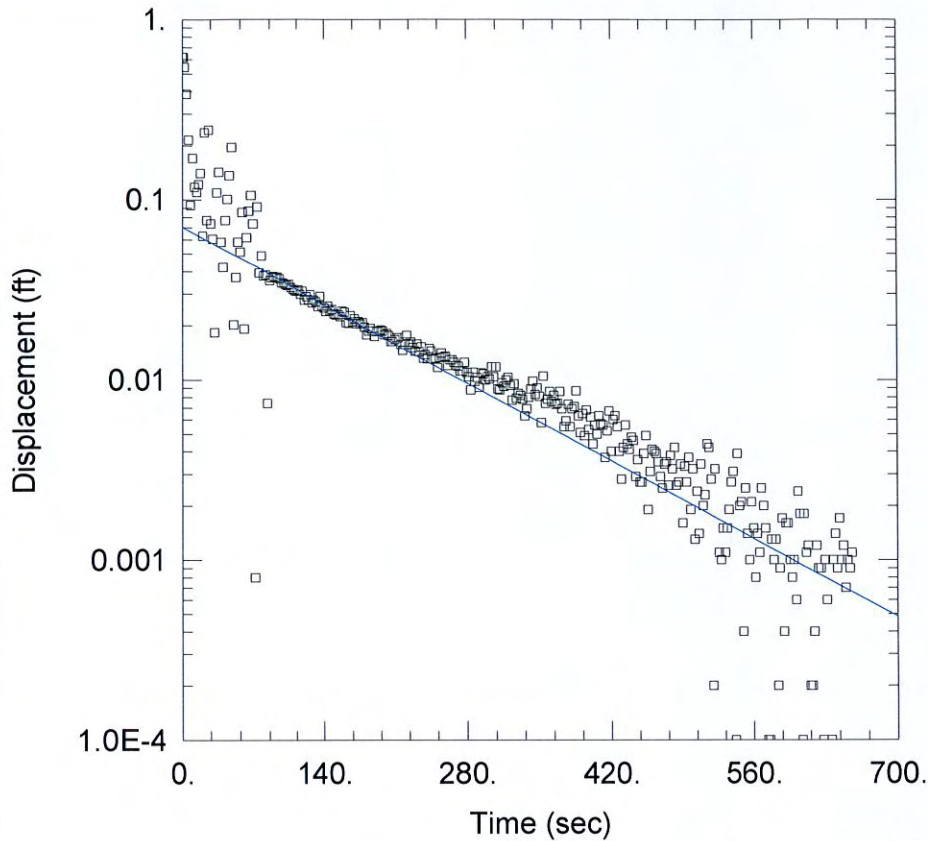
Anisotropy Ratio (K_z/K_r): 1

WELL DATA (PRB-12s)

Initial Displacement: 3.054 ft
 Total Well Penetration Depth: 3.86 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 3.86 ft
 Screen Length: 5 ft
 Wellbore Radius: 0.083 ft
 Gravel Pack Porosity: 0.3

Screened Lithology: **Native Coarse Sand and Gravel**



PRB-13S FALLING HEAD

Data Set: \\...\PRB-13s Falling Head.aqt
 Date: 05/10/12 Time: 13:32:01

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Comapny
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-13s
 Test Date: 8/8/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 $K = 1.17$ ft/day
 $y_0 = 0.07045$ ft

