Semi-Annual Water Quality Monitoring Report

Prepared for

Hertford County Closed Unlined MSWLF
Winton, North Carolina

December 2013

Permit Number: 46-01
MESCO Project Number: G13012.0

Submitted on March 25, 2014

P.O. Box 97
Garner, NC 27529
License No. C-0281

Municipal Engineering Services Company, P.A.
Garner and Boone, North Carolina

DENR USE ONLY: ☐ Paper Report ☐ Electronic Data - Email CD (data loaded: Yes / No) Doc/Event #:

NC DENR
Division of Waste Management - Solid Waste

Environmental Monitoring Reporting Form

Notice: This form and any information attached to it are "Public Records" as defined in NC General Statute 132-1. As such, these documents are available for inspection and examination by any person upon request (NC General Statute 132-6).

Instructions:

- **Prepare one form for each individually monitored unit.**
- **Please type or print legibly.**
- Attach a notification table with values that attain or exceed NC 2L groundwater standards or NC 2B surface water standards. The notification must include a preliminary analysis of the cause and significance of each value. (e.g. naturally occurring, off-site source, pre-existing condition, etc.).
- Attach a notification table of any groundwater or surface water values that equal or exceed the reporting limits.
- Attach a notification table of any methane gas values that attain or exceed explosive gas levels. This includes any structures on or nearby the facility (NCAC 13B .1629 (4)(a)(i).
- Send the original signed and sealed form, any tables, and Electronic Data Deliverable to: Compliance Unit, NCDENR-DWM, Solid Waste Section, 1646 Mail Service Center, Raleigh, NC 27699-1646.

Solid Waste Monitoring Data Submittal Information

Name of entity submitting data (laboratory, consultant, facility owner):

Municipal Engineering Services Co., PA

Contact for questions about data formatting. Include data preparer's name, telephone number and E-mail address:

Name: Jonathan Pfohl Phone: (919)772-5393

E-mail: jpfohl@mesco.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Hertford County Closed Unlined MSWLF	227 Mount Moriah Road Winton, NC 27986	46-01	.0500	December 12, 2013

Environmental Status: (Check all that apply)

☐ Initial/Background Monitoring ☒ Detection Monitoring ☐ Assessment Monitoring ☐ Corrective Action

Type of data submitted: (Check all that apply)

☒ Groundwater monitoring data from monitoring wells
☐ Groundwater monitoring data from private water supply wells
☐ Leachate monitoring data
☒ Surface water monitoring data
☐ Methane gas monitoring data
☐ Corrective action data (specify) _____
☐ Other(specify) _____

Notification attached?

☐ No. No groundwater or surface water standards were exceeded.
☒ Yes, a notification of values exceeding a groundwater or surface water standard is attached. It includes a list of groundwater and surface water monitoring points, dates, analytical values, NC 2L groundwater standard, NC 2B surface water standard or NC Solid Waste GWPS and preliminary analysis of the cause and significance of any concentration.
☐ Yes, a notification of values exceeding an explosive methane gas limit is attached. It includes the methane monitoring points, dates, sample values and explosive methane gas limits.

Certification

To the best of my knowledge, the information reported and statements made on this data submittal and attachments are true and correct. Furthermore, I have attached complete notification of any sampling values meeting or exceeding groundwater standards or explosive gas levels, and a preliminary analysis of the cause and significance of concentrations exceeding groundwater standards. I am aware that there are significant penalties for making any false statement, representation, or certification including the possibility of a fine and imprisonment.

Steven R. Gandy, Ph.D., P.E. Senior Project Manager (919) 772-5393

Facility Representative Name (Print) Title (Area Code) Telephone Number

Signature 3/25/2014 Date

Affix NC Licensed/ Professional Geologist Seal

NORTH CAROLINA PROFESSIONAL SEAL 031020 ENGINEER STEVEN RAY GANDY

P.O. Box 97, Garner, NC 27529

Facility Representative Address

C-0281

NC PE Firm License Number (if applicable effective May 1, 2009)

Revised 6/2009

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License No. C-0281

CIVIL/SANITARY/ENVIRONMENTAL ENGINEERS

SOLID WASTE MANAGEMENT

Municipal Services

Engineering Company, P.A.

SITE PLANNING/SUBDIVISIONS

SUBSURFACE UTILITY ENGINEERING (SUE)

March 25, 2014

Mr. Ervin Lane
Solid Waste Section
NC DENR Division of Waste Management
1646 Mail Service Center
Raleigh, NC 27699-1646

Re: ***Semi-Annual Water Quality Monitoring Report***
Hertford County Closed Unlined Landfill
Permit No. 46-01
MESCO Project No. G13012.0
Event Date: December 12, 2013

Dear Mr. Lane:

Introduction

The Hertford County Closed Unlined MSWLF located near Winton, North Carolina operated under permit 46-01 and is required to submit semi-annual compliance reports as a condition of rule 15A NCAC 13B .0500. This water quality monitoring event was reportedly performed by Environment 1 Incorporated (E1) personnel of Greenville NC on December 12, 2013 in accordance with the semi-annual monitoring schedule prescribed by the NC Solid Waste Section (SWS) rules/regulations. Laboratory analytical results indicate concentrations of volatile organic compounds (VOCs) at levels above the 2L Standard continue to persist in the surficial aquifer at ten locations, but natural attenuation processes appear to be occurring.

Water quality monitoring at this facility includes sampling at locations outlined in the approved site specific Sampling and Analysis Plan (SAP) submitted in the facility *Transition Plan* in November 1995. As required in SWS rules and the SWS Environmental Monitoring Report Form, this report contains sampling procedures, field and laboratory results, groundwater and surface water characterization, and findings. A detections compared to standards table, groundwater flow directions and rates table, groundwater potentiometric map, quality assurance/quality control data, and laboratory analytical data are also provided.

Sampling Procedures

During the December 2013 sampling event, water samples were reportedly collected from all thirteen groundwater monitoring wells (MW-A through MW-M) and all four designated surface water sample points (SW-1 through SW-4). Quality control measures were also implemented during this event which included submittal and subsequent quantification of an equipment blank (EB) and trip blank (TB). Monitoring locations are shown on **Figure 1**.

Sampling was reported to be performed using methods outlined in the NCDENR *Solid Waste Section Guidelines for Groundwater, Soil, and Surface Water Sampling* revised April 2008. Static water levels were measured, and a potentiometric map was constructed, as provided in **Figure 1**. Samples were transported under chain-of-custody (C-O-C) protocol and documented to be analyzed within their method specified hold times.

PO Box 97, Garner, North Carolina 27529 (919) 772-5393 PO Box 349, Boone, NC 28607 (828) 262-1767

Field Parameter Data

Field parameters (pH, specific conductance and temperature) were recorded and are presented in the laboratory report in **Appendix A**. Field parameters appear generally consistent with historically reported data.

Laboratory Results

Groundwater, surface water and quality control samples were analyzed for VOCs and total metals as listed in 40 CFR 258 Appendix I. Additionally, groundwater samples and the quality control EB was tested for total mercury.

