US EPA RECORDS CENTER REGION 5
515441

July 24, 2015

Reference No. 032504-15

Mr. Howard Caine
United States Environmental Protection Agency
Region V (SR-6J)
77 W. Jackson Boulevard
Chicago, Illinois
60604

Dear Mr. Caine:

Re: Progress Report No. 131
Groundwater and Landfill RD/RA
Reporting Period: April 1 through June 30, 2015
Rasmussen Landfill (Site), Livingston Co., Michigan

1. Introduction

This Progress Report is submitted in accordance with Paragraph 26 of the Consent Decree, Civil Action No. 92 40071. This report summarizes the activities performed during the reporting period and describes the activities to continue or which are scheduled to start during the next reporting period.

2. Activities Performed During this Reporting Period

2.1 Operation and Maintenance

The quarterly round of groundwater elevations were measured on June 24, 2015. The corresponding groundwater contour map is provided on Figure 1.

GHD[1] collected quarterly groundwater samples on June 17 through June 20, 2015, consistent with the Groundwater Remediation Monitoring Program. The results from these samples are discussed below.

2.2 Reports

Quarterly Progress Report No. 130 was submitted to USEPA and Michigan Department of Environmental Quality (MDEQ) on April 10, 2015.

The draft "2015 Groundwater Investigation" report was submitted to USEPA and MDEQ on June 2, 2015. Agency comments were received on June 9, 2015.

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1 On July 1, 2015 Conestoga Rovers & Assc. became GHD. For convenience, the wording in this report reflects the new name.

3. Summary of Findings

The results of the second quarter 2015 sampling are provided in Tables 1 through 4. Figure 2 is a Site location map showing the wells included in the quarterly Groundwater Remediation Monitoring Program and the annual Landfill Monitoring Program.

During the second quarter 2015 sampling, five of the 21 monitoring wells sampled had Compounds of Concern (COCs) at concentrations above generic Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria (RDWCC).

Specifically, the five monitoring wells with COCs exceeding RDWCC are:

CRA-RA-22	4.6 µg/L vinyl chloride
CRA-RA-24	6.1 µg/L vinyl chloride
CRA-RA-26S	90/92 µg/L trichloroethene (duplicate sample)
CRA-RA-27	8.4 µg/L vinyl chloride
CRA-RA-30	3.1 µg/L vinyl chloride

These were the same five monitoring wells that had COCs above RDWCC during the first quarter 2015 sampling event. COC concentrations detected in these wells during second quarter 2015 sampling were similar to COC concentrations detected in these wells during first quarter 2015 sampling.

GHD installed, developed and sampled five new monitoring wells in June 2015. The results of these groundwater samples are included on Table 1 (CRA-RA-34, CRA-RA-35, CRA-RA-36, and CRA-RA-37) and Table 3 (CRA-RA-33). Benzene was detected in the groundwater samples collected from CRA-RA-33 at 2.7/2.7 µg/L (duplicate sample), which is less than the RDWCC of 5 µg/L. Vinyl chloride was present at concentrations of 2.5/2.6 µg/L (duplicate sample). These concentrations are slightly greater than the RDWCC of 2 µg/L for vinyl chloride.

Vinyl chloride was detected in the Q2 2015 groundwater sample collected from CRA-RA-35. The concentration of 2.1 µg/L was slightly greater than the RDWCC of 2 µg/L for vinyl chloride. GHD collected a confirmatory sample from CRA-RA-35 on July 20, 2015. For this duplicate sample the concentration of vinyl chloride was 1.9/1.8 µg/L, slightly less than the RDWCC.

GHD did not collect the annual Rasmussen residential water well sample in the second quarter 2015 because the plumbing system is disconnected pending a repair. GHD will attempt to collect the annual Rasmussen residential water well sample, pending confirmation of repair of the plumbing system.

The results of the 2015 round of the annual Landfill Monitoring Programs are provided in Table 5. GHD did not collect a sample from background monitoring well CRA-RA-8 because the presence of poison ivy prevented safe access to the well. GHD used a herbicide to remove the poison ivy and will collect a sample from CRA-RA-8 during the Q3 2015 sampling round if conditions permit.

Volatile organic compounds were detected in some of the annual Landfill Monitoring Program samples but concentrations did not exceed their respective RDWCC. No semi-volatile organic compounds were

detected in any of the groundwater samples. Cadmium was detected in the groundwater samples collected from CRA-RA-18 and CRA-RA-19S, but at concentrations less than the RDWCC of 5 µg/L. Lead was not detected in any of the 2015 Annual Landfill Monitoring Program samples.

4. Problems Encountered

On June 17, 2005, an inspection revealed that the distribution panel was not functioning properly and no gas flow was reaching any of the sparge wells. All other components of the treatment system were functioning properly but an issue at or involving the panel was preventing flow to any of the three sparge zones.

5. Corrective Measures to Rectify Problems

After troubleshooting the lack of flow through the distribution panel, GHD discovered that the solenoid valves were not functioning properly. The valves were disassembled, cleaned, and new diaphragms and springs were installed. After reassembly, all valves and zones functioned properly and full flow was restored to all three zones.

6. Contacts and Significant Correspondence with Public Representatives

Communication	Date	Subject of Correspondence/Discussion
Quarterly Report	April 10, 2015	Report No. 130 submitted to Mr. H. Caine (USEPA) and Mr. K. Krawczyk (MDEQ).
email	April 17, 2015	USEPA approval of "2011 Groundwater Investigation Work Plan" amendment
email	April 20, 2015	Comments from Mr. J. Bradley (MDEQ) on "2011 Groundwater Investigation Work Plan"
Site Visit	April 21 -22, 2015	Mr. J. Bradley (MDEQ) on-Site to observe VAS
Draft 2015 Groundwater Investigation Report	June 2, 2015	Draft report submitted to Mr. H. Caine (USEPA) and Mr. K. Krawczyk (MDEQ) to Mr. H. Caine (USEPA) and Mr. K. Krawczyk (MDEQ).
email	June 9, 2015	Comments from Mr. K. Krawczyk (MDEQ) on draft "2015 Groundwater Investigation" report
email	June 9, 2015	Comments from Mr. H. Caine (USEPA) on draft "2015 Groundwater Investigation" report
email	June 11, 2015	Clarification of MDEQ comments from Mr. K. Krawczyk (MDEQ)
email	June 11, 2015	Permission from Mr. S. Willets (Artisan Building Company) to cross their property to install new monitoring wells

Communication	Date	Subject of Correspondence/Discussion
Conference call		Review EPA and MDEQ comments on draft "2015 Groundwater Investigation" report; Mr. S Nadeau (Honigman), Mr. B. Bartholomy (GHD), Mr. H. Caine (USEPA), Mr. J. Bradley (MDEQ) and Mr. K. Krawczyk (MDEQ)

7. Planned Upcoming Activities/Schedule

Landfill and groundwater component activities planned for the third quarter of 2015:

- Continue the operation of ozone sparging system.
- Continue to monitor for the presence of ozone at each sparge vault.
- The third quarter groundwater sampling event is scheduled for the week of August 24, 2015.
- The wells to be sampled in the second quarter of 2015 are listed in Table 5.
- Respond to USEPA and MDEQ comments on the draft "2015 Groundwater Investigation" report.
- Submit revised "2015 Groundwater Investigation" report including recommendations for further delineation.

Should you have any questions on the above, please do not hesitate to contact the undersigned.

Yours truly,

GHD

Bart Bartholomy

AJD/ac/39

Encl.

cc: Mike Stoelton, JCI
Chuck Pinter, Ford
Karyllan Dodson Mack, BASF
Michael Simpson
Steven Nadeau, Honigman

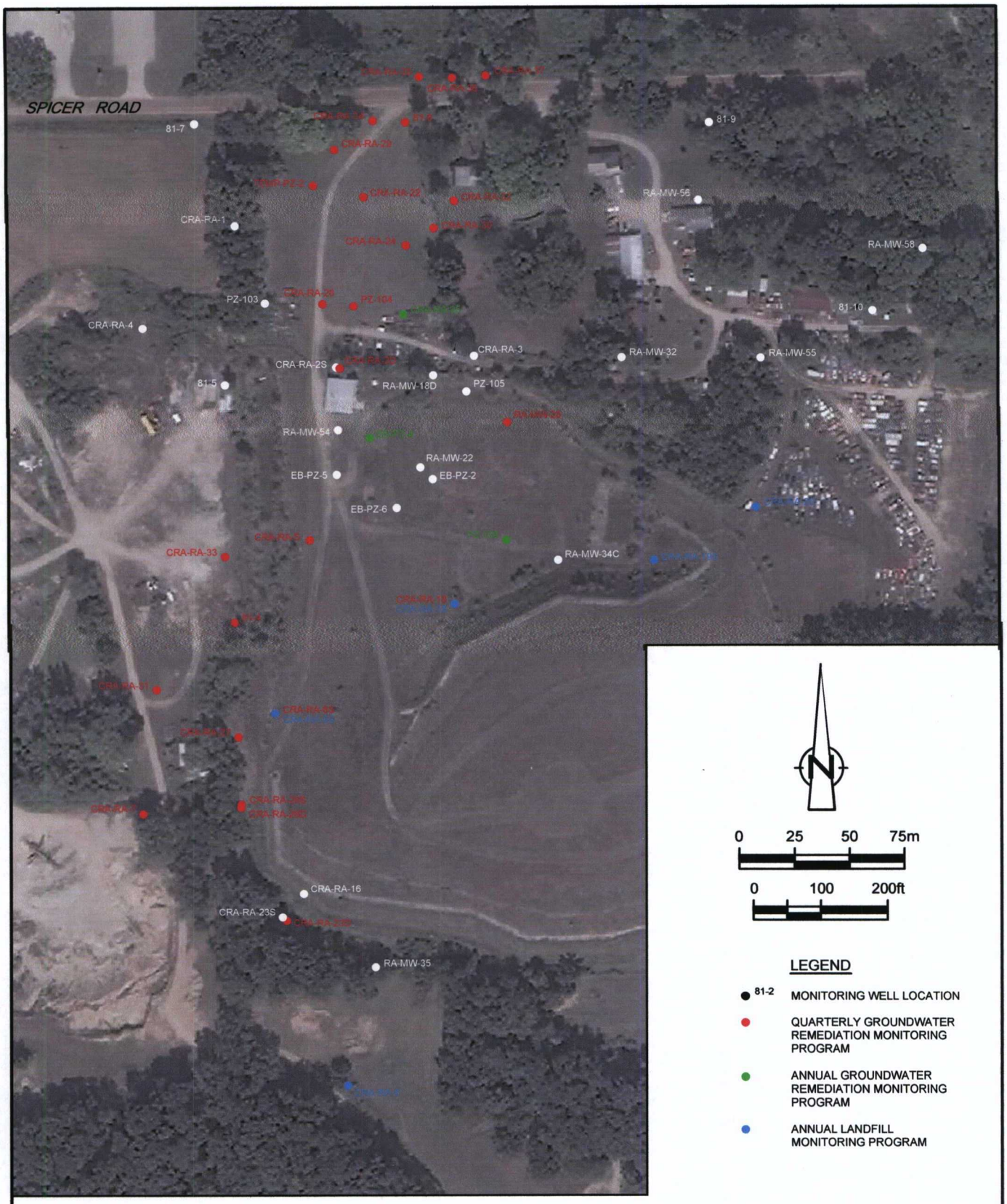

figure 1

2015 GROUNDWATER MONITORING PROGRAMS
RASMUSSEN LANDFILL SITE
Livingston County, Michigan

32504-15(CAIN041)GN-WA001 JUL 8/2015

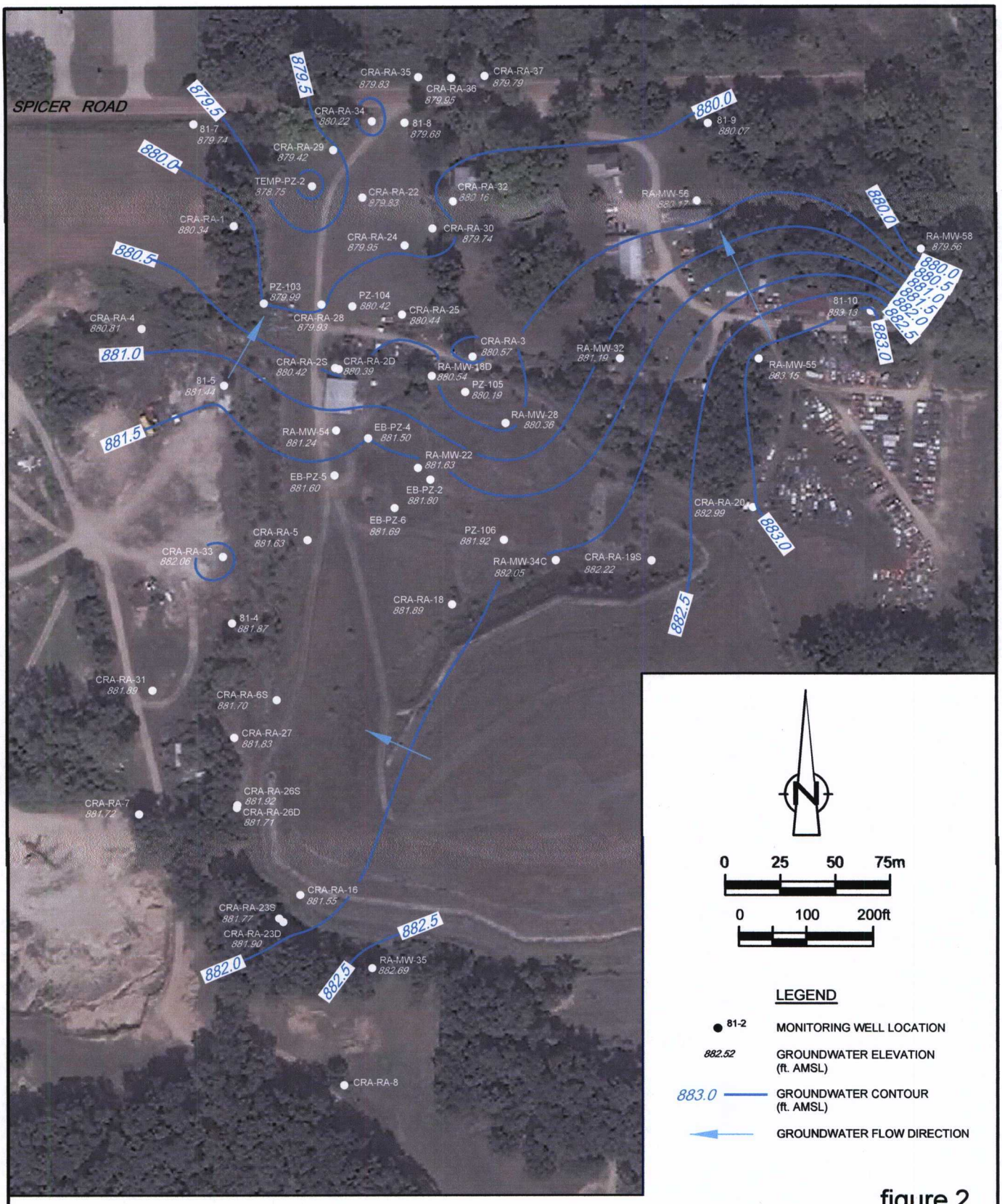

figure 2

GROUNDWATER ELEVATION CONTOURS (UPPER AQUIFER)
JUNE 2015
RASMUSSEN LANDFILL SITE
Livingston County, Michigan

32504-15(CAIN041)GN-WA002 .JUL 23/2015

Table 1

Analytical Results - Northern Plumes
Rennerstown Landfill Site
Livingston County, Michigan

Sample Location	Sample ID	Date Sampled	Parameter	1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE (TOTAL)	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZENE	ETHYLBENZENE	METHYLENE CHLORIDE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)
			Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			RDWQC (1)	200	70 (2)	13,000	1,000	730	5	100	74	5	700	5	2	200
CRA-RA-22	GW-SR-1616	6/19/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	5.8	ND(1.0)
CRA-RA-22	GW-SR-1646	12/11/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	4.0	ND(1.0)
CRA-RA-22	GW-SR-1672	3/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	4.0	ND(1.0)
CRA-RA-22	GW-SR-1699	6/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	4.6	ND(1.0)
			Change												Up 0.6 µg/L	
CRA-RA-24	GW-SR-1615	6/18/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	6.0	ND(1.0)
CRA-RA-24	GW-SR-1643	12/9/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	5.3	ND(1.0)
CRA-RA-24	GW-SR-1669	3/17/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	5.9	ND(1.0)
CRA-RA-24	GW-SR-1694	6/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.6)	ND(1.0)	ND(1.0)	6.1	ND(1.0)
			Change												Down 0.8 µg/L	
CRA-RA-25	GW-SR-1648	6/19/2013		ND(1.0)	1.2	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-25	GW-SR-1715	7/25/2013		ND(1)	1.0	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
CRA-RA-25	GW-SR-1717	7/25/2013	Duplicate	ND(1)	1.0	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
CRA-RA-25	GW-SR-1626	9/2/2014		ND(1.0)	1.1	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.1	ND(1.0)
			Change		Up 0.1 µg/L										Up 0.1 µg/L	
CRA-RA-26	GW-SR-1613	6/19/2014		ND(1.0)	2.8	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-26	GW-SR-1641	12/9/2014		ND(1.0)	2.3	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-26	GW-SR-1666	3/17/2015		ND(1.0)	2.3	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-26	GW-SR-1667	3/17/2015		ND(1.0)	2.2	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-26	GW-SR-1697	6/17/2015		ND(1.0)	2.8	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change		up 0.4 µg/L											
CRA-RA-28	GW-SR-1620	6/19/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-28	GW-SR-1646	12/12/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-28	GW-SR-1674	3/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-28	GW-SR-1699	6/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable; all Non-Detect							
CRA-RA-30	GW-SR-1615	6/18/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.6	ND(1.0)
CRA-RA-30	GW-SR-1644	12/10/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.3	ND(1.0)
CRA-RA-30	GW-SR-1670	3/17/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.6	ND(1.0)
CRA-RA-30	GW-SR-1695	6/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.1	ND(1.0)
			Change												Down 0.5 µg/L	
CRA-RA-32	GW-SR-1617	6/19/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-32	GW-SR-1645	12/11/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-32	GW-SR-1671	3/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-32	GW-SR-1692	6/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable; all Non-Detect							
CRA-RA-34	GW-DT-004	6/23/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-35	GW-DT-003	6/23/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.1	ND(1.0)
CRA-RA-35	GW-DT-001	7/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.9	ND(1.0)
CRA-RA-35	GW-DT-002	7/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.8	ND(1.0)
CRA-RA-36	GW-DT-002	6/23/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-37	GW-DT-001	6/23/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-104	GW-SR-1614	6/19/2014		ND(1.0)	3.0	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-104	GW-SR-1642	12/10/2014		ND(1.0)	3.2	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-104	GW-SR-1668	3/17/2015		ND(1.0)	3.6	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.1	ND(1.0)
PZ-104	GW-SR-1693	6/18/2015		ND(1.0)	3.2	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change		Down 0.4 µg/L										Down 0.1 µg/L	
TEMP-PZ-2	GW-SR-1619	6/19/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
TEMP-PZ-2	GW-SR-1647	12/11/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
TEMP-PZ-2	GW-SR-1673	3/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
TEMP-PZ-2	GW-SR-1697	6/19/2015		ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
			Change						Stable; all Non-Detect							
61-6	GW-SR-1621	6/19/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.1)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
61-6	GW-SR-1622	6/19/2014	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.1)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
61-6	GW-SR-1649	12/12/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
61-6	GW-SR-1675	3/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
61-6	GW-SR-1699	6/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	34	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change					Up 34 µg/L								

Notes:

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria
(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/L.

Table 2

Analytical Results - PDSLD Area Plumes
Rasmussen Landfill Site
Livingston County, Michigan

Sample Location	Sample ID	Date Sampled	Parameter	1,1,1-TRICHLOROETHANE µg/L	1,2-DICHLOROETHENE µg/L	2-BUTANONE µg/L	4-METHYL-2-PENTANONE µg/L	ACETONE µg/L	BENZENE µg/L	CHLOROBENZEN µg/L	ETHYLBENZENE µg/L	METHYLENE CHLORIDE µg/L	TOLUENE µg/L	TRICHLOROETHE µg/L	VINYL CHLORIDE µg/L	XYLENES (TOTAL) µg/L
			Units													
			RDWCC(1)	200	70 (2)	13,000	1,800	730	5	100	74	5	790	5	2	280
CRA-RA-2D	GW-SR-1812	8/18/2014		ND(2.0)	ND(2.0)	ND(20)	ND(20)	ND(20)	ND(2.0)	67	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
CRA-RA-2D	GW-SR-1839	12/9/2014		ND(3.3)	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	58	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
CRA-RA-2D	GW-SR-1882	3/16/2015		ND(2.9)	ND(2.9)	ND(29)	ND(29)	ND(29)	ND(2.9)	78	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)
CRA-RA-2D	GW-SR-1885	6/17/2015		ND(2.0)	ND(2.0)	ND(20)	ND(20)	ND(20)	ND(2.0)	67	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
			Change							Down 9 µg/L						
CRA-RA-18	GW-SR-1831	9/3/2014		60	ND(2.9)	ND(29)	ND(29)	ND(29)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)
CRA-RA-18	GW-SR-1853	12/15/2014		66	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
CRA-RA-18	GW-SR-1885	3/17/2015		67	ND(4.0)	ND(40)	ND(40)	ND(40)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)
CRA-RA-18	GW-SR-1888	6/17/2015	*Duplicate*	65	ND(2.9)	ND(29)	ND(29)	ND(29)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)
CRA-RA-18	GW-SR-1889	6/17/2015		65	ND(2.9)	ND(29)	ND(29)	ND(29)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)
			Change	Down 2 µg/L												
EB-PZ-4	GW-SR-1548	8/24/2011		ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	38.7	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
EB-PZ-4	GW-SR-1630	9/10/2012		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1)	39	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.3	ND(1.0)
EB-PZ-4	GW-SR-1657	12/4/2012		ND(2.0)	ND(2.0)	ND(20)	ND(20)	ND(20)	ND(2.0)	39	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	4.0	ND(2.0)
EB-PZ-4	GW-SR-1728	8/27/2013		ND(1.4)	ND(1.4)	ND(14)	ND(14)	ND(14)	ND(1.4)	41	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)	2.2	ND(1.4)
EB-PZ-4	GW-SR-1827	9/2/2014		ND(1.4)	ND(1.4)	ND(14)	ND(14)	ND(14)	ND(1.4)	43	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)
			Change							Up 2 µg/L					Down 0.8 µg/L	
PZ-106	GW-SR-1549	8/25/2011		ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
PZ-106	GW-SR-1640	9/12/2012		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-106	GW-SR-1731	8/27/2013		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-106	GW-SR-1732	8/27/2013	*Duplicate*	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-106	GW-SR-1828	9/2/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable; all Non-Detect						
RA-MW-28	GW-SR-1830	9/3/2014		11	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
RA-MW-28	GW-SR-1854	12/15/2014		8.7	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
RA-MW-28	GW-SR-1884	3/17/2015		8.7	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
RA-MW-28	GW-SR-1890	6/17/2015		7.9	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change	Down 0.8 µg/L												

Notes:

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria
(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/L.

Table 8

Analytical Results - Southern Vinyl Chloride Plume
Rasmussen Landfill Site
Livingston County, Michigan

Sample Location	Sample ID	Date Sampled	Parameter	1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE (TOTAL)	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZENE	ETHYLBENZENE	METHYLENE CHLORIDE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)
			Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			RDWCC(1)	200	70 (2)	13,000	1,800	730	5	100	74	5	790	5	2	280
CRA-RA-5	GW-SR-1823	6/19/2014		15	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-5	GW-SR-1840	12/9/2014		19	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-5	GW-SR-1863	3/16/2015		20	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-5	GW-SR-1886	6/17/2015		18	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change	Down 2 µg/L												
CRA-RA-68	GW-SR-1832	9/11/2014		1.5	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-68	GW-SR-1855	12/15/2014		1.7	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-68	GW-SR-1878	3/19/2015		1.7	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-68	GW-SR-1891	6/18/2015		1.9	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change	Up 0.2 µg/L												
CRA-RA-7	GW-SR-1825	9/2/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-7	GW-SR-1851	12/15/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-7	GW-SR-1852	12/15/2014	*Duplicate*	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-7	GW-SR-1877	3/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-7	GW-SR-1901	6/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable; all Non-Detect							
CRA-RA-27	GW-SR-1833	9/11/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	8.9	ND(1.0)
CRA-RA-27	GW-SR-1834	9/11/2014	*Duplicate*	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	8.9	ND(1.0)
CRA-RA-27	GW-SR-1856	12/16/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	11	ND(1.0)
CRA-RA-27	GW-SR-1879	3/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	8.6	ND(1.0)
CRA-RA-27	GW-SR-1892	6/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	8.4	ND(1.0)
			Change												Down 0.2 µg/L	
CRA-RA-31	GW-SR-1824	9/2/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.6)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-31	GW-SR-1850	12/15/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-31	GW-SR-1876	3/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-31	GW-SR-1900	6/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable; all Non-Detect							
CRA-RA-33	GW-DT-001	6/23/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	2.7	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.5	ND(1.0)
CRA-RA-33	GW-DT-002	6/23/2015	*Duplicate*	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	2.7	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.6	ND(1.0)
81-4	GW-SR-1837	9/12/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.6	ND(1.0)
81-4	GW-SR-1860	12/16/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2	ND(1.0)
81-4	GW-SR-1883	3/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.7	ND(1.0)
81-4	GW-SR-1904	6/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.0	ND(1.0)
			Change												Up 0.3 µg/L	

Notes:

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria
(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/L.

Table 4

Analytical Results - Southern TCE Plume
Rasmussen Landfill Site
Livingston County, Michigan

Sample Location	Sample ID	Date Sampled	Parameter	1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE (TOTAL)	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZENE	ETHYLBENZENE	METHYLENE CHLORIDE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)
				Volatile Organics												
			Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			RDWCC(1)	200	70 (2)	13,000	1,600	730	5	100	74	5	790	5	2	280
CRA-RA-23D	GW-SR-1836	9/12/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	4.0	ND(1.0)	ND(1.0)
CRA-RA-23D	GW-SR-1861	12/16/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.4	ND(1.0)	ND(1.0)
CRA-RA-23D	GW-SR-1884	3/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	4.7	ND(1.0)	ND(1.0)
CRA-RA-23D	GW-SR-1908	6/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	4.1	ND(1.0)	ND(1.0)
			Change											Down 0.8 µg/L		
CRA-RA-26D	GW-SR-1838	9/11/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-26D	GW-SR-1859	12/16/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-26D	GW-SR-1882	3/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-26D	GW-SR-1907	6/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable; all Non-Detect						
CRA-RA-28S	GW-SR-1836	9/11/2014		ND(3.3)	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	99	ND(3.3)	ND(3.3)
CRA-RA-28S	GW-SR-1857	12/16/2014		ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	86	ND(2.5)	ND(2.5)
CRA-RA-28S	GW-SR-1858	12/16/2014	Duplicate	ND(5.0)	ND(5.0)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(5.0)	ND(5.0)	78	ND(5.0)	ND(5.0)
CRA-RA-28S	GW-SR-1880	3/19/2015		ND(5.0)	ND(5.0)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	5.8	ND(5.0)	78	ND(5.0)	ND(5.0)
CRA-RA-28S	GW-SR-1881	3/19/2015	Duplicate	ND(3.3)	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	4.2	ND(4.0)	83	ND(3.3)	ND(3.3)
CRA-RA-28S	GW-SR-1905	6/20/2015		ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	92	ND(2.5)	ND(2.5)
CRA-RA-28S	GW-SR-1906	6/20/2015	Duplicate	ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	90	ND(2.5)	ND(2.5)
			Change											Up 8 µg/L		

Notes:

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria
(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/L.

Table 6

Analytical Results - Landfill Monitoring Program
Ramsdale Landfill Site
Livingston County, Michigan

Sample Location	Sample ID	Date Sampled	Parameter	Volatile Organics													Semi-volatile Organics			Metals			
				1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZENE	ETHYLBENZENE	METHYLENE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)	2-METHYLPHENOL	BIS(2-ETHYLHEXYL)PHTHALATE	ISOPHORONE	CADMIUM, DISSOLVED	CADMIUM, TOTAL	LEAD, DISSOLVE	LEAD, TOTAL
			Units	200 µg/L	70 (1) µg/L	19,000 µg/L	1,860 µg/L	700 µg/L	5 µg/L	100 µg/L	74 µg/L	5 µg/L	750 µg/L	5 µg/L	2 µg/L	280 µg/L	370 µg/L	5 µg/L	500 µg/L	5 µg/L	µg/L	4 µg/L	µg/L
CRA-RA-68	GW-SR-1398	6/14/2010		ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	1.3	ND(1)	ND(6.1)	ND(6.1)	ND(6.1)	ND(0.2)	ND(0.2)	ND(3)	ND(3)
CRA-RA-68	GW-SR-1513	6/14/2011		ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	1.8	ND(1)	ND(6)	ND(6)	ND(6)	ND(1)	ND(1)	ND(3)	ND(3)
CRA-RA-68	GW-SR-1623	6/18/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	ND(4.8)	ND(4.8)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
CRA-RA-68	GW-SR-1604	6/18/2014	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	ND(4.8)	ND(4.8)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
CRA-RA-68	GW-SR-1691	6/18/2015		1.0	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
			Change	Up 0.9 µg/L																			
CRA-RA-6	GW-SR-1621	6/15/2011		ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(6.3)	ND(6.3)	ND(6.3)	ND(1.0)	ND(1.0)	ND(3.0)	ND(3.0)
CRA-RA-6	GW-SR-1622	6/15/2011	Duplicate	ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(6.3)	ND(6.3)	ND(6.3)	ND(1.0)	ND(1.0)	ND(3.0)	ND(3.0)
CRA-RA-6	GW-SR-1698	8/29/2011		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND(3)	ND(3)
CRA-RA-6	GW-SR-1699	8/29/2011		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND(3)	ND(3)
CRA-RA-6	GW-SR-1628	6/21/2012		ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(2.0)	ND(2.0)	ND(2.0)	ND(0.2)	ND(0.2)	ND(3)	ND(3)
CRA-RA-6	GW-SR-1707	6/18/2013		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	ND(4.8)	ND(4.8)	ND(0.2)	ND(0.2)	ND(3)	ND(3)
CRA-RA-6	GW-SR-1807	6/2(?)/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	ND(5.4)	ND(4.8)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
			Change	Stable: All Non-Detect																			
CRA-RA-15	GW-SR-1626	6/10/2011		107	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	2.3	ND(1)	ND(1)	ND(6.3)	ND(6.3)	ND(6.3)	ND(1.0)	ND(1.0)	8.1	ND(3.0)
CRA-RA-15	GW-SR-1696	6/10/2011	Duplicate	107	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	2.3	ND(1)	ND(1)	ND(6.3)	ND(6.3)	ND(6.3)	ND(1.0)	ND(1.0)	4.9	ND(3.0)
CRA-RA-15	GW-SR-1625	6/10/2011		90.8	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	1.1	ND(1)	2.0	ND(1)	ND(1)	--	--	--	--	--	ND(3)	ND(9)
CRA-RA-15	GW-SR-1617	6/20/2012		88.3	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	2.0	ND(1)	ND(1)	ND(2.2)	ND(2.2)	ND(2.2)	ND(0.0.087)	ND(0.0.087)	ND(1.7)	ND(1.7)
CRA-RA-15	GW-SR-1633	6/17/2013		88	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(4.9)	ND(4.9)	ND(4.9)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
CRA-RA-15	GW-SR-1634	6/17/2013	Duplicate	80	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(4.8)	ND(4.8)	ND(4.8)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
CRA-RA-15	GW-SR-1799	6/17/2014		78	ND(2.8)	ND(28)	ND(28)	ND(28)	ND(2.8)	ND(2.8)	ND(2.8)	ND(2.8)	ND(2.8)	ND(2.8)	ND(2.8)	ND(2.8)	ND(4.8)	6.8 J	ND(4.8)	ND(0.2)	ND(0.29)	ND(3.0)	ND(3.0)
CRA-RA-15	GW-SR-1689	6/17/2015		85	ND(2.8)	ND(28)	ND(28)	ND(28)	ND(2.8)	ND(2.8)	ND(2.8)	ND(2.8)	ND(2.8)	ND(2.8)	ND(2.8)	ND(2.8)	ND(4.8)	ND(4.8)	ND(4.8)	0.43	0.29	ND(3.0)	ND(3.0)
CRA-RA-15	GW-SR-1688	6/17/2015	Duplicate	85	ND(2.8)	ND(10)	ND(28)	ND(28)	ND(2.8)	ND(2.8)	ND(2.8)	ND(2.8)	ND(2.8)	ND(2.8)	ND(2.8)	ND(2.8)	ND(4.8)	ND(4.8)	ND(4.8)	0.22	0.27	ND(3.0)	ND(3.0)
			Change	Up 2 µg/L																Up 0.12 µg/L	Reduced Detection Limit		
CRA-RA-198	GW-SR-1618	6/20/2012		ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(2.1)	ND(2.1)	ND(2.1)	ND(0.2)	ND(0.2)	ND(3)	ND(3)
CRA-RA-198	GW-SR-1639	6/17/2013		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	ND(4.8)	ND(4.8)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
CRA-RA-198	GW-SR-1801	6/18/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	6.8 J	ND(4.8)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
CRA-RA-198	GW-SR-1803	6/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	ND(4.8)	ND(4.8)	0.48	0.27	ND(3.0)	ND(3.0)
			Change	Stable: all non-detect																Up 0.36 µg/L	Up 0.07 µg/L		
CRA-RA-20	GW-SR-418	11/20/2000		7	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(6.3)	ND(6.3)	ND(6.3)	ND(0.2)	ND(0)	ND(0.3)	ND(3)
CRA-RA-20	GW-RW-457	11/19/2001		11	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(9)	ND(9)	ND(9)	ND(0.2)	ND(0)	NA	NA
CRA-RA-20	GW-SR-633	12/12/2002		8	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(9)	ND(9)	ND(9)	ND(0.8)	ND(0.8)	ND(1)	ND(1)
				Insufficient Groundwater to Collect Sample																			

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria

Table 6

2015 Groundwater Sampling Program
Rasmussen Landfill Site
Livingston County, Michigan

Quarterly Sampling - VOCs	Q1	Q2	Q3	Q4
81-4				
81-8		**Annual Landfill Monitoring Program - VOCs, SVOCs & Metals**	CRA-RA-25 (VOCs only)	New Rasmussen Water Supply Well (VOCs only)
CRA-RA-2D			EB-PZ-4 (VOCs only)	
CRA-RA-5		CRA-RA-6S (included in quarterly sampling)	PZ-106 (VOCs only)	
CRA-RA-6S		CRA-RA-8	RA-MW-47 (VOCs only)	
CRA-RA-7		CRA-RA-18 (included in quarterly sampling)		
CRA-RA-18		CRA-RA-19S		
CRA-RA-22		CRA-RA-20		
CRA-RA-23D				
CRA-RA-24				
CRA-RA-26D				
CRA-RA-26S				
CRA-RA-27				
CRA-RA-28				
CRA-RA-29				
CRA-RA-30				
CRA-RA-31				
CRA-RA-32				
CRA-RA-33				
CRA-RA-34				
CRA-RA-35				
CRA-RA-36				
CRA-RA-37				
PZ-104				
RA-MW-28				
TEMP-PZ-2				

Rasmussen 32504

Ozone Sparge System Inspection

DATE	April 8, 2015	April 17, 2015	April 24, 2015	April 28	May 8
OPERATOR SIGNATURE	L Rapai	L Rapai	L Rapai	L Rapai	L Rapai

Air Compressor					
Output Pressure psi	110	110	110	110	110
Temperature F	–	–	–	–	–
Run Time hours	98425	98640	98807	98805	99139

Air Sep					
Receiver Pressure psi	54	52	54	54	58
Feed Air Pressure psi	110	110	110	110	110
Cycle Pressure psi	70	70	70	70	70
Holding Tank Pressure psi	42	42	42	42	42
Run Time hours	98424.9	98640.2	98806.6	98904.9	99139.0

Air Dryer					
Temp. Indicator - color	GREEN	GREEN	GREEN	GREEN	GREEN

Ozone Generator					
Oxygen Supply, LPM	7	8	7	7	8
% O3 capacity	45	45	45	45	45
Regulator #1 psi	22	35	38	36	38
Regulator #2 psi	35	22	24	24	24
Alarm Reading ppm, O3	–	–	–	–	–
Zone On	1	2	2	3	3
Zone Time hours	1/2	1/2	1/2	2	2

Distribution Panel					
CFM	0.8	0.8	0.8	0.8	
O3 Feed Conc. Ppm O3					

Comments:

Rasmussen 32504

Ozone Sparge System Inspection

DATE	May 11, 2015	May 21, 2015	May 30, 2015	June 4, 2015	June 8, 2015
OPERATOR SIGNATURE	L Rapai	L Rapai	L Rapai	L Rapai	L Rapai

Air Compressor					
Output Pressure psi	110	110	110	110	110
Temperature F	–	–	–	–	
Run Time hours	99215	99453.1		99789	

Air Sep					
Receiver Pressure psi	58	58	58	58	58
Feed Air Pressure psi	105	110	110	110	110
Cycle Pressure psi	70	70	70	70	70
Holding Tank Pressure psi	42	42	42	42	42
Run Time hours	99214.8	99453.1		99789.3	

Air Dryer					
Temp. Indicator - color	GREEN	GREEN	GREEN	GREEN	GREEN

Ozone Generator					
Oxygen Supply, LPM	7	7	7	7	7
% O3 capacity	45	45	45	45	45
Regulator #1 psi	36	35	34	34	35
Regulator #2 psi	22	22	24	22	22
Alarm Reading ppm, O3	–	–	–	–	–
Zone On	3	3	2	3	3
Zone Time hours	2	2	1/2	2	2

Distribution Panel					
CFM	0.8	0.8	0.8	0.8	0.8
O3 Feed Conc. Ppm O3					

Comments:

Rasmussen 32504

Ozone Sparge System Inspection

DATE	June 17 2015	June 21			
OPERATOR SIGNATURE	[illegible]	[illegible]			

Air Compressor					
Output Pressure psi	110	110			
Temperature F	–	–			
Run Time hours		100196			

Air Sep					
Receiver Pressure psi	54	56			
Feed Air Pressure psi	110	115			
Cycle Pressure psi	70	70			
Holding Tank Pressure psi	42	42			
Run Time hours		100196			

Air Dryer					
Temp. Indicator - color	GREEN	GREEN			

Ozone Generator					
Oxygen Supply, LPM	7	7			
% O3 capacity	45	45			
Regulator #1 psi	35	35			
Regulator #2 psi	22	22			
Alarm Reading ppm, O3	–	–			
Zone On	2	3			
Zone Time hours	1½	2			

Distribution Panel					
CFM	0.8	0.8			
O3 Feed Conc. Ppm O3					

Comments:

SPARGE WELL PRESSURE READINGS
RASMUSSEN SITE
CRA PROJECT #32504

DATE:	April 14, 15, & 16		DATE:	May 7, 8 & 11		DATE:	June 16, 17, 18, 19 & 20	
WELL ID	CFM @ DIST. PANEL	PSI @ WELL	WELL ID	CFM @ DIST. PANEL	PSI @ WELL	WELL ID	CFM @ DIST. PANEL	PSI @ WELL
SW-1	0.8	7	SW-1	0.8	6	SW-1	0.8	7
SW-2	0.8	7	SW-2	0.8	7	SW-2	0.8	7
SW-3	0.8	14	SW-3	0.8	13	SW-3	0.8	14
SW-4	0.8	14	SW-4	0.7	15	SW-4	0.8	14
SW-5	0.8	15	SW-5	0.8	15	SW-5	0.8	15
SW-6	0.8	15	SW-6	0.8	15	SW-6	0.8	15
SW-7	0.8	14	SW-7	0.8	15	SW-7	0.7	14
SW-8	–	–	SW-8	–	–	SW-8	–	–
SW-9	–	–	SW-9	–	–	SW-9	–	–
SW-10	–	–	SW-10	–	–	SW-10	–	–
SW-11	–	–	SW-11	–	–	SW-11	–	–
SW-12	0.7	16	SW-12	0.8	15	SW-12	0.8	15
SW-13	0.7	2	SW-13	0.7	2	SW-13	0.7	2
SW-14	–	–	SW-14	–	–	SW-14	–	–
SW-15	–	–	SW-15	–	–	SW-15	–	–
SW-16	–	–	SW-16	–	–	SW-16	–	–
SW-17	0.8	18	SW-17	0.7	18	SW-17	0.8	19
SW-18	0.7	19	SW-18	0.7	19	SW-18	0.8	18
SW-19	0.7	18	SW-19	0.8	19	SW-19	0.8	18
SW-20	0.8	19	SW-20	0.7	19	SW-20	0.7	18
SW-21	–	–	SW-21	–	–	SW-21	–	–
SW-22	0.7	13	SW-22	0.8	13	SW-22	0.7	13
SW-23	0.8	15	SW-23	0.7	14	SW-23	0.8	14
SW-24	0.8	13	SW-24	0.7	14	SW-24	0.8	15
SW-25	0.8	15	SW-25	0.8	14	SW-25	0.8	13
SW-26	0.7	4	SW-26	0.8	3	SW-26	0.7	3
SW-27	0.7	7	SW-27	0.8	7	SW-27	0.7	7
SW-28	0.8	7	SW-28	0.8	6	SW-28	0.8	7
SW-29	0.8	7	SW-29	0.7	7	SW-29	0.8	6
SW-30	–	–	SW-30	–	–	SW-30	–	–

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: WED. APRIL 8, 2015
Time: 3:30 PM

Weather Conditions: CLOUDY 45°

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: DRY

Drainage Spillways & Outfalls: DRY

Roadways: OK

Vegetation: DORMANT

Signs, Gates, & Fences: OK

Actions Taken:

—

Recommendations:

—

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: FRI. APRIL 24, 2015
Time: 2:30 PM

Weather Conditions: CLEAR 55°

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: OK - DRY

Drainage Spillways & Outfalls: OK - DRY

Roadways: OK

Vegetation: TURNING GREEN

Signs, Gates, & Fences: OK

Actions Taken:
NONE

Recommendations:
NONE

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: MON. MAY 4, 2015
Time: 9:30 AM

Weather Conditions: CLOUDY 65°

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: DRY - OK

Drainage Spillways & Outfalls: DRY - OK

Roadways: OK

Vegetation: TURNING GREEN

Signs, Gates, & Fences: OK

Actions Taken:

Recommendations:

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: THURS. MAY 21, 2015
Time: 3:30 PM

Weather Conditions: CLOUDY 67°

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: DRY - OK

Drainage Spillways & Outfalls: DRY - OK

Roadways: OK

Vegetation: OK - TREES FULL WITH LEAVES

Signs, Gates, & Fences: OK

Actions Taken:

—

Recommendations:

—

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: THURS. JUNE 4, 2015
Time: 3:00 PM

Weather Conditions: CLOUDY 80°

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: DRY - OK

Drainage Spillways & Outfalls: DRY - OK

Roadways: OK

Vegetation: GOOD

Signs, Gates, & Fences: OK

Actions Taken:

Recommendations:

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: FRI. JUNE 19, 2015
Time: 10:00 AM

Weather Conditions: CLOUDY 65°

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: DRY - OK

Drainage Spillways & Outfalls: DRY-OK

Roadways: OK

Vegetation: OK

Signs, Gates, & Fences: OK

Actions Taken:
NONE

Recommendations:
NONE

3/20/15 32504-25

SAMPLE OF CRA-RA-23D

TIME	pH	COND.	TURB.	D.O.	TEMP.
1155	6.95	0.698	3.0	0.00	10.50
1200	6.95	0.699	2.6	0.00	10.51
1205	6.95	0.699	2.3	0.00	10.51

SAMPLED @ 1206 ID:GW-32504-032015-SR-1884

SAMPLES PACKED IN COOLER WITH ICE FOR DROP OFF @ TEST AMERICA, BRIGHTON, MICHIGAN.

