CONESTOGA-ROVERS & ASSOCIATES

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MEMORANDUM

TO: Michael Berkoff, USEPA

REF. NO.: 056393-08

FROM: Greg Carli/Jodie Dembowske/25

DATE: September 24, 2013

C.C.: 12th Street Landfill Technical Team:
Richard Gay, Weyerhaeuser; Kristi Zakrzewski, MDEQ;
John Bradley, MDEQ; Jeff Keiser, CH2MHill;
Scott Hutsell, CH2MHill

US EPA RECORDS CENTER REGION 5
464719

RE: **July 2013 Semiannual Groundwater Sampling Results**
12th Street Landfill-Operable Unit No. 4-Allied Paper/Portage Creek/Kalamazoo River Superfund Site, Otsego Township, Michigan

This memorandum has been prepared by Conestoga-Rovers & Associates (CRA) to summarize the results of the July 2013 semiannual groundwater sampling event performed at the 12th Street Landfill, Operable Unit No. 4 – Allied Paper/Portage Creek/Kalamazoo River Superfund Site, located in Otsego Township, Michigan between July 15th -19th, 2013.

The July 2013 sampling event was performed as part of the Operation, Maintenance, and Monitoring (OM&M) activities at the Site. The most recent sampling event prior to this was the April/May 2013 quarterly event.

A total of 15 groundwater monitoring wells (MW-101S, MW-101D, MW-102S, MW-102D, MW-103D, MW-104S, MW-104D, MW-105S, MW-105D, MW-106S, MW-106D, MW-107S, MW-108S, MW-108D, and MW-109D) were installed in February 2011, at varying depths, around the perimeter of the landfill to complete the OM&M monitoring well network. The locations of the monitoring wells are shown on Figure 1. Prior to the July 2013 sampling event, CRA collected static water levels for 2 weeks from each well and the river staff gauge, as required by the OM&M Plan (December 2012). Monitoring well construction details and groundwater elevations from the water level collection event are presented in Table 1. Figure 2 presents the shallow groundwater elevation contours, and Figure 3 presents the deep groundwater elevation contours, both from the pre-sampling water level event on July 15, 2013.

During the July 2013 groundwater sampling event, samples were collected from each monitoring well in the monitoring well network. Field measurements of pH, oxidation-reduction potential (ORP), dissolved oxygen (DO), conductivity (mS/cm), temperature (Deg C), and turbidity (NTU) were collected. Samples were collected using low flow sampling methods and submitted for laboratory analysis of target compound list (TCL) volatile organic compounds (VOCs), TCL semi volatile organic compounds (SVOC), polychlorinated dibenzodioxins/polychlorinated dibenzofurans (PCDD/PCDF), polychlorinated biphenyls (PCBs), and target analyte list (TAL) metals.

REGISTERED COMPANY FOR
ISO 9001
ENGINEERING DESIGN

The July 2013 analytical results were compared to Michigan Act 451, Part 201 Cleanup Criteria and Part 213 Risk-based Screening Levels: Residential and Non-Residential Generic Cleanup Criteria, identified by Michigan Department of Environmental Quality (MDEQ) Remediation and Redevelopment Division (RRD) updated September 28, 2012, pursuant to 1994 PA 451, as amended. The July 2013 analytical results and field parameters are presented in Table 2.

Analytical results of the July 2013 sampling event reported arsenic exceeding relevant Part 201 Cleanup Criteria and Part 213 Risk-Based Criteria at monitoring well MW-106S. The groundwater surface water interface (GSI) criterion is 10 micrograms per liter (μg/L) and the result at MW-106S was 12.8 μg/L.

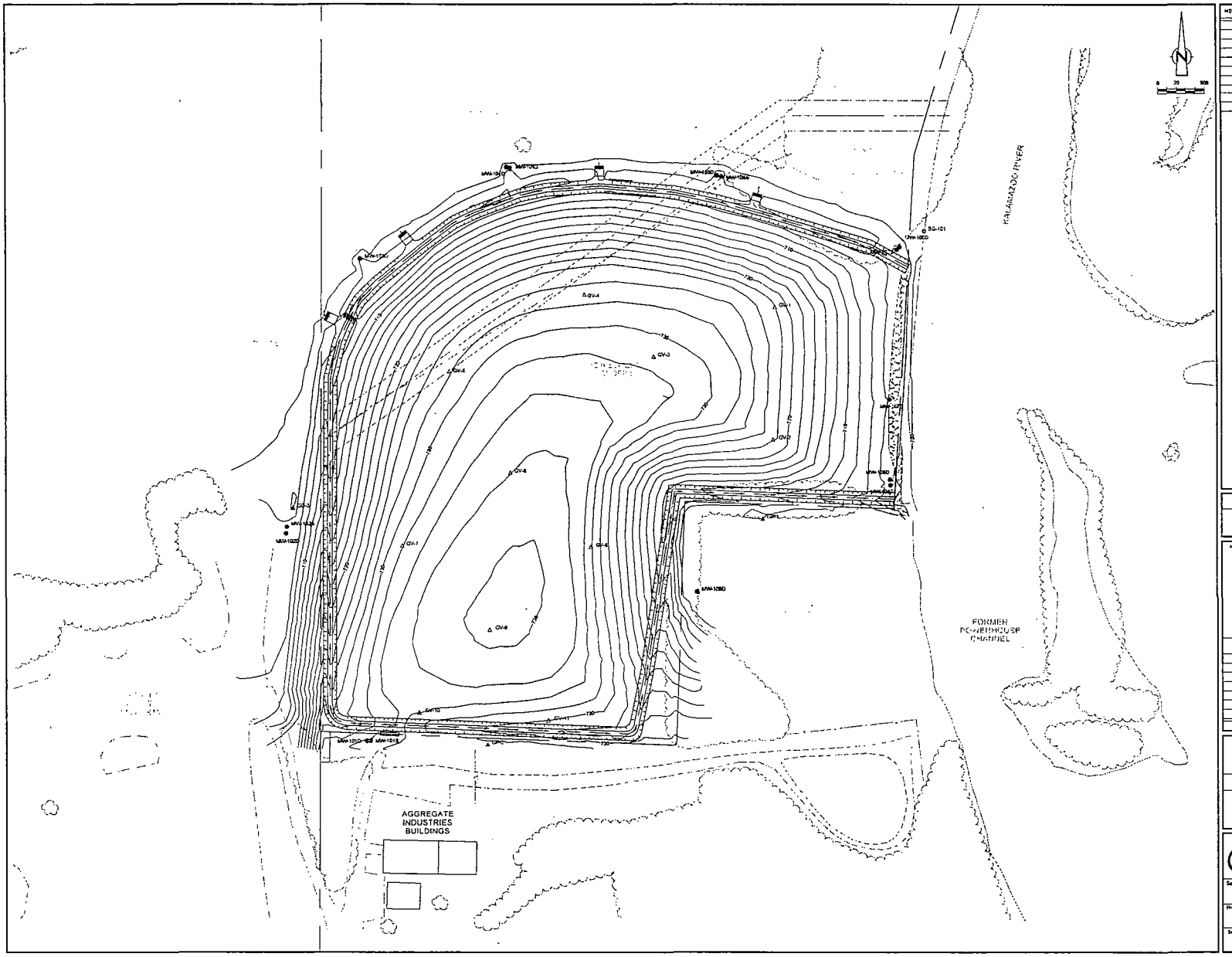
The analytical results for metals exceeding GSI criteria from previous sampling events performed since October 2011 are shown on Figure 4. Figure 4 also includes total PCB detections from the sampling events completed to date.

The following summarizes the July 2013 analytical results:

- VOC parameters reported were estimated values below the method detection levels, and well below GSI criteria
- SVOC parameters were reported below criteria
- PCBs parameters reported were estimated values, well below the GSI criteria of 0.2 μg/L
- Dioxins/Furans total toxic equivalents were calculated for MW-101D at 0.000000103 μg/L; MW-101S at 0.000000081 μg/L; MW-105D at 0.0000000775 μg/L; and MW-105S at 0.0000000863 μg/L which are well below the GSI criteria of 0.00001 μg/L
- Mercury was reported below the detection limit of 0.001 μg/L at 14 of the monitoring wells. Mercury was reported below the detection limit of 0.00154 μg/L at MW-106S. This detection limit is above the GSI criteria of 0.0013 μg/L
- Cyanide was non-detect

Quarterly and semiannual groundwater monitoring will continue at the Site as described in the OM&M Plan, approved by the United States Environmental Protection Agency (USEPA) on May 23, 2013. Pending USEPA approval, groundwater samples collected for mercury will be analyzed via USEPA Method 254.1.

The next sampling event is scheduled to occur in October 2013 and will consist of a quarterly event as outlined in the OM&M Plan [i.e., TCL VOCs, PCBs, and specific metals including mercury, magnesium, and sodium].


KALAMAZOO RIVER
FORMER POWERHOUSE CHANNEL
AGGREGATE INDUSTRIES BUILDINGS
MW-108D
MW-109D
MW-110D
MW-111D
MW-112D
MW-113D
MW-114D
MW-115D
MW-116D
MW-117D
MW-118D
MW-119D
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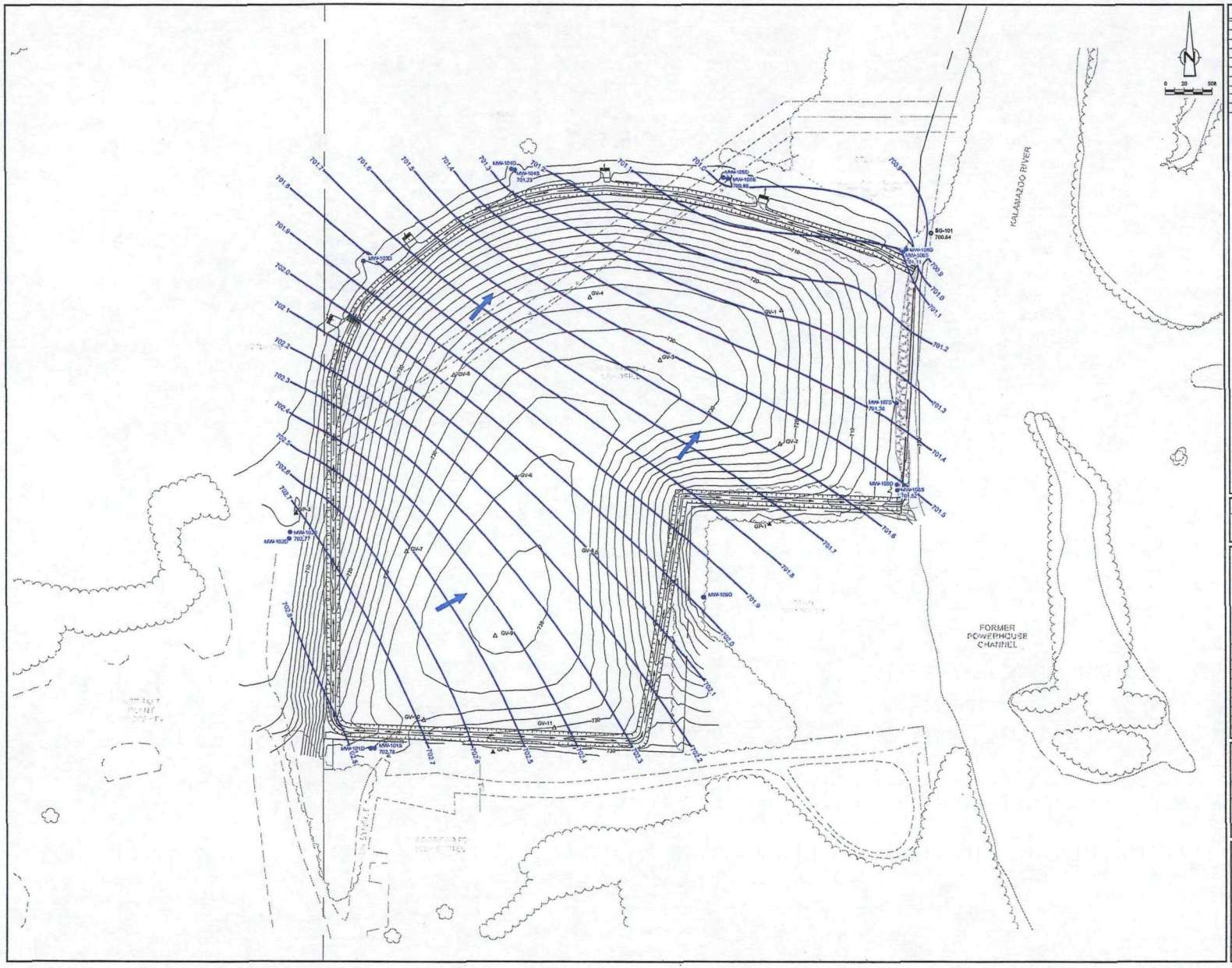
MW-147D



Nº	Revision	Date	Initial

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING EDGE OF WATER
- EXISTING TREES AND/OR BRUSH
- 718 FINAL ELEVATION CONTOURS
- ROAD/DRAINAGE SWALE
- GV-1 GAS VENT LOCATION
- MW-106S MONITORING WELL LOCATION
- GP-1 GAS PROBE LOCATION
- SG-101 STAFF GAUGE LOCATION
- 700.50 GROUNDWATER ELEVATION CONTOUR
- (700.48) GROUNDWATER ELEVATION
- GROUNDWATER FLOW DIRECTION

NOTE: DUE TO INCONSISTENT READINGS COMPARED TO HISTORICAL DATA, THE GROUNDWATER ELEVATION OBTAINED FROM MW-106S WAS OMITTED.

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

Status	Date	Initial

12th STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

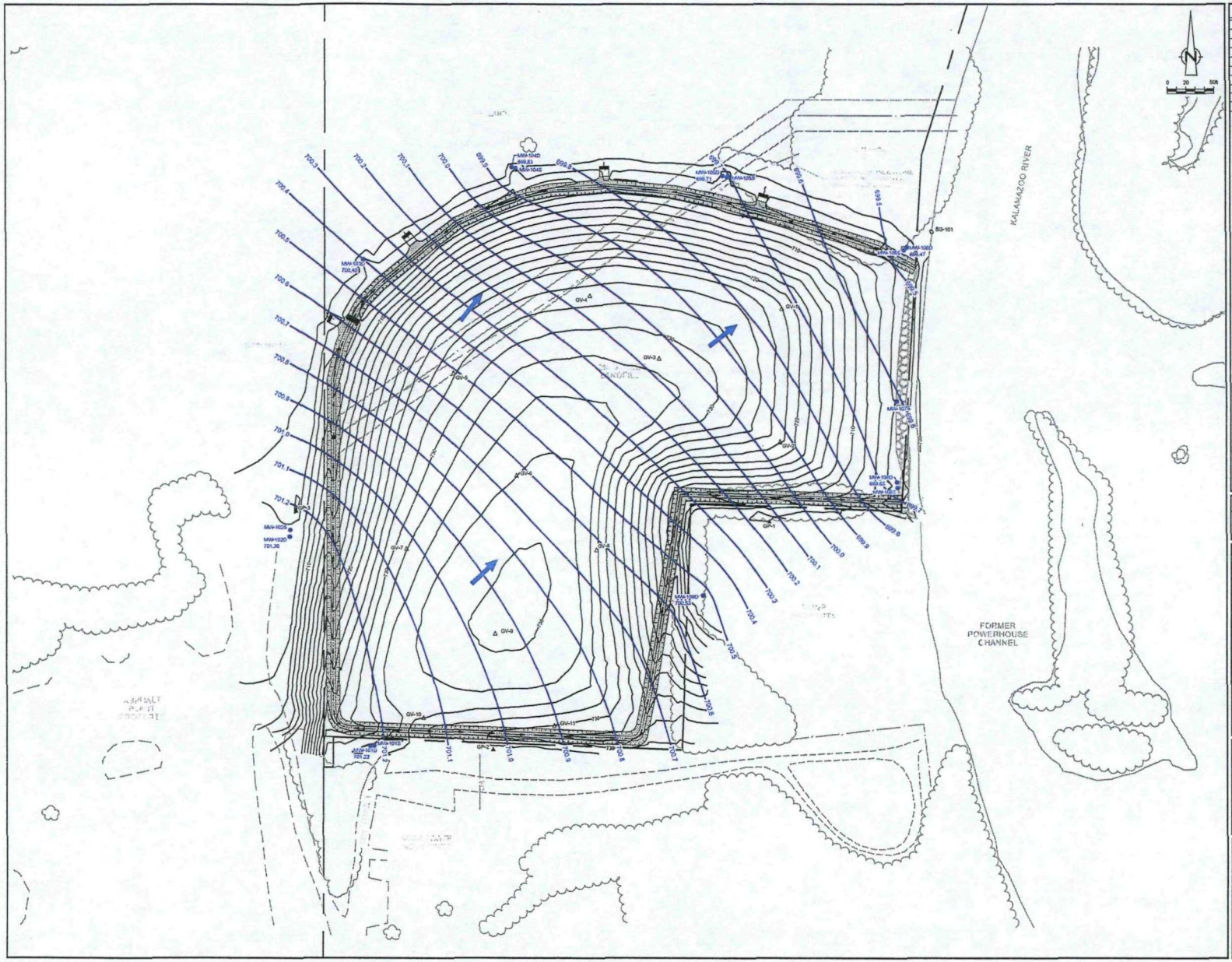
GROUNDWATER ELEVATION CONTOURS
SHALLOW - JULY 15, 2013

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
BASE ADAPTED FROM PREVIOUS RMT DESIGN

Project Manager:	Reviewed By:	Date:	
J. DEMBOWSKE	G. CARLI	JULY 2013	
Scale:	Project Nº:	Report Nº:	Drawing Nº:
AS SHOWN	056393-08	MEMO025	figure 2

056393-08(MEMO025)GH-SC002 AUG 30/2013



NO.	Revision	Date	Initial

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING EDGE OF WATER
- EXISTING TREES AND/OR BRUSH
- 718 — FINAL ELEVATION CONTOURS
- ROAD/DRAINAGE SWALE
- GV-1 — GAS VENT LOCATION
- MW-1065 — MONITORING WELL LOCATION
- GP-1 — GAS PROBE LOCATION
- SG-101 — STAFF GAUGE LOCATION
- 700.40 — GROUNDWATER ELEVATION CONTOUR
- (700.33) — GROUNDWATER ELEVATION
- GROUNDWATER FLOW DIRECTION

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

Status	Date	Initial

12th STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

GROUNDWATER ELEVATION CONTOURS
DEEP - JULY 15, 2013

CONESTOGA-ROVERS & ASSOCIATES

Source Reference:
BASE ADAPTED FROM PREVIOUS RMT DESIGN

Project Manager:	Reviewed By:	Date:	
J. DEMBOWSKE	G. CARLI	AUGUST 2013	
Scale:	Project NR:	Report NR:	Drawing NR:
AS SHOWN	056393-08	MEMO025	figure 3

056393-08(MEMO025)GN-SC001 AUG 30/2013

MW-104D	10/26/2011	2/7/2012	4/25/2012	7/23/2012	10/22/2012	1/28/2013	4/30/2013	7/17/2013
Inorganics								
Arsenic	-	0.23 J	-	0.2 J	-	0.28 J	-	0.25 J
Cyanide (amenable)	-	-	-	-	-	10 U	5 U	10 U
Cyanide (total)	10 U	10 U	10 U/10 U	10 U	10 U	10 U	5 U	10 U
Mercury	0.001 U	0.001 U	0.00064 J/0.00061 J	0.00024 J	0.001 U	0.001 U	0.001 U	0.001 U
PCBs								
Total PCBs	ND	ND	ND/ND	ND	ND	ND	ND	ND

MW-104S	10/26/2011	2/7/2012	4/25/2012	7/23/2012	10/22/2012	1/28/2013	4/30/2013	7/17/2013
Inorganics								
Arsenic	-	0.21 J	-	0.3 J	-	0.23 J	-	0.26 J
Cyanide (amenable)	-	-	-	-	-	10 U	5 U	10 U
Cyanide (total)	10 U	10 U	4 J	10 U	10 U	10 U	5 U	10 U
Mercury	0.001 U	0.001 U	0.00073 J	0.00026 J	0.001 U	0.001 U	0.001 U	0.001 U
PCBs								
Total PCBs	ND	ND	ND	ND	ND	ND	ND	ND

MW-105D	10/26/2011	2/7/2012	4/25/2012	7/24/2012	10/22/2012	1/28/2013	5/1/2013	7/18/2013
Inorganics								
Arsenic	-	0.21 J	-	0.1 J	-	0.26 J	-	0.50 U
Cyanide (amenable)	-	-	-	-	-	10 U	5 U	10 U
Cyanide (total)	4 J	10 U	10 U	10 U	10 U	10 U	5 U	10 U
Mercury	0.001 U	0.001 U	0.00088 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
PCBs								
Total PCBs	ND	ND	ND	ND	ND	ND	ND	ND

MW-105S	10/26/2011	2/7/2012	4/25/2012	7/24/2012	10/22/2012	1/28/2013	5/1/2013	7/18/2013
Inorganics								
Arsenic	-	0.14 J	-	0.3 J	-	0.19 J	-	0.50 U
Cyanide (amenable)	-	-	-	-	-	10 U	5 U	10 U
Cyanide (total)	10 U	10 U	10 U	10 U	10 U	10 U	5 U	10 U
Mercury	0.001 U	0.001 U	0.00047 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
PCBs								
Total PCBs	ND	ND	ND	ND	ND	ND	ND	ND

MW-106D	10/26/2011	2/7/2012	4/26/2012	7/24/2012	10/22/2012	1/29/2013	5/9/2013	7/19/2013
Inorganics								
Arsenic	-	0.24 J	-	0.1 J	-	0.23 J	-	0.38 J/0.33 J
Cyanide (amenable)	-	-	-	-	-	10 U	5 U	10 U/10 U
Cyanide (total)	10 U	10 U	10 U	10 U	10 U/10 U	10 U	5 U	10 U/10 U
Mercury	0.001 U	0.001 U	0.0012	0.001 U	0.001 U/0.001 U	0.001 U	0.00091 J	0.001 U/0.001 U
PCBs								
Total PCBs	0.01 J	ND	0.0098 J	ND	0.0057 J/0.0074 J	0.01 J	0.0065 J	0.0048 J/0.0057 J

MW-106S	10/26/2011	2/7/2012	4/26/2012	7/24/2012	10/22/2012	1/29/2013	5/9/2013	7/19/2013
Inorganics								
Arsenic	-	5.77	-	17.5	-	4.25	-	12.8
Cyanide (amenable)	-	-	-	-	-	10 U	5 U	10 U
Cyanide (total)	6 J	10 U	10 U	10 U	10 U	10 U	5 U	10 U
Mercury	0.0203	0.00447	0.00119	0.001 U	0.0118	0.00777	0.0656	0.00154 U
PCBs								
Total PCBs	ND	ND	ND	ND	ND	0.011 J	0.02	0.0052 J

MW-107S	10/27/2011	2/8/2012	4/26/2012	7/24/2012	10/22/2012	1/29/2013	4/29/2013	7/15/2013
Inorganics								
Arsenic	-	1.81	-	2.6	-	5.69	-	1.57
Cyanide (amenable)	-	-	-	-	-	10 U	5 U	10 U
Cyanide (total)	10 U	10 U	10 U	10 U	10 U	10 U	5 U	10 U
Mercury	0.001 U	0.001 U	0.00065 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
PCBs								
Total PCBs	ND	ND	ND	ND	ND	ND	ND	ND

MW-108S	10/27/2011	2/8/2012	4/26/2012	7/24/2012	10/22/2012	1/29/2013	4/29/2013	7/16/2013
Inorganics								
Arsenic	-	0.53	-	0.5	-	0.80	-	1.89
Cyanide (amenable)	-	-	-	-	-	10 U	5 U	10 U
Cyanide (total)	10 U	10 U	10 U	10 U	10 U	10 U	5 U	10 U
Mercury	0.00112	0.001 U	0.00141	0.00114 U	0.001 U	0.0038	0.00095 J	0.001 U
PCBs								
Total PCBs	ND	ND	ND	ND	ND	ND	ND	ND

MW-108D	10/27/2011	2/8/2012	4/26/2012	7/24/2012	10/22/2012	1/29/2013	4/29/2013	7/15/2013
Inorganics								
Arsenic	-	1.31	-	1.9	-	1.74/1.57	-	1.58
Cyanide (amenable)	-	-	-	-	-	10 U/10 U	5 U	10 U
Cyanide (total)	10 U	4 J	10 U	10 U	10 U	10 U/10 U	5 U	10 U
Mercury	0.001 U	0.001 U	0.00079 J	0.001 U	0.001 U	0.001 U/0.001 U	0.00128	0.001 U
PCBs								
Total PCBs	ND	ND	ND	ND	ND	ND/ND	ND	ND