AQUIFER DATA

Saturated Thickness: 40 ft

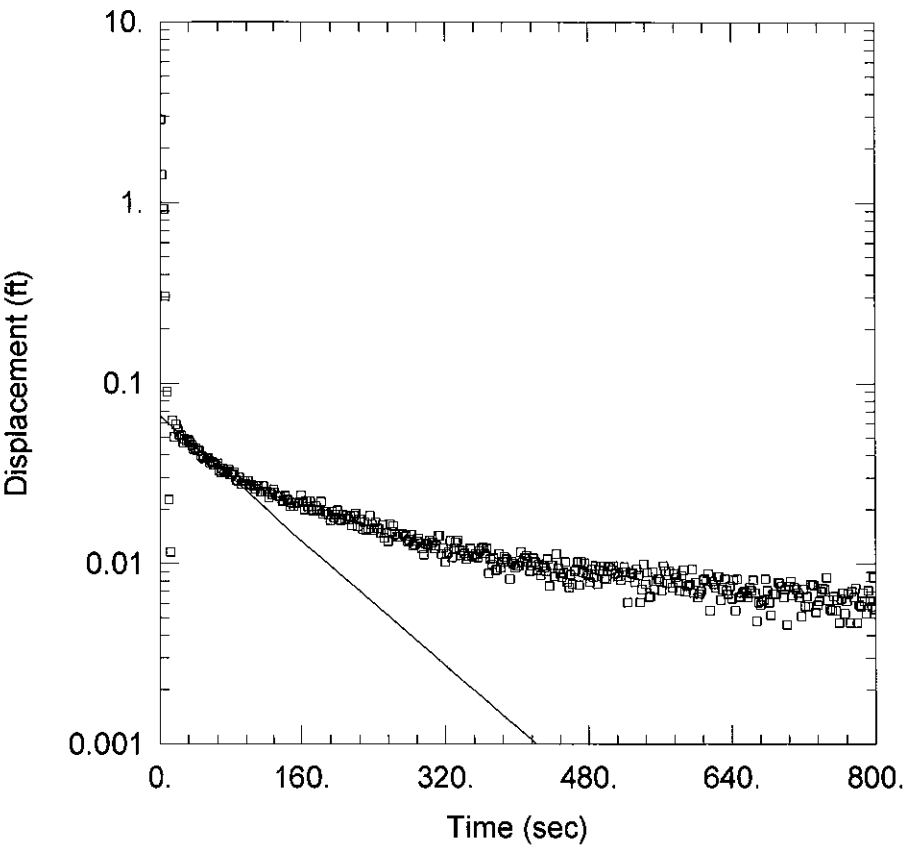
Anisotropy Ratio (K_z/K_r): 1.

WELL DATA (PRB-13s)

Initial Displacement: 0.6183 ft
 Total Well Penetration Depth: 6.53 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 6.53 ft
 Screen Length: 5 ft
 Wellbore Radius: 0.083 ft

Screened Lithology: **Native Coarse Sand and Gravel**



PRB-13S RISING HEAD

Data Set: \\...\PRB-13s Rising Head.aqt
 Date: 05/10/12 Time: 13:32:07

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Company
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-13s
 Test Date: 8/8/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bower-Rice
 K = 1.633 ft/day
 y0 = 0.06544 ft

AQUIFER DATA

Saturated Thickness: 40. ft

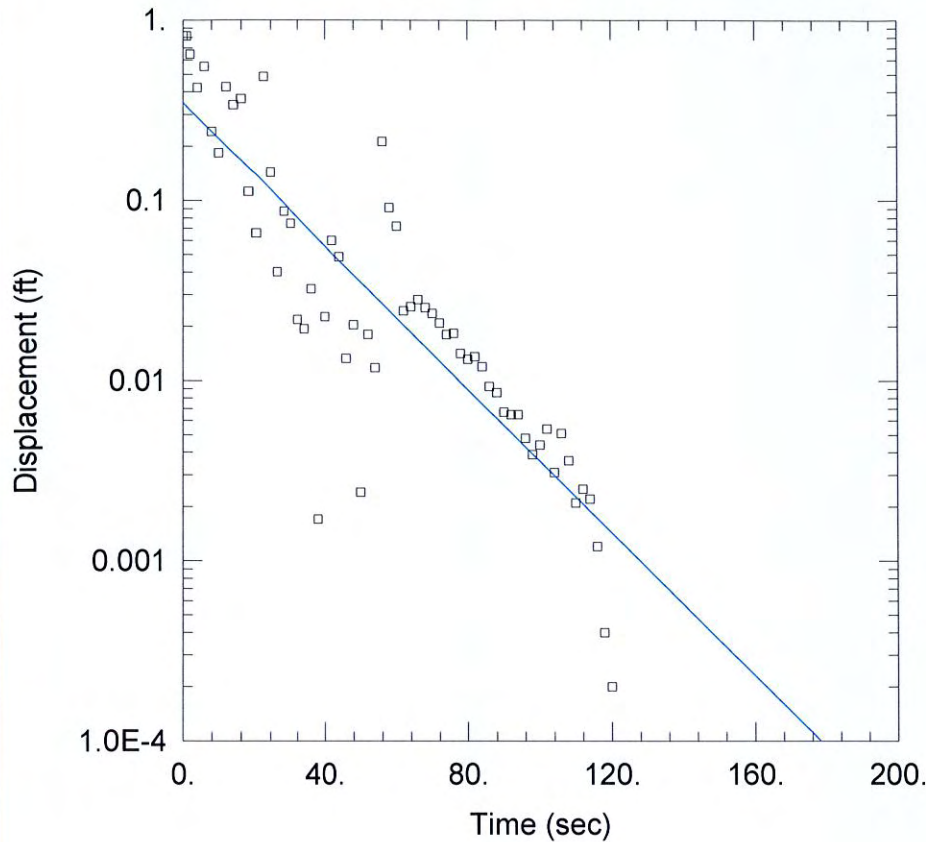
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-13s)

