
Semi-Annual Water Quality Monitoring Report

Prepared for

Lenoir County Subtitle D Lined MSWLF
LaGrange, North Carolina

July 2011

Permit Number: 54-09

MESCO Project Number: G11029.0

Submitted on October 7, 2011

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



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

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)
Lenoir County Subtitle D Lined MSWLF, Phase 1	2949 Hodges Farm Road LaGrange, NC 28501	54-09	.1600	July 20 & 21, 2011

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

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.

Madeline German, PG Geologist (919) 772-5393

Facility Representative Name (Print)

Title

(Area Code) Telephone Number

Affix NC Licensed/ Professional Geologist Seal

Signature

Date

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

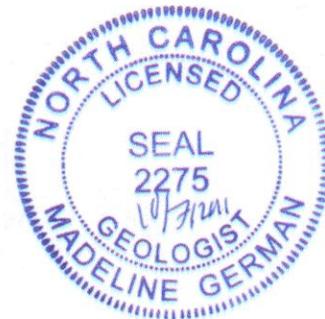


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**Municipal
Services****Engineering
Company, P.A.**

October 7, 2011

Ms. Jaclyne Drummond
Solid Waste Section
Division of Waste Management
North Carolina Department of Environment and Natural Resources
401 Oberlin Road, Suite 150
Raleigh, NC 27605

Re: Semi-Annual Water Quality Monitoring Report
Lenoir County Subtitle D Lined Landfill, Phase 1
Permit No. 54-09
MESCO Project No. G11029.0

Dear Ms. Drummond:

Introduction

The Lenoir County Subtitle D lined MSWLF located near LaGrange NC is not currently accepting waste; but is required to submit semi-annual water quality compliance reports as a condition of the detection monitoring program under permit #54-09. Environment 1 (E1) of Greenville, NC performed this sampling event on July 20 & 21, 2011 in accordance with the semi-annual monitoring schedule prescribed by the NC Solid Waste Section (SWS) rules/regulations as promulgated in rule 15A NCAC 13B.1600. A topographic map showing the facility location is included as **Plate 1**.

As specified within rule 15A NCAC 13B.1632(j) and the SWS Environmental Monitoring Report Form, this report contains sampling procedures, field and laboratory results, statistical analysis, groundwater and surface water characterization, and findings. A detections table, single-day potentiometric map, hydrologic properties table, and field/laboratory analytical results with chains of custody (C-O-C) are enclosed.

Sampling Procedure

E1 reportedly performed this sampling event utilizing portable monitoring methodology in accordance with the approved Sampling & Analysis Plan (SAP) contained in the Lenoir County Landfill, Phase 1 *Design Hydrogeologic Study* dated August 19, 2002. E1 reportedly collected and performed laboratory analysis on water samples from four downgradient groundwater monitoring wells (MW-14 through MW-17), two background wells (MW-13 and MW-18), and the the leachate lagoon (LAGOON). Quality control measures implemented during this event included submittal and subsequent quantification of a trip blank (TB) and equipment blank (EB). The designated surface water point SW-3 was reported to be dry. Monitoring locations are shown on **Plate 2**.

Static water levels in each well were measured electronically prior to purging. Additional static water level readings were recorded from six supplementary piezometers (P-3A, P1-4, P1-14, P-14, P-17, and P-22) to improve potentiometric map coverage. The field parameters pH, specific conductance, temperature, dissolved oxygen (DO), oxidation reduction potential (ORP) and turbidity were also recorded by E1. Collected samples were transported under proper C-O-C protocol and analyzed within the specified hold times for each method.

Field Parameter Data

Field parameter data, as recorded by E1, is presented in the laboratory results report (**Appendix B**).

Laboratory Results

Groundwater monitoring wells contained in the SAP were reportedly sampled and analyzed for the Appendix I list of volatile organic compounds (VOCs) and total unfiltered metals as listed in CFR Part 258. The TB was analyzed for the Appendix I list of VOCs. The lined leachate lagoon (LAGOON) was sampled and analyzed for the SWS required leachate specific parameters (Appendix I VOCs, Appendix I metals, nitrate, phosphorus, chemical oxygen demand, biological oxygen demand, pH, and sulfate). Water samples were analyzed to the laboratory-established Method Detection Limits (MDL), which are at or below the current Solid Waste Section Limit (SWSL). A sampling and analysis table summarizing the locations, target parameters and laboratory methods is presented as **Table 1**. Laboratory results and C-O-Cs are presented in **Appendix B**.