MW-109D	10/27/2011	2/6/2012	4/26/2012	7/23/2012	10/23/2012	1/28/2013	4/29/2013	7/16/2013
Inorganics								
Arsenic	-	0.13 J	-	0.5 U/0.5 U	-	0.09 J	-	0.13 J
Cyanide (amenable)	-	-	-	-	-	10 U	5 U	10 U
Cyanide (total)	10 U	10 U	10 U	10 U/10 U	10 U	10 U	5 U	10 U
Mercury	0.001 U	0.001 U	0.00085 J	0.00031 J/0.00025 J	0.001 U	0.001 U	0.001 U	0.001 U
PCBs								
Total PCBs	ND	ND	ND	ND/ND	ND	ND	ND	ND

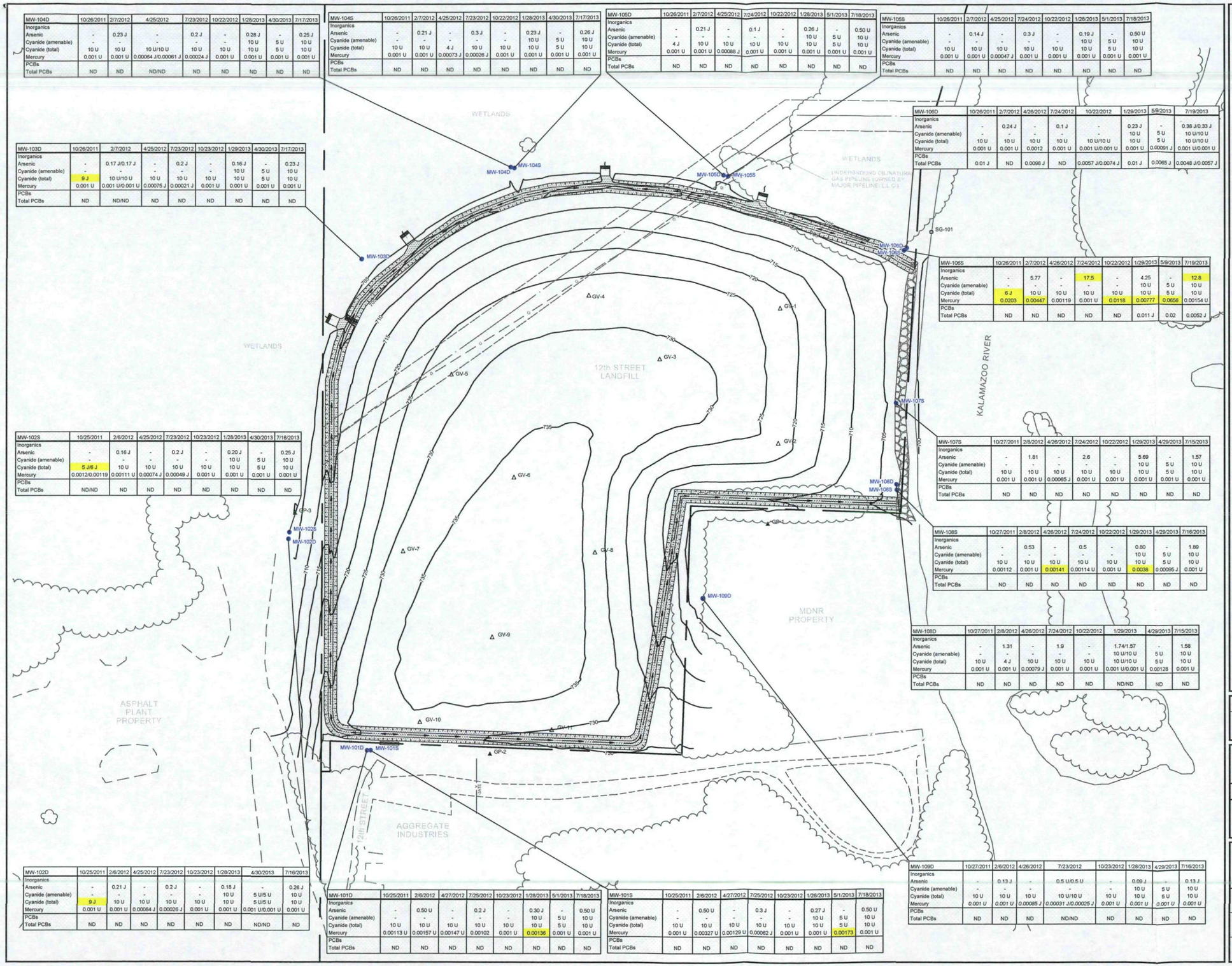
MW-103D	10/26/2011	2/7/2012	4/25/2012	7/23/2012	10/23/2012	1/29/2013	4/30/2013	7/17/2013
Inorganics								
Arsenic	-	0.17 J/0.17 J	-	0.2 J	-	0.16 J	-	0.23 J
Cyanide (amenable)	-	-	-	-	-	10 U	5 U	10 U
Cyanide (total)	9 J	10 U/10 U	10 U	10 U	10 U	10 U	5 U	10 U
Mercury	0.001 U	0.001 U/0.001 U	0.00075 J	0.00021 J	0.001 U	0.001 U	0.001 U	0.001 U
PCBs								
Total PCBs	ND	ND/ND	ND	ND	ND	ND	ND	ND

MW-102S	10/25/2011	2/6/2012	4/25/2012	7/23/2012	10/23/2012	1/28/2013	4/30/2013	7/16/2013
Inorganics								
Arsenic	-	0.16 J	-	0.2 J	-	0.20 J	-	0.25 J
Cyanide (amenable)	-	-	-	-	-	10 U	5 U	10 U
Cyanide (total)	5 J/6 J	10 U	10 U	10 U	10 U	10 U	5 U	10 U
Mercury	0.0012/0.00119	0.00111 U	0.00074 J	0.00049 J	0.001 U	0.001 U	0.001 U	0.001 U
PCBs								
Total PCBs	ND/ND	ND	ND	ND	ND	ND	ND	ND

MW-102D	10/25/2011	2/6/2012	4/25/2012	7/23/2012	10/23/2012	1/28/2013	4/30/2013	7/16/2013
Inorganics								
Arsenic	-	0.21 J	-	0.2 J	-	0.18 J	-	0.26 J
Cyanide (amenable)	-	-	-	-	-	10 U	5 U/5 U	10 U
Cyanide (total)	9 J	10 U	10 U	10 U	10 U	10 U	5 U/5 U	10 U
Mercury	0.001 U	0.001 U	0.00084 J	0.00026 J	0.001 U	0.001 U	0.001 U/0.001 U	0.001 U
PCBs								
Total PCBs	ND	ND	ND	ND	ND	ND	ND/ND	ND

MW-101D	10/25/2011	2/6/2012	4/27/2012	7/25/2012	10/23/2012	1/28/2013	5/1/2013	7/18/2013
Inorganics								
Arsenic	-	0.50 U	-	0.2 J	-	0.30 J	-	0.50 U
Cyanide (amenable)	-	-	-	-	-	10 U	5 U	10 U
Cyanide (total)	10 U	10 U	10 U	10 U	10 U	10 U	5 U	10 U
Mercury	0.00113 U	0.00157 U	0.00147 U	0.00102	0.001 U	0.00136	0.001 U	0.001 U
PCBs								
Total PCBs	ND	ND	ND	ND	ND	ND	ND	ND

MW-101S	10/25/2011	2/6/2012	4/27/2012	7/25/2012	10/23/2012	1/28/2013	5/1/2013	7/18/2013
Inorganics								
Arsenic	-	0.50 U	-	0.3 J	-	0.27 J	-	0.50 U
Cyanide (amenable)	-	-	-	-	-	10 U	5 U	10 U
Cyanide (total)	10 U	10 U	10 U	10 U	10 U	10 U	5 U	10 U
Mercury	0.001 U	0.00327 U	0.00129 U	0.00082 J	0.001 U	0.001 U	0.00173	0.001 U
PCBs								
Total PCBs	ND	ND	ND	ND	ND	ND	ND	ND



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LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING PAVED ROAD
- EXISTING UNPAVED ROAD
- EXISTING EDGE OF WATER
- EXISTING TREES AND/OR BRUSH
- 718 — FINAL ELEVATION CONTOURS
- ROAD/DRAINAGE SWALE
- GV-1 — GAS VENT LOCATION
- MW-106S — MONITORING WELL LOCATION
- GP-1 — GAS PROBE LOCATION
- SG-101 — STAFF GAUGE
- ug/L — MICROGRAMS PER LITER
- U — NOT PRESENT AT OR ABOVE THE ASSOCIATED VALUE
- J — ESTIMATED CONCENTRATION
- 10 U/10 U — PARENT/DUPLICATE SAMPLE RESULT
- ND — NON DETECT
- \- — NOT ANALYZED
- RESULT EXCEEDS GSI CRITERIA

MW-106D	4/7/2011	10/26/2011	2/7/2012
	ug/L	ug/L	ug/L
Inorganics			
Arsenic	0.09 J	-	0.24 J
Cyanide (total)	-	10 U	10 U
Mercury	0.20 U	0.001 U	0.00053 J
PCBs			
Total PCBs	0.0083 J	0.01 J	ND

SAMPLE LOCATION
SAMPLE DATE
RESULT UNIT
RESULT (ug/L)
PARAMETER

	Groundwater Surface Water Interface Criteria
Inorganics (ug/L)	
Arsenic	10
Cyanide (total)	5.2
Mercury	0.0013
PCBs (ug/L)	
Total PCBs	0.2

NOTE:
MICHIGAN ACT 451, PART 201 CLEANUP CRITERIA AND PART 213 RISK-BASED SCREENING LEVELS: RESIDENTIAL AND NON-RESIDENTIAL GENERIC CLEANUP CRITERIA (1).

(1) CLEANUP CRITERIA IDENTIFIED BY MDEQ RRD OP MEMO NO. 1, UPDATED 9/28/2012, PURSUANT TO 1994 PA 451 AS AMENDED.

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

12th STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

POST REMEDIAL ACTION GROUNDWATER ANALYTICAL DATA

CONESTOGA-ROVERS & ASSOCIATES

Source Reference: BASE ADAPTED FROM PREVIOUS RMT DESIGN

Project Manager:	Reviewed By:	Date:	
J. DEMBOWSKE	G. CARLI	SEPTEMBER 2013	
Scale:	Project №:	Report №:	Drawing №:
AS SHOWN	56393-08	MEMO025	figure 4

56393-08(MEMO025)GN-WA001 SEP 6/2013

TABLE 1

GROUNDWATER MONITORING WELLS
JULY 2013 WATER LEVEL DATA
12th STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

Locations	*Ground Surface Elevation (feet AMSL)*	*Reference Elevation (feet AMSL)*	*Monitoring Well Depth (feet bgs)*	*Screened Interval (feet AMSL)*	*July 2013 Water Level Data Depth to Water (feet bgs)*						
					1-Jul-13	*3-Jul-13*	*5-Jul-13*	*8-Jul-13*	*10-Jul-13*	*12-Jul-03*	*15-Jul-13*
MW-101S	734.35	737.46	39	702.35 to 695.35	35.64	35.64	35.89	36.01	35.93	36.04	36.23
MW-101D	734.33	737.14	75	664.33 to 659.33	35.34	35.34	35.60	35.72	35.64	35.75	35.92
MW-102S	704.18	707.36	10	701.18 to 694.18	5.53	5.52	5.77	5.89	5.81	5.93	6.10
MW-102D	704.43	707.43	45	664.43 to 659.43	5.56	5.56	5.80	5.92	5.85	5.96	6.13
MW-103D	704.37	707.36	35	674.37 to 669.37	6.35	6.32	6.57	6.69	6.60	6.78	6.96
MW-104S	703.86	706.55	25.5	684.86 to 677.86	6.13	6.09	6.37	6.48	6.36	6.57	6.76
MW-104D	703.48	706.42	45	663.48 to 658.48	5.96	5.93	6.21	6.38	6.18	6.39	6.59
MW-105S	704.89	707.86	12	699.89 to 692.89	7.71	7.68	8.00	8.07	7.90	8.15	8.36
MW-105D	704.78	707.89	47	662.78 to 657.78	7.50	7.50	7.82	7.89	7.71	7.90	8.18
MW-106S	703.88	706.96	9	701.88 to 694.88	6.89	6.89	7.27	7.32	7.12	7.37	7.66
MW-106D	703.66	706.36	45	664.66 to 659.66	6.17	6.18	6.54	6.58	6.38	6.57	6.89
MW-107S	703.76	706.73	13	695.76 to 690.76	6.45	6.49	6.85	6.87	6.67	6.88	7.17
MW-108S	703.32	706.21	9	701.32 to 694.32	5.78	5.80	6.15	6.20	6.01	6.18	6.50
MW-108D	703.39	706.16	45	663.39 to 658.39	5.80	5.82	6.17	6.22	6.02	6.20	6.51
MW-109D	707.41	710.46	23	689.41 to 684.41	9.27	9.28	6.59	9.67	9.54	9.68	9.93
SG-101	700.9	703.05	-	-	0.00	9.94	9.54	9.51	9.75	9.54	9.14

Notes:

[ ] Indicates that water level in monitoring well is lower than the river elevation

feet AMSL - feet above mean sea level

feet bgs - feet below ground surface

TABLE 1

GROUNDWATER MONITORING WELLS
JULY 2013 WATER LEVEL DATA
12th STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

Locations	Ground Surface Elevation (feet AMSL)	Reference Elevation (feet AMSL)	Monitoring Well Depth (feet bgs)	Screened Interval (feet AMSL)	July 2013 Water Level Data Water Level Elevation (feet AMSL)						
					1-Jul-13	3-Jul-13	5-Jul-13	8-Jul-13	10-Jul-13	12-Jul-03	15-Jul-13
MW-101S	734.35	737.46	39	702.35 to 695.35	701.82	701.82	701.57	701.45	701.53	701.42	701.23
MW-101D	734.33	737.14	75	664.33 to 659.33	701.80	701.80	701.54	701.42	701.50	701.39	701.22
MW-102S	704.18	707.36	10	701.18 to 694.18	701.83	701.84	701.59	701.47	701.55	701.43	701.26
MW-102D	704.43	707.43	45	664.43 to 659.43	701.87	701.87	701.63	701.51	701.58	701.47	701.30
MW-103D	704.37	707.36	35	674.37 to 669.37	701.01	701.04	700.79	700.67	700.76	700.58	700.40
MW-104S	703.86	706.55	25.5	684.86 to 677.86	700.42	700.46	700.18	700.07	700.19	699.98	699.79
MW-104D	703.48	706.42	45	663.48 to 658.48	700.46	700.49	700.21	700.04	700.24	700.03	699.83
MW-105S	704.89	707.86	12	699.89 to 692.89	700.15	700.18	699.86	699.79	699.96	699.71	699.50
MW-105D	704.78	707.89	47	662.78 to 657.78	700.39	700.39	700.07	700.00	700.18	699.99	699.71
MW-106S	703.88	706.96	9	701.88 to 694.88	700.07	700.07	699.69	699.64	699.84	699.59	699.30
MW-106D	703.66	706.36	45	664.66 to 659.66	700.19	700.18	699.82	699.78	699.98	699.79	699.47
MW-107S	703.76	706.73	13	695.76 to 690.76	700.28	700.24	699.88	699.86	700.06	699.85	699.56
MW-108S	703.32	706.21	9	701.32 to 694.32	700.43	700.41	700.06	700.01	700.20	700.03	699.71
MW-108D	703.39	706.16	45	663.39 to 658.39	700.36	700.34	699.99	699.94	700.14	699.96	699.65
MW-109D	707.41	710.46	23	689.41 to 684.41	701.19	701.18	703.87	700.79	700.92	700.78	700.53
SG-101	700.9	703.05	-	-	699.75	699.69	699.29	699.26	699.50	699.29	698.89

Notes:

[ ] Indicates that water level in monitoring well is lower than the river elevation

feet AMSL - feet above mean sea level

feet bgs - feet below ground surface

TABLE 2
SUMMARY OF JULY 2013 GROUNDWATER ANALYTICAL RESULTS
12TH STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

		Michigan Act 451, Part 201 Cleanup Criteria and Part 213 Risk-based Screening Levels: Residential and Non-Residential Generic Cleanup Criteria [1]							
Sample Location					*MW-101D*	*MW-101S*	*MW-102D*	*MW-102S*	*MW-103D*
Sample Identification		*Residential Drinking Water [a]*	*Non-Residential Drinking Water [b]*	*Groundwater Surface Water Interface [c]*	*WG-56393-071813-EB-180*	*WG-56393-071813-EB-178*	*WG-56393-071613-EB-168*	*WG-56393-071613-EB-169*	*WG-56393-071713-EB-173*
Sample Date					*7/18/2013*	*7/18/2013*	*7/16/2013*	*7/16/2013*	*7/17/2013*
Sample Elevation (feet AMSL)					*664.33-589.33*	*702.35-663.35*	*664.43-619.43*	*701.18-691.18*	*674.37-639.37*
	Units								
Volatile Organic Compounds (VOCs)									
Acetone	ug/L	730	2100	1700	R	R	R	R	R
Benzene	ug/L	5	5	200	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromodichloromethane	ug/L	80	80	ID	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromoform	ug/L	80	80	ID	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromomethane (Methyl bromide)	ug/L	10	29	35	0.50 U	0.50 U	0.50 UJ	0.50 UJ	0.50 U
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	13000	38000	2200	R	R	R	R	R
Carbon disulfide	ug/L	800	2300	ID	0.50 UJ	0.50 UJ	0.50 U	0.50 U	0.50 UJ
Carbon tetrachloride	ug/L	5	5	45	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chlorobenzene	ug/L	100	100	25	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	ug/L	430	1700	1100	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroform (Trichloromethane)	ug/L	80	80	350	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	ug/L	260	1100	ID	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	0.2	0.2	-	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Dibromochloromethane	ug/L	80	80	ID	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	0.05	0.05	5.7	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
1,2-Dichlorobenzene	ug/L	600	600	13	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,3-Dichlorobenzene	ug/L	6.6	19	28	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,4-Dichlorobenzene	ug/L	75	75	17	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Dichlorodifluoromethane (CFC-12)	ug/L	1700	4800	ID	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	ug/L	880	2500	740	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	ug/L	5	5	360	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	ug/L	7	7	130	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	ug/L	70	70	620	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	ug/L	100	100	1500	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloropropane	ug/L	5	5	230	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,3-Dichloropropene	ug/L	-	-	-	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,3-Dichloropropene	ug/L	-	-	-	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Ethylbenzene	ug/L	74	74	18	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
2-Hexanone	ug/L	1000	2900	ID	R	R	R	R	R
Isopropyl benzene	ug/L	800	2300	28	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Methyl tert butyl ether (MTBE)	ug/L	40	40	7100	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	1800	5200	ID	20 U	20 U	20 U	20 U	20 U
Methylene chloride	ug/L	5	5	1500	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Styrene	ug/L	100	100	80	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	ug/L	8.5	35	78	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	ug/L	5	5	60	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Toluene	ug/L	790	790	270	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2,4-Trichlorobenzene	ug/L	70	70	99	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
1,1,1-Trichloroethane	ug/L	200	200	89	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	ug/L	5	5	330	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	ug/L	5	5	200	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichlorofluoromethane (CFC-11)	ug/L	2600	7300	-	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	ug/L	2	2	13	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
o-Xylene	ug/L	280	280	41	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
m&p-Xylenes	ug/L	-	-	-	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U

TABLE 2
SUMMARY OF JULY 2013 GROUNDWATER ANALYTICAL RESULTS
12TH STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

		Michigan Act 451, Part 201 Cleanup Criteria and Part 213 Risk-based Screening Levels: Residential and Non-Residential Generic Cleanup Criteria [1]							
Sample Location					*MW-101D*	*MW-101S*	*MW-102D*	*MW-102S*	*MW-103D*
Sample Identification		*Residential Drinking Water [a]*	*Non-Residential Drinking Water [b]*	*Groundwater Surface Water Interface [c]*	*WG-56393-071813-EB-180*	*WG-56393-071813-EB-178*	*WG-56393-071613-EB-168*	*WG-56393-071613-EB-169*	*WG-56393-071713-EB-173*
Sample Date					*7/18/2013*	*7/18/2013*	*7/16/2013*	*7/16/2013*	*7/17/2013*
Sample Elevation (feet AMSL)					*664.33-559.33*	*702.35-663.35*	*664.43-619.43*	*701.15-691.18*	*674.37-639.37*
	Units								
Semi-Volatile Organic Compounds (SVOCs)									
Acenaphthene	ug/L	1300	3800	38	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Acenaphthylene	ug/L	52	150	ID	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Anthracene	ug/L	43	43	ID	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Benzo(a)anthracene	ug/L	2.1	8.5	ID	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Benzo(a)pyrene	ug/L	5	5	ID	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Benzo(b)fluoranthene	ug/L	1.5	1.5	ID	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Benzo(g,h,i)perylene	ug/L	1	1	-	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Benzo(k)fluoranthene	ug/L	1	1	-	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Butyl benzylphthalate (BBP)	ug/L	1200	2700	67	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Carbazole	ug/L	85	350	10	0.21 U	0.19 U	0.21 U	0.20 U	0.021 J
4-Chloro-3-methylphenol	ug/L	150	420	7.4	0.52 U	0.48 U	0.51 U	0.50 U	0.48 U
bis(2-Chloroethyl)ether	ug/L	2	8.3	1	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
2-Chlorophenol	ug/L	45	130	18	0.52 U	0.48 U	0.51 U	0.50 U	0.48 U
Chrysene	ug/L	1.6	1.6	ID	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Dibenz(a,h)anthracene	ug/L	2	2	ID	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Dibenzofuran	ug/L	ID	ID	4	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
3,3'-Dichlorobenzidine	ug/L	1.1	4.3	0.3	2.1 U	1.9 U	2.1 U	2.0 U	1.9 U
2,4-Dichlorophenol	ug/L	73	210	11	0.52 U	0.48 U	0.51 U	0.50 U	0.48 U
Diethyl phthalate	ug/L	5500	16000	110	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Dimethyl phthalate	ug/L	73000	210000	-	0.21 U	0.19 U	0.21 U	0.030 J	0.19 U
2,4-Dimethylphenol	ug/L	370	1000	380	4.2 U	3.8 U	4.1 U	4.0 U	3.8 U
Di-n-butylphthalate (DBP)	ug/L	880	2500	9.7	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
4,6-Dinitro-2-methylphenol	ug/L	20	20	-	2.1 UJ	1.9 UJ	2.1 U	2.0 U	1.9 UJ
2,4-Dinitrotoluene	ug/L	7.7	32	-	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Di-n-octyl phthalate (DnOP)	ug/L	130	380	ID	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	6	6	25	1.1 U	0.95 U	1.1 U	1.0 U	0.95 U
Fluoranthene	ug/L	210	210	1.6	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Fluorene	ug/L	880	2000	12	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Hexachlorobenzene	ug/L	1	1	0.2	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Hexachlorobutadiene	ug/L	15	42	0.053	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Hexachlorocyclopentadiene	ug/L	50	50	ID	1.1 U	0.95 U	1.1 U	1.0 U	0.95 U
Hexachloroethane	ug/L	7.3	21	6.7	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Indeno(1,2,3-cd)pyrene	ug/L	2	2	ID	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Isophorone	ug/L	770	3100	1300	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
2-Methylnaphthalene	ug/L	260	750	19	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
2-Methylphenol	ug/L	370	1000	30	0.52 U	0.48 U	0.51 U	0.50 U	0.48 U
4-Methylphenol	ug/L	370	1000	30	0.52 U	0.48 U	0.51 U	0.50 U	0.48 U
Naphthalene	ug/L	520	1500	11	0.21 U	0.19 U	0.067 J	0.040 J	0.19 U
Nitrobenzene	ug/L	3.4	9.6	180	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
2-Nitrophenol	ug/L	20	58	ID	0.52 U	0.48 U	0.51 U	0.50 U	0.48 U
N-Nitrosodi-n-propylamine	ug/L	5	5	-	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
N-Nitrosodiphenylamine	ug/L	270	1100	-	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Pentachlorophenol	ug/L	1	1	G,X	1.1 U	0.95 U	1.1 U	1.0 U	0.95 U
Phenanthrene	ug/L	52	150	2	0.21 U	0.19 U	0.21 U	0.20 U	0.023 J
Phenol	ug/L	4400	13000	450	0.52 U	0.48 U	0.51 U	0.50 U	0.48 U
Pyrene	ug/L	140	140	ID	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
2,4,5-Trichlorophenol	ug/L	730	2100	-	0.52 U	0.48 U	0.51 U	0.50 U	0.48 U
2,4,6-Trichlorophenol	ug/L	120	470	5	0.52 U	0.48 U	0.51 U	0.50 U	0.48 U

TABLE 2
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12TH STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