SR

32504-25 6/17/15

TASK: BEGIN 1/4LY SAMPLE EVENT

CRA: STEVE RAPAI

WEATHER: CLOUDY 71°

H&S: LEVEL D

CALIBRATION OF RENTAL HORIBA W-22, NF 07401

pH=4.01, COND.=4.49, TURB=0, D.O.=7.42

TEMP=29.79

SAMPLE OF CRA-RA-2D

TIME	pH	COND.	TURB.	D.O.	TEMP.
1150	6.56	1.88	95	4.41	15.67
1205	6.94	1.72	16	1.89	14.19
1215	6.95	1.72	7	1.68	13.97
1220	6.95	1.71	4	1.56	13.96
1225	6.93	1.72	4	1.54	13.96
1230	6.93	1.71	3	1.54	13.96

SAMPLED @ 1231 ID:GW-32504-061715-SR-1885

SAMPLE OF CRA-RA-5

1250	6.97	1.25	4	2.74	14.29
1305	6.83	1.13	4	1.51	15.06
1315	6.82	1.17	1	1.70	13.78
1320	6.81	1.17	1	1.74	13.64

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6/17/15 32504.25

SAMPLE OF CRA.RA.5 (CONTINUED)

TIME	pH	COND.	TURB	D.O.	TEMP.
1325	6.82	1.18	1	1.72	13.44
1330	6.81	1.18	1	1.73	13.45
1335	6.81	1.18	1	1.73	13.44

SAMPLED @ 1336 ID: GW.32504.061715.SR.1886

SAMPLE OF CRA.RA.28

1345	6.83	0.856	160	2.23	14.24
1400	6.80	0.870	19	1.48	13.24
1410	6.83	0.865	8	1.43	13.50
1415	6.82	0.843	5	1.33	15.15
1420	6.80	0.794	6	1.18	17.18
1425	6.82	0.833	3	1.20	16.80
1430	6.83	0.835	4	1.19	16.82
1435	6.82	0.835	3	1.20	16.81

SAMPLED @ 1436 ID: GW.32504.061715.SR.1887

SAMPLE OF CRA.RA.18 *ANNUAL SAMPLE*

1455	7.07	1.39	75	7.20	15.68
1510	6.81	1.44	16	6.85	14.01
1520	6.79	1.50	6	7.12	12.88
1525	6.80	1.50	4	7.14	12.86
1530	6.80	1.50	4	7.13	12.86

SAMPLED @ 1531 ID: GW.32504.061715.SR.1888
SAMPLED @ 1540 ID: GW.32504.061715.SR.1889

32504.25 6/17/15

SAMPLE OF RA.MW.28

TIME	pH	COND.	TURB.	D.O.	TEMP.
1555	7.16	0.621	4	3.44	13.81
1610	6.97	0.645	6	3.38	12.45
1620	6.96	0.644	5	3.42	12.13
1625	6.96	0.658	4	3.49	11.65
1630	6.96	0.659	4	3.50	11.62
1635	6.97	0.659	4	3.49	11.63

SAMPLED @ 1636 ID: GW.32504.061715.SR.1890

STORMS APPROACHING FROM WEST - SUSPENDED SAMPLING FOR REST OF THE DAY.

SAMPLES PACKED IN COOLER WITH ICE.

TASK: CONTINUE 1/4LY SAMPLE EVENT
CRA: STEVE RAPAI
WEATHER: CLOUDY, HUMID, CHANCE OF STORMS
HIGH 80°
H&S: LEVEL D
CALIBRATION OF RENTAL HORIBA U-22, NF 07401
pH=4.00; COND.=4.49, TURB=0, D.O.=7.00, TEMP=33.40

SAMPLE OF CRA-RA-65 *ANNUAL SAMPLE*

TIME	pH	COND.	TURB.	D.O.	TEMP.
1100	6.55	1.03	12	5.17	15.02
1115	6.74	1.05	5	2.93	14.70
1125	6.72	1.05	4	2.70	14.36
1130	6.74	1.05	3	2.65	14.36
1135	6.72	1.05	4	2.66	14.35
1140	6.72	1.05	4	2.65	14.35

SAMPLED @ 1141 ID: GW-32504-061815-SR-1891

SAMPLE OF CRA-RA-27

1200	6.85	1.56	10	4.19	15.05
1215	6.70	1.62	4	1.96	14.57
1225	6.71	1.63	2	1.85	14.41
1230	6.72	1.67	2	1.88	13.79

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SAMPLE OF CRA-RA-27 (CONTINUED)

TIME	pH	COND.	TURB.	D.O.	TEMP.
1235	6.72	1.68	3	1.89	13.78
1240	6.72	1.68	2	1.87	13.78

SAMPLED @ 1241 ID: GW-32504-061815-SR-1892

SAMPLE OF PZ-104

1255	7.33	0.865	110	4.75	14.20
1310	6.85	1.20	26	1.92	13.36
1320	6.83	1.21	8	1.73	13.24
1325	6.83	1.21	5	1.68	13.22
1330	6.82	1.21	4	1.68	13.20
1335	6.82	1.21	4	1.68	13.20

SAMPLED @ 1336 ID: GW-32504-061815-SR-1893

DROPPED OFF SAMPLES AT TEST AMERICA IN BRIGHTON. RETURNED TO SITE TO CONTINUE SAMPLING.

SAMPLE OF CRA-RA-24

1505	7.24	0.918	140	4.55	14.45
1520	6.96	0.949	70	2.41	13.36
1530	6.92	0.950	13	2.15	13.37
1535	6.93	0.951	6	2.08	13.41

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SAMPLE OF CRA-RA-24 (CONTINUED)

TIME	pH	COND.	TURB	D.O.	TEMP.
1540	6.93	0.947	4	1.99	13.38
1545	6.92	0.950	3	1.98	13.37
1550	6.93	0.949	4	1.98	13.38

SAMPLED @ 1551 ID: GW-32504-061815-SR-1894

SAMPLE OF CRA-RA-30

1600	6.93	0.936	45	2.72	13.73
1615	6.93	0.966	25	1.68	12.80
1625	6.93	0.970	12	1.66	12.69
1630	6.92	0.946	9	1.56	13.70
1635	6.92	0.964	6	1.60	13.10
1640	6.93	0.965	3	1.59	13.08
1645	6.92	0.965	3	1.59	13.09

SAMPLED @ 1646 ID: GW-32504-061815-SR-1895

SAMPLE OF CRA-RA-22

1700	6.90	1.13	84	2.65	14.33
1715	6.89	0.98	19	1.79	13.05
1725	6.88	1.00	7	1.72	12.86
1735	6.90	1.02	4	1.65	12.78
1740	6.90	1.02	4	1.66	12.76
1745	6.90	1.02	2	1.66	12.78

SAMPLED @ 1746 ID: GW-32504-061815-SR-1896

TASK: CONTINUE 1/4 LY SAMPLE EVENT
CRA: STEVE RAPAI
WEATHER: CLOUDY 62°, HIGH 74°
H&S: LEVEL D
CALIBRATION OF RENTAL HORIBA U-22
NF 07401
pH=4.01, COND=4.50, TURB=0, D.O.=6.68, TEMP=27.01 C°

SAMPLE OF TEMP-PZ-2

TIME	pH	COND.	TURB.	D.O.	TEMP.
0915	6.51	1.40	68	3.65	13.68
0930	6.68	1.53	0	2.22	13.03
0940	6.89	1.56	0	1.90	12.93
0945	6.91	1.56	0	1.79	13.00
0950	6.91	1.56	0	1.74	12.99
0955	6.91	1.56	0	1.73	12.99
1000	6.91	1.56	0	1.74	12.99

SAMPLED @ 1001 ID: GW-32504-061815-SR-1897

SAMPLE OF CRA-RA-29

1015	7.09	0.556	0	11.88	14.70
1030	7.08	0.562	0	12.57	14.06
1045	7.09	0.565	0	12.59	12.60

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SAMPLE OF CRA-RA-29

TIME	pH	COND.	TURB.	D.O.	TEMP.
1050	7.09	0.564	0	12.45	14.42
1055	7.11	0.561	0	12.17	14.59
1100	7.08	0.562	0	12.03	14.59
1105	7.12	0.569	0	12.18	14.55
1110	7.11	0.568	0	12.19	14.54
1115	7.11	0.569	0	12.18	14.54

SAMPLED @ 1115 ID:GW-32504-061915-SR-1898

SAMPLE OF 81-8

1220	7.19	0.608	240	18.06	16.23
1235	7.12	0.642	48	+19.99	13.09
1245	7.07	0.642	11	+19.99	12.88
1250	7.09	0.643	2	+19.99	12.86
1255	7.08	0.643	0	+19.99	12.86
1300	7.09	0.643	0	+19.99	12.87

SAMPLED @ 1301 ID:GW-32504-061915-SR-1899

SAMPLE OF CRA-RA-31

1315	7.37	0.444	26	3.07	14.10
1330	7.24	0.481	0	2.29	12.16
1340	7.23	0.483	0	2.21	12.17
1345	7.22	0.483	0	2.18	12.09
1350	7.22	0.484	0	2.15	12.03

32504-25 6/19/15

SAMPLE OF CRA-RA-31 (CONTINUED)

TIME	pH	COND.	TURB.	D.O.	TEMP.
1355	7.19	0.485	0	2.17	11.97
1400	7.20	0.483	0	2.15	11.99
1405	7.20	0.483	0	2.16	11.98

SAMPLED @ 1406 ID:GW-32504-061915-SR-1900

SAMPLE OF CRA-RA-7

1415	7.57	0.285	0	7.44	11.51
1430	7.55	0.283	0	7.00	11.43
1445	7.53	0.284	0	6.88	11.41
1450	7.51	0.284	0	6.86	11.40
1455	7.51	0.283	0	6.73	11.32
1500	7.51	0.284	0	6.73	11.32
1505	7.50	0.283	0	6.72	11.32

SAMPLED @ 1506 ID:GW-32504-061915-SR-1901

SAMPLES PACKED IN COOLER WITH ICE.

6/20/15 32504-25

TASK: CONTINUE 1/4LY SAMPLE EVENT

CRA: STEVE RAPAI

WEATHER: CLOUDY, OFF & ON RAIN SHOWERS, HIGH 81°

H&S: LEVEL D

CALIBRATION OF RENTAL HORIBA U-22 NF07401

pH=4.01, COND=4.50, TURB=0, D.O.=7.19, TEMP=30.00°C

SAMPLE OF CRA-RA-32

TIME	pH	COND.	TURB.	D.O.	TEMP.
1100	6.16	0.642	11	7.36	13.84
1115	6.95	0.629	4	2.31	14.09
1125	6.93	0.649	3	2.24	13.55
1130	6.93	0.655	3	2.11	12.77
1135	6.92	0.656	3	2.07	12.76
1140	6.92	0.656	3	2.09	12.76

SAMPLED @ 1141 ID: GW-32504-062015-SR-1902

SAMPLE OF CRA-RA-195 *ANNUAL SAMPLE*

1200	6.83	0.714	41	2.50	12.20
1215	6.77	0.731	12	2.07	12.14
1225	6.73	0.769	9	1.99	12.16

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32504-25 6/20/15

SAMPLE OF CRA-RA-195 (CONTINUED)

TIME	pH	COND.	TURB	D.O.	TEMP
1230	6.77	0.777	8	1.93	12.24
1235	6.77	0.781	6	1.92	12.08
1240	6.77	0.782	5	1.90	12.24
1245	6.78	0.783	5	1.89	12.23
1250	6.78	0.783	4	1.89	12.24

SAMPLED @ 1251 ID: GW-32504-062015-SR-1903 MS/MSD

SAMPLE OF 81-4

1420	6.77	1.08	4	4.38	13.86
1435	6.81	1.08	2	1.96	12.94
1445	6.79	1.09	3	1.82	13.04
1450	6.79	1.08	4	1.76	13.09
1455	6.78	1.09	2	1.73	13.10
1500	6.78	1.09	2	1.75	13.10

SAMPLED @ 1501 ID: GW-32504-062015-SR-1904

SAMPLES PACKED IN COOLER WITH ICE

6/21/15 32504-25

TASK: FINISH 1/4LY SAMPLE EVENT

CRA: STEVE RAPAI

WEATHER: MOSTLY CLOUDY, HUMID, HIGH 82°

H&S: LEVEL D

CALIBRATION OF RENTAL HORIBA U-22

NF 07401

pH=4.00, COND.=4.49, TURB=0, D.O.=6.98, TEMP.=32.69

SAMPLE OF CRA-RA-26S

TIME	pH	COND.	TURB.	D.O.	TEMP.
1015	6.00	1.01	14	10.09	13.84
1045	6.71	1.02	3	6.40	12.88
1050	6.68	1.02	3	6.26	12.95
1055	6.68	1.03	2	6.24	12.95
1100	6.68	1.03	2	6.23	12.95

SAMPLED @ 1101 ID:GW-32504-062115-SR-1905

SAMPLED @ 1106 ID:GW-32504-062115-SR-1906

SAMPLE OF CRA-RA-26D

1110	6.84	1.13	4	6.78	13.81
1125	6.74	1.17	2	1.81	12.82
1135	6.73	1.18	2	1.71	12.69
1140	6.72	1.17	2	1.68	12.67

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32504-25 6/21/15

SAMPLE OF CRA-RA-26D (CONTINUED)

TIME	pH	COND.	TURB.	D.O.	TEMP.
1145	6.74	1.18	3	1.65	12.68
1150	6.73	1.18	3	1.66	12.69

SAMPLED @ 1151 ID:GW-32504-062115-SR-1907

SAMPLE OF CRA-RA-23D

1210	7.26	0.381	68	4.24	12.76
1225	6.94	0.406	27	1.89	11.75
1235	6.92	0.411	7	1.79	11.65
1240	6.92	0.415	5	1.77	11.62
1245	6.93	0.417	5	1.78	11.61
1250	6.92	0.417	4	1.77	11.61

SAMPLED @ 1251 ID:GW-32504-062115-SR-1908

SAMPLES PACKED IN COOLER WITH ICE

SAMPLES WILL BE DROPPED OFF AT TEST AMERICA IN BRIGHTON, MI. TOMORROW.

SR

6/24/15 32504-25

TASK: MONTHLY WATER LEVELS

CRA: STEVE RAPAI

WEATHER: MOSTLY SUNNY 74°F

H&S: LEVEL D

WELL ID	LEVEL
81-4	29.95
81-5	34.33
81-7	46.57
81-8	43.51
81-9	15.93
81-10	32.18
RA-1	69.17
RA-2D	56.00
RA-2S	55.73
RA-3	52.78
RA-4	23.82
RA-5	54.86
RA-6	59.33
RA-7	32.75
RA-8	No Access - Poison Ivy
RA-16	59.59
RA-18	56.28
RA-18D	41.68
RA-19D	60.11

32504-25 6/24/15

WELL ID	LEVEL
RA-19S	47.52
RA-20	58.30
RA-22	53.85
RA-23D	33.16
RA-23S	33.42
RA-24	57.09
RA-25	54.17
RA-26D	49.98
RA-26S	49.85
RA-27	61.66
RA-28	54.88
RA-29	46.38
RA-30	59.35
RA-31	31.79
RA-32	57.19
RA-33	32.29
RA-34	41.75
RA-35	31.95 ~~24.23~~
RA-36	36.32
RA-37	36.06
MW-22	42.31
MW-28	42.56
MW-32	34.96
MW-34C	41.75

6/24/15 815 32504-25

WELL ID	LEVEL
MW-35	24.23
MW-41	47.26
MW-42	63.27
MW-47	53.51
MW-54	56.06
MW-55	36.50
MW-56	34.22
MW-58	21.82
EB-PZ-2	40.31
EB-PZ-4	55.19
EB-PZ-5	53.50
EB-PZ-6	55.00
PZ-103	57.28
PZ-104	54.98
PZ-105	51.85
PZ-106	39.36
TEMP-PZ-2	53.68

October 9, 2015 Reference No. 032504-15

Mr. Howard Caine
United States Environmental Protection Agency
Region V (SR-6J)
77 W. Jackson Boulevard
Chicago, Illinois
60604

Dear Mr. Caine:

Re: Progress Report No. 132
Groundwater and Landfill RD/RA
Reporting Period: July 1 through September 30, 2015
Rasmussen Landfill (Site), Livingston Co., Michigan

1. Introduction

This Progress Report is submitted in accordance with Paragraph 26 of the Consent Decree, Civil Action No. 92 40071. This report summarizes the activities performed during the reporting period and describes the activities to continue or which are scheduled to start during the next reporting period.

2. Activities Performed During this Reporting Period

2.1 Operation and Maintenance

The quarterly round of groundwater elevations were measured on September 1, 2015. The corresponding groundwater contour map is provided on Figure 1.

GHD[1] collected quarterly groundwater samples on September 1 through September 11, 2015, consistent with the Groundwater Remediation Monitoring Program. The results from these samples are discussed below.

2.2 Reports

Quarterly Progress Report No. 131 was submitted to USEPA and Michigan Department of Environmental Quality (MDEQ) on July 24, 2015.

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1 On July 1, 2015 Conestoga Rovers & Assc. became GHD. For convenience, the wording in this report reflects the new name.

GHD Services Inc.
200 W Allegan Street Suite 300 Plainwell Michigan 49080-1397 USA
T 269 685 5181 F 269 685 5223 W www.ghd.com

REGISTERED COMPANY FOR ISO 9001 ENGINEERING DESIGN

3. Summary of Findings

Third Quarter 2015 Routine Groundwater Quality Monitoring

The results of the third quarter 2015 sampling are provided in Tables 1 through 4. Figure 2 is a Site location map showing the wells included in the quarterly Groundwater Remediation Monitoring Program and the annual Landfill Monitoring Program.

During the third quarter 2015 sampling, seven of the 33 monitoring wells sampled had Compounds of Concern (COCs) at concentrations above Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria (RDWCC).

Specifically, the seven monitoring wells with COCs exceeding RDWCC are:

CRA-RA-22	3.4 µg/L vinyl chloride
CRA-RA-24	5.1 µg/L vinyl chloride
CRA-RA-26S	70 µg/L trichloroethene
CRA-RA-27	10 µg/L vinyl chloride
CRA-RA-28	ND(1.0 J)/3.7 J µg/L vinyl chloride (duplicate sample)
CRA-RA-30	2.7 µg/L vinyl chloride
CRA-RA-33	2.4 µg/L vinyl chloride

With the exception of CRA-RA-28, these were the same six monitoring wells that had COCs above RDWCC during the second quarter 2015 sampling event. COC concentrations detected in these wells during third quarter 2015 sampling were similar to COC concentrations detected in these wells during second quarter 2015 sampling.

In 2003, vinyl chloride was present in groundwater samples collected from CRA-RA-28 at a concentration of 20 µg/L. Vinyl chloride concentrations gradually decreased, reaching less than the method detection limit (ND(1.0 µg/L)) in April 2014. The third quarter 2015 result is the first detection of vinyl chloride in monitoring well CRA-RA-28 since 2013.

GHD collected the annual Rasmussen residential water well sample in the third quarter 2015. No COCs were detected.

Lower Aquifer monitoring well RA-MW-47 serves as a sentry well for the Lower Aquifer. An annual groundwater sample was collected from RA-MW-47 during the third quarter 2015 sampling. No COCs were detected in the groundwater sample collected from this well.

The results of the 2015 round of the annual Landfill Monitoring Programs are provided in Table 5. GHD did not collect a sample from background monitoring well CRA-RA-8 when the other Landfill Monitoring Program wells were sampled in the second quarter because the presence of poison ivy prevented safe access to the well. GHD removed the poison ivy and collected a sample from CRA-RA-8 during the third quarter 2015 sampling round. No volatile organic compounds or semi-volatile organic compounds were detected in the groundwater samples from CRA-RA-8.

Cadmium was detected in one of the two duplicate groundwater samples collected from CRA-RA-8 at a concentrations of 0.37 μg/L , which is less than the RDWCC of 5 μg/L. No other metals were detected in the 2015 groundwater samples collected from CRA-RA-8.

COC Contours

The Rasmussen Site Remediation Group (RSRG) provides contour maps of current COC distribution following completion of the third quarter sampling. GHD prepared an update of COC distribution based on data collected in 2014 in Progress Report No. 128 (CRA, October 2014). The 2014 COC plume map is provided on Figure 3. Figure 4 provides a COC plume map based on the data collected in 2015. There were minor changes in the concentration of COCs in 2015 as compared to 2014, as follows:

Vinyl Chloride

Monitoring Well	Q3 2014 Result (μg/L)	Q3 2015 Result (μg/L)
CRA-RA-22	5.6	3.4
CRA-RA-24	6.0	5.1
CRA-RA-27	8.9/8.9 (1)	10
CRA-RA-30	3.6	2.7
81-4	1.6	1.8

(1) – duplicate sample

The concentration of vinyl chloride at CRA-RA-22, CRA-RA-24 and CRA-RA-30 decreased slightly in 2015, while concentrations of vinyl chloride increased slightly at 81-4 and CRA-RA-27.

Trichloroethene

Monitoring Well	Q3 2014 Result (μg/L)	Q3 2015 Result (μg/L)
CRA-RA-23D	4.0	3.4
CRA-RA-26S	99	70

The trichloroethene concentrations decreased slightly in the groundwater samples collected from CRA-RA-23D and CRA-RA-26S.

Trend Analysis

GHD completed trend analysis for benzene, trichloroethene and vinyl chloride groundwater data from monitoring wells included in the Groundwater Remediation Monitoring Program and the Annual Landfill Monitoring Program. Statistical analysis of concentration trends over the last eight quarterly monitoring events was completed using the Mann-Kendall Trend Test to provide insight into recent changes in COC concentrations. Trend analysis indicated that benzene, trichloroethene, and vinyl

chloride concentrations have remained stable or decreased over the last two years at all monitoring points analyzed. Tables 6 through 8 provide a summary of the trend analyses.

4. Problems Encountered

On Thursday, July 9, 2015, the ozone sparging system was down upon arrival for the normal weekly inspection. There had been no alarm callout because the ozone generator pressure switch had failed. It was assumed that the system became off line as a result of strong storms the day before and the pressure switch failed, which in turn was not able to signal the auto dialer that a problem existed.

5. Corrective Measures to Rectify Problems

A pressure switch from the existing supply of backup parts was installed and the system was restarted the afternoon of July 9, 2015. A new pressure switch was ordered to replenish the spare parts inventory.

6. Contacts and Significant Correspondence with Public Representatives

Communication	Date	Subject of Correspondence/Discussion
email	July 8, 2015	Request from Mr. A. Deal to Mr. H. Caine to extend deadline for the second quarter 2015 report.
email	July 8, 2015	Permission from Mr. H. Caine to submit the second quarter 2015 report on July 24, 2015.
Quarterly Report	July 24, 2015	Report No. 131 submitted to Mr. H. Caine (USEPA) and Mr. K. Krawczyk (MDEQ).
email	August 12, 2015	Request from Mr. H. Caine for an update on Spiegelberg property delineation status.

7. Planned Upcoming Activities/Schedule

Activities planned for the fourth quarter of 2015 include:

- Continue the operation of ozone sparging system
- Continue to monitor for the presence of ozone at each sparge vault
- The fourth quarter groundwater sampling event is scheduled for the week of November 23, 2015
- The wells to be sampled in the fourth quarter of 2015 are listed in Table 9
- Respond to USEPA and MDEQ comments on the draft "2015 Groundwater Investigation" report
- Submit revised "2015 Groundwater Investigation Report"

Should you have any questions on the above, please do not hesitate to contact the undersigned.

Yours truly,

GHD

For Steven Rapai

Bart Bartholomy

AJD/cb/43

Encl.

cc: Mike Stoelton, JCI
Chuck Pinter, Ford
Karylian Dodson Mack, BASF
Michael Simpson
Steven Nadeau, Honigman

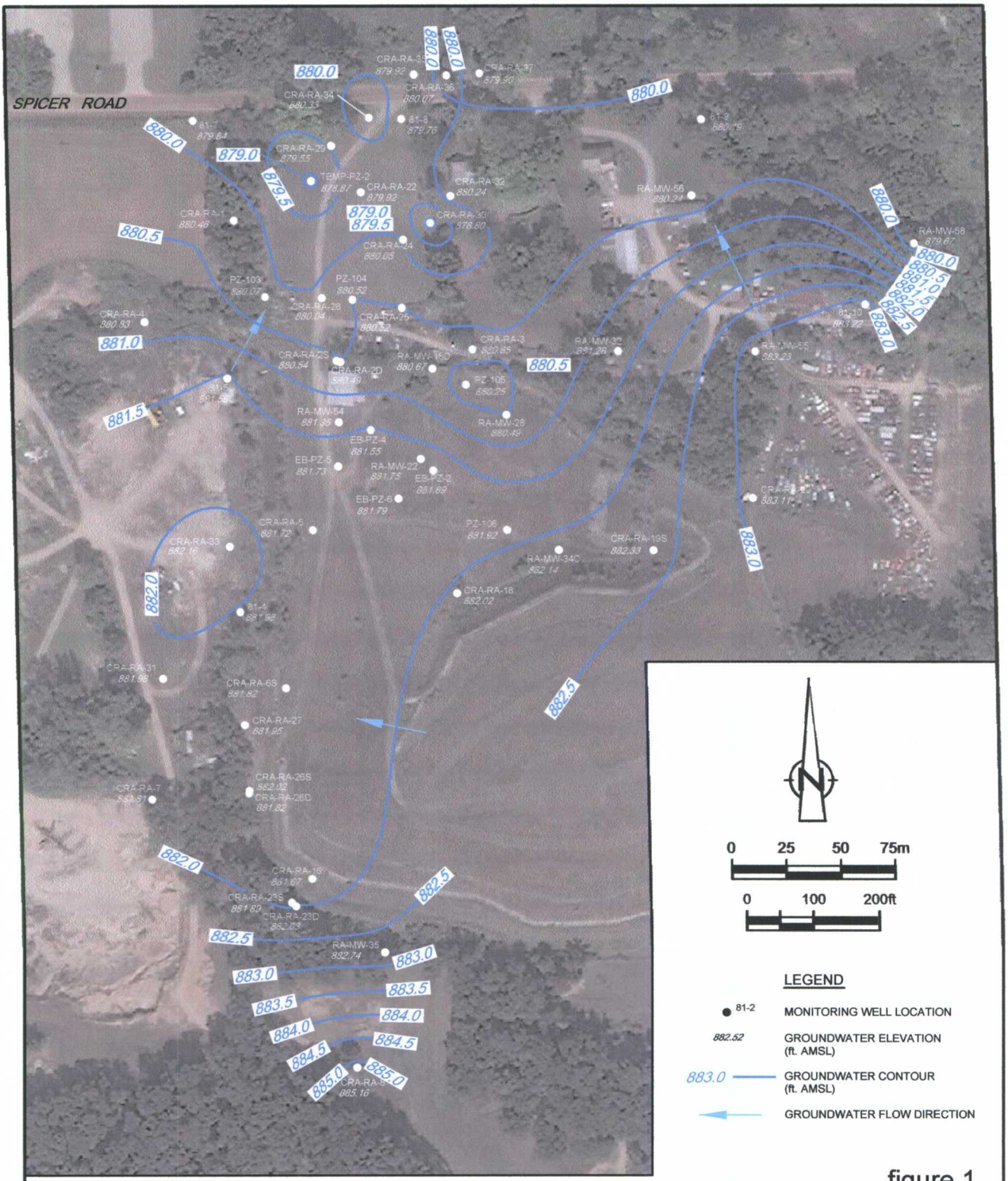


figure 1

GROUNDWATER ELEVATION CONTOURS (UPPER AQUIFER)
SEPTEMBER 2015
RASMUSSEN LANDFILL SITE
Livingston County, Michigan

32504-15(CAIN043)GN-WA002 OCT 9/2015

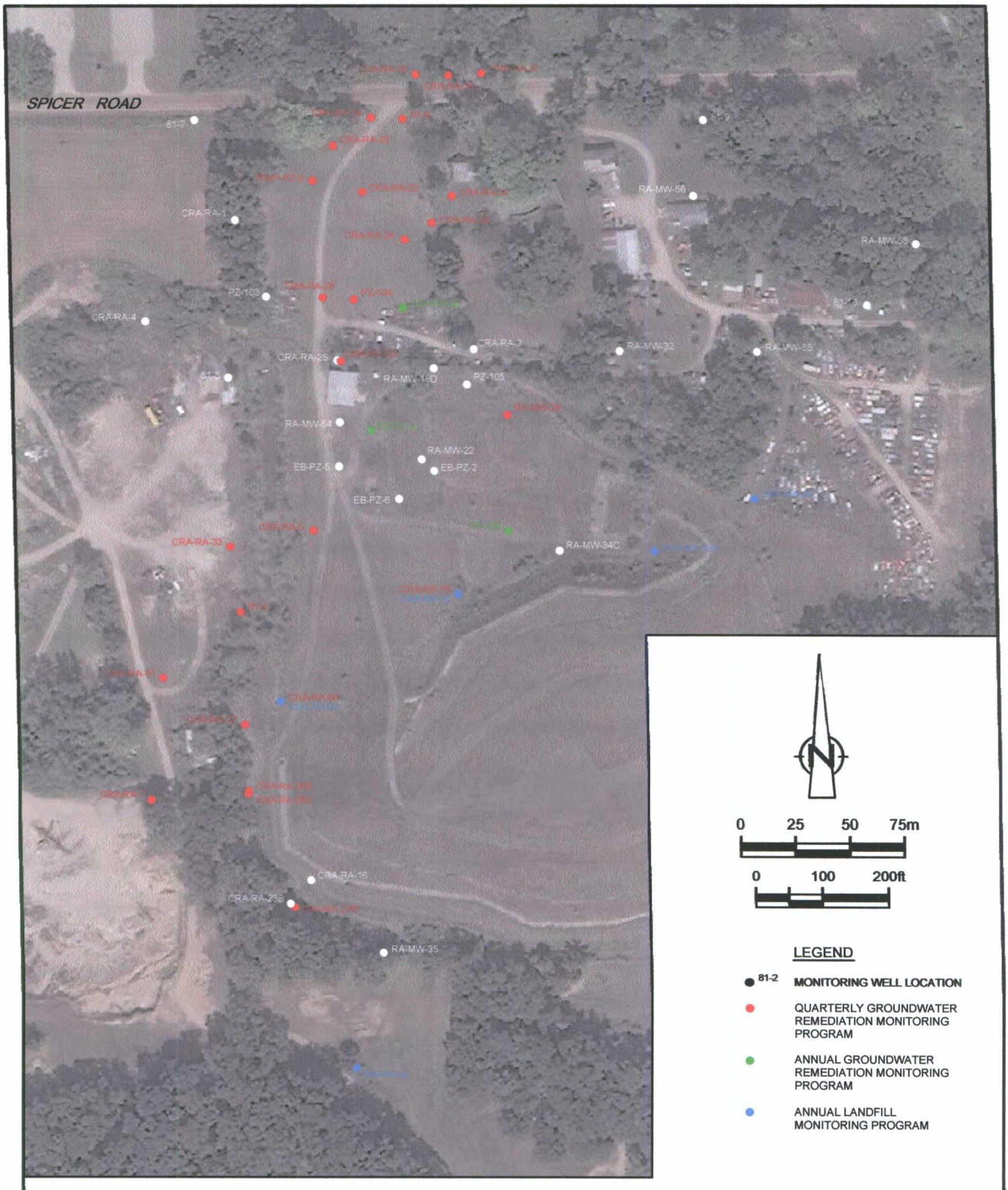


figure 2

2015 GROUNDWATER MONITORING PROGRAMS
RASMUSSEN LANDFILL SITE
Livingston County, Michigan

32504-15(CAIN043)GN-WA001 OCT 9/2015

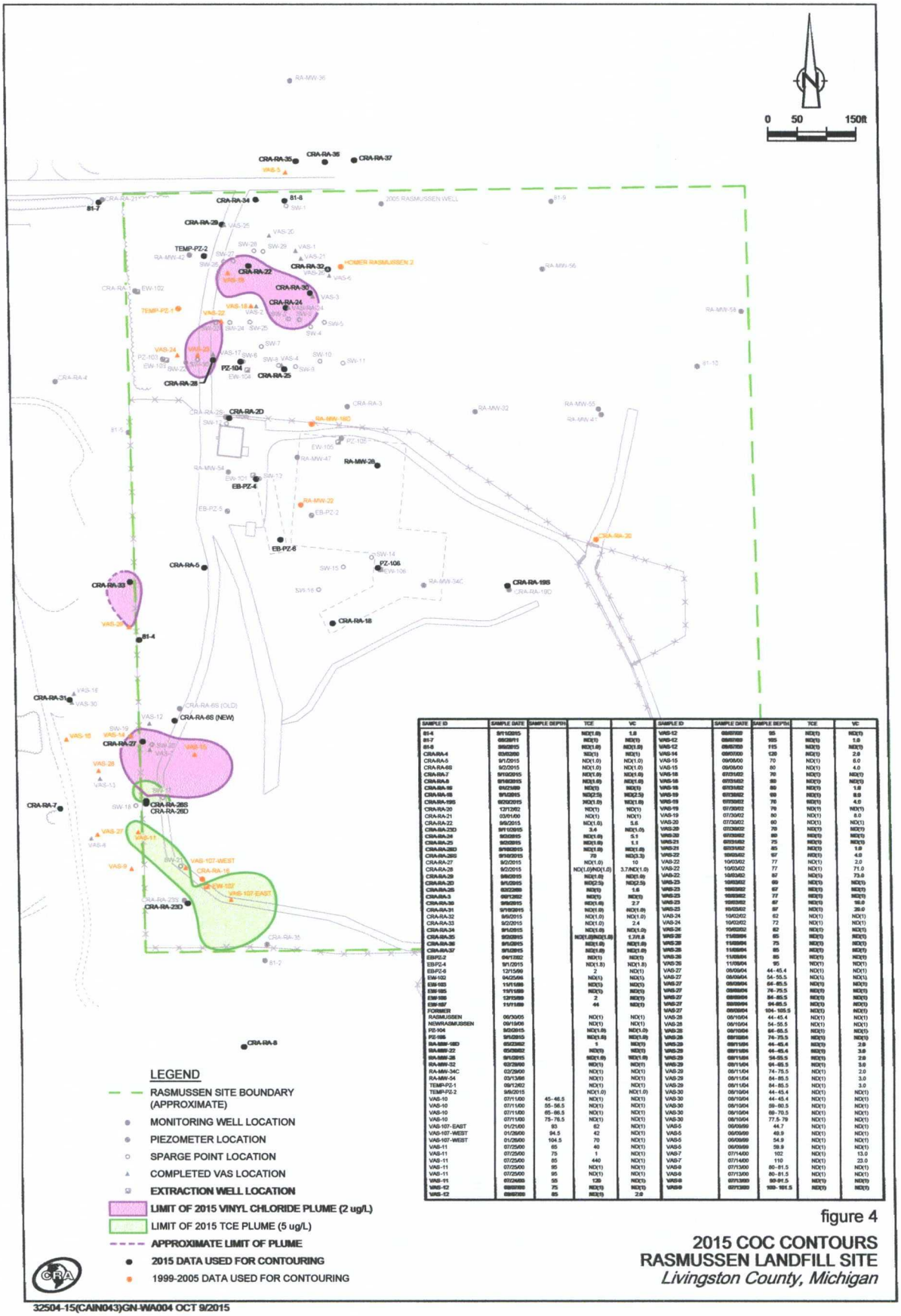
SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH	TCE	VC
81-4	9/12/2014	-	ND(1.0)	1.6
81-8	8/19/2014	-	ND(1.0)	ND(1.0)
CRA-RA-16	9/3/2014	-	ND(2.0)	ND(2.0)
CRA-RA-19S	8/18/2014	-	ND(3.0)	ND(3.0)
CRA-RA-22	8/19/2014	-	ND(1.0)	5.5
CRA-RA-23D	9/12/2014	-	4.0	ND(1.0)
CRA-RA-24	8/15/2014	-	ND(1.0)	6.0
CRA-RA-25	9/2/2014	-	ND(1.0)	1.1
CRA-RA-26D	9/11/2014	-	ND(1.0)	ND(1.0)
CRA-RA-26S	9/11/2014	-	99	ND(3.3)
CRA-RA-27	9/11/2014	-	ND(1.0)	8.0
CRA-RA-28	8/18/2014	-	ND(1.0)	ND(1.0)
CRA-RA-29	8/18/2014	-	ND(1.0)	ND(1.0)
CRA-RA-2D	8/18/2014	-	ND(2.0)	ND(2.0)
CRA-RA-30	8/15/2014	-	ND(1.0)	3.6
CRA-RA-31	9/2/2012	-	ND(1.0)	ND(1.0)
CRA-RA-32	8/18/2014	-	ND(1.0)	ND(1.0)
CRA-RA-5	8/18/2014	-	ND(1.0)	ND(1.0)
CRA-RA-6S	9/11/2014	-	ND(1.0)	ND(1.0)
CRA-RA-7	9/2/2014	-	ND(1.0)	ND(1.0)
CRA-RA-8	6/20/2014	-	ND(1.0)	ND(1.0)
EB-PZ-4	9/2/2014	-	ND(1.4)	ND(1.4)
PZ-104	8/18/2014	-	ND(1.0)	ND(1.0)
PZ-106	9/2/2014	-	ND(1.0)	ND(1.0)
RA-MW-28	9/3/2014	-	ND(1.0)	ND(1.0)
TEMP-PZ-2	8/18/2014	-	ND(1.0)	ND(1.0)
81-7	09/28/11	-	ND(1)	ND(1)
HOMERRASMUSSEN	09/19/05	-	ND(1)	ND(1)
FORMER RASMUSSEN	09/30/05	-	ND(1)	ND(1)
VAS-26	11/09/04	65	ND(1)	ND(1)
VAS-26	11/09/04	75	ND(1)	ND(1)
VAS-26	11/09/04	85	ND(1)	ND(1)
VAS-26	11/09/04	85	ND(1)	ND(1)
VAS-26	11/09/04	95	ND(1)	ND(1)
VAS-29	09/11/04	44 - 45.4	ND(1)	2.0
VAS-29	09/11/04	44 - 45.4	ND(1)	3.0
VAS-29	09/11/04	54 - 55.5	ND(1)	2.0
VAS-29	09/11/04	54 - 55.5	ND(1)	2.0
VAS-29	09/11/04	64 - 65.5	ND(1)	3.0
VAS-29	09/11/04	74 - 75.5	ND(1)	2.0
VAS-29	09/11/04	84 - 85.5	ND(1)	3.0
VAS-29	09/11/04	94 - 95.5	ND(1)	3.0
VAS-29	09/11/04	104 - 105.5	ND(1)	3.0
VAS-30	09/10/04	44 - 45.4	ND(1)	ND(1)
VAS-30	09/10/04	44 - 45.4	ND(1)	ND(1)
VAS-30	09/10/04	59 - 60.5	ND(1)	ND(1)
VAS-30	09/10/04	69 - 70.5	ND(1)	ND(1)
VAS-30	09/10/04	77.5 - 79	ND(1)	ND(1)
VAS-27	05/09/04	44 - 45.4	ND(1)	ND(1)
VAS-27	05/09/04	54 - 55.5	ND(1)	ND(1)
VAS-27	05/09/04	64 - 65.5	ND(1)	ND(1)
VAS-27	05/09/04	74 - 75.5	ND(1)	ND(1)
VAS-27	05/09/04	84 - 85.5	ND(1)	ND(1)
VAS-27	05/09/04	94 - 95.5	ND(1)	ND(1)
VAS-27	05/09/04	104 - 105.5	ND(1)	ND(1)
CRA-RA-20	12/12/02	-	ND(1)	ND(1)
VAS-22	10/03/02	67	ND(1)	4.0
VAS-22	10/03/02	77	ND(1)	2.0
VAS-22	10/03/02	77	ND(1)	71.0
VAS-22	10/03/02	87	ND(1)	73.0
VAS-23	10/03/02	60	ND(1)	ND(1)
VAS-23	10/03/02	67	ND(1)	ND(1)
VAS-23	10/03/02	77	ND(1)	ND(1)
VAS-23	10/03/02	87	ND(1)	16.0

