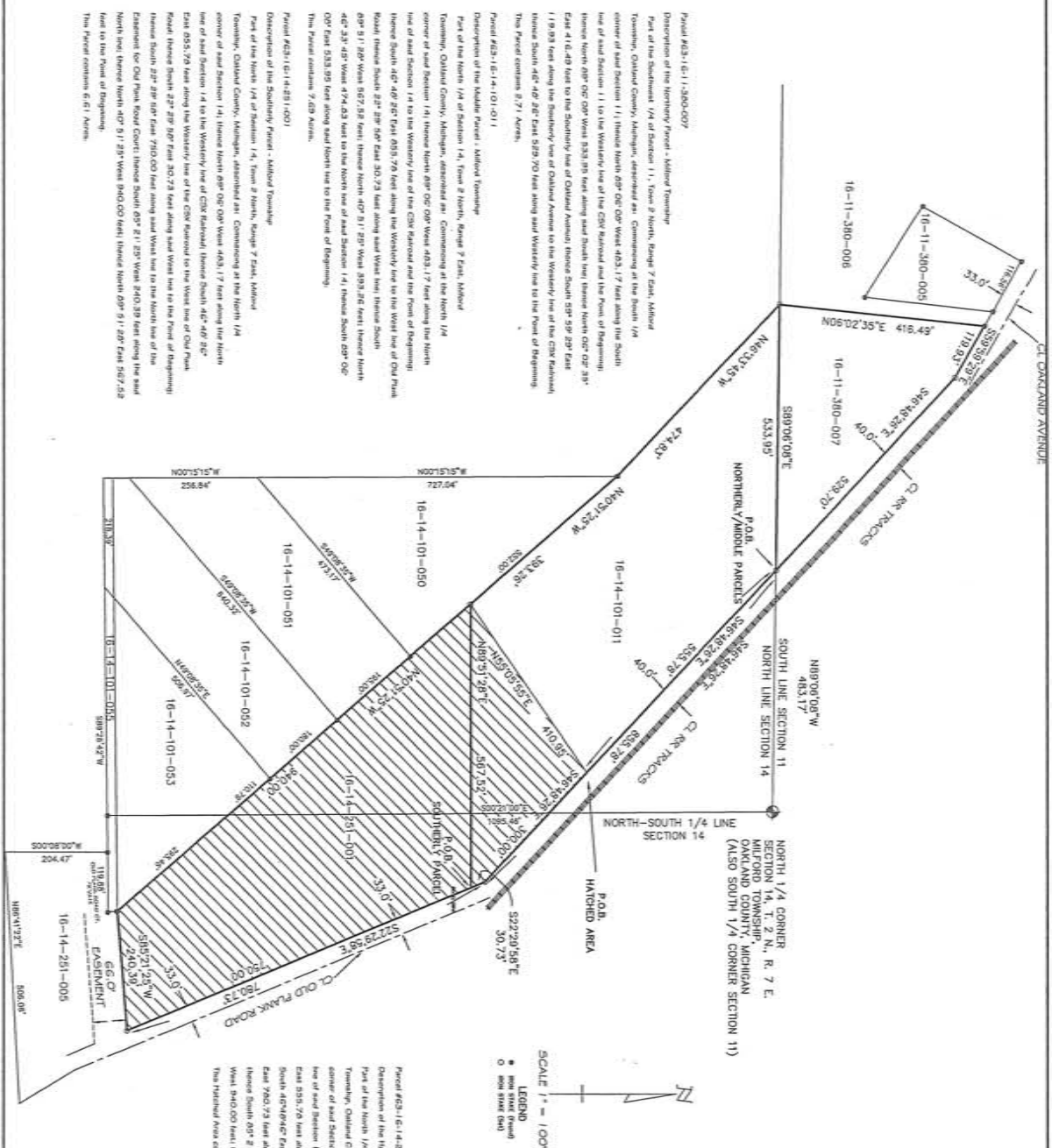


EXHIBITS

EXHIBIT 1

Legal Description and Survey of the Property



131.001 & Portion of 63.16.14.10.10.1
 (Relieved Area (Land Property))
 at Station 14, From 2 North, Range 7 East, Midland
 County, Michigan, described as:
 1.1) Thence North 89° 06' 00" West 402.17 feet along the North
 line to the Western line of Old Karadok; thence South 46° 49' 30"
 East the Western line of the Old Karadok to the Point of Beginning; thence
 S40.00°00' West to the West line of Old Plunk Road; thence South 29° 39' 30"
 East and West line to the North line of the Eastment for Old Plunk Road Court;
 2.1) Thence North 89° 06' 00" East along the said North line; thence North 46° 51' 30"
 East to the Point of Beginning.
 containing 6.18 Acres.

sheet number 7 of 1	project number 00029	CSX TRANSPORTATION INC. MILFORD, MICHIGAN 1100 OLD PLANK ROAD	drawn by REM	special permit no. _____ date _____ water permit no. _____ date _____	 meyers, bueche & niles, inc. civil engineers/land surveyors 1551 richmond street grand rapids, mi. 49504 616-457-5030			
			date 7-09	approved by _____				
			checked by R.M.	name _____ date _____				
			date 7-09	reviewed in accordance w/construction records by _____ date _____				
						REV. PER REVIEW neilsons	SPP 5/4/09 by date	

EXHIBIT 2

Permanent Marker

This is a site of environmental contamination. Exposure barriers are illustrated below to prevent contact with contamination that is present in the groundwater and soil. Groundwater use is prohibited. Soil from this area may not be relocated without further evaluation. Details about these land and resource use restrictions can be found at the Oakland County Register of Deeds, Liber , Page, MDNRE site number .

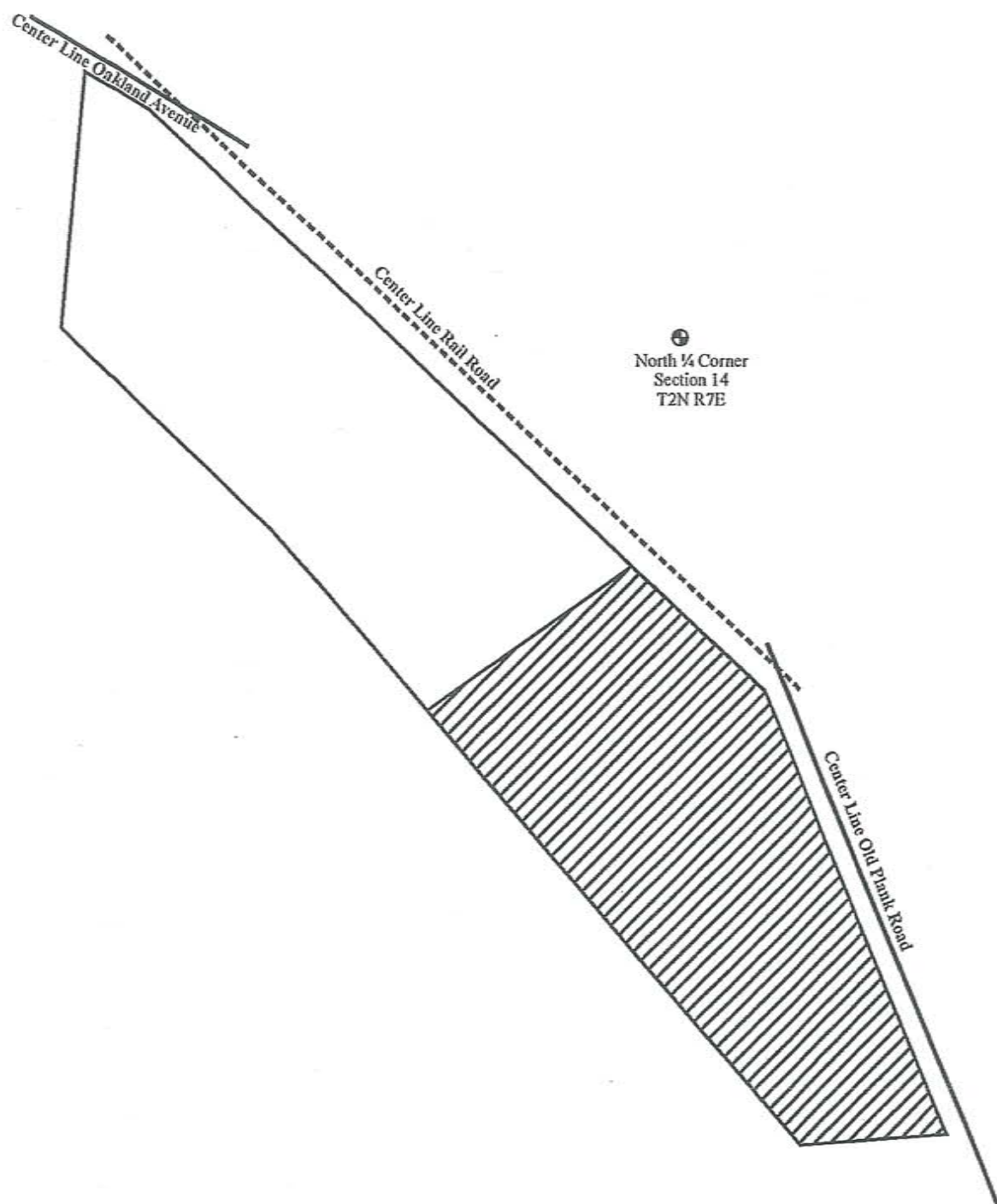


EXHIBIT 3

OCHD Correspondence



Department of Health & Human Services

L. BROOKS PATTERSON, OAKLAND COUNTY EXECUTIVE

Kathleen Forzley, R.S., M.P.A., Manager
HEALTH DIVISION

June 23, 2011

TODD C FRACASSI, ATTORNEY AT LAW
PEPPER HAMILTON LLP
36TH FLOOR
100 RENAISSANCE CENTER
DETROIT MI 48243-1157

**RE: PROPERTIES ADJOINING THE MILFORD LANDFILL, MILFORD TOWNSHIP-
MILFORD VILLAGE, OAKLAND COUNTY, MI**

Mr. Fracassi:

This note is to follow up on our phone conversation of June 10, 2011 regarding Oakland County Health Division (OCHD) processes for permitting wells in an area of groundwater contamination. We specifically discussed the Milford Landfill and five properties bordering the landfill property to the southwest and south (16-14-101-050, -051, -052, -053, and 16-14-251-005).