Quality Control Samples

Constituents were not reported in quantifiable concentrations in either the TB or EB. Therefore, it appears that the data set's validity is likely not effected by false positives or high bias attributed to field and/or laboratory artifact contamination.

Groundwater Samples

MW-17, which monitors the lined leachate lagoon, contained a quantifiable concentration of barium; however, current and historic barium concentrations have not been reported at levels above the 2L Standard. VOCs continue to be absent from groundwater samples. Constituents detected in groundwater samples above the current SWSL, Groundwater Protection Standards (GWP), North Carolina Groundwater Standards (2L) or the applicable Class C North Carolina Surface Water Standards (2B) are summarized in **Table 2**.

Surfacewater Samples

Surface water monitoring point SW-3 was reported to be dry, therefore, no surface water data was reported for this event.

Leachate Samples

The leachate sample (LAGOON) lacked quantifiable concentrations of Appendix I constituents. The leachate lagoon detections are found on **Table 3**.

Groundwater and Surface Water Characterization

A single-day potentiometric map of the uppermost aquifer created from groundwater elevation data collected during this event is presented as **Plate 2**. Groundwater flow rates and directions were calculated based on this data and are included in **Table 4**. Groundwater flow was in a general northeasterly direction towards the designated wetlands and ranged from approximately 1 feet/year (MW-13) to 285 feet/year (MW-14) averaging approximately 87 feet/year. Surface water SW-3 has reportedly been dry during each event since July 2007. The flow directions and gradients are generally consistent with historical observations.

Findings

Laboratory data results continue to indicate that the groundwater quality beneath the MSWLF and leachate lagoon remain unimpacted.

Closing

Detection monitoring will continue and the next semi-annual sampling event is tentatively scheduled for January 2012. Please contact us by phone at (919) 772-5393 or by email at jpfohl@mesco.com or mgerman@mesco.com if you have any questions or comments.