Initial Displacement: 2.888 ft
 Total Well Penetration Depth: 6.53 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 6.53 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft

Screened Lithology: **Native Coarse Sand and Gravel**



PRB-14S FALLING HEAD

Data Set: \...\PRB-14s Falling Head.aqt
 Date: 05/10/12 Time: 13:32:13

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Comapny
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-14s
 Test Date: 8/8/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 7.635 ft/day
 y0 = 0.3464 ft

AQUIFER DATA

Saturated Thickness: 40. ft

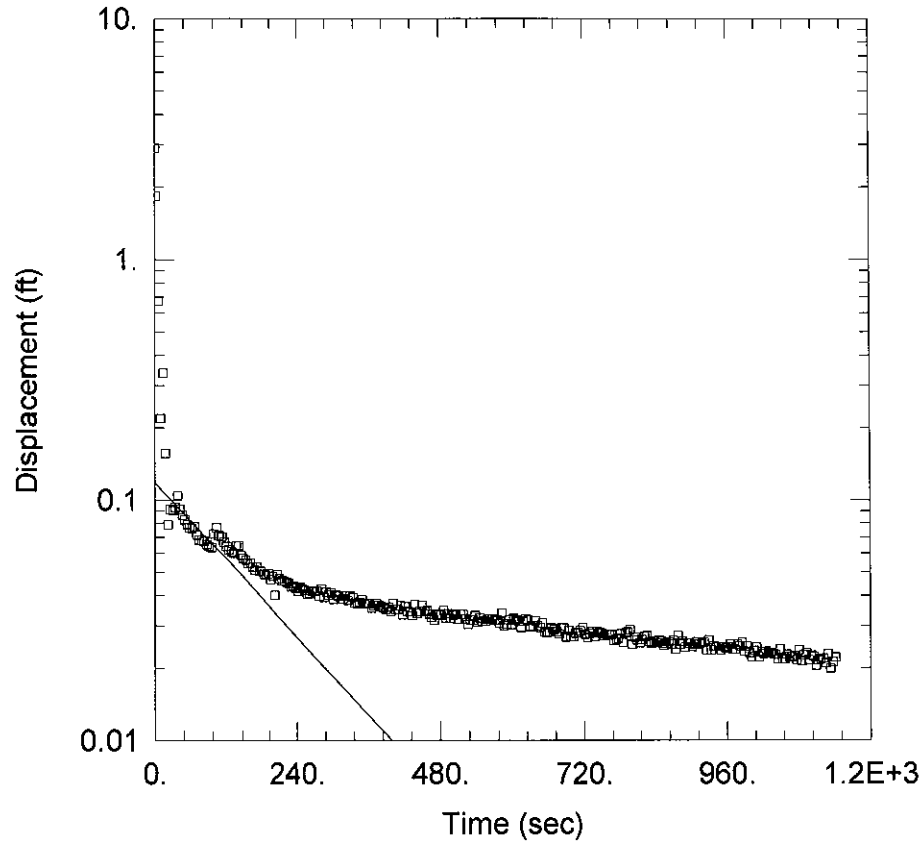
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-14s)

Initial Displacement: 0.8159 ft
 Total Well Penetration Depth: 7.18 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 7.18 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft

Screened Lithology: **Installed Permeable Reactive Barrier**



PRB-14S RISING HEAD

Data Set: \...\PRB-14s Rising Head.aqt
 Date: 05/10/12 Time: 13:32:20

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Company
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-14s
 Test Date: 8/8/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 1.032 ft/day
 y0 = 0.118 ft

AQUIFER DATA

Saturated Thickness: 40. ft

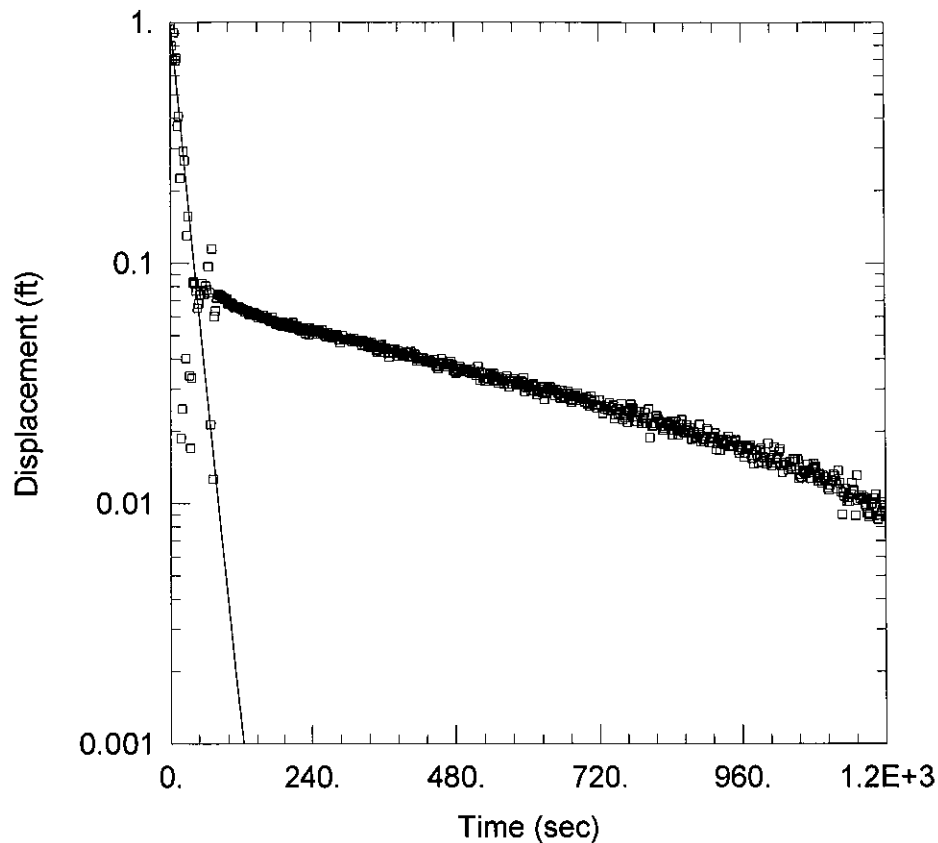
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-14s)

Initial Displacement: 2.899 ft
 Total Well Penetration Depth: 7.18 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 7.18 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft

Screened Lithology: **Installed Permeable Reactive Barrier**



PRB-15D FALLING HEAD

Data Set: \...\PRB-15d Falling Head.aqt
 Date: 05/10/12 Time: 13:32:26

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Company
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-15d
 Test Date: 8/8/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 11.03 ft/day
 y0 = 0.9895 ft