OCHD is contracted with the Michigan Department of Environmental Quality (DEQ) to conduct a long term monitoring program. As part of that program, the Milford Landfill has been an area of activity, and we continue to sample two properties; the above described property, 16-14-251-005 and the one immediately west. OCHD has used a geographic information system (GIS) to create an 800 ft. isolation buffer around the landfill property (16-14-251-001). The five properties described above abut the landfill property and are wholly encompassed in the GIS buffer. This visual reference is available to all field sanitarians responsible for issuing well permits through OCHD's Web-based, electronic permitting and information system called E-Health. E-Health has a built-in GIS viewer that is spatially linked to a water well application through tax ID.

In addition, the geo-database used to create the buffers in GIS is linked to E-Health and houses specific restrictions for parcels that are partially or wholly encompassed in the buffered area. If an application is received for any parcel within a buffer, construction restrictions are auto-populated into the E-Health permitting system for the field sanitarians and print directly onto the permit. Currently, the restrictions for the five parcels in question, following guidance for special restrictions from part 201, Act 451, P.A. 1994, are as follows:

- Steel Casing Required
- Neat Cement Grout
- Continuous Copper K Service Line
- Depth Restriction Pending [limited well depth/lithology information available in the area]

Regarding the potential for a *Large Quantity Withdrawal* (LQW) wells, OCHD has a policy that adheres to part 327, Act 451, P.A. 1994. A LQW is defined as a well or combination of wells

D:\\$Data\WELLS\Milford LF_Fracassi Letter.Docm

that is or will be equipped with a pump(s) of 70 gallons per minute or greater capacity where the projected surface and/or groundwater withdrawal potential is over 100,000 gallons per day average in any consecutive 30 day period. Our policy requires the use of the Water Withdrawal Assessment Tool created under the Act and also allows for the requirement of a hydrogeological study to determine impact on the target aquifer and surrounding wells including potential for contaminant migration.

OCHD has long standing policies that require site visits and unannounced inspections during the construction of any water well, regardless of the construction specifications.

If I may be of further assistance, or if you have any additional questions regarding programs of the Environmental Health Services Unit, please do not hesitate to contact me directly at (248) 858-1319.

Sincerely,

OAKLAND COUNTY HEALTH DIVISION
Department of Health and Human Services



Mark Hansell, RS, MS
Chief, Environmental Health Special Programs
Environmental Health Services

cc: Keith Lermينياux, Oakland County Deputy Corporation Counsel
Anthony Drautz, Environmental Health Services Administrator
Jeanine McCloskey, Public Health Sanitarian Supervisor

Sweatman, Mark

From: Fracassi, Todd C. [fracasst@pepperlaw.com]
Sent: Tuesday, July 26, 2011 9:22 AM
To: Sweatman, Mark
Subject: FW: Milford Landfill Well Permitting Process - Oakland County Health
The below chain should be in the IRAP

From: Drautz, Tony [mailto:drautzto@oakgov.com]
Sent: Monday, June 27, 2011 8:04 AM
To: Fracassi, Todd C.; 'Hansell, Mark'
Cc: 'Jeanine McCloskey'; lermينياuxk@oakgov.com; Anthony Drautz
Subject: RE: Milford Landfill Well Permitting Process - Oakland County Health

Mr. Fracassi,

As Mark is out of the office most of this week, I would like to respond. Your understanding of the specifics in his letter is correct.

In general, all parcels are evaluated at the time an application is made to install a water well and individual permit conditions/restrictions would be made at that time. This would not be unique to this site. A site evaluation is completed for each water well application received in Oakland County.

Please let me know if you have any further questions.

Sincerely,

Tony Drautz

Anthony Drautz, R.S., M.S.A.

Administrator - Environmental Health Services
Oakland County Health Division
North Oakland Health Center
1200 North Telegraph Road 34E
Pontiac, Michigan 48341-0432
P:248 858 1320 | F:248 858 5428
drautzto@oakgov.com

From: Fracassi, Todd C. [mailto:fracasst@pepperlaw.com]
Sent: Friday, June 24, 2011 3:51 PM
To: 'Hansell, Mark'
Cc: Anthony Drautz; Jeanine McCloskey; lermينياuxk@oakgov.com
Subject: RE: Milford Landfill Well Permitting Process - Oakland County Health

7/26/2011

Thanks, Mark, I appreciate your assistance.

Just for clarification, it is my understanding that since the five parcels (16-14-101-050, -051, -052, -053, and 16-14-251-005) are wholly within the 800 foot isolation buffer, any individual that seeks to obtain a well permit for one of these parcels would need to obtain a deviation approval from OCHD and that the special restrictions you highlighted in your letter are part of that approval process.

Also, it is my understanding that permitting of a Large Quantity Withdrawal well is coordinated with, and in some cases approved by, the MDEQ.

Please let me know if my understanding is correct.

Again, thank you for your quick response.

Best regards. Todd.

From: Hansell, Mark [mailto:hansellm@oakgov.com]
Sent: Friday, June 24, 2011 2:59 PM
To: Fracassi, Todd C.
Cc: Anthony Drautz; Jeanine McCloskey; lermينياuxk@oakgov.com
Subject: Milford Landfill Well Permitting Process - Oakland County Health

Mr. Fracassi,

Please find attached a letter describing Oakland County well permitting processes related to our June 10 phone conversation about the Milford Landfill. A hard copy will be sent via regular mail. If you have any questions, please do not hesitate to contact me directly.

Sincerely,

OAKLAND COUNTY HEALTH DIVISION
Department of Health and Human Services

Mark Hansell, RS, MS
Chief, Environmental Health Special Programs
Environmental Health Services
248.858.1319

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7/26/2011

APPENDICES

APPENDIX A

Groundwater Analytical Data

Appendix A

Groundwater Analytical Data - Inorganic Parameters
Old Plank Road Landfill
Milford, Michigan

Monitoring Well:	MW-1-03			MW-2-03			MW-3-03			MW-4-03			MW-5-03			Residential and Commercial I Drinking Water Criteria	Groundwater Surface Water Interface (GSI) Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Air Inhalation	Groundwater Direct Contact Criteria
Depth Below Ground (feet):	33 - 38			63 - 68			33 - 38			74 - 79			53 - 58						
Elevation Above Sea Level (feet):	902.3 - 897.3			848.5 - 843.5			905.5 - 900.5			857.3 - 852.4			868.9 - 863.9						
Date Sampled:	9/4/2003	4/21/2004	8/8/2007	9/4/2003	4/21/2004	8/8/2007	9/4/2003	4/21/2004	8/9/2007	9/4/2003	4/21/2004	8/8/2007	9/4/2003	4/21/2004	8/8/2007				
DISSOLVED METALS (ug/L) Method 200.8																			
Aluminum	<50	<50	NT	<50	<50	NT	<50	<50	NT	<50	<50	NT	<50	<50	NT	50 (V)	NA	NLV	64,000,000
Arsenic (B)	<1	<1	<1	<1	<1	<1	27	34	34	2	<1	2	2	1	<1	10	10	NLV	4,300
Barium (B)	<100	<100	<100	<100	<100	<100	100	<100	<100	400	440	500	130	140	100	2,000	670*	NLV	14,000,000
Beryllium	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	4.0	6.7*	NLV	290,000
Cadmium (B)	<0.2	0.6	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	5.0	2.5*	NLV	190,000
Calcium	86,000	92,000	NT	83,000	82,000	NT	200,000	200,000	NT	86,000	90,000	NT	100,000	100,000	NT	NA	NA	NA	NA
Chromium (B,H)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	100	11	NLV	460,000
Copper (B)	<5	<5	NT	<5	<5	NT	<5	<5	NT	<5	<5	NT	<5	<5	NT	1,000	13*	NLV	7,400,000
Iron	40	100	160	2,300	2,200	2,000	16,000	17,000	18,000	2,100	1,600	1,700	1,600	930	1,000	300 (E)	NA	NLV	58,000,000
Lead (B)	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<4	<3	<3	<3	<3	4.0	14*	NLV	ID
Magnesium	22,000	27,000	25,000	24,000	29,000	32,000	42,000	52,000	60,000	23,000	30,000	32,000	26,000	33,000	34,000	400,000	NA	NLV	1,000,000,000 (D)
Manganese	130	30	<20	40	40	30	990	1,100	1,100	50	30	30	50	30	30	50 (E)	2,800*	NLV	9,100,000
Nickel	<20	<20	NT	<20	<20	NT	<20	<20	NT	<20	<20	NT	<20	<20	NT	100 (A)	73*	NLV	74,000,000
Potassium	1,500	1,000	NT	1,800	1,400	NT	12,000	11,000	NT	1,300	1,200	NT	1,300	1,200	NT	NA	NA	NA	NA
Sodium	13,000	14,000	NT	8,100	8,700	NT	37,000	45,000	NT	8,300	9,300	NT	5,600	6,200	NT	120,000	NA	NLV	1,000,000,000 (D)
Vanadium	<2	<2	NT	<2	<2	NT	<2	<2	NT	<2	<2	NT	<2	<2	NT	4.5	12	NLV	970,000
TOTAL METALS (ug/L) Method 200.8																			
Aluminum	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<50	<50	NT	50 (V)	NA	NLV	64,000,000
Arsenic (B)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	2	<1	1	10	10	NLV	4,300
Barium (B)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	140	140	100	2,000	670*	NLV	14,000,000
Beryllium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<1	<1	<1	4.0	6.7*	NLV	290,000
Cadmium (B)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<0.2	<0.2	<0.2	5.0	2.5*	NLV	190,000
Calcium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	110,000	110,000	NT	NA	NA	NA	NA
Chromium (B,H)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<5	<5	<5	100	11	NLV	460,000
Copper (B)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<5	<5	NT	1,000	13*	NLV	7,400,000
Iron	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1,900	900	2,800	300 (E)	NA	NLV	58,000,000
Lead (B)	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<3	<3	NT	4.0	14*	NLV	ID
Magnesium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	30,000	34,000	37,000	400,000	NA	NLV	1,000,000,000 (D)
Manganese	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	60	30	80	50 (E)	2,800*	NLV	9,100,000
Nickel	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<20	<20	NT	100 (A)	73*	NLV	74,000,000
Potassium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	1,500	1,300	NT	NA	NA	NA	NA
Sodium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	6,800	6,700	NT	120,000	NA	NLV	1,000,000,000 (D)
Vanadium	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	<2	<2	NT	4.5	12	NLV	970,000
INORGANIC ANALYSIS (ug/L)																			
Bicarbonate Alkalinity	310,000	330,000	NT	310,000	320,000	NT	410,000	420,000	NT	320,000	330,000	NT	340,000	340,000	NT	NA	NA	NA	NA
Sulfates	32,000	30,000	24,000	50,000	42,000	48,000	90,000	82,000	93,000	41,000	41,000	52,000	63,000	58,000	62,000	2.5E+5 (E)	NA	NLV	ID