		Michigan Act 451, Part 201 Cleanup Criteria and Part 213 Risk-based Screening Levels: Residential and Non-Residential Generic Cleanup Criteria [1]							
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Sample Identification		*Residential Drinking Water [a]*	*Non-Residential Drinking Water [b]*	*Groundwater Surface Water Interface [c]*	*WG-56393-071813-EB-150*	*WG-56393-071813-EB-178*	*WG-56393-071613-EB-168*	*WG-56393-071613-EB-169*	*WG-56393-071713-EB-173*
Sample Date					*7/18/2013*	*7/18/2013*	*7/16/2013*	*7/16/2013*	*7/17/2013*
Sample Elevation (feet AMSL)					*664.33-589.33*	*702.35-663.35*	*664.43-619.43*	*701.18-691.18*	*674.37-639.37*
	Units								
PCBs									
Aroclor-1016 (PCB-1016)	ug/L	0.5	0.5	0.2	0.021 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1221 (PCB-1221)	ug/L	0.5	0.5	0.2	0.041 U	0.040 U	0.040 U	0.040 U	0.040 U
Aroclor-1232 (PCB-1232)	ug/L	0.5	0.5	0.2	0.021 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1242 (PCB-1242)	ug/L	0.5	0.5	0.2	0.021 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1248 (PCB-1248)	ug/L	0.5	0.5	0.2	0.021 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1254 (PCB-1254)	ug/L	0.5	0.5	0.2	0.021 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1260 (PCB-1260)	ug/L	0.5	0.5	0.2	0.021 U	0.020 U	0.020 U	0.020 U	0.020 U
Total PCBs	ug/L	0.5	0.5	0.2	ND	ND	ND	ND	ND
Dioxins/Furans									
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	ug/L	-	-	-	0.0000247 U	0.0000248 U	0.00000213 J	0.00000216 J	0.00000171 J
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	ug/L	-	-	-	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
Total heptachlorodibenzofuran (HpCDF)	ug/L	-	-	-	0.0000247 U	0.0000248 U	0.00000809 J	0.00000597 J	0.00000495 J
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	ug/L	-	-	-	0.0000247 U	0.0000248 U	0.00000543 J	0.000000627 J	0.0000245 U
Total heptachlorodibenzo-p-dioxin (HpCDD)	ug/L	-	-	-	0.0000247 U	0.0000115 J	0.00000543 J	0.00000895 J	0.00000459 J
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	ug/L	-	-	-	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	ug/L	-	-	-	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	ug/L	-	-	-	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	ug/L	-	-	-	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
Total hexachlorodibenzofuran (HxCDF)	ug/L	-	-	-	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.000000727 J
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	ug/L	-	-	-	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	ug/L	-	-	-	0.0000247 U	0.0000248 U	0.0000245 U	0.000000739 J	0.0000245 U
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	ug/L	-	-	-	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
Total hexachlorodibenzo-p-dioxin (HxCDD)	ug/L	-	-	-	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	ug/L	-	-	-	0.0000121 J	0.0000497 U	0.00000685 J	0.0000104 J	0.000049 U
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	ug/L	-	-	-	0.000114 U	0.000104 U	0.0000681	0.0000823	0.0000591 U
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	ug/L	-	-	-	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ug/L	-	-	-	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
Total pentachlorodibenzofuran (PeCDF)	ug/L	-	-	-	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	ug/L	-	-	-	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
Total pentachlorodibenzo-p-dioxin (PeCDD)	ug/L	-	-	-	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
Total tetrachlorodibenzofuran (TCDF)	ug/L	-	-	-	0.00000494 U	0.00000497 U	0.00000489 U	0.00000531 U	0.0000049 U
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ug/L	-	-	-	0.00000494 U	0.00000497 U	0.00000489 U	0.00000531 U	0.0000049 U
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ug/L	0.00003	0.00003	0.00001	0.00000494 U	0.00000497 U	0.00000489 U	0.00000531 U	0.0000049 U
Total tetrachlorodibenzo-p-dioxin (TCDD)	ug/L	-	-	-	0.00000494 U	0.00000497 U	0.00000489 U	0.00000531 U	0.0000049 U
Dioxin toxicity equivalent (TEQ)	ug/L	0.00003	0.00003	0.00001	0.000000103	0.000000081	0.0000000981 J	0.000000186 J	0.0000000171 J

TABLE 2
SUMMARY OF JULY 2013 GROUNDWATER ANALYTICAL RESULTS
12TH STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

		Michigan Act 451, Part 201 Cleanup Criteria and Part 213 Risk-based Screening Levels: Residential and Non-Residential Generic Cleanup Criteria [1]							
Sample Location					*MW-101D*	*MW-101S*	*MW-102D*	*MW-102S*	*MW-103D*
Sample Identification		*Residential Drinking Water [a]*	*Non-Residential Drinking Water [b]*	*Groundwater Surface Water Interface [c]*	*WG-56393-071813-EB-180*	*WG-56393-071813-EB-178*	*WG-56393-071613-EB-168*	*WG-56393-071613-EB-169*	*WG-56393-071713-EB-173*
Sample Date					*7/18/2013*	*7/18/2013*	*7/16/2013*	*7/16/2013*	*7/17/2013*
Sample Elevation (feet AMSL)					*664.33-589.33*	*702.35-663.35*	*664.43-619.43*	*701.18-691.18*	*674.37-639.37*
	Units								
Metals									
Aluminum	ug/L	50	50		39.7 U	2.0 U	2.1	5.6	11.0
Antimony	ug/L	6	6	130	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Arsenic	ug/L	10	10	10	0.50 U	0.50 U	0.26 J	0.25 J	0.23 J
Barium	ug/L	2000	2000	1400	75.1	81.7	69.4	97.7	62.6
Beryllium	ug/L	4	4	41	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Cadmium	ug/L	5	5	5.1	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Chromium	ug/L	100	100	11	0.78 U	1.09 U	0.73	0.71	0.92
Chromium VI (hexavalent)	ug/L	100	100	11	2.0 U	2.0 U	2.0 UJ	2.0 U	2.0 UJ
Cyanide (amenable)	ug/L	200	200		10 U	10 U	10 U	10 U	10 U
Cyanide (total)	ug/L	200	200	5.2	10 U	10 U	10 U	10 U	10 U
Cobalt	ug/L	40	100	100	0.332	0.155	0.134	0.327	0.166
Copper	ug/L	1000	1000	23	1.12	0.53 U	0.44	0.67	0.55
Iron	ug/L	300	300		304[ab]	20.0 U	7.1 J	35.3	35.9
Lead	ug/L	4	4	34	0.372	0.020 U	0.020 U	0.020 U	0.034 U
Magnesium	ug/L	400000	1100000		24700	25400	22200	25400	23100
Manganese	ug/L	50	50	5200	9.420	0.420	0.287	149[ab]	1.580
Mercury	ug/L	2	2	0.0013	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Nickel	ug/L	100	100	130	1.88	1.87	0.50 U	0.50 U	1.56
Selenium	ug/L	50	50	5	1.0 U	1.0 U	0.7 J	0.7 J	0.5 J
Silver	ug/L	34	98	0.2	0.029 U	0.020 U	0.020 U	0.020 U	0.020 U
Sodium	ug/L	120000	350000		25400	24700	21800	22500	20700
Thallium	ug/L	2	2	3.7	0.020 U	0.020 U	0.020 U	0.031 U	0.020 U
Vanadium	ug/L	4.5	62	27	0.36	0.20 J	0.25	0.23	0.30
Zinc	ug/L	2400	5000	310	3.63	0.66 U	0.37 J	0.54	1.35
Field Parameters									
Conductivity	mS/cm	-	-	-	0.720	0.716	0.669	0.749	0.637
Dissolved oxygen (DO)	mg/L	-	-	-	4.59	4.96	1.37	1.95	0.97
Oxidation reduction potential (ORP)	millivolt	-	-	-	-72.2	24.6	159.7	-320.7	-54.0
pH	s.u.	6.5-8.5	6.5-8.5	-	7.29	6.98	7.69	7.09	7.23
Temperature	Deg C	-	-	-	15.09	16.17	17.60	21.14	18.46
Turbidity	NTU	-	-	-	1.81	2.03	1.23	1.27	2.99

Notes:

U - Not detected at the associated reporting limit.

J - Estimated concentration.

UJ - Not detected; associated reporting limit is estimated.

R - Rejected.

TABLE 2
SUMMARY OF JULY 2013 GROUNDWATER ANALYTICAL RESULTS
12TH STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

Sample Location		*MW-104D*	*MW-104S*	*MW-105D*	*MW-105S*	*MW-106D*	*MW-106D*	*MW-106S*
Sample Identification		*WG-56393-071713-EB-174*	*WG-56393-071713-EB-175*	*WG-56393-071813-EB-182*	*WG-56393-071813-EB-181*	*WG-56393-071913-EB-186*	*WG-56393-071913-EB-187*	*WG-56393-071913-EB-185*
Sample Date		*7/17/2013*	*7/17/2013*	*7/18/2013*	*7/18/2013*	*7/19/2013*	*7/19/2013*	*7/19/2013*
							Duplicate	
Sample Elevation (feet AMSL)		*633.43-618.48*	*684.86-658.86*	*662.79-615.79*	*699.89-687.89*	*664.66-620.66*	*664.66-620.66*	*701.89-692.89*
	Units							
Volatile Organic Compounds (VOCs)								
Acetone	ug/L	R	R	R	R	R	R	R
Benzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromodichloromethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromoform	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromomethane (Methyl bromide)	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 UJ	0.50 UJ	0.50 UJ
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	R	R	R	R	R	R	R
Carbon disulfide	ug/L	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Carbon tetrachloride	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chlorobenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroform (Trichloromethane)	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Dibromochloromethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
1,2-Dichlorobenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,3-Dichlorobenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,4-Dichlorobenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Dichlorodifluoromethane (CFC-12)	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloropropane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,3-Dichloropropene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,3-Dichloropropene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Ethylbenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
2-Hexanone	ug/L	R	R	R	R	R	R	R
Isopropyl benzene	ug/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Methyl tert butyl ether (MTBE)	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	20 U	20 U	20 U	20 U	20 U	20 U	20 U
Methylene chloride	ug/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Styrene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Toluene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2,4-Trichlorobenzene	ug/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
1,1,1-Trichloroethane	ug/L	0.50 U	0.50 U	0.50 U	0.080 J	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichlorofluoromethane (CFC-11)	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
o-Xylene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
m&p-Xylenes	ug/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U

TABLE 2
SUMMARY OF JULY 2013 GROUNDWATER ANALYTICAL RESULTS
12TH STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

Sample Location		*MW-104D*	*MW-104S*	*MW-105D*	*MW-105S*	*MW-106D*	*MW-106D*	*MW-106S*
Sample Identification		*WG-56393-071713-EB-174*	*WG-56393-071713-EB-175*	*WG-56393-071813-EB-182*	*WG-56393-071813-EB-181*	*WG-56393-071913-EB-186*	*WG-56393-071913-EB-187*	*WG-56393-071913-EB-185*
Sample Date		*7/17/2013*	*7/17/2013*	*7/18/2013*	*7/18/2013*	*7/19/2013*	*7/19/2013*	*7/19/2013*
							Duplicate	
Sample Elevation (feet AMSL)		633.43-618.43	684.86-658.86	662.79-615.79	699.59-687.89	664.66-620.66	664.66-620.66	701.89-692.89
	Units							
Semi-Volatile Organic Compounds (SVOCs)								
Acenaphthene	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
Acenaphthylene	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
Anthracene	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
Benzo(a)anthracene	ug/L	0.021 J	0.20 U	0.20 U	0.21 U	0.20 U	0.020 J	0.20 U
Benzo(a)pyrene	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
Benzo(b)fluoranthene	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
Benzo(g,h,i)perylene	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
Benzo(k)fluoranthene	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
Butyl benzylphthalate (BBP)	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
Carbazole	ug/L	0.20 U	0.20 U	0.019 J	0.21 U	0.20 U	0.19 U	0.20 U
4-Chloro-3-methylphenol	ug/L	0.49 U	0.50 U	0.50 U	0.52 U	0.48 U	0.48 U	0.49 U
bis(2-Chloroethyl)ether	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
2-Chlorophenol	ug/L	0.49 U	0.50 U	0.50 U	0.52 U	0.48 U	0.48 U	0.49 U
Chrysene	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
Dibenz(a,h)anthracene	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
Dibenzofuran	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
3,3'-Dichlorobenzidine	ug/L	2.0 U	2.0 U	2.0 U	2.1 U	2.0 U	1.9 U	2.0 U
2,4-Dichlorophenol	ug/L	0.49 U	0.50 U	0.50 U	0.52 U	0.48 U	0.48 U	0.49 U
Diethyl phthalate	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
Dimethyl phthalate	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
2,4-Dimethylphenol	ug/L	3.9 U	4.0 U	4.0 U	4.2 U	3.9 U	3.8 U	3.9 U
Di-n-butylphthalate (DBP)	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
4,6-Dinitro-2-methylphenol	ug/L	2.0 UJ	2.0 UJ	2.0 UJ	2.1 UJ	2.0 U	1.9 U	2.0 U
2,4-Dinitrotoluene	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
Di-n-octyl phthalate (DnOP)	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	0.97 U	0.99 U	0.99 U	1.1 U	0.96 U	0.95 U	0.98 U
Fluoranthene	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
Fluorene	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
Hexachlorobenzene	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
Hexachlorobutadiene	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 UJ	0.19 UJ	0.20 UJ
Hexachlorocyclopentadiene	ug/L	0.97 U	0.99 U	0.99 U	1.1 U	0.96 U	0.95 U	0.98 U
Hexachloroethane	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
Indeno(1,2,3-cd)pyrene	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
Isophorone	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
2-Methylnaphthalene	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
2-Methylphenol	ug/L	0.49 U	0.50 U	0.50 U	0.52 U	0.48 U	0.48 U	0.49 U
4-Methylphenol	ug/L	0.49 U	0.50 U	0.50 U	0.52 U	0.48 U	0.48 U	0.49 U
Naphthalene	ug/L	0.044 J	0.20 U	0.20 U	0.035 J	0.20 U	0.19 U	0.20 U
Nitrobenzene	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
2-Nitrophenol	ug/L	0.49 U	0.50 U	0.50 U	0.52 U	0.48 U	0.48 U	0.49 U
N-Nitrosodi-n-propylamine	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
N-Nitrosodiphenylamine	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
Pentachlorophenol	ug/L	0.97 U	0.99 U	0.99 U	1.1 U	0.96 U	0.95 U	0.98 U
Phenanthrene	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
Phenol	ug/L	0.49 U	0.50 U	0.50 U	0.52 U	0.48 U	0.48 U	0.49 U
Pyrene	ug/L	0.20 U	0.20 U	0.20 U	0.21 U	0.20 U	0.19 U	0.20 U
2,4,5-Trichlorophenol	ug/L	0.49 U	0.50 U	0.50 U	0.52 U	0.48 U	0.48 U	0.49 U
2,4,6-Trichlorophenol	ug/L	0.49 U	0.50 U	0.50 U	0.52 U	0.48 U	0.48 U	0.49 U

TABLE 2
SUMMARY OF JULY 2013 GROUNDWATER ANALYTICAL RESULTS
12TH STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

Sample Location		*MW-104D*	*MW-104S*	*MW-105D*	*MW-105S*	*MW-106D*	*MW-106D*	*MW-106S*
Sample Identification		WG-56393-071713-EB-174	WG-56393-071713-EB-175	WG-56393-071813-EB-182	WG-56393-071813-EB-181	WG-56393-071913-EB-186	WG-56393-071913-EB-187	WG-56393-071913-EB-185
Sample Date		7/17/2013	7/17/2013	7/18/2013	7/18/2013	7/19/2013	7/19/2013	7/19/2013
							Duplicate	
Sample Elevation (feet AMSL)		633.48-618.48	654.86-658.86	662.79-615.79	699.89-687.89	664.66-620.66	664.66-620.66	701.89-692.89
	Units							
PCBs								
Aroclor-1016 (PCB-1016)	ug/L	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.021 U
Aroclor-1221 (PCB-1221)	ug/L	0.040 U	0.039 U	0.040 U	0.040 U	0.040 U	0.039 U	0.042 U
Aroclor-1232 (PCB-1232)	ug/L	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.021 U
Aroclor-1242 (PCB-1242)	ug/L	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.021 U
Aroclor-1248 (PCB-1248)	ug/L	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.021 U
Aroclor-1254 (PCB-1254)	ug/L	0.020 U	0.020 U	0.020 U	0.020 U	0.0057 J	0.0048 J	0.0052 J
Aroclor-1260 (PCB-1260)	ug/L	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.021 U
Total PCBs	ug/L	ND	ND	ND	ND	0.0057 J	0.0048 J	0.0052 J
Dioxins/Furans								
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	ug/L	0.00000158 J	0.00000181 J	0.0000241 U	0.0000239 U	0.0000239 U	0.0000238 U	0.0000239 U
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	ug/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U	0.0000239 U	0.0000238 U	0.0000239 U
Total heptachlorodibenzofuran (HpCDF)	ug/L	0.00000551 J	0.00000628 J	0.00000412 J	0.0000239 U	0.00000286 J	0.00000462 J	0.0000239 U
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	ug/L	0.0000239 U	0.0000243 U	0.00000524 J	0.00000578 J	0.00000384 J	0.0000238 U	0.00000476 J
Total heptachlorodibenzo-p-dioxin (HpCDD)	ug/L	0.0000142 J	0.0000143 J	0.0000241 U	0.00000578 J	0.00000728 J	0.0000103 J	0.0000239 U
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	ug/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U	0.0000239 U	0.0000238 U	0.0000239 U
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	ug/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U	0.0000239 U	0.0000238 U	0.0000239 U
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	ug/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U	0.0000239 U	0.0000238 U	0.0000239 U
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	ug/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U	0.0000239 U	0.0000238 U	0.0000239 U
Total hexachlorodibenzofuran (HxCDF)	ug/L	0.0000239 U	0.0000243 U	0.000000652 J	0.0000239 U	0.0000239 U	0.0000238 U	0.0000239 U
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	ug/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U	0.0000239 U	0.0000238 U	0.0000239 U
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	ug/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U	0.0000239 U	0.0000238 U	0.0000239 U
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	ug/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U	0.0000239 U	0.0000238 U	0.0000239 U
Total hexachlorodibenzo-p-dioxin (HxCDD)	ug/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U	0.0000239 U	0.0000238 U	0.0000239 U
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	ug/L	0.0000478 U	0.0000487 U	0.00000721 J	0.0000107 J	0.0000477 U	0.0000476 U	0.0000477 U
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	ug/L	0.0000673 U	0.0000713 U	0.0000762 U	0.0000842 U	0.0000539 U	0.0000872 U	0.000059 U
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	ug/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U	0.0000239 U	0.0000238 U	0.0000239 U
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ug/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U	0.0000239 U	0.0000238 U	0.0000239 U
Total pentachlorodibenzofuran (PeCDF)	ug/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U	0.0000239 U	0.0000238 U	0.0000239 U
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	ug/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U	0.0000239 U	0.0000238 U	0.0000239 U
Total pentachlorodibenzo-p-dioxin (PeCDD)	ug/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U	0.0000239 U	0.0000238 U	0.0000239 U
Total tetrachlorodibenzofuran (TCDF)	ug/L	0.00000478 U	0.00000487 U	0.00000482 U	0.00000478 U	0.00000477 U	0.00000476 U	0.00000477 U
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ug/L	0.00000478 U	0.00000487 U	0.00000482 U	0.00000478 U	0.00000477 U	0.00000476 U	0.00000477 U
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ug/L	0.00000478 U	0.00000487 U	0.00000482 U	0.00000478 U	0.00000477 U	0.00000476 U	0.00000477 U
Total tetrachlorodibenzo-p-dioxin (TCDD)	ug/L	0.00000478 U	0.00000487 U	0.00000482 U	0.00000478 U	0.00000477 U	0.00000476 U	0.00000477 U
Dioxin toxicity equivalent (TEQ)	ug/L	0.0000000158 J	0.0000000181 J	0.0000000775	0.0000000863	0.0000000384 J	0	0.0000000476 J

TABLE 2
SUMMARY OF JULY 2013 GROUNDWATER ANALYTICAL RESULTS
12TH STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

Sample Location		*MW-104D*	*MW-104S*	*MW-105D*	*MW-105S*	*MW-106D*	*MW-106D*	*MW-106S*
Sample Identification		*WG-56393-071713-EB-174*	*WG-56393-071713-EB-175*	*WG-56393-071813-EB-182*	*WG-56393-071813-EB-181*	*WG-56393-071913-EB-186*	*WG-56393-071913-EB-187*	*WG-56393-071913-EB-185*
Sample Date		*7/17/2013*	*7/17/2013*	*7/18/2013*	*7/18/2013*	*7/19/2013*	*7/19/2013*	*7/19/2013*
							Duplicate	
Sample Elevation (feet AMSL)		*633.48-618.48*	*634.86-658.86*	*662.79-615.79*	*699.89-687.89*	*664.66-620.66*	*664.66-620.66*	*701.89-692.89*
	Units							
Metals								
Aluminum	ug/L	2.0 U	2.0 U	3.0	2.0 U	5.6	7.7	3.8
Antimony	ug/L	0.05 U	0.05 U	0.05 U	0.05 U	0.07 U	0.07 U	0.05 U
Arsenic	ug/L	0.25 J	0.26 J	0.50 U	0.50 U	0.38 J	0.33 J	12.8[abc]
Barium	ug/L	67.9	72.6	70.2	108	75.8	76.3	336
Beryllium	ug/L	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Cadmium	ug/L	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Chromium	ug/L	0.69	0.70	0.65	0.72	1.00	0.98	0.96
Chromium VI (hexavalent)	ug/L	2.0 UJ	2.0 UJ	2.0 U	2.0 U	2.0 U	0.6 J	0.7 J
Cyanide (amenable)	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Cyanide (total)	ug/L	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Cobalt	ug/L	0.140	0.141	0.153	0.331	0.160	0.166	0.597
Copper	ug/L	0.47	0.49	0.69	0.56	0.65	0.68	0.66
Iron	ug/L	20.0 U	7.9 J	3.0 J	23.9	46.9	72.7	10200[ab]
Lead	ug/L	0.020 U	0.020 U	0.030	0.020 U	0.064	0.075	0.020 U
Magnesium	ug/L	24300	24200	25300	27200	24200	24700	28200
Manganese	ug/L	0.195	0.327	0.341	63.7[ab]	2.550	3.310	347[ab]
Mercury	ug/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00154 U
Nickel	ug/L	1.52	1.50	1.90	2.07	1.68	1.70	2.95
Selenium	ug/L	0.5 J	0.5 J	0.6 J	0.5 J	0.7 J	0.6 J	0.6 J
Silver	ug/L	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Sodium	ug/L	22200	22200	23000	23400	24300	24700	23500
Thallium	ug/L	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Vanadium	ug/L	0.26	0.25	0.18 J	0.19 J	0.25	0.24	0.31
Zinc	ug/L	0.77	0.54	1.10	0.60	1.06	1.07	36.9
Field Parameters								
Conductivity	mS/cm	0.674	0.673	0.691	0.787	0.931	0.931	0.704
Dissolved oxygen (DO)	mg/L	2.01	1.89	2.08	0.07	-154.0	-154.0	2.05
Oxidation reduction potential (ORP)	millivolt	132.7	-160.7	49.7	-12.3	1.87	1.87	109.9
pH	s.u.	7.41	7.21	7.49	7.15	6.85	6.85	7.43
Temperature	Deg C	18.07	14.79	16.06	19.39	14.83	14.83	16.56
Turbidity	NTU	3.76	2.01	2.15	2.07	2.76	2.76	2.41

Notes:

U - Not detected at the associated reporting limit.

J - Estimated concentration.

UJ - Not detected; associated reporting limit is estimated.

R - Rejected.