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH	TCE	VC
VAS-23	10/02/02	97	ND(1)	26.0
VAS-24	10/02/02	62	ND(1)	ND(1)
VAS-24	10/02/02	72	ND(1)	ND(1)
VAS-24	10/02/02	82	ND(1)	ND(1)
TEMP-PZ-1	09/12/02	-	ND(1)	ND(1)
VAS-18	07/31/02	70	ND(1)	ND(1)
VAS-18	07/31/02	90	ND(1)	ND(1)
VAS-18	07/31/02	80	ND(1)	1.0
VAS-21	07/31/02	75	ND(1)	ND(1)
VAS-21	07/31/02	85	ND(1)	1.0
VAS-19	07/30/02	60	ND(1)	8.0
VAS-19	07/30/02	70	ND(1)	4.0
VAS-19	07/30/02	70	ND(1)	ND(1)
VAS-19	07/30/02	80	ND(1)	6.0
VAS-20	07/30/02	60	ND(1)	ND(1)
VAS-20	07/30/02	70	ND(1)	ND(1)
VAS-20	07/30/02	80	ND(1)	ND(1)
CRA-RA-3	06/12/02	-	ND(1)	ND(1)
RA-MW-22	05/30/02	-	ND(1)	ND(1)
RA-MW-18D	05/23/02	-	1	ND(1)
EB-PZ-2	04/17/02	-	ND(1)	ND(1)
VAS-15	09/06/00	70	ND(1)	6.0
VAS-15	09/06/00	80	ND(1)	4.0
VAS-14	09/07/00	120	ND(1)	2.0
VAS-12	09/07/00	75	ND(1)	ND(1)
VAS-12	09/07/00	85	ND(1)	2.0
VAS-12	09/07/00	95	ND(1)	ND(1)
VAS-12	09/07/00	105	ND(1)	1.0
VAS-12	09/07/00	115	ND(1)	ND(1)
VAS-11	07/25/00	65	40	ND(1)
VAS-11	07/25/00	75	1	ND(1)
VAS-11	07/25/00	85	440	ND(1)
VAS-11	07/25/00	95	ND(1)	ND(1)
VAS-11	07/25/00	95	ND(1)	ND(1)
VAS-11	07/24/00	55	120	ND(1)
VAS-7	07/14/00	102	ND(1)	13.0
VAS-7	07/14/00	110	ND(1)	23.0
VAS-9	07/13/00	50 - 51.5	ND(1)	ND(1)
VAS-9	07/13/00	80 - 81.5	ND(1)	ND(1)
VAS-9	07/13/00	90 - 91.5	ND(1)	ND(1)
VAS-9	07/13/00	100 - 101.5	ND(1)	ND(1)
VAS-10	07/11/00	45 - 46.5	ND(1)	ND(1)
VAS-10	07/11/00	55 - 56.5	ND(1)	ND(1)
VAS-10	07/11/00	65 - 66.5	ND(1)	ND(1)
VAS-10	07/11/00	75 - 76.5	ND(1)	ND(1)
CRA-RA-4	03/02/00	-	ND(1)	ND(1)
CRA-RA-21	03/01/00	-	ND(1)	ND(1)
RA-MW-32	02/28/00	-	ND(1)	ND(1)
RA-MW-34C	02/29/00	-	ND(1)	ND(1)
CRA-RA-29	02/2/99	-	ND(1)	1.6
VAS-107-WEST	01/2/99	94.5	42	ND(1)
VAS-107-WEST	01/2/99	104.5	28	ND(1)
CRA-RA-16	01/21/00	-	ND(1)	ND(1)
VAS-107-EAST	01/21/00	93	62	ND(1)
EB-PZ-6	12/15/99	-	2	ND(1)
EW-106	12/15/99	-	2	ND(1)
EW-103	11/11/99	-	ND(1)	ND(1)
EW-105	11/11/99	-	ND(1)	ND(1)
EW-107	11/11/99	-	44	ND(1)
VAS-5	06/08/99	44.7	ND(1)	ND(1)
VAS-5	06/08/99	49.9	ND(1)	ND(1)
VAS-5	06/08/99	54.9	ND(1)	ND(1)
VAS-5	06/08/99	59.9	ND(1)	ND(1)
RA-MW-54	03/13/98	-	ND(1)	ND(1)
EW-102	04/25/96	-	ND(1)	ND(1)

figure 3

2014 COC CONTOURS
RASMUSSEN LANDFILL SITE
Livingston County, Michigan

32504-15(CAIN043)GN-WA003 OCT 9/2015



SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH	TCE	VC
81-4	8/11/2015		ND(1.0)	1.0
81-7	08/28/11		ND(1)	ND(1)
81-8	9/9/2015		ND(1.0)	ND(1.0)
CRA-RA-4	03/02/00		ND(1)	ND(1)
CRA-RA-5	9/1/2015		ND(1.0)	ND(1.0)
CRA-RA-6S	9/2/2015		ND(1.0)	ND(1.0)
CRA-RA-7	9/10/2015		ND(1.0)	ND(1.0)
CRA-RA-8	9/10/2015		ND(1.0)	ND(1.0)
CRA-RA-18	8/4/2015		ND(1)	ND(1)
CRA-RA-19	9/1/2015		ND(2.5)	ND(2.5)
CRA-RA-19S	8/26/2015		ND(1.0)	ND(1.0)
CRA-RA-20	12/12/02		ND(1)	ND(1)
CRA-RA-21	03/01/00		ND(1)	ND(1)
CRA-RA-22	9/9/2015		ND(1.0)	5.6
CRA-RA-23D	9/11/2015		3.4	ND(1.0)
CRA-RA-24	9/2/2015		ND(1.0)	5.1
CRA-RA-25	9/2/2015		ND(1.0)	1.1
CRA-RA-26D	9/10/2015		ND(1.0)	ND(1.0)
CRA-RA-26S	9/10/2015		70	ND(3.3)
CRA-RA-27	9/2/2015		ND(1.0)	10
CRA-RA-28	9/2/2015		ND(1.0)/ND(1.0)	3.7/ND(1.0)
CRA-RA-29	9/9/2015		ND(1.0)	ND(1.0)
CRA-RA-2D	9/1/2015		ND(2.5)	ND(2.5)
CRA-RA-30	03/02/99		ND(1)	1.6
CRA-RA-3	08/12/02		ND(1)	ND(1)
CRA-RA-30	9/9/2015		ND(1.0)	2.7
CRA-RA-31	9/10/2015		ND(1.0)	ND(1.0)
CRA-RA-32	9/9/2015		ND(1.0)	ND(1.0)
CRA-RA-33	9/2/2015		ND(1.0)	2.4
CRA-RA-34	9/1/2015		ND(1.0)	ND(1.0)
CRA-RA-35	9/2/2015		ND(1.0)/ND(1.0)	1.7/1.0
CRA-RA-36	9/1/2015		ND(1.0)	ND(1.0)
CRA-RA-37	9/10/2015		ND(1.0)	ND(1.0)
EB-PZ-2	04/12/02		ND(1)	ND(1)
EB-PZ-4	9/1/2015		ND(1.8)	ND(1.8)
EB-PZ-6	12/15/99		2	ND(1)
EW-102	04/25/96		ND(1)	ND(1)
EW-103	11/11/99		ND(1)	ND(1)
EW-105	11/11/99		ND(1)	ND(1)
EW-106	12/15/99		2	ND(1)
EW-107	11/11/99		44	ND(1)
FORMER RASMUSSEN	06/30/05		ND(1)	ND(1)
NEWRASMUSSEN	09/19/06		ND(1)	ND(1)
PZ-104	9/2/2015		ND(1.0)	ND(1.0)
PZ-106	9/1/2015		ND(1.0)	ND(1.0)
RA-MW-18D	05/23/02		1	ND(1)
RA-MW-22	05/30/02		ND(1)	ND(1)
RA-MW-28	9/1/2015		ND(1.0)	ND(1.0)
RA-MW-32	03/29/00		ND(1)	ND(1)
RA-MW-34C	03/29/00		ND(1)	ND(1)
RA-MW-54	03/13/08		ND(1)	ND(1)
TEMP-PZ-1	08/12/02		ND(1)	ND(1)
TEMP-PZ-2	9/9/2015		ND(1.0)	ND(1.0)
VAS-10	07/11/00	45-46.5	ND(1)	ND(1)
VAS-10	07/11/00	55-56.5	ND(1)	ND(1)
VAS-10	07/11/00	65-66.5	ND(1)	ND(1)
VAS-10	07/11/00	75-76.5	ND(1)	ND(1)
VAS-107-EAST	01/25/00	93	62	ND(1)
VAS-107-WEST	01/26/00	94.5	42	ND(1)
VAS-107-WEST	01/26/00	104.5	70	ND(1)
VAS-11	07/25/00	65	40	ND(1)
VAS-11	07/25/00	75	1	ND(1)
VAS-11	07/25/00	85	440	ND(1)
VAS-11	07/25/00	95	ND(1)	ND(1)
VAS-11	07/25/00	95	ND(1)	ND(1)
VAS-11	07/24/00	55	120	ND(1)
VAS-12	08/07/00	75	ND(1)	ND(1)
VAS-12	08/07/00	85	ND(1)	2.0

SAMPLE ID	SAMPLE DATE	SAMPLE DEPTH	TCE	VC
VAS-12	08/07/00	95	ND(1)	ND(1)
VAS-12	08/07/00	105	ND(1)	1.0
VAS-12	08/07/00	115	ND(1)	ND(1)
VAS-14	08/07/00	120	ND(1)	2.0
VAS-15	09/05/00	70	ND(1)	6.0
VAS-15	09/06/00	80	ND(1)	4.0
VAS-18	07/31/02	70	ND(1)	ND(1)
VAS-18	07/31/02	80	ND(1)	ND(1)
VAS-18	07/31/02	85	ND(1)	1.0
VAS-19	07/30/02	69	ND(1)	8.0
VAS-19	07/30/02	70	ND(1)	4.0
VAS-19	07/30/02	70	ND(1)	ND(1)
VAS-19	07/30/02	80	ND(1)	8.0
VAS-20	07/30/02	60	ND(1)	ND(1)
VAS-20	07/30/02	70	ND(1)	ND(1)
VAS-20	07/30/02	80	ND(1)	ND(1)
VAS-21	07/31/02	75	ND(1)	ND(1)
VAS-21	07/31/02	85	ND(1)	1.0
VAS-22	10/03/02	67	ND(1)	4.0
VAS-22	10/03/02	77	ND(1)	2.0
VAS-22	10/03/02	77	ND(1)	71.0
VAS-22	10/03/02	87	ND(1)	73.0
VAS-23	10/03/02	69	ND(1)	ND(1)
VAS-23	10/03/02	67	ND(1)	ND(1)
VAS-23	10/03/02	77	ND(1)	ND(1)
VAS-23	10/03/02	87	ND(1)	18.0
VAS-23	10/03/02	87	ND(1)	20.0
VAS-24	10/02/02	62	ND(1)	ND(1)
VAS-24	10/02/02	72	ND(1)	ND(1)
VAS-24	10/02/02	82	ND(1)	ND(1)
VAS-25	11/05/04	65	ND(1)	ND(1)
VAS-25	11/05/04	75	ND(1)	ND(1)
VAS-25	11/05/04	85	ND(1)	ND(1)
VAS-26	11/05/04	85	ND(1)	ND(1)
VAS-26	11/05/04	95	ND(1)	ND(1)
VAS-27	05/06/04	44-45.4	ND(1)	ND(1)
VAS-27	05/06/04	54-55.5	ND(1)	ND(1)
VAS-27	05/06/04	64-65.5	ND(1)	ND(1)
VAS-27	05/06/04	74-75.5	ND(1)	ND(1)
VAS-27	05/06/04	84-85.5	ND(1)	ND(1)
VAS-27	05/06/04	94-95.5	ND(1)	ND(1)
VAS-27	05/06/04	104-105.5	ND(1)	ND(1)
VAS-28	05/10/04	44-45.4	ND(1)	ND(1)
VAS-28	05/10/04	54-55.5	ND(1)	ND(1)
VAS-28	05/10/04	64-65.5	ND(1)	ND(1)
VAS-28	05/10/04	74-75.5	ND(1)	ND(1)
VAS-29	05/11/04	44-45.4	ND(1)	2.0
VAS-29	05/11/04	54-55.5	ND(1)	2.0
VAS-29	05/11/04	64-65.5	ND(1)	3.0
VAS-29	05/11/04	74-75.5	ND(1)	2.0
VAS-29	05/11/04	84-85.5	ND(1)	3.0
VAS-29	05/11/04	94-95.5	ND(1)	3.0
VAS-30	05/10/04	44-45.4	ND(1)	ND(1)
VAS-30	05/10/04	44-45.4	ND(1)	ND(1)
VAS-30	05/10/04	59-60.5	ND(1)	ND(1)
VAS-30	05/10/04	69-70.5	ND(1)	ND(1)
VAS-30	05/10/04	77.5-79	ND(1)	ND(1)
VAS-5	06/09/99	44.7	ND(1)	ND(1)
VAS-5	06/09/99	49.9	ND(1)	ND(1)
VAS-5	06/09/99	54.9	ND(1)	ND(1)
VAS-5	06/09/99	59.9	ND(1)	ND(1)
VAS-7	07/14/00	102	ND(1)	13.0
VAS-7	07/14/00	110	ND(1)	23.0
VAS-9	07/13/00	80-81.5	ND(1)	ND(1)
VAS-9	07/13/00	80-81.5	ND(1)	ND(1)
VAS-9	07/13/00	90-91.5	ND(1)	ND(1)
VAS-9	07/13/00	100-101.5	ND(1)	ND(1)

figure 4

2015 COC CONTOURS
RASMUSSEN LANDFILL SITE
Livingston County, Michigan

32504-15(CAIN043)GN-WA004 OCT 9/2015

Table 1

Analytical Results - Northern Plume
[illegible] Landfill Site
Livingston County, Michigan

Sample Location	Sample ID	Date Sampled	Parameter	1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE (TOTAL)	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZENE	ETHYLBENZENE	METHYLENE CHLORIDE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)
			Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			RDWCC (1)	200	70 (2)	13,000	1,800	730	5	100	74	5	790	5	2	280
CRA-RA-32	GW-SR-1818	8/18/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	5.6	ND(1.0)
CRA-RA-32	GW-SR-1846	12/11/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	4	ND(1.0)
CRA-RA-32	GW-SR-1872	3/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	4	ND(1.0)
CRA-RA-32	GW-SR-1925	9/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.4	ND(1.0)
			Change												Down 0.6 µg/L	
CRA-RA-34	GW-SR-1760	4/8/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.6)	ND(1.0)	ND(1.0)	6.2	ND(1.0)
CRA-RA-34	GW-SR-1790	6/11/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.6)	ND(1.0)	ND(1.0)	5.2	ND(1.0)
CRA-RA-34	GW-SR-1813	8/18/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	6.0	ND(1.0)
CRA-RA-34	GW-SR-1922	9/2/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	5.1	ND(1.0)
			Change												Down 0.9 µg/L	
CRA-RA-35	GW-SR-1716	7/23/2013		ND(1)	1.0	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
CRA-RA-35	GW-SR-1717	7/23/2013	Duplicate	ND(1)	1.0	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
CRA-RA-35	GW-SR-1838	9/2/2014		ND(1.0)	1.1	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.1	ND(1.0)
CRA-RA-35	GW-SR-1921	9/2/2015		ND(1.0)	1.1	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change		Stable										Down 0.1 µg/L	
CRA-RA-33	GW-SR-1841	12/9/2014		ND(1.0)	2.9	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-33	GW-SR-1866	3/17/2015		ND(1.0)	3.3	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-33	GW-SR-1867	3/17/2015	Duplicate	ND(1.0)	3.2	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-33	GW-SR-1887	6/17/2015		ND(1.0)	2.6	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-33	GW-SR-1918	9/2/2015		ND(1.0)	3.0	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.7	ND(1.0)
CRA-RA-33	GW-SR-1919	9/2/2015	Duplicate	ND(1.0)	3.7	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change		Up 0.2 µg/L											
CRA-RA-59	GW-SR-1848	12/12/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-59	GW-SR-1874	3/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-59	GW-SR-1898	6/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-59	GW-SR-1928	9/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable: all Non-Detect							
CRA-RA-60	GW-SR-1844	12/10/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.3	ND(1.0)
CRA-RA-60	GW-SR-1870	3/17/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.3	ND(1.0)
CRA-RA-60	GW-SR-1895	6/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.1	ND(1.0)
CRA-RA-60	GW-SR-1923	9/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.7	ND(1.0)
			Change												Down 0.4 µg/L	
CRA-RA-62	GW-SR-1845	12/11/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-62	GW-SR-1871	3/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-62	GW-SR-1817	8/18/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-62	GW-SR-1925	9/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable: all Non-Detect							
CRA-RA-64	GW-DT-004	6/23/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-64	GW-DT-003	9/1/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable: all Non-Detect							
CRA-RA-65	GW-DT-003	6/23/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.1	ND(1.0)
CRA-RA-65	GW-DT-001	7/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.9	ND(1.0)
CRA-RA-65	GW-DT-002	7/20/2015	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.6	ND(1.0)
CRA-RA-65	GW-DT-005	9/2/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.7	ND(1.0)
CRA-RA-65	GW-DT-006	9/2/2015	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.8	ND(1.0)
			Change												Up 0.1 µg/L	
CRA-RA-66	GW-DT-002	6/23/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-66	GW-DT-002	9/1/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable: all Non-Detect							
CRA-RA-67	GW-DT-001	6/23/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-67	GW-DT-001	9/1/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable: all Non-Detect							
PZ-104	GW-SR-1842	12/10/2014		ND(1.0)	3.3	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-104	GW-SR-1869	3/17/2015		ND(1.0)	3.5	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.1	ND(1.0)
PZ-104	GW-SR-1893	6/18/2015		ND(1.0)	3.2	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-104	GW-SR-1920	9/2/2015		ND(1.0)	3.1	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change		Down 0.1 µg/L											
TEMP-PZ-2	GW-SR-1847	12/11/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
TEMP-PZ-2	GW-SR-1873	3/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
TEMP-PZ-2	GW-SR-1897	6/19/2015		ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
TEMP-PZ-2	GW-SR-1927	9/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable: all Non-Detect							
81-6	GW-SR-1849	12/12/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
81-6	GW-SR-1875	3/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
81-6	GW-SR-1899	6/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	34	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
81-6	GW-SR-1929	9/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.1)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change					Down 35 µg/L								

Notes:

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria
(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/L.

Table 2

Analytical Results - PDSLD Area Plumes
Rasmussen Landfill Site
Livingston County, Michigan

Sample Location	Sample ID	Date Sampled	Parameter	1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZENE	ETHYLBENZENE	METHYLENE CHLORIDE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)
			Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			RDWCC(1)	200	70 (2)	13,000	1,800	730	5	100	74	5	790	5	2	280
CRA-RA-2D	GW-SR-1839	12/6/2014		ND(3.3)	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	58	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
CRA-RA-2D	GW-SR-1862	3/16/2015		ND(2.9)	ND(2.9)	ND(29)	ND(29)	ND(29)	ND(2.9)	76	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)
CRA-RA-2D	GW-SR-1885	6/17/2015		ND(2.0)	ND(2.0)	ND(20)	ND(20)	ND(20)	ND(2.0)	67	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
CRA-RA-2D	GW-SR-1909	9/1/2015		ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	65	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)
			Change							Down 2 µg/L						
CRA-RA-16	GW-SR-1853	12/16/2014		66	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
CRA-RA-16	GW-SR-1865	3/17/2015		67	ND(4.0)	ND(40)	ND(40)	ND(40)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)
CRA-RA-16	GW-SR-1888	6/17/2015		85	ND(2.9)	ND(29)	ND(29)	ND(29)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)
CRA-RA-16	GW-SR-1889	6/17/2015	Duplicate	85	ND(2.9)	ND(29)	ND(29)	ND(29)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)
CRA-RA-16	GW-SR-1915	9/1/2015		67	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)
			Change	Down 18 µg/L												
EB-PZ-4	GW-SR-1630	9/10/2012		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1)	39	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.3	ND(1.0)
EB-PZ-4	GW-SR-1657	12/4/2012		ND(2.0)	ND(2.0)	ND(20)	ND(20)	ND(20)	ND(2.0)	39	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	4.0	ND(2.0)
EB-PZ-4	GW-SR-1729	6/27/2013		ND(1.4)	ND(1.4)	ND(14)	ND(14)	ND(14)	ND(1.4)	41	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)	2.3	ND(1.4)
EB-PZ-4	GW-SR-1827	9/2/2014		ND(1.4)	ND(1.4)	ND(14)	ND(14)	ND(14)	ND(1.4)	43	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)
EB-PZ-4	GW-SR-1911	9/1/2015		ND(1.8)	ND(1.8)	ND(10)	ND(10)	ND(10)	ND(1.8)	46	ND(1.8)	ND(1.8)	ND(1.8)	ND(1.8)	ND(1.8)	ND(1.8)
			Change							Up 3 µg/L						
PZ-106	GW-SR-1640	9/12/2012		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-106	GW-SR-1731	6/27/2013		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-106	GW-SR-1732	6/27/2013	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-106	GW-SR-1828	9/2/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-106	GW-SR-1912	9/1/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable; all Non-Detect						
RA-MW-28	GW-SR-1854	12/16/2014		8.7	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
RA-MW-28	GW-SR-1864	3/17/2015		8.7	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
RA-MW-28	GW-SR-1890	6/17/2015		7.9	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
RA-MW-28	GW-SR-1914	9/1/2015		8.0	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change	Up 0.1 µg/L												

Notes:

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria
(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/L.

Table 9

Analytical Results - Southern Vinyl Chloride Plume
Rasmussen Landfill Site
Livingston County, Michigan

Sample Location	Sample ID	Date Sampled	Parameter	1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE (TOTAL)	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZENE	ETHYLBENZENE	METHYLENE CHLORIDE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)
			Units RDWCC(1)	µg/L 200	µg/L 70 (2)	µg/L 13,000	µg/L 1,600	µg/L 730	µg/L 5	µg/L 100	µg/L 74	µg/L 5	µg/L 790	µg/L 5	µg/L 2	µg/L 280
CRA-RA-5	GW-SR-1640	12/9/2014		19	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-5	GW-SR-1663	3/16/2015		20	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-5	GW-SR-1686	6/17/2015		18	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-5	GW-SR-1910	9/1/2015		20	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change	Up 2 µg/L												
CRA-RA-6S	GW-SR-1655	12/15/2014		1.7	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-6S	GW-SR-1678	3/19/2015		1.7	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-6S	GW-SR-1691	6/19/2015		1.9	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-6S	GW-SR-1916	9/2/2015		2.1	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change	Up 0.2 µg/L												
CRA-RA-7	GW-SR-1651	12/15/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-7	GW-SR-1652	12/15/2014	*Duplicate*	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-7	GW-SR-1677	3/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-7	GW-SR-1901	6/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-7	GW-SR-1931	9/10/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable; all Non-Detect							
CRA-RA-27	GW-SR-1656	12/15/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	11	ND(1.0)
CRA-RA-27	GW-SR-1679	3/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	8.8	ND(1.0)
CRA-RA-27	GW-SR-1692	6/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	8.4	ND(1.0)
CRA-RA-27	GW-SR-1917	9/2/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	10	ND(1.0)
			Change												Up 1.6 µg/L	
CRA-RA-31	GW-SR-1650	12/15/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-31	GW-SR-1676	3/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-31	GW-SR-1900	6/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-31	GW-SR-1930	9/10/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable; all Non-Detect							
CRA-RA-33	GW-DT-001	6/22/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	2.7	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.5	ND(1.0)
CRA-RA-33	GW-DT-002	6/22/2015	*Duplicate*	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	2.7	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.6	ND(1.0)
CRA-RA-33	GW-DT-004	9/2/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	2.4	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.4	ND(1.0)
									Down 0.3 µg/L						Down 0.15 µg/L	
81-4	GW-SR-1660	12/15/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2	ND(1.0)
81-4	GW-SR-1683	3/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.7	ND(1.0)
81-4	GW-SR-1904	6/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.0	ND(1.0)
81-4	GW-SR-1937	9/11/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.8	ND(1.0)
			Change												Down 0.2 µg/L	

Notes:

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria
(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/L.

Table 4

Analytical Results - Southern TCE Plume
Rasmussen Landfill Site
Livingston County, Michigan

				Volatile Organics												
			Parameter	1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE (TOTAL)	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZENE	ETHYLBENZENE	METHYLENE CHLORIDE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)
			Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Location	Sample ID	Date Sampled	RDWCC(1)	200	70 (2)	13,000	1,000	700	5	100	74	5	700	5	2	280
CRA-RA-23D	GW-SR-1861	12/16/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.4	ND(1.0)	ND(1.0)
CRA-RA-23D	GW-SR-1864	3/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	4.7	ND(1.0)	ND(1.0)
CRA-RA-23D	GW-SR-1908	6/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	4.1	ND(1.0)	ND(1.0)
CRA-RA-23D	GW-SR-1936	9/11/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.4	ND(1.0)	ND(1.0)
			Change											Down 0.7 µg/L		
CRA-RA-28D	GW-SR-1859	12/16/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-28D	GW-SR-1862	3/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-28D	GW-SR-1907	6/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-28D	GW-SR-1934	9/10/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable; all Non-Detect						
CRA-RA-25S	GW-SR-1857	12/16/2014		ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	89	ND(2.5)	ND(2.5)
CRA-RA-25S	GW-SR-1858	12/16/2014	Duplicate	ND(5.0)	ND(5.0)	ND(50)	ND(50)	ND(50)	ND(5.0)	ND(50)	ND(50)	ND(5.0)	ND(5.0)	76	ND(5.0)	ND(5.0)
CRA-RA-25S	GW-SR-1860	3/19/2015		ND(5.0)	ND(5.0)	ND(50)	ND(50)	ND(50)	ND(5.0)	ND(50)	ND(50)	5.8	ND(5.0)	78	ND(5.0)	ND(5.0)
CRA-RA-25S	GW-SR-1861	3/19/2015	Duplicate	ND(3.3)	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	4.2	ND(4.0)	69	ND(3.3)	ND(3.3)
CRA-RA-25S	GW-SR-1905	6/20/2015		ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	92	ND(2.5)	ND(2.5)
CRA-RA-25S	GW-SR-1906	6/20/2015	Duplicate	ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	90	ND(2.5)	ND(2.5)
CRA-RA-25S	GW-SR-1935	9/10/2015		ND(3.3)	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	70	ND(3.3)	ND(3.3)
			Change											Down 20 µg/L		

Notes:

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria
(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/L.

Table 8

Analytical Results - Landfill Monitoring Program
Resource Landfill Site
Livingston County, Michigan

Sample Location	Sample ID	Date Sampled		Parameter	Volatile Organics													Semi-volatile Organics			Metals			
					1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZENE	ETHYLBENZENE	METHYLENE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)	2-METHYLPHENOL	3&4-METHYLPHENOL	BIS(2-ETHYLHEXYL)PHTHALATE	ISOPHORONE	CADMIUM, DISSOLVED	CADMIUM, TOTAL	LEAD, DISSOLVED	LEAD, TOTAL
				RGWQC(1)	200	70 (2)	13,000	1,000	730	5	100	74	5	700	5	2	280	370	5	600	5		4	
				Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
CRA-RA-62	GW-ER-1504	6/14/2010			ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	1.2	ND(1)	ND(5.1)	ND(5.1)	ND(5.1)	ND(0.2)	ND(0.2)	ND(3)	ND(3)
CRA-RA-62	GW-ER-1513	6/14/2011			ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	1.8	ND(1)	ND(5)	ND(5)	ND(5)	ND(1)	ND(1)	ND(3)	ND(3)
CRA-RA-62	GW-ER-1553	6/18/2014			ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	ND(5.0)	ND(4.8)	ND(0.2)	ND(0.2)	ND(0.0)	ND(0.0)
CRA-RA-62	GW-ER-1604	6/18/2014	Duplicate		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	ND(5.0)	ND(4.8)	ND(0.2)	ND(0.2)	ND(0.0)	ND(0.0)
CRA-RA-62	GW-ER-1661	6/18/2015			1.0	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(0.2)	ND(0.2)	ND(0.0)	ND(0.0)
			Change		Up 0.8 µg/L																			
CRA-RA-4	GW-ER-1506	6/20/2012			ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(2.0)	ND(2.0)	ND(2.0)	ND(0.2)	ND(0.2)	ND(3)	ND(3)
CRA-RA-4	GW-ER-1707	6/18/2013			ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	ND(4.8)	ND(4.8)	ND(0.2)	ND(0.2)	ND(0)	ND(0)
CRA-RA-4	GW-ER-1557	6/20/2014			ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	ND(5.4)	ND(4.8)	ND(0.2)	ND(0.2)	ND(0.0)	ND(0.0)
CRA-RA-4	GW-ER-1652	9/10/2015			ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(4.8)	ND(4.8)	ND(4.8)	0.37	ND(0.2)	ND(0.0)	ND(0.0)
CRA-RA-4	GW-ER-1653	9/10/2015	Duplicate		ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(5.0)	ND(5.0)	ND(5.0)	ND(0.2)	ND(0.2)	ND(0.0)	ND(0.0)
			Change																		Up 0.14 µg/L			
CRA-RA-18	GW-ER-1508	6/10/2011			107	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	2.3	ND(1)	ND(1)	ND(5.3)	ND(5.3)	ND(5.3)	ND(1.0)	ND(1.0)	5.1	ND(0.5)
CRA-RA-18	GW-ER-1509	6/10/2011	Duplicate		107	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	2.3	ND(1)	ND(1)	ND(5.3)	ND(5.3)	ND(5.3)	ND(1.0)	ND(1.0)	4.9	ND(0.5)
CRA-RA-18	GW-ER-1529	9/19/2011			90.5	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	1.1	ND(1)	2.0	ND(1)	ND(1)	--	--	--	--	--	ND(0)	ND(0)
CRA-RA-18	GW-ER-1617	9/20/2012			96.3	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	2.0	ND(1)	ND(1)	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.0.097)	ND(0.0.097)	ND(1.7)	ND(1.7)
CRA-RA-18	GW-ER-1633	6/17/2013			88	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(4.8)	ND(4.8)	ND(4.8)	ND(0.2)	ND(0.2)	ND(0.0)	ND(0.0)
CRA-RA-18	GW-ER-1634	6/17/2013	Duplicate		90	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(4.8)	ND(4.8)	ND(4.8)	ND(0.2)	ND(0.2)	ND(0.0)	ND(0.0)
CRA-RA-18	GW-ER-1708	6/17/2014			79	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(4.8)	0.9 J	ND(4.8)	ND(0.2)	ND(0.57)	ND(0.0)	ND(0.0)
CRA-RA-18	GW-ER-1658	6/17/2015			88	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(4.8)	ND(4.8)	ND(4.8)	0.43	0.59	ND(0.0)	ND(0.0)
CRA-RA-18	GW-ER-1659	6/17/2015	Duplicate		88	ND(2.5)	ND(10)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(4.8)	ND(4.8)	ND(4.8)	0.22	0.57	ND(0.0)	ND(0.0)
			Change		Up 9 µg/L																Up 0.12 µg/L	Reduced Detection Limit		
CRA-RA-155	GW-ER-1519	6/20/2012			ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(2.1)	ND(2.1)	ND(2.1)	ND(0.2)	ND(0.2)	ND(4)	ND(0)
CRA-RA-155	GW-ER-1634	6/17/2013			ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	ND(4.8)	ND(4.8)	ND(0.2)	ND(0.2)	ND(0.0)	ND(0.0)
CRA-RA-155	GW-ER-1691	6/18/2014			ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	0.8 J	ND(4.8)	ND(0.2)	ND(0.2)	ND(0.0)	ND(0.0)
CRA-RA-155	GW-ER-1653	9/23/2015			ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	ND(4.8)	ND(4.8)	0.48	0.57	ND(0.0)	ND(0.0)
			Change																		Up 0.28 µg/L	Up 0.07 µg/L		
CRA-RA-20	GW-RM-1(1)	11/28/2000			7	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(5.3)	ND(5.3)	ND(5.3)	ND(0.2)	ND(0)	ND(0.2)	ND(0)
CRA-RA-20	GW-RM-487	11/18/2001			11	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(5)	ND(5)	ND(5)	ND(0.2)	ND(0)	NA	NA
CRA-RA-20	GW-ER-839	12/12/2002			8	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(5)	ND(5)	ND(5)	ND(0.4)	ND(0.6)	ND(1)	ND(1)
													Insufficient Groundwater to Collect Sample											

Notes:

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria
(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/L.