Notes:

- Criteria obtained from Groundwater: Residential and Nonresidential, Part 201 Generic Cleanup Criteria and Screening Levels, published by MDEQ ERD, dated March 25, 2011
- < = Method detection limit.
- MDEQ footnotes are attached.
- GSI criterion based on surface water with average hardness of 150,000 ug/L CaCO₃ that is not protected for drinking water use.
- Bold indicates a result above the method detection limit.
- Shading indicates a result that exceeds the Residential Drinking Water Criteria & RBSLs.
- * = Result exceeds the Groundwater Surface Water Interface Criteria.
- ** = Trihalomethanes are likely a by product of the drilling water used during soil boring advancement.

I:\Current Projects\3608 Old Plank Road\RAP\Response Activity Plan July 2011\Appendix A\TB 3 & 4 MW Analytical.xls

Groundwater Analytical Data - Inorganic Parameters
Old Plank Road Landfill
Milford, Michigan

Monitoring Well: Depth Below Ground (feet): Elevation Above Sea Level (feet):	MW-6-03 33 - 38 883.5 - 878.5			MW-8-04 25 - 30 899.7 - 894.7		MW-9-04 47 - 52 891.8 - 886.8		MW-10-04 35 - 40 887.5 - 882.5		Residential and Commercial I Drinking Water Criteria	Groundwater Surface Water Interface (GSI) Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Air Inhalation	Groundwater Direct Contact Criteria
Date Sampled:	9/4/2003	4/21/2004	8/8/2007	4/21/2004	8/9/2007	4/21/2004	8/9/2007	4/21/2004	8/8/2007				
DISSOLVED METALS (ug/L) Method 200.8													
Aluminum	<50	<50	NT	<50	NT	<50	NT	<50	NT	50 (V)	NA	NLV	64,000,000
Arsenic (B)	1	<1	<1	<1	<1	4	5	<1	<1	10	10	NLV	4,300
Barium (B)	160	180	200	<100	<100	110	100	130	100	2,000	670*	NLV	14,000,000
Beryllium	<1	<1	<1	<1	<1	<1	<1	<1	<1	4.0	6.7*	NLV	290,000
Cadmium (B)	<0.2	<0.2	<0.2	0.4	<0.2	<0.2	<0.2	<0.2	<0.2	5.0	2.5*	NLV	190,000
Calcium	97,000	100,000	NT	94,000	NT	190,000	NT	100,000	NT	NA	NA	NA	NA
Chromium (B,H)	<5	<5	<5	<5	<5	<5	<5	<5	<5	100	11	NLV	460,000
Copper (B)	<5	<5	NT	<5	NT	<5	NT	<5	NT	1,000	13*	NLV	7,400,000
Iron	2,600	1,200	1,200	30	170	3,500	3,100	730	880	300 (E)	NA	NLV	58,000,000
Lead (B)	<3	<3	<3	<3	<3	<3	<3	<3	<3	4.0	14*	NLV	ID
Magnesium	25,000	33,000	34,000	31,000	30,000	49,000	52,000	33,000	34,000	400,000	NA	NLV	1,000,000,000 (D)
Manganese	50	30	30	220	30	300	270	30	20	50 (E)	2,800*	NLV	9,100,000
Nickel	<20	<20	NT	<20	NT	<20	NT	<20	NT	100 (A)	73*	NLV	74,000,000
Potassium	1,400	1,300	NT	4,400	NT	6,300	NT	1,300	NT	NA	NA	NA	NA
Sodium	6,300	7,300	NT	35,000	NT	49,000	NT	9,200	NT	120,000	NA	NLV	1,000,000,000 (D)
Vanadium	<2	<2	NT	<2	NT	<2	NT	<2	NT	4.5	12	NLV	970,000
TOTAL METALS (ug/L) Method 200.8													
Aluminum	<50	<50	NT	NT	NT	NT	NT	<50	<50	50 (V)	NA	NLV	64,000,000
Arsenic (B)	1	<1	1	NT	NT	NT	NT	<1	5	10	10	NLV	4,300
Barium (B)	170	180	200	NT	NT	NT	NT	140	100	2,000	670*	NLV	14,000,000
Beryllium	<1	<1	<1	NT	NT	NT	NT	<1	<1	4.0	6.7*	NLV	290,000
Cadmium (B)	<0.2	<0.2	<0.2	NT	NT	NT	NT	<0.2	<0.2	5.0	2.5*	NLV	190,000
Calcium	100,000	100,000	NT	NT	NT	NT	NT	110,000	NT	NA	NA	NA	NA
Chromium (B,H)	<5	<5	<5	NT	NT	NT	NT	<5	13	100	11	NLV	460,000
Copper (B)	<5	<5	NT	NT	NT	NT	NT	<5	NT	1,000	13*	NLV	7,400,000
Iron	3,000	1,300	2,500	NT	NT	NT	NT	850	6,600	300 (E)	NA	NLV	58,000,000
Lead (B)	<3	<3	<3	NT	NT	NT	NT	<3	<3	4.0	14*	NLV	ID
Magnesium	29,000	33,000	35,000	NT	NT	NT	NT	35,000	36,000	400,000	NA	NLV	1,000,000,000 (D)
Manganese	60	30	60	NT	NT	NT	NT	40	70	50 (E)	2,800*	NLV	9,100,000
Nickel	<20	<20	NT	NT	NT	NT	NT	<20	NT	100 (A)	73*	NLV	74,000,000
Potassium	1,600	1,400	NT	NT	NT	NT	NT	1,400	NT	NA	NA	NA	NA
Sodium	7,500	7,900	NT	NT	NT	NT	NT	10,000	NT	120,000	NA	NLV	1,000,000,000 (D)
Vanadium	<2	<2	NT	NT	NT	NT	NT	<2	NT	4.5	12	NLV	970,000
INORGANIC ANALYSIS (ug/L)													
Bicarbonate Alkalinity	330,000	340,000	NT	310,000	NT	350,000	NT	340,000	NT	NA	NA	NA	NA
Sulfates	59,000	65,000	59,000	63,000	31,000	63,000	65,000	57,000	60,000	2.5E+5 (E)	NA	NLV	ID

Notes:

- Criteria obtained from Groundwater: Residential and Nonresidential, Part 201 Generic Cleanup Criteria and Screening Levels, published by MDEQ ERD, dated March 25, 2011
- < = Method detection limit.
- MDEQ footnotes are attached.
- GSI criterion based on surface water with average hardness of 150,000 ug/L CaCO₃ that is not protected for drinking water use.
- Bold indicates a result above the method detection limit.
- Shading indicates a result that exceeds the Residential Drinking Water Criteria & RBSLs.
- * = Result exceeds the Groundwater Surface Water Interface Criteria.
- ** = Trihalomethanes are likely a by product of the drilling water used during soil boring advancement.