TABLE 2
SUMMARY OF JULY 2013 GROUNDWATER ANALYTICAL RESULTS
12TH STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

Sample Location		*MW-107S*	*MW-103D*	*MW-108S*	*MW-109D*
Sample Identification		*WG-56393-071513-EB-165*	*WG-56393-071513-EB-166*	*WG-56393-071613-EB-167*	*WG-56393-071613-EB-170*
Sample Date		*7/15/2013*	*7/15/2013*	*7/16/2013*	*7/16/2013*
Sample Elevation (feet AMSL)		*695.76-682.76*	*663.39-618.39*	*701.32-692.32*	*689.41-666.41*
	Units				
Volatile Organic Compounds (VOCs)					
Acetone	ug/L	R	R	R	R
Benzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
Bromodichloromethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
Bromoform	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
Bromomethane (Methyl bromide)	ug/L	0.50 U	0.50 U	0.50 UJ	0.50 UJ
2-Butanone (Methyl ethyl ketone) (MEK)	ug/L	R	R	R	R
Carbon disulfide	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
Chlorobenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
Chloroform (Trichloromethane)	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dibromo-3-chloropropane (DBCP)	ug/L	2.0 U	2.0 U	2.0 U	2.0 U
Dibromochloromethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dibromoethane (Ethylene dibromide)	ug/L	2.0 U	2.0 U	2.0 U	2.0 U
1,2-Dichlorobenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
1,3-Dichlorobenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
1,4-Dichlorobenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
Dichlorodifluoromethane (CFC-12)	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	ug/L	0.14 J	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloropropane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,3-Dichloropropene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,3-Dichloropropene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
Ethylbenzene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
2-Hexanone	ug/L	R	R	R	R
Isopropyl benzene	ug/L	2.0 U	2.0 U	2.0 U	2.0 U
Methyl tert butyl ether (MTBE)	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	ug/L	20 U	20 U	20 U	20 U
Methylene chloride	ug/L	2.0 U	2.0 U	2.0 U	2.0 U
Styrene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
Toluene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
1,2,4-Trichlorobenzene	ug/L	2.0 U	2.0 U	2.0 U	2.0 U
1,1,1-Trichloroethane	ug/L	0.16 J	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
Trichlorofluoromethane (CFC-11)	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
o-Xylene	ug/L	0.50 U	0.50 U	0.50 U	0.50 U
m&p-Xylenes	ug/L	0.50 U	0.50 U	0.50 U	0.50 U

TABLE 2
SUMMARY OF JULY 2013 GROUNDWATER ANALYTICAL RESULTS
12TH STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

Sample Location		*MW-107S*	*MW-108D*	*MW-108S*	*MW-109D*
Sample Identification		WG-56393-071513-EB-165	WG-56393-071513-EB-166	WG-56393-071613-EB-167	WG-56393-071613-EB-170
Sample Date		*7/15/2013*	*7/15/2013*	*7/16/2013*	*7/16/2013*
Sample Elevation (feet AMSL)		*695.76-682.76*	*663.39-618.39*	*701.32-692.32*	*689.41-666.41*
	Units				
Semi-Volatile Organic Compounds (SVOCs)					
Acenaphthene	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Acenaphthylene	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Anthracene	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Benzo(a)anthracene	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Benzo(a)pyrene	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Benzo(b)fluoranthene	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Benzo(g,h,i)perylene	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Benzo(k)fluoranthene	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Butyl benzylphthalate (BBP)	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Carbazole	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
4-Chloro-3-methylphenol	ug/L	0.48 U	0.49 U	0.51 U	0.50 U
bis(2-Chloroethyl)ether	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
2-Chlorophenol	ug/L	0.48 U	0.49 U	0.51 U	0.50 U
Chrysene	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Dibenz(a,h)anthracene	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Dibenzofuran	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
3,3'-Dichlorobenzidine	ug/L	1.9 U	2.0 U	2.1 U	2.0 U
2,4-Dichlorophenol	ug/L	0.48 U	0.49 U	0.51 U	0.50 U
Diethyl phthalate	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Dimethyl phthalate	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
2,4-Dimethylphenol	ug/L	3.8 U	3.9 U	4.1 U	4.0 U
Di-n-butylphthalate (DBP)	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
4,6-Dinitro-2-methylphenol	ug/L	1.9 U	2.0 U	2.1 U	2.0 U
2,4-Dinitrotoluene	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Di-n-octyl phthalate (DnOP)	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
bis(2-Ethylhexyl)phthalate (DEHP)	ug/L	0.95 U	0.97 U	1.1 U	0.45 J
Fluoranthene	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Fluorene	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Hexachlorobenzene	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Hexachlorobutadiene	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Hexachlorocyclopentadiene	ug/L	0.95 U	0.97 U	1.1 U	1.0 U
Hexachloroethane	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Indeno(1,2,3-cd)pyrene	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Isophorone	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
2-Methylnaphthalene	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
2-Methylphenol	ug/L	0.48 U	0.49 U	0.51 U	0.50 U
4-Methylphenol	ug/L	0.48 U	0.49 U	0.51 U	0.50 U
Naphthalene	ug/L	0.039 J	0.032 J	0.051 J	0.051 J
Nitrobenzene	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
2-Nitrophenol	ug/L	0.48 U	0.49 U	0.51 U	0.50 U
N-Nitrosodi-n-propylamine	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
N-Nitrosodiphenylamine	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Pentachlorophenol	ug/L	0.95 U	0.97 U	1.1 U	1.0 U
Phenanthrene	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
Phenol	ug/L	0.48 U	0.49 U	0.51 U	0.50 U
Pyrene	ug/L	0.19 U	0.20 U	0.21 U	0.20 U
2,4,5-Trichlorophenol	ug/L	0.48 U	0.49 U	0.51 U	0.50 U
2,4,6-Trichlorophenol	ug/L	0.48 U	0.49 U	0.51 U	0.50 U

TABLE 2
SUMMARY OF JULY 2013 GROUNDWATER ANALYTICAL RESULTS
12TH STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

Sample Location		*MW-107S*	*MW-108D*	*MW-108S*	*MW-109D*
Sample Identification		*WG-56393-071513-EB-165*	*WG-56393-071513-EB-166*	*WG-56393-071613-EB-167*	*WG-56393-071613-EB-170*
Sample Date		*7/15/2013*	*7/15/2013*	*7/16/2013*	*7/16/2013*
Sample Elevation (feet AMSL)		*695.76-682.76*	*663.39-613.39*	*701.32-692.32*	*689.41-666.41*
	Units				
PCBs					
Aroclor-1016 (PCB-1016)	ug/L	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1221 (PCB-1221)	ug/L	0.040 U	0.040 U	0.040 U	0.040 U
Aroclor-1232 (PCB-1232)	ug/L	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1242 (PCB-1242)	ug/L	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1248 (PCB-1248)	ug/L	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1254 (PCB-1254)	ug/L	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1260 (PCB-1260)	ug/L	0.020 U	0.020 U	0.020 U	0.020 U
Total PCBs	ug/L	ND	ND	ND	ND
Dioxins/Furans					
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	ug/L	0.0000238 UJ	0.000000724 J	0.00000137 J	0.00000449 J
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	ug/L	0.0000238 UJ	0.0000251 U	0.0000255 U	0.0000242 U
Total heptachlorodibenzofuran (HpCDF)	ug/L	0.0000238 UJ	0.000000907 J	0.0000255 U	0.000015 J
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	ug/L	0.0000238 UJ	0.00000233 J	0.00000703 J	0.0000286
Total heptachlorodibenzo-p-dioxin (HpCDD)	ug/L	0.0000238 UJ	0.0000251 U	0.0000176 J	0.0000815
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	ug/L	0.00000303 J	0.000000723 J	0.0000255 U	0.0000242 U
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	ug/L	0.0000238 UJ	0.000000454 J	0.0000255 U	0.0000242 U
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	ug/L	0.0000238 UJ	0.0000251 U	0.0000255 U	0.0000242 U
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	ug/L	0.0000238 UJ	0.0000251 U	0.0000255 U	0.0000242 U
Total hexachlorodibenzofuran (HxCDF)	ug/L	0.0000238 UJ	0.000000454 J	0.0000255 U	0.0000242 U
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	ug/L	0.0000238 UJ	0.00000111 J	0.0000255 U	0.00000129 J
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	ug/L	0.0000238 UJ	0.0000251 U	0.0000255 U	0.0000011 J
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	ug/L	0.0000238 UJ	0.0000251 U	0.0000255 U	0.00000395 J
Total hexachlorodibenzo-p-dioxin (HxCDD)	ug/L	0.0000238 UJ	0.00000111 J	0.0000255 U	0.0000149 J
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	ug/L	0.0000477 UJ	0.0000502 U	0.00000839 J	0.0000155 J
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	ug/L	0.0000173 J	0.00000895 J	0.0000743	0.000173
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	ug/L	0.0000238 UJ	0.0000251 U	0.0000255 U	0.0000242 U
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	ug/L	0.0000238 UJ	0.0000251 U	0.0000255 U	0.0000242 U
Total pentachlorodibenzofuran (PeCDF)	ug/L	0.0000238 UJ	0.0000251 U	0.0000255 U	0.0000242 U
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	ug/L	0.0000238 UJ	0.0000251 U	0.0000255 U	0.0000242 U
Total pentachlorodibenzo-p-dioxin (PeCDD)	ug/L	0.0000238 UJ	0.0000251 U	0.0000255 U	0.0000242 U
Total tetrachlorodibenzofuran (TCDF)	ug/L	0.00000477 UJ	0.00000502 U	0.00000511 U	0.00000484 U
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	ug/L	0.00000477 UJ	0.00000502 U	0.00000511 U	0.00000484 U
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	ug/L	0.00000477 UJ	0.00000502 U	0.00000511 U	0.00000484 U
Total tetrachlorodibenzo-p-dioxin (TCDD)	ug/L	0.00000477 UJ	0.00000502 U	0.00000511 U	0.00000484 U
Dioxin toxicity equivalent (TEQ)	ug/L	0.000000308 J	0.000000262 J	0.000000109 J	0.00000102 J

TABLE 2
SUMMARY OF JULY 2013 GROUNDWATER ANALYTICAL RESULTS
12TH STREET LANDFILL
OTSEGO TOWNSHIP, MICHIGAN

Sample Location		*MW-107S*	*MW-108D*	*MW-108S*	*MW-109D*
Sample Identification		*WG-56393-071513-EB-165*	*WG-56393-071513-EB-166*	*WG-56393-071613-EB-167*	*WG-56393-071613-EB-170*
Sample Date		*7/15/2013*	*7/15/2013*	*7/16/2013*	*7/16/2013*
Sample Elevation (feet AMSL)		*695.76-682.76*	*663.39-618.39*	*701.32-692.32*	*689.41-666.41*
	Units				
Metals					
Aluminum	ug/L	20 7	2.4	2.0 U	2.0 U
Antimony	ug/L	0.05 U	0.11 U	0.06 U	0.05 U
Arsenic	ug/L	1.57	1.58	1.89	0.13 J
Barium	ug/L	244	104	105	86.0
Beryllium	ug/L	0.020 U	0.020 U	0.020 U	0.020 U
Cadmium	ug/L	0.020 U	0.072	0.020 U	0.020 U
Chromium	ug/L	0.58	1.15	0.51	0.81
Chromium VI (hexavalent)	ug/L	2.0 U	20 0 U	2.0 UJ	2.0 U
Cyanide (amenable)	ug/L	10 U	10 U	10 U	10 U
Cyanide (total)	ug/L	10 U	10 U	10 U	10 U
Cobalt	ug/L	0.484	0.439	0.710	0.172
Copper	ug/L	0.48	0.83	0.49	0.60
Iron	ug/L	348[ab]	2580[ab]	908[ab]	20.0 U
Lead	ug/L	0.021 U	0.020 U	0.020 U	0.020 U
Magnesium	ug/L	24000	25700	24800	26000
Manganese	ug/L	193[ab]	757[ab]	161[ab]	0.191
Mercury	ug/L	0.001 U	0.001 U	0.001 U	0.001 U
Nickel	ug/L	0.67	3.02	0.50 U	0.50 U
Selenium	ug/L	0.3 J	0.5 J	0.6 J	0.5 J
Silver	ug/L	0.020 U	0.020 U	0.020 U	0.020 U
Sodium	ug/L	27700	21600	23400	23000
Thallium	ug/L	0.047 U	0.133	0.020 U	0.020 U
Vanadium	ug/L	0.17 J	0.19 J	0.19 J	0.19 J
Zinc	ug/L	0.73	3.17	0.83	1.58
Field Parameters					
Conductivity	mS/cm	0 911	0.720	0.756	0.764
Dissolved oxygen (DO)	mg/L	1.75	2.87	3 49	1.83
Oxidation reduction potential (ORP)	millivolt	-174.3	18.9	-65.0	72.0
pH	s.u.	6.78	7.19	7.05	7.25
Temperature	Deg C	15.31	15.50	14.95	14.16
Turbidity	NTU	1.89	2.24	6.8	1.21

Notes:

U - Not detected at the associated reporting limit.

J - Estimated concentration.

UJ - Not detected; associated reporting limit is estimated.

R - Rejected.

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MEMORANDUM

TO:	Greg Carli	REF. NO.:	56393
FROM:	Susan Scrocchi/bjw/24 SCS	DATE:	September 23, 2013
CC:	Jodie Dembowske		E-Mail and Hard Copy if Requested
RE:	**Analytical Results and Full Validation Groundwater Monitoring 12th Street Landfill Otsego Township, Michigan July 2013**		

INTRODUCTION

The following document details a validation of analytical results for groundwater samples collected at the 12th Street Landfill Site in Otsego Township, Michigan during July 2013. Samples were submitted to ALS Laboratory, located in Kelso, Washington. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Table 2. A summary of the analytical methodology is presented in Table 3.

Full Contract Laboratory Program (CLP) equivalent raw data deliverables were provided by the laboratory. Evaluation of the data was based on information obtained from the finished data sheets, raw data, chain of custody forms, calibration data, blank data, duplicate data, recovery data from surrogate spikes, laboratory control samples (LCS), and matrix spike samples (MS); and field quality assurance/quality control (QA/QC) samples. The assessment of analytical and in-house data included checks for: data consistency (by observing comparability of duplicate analyses); adherence to accuracy and precision criteria; and transmittal errors.

The quality assurance/quality control (QA/QC) criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and the documents entitled:

i) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", United States Environmental Protection Agency (USEPA) 540/R-99-008, October 1999

ii) "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review", USEPA 540/R-94-013, February 1994

iii) "USEPA Analytical Operations/Data Quality Center (AOC) National Functional Guidelines for Chlorinated Dioxin/Furan Data Review", EPA 540-R-02-003, August 2002

Items i), ii), and iii) will subsequently be referred to as the "Guidelines" in this Memorandum.

SAMPLE HOLDING TIME AND PRESERVATION

The sample holding time criteria for the analyses are summarized in Table 3. Sample chain of custody documents and analytical reports were used to determine sample holding times. All samples were prepared and analyzed within the required holding times with the exception of a few samples that were prepared for hexavalent chromium outside of the 24 hour holding time. The associated sample results were qualified as estimated (see Table 4).

All samples were properly delivered on ice, and stored by the laboratory at the required temperature (0-6°C).

GAS CHROMATOGRAPHY/MASS SPECTROMETER (GC/MS) - TUNING AND MASS CALIBRATION (INSTRUMENT PERFORMANCE CHECK) AND INDUCTIVELY COUPLED PLASMA/MASS SPECTROMETER (ICP/MS)

Organic Analyses

Prior to volatile organic compound (VOC) and semi-volatile organic compound (SVOC) analysis, GC/MS instrumentation is tuned to ensure optimization over the mass range of interest. To evaluate instrument tuning, methods require the analysis of specific tuning compounds bromofluorobenzene (BFB) and decafluorotriphenylphosphine (DFTPP), respectively. The resulting spectra must meet the criteria cited in the methods before analysis is initiated. Analysis of the tuning compound must then be repeated every 12 hours throughout sample analysis to ensure the continued optimization of the instrument.

Tuning compounds were analyzed at the required frequency throughout the volatile and semi-volatile analysis periods. All tuning criteria were met; indicating that proper optimization of the instrumentation was achieved.

Inorganic Analyses

To ensure adequate mass resolution, identification, and to some degree, sensitivity; the performance of each ICP/MS instrument used for metals analyses is checked prior to calibration and initiating an analysis sequence through the analysis of a tuning solution.

Instrument performance check data were reviewed. The tuning solution was analyzed at the required frequency throughout the analyses. The results of all instrument performance checks were within the method acceptance criteria, indicating that proper optimization of the instrumentation was achieved.

INITIAL CALIBRATION - ORGANIC ANALYSES

GC/MS

To quantify VOC, SVOC and polychlorinated dibenzo-p-dioxin/polychlorinated dibenzofurans (PCDD/PCDF) compounds in samples, calibration of the GC/MS over a specific concentration range must be performed. Initially, a five-point calibration curve containing all compounds of interest is analyzed to

characterize instrument response for each analyte over a specific concentration range. Linearity of the calibration curve and instrument sensitivity are evaluated against the following criteria:

i) GC/MS (VOCs/SVOCs) - must meet a minimum mean relative response factor (RRF) of 0.05

ii) GC/MS (VOCs/SVOCs) - the percent relative standard deviation (RSD) values must not exceed 30.0 percent or a minimum coefficient of determination of 0.99 if quadratic equation calibration curves are used

iii) GC/MS (PCDD/PCDF) -the percent relative standard deviation (%RSD) for the mean relative response factors from the unlabeled native analytes must not exceed 20 percent, and the %RSD for the labeled internal standards must not exceed 35 percent

The initial calibration data for VOCs, SVOCs and PCDD/PCDFs were reviewed. All compounds met the above criteria for linearity. Some VOCs exhibited very low response factors indicating poor sensitivity. All associated results were non-detect and rejected due to poor analytical sensitivity (see Table 5).

GC

In order to quantify organic compounds of interest by GC, calibration of the gas chromatograph over a specific concentration range must be performed. Initially, a calibration curve consisting of a minimum of five concentration levels is analyzed for all single component compounds of interest and for polychlorinated biphenyls (PCBs) (Aroclors 1016 and 1260). A single calibration standard is analyzed for all other multi-response compounds. Linearity of the calibration curve is acceptable if all RSD values are less than or equal to 20.0 percent or if the correlation coefficient (R) is 0.995 or greater for linear regression curves.

Retention time windows are also calculated from the initial calibration analyses. These windows are then used to identify all compounds of interest in subsequent analyses.

All initial calibration standards were analyzed at the required frequencies. All retention time, peak resolution and linearity criteria were satisfied as specified in the method.

INITIAL CALIBRATION - INORGANIC ANALYSES

Initial calibration of the instruments ensures that they are capable of producing satisfactory quantitative data at the beginning of a series of analyses. For Inductively Coupled Plasma (ICP) and ICP/MS analysis, a calibration blank and at least one standard must be analyzed at each wavelength to establish the analytical curve. For instrumental general chemistry analyses, a calibration blank and a minimum of five standards must be analyzed to establish the analytical curve and resulting correlation coefficients (R) must be 0.995 or greater.

For low level mercury analyses, three blanks and a minimum of five standards are analyzed. The average blank response is used to correct each standard response, and the corrected responses are used to calculate calibration factors. The calibration is acceptable if the RSD of the calibration factors is less than 15 percent and if recovery of the lowest standard is 75 to 125 percent.

After the analyses of the calibration curves, an initial calibration verification (ICV) standard must be analyzed to verify the analytical accuracy of the calibration curves. All analyte recoveries from the analyses of the ICVs must be within the following control limits:

Analytical Method	*Parameter*	*Control Limits*
ICP/AA	Metals	90 - 110%
Instrumental Wet Chemistry	Cyanide	85 - 115%

Upon review of the data, it was determined that the calibration curves and ICVs were analyzed at the proper frequencies and that all of the above-specified criteria were met. The laboratory effectively demonstrated that the instrumentation used for metals and general chemistry analyses were properly calibrated prior to sample analysis.

CONTINUING CALIBRATION - ORGANIC ANALYSES

GC/MS

To ensure that instrument calibration for VOC, SVOC and PCDD/PCDF analyses is acceptable throughout the sample analysis period, continuing calibration standards must be analyzed and compared to the initial calibration curve every 12 hours.

The following criteria were employed to evaluate continuing calibration data:

i. GC/MS (VOCs/SVOCs) - must meet a minimum mean RRF of 0.05.

ii. GC/MS (VOCs/SVOCs) - the percent difference (%D) between the mean initial calibration RRF and the continuing calibration RRF must not exceed 25 percent.

iii. GC/MS (VOCs/SVOCs determined by quadratic curve) - the percent drift between the true value and the continuing calibration value must not exceed 25 percent.

iv. GC/MS (PCDD/PCDF) - the percent difference between the mean initial calibration RRF and the continuing calibration RRF must not exceed 20 percent for the unlabeled native analyte (30% for the labeled)

Calibration standards were analyzed at the required frequency, and the results met the above criteria for instrument sensitivity and stability with the exception of some high %Ds for some VOCs and SVOCs. The associated sample results were qualified as estimated to reflect the implied variability (see Table 6).

GC

To ensure that the calibration of the instrument for organic analyses by GC is valid throughout the sample analysis period, continuing calibration standards are analyzed and evaluated on a regular basis. To evaluate the continued linearity of the calibration, %D values are calculated for each compound. As specified in the methods, all %D values should not exceed 15 percent. To ensure that compound retention times do not vary over the analysis period, all retention times for continuing calibration compounds must fall within the established retention time windows.

All continuing calibration standards were analyzed at the required frequency. All %D values and compound retention times met the above criteria indicating acceptable instrument calibration throughout the analysis period.

CONTINUING CALIBRATION - INORGANIC ANALYSES

To ensure that instrument calibration is acceptable throughout the sample analysis period, continuing calibration verification (CCV) standards are analyzed on a regular basis. Each CCV is deemed acceptable if all analyte recoveries are within the control limits specified above for the ICVs. If some of the CCV analyte recoveries are outside the control limits, samples analyzed before and after the CCV, up until the previous and proceeding CCV analyses, are affected.

For this study, CCVs were analyzed at the proper frequency. All analyte recoveries reported for the CCVs were within the specified limits.

LABORATORY BLANK ANALYSES

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures. Additionally, initial and continuing calibration blanks (ICBs/CCBs) are routinely analyzed after each ICV/CCV for the inorganic parameters.

For this study, laboratory method blanks were analyzed at a minimum frequency of one per 20 investigative samples and/or one per analytical batch.

Organic Analyses
Most method blank results were non-detect, indicating that laboratory contamination was not a factor for this investigation. Low levels of VOCs, SVOCs and PCDD/PCDFs were observed in some of the blanks. All associated samples with similar concentrations were qualified as non-detect (see Table 7).

Inorganic Analyses
Upon review of the ICBs, CCBs, and method blanks, it was noted that metal concentrations were observed above the method detection limit (MDL). Most investigative samples associated with the low level detections reported either non-detect concentrations or concentrations significantly greater than the associated laboratory blank concentrations for the analytes of interest. These sample results were not impacted by the contamination detected. Associated positive sample results with similar concentrations to the levels reported in the blanks were qualified as non-detect (see Tables 7 and 8).

SURROGATE SPIKE RECOVERIES

In accordance with the methods employed, all samples, blanks and QC samples analyzed for organics are spiked with surrogate compounds prior to sample extraction and/or analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for VOC, SVOC and PCB determinations were spiked with the appropriate number of surrogate compounds prior to sample extraction and/or analysis.

Each individual surrogate compound is expected to meet the laboratory control limits with the exception of SVOC analyses. According to the "Guidelines" for SVOC analyses, up to one outlying surrogate in the base/neutral or acid fractions is acceptable as long as the recovery is at least 10 percent.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries met the above criteria.

INTERNAL STANDARDS (IS) ANALYSES

Internal standard data were evaluated for all VOC, SVOC and ICP/MS metals sample analyses.

Organics Analyses

To ensure that changes in the GC/MS sensitivity and response do not affect sample analysis results, internal standard compounds are added to each sample prior to analysis. All results are then calculated as a ratio of the internal standard responses.

The sample internal standard results were evaluated against the following criteria:

i) The retention time of the internal standard must not vary more than ±30 seconds from the associated calibration standard.

ii) Internal standard area counts must not vary by more than a factor of two (-50 percent to +100 percent) from the associated calibration standard.

All organic internal standard recoveries and retention times met the above criteria.

Inorganic Analyses

Internal standard elements were added to all samples prior to metals analysis by ICP/MS. Overall instrument stability and performance for metals analyses were monitored using the internal standard intensity data. Internal standard recoveries were assessed using control limits of 60-125%.

All inorganic internal standard recoveries were acceptable, demonstrating adequate analytical performance.

RECOVERY OF SPIKED LABELED COMPOUNDS

Labeled PCDDs/PCDFs are added to each sample and method blank prior to extraction to be an internal standard for the quantitation of the native compounds, and to serve as surrogates for the assessment of method performance in the sample matrix.

Most labeled compound recoveries were within the laboratory control limits demonstrating acceptable analytical accuracy. Sample WG-56393-071513-EB-165 yielded recoveries just below the acceptable range. All PCDD/PCDF results for this sample were qualified as estimated to reflect the implied low bias (see Table 9).

LABORATORY CONTROL SAMPLE (LCS) ANALYSES

LCS and/or laboratory control sample duplicates (LCSD) are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects. The relative percent difference (RPD) of the LCS/LCSD recoveries is used to evaluate analytical precision.

For this study, LCS/LCSD were analyzed at a minimum frequency of one per 20 investigative samples and/or one per analytical batch.

Organic Analyses
The LCS/LCSD contained all compounds of interest. All LCS recoveries and relative percent differences were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision.