Table 6

Concentration Vs. Time Trend Tests Results
For Current Groundwater Monitoring Data (Last 8 Data Points)
Rasmussen Landfill Site
Livingston County, Michigan

	Benzene					
			Mann-Kendall Trend test			2014
Well	Number of Samples	Percent Non-Detect	Statistic	Probability	Conclusion	Concusion
81-4	8	100%	–	–	No detected results	No detected results
81-8	8	100%	–	–	No detected results	No detected results
CRA-RA-2D	8	100%	–	–	No detected results	No detected results
CRA-RA-5	8	100%	–	–	No detected results	No detected results
CRA-RA-6S	8	100%	–	–	No detected results	No detected results
CRA-RA-7	8	100%	–	–	No detected results	No detected results
CRA-RA-8	8	100%	–	–	No detected results	No detected results
CRA-RA-18	8	100%	–	–	No detected results	No detected results
CRA-RA-19S	8	100%	–	–	No detected results	No detected results
CRA-RA-20	8	100%	–	–	No detected results	No detected results
CRA-RA-22	8	100%	–	–	No detected results	No detected results
CRA-RA-23D	8	100%	–	–	No detected results	No detected results
CRA-RA-24	8	100%	–	–	No detected results	No detected results
CRA-RA-25	8	75%	–	–	Over 50% non-detects	Over 50% non-detects
CRA-RA-26D	8	100%	–	–	No detected results	No detected results
CRA-RA-26S	8	100%	–	–	No detected results	No detected results
CRA-RA-27	8	100%	–	–	No detected results	No detected results
CRA-RA-28	8	100%	–	–	No detected results	No detected results
CRA-RA-29	8	100%	–	–	No detected results	No detected results
CRA-RA-30	8	100%	–	–	No detected results	No detected results
CRA-RA-31	8	100%	–	–	No detected results	No detected results
CRA-RA-32	8	100%	–	–	No detected results	No detected results
CRA-RA-33	2	0%	–	–	Insufficient data	–
CRA-RA-34	2	100%	–	–	Insufficient data	–
CRA-RA-35	3	100%	–	–	Insufficient data	–
CRA-RA-36	2	100%	–	–	Insufficient data	–
CRA-RA-37	2	100%	–	–	Insufficient data	–
EB-PZ-4	8	100%	–	–	No detected results	No detected results
PZ-104	8	100%	–	–	No detected results	No detected results
PZ-106	8	100%	–	–	No detected results	No detected results
RA-MW-28	8	100%	–	–	No detected results	No detected results
RA-MW-47	8	100%	–	–	No detected results	No detected results
Stanley Rasmusser	8	100%	–	–	No detected results	No detected results
TEMP-PZ-2	8	100%	–	–	No detected results	No detected results

Table 7

Concentration Vs. Time Trend Tests Results
For Groundwater Monitoring Data (Last 8 Data Points)
Rasmussen Landfill Site
Livingston County, Michigan

			Trichloroethene			
			Mann-Kendall Trend test			2014
Well	Number of Samples	Percent Non-Detect	Statistic	Probability	Conclusion	Concusion
81-4	8	100%	–	–	No detected results	No detected results
81-8	8	100%	–	–	No detected results	No detected results
CRA-RA-2D	8	100%	–	–	No detected results	No detected results
CRA-RA-5	8	100%	–	–	No detected results	No detected results
CRA-RA-6S	8	100%	–	–	No detected results	No detected results
CRA-RA-7	8	100%	–	–	No detected results	No detected results
CRA-RA-8	8	100%	–	–	No detected results	No detected results
CRA-RA-18	8	100%	–	–	No detected results	No detected results
CRA-RA-19S	8	100%	–	–	No detected results	No detected results
CRA-RA-20	8	100%	–	–	No detected results	No detected results
CRA-RA-22	8	100%	–	–	No detected results	No detected results
CRA-RA-23D	8	0%	-16	0.059	No trend identified	No trend identified
CRA-RA-24	8	100%	–	–	No detected results	No detected results
CRA-RA-25	8	100%	–	–	No detected results	No detected results
CRA-RA-26D	8	100%	–	–	No detected results	No detected results
CRA-RA-26S	8	0%	-16	0.063	No trend identified	No trend identified
CRA-RA-27	8	100%	–	–	No detected results	No detected results
CRA-RA-28	8	100%	–	–	No detected results	No detected results
CRA-RA-29	8	100%	–	–	No detected results	No detected results
CRA-RA-30	8	100%	–	–	No detected results	No detected results
CRA-RA-31	8	100%	–	–	No detected results	No detected results
CRA-RA-32	8	100%	–	–	No detected results	No detected results
CRA-RA-33	2	100%	–	–	Insufficient data	–
CRA-RA-34	2	100%	–	–	Insufficient data	–
CRA-RA-35	3	100%	–	–	Insufficient data	–
CRA-RA-36	2	100%	–	–	Insufficient data	–
CRA-RA-37	2	100%	–	–	Insufficient data	–
EB-PZ-4	8	100%	–	–	No detected results	Over 50% non-detects
PZ-104	8	100%	–	–	No detected results	No detected results
PZ-106	8	100%	–	–	No detected results	No detected results
RA-MW-28	8	100%	–	–	No detected results	No detected results
RA-MW-47	8	100%	–	–	No detected results	No detected results
Stanley Rasmussei	8	100%	–	–	No detected results	No detected results
TEMP-PZ-2	5	100%	–	–	No detected results	No detected results

Table 8

Concentration Vs. Time Trend Tests Results
For Current Groundwater Monitoring Data (Last 8 Data Points)
Rasmussen Landfill Site
Livingston County, Michigan

Vinyl Chloride

Well	Number of Samples	Percent Non-Detect	Mann-Kendall Trend test Statistic	Mann-Kendall Trend test Probability	Mann-Kendall Trend test Conclusion	2014 Concusion
81-4	8	0%	-11	0.203	No trend identified	**Decreasing Trend**
81-8	8	100%	–	–	No detected results	No detected results
CRA-RA-2D	**8**	**100%**	–	–	**No detected results**	**No detected results**
CRA-RA-5	**8**	**100%**	–	–	**No detected results**	**No detected results**
CRA-RA-6S	8	100%	–	–	No detected results	Over 50% non-detects
CRA-RA-7	8	100%	–	–	No detected results	No detected results
CRA-RA-8	**8**	**100%**	–	–	**No detected results**	**No detected results**
CRA-RA-18	**8**	**100%**	–	–	**No detected results**	**No detected results**
CRA-RA-19S	8	100%	–	–	No detected results	No detected results
CRA-RA-20	8	100%	–	–	No detected results	No detected results
CRA-RA-22	8	0%	-19	0.025	**Decreasing Trend**	**Decreasing Trend**
CRA-RA-23D	**8**	**100%**	–	–	**No detected results**	**No detected results**
CRA-RA-24	8	0%	-8	0.386	No trend identified	No trend identified
CRA-RA-25	8	63%	–	–	Over 50% non-detects	Over 50% non-detects
CRA-RA-26D	8	100%	–	–	No detected results	No detected results
CRA-RA-26S	8	100%	–	–	No detected results	No detected results
CRA-RA-27	8	0%	-12	0.167	No trend identified	**Decreasing Trend**
CRA-RA-28	8	75%	–	–	Over 50% non-detects	**Decreasing Trend**
CRA-RA-29	**8**	**100%**	–	–	**No detected results**	**No detected results**
CRA-RA-30	**8**	**0%**	**-17**	**0.044**	**Decreasing Trend**	**No trend identified**
CRA-RA-31	8	100%	–	–	No detected results	No detected results
CRA-RA-32	8	100%	–	–	No detected results	No detected results
CRA-RA-33	**2**	**0%**	–	–	**Insufficient data**	–
CRA-RA-34	**2**	**100%**	–	–	**Insufficient data**	–
CRA-RA-35	3	0%	–	–	Insufficient data	–
CRA-RA-36	2	100%	–	–	Insufficient data	–
CRA-RA-37	**2**	**100%**	–	–	**Insufficient data**	–
EB-PZ-4	**9**	**56%**	–	–	**Over 50% non-detects**	**No trend identified**
PZ-104	8	88%	–	–	Over 50% non-detects	Over 50% non-detects
PZ-106	8	100%	–	–	No detected results	No detected results
RA-MW-28	**8**	**100%**	–	–	**No detected results**	**No detected results**
RA-MW-47	**8**	**100%**	–	–	**No detected results**	**No detected results**
Stanley Rasmusser	8	100%	–	–	No detected results	No detected results
TEMP-PZ-2	8	100%	–	–	No detected results	No detected results

Table 9

2015 Groundwater Sampling Program
Rasmussen Landfill Site
Livingston County, Michigan

Quarterly Sampling - VOCs	Q1	Q2	Q3	Q4
81-4				
81-8		**Annual Landfill Monitoring Program - VOCs, SVOCs & Metals**	CRA-RA-25 (VOCs only)	New Rasmussen Water Supply Well (VOCs only)
CRA-RA-2D			EB-PZ-4 (VOCs only)	
CRA-RA-5		CRA-RA-6S (included in quarterly sampling)	PZ-106 (VOCs only)	
CRA-RA-6S		CRA-RA-8	RA-MW-47 (VOCs only)	
CRA-RA-7		CRA-RA-18 (included in quarterly sampling)		
CRA-RA-18		CRA-RA-19S		
CRA-RA-22		CRA-RA-20		
CRA-RA-23D				
CRA-RA-24				
CRA-RA-26D				
CRA-RA-26S				
CRA-RA-27				
CRA-RA-28				
CRA-RA-29				
CRA-RA-30				
CRA-RA-31				
CRA-RA-32				
CRA-RA-33				
CRA-RA-34				
CRA-RA-35				
CRA-RA-36				
CRA-RA-37				
PZ-104				
RA-MW-28				
TEMP-PZ-2				

Rasmussen 32504

Ozone Sparge System Inspection

DATE	7/1/15	7/9/15	7/17/15	7/21/15	7/29/15
OPERATOR SIGNATURE	A Rapai	A Rapai	A Rapai	A Rapai	A Rapai

Air Compressor					
Output Pressure psi	110	110	110	110	110
Temperature F	–	–	–	–	–
Run Time hours	100438	100631	100824		

Air Sep					
Receiver Pressure psi	54	58	56	58	56
Feed Air Pressure psi	110	110	110	110	110
Cycle Pressure psi	70	70	70	70	70
Holding Tank Pressure psi	42	44	42	42	42
Run Time hours	100737.7	100631.1	100821.4		

Air Dryer					
Temp. Indicator - color	GREEN	GREEN	GREEN	GREEN	GREEN

Ozone Generator					
Oxygen Supply, LPM	7	7	7	7	7
% O3 capacity	45	45	45	45	45
Regulator #1 psi	35	38	35	36	32
Regulator #2 psi	22	24	22	24	22
Alarm Reading ppm, O3	–	–	–	–	–
Zone On	1	3	1	1	3
Zone Time hours	1/2	2	1/2	1/2	2

Distribution Panel					
CFM	0.8	0.8	0.8	0.8	0.8
O3 Feed Conc. Ppm O3					

Comments: * CHANGED PRESSURE SWITCH ON 7/9.

Rasmussen 32504

Ozone Sparge System Inspection

DATE	8/7/15	8/12/15	8/19/2015	8/28/15	9/2/15
OPERATOR SIGNATURE	JOHN YORK	Alw. Rapai	A. Rapai	A. Rapai	A. Rapai

Air Compressor					
Output Pressure psi	115	115	110	110	110
Temperature F	–	–	–	–	–
Run Time hours		101441	101610	101828	

Air Sep					
Receiver Pressure psi	56	58	54	55	54
Feed Air Pressure psi	110	110	110	110	110
Cycle Pressure psi	70	70	70	70	70
Holding Tank Pressure psi	42	42	40	42	42
Run Time hours		101440.9	101609.7	101827.9	

Air Dryer					
Temp. Indicator - color	GREEN	GREEN	GREEN	GREEN	GREEN

Ozone Generator					
Oxygen Supply, LPM	7	7	7	7	7
% O3 capacity	45	45	45	45	45
Regulator #1 psi	34	35	30	33	32
Regulator #2 psi	24	22	20	23	22
Alarm Reading ppm, O3	–	–	–	–	–
Zone On	2	3	3	3	1
Zone Time hours	1/2	2	2	2	1/2

Distribution Panel					
CFM	0.8	0.8	0.8	0.8	0.8
O3 Feed Conc. Ppm O3					

Comments: * BUILDING TEMP ON 8/19/2015 NEAR 115°F

Rasmussen 32504

Ozone Sparge System Inspection

DATE	9/11/15	9/15/15	9/24/15	10/2/15	
OPERATOR SIGNATURE	A. Rapai	A. Rapai	A. Rapai	A. Rapai	

Air Compressor					
Output Pressure psi	110	110	110	110	
Temperature F	–	–	–	–	
Run Time hours		102258	102472	102668	

Air Sep					
Receiver Pressure psi	56	54	56	54	
Feed Air Pressure psi	110	110	110	110	
Cycle Pressure psi	70	70	70	70	
Holding Tank Pressure psi	42	42	42	42	
Run Time hours		102258.4	102472.0	102667.6	

Air Dryer					
Temp. Indicator - color	GREEN	GREEN	GREEN	GREEN	

Ozone Generator					
Oxygen Supply, LPM	7	7	7	7	
% O3 capacity	45	45	45	45	
Regulator #1 psi	35	34	34	35	
Regulator #2 psi	22	22	24	23	
Alarm Reading ppm, O3	–	–	–	–	
Zone On	3	2	3	3	
Zone Time hours	2	1½	2	2	

Distribution Panel					
CFM	0.8	0.8	0.8	0.8	
O3 Feed Conc. Ppm O3					

Comments: * ON 9/24/15 DTE CHANGED THE ELECTRIC METER ON THE SITE BUILDING!

SPARGE WELL PRESSURE READINGS
RASMUSSEN SITE
CRA PROJECT #32504

DATE:	JULY 21 & 22, 2015		DATE:	AUGUST 12 & 19, 2015		DATE:	SEPT. 8, 9 & 10, 2015	
WELL ID	CFM @ DIST. PANEL	PSI @ WELL	WELL ID	CFM @ DIST. PANEL	PSI @ WELL	WELL ID	CFM @ DIST. PANEL	PSI @ WELL
SW-1	0.7	8	SW-1	0.8	9	SW-1	0.8	8
SW-2	0.8	8	SW-2	0.8	8	SW-2	0.7	9
SW-3	0.8	13	SW-3	0.8	14	SW-3	0.7	14
SW-4	0.8	14	SW-4	0.8	14	SW-4	0.8	13
SW-5	0.8	15	SW-5	0.7	15	SW-5	0.8	15
SW-6	0.7	15	SW-6	0.8	15	SW-6	0.8	15
SW-7	0.8	14	SW-7	0.8	13	SW-7	0.8	13
SW-8	—	—	SW-8	—	—	SW-8	—	—
SW-9	—	—	SW-9	—	—	SW-9	—	—
SW-10	—	—	SW-10	—	—	SW-10	—	—
SW-11	—	—	SW-11	—	—	SW-11	—	—
SW-12	0.7	14	SW-12	0.8	14	SW-12	0.7	13
SW-13	0.7	3	SW-13	0.6	2	SW-13	0.8	3
SW-14	—	—	SW-14	—	—	SW-14	—	—
SW-15	—	—	SW-15	—	—	SW-15	—	—
SW-16	—	—	SW-16	—	—	SW-16	—	—
SW-17	0.8	18	SW-17	0.7	19	SW-17	0.8	19
SW-18	0.8	19	SW-18	0.8	20	SW-18	0.8	19
SW-19	0.8	18	SW-19	0.8	19	SW-19	0.7	19
SW-20	0.8	17	SW-20	0.7	16	SW-20	0.8	17
SW-21	—	—	SW-21	—	—	SW-21	—	—
SW-22	0.8	12	SW-22	0.8	13	SW-22	0.8	13
SW-23	0.7	14	SW-23	0.8	13	SW-23	0.7	14
SW-24	0.7	17	SW-24	0.7	16	SW-24	0.8	17
SW-25	0.8	15	SW-25	0.7	17	SW-25	0.8	16
SW-26	0.8	4	SW-26	0.8	4	SW-26	0.8	4
SW-27	0.8	5	SW-27	0.8	6	SW-27	0.7	6
SW-28	0.7	7	SW-28	0.8	7	SW-28	0.7	8
SW-29	0.7	7	SW-29	0.8	8	SW-29	0.7	8
SW-30	—	—	SW-30	—	—	SW-30	—	—

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: THURS., JULY 9, 2015
Time: 1:00 PM

Weather Conditions: RAIN THIS MORNING, SLOWLY CLEARING 75°

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: WET

Drainage Spillways & Outfalls: FLOWING

Roadways: OK

Vegetation: OK

Signs, Gates, & Fences: OK

Actions Taken:

Recommendations:

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: TUESDAY, JULY 21, 2015
Time: 3:30 PM

Weather Conditions: PARTLY CLOUDY 81°F

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: OK - DRY

Drainage Spillways & Outfalls: DRY

Roadways: OK

Vegetation: OK

Signs, Gates, & Fences: OK

Actions Taken:

Recommendations:

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: WED., AUGUST 12, 2015
Time: NOON

Weather Conditions: CLEAR 75°

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: DRY

Drainage Spillways & Outfalls: DRY

Roadways: OK

Vegetation: SHOWING SIGNS OF STRESS FROM LACK OF RAIN

Signs, Gates, & Fences: OK

Actions Taken:

Recommendations:

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: FRIDAY AUG. 28, 2015
Time: 1:30 PM

Weather Conditions: MOSTLY CLOUDY 78°F

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: DRY

Drainage Spillways & Outfalls: DRY

Roadways: OK

Vegetation: STRESSED FROM VERY DRY SUMMER

Signs, Gates, & Fences: OK

Actions Taken:

—

Recommendations:

—

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: WED., SEPT. 9, 2015
Time: 3:00 PM

Weather Conditions: CLOUDY 78°

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: DRY

Drainage Spillways & Outfalls: DRY

Roadways: OK

Vegetation: STRESSED DUE TO LACK OF RAIN

Signs, Gates, & Fences: OK

Actions Taken:

Recommendations:

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: THURS., SEPT. 24, 2015
Time: 10:00 AM

Weather Conditions: CLEAR, 60°F

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: DRY

Drainage Spillways & Outfalls: DRY

Roadways: OK

Vegetation: STRESSED BY LACK OF RAIN

Signs, Gates, & Fences: OK

Actions Taken:

Recommendations:

6/24/15

32504-25

WELL ID	LEVEL
MW-35	24.23
MW-41	47.26
MW-42	63.27
MW-47	53.51
MW-54	56.06
MW-55	36.50
MW-56	34.22
MW-58	21.82
EB-PZ-2	40.31
EB-PZ-4	55.19
EB-PZ-5	53.50
EB-PZ-6	55.00
PZ-103	57.28
PZ-104	54.98
PZ-105	51.85
PZ-106	39.36
TEMP-PZ-2	53.68

32504-25

9/1/2015

TASK: MULTI WATER LEVELS & BEGIN SAMPLE ROUND

CRA: STEVE RAPAI

WEATHER: HAZY SUN 71°, HIGH OF 90°F

H&S: LEVEL D

WELL ID	LEVEL
81-4	29.84
81-5	34.21
81-7	46.47
81-8	43.43
81-9	15.81
81-10	32.09
RA-1	69.05
RA-2D	55.90
RA-2S	55.61
RA-3	52.70
RA-4	23.80
RA-5	54.77
RA-6S	59.21
RA-7	32.66
RA-8	17.73
RA-16	59.47
RA-18	41.55
RA-18D	56.15

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WELL ID	LEVEL
RA-19D	50.00
RA-19S	47.41
RA-20	58.18
RA-22	53.76
RA-23D	33.03
RA-23S	33.30
RA-24	56.99
RA-25	54.09
RA-26D	49.87
RA-26S	49.75
RA-27	61.54
RA-28	54.77
RA-29	46.25
RA-30	59.29
RA-31	31.70
RA-32	57.11
RA-33	32.19
RA-34	41.64
RA-35	31.86
RA-36	36.20
RA-37	35.95
MW-22	42.19
MW-28	42.43
MW-32	34.87

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WELL ID	LEVEL
MW-34C	41.66
MW-35	24.18
MW-41	47.15
MW-42	68.19
MW-47	53.40
MW-54	55.95
MW-55	36.42
MW-56	34.15
MW-58	21.71
EB-PZ-2	40.22
EB-PZ-4	53.45
EB-PZ-5	55.06
EB-PZ-6	54.90
PZ-103	57.20
PZ-104	54.88
PZ-105	51.79
PZ-106	32.25
TEMP-PZ-2	53.56

9/1/2015 32504-25

CALIBRATION OF RENTAL HORIBA (U-22)
NF07597
pH=4.01, COND. 4.50, TURB.=0, D.O.=8.47
TEMP=26.75

SAMPLE OF CRA-RA-2D

TIME	pH	COND.	TURB.	D.O.	TEMP. °C
1100	6.37	2.09	9	0.64	13.00
1115	6.68	1.97	5	0.19	12.74
1125	6.75	1.98	4	0.18	12.77
1130	6.77	1.97	4	0.17	12.66
1135	6.77	1.98	4	0.17	12.67
1140	6.77	1.98	4	0.18	12.66

SAMPLED @ 1141 ID: GW-32504-090115-SR-1909

SAMPLE OF CRA-RA-5

1155	6.78	1.45	3	1.76	12.89
1205	6.76	1.35	1	0.32	12.53
1215	6.69	1.33	1	0.20	12.53
1220	6.69	1.33	2	0.17	12.46
1225	6.69	1.33	3	0.22	12.35
1230	6.69	1.33	1	0.23	12.48
1235	6.69	1.33	1	0.23	12.47

SAMPLED @ 1236 ID: GW-32504-090115-SR-1910

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SAMPLE OF EB-PZ-4

TIME	pH	COND.	TURB.	D.O.	TEMP. °C
1255	7.03	0.929	39	1.25	14.23
1305	7.03	0.923	33	1.50	13.77
1315	7.04	0.919	14	2.02	12.61
1325	7.04	0.920	9	2.12	12.55
1330	7.04	0.920	6	2.26	12.62
1335	7.05	0.921	5	2.40	12.63
1340	7.04	0.921	5	2.40	12.69
1345	7.05	0.921	5	2.38	12.65
1350	7.05	0.921	4	2.39	12.67

SAMPLED @ 1351 ID: GW-32504-090115-SR-1911

SAMPLE OF PZ-106

1455	7.01	1.47	36	2.94	14.68
1515	6.64	1.38	19	0.16	13.26
1520	6.64	1.38	11	0.17	13.28
1525	6.65	1.38	8	0.15	13.77
1530	6.65	1.38	6	0.15	13.78
1535	6.65	1.38	5	0.17	13.79
1540	6.65	1.38	4	0.15	13.79

SAMPLED @ 1541 ID: GW-32504-090115-SR-1912

SAMPLE OF RA-MW-47

TIME	pH	COND.	TURB.	D.O.	TEMP.
1600	7.12	3.06	100	0.23	13.60
1615	7.26	0.834	29	0.14	12.85
1630	7.35	0.843	51	0.16	12.87
1635	7.37	0.852	14	0.22	12.88
1640	7.36	0.862	8	0.17	12.76
1645	7.34	0.860	5	0.15	12.67
1650	7.34	0.849	6	0.13	12.75
1655	7.34	0.849	3	0.16	12.77
1700	7.34	0.849	4	0.15	12.76

SAMPLED @ 1701 ID:GW-32504-090115-SR-1913

SAMPLE OF RA-MW-28

1710	7.35	0.876	11	3.45	13.11
1720	6.98	0.847	6	3.20	12.12
1730	6.90	0.843	3	3.38	12.03
1735	6.87	0.843	2	3.40	11.97
1740	6.85	0.842	3	3.42	11.92
1745	6.85	0.842	3	3.43	11.93
1750	6.85	0.842	1	3.42	11.93

SAMPLED @ 1751 ID:GW-32504-090115-SR-1914

SAMPLE OF CRA-RA-18

TIME	pH	COND.	TURB.	D.O.	TEMP.
1805	6.73	1.77	1	7.73	11.65
1815	6.71	1.78	0	7.69	11.59
1825	6.70	1.79	1	7.71	11.61
1830	6.71	1.79	0	7.69	11.60
1835	6.71	1.79	1	7.69	11.59
1840	6.71	1.79	1	7.69	11.59

SAMPLED @ 1841 ID:GW-32504-090115-SR-1915

SAMPLES IN COOLER WITH ICE.

TASK: CONTINUE 1/4LY SAMPLE EVENT
CRA: STEVE RAPAK
WEATHER: HAZY, HOT, HIGH 90°F
CHANCE OF STORMS
H&S: LEVEL D
CALIBRATION OF RENTAL HORIBA (U-22)
NF07597
pH=4.00, COND.=4.49, TURB=0, D.O.=6.58
TEMP=29.75
DELAYED SAMPLING DUE TO APPROACHING THUNDERSTORMS.

SAMPLE OF CRA-RA-65

TIME	pH	COND.	~~COND.~~ TURB	D.O.	TEMP.
0930	6.30	1.16	3	1.36	14.11
0940	6.44	1.15	3	0.40	14.11
0950	6.47	1.14	5	0.25	14.17
1000	6.48	1.14	3	0.24	14.15
1005	6.48	1.14	3	0.24	14.15

SAMPLED @ 1006 ID:GW-32504-090215-SR-1916

SAMPLE OF CRA-RA-27

1020	6.62	1.84	6	2.91	12.29
1030	6.52	1.83	5	0.19	12.21

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SAMPLE OF CRA-RA-27 (CONTINUED)

TIME	pH	COND.	TURB.	D.O.	TEMP.
1040	6.52	1.83	4	0.16	12.22
1045	6.53	1.84	4	0.15	12.23
1050	6.53	1.84	4	0.17	12.24
1055	6.53	1.84	4	0.15	12.24

SAMPLED @ 1056 ID:GW-32504-090215-SR-1917

SAMPLE OF CRA-RA-28

1110	6.85	0.98	20	0.84	12.50
1125	6.70	0.97	9	0.15	12.12
1130	6.70	0.97	5	0.12	12.15
1135	6.70	0.97	4	0.16	12.11
1140	6.70	0.98	4	0.13	12.10
1145	6.70	0.98	4	0.15	12.10

SAMPLED @ 1146 ID:GW-32504-090215-SR-1918
SAMPLED @ 1150 ID:GW-32504-090215-SR-1919

SAMPLE OF PZ-104

1205	6.89	1.18	41	2.15	13.17
1215	6.72	1.31	14	0.17	13.17
1220	6.73	1.32	7	0.15	13.25
1225	6.73	1.32	5	0.14	13.18
1230	6.74	1.32	3	0.17	13.20

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SAMPLE OF PZ-104 (CONTINUED)

TIME	pH	COND.	TURB.	D.O.	TEMP.
1235	6.73	1.32	2	0.15	13.21

SAMPLED @ 1236 ID: GW-32504-090215-SR-1920

SAMPLE OF CRA-RA-25

1255	6.81	0.96	3	1.44	14.34
1310	6.82	0.95	5	0.19	13.59
1320	6.83	0.95	4	0.13	13.52
1325	6.83	0.95	3	0.16	13.56
1330	6.82	0.95	2	0.14	13.51
1335	6.83	0.95	2	0.14	13.49
1340	6.83	0.95	2	0.13	13.49

SAMPLED @ 1341 ID: GW-32504-090215-SR-1921

SAMPLE OF CRA-RA-24

1355	6.78	1.08	5	0.74	14.28
1405	6.73	1.08	5	0.15	14.16
1415	6.72	1.08	5	0.16	12.73
1420	6.72	1.08	4	0.13	12.64
1425	6.72	1.08	3	0.15	12.65
1430	6.72	1.08	3	0.15	12.64

SAMPLED @ 1431 ID: GW-32504-090215-SR-1922

SAMPLES PACKED IN COOLER WITH ICE FOR DROP OFF AT TEST AMERICA, BRIGHTON.

32504-25

TASK: CONTINUE 1/4LY SAMPLE EVENT

CRA: STEVE RAPAI

WEATHER: HAZY SUN, HUMID, HIGH 87°

H&S: LEVEL D

CALIBRATION OF RENTAL HORIBA (U-22) NF-07597:

pH=4.01, COND.=4.49, TURB.=0, D.O.=6.89, TEMP.=35.65.

BEGIN SET UP @ CRA-RA-30 BUT CONTROL BOX WOULD NOT FUNCTION PROPERLY. WAS UNABLE TO GET BOX TO WORK AFTER TRYING SEVERAL THINGS. I SPOKE WITH THE EQUIPMENT MANAGER IN NIAGARA FALLS AND HE SAID VALVE FAILURE IS COMMON IN THESE UNITS AND WOULD SEND OUT ANOTHER BOX PRIORITY OVERNIGHT.

9/9/15 32504-25

TASK: CONTINUE 1/4LY SAMPLE EVENT
CRA: STEVE RAPAI
WEATHER: CLOUDY, HIGH 78°, HUMID
H&S: LEVEL D
CALIBRATON OF RENTAL HORIBA (U-22)
NF 07597:
pH=4.00, COND.=4.49, TURB=0, D.O.=7.32
TEMP.=31.14

SAMPLE OF CRA-RA-30

TIME	pH	COND	TURB.	D.O.	TEMP.
1145	6.30	1.16	21	0.63	12.12
1200	6.69	1.15	2	0.21	11.99
1205	6.72	1.15	2	0.18	12.01
1210	6.75	1.15	2	0.16	12.03
1215	6.76	1.15	1	0.15	12.01
1220	6.76	1.15	1	0.17	12.03
1225	6.76	1.15	1	0.15	12.02

SAMPLED @ 1226 ID:GW-32504-090915-SR-1923

SAMPLE OF RASMUSSEN RESIDENTIAL WELL. PURGED WELL FOR 1/2 HOUR & SAMPLED AT OUTSIDE SPIGOT ON SOUTH SIDE OF HOUSE.
SAMPLED @ 1315 ID:GW-32504-090915-SR-1924

32504-25 9/9/15

SAMPLE OF CRA-RA32

TIME	pH	COND	TURB.	D.O.	TEMP.
1300	6.75	0.91	1	0.37	11.92
1310	6.76	0.91	3	0.18	11.78
1320	6.77	0.91	2	0.21	11.83
1325	6.77	0.91	3	0.15	11.83
1330	6.77	0.91	3	0.17	11.80
1335	6.77	0.91	3	0.18	11.81

SAMPLED @ 1336 ID:GW-32504-090915-SR-1925

SAMPLE OF CRA-RA-22

1350	6.65	1.29	20	0.48	12.42
1400	6.63	1.15	25	0.17	12.31
1410	6.64	1.10	9	0.19	12.25
1415	6.65	1.14	5	0.74	12.28
1420	6.66	1.16	3	0.81	12.24
1425	6.67	1.17	5	1.06	12.29
1430	6.67	1.18	3	1.27	12.25
1435	6.67	1.18	4	1.36	12.24
1440	6.68	1.18	3	1.51	12.24
1445	6.68	1.18	3	1.55	12.24
1450	6.68	1.18	4	1.56	12.24

SAMPLED @ 1451 ID:GW-32504-090915-SR-1926

SAMPLE OF TEMP-PZ-2

TIME	pH	COND	TURB	D.O.	TEMP
1510	6.68	1.81	2	0.51	12.18
1520	6.65	2.12	5	0.14	12.22
1530	6.65	2.16	2	0.16	12.27
1535	6.66	2.16	0	0.18	12.27
1540	6.66	2.16	1	0.15	12.25
1545	6.66	2.15	3	0.14	12.24
1550	6.66	2.15	1	0.15	12.24

SAMPLED @ 1551 ID: GW-32504-090915-SR-1927

SAMPLE OF CRA-RA-29

1610	6.88	1.11	3	14.35	13.85
1620	6.78	1.03	8	15.58	13.49
1630	6.77	1.03	5	15.56	13.40
1635	6.77	1.02	3	15.59	13.48
1640	6.76	1.03	2	15.57	13.33
1645	6.76	1.03	2	15.56	13.31
1650	6.76	1.03	2	15.56	13.31

SAMPLED @ 1651 ID: GW-32504-090915-SR-1928

SAMPLE OF 81-8

1705	7.09	0.741	2	14.24	12.23
1715	7.37	0.617	4	+19.99	11.95
1725	7.48	0.603	3	+19.99	11.95

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SAMPLE OF 81-8 (CONTINUED)

TIME	pH	COND.	TURB.	D.O.	TEMP.
1730	7.50	0.601	4	+19.99	11.94
1735	7.50	0.598	2	+19.99	11.90
1740	7.51	0.598	3	+19.99	11.93
1745	7.51	0.598	2	+19.99	11.94

SAMPLED @ 1746 ID: GW-32504-090915-SR-1929

SAMPLES PACKED IN COOLER WITH ICE.

9/10/15 32504-25

TASK: CONTINUE 1/4 LY SAMPLE EVENT

CIA: STEVE RAPAI

WEATHER: SUN, HIGH 76 °F

H&S LEVEL D

CALIBRATION OF RENTAL HORIBA (U-22)

NF 07597

pH = 4.00, COND. = 4.49, TURB. = 0, D.O. = 7.71,

TEMP. = 27.86 °C

SAMPLE OF CRA-RA-31

TIME	pH	COND	TURB.	D.O.	TEMP.
0750	6.21	0.583	2	1.09	11.55
0800	6.77	0.579	1	0.21	11.44
0810	6.90	0.580	1	0.15	11.44
0815	6.91	0.578	0	0.17	11.43
0820	6.92	0.579	0	0.15	11.42
0825	6.91	0.579	0	0.16	11.43
0830	6.92	0.579	0	0.15	11.43

SAMPLED @ 0831 ID: GW-32504-091015-SR-1930

SAMPLE OF CRA-RA-7

0945	7.25	0.350	3	5.80	10.94
0955	7.29	0.347	0	6.22	10.95
1005	7.30	0.347	1	6.24	10.93
1010	7.31	0.347	0	6.26	10.92

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SAMPLE OF CRA-RA-7

TIME	pH	COND.	TURB.	D.O.	TEMP.
1015	7.32	0.347	0	6.24	10.93
1020	7.32	0.347	0	6.26	10.92
1025	7.32	0.347	0	6.24	10.93

SAMPLED @ 1026 ID: GW-32504-091015-SR-1931

SAMPLE OF CRA-RA-8 *ANNUAL SAMPLE* VOC, SVOC, TOTAL & DIS. METALS

1055	7.28	0.441	17	10.62	11.39
1105	7.19	0.488	10	9.34	11.18
1115	7.12	0.497	4	7.78	11.02
1120	7.13	0.497	2	7.75	11.01
1125	7.12	0.498	3	7.66	10.99
1130	7.14	0.497	0	7.69	10.02
1135	7.14	0.498	0	7.65	11.01
1140	7.14	0.498	0	7.66	11.02

SAMPLED @ 1141 ID: GW-32504-091015-SR-1932

SAMPLED @ 1150 ID: GW-32504-091015-SR-1933

SAMPLE OF CRA-RA-26S

1315	6.67	1.24	4	6.02	11.86
1325	6.62	1.26	2	5.70	11.73
1335	6.62	1.27	1	5.53	11.75
1340	6.62	1.27	1	5.51	11.72

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SAMPLE OF CRA-RA-26S (CONTINUED)

TIME	pH	COND	TURB.	D.O.	TEMP.
1345	6.62	1.28	1	5.49	11.73
1350	6.62	1.28	1	5.50	11.73

SAMPLED @ 1351 ID: GW-32504-091015-SR-1934

SAMPLE OF CRA-RA-26D

1405	6.76	1.50	0	6.39	11.85
1415	6.67	1.51	3	0.29	11.77
1425	6.67	1.51	2	0.22	11.70
1430	6.67	1.51	3	0.21	11.77
1435	6.67	1.51	2	0.21	11.77
1440	6.67	1.51	2	0.22	11.76

SAMPLED @ 1441 ID: GW-32504-091015-SR-1935

SAMPLES PACKED IN COOLER WITH ICE FOR DROP OFF @ TEST AMERICA, BRIGHTON, ME.

32504-25 9/11/15

TASK: FINISH 1/4LY SAMPLE EVENT

CRA: STEVE RAPAI

WEATHER: CLOUDY, CHANCE OF RAIN, HIGH 68°

H&S: LEVEL D

CALIBRATION OF RENTAL HORIBA (V-22)

NF 07597

pH=4.01, COND.=4.49, TURB=0, D.O.=7.72, TEMP=28.72

SAMPLE OF CRA-RA-23D

TIME	pH	COND.	TURB.	D.O.	TEMP.
1200	5.69	0.633	57	6.38	12.12
1230	6.75	0.621	3	0.15	10.84
1235	6.77	0.623	0	0.12	10.83
1240	6.76	0.623	0	0.13	10.82
1245	6.77	0.623	0	0.12	10.82

SAMPLED @ 1246 ID: GW-32504-091115-SR-1936

MS/MSD

SAMPLE OF 81-4

1310	7.22	1.16	18	10.62	12.68
1340	6.60	1.22	0	0.15	11.94
1345	6.62	1.23	1	0.12	11.92

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SAMPLE OF 81-H (CONTINUED)

TIME	pH	COND.	TURB	D.O.	TEMP.
1350	6.62	1.22	0	0.11	11.94
1355	6.62	1.22	0	0.12	11.94

SAMPLED @ 1356 ID:GW.32504.091115.SR.1937

SAMPLES PACKED IN COOLER WITH ICE FOR DROP OFF @ TEST AMERICA, BRIGHTON, MICHIGAN

January 8, 2016 Reference No. 032504-15

Mr. Howard Caine
United States Environmental Protection Agency
Region V (SR-6J)
77 W. Jackson Boulevard
Chicago, Illinois
60604

Dear Mr. Caine:

Re: Progress Report No. 133
Groundwater and Landfill RD/RA
Reporting Period: October 1 through December 31, 2015
Rasmussen Landfill (Site), Livingston Co., Michigan

1. Introduction

This Progress Report is submitted in accordance with Paragraph 26 of the Consent Decree, Civil Action No. 92 40071. This report summarizes the activities performed during the reporting period and describes the activities to continue or which are scheduled to start during the next reporting period.

2. Activities Performed During this Reporting Period

2.1 Operation and Maintenance

The quarterly round of groundwater elevations were measured on December 2, 2015. The corresponding groundwater contour map is provided on Figure 1.

GHD[1] collected quarterly groundwater samples on November 25 and December 8, 9, 11 and 14, 2015, consistent with the Groundwater Remediation Monitoring Program. The results from these samples are discussed below.

2.2 Reports

Quarterly Progress Report No. 132 was submitted to USEPA and Michigan Department of Environmental Quality (MDEQ) on October 9, 2015.

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1 On July 1, 2015 Conestoga Rovers & Assc. became GHD. For convenience, the wording in this report reflects the new name.

3. Summary of Findings

Fourth Quarter 2015 Routine Groundwater Quality Monitoring

The results of the fourth quarter 2015 sampling are provided in Tables 1 through 4. Figure 2 is a Site location map showing the wells included in the quarterly Groundwater Remediation Monitoring Program and the annual Landfill Monitoring Program.

During the fourth quarter 2015 sampling, seven of the 29 monitoring wells sampled had Compounds of Concern (COCs) at concentrations above Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria (RDWCC).

Specifically, the seven monitoring wells with COCs exceeding RDWCC are:

CRA-RA-22	4.0 µg/L vinyl chloride
CRA-RA-24	6.9 µg/L vinyl chloride
CRA-RA-26S	78 µg/L trichloroethene
CRA-RA-27	11 µg/L vinyl chloride
CRA-RA-30	3.8 µg/L vinyl chloride
CRA-RA-33	2.8 µg/L vinyl chloride
81-4	2.3/2.2 µg/L vinyl chloride (duplicate sample)

With the exception of 81-4, these were the same six monitoring wells that had COCs above RDWCC during the third quarter 2015 sampling event. The vinyl chloride detected in the sample from monitoring well 81-4 during fourth quarter 2015 sampling was similar to historic vinyl chloride concentrations, which range from 1.0 to 5.0 µg/L.

4. Problems Encountered

No significant interruptions or maintenance events occurred in the fourth quarter of 2015.

5. Corrective Measures to Rectify Problems

No significant repairs or corrective measures were undertaken during the fourth quarter of 2015.

6. Contacts and Significant Correspondence with Public Representatives

Communication	Date	Subject of Correspondence/Discussion
Quarterly Report	October 9, 2015	Report No. 132 submitted to Mr. H. Caine (USEPA) and Mr. K. Krawczyk (MDEQ).

7. Planned Upcoming Activities/Schedule

Activities planned for the first quarter of 2016 include:

- Continue the operation of ozone sparging system
- Continue to monitor for the presence of ozone at each sparge vault
- The first quarter groundwater sampling event is scheduled for the week of March 4, 2015
- The wells to be sampled in the first quarter of 2016 are listed in Table 5
- Respond to USEPA and MDEQ comments on the draft "2015 Groundwater Investigation" report
- Submit revised "2015 Groundwater Investigation Report"

Should you have any questions on the above, please do not hesitate to contact the undersigned.