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



Jonathan Pfohl
Environmental Specialist



Madeline, German, PG
Geologist

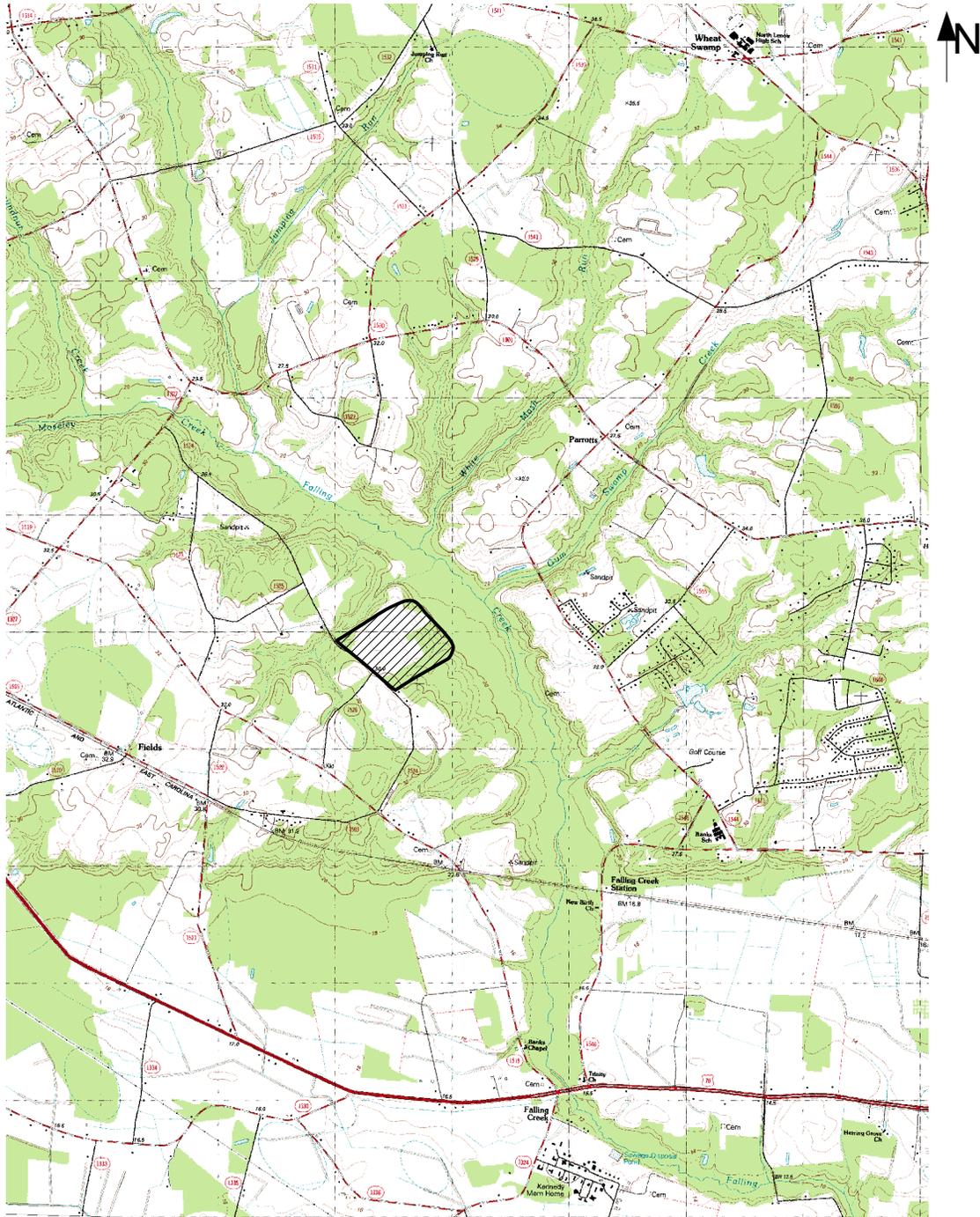


Enclosures
cc: Mr. Tom Miller
Lenoir County

Figures

Topographic Map with Site Location

Lenoir County Landfill Facility



2949 Hodges Farm Rd (SR1524)
LaGrange, NC 28501
Lat:35-17-07.4269
Long:-77-42-32.7453
Northing:561295.59
Easting:2385220.32

QUADRANGLE LEGEND

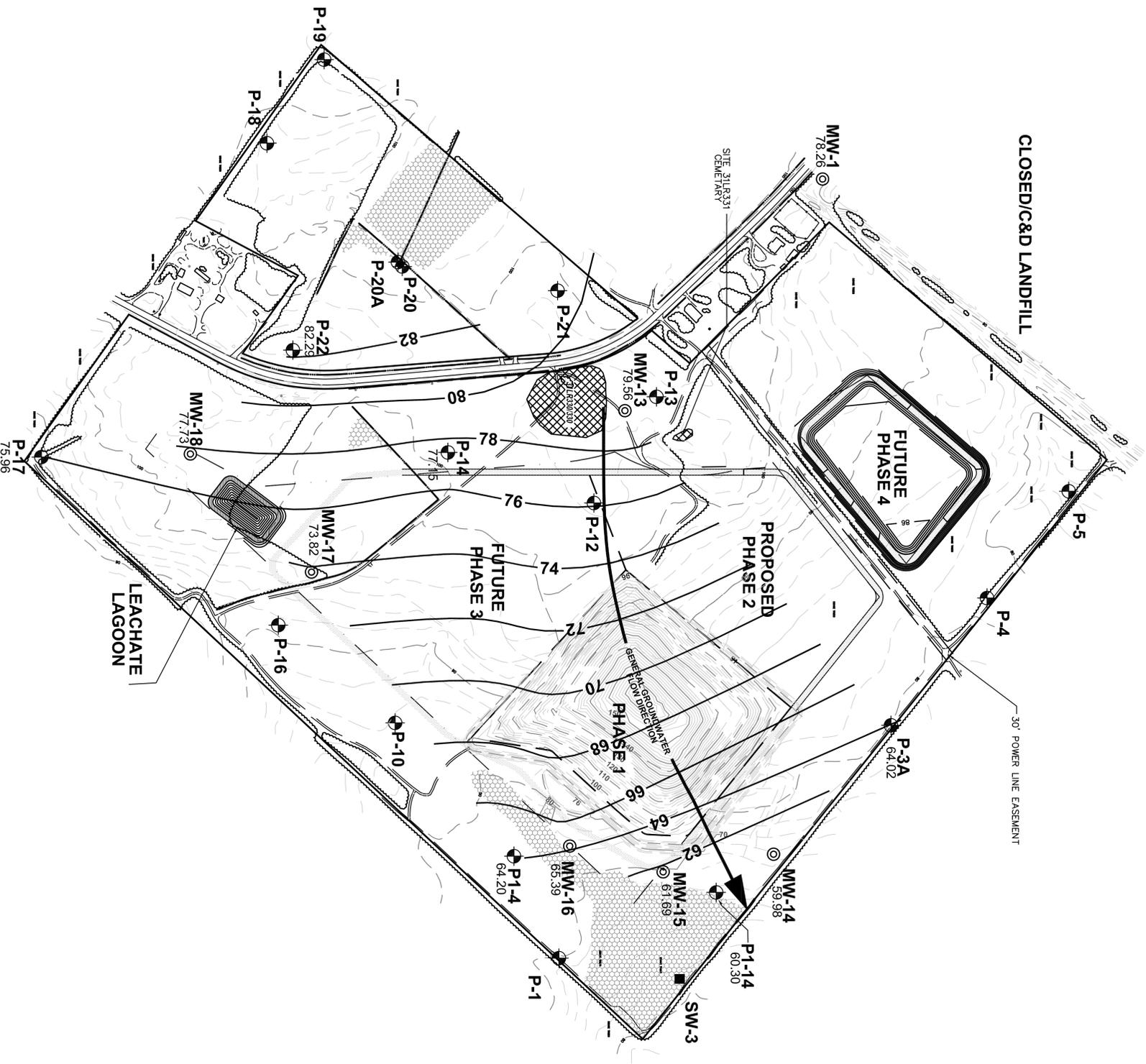
ROAD CLASSIFICATION	
Primary highway, hard surface	Light-duty road, hard or improved surface
Secondary highway, hard surface	Unimproved road
Interstate Route	U. S. Route
	State Route