Inorganic Analyses
The LCS/LCSD contained all analytes of interest. LCS recoveries were assessed per the "Guidelines". All LCS recoveries and relative percent differences were within the control limits, demonstrating acceptable analytical accuracy and precision.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) ANALYSES - ORGANIC ANALYSES

To evaluate the effects of sample matrices on the extraction or digestion process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed.

MS/MSD analyses were performed as specified in Table 1.

Organic Analyses
The MS/MSD samples were spiked with all compounds of interest. All percent recoveries and RPD values were within the laboratory control limits, demonstrating acceptable analytical accuracy and precision.

MATRIX SPIKE (MS) ANALYSES - INORGANIC ANALYSES

To evaluate the effects of sample matrices on the preparation, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS samples. For this study, MS samples were prepared and analyzed by the laboratory as specified in Table 1.

The MS results were evaluated per the "Guidelines". In accordance with the "Guidelines", MS recoveries for samples with analyte concentrations significantly greater than the spike concentrations could not be assessed.

All MS analyses performed were acceptable, demonstrating acceptable analytical accuracy.

DUPLICATE SAMPLE ANALYSES - INORGANIC ANALYSES

Analytical precision is evaluated based on the analysis of laboratory duplicate samples. For this study, duplicate samples were prepared and analyzed by the laboratory as specified in Table 1. The duplicate results were evaluated per the "Guidelines".

All duplicate analyses performed were acceptable, demonstrating acceptable analytical precision.

ICP/ICP/MS SERIAL DILUTION

The serial dilution determines whether significant physical or chemical interferences exist due to sample matrix. A minimum of one per 20 investigative samples or at least one per analytical batch must be analyzed at a five-fold dilution. For samples with sufficient analyte concentrations (> 50 times the method detection limit), the serial dilution results must agree within 10 percent of the original results.

A serial dilution was performed on each MS sample. All results met the criteria above.

ICP INTERFERENCE CHECK SAMPLE ANALYSIS (ICS)

To verify that the laboratory has established proper inter-element and background correction factors, ICSs are analyzed. These samples contain high concentrations of aluminum, calcium, magnesium and iron and are analyzed at the beginning and end of each sample analysis period. The ICSs are evaluated against recovery control limits of 80 to 120 percent.

ICS analysis results were evaluated for all samples using the criteria in the "Guidelines". All ICS recoveries and results were acceptable.

FIELD QA/QC SAMPLES

The field QA/QC consisted of ten trip blank samples, one equipment blank sample, and one field duplicate sample set.

Trip Blank Sample Analysis

To evaluate contamination from sample collection, transportation, storage, and analytical activities, 10 trip blanks were submitted to the laboratory for VOC and mercury analysis. All results were non-detect for the

compounds of interest with the exception of some low level detections. All associated sample results with similar concentrations were qualified as non-detect (see Table 10).

Equipment Blank Sample Analysis

To assess field decontamination procedures, ambient conditions at the site, and cleanliness of sample containers, one equipment blank was submitted for analysis, as identified in Table 1. Various compounds of interest were present in the equipment blank at low levels. All associated sample results with similar concentrations were qualified as non-detect (see Table 11).

Field Duplicate Sample Analysis

To assess the analytical and sampling protocol precision, one field duplicate sample was collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with these duplicate samples must be less than 50 and 100 percent for water and soil samples, respectively. If the reported concentration in either the investigative sample or its duplicate is less than five times the practical quantitation limit (PQL), the evaluation criteria is one or two times the PQL value for water and soil samples, respectively.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

ANALYTE REPORTING

The laboratory reported detected results down to the laboratory's MDL for each analyte. Positive analyte detections less than the PQL but greater than the MDL were qualified as estimated (J) in Table 2 unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the PQL in Table 2.

TARGET COMPOUND IDENTIFICATION

To minimize erroneous compound identification during organic analyses, qualitative criteria including compound retention time and mass spectra (if applicable) were evaluated according to the identification criteria established by the methods. The samples identified in Table 1 were reviewed. The organic compounds reported adhered to the specified identification criteria with the exception of some PCDD/PCDF results.

The following criteria, as specified in the Methods, must be met for a gas chromatograph (GC) peak to be identified as a PCDD/PCDF:

i) The signals for the two exact mass to charge ratios (m/z) for the congener must be present and maximized within ±2 seconds of one another.
ii) The signal-to-noise ratio (S/N) of each of the two exact m/z's for the congener must be ≥2.5.
iii) The ratio of the mass areas of the two exact m/z(s) for the congener must be within the method limits.

Some sample results were reported as positive hits although one or more of the above criteria were not met. The associated results were qualified as the estimated maximum possible concentration. A summary of these qualified data is presented in Table12.

CONCLUSION

Based on this assessment of the information provided, the data provided by ALS were found to exhibit acceptable levels of accuracy and precision and may be used with the qualifications and exceptions noted.

TABLE 1

SAMPLE COLLECTION AND ANALYSIS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

					Analysis/Parameters								
Sample Identification	*Location*	*Matrix*	*Collection Date (mm/dd/yyyy)*	*Collection Time (hr:min)*	*Mercury*	*Metals*	*Hexavalent Chromium*	*Cyanide (total and amenable)*	*PCBs*	*VOCs*	*SVOCs*	*PCDD/PCDFs*	*Comments*
WG-56393-071513-EB-165	MW-107S	Groundwater	7/15/2013	16:53	X	X	X	X	X	X	X	X	MS/MSD
WG-56393-071513-EB-166	MW-108D	Groundwater	7/15/2013	16:47	X	X	X	X	X	X	X	X	
TB-56393-071513-EB-167	-	-	7/15/2013	-						X			Trip Blank
TB-56393-071513-EB-168	-	-	7/15/2013	-	X								Trip Blank
WG-56393-071613-EB-167	MW-108S	Groundwater	7/16/2013	14:35	X	X	X	X	X	X	X	X	
WG-56393-071613-EB-168	MW-102D	Groundwater	7/16/2013	16:15	X	X	X	X	X	X	X	X	
WG-56393-071613-EB-169	MW-102S	Groundwater	7/16/2013	17:01	X	X	X	X	X	X	X	X	
WG-56393-071613-EB-170	MW-109D	Groundwater	7/16/2013	18:42	X	X	X	X	X	X	X	X	
TB-56393-071613-EB-171	-	-	7/16/2013	-	X								Trip Blank
TB-56393-071613-EB-172	-	-	7/16/2013	-						X			Trip Blank
WG-56393-071713-EB-173	MW-103D	Groundwater	7/17/2013	15:40	X	X	X	X	X	X	X	X	
WG-56393-071713-EB-174	MW-104D	Groundwater	7/17/2013	16:14	X	X	X	X	X	X	X	X	
WG-56393-071713-EB-175	MW-104S	Groundwater	7/17/2013	17:24	X	X	X	X	X	X	X	X	
TB-56393-071713-EB-176	-	-	7/17/2013	-	X								Trip Blank
TB-56393-071713-EB-177	-	-	7/17/2013	-						X			Trip Blank
WG-56393-071813-EB-178	MW-101S	Groundwater	7/18/2013	16:30	X	X	X	X	X	X	X	X	
WG-56393-071813-EB-180	MW-101D	Groundwater	7/18/2013	18:45	X	X	X	X	X	X	X	X	
WG-56393-071813-EB-181	MW-105S	Groundwater	7/18/2013	14:16	X	X	X	X	X	X	X	X	
WG-56393-071813-EB-182	MW-105D	Groundwater	7/18/2013	17:55	X	X	X	X	X	X	X	X	
EB-56393-071813-EB-179	-	-	7/18/2013	-	X	X	X	X	X	X	X	X	Equipment Blank

TABLE 1

SAMPLE COLLECTION AND ANALYSIS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

					Analysis/Parameters								
Sample Identification	*Location*	*Matrix*	*Collection Date (mm/dd/yyyy)*	*Collection Time (hr:min)*	*Mercury*	*Metals*	*Hexavalent Chromium*	*Cyanide (total and amenable)*	*PCBs*	*VOCs*	*SVOCs*	*PCDD/PCDFs*	*Comments*
TB-56393-071813-EB-183	-	-	7/18/2013	-	X								Trip Blank
TB-56393-071813-EB-184	-	-	7/18/2013	-						X			Trip Blank
WG-56393-071913-EB-185	MW-106S	Groundwater	7/19/2013	14:05	X	X	X	X	X	X	X	X	
WG-56393-071913-EB-186	MW-106D	Groundwater	7/19/2013	14:17	X	X	X	X	X	X	X	X	
WG-56393-071913-EB-187	MW-106D	Groundwater	7/19/2013	14:48	X	X	X	X	X	X	X	X	Field dup of WG-56393-071913-EB-186
TB-56393-071913-EB-188	-	-	7/19/2013	-	X								Trip Blank
TB-56393-071913-EB-189	-	-	7/19/2013	-	X								Trip Blank

Notes:

PCBs	Polychlorinated biphenyls.
VOCs	Volatile organic compounds.
SVOCs	Semi-volatile organic compounds.
PCDD/PCDFs	Polychlorinated dibenzo-p-dioxin/polychlorinated dibenzofurans.
MS/MSD	Matrix spike/matrix spike duplicate.

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-101D*	*MW-101S*	*MW-102D*	*MW-102S*	*MW-103D*
Sample Identification		*WG-56393-071813-EB-180*	*WG-56393-071813-EB-178*	*WG-56393-071613-EB-168*	*WG-56393-071613-EB-169*	*WG-56393-071713-EB-173*
Sample Date		*7/18/2013*	*7/18/2013*	*7/16/2013*	*7/16/2013*	*7/17/2013*
Sample Type						
Screen Depth		*Screen_Depth: (70-75)*	*Screen_Depth: (32-29)*	*Screen_Depth: (40-45)*	*Screen_Depth: (3-10)*	*Screen_Depth: (30-35)*
Sample Elevation (feet AMSL)		*664.33-589.33*	*702.35-663.35*	*664.43-619.43*	*701.18-691.18*	*674.37-639.37*
Volatile Organic Compounds (VOCs)	*Units*					
Acetone	µg/L	R	R	R	R	R
Benzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromodichloromethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromoform	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Bromomethane (Methyl bromide)	µg/L	0.50 U	0.50 U	0.50 UJ	0.50 UJ	0.50 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	R	R	R	R	R
Carbon disulfide	µg/L	0.50 UJ	0.50 UJ	0.50 U	0.50 U	0.50 UJ
Carbon tetrachloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chlorobenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloroform (Trichloromethane)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Dibromochloromethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
1,2-Dichlorobenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,3-Dichlorobenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,4-Dichlorobenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Dichlorodifluoromethane (CFC-12)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloropropane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-101D*	*MW-101S*	*MW-102D*	*MW-102S*	*MW-103D*
Sample Identification		*WG-56393-071813-EB-180*	*WG-56393-071813-EB-178*	*WG-56393-071613-EB-168*	*WG-56393-071613-EB-169*	*WG-56393-071713-EB-173*
Sample Date		*7/18/2013*	*7/18/2013*	*7/16/2013*	*7/16/2013*	*7/17/2013*
Sample Type						
Screen Depth		*Screen_Depth: (70-75)*	*Screen_Depth: (32-29)*	*Screen_Depth: (40-45)*	*Screen_Depth: (3-10)*	*Screen_Depth: (30-35)*
Sample Elevation (feet AMSL)		*664.33-589.33*	*702.35-663.35*	*664.43-619.43*	*701.18-691.18*	*674.37-639.37*
Volatile Organic Compounds (VOCs) (Continued)						
trans-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Ethylbenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
2-Hexanone	µg/L	R	R	R	R	R
Isopropyl benzene	µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Methyl tert butyl ether (MTBE)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	20 U	20 U	20 U	20 U	20 U
Methylene chloride	µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Styrene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Toluene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,2,4-Trichlorobenzene	µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichlorofluoromethane (CFC-11)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
o-Xylene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
m&p-Xylenes	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Semi-Volatile Organic Compounds (SVOCs)						
Acenaphthene	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Acenaphthylene	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Anthracene	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Benzo(a)anthracene	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Benzo(a)pyrene	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-101D*	*MW-101S*	*MW-102D*	*MW-102S*	*MW-103D*
Sample Identification		*WG-56393-071813-EB-180*	*WG-56393-071813-EB-178*	*WG-56393-071613-EB-168*	*WG-56393-071613-EB-169*	*WG-56393-071713-EB-173*
Sample Date		*7/18/2013*	*7/18/2013*	*7/16/2013*	*7/16/2013*	*7/17/2013*
Sample Type						
Screen Depth		*Screen_Depth: (70-75)*	*Screen_Depth: (32-29)*	*Screen_Depth: (40-45)*	*Screen_Depth: (3-10)*	*Screen_Depth: (30-35)*
Sample Elevation (feet AMSL)		*664.33-589.33*	*702.35-663.35*	*664.43-619.43*	*701.18-691.18*	*674.37-639.37*
Semi-Volatile Organic Compounds (SVOCs) (Continued)						
Benzo(b)fluoranthene	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Benzo(g,h,i)perylene	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Benzo(k)fluoranthene	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Butyl benzylphthalate (BBP)	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Carbazole	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.021 J
4-Chloro-3-methylphenol	µg/L	0.52 U	0.48 U	0.51 U	0.50 U	0.48 U
bis(2-Chloroethyl)ether	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
2-Chlorophenol	µg/L	0.52 U	0.48 U	0.51 U	0.50 U	0.48 U
Chrysene	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Dibenz(a,h)anthracene	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Dibenzofuran	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
3,3'-Dichlorobenzidine	µg/L	2.1 U	1.9 U	2.1 U	2.0 U	1.9 U
2,4-Dichlorophenol	µg/L	0.52 U	0.48 U	0.51 U	0.50 U	0.48 U
Diethyl phthalate	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Dimethyl phthalate	µg/L	0.21 U	0.19 U	0.21 U	0.030 J	0.19 U
2,4-Dimethylphenol	µg/L	4.2 U	3.8 U	4.1 U	4.0 U	3.8 U
Di-n-butylphthalate (DBP)	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
4,6-Dinitro-2-methylphenol	µg/L	2.1 UJ	1.9 UJ	2.1 U	2.0 U	1.9 UJ
2,4-Dinitrotoluene	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Di-n-octyl phthalate (DnOP)	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	1.1 U	0.95 U	1.1 U	1.0 U	0.95 U
Fluoranthene	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Fluorene	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Hexachlorobenzene	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Hexachlorobutadiene	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Hexachlorocyclopentadiene	µg/L	1.1 U	0.95 U	1.1 U	1.0 U	0.95 U

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-101D*	*MW-101S*	*MW-102D*	*MW-102S*	*MW-103D*
Sample Identification		*WG-56393-071813-EB-180*	*WG-56393-071813-EB-178*	*WG-56393-071613-EB-168*	*WG-56393-071613-EB-169*	*WG-56393-071713-EB-173*
Sample Date		*7/18/2013*	*7/18/2013*	*7/16/2013*	*7/16/2013*	*7/17/2013*
Sample Type						
Screen Depth		*Screen_Depth: (70-75)*	*Screen_Depth: (32-29)*	*Screen_Depth: (40-45)*	*Screen_Depth: (3-10)*	*Screen_Depth: (30-35)*
Sample Elevation (feet AMSL)		*664.33-589.33*	*702.35-663.35*	*664.43-619.43*	*701.18-691.18*	*674.37-639.37*
Semi-Volatile Organic Compounds (SVOCs) (Continued)						
Hexachloroethane	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Indeno(1,2,3-cd)pyrene	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Isophorone	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
2-Methylnaphthalene	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
2-Methylphenol	µg/L	0.52 U	0.48 U	0.51 U	0.50 U	0.48 U
4-Methylphenol	µg/L	0.52 U	0.48 U	0.51 U	0.50 U	0.48 U
Naphthalene	µg/L	0.21 U	0.19 U	0.067 J	0.040 J	0.19 U
Nitrobenzene	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
2-Nitrophenol	µg/L	0.52 U	0.48 U	0.51 U	0.50 U	0.48 U
N-Nitrosodi-n-propylamine	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
N-Nitrosodiphenylamine	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
Pentachlorophenol	µg/L	1.1 U	0.95 U	1.1 U	1.0 U	0.95 U
Phenanthrene	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.023 J
Phenol	µg/L	0.52 U	0.48 U	0.51 U	0.50 U	0.48 U
Pyrene	µg/L	0.21 U	0.19 U	0.21 U	0.20 U	0.19 U
2,4,5-Trichlorophenol	µg/L	0.52 U	0.48 U	0.51 U	0.50 U	0.48 U
2,4,6-Trichlorophenol	µg/L	0.52 U	0.48 U	0.51 U	0.50 U	0.48 U
Polychlorinated Biphenyls (PCBs)						
Aroclor-1016 (PCB-1016)	µg/L	0.021 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1221 (PCB-1221)	µg/L	0.041 U	0.040 U	0.040 U	0.040 U	0.040 U
Aroclor-1232 (PCB-1232)	µg/L	0.021 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1242 (PCB-1242)	µg/L	0.021 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1248 (PCB-1248)	µg/L	0.021 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1254 (PCB-1254)	µg/L	0.021 U	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1260 (PCB-1260)	µg/L	0.021 U	0.020 U	0.020 U	0.020 U	0.020 U
Dioxins/Furans						

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-101D*	*MW-101S*	*MW-102D*	*MW-102S*	*MW-103D*
Sample Identification		*WG-56393-071813-EB-180*	*WG-56393-071813-EB-178*	*WG-56393-071613-EB-168*	*WG-56393-071613-EB-169*	*WG-56393-071713-EB-173*
Sample Date		*7/18/2013*	*7/18/2013*	*7/16/2013*	*7/16/2013*	*7/17/2013*
Sample Type						
Screen Depth		*Screen_Depth: (70-75)*	*Screen_Depth: (32-29)*	*Screen_Depth: (40-45)*	*Screen_Depth: (3-10)*	*Screen_Depth: (30-35)*
Sample Elevation (feet AMSL)		*664.33-589.33*	*702.35-663.35*	*664.43-619.43*	*701.18-691.18*	*674.37-639.37*
Polychlorinated Biphenyls (PCBs) (Continued)						
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	µg/L	0.0000247 U	0.0000248 U	0.00000213 J	0.00000216 J	0.00000171 J
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	µg/L	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
Total heptachlorodibenzofuran (HpCDF)	µg/L	0.0000247 U	0.0000248 U	0.00000809 J	0.00000597 J	0.00000495 J
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	µg/L	0.0000247 U	0.0000248 U	0.00000543 J	0.00000627 J	0.0000245 U
Total heptachlorodibenzo-p-dioxin (HpCDD)	µg/L	0.0000247 U	0.0000115 J	0.00000543 J	0.00000895 J	0.00000459 J
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	µg/L	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	µg/L	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	µg/L	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	µg/L	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
Total hexachlorodibenzofuran (HxCDF)	µg/L	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.000000727 J
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	µg/L	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	µg/L	0.0000247 U	0.0000248 U	0.0000245 U	0.000000739 J	0.0000245 U
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	µg/L	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
Total hexachlorodibenzo-p-dioxin (HxCDD)	µg/L	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	µg/L	0.0000121 J	0.0000497 U	0.00000685 J	0.0000104 J	0.000049 U
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	µg/L	0.000114 U	0.000104 U	0.0000681	0.0000823	0.0000591 U
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	µg/L	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	µg/L	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
Total pentachlorodibenzofuran (PeCDF)	µg/L	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	µg/L	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
Total pentachlorodibenzo-p-dioxin (PeCDD)	µg/L	0.0000247 U	0.0000248 U	0.0000245 U	0.0000266 U	0.0000245 U
Total tetrachlorodibenzofuran (TCDF)	µg/L	0.00000494 U	0.00000497 U	0.00000489 U	0.00000531 U	0.0000049 U
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	µg/L	0.00000494 U	0.00000497 U	0.00000489 U	0.00000531 U	0.0000049 U
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	µg/L	0.00000494 U	0.00000497 U	0.00000489 U	0.00000531 U	0.0000049 U
Total tetrachlorodibenzo-p-dioxin (TCDD)	µg/L	0.00000494 U	0.00000497 U	0.00000489 U	0.00000531 U	0.0000049 U
Dioxin toxicity equivalent (TEQ)	µg/L	0.000000103	0.000000081	0.0000000981 J	0.000000186 J	0.0000000171 J

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-101D*	*MW-101S*	*MW-102D*	*MW-102S*	*MW-103D*
Sample Identification		*WG-56393-071813-EB-180*	*WG-56393-071813-EB-178*	*WG-56393-071613-EB-168*	*WG-56393-071613-EB-169*	*WG-56393-071713-EB-173*
Sample Date		*7/18/2013*	*7/18/2013*	*7/16/2013*	*7/16/2013*	*7/17/2013*
Sample Type						
Screen Depth		*Screen_Depth: (70-75)*	*Screen_Depth: (32-29)*	*Screen_Depth: (40-45)*	*Screen_Depth: (3-10)*	*Screen_Depth: (30-35)*
Sample Elevation (feet AMSL)		*664.33-589.33*	*702.35-663.35*	*664.43-619.43*	*701.18-691.18*	*674.37-639.37*
Metals						
Aluminum	µg/L	39.7 U	2.0 U	2.1	5.6	11.0
Antimony	µg/L	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Arsenic	µg/L	0.50 U	0.50 U	0.26 J	0.25 J	0.23 J
Barium	µg/L	75.1	81.7	69.4	97.7	62.6
Beryllium	µg/L	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Cadmium	µg/L	0.020 U	0.020 U	0.020 U	0.020 U	0.020 U
Chromium	µg/L	0.78 U	1.09 U	0.73	0.71	0.92
Chromium VI (hexavalent)	µg/L	2.0 U	2.0 U	2.0 UJ	2.0 U	2.0 UJ
Cyanide (amenable)	µg/L	10 U	10 U	10 U	10 U	10 U
Cyanide (total)	µg/L	10 U	10 U	10 U	10 U	10 U
Cobalt	µg/L	0.332	0.155	0.134	0.327	0.166
Copper	µg/L	1.12	0.53 U	0.44	0.67	0.55
Iron	µg/L	304	20.0 U	7.1 J	35.3	35.9
Lead	µg/L	0.372	0.020 U	0.020 U	0.020 U	0.034 U
Magnesium	µg/L	24700	25400	22200	25400	23100
Manganese	µg/L	9.420	0.420	0.287	149	1.580
Mercury	µg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Nickel	µg/L	1.88	1.87	0.50 U	0.50 U	1.56
Selenium	µg/L	1.0 U	1.0 U	0.7 J	0.7 J	0.5 J
Silver	µg/L	0.029 U	0.020 U	0.020 U	0.020 U	0.020 U
Sodium	µg/L	25400	24700	21800	22500	20700

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

	Sample Location	*MW-101D*	*MW-101S*	*MW-102D*	*MW-102S*	*MW-103D*
	Sample Identification	*WG-56393-071813-EB-180*	*WG-56393-071813-EB-178*	*WG-56393-071613-EB-168*	*WG-56393-071613-EB-169*	*WG-56393-071713-EB-173*
	Sample Date	*7/18/2013*	*7/18/2013*	*7/16/2013*	*7/16/2013*	*7/17/2013*
	Sample Type					
	Screen Depth	*Screen_Depth: (70-75)*	*Screen_Depth: (32-29)*	*Screen_Depth: (40-45)*	*Screen_Depth: (3-10)*	*Screen_Depth: (30-35)*
	Sample Elevation (feet AMSL)	*664.33-589.33*	*702.35-663.35*	*664.43-619.43*	*701.18-691.18*	*674.37-639.37*
Metals (Continued)						
Thallium	µg/L	0.020 U	0.020 U	0.020 U	0.031 U	0.020 U
Vanadium	µg/L	0.36	0.20 J	0.25	0.23	0.30
Zinc	µg/L	3.63	0.66 U	0.37 J	0.54	1.35