Water samples were reported to laboratory specific Method Detection Limits (MDL) which are quantifiable at or below current Solid Waste Section Limits (SWSL). **Table 1** summarizes constituents detected in water samples in concentrations exceeding the current SWSL, Groundwater Protection Standards (GWP), North Carolina Groundwater Standards (2L) or the North Carolina Surface Water Standards (2B) for Class C surface waters. Laboratory results and C-O-Cs are presented in **Appendix A**.

Quality Control Samples

Six of the sixteen (38%) targeted total metals were detected in low concentrations in the equipment blank (EB); however, it appears that this laboratory/field induced artifact contamination had no effect on the validity of the data set.

Groundwater Samples

Total cadmium and total barium in levels above the 2L Standard were detected in MW-I and MW-H respectively. The preliminary source of the total metal detections is erosion of natural deposits rather than anthropogenic. One or more VOCs were detected in concentrations above their respective 2L Standards in MW-A, MW-B, MW-E, MW-F, MW-G, MW-H, MW-I, MW-J, MW-K and MW-L. Vinyl chloride, a common biodegradation daughter byproduct and LFG constituent, continues to be the most prevalently detected contaminant.

Surface Water Samples

There were no constituents detected in levels above SWSL or 2B Standards in any of the surface water samples.

Groundwater and Surface Water Characterization

A potentiometric map constructed from groundwater elevation data obtained by E1 during this event is presented as **Figure 1**. Groundwater flow rates and directions were calculated and are included on **Table 2**. Groundwater in the surficial aquifer flows in a general north-northwestern direction towards Potecasi Creek. Groundwater flow rates range from less than 1 ft/yr (MW-C) to 135 ft/yr (MW-F), and average 30 ft/yr. Flow directions and gradients are consistent with historical observations.

Findings

Results from the latest semi-annual sampling event indicate that contaminants continue to persist at levels above 2L Standards in eight wells that monitor the surficial aquifer. Landfill gas (LFG) has previously been detected at the facility and may be the transport mechanism for the VOC contaminants in groundwater, especially in MW-A, MW-B and MW-G which are located hydraulically upgradient of the waste boundary. An active LFG extraction system has been in operation along the western property boundary since 2003 to reduce LFG migration through the vadose and improve groundwater quality. The latest data indicates that the water quality has not degraded significantly compared to past events as all constituents detected in exceedance of the 2L Standard have previously been detected within their own respective historically identified range with the exception of tetrachloroethene in MW-J.

The facility is located in a rural setting and the residents in closest proximity to the property boundary are believed to be connected to municipal water, limiting the potential of human exposure to groundwater.

Closing

Water quality monitoring at the facility will continue. The next sampling event is tentatively scheduled for June 2014. If you have any questions or comments regarding this report, please contact us by phone at (919) 772-5393 or by email at jpfohl@mesco.com or sgandy@mesco.com.

Sincerely,
MUNICIPAL ENGINEERING SERVICES CO., P.A.

Jonathan Pfohl
Environmental Specialist

Steven R. Gandy, Ph.D, P.E.
Senior Project Manager

Enclosures

cc: Mr. Mike Bradley
Hertford County

Figures

NOTES

1. MONITORING WELLS HAVE BEEN SURVEYED.
2. ROADS, PROPERTY LINES AND CREEKS ARE APPROXIMATE.
3. SURFACE WATER LOCATIONS ARE APPROXIMATE.
4. GCCS SYSTEM LOCATION APPROXIMATE

ALL SUPPLY WELLS REPORTEDLY NOT IN USE.
BUILDINGS NOW CONNECTED TO MUNICIPAL WATER.

WATER SUPPLY WELLS
1. Howard Godwin
2. John Eley
3. Hattie Casey
4. Mt. Moriah Church
5. Small Frame House
6. Arthur Williams
7. Armstead Sharp
8. Landfill

Groundwater Levels & VOCs Detected Above 2L Standards
December 12, 2013

WELL #	TOP OF CASING ELEVATION (FT AMSL)	DEPTH TO WATER (FT BTOC)	GROUNDWATER POTENTIOMETRIC ELEVATION (FT AMSL)	BENZENE (UG/L)	1,4-DCB (UG/L)	PCE (UG/L)	VCM (UG/L)
15A NCAC 2L Groundwater Quality Standard				1	6	0.7	0.03
MW-A	50.25	26.39	23.86	1.3			0.8 (j)
MW-B	49.77	25.40	24.37				5.4
MW-C	45.58	21.14	24.44				
MW-D	48.31	28.23	20.08				
MW-E	47.86	27.62	20.24	1.9			1.1
MW-F	49.49	31.11	18.38	3.1			15.5
MW-G	50.10	25.34	24.76				2.2
MW-H	45.46	27.79	17.67	2.3			7
MW-I	48.00	30.28	17.72	3.2	6.4		12.8
MW-J	46.26	27.94	18.32			1.2	5.6
MW-K	48.81	29.58	19.23				1.6
MW-L	46.41	25.64	20.77				1.1
MW-M	47.77	23.23	24.54				