AQUIFER DATA

Saturated Thickness: 40. ft

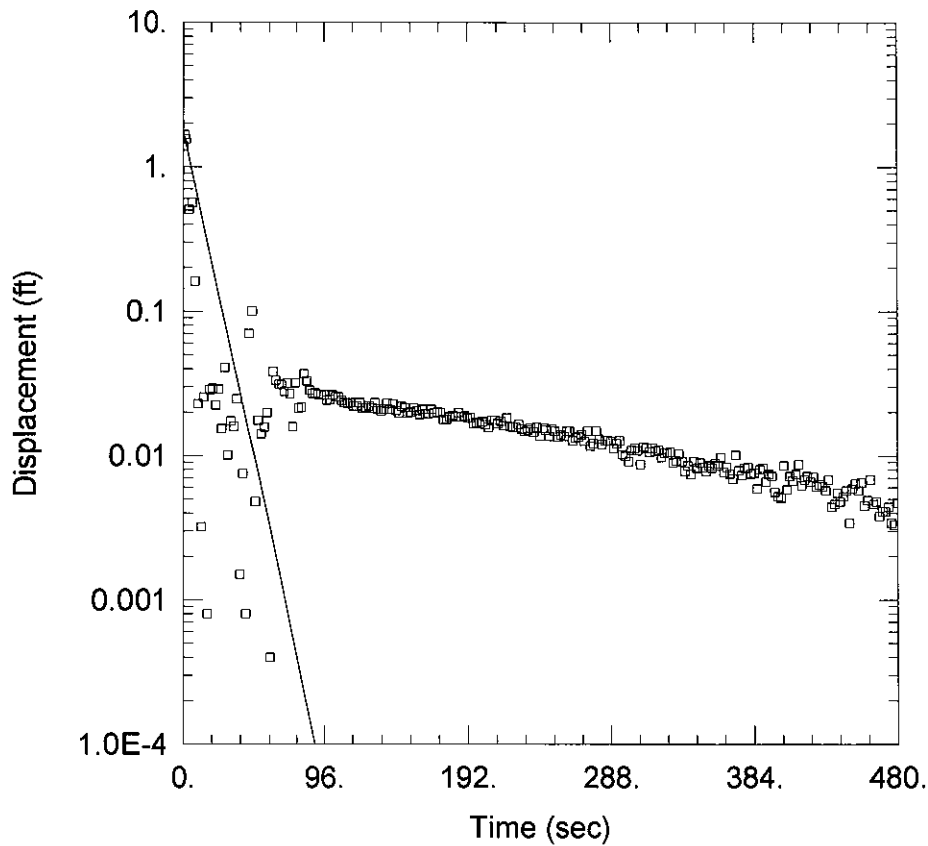
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-15d)

Initial Displacement: 0.9735 ft
 Total Well Penetration Depth: 18.46 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 18.46 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft

Screened Lithology: **Native Coarse Sand and Gravel**



PRB-15D RISING HEAD

Data Set: \\.\PRB-15d Rising Head.aqt
 Date: 05/10/12 Time: 13:32:32

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Company
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-15d
 Test Date: 8/8/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bower-Rice
 K = 21.04 ft/day
 y0 = 1.782 ft

AQUIFER DATA

Saturated Thickness: 40. ft

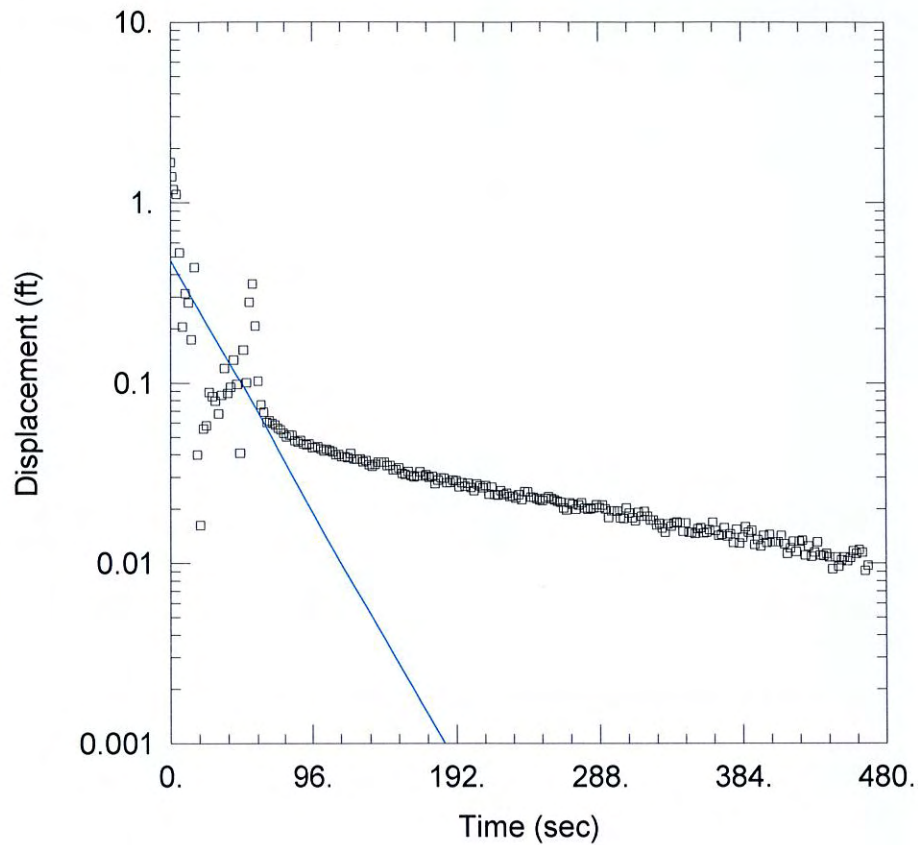
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-15d)