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-104D*	*MW-104S*	*MW-105D*	*MW-105S*
Sample Identification		*WG-56393-071713-EB-174*	*WG-56393-071713-EB-175*	*WG-56393-071813-EB-182*	*WG-56393-071813-EB-181*
Sample Date		*7/17/2013*	*7/17/2013*	*7/18/2013*	*7/18/2013*
Sample Type					
Screen Depth		*Screen_Depth: (40-45)*	*Screen_Depth: (20-25)*	*Screen_Depth: (42-47)*	*Screen_Depth: (5-12)*
Sample Elevation (feet AMSL)		*633.48-618.48*	*684.86-658.86*	*662.79-615.79*	*699.89-687.89*
Volatile Organic Compounds (VOCs)	*Units*				
Acetone	µg/L	R	R	R	R
Benzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Bromodichloromethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Bromoform	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Bromomethane (Methyl bromide)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	R	R	R	R
Carbon disulfide	µg/L	0.50 UJ	0.50 UJ	0.50 UJ	0.50 UJ
Carbon tetrachloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Chlorobenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Chloroform (Trichloromethane)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	2.0 U	2.0 U	2.0 U	2.0 U
Dibromochloromethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	2.0 U	2.0 U	2.0 U	2.0 U
1,2-Dichlorobenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,3-Dichlorobenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,4-Dichlorobenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Dichlorodifluoromethane (CFC-12)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloropropane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-104D*	*MW-104S*	*MW-105D*	*MW-105S*
Sample Identification		*WG-56393-071713-EB-174*	*WG-56393-071713-EB-175*	*WG-56393-071813-EB-182*	*WG-56393-071813-EB-181*
Sample Date		*7/17/2013*	*7/17/2013*	*7/18/2013*	*7/18/2013*
Sample Type					
Screen Depth		*Screen_Depth: (40-45)*	*Screen_Depth: (20-25)*	*Screen_Depth: (42-47)*	*Screen_Depth: (5-12)*
Sample Elevation (feet AMSL)		*633.48-618.48*	*684.86-658.86*	*662.79-615.79*	*699.89-687.89*
Volatile Organic Compounds (VOCs) (Continued)					
trans-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Ethylbenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
2-Hexanone	µg/L	R	R	R	R
Isopropyl benzene	µg/L	2.0 U	2.0 U	2.0 U	2.0 U
Methyl tert butyl ether (MTBE)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	20 U	20 U	20 U	20 U
Methylene chloride	µg/L	2.0 U	2.0 U	2.0 U	2.0 U
Styrene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Toluene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,2,4-Trichlorobenzene	µg/L	2.0 U	2.0 U	2.0 U	2.0 U
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.080 J
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Trichlorofluoromethane (CFC-11)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
o-Xylene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
m&p-Xylenes	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Semi-Volatile Organic Compounds (SVOCs)					
Acenaphthene	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
Acenaphthylene	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
Anthracene	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
Benzo(a)anthracene	µg/L	0.021 J	0.20 U	0.20 U	0.21 U
Benzo(a)pyrene	µg/L	0.20 U	0.20 U	0.20 U	0.21 U

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-104D*	*MW-104S*	*MW-105D*	*MW-105S*
Sample Identification		*WG-56393-071713-EB-174*	*WG-56393-071713-EB-175*	*WG-56393-071813-EB-182*	*WG-56393-071813-EB-181*
Sample Date		*7/17/2013*	*7/17/2013*	*7/18/2013*	*7/18/2013*
Sample Type					
Screen Depth		*Screen_Depth: (40-45)*	*Screen_Depth: (20-25)*	*Screen_Depth: (42-47)*	*Screen_Depth: (5-12)*
Sample Elevation (feet AMSL)		*633.48-618.48*	*684.86-658.86*	*662.79-615.79*	*699.89-687.89*
Semi-Volatile Organic Compounds (SVOCs) (Continued)					
Benzo(b)fluoranthene	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
Benzo(g,h,i)perylene	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
Benzo(k)fluoranthene	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
Butyl benzylphthalate (BBP)	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
Carbazole	µg/L	0.20 U	0.20 U	0.019 J	0.21 U
4-Chloro-3-methylphenol	µg/L	0.49 U	0.50 U	0.50 U	0.52 U
bis(2-Chloroethyl)ether	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
2-Chlorophenol	µg/L	0.49 U	0.50 U	0.50 U	0.52 U
Chrysene	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
Dibenz(a,h)anthracene	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
Dibenzofuran	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
3,3'-Dichlorobenzidine	µg/L	2.0 U	2.0 U	2.0 U	2.1 U
2,4-Dichlorophenol	µg/L	0.49 U	0.50 U	0.50 U	0.52 U
Diethyl phthalate	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
Dimethyl phthalate	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
2,4-Dimethylphenol	µg/L	3.9 U	4.0 U	4.0 U	4.2 U
Di-n-butylphthalate (DBP)	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
4,6-Dinitro-2-methylphenol	µg/L	2.0 UJ	2.0 UJ	2.0 UJ	2.1 UJ
2,4-Dinitrotoluene	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
Di-n-octyl phthalate (DnOP)	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	0.97 U	0.99 U	0.99 U	1.1 U
Fluoranthene	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
Fluorene	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
Hexachlorobenzene	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
Hexachlorobutadiene	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
Hexachlorocyclopentadiene	µg/L	0.97 U	0.99 U	0.99 U	1.1 U

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-104D*	*MW-104S*	*MW-105D*	*MW-105S*
Sample Identification		*WG-56393-071713-EB-174*	*WG-56393-071713-EB-175*	*WG-56393-071813-EB-182*	*WG-56393-071813-EB-181*
Sample Date		*7/17/2013*	*7/17/2013*	*7/18/2013*	*7/18/2013*
Sample Type					
Screen Depth		*Screen_Depth: (40-45)*	*Screen_Depth: (20-25)*	*Screen_Depth: (42-47)*	*Screen_Depth: (5-12)*
Sample Elevation (feet AMSL)		*633.48-618.48*	*684.86-658.86*	*662.79-615.79*	*699.89-687.89*
Semi-Volatile Organic Compounds (SVOCs) (Continued)					
Hexachloroethane	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
Indeno(1,2,3-cd)pyrene	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
Isophorone	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
2-Methylnaphthalene	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
2-Methylphenol	µg/L	0.49 U	0.50 U	0.50 U	0.52 U
4-Methylphenol	µg/L	0.49 U	0.50 U	0.50 U	0.52 U
Naphthalene	µg/L	0.044 J	0.20 U	0.20 U	0.035 J
Nitrobenzene	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
2-Nitrophenol	µg/L	0.49 U	0.50 U	0.50 U	0.52 U
N-Nitrosodi-n-propylamine	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
N-Nitrosodiphenylamine	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
Pentachlorophenol	µg/L	0.97 U	0.99 U	0.99 U	1.1 U
Phenanthrene	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
Phenol	µg/L	0.49 U	0.50 U	0.50 U	0.52 U
Pyrene	µg/L	0.20 U	0.20 U	0.20 U	0.21 U
2,4,5-Trichlorophenol	µg/L	0.49 U	0.50 U	0.50 U	0.52 U
2,4,6-Trichlorophenol	µg/L	0.49 U	0.50 U	0.50 U	0.52 U
Polychlorinated Biphenyls (PCBs)					
Aroclor-1016 (PCB-1016)	µg/L	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1221 (PCB-1221)	µg/L	0.040 U	0.039 U	0.040 U	0.040 U
Aroclor-1232 (PCB-1232)	µg/L	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1242 (PCB-1242)	µg/L	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1248 (PCB-1248)	µg/L	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1254 (PCB-1254)	µg/L	0.020 U	0.020 U	0.020 U	0.020 U
Aroclor-1260 (PCB-1260)	µg/L	0.020 U	0.020 U	0.020 U	0.020 U
Dioxins/Furans					

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-104D*	*MW-104S*	*MW-105D*	*MW-105S*
Sample Identification		*WG-56393-071713-EB-174*	*WG-56393-071713-EB-175*	*WG-56393-071813-EB-182*	*WG-56393-071813-EB-181*
Sample Date		*7/17/2013*	*7/17/2013*	*7/18/2013*	*7/18/2013*
Sample Type					
Screen Depth		*Screen_Depth: (40-45)*	*Screen_Depth: (20-25)*	*Screen_Depth: (42-47)*	*Screen_Depth: (5-12)*
Sample Elevation (feet AMSL)		*633.48-618.48*	*684.86-658.86*	*662.79-615.79*	*699.89-687.89*
Polychlorinated Biphenyls (PCBs) (Continued)					
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	µg/L	0.00000158 J	0.00000181 J	0.0000241 U	0.0000239 U
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	µg/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U
Total heptachlorodibenzofuran (HpCDF)	µg/L	0.00000551 J	0.00000628 J	0.00000412 J	0.0000239 U
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	µg/L	0.0000239 U	0.0000243 U	0.00000524 J	0.00000578 J
Total heptachlorodibenzo-p-dioxin (HpCDD)	µg/L	0.0000142 J	0.0000143 J	0.0000241 U	0.00000578 J
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	µg/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	µg/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	µg/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	µg/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U
Total hexachlorodibenzofuran (HxCDF)	µg/L	0.0000239 U	0.0000243 U	0.000000652 J	0.0000239 U
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	µg/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	µg/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	µg/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U
Total hexachlorodibenzo-p-dioxin (HxCDD)	µg/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	µg/L	0.0000478 U	0.0000487 U	0.00000721 J	0.0000107 J
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	µg/L	0.0000673 U	0.0000713 U	0.0000762 U	0.0000842 U
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	µg/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	µg/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U
Total pentachlorodibenzofuran (PeCDF)	µg/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	µg/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U
Total pentachlorodibenzo-p-dioxin (PeCDD)	µg/L	0.0000239 U	0.0000243 U	0.0000241 U	0.0000239 U
Total tetrachlorodibenzofuran (TCDF)	µg/L	0.00000478 U	0.00000487 U	0.00000482 U	0.00000478 U
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	µg/L	0.00000478 U	0.00000487 U	0.00000482 U	0.00000478 U
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	µg/L	0.00000478 U	0.00000487 U	0.00000482 U	0.00000478 U
Total tetrachlorodibenzo-p-dioxin (TCDD)	µg/L	0.00000478 U	0.00000487 U	0.00000482 U	0.00000478 U
Dioxin toxicity equivalent (TEQ)	µg/L	0.0000000158 J	0.0000000181 J	0.0000000775	0.0000000863

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-104D*	*MW-104S*	*MW-105D*	*MW-105S*
Sample Identification		*WG-56393-071713-EB-174*	*WG-56393-071713-EB-175*	*WG-56393-071813-EB-182*	*WG-56393-071813-EB-181*
Sample Date		*7/17/2013*	*7/17/2013*	*7/18/2013*	*7/18/2013*
Sample Type					
Screen Depth		*Screen_Depth: (40-45)*	*Screen_Depth: (20-25)*	*Screen_Depth: (42-47)*	*Screen_Depth: (5-12)*
Sample Elevation (feet AMSL)		*633.48-618.48*	*684.86-658.86*	*662.79-615.79*	*699.89-687.89*
Metals					
Aluminum	µg/L	2.0 U	2.0 U	3.0	2.0 U
Antimony	µg/L	0.05 U	0.05 U	0.05 U	0.05 U
Arsenic	µg/L	0.25 J	0.26 J	0.50 U	0.50 U
Barium	µg/L	67.9	72.6	70.2	108
Beryllium	µg/L	0.020 U	0.020 U	0.020 U	0.020 U
Cadmium	µg/L	0.020 U	0.020 U	0.020 U	0.020 U
Chromium	µg/L	0.69	0.70	0.65	0.72
Chromium VI (hexavalent)	µg/L	2.0 UJ	2.0 UJ	2.0 U	2.0 U
Cyanide (amenable)	µg/L	10 U	10 U	10 U	10 U
Cyanide (total)	µg/L	10 U	10 U	10 U	10 U
Cobalt	µg/L	0.140	0.141	0.153	0.331
Copper	µg/L	0.47	0.49	0.69	0.56
Iron	µg/L	20.0 U	7.9 J	3.0 J	23.9
Lead	µg/L	0.020 U	0.020 U	0.030	0.020 U
Magnesium	µg/L	24300	24200	25300	27200
Manganese	µg/L	0.195	0.327	0.341	63.7
Mercury	µg/L	0.001 U	0.001 U	0.001 U	0.001 U
Nickel	µg/L	1.52	1.50	1.90	2.07
Selenium	µg/L	0.5 J	0.5 J	0.6 J	0.5 J
Silver	µg/L	0.020 U	0.020 U	0.020 U	0.020 U
Sodium	µg/L	22200	22200	23000	23400

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

	Sample Location	*MW-104D*	*MW-104S*	*MW-105D*	*MW-105S*
	Sample Identification	*WG-56393-071713-EB-174*	*WG-56393-071713-EB-175*	*WG-56393-071813-EB-182*	*WG-56393-071813-EB-181*
	Sample Date	*7/17/2013*	*7/17/2013*	*7/18/2013*	*7/18/2013*
	Sample Type				
	Screen Depth	*Screen_Depth: (40-45)*	*Screen_Depth: (20-25)*	*Screen_Depth: (42-47)*	*Screen_Depth: (5-12)*
	Sample Elevation (feet AMSL)	*633.48-618.48*	*684.86-658.86*	*662.79-615.79*	*699.89-687.89*
Metals (Continued)					
Thallium	µg/L	0.020 U	0.020 U	0.020 U	0.020 U
Vanadium	µg/L	0.26	0.25	0.18 J	0.19 J
Zinc	µg/L	0.77	0.54	1.10	0.60

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-106D*	*MW-106D*	*MW-106S*	*MW-107S*
Sample Identification		*WG-56393-071913-EB-186*	*WG-56393-071913-EB-187*	*WG-56393-071913-EB-185*	*WG-56393-071513-EB-165*
Sample Date		*7/19/2013*	*7/19/2013*	*7/19/2013*	*7/15/2013*
Sample Type			*Duplicate*		
Screen Depth		*Screen_Depth: (40-45)*	*Screen_Depth: (40-45)*	*Screen_Depth: (2-9)*	*Screen_Depth: (8-13)*
Sample Elevation (feet AMSL)		*664.66-620.66*	*664.66-620.66*	*701.89-692.89*	*695.76-682.76*
Volatile Organic Compounds (VOCs)	*Units*				
Acetone	µg/L	R	R	R	R
Benzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Bromodichloromethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Bromoform	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Bromomethane (Methyl bromide)	µg/L	0.50 UJ	0.50 UJ	0.50 UJ	0.50 U
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	R	R	R	R
Carbon disulfide	µg/L	0.50 UJ	0.50 UJ	0.50 UJ	0.50 U
Carbon tetrachloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Chlorobenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Chloroform (Trichloromethane)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	2.0 U	2.0 U	2.0 U	2.0 U
Dibromochloromethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	2.0 U	2.0 U	2.0 U	2.0 U
1,2-Dichlorobenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,3-Dichlorobenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,4-Dichlorobenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Dichlorodifluoromethane (CFC-12)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.14 J
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,2-Dichloropropane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
cis-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-106D*	*MW-106D*	*MW-106S*	*MW-107S*
Sample Identification		*WG-56393-071913-EB-186*	*WG-56393-071913-EB-187*	*WG-56393-071913-EB-185*	*WG-56393-071513-EB-165*
Sample Date		*7/19/2013*	*7/19/2013*	*7/19/2013*	*7/15/2013*
Sample Type			*Duplicate*		
Screen Depth		*Screen_Depth: (40-45)*	*Screen_Depth: (40-45)*	*Screen_Depth: (2-9)*	*Screen_Depth: (8-13)*
Sample Elevation (feet AMSL)		*664.66-620.66*	*664.66-620.66*	*701.89-692.89*	*695.76-682.76*
Volatile Organic Compounds (VOCs) (Continued)					
trans-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Ethylbenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
2-Hexanone	µg/L	R	R	R	R
Isopropyl benzene	µg/L	2.0 U	2.0 U	2.0 U	2.0 U
Methyl tert butyl ether (MTBE)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	20 U	20 U	20 U	20 U
Methylene chloride	µg/L	2.0 U	2.0 U	2.0 U	2.0 U
Styrene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Toluene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
1,2,4-Trichlorobenzene	µg/L	2.0 U	2.0 U	2.0 U	2.0 U
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.16 J
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Trichlorofluoromethane (CFC-11)	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
o-Xylene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
m&p-Xylenes	µg/L	0.50 U	0.50 U	0.50 U	0.50 U
Semi-Volatile Organic Compounds (SVOCs)					
Acenaphthene	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
Acenaphthylene	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
Anthracene	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
Benzo(a)anthracene	µg/L	0.20 U	0.020 J	0.20 U	0.19 U
Benzo(a)pyrene	µg/L	0.20 U	0.19 U	0.20 U	0.19 U

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ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-106D*	*MW-106D*	*MW-106S*	*MW-107S*
Sample Identification		*WG-56393-071913-EB-186*	*WG-56393-071913-EB-187*	*WG-56393-071913-EB-185*	*WG-56393-071513-EB-165*
Sample Date		*7/19/2013*	*7/19/2013*	*7/19/2013*	*7/15/2013*
Sample Type			*Duplicate*		
Screen Depth		*Screen_Depth: (40-45)*	*Screen_Depth: (40-45)*	*Screen_Depth: (2-9)*	*Screen_Depth: (8-13)*
Sample Elevation (feet AMSL)		*664.66-620.66*	*664.66-620.66*	*701.89-692.89*	*695.76-682.76*
Semi-Volatile Organic Compounds (SVOCs) (Continued)					
Benzo(b)fluoranthene	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
Benzo(g,h,i)perylene	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
Benzo(k)fluoranthene	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
Butyl benzylphthalate (BBP)	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
Carbazole	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
4-Chloro-3-methylphenol	µg/L	0.48 U	0.48 U	0.49 U	0.48 U
bis(2-Chloroethyl)ether	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
2-Chlorophenol	µg/L	0.48 U	0.48 U	0.49 U	0.48 U
Chrysene	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
Dibenz(a,h)anthracene	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
Dibenzofuran	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
3,3'-Dichlorobenzidine	µg/L	2.0 U	1.9 U	2.0 U	1.9 U
2,4-Dichlorophenol	µg/L	0.48 U	0.48 U	0.49 U	0.48 U
Diethyl phthalate	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
Dimethyl phthalate	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
2,4-Dimethylphenol	µg/L	3.9 U	3.8 U	3.9 U	3.8 U
Di-n-butylphthalate (DBP)	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
4,6-Dinitro-2-methylphenol	µg/L	2.0 U	1.9 U	2.0 U	1.9 U
2,4-Dinitrotoluene	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
Di-n-octyl phthalate (DnOP)	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	0.96 U	0.95 U	0.98 U	0.95 U
Fluoranthene	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
Fluorene	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
Hexachlorobenzene	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
Hexachlorobutadiene	µg/L	0.20 UJ	0.19 UJ	0.20 UJ	0.19 U
Hexachlorocyclopentadiene	µg/L	0.96 U	0.95 U	0.98 U	0.95 U

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-106D*	*MW-106D*	*MW-106S*	*MW-107S*
Sample Identification		*WG-56393-071913-EB-186*	*WG-56393-071913-EB-187*	*WG-56393-071913-EB-185*	*WG-56393-071513-EB-165*
Sample Date		*7/19/2013*	*7/19/2013*	*7/19/2013*	*7/15/2013*
Sample Type			*Duplicate*		
Screen Depth		*Screen_Depth: (40-45)*	*Screen_Depth: (40-45)*	*Screen_Depth: (2-9)*	*Screen_Depth: (8-13)*
Sample Elevation (feet AMSL)		*664.66-620.66*	*664.66-620.66*	*701.89-692.89*	*695.76-682.76*
Semi-Volatile Organic Compounds (SVOCs) (Continued)					
Hexachloroethane	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
Indeno(1,2,3-cd)pyrene	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
Isophorone	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
2-Methylnaphthalene	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
2-Methylphenol	µg/L	0.48 U	0.48 U	0.49 U	0.48 U
4-Methylphenol	µg/L	0.48 U	0.48 U	0.49 U	0.48 U
Naphthalene	µg/L	0.20 U	0.19 U	0.20 U	0.039 J
Nitrobenzene	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
2-Nitrophenol	µg/L	0.48 U	0.48 U	0.49 U	0.48 U
N-Nitrosodi-n-propylamine	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
N-Nitrosodiphenylamine	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
Pentachlorophenol	µg/L	0.96 U	0.95 U	0.98 U	0.95 U
Phenanthrene	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
Phenol	µg/L	0.48 U	0.48 U	0.49 U	0.48 U
Pyrene	µg/L	0.20 U	0.19 U	0.20 U	0.19 U
2,4,5-Trichlorophenol	µg/L	0.48 U	0.48 U	0.49 U	0.48 U
2,4,6-Trichlorophenol	µg/L	0.48 U	0.48 U	0.49 U	0.48 U
Polychlorinated Biphenyls (PCBs)					
Aroclor-1016 (PCB-1016)	µg/L	0.020 U	0.020 U	0.021 U	0.020 U
Aroclor-1221 (PCB-1221)	µg/L	0.040 U	0.039 U	0.042 U	0.040 U
Aroclor-1232 (PCB-1232)	µg/L	0.020 U	0.020 U	0.021 U	0.020 U
Aroclor-1242 (PCB-1242)	µg/L	0.020 U	0.020 U	0.021 U	0.020 U
Aroclor-1248 (PCB-1248)	µg/L	0.020 U	0.020 U	0.021 U	0.020 U
Aroclor-1254 (PCB-1254)	µg/L	0.0057 J	0.0048 J	0.0052 J	0.020 U
Aroclor-1260 (PCB-1260)	µg/L	0.020 U	0.020 U	0.021 U	0.020 U
Dioxins/Furans					

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-106D*	*MW-106D*	*MW-106S*	*MW-107S*
Sample Identification		*WG-56393-071913-EB-186*	*WG-56393-071913-EB-187*	*WG-56393-071913-EB-185*	*WG-56393-071513-EB-165*
Sample Date		*7/19/2013*	*7/19/2013*	*7/19/2013*	*7/15/2013*
Sample Type			*Duplicate*		
Screen Depth		*Screen_Depth: (40-45)*	*Screen_Depth: (40-45)*	*Screen_Depth: (2-9)*	*Screen_Depth: (8-13)*
Sample Elevation (feet AMSL)		*664.66-620.66*	*664.66-620.66*	*701.89-692.89*	*695.76-682.76*
Polychlorinated Biphenyls (PCBs) (Continued)					
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	µg/L	0.0000239 U	0.0000238 U	0.0000239 U	0.0000238 UJ
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	µg/L	0.0000239 U	0.0000238 U	0.0000239 U	0.0000238 UJ
Total heptachlorodibenzofuran (HpCDF)	µg/L	0.00000286 J	0.00000462 J	0.0000239 U	0.0000238 UJ
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	µg/L	0.00000384 J	0.0000238 U	0.00000476 J	0.0000238 UJ
Total heptachlorodibenzo-p-dioxin (HpCDD)	µg/L	0.00000728 J	0.0000103 J	0.0000239 U	0.0000238 UJ
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	µg/L	0.0000239 U	0.0000238 U	0.0000239 U	0.00000303 J
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	µg/L	0.0000239 U	0.0000238 U	0.0000239 U	0.0000238 UJ
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	µg/L	0.0000239 U	0.0000238 U	0.0000239 U	0.0000238 UJ
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	µg/L	0.0000239 U	0.0000238 U	0.0000239 U	0.0000238 UJ
Total hexachlorodibenzofuran (HxCDF)	µg/L	0.0000239 U	0.0000238 U	0.0000239 U	0.0000238 UJ
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	µg/L	0.0000239 U	0.0000238 U	0.0000239 U	0.0000238 UJ
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	µg/L	0.0000239 U	0.0000238 U	0.0000239 U	0.0000238 UJ
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	µg/L	0.0000239 U	0.0000238 U	0.0000239 U	0.0000238 UJ
Total hexachlorodibenzo-p-dioxin (HxCDD)	µg/L	0.0000239 U	0.0000238 U	0.0000239 U	0.0000238 UJ
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	µg/L	0.0000477 U	0.0000476 U	0.0000477 U	0.0000477 UJ
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	µg/L	0.0000539 U	0.0000872 U	0.000059 U	0.0000173 J
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	µg/L	0.0000239 U	0.0000238 U	0.0000239 U	0.0000238 UJ
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	µg/L	0.0000239 U	0.0000238 U	0.0000239 U	0.0000238 UJ
Total pentachlorodibenzofuran (PeCDF)	µg/L	0.0000239 U	0.0000238 U	0.0000239 U	0.0000238 UJ
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	µg/L	0.0000239 U	0.0000238 U	0.0000239 U	0.0000238 UJ
Total pentachlorodibenzo-p-dioxin (PeCDD)	µg/L	0.0000239 U	0.0000238 U	0.0000239 U	0.0000238 UJ
Total tetrachlorodibenzofuran (TCDF)	µg/L	0.00000477 U	0.00000476 U	0.00000477 U	0.00000477 UJ
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	µg/L	0.00000477 U	0.00000476 U	0.00000477 U	0.00000477 UJ
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	µg/L	0.00000477 U	0.00000476 U	0.00000477 U	0.00000477 UJ
Total tetrachlorodibenzo-p-dioxin (TCDD)	µg/L	0.00000477 U	0.00000476 U	0.00000477 U	0.00000477 UJ
Dioxin toxicity equivalent (TEQ)	µg/L	0.0000000384 J	0	0.0000000476 J	0.000000308 J