(j) = "J" Qualified concentration <SWSL so value considered estimated

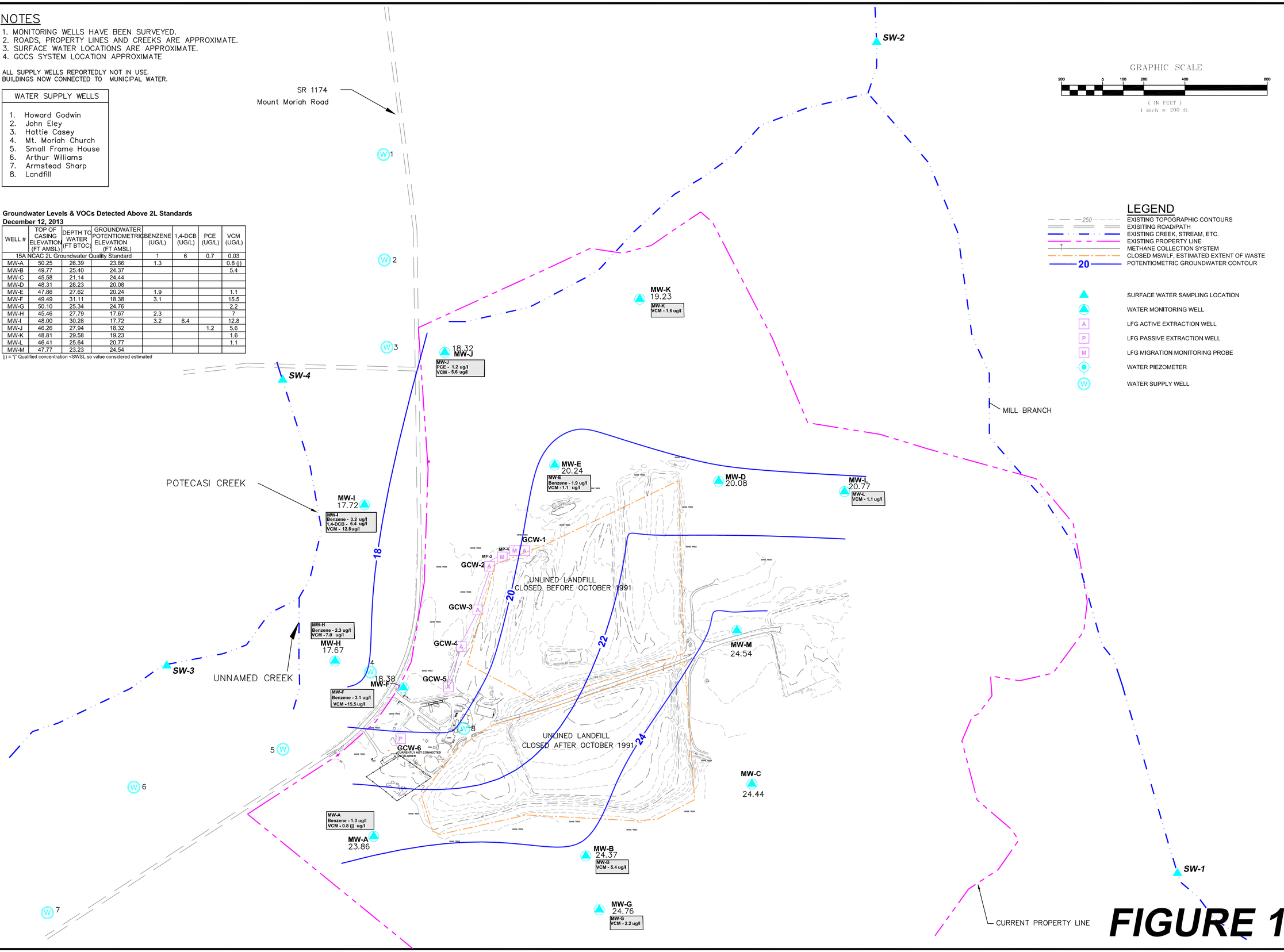

FIGURE 1

Municipal Services Engineering Company, P.A.
P.O. BOX 97, GARNER, N.C. 27529 (919) 772-5393
P.O. BOX 349 BOONE, N.C. 28607 (828) 262-1767
LICENSE NUMBER: C-0281

CLOSED UNLINED LANDFILL FACILITY
HERTFORD COUNTY NORTH CAROLINA

DATE	BY	REV.	DESCRIPTION

SINGLE-DAY POTENTIOMETRIC MAP WITH VOCs ABOVE 2L STANDARD

SCALE:	SEE BAR SCALE
DATE:	3/17/14
DRWN. BY:	J. PFOHL
CHKD. BY:	S. GANDY
PROJECT NUMBER	G13012.0
DRAWING NO.	FIGURE 1
SHEET NO.	1 OF 1

Tables

Table 1
Detections in Water Samples that Attain or Exceed SWSL, GWP, 2L or 2B
December 12, 2013

Sample ID	Parameter Name [1]	Sample Date	Result	Unit	MDL [2]	SWSL [3]	2L [4]	2B [5]	GWP [6]	Exceedance Amount	Preliminary Cause [7]
MW-A	**Benzene**	**12/12/13**	**1.3**	**ug/l**	**0.24**	**1**	**1**			**0.3**	**LFG**
MW-A	**Vinyl Chloride**	**12/12/13**	**0.8 j**	**ug/l**	**0.63**	**1**	**0.03**			**0.77**	**LFG**
MW-A	Cobalt, total	12/12/13	173	ug/l	0.02	10			70	103	
MW-A	Chlorobenzene	12/12/13	4	ug/l	0.3	3	50				
MW-A	Zinc, total	12/12/13	15	ug/l	0.47	10	1000				
MW-A	Barium, total	12/12/13	112	ug/l	0.06	100	700				
MW-B	**Vinyl Chloride**	**12/12/13**	**5.4**	**ug/l**	**0.63**	**1**	**0.03**			**5.37**	**LFG**
MW-B	Vanadium, total	12/12/13	4.5 j	ug/l	0.07	25			3.5	1	
MW-B	Cobalt, total	12/12/13	143	ug/l	0.02	10			70	73	
MW-B	Trichloroethene	12/12/13	3	ug/l	0.23	1	3				
MW-B	Arsenic, total	12/12/13	10	ug/l	0.05	10	10				
MW-B	Barium, total	12/12/13	131	ug/l	0.06	100	700				
MW-B	Cis-1,2-Dichloroethene	12/12/13	7.6	ug/l	0.25	5	70				
MW-B	Zinc, total	12/12/13	13	ug/l	0.47	10	1000				
MW-C	Vanadium, total	12/12/13	10.9 j	ug/l	0.07	25			3.5	7.4	
MW-C	Zinc, total	12/12/13	41	ug/l	0.47	10	1000				
MW-C	Beryllium, total	12/12/13	1	ug/l	0.03	1			4		
MW-D	Cobalt, total	12/12/13	23	ug/l	0.02	10			70		
MW-D	Barium, total	12/12/13	142	ug/l	0.06	100	700				
MW-D	Zinc, total	12/12/13	20	ug/l	0.47	10	1000				
MW-E	**Benzene**	**12/12/13**	**1.9**	**ug/l**	**0.24**	**1**	**1**			**0.9**	**L &/or LFG**
MW-E	**Vinyl Chloride**	**12/12/13**	**1.1**	**ug/l**	**0.63**	**1**	**0.03**			**1.07**	**L &/or LFG**
MW-E	Barium, total	12/12/13	112	ug/l	0.06	100	700				
MW-E	Arsenic, total	12/12/13	12	ug/l	0.05	10	50				
MW-E	Zinc, total	12/12/13	10	ug/l	0.47	10	1000				
MW-E	Cobalt, total	12/12/13	50	ug/l	0.02	10			70		
MW-E	Chlorobenzene	12/12/13	15.8	ug/l	0.3	3	50				
MW-E	1,4-Dichlorobenzene	12/12/13	4.1	ug/l	0.39	1	6				