Yours truly,

GHD

For Steven Rapai

Bart Bartholomy

AJD/cb/44

Encl.

cc: Mike Stoelton, JCI
Chuck Pinter, Ford
Karylian Dodson Mack, BASF
Michael Simpson
Steven Nadeau, Honigman

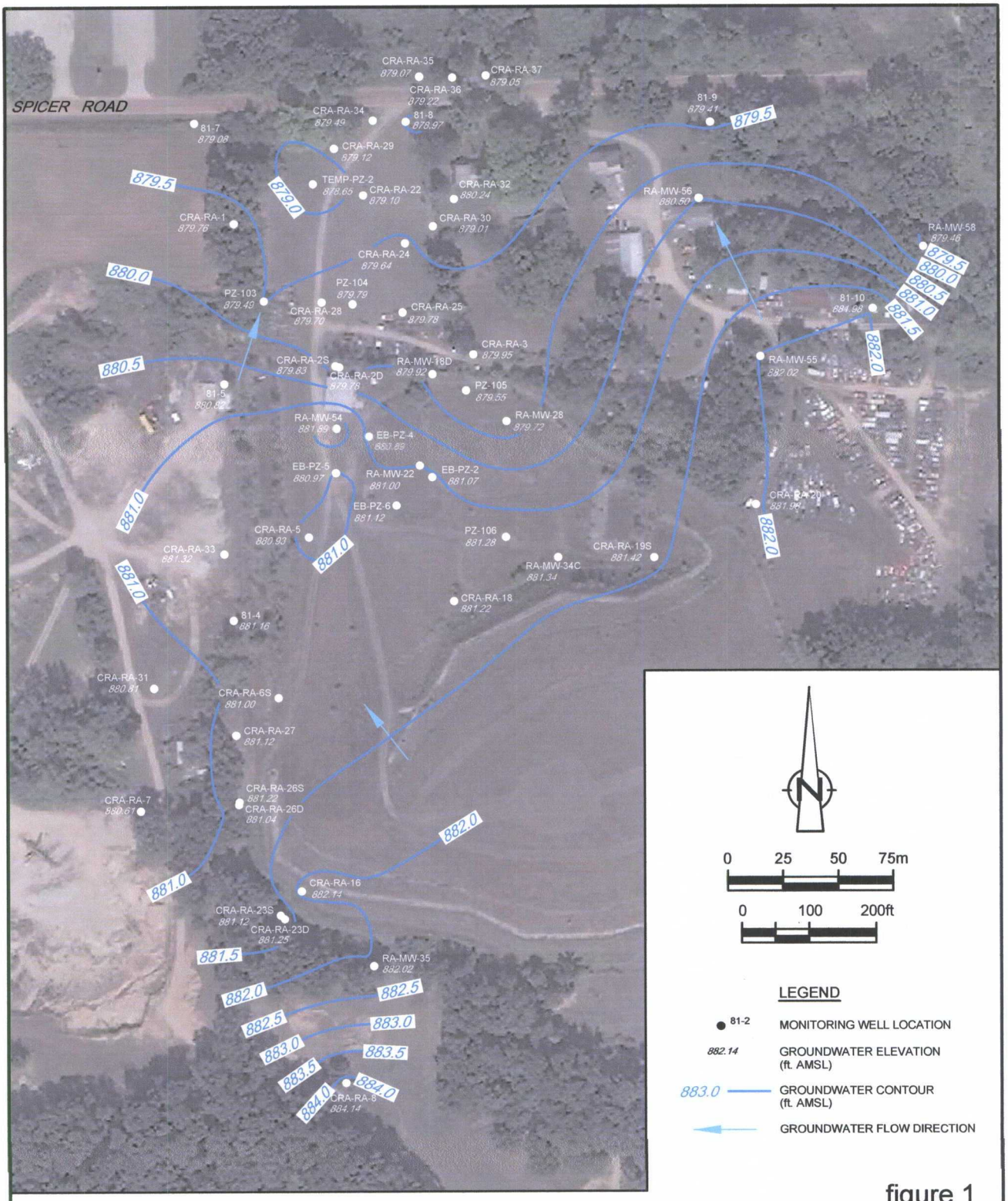

figure 1

GROUNDWATER ELEVATION CONTOURS (UPPER AQUIFER)
DECEMBER 2015
RASMUSSEN LANDFILL SITE
Livingston County, Michigan

32504-15(CAIN044)GN-WA002 DEC 30, 2015

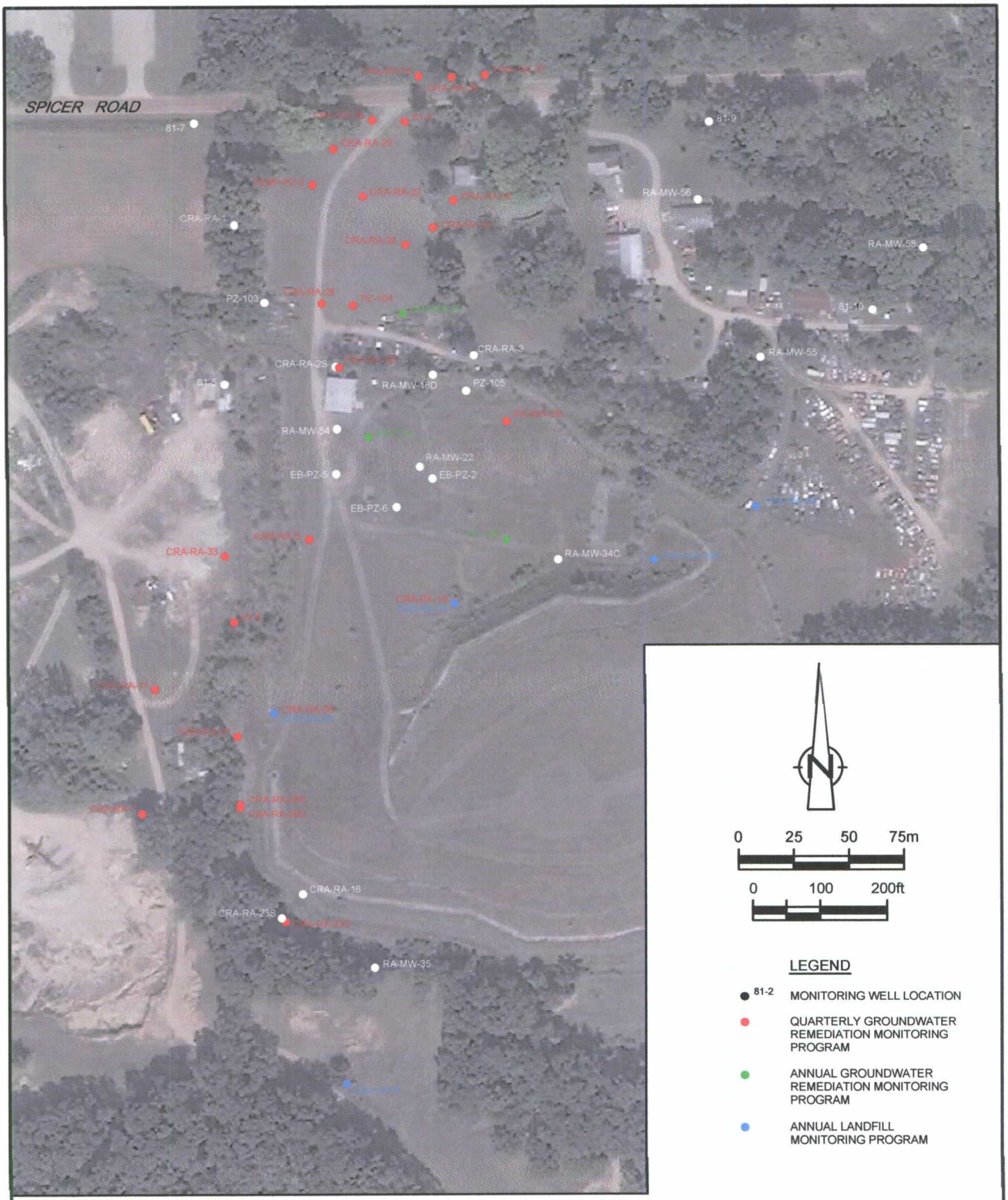

figure 2

2016 GROUNDWATER MONITORING PROGRAMS
RASMUSSEN LANDFILL SITE
Livingston County, Michigan

32504-15(CAIN044)GN-WA001 DEC 30, 2015

Table 1

Analytical Results - Northern Plume
[illegible] Landfill Site
Livingston County, Michigan

Sample Location	Sample ID	Date Sampled	Parameter	1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE (TOTAL)	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZENE	ETHYLBENZENE	METHYLENE CHLORIDE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)
			Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			RDWCC (1)	200	70 (2)	13,000	1,800	730	5	100	74	5	790	5	2	280
CRA-RA-21	GW-SR-1846	12/11/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	4.0	ND(1.0)
CRA-RA-21	GW-SR-1873	3/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	4.0	ND(1.0)
CRA-RA-21	GW-SR-1926	9/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.4	ND(1.0)
CRA-RA-21	GW-SR-1944	12/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	4.0	ND(1.0)
			Change												Up 0.6 µg/L	
CRA-RA-[illegible]	GW-SR-[illegible]	[illegible]/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	6.0	ND(1.0)
CRA-RA-[illegible]	GW-SR-[illegible]	[illegible]/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	5.1	ND(1.0)
CRA-RA-[illegible]	GW-SR-[illegible]	[illegible]/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	6.1	ND(1.0)
CRA-RA-[illegible]	GW-SR-[illegible]	12/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	6.8	ND(1.0)
			Change												Up 0.7 µg/L	
CRA-RA-[illegible]	GW-SR-1716	7/23/2015		ND(1)	1.0	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
CRA-RA-[illegible]	GW-SR-1717	7/23/2015	Duplicate	ND(1)	1.0	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
CRA-RA-[illegible]	GW-SR-[illegible]	9/2/2015		ND(1.0)	1.1	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.1	ND(1.0)
CRA-RA-[illegible]	GW-SR-[illegible]	9/2/2015		ND(1.0)	1.1	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change		Stable										Down 0.1 µg/L	
CRA-RA-23	GW-SR-1866	3/17/2015		ND(1.0)	3.3	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-23	GW-SR-1867	3/17/2015	Duplicate	ND(1.0)	3.2	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-23	GW-SR-1887	6/17/2015		ND(1.0)	2.6	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-23	GW-SR-1918	9/2/2015		ND(1.0)	3.0	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.7	ND(1.0)
CRA-RA-23	GW-SR-1919	9/2/2015	Duplicate	ND(1.0)	2.7	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-23	GW-SR-1969	12/8/2015		ND(1.0)	2.9	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change		Up 0.2 µg/L											
CRA-RA-[illegible]	GW-SR-1874	3/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-[illegible]	GW-SR-[illegible]	6/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-[illegible]	GW-SR-[illegible]	9/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-[illegible]	GW-SR-1946	12/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable; all Non-Detect							
CRA-RA-[illegible]	GW-SR-1870	3/17/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.6	ND(1.0)
CRA-RA-[illegible]	GW-SR-[illegible]	6/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.1	ND(1.0)
CRA-RA-[illegible]	GW-SR-1923	9/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.7	ND(1.0)
CRA-RA-[illegible]	GW-SR-1942	12/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.3	ND(1.0)
			Change												Up 1.1 µg/L	
CRA-RA-22	GW-SR-1871	3/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-22	GW-SR-1917	6/18/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-22	GW-SR-[illegible]	9/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-22	GW-SR-1943	12/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable; all Non-Detect							
CRA-RA-24	GW-OT-[illegible]	6/23/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-24	GW-OT-003	9/1/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-24	GW-OT-[illegible]	11/25/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable; all Non-Detect							
CRA-RA-[illegible]	GW-OT-[illegible]	6/23/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.1	ND(1.0)
CRA-RA-[illegible]	GW-OT-001	7/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.9	ND(1.0)
CRA-RA-[illegible]	GW-OT-002	7/20/2015	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.8	ND(1.0)
CRA-RA-[illegible]	GW-OT-[illegible]	9/2/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.7	ND(1.0)
CRA-RA-[illegible]	GW-OT-[illegible]	9/2/2015	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.8	ND(1.0)
CRA-RA-[illegible]	GW-OT-003	11/25/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.8	ND(1.0)
CRA-RA-[illegible]	GW-OT-004	11/25/2015	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.7	ND(1.0)
			Change												Stable	
CRA-RA-[illegible]	GW-OT-002	6/23/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-[illegible]	GW-OT-002	9/1/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-[illegible]	GW-OT-002	11/25/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable; all Non-Detect							
CRA-RA-27	GW-OT-001	6/23/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-27	GW-OT-001	9/1/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-27	GW-OT-001	11/25/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable; all Non-Detect							
PZ-104	GW-SR-[illegible]	3/17/2015		ND(1.0)	3.3	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.1	ND(1.0)
PZ-104	GW-SR-1883	6/18/2015		ND(1.0)	3.2	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-104	GW-SR-1920	9/2/2015		ND(1.0)	3.1	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-104	GW-SR-1940	12/8/2015		ND(1.0)	3.3	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.1	ND(1.0)
			Change		Down 0.1 µg/L										Up 0.1	
TEMP-PZ-[illegible]	GW-SR-1875	3/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
TEMP-PZ-[illegible]	GW-SR-1897	6/19/2015		ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
TEMP-PZ-[illegible]	GW-SR-1927	9/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
TEMP-PZ-[illegible]	GW-SR-1948	12/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable; all Non-Detect							
S1-[illegible]	GW-SR-1878	3/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
S1-[illegible]	GW-SR-1899	6/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	24	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
S1-[illegible]	GW-SR-1929	9/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.1)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
S1-[illegible]	GW-SR-1947	12/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
S1-[illegible]	GW-SR-1949	12/8/2015	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change					Down 28 µg/L								

Notes:

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria
(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/L.

Table 2

Analytical Results - PDSLD Area Plumes
Rasmussen Landfill Site
Livingston County, Michigan

Sample Location	Sample ID	Date Sampled	Parameter	1,1,1-TRICHLOROETHANE µg/L	1,2-DICHLOROETHENE µg/L	2-BUTANONE µg/L	4-METHYL-2-PENTANONE µg/L	ACETONE µg/L	BENZENE µg/L	CHLOROBENZEN µg/L	ETHYLBENZENE µg/L	METHYLENE CHLORIDE µg/L	TOLUENE µg/L	TRICHLOROETHE µg/L	VINYL CHLORIDE µg/L	XYLENES (TOTAL) µg/L
			Units													
			RDWCC(1)	200	70 (2)	13,000	1,800	730	5	100	74	5	790	5	2	280
CRA-RA-2D	GW-SR-1862	3/16/2015		ND(2.9)	ND(2.9)	ND(29)	ND(29)	ND(29)	ND(2.9)	76	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)
CRA-RA-2D	GW-SR-1885	6/17/2015		ND(2.0)	ND(2.0)	ND(20)	ND(20)	ND(20)	ND(2.0)	67	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
CRA-RA-2D	GW-SR-1909	9/1/2015		ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	65	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)
CRA-RA-2D	GW-SR-1938	12/8/2015		ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	70	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)
			Change							Up 5 µg/L						
CRA-RA-18	GW-SR-1865	3/17/2015		87	ND(4.0)	ND(40)	ND(40)	ND(40)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)
CRA-RA-18	GW-SR-1888	6/17/2015		85	ND(2.9)	ND(29)	ND(29)	ND(29)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)
CRA-RA-18	GW-SR-1889	6/17/2015	*Duplicate*	85	ND(2.9)	ND(29)	ND(29)	ND(29)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)
CRA-RA-18	GW-SR-1915	9/1/2015		67	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)
CRA-RA-18	GW-SR-1954	12/11/2015		67	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
			Change	Stable												
EB-PZ-4	GW-SR-1630	9/10/2012		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1)	39	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.3	ND(1.0)
EB-PZ-4	GW-SR-1657	12/4/2012		ND(2.0)	ND(2.0)	ND(20)	ND(20)	ND(20)	ND(2.0)	39	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	4.0	ND(2.0)
EB-PZ-4	GW-SR-1729	8/27/2013		ND(1.4)	ND(1.4)	ND(14)	ND(14)	ND(14)	ND(1.4)	41	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)	2.2	ND(1.4)
EB-PZ-4	GW-SR-1827	9/2/2014		ND(1.4)	ND(1.4)	ND(14)	ND(14)	ND(14)	ND(1.4)	43	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)
EB-PZ-4	GW-SR-1911	9/1/2015		ND(1.8)	ND(1.8)	ND(10)	ND(10)	ND(10)	ND(1.8)	46	ND(1.8)	ND(1.8)	ND(1.8)	ND(1.8)	ND(1.8)	ND(1.8)
			Change							Up 3 µg/L						
PZ-106	GW-SR-1640	9/12/2012		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-106	GW-SR-1731	8/27/2013		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-106	GW-SR-1732	8/27/2013	*Duplicate*	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-106	GW-SR-1828	9/2/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-106	GW-SR-1912	9/1/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable; all Non-Detect							
RA-MW-28	GW-SR-1854	12/15/2014		6.7	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
RA-MW-28	GW-SR-1864	3/17/2015		6.7	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
RA-MW-28	GW-SR-1890	6/17/2015		7.9	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
RA-MW-28	GW-SR-1914	9/1/2015		8.0	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
RA-MW-28	GW-SR-1953	12/11/2015		8.8	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change	Up 8 µg/L												

Notes:

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria
(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/L.

Table 3

Analytical Results - Southern Vinyl Chloride Plume
Rasmussen Landfill Site
Livingston County, Michigan

Sample Location	Sample ID	Date Sampled	Parameter	1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE (TOTAL)	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZENE	ETHYLBENZENE	METHYLENE CHLORIDE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)
			Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			RDWCC(1)	200	70 (2)	13,000	1,600	730	5	100	74	5	790	5	2	280
CRA-RA-5	GW-SR-1883	3/16/2015		20	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-5	GW-SR-1886	6/17/2015		18	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-5	GW-SR-1910	9/1/2015		20	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-5	GW-SR-1951	12/9/2015		19	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change	Up 2 µg/L												
CRA-RA-66	GW-SR-1878	3/19/2015		1.7	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-66	GW-SR-1891	6/18/2015		1.9	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-66	GW-SR-1916	9/2/2015		2.1	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-66	GW-SR-1952	12/9/2015		1.7	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change	Up 0.2 µg/L												
CRA-RA-7	GW-SR-1952	12/15/2014	*Duplicate*	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-7	GW-SR-1877	3/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-7	GW-SR-1901	6/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-7	GW-SR-1931	9/10/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-7	GW-SR-1950	12/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change	Stable; all Non-Detect												
CRA-RA-27	GW-SR-1879	3/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	8.6	ND(1.0)
CRA-RA-27	GW-SR-1892	6/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	8.4	ND(1.0)
CRA-RA-27	GW-SR-1917	9/2/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	10	ND(1.0)
CRA-RA-27	GW-SR-1955	12/11/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	11	ND(1.0)
			Change												Up 1 µg/L	
CRA-RA-31	GW-SR-1876	3/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-31	GW-SR-1900	6/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-31	GW-SR-1930	9/10/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.5)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-31	GW-SR-1949	12/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change	Stable; all Non-Detect												
CRA-RA-33	GW-DT-001	6/23/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	2.7	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.5	ND(1.0)
CRA-RA-33	GW-DT-002	6/23/2015	*Duplicate*	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	2.7	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.6	ND(1.0)
CRA-RA-33	GW-DT-004	9/2/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	2.4	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.4	ND(1.0)
CRA-RA-33	GW-DT-006	11/25/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	1.8	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.6	ND(1.0)
									Down 0.6 µg/L						Up 0.2 µg/L	
61-4	GW-SR-1883	3/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.7	ND(1.0)
61-4	GW-SR-1904	6/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.0	ND(1.0)
61-4	GW-SR-1937	9/11/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.8	ND(1.0)
61-4	GW-SR-1959	12/14/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.3	ND(1.0)
61-4	GW-SR-1960	12/14/2015	*Duplicate*	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.2	ND(1.0)
			Change												Up 0.5 µg/L	

Notes:

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria
(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/L.

Table 4

Analytical Results - Southern TCE Plume
Rasmussen Landfill Site
Livingston County, Michigan

Sample Location	Sample ID	Date Sampled	Parameter	1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE (TOTAL)	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZENE	ETHYLBENZENE	METHYLENE CHLORIDE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)
				Volatile Organics												
			Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			RDWCC(1)	200	70 (2)	13,000	1,860	730	5	100	74	5	700	5	2	280
CRA-RA-23D	GW-SR-1884	3/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	4.7	ND(1.0)	ND(1.0)
CRA-RA-23D	GW-SR-1908	6/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	4.1	ND(1.0)	ND(1.0)
CRA-RA-23D	GW-SR-1938	9/11/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.4	ND(1.0)	ND(1.0)
CRA-RA-23D	GW-SR-1861	12/14/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3	ND(1.0)	ND(1.0)
			Change											Down 0.4 µg/L		
CRA-RA-29D	GW-SR-1882	3/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-29D	GW-SR-1907	6/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-29D	GW-SR-1934	9/10/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-29D	GW-SR-1957	12/14/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable; all Non-Detect						
CRA-RA-25S	GW-SR-1880	3/19/2015		ND(5.0)	ND(5.0)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	ND(50)	5.8	ND(5.0)	76	ND(5.0)	ND(5.0)
CRA-RA-25S	GW-SR-1881	3/19/2015	*Duplicate*	ND(3.3)	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	4.2	ND(4.0)	83	ND(3.3)	ND(3.3)
CRA-RA-25S	GW-SR-1905	6/20/2015		ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	92	ND(2.5)	ND(2.5)
CRA-RA-25S	GW-SR-1906	6/20/2015	*Duplicate*	ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	90	ND(2.5)	ND(2.5)
CRA-RA-25S	GW-SR-1935	9/10/2015		ND(3.3)	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	70	ND(3.3)	ND(3.3)
CRA-RA-25S	GW-SR-1958	12/14/2015		ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	78	ND(2.5)	ND(2.5)
			Change											Up 8 µg/L		

Notes:

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria
(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/L.

Table 5

2016 Groundwater Sampling Program
Rasmussen Landfill Site
Livingston County, Michigan

Quarterly Sampling - VOCs	Annual Landfill Monitoring Program - VOCs, SVOCs & Metals	Additional Annual Samples - VOCs
	(2nd Quarter)	*(3rd Quarter)*
81-4	CRA-RA-6S (included in quarterly sampling)	CRA-RA-25
81-8	CRA-RA-8	EB-PZ-4
CRA-RA-2D	CRA-RA-18 (included in quarterly sampling)	PZ-106
CRA-RA-5	CRA-RA-19S	RA-MW-47
CRA-RA-6S	CRA-RA-20	Rasmussen Water Supply Well
CRA-RA-7		
CRA-RA-18		
CRA-RA-22		
CRA-RA-23D		
CRA-RA-24		
CRA-RA-26D		
CRA-RA-26S		
CRA-RA-27		
CRA-RA-28		
CRA-RA-29		
CRA-RA-30		
CRA-RA-31		
CRA-RA-32		
CRA-RA-33		
CRA-RA-34		
CRA-RA-35		
CRA-RA-36		
CRA-RA-37		
PZ-104		
RA-MW-28		
TEMP-PZ-2		

Rasmussen 32504

Ozone Sparge System Inspection

DATE	FRIDAY, OCT 2, 2015	10/8/2015	10/16/15	10/23/15	10/30/15
OPERATOR SIGNATURE	A Rapai	A Rapai	A Rapai	A Rapai	A Rapai

Air Compressor					
Output Pressure psi	110	110	110	110	110
Temperature F					
Run Time hours	102668		103003	103171	

Air Sep					
Receiver Pressure psi	54	54	54	56	54
Feed Air Pressure psi	110	110	110	110	110
Cycle Pressure psi	70	70	70	70	70
Holding Tank Pressure psi	42	42	42	42	42
Run Time hours	102667.6		103003.1	103171.1	

Air Dryer					
Temp. Indicator - color	GREEN	GREEN	GREEN	GREEN	GREEN

Ozone Generator					
Oxygen Supply, LPM	7	7	7	7	7
% O3 capacity	45	45	45	45	45
Regulator #1 psi	35	32	35	40	36
Regulator #2 psi	23	22	22	27	24
Alarm Reading ppm, O3	-	-	-	-	-
Zone On	3	1	1	3	2
Zone Time hours	2	1/2	1/2	2	1/2

Distribution Panel					
CFM	0.8	0.8	0.8	0.8	0.8
O3 Feed Conc. Ppm O3					

Comments:

Rasmussen 32504

Ozone Sparge System Inspection

DATE	Nov. 6, 2015	Nov 13, 2015	Nov. 18, 2015	Nov. 24, 2015	Dec. 2, 2015
OPERATOR SIGNATURE	L Rapai	L Rapai	L Rapai	L Rapai	L Rapai

Air Compressor					
Output Pressure psi	110	110	110	110	110
Temperature F					
Run Time hours	103504		103678	103821	

Air Sep					
Receiver Pressure psi	56	54	56	58	56
Feed Air Pressure psi	110	110	110	110	110
Cycle Pressure psi	70	70	70	70	70
Holding Tank Pressure psi	42	42	42	44	44
Run Time hours	103504.3		103677.8	103821.7	

Air Dryer					
Temp. Indicator - color	GREEN	GREEN	GREEN	GREEN	GREEN

Ozone Generator					
Oxygen Supply, LPM	7	7	7	7	7
% O3 capacity	45	45	45	45	45
Regulator #1 psi	38	36	35	35	36
Regulator #2 psi	25	22	25	24	24
Alarm Reading ppm, O3	–	–	–	–	–
Zone On	3	1	2	3	2
Zone Time hours	2	1/2	1/2	2	1/2

Distribution Panel					
CFM	0.8	0.8	0.8	0.8	0.8
O3 Feed Conc. Ppm O3					

Comments:

Rasmussen 32504

Ozone Sparge System Inspection

DATE	Dec. 11, 2015	Dec 15, 2015	Dec. 23, 2015	Dec. 31, 2015	
OPERATOR SIGNATURE	A Rapai	A Rapai	A Rapai	A Rapai	

Air Compressor					
Output Pressure psi	110	110	110	110	
Temperature F					
Run Time hours	104229	104326	104517	104709	

Air Sep					
Receiver Pressure psi	60	56	56	56	
Feed Air Pressure psi	110	110	110	110	
Cycle Pressure psi	70	70	70	70	
Holding Tank Pressure psi	42	42	44	42	
Run Time hours	104229.4	104326.2	104517.3	104709.0	

Air Dryer					
Temp. Indicator - color	Green	Green	Green	Green	

Ozone Generator					
Oxygen Supply, LPM	7	7	7	7	
% O3 capacity	45	45	45	45	
Regulator #1 psi	38	36	38	32	
Regulator #2 psi	24	26	24	22	
Alarm Reading ppm, O3	–	–	–	–	
Zone On	3	1	3	2	
Zone Time hours	2	1/2	2	1/2	

Distribution Panel					
CFM	0.8	0.8	0.8	0.8	
O3 Feed Conc. Ppm O3					

Comments:

SPARGE WELL PRESSURE READINGS
RASMUSSEN SITE
CRA PROJECT #32504

DATE:	OCTOBER 16, 23, & 30		DATE:	NOVEMBER 18 & 19		DATE:	DECEMBER 14, 15 & 16	
WELL ID	CFM @ DIST. PANEL	PSI @ WELL	WELL ID	CFM @ DIST. PANEL	PSI @ WELL	WELL ID	CFM @ DIST. PANEL	PSI @ WELL
SW-1	0.7	9	SW-1	0.8	8	SW-1	0.8	9
SW-2	0.7	8	SW-2	0.7	9	SW-2	0.7	9
SW-3	0.8	14	SW-3	0.7	14	SW-3	0.8	14
SW-4	0.8	14	SW-4	0.8	14	SW-4	0.8	14
SW-5	0.8	14	SW-5	0.8	15	SW-5	0.8	15
SW-6	0.8	15	SW-6	0.8	15	SW-6	0.7	15
SW-7	0.8	15	SW-7	0.7	14	SW-7	0.8	14
SW-8	—	—	SW-8	—	—	SW-8	—	—
SW-9	—	—	SW-9	—	—	SW-9	—	—
SW-10	—	—	SW-10	—	—	SW-10	—	—
SW-11	—	—	SW-11	—	—	SW-11	—	—
SW-12	0.7	15	SW-12	0.8	14	SW-12	0.8	14
SW-13	0.8	3	SW-13	0.7	2	SW-13	0.8	2
SW-14	—	—	SW-14	—	—	SW-14	—	—
SW-15	—	—	SW-15	—	—	SW-15	—	—
SW-16	—	—	SW-16	—	—	SW-16	—	—
SW-17	0.7	18	SW-17	0.8	18	SW-17	0.8	18
SW-18	0.8	19	SW-18	0.8	19	SW-18	0.8	19
SW-19	0.8	19	SW-19	0.8	19	SW-19	0.8	19
SW-20	0.8	18	SW-20	0.8	18	SW-20	0.8	18
SW-21	—	—	SW-21	—	—	SW-21	—	—
SW-22	0.8	13	SW-22	0.8	12	SW-22	0.8	13
SW-23	0.7	15	SW-23	0.8	14	SW-23	0.8	14
SW-24	0.8	17	SW-24	0.7	17	SW-24	0.7	16
SW-25	0.8	15	SW-25	0.8	14	SW-25	0.8	15
SW-26	0.7	5	SW-26	0.7	6	SW-26	0.8	7
SW-27	0.8	6	SW-27	0.8	6	SW-27	0.8	6
SW-28	0.8	7	SW-28	0.8	6	SW-28	0.8	7
SW-29	0.8	8	SW-29	0.8	8	SW-29	0.8	8
SW-30	—	—	SW-30	—	—	SW-30	—	—

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: 10/16/2015
Time: 2:30 PM

Weather Conditions: PART

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: EMPTY

Drainage Spillways & Outfalls: DRY

Roadways: GOOD

Vegetation: GOOD

Signs, Gates, & Fences: OK

Actions Taken:
NONE

Recommendations:
NONE

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: 10/30/15
Time: 1200

Weather Conditions: CLOUDY 53

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: DRY

Drainage Spillways & Outfalls: DRY

Roadways: OK

Vegetation: OK - GOING DORMANT

Signs, Gates, & Fences: OK

Actions Taken:
NONE

Recommendations:
NONE

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: Nov. 13, 2015
Time: 4:00 PM

Weather Conditions: DRIZZLE 45°

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: WET

Drainage Spillways & Outfalls: WET

Roadways: OK

Vegetation: DORMANT

Signs, Gates, & Fences: OK

Actions Taken:
NONE

Recommendations:
NONE

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: NOV. 24 2015
Time: 3:00PM

Weather Conditions: CLOUDY 35°

Observations

Erosion-North Face: OK - SNOW COVERED

Erosion-South Face: OK - SNOW COVERED

Erosion-East Face: OK - SNOW COVERED

Erosion-West Face: OK - SNOW COVERED

Erosion-Misc.: OK

Storm Water Ponds: DRY SNOW COVERED

Drainage Spillways & Outfalls: DRY SNOW COVERED

Roadways: OK - PLOWED

Vegetation: DORMANT - SNOW COVERED

Signs, Gates, & Fences: OK

Actions Taken:
NONE

Recommendations:
NONE

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: DECEMBER 11, 2015
Time: 3:00 PM

Weather Conditions: CLEAR 50°

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: OK - DRY

Drainage Spillways & Outfalls: OK - DRY

Roadways: OK

Vegetation: DORMANT

Signs, Gates, & Fences: OK

Actions Taken:
NONE

Recommendations:
NONE

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAZAI **Signature:** Steve Razai

Date: DEC. 23, 2015
Time: 11:00 AM

Weather Conditions: DRIZZLE 57°F

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: WET

Drainage Spillways & Outfalls: FLOWING

Roadways: WET - OK

Vegetation: DORMANT

Signs, Gates, & Fences: OK

Actions Taken:
NONE

Recommendations:
NONE

9/11/15 32504.25

SAMPLE OF 81-H (CONTINUED)

TIME	pH	COND.	TURB	D.O.	TEMP.
1350	6.62	1.22	0	0.11	11.94
1355	6.62	1.22	0	0.12	11.94

SAMPLED @ 1356 ID:GW.32504.091115.SR.1937

SAMPLES PACKED IN COOLER WITH ICE FOR DROP OFF @ TEST AMERICA, BRIGHTON, MICHIGAN

32504.25 12/2/15

TASK: 1/4LY WATERLEVELS

CRA: STEVE RAPAI

WEATHER: DRIZZLE 43° F

H&S: LEVEL D

WELL ID	LEVEL
81-4	30.66
81-5	34.95
81-7	47.23
81-8	44.22
81-9	16.59
81-10	33.33
RA-1	69.75
RA-2D	56.41
RA-2S	56.32
RA-3	53.40
RA-4	WELL HAS BEEN BURIED BY SPREADERS
RA-5	55.56
RA-6S	60.03
RA-7	33.86
RA-8	18.75
RA-16	59.00
RA-18	42.35
RA-18D	56.90
RA-19D	50.89

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WELL ID	LEVEL
RA-19S	48.32
RA-20	59.31
RA-22	54.58
RA-23D	33.81
RA-23S	34.07
RA-24	57.40
RA-25	54.83
RA-26D	50.65
RA-26S	50.55
RA-27	62.37
RA-28	55.11
RA-29	46.68
RA-30	59.08
RA-31	32.87
RA-32	35.60
RA-33	33.03
RA-34	42.48
RA-35	32.71
RA-36	37.05
RA-37	36.80
MW-22	42.94
MW-28	43.20
MW-32	35.60
MW-34C	42.46

32504-25 838 12/2/15

WELL ID	LEVEL
MW-35	24.90
MW-41	47.48
MW-42	63.50
MW-47	53.72
MW-54	55.41
MW-55	37.63
MW-56	33.89
MW-58	21.92
EB-PZ-2	41.04
EB-PZ-4	54.11
EB-PZ-5	55.82
EB-PZ-6	55.57
PZ-103	57.78
PZ-104	55.61
PZ-105	52.49
PZ-106	40.00
TEMP-PZ-2	53.78

TASK: BEGIN 4TH QUARTER SAMPLE EVENT
GHD: STEVE RAPAI
WEATHER: FOG, DRIZZLE, 38° - HIGH 46°
H&S: LEVEL D
CALIBRATION OF HORIBA (U-22)
NF 07597.
pH=4.00, COND.=4.49, TURB=0, D.O.=10.16, TEMP=15.69

SAMPLE OF CRA-RA-2D

TIME	pH	COND.	TURB.	D.O.	TEMP.
1015	6.68	2.15	20	3.56	12.83
1025	7.29	1.93	0	0.51	11.79
1035	7.47	1.93	0	0.15	11.82
1040	7.50	1.93	0	0.13	11.82
1045	7.54	1.93	0	0.16	11.79
1050	7.56	1.93	0	0.14	11.82
1055	7.56	1.93	0	0.15	11.82
1100	7.56	1.93	0	0.14	11.81

SAMPLED @ 1101 ID: GW-32504-120815-SR-1938

SAMPLE OF CRA-RA-28

1115	7.59	0.92	4	2.25	11.84
1125	7.54	0.97	6	0.36	11.82

CONTINUED ON NEXT PAGE

SAMPLE OF CRA-RA-28 (CONTINUED)

TIME	pH	COND.	TURB.	D.O.	TEMP.
1135	7.55	0.98	4	0.20	11.82
1140	7.55	0.98	4	0.18	11.80
1150	7.57	0.99	3	0.17	11.79
1155	7.57	0.99	3	0.18	11.79

SAMPLED @ 1156 ID: GW-32504-120815-SR-1939

SAMPLE OF PZ-104

1210	7.90	1.28	55	6.00	11.69
1230	7.58	1.36	0	0.21	11.75
1235	7.59	1.36	0	0.16	11.75
1240	7.59	1.37	0	0.20	11.75
1245	7.59	1.37	0	0.18	11.74
1250	7.59	1.37	0	0.18	11.74

SAMPLED @ 1251 ID: GW-32504-120815-SR-1940

SAMPLE OF CRA-RA-24

1305	7.80	1.12	0	4.81	11.83
1315	7.58	1.13	0	0.49	11.85
1325	7.58	1.13	0	0.15	11.82
1330	7.58	1.13	0	0.19	11.86
1335	7.59	1.13	0	0.16	11.85
1340	7.59	1.13	0	0.17	11.85

SAMPLED @ 1341 ID: GW-32504-120815-SR-1941

SAMPLE OF CRA-RA-30

TIME	pH	COND	TURB.	D.O.	TEMP.
1405	7.72	1.06	21	2.55	11.71
1415	7.67	1.10	3	0.76	11.76
1425	7.68	1.11	0	0.24	11.74
1430	7.69	1.11	0	0.21	11.72
1435	7.70	1.11	0	0.19	11.73
1440	7.70	1.11	0	0.18	11.72

SAMPLED @ 1441 ID:GW-32504-120815-SR-1942

SAMPLE OF CRA-RA-32

1455	8.09	0.965	0	5.79	11.68
1515	7.71	0.982	0	0.28	11.58
1520	7.71	0.983	0	0.18	11.57
1525	7.72	0.983	0	0.14	11.56
1530	7.72	0.983	0	0.14	11.56
1535	7.72	0.983	0	0.15	11.56

SAMPLED @ 1536 ID:GW-32504-120815-SR-1943

SAMPLE OF CRA-RA-22

1545	7.73	1.22	0	1.33	11.65
1555	7.59	1.19	0	0.14	11.71
1605	7.61	1.18	0	0.13	11.68
1610	7.60	1.17	0	0.18	11.68

CONTINUED ON NEXT PAGE

SAMPLE OF CRA-RA-22 (CONTINUED)

TIME	pH	COND.	TURB	D.O.	TEMP.
1615	7.60	1.17	0	0.17	11.65
1620	7.60	1.17	0	0.15	11.65

SAMPLED @ 1621 ID:GW-32504-120815-SR-1944

SAMPLE OF TEMP-PZ-2

1630	7.62	1.79	0	0.51	11.68
1640	7.57	1.95	3	0.14	11.57
1650	7.57	2.05	0	0.11	11.59
1655	7.57	2.03	0	0.13	11.57
1700	7.57	2.06	0	0.14	11.58
1705	7.57	2.04	0	0.15	11.57
1710	7.57	2.05	0	0.14	11.57
1715	7.57	2.05	0	0.14	11.58

SAMPLED @ 1716 ID:GW-32504-120815-SR-1945

SAMPLES PACKED IN COOLER WITH ICE.

SR

12/9/15 32504-25

TASK: CONTINUE 1/4 SAMPLE EVENT
CRA: STEVE RAPAI
WEATHER: CLOUDY 38°, CHANCE OF RAIN, HIGH 51°
H&S: LEVEL D
CALIBRATION OF RENTAL HORIBA (U-22)
NF 07597.
pH = 4.00, COND. = 4.49, TURB. = 0, D.O. = 8.16,
TEMP. = 23.62

SAMPLE OF CRA-RA-29

TIME	pH	COND	TURB.	D.O.	TEMP.
0930	6.38	1.31	40	12.06	12.56
0950	7.14	1.02	8	15.79	11.78
1000	7.35	1.01	4	16.77	11.68
1005	7.39	1.02	5	16.72	11.66
1010	7.42	1.03	4	16.70	11.61
1015	7.45	1.04	4	16.77	11.67
1020	7.48	1.05	4	16.74	11.59
1025	7.48	1.05	4	16.77	11.57
1030	7.48	1.05	4	16.76	11.58

SAMPLED @ 1031 ID: GW-32504-120915-SR-1946

SAMPLE OF 81-8

1045	7.90	0.664	4	12.79	11.51
1055	8.13	0.903	3	+19.99	11.49

CONTINUED ON NEXT PAGE

12/9/15 32504-25

SAMPLE OF 81-8

TIME	pH	COND	TURB.	D.O.	TEMP.
1105	8.23	0.897	2	+19.99	11.52
1110	8.26	0.891	4	+19.99	11.51
1115	8.26	0.891	2	+19.99	11.51
1120	8.27	0.891	2	+19.99	11.50
1125	8.27	0.890	2	+19.99	11.50

SAMPLED @ 1126 ID: GW-32504-120915-SR-1947
SAMPLED @ 1135 ID: GW-32504-120915-SR-1948

SAMPLE OF CRA-RA-31

1235	8.51	0.645	3	3.91	11.34
1245	8.04	0.647	3	2.01	11.30
1255	7.95	0.649	3	1.67	11.29
1300	7.94	0.649	1	1.62	11.27
1305	7.93	0.649	3	1.58	11.27
1310	7.93	0.650	3	1.59	11.26
1315	7.93	0.650	3	1.58	11.27

SAMPLED @ 1316 ID: GW-32504-120915-SR-1949

SAMPLE OF CRA-RA-7

1330	8.31	0.400	4	6.08	11.20
1340	8.28	0.396	5	6.07	11.14
1350	8.29	0.396	4	5.95	11.15

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SAMPLE OF CRA-RA-7 (CONTINUED)

TIME	pH	COND.	TURB.	D.O.	TEMP.
1355	8.31	0.397	3	5.94	11.14
1400	8.31	0.397	3	5.92	11.15
1405	8.31	0.397	3	5.93	11.14

SAMPLED @ 1406 ID: GW-32504-120915-SR-1950

SAMPLE OF CRA-RA-5

1420	7.69	1.46	1	4.00	11.59
1430	7.47	1.42	2	0.26	11.51
1440	7.46	1.40	2	0.15	11.51
1445	7.46	1.40	2	0.14	11.50
1450	7.46	1.40	2	0.16	11.49
1455	7.46	1.40	2	0.15	11.50

SAMPLED @ 1456 ID: GW-32504-120915-SR-1951

SAMPLE OF CRA-RA-6S

1505	7.74	1.22	1	7.84	11.99
1515	7.28	1.23	1	0.24	12.20
1525	7.28	1.22	0	0.14	12.17
1530	7.28	1.22	1	0.13	12.15
1535	7.28	1.22	0	0.13	12.15
1540	7.28	1.22	0	0.14	12.15

SAMPLED @ 1541 ID: GW-32504-120915-SR-1952

SAMPLES PACKED IN COOLER WITH ICE FOR DELIVERY TO TEST AMERICA, BRIGHTON, MICHIGAN.