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ANALYTICAL RESULTS SUMMARY
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12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-106D*	*MW-106D*	*MW-106S*	*MW-107S*
Sample Identification		*WG-56393-071913-EB-186*	*WG-56393-071913-EB-187*	*WG-56393-071913-EB-185*	*WG-56393-071513-EB-165*
Sample Date		*7/19/2013*	*7/19/2013*	*7/19/2013*	*7/15/2013*
Sample Type			*Duplicate*		
Screen Depth		*Screen_Depth: (40-45)*	*Screen_Depth: (40-45)*	*Screen_Depth: (2-9)*	*Screen_Depth: (8-13)*
Sample Elevation (feet AMSL)		*664.66-620.66*	*664.66-620.66*	*701.89-692.89*	*695.76-682.76*
Metals					
Aluminum	µg/L	5.6	7.7	3.8	20.7
Antimony	µg/L	0.07 U	0.07 U	0.05 U	0.05 U
Arsenic	µg/L	0.38 J	0.33 J	12.8	1.57
Barium	µg/L	75.8	76.3	336	244
Beryllium	µg/L	0.020 U	0.020 U	0.020 U	0.020 U
Cadmium	µg/L	0.020 U	0.020 U	0.020 U	0.020 U
Chromium	µg/L	1.00	0.98	0.96	0.58
Chromium VI (hexavalent)	µg/L	2.0 U	0.6 J	0.7 J	2.0 U
Cyanide (amenable)	µg/L	10 U	10 U	10 U	10 U
Cyanide (total)	µg/L	10 U	10 U	10 U	10 U
Cobalt	µg/L	0.160	0.166	0.597	0.484
Copper	µg/L	0.65	0.68	0.66	0.48
Iron	µg/L	46.9	72.7	10200	348
Lead	µg/L	0.064	0.075	0.020 U	0.021 U
Magnesium	µg/L	24200	24700	28200	24000
Manganese	µg/L	2.550	3.310	347	193
Mercury	µg/L	0.001 U	0.001 U	0.00154 U	0.001 U
Nickel	µg/L	1.68	1.70	2.95	0.67
Selenium	µg/L	0.7 J	0.6 J	0.6 J	0.3 J
Silver	µg/L	0.020 U	0.020 U	0.020 U	0.020 U
Sodium	µg/L	24300	24700	23500	27700

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

	Sample Location	*MW-106D*	*MW-106D*	*MW-106S*	*MW-107S*
	Sample Identification	*WG-56393-071913-EB-186*	*WG-56393-071913-EB-187*	*WG-56393-071913-EB-185*	*WG-56393-071513-EB-165*
	Sample Date	*7/19/2013*	*7/19/2013*	*7/19/2013*	*7/15/2013*
	Sample Type		*Duplicate*		
	Screen Depth	*Screen_Depth: (40-45)*	*Screen_Depth: (40-45)*	*Screen_Depth: (2-9)*	*Screen_Depth: (8-13)*
	Sample Elevation (feet AMSL)	*664.66-620.66*	*664.66-620.66*	*701.89-692.89*	*695.76-682.76*
Metals (Continued)					
Thallium	µg/L	0.020 U	0.020 U	0.020 U	0.047 U
Vanadium	µg/L	0.25	0.24	0.31	0.17 J
Zinc	µg/L	1.06	1.07	36.9	0.73

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-108D*	*MW-108S*	*MW-109D*
Sample Identification		*WG-56393-071513-EB-166*	*WG-56393-071613-EB-167*	*WG-56393-071613-EB-170*
Sample Date		*7/15/2013*	*7/16/2013*	*7/16/2013*
Sample Type				
Screen Depth		*Screen_Depth: (40-45)*	*Screen_Depth: (2-9)*	*Screen_Depth: (22-27)*
Sample Elevation (feet AMSL)		*663.39-618.39*	*701.32-692.32*	*689.41-666.41*
Volatile Organic Compounds (VOCs)	*Units*			
Acetone	µg/L	R	R	R
Benzene	µg/L	0.50 U	0.50 U	0.50 U
Bromodichloromethane	µg/L	0.50 U	0.50 U	0.50 U
Bromoform	µg/L	0.50 U	0.50 U	0.50 U
Bromomethane (Methyl bromide)	µg/L	0.50 U	0.50 UJ	0.50 UJ
2-Butanone (Methyl ethyl ketone) (MEK)	µg/L	R	R	R
Carbon disulfide	µg/L	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	µg/L	0.50 U	0.50 U	0.50 U
Chlorobenzene	µg/L	0.50 U	0.50 U	0.50 U
Chloroethane	µg/L	0.50 U	0.50 U	0.50 U
Chloroform (Trichloromethane)	µg/L	0.50 U	0.50 U	0.50 U
Chloromethane (Methyl chloride)	µg/L	0.50 U	0.50 U	0.50 U
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	2.0 U	2.0 U	2.0 U
Dibromochloromethane	µg/L	0.50 U	0.50 U	0.50 U
1,2-Dibromoethane (Ethylene dibromide)	µg/L	2.0 U	2.0 U	2.0 U
1,2-Dichlorobenzene	µg/L	0.50 U	0.50 U	0.50 U
1,3-Dichlorobenzene	µg/L	0.50 U	0.50 U	0.50 U
1,4-Dichlorobenzene	µg/L	0.50 U	0.50 U	0.50 U
Dichlorodifluoromethane (CFC-12)	µg/L	0.50 U	0.50 U	0.50 U
1,1-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U
1,2-Dichloroethane	µg/L	0.50 U	0.50 U	0.50 U
1,1-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U
cis-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U
trans-1,2-Dichloroethene	µg/L	0.50 U	0.50 U	0.50 U
1,2-Dichloropropane	µg/L	0.50 U	0.50 U	0.50 U
cis-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	0.50 U

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-108D*	*MW-108S*	*MW-109D*
Sample Identification		*WG-56393-071513-EB-166*	*WG-56393-071613-EB-167*	*WG-56393-071613-EB-170*
Sample Date		*7/15/2013*	*7/16/2013*	*7/16/2013*
Sample Type				
Screen Depth		*Screen_Depth: (40-45)*	*Screen_Depth: (2-9)*	*Screen_Depth: (22-27)*
Sample Elevation (feet AMSL)		*663.39-618.39*	*701.32-692.32*	*689.41-666.41*
Volatile Organic Compounds (VOCs) (Continued)				
trans-1,3-Dichloropropene	µg/L	0.50 U	0.50 U	0.50 U
Ethylbenzene	µg/L	0.50 U	0.50 U	0.50 U
2-Hexanone	µg/L	R	R	R
Isopropyl benzene	µg/L	2.0 U	2.0 U	2.0 U
Methyl tert butyl ether (MTBE)	µg/L	0.50 U	0.50 U	0.50 U
4-Methyl-2-pentanone (Methyl isobutyl ketone) (MIBK)	µg/L	20 U	20 U	20 U
Methylene chloride	µg/L	2.0 U	2.0 U	2.0 U
Styrene	µg/L	0.50 U	0.50 U	0.50 U
1,1,2,2-Tetrachloroethane	µg/L	0.50 U	0.50 U	0.50 U
Tetrachloroethene	µg/L	0.50 U	0.50 U	0.50 U
Toluene	µg/L	0.50 U	0.50 U	0.50 U
1,2,4-Trichlorobenzene	µg/L	2.0 U	2.0 U	2.0 U
1,1,1-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U
1,1,2-Trichloroethane	µg/L	0.50 U	0.50 U	0.50 U
Trichloroethene	µg/L	0.50 U	0.50 U	0.50 U
Trichlorofluoromethane (CFC-11)	µg/L	0.50 U	0.50 U	0.50 U
Vinyl chloride	µg/L	0.50 U	0.50 U	0.50 U
o-Xylene	µg/L	0.50 U	0.50 U	0.50 U
m&p-Xylenes	µg/L	0.50 U	0.50 U	0.50 U
Semi-Volatile Organic Compounds (SVOCs)				
Acenaphthene	µg/L	0.20 U	0.21 U	0.20 U
Acenaphthylene	µg/L	0.20 U	0.21 U	0.20 U
Anthracene	µg/L	0.20 U	0.21 U	0.20 U
Benzo(a)anthracene	µg/L	0.20 U	0.21 U	0.20 U
Benzo(a)pyrene	µg/L	0.20 U	0.21 U	0.20 U

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-108D*	*MW-108S*	*MW-109D*
Sample Identification		*WG-56393-071513-EB-166*	*WG-56393-071613-EB-167*	*WG-56393-071613-EB-170*
Sample Date		*7/15/2013*	*7/16/2013*	*7/16/2013*
Sample Type				
Screen Depth		*Screen_Depth: (40-45)*	*Screen_Depth: (2-9)*	*Screen_Depth: (22-27)*
Sample Elevation (feet AMSL)		*663.39-618.39*	*701.32-692.32*	*689.41-666.41*
Semi-Volatile Organic Compounds (SVOCs) (Continued)				
Benzo(b)fluoranthene	µg/L	0.20 U	0.21 U	0.20 U
Benzo(g,h,i)perylene	µg/L	0.20 U	0.21 U	0.20 U
Benzo(k)fluoranthene	µg/L	0.20 U	0.21 U	0.20 U
Butyl benzylphthalate (BBP)	µg/L	0.20 U	0.21 U	0.20 U
Carbazole	µg/L	0.20 U	0.21 U	0.20 U
4-Chloro-3-methylphenol	µg/L	0.49 U	0.51 U	0.50 U
bis(2-Chloroethyl)ether	µg/L	0.20 U	0.21 U	0.20 U
2-Chlorophenol	µg/L	0.49 U	0.51 U	0.50 U
Chrysene	µg/L	0.20 U	0.21 U	0.20 U
Dibenz(a,h)anthracene	µg/L	0.20 U	0.21 U	0.20 U
Dibenzofuran	µg/L	0.20 U	0.21 U	0.20 U
3,3'-Dichlorobenzidine	µg/L	2.0 U	2.1 U	2.0 U
2,4-Dichlorophenol	µg/L	0.49 U	0.51 U	0.50 U
Diethyl phthalate	µg/L	0.20 U	0.21 U	0.20 U
Dimethyl phthalate	µg/L	0.20 U	0.21 U	0.20 U
2,4-Dimethylphenol	µg/L	3.9 U	4.1 U	4.0 U
Di-n-butylphthalate (DBP)	µg/L	0.20 U	0.21 U	0.20 U
4,6-Dinitro-2-methylphenol	µg/L	2.0 U	2.1 U	2.0 U
2,4-Dinitrotoluene	µg/L	0.20 U	0.21 U	0.20 U
Di-n-octyl phthalate (DnOP)	µg/L	0.20 U	0.21 U	0.20 U
bis(2-Ethylhexyl)phthalate (DEHP)	µg/L	0.97 U	1.1 U	0.45 J
Fluoranthene	µg/L	0.20 U	0.21 U	0.20 U
Fluorene	µg/L	0.20 U	0.21 U	0.20 U
Hexachlorobenzene	µg/L	0.20 U	0.21 U	0.20 U
Hexachlorobutadiene	µg/L	0.20 U	0.21 U	0.20 U
Hexachlorocyclopentadiene	µg/L	0.97 U	1.1 U	1.0 U

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-108D*	*MW-108S*	*MW-109D*
Sample Identification		*WG-56393-071513-EB-166*	*WG-56393-071613-EB-167*	*WG-56393-071613-EB-170*
Sample Date		*7/15/2013*	*7/16/2013*	*7/16/2013*
Sample Type				
Screen Depth		*Screen_Depth: (40-45)*	*Screen_Depth: (2-9)*	*Screen_Depth: (22-27)*
Sample Elevation (feet AMSL)		*663.39-618.39*	*701.32-692.32*	*689.41-666.41*
Semi-Volatile Organic Compounds (SVOCs) (Continued)				
Hexachloroethane	µg/L	0.20 U	0.21 U	0.20 U
Indeno(1,2,3-cd)pyrene	µg/L	0.20 U	0.21 U	0.20 U
Isophorone	µg/L	0.20 U	0.21 U	0.20 U
2-Methylnaphthalene	µg/L	0.20 U	0.21 U	0.20 U
2-Methylphenol	µg/L	0.49 U	0.51 U	0.50 U
4-Methylphenol	µg/L	0.49 U	0.51 U	0.50 U
Naphthalene	µg/L	0.032 J	0.051 J	0.051 J
Nitrobenzene	µg/L	0.20 U	0.21 U	0.20 U
2-Nitrophenol	µg/L	0.49 U	0.51 U	0.50 U
N-Nitrosodi-n-propylamine	µg/L	0.20 U	0.21 U	0.20 U
N-Nitrosodiphenylamine	µg/L	0.20 U	0.21 U	0.20 U
Pentachlorophenol	µg/L	0.97 U	1.1 U	1.0 U
Phenanthrene	µg/L	0.20 U	0.21 U	0.20 U
Phenol	µg/L	0.49 U	0.51 U	0.50 U
Pyrene	µg/L	0.20 U	0.21 U	0.20 U
2,4,5-Trichlorophenol	µg/L	0.49 U	0.51 U	0.50 U
2,4,6-Trichlorophenol	µg/L	0.49 U	0.51 U	0.50 U
Polychlorinated Biphenyls (PCBs)				
Aroclor-1016 (PCB-1016)	µg/L	0.020 U	0.020 U	0.020 U
Aroclor-1221 (PCB-1221)	µg/L	0.040 U	0.040 U	0.040 U
Aroclor-1232 (PCB-1232)	µg/L	0.020 U	0.020 U	0.020 U
Aroclor-1242 (PCB-1242)	µg/L	0.020 U	0.020 U	0.020 U
Aroclor-1248 (PCB-1248)	µg/L	0.020 U	0.020 U	0.020 U
Aroclor-1254 (PCB-1254)	µg/L	0.020 U	0.020 U	0.020 U
Aroclor-1260 (PCB-1260)	µg/L	0.020 U	0.020 U	0.020 U
Dioxins/Furans				

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-108D*	*MW-108S*	*MW-109D*
Sample Identification		*WG-56393-071513-EB-166*	*WG-56393-071613-EB-167*	*WG-56393-071613-EB-170*
Sample Date		*7/15/2013*	*7/16/2013*	*7/16/2013*
Sample Type				
Screen Depth		*Screen_Depth: (40-45)*	*Screen_Depth: (2-9)*	*Screen_Depth: (22-27)*
Sample Elevation (feet AMSL)		*663.39-618.39*	*701.32-692.32*	*689.41-666.41*
Polychlorinated Biphenyls (PCBs) (Continued)				
1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	µg/L	0.000000724 J	0.00000137 J	0.00000449 J
1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	µg/L	0.0000251 U	0.0000255 U	0.0000242 U
Total heptachlorodibenzofuran (HpCDF)	µg/L	0.000000907 J	0.0000255 U	0.000015 J
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	µg/L	0.00000233 J	0.00000703 J	0.0000286
Total heptachlorodibenzo-p-dioxin (HpCDD)	µg/L	0.0000251 U	0.0000176 J	0.0000815
1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	µg/L	0.000000723 J	0.0000255 U	0.0000242 U
1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	µg/L	0.000000454 J	0.0000255 U	0.0000242 U
1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	µg/L	0.0000251 U	0.0000255 U	0.0000242 U
2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	µg/L	0.0000251 U	0.0000255 U	0.0000242 U
Total hexachlorodibenzofuran (HxCDF)	µg/L	0.000000454 J	0.0000255 U	0.0000242 U
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	µg/L	0.00000111 J	0.0000255 U	0.00000129 J
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	µg/L	0.0000251 U	0.0000255 U	0.0000011 J
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	µg/L	0.0000251 U	0.0000255 U	0.00000395 J
Total hexachlorodibenzo-p-dioxin (HxCDD)	µg/L	0.00000111 J	0.0000255 U	0.0000149 J
1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	µg/L	0.0000502 U	0.00000839 J	0.0000155 J
1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	µg/L	0.00000895 J	0.0000743	0.000173
1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	µg/L	0.0000251 U	0.0000255 U	0.0000242 U
2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	µg/L	0.0000251 U	0.0000255 U	0.0000242 U
Total pentachlorodibenzofuran (PeCDF)	µg/L	0.0000251 U	0.0000255 U	0.0000242 U
1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	µg/L	0.0000251 U	0.0000255 U	0.0000242 U
Total pentachlorodibenzo-p-dioxin (PeCDD)	µg/L	0.0000251 U	0.0000255 U	0.0000242 U
Total tetrachlorodibenzofuran (TCDF)	µg/L	0.00000502 U	0.00000511 U	0.00000484 U
2,3,7,8-Tetrachlorodibenzofuran (TCDF)	µg/L	0.00000502 U	0.00000511 U	0.00000484 U
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	µg/L	0.00000502 U	0.00000511 U	0.00000484 U
Total tetrachlorodibenzo-p-dioxin (TCDD)	µg/L	0.00000502 U	0.00000511 U	0.00000484 U
Dioxin toxicity equivalent (TEQ)	µg/L	0.000000262 J	0.000000109 J	0.00000102 J

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-108D*	*MW-108S*	*MW-109D*
Sample Identification		*WG-56393-071513-EB-166*	*WG-56393-071613-EB-167*	*WG-56393-071613-EB-170*
Sample Date		*7/15/2013*	*7/16/2013*	*7/16/2013*
Sample Type				
Screen Depth		*Screen_Depth: (40-45)*	*Screen_Depth: (2-9)*	*Screen_Depth: (22-27)*
Sample Elevation (feet AMSL)		*663.39-618.39*	*701.32-692.32*	*689.41-666.41*
Metals				
Aluminum	µg/L	2.4	2.0 U	2.0 U
Antimony	µg/L	0.11 U	0.06 U	0.05 U
Arsenic	µg/L	1.58	1.89	0.13 J
Barium	µg/L	104	105	86.0
Beryllium	µg/L	0.020 U	0.020 U	0.020 U
Cadmium	µg/L	0.072	0.020 U	0.020 U
Chromium	µg/L	1.15	0.51	0.81
Chromium VI (hexavalent)	µg/L	20.0 U	2.0 UJ	2.0 U
Cyanide (amenable)	µg/L	10 U	10 U	10 U
Cyanide (total)	µg/L	10 U	10 U	10 U
Cobalt	µg/L	0.439	0.710	0.172
Copper	µg/L	0.83	0.49	0.60
Iron	µg/L	2580	908	20.0 U
Lead	µg/L	0.020 U	0.020 U	0.020 U
Magnesium	µg/L	25700	24800	26000
Manganese	µg/L	757	161	0.191
Mercury	µg/L	0.001 U	0.001 U	0.001 U
Nickel	µg/L	3.02	0.50 U	0.50 U
Selenium	µg/L	0.5 J	0.6 J	0.5 J
Silver	µg/L	0.020 U	0.020 U	0.020 U
Sodium	µg/L	21600	23400	23000

TABLE 2

ANALYTICAL RESULTS SUMMARY
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Sample Location		*MW-108D*	*MW-108S*	*MW-109D*
Sample Identification		*WG-56393-071513-EB-166*	*WG-56393-071613-EB-167*	*WG-56393-071613-EB-170*
Sample Date		*7/15/2013*	*7/16/2013*	*7/16/2013*
Sample Type				
Screen Depth		*Screen_Depth: (40-45)*	*Screen_Depth: (2-9)*	*Screen_Depth: (22-27)*
Sample Elevation (feet AMSL)		*663.39-618.39*	*701.32-692.32*	*689.41-666.41*
Metals (Continued)				
Thallium	µg/L	0.133	0.020 U	0.020 U
Vanadium	µg/L	0.19 J	0.19 J	0.19 J
Zinc	µg/L	3.17	0.83	1.58

Notes:

U Not detected at the associated reporting limit.
J Estimated concentration.
UJ Not detected; associated reporting limit is estimated.
R Rejected.

TABLE 3

ANALYTICAL METHODS AND HOLDING TIME CRITERIA
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Parameter	*Method*	*Matrix*	*Holding Time*	
			Collection to Extraction (Days)	*Collection or Extraction to Analysis (Days)*
VOC	SW-846 8260[1]	Water	-	14
SVOC	SW-846 8270[1]	Water	14	40
PCB	SW-846 8082[1]	Water	-	40
PCDD/PCDF	SW-846 8290[1]	Water	-	40
Metals (Fe, Mg and Na)	EPA 200.7[3]	Water	-	180
TAL Metals (except: Ca, Fe, K, Mg and Na)	EPA 200.8[3]	Water	-	180
Mercury	EPA 1631E[3]	Water	-	28
Cyanide (Amenable)	SW-846 9012[1]/SM4500-CN-E[2]	Water	-	14
Cyanide (Total)	SW-846 9012[1]	Water	-	14
Hexavalent Chromium	SW-846 7195/7010[1]	Water	24 hours	180

Notes:

1 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions.

2 "Standard Methods for the Examination of Water and Wastewater", 18th Edition, 1992, with subsequent revisions.

3 "Methods for Chemical Analysis of Water and Wastes", USEPA-600/4-79-020, March 1983, with subsequent revisions.

PCBs Polychlorinated biphenyls.

VOCs Volatile organic compounds.

SVOCs Semi-volatile organic compounds.

PCDD/PCDFs Polychlorinated dibenzo-p-dioxin/polychlorinated dibenzofurans.

TABLE 4

QUALIFIED SAMPLE RESULTS DUE TO HOLDING TIME EXCEEDANCE
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Parameter	*Sample ID*	*Holding Time (hours)*	*Holding Time Criteria (hours)*	*Analyte*	*Qualified Sample Results*	*Units*
Metals	WG-56393-071613-EB-167	>24	24	Chromium VI (hexavalent)	2.0 UJ	µg/L
	WG-56393-071613-EB-168	>24	24		2.0 UJ	µg/L
	WG-56393-071713-EB-173	>24	24		2.0 UJ	µg/L
	WG-56393-071713-EB-174	>24	24		2.0 UJ	µg/L
	WG-56393-071713-EB-175	>24	24		2.0 UJ	µg/L

Note:

UJ Not detected; associated reporting limit is estimated.

TABLE 5

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING INITIAL CALIBRATION RESULTS
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Parameter	*Analyte*	*Calibration Date*	*%RSD*	*RRF*	*Associated Sample ID*	*Qualified Result*
VOCs	2-Butanone	7/17/13	<30	0.013	WG-56393-071713-EB-173	R
					WG-56393-071713-EB-174	R
					WG-56393-071713-EB-175	R
					WG-56393-071813-EB-178	R
					WG-56393-071813-EB-180	R
					WG-56393-071813-EB-181	R
					WG-56393-071813-EB-182	R
VOCs	2-Butanone	5/17/13	<30	0.016	WG-56393-071513-EB-165	R
					WG-56393-071513-EB-166	R
					WG-56393-071613-EB-167	R
					WG-56393-071613-EB-168	R
					WG-56393-071613-EB-169	R
					WG-56393-071613-EB-170	R
					WG-56393-071913-EB-185	R
					WG-56393-071913-EB-186	R
					WG-56393-071913-EB-187	R
VOCs	2-Hexanone	7/17/13	<30	0.038	WG-56393-071713-EB-173	R
					WG-56393-071713-EB-174	R
					WG-56393-071713-EB-175	R
					WG-56393-071813-EB-178	R
					WG-56393-071813-EB-180	R
					WG-56393-071813-EB-181	R
					WG-56393-071813-EB-182	R

TABLE 5

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING INITIAL CALIBRATION RESULTS
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Parameter	*Analyte*	*Calibration Date*	*%RSD*	*RRF*	*Associated Sample ID*	*Qualified Result*
VOCs	2-Hexanone	5/17/13	<30	0.043	WG-56393-071513-EB-165	R
					WG-56393-071513-EB-166	R
					WG-56393-071613-EB-167	R
					WG-56393-071613-EB-168	R
					WG-56393-071613-EB-169	R
					WG-56393-071613-EB-170	R
					WG-56393-071913-EB-185	R
					WG-56393-071913-EB-186	R
					WG-56393-071913-EB-187	R
VOCs	Acetone	7/17/13	<30	0.034	WG-56393-071713-EB-173	R
					WG-56393-071713-EB-174	R
					WG-56393-071713-EB-175	R
					WG-56393-071813-EB-178	R
					WG-56393-071813-EB-180	R
					WG-56393-071813-EB-181	R
					WG-56393-071813-EB-182	R
VOCs	Acetone	5/17/13	<30	0.041	WG-56393-071513-EB-165	R
					WG-56393-071513-EB-166	R
					WG-56393-071613-EB-167	R
					WG-56393-071613-EB-168	R
					WG-56393-071613-EB-169	R
					WG-56393-071613-EB-170	R

TABLE 5

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING INITIAL CALIBRATION RESULTS
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Parameter	*Analyte*	*Calibration Date*	*%RSD*	*RRF*	*Associated Sample ID*	*Qualified Result*
VOCs	Acetone	5/17/13	<30	0.041	WG-56393-071913-EB-185	R
					WG-56393-071913-EB-186	R
					WG-56393-071913-EB-187	R

Notes:

% RSD Percent relative standard deviation.
RRF Relative response factor.
R Rejected.
VOCs Volatile organic compounds.