Sample ID	Parameter Name [1]	Sample Date	Result	Unit	MDL [2]	SWSL [3]	2L [4]	2B [5]	GWP [6]	Exceedance Amount	Preliminary Cause [7]
MW-F	**Benzene**	**12/12/13**	**3.1**	**ug/l**	**0.24**	**1**	**1**			**2.1**	**L &/or LFG**
MW-F	**Vinyl Chloride**	**12/12/13**	**15.5**	**ug/l**	**0.63**	**1**	**0.03**			**15.47**	**L &/or LFG**
MW-F	Cobalt, total	12/12/13	146	ug/l	0.02	10			70	76	
MW-F	Barium, total	12/12/13	520	ug/l	0.06	100	700				
MW-F	Chlorobenzene	12/12/13	20.9	ug/l	0.3	3	50				
MW-F	1,4-Dichlorobenzene	12/12/13	5.3	ug/l	0.39	1	6				
MW-F	Cis-1,2-Dichloroethene	12/12/13	43.7	ug/l	0.25	5	70				
MW-F	Trichloroethene	12/12/13	1.3	ug/l	0.23	1	3				
MW-G	**Vinyl Chloride**	**12/12/13**	**2.2**	**ug/l**	**0.63**	**1**	**0.03**			**2.17**	**LFG**
MW-G	Zinc, total	12/12/13	32	ug/l	0.47	10	1000				
MW-G	Cobalt, total	12/12/13	28	ug/l	0.02	10			70		
MW-G	Barium, total	12/12/13	117	ug/l	0.06	100	700				
MW-H	**Benzene**	**12/12/13**	**2.3**	**ug/l**	**0.24**	**1**	**1**			**1.3**	**L &/or LFG**
MW-H	**Vinyl Chloride**	**12/12/13**	**7**	**ug/l**	**0.63**	**1**	**0.03**			**6.97**	**L &/or LFG**
MW-H	**Barium, total**	**12/12/13**	**1104**	**ug/l**	**0.06**	**100**	**700**			**404**	**N**
MW-H	Cobalt, total	12/12/13	225	ug/l	0.02	10			70	155	
MW-H	1,4-Dichlorobenzene	12/12/13	3.4	ug/l	0.39	1	6				
MW-H	Chlorobenzene	12/12/13	12.6	ug/l	0.3	3	50				
MW-H	Cis-1,2-Dichloroethene	12/12/13	18.2	ug/l	0.25	5	70				
MW-H	Zinc, total	12/12/13	34	ug/l	0.47	10	1000				
MW-I	**1,4-Dichlorobenzene**	**12/12/13**	**6.4**	**ug/l**	**0.39**	**1**	**6**			**0.4**	**L &/or LFG**
MW-I	**Benzene**	**12/12/13**	**3.2**	**ug/l**	**0.24**	**1**	**1**			**2.2**	**L &/or LFG**
MW-I	**Vinyl Chloride**	**12/12/13**	**12.8**	**ug/l**	**0.63**	**1**	**0.03**			**12.77**	**L &/or LFG**
MW-I	**Cadmium, total**	**12/12/13**	**3**	**ug/l**	**0.05**	**1**	**2**			**1**	**N**
MW-I	Vanadium, total	12/12/13	13.3 j	ug/l	0.07	25			3.5	9.8	
MW-I	Cobalt, total	12/12/13	94	ug/l	0.02	10			70	24	
MW-I	Chlorobenzene	12/12/13	20.7	ug/l	0.3	3	50				
MW-I	Zinc, total	12/12/13	203	ug/l	0.47	10	1000				
MW-I	Barium, total	12/12/13	232	ug/l	0.06	100	700				
MW-J	**Tetrachloroethene**	**12/12/13**	**1.2**	**ug/l**	**0.17**	**1**	**0.7**			**0.5**	**L &/or LFG**
MW-J	**Vinyl Chloride**	**12/12/13**	**5.6**	**ug/l**	**0.63**	**1**	**0.03**			**5.57**	**L &/or LFG**
MW-J	Cis-1,2-Dichloroethene	12/12/13	6.8	ug/l	0.25	5	70				
MW-J	Zinc, total	12/12/13	15	ug/l	0.47	10	1000				
MW-K	**Vinyl Chloride**	**12/12/13**	**1.6**	**ug/l**	**0.63**	**1**	**0.03**			**1.57**	**L &/or LFG**
MW-L	**Vinyl Chloride**	**12/12/13**	**1.1**	**ug/l**	**0.63**	**1**	**0.03**			**1.07**	**L &/or LFG**
MW-L	Zinc, total	12/12/13	33	ug/l	0.47	10	1000				
MW-L	Cobalt, total	12/12/13	34	ug/l	0.02	10			70		
MW-M	Cobalt, total	12/12/13	22	ug/l	0.02	10			70		

Sample ID	Parameter Name [1]	Sample Date	Result	Unit	MDL [2]	SWSL [3]	2L [4]	2B [5]	GWP [6]	Exceedance Amount	Preliminary Cause [7]
SW-1	Zinc, total	12/12/13	16	ug/l	0.47	10		50			
SW-2	Zinc, total	12/12/13	12	ug/l	0.47	10		50			
SW-3	Zinc, total	12/12/13	25	ug/l	0.47	10		50			
SW-3	Vanadium, total	12/12/13	7.1	ug/l	0.07	25		NE			

[1] Table contains constituents detected at or above SWSL, GWP, 2L, or 2B

[2] MDL = Method Detection Limit

[3] SWSL = Solid Waste Section Reporting Limit

[4] 2L = North Carolina 15A NCAC 2L Groundwater Quality Standard

[5] 2B = North Carolina 15 NCAC 2B Surface Water Quality Standard for this Specific Stream Classification

[6] GWP = Groundwater Protection Standard

j =The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL), adjusted for actual sample preparation data and moisture content, where applicable

[7] Preliminary Cause = Refers to a preliminary analysis of the cause and/or source of a detection over the respective 2L/2B Standard. A definitive source of the detection was not determined as part of this report.

NE = Not Established

N = Natural from erosion of natural deposits

L = Leachate

LFG = Landfill Gas

BOLD = Concentration > 2L, or 2B Standard

Table 2
Hydrologic Properties at Monitoring Well Locations
December 12, 2013

Monitoring Location	Hydraulic Conductivity (cm/second)	Effective Porosity (%)	Hydraulic Gradient (feet/feet)	Groundwater Average Linear Velocity Rate (feet/year)	Flow Direction	Depth to Groundwater (ft btoc)	Groundwater Potentiometric Elevation (ft amsl)	Screened Interval Lithology	Hydraulic Direction in Relation to Waste Limit
MW-A	7.30E-04	20	0.0015	6	N10W	26.39	23.86	Sand	Crossgradient
MW-B	6.90E-04	20	0.0054	19	N32W	25.4	24.37	Sand	Upgradient
MW-C	1.10E-04	20	0.0008	0	N59W	21.14	24.44	Clayey Sand	Upgradient
MW-D	4.40E-04	20	0.0010	2	N07E	28.23	20.08	Clayey Silt	Downgradient
MW-E	3.10E-03	20	0.0032	52	N59W	27.62	20.24	Sand	Downgradient
MW-F	3.10E-03	20	0.0084	135	N66E	31.11	18.38	Clayey Sand	Downgradient
MW-G	1.80E-03	20	0.0023	21	N20W	25.34	24.76	Sand	Upgradient
MW-H	4.60E-03	20	0.0020	49	N60W	27.79	17.67	Sand	Downgradient
MW-I	1.10E-03	20	0.0028	16	N79W	30.28	17.72	Sand	Downgradient
MW-J	1.20E-03	20	0.0030	19	N68W	27.94	18.32	Sand	Downgradient
MW-K	3.50E-03	20	0.0011	21	N13E	29.58	19.23	Sand	Downgradient
MW-L	1.60E-04	20	0.0099	8	N01E	25.64	20.77	Sand	Downgradient
MW-M	1.20E-03	20	0.0061	38	N01W	23.23	24.54	Sand	Crossgradient
Minimum	1.10E-04	20	0.0008	0	-	21.14	17.67	-	-
Average	1.67E-03	20	0.0037	30	-	26.90	21.11	-	-
Maximum	7.30E-04	20	0.0099	135	-	31.11	24.76	-	-

NOTE: Values for effective porosity & hydraulic conductivity obtained from GAI Consultants' *Assessment Report* (Feb. 1996).
Hydrologic Gradient from groundwater elevations reportedly recorded on December 12, 2013.
Average linear velocity rate (Q) is defined by modified Darcy's equation:

where

$$Q = -\frac{K}{n_e} \cdot \frac{dh}{dl}$$

K = hydraulic conductivity
n_e = effective porosity
dh = head difference
dl = horizontal distance