LEGEND

- EXISTING TOPOGRAPHIC CONTOURS
- PROPERTY LINE
- EXISTING PATH
- BUFFER ZONE
- PHASES OF OPERATION
- EXISTING PIEZOMETER
- ARCHAEOLOGICAL SITES
- WETLANDS
- MONITORING WELL
- SURFACE WATER MONITORING LOCATION
- EQUIPOTENTIAL GROUNDWATER CONTOURS
- 81.69
- GROUNDWATER ELEVATION (FT. AMSL.)

NOTES

1. ARCHAEOLOGICAL SITE 31LR331 (CEMETERY) WILL NOT BE DISTURBED.
2. ARCHAEOLOGICAL SITE 31LR330 WILL BE DISTURBED.



Groundwater Elevations

July 20, 2011

WELL #	TOP OF CAPTION ELEVATION (FT. AMSL.)	DEPTH TO GROUNDWATER (FT. BTOC)	GROUNDWATER ELEVATION (FT. AMSL.)
MW-13	107.81	28.25	79.56
MW-14	74.81	14.83	59.98
MW-15	71.64	9.95	61.69
MW-16	76.36	10.97	65.39
MW-17	101.06	27.24	73.82
MW-18	106.74	29.01	77.73
MW-1	98.34	20.08	78.26
MW-17	82.19	18.17	64.02
MW-14	78.80	14.60	64.20
MW-15	69.22	8.92	60.30
MW-17	104.07	26.92	77.15
MW-18	90.57	14.61	75.96
MW-22	110.40	28.11	82.29

PLATE 2

**SUBTITLE D LINED MSW
LANDFILL FACILITY
LENOIR COUNTY
NORTH CAROLINA**

LICENSE NUMBER: C-0281

Municipal Services
P.O. BOX 97 GARNER, N.C. 27529
(919) 772-5393



Engineering Company, P.A.
P.O. BOX 349 BOONE, N.C. 28607
(828) 262-1767

DATE	BY	REV.	DESCRIPTION

SCALE: 1"=200'
DATE: 10/27/11
DRAWN BY: J.FROHL
CHKD. BY: M. GERMAN
PROJECT NUMBER: G11029.0
SHEET NO. 1 OF 1

Tables

Table 1
Sampling and Analysis Summary
July 20, 2011

	Reason Not Sampled	App. I		Field Parameter						Leachate					
		VOCs	Total Metals	Dissolved Oxygen (DO)	Oxidation Reduction Potential (ORP)	Temperature	Conductivity	pH	Turbidity	Sulfate	pH	Phosphorus	BOD, 5 day	COD	Nitrate
		Lab EPA 8260B	Lab EPA200.8	SM4500G	SM2580B	SM2550B	SM2510B	SM4500HB	SM2130-B	SM426C	SM4500HB	Lab EPA365.4	SM5210B	HACH8000	Lab EPA 353.2
MW-13		x	x	x	x	x	x	x	x						
MW-14		x	x	x	x	x	x	x	x						
MW-15		x	x	x	x	x	x	x	x						
MW-16		x	x	x	x	x	x	x	x						
MW-17		x	x	x	x	x	x	x	x						
MW-18		x	x	x	x	x	x	x	x						
SW-3	Dry														
LAGOON		x	x	x	x	x	x	x	x	x	x	x	x	x	x
EB		x	x												
TB		x													