TABLE 6

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING CONTINUING CALIBRATION RESULTS
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Parameter	*Analyte*	*Calibration Date*	*%D*	*Associated Sample ID*	*Qualified Result*	*Units*
VOC	Bromomethane	7/26/2013	27	WG-56393-071613-EB-167	0.50 UJ	µg/L
				WG-56393-071613-EB-168	0.50 UJ	µg/L
				WG-56393-071613-EB-169	0.50 UJ	µg/L
				WG-56393-071613-EB-170	0.50 UJ	µg/L
VOC	Bromomethane	7/30/2013	30	WG-56393-071913-EB-185	0.50 UJ	µg/L
				WG-56393-071913-EB-186	0.50 UJ	µg/L
				WG-56393-071913-EB-187	0.50 UJ	µg/L
VOC	Carbon disulfide	7/26/2013	30	WG-56393-071713-EB-173	0.50 UJ	µg/L
				WG-56393-071713-EB-174	0.50 UJ	µg/L
				WG-56393-071713-EB-175	0.50 UJ	µg/L
VOC	Carbon disulfide	7/29/2013	32	WG-56393-071813-EB-178	0.50 UJ	µg/L
				WG-56393-071813-EB-180	0.50 UJ	µg/L
				WG-56393-071813-EB-181	0.50 UJ	µg/L
				WG-56393-071813-EB-182	0.50 UJ	µg/L
VOC	Carbon disulfide	7/30/2013	26	WG-56393-071913-EB-185	0.50 UJ	µg/L
				WG-56393-071913-EB-186	0.50 UJ	µg/L
				WG-56393-071913-EB-187	0.50 UJ	µg/L
SVOC	Hexachlorobutadiene	7/30/2013	37	WG-56393-071913-EB-185	0.20 UJ	µg/L
				WG-56393-071913-EB-186	0.20 UJ	µg/L
				WG-56393-071913-EB-187	0.19 UJ	µg/L

TABLE 6

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING CONTINUING CALIBRATION RESULTS
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Parameter	*Analyte*	*Calibration Date*	*%D*	*Associated Sample ID*	*Qualified Result*	*Units*
SVOC	4,6-Dinitro-2-methylphenol	7/29/2013	29	WG-56393-071713-EB-173	1.9 UJ	µg/L
				WG-56393-071713-EB-174	2.0 UJ	µg/L
				WG-56393-071713-EB-175	2.0 UJ	µg/L
				WG-56393-071813-EB-178	1.9 UJ	µg/L
				WG-56393-071813-EB-180	2.1 UJ	µg/L
				WG-56393-071813-EB-181	2.1 UJ	µg/L
				WG-56393-071813-EB-182	2.0 UJ	µg/L

Notes:

%D Percent difference.
VOCs Volatile organic compounds.
SVOCs Semi-volatile organic compounds.
UJ Not detected; associated reporting limit is estimated.

TABLE 7

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE METHOD BLANKS
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Parameter	*Analyte*	*Analysis Date*	*Blank Result **	*Sample ID*	*Original Result*	*Qualified Result*	*Units*
VOC	Carbon disulfide	7/29/2013	0.10 J	WG-56393-071813-EB-178	0.080 J	0.50 UJ	µg/L
				WG-56393-071813-EB-180	0.070 J	0.50 UJ	µg/L
SVOC	Diethyl phthalate	7/17/2013	0.015 J	WG-56393-071613-EB-168	0.028 J	0.21 U	µg/L
				WG-56393-071613-EB-169	0.033 J	0.20 U	µg/L
				WG-56393-071513-EB-165	0.022 J	0.19 U	µg/L
				WG-56393-071513-EB-166	0.021 J	0.20 U	µg/L
SVOC	Diethyl phthalate	7/24/2013	0.024 J	WG-56393-071713-EB-173	0.038 J	0.19 U	µg/L
				WG-56393-071713-EB-174	0.031 J	0.20 U	µg/L
				WG-56393-071713-EB-175	0.021 J	0.20 U	µg/L
				WG-56393-071913-EB-187	0.025 J	0.19 U	µg/L
				WG-56393-071813-EB-178	0.021 J	0.19 U	µg/L
				WG-56393-071813-EB-180	0.029 J	0.21 U	µg/L
				WG-56393-071813-EB-182	0.025 J	0.20 U	µg/L
SVOC	Dimethyl phthalate	7/24/2013	0.023 J	WG-56393-071713-EB-173	0.028 J	0.19 U	µg/L
				WG-56393-071713-EB-175	0.029 J	0.20 U	µg/L
				WG-56393-071913-EB-185	0.027 J	0.20 U	µg/L
SVOC	Di-n-butylphthalate (DBP)	7/17/2013	0.025 J	WG-56393-071613-EB-167	0.031 J	0.21 U	µg/L
				WG-56393-071613-EB-168	0.028 J	0.21 U	µg/L
				WG-56393-071613-EB-169	0.024 J	0.20 U	µg/L
				WG-56393-071613-EB-170	0.032 J	0.20 U	µg/L
				WG-56393-071513-EB-166	0.026 J	0.20 U	µg/L

TABLE 7

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE METHOD BLANKS
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Parameter	*Analyte*	*Analysis Date*	*Blank Result **	*Sample ID*	*Original Result*	*Qualified Result*	*Units*
SVOC	Di-n-butylphthalate (DBP)	7/24/2013	0.033 J	WG-56393-071713-EB-173	0.037 J	0.19 U	µg/L
				WG-56393-071713-EB-174	0.038 J	0.20 U	µg/L
				WG-56393-071713-EB-175	0.039 J	0.20 U	µg/L
				WG-56393-071913-EB-185	0.040 J	0.20 U	µg/L
				WG-56393-071913-EB-186	0.027 J	0.20 U	µg/L
				WG-56393-071913-EB-187	0.028 J	0.19 U	µg/L
				WG-56393-071813-EB-178	0.028 J	0.19 U	µg/L
				WG-56393-071813-EB-181	0.029 J	0.21 U	µg/L
				WG-56393-071813-EB-182	0.025 J	0.20 U	µg/L
SVOC	Fluoranthene	7/17/2013	0.028 J	WG-56393-071513-EB-165	0.024 J	0.19 U	µg/L
SVOC	Fluoranthene	7/24/2013	0.032 J	WG-56393-071713-EB-173	0.025 J	0.19 U	µg/L
				WG-56393-071713-EB-174	0.031 J	0.20 U	µg/L
				WG-56393-071713-EB-175	0.026 J	0.20 U	µg/L
				WG-56393-071913-EB-185	0.030 J	0.20 U	µg/L
				WG-56393-071913-EB-186	0.024 J	0.20 U	µg/L
				WG-56393-071913-EB-187	0.035 J	0.19 U	µg/L
				WG-56393-071813-EB-178	0.023 J	0.19 U	µg/L
				WG-56393-071813-EB-182	0.032 J	0.20 U	µg/L
SVOC	Pyrene	7/24/2013	0.025 J	WG-56393-071713-EB-173	0.030 J	0.19 U	µg/L
				WG-56393-071713-EB-174	0.026 J	0.20 U	µg/L
				WG-56393-071713-EB-175	0.029 J	0.20 U	µg/L
				WG-56393-071913-EB-185	0.033 J	0.20 U	µg/L
				WG-56393-071913-EB-187	0.028 J	0.19 U	µg/L
				WG-56393-071813-EB-178	0.019 J	0.19 U	µg/L
				WG-56393-071813-EB-182	0.020 J	0.20 U	µg/L

TABLE 7

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE METHOD BLANKS
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Parameter	*Analyte*	*Analysis Date*	*Blank Result **	*Sample ID*	*Original Result*	*Qualified Result*	*Units*
PCDD/PCDF	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	7/25/2013	8.31 J	WG-56393-071713-EB-173	9.11 J	49.0 U	pg/L
				WG-56393-071713-EB-174	8.18 J	47.8 U	pg/L
				WG-56393-071713-EB-175	8.79 J	48.7 U	pg/L
PCDD/PCDF	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	7/26/2013	7.33 J	WG-56393-071913-EB-186	4.78 J	47.7 U	pg/L
				WG-56393-071913-EB-185	7.47 J	47.7 U	pg/L
PCDD/PCDF	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	8/2/2013	11.0 J	WG-56393-071913-EB-187	9.68 J	47.6 U	pg/L
PCDD/PCDF	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	7/25/2013	90.8	WG-56393-071713-EB-173	59.1	59.1 U	pg/L
				WG-56393-071713-EB-174	67.3	67.3 U	pg/L
				WG-56393-071713-EB-175	71.3	71.3 U	pg/L
PCDD/PCDF	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	7/26/2013	58.8	WG-56393-071913-EB-186	53.9	53.9 U	pg/L
				WG-56393-071913-EB-185	59.0	59.0 U	pg/L
PCDD/PCDF	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	7/29/2013	71.9 J	WG-56393-071813-EB-178	104	104 U	pg/L
				WG-56393-071813-EB-180	114	114 U	pg/L
				WG-56393-071813-EB-181	84.2	84.2 U	pg/L
				WG-56393-071813-EB-182	76.2	76.2 U	pg/L
PCDD/PCDF	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	8/2/2013	111	WG-56393-071913-EB-187	87.2	87.2 U	pg/L
PCDD/PCDF	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	8/2/2013	2.4 J	WG-56393-071913-EB-187	2.14 J	23.8 U	pg/L
PCDD/PCDF	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	7/25/2013	8.07 J	WG-56393-071713-EB-173	4.59 J	24.5 U	pg/L
				WG-56393-071713-EB-174	5.26 J	23.9 U	pg/L
				WG-56393-071713-EB-175	5.81 J	24.3 U	pg/L

TABLE 7

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE METHOD BLANKS
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Parameter	*Analyte*	*Analysis Date*	*Blank Result **	*Sample ID*	*Original Result*	*Qualified Result*	*Units*
PCDD/PCDF	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	8/2/2013	5.66 J	WG-56393-071913-EB-187	4.10 J	23.8 U	pg/L
Metals	Aluminum	7/18/2013	0.3 J	WG-56393-071613-EB-167	1.4 J	2.0 U	µg/L
				WG-56393-071613-EB-170	1.3 J	2.0 U	µg/L
Metals	Aluminum	7/22/2013	0.4 J	WG-56393-071713-EB-174	1.8 J	2.0 U	µg/L
				WG-56393-071713-EB-175	1.9 J	2.0 U	µg/L
				WG-56393-071813-EB-178	1.6 J	2.0 U	µg/L
				WG-56393-071813-EB-181	1.8 J	2.0 U	µg/L
General Chemistry	Chromium VI (hexavalent)	7/18/2013	0.7 J	WG-56393-071713-EB-174	0.6 J	2.0 UJ	µg/L

Notes:

*	Blank result adjusted for sample factors where applicable.
VOCs	Volatile organic compounds.
SVOCs	Semi-volatile organic compounds.
PCDD/PCDFs	Polychlorinated dibenzo-p-dioxin/polychlorinated dibenzofurans.
J	Estimated concentration.
U	Not detected at the associated reporting limit.
UJ	Not detected; associated reporting limit is estimated.

TABLE 8

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE INSTRUMENT BLANKS
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Parameter	*Analyte*	*Analysis Date*	*Blank Result*	*Sample ID*	*Original Result*	*Qualified Result*	*Units*
Metals	Arsenic	7/23/2013	0.07 J	WG-56393-071813-EB-181	0.20 J	0.50 U	µg/L
				WG-56393-071813-EB-182	0.25 J	0.50 U	µg/L
Metals	Cadmium	7/23/2013	0.006 J	WG-56393-071613-EB-167	0.006 J	0.020 U	µg/L
				WG-56393-071613-EB-168	0.005 J	0.020 U	µg/L
				WG-56393-071613-EB-169	0.016 J	0.020 U	µg/L
				WG-56393-071613-EB-170	0.005 J	0.020 U	µg/L
				WG-56393-071513-EB-165	0.009 J	0.020 U	µg/L
Metals	Cadmium	7/23/2013	0.005 J	WG-56393-071913-EB-186	0.005 J	0.020 U	µg/L
				WG-56393-071913-EB-187	0.005 J	0.020 U	µg/L
				WG-56393-071813-EB-180	0.006 J	0.020 U	µg/L
				WG-56393-071813-EB-181	0.004 J	0.020 U	µg/L
				WG-56393-071813-EB-182	0.004 J	0.020 U	µg/L
Metals	Lead	7/23/2013	0.008 J	WG-56393-071613-EB-167	0.016 J	0.020 U	µg/L
				WG-56393-071613-EB-168	0.009 J	0.020 U	µg/L
				WG-56393-071613-EB-169	0.018 J	0.020 U	µg/L
				WG-56393-071613-EB-170	0.014 J	0.020 U	µg/L
				WG-56393-071513-EB-165	0.021	0.021 U	µg/L
				WG-56393-071513-EB-166	0.018 J	0.020 U	µg/L
				WG-56393-071713-EB-173	0.034	0.034 U	µg/L
Metals	Silver	7/23/2013	0.013 J	WG-56393-071813-EB-180	0.029	0.029 U	µg/L

TABLE 8

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE INSTRUMENT BLANKS
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Parameter	*Analyte*	*Analysis Date*	*Blank Result*	*Sample ID*	*Original Result*	*Qualified Result*	*Units*
Metals	Thallium	7/23/2013	0.013 J	WG-56393-071613-EB-167	0.012 J	0.020 U	µg/L
				WG-56393-071613-EB-168	0.003 J	0.020 U	µg/L
				WG-56393-071613-EB-169	0.031	0.031 U	µg/L
				WG-56393-071513-EB-165	0.047	0.047 U	µg/L
Metals	Antimony	7/23/2013	0.049 J	WG-56393-071613-EB-167	0.06	0.06 U	µg/L
				WG-56393-071513-EB-165	0.03 J	0.05 U	µg/L
				WG-56393-071513-EB-166	0.11	0.11 U	µg/L
Metals	Nickel	7/23/2013	0.09 J	WG-56393-071613-EB-167	0.34 J	0.50 U	µg/L
				WG-56393-071613-EB-169	0.20 J	0.50 U	µg/L
Metals	Silver	7/23/2013	0.006 J	WG-56393-071513-EB-165	0.006 J	0.020 U	µg/L
				WG-56393-071513-EB-166	0.011 J	0.020 U	µg/L
Metals	Antimony	7/23/2013	0.027 J	WG-56393-071913-EB-185	0.05	0.05 U	µg/L
				WG-56393-071913-EB-186	0.07	0.07 U	µg/L
				WG-56393-071913-EB-187	0.07	0.07 U	µg/L
Metals	Lead	7/23/2013	0.005 J	WG-56393-071713-EB-174	0.008 J	0.020 U	µg/L
				WG-56393-071713-EB-175	0.012 J	0.020 U	µg/L
				WG-56393-071913-EB-185	0.018 J	0.020 U	µg/L

TABLE 8

QUALIFIED SAMPLE RESULTS DUE TO ANALYTE CONCENTRATIONS IN THE INSTRUMENT BLANKS
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Parameter	*Analyte*	*Analysis Date*	*Blank Result*	*Sample ID*	*Original Result*	*Qualified Result*	*Units*
Metals	Lead	7/23/2013	0.005 J	WG-56393-071813-EB-178	0.012 J	0.020 U	µg/L
				WG-56393-071813-EB-181	0.008 J	0.020 U	µg/L

Notes:

J Estimated concentration.
U Not detected at the associated reporting limit.

TABLE 9

QUALIFIED SAMPLE DATA DUE TO OUTLYING OF LABELED STANDARD RECOVERIES
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Parameter	*Sample ID*	*Surrogate*	*Surrogate Recovery (percent)*	*Control Limits (percent)*	*Analyte*	*Qualified Result*	*Units*
PCDD/PCDF	WG-56393-071513-EB-165	C13-12346789 OctaCDD	23	40-135	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	17.3 J	pg/L
		C13-12346789 OctaCDD	23	40-135	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	47.7 UJ	pg/L
		C13-1234678 HeptaCDF	38	40-135	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	23.8 UJ	pg/L
		C13-1234678 HeptaCDD	29	40-135	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	23.8 UJ	pg/L
		C13-1234789 HeptaCDF	36	40-135	1,2,3,4,7,8,9-Heptachlorodibenzofuran (HpCDF)	23.8 UJ	pg/L
		C13-123478 HexaCDF	29	40-135	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	3.03 J	pg/L
		C13-123478 HexaCDD	37	40-135	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	23.8 UJ	pg/L
		C13-123678 HexaCDF	38	40-135	1,2,3,6,7,8-Hexachlorodibenzofuran (HxCDF)	23.8 UJ	pg/L
		C13-123678 HexaCDD	30	40-135	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	23.8 UJ	pg/L
		C13-123678 HexaCDD	30	40-135	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin (HxCDD)	23.8 UJ	pg/L
		C13-123789 HexaCDF	31	40-135	1,2,3,7,8,9-Hexachlorodibenzofuran (HxCDF)	23.8 UJ	pg/L
		C13-12378 PentaCDF	30	40-135	1,2,3,7,8-Pentachlorodibenzofuran (PeCDF)	23.8 UJ	pg/L
		C13-12378 PentaCDD	33	40-135	1,2,3,7,8-Pentachlorodibenzo-p-dioxin (PeCDD)	23.8 UJ	pg/L
		C13-234678 HexaCDF	34	40-135	2,3,4,6,7,8-Hexachlorodibenzofuran (HxCDF)	23.8 UJ	pg/L
		C13-23478 PentaCDF	32	40-135	2,3,4,7,8-Pentachlorodibenzofuran (PeCDF)	23.8 UJ	pg/L
		C13-2378 TetraCDF	35	40-135	2,3,7,8-Tetrachlorodibenzofuran (TCDF)	4.77 UJ	pg/L
		C13-2378 TetraCDD	32	40-135	2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	4.77 UJ	pg/L

Notes:

PCDD/PCDFs Polychlorinated dibenzo-p-dioxin/polychlorinated dibenzofurans.
J Estimated concentration.
UJ Not detected; associated reporting limit is estimated.

TABLE 10

QUALIFIED SAMPLE DATA DUE TO ANALYTE CONCENTRATIONS IN THE TRIP BLANKS
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Parameter	*Blank Date*	*Analyte*	*Blank Result*	*Associated Sample ID*	*Original Result*	*Qualified Result*	*Units*
VOCs	7/16/2013	Chloroform	0.16 J	WG-56393-071613-EB-168	0.11 J	0.50 U	µg/L
VOCs	7/17/2013	Chloroform	0.16 J	WG-56393-071713-EB-173	0.12 J	0.50 U	µg/L
				WG-56393-071713-EB-175	0.080 J	0.50 U	µg/L
Metals	7/15/2013	Mercury	2.8	WG-56393-071513-EB-165	0.49 J	1.0 U	ng/L
				WG-56393-071513-EB-166	0.30 J	1.0 U	ng/L
Metals	7/16/2013	Mercury	2.9	WG-56393-071613-EB-167	0.75 J	1.0 U	ng/L
				WG-56393-071613-EB-168	0.28 J	1.0 U	ng/L
				WG-56393-071613-EB-169	0.52 J	1.0 U	ng/L
				WG-56393-071613-EB-170	0.54 J	1.0 U	ng/L
Metals	7/17/2013	Mercury	6.16	WG-56393-071713-EB-173	0.28 J	1.0 U	ng/L
				WG-56393-071713-EB-174	0.17 J	1.0 U	ng/L
				WG-56393-071713-EB-175	0.23 J	1.0 U	ng/L
Metals	7/18/2013	Mercury	1.9	WG-56393-071813-EB-178	0.36 J	1.0 U	ng/L
				WG-56393-071813-EB-180	0.97 J	1.0 U	ng/L
				WG-56393-071813-EB-181	0.59 J	1.0 U	ng/L
				WG-56393-071813-EB-182	0.13 J	1.0 U	ng/L
Metals	7/19/2013	Mercury	0.96	WG-56393-071913-EB-185	1.54	1.54 U	ng/L
				WG-56393-071913-EB-186	0.60 J	1.0 U	ng/L
				WG-56393-071913-EB-187	0.31 J	1.0 U	ng/L

Notes:

VOCs Volatile organic compounds.
J Estimated concentration.
U Not detected at the associated reporting limit.

TABLE 11

QUALIFIED SAMPLE DATA DUE TO ANALYTE CONCENTRATIONS IN THE EQUIPMENT BLANKS
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Parameter	*Rinse Blank ID*	*Blank Date*	*Analyte*	*Blank Result*	*Associated Sample ID*	*Original Result*	*Qualified Result*	*Units*
PDCC/PCDF	EB-56393-071813-EB-179	7/18/13	1,2,3,4,6,7,8-HpCDD	4.74	WG-56393-071813-EB-178	4.98 J	24.8 U	pg/L
					WG-56393-071813-EB-180	6.51 J	24.7 U	pg/L
Metals	EB-56393-071813-EB-179	7/18/13	Aluminum	40.3	WG-56393-071813-EB-180	39.7	39.7 U	µg/L
Metals	EB-56393-071813-EB-179	7/18/13	Arsenic	0.10 J	WG-56393-071813-EB-178	0.23 J	0.50 U	µg/L
					WG-56393-071813-EB-180	0.40 J	0.50 U	µg/L
Metals	EB-56393-071813-EB-179	7/18/13	Chromium	0.33 J	WG-56393-071813-EB-178	1.09	1.09 U	µg/L
					WG-56393-071813-EB-180	0.78	0.78 U	µg/L
Metals	EB-56393-071813-EB-179	7/18/13	Copper	0.11 J	WG-56393-071813-EB-178	0.53	0.53 U	µg/L
Metals	EB-56393-071813-EB-179	7/18/13	Iron	4.0 J	WG-56393-071813-EB-178	13.0 J	20.0 U	µg/L
Metals	EB-56393-071813-EB-179	7/18/13	Selenium	0.3 J	WG-56393-071813-EB-178	0.7 J	1.0 U	µg/L
					WG-56393-071813-EB-180	0.6 J	1.0 U	µg/L
Metals	EB-56393-071813-EB-179	7/18/13	Zinc	0.29 J	WG-56393-071813-EB-178	0.66	0.66 U	µg/L
SVOCs	EB-56393-071813-EB-179	7/18/13	Naphthalene	0.12 J	WG-56393-071813-EB-178	0.040 J	0.19 U	µg/L
					WG-56393-071813-EB-180	0.035 J	0.21 U	µg/L

Notes:

PCDD/PCDFs Polychlorinated dibenzo-p-dioxin/polychlorinated dibenzofurans.
SVOCs Semi-volatile organic compounds.
J Estimated concentration.
U Not detected at the associated reporting limit.

TABLE 12

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING IDENTIFICATION CRITERIA
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Parameter	*Sample ID*	*Analytes*	*Qualified Result*	*Units*
PCDD/PCDF	WG-56393-071513-EB-165	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	3.03 J	pg/L
PCDD/PCDF	WG-56393-071513-EB-166	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin (OCDD)	8.95 J	pg/L
	WG-56393-071513-EB-166	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	2.33 J	pg/L
	WG-56393-071513-EB-166	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	0.724 J	pg/L
	WG-56393-071513-EB-166	1,2,3,4,7,8-Hexachlorodibenzofuran (HxCDF)	0.723 J	pg/L
PCDD/PCDF	WG-56393-071613-EB-167	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	1.37 J	pg/L
PCDD/PCDF	WG-56393-071613-EB-169	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	10.4 J	pg/L
	WG-56393-071613-EB-169	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	6.27 J	pg/L
	WG-56393-071613-EB-169	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	0.739 J	pg/L
	WG-56393-071613-EB-169	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	2.16 J	pg/L
PCDD/PCDF	WG-56393-071613-EB-170	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	15.5 J	pg/L
	WG-56393-071613-EB-170	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin (HxCDD)	1.10 J	pg/L
PCDD/PCDF	WG-56393-071713-EB-173	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	1.71 J	pg/L
PCDD/PCDF	WG-56393-071713-EB-174	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	1.58 J	pg/L
PCDD/PCDF	WG-56393-071713-EB-175	1,2,3,4,6,7,8-Heptachlorodibenzofuran (HpCDF)	1.81 J	pg/L
PCDD/PCDF	WG-56393-071813-EB-181	1,2,3,4,6,7,8,9-Octachlorodibenzofuran (OCDF)	10.7 J	pg/L

TABLE 12

QUALIFIED SAMPLE RESULTS DUE TO OUTLYING IDENTIFICATION CRITERIA
GROUNDWATER MONITORING
12TH STREET LANDFILL
OTSEGO TOWNSHIP MICHIGAN
JULY 2013

Parameter	*Sample ID*	*Analytes*	*Qualified Result*	*Units*
PCDD/PCDF	WG-56393-071813-EB-182	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	5.24 J	pg/L
PCDD/PCDF	WG-56393-071913-EB-186	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (HpCDD)	3.84 J	pg/L

Notes:

PCDD/PCDFs Polychlorinated dibenzo-p-dioxin/polychlorinated dibenzofurans.
J Estimated concentration.