TASK: CONTINUE 1/4 LY SAMPLE EVENT.
GHD: STEVE RAPAI
WEATHER: SUN 44°, HIGH 54°
H&S: LEVEL D
CALIBRATION OF RENTAL HORIBA (U-22)
NF 07597
pH = 4.01, COND = 4.50, TURB = 0, D.O. = 8.25
TEMP = 24.65

SAMPLE OF RA-MW-28

TIME	pH	COND.	TURB.	D.O.	TEMP.
1145	6.57	0.881	53	2.56	11.63
1155	7.28	0.849	0	2.52	11.26
1205	7.42	0.850	8	2.56	11.22
1210	7.45	0.850	5	2.57	11.22
1215	7.50	0.847	3	2.58	11.21
1220	7.51	0.847	3	2.59	11.19
1225	7.52	0.848	2	2.59	11.19
1230	7.51	0.848	3	2.59	11.19

SAMPLED @ 1231 ID: GW-32504-121115-SR-1953

SAMPLE OF CRA-RA-18

1245	7.40	1.76	9	6.01	11.19
1255	7.33	1.77	5	4.99	11.15

CONTINUED ON NEXT PAGE

12/11/15 32504-25

SAMPLE OF CRA-RA-18

TIME	pH	COND	TURB	D.O.	TEMP.
1305	7.35	1.78	5	4.93	11.14
1310	7.36	1.78	5	4.91	11.16
1315	7.37	1.78	4	4.90	11.17
1320	7.37	1.78	4	4.90	11.16

SAMPLED @ 1321 ID: GW-32504-121115-SR-1954

SAMPLE OF CRA-RA-27

1335	7.45	1.90	5	1.96	12.07
1345	7.35	1.94	4	0.12	12.02
1355	7.35	1.94	0	0.15	12.01
1400	7.36	1.94	3	0.14	11.98
1405	7.36	1.95	1	0.12	11.97
1410	7.36	1.95	2	0.14	11.97
1415	7.36	1.95	1	0.14	11.97

SAMPLED @ 1416 ID: GW-32504-121115-SR-1955

SAMPLES PACKED IN COOLER WITH ICE.

SR

32504-25 12/14/15

TASK: COMPLETE 1/4LY SAMPLE EVENT

GHD: STEVE RAPAI

WEATHER: RAIN & WIND 61°F

H&S: LEVEL D

CALIBRATION OF RENTAL HORIBA (U-22)

NF07597

pH = 4.01, COND = 4.49, TURB = 0, D.O. = 8.00, TEMP. = 25.99

SAMPLING DELAYED BECAUSE OF STRONG SQUALL LINE APPROACHING SITE WITH HEAVY RAIN AND +50 MPH WIND GUSTS.

SAMPLE OF CRA-RA-26S

TIME	pH	COND	TURB.	D.O.	TEMP
1130	5.87	1.26	47	10.47	13.01
1150	7.18	1.23	4	5.53	11.60
1155	7.20	1.23	3	5.56	11.59
1200	7.23	1.24	3	5.38	11.56
1210	7.26	1.24	3	5.32	11.54
1215	7.27	1.26	3	5.33	11.55
1220	7.27	1.26	3	5.32	11.54

SAMPLED @ 1221 ID: GW-32504-121415-SR-1956

12/14/15 32504-25

SAMPLE OF CRA-RA-26D

TIME	pH	COND.	TURB	DO.	TEMP.
1230	7.41	1.54	7	7.99	11.80
1250	7.35	1.56	5	0.32	11.67
1255	7.36	1.56	3	0.28	11.66
1300	7.37	1.56	2	0.25	11.66
1305	7.38	1.56	2	0.25	11.65
1310	7.37	1.56	2	0.25	11.65

SAMPLED @ 1311 ID: GW-32504-121415-SR-1957

SAMPLE OF CRA-RA-23D MS/MSD

1330	8.13	0.677	0	9.29	11.33

TOOK SHELTER IN MY TRUCK WHILE ANOTHER STRONG SQUALL LINE PASSED OVER THE SITE. WELL CONTINUES TO PURGE

1415	7.60	0.669	4	0.21	10.86
1420	7.61	0.669	4	0.18	10.85
1425	7.61	0.669	4	0.20	10.85

SAMPLED @ 1426 ID: GW-32504-121415-SR-1958

SAMPLE OF 81-4

1455	7.64	1.23	16	3.51	11.89
1515	7.50	1.28	5	0.37	11.89
1520	7.46	1.31	4	0.21	11.86

CONTINUED ON NEXT PAGE

32504-25 12/14/15

SAMPLE OF 81-4 (CONTINUED)

TIME	pH	COND.	TURB.	D.O.	TEMP.
1525	7.45	1.31	3	0.15	11.85
1530	7.44	1.31	4	0.13	11.85
1535	7.44	1.31	4	0.15	11.86

SAMPLED @ 1536 ID: GW-32504-121415-SR-1959

SAMPLED @ 1545 ID: GW-32504-121415-SR-1960

SAMPLES PACKED IN COOLER WITH ICE FOR FEDEX DELIVERY TO TEST AMERICA.

SR

April 11, 2016

Reference No. 032504-15

Mr. Howard Caine
United States Environmental Protection Agency
Region V (SR-6J)
77 W. Jackson Boulevard
Chicago, Illinois
60604

Dear Mr. Caine:

Re: Progress Report No. 134
Groundwater and Landfill RD/RA
Reporting Period: January 1 through March 31, 2016
Rasmussen Landfill (Site), Livingston Co., Michigan

1. Introduction

This Progress Report is submitted in accordance with Paragraph 26 of the Consent Decree, Civil Action No. 92 40071. This report summarizes the activities performed during the reporting period and describes the activities to continue or which are scheduled to start during the next reporting period.

2. Activities Performed During this Reporting Period

2.1 Operation and Maintenance

The quarterly round of groundwater elevations were measured on March 9, 2016. The corresponding groundwater contour map is provided on Figure 1.

GHD[1] collected quarterly groundwater samples on March 8, 10, 11, 14, 15 and 16, 2016, consistent with the Groundwater Remediation Monitoring Program. The results from these samples are discussed below.

2.2 Reports

Quarterly Progress Report No. 133 was submitted to USEPA and Michigan Department of Environmental Quality (MDEQ) on January 8, 2016.

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1 On July 1, 2015 Conestoga Rovers & Assc. became GHD. For convenience, the wording in this report reflects the new name.

3. Summary of Findings

First Quarter 2016 Routine Groundwater Quality Monitoring

The results of the first quarter 2016 sampling are provided in Tables 1 through 4. Figure 2 is a Site location map showing the wells included in the quarterly Groundwater Remediation Monitoring Program and the annual Landfill Monitoring Program.

During the first quarter 2016 sampling, six of the 27 monitoring wells sampled had Compounds of Concern (COCs) at concentrations above Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria (RDWCC).

Specifically, the six monitoring wells with COCs exceeding RDWCC are:

CRA-RA-22	4.7/4.7 µg/L vinyl chloride (duplicate sample)
CRA-RA-24	6.0 µg/L vinyl chloride
CRA-RA-26S	81 µg/L trichloroethene
CRA-RA-27	10/10 µg/L vinyl chloride (duplicate sample)
CRA-RA-30	3.8 µg/L vinyl chloride
CRA-RA-33	3.1 µg/L vinyl chloride

These were the same six monitoring wells that had COCs above RDWCC during the fourth quarter 2015 sampling event. The vinyl chloride detected in the sample from monitoring well 81-4 during the first quarter of 2016 was 1.8 µg/L, down from 2.2 µg/L in the fourth quarter 2015 and less than the RDWCC of 2 µg/L.

4. Problems Encountered

In mid-March, the ozone supply lines in six vaults were found to be leaking. Three of the vaults were in the northern zone and three of the vaults were in the southern zone. The leaks are thought to originate from frost heave that causes the vault to move and separate fittings inside the vaults.

5. Corrective Measures to Rectify Problems

The HDPE carrier pipers were repaired as soon as they were discovered.

6. Contacts and Significant Correspondence with Public Representatives

Communication	Date	Subject of Correspondence/Discussion
Quarterly Report	January 8, 2016	Report No. 133 submitted to Mr. H. Caine (USEPA) and Mr. K. Krawczyk (MDEQ).

7. Planned Upcoming Activities/Schedule

Activities planned for the second quarter of 2016 include:

- Continue the operation of ozone sparging system
- Continue to monitor for the presence of ozone at each sparge vault
- The second quarter groundwater sampling event is scheduled for the week of June 6, 2016
- The wells to be sampled in the second quarter of 2016 are listed in Table 5
- Respond to USEPA and MDEQ comments on the draft "2015 Groundwater Investigation" report
- Submit revised "2015 Groundwater Investigation Report"

Should you have any questions on the above, please do not hesitate to contact the undersigned.

Yours truly,

GHD

For Steven Rapain

Bart Bartholomy

AJD/cb/45

Encl.

cc: Mike Stoelton, JCI
Chuck Pinter, Ford
Karyllan Dodson Mack, BASF
Michael Simpson
Steven Nadeau, Honigman

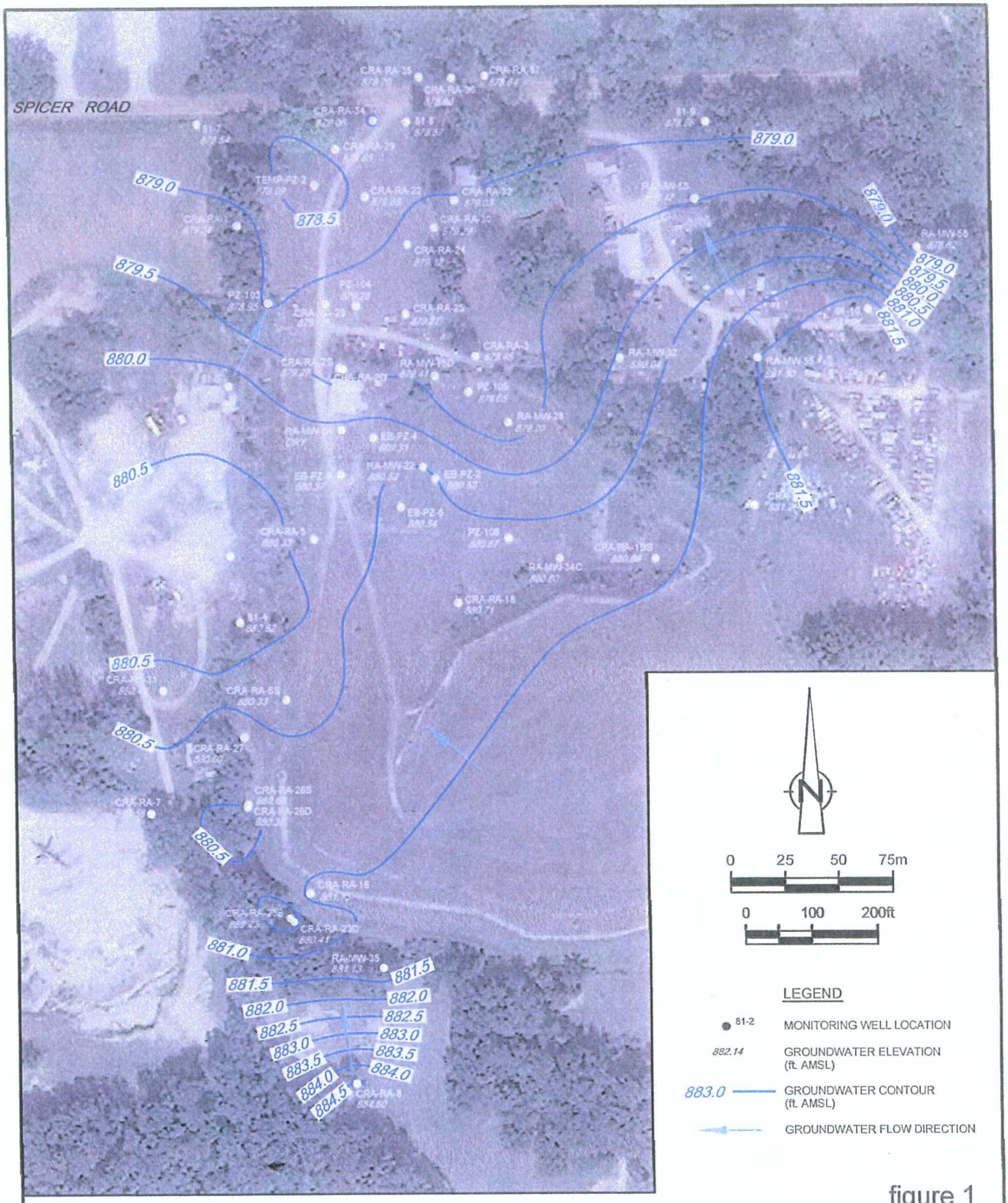

figure 1

GROUNDWATER ELEVATION CONTOURS (UPPER AQUIFER)
MARCH 2016
RASMUSSEN LANDFILL SITE
Livingston County, Michigan

32504-15(CAIN045)GN-WA002 MAR 29, 2016

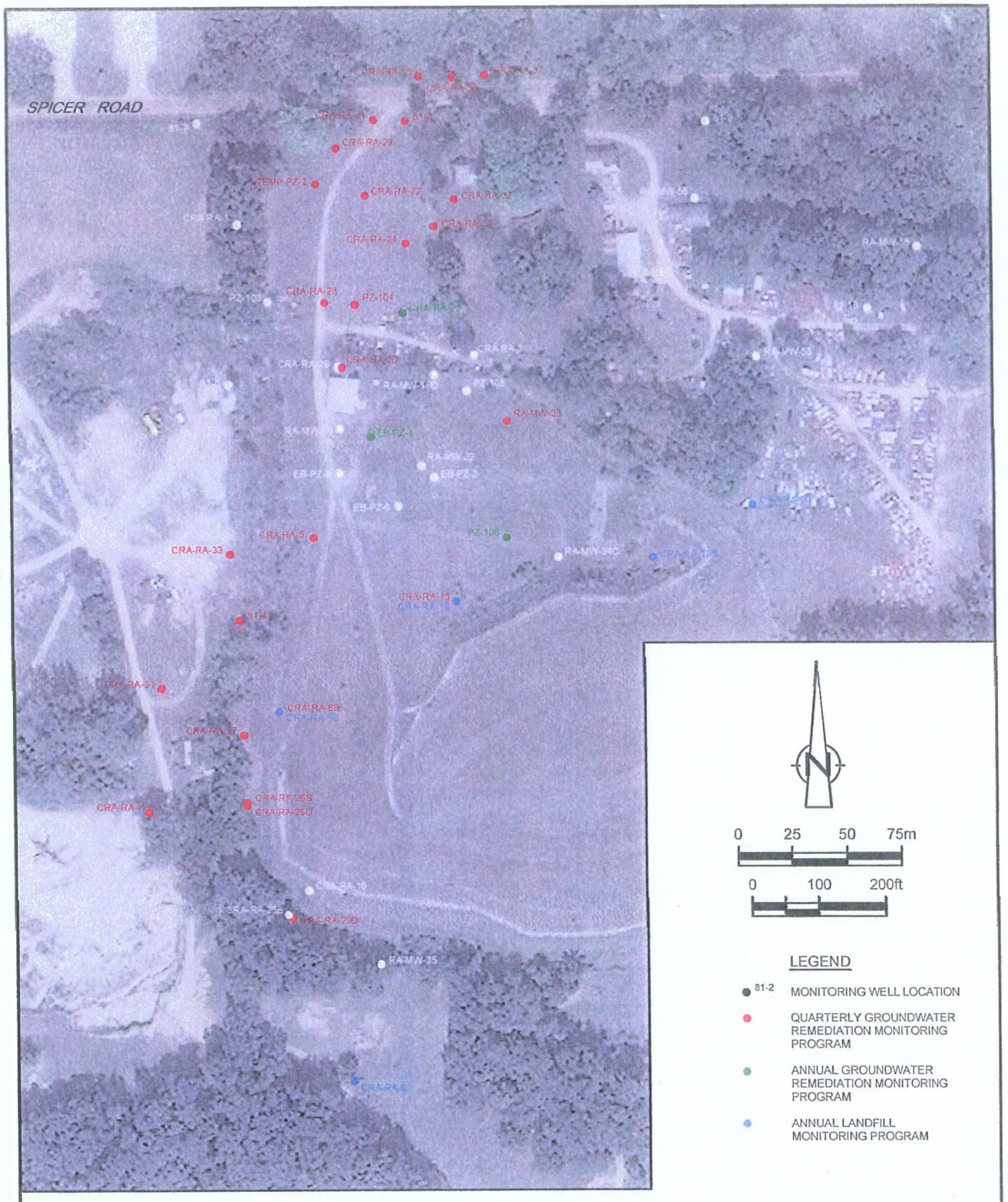

figure 2

2016 GROUNDWATER MONITORING PROGRAMS
RASMUSSEN LANDFILL SITE
Livingston County, Michigan

32504-15(CAIN045)GN-WA001 MAR 29, 2016

Table 1

Analytical Results - Northern Plumes
Rasmussen Landfill Site
Livingston County, Michigan

Sample Location	Sample ID	Date Sampled	Parameter	1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE (TOTAL)	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZENE	ETHYLBENZENE	METHYLENE CHLORIDE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)
			Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			RDWCC (1)	200	70 (2)	13,000	1,800	730	5	100	74	5	790	5	2	280
CRA-RA-22	GW-SR-1896	6/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	4.0	ND(1.0)
CRA-RA-22	GW-SR-1925	9/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.4	ND(1.0)
CRA-RA-22	GW-SR-1944	12/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	4.0	ND(1.0)
CRA-RA-22	GW-SR-1967	3/11/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	4.7	ND(1.0)
CRA-RA-22	GW-SR-1968	3/11/2016	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	4.7	ND(1.0)
			Change												Up 0.7 µg/L	
CRA-RA-24	GW-SR-1894	6/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	5.1	ND(1.0)
CRA-RA-24	GW-SR-1922	9/2/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	5.1	ND(1.0)
CRA-RA-24	GW-SR-1941	12/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	4.8	ND(1.0)
CRA-RA-24	GW-SR-1964	3/10/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	4.4	ND(1.0)
			Change												Down 0.8 µg/L	
CRA-RA-25	GW-SR-1716	7/21/2013		ND(1)	1.0	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
CRA-RA-25	GW-SR-1717	7/21/2013	Duplicate	ND(1)	1.0	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
CRA-RA-25	GW-SR-1826	9/2/2014		ND(1.0)	1.1	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.1	ND(1.0)
CRA-RA-25	GW-SR-1851	3/2/2015		ND(1.0)	1.1	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change		Stable										Down 0.1 µg/L	
CRA-RA-28	GW-SR-1897	6/17/2015		ND(1.0)	2.9	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-28	GW-SR-1918	9/2/2015		ND(1.0)	3.0	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.7	ND(1.0)
CRA-RA-28	GW-SR-1919	9/2/2015	Duplicate	ND(1.0)	2.7	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-28	GW-SR-1939	12/8/2015		ND(1.0)	2.8	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-28	GW-SR-1962	3/10/2016		ND(1.0)	2.7	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change		Down 0.2 ug/L											
CRA-RA-29	GW-SR-1898	6/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-29	GW-SR-1926	9/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-29	GW-SR-1948	12/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-29	GW-SR-1970	3/11/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable; all Non-Detect						
CRA-RA-30	GW-SR-1895	6/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.1	ND(1.0)
CRA-RA-30	GW-SR-1923	9/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.7	ND(1.0)
CRA-RA-30	GW-SR-1942	12/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.6	ND(1.0)
CRA-RA-30	GW-SR-1965	3/10/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.5	ND(1.0)
			Change												Stable	
CRA-RA-32	GW-SR-1817	9/12/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-32	GW-SR-1929	9/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-32	GW-SR-1943	12/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-32	GW-SR-1966	3/11/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable; all Non-Detect						
CRA-RA-34	GW-DT-003	9/1/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-34	GW-DT-003	11/25/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-34	GW-DT-003	3/8/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable; all Non-Detect						
CRA-RA-35	GW-DT-001	7/29/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.8	ND(1.0)
CRA-RA-35	GW-DT-002	7/29/2015	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.8	ND(1.0)
CRA-RA-35	GW-DT-005	9/2/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.7	ND(1.0)
CRA-RA-35	GW-DT-006	9/2/2015	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.6	ND(1.0)
CRA-RA-35	GW-DT-003	11/25/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.8	ND(1.0)
CRA-RA-35	GW-DT-004	11/25/2015	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.7	ND(1.0)
CRA-RA-35	GW-DT-005	3/8/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.9	ND(1.0)
CRA-RA-35	GW-DT-006	3/8/2016	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.9	ND(1.0)
			Change												Up 0.1 µg/L	
CRA-RA-36	GW-DT-002	9/1/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-36	GW-DT-002	11/25/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-36	GW-DT-002	3/8/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable; all Non-Detect						
CRA-RA-37	GW-DT-001	6/23/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-37	GW-DT-001	9/1/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-37	GW-DT-001	11/25/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-37	GW-DT-001	3/8/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable; all Non-Detect						
PZ-104	GW-SR-1893	6/18/2015		ND(1.0)	3.2	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-104	GW-SR-1920	9/9/2015		ND(1.0)	3.1	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-104	GW-SR-1940	12/8/2015		ND(1.0)	3.3	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.1	ND(1.0)
PZ-104	GW-SR-1963	3/10/2016		ND(1.0)	3.3	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change		Down 0.1 µg/L										Down 0.1 µg/L	
TEMP-PZ-2	GW-SR-1887	6/18/2015		ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
TEMP-PZ-2	GW-SR-1927	9/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
TEMP-PZ-2	GW-SR-1945	12/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
TEMP-PZ-2	GW-SR-1969	3/11/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable; all Non-Detect						
S1-8	GW-SR-1899	6/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	3.2	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
S1-8	GW-SR-1928	9/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.1)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
S1-8	GW-SR-1947	12/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
S1-8	GW-SR-1946	12/8/2015	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
S1-8	GW-SR-1971	3/11/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable; all Non-Detect						

Notes:

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria.

(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/L.

Table 2

Analytical Results - PDSLD Area Plumes
Rasmussen Landfill Site
Livingston County, Michigan

Sample Location	Sample ID	Date Sampled	Parameter	1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE (TOTAL)	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZENE	ETHYLBENZENE	METHYLENE CHLORIDE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)
			Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			RDWCC(1)	200	70 (2)	13,000	1,800	730	5	100	74	5	700	5	2	280
CRA-RA-2D	GW-SR-1885	6/17/2015		ND(2.0)	ND(2.0)	ND(20)	ND(20)	ND(20)	ND(2.0)	67	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)
CRA-RA-2D	GW-SR-1909	9/1/2015		ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	65	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)
CRA-RA-2D	GW-SR-1938	12/8/2015		ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	70	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)
CRA-RA-2D	GW-SR-1961	3/10/2016		ND(2.9)	ND(2.9)	ND(29)	ND(29)	ND(29)	ND(2.9)	78	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)
			Change							Up 8 µg/L						
CRA-RA-18	GW-SR-1888	6/17/2015		65	ND(2.9)	ND(29)	ND(29)	ND(29)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)
CRA-RA-18	GW-SR-1889	6/17/2015	*Duplicate*	65	ND(2.9)	ND(29)	ND(29)	ND(29)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)
CRA-RA-18	GW-SR-1915	9/1/2015		67	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)
CRA-RA-18	GW-SR-1954	12/11/2015		67	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
CRA-RA-18	GW-SR-1972	3/14/2016		82	ND(4.0)	ND(40)	ND(40)	ND(40)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)
			Change	Up 15 µg/L												
EB-PZ-4	GW-SR-1630	9/10/2012		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1)	39	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.3	ND(1.0)
EB-PZ-4	GW-SR-1657	12/4/2012		ND(2.0)	ND(2.0)	ND(20)	ND(20)	ND(20)	ND(2.0)	39	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	4.0	ND(2.0)
EB-PZ-4	GW-SR-1729	6/27/2013		ND(1.4)	ND(1.4)	ND(14)	ND(14)	ND(14)	ND(1.4)	41	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)	2.2	ND(1.4)
EB-PZ-4	GW-SR-1827	9/2/2014		ND(1.4)	ND(1.4)	ND(14)	ND(14)	ND(14)	ND(1.4)	43	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)
EB-PZ-4	GW-SR-1911	9/1/2015		ND(1.8)	ND(1.8)	ND(10)	ND(10)	ND(10)	ND(1.8)	46	ND(1.8)	ND(1.8)	ND(1.8)	ND(1.8)	ND(1.8)	ND(1.8)
			Change							Up 3 µg/L						
PZ-108	GW-SR-1640	9/12/2012		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-108	GW-SR-1731	6/27/2013		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-108	GW-SR-1732	6/27/2013	*Duplicate*	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-108	GW-SR-1828	9/2/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-108	GW-SR-1912	9/1/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable; all Non-Detect						
RA-MW-28	GW-SR-1890	6/17/2015		7.9	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
RA-MW-28	GW-SR-1914	9/1/2015		9.0	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
RA-MW-28	GW-SR-1953	12/11/2015		8.8	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
RA-MW-28	GW-SR-1973	3/14/2016		8.2	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change	Down 0.6 µg/L												

Notes:

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria.
(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/l

Table 3

Analytical Results - Southern Vinyl Chloride Plume
Rasmussen Landfill Site
Livingston County, Michigan

Sample Location	Sample ID	Date Sampled	Parameter	1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE (TOTAL)	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZENE	ETHYLBENZENE	METHYLENE CHLORIDE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)
			Units RDWCC(1)	µg/L 200	µg/L 70 (2)	µg/L 13,000	µg/L 1,600	µg/L 730	µg/L 5	µg/L 100	µg/L 74	µg/L 5	µg/L 790	µg/L 5	µg/L 2	µg/L 280
CRA-RA-5	GW-SR-1888	6/17/2015		18	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-5	GW-SR-1910	9/1/2015		20	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-5	GW-SR-1951	12/9/2015		19	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-5	GW-SR-1974	3/14/2016		18	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change	Down 1 µg/L												
CRA-RA-6S	GW-SR-1891	6/18/2015		1.9	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-6S	GW-SR-1916	9/2/2015		2.1	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-6S	GW-SR-1952	12/9/2015		1.7	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-6S	GW-SR-1975	3/14/2016		2.0	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change	Up 0.3 µg/L												
CRA-RA-7	GW-SR-1901	6/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-7	GW-SR-1931	9/10/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-7	GW-SR-1950	12/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-7	GW-SR-1979	3/15/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable; all Non-Detect							
CRA-RA-27	GW-SR-1892	6/18/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	8.4	ND(1.0)
CRA-RA-27	GW-SR-1917	9/2/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	10	ND(1.0)
CRA-RA-27	GW-SR-1955	12/11/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	11	ND(1.0)
CRA-RA-27	GW-SR-1976	3/14/2016		ND(1.0)	1.1	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	10	ND(1.0)
CRA-RA-27	GW-SR-1977	3/14/2016	*Duplicate*	ND(1.0)	1.0	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	10	ND(1.0)
			Change		Up 0.1 µg/L										Down 1 µg/L	
CRA-RA-31	GW-SR-1900	6/19/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-31	GW-SR-1930	9/10/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.6)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-31	GW-SR-1949	12/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-31	GW-SR-1978	3/15/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable; all Non-Detect							
CRA-RA-33	GW-DT-002	6/23/2015	*Duplicate*	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	2.7	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.6	ND(1.0)
CRA-RA-33	GW-DT-004	9/2/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	2.4	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.4	ND(1.0)
CRA-RA-33	GW-DT-008	11/25/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	1.8	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.6	ND(1.0)
CRA-RA-33	GW-DT-004	3/8/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	1.9	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.1	ND(1.0)
									Up 0.1 µg/L						Up 0.3 µg/L	
61-4	GW-SR-1904	6/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.0	ND(1.0)
61-4	GW-SR-1937	9/11/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.8	ND(1.0)
61-4	GW-SR-1959	12/14/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.3	ND(1.0)
61-4	GW-SR-1960	12/14/2015	*Duplicate*	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.2	ND(1.0)
61-4	GW-SR-1983	3/16/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.6	ND(1.0)
			Change												Down 0.4 µg/L	

Notes:

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria.
(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/L.

Table 4

Analytical Results - Southern TCE Plume
Rasmussen Landfill Site
Livingston County, Michigan

				Volatile Organics												
			Parameter	1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE (TOTAL)	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZENE	ETHYLBENZENE	METHYLENE CHLORIDE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)
			Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Location	*Sample ID*	Date Sampled	RDWCC(1)	200	70 (2)	13,000	1,600	730	5	100	74	5	790	5	2	280
CRA-RA-23D	GW-SR-1908	6/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	4.1	ND(1.0)	ND(1.0)
CRA-RA-23D	GW-SR-1838	9/11/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.4	ND(1.0)	ND(1.0)
CRA-RA-23D	GW-SR-1661	12/14/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3	ND(1.0)	ND(1.0)
CRA-RA-23D	GW-SR-1982	3/16/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.6	ND(1.0)	ND(1.0)
			Change											*Down 0.4 µg/L*		
CRA-RA-20D	GW-SR-1907	6/20/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-20D	GW-SR-1934	9/10/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-20D	GW-SR-1957	12/14/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-20D	GW-SR-1981	3/15/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable; all Non-Detect						
CRA-RA-20S	GW-SR-1905	6/20/2015		ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	92	ND(2.5)	ND(2.5)
CRA-RA-20S	GW-SR-1906	6/20/2015	*Duplicate*	ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	90	ND(2.5)	ND(2.5)
CRA-RA-20S	GW-SR-1835	9/10/2015		ND(3.3)	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	70	ND(3.3)	ND(3.3)
CRA-RA-20S	GW-SR-1956	12/14/2015		ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	78	ND(2.5)	ND(2.5)
CRA-RA-20S	GW-SR-1980	3/16/2016		ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	81	ND(2.5)	ND(2.5)
			Change											Up 3 µg/L		

Notes:

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria.
(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/L.

Table 5

2016 Groundwater Sampling Program
Rasmussen Landfill Site
Livingston County, Michigan

Quarterly Sampling - VOCs	Annual Landfill Monitoring Program - VOCs, SVOCs & Metals (2nd Quarter)	Additional Annual Samples - VOCs (3rd Quarter)
81-4	CRA-RA-6S (included in quarterly sampling)	CRA-RA-25
81-8	CRA-RA-8	EB-PZ-4
CRA-RA-2D	CRA-RA-18 (included in quarterly sampling)	PZ-106
CRA-RA-5	CRA-RA-19S	RA-MW-47
CRA-RA-6S	CRA-RA-20	Rasmussen Water Supply Well
CRA-RA-7		
CRA-RA-18		
CRA-RA-22		
CRA-RA-23D		
CRA-RA-24		
CRA-RA-26D		
CRA-RA-26S		
CRA-RA-27		
CRA-RA-28		
CRA-RA-29		
CRA-RA-30		
CRA-RA-31		
CRA-RA-32		
CRA-RA-33		
CRA-RA-34		
CRA-RA-35		
CRA-RA-36		
CRA-RA-37		
PZ-104		
RA-MW-28		
TEMP-PZ-2		

Rasmussen 32504

Ozone Sparge System Inspection

DATE	JAN. 8, 2016	JAN 13, 2016	JAN 21 2016	JAN 26, 2016	FEB. 3 2016
OPERATOR SIGNATURE	A Rapai	A Rapai	A Rapai	A Rapai	A Rapai

Air Compressor					
Output Pressure psi	110	110	110	110	110
Temperature F	–	–	–	–	–
Run Time hours	104900	105021	105214	105332	105524

Air Sep					
Receiver Pressure psi	54	54	54	54	56
Feed Air Pressure psi	110	110	110	110	110
Cycle Pressure psi	70	70	70	70	70
Holding Tank Pressure psi	42	42	42	42	42
Run Time hours	104899.6	105021.1	105214	105331.6	105523.5

Air Dryer					
Temp. Indicator - color	GREEN	GREEN	GREEN	GREEN	GREEN

Ozone Generator					
Oxygen Supply, LPM	7	7	7	7	7
% O3 capacity	45	~~39~~ 45	45	45	45
Regulator #1 psi	40	39	38	38	38
Regulator #2 psi	24	24	24	24	24
Alarm Reading ppm, O3	–	–	–	–	–
Zone On	3	3	3	1	1
Zone Time hours	2	2	2	1/2	1/2

Distribution Panel					
CFM	0.8	0.8	0.8	0.8	0.8
O3 Feed Conc. Ppm O3					

Comments:

Rasmussen 32504

Ozone Sparge System Inspection

DATE	Feb. 9 2016	Feb 16, 2016	Feb 24 2016	March 2, 2016	March 9, 2016
OPERATOR SIGNATURE	A Rapai	A Rapai	A Rapai	A Rapai	A Rapai

Air Compressor					
Output Pressure psi	110	110	110	110	110
Temperature F	-	-	-	-	-
Run Time hours	105700	105836	106028	106196	106364

Air Sep					
Receiver Pressure psi	54	54	56	54	54
Feed Air Pressure psi	110	110	110	110	110
Cycle Pressure psi	70	70	70	70	70
Holding Tank Pressure psi	42	42	42	42	42
Run Time hours	105699.5	105835.7	106028.1	106196.3	106363.8

Air Dryer					
Temp. Indicator - color	GREEN	GREEN	GREEN	GREEN	GREEN

Ozone Generator					
Oxygen Supply, LPM	7	7	7	7	7
% O3 capacity	45	45	~~38~~ 45	45	45
Regulator #1 psi	34	40	~~24~~ 38	40	38
Regulator #2 psi	24	25	24	26	22
Alarm Reading ppm, O3	-	-	-	-	-
Zone On	3	1	2	1	2
Zone Time hours	2	1/2	1/2	1/2	1/2

Distribution Panel					
CFM	0.8	0.8	0.8	0.8	0.8
O3 Feed Conc. Ppm O3					

Comments:

Rasmussen 32504

Ozone Sparge System Inspection

DATE	MARCH 17, 2016	MARCH 25 2016			
OPERATOR SIGNATURE	A Rapp	A Rapp			

Air Compressor					
Output Pressure psi	110	110			
Temperature F	-	-			
Run Time hours	106557	106744.4			

Air Sep					
Receiver Pressure psi	52	54			
Feed Air Pressure psi	110	110			
Cycle Pressure psi	70	70			
Holding Tank Pressure psi	42	42			
Run Time hours	106557.1	106744.4			

Air Dryer					
Temp. Indicator - color	GREEN	GREEN			

Ozone Generator					
Oxygen Supply, LPM	7	7			
% O3 capacity	45	45			
Regulator #1 psi	32	40			
Regulator #2 psi	22	25			
Alarm Reading ppm, O3	-	-			
Zone On	2	3			
Zone Time hours	1/2	2			

Distribution Panel					
CFM	0.8	0.8			
O3 Feed Conc. Ppm O3					

Comments:

SPARGE WELL PRESSURE READINGS
RASMUSSEN SITE
CRA PROJECT #32504

DATE:	JAN. 21, 2016		DATE:	FEB 16 & 24, 2016		DATE:	MARCH 10, 11, 12 & 14, 2016		
WELL ID	CFM @ DIST. PANEL	PSI @ WELL	WELL ID	CFM @ DIST. PANEL	PSI @ WELL	WELL ID	CFM @ DIST. PANEL	PSI @ WELL	
SW-1	0.8	9	SW-1	0.7	9	SW-1	0.8	9	
SW-2	0.8	8	SW-2	0.8	9	SW-2	0.8	8	
SW-3	0.8	13	SW-3	0.8	15	SW-3	0.8	14	LEAKING REPAIRED
SW-4	0.8	14	SW-4	0.8	15	SW-4	0.7	13	
SW-5	0.7	14	SW-5	0.8	14	SW-5	0.8	15	
SW-6	0.8	15	SW-6	0.7	15	SW-6	0.8	15	
SW-7	0.7	15	SW-7	0.8	13	SW-7	0.8	13	
SW-8	–	–	SW-8	–	–	SW-8	–	–	
SW-9	–	–	SW-9	–	–	SW-9	–	–	
SW-10	–	–	SW-10	–	–	SW-10	–	–	
SW-11	–	–	SW-11	–	–	SW-11	–	–	
SW-12	0.8	15	SW-12	0.8	15	SW-12	0.7	15	
SW-13	0.8	2	SW-13	0.8	2	SW-13	0.7	3	
SW-14	–	–	SW-14	–	–	SW-14	–	–	
SW-15	–	–	SW-15	–	–	SW-15	–	–	
SW-16	–	–	SW-16	–	–	SW-16	–	–	
SW-17	0.7	18	SW-17	0.8	18	SW-17	0.8	18	
SW-18	0.8	19	SW-18	0.8	19	SW-18	0.8	19	LEAKING REPAIRED
SW-19	0.8	19	SW-19	0.8	19	SW-19	0.8	19	LEAKING REPAIRED
SW-20	0.7	18	SW-20	0.8	18	SW-20	0.7	18	LEAKING REPAIRED
SW-21	–	–	SW-21	–	–	SW-21	–	–	
SW-22	0.8	13	SW-22	0.8	12	SW-22	0.8	13	
SW-23	0.8	15	SW-23	0.7	14	SW-23	0.7	15	
SW-24	0.7	16	SW-24	0.7	16	SW-24	0.7	14	
SW-25	0.8	15	SW-25	0.8	15	SW-25	0.8	15	
SW-26	0.8	5	SW-26	0.8	5	SW-26	0.7	5	
SW-27	0.8	6	SW-27	0.7	6	SW-27	0.8	5	
SW-28	0.8	6	SW-28	0.8	7	SW-28	0.8	6	
SW-29	0.8	8	SW-29	0.8	8	SW-29	0.7	8	
SW-30	–	–	SW-30	–	–	SW-30	–	–	

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steven Rapai

Date: FRIDAY, JANUARY 8, 2016
Time: 1300

Weather Conditions: 38° DRIZZLE/SNOW

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: WET

Drainage Spillways & Outfalls: WET

Roadways: OK

Vegetation: DORMANT

Signs, Gates, & Fences: OK

Actions Taken:
NONE

Recommendations:
NONE AT THIS TIME

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** [signature]

Date: JANUARY 21, 2016
Time: 1100

Weather Conditions: 26° LIGHT SNOW

Observations

Erosion-North Face: OK SNOW COVERED

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: OK

Drainage Spillways & Outfalls: OK

Roadways: OK

Vegetation: DORMANT

Signs, Gates, & Fences: OK

Actions Taken:
NONE

Recommendations:
NONE

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: FEBRUARY 9, 2016
Time: 3:30 PM

Weather Conditions: 34° SNOW

Observations

Erosion-North Face: OK SNOW COVERED

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: OK

Drainage Spillways & Outfalls: OK

Roadways: GOOD - PLOWED

Vegetation: DORMANT

Signs, Gates, & Fences: OK

Actions Taken:
SITE ROADS HAVE BEEN PLOWED

Recommendations:

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: FEB 24, 2016
Time: 1200 NOON

Weather Conditions: 33° HEAVY WET SNOW FALLING - WIND

Observations

Erosion-North Face: OK SNOW COVERED

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: OK

Drainage Spillways & Outfalls: OK

Roadways: OK

Vegetation: DORMANT

Signs, Gates, & Fences: OK

Actions Taken:
NONE

Recommendations:
ROADS TO BE PLOWED

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: FRIDAY MARCH 11, 2016
Time: 10:00 AM

Weather Conditions: CLEAR 42

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: DRY

Drainage Spillways & Outfalls: DRY

Roadways: OK

Vegetation: DORMANT

Signs, Gates, & Fences: OK

Actions Taken:
NONE

Recommendations:
NONE

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** [signature]

Date: MARCH 25 2016
Time: 10:00

Weather Conditions: CLOUDY 37°

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: OK - WET - HEAVY RAIN YESTERDAY

Drainage Spillways & Outfalls: OK - WET

Roadways: OK

Vegetation: DORMANT

Signs, Gates, & Fences: OK

Actions Taken:
NONE

Recommendations:
NONE

3/9/2016 851 32504-25

TASK: QUARTERLY WATER LEVELS

GHD: STEVE RAPAI

H&S: LEVEL D

WEATHER: CLOUDY, WINDY, 66° F

WELL ID	LEVEL
81-4	81.20
81-5	35.52
81-7	47.77
81-8	44.62
81-9	17.14
81-10	33.40
RA-1	70.27
RA-2D	57.15
RA-2S	56.88
RA-3	53.90
RA-5	56.16
RA-6S	60.70
RA-7	33.89
RA-8	18.29
RA-16	60.01
RA-18	42.86
RA-18D	57.41
RA-19D	51.49
RA-19S	48.88

32504-25 852 3/9/2016

WELL ID	LEVEL
RA-20	60.00
RA-22	55.03
RA-23D	34.65
RA-23S	34.94
RA-24	57.92
RA-25	55.34
RA-26D	51.31
RA-26S	51.11
RA-27	62.89
RA-28	55.62
RA-29	47.15
RA-30	58.58
RA-31	33.26
RA-32	58.32
RA-33	33.44
RA-34	42.91
RA-35	33.08
RA-36	37.47
RA-37	37.21
MW-22	43.42
MW-28	43.72
MW-32	36.11
MW-34C	43.00
MW-35	25.79

3/9/2016 32504-25

WELL ID		LEVEL
MW-41		47.99
MW-42		63.95
MW-47		54.38
MW-54	BOTTOM	57.20
MW-55		38.15
MW-56		34.92
MW-58		22.76
EB-PZ-2		40.59
EB-PZ-4		54.69
EB-PZ-5		56.42
EB-PZ-6		56.15
PZ-103		58.32
PZ-104		56.12
PZ-105		52.99
PZ-106		40.61
TEMP. PZ-2		54.34

32504-25 3/10/16

TASK: BEGIN 1/4LY SAMPLE EVENT
GHD: STEVE RAPAI
WEATHER: RAIN 55°
H2S: LEVEL D
CALIBRATION OF RENTAL HORIBA
NFO 7596: pH=4.00, COND.=4.49, TURB =0.0, D.O.=8.29, TEMP=26.42

SAMPLE OF CRA-RA-2D

TIME	pH	COND	TURB	D.O.	TEMP.
1030	6.24	1.98	11.2	14.89	11.99
1040	6.76	1.77	7.0	13.85	11.58
1055	6.80	1.78	2.1	13.13	11.57
1100	6.81	1.79	1.5	12.86	11.56
1105	6.81	1.79	1.3	12.84	11.56
1110	6.81	1.79	1.2	12.83	11.57

SAMPLED @ 1111 ID: GW-32504-031016-SR-1961

SAMPLE OF CRA-RA-2B

1125	6.71	0.791	29.1	12.63	11.44
1135	6.70	0.805	8.0	12.26	11.42
1145	6.72	0.807	3.1	12.14	11.42
1150	6.72	0.807	1.0	12.08	11.41
1155	6.71	0.808	3.4	12.06	11.42

CONTINUED ON NEXT PAGE

SAMPLE OF CRA-RA-28 (CONTINUED)

TIME	pH	COND.	TURB.	D.O.	TEMP.
1200	6.72	0.808	2.7	12.05	11.41

SAMPLED @ 1201 ID: GW-32504-031016-SR-1962

PROBLEMS WITH CONTROL BOX HAS DELAYED SAMPLING.