Groundwater Analytical Data - VOCs
Old Plank Road Landfill
Milford, Michigan

Monitoring Well:	MW-1-03			MW-2-03			MW-3-03			MW-4-03			MW-5-03			Residential and Commercial I Drinking Water Criteria	Groundwater Surface Water Interface (GSI) Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Air Inhalation Criteria	Groundwater Direct Contact Criteria		
Depth Below Ground (feet):	33 - 38			63 - 68			33 - 38			74 - 79			53 - 58								
Elevation Above Sea Level (feet):	902.3 - 897.3			848.5 - 843.5			905.5 - 900.5			857.3 - 852.4			868.9 - 863.9								
Date Sampled:	9/4/2003	4/21/2004	8/8/2007	9/4/2003	4/21/2004	8/8/2007	9/4/2003	4/21/2004	8/9/2007	9/4/2003	4/21/2004	8/8/2007	9/4/2003	4/21/2004	8/8/2007						
VOLATILES (ug/L) Method 8260																					
Acetone (I)	<25	<25	<20	<25	<25	<20	<25	<25	<20	<25	<25	<20	<25	<25	<20	730	1,700	1,000,000,000	31,000,000		
Acrylonitrile (I)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	2.6	2.0	34,000	14,000		
Benzene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	200	5,600	11,000		
Bromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	NA	NA	NA	NA		
Bromodichloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	1**	<1	<1	1**	<1	<1	80	ID	4,800	14,000		
Bromoform	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	80	ID	470,000	140,000		
Bromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	10	35	4,000	70,000		
2-Butanone (MEK) (I)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	13,000	2,200	240,000,000	240,000,000		
Carbon disulfide (I, R)	<5	<5	<1	<5	<5	<1	<5	<5	<1	<5	<5	<1	<5	<5	<1	800	ID	250,000	1,200,000		
Carbon tetrachloride	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	45	370	4,600		
Chlorobenzene (I)	<1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	100	25	210,000	86,000		
Chloroethane (I)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<2	<2	430	1,100	5,700,000	440,000		
Chloroform	1**	<1	<1	<1	<1	<1	<1	<1	<1	14**	<1	<1	4**	1**	<1	80	350	28,000	150,000		
Chloromethane (I)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	280	ID	8,600	490,000		
cis-1,2-Dichloroethylene (I)	<1	<1	<1	<1	<1	<1	84	93	84	<1	<1	<1	<1	<1	<1	70	620	93,000	200,000		
cis-1,3-Dichloropropene (I, J)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	8.5	9	3,900	5,500		
1,2-Dibromo-3-Chloropropane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0	ID	1,200	390		
Dibromochloromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	80	ID	14,000	18,000		
1,2-Dibromoethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	0	6	2,400	25		
Dibromomethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	80	NA	ID	530,000		
1,2-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	600	13	160,000	160,000		
1,3-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	6.6	28	18,000	2,000		
1,4-Dichlorobenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	75	17	16,000	6,400		
Dichlorodifluoromethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1700	ID	220,000	300,000		
1,1-Dichloroethane (I)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	880	740	1,000,000	2,400,000		
1,2-Dichloroethane (I)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	360	9,600	19,000		
1,1-Dichloroethylene (I)	<1	<1	<1	<1	<1	<1	1	<1	1	<1	<1	<1	<1	<1	<1	7	130	200	11,000		
1,2-Dichloropropane (I)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	230	16,000	16,000		
Diethyl ether (I)	<10	<10	<5	<10	<10	<5	<10	<10	<5	<10	<10	<5	<10	<10	<5	10	ID	61,000,000	35,000,000		
Ethylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	74	18	110,000	170,000		
Hexachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	7.3	6.7 (X)	27,000	1,900		
2-Hexanone (I)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	1,000	ID	4,200,000	5,200,000		
Isopropyl benzene (I)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	800	28	56,000	56,000		
Methylene Iodide	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	NA	NA	NA	NA		
MTBE	<5	<5	<1	<5	<5	<1	<5	<5	<1	<5	<5	<1	<5	<5	<1	40	7,100	47,000,000	610,000		
4-Methyl-2-pentanone (MIBK) (I)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	1800	ID	20,000,000	13,000,000		
Methylene chloride	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	5	1,500	220,000	220,000		
2-Methylnaphthalene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	260	19	25,000	25,000		
Naphthalene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	520	11	31,000	31,000		
n-Butylbenzene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	80	ID	ID	5,900		
n-Propylbenzene (I)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	80	ID	ID	15,000		
Styrene (I)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	100	80	170,000	9,700		
1,1,1,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	77	ID	15,000	30,000		
1,1,2,2-Tetrachloroethane	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	8.5	78	12,000	4,700		
Tetrachloroethylene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	5	60	25,000	12,000		
Tetrahydrofuran	NT	<10	<5	NT	<10	<5	NT	<10	<5	NT	<10	<5	NT	<10	<5	95	11,000	6,900,000	1,600,000		
Toluene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	790	270	530,000	530,000		
trans-1,2-Dichloroethylene	<1	<1	<1	<1	<1	<1	10	<1	<1	<1	<1	<1	<1	<1	<1	100	1,500	85,000	220,000		
trans-1,3-Dichloropropene (I, J)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	8.5	9	3,900	5,500		
trans-1,4-Dichloro-2-butene	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	NA	NA	NA	NA		
1,2,3-Trichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	NA	NA	NA	NA		
1,2,4-Trichlorobenzene	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	70	99	300,000	19,000		
1,1,1-Trichloroethane	<1	<1	<1	<1	<1	<															

APPENDIX B

Soil Analytical Data

Soil Analytical Data
Old Plank Road Landfill
Milford, Michigan

Notes:

1. Criteria obtained from Groundwater: Residential and Nonresidential, Part 201 Generic Cleanup Criteria and Screening Levels, published by MDEQ ERD, dated March 25, 2011
2. < = Method detection limit.
3. MDEQ footnotes are attached.
4. GSI criterion is the greater of either the calculated Soil-Water Partition Value or 20 X the calculated GSI value (Groundwater).
5. Bold indicates the value exceeds the site specific background criteria (Metals), or is above the method detection limit (VOCs).
6. Shading indicates a result that exceeds the Residential Drinking Water Protection Criteria & RBSLs.
7. * = Result exceeds the Groundwater Surface Water Interface Criteria
8. Box indicates the result exceeds the Direct Contact Criteria.
9. Italics indicates that the result exceeds the Particulate Inhalation Criteria
10. Site Specific Background Criteria is the greater of the calculated site specific background value and the statewide default background value.