Initial Displacement: 1.394 ft
 Total Well Penetration Depth: 18.46 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 18.46 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft

Screened Lithology: **Native Coarse Sand and Gravel**



PRB-15S FALLING HEAD

Data Set: \...\PRB-15s Falling Head.aqt
 Date: 05/10/12 Time: 13:32:38

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Comapny
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-15s
 Test Date: 8/8/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 5.097 ft/day
 y0 = 0.4761 ft

AQUIFER DATA

Saturated Thickness: 40. ft

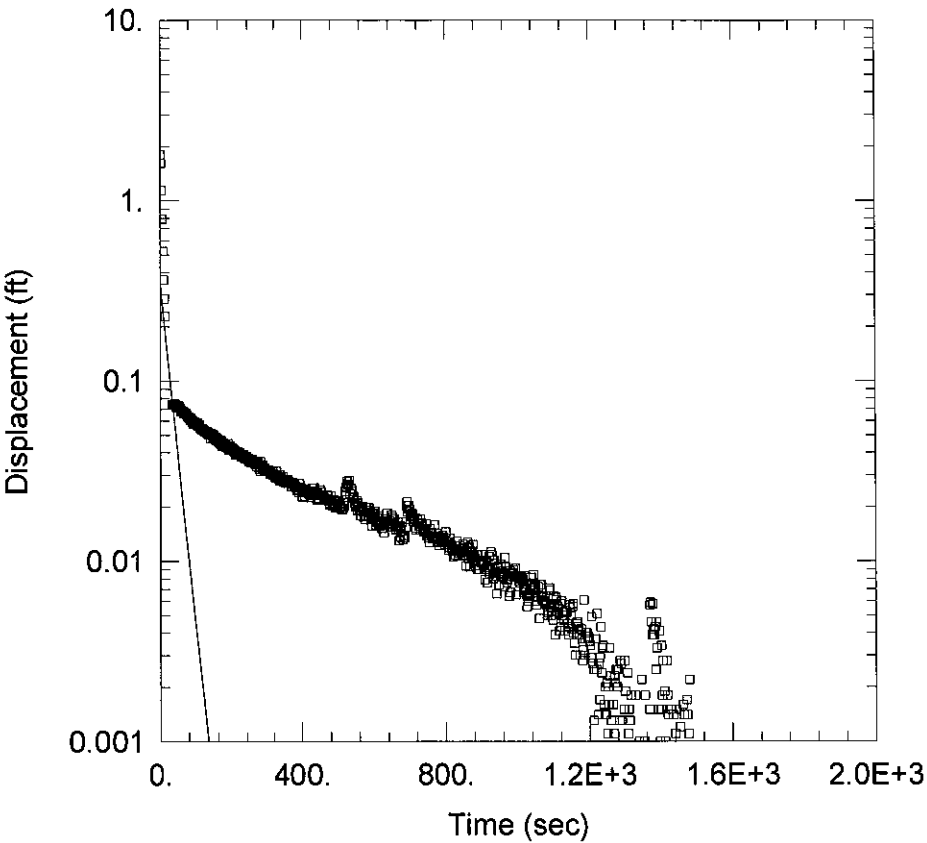
Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-15s)