Appendix A
Laboratory Analysis Report
Field Analysis Report
Chains of Custody

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

ID#: 6025

HERTFORD COUNTY LANDFILL
C/O MUNICIPAL ENGINEERS
P.O. BOX 97
GARNER ,NC 27529

DATE COLLECTED: 12/12/13
DATE REPORTED : 01/09/14

REVIEWED BY:

PARAMETERS	MDL	SWSL	MWA	MWB	MW-C	MW-D	MW-E	Analysis Date	Analyst	Method Code
PH (field measurement), Units			6.0	6.0	5.1	5.6	5.8	12/12/13	BF	4500HB-00
Antimony, ug/l	0.02	6.0	0.30 J	0.09 J	0.10 J	0.09 J	0.10 J	12/19/13	LFJ	EPA200.8
Arsenic, ug/l	0.05	10.0	6.9 J	10	0.66 J	0.58 J	12	12/19/13	LFJ	EPA200.8
Barium, ug/l	0.06	100.0	112	131	88.2 J	142	112	12/19/13	LFJ	EPA200.8
Beryllium, ug/l	0.03	1.0	0.08 J	0.15 J	1	0.08 J	0.08 J	12/19/13	LFJ	EPA200.8
Cadmium, ug/l	0.05	1.0	0.80 J	0.14 J	0.19 J	0.15 J	0.18 J	12/19/13	LFJ	EPA200.8
Cobalt, ug/l	0.02	10.0	173	143	7.5 J	23	50	12/19/13	LFJ	EPA200.8
Copper, ug/l	0.06	10.0	2.5 J	2.0 J	3.7 J	1.1 J	1.6 J	12/19/13	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	0.59 J	4.1 J	3.3 J	0.39 J	0.36 J	12/19/13	LFJ	EPA200.8
Lead, ug/l	0.02	10.0	0.68 J	0.95 J	3.1 J	0.15 J	0.29 J	12/19/13	LFJ	EPA200.8
Mercury, ug/l	0.01	0.20	--- U	--- U	--- U	--- U		12/20/13	ADD	245.1 R3-94
Mercury, ug/l	0.01	0.20					--- U	01/03/14	ADD	245.1 R3-94
Nickel, ug/l	0.45	50.0	4.9 J	11.9 J	6.4 J	5.3 J	6.6 J	12/19/13	LFJ	EPA200.8
Selenium, ug/l	0.06	10.0	0.63 J	0.50 J	0.55 J	0.30 J	0.11 J	12/19/13	LFJ	EPA200.8
Silver, ug/l	0.03	10.0	--- U	--- U	--- U	--- U	--- U	12/19/13	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	0.04 J	--- U	0.03 J	--- U	--- U	12/19/13	LFJ	EPA200.8
Vanadium, ug/l	0.07	25.0	1.5 J	4.5 J	10.9 J	0.94 J	1.1 J	12/19/13	LFJ	EPA200.8
Zinc, ug/l	0.47	10.0	15	13	41	20	10	12/19/13	LFJ	EPA200.8
Conductivity (at 25c), uMhos/cm	1.0	1.0	558	465	87	424	402	12/12/13	BF	2510B-97
Temperature, °C			16	16	15	14	16	12/12/13	BF	2550B-00
Static Water Level, feet			26.39	25.40	21.14	28.23	27.62	12/12/13	BF	
Well Depth, feet			30.41	28.85	25.20	35.49	35.39	12/12/13	BF	

J = Between MDL and SWSL, U = Below ALL Quantitation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

ID#: 6025

HERTFORD COUNTY LANDFILL
C/O MUNICIPAL ENGINEERS
P.O. BOX 97
GARNER ,NC 27529

DATE COLLECTED: 12/12/13
DATE REPORTED : 01/09/14

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW-F	MW-G	MW-H	MW-I	MW-J	Analysis Date	Analyst	Method Code
PH (field measurement), Units			6.2	5.8	6.1	5.9	5.5	12/12/13	BF	4500HB-00
Antimony, ug/l	0.02	6.0	0.08 J	0.28 J	0.12 J	0.60 J	0.71 J	12/19/13	LFJ	EPA200.8
Arsenic, ug/l	0.05	10.0	4.1 J	5.0 J	2.0 J	2.5 J	--- U	12/19/13	LFJ	EPA200.8
Barium, ug/l	0.06	100.0	520	117	1104	232	82.3 J	12/19/13	LFJ	EPA200.8
Beryllium, ug/l	0.03	1.0	0.16 J	0.10 J	0.06 J	0.75 J	0.13 J	12/19/13	LFJ	EPA200.8
Cadmium, ug/l	0.05	1.0	0.06 J	0.31 J	--- U	3	0.33 J	12/19/13	LFJ	EPA200.8
Cobalt, ug/l	0.02	10.0	146	28	225	94	7.8 J	12/19/13	LFJ	EPA200.8
Copper, ug/l	0.06	10.0	1.2 J	1.1 J	1.2 J	9.9 J	1.2 J	12/19/13	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	--- U	0.12 J	--- U	7.7 J	0.74 J	12/19/13	LFJ	EPA200.8
Lead, ug/l	0.02	10.0	0.16 J	0.25 J	0.03 J	4.5 J	0.11 J	12/19/13	LFJ	EPA200.8
Mercury, ug/l	0.01	0.20	--- U	--- U	--- U	2.0	--- U	01/03/14	ADD	245.1 R3-94
Nickel, ug/l	0.45	50.0	9.2 J	8.8 J	32.4 J	16.2 J	5.3 J	12/19/13	LFJ	EPA200.8
Selenium, ug/l	0.06	10.0	1.2 J	0.42 J	0.82 J	1.7 J	0.57 J	12/19/13	LFJ	EPA200.8
Silver, ug/l	0.03	10.0	--- U	--- U	--- U	0.04 J	--- U	12/19/13	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	0.08 J	--- U	1.5 J	0.18 J	--- U	12/19/13	LFJ	EPA200.8
Vanadium, ug/l	0.07	25.0	0.48 J	0.80 J	0.08 J	13.3 J	0.48 J	12/19/13	LFJ	EPA200.8
Zinc, ug/l	0.47	10.0	7.9 J	32	34	203	15	12/19/13	LFJ	EPA200.8
Conductivity (at 25c), uMhos/cm	1.0	1.0	1008	311	701	576	207	12/12/13	BF	2510B-97
Temperature, °C			16	15	14	14	14	12/12/13	BF	2550B-00
Static Water Level, feet			31.11	25.34	27.79	30.28	27.94	12/12/13	BF	
Well Depth, feet			35.28	39.65	37.11	36.47	38.45	12/12/13	BF	

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Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
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ID#: 6025

HERTFORD COUNTY LANDFILL
C/O MUNICIPAL ENGINEERS
P.O. BOX 97
GARNER ,NC 27529

DATE COLLECTED: 12/12/13
DATE REPORTED : 01/09/14

REVIEWED BY:

PARAMETERS	MDL	SWSL	MW-K	MW-L	MW-M	Equipment Blank	Trip Blank	Analysis Date	Analyst	Method Code
PH (field measurement), Units			5.6	5.5	5.6			12/12/13	BF	4500HB-00
Antimony, ug/l	0.02	6.0	0.09 J	0.30 J	1.5 J	0.03 J		12/19/13	LFJ	EPA200.8
Arsenic, ug/l	0.05	10.0	--- U	0.88 J	--- U	--- U		12/19/13	LFJ	EPA200.8
Barium, ug/l	0.06	100.0	49.9 J	73.7 J	54.7 J	0.12 J		12/19/13	LFJ	EPA200.8
Beryllium, ug/l	0.03	1.0	0.10 J	0.17 J	0.18 J	--- U		12/19/13	LFJ	EPA200.8
Cadmium, ug/l	0.05	1.0	0.15 J	0.43 J	0.06 J	--- U		12/19/13	LFJ	EPA200.8
Cobalt, ug/l	0.02	10.0	0.14 J	34	22	0.08 J		12/19/13	LFJ	EPA200.8
Copper, ug/l	0.06	10.0	1.1 J	0.83 J	1.5 J	0.38 J		12/19/13	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	0.38 J	0.06 J	1.8 J	0.37 J		12/19/13	LFJ	EPA200.8
Lead, ug/l	0.02	10.0	0.07 J	0.20 J	1.4 J	--- U		12/19/13	LFJ	EPA200.8
Mercury, ug/l	0.01	0.20	--- U	--- U	--- U	--- U		01/03/14	ADD	245.1 R3-94
Nickel, ug/l	0.45	50.0	2.7 J	4.8 J	2.2 J	--- U		12/19/13	LFJ	EPA200.8
Selenium, ug/l	0.06	10.0	0.11 J	0.36 J	0.69 J	--- U		12/19/13	LFJ	EPA200.8
Silver, ug/l	0.03	10.0	--- U	0.03 J	--- U	--- U		12/19/13	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	--- U	0.19 J	--- U	--- U		12/19/13	LFJ	EPA200.8
Vanadium, ug/l	0.07	25.0	0.65 J	0.77 J	1.7 J	--- U		12/19/13	LFJ	EPA200.8
Zinc, ug/l	0.47	10.0	6.5 J	33	6.8 J	1.3 J		12/19/13	LFJ	EPA200.8
Conductivity (at 25c), uMhos/cm	1.0	1.0	185	175	96			12/12/13	BF	2510B-97
Temperature, °C			14	15	17			12/12/13	BF	2550B-00
Static Water Level, feet			29.58	25.64	23.23			12/12/13	BF	
Well Depth, feet			42.92	35.19	38.38			12/12/13	BF	

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Environment 1, Incorporated

Drinking Water ID: 37715
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CLIENT: HERTFORD COUNTY LANDFILL
C/O MUNICIPAL ENGINEERS
P.O. BOX 97
GARNER, NC 27529

CLIENT ID: 6025

ANALYST: MAO
DATE COLLECTED: 12/12/13
DATE REPORTED: 01/09/14

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B R1(96)

PARAMETERS, ug/l	MDL	SWSL	12/17/13 MWA	12/17/13 MWB	12/18/13 MW-C	12/18/13 MW-D	12/18/13 MW-E
	Date Analyzed:						
1. Chloromethane	0.77	1.0	--- U	--- U	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	0.80 J	5.40	--- U	--- U	1.10
3. Bromomethane	0.67	10.0	--- U	--- U	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	--- U	--- U	--- U	1.10 J
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U	--- U	--- U	--- U
7. Acetone	9.06	100.0	--- U	--- U	--- U	--- U	--- U
8. Iodomethane	0.26	10.0	--- U	--- U	--- U	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U	--- U	--- U	--- U
10. Methylene Chloride	0.64	1.0	--- U	--- U	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	0.30 J	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	0.50 J	1.40 J	--- U	--- U	0.50 J
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	0.30 J	7.60	--- U	0.80 J	--- U
15. 2-Butanone	2.21	100.0	--- U	--- U	--- U	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U	--- U	--- U	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	--- U	--- U	--- U	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U	--- U	--- U	--- U	--- U
20. Benzene	0.24	1.0	1.30	0.30 J	--- U	--- U	1.90
21. 1,2-Dichloroethane	0.27	1.0	--- U	--- U	--- U	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	3.00	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U	--- U	--- U	--- U
27. Toluene	0.23	1.0	--- U	--- U	--- U	--- U	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	--- U	--- U	--- U	--- U
30. Tetrachloroethene	0.17	1.0	--- U	--- U	--- U	--- U	--- U
31. 2-Hexanone	1.57	50.0	--- U	--- U	--- U	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U	--- U	--- U	--- U
34. Chlorobenzene	0.30	3.0	4.00	0.60 J	--- U	0.40 J	15.80
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U	--- U	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U	--- U	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- U	--- U	--- U	--- U
40. Bromoform	0.20	3.0	--- U	--- U	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	0.90 J	--- U	--- U	--- U	4.10
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U	--- U	--- U	--- U	--- U
46. Acrylonitrile	2.72	200.0	--- U	--- U	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U	--- U	--- U	--- U	--- U

J = Between MDL and SWSL, U = Below ALL Quantitation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

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P.O. BOX 97
GARNER, NC 27529

CLIENT ID: 6025

ANALYST: MAO
DATE COLLECTED: 12/12/13
DATE REPORTED: 01/09/14

REVIEWED BY: _____

VOLATILE ORGANICS
EPA METHOD 8260B R1(96)

PARAMETERS, ug/l	MDL	SWSL	12/18/13 MW-F	12/18/13 MW-G	12/18/13 MW-H	12/18/13 MW-I	12/18/13 MW-J
Date Analyzed:			12/18/13	12/18/13	12/18/13	12/18/13	12/18/13
1. Chloromethane	0.77	1.0	--- U	--- U	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	15.50	2.20	7.00	12.80	5.60
3. Bromomethane	0.67	10.0	--- U	--- U	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	1.60 J	--- U	--- U	1.30 J	0.80 J
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U	--- U	--- U	--- U
7. Acetone	9.06	100.0	--- U	--- U	--- U	--- U	--- U
8. Iodomethane	0.26	10.0	--- U	--- U	--- U	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U	--- U	--- U	--- U
10. Methylene Chloride	0.64	1.0	--- U	--- U	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	0.40 J	--- U	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	3.10 J	--- U	1.50 J	1.40 J	0.80 J
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	43.70	--- U	18.20	2.30 J	6.80
15. 2-Butanone	2.21	100.0	--- U	--- U	--- U	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U	--- U	--- U	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	--- U	--- U	--- U	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U	--- U	--- U	--- U	--- U
20. Benzene	0.24	1.0	3.10	--- U	2.30	3.20	0.80 J
21. 1,2-Dichloroethane	0.27	1.0	--- U	--- U	--- U	--- U	--- U
22. Trichloroethene	0.23	1.0	1.30	--- U	--- U	--- U	0.80 J
23. 1,2-Dichloropropane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U	--- U	--- U	--- U
27. Toluene	0.23	1.0	0.50 J	--- U	--- U	--- U	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	--- U	--- U	--- U	--- U
30. Tetrachloroethene	0.17	1.0	--- U	--- U	--- U	--- U	1.20
31. 2-Hexanone	1.57	50.0	--- U	--- U	--- U	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U	--- U	--- U	--- U
34. Chlorobenzene	0.30	3.0	20.90	--- U	12.60	20.70	0.80 J
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U	--- U	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U	--- U	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- U	--- U	--- U	--- U
40. Bromoform	0.20	3.0	--- U	--- U	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	5.30	--- U	3.40	6.40	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U	--- U	--- U	--- U	--- U
46. Acrylonitrile	2.72	200.0	--- U	--- U	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U	--- U	--- U	--- U	--- U