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Appendix B

Soil Analytical Data
Old Plank Road Landfill
Milford, Michigan

Sample ID: Depth Below Grade (feet)	SBS-03-03 9-10	SBS-06-03 1-2	HAB-10-03 1-2	MDEQ Surface Soil Data - November 2002										Background Site Specific Background Criteria	Groundwater Protection			Indoor Air		Ambient Air				Direct Contact	
				SS1 0.2-0.6	SS2 0.2-0.8	SS3 0.0-0.8	SS4 0.0-0.8	SS5 0.0-0.8	SS6 0.0-0.8	SS7 0.0-0.8	SS8 0.0-0.8	SS9 0.0-0.9	SS10 0.9		0.0-0.9	Drinking Water Protection Criteria	GSI Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinitesimal Source Volatilization Soil Inhalation Criteria	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Screening Levels
METALS (ug/kg)																									
Aluminum	2,100,000	1,300,000	7,000,000	4,040,000	3,610,000	2,770,000	3,260,000	3,310,000	3,550,000	2,980,000	2,490,000	2,630,000	3,340,000	6,900,000	1,000	NA	1.00E+09	NLV	NLV	NLV	NLV	ID	50,000,000 (DD)	NA	
Arsenic (B)	7,000	3,500	8,800	3,800	3,400	4,600	3,400	7,100	5,800	5,200	6,300	1,600	4,600	7,100	4,600	4,600	2,000,000	NLV	NLV	NLV	NLV	720,000	7,600	NA	
Barium (B)	20,000	5,700	39,000	44,100	27,100	17,700	22,100	20,100	19,800	17,200	16,100	12,000	26,900	78,000	1,300,000	440,000*	1,000,000,000 (D)	NLV	NLV	NLV	NLV	330,000,000	37,000,000	NA	
Beryllium	<200	<200	460	210	210	120	180	170	280	190	110	110	160	300	51,000	85,000*	1,000,000,000 (D)	NLV	NLV	NLV	NLV	1,300,000	410,000	NA	
Cadmium (B)	260	200	130	190	<130	130	150	270	200	250	<130	<130	160	1,200	6,000	3,000*	230,000,000	NLV	NLV	NLV	NLV	1,700,000	550,000	NA	
Chromium (Total) (B,H)	8,100	3,100	13,000	6,500	6,600	4,600	6,100	6,200	8,200	7,200	8,200	5,400	4,900	7,600	18,000	30,000	3,300	140,000,000	NLV	NLV	NLV	NLV	260,000	2,500,000	NA
Copper (B)	37,000	7,200	20,000	7,200	7,200	11,300	6,200	14,300	12,100	13,200	11,900	5,000	10,200	32,000	5,800,000	75,000*	1,000,000,000	NLV	NLV	NLV	NLV	130,000,000	20,000,000	NA	
Iron	13,000,000	4,900,000	17,000,000	7,030,000	7,010,000	8,330,000	6,450,000	10,900,000	9,440,000	8,100,000	8,330,000	4,790,000	7,820,000	12,000,000	6,000	NA	1,000,000,000 (D)	NLV	NLV	NLV	NLV	ID	160,000,000	NA	
Lead (B)	27,000	3,500	11,000	**	**	**	**	**	**	**	**	**	**	21,000	700,000	2,500,000*	ID	NLV	NLV	NLV	NLV	100,000,000	400,000	NA	
Magnesium	19,000,000	9,500,000	2,700,000	932,000	928,000	27,400,000	983,000	19,700,000	5,780,000	6,480,000	18,000,000	1,560,000	6,870,000	1,700,000	8,000,000	NA	1,000,000,000 (D)	NLV	NLV	NLV	NLV	6,700,000,000	1,000,000,000 (D)	NA	
Manganese	240,000	130,000	390,000	458,000	344,000	283,000	236,000	355,000	488,000	248,000	262,000	92,100	265,000	920,000	1,000	26,000*	180,000,000	NLV	NLV	NLV	NLV	3,300,000	25,000,000	NA	
Nickel	10,000	4,700	19,000	6,500	6,600	7,200	6,200	12,000	10,200	9,900	8,900	4,700	8,300	20,000	100,000	75,000*	1,000,000,000 (D)	NLV	NLV	NLV	NLV	13,000,000	40,000,000	NA	
Potassium	250,000	150,000	380,000	**	**	**	**	**	**	**	**	**	**	370,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Sodium	120,000	33,000	<10,000	**	**	**	**	**	**	**	**	**	**	<10,000	2,500,000	NA	1,000,000,000 (D)	NLV	NLV	NLV	NLV	ID	1,000,000,000 (D)	NA	
Vanadium	9,900	6,900	21,000	9,300	10,000	9,300	9,400	11,400	12,200	9,300	9,500	7,100	11,000	18,000	72,000	190,000	1,000,000,000 (D)	NLV	NLV	NLV	NLV	ID	750,000 (DD)	NA	
Antimony	NT	NT	NT	**	**	**	**	**	**	**	**	**	**	NA	4,300	84,000 (X)	49,000,000	NLV	NLV	NLV	NLV	13,000,000	180,000	NA	
Calcium	NT	NT	NT	596,000	599,000	61,800,000	1,070,000	62,500,000	23,000,000	28,800,000	65,500,000	3,700,000	21,300,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Cobalt	NT	NT	NT	3,300	3,900	2,200	3,100	3,900	5,200	2,800	2,900	2,000	3,300	6,800	800	2,000	48,000,000	NLV	NLV	NLV	NLV	13,000,000	2,600,000	NA	
Mercury	NT	NT	NT	<50	<50	<50	<50	<50	70	<50	<50	<50	60	130	1,700	50	47,000	48,000	52,000	52,000	20,000,000	160,000	NA		
Selenium	NT	NT	NT	<890	<890	<890	<700	<710	<700	<880	<880	<880	<700	410	4,000	400	78,000,000	NLV	NLV	NLV	NLV	130,000,000	2,600,000	NA	
Silver	NT	NT	NT	450	330	350	400	290	430	390	340	280	410	1,000	4,500	100	200,000,000	NLV	NLV	NLV	NLV	6,700,000	2,500,000	NA	
Thallium	NT	NT	NT	<1,100	<1,100	<1,100	<1,100	<1,100	<1,100	<1,000	<1,000	<1,000	<1,100	NA	2,300	4,200 (X)	15,000,000	NLV	NLV	NLV	NLV	13,000,000	35,000	NA	
Zinc	NT	NT	NT	30,400	25,500	27,600	25,600	43,200	34,400	40,600	33,200	17,100	40,100	47,000	2,400,000	170,000	1,000,000,000	NLV	NLV	NLV	NLV	ID	170,000,000	NA	
Cyanide	NT	NT	NT	<160	<160	<160	260	<170	<160	<160	<160	<160	<160	390 (total)	4,000	100	250,000	NLV	NLV	NLV	NLV	250,000	12,000	NA	
VOLATILE ORGANIC COMPOUNDS (ug/kg)																									
Acetone (I)	<750	<750	NM	<1000	<1100	<1100	<1100	<1000	<1100	<1100	<1000	<1100	<1000	NA	15,000	34,000	110,000,000	110,000,000	130,000,000	1.3E+8	1.9E+8	1,000,000,000	23,000,000	110,000,000	
Acrylonitrile (I)	<250	<250	NM	<260	<260	<270	<260	<260	<270	<270	<250	<260	<260	NA	100	100	280,000	6,600	5,000	5,100	10,000	48,000,000	16,000	8,300,000	
Benzene	<50	<50	NM	<52	<55	<55	<55	<52	<55	<54	<51	<57	<52	NA	100	4,000	220,000	1,600	13,000	34,000	79,000	380,000,000	180,000	400,000	
Bromochloromethane	<100	<100	NM	<52	<55	<55	<55	<52	<55	<54	<51	<57	<52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Bromodichloromethane	<100	<100	NM	<52	<55	<55	<55	<52	<55	<54	<51	<57	<52	NA	1,600	ID	280,000	1,200	9,100	9,700	19,000	84,000,000	110,000	1,500,000	
Bromofluoromethane	<100	<100	NM	<52	<55	<55	<55	<52	<55	<54	<51	<57	<52	NA	1,600	ID	870,000	150,000	900,000	9,000	9,000	820,000	870,000		
Bromomethane	<250	<250	NM	<260	<260	<270	<260	<260	<270	<270	<250	<260	<260	NA	200	700	1,400,000	27,000,000	29,000,000	2.9E+7	3.5E+7	1,000,000,000	27,000,000	27,000,000	
2-Butanone (I)	<250	<250	NM	<260	<260	<270	<260	<260	<270	<270	<250	<260	<260	NA	260,000	44,000	27,000,000	27,000,000	29,000,000	2.9E+7	3.5E+7	1,000,000,000	27,000,000	27,000,000	
Carbon Disulfide (I,R)	<250	<250	NM	<52	<55	<55	<55	<52	<55	<54	<51	<57	<52	NA	16,000	ID	280,000	75,000	1,300,000	7.9E+6	1.9E+7	1,000,000,000	280,000	280,000	
Carbon Tetrachloride	<50	<50	NM	<52	<55	<55	<55	<52	<																

APPENDIX C

Landfill Gas Readings

Appendix C

Landfill Gas Readings
Old Plank Road Landfill
Milford, Michigan

Sampling Point	Methane (%)	Carbon Monoxide (ppm)	Oxygen (%)	Lower Explosive Limit (%)	Carbon Dioxide (%)	Magnehelic	
						(+)	(-)
August 8, 2003							
GP-01-03	2.0	18.0	11.5	80.0	NM	NM	NM
GP-02-03	0.0	6.0	20.0	0.0	NM	NM	NM
GP-03-03	0.0	2.0	20.4	0.0	NM	NM	NM
GP-04-03	0.0	3.0	18.8	0.0	NM	NM	NM
GP-05-03	0.0	1.0	20.3	0.0	NM	NM	NM
August 14, 2003							
GP-01-03	2.5	8.0	11.0	OR	NM	0.01	< 0
GP-02-03	0.0	6.0	20.0	0.0	NM	NR	NR
GP-03-03	0.0	2.0	20.4	0.0	NM	NR	NR
GP-04-03	0.0	3.0	18.8	0.0	NM	0.01	< 0
GP-05-03	0.0	1.0	20.3	0.0	NM	0.01	< 0
August 18, 2003							
GP-01-03	3.6	5.0	6.9	OR	NM	< 0	0.02
GP-02-03	0.3	3.0	19.7	0.0	NM	NR	NR
GP-03-03	0.3	2.0	16.3	0.0	NM	< 0	0.04
GP-04-03	0.3	2.0	14.8	0.0	NM	< 0	0.04
GP-05-03	0.5	2.0	19.1	5.0	NM	NR	0.02
September 4, 2003							
GP-01-03	3.6	0.3	6.1	OR	OR	< 0	0.01
GP-02-03	0.3	1.0	19.6	0.0	1.5	0.06	< 0
GP-03-03	0.1	1.0	15.8	0.0	556.0	< 0	0.01
GP-04-03	0.2	0.0	16.1	0.0	6.3	< 0	0.02
GP-05-03	0.1	0.0	20.1	1.0	1.0	0.04	< 0
September 10, 2003							
GP-01-03	3.9	0.0	4.8	OR	OR	< 0	0.04
GP-02-03	0.0	0.0	19.5	0.0	1.34	< 0	0.02
GP-03-03	0.2	0.0	15.2	0.0	5.67	< 0	0.02
GP-04-03	0.0	0.0	15.8	0.0	5.5	< 0	0.01
GP-05-03	0.0	0.0	20.1	0.0	1.01	< 0	0.01
September 26, 2003							
GP-01-03	4.1	0.0	5.7	OR	OR	0.02	< 0
GP-02-03	0.0	0.0	19.5	0.0	0.96	0.02	< 0
GP-03-03	0.0	0.0	14.7	0.0	4.28	< 0	0.02
GP-04-03	0.0	0.0	16.7	0.0	3.47	< 0	0.04
GP-05-03	0.0	0.0	19.9	0.0	0.73	< 0	0.02
October 24, 2003							
GP-01-03	3.7	0.0	5.0	OR	OR	< 0	0.04
GP-02-03	0.0	0.0	19.4	1.0	0.93	< 0	0.02
GP-03-03	0.0	0.0	10.0	1.0	5.74	0	0
GP-04-03	0.0	0.0	16.6	1.0	4.00	< 0	0.02
GP-05-03	0.0	0.0	19.5	1.0	0.93	< 0	0.02
GP-06-03*	2.5	5.0	20.1	OR	0.17	< 0	0.02
GP-07-03*	2.5	56.0	20.4	OR	0.36	< 0	0.06
GP-08-03*	1.9	6.0	20.6	OR	0.025	0	0
October 28, 2003							
GP-01-03	3.6	6.0	4.9	OR	OR	< 0	0.06
GP-02-03	0.0	0.0	19.4	0.0	1.03	< 0	0.04
GP-03-03	0.2	7.0	8.4	0.0	6.15	< 0	0.02
GP-04-03	0.0	0.0	16.6	0.0	3.88	< 0	0.04
GP-05-03	0.0	0.0	19.2	0.0	0.93	< 0	0.02
GP-06-03	0.0	0.0	19.2	0.0	1.94	< 0	0.02
GP-07-03	0.0	2.0	19.2	0.0	0.42	0	0
GP-08-03	0.0	0.0	20.9	0.0	0.038	< 0	0.06
April 20, 2004							
GP-01-03	3.9	0.0	6.2	OR	8.15	< 0	0.02
GP-02-03	0.0	1.0	19.7	0.0	0.99	< 0	0.02
GP-03-03	0.2	2.0	6.3	0.0	7.84	< 0	0.01
GP-04-03	0.2	0.0	17.0	0.0	3.49	< 0	0.02
GP-05-03	0.0	0.0	19.2	0.0	0.60	0	0.02
GP-06-03	0.2	3.0	17.9	2.0	3.37	0	0
GP-07-03	0.2	3.0	14.3	6.0	4.85	0	0
GP-08-03	0.2	3.0	18.5	2.0	2.08	0	0
December 17, 2004							
GP-01-03	6.0	0.0	2.2	OR	OR	< 0	0.02
GP-02-03	0.2	0.0	18.9	1.0	1.52	0	0
GP-03-03	0.3	0.0	2.7	2.0	OR	< 0	0.02
GP-04-03	0.2	0.0	15.8	1.0	5.46	< 0	0.04
GP-05-03	0.0	0.0	19.5	0.0	0.92	< 0	0.02
GP-06-03	0.2	1.0	16.7	1.0	4.80	0	0
GP-07-03	0.2	0.0	14.1	1.0	2.40	0	0
GP-08-03	0.2	2.0	18.8	1.0	2.43	0	0
August 8, 2007							
GP-01-03	1.4	3.0	4.5	65.0	OR	< 0	0.01
GP-02-03	0.0	1.0	20.8	0.0	0.83	< 0	0.03
GP-03-03	0.0	2.0	14.6	1.0	5.48	0	0
GP-04-03	0.0	0.0	15.3	0.0	0.52	< 0	0.02
GP-05-03	0.0	0.0	19.6	0.0	1.37	0	0
GP-06-03	0.0	4.0	17.1	2.0	3.62	0	0
GP-07-03**	NM	NM	NM	NM	NM	NM	NM
GP-08-03	0.0	4.0	18.7	1.0	2.46	0	0