SAMPLE OF PZ-104

TIME	pH	COND.	TURB.	D.O.	TEMP.
1320	6.96	1.22	3.1	12.08	11.46
1330	6.78	1.31	2.6	11.93	11.43
1340	6.78	1.32	2.9	11.84	11.42
1345	6.77	1.32	2.1	11.79	11.42
1350	6.77	1.32	2.6	11.77	11.43
1355	6.77	1.33	2.0	11.77	11.43

SAMPLED @ 1356 ID: GW-32504-031016-SR-1963

SAMPLE OF CRA-RA-24

1415	6.79	1.04	1.9	11.84	11.52
1425	6.75	1.04	3.0	11.61	11.49
1440	6.76	1.04	2.1	11.52	11.52
1445	6.77	1.04	0.9	11.50	11.51
1450	6.77	1.04	0.6	11.48	11.52
1455	6.77	1.04	0.4	11.48	11.51

SAMPLED @ 1456 ID: GW-32504-031016-SR-1964

SAMPLE OF CRA-RA-30

TIME	pH	COND.	TURB	D.O.	TEMP
1520	6.81	0.943	3.4	11.68	11.32
1530	6.80	0.966	2.9	11.38	11.31
1540	6.81	0.969	2.9	11.35	11.29
1545	6.81	0.969	2.9	11.31	11.29
1550	6.81	0.970	2.7	11.30	11.30
1555	6.81	0.970	2.6	11.30	11.30

SAMPLED @ 1556 ID: GW-32504-031016-SR-1965

SAMPLES PLACED IN COOLER WITH ICE.

TASK: CONTINUE 1/QTR SAMPLE EVENT.
CRA: STEVE RAPAI
WEATHER: CLEAR, HIGH OF 52°F
H&S: LEVEL D
CALIBRATION OF RENTAL HORIBA (U-22)
NF 07596: pH=4.00, COND.=4.49, TURB=0,
D.O.=9.10, TEMP=22.32

SAMPLE OF CRA-RA-32

TIME	pH	COND.	TURB.	D.O.	TEMP.
9:30	6.39	0.800	0.0	13.77	11.71
9:40	6.84	0.794	0.0	13.24	11.70
9:50	6.89	0.794	0.0	12.91	11.70
9:55	6.91	0.793	0.0	12.51	11.58
10:00	6.92	0.792	0.0	12.50	11.59
10:05	6.92	0.792	0.0	12.50	11.59

SAMPLED @ 10:06 ID: GW-32504-031116-SR-1966

SAMPLE OF CRA-RA-22

10:40	6.73	0.972	0.9	12.67	11.22
10:50	6.66	0.968	0.3	12.27	11.26
11:00	6.69	0.923	0.8	12.11	11.29
11:05	6.70	0.919	0.7	12.08	11.29
11:10	6.71	0.921	0.1	12.02	11.28

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SAMPLE OF CRA-RA-22 (CONTINUED)

TIME	pH	COND.	TURB.	D.O.	TEMP.
11:15	6.72	0.925	1.0	11.94	11.35
11:20	6.72	0.928	1.3	11.90	11.34
11:25	6.72	0.929	0.7	11.89	11.34
11:30	6.72	0.929	0.6	11.89	11.35

SAMPLED @ 1131 ID: GW-32504-031116-SR-1967
SAMPLED @ 1135 ID: GW-32504-031116-SR-1968

SAMPLE OF TEMP-PZ-2

1145	6.98	1.90	1.8	11.96	11.48
1155	6.87	1.80	3.7	11.73	11.46
1205	6.76	1.95	3.9	11.62	11.43
1210	6.76	1.96	3.5	11.61	11.42
1215	6.76	1.96	3.4	11.60	11.43
1220	6.76	1.96	3.2	11.61	11.43

SAMPLED @ 1221 ID: GW-32504-031116-SR-1969

SAMPLE OF CRA-RA-29

1250	7.07	1.00	4.5	11.96	14.04
1320	6.97	0.795	0.7	11.85	14.36
1325	6.97	0.787	0.0	11.76	14.56
1330	6.97	0.791	0.0	11.79	13.64
1335	6.97	0.789	0.0	11.81	13.28

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SAMPLE OF CRA-RA-29 (CONTINUED)

TIME	pH	COND.	TURB.	D.O.	TEMP.
1340	6.96	0.790	0.0	11.80	13.27
1345	6.96	0.790	0.0	11.79	13.26
1350	6.96	0.790	0.0	11.79	13.26

SAMPLED @ 1351 ID: GW-32504-031116-SR-1970

SAMPLE OF 81-8

1405	7.40	0617	5.4	13.34	11.86
1410	7.27	0.643	5.4	15.78	11.42
1420	7.26	0.624	0.0	15.92	11.42
1425	7.36	0.612	0.0	15.58	11.96
1430	7.36	0.611	0.3	15.67	11.92
1435	7.35	0.610	0.0	15.65	11.91
1440	7.35	0.610	0.0	15.66	11.91

SAMPLED @ 1441 ID: GW-32504-031116-SR-1971

SAMPLES PACKED IN COOLER WITH ICE FOR DROP OFF AT TEST AMERICA, BRIGHTON.

TASK: CONTINUE 4TH QTR SAMPLE EVENT
GHD: STEVE RAPAI
WEATHER: CLOUDY HIGH 62°F
H&S: LEVEL D
CALIBRATION OF RENTAL HORIBA (U-22)
NFO 7596: pH=4.00 COND.=4.49, TURB=0.0, D.O.=8.89, TEMP=20.86°C

SAMPLE OF CRA-RA-18

TIME	pH	COND.	~~D.O.~~ TURB.	D.O.	TEMP.
1210	6.28	1.49	2.4	13.06	11.48
1220	6.63	1.41	3.5	12.73	11.52
1230	6.64	1.41	1.4	12.61	11.27
1235	6.65	1.41	0.3	12.52	11.27
1240	6.65	1.41	0.0	12.52	11.28
1245	6.65	1.41	0.0	12.51	11.27

SAMPLED @ 1246 ID: GW-32504-031416-SR-1972

SAMPLE OF RA-MW-28

1300	7.06	0.671	1.2	12.55	11.01
1310	6.85	0.637	0.4	12.02	11.04
1320	6.84	0.637	0.0	11.96	11.02
1325	6.84	0.637	0.3	11.92	11.03
1330	6.83	0.637	0.0	11.89	11.02

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SAMPLE OF RA-MW-28 (CONTINUED)

TIME	pH	COND.	TURB.	D.O.	TEMP.
1335	6.83	0.637	0.0	11.88	11.02
1340	6.83	0.637	0.0	11.88	11.02

SAMPLED @ 1341 ID:GW-32504-031416-SR-1973

SAMPLE OF CRA-RA-5

1355	6.72	1.20	4.4	11.37	11.29
1405	6.72	1.15	1.5	11.22	11.28
1415	6.72	1.14	0.0	11.15	11.31
1425	6.73	1.14	0.0	11.09	11.28
1430	6.73	1.14	0.0	11.08	11.29
1435	6.73	1.14	0.0	11.08	11.28

SAMPLED @ 1436 ID:GW-32504-031416-SR-1974

SAMPLE OF CRA-RA-6

1445	6.86	0.935	4.2	11.64	11.80
1455	6.57	0.959	1.9	10.78	11.97
1505	6.60	0.960	0.0	10.72	11.98
1515	6.61	0.960	0.0	10.70	12.03
1520	6.60	0.960	0.0	10.71	12.02
1525	6.60	0.960	0.0	10.70	12.02

SAMPLED @ 1526 ID:GW-32504-031416-SR-1975

SAMPLE OF CRA-RA-27

TIME	pH	COND.	TURB.	D.O.	TEMP.
1535	6.68	1.57	6.0	11.08	11.67
1545	6.69	1.59	1.4	10.82	11.73
1555	6.70	1.60	0.8	10.80	11.72
1600	6.70	1.60	0.0	10.81	11.70
1605	6.71	1.60	0.0	10.80	11.71
1610	6.71	1.60	0.0	10.80	11.71

SAMPLED @ 1611 ID:GW-32504-031416-SR-1976

SAMPLED @ 1615 ID:GW-32504-031416-SR-1977

SAMPLES PACKED IN COOLER WITH ICE.

3/15/16 32504-25

TASK: CONTINUE 1/4LY SAMPLE EVENT

GHD: STEVE KAPAI

WEATHER: 42° CLOUDY, HIGH 52°

H&S: LEVEL D

CALIBRATION OF RENTAL HORIBA (U-22)

NFO 7596: pH=4.00, COND=4.49, TURB=0.0

D.O.=8.68, TEMP=21.88

SAMPLE OF CRA-RA-31

TIME	pH	COND.	TURB.	D.O.	TEMP.
1030	7.01	0.691	3.1	14.24	11.52
1040	6.66	0.469	0.0	13.17	11.00
1050	6.82	0.468	0.0	12.98	10.97
1105	6.85	0.467	0.0	12.93	10.98
1110	6.90	0.465	0.0	12.77	10.97
1115	6.94	0.465	0.0	12.55	10.97
1120	6.98	0.465	0.0	12.43	10.97
1125	6.99	0.465	0.0	12.40	10.96
1130	6.99	0.465	0.0	12.41	10.96

SAMPLED @ 1131 ID: GW-32504-031516-SR-1978

SAMPLE OF CRA-RA-7

1145	7.26	0.295	1.6	12.55	11.12
1200	7.27	0.291	0.5	12.30	11.10

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32504-25 3/15/16

SAMPLE OF CRA-RA-7 (CONTINUED)

TIME	pH	COND.	TURB.	D.O.	TEMP.
1210	7.29	0.291	0.0	12.23	11.12
1215	7.31	0.291	0.0	12.16	11.12
1220	7.31	0.291	0.0	12.15	11.13
1225	7.31	0.291	0.0	12.15	11.13

SAMPLED @ 1226 ID: GW-32504-031516-SR-1979

SAMPLE OF CRA-RA-26S

1255	6.78	1.14	3.5	12.09	11.16
1315	6.65	1.16	0.0	11.85	11.11
1325	6.66	1.17	0.0	11.75	11.17
1330	6.67	1.17	0.0	11.70	11.19
1335	6.67	1.18	0.0	11.69	11.17
1340	6.67	1.18	0.0	11.69	11.19

SAMPLED @ 1341 ID: GW-32504-031516-SR-1980

SAMPLE OF CRA-RA-26D

1350	6.74	1.43	2.6	11.92	11.22
1405	6.66	1.45	0.0	10.94	11.38
1415	6.66	1.45	0.0	10.90	11.38
1420	6.66	1.45	0.0	10.86	11.38
1425	6.65	1.45	0.0	10.85	11.38
1430	6.65	1.45	0.0	10.85	11.38

SAMPLED @ 1431 ID: GW-32504-031516-SR-1981

MS/MSD

3/15/16 32504-25

SAMPLE OF CRA-RA-23D

TIME	pH	COND.	TURB.	D.O.	TEMP.
1500	7.21	0.595	0.0	13.01	11.09
1515	7.06	0.605	0.0	11.67	10.78
1525	6.91	0.587	0.0	11.39	10.72
1530	6.91	0.584	0.0	11.28	10.76
1535	6.91	0.582	0.0	11.27	10.76
1540	6.91	0.582	0.0	11.27	10.75
1545	6.91	0.582	0.0	11.26	10.75

SAMPLED @ 1546 ID: GW-32504-031516-SR-1982

SAMPLES PACKED IN COOLER WITH ICE

32504-25 3/16/16

TASK: FINISH 1/4LY SAMPLE EVENT

GHD: STEVE RAPAI

H&S: LEVEL D

WEATHER: 45° VERY WINDY! CLOUDY

CALIBRATION OF RENTAL HORIBA (U-22)

NF07596: pH=4.00, COND=4.49, TURB=0.0, D.O.=8.76, TEMP=20.89

SAMPLE OF 81-4

TIME	pH	COND.	TURB.	D.O.	TEMP.
1015	5.44	1.21	13.2	13.64	13.01
1035	5.82	1.21	1.1	12.31	12.59
1045	6.58	1.21	0.3	11.87	11.67
1050	6.63	1.21	0.6	11.68	11.65
1055	6.63	1.22	0.4	11.55	11.63
1100	6.63	1.22	0.7	11.51	11.62
1105	6.63	1.22	0.4	11.50	11.62
1110	6.63	1.21	0.3	11.50	11.62

SAMPLED @ 1111 ID: GW-32504-031616-SR-1983

July 8, 2016 Reference No. 032504-15

Mr. Howard Caine
United States Environmental Protection Agency
Region V (SR-6J)
77 W. Jackson Boulevard
Chicago, Illinois
60604

Dear Mr. Caine:

Re: Progress Report No. 135
Groundwater and Landfill RD/RA
Reporting Period: April 1 through June 30, 2016
Rasmussen Landfill (Site), Livingston Co., Michigan

1. Introduction

This Progress Report is submitted in accordance with Paragraph 26 of the Consent Decree, Civil Action No. 92 40071. This report summarizes the activities performed during the reporting period and describes the activities to continue or which are scheduled to start during the next reporting period.

2. Activities Performed During this Reporting Period

2.1 Operation and Maintenance

The quarterly round of groundwater elevations were measured on June 7, 2016. The corresponding groundwater contour map is provided on Figure 1.

GHD collected quarterly groundwater samples on June 6, 8, 9, 10, 11, 12, and 13, 2016, consistent with the Groundwater Remediation Monitoring Program. The results from these samples are discussed below.

2.2 Reports

Quarterly Progress Report No. 134 was submitted to USEPA and Michigan Department of Environmental Quality (MDEQ) on April 11, 2016.

3. Summary of Findings

Second Quarter 2016 Groundwater Quality Monitoring

The results of the second quarter 2016 sampling are provided in Tables 1 through 4. Figure 2 is a Site location map showing the wells included in the quarterly Groundwater Remediation Monitoring Program and the annual Landfill Monitoring Program.

During the second quarter 2016 sampling, five of the 29 monitoring wells sampled had Compounds of Concern (COCs) at concentrations above Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria (RDWCC).

Specifically, the five monitoring wells with COCs exceeding RDWCC are:

CRA-RA-22	3.2 µg/L vinyl chloride
CRA-RA-24	4.9 µg/L vinyl chloride
CRA-RA-26S	80 µg/L trichloroethene
CRA-RA-27	7.1 µg/L vinyl chloride
CRA-RA-30	2.8 µg/L vinyl chloride

There were six monitoring wells that had COCs above RDWCC during the first quarter 2016 sampling event. The vinyl chloride detected in the sample from monitoring well CRA-RA-33 during the second quarter of 2016 was 1.5 µg/L, down from 3.1 µg/L in the first quarter 2016 and less than the RDWCC of 2 µg/L.

The results of the 2016 round of the annual Landfill Monitoring Programs are provided in Table 5. Volatile organic compounds were detected in some of the annual Landfill Monitoring Program samples but concentrations did not exceed their respective RDWCC. No semi-volatile organic compounds were detected in any of the groundwater samples. Cadmium was detected in the groundwater samples collected from CRA-RA-18 and CRA-RA-19S, but at concentrations less than the RDWCC of 5 µg/L. Lead was not detected in any of the 2015 Annual Landfill Monitoring Program samples.

4. Problems Encountered

In the second quarter of 2016 there were a few minor shut downs, less than 12 hours hour in duration, to correct minor problems or trouble shoot the system. There were no major system shutdowns.

5. Corrective Measures to Rectify Problems

No corrective measures were required during this reporting period.

6. Contacts and Significant Correspondence with Public Representatives

Communication	Date	Subject of Correspondence/Discussion
Quarterly Report	April 11, 2016	Report No. 134 submitted to Mr. H. Caine (USEPA) and Mr. K. Krawczyk (MDEQ)

7. Planned Upcoming Activities/Schedule

Activities planned for the third quarter of 2016 include:

- Continue the operation of ozone sparging system
- Continue to monitor for the presence of ozone at each sparge vault
- The third quarter groundwater sampling event is scheduled for the week of August 15, 2016
- The wells to be sampled in the third quarter of 2016 are listed in Table 6
- Submit revised "2015 Groundwater Investigation Report"

Should you have any questions on the above, please do not hesitate to contact the undersigned.

Yours truly,

GHD

For Steven Rapai

Bart Bartholomy

AJD/cb/45

Encl.

cc: Mike Stoelton, JCI
Chuck Pinter, Ford
Karyllan Dodson Mack, BASF
Michael Simpson
Steven Nadeau, Honigman

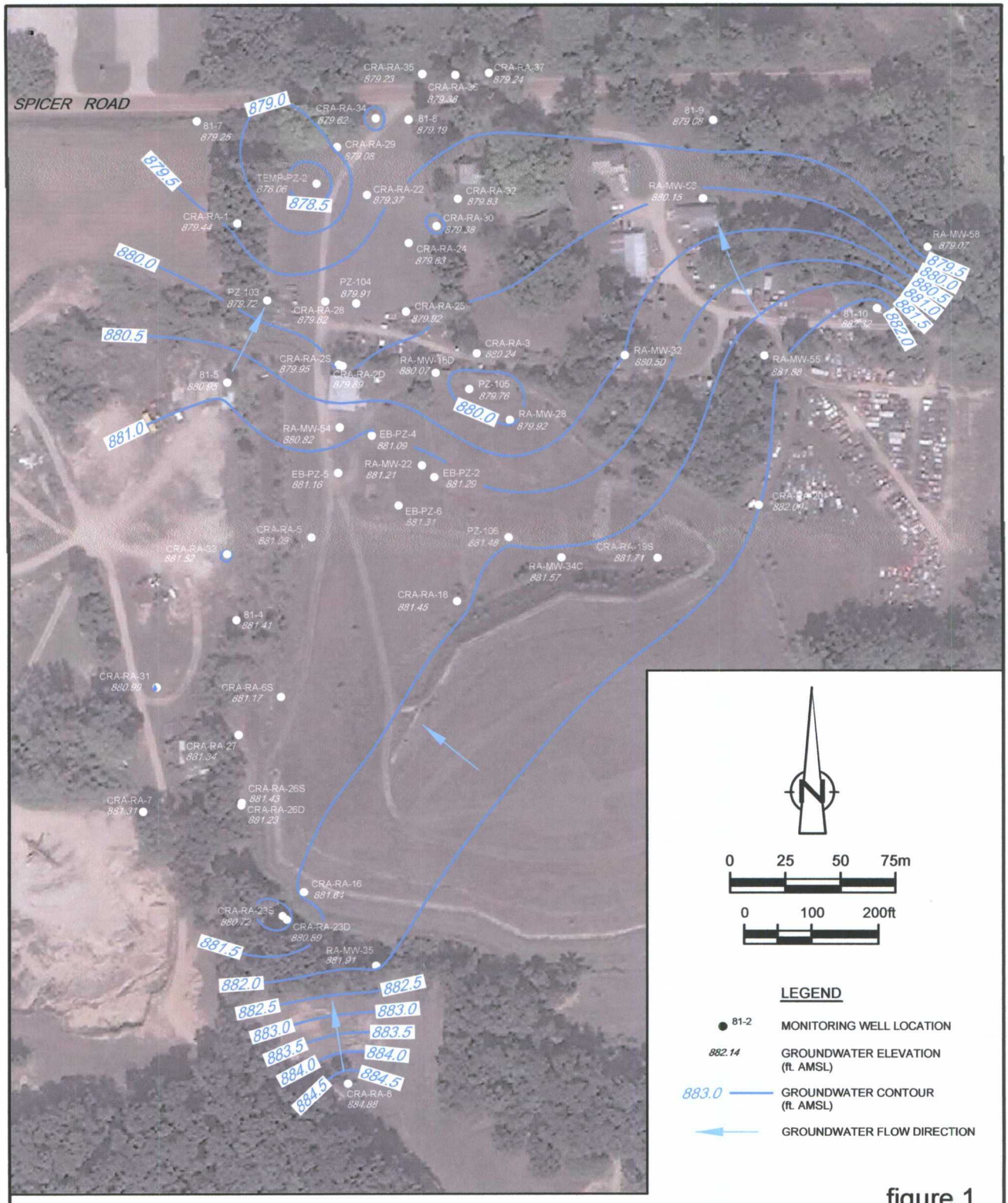


figure 1

GROUNDWATER ELEVATION CONTOURS (UPPER AQUIFER)
JUNE 2016
RASMUSSEN LANDFILL SITE
Livingston County, Michigan

32504-15(CAIN046)GN-WA002 JUN 30/2016

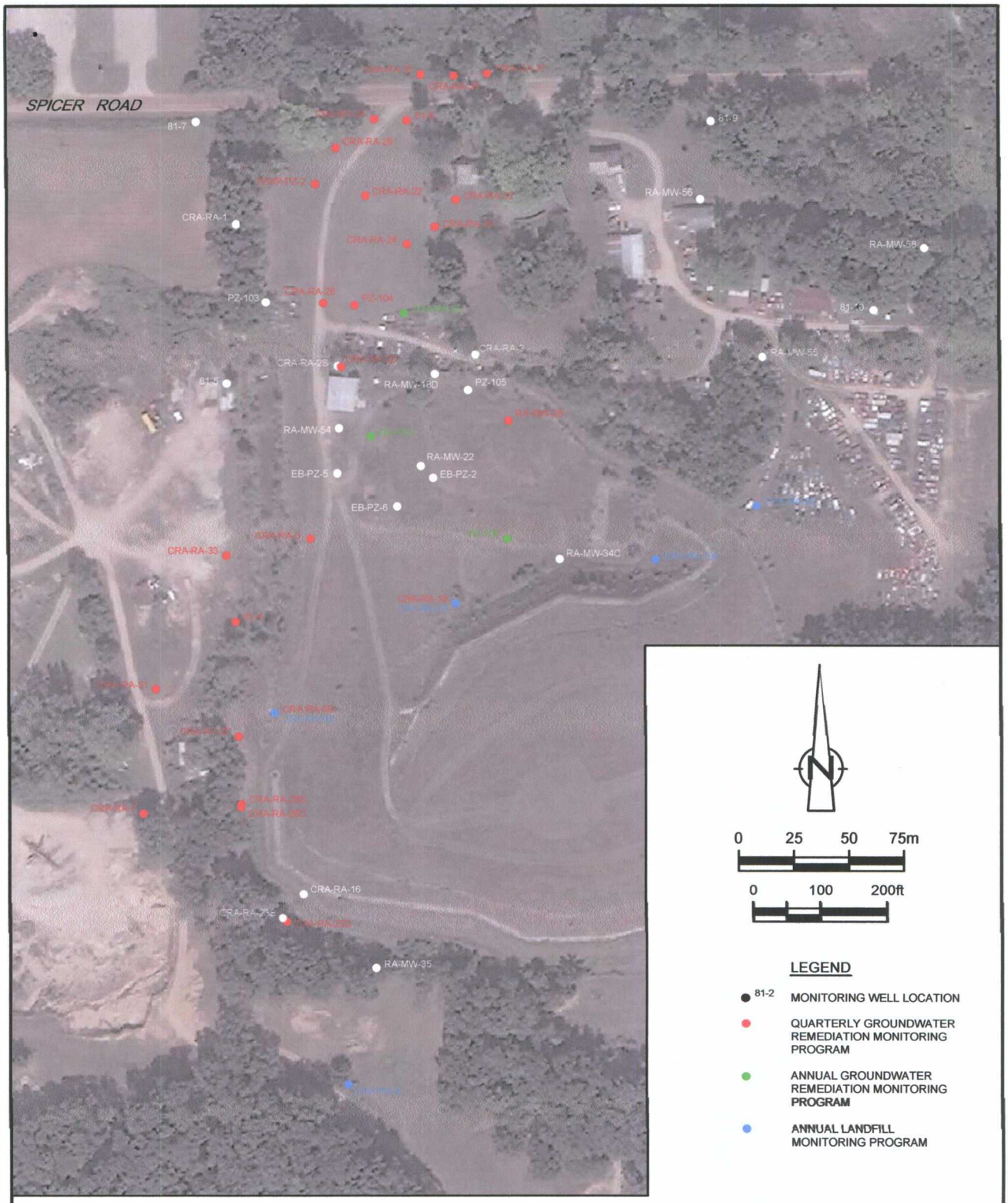


figure 2

2016 GROUNDWATER MONITORING PROGRAMS
RASMUSSEN LANDFILL SITE
Livingston County, Michigan

32504-15(CAIN046)GN-WA001 JUN 30/2016

Table 1

Analytical Results - Northern Plume
Rasmussen Landfill Site
Livingston County, Michigan

Sample Location	Sample ID	Date Sampled	Parameter	1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE (TOTAL)	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZENE	ETHYLBENZENE	METHYLENE CHLORIDE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)
			Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			RDWCC (1)	200	70 (2)	13,000	1,800	730	5	100	74	5	790	5	2	280
CRA-RA-12	[illegible]	9/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.4	ND(1.0)
CRA-RA-12	[illegible]	12/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	4.8	ND(1.0)
CRA-RA-12	[illegible]	3/11/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	4.7	ND(1.0)
CRA-RA-12	[illegible]	3/11/2016	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	4.7	ND(1.0)
CRA-RA-12	[illegible]	6/9/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	11	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	3.3	ND(1.0)
			Change					Up 1 µg/L							Down 1.1 µg/L	
CRA-RA-14	[illegible]	9/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	5.1	ND(1.0)
CRA-RA-14	[illegible]	12/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	6.2	ND(1.0)
CRA-RA-14	[illegible]	3/10/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	5.8	ND(1.0)
CRA-RA-14	[illegible]	6/8/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	4.0	ND(1.0)
			Change												Down 1.1 µg/L	
CRA-RA-15	[illegible]	7/23/2013		ND(1)	1.9	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
CRA-RA-15	[illegible]	7/23/2013	Duplicate	ND(1)	1.9	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)
CRA-RA-15	[illegible]	9/3/2014		ND(1.0)	1.1	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.1	ND(1.0)
CRA-RA-15	[illegible]	9/9/2015		ND(1.0)	1.1	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change		Stable										Down 0.1 µg/L	
CRA-RA-28	[illegible]	9/2/2015		ND(1.0)	2.8	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.7	ND(1.0)
CRA-RA-28	[illegible]	9/2/2015	Duplicate	ND(1.0)	2.7	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-28	[illegible]	12/9/2015		ND(1.0)	2.6	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-28	[illegible]	3/10/2016		ND(1.0)	2.7	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-28	[illegible]	6/8/2016		ND(1.0)	3.2	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change		Up 0.5 µg/L											
CRA-RA-29	[illegible]	9/10/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.1)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-29	[illegible]	9/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-29	[illegible]	12/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-29	[illegible]	3/11/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-29	[illegible]	6/8/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	11	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change					Up 1 µg/L								
CRA-RA-30	[illegible]	9/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.7	ND(1.0)
CRA-RA-30	[illegible]	12/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	[illegible]	ND(1.0)
CRA-RA-30	[illegible]	3/10/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	[illegible]	ND(1.0)
CRA-RA-30	[illegible]	6/8/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	[illegible]	ND(1.0)
			Change												Down [illegible] µg/L	
CRA-RA-32	[illegible]	9/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-32	[illegible]	12/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-32	[illegible]	3/11/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-32	[illegible]	6/8/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable: all Non-Detect						
CRA-RA-34	[illegible]	9/1/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-34	[illegible]	11/25/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-34	[illegible]	3/8/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-34	[illegible]	6/8/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable: all Non-Detect						
CRA-RA-35	[illegible]	9/2/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.7	ND(1.0)
CRA-RA-35	[illegible]	9/2/2015	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.8	ND(1.0)
CRA-RA-35	[illegible]	11/25/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.8	ND(1.0)
CRA-RA-35	[illegible]	11/25/2015	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.7	ND(1.0)
CRA-RA-35	[illegible]	3/8/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.8	ND(1.0)
CRA-RA-35	[illegible]	3/8/2016	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.6	ND(1.0)
CRA-RA-35	[illegible]	6/8/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.3	ND(1.0)
CRA-RA-35	[illegible]	6/8/2016	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.3	ND(1.0)
			Change												Down [illegible] µg/L	
CRA-RA-36	[illegible]	9/1/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-36	[illegible]	11/25/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-36	[illegible]	3/8/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-36	[illegible]	6/8/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable: all Non-Detect						
CRA-RA-37	[illegible]	5/28/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-37	[illegible]	9/1/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-37	[illegible]	11/25/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-37	[illegible]	3/8/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-37	[illegible]	6/8/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable: all Non-Detect						
PZ-104	[illegible]	9/2/2015		ND(1.0)	3.1	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-104	[illegible]	12/9/2015		ND(1.0)	3.5	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.1	ND(1.0)
PZ-104	[illegible]	3/10/2016		ND(1.0)	3.2	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-104	[illegible]	6/8/2016		ND(1.0)	2.9	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change		Down 0.2 µg/L											
TEMP-PZ-6	[illegible]	9/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
TEMP-PZ-6	[illegible]	12/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
TEMP-PZ-6	[illegible]	3/11/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
TEMP-PZ-6	[illegible]	6/8/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	11	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change					Up 1 µg/L								
S1-6	[illegible]	9/8/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(2.1)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
S1-6	[illegible]	12/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
S1-6	[illegible]	12/9/2015	Duplicate	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
S1-6	[illegible]	3/11/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
S1-6	[illegible]	6/8/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable: all Non-Detect						

Notes:
(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria
(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/L.

Table 2

Analytical Results - PDSLD Area Plume
Rasmussen Landfill Site
Livingston County, Michigan

Sample Location	Sample ID	Date Sampled	Parameter	1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE (TOTAL)	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZENE	ETHYLBENZENE	METHYLENE CHLORIDE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)
			Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			RDWCC(1)	200	70 (2)	13,000	1,800	730	5	100	74	5	780	5	2	280
CRA-RA-2D	GW-SR-1909	9/1/2010		ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	65	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)
CRA-RA-2D	GW-SR-1938	12/6/2010		ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	70	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)
CRA-RA-2D	GW-SR-1961	3/10/2011		ND(2.9)	ND(2.9)	ND(29)	ND(29)	ND(29)	ND(2.9)	78	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)
CRA-RA-2D	GW-SR-1983	6/6/2011		ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	61	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)
			Change							Down 17 µg/L						
CRA-RA-18	GW-SR-1910	9/1/2010		67	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)
CRA-RA-18	GW-SR-1954	12/11/2010		67	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)
CRA-RA-18	GW-SR-1972	3/14/2011		62	ND(4.0)	ND(40)	ND(40)	ND(40)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)	ND(4.0)
CRA-RA-18	GW-SR-1997	6/10/2011		67	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)
			Change	Up 5 µg/L												
EB-PZ-4	GW-SR-1630	9/10/2010		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1)	39	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.3	ND(1.0)
EB-PZ-4	GW-SR-1667	12/4/2010		ND(2.0)	ND(2.0)	ND(20)	ND(20)	ND(20)	ND(2.0)	39	ND(2.0)	ND(2.0)	ND(2.0)	ND(2.0)	4.0	ND(2.0)
EB-PZ-4	GW-SR-1729	6/27/2011		ND(1.4)	ND(1.4)	ND(14)	ND(14)	ND(14)	ND(1.4)	41	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)	2.2	ND(1.4)
EB-PZ-4	GW-SR-1527	9/2/2014		ND(1.4)	ND(1.4)	ND(14)	ND(14)	ND(14)	ND(1.4)	43	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)	ND(1.4)
EB-PZ-4	GW-SR-1911	9/1/2010		ND(1.8)	ND(1.8)	ND(10)	ND(10)	ND(10)	ND(1.8)	46	ND(1.8)	ND(1.8)	ND(1.8)	ND(1.8)	ND(1.8)	ND(1.8)
			Change							Up 3 µg/L						
PZ-108	GW-SR-1640	9/12/2010		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-108	GW-SR-1731	6/27/2010		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-108	GW-SR-1732	6/27/2010	*Duplicate*	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-108	GW-SR-1628	9/2/2014		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
PZ-108	GW-SR-1912	9/1/2010		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable; all Non-Detect						
RA-MW-28	GW-SR-1914	9/1/2010		8.0	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
RA-MW-28	GW-SR-1953	12/11/2010		8.8	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
RA-MW-28	GW-SR-1973	3/14/2011		8.2	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
RA-MW-28	GW-SR-1996	6/10/2011		8.8	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change	Down 0.6 µg/L												

Notes:

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria
(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/l.

Table 3

Analytical Results - Southern Vinyl Chloride Plume
Rasmussen Landfill Site
Livingston County, Michigan

Sample Location	Sample ID	Date Sampled	Parameter	1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE (TOTAL)	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZENE	ETHYLBENZENE	METHYLENE CHLORIDE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)
			Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
			RDWCC(1)	200	70 (2)	13,000	1,600	730	5	100	74	5	790	5	2	280
CRA-RA-5	GW-SR-1910	9/1/2015		20	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-5	GW-SR-1951	12/9/2015		19	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-5	GW-SR-1974	3/14/2016		18	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-5	GW-SR-1995	6/9/2016		23	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change	Up 5 µg/L												
CRA-RA-6S	GW-SR-1916	9/2/2015		2.1	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-6S	GW-SR-1952	12/9/2015		1.7	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-6S	GW-SR-1975	3/14/2016		2.0	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-6S	GW-SR-1993	6/9/2016		1.8 J	ND(1.0) J	ND(10) J	ND(10) J	ND(10) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(1.0) J
CRA-RA-6S	GW-SR-1994	6/9/2016	*Duplicate*	1.9 J	ND(1.0) J	ND(10) J	ND(10) J	ND(10) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(1.0) J
			Change	Up 0.3 µg/L												
CRA-RA-7	GW-SR-1931	9/10/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-7	GW-SR-1950	12/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-7	GW-SR-1979	3/15/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-7	GW-SR-2000	6/11/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable; all Non-Detect							
CRA-RA-27	GW-SR-1917	9/2/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	10	ND(1.0)
CRA-RA-27	GW-SR-1955	12/11/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	11	ND(1.0)
CRA-RA-27	GW-SR-1976	3/14/2016		ND(1.0)	1.1	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	10	ND(1.0)
CRA-RA-27	GW-SR-1977	3/14/2016	*Duplicate*	ND(1.0)	1.0	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	10	ND(1.0)
CRA-RA-27	GW-SR-2004	6/13/2016		ND(1.0)	1.4	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	7.1	ND(1.0)
			Change		Up 0.4 µg/L										Down 2.9 µg/L	
CRA-RA-31	GW-SR-1930	9/10/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.6)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-31	GW-SR-1949	12/9/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-31	GW-SR-1978	3/15/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-31	GW-SR-1999	6/10/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change						Stable; all Non-Detect							
CRA-RA-33	GW-DT-004	9/2/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	2.4	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.4	ND(1.0)
CRA-RA-33	GW-DT-006	11/25/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	1.8	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.8	ND(1.0)
CRA-RA-33	GW-DT-004	3/8/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	1.9	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.1	ND(1.0)
CRA-RA-33	GW-BW-006	6/6/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	1.5	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.5	ND(1.0)
									Down 0.4 µg/L						Down 1.6 µg/L	
81-4	GW-SR-1937	9/11/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.8	ND(1.0)
81-4	GW-SR-1959	12/14/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.3	ND(1.0)
81-4	GW-SR-1960	12/14/2015	*Duplicate*	ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.2	ND(1.0)
81-4	GW-SR-1983	3/16/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.8	ND(1.0)
81-4	GW-SR-1998	6/10/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	1.5	ND(1.0)
			Change												Down 0.3 µg/L	

Notes:

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria
(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/L.