Initial Displacement: 1.666 ft
 Total Well Penetration Depth: 4.14 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 4.14 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft
 Gravel Pack Porosity: 0.3

Screened Lithology: Native Coarse Sand and Gravel



PRB-15S RISING HEAD

Data Set: \\...\PRB-15s Rising Head.aqt
 Date: 05/10/12 Time: 13:32:44

PROJECT INFORMATION

Company: TRC Env. Corp.
 Client: Tecumseh Products Company
 Project: 02751.20.001
 Location: Tecumseh, Michigan
 Test Well: PRB-15s
 Test Date: 8/8/2011

SOLUTION

Aquifer Model: Unconfined
 Solution Method: Bouwer-Rice
 K = 6.623 ft/day
 y0 = 0.3387 ft

AQUIFER DATA

Saturated Thickness: 40. ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (PRB-15s)

Initial Displacement: 1.798 ft
 Total Well Penetration Depth: 4.14 ft
 Casing Radius: 0.083 ft

Static Water Column Height: 4.14 ft
 Screen Length: 5. ft
 Wellbore Radius: 0.083 ft
 Gravel Pack Porosity: 0.3

Screened Lithology: **Native Coarse Sand and Gravel**

Attachment 1-D

References

References

ATC Associates, Inc. 2009. Phase II Environmental Site Assessment, Tecumseh Products Company, 100 East Patterson Street, Tecumseh, Michigan. Prepared for Consolidated Biscuit Company, Toledo, Ohio.

RMT, Inc. 2009. Current Conditions Report – Tecumseh Manufacturing Facility. Prepared for Tecumseh Products Company. September 2009.

RMT, Inc. 2011. Technical Memorandum: Summary of 2010 Soil and Groundwater Source Area Investigation Activities, RCRA 3008(h) Consent Order (RCRA-05-2010-0012) – Tecumseh Products Company. January 10, 2011.

TRC Environmental. 2012. RCRA 3008(h) Administrative Order on Consent (RCRA-05-2010-0012) – Tecumseh Products Company, First Quarter 2012 Progress Report – MID 005-049-440. April 13, 2012.

Attachment 1-E

Hydrologic Studies Unit Memo

This reply is being sent via email only.

We have estimated the low flow discharges requested in your email of March 27, 2012 (Process No.7921), as follows:

River Raisin North Of Abandoned Blood Road, SW ¼ of the SE ¼ of Section 34, T5S, R4E, Tecumseh Township, Lenawee County, has a drainage area of 259 square miles. The lowest 95% and 50% exceedance, the Harmonic Mean and 90-day once in 10-year flow (90Q10) are estimated to be 19 cubic feet per second (cfs), 52 cfs, 92 cfs, and 36 cfs, respectively.

If you have any questions, please contact Mr. Marlio Lesmez, Water Resources Division, Hydrologic Studies Unit, at 517-335-3173, or by e-mail at: lesmezm@michigan.gov.

Sincerely,

Byron P. Lane, P.E., Chief
Hydrologic Studies Unit
Water Resources Division
517-241-9862

MWL

cc: , MDEQ (W-27-NW)

Attachment 1-F Authorization Letter



Tecumseh Products Company

Tecumseh

INTER-OFFICE CORRESPONDENCE

To: Jason Smith
From: Roger Jackson
Date: June 13, 2012
Re: Delegation of Authority for Signing Reports to MDEQ and USEPA

RCRA 3008(h) Consent Order (RCRA-05-2010-0012)

This memorandum serves to designate Jason Smith, Corporate Environmental Director, as an authorized person for signing reports, plans, certifications or other information requested by the United States Environmental Protection Agency (USEPA) and Michigan Department of Environmental Quality (MDEQ) for the former Tecumseh Products Company (TPC) site in Tecumseh, Michigan under RCRA 3008(h) Consent Order (RCRA-05-2010-0012).

By signing this authorization, I confirm that I meet the requirements as a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

- (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or
- (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

This delegation of authority is granted in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: 

Name: R. A. JACKSON

Company: TECUMSEH PRODUCTS

Title: V.P. GLOBAL HUMAN RESOURCES