Notes:

1. OR = Over Range
2. NM = Not Measured
3. * = Gas probes constructed 10/24/03. Gas readings were elevated by PVC cement used during probe construction.
4. ** = Gas probe GP-07-03 appears to have been destroyed.

APPENDIX D

Interim Response
Environmental Monitoring Plan



INTERIM RESPONSE ENVIRONMENTAL MONITORING PLAN

Old Plank Road Landfill

1100 Old Plank Road
Milford, Michigan

Prepared by:

AMEC-BCI Engineers & Scientists, Inc.
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Brighton, Michigan 48116

BCI Project No. H3608.15

July 2011

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1.0 INTRODUCTION

AMEC-BCI Engineers & Scientists, Inc. (AMEC-BCI), prepared this Environmental Monitoring Plan (EMP) for the Old Plank Road Landfill (OPRL) site located at 1100 Old Plank Road in Milford, Michigan. This EMP is submitted on behalf of the Village of Milford and Milford Township (collectively Milford) and CSX Transportation (CSX) (Settling Parties) pursuant to Part 201 of the 1994 Natural Resources and Environmental Protection Act and its rules, specifically Rule 299.5540 in support of an Interim Response Activity Plan. This plan is based upon the results summarized in various reports regarding the OPRL that have been approved by the Michigan Department of Environmental Quality (MDEQ). These reports include the Remedial Investigation (RI) report, dated August 12, 2004, and the Feasibility Study, dated March 11, 2005 and groundwater sampling completed in August 2007.

1.1 Site Location and Description

The OPRL is located at 1100 Old Plank Road in Section 14 of Milford Township, Oakland County, Michigan. The Landfill Property is comprised of parcel ID numbers (PIN) 16-14-251-001 and a portion of PIN 16-14-101-11. The Landfill Property is owned by CSX and is located south of downtown Milford within the Village of Milford. **Figure 1, Site Location Map**, presents the location of the Landfill Property and the CSX property. **Figure 2, Site Schematic**, presents the CSX Property, the Landfill Property and the location of the filled portion of the CSX property.

The Landfill Property is located adjacent to a lightly populated residential area. The Landfill Property is bounded by Old Plank Road on the east and Old Plank Court to the south. The CSX railway is located to the east-northeast of the Landfill Property and runs in a northwest-southeast direction. The northern and western property boundaries are primarily wooded. The filled area of the Landfill Property is relatively flat and covered with brush, grass, and a few trees. Access to the Landfill Property is provided by a dirt road entryway off of Old Plank Road. A fence with gated access was constructed around the perimeter of the fill area by CSX in October and November 2003.

Additional site characteristics including the site history, installation of monitor wells and gas probes, regional and site hydrogeology and site assessment are included in the RI, dated August 12, 2004. Additional environmental monitoring data, in the form of groundwater and methane samples were collected in August 2007.

2.0 ENVIRONMENTAL MONITORING MEDIA

Environmental monitoring at the Facility will be conducted on the following media:

- groundwater
- landfill gas

The Settling Parties will perform landfill gas monitoring until a landfill cover or cap is installed or until the need for such probes is demonstrated to be no longer necessary, whichever is sooner. The following sections provide the methodology that will be used to complete the environmental monitoring activities.

2.1 Groundwater Monitoring

The Settling Parties will complete semiannual sampling of the Facility's existing groundwater monitor wells in the months of April and October. The locations of the groundwater monitor wells are included on **Figure 3, Monitor Well Location Map**.

The RI presents a summary of the local hydraulic characteristics. Review of the information presented in the RI indicates the average horizontal groundwater velocity of 460-feet/year between MW-3-03 and MW-8-04. Based on the groundwater velocity, the travel time from the Landfill Property (MW-3-03) to monitor wells located along Garden Road is approximately two years. Based on these results, the Settling Parties propose to complete the groundwater monitoring activities on a semiannual basis. This sampling interval will be sufficient to monitor changes in groundwater quality near the Landfill Property and downgradient from the Landfill Property. The sampling results will be reviewed every three years to determine if modifications to the sampling plan are appropriate. If a modification appears appropriate, a request will be made to the MDEQ for approval prior to changing this EMP, including but not limited to adjustments to the sample analysis parameters and/or sampling frequency.

Groundwater samples will be collected from the wells designated MW-1-03, MW-2-03, MW-3-03, MW-5-03, MW-6-03, MW-8-04, MW-9-04, and MW-10-04. Based upon review of the results of site sampling activities, as reported in the RI and Feasibility Study, groundwater samples will be analyzed for the following parameters:

Table 1
**Old Plank Road Landfill
Semiannual Groundwater Sampling Parameters**

Parameter	Method
Aluminum	EPA 200.8
Arsenic	EPA 200.8
Barium	EPA 200.8
Beryllium	EPA 200.8
Cadmium	EPA 200.8
Chromium	EPA 200.8
Iron	EPA 200.8
Lead	EPA 200.8
Magnesium	EPA 200.8
Manganese	EPA 200.8
Sulfates	EPA 375.2 / 300
Volatile Organic Compounds	SW 846 8260 B
Methane	8W 846 8015M

2.2 In-situ Biodegradation Groundwater Monitoring

Volatile organic compounds (VOCs) have been detected at low concentrations in wells located near the Landfill Property boundary and at wells located downgradient from the Landfill Property. Review of the August 2007 sampling survey results indicates a downward trend in VOC concentrations. The observed reduction in VOC concentrations in groundwater at and near the Landfill Property is likely due to natural intrinsic biodegradation processes. These processes appear to be attenuating the low levels of VOCs present in groundwater beneath the Landfill Property. The majority of the VOCs detected in or near the Landfill Property are chlorinated hydrocarbon (CVOC) compounds, some of which can be quickly degraded by aerobic degradation processes or more slowly by anaerobic mechanisms. The presence of CAH breakdown products such as vinyl chloride, chloroethene, and cis-1,2-dichloroethene are good indicators that natural degradation of the CVOCs is occurring by anaerobic processes resulting in reduced concentrations when results from the interior portion of the Landfill Property are compared to downgradient results toward Garden Road.

Data collected will be used to provide field evidence for the biodegradation of CVOCs via one or more of these primary processes:

- Oxidation of the lesser chlorinated CVOCs under aerobic conditions (vinyl chloride).
- Reductive dechlorination for CVOCs under anaerobic conditions.
Example reactions are provided for vinyl chloride to represent the CVOCs.