Table 4

Analytical Results - Southern TCE Plume
Rasmussen Landfill Site
Livingston County, Michigan

				Volatile Organics													
			Parameter	1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE (TOTAL)	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZENE	ETHYLBENZENE	METHYLENE CHLORIDE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)
			Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Sample Location	Sample ID	Date Sampled	RDWCC(1)	200	70 (2)	13,000	1,600	730	5	100	74	5	790	5	2	280
CRA-RA-23D	GW-SR-1936	9/11/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3.4	ND(1.0)	ND(1.0)
CRA-RA-23D	GW-SR-1961	12/14/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	3	ND(1.0)	ND(1.0)
CRA-RA-23D	GW-SR-1982	3/15/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.6	ND(1.0)	ND(1.0)
CRA-RA-23D	GW-SR-2007	6/13/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	2.2	ND(1.0)	ND(1.0)
			Change											Down 0.4 µg/L		
CRA-RA-26D	GW-SR-1934	9/10/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-26D	GW-SR-1957	12/14/2015		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-26D	GW-SR-1981	3/15/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
CRA-RA-26D	GW-SR-2006	6/13/2016		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)
			Change							Stable; all Non-Detect						
CRA-RA-26S	GW-SR-1935	9/10/2015		ND(3.3)	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	70	ND(3.3)	ND(3.3)
CRA-RA-26S	GW-SR-1958	12/14/2015		ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	78	ND(2.5)	ND(2.5)
CRA-RA-26S	GW-SR-1980	3/15/2016		ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	81	ND(2.5)	ND(2.5)
CRA-RA-26S	GW-SR-2005	6/13/2016		ND(2.5)	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	80	ND(2.5)	ND(2.5)
			Change											Down 1 µg/L		

Notes:

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria
(2) The criterion provided is for the isomer cis-1,2-dichloroethene, the lower of the two criteria for 1,2-dichloroethene isomers. The criterion for trans 1,2-dichloroethene is 100 µg/L.

Table 5

Analytical Results - Landfill Monitoring Program
Rasmussen Landfill Site
Livingston County, Michigan

Sample Locatio	Sample ID	Date Sample		Parameter	Volatile Organics													Semi-volatile Organics			Metals			
					1,1,1-TRICHLOROETHANE	1,2-DICHLOROETHENE (TOTAL)	2-BUTANONE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	CHLOROBENZEN	ETHYLBENZENE	METHYLENE CHLORIDE	TOLUENE	TRICHLOROETHENE	VINYL CHLORIDE	XYLENES (TOTAL)	2-METHYLPHENOL	BIS(2-ETHYLHEXYL)PHTHALATE	ISOPHORONE	CADMIUM, DISSOLVED	CADMIUM, TOTAL	LEAD, DISSOLVED	LEAD, TOTAL
				RDWCC(1)	200	70 (1)	13,000	1,800	730	5	100	74	5	700	5	2	230	370	6	900	5		4	
				Units	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
CRA-RA-63	GW-SR-1386	6/14/2010			ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	1.2	ND(1)	ND(5.1)	ND(5.1)	ND(5.1)	ND(0.2)	ND(0.2)	ND(3)	ND(3)
CRA-RA-63	GW-SR-1513	6/14/2011			ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	1.8	ND(1)	ND(5)	ND(5)	ND(5)	ND(1)	ND(1)	ND(3)	ND(3)
CRA-RA-63	GW-SR-1803	6/18/2014			ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	ND(8.6)	ND(4.8)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
CRA-RA-63	GW-SR-1804	6/18/2014	Duplicate		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	ND(8.0)	ND(4.8)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
CRA-RA-63	GW-SR-1991	6/18/2016			1.9	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(5.0)	ND(5.0)	ND(5.0)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
CRA-RA-63	GW-SR-1993	6/8/2016			1.9 J	ND(1.0) J	ND(10) J	ND(10) J	ND(10) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(5.1)	ND(5.1)	ND(5.1)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
CRA-RA-63	GW-SR-1994	6/8/2016	Duplicate		1.8 J	ND(1.0) J	ND(10) J	ND(10) J	ND(10) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(1.0) J	ND(5.0)	ND(8.0)	ND(5.0)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
			Change		Down 0.06 µg/L																			
CRA-RA-6	GW-SR-1521	6/15/2011			ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(5.2)	ND(5.2)	ND(5.2)	ND(1.0)	ND(1.0)	ND(3.0)	ND(3.0)
CRA-RA-6	GW-SR-1522	6/15/2011	Duplicate		ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(5.3)	ND(5.3)	ND(5.3)	ND(1.0)	ND(1.0)	ND(3.0)	ND(3.0)
CRA-RA-6	GW-SR-1555	6/29/2011			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND(3)	ND(3)
CRA-RA-6	GW-SR-1555	6/29/2011			--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND(3)	ND(3)
CRA-RA-6	GW-SR-1626	6/21/2012			ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(2.0)	ND(2.0)	ND(2.0)	ND(0.2)	ND(0.2)	ND(3)	ND(3)
CRA-RA-6	GW-SR-1707	6/18/2013			ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.9)	ND(4.9)	ND(4.9)	ND(0.2)	ND(0.2)	ND(3)	ND(3)
CRA-RA-6	GW-SR-1807	6/20/2014			ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	ND(8.4)	ND(4.8)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
CRA-RA-6	GW-SR-2001	6/11/2016			ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	ND(4.8)	ND(4.8)	0.49	0.3	ND(3.0)	ND(3.0)
			Change											Stable; All Non-Detect										
CRA-RA-16	GW-SR-1505	6/10/2011			107	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	2.3	ND(1)	ND(1)	ND(5.3)	ND(5.3)	ND(5.3)	ND(1.0)	ND(1.0)	5.1	ND(3.0)
CRA-RA-16	GW-SR-1506	6/10/2011	Duplicate		107	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	2.3	ND(1)	ND(1)	ND(5.3)	ND(5.3)	ND(5.3)	ND(1.0)	ND(1.0)	4.9	ND(3.0)
CRA-RA-16	GW-SR-1528	6/18/2011			90.8	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	1.1	ND(1)	2.0	ND(1)	ND(1)	--	--	--	--	--	ND(3)	ND(3)
CRA-RA-16	GW-SR-1617	6/20/2012			86.3	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	2.0	ND(1)	ND(1)	ND(2.2)	ND(2.2)	ND(2.2)	ND(0.0.087)	ND(0.0.087)	ND(1.7)	ND(1.7)
CRA-RA-16	GW-SR-1632	6/17/2013			88	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(4.9)	ND(4.9)	ND(4.9)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
CRA-RA-16	GW-SR-1634	6/17/2013	Duplicate		90	ND(3.3)	ND(33)	ND(33)	ND(33)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(3.3)	ND(4.8)	ND(4.8)	ND(4.8)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
CRA-RA-16	GW-SR-1792	6/17/2014			76	ND(2.5)	ND(25)	ND(25)	ND(25)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(2.5)	ND(4.8)	5.8 J	ND(4.8)	ND(0.2)	ND(0.28)	ND(3.0)	ND(3.0)
CRA-RA-16	GW-SR-1888	6/17/2015			85	ND(2.9)	ND(29)	ND(29)	ND(29)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(4.8)	ND(4.8)	ND(4.8)	0.43	0.29	ND(3.0)	ND(3.0)
CRA-RA-16	GW-SR-1889	6/17/2015	Duplicate		85	ND(2.9)	ND(29)	ND(29)	ND(29)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(4.8)	ND(4.8)	ND(4.8)	0.22	0.27	ND(3.0)	ND(3.0)
CRA-RA-16	GW-SR-1997	6/10/2016			87	ND(2.9)	ND(29)	ND(29)	ND(29)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(2.9)	ND(4.8)	ND(4.8)	ND(4.8)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
			Change		Up 2 µg/L																Down 0.02 µg/L	Down 0.07 µg/L		
CRA-RA-193	GW-SR-1619	6/20/2012			ND(1)	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(2.1)	ND(2.1)	ND(2.1)	ND(0.2)	ND(0.2)	ND(3)	ND(3)
CRA-RA-193	GW-SR-1636	6/17/2013			ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	ND(4.8)	ND(4.8)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
CRA-RA-193	GW-SR-1801	6/18/2014			ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	8.9 J	ND(4.8)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
CRA-RA-193	GW-SR-1903	6/20/2015			ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	ND(4.8)	ND(4.8)	0.45	0.27	ND(3.0)	ND(3.0)
CRA-RA-193	GW-SR-2002	6/12/2016			ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	ND(4.8)	ND(4.8)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
CRA-RA-193	GW-SR-2003	6/12/2016	Duplicate		ND(1.0)	ND(1.0)	ND(10)	ND(10)	ND(10)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND(4.8)	ND(4.8)	ND(4.8)	ND(0.2)	ND(0.2)	ND(3.0)	ND(3.0)
			Change		Stable; all non-detect																Down 0.25 µg/L	Down 0.07 µg/L		
CRA-RA-20	GW-SN-419	11/28/2000			7	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(8.2)	ND(8.2)	ND(8.2)	ND(0.2)	ND(3)	ND(0.2)	ND(3)
CRA-RA-20	GW-RW-487	11/19/2001			11	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(5)	ND(5)	ND(5)	ND(0.2)	ND(3)	NA	NA
CRA-RA-20	GW-SR-633	12/12/2002			8	ND(1)	ND(10)	ND(10)	ND(10)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(1)	ND(5)	ND(5)	ND(5)	ND(0.5)	ND(0.5)	ND(1)	ND(1)
														Insufficient Groundwater to Collect Sample										

(1) Part 201 December 2013 Generic Residential Drinking Water Cleanup Criteria

Table 6

2016 Groundwater Sampling Program
Rasmussen Landfill Site
Livingston County, Michigan

Quarterly Sampling - VOCs	Annual Landfill Monitoring Program - VOCs, SVOCs & Metals *(2nd Quarter)*	Additional Annual Samples - VOCs *(3rd Quarter)*
81-4	CRA-RA-6S (included in quarterly sampling)	CRA-RA-25
81-8	CRA-RA-8	EB-PZ-4
CRA-RA-2D	CRA-RA-18 (included in quarterly sampling)	PZ-106
CRA-RA-5	CRA-RA-19S	RA-MW-47
CRA-RA-6S	CRA-RA-20	Rasmussen Water Supply Well
CRA-RA-7		
CRA-RA-18		
CRA-RA-22		
CRA-RA-23D		
CRA-RA-24		
CRA-RA-26D		
CRA-RA-26S		
CRA-RA-27		
CRA-RA-28		
CRA-RA-29		
CRA-RA-30		
CRA-RA-31		
CRA-RA-32		
CRA-RA-33		
CRA-RA-34		
CRA-RA-35		
CRA-RA-36		
CRA-RA-37		
PZ-104		
RA-MW-28		
TEMP-PZ-2		

Rasmussen 32504

Ozone Sparge System Inspection

DATE	April 8, 2016	April 14, 2016	April 19, 2016	April 27, 2016	May 6, 2016
OPERATOR SIGNATURE	A. Rapai	A. Rapai	A. Rapai	A. Rapai	A. Rapai

Air Compressor					
Output Pressure psi	110	110	110	110	110
Temperature F	-	-	-	-	-
Run Time hours	107084	107228	107348		107755

Air Sep					
Receiver Pressure psi	52	52	54	52	54
Feed Air Pressure psi	110	110	110	110	110
Cycle Pressure psi	70	70	70	70	70
Holding Tank Pressure psi	42	42	42	42	42
Run Time hours	107083.7	107227.6	107348.0		107754.6

Air Dryer					
Temp. Indicator - color	GREEN	GREEN	GREEN	GREEN	GREEN

Ozone Generator					
Oxygen Supply, LPM	7	7	7	7	7
% O3 capacity	45	45	45	45	45
Regulator #1 psi	34	37	40	35	40
Regulator #2 psi	22	24	25	25	25
Alarm Reading ppm, O3	-	-	-	-	-
Zone On	2	3	1	2	1
Zone Time hours	1/2	2	1/2	1/2	1/2

Distribution Panel					
CFM	0.8	0.8	0.8	0.8	0.8
O3 Feed Conc. Ppm O3					

Comments:

Rasmussen 32504

Ozone Sparge System Inspection

DATE	MAY 11, 2016	MAY 16, 2016	MAY 27, 2016	JUNE 1, 2016	JUNE 10, 2016
OPERATOR SIGNATURE	A Rapai	A Rapai	A Rapai	A Rapai	A Rapai

Air Compressor					
Output Pressure psi	110	110	110	110	110
Temperature F	-	-	-	-	-
Run Time hours		107995	108259	108375	

Air Sep					
Receiver Pressure psi	54	54	55	54	54
Feed Air Pressure psi	110	110	110	110	110
Cycle Pressure psi	70	70	70	70	70
Holding Tank Pressure psi	42	42	42	42	42
Run Time hours		107995.1	108259.2	108375.4	

Air Dryer					
Temp. Indicator - color	GREEN	GREEN	GREEN	GREEN	GREEN

Ozone Generator					
Oxygen Supply, LPM	7	7	7	7	7
% O3 capacity	45	45	45	45	45
Regulator #1 psi	36	35	37	35	36
Regulator #2 psi	24	24	24	25	24
Alarm Reading ppm, O3	-	-	-	-	-
Zone On	1	3	1	2	3
Zone Time hours	1/2	2	1/2	1/2	2

Distribution Panel					
CFM	0.8	0.8	0.8	0.8	0.8
O3 Feed Conc. Ppm O3					

Comments:

Rasmussen 32504

Ozone Sparge System Inspection

DATE	June 16, 2016	June 22, 2016	June 27, 2016		
OPERATOR SIGNATURE	L Rapai	L Rapai	L Rapai		

Air Compressor					
Output Pressure psi	110	110	110		
Temperature F	-	-	-		
Run Time hours	108737	108885			

Air Sep					
Receiver Pressure psi	52	56	54		
Feed Air Pressure psi	110	110	110		
Cycle Pressure psi	70	70	70		
Holding Tank Pressure psi	42	42	42		
Run Time hours	108736.9	108884.9			

Air Dryer					
Temp. Indicator - color	GREEN	GREEN	GREEN		

Ozone Generator					
Oxygen Supply, LPM	7	7	7		
% O3 capacity	45	45	45		
Regulator #1 psi	38	35	36		
Regulator #2 psi	25	25	24		
Alarm Reading ppm, O3	-	-	-		
Zone On	3	1	3		
Zone Time hours	2	1/2	2		

Distribution Panel					
CFM	0.8	0.8	0.8		
O3 Feed Conc. Ppm O3					

Comments:

SPARGE WELL PRESSURE READINGS
RASMUSSEN SITE
CRA PROJECT #32504

DATE:	April 14 & 19, 2016		DATE:	May 11 & 16, 2016		DATE:	June 8, 9, 10, 11 & 12	
WELL ID	CFM @ DIST. PANEL	PSI @ WELL	WELL ID	CFM @ DIST. PANEL	PSI @ WELL	WELL ID	CFM @ DIST. PANEL	PSI @ WELL
SW-1	0.8	8	SW-1	0.8	9	SW-1	0.8	9
SW-2	0.8	8	SW-2	0.8	9	SW-2	0.8	8
SW-3	0.6	14	SW-3	0.8	15	SW-3	0.8	14
SW-4	0.8	14	SW-4	0.7	14	SW-4	0.8	15
SW-5	0.8	14	SW-5	0.8	14	SW-5	0.8	14
SW-6	0.7	14	SW-6	0.8	15	SW-6	0.7	15
SW-7	0.8	15	SW-7	0.8	15	SW-7	0.7	14
SW-8	—	—	SW-8	—	—	SW-8	—	—
SW-9	—	—	SW-9	—	—	SW-9	—	—
SW-10	—	—	SW-10	—	—	SW-10	—	—
SW-11	—	—	SW-11	—	—	SW-11	—	—
SW-12	0.8	15	SW-12	0.8	15	SW-12	0.8	15
SW-13	0.8	2	SW-13	0.8	2	SW-13	0.8	2
SW-14	—	—	SW-14	—	—	SW-14	—	—
SW-15	—	—	SW-15	—	—	SW-15	—	—
SW-16	—	—	SW-16	—	—	SW-16	—	—
SW-17	0.8	18	SW-17	0.7	18	SW-17	0.8	19
SW-18	0.8	18	SW-18	0.8	19	SW-18	0.8	19
SW-19	0.8	18	SW-19	0.8	19	SW-19	0.7	18
SW-20	0.8	19	SW-20	0.7	18	SW-20	0.8	19
SW-21	—	—	SW-21	—	—	SW-21	—	—
SW-22	0.8	13	SW-22	0.8	14	SW-22	0.8	14
SW-23	0.8	15	SW-23	0.8	14	SW-23	0.7	15
SW-24	0.7	15	SW-24	0.7	16	SW-24	0.7	15
SW-25	0.8	15	SW-25	0.7	15	SW-25	0.7	14
SW-26	0.8	5	SW-26	0.8	5	SW-26	0.8	5
SW-27	0.8	7	SW-27	0.8	8	SW-27	0.8	8
SW-28	0.8	7	SW-28	0.7	6	SW-28	0.8	8
SW-29	0.8	8	SW-29	0.8	8	SW-29	0.8	8
SW-30	—	—	SW-30	—	—	SW-30	—	—

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: THURSDAY, APRIL 14, 2016
Time: 1000 AM

Weather Conditions: CLEAR 48°

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: EMPTY - DRY

Drainage Spillways & Outfalls: DRY

Roadways: GOOD

Vegetation: MOSTLY DORMANT - GRASS TURNING GREEN

Signs, Gates, & Fences: OK

Actions Taken:
NONE

Recommendations:
NONE

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: WEDNESDAY, APRIL 27, 2016
Time: 1:00 PM

Weather Conditions: CLEAR 58°

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: DRY

Drainage Spillways & Outfalls: DRY

Roadways: GOOD

Vegetation: TURNING GREEN

Signs, Gates, & Fences: OK

Actions Taken:
NONE

Recommendations:
NONE

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: FRIDAY MAY 6, 2016
Time: 3:00 PM

Weather Conditions: CLEAR 72°

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: DRY

Drainage Spillways & Outfalls: DRY

Roadways: GOOD

Vegetation: GRASS GREEN - TREES LEAFING OUT

Signs, Gates, & Fences: OK

Actions Taken:

Recommendations:

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: WEDNESDAY, MAY 25, 2016
Time: NOON

Weather Conditions: CLEAR 78°F

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: DRY

Drainage Spillways & Outfalls: DRY

Roadways: GOOD

Vegetation: GOOD

Signs, Gates, & Fences: OK

Actions Taken:

Recommendations:

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: SATURDAY, JUNE 11, 2016
Time: 2:00 PM

Weather Conditions: CLEAR 90°

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: DRY

Drainage Spillways & Outfalls: DRY

Roadways: OK

Vegetation: OK

Signs, Gates, & Fences: OK

Actions Taken:

Recommendations:

RASMUSSEN LANDFILL SITE
Livingston County, Michigan

Landfill Inspection Form

Inspector: STEVE RAPAI **Signature:** Steve Rapai

Date: MONDAY, JUNE 27, 2016
Time: 2:00 PM

Weather Conditions: CLEAR 91°F

Observations

Erosion-North Face: OK

Erosion-South Face: OK

Erosion-East Face: OK

Erosion-West Face: OK

Erosion-Misc.: OK

Storm Water Ponds: DRY

Drainage Spillways & Outfalls: DRY

Roadways: OK

Vegetation: STRESSED FROM HEAT & LACK OF RAIN

Signs, Gates, & Fences: OK

Actions Taken:

Recommendations:

6/7/2016 32504-25

TASK: COLLECTION OF 1/4LY WATER LEVELS

GHD: STEVE RAPAI

H&S: LEVEL D

WEATHER: MOSTLY CLOUDY, WINDY, 68°F

WELL ID	LEVEL
81-4	30.41
81-5	34.82
81-7	47.06
81-8	44.00
81-9	16.92
81-10	32.99
RA-1	70.07
RA-2D	56.50
RA-2S	56.20
RA-3	53.11
RA-5	55.40
RA-6S	59.86
RA-7	33.16
RA-8	18.01
RA-16	59.50
RA-18	42.12
RA-18D	56.75
RA-19D	50.61
RA-19S	48.03

32504-25 6/7/2016

WELL ID	LEVEL
RA-20	59.29
RA-22	54.31
RA-23D	34.17
RA-23S	34.47
RA-24	57.21
RA-25	54.69
RA-26D	50.46
RA-26S	50.34
RA-27	62.15
RA-28	54.99
RA-29	46.72
RA-30	58.71
RA-31	32.69
RA-32	57.52
RA-33	32.83
RA-34	42.35
RA-35	32.55
RA-36	36.89
RA-37	36.61
MW-22	42.73
MW-28	43.00
MW-32	35.65
MW-34C	42.23
MW-35	25.01

6/7/2016 869 32504.25

WELL ID.	LEVEL
MW-41	47.23
MW-42	63.72
MW-47	53.97
MW-54	56.48
MW-55	37.77
MW-56	34.24
MW-58	22.31
EB-PZ-2	40.82
EB-PZ-4	53.91
EB-PZ-5	55.63
EB-PZ-6	55.38
PZ-103	57.55
PZ-104	55.49
PZ-105	52.28
PZ-106	39.80
TEMP-PZ-2	54.37

CURVE TABLES

HOW TO USE CURVE TABLES

Table I. contains Tangents and Externals to a 1° curve. Tan. and Ext. to any other radius may be found nearly enough, by dividing the Tan. or Ext. opposite the given Central Angle by the given degree of curve.

To find Deg. of Curve, having the Central Angle and Tangent: Divide Tan. opposite the given Central Angle by the given Tangent.

To find Deg. of Curve, having the Central Angle and External: Divide Ext. opposite the given Central Angle by the given External.

To find Nat. Tan. and Nat. Ex. Sec. for any angle by Table I.: Tan. or Ext. of twice the given angle divided by the radius of a 1° curve will be the Nat. Tan. or Nat. Ex. Sec.

EXAMPLE

Wanted a Curve with an Ext. of about 12 ft. Angle of Intersection or I. P. = 23° 20′ to the R. at Station 542 + 72.

Ext. in Tab. I opposite 23° 20′ = 120.87
120.87 ÷ 12 = 10.07. Say a 10° Curve.

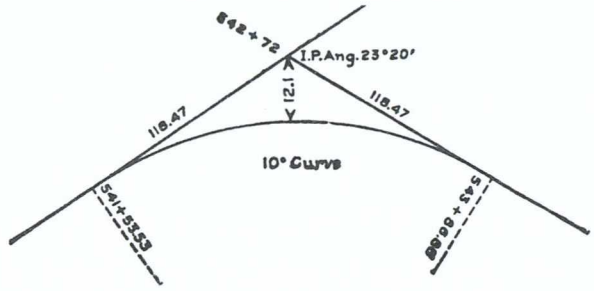
Tan. in Tab. I opp. 23° 20′ = 1183.1
1183.1 ÷ 10 = 118.31.

Correction for A. 23° 20′ for a 10° Cur. = 0.16
118.31 + 0.16 = 118.47 = corrected Tangent.

(If corrected Ext. is required find in same way)
Ang. 23° 20′ = 23.33° ÷ 10 = 2.3333 = L. C.

2° 19½′ = def. for sta.	542	I. P. = sta.	542 + 72
4° 49½′ = " " "	+ 50	Tan. =	1 .18.47
7° 19½′ = " " "	543	B. C. = sta.	541 + 53.53
9° 49½′ = " " "	+ 50	L. C. =	2 .33.33
11° 40′ = " " "	543 + 86.86	E. C. = Sta.	543 + 86.86

100 − 53.53 = 46.47 × 3′(def. for 1 ft. of 10° Cur.) = 139.41′ = 2° 19½′ = def. for sta. 542.
Def. for 50 ft. = 2° 30′ for a 10° Curve.
Def. for 36.86 ft. = 1° 50½′ for a 10° Curve.



CONTENTS

PAGE NO.	REFERENCE	DATE

32504-25 6/8/2016

TASK: BEGIN 1/4LY SAMPLE EVENT

GHD: STEVE RAPAT

WEATHER: CLEAR, HIGH 70°F

H&S: LEVEL D

CALIBRATION OF RENTAL HORIBA

NF 06156: pH=4.00, COND=4.49, TURB=0, D.O.=9.76, TEMP=18.28

SAMPLE OF CRA-RA-2D

TIME	pH	COND.	TURB.	D.O.	TEMP.
1300	6.54	1.95	3	6.02	13.11
1310	7.05	1.91	4	0.21	10.45
1320	7.13	1.92	1	0.17	10.17
1325	7.10	1.92	1	0.18	10.12
1335	7.04	1.93	1	0.16	9.95
1340	7.04	1.93	3	0.17	9.95
1345	7.04	1.92	1	0.16	9.95

SAMPLED @ 1346 ID: GW-32504-060816-SR-1983

SAMPLE OF CRA-RA-2B

1355	6.98	0.902	25	0.56	10.22
1415	6.98	0.930	1	0.20	9.57
1425	6.98	0.931	0	0.15	9.56
1430	6.98	0.933	2	0.18	9.55
1435	6.98	0.932	1	0.17	9.55

SAMPLED @ 1436 ID: GW-32504-060816-SR-1984

6/8/2016 32504-25

SAMPLE OF PZ-104

TUBING FOR AIRLINE BROKE - HAD TO REPLACE FITTING

TIME	pH	COND.	TURB	D.O.	TEMP.
1510	7.28	1.14	89	2.74	11.51
1520	7.02	1.37	42	0.26	10.02
1530	7.01	1.39	14	0.19	9.81
1535	7.02	1.40	3	0.18	9.78
1540	7.01	1.39	5	0.21	9.78
1545	7.02	1.40	2	0.18	9.77
1550	7.02	1.40	2	0.19	9.77

SAMPLED @ 1551 ID: GW-32504-060816-SR-1985

SAMPLE OF CRA-RA-24

1610	7.12	1.08	8	3.79	10.26
1620	7.00	1.10	2	0.31	9.66
1630	7.00	1.10	1	0.19	9.61
1635	7.00	1.10	1	0.17	9.58
1640	7.00	1.10	2	0.17	9.57
1645	7.00	1.10	1	0.16	9.57

SAMPLED @ 1646 ID: GW-32504-060816-SR-1986

SAMPLES PACKED IN COOLER WITH ICE.

32504-25 6/9/2016

TASK: CONTINUE 1/4TH SAMPLE EVENT

GHD: STEVE RAPAI

WEATHER: MOSTLY CLOUDY, HIGH 75°F

H&S: LEVEL D

CALIBRATION OF RENTAL HORIBA NF06156: pH=4.00, COND=4.49, TURB=0, D.O.=8.93, TEMP=22.25

SET UP AT CRA-RA-30, HAVING TROUBLE WITH CONTROL BOX. BOX ONLY BUILDING PRESSURE PART OF THE TIME. BEGAN PURGING @ 0930.

TIME	pH	COND.	TURB.	D.O.	TEMP.
1005	6.93	1.14	4	0.15	10.14
1020	6.97	1.15	2	0.17	9.90
1025	6.98	1.15	1	0.14	9.83
1030	6.99	1.15	2	0.15	10.02
1035	6.98	1.15	1	0.18	9.64
1040	6.98	1.15	1	0.16	9.63
1045	6.98	1.15	1	0.16	9.63

SAMPLED @ 1046 ID: GW-32504-060916-SR-1987

SAMPLE OF CRA-RA-32

1100	7.14	0.881	8	0.36	9.55
1120	7.04	0.888	3	0.11	9.42

CONTINUED ON NEXT PAGE

6/9/2016 32504-25

SAMPLE OF CRA-RA-32 (CONTINUED)

TIME	pH	COND.	TURB.	D.O.	TEMP.
1125	7.03	0.888	1	0.13	9.32
1130	7.02	0.889	3	0.15	9.32
1135	7.02	0.889	1	0.14	9.32
1140	7.02	0.889	1	0.13	9.33

SAMPLED @ 1141 ID: GW-32504-060916-SR-1988

SAMPLE OF CRA-RA-22

TIME	pH	COND.	TURB	D.O.	TEMP.
1200	7.19	0.927	6	2.41	15.73
1210	6.90	1.17	1	0.21	9.96
1220	6.90	1.16	1	0.17	9.89
1225	6.88	1.16	0	0.15	9.87
1230	6.90	1.16	1	0.13	9.88
1235	6.89	1.16	2	0.15	9.87
1240	6.89	1.16	1	0.15	9.87

SAMPLED @ 1241 ID: GW-32504-060916-SR-1989

SAMPLE OF TEMP-PZ-2

1300	7.08	1.98	7	1.11	10.02
1320	6.92	2.09	3	0.26	9.65
1330	6.92	2.10	1	0.15	9.62
1335	6.92	2.10	1	0.17	9.63
1340	6.92	2.10	1	0.17	9.63

SAMPLED @ 1341 ID: GW-32504-060916-SR-1990

32504-25 6/9/2016

SAMPLE OF CRA-RA-29

TIME	pH	COND.	TURB.	D.O.	TEMP
1400	7.39	0.876	12	9.84	15.31
1430	7.21	0.898	3	10.42	12.03
1445	7.13	0.931	1	11.31	11.80
1450	7.12	0.930	0	11.37	11.76
1455	7.11	0.930	0	11.35	11.77
1500	7.13	0.934	0	11.39	11.75
1505	7.13	0.934	0	11.37	11.76

SAMPLED @ 1506 ID: GW-32504-060916-SR-1991

SAMPLE OF 81-B

1520	7.69	0.430	57	18.21	16.30
1530	7.76	0.513	18	+19.99	10.11
1540	7.82	0.499	9	19.61	9.81
1545	7.83	0.491	7	19.03	9.76
1550	7.84	0.491	5	19.01	9.75
1555	7.84	0.491	4	19.00	9.75

SAMPLED @ 1556 ID: GW-32504-060916-SR-1992

SAMPLES PACKED IN COOLER WITH ICE FOR DROP OFF @ TEST AMERICA, BRIGHTON, MICHIGAN. RETURNED TO SITE TO CONTINUE SAMPLING.

6/9/2016 32504-25

SAMPLE OF CRA-RA-63

TIME	pH	COND	TURB	D.O.	TEMP.
1700	7.04	1.16	4	3.41	12.55
1710	6.78	1.21	3	4.39	11.20
1720	6.76	1.21	3	3.27	10.74
1725	6.76	1.21	2	2.78	10.84
1730	6.74	1.22	3	2.33	10.74
1735	6.72	1.21	2	0.57	10.74
1740	6.72	1.21	2	0.15	10.74
1745	6.72	1.21	2	0.15	10.73

SAMPLED @ 1746 ID: GW-32504-060916-SR-1993

SAMPLED @ 1800 ID: GW-32504-060916-SR-1994

BOTH OF THE ABOVE SAMPLES ARE PART OF THE ANNUAL LANDFILL MONITORING PROGRAM - VOC's, SVOC's, TOTAL & DISSOLVED METALS. DISSOLVED METALS HAVE BEEN FIELD FILTERED.

SAMPLE OF CRA-RA-5

1820	7.05	1.30	1	1.12	12.59
1835	6.87	1.33	2	0.11	9.52
1845	6.87	1.33	2	0.13	9.47
1850	6.86	1.33	1	0.13	9.47
1855	6.86	1.33	1	0.11	9.47

SAMPLED @ 1856 ID: GW-32504-060916-SR-1995

32504-25 6/10/2016

TASK: CONTINUE 1/4LY SAMPLE EVENT

GHD: STEVE RAPAI

WEATHER: SUN, HIGH 84°F

H&S: LEVEL D

CALIBRATION OF RENTAL HORIBA NF0456: pH=4.00, COND.=4.49, TURB=0, D.O.=8.41, TEMP=25.48°C

SAMPLE OF RA-MW-28

TIME	pH	COND.	TURB.	D.O.	TEMP.
1245	6.58	0.808	9	3.70	11.46
1255	6.66	0.817	5	3.33	11.21
1305	6.85	0.823	1	2.61	10.93
1310	6.88	0.828	0	2.51	10.54
1315	6.94	0.830	2	2.43	10.61
1320	6.94	0.831	0	2.40	10.61
1325	6.94	0.831	0	2.39	10.62

SAMPLED @ 1326 ID: GW-32504-061016-SR-1996

SAMPLE OF CRA-RA-18

1345	7.17	1.82	8	8.61	13.26
1355	6.98	1.83	3	7.26	10.65
1405	6.94	1.86	2	7.06	10.57
1410	6.93	1.86	4	6.98	10.48

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6/10/2016 32504-25

SAMPLE OF CRA-RA-18 (CONTINUED)

TIME	pH	COND	TURB.	D.O.	TEMP.
1415	6.92	1.87	3	6.98	10.43
1420	6.92	1.88	1	6.97	10.43
1425	6.93	1.88	1	6.97	10.42

SAMPLED @ 1426 ID: GW-32504-061016-SR-1997

PART OF ANNUAL LANDFILL PROGRAM VOC's, SVOC's, TOTAL & DISSOLVED METALS.

SAMPLE FOR DISSOLVED METALS HAS BEEN FIELD FILTERED.

SAMPLE OF 81-4

1505	7.20	0.989	21	8.41	15.39
1525	7.13	1.42	3	3.96	12.64
1530	7.02	1.48	2	3.77	11.71
1535	6.98	1.48	3	1.70	11.33
1540	6.93	1.49	1	0.15	10.65
1545	6.91	1.50	1	0.13	10.47
1550	6.90	1.50	1	0.13	10.45
1555	6.90	1.50	1	0.12	10.45

SAMPLED @ 1556 ID: GW-32504-061016-SR-1998

SAMPLES PACKED IN COOLER WITH ICE FOR DROP OFF AT TEST AMERICA, BRIGHTON, MICHIGAN.

32504-25 6/11/2016

TASK: CONTINUE 1/4LY SAMPLE EVENT

GHD: STEVE RAPAI

WEATHER: SUN, HIGH 93°F

H&S: LEVEL D

CALIBRATION OF RENTAL HORIBA NF06156: pH = 4.00, COND. = 4.49, TURB = 0, D.O. = 8.18, TEMP = 27.83°C

SAMPLE OF CRA-RA-31

TIME	pH	COND.	TURB.	D.O.	TEMP.
1045	6.41	0.569	10	3.80	11.26
1055	6.80	0.579	2	0.19	10.19
1105	7.00	0.582	0	0.13	9.92
1110	7.04	0.583	0	0.12	9.87
1115	7.08	0.583	0	0.11	9.83
1120	7.09	0.583	0	0.11	9.84
1125	7.09	0.583	0	0.12	9.84

SAMPLED @ 1126 ID: GW-32504-061116-SR-1999

SAMPLE OF CRA-RA-7

1135	7.39	0.348	97	4.58	12.73
1145	7.34	0.370	18	4.06	9.72
1155	7.37	0.372	1	3.98	9.60
1200	7.38	0.372	3	3.97	9.62

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6/11/2016 32504.25

SAMPLE OF CRA-RA-7 (CONTINUED)

TIME	pH	COND.	TURB.	D.O.	TEMP.
1205	7.38	0.372	1	3.98	9.61
1210	7.38	0.372	0	3.98	9.62

SAMPLED @ 1211 ID: GW-32504-061116-SR-2000

SAMPLE OF CRA-RA-8

1230	7.56	0.449	20	7.17	10.31
1250	7.23	0.445	3	5.17	10.11
1255	7.24	0.500	4	5.63	9.02
1300	7.24	0.501	3	5.82	8.28
1305	7.23	0.503	1	5.80	8.24
1310	7.24	0.503	1	5.81	8.23
1315	7.23	0.503	1	5.81	8.23

SAMPLED @ 1316 ID: GW-32504-061116-SR-2001

MS/MSD

PART OF ANNUAL LANDFILL MONITORING PROGRAM FOR VOC'S, SVOC'S, TOTAL & DISSOLVED METALS. SAMPLES FOR DISSOLVED METALS HAVE BEEN FIELD FILTERED.

SAMPLES PACKED IN COOLER WITH ICE,

32504.25 6/12/2016

TASK: CONTINUE 1/4LY SAMPLE EVENT

GHD: STEVE RAPAI

WEATHER: SUN, HIGH 80°F

H&S: LEVEL D

CALIBRATION OF RENTAL HORIBA NF06156: pH=4.00, COND.=4.49, TURB=0, D.O.=8.72, TEMP.=24.61°C, HAD TO CHANGE BATTERY IN HORIBA CONTROLER.

SAMPLE OF CRA-RA-195

TIME	pH	COND.	TURB.	D.O.	TEMP.
1240	6.08	0.862	36	5.77	12.49
1305	6.63	0.985	3	0.11	9.52
1310	6.67	1.06	3	0.12	9.64
1315	6.70	1.07	0	0.09	9.57
1320	6.73	1.08	2	0.12	9.52
1325	6.73	1.08	1	0.11	9.51
1330	6.73	1.08	0	0.11	9.51

SAMPLED @ 1331 ID: GW-32504-061216-SR-2002

SAMPLED @ 1345 ID: GW-32504-061216-SR-2003

BOTH SAMPLES ARE PART OF THE ANNUAL LANDFILL MONITORING PROGRAM - VOC'S, SVOC'S, TOTAL & DISSOLVED METALS. DISSOLVED METALS HAVE BEEN FIELD FILTERED.

6/13/2016 32504.25

TASK: CONTINUE 1/4LY SAMPLE EVENT

GHD. STEVE RAPAI

WEATHER: SUN, HIGH 80°

H&S: LEVEL D

CALIBRATION OF RENTAL HORIBA NF06156

pH=4.00, COND=4.49, TURB=0, D.O.=8.45,

TEMP=24.46°C

CRA-RA-27 SAMPLE

TIME	pH	COND.	TURB.	D.O.	TEMP.
1200	6.17	1.60	9	6.31	13.29
1210	6.60	1.69	1	1.49	10.92
1220	6.71	1.71	0	0.34	10.60
1225	6.75	1.72	0	0.13	10.54
1230	6.74	1.73	0	0.14	10.41
1235	6.74	1.73	0	0.12	10.41
1240	6.74	1.73	0	0.12	10.40

SAMPLED @ 1241 ID: GW-32504-061316-SR-2004.

SAMPLE OF CRA-RA-26S

1255	6.98	1.22	8	8.77	10.99
1315	6.71	1.25	1	4.67	9.79
1320	6.71	1.25	1	4.59	9.81
1325	6.71	1.26	0	4.58	9.77

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32504.25 6/13/2016

SAMPLE OF CRA-RA-26S (CONTINUED)

TIME	pH	COND.	TURB.	D.O.	TEMP.
1330	6.71	1.26	0	4.56	9.77
1335	6.71	1.26	0	4.57	9.77

SAMPLED @ 1336 ID: GW-32504-061316-SR-2005

SAMPLE OF CRA-RA-26D

1345	6.91	1.52	9	6.09	9.91
1405	6.76	1.57	3	0.13	9.70
1410	6.75	1.58	2	0.11	9.65
1415	6.75	1.58	0	0.11	9.64
1420	6.76	1.58	1	0.12	9.63
1425	6.75	1.58	0	0.11	9.64

SAMPLED @ 1426 ID: GW-32504-061316-SR-2006

SAMPLE OF CRA-RA-23D

1445	7.40	0.589	14	4.54	12.81
1500	7.05	0.646	0	0.88	9.37
1510	7.02	0.654	0	0.18	9.02
1515	7.01	0.653	0	0.17	9.01
1520	7.01	0.654	0	0.15	9.01
1525	7.01	0.654	0	0.17	9.01

SAMPLED @ 1526 ID: GW-32504-061316-SR-2007

SAMPLES PACKED IN COOLER WITH ICE FOR DROP OFF @ TEST AMERICA, BRIGHTON, MI.