J = Between MDL and SWSL, U = Below ALL Quantitation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

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CLIENT ID: 6025

ANALYST: MAO
DATE COLLECTED: 12/12/13
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REVIEWED BY: _____

VOLATILE ORGANICS
EPA METHOD 8260B R1(96)

PARAMETERS, ug/l	Date Analyzed: MDL	SWSL	12/18/13 MW-X	12/18/13 MW-L	12/18/13 MW-M	12/18/13 Equipment Blank	12/30/13 Trip Blank
1. Chloromethane	0.77	1.0	--- U	--- U	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	1.60	1.10	--- U	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	--- U	--- U	--- U	--- U
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U	--- U	--- U	--- U
7. Acetone	9.06	100.0	--- U	--- U	--- U	--- U	--- U
8. Iodomethane	0.26	10.0	--- U	--- U	--- U	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U	--- U	--- U	--- U
10. Methylene Chloride	0.64	1.0	--- U	--- U	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	--- U	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	--- U	--- U	--- U	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	1.20 J	0.90 J	--- U	--- U	--- U
15. 2-Butanone	2.21	100.0	--- U	--- U	--- U	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U	--- U	--- U	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	--- U	--- U	--- U	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U	--- U	--- U	--- U	--- U
20. Benzene	0.24	1.0	--- U	--- U	--- U	--- U	--- U
21. 1,2-Dichloroethane	0.27	1.0	--- U	--- U	--- U	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	--- U	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U	--- U	--- U	--- U
27. Toluene	0.23	1.0	--- U	--- U	--- U	--- U	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	--- U	--- U	--- U	--- U
30. Tetrachloroethene	0.17	1.0	0.20 J	--- U	--- U	--- U	--- U
31. 2-Hexanone	1.57	50.0	--- U	--- U	--- U	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U	--- U	--- U	--- U
34. Chlorobenzene	0.30	3.0	--- U	--- U	0.40 J	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U	--- U	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U	--- U	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- U	--- U	--- U	--- U
40. Bromoform	0.20	3.0	--- U	--- U	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	--- U	--- U	--- U	--- U	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U	--- U	--- U	--- U	--- U
46. Acrylonitrile	2.72	200.0	--- U	--- U	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U	--- U	--- U	--- U	--- U

J = Between MDL and SWSL, U = Below ALL Quantitation Limits.

Environment 1, Inc.
P.O. Box 7085 114 Oakmont Dr.
Greenville, NC 27858

Phone (252) 756-6208 • Fax (252) 756-0633

CHAIN OF CUSTODY RECORD

CLIENT: 6025 Week: 52

HERTFORD COUNTY LANDFILL
C/O MUNICIPAL ENGINEERS
P.O. BOX 97
GARNER NC 27529

(919) 772-5393

DISINFECTION: ☐ CHLORINE ☐ UV ☐ NONE ☐ _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE mg/l ON-SITE COLLECTION	TEMPERATURE °C AT COLLECTION	# OF CONTAINERS	Field pH	Metals	Conductivity	Temperature	Field Parameter	EPA 8260B	8260 Dup. 1	8260 Dup. 2
CHLORINE NEUTRALIZED AT COLLECTION													
pH CHECK (LAB)							12				12	12	12
CONTAINER TYPE, P/G						P	P	P	P		G	G	G
CHEMICAL PRESERVATION						A	A	A	A		E	E	E
MWA	12-12-13	0925		16	5	G	G	G	G	G	G	G	G
MWB	12-12-13	0845		16	4	G	G	G	G	G	G	G	
MW-C	12-12-13	0915		15	4	G	G	G	G	G	G	G	
MW-D	12-12-13	1025		14	4	G	G	G	G	G	G	G	
MW-E	12-12-13	1015		16	4	G	G	G	G	G	G	G	
MW-F	12-12-13	0935		16	4	G	G	G	G	G	G	G	
MW-G	12-12-13	0850		15	4	G	G	G	G	G	G	G	
MW-H	12-12-13	0940		14	4	G	G	G	G	G	G	G	
MW-I	12-12-13	0950		14	4	G	G	G	G	G	G	G	
MW-J	12-12-13	1005		14	4	G	G	G	G	G	G	G	
MW-K	12-12-13	1040		14	4	G	G	G	G	G	G	G	

PARAMETERS

A - NONE D - NAOH
B - HNO_3 E - HCL
C - H_2SO_4 F - ZINC ACETATE/NAOH
G - NA THIOSULFATE

CLASSIFICATION:
☐ WASTEWATER (NPDES)
☐ DRINKING WATER
☐ DWQ/GW
☒ SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY: (Y) N

SAMPLES COLLECTED BY: (Please Print) Bobby / Tom

SAMPLES RECEIVED IN LAB AT 0.4 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Tom Beasley	12-12-13 1250	B. [illegible]	12/12/13 1:19
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

PLEASE READ Instructions for completing this form on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter required.

FORM #5

№ 269992

Environmental 1, Inc.
P.O. Box 7085, 111 Oakmont Dr.
Greenville, NC 27858

Phone (252) 756-6208 • Fax (252) 756-0633

CHAIN OF CUSTODY RECORD

CLIENT: 6025 Week: 52

HERTFORD COUNTY LANDFILL
C/O MUNICIPAL ENGINEERS
P.O. BOX 97
GARNER NC 27529

(919) 772-5393

DISINFECTION: ☐ CHLORINE ☐ UV ☐ NONE ☐ _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE mg/l AT COLLECTION	TEMPERATURE C AT COLLECTION	# OF CONTAINERS	Field pH	Metals	Conductivity	Temperature	Field Parameter	EPA 8260B	8260 Dup. 1	8260 Dup. 2
CHLORINE NEUTRALIZED AT COLLECTION													
pH CHECK (LAB)							12				12	12	12
CONTAINER TYPE, P/G						P	P	P	P		G	G	G
CHEMICAL PRESERVATION						A	A	A	A		E	E	E
MW-L	12-12-13	1035		15	4	G	G	G	G	G	G	G	
MW-M	12-12-13	0405		17	5	G	G	G	G	G	G	G	G
Equipment Blank	12-12-13	0840			3		G				G	G	
Trip Blank					2						G	G	

PARAMETERS

A - NONE D - NAOH
B - HNO_3 E - HCL
C - H_2SO_4 F - ZINC ACETATE/NAOH
G - NA THIOSULFATE

CLASSIFICATION:
☐ WASTEWATER (NPDES)
☐ DRINKING WATER
☐ DWQ/GW
☒ SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY
(Y) N

SAMPLES COLLECTED BY: (Please Print)
Bobby / TOM

SAMPLES RECEIVED IN LAB AT 04 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Tom Beasley	12-12-13 1250	[signature]	12/12/13 1:19
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

PLEASE READ Instructions for completing this form on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each sample.