Oxidation

Function: Electron acceptor under aerobic conditions
Vinyl chloride oxidation/aerobic respiration

Stoichiometry: Vinyl chloride: $2.5 \text{ O}_2 + \text{C}_2\text{H}_3\text{Cl} \rightarrow 2 \text{ CO}_2 + \text{H}_2\text{O} + \text{H}^+ + \text{Cl}^-$

Dissolved oxygen is the most thermodynamically favored electron acceptor used by microbes for the biodegradation of organic carbon. Anaerobic bacteria generally cannot function at dissolved oxygen concentrations greater than about 0.5-milligrams per liter and reductive dechlorination of the CVOCs will, therefore, not occur (Wiedemeier et al., 1995, 1996, and 1999). During aerobic respiration, dissolved oxygen concentrations decrease. An accurate determination of the dissolved oxygen content in groundwater is probably the single most important field parameter to be measured during this investigation because it allows a determination of whether anaerobic or aerobic conditions prevail in the groundwater at the site. Dissolved oxygen measurements for groundwater will be obtained at the site during semiannual sampling events. Dissolved oxygen measurements will be obtained during low-flow (minimum drawdown) well purging and before and after sampling by using a flow-through cell. The purpose of these measurements will be to obtain real-time information on the dissolved oxygen content in the aquifer.

Methane

Function: By-product of CAH fermentation under anaerobic conditions

Stoichiometry: Indicator of biodegradation via methanogenesis.

Vinyl chloride: $1.5 \text{ H}_2\text{O} + \text{C}_2\text{H}_3\text{Cl} \rightarrow .75 \text{ CO}_2 + 1.25 \text{ CH}_4 + \text{H}^+ + \text{Cl}^-$

Methanogenesis generally occurs after oxygen, nitrate, iron, and sulfate have been depleted in groundwater. The presence of methane in groundwater is indicative of strongly reducing conditions. The presence of methane above background concentrations in groundwater can be indicative of microbial degradation of organics. Methane data has previously been collected for the site from soil vapor. Review of methane data from groundwater samples collected during the August 2007 sampling survey indicated that the maximum methane concentration detected was 44-micrograms per liter noted in MW-03-03. The methane concentrations detected in the groundwater monitoring wells did not exceed MDEQ criteria. The presence of methane is additional evidence that degradation of CVOCs under methanogenic conditions is occurring.

Ethane/Ethene

Function: Daughter products of anaerobic dechlorination of CVOCs

Stoichiometry: Vinyl chloride: $C_2H_3Cl \rightarrow C_2H_4 + Cl \rightarrow C_2H_6$

Ethane and ethene are daughter degradation products of CVOCs under anaerobic conditions. A comparison of the distribution of vinyl chloride concentrations, dissolved oxygen concentrations (and other electron acceptors), and ethane and ethene concentrations will provide positive indications of the biodegradation processes ongoing at the site. Ethane and ethene data have previously not been collected at the site and will be determined by laboratory analysis during future sampling activities.

pH

The pH of groundwater will affect the presence and activity of microbial populations in groundwater. Microbes capable of degrading hydrocarbons generally prefer pH values varying between six and eight standard units (Wiedemeier et al., 1996). The pH of groundwater is also very important in the adsorption of certain metals to clays through cation exchange. Generally under acidic conditions, adsorption is limited. Because pH conditions can change rather rapidly, this parameter will be measured in the field at the wellhead.

Conductivity

Conductivity is a measure of the ability of a solution to conduct electricity. Conductivities in groundwater are directly related to the concentrations of ions in solution; conductivity increases as ion concentrations increase. Conductivity measurements will be obtained in the field at the wellhead.

Temperature

Groundwater temperature directly affects the solubility of oxygen and other geochemical species. Oxygen is more soluble in cold water than in warm water. Temperature also affects the metabolic activity of bacteria. Higher temperatures may also indicate areas of higher bioactivity. Temperature measurements will be obtained in the field at the wellhead.

Oxidation Reduction Potential (ORP)

The ORP of groundwater is a measure of electron activity and is an indicator of the relative tendency of a solution to accept or transfer electrons. Redox reactions in groundwater containing organic compounds are usually biologically mediated. The ORP of a groundwater system is, therefore, dependent on and influences biodegradation (Wiedemeier et al., 1995, 1996 and 1999). Some degradation processes operate only within an optimal range of ORP

conditions. All of the anaerobic reduction processes discussed above (including reduction of iron, sulfate, nitrate, and methane) have a specific ORP range in which these processes can occur. For example, nitrate and iron reducing conditions are generally between -0 and -100 millivolts (mV), while sulfate reducing and methanogenic conditions generally occur between -200 and -300 mV. ORP measurements are very sensitive to atmospheric conditions and will, therefore, be obtained in the field using a flow-through cell.

2.3 Landfill Gas Monitoring

The concentration of landfill gas in the subsurface will be measured on a quarterly basis on and adjacent to the Landfill Property until a landfill cover or cap is installed or until such probes is demonstrated to be no longer necessary, whichever is sooner. After the landfill cover is installed landfill gas monitoring will be the responsibility of others. **Figure 4, Gas Monitor Probe Location Map**, depicts the locations of gas probes installed at and adjacent to the Landfill Property. Also shown on **Figure 4** are the proposed locations of three additional landfill gas monitoring probes identified as GP-9, GP-10, and GP-11. Landfill gas will be monitored at gas probes GP-1-03 through GP-8-03, and GP-9, GP-10, and GP-11 during quarterly sampling surveys. At each gas probe location, the concentration of methane (CH₄), carbon dioxide (CO₂), carbon monoxide (CO), oxygen (O₂), percent lower explosive limit (LEL), and the relative pressure will be recorded. The Settling Parties will evaluate the sample results every three years to determine if modifications to the sampling plan are appropriate. If a modification appears appropriate, the Settling Parties will submit for MDEQ approval a request to modify the sampling plan.

3.0 FIELD SAMPLING QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

The Facility's groundwater sampling and landfill gas monitoring will be completed following the methodology outlined in the following sections.

3.1 Groundwater Sampling

Groundwater sampling will be conducted and documented by methods consistent with the MDEQ-Remediation and Redevelopment Division's Operational Memorandum No. 2 (Op Memo 2) guidelines for groundwater sampling.

3.1.1 Determination of Static Groundwater Elevation

At each monitor well location, a static water level measurement will be recorded prior to sampling. Static water level measurements also will be collected at the location of observation wells OW-1A-03, OW-3-03, and OW-5-03. The static water level will be measured with an electronic water level meter accurate to 0.01-feet. All water level measurements will be recorded within a 24-hour time period to minimize water level fluctuation due to barometric and diurnal pressure variation.

Static water level measurements will be collected from the top of each well casing. The elevation of each casing, relative to sea level, can then be used to determine the static groundwater elevation and create a groundwater elevation contour map. During the annual October sampling event, the total depth of each well will be measured to determine if siltation has accumulated at the bottom of the wells. If siltation is noted, the affected well would be purged using a high capacity submersible pump.

3.1.2 Minimum Drawdown Sampling Procedures

The monitor wells will be sampled utilizing a minimum drawdown sampling strategy to ensure the collection of groundwater samples representative of the underlying aquifer. Minimum drawdown sampling procedures are described in the United States Environmental Protection Agency (USEPA) 540/5-95/504 Low-flow (minimum drawdown) Groundwater Sampling Procedures by Robert Puls and Michael Barcelona.

The monitor wells will be sampled with a variable speed submersible pump. The pump intake will be set near the middle of the monitor well screen and purged at a slow rate (generally 100 to 500-milliliters/minute). The water level will be monitored during purging to verify that minimal drawdown occurs during sampling. Field measurements of pH, specific conductivity, temperature, dissolved oxygen, oxygen-reduction potential, and turbidity will be collected at three-minute intervals until three consecutive measurements are within 10-percent of one another.

The sample will be collected when both the field measurements and the water levels are stable. If turbidity readings are below 10-nephelometric turbidity units (NTU), the sample will be collected and submitted for total metals analysis. However, if after three consecutive stable readings the turbidity measurement is above 10-NTU, the sample will be filtered in line with a 0.45-micron filter and submitted for dissolved metals analysis. Field measurements will be recorded on a groundwater sampling record data sheet. A sample data sheet is included as **Appendix A, Groundwater Sampling Record Sheet**.

Upon stabilization of the field parameters, groundwater samples will be collected from the pump discharge into laboratory prepared sample bottles and transferred immediately to ice-packed coolers. Purge water will be disposed of on the ground surface away from the monitor well.

3.1.3 Monitor Well Sampling Order

The groundwater monitor wells will be sampled in order from the least to most contaminated. Based on the results of the remedial investigation, the sampling order will follow cleanest monitor wells to most impacted monitor wells: MW-1-03, MW-2-03, MW-6-03, MW-5-03, MW-10-04, MW-8-04, MW-3-03, and MW-9-04. Based upon review of subsequent data this sampling order may be modified with the approval of MDEQ.

3.1.4 Decontamination

The pump, associated tubing, and other equipment used to sample the monitor wells will be thoroughly washed with a phosphate-free detergent and deionized water between each sampling location.

3.1.5 Sample Quality Assurance/Quality Control

A duplicate sample will be collected at monitor well MW-3-03 and submitted for analysis of the parameters of concern outlined on **Table 1**. In addition, a field blank, pump blank, and trip blank will be collected and submitted for analysis of VOCs as described in Op Memo 2. The samples will be delivered to a drinking water certified analytical laboratory, for analysis following chain-of-custody procedures.

3.2 Landfill Gas Monitoring Procedures

During each quarterly landfill gas monitoring event, landfill gas concentrations within each gas probe will be measured using an Industrial Scientific Corporation Multi-gas Monitor (Model ATX620) or equivalent. This monitor provides percent methane by volume, percent oxygen, percent of the LEL, as well as parts per million readings of carbon monoxide. The ATX620 multi-gas monitor will be calibrated prior to use with known concentrations of methane, carbon monoxide, and oxygen. In addition, an Industrial Scientific Corporation Carbon Dioxide Monitor (Model CDU 440) will be utilized to monitor carbon dioxide in percent by

volume. A magnehelic pressure gauge will also be utilized to measure the pressure present within each gas probe. The pressure readings will allow for the determination of whether there is a negative or positive pressure at each monitor point. Landfill gas readings will be recorded in the field on a gas reading data sheet. A sample gas reading data sheet is included in **Appendix B, Landfill Gas Data Collection Sheet**.

4.0 DATA EVALUATION AND PROGRESS REPORTS

Regular quarterly progress reports (QPRs) will be prepared and submitted to MDEQ in accordance with the schedule provided below:

Initial Progress Report – Sixty days following implementation of Administrative Order by Consent for this Facility.

Subsequent Progress Reports – Thirty days following the end of each calendar quarter.

As presented above, landfill gas monitoring surveys will be completed on a quarterly basis and groundwater sampling surveys will be completed on a semi-annual basis. If any issues arise, during the completion of the quarterly sampling and inspection surveys that may affect the performance of the interim response activities, a description of the issue and proposed resolution will be included in the QPR. Subsequent QPR's would provide a status of outstanding issues. QPR's, which include the following components, will be prepared by Settling Parties for submittal to the MDEQ.

- description of sample survey activities (quarterly)
- landfill gas summary table (quarterly)
- a description of wastes generated and the name of the facility used for transfer, storage treatment and/or disposal (quarterly)
- noted changes, if any, to the topography or geology of the Landfill Property or adjacent properties except landfill cap or cover (quarterly)
- permanent markers and fence inspection observations (quarterly)
- a description of data collection activities for the next reporting period (quarterly)
- comparison of the data to the applicable MDEQ Part 201 residential criteria (quarterly)
- groundwater contour maps of the upper and lower portions of the unconfined aquifer (semi-annual)
- groundwater analytical summary table (semi-annual)

A copy of the QPR will be submitted by the Settling Parties to the MDEQ's project coordinator who has primary responsibility for the MDEQ for overseeing the performance of these interim response activities.

Respectfully submitted:

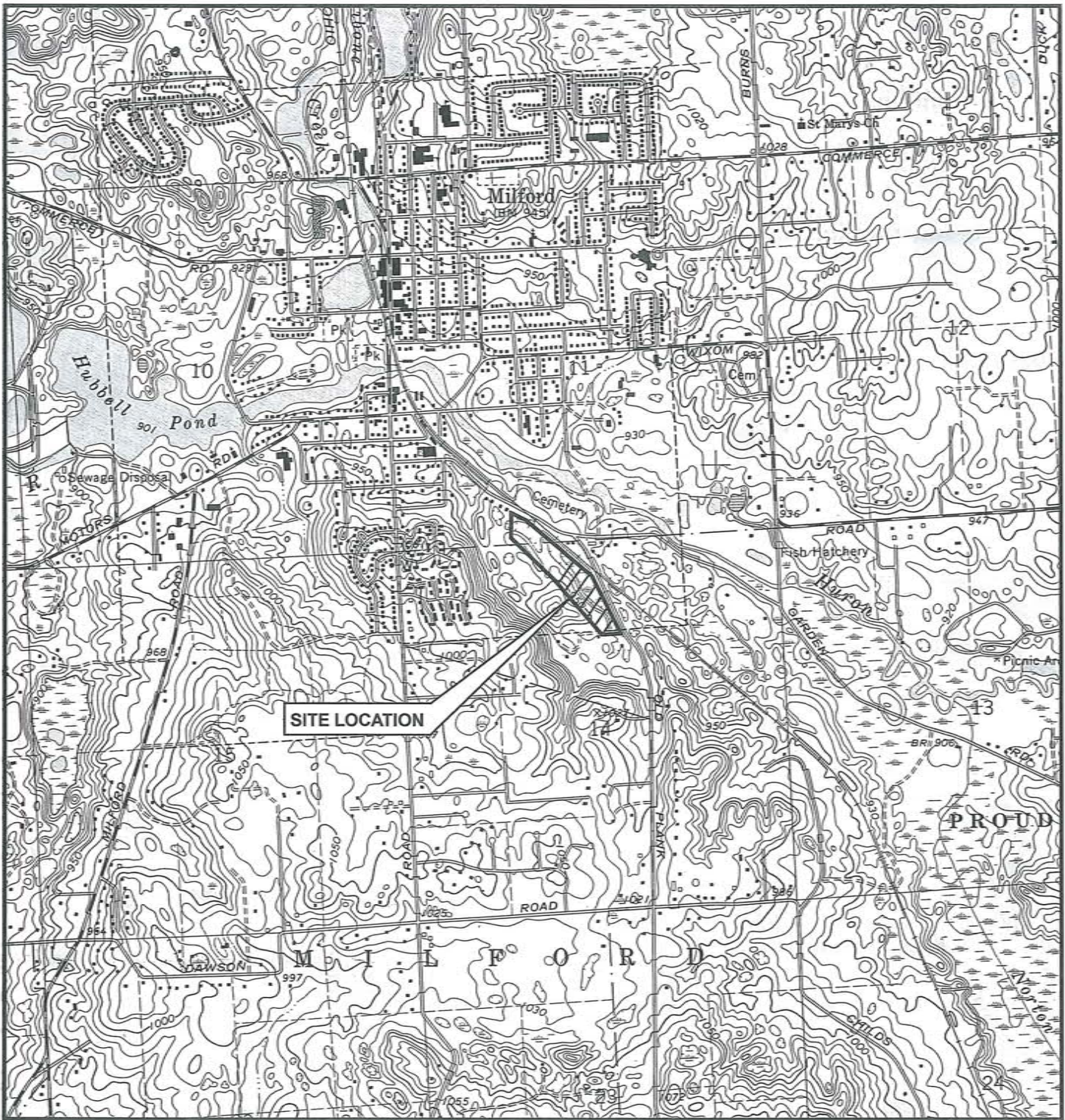


Mark B. Sweatman, C.P.G.
Vice President Midwest Region

REFERENCES

- MDEQ, 12/10/2004, Operational Memorandum RRD-1, Part 201 Generic Cleanup Criteria/Part 213 Risk Based Cleanup Levels, Remediation and Redevelopment Guidance Document, Attachments 1, 2, 3, 6, 8 and 9.
- MDEQ, 2/2/2005, Operational Memorandum RRD-2, Sampling and Analysis Guidance, Remediation and Redevelopment Guidance Document, Attachments 1, 2, 3, 4, 5, 6, 7 and 8.
- Wiedemeier, Todd H., et al., 1995, Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater, USEPA, Air Force Center for Environmental Excellence.
- Wiedemeier, Todd H., et al., 1996, Technical Protocol for Implementing Intrinsic Remediation with Long Term Monitoring for Natural Attenuation of Fuel Contamination Dissolved in Groundwater, USEPA, Air Force Center for Environmental Excellence.
- Wiedemeier, Todd H., et al., 1999, Natural Attenuation of Fuels and Chlorinated Solvents in the Subsurface.

FIGURES



Approximate Scale: 1-inch = 2,000-feet



Legend:

Approximate CSXT Property Boundary

Approximate Landfill Property Boundary

Note:

1. Base Map: USGS Topographic Map,
Milford, Michigan Quad., 7.5-Minute Series

Site Location Map

Old Plank Road Landfill
1100 Old Plank Road
Milford, Michigan

BCI
engineers & scientists
5892 Sterling Drive
Howell, Michigan
Phone: (517) 545-2825



Legend

- Approximate CSX Property Boundary
- Approximate Extent of Landfill Property Boundary
- - - Approximate Extent of Old Plank Road Landfill (OPRL) Fill

Notes:

1. Base map provided by Desine, Inc. of Brighton, Michigan, and Envirographics of Hamburg, Michigan.
2. Approximate extent of fill derived from boring logs and site observations.

Scale:

1-Inch = 200-Feet

0' 200'



Site Schematic

Old Plank Road Landfill
1100 Old Plank Road
Milford, Michigan



5892 Sterling Drive
Howell, Michigan
Phone: (517) 545-2825



Legend

-  Monitor Well Location
-  Observation Well Location
-  Approximate CSX Railroad Property Boundary
-  Approximate Extent of Landfill Property Boundary
-  Approximate Extent of OPRL Fill

Notes:

1. Base map provided by Desine, Inc.
2. Approximate extent of fill derived from boring logs and site observations.

Scale:

1-Inch = 200-Feet

0' 200'



Monitor Well Location Map

Old Plank Road Landfill
1100 Old Plank Road
Milford, Michigan



5892 Sterling Drive
Howell, Michigan
Phone: (517) 545-2825



Legend

- Existing Gas Probe Location
- Approximate CSXT Railroad Property Boundary
- Approximate Extent of Landfill Property Boundary
- Approximate Extent of OPRL Fill
- Proposed Additional Gas Probe Locations

Notes:

1. Base map provided by Desine, Inc.
2. Approximate extent of fill derived from boring logs and site observations.

Scale:

1-Inch = 200-Feet

0' 200'



Gas Monitor Probe Location Map

Old Plank Road Landfill
1100 Old Plank Road
Milford, Michigan



5892 Sterling Drive
Howell, Michigan
Phone: (517) 545-2825