FORM #5

№ 269991

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

ID#: 6025 A

HERTFORD COUNTY LANDFILL
C/O MUNICIPAL ENGINEERS
P.O. BOX 97
GARNER ,NC 27529

DATE COLLECTED: 12/12/13
DATE REPORTED : 01/09/14

REVIEWED BY:

PARAMETERS	MDL	SWSL	SW-1	SW-2	SW-3	SW-4	Analysis Date	Analyst	Method Code
PH (field measurement), Units			6.6	6.4	7.1	7.1	12/12/13	BF	4500HB-00
Antimony, ug/l	0.02	6.0	0.05 J	0.06 J	0.15 J	0.06 J	12/19/13	LFJ	EPA200.8
Arsenic, ug/l	0.05	10.0	0.24 J	0.64 J	0.89 J	0.23 J	12/19/13	LFJ	EPA200.8
Barium, ug/l	0.06	100.0	30.9 J	43.2 J	34.5 J		12/19/13	LFJ	EPA200.8
Barium, ug/l	0.06	100.0				85.2 J	12/17/13	LFJ	EPA200.8
Beryllium, ug/l	0.03	1.0	0.06 J	0.04 J	0.10 J	--- U	12/19/13	LFJ	EPA200.8
Cadmium, ug/l	0.05	1.0	0.08 J	0.08 J	0.07 J	0.07 J	12/19/13	LFJ	EPA200.8
Cobalt, ug/l	0.02	10.0	3.1 J	2.4 J	0.56 J	2.8 J	12/19/13	LFJ	EPA200.8
Copper, ug/l	0.06	10.0	2.6 J	2.3 J	5.7 J	3.4 J	12/19/13	LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	1.4 J	1.2 J	4.5 J	0.28 J	12/19/13	LFJ	EPA200.8
Lead, ug/l	0.02	10.0	1.4 J	1.1 J	4.9 J	0.30 J	12/19/13	LFJ	EPA200.8
Nickel, ug/l	0.45	50.0	1.8 J	1.5 J	2.0 J	31.4 J	12/19/13	LFJ	EPA200.8
Selenium, ug/l	0.06	10.0	--- U	--- U	0.16 J	0.50 J	12/19/13	LFJ	EPA200.8
Silver, ug/l	0.03	10.0	--- U	--- U	--- U	--- U	12/19/13	LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	--- U	--- U	0.03 J	0.04 J	12/19/13	LFJ	EPA200.8
Vanadium, ug/l	0.07	25.0	2.0 J	1.7 J	7.1 J	0.82 J	12/19/13	LFJ	EPA200.8
Zinc, ug/l	0.47	10.0	16	12	25	8.7 J	12/19/13	LFJ	EPA200.8
Conductivity (at 25c), uMhos/cm	1.0	1.0	95	124	181	243	12/12/13	BF	2510B-97
Temperature, °C			5	5	5	5	12/12/13	BF	2550B-00

J = Between MDL and SWSL, U = Below ALL Quantitation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: HERTFORD COUNTY LANDFILL
C/O MUNICIPAL ENGINEERS
P.O. BOX 97
GARNER, NC 27529

CLIENT ID: 6025 A

ANALYST: MAO
DATE COLLECTED: 12/12/13
DATE ANALYZED: 12/20/13
DATE REPORTED: 01/09/14

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B R1(96)

PARAMETERS, ug/l	MDL	SWSL	SW-1	SW-2	SW-3	SW-4
1. Chloromethane	0.77	1.0	--- U	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	--- U	--- U	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	--- U	--- U	--- U
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U	--- U	--- U
7. Acetone	9.06	100.0	--- U	--- U	--- U	--- U
8. Iodomethane	0.26	10.0	--- U	--- U	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U	--- U	--- U
10. Methylene Chloride	0.64	1.0	--- U	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	--- U	--- U	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	--- U	--- U	--- U
15. 2-Butanone	2.21	100.0	--- U	--- U	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U	--- U	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	--- U	--- U	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U	--- U	--- U	--- U
20. Benzene	0.24	1.0	--- U	--- U	--- U	--- U
21. 1,2-Dichloroethane	0.27	1.0	--- U	--- U	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U	--- U	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U	--- U	--- U
27. Toluene	0.23	1.0	--- U	--- U	--- U	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	--- U	--- U	--- U
30. Tetrachloroethene	0.17	1.0	--- U	--- U	--- U	--- U
31. 2-Hexanone	1.57	50.0	--- U	--- U	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U	--- U	--- U
34. Chlorobenzene	0.30	3.0	--- U	--- U	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- U	--- U	--- U
40. Bromoform	0.20	3.0	--- U	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	--- U	--- U	--- U	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U	--- U	--- U	--- U
46. Acrylonitrile	2.72	200.0	--- U	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U	--- U	--- U	--- U

J = Between MDL and SWSL, U = Below ALL Quantitation Limits.

Environment 1, Inc.
P.O. Box 7085, 114 Oakmont Dr.
Greenville, NC 27858
Phone (252) 756-6208 • Fax (252) 756-0633

CHAIN OF CUSTODY RECORD

CLIENT: 6025 A Week: 52

HERTFORD COUNTY LANDFILL
C/O MUNICIPAL ENGINEERS
P.O. BOX 97
GARNER NC 27529

(919) 772-5393

DISINFECTION: ☐ CHLORINE ☐ UV ☐ NONE ☐ _____

							12			12	12										
						P	P	P	P	G	G										
						A	A	A	A	E	E										
SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l OF (g) AT COLLECTION	TEMPERATURE °C AT COLLECTION	# OF CONTAINERS	Field pH	Metals	Conductivity	Temperature	EPA 8260B	8260 Dup. 1										
SW-1	12-12-13	1110		5	4	G	G	G	G	G	G										
SW-2	12-12-13	1100		5	4	G	G	G	G	G	G										
SW-3	12-12-13	0945		5	4	G	G	G	G	G	G										
SW-4	12-12-13	1000		5	4	G	G	G	G	G	G										

PARAMETERS

CHLORINE NEUTRALIZED AT COLLECTION

pH CHECK (LAB)

CONTAINER TYPE, P/G

CHEMICAL PRESERVATION

A - NONE D - NAOH
B - HNO_3 E - HCL
C - H_2SO_4 F - ZINC ACETATE/NAOH
G - NA THIOSULFATE

CLASSIFICATION:

☐ WASTEWATER (NPDES)
☐ DRINKING WATER
☐ DWQ/GW
☒ SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY
(Y) N

SAMPLES COLLECTED BY: (Please Print)
Bobby / Tom

SAMPLES RECEIVED IN LAB AT 04 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Tom Beasley	12-12-13 1250	[signature]	12/12/13 1.19
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

PLEASE READ Instructions for completing this form on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter requested.

FORM #5

№ 269990