App I & II = Appendix Lists from current 40 CFR 258

Table 2
Detections in Water Samples above SWSL, GWP, 2L, or 2B (Appendix I)
July 20, 2011

Well ID	Parameter Name ¹	Sample Date	Result	Unit	MDL ²	SWSL ³	2L ⁴	2B ⁵	GWP ⁶	Exceedance	Preliminary Cause ⁷
MW-13	Vanadium	7/20/11	13.3 j	ug/l	0.14	25			3.5	9.8	
MW-17	Vanadium	7/20/11	10.3 j	ug/l	0.14	25			3.5	6.8	
MW-17	Barium, Total	7/20/11	144	ug/l	0.02	100	700				

¹ Table contains Appendix I constituents detected 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

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.

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.

BOLD = Concentration > 2L, or 2B Standard

Table 3
Detections in Leachate Samples above SWSL, GWP, 2L, or 2B
July 21, 2011

Sample ID	Parameter Name ¹	Sample Date	Result	Unit	MDL ²	SWSL ³	2L ⁴	2B ⁵	GWP ⁶	Exceedance
LAGOON	COD	7/21/2011	53000	ug/l	20000	20000	NE		NE	
LAGOON	PH (field)	7/21/2011	9.15	Units						
LAGOON	Total Phosphorus as P	7/21/2011	270	ug/l	40	40				
LAGOON	BOD	7/21/2011	2400	ug/l	2000	2000	NE		NE	

¹ Table contains only constituents detected 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 (Current as of Sampling Event)

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.

BOLD = Concentration > 2L, or 2B Standard

Table 4
Hydrologic Properties at Monitoring Well Locations
July 20, 2011

Monitoring Well	Hydraulic Conductivity (cm/sec)	Effective Porosity (%)	Hydraulic Gradient	Groundwater Velocity Rate (ft/yr)	Flow Direction	Water Table Depth (ft)	Water Table Elevation (ft)	Screened Interval Lithology
MW-13	7.69E-05	23	0.012	4	N79E	28.25	79.56	Silty Sand
MW-14	3.38E-03	23	0.018	269	N68E	14.83	59.98	Silty Sand
MW-15	2.89E-03	23	0.014	187	N71E	9.95	61.69	Silty Sand
MW-16	9.72E-04	23	0.115	502	N77E	10.97	65.39	Silty Sand
MW-17	1.13E-03	23	0.010	52	N86E	27.24	73.82	Silty Sand
MW-18	1.25E-04	23	0.013	7	S84E	29.01	77.73	Silty Clayey Sand
Minimum	7.69E-05	23	0.01	4	-	9.95	59.98	-
Average	1.43E-03	23	0.03	170	-	20.04	69.70	-
Maximum	3.38E-03	23	0.11	502	-	29.01	79.56	-

NOTE: 1. Hydraulic conductivity (K) values based on slug test results, conducted by MESCO in December 2005.
2. Effective Porosity (ne) values obtained from the MESCO design hydrogeologic report completed in August 2002.
3. Water levels were measured prior to sampling by Environment 1, Inc. on July 20, 2011.
Linear velocity rate (Q) is defined by the equation:

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

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

Appendix A
Laboratory Analysis Reports
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#: 6053

LENOIR CO. LANDFILL (NEW)
COUNTY OF LENOIR
MR. TOM MILLER
P.O. BOX 756
KINSTON, NC 28502

DATE COLLECTED: 07/20/11
DATE REPORTED : 09/09/11

REVIEWED BY: 

PARAMETERS	MDL	SWSL	MW-13	MW-14	MW-15	MW-16	MW-17	Analysis		Method
								Date	Analyst	Code
PH (field measurement), Units			4.23	4.37	4.32	4.46	4.16	07/20/11	RJH	SM4500HB
Antimony, ug/l	0.14	6.0	--- U	07/27/11	CMF	EPA200.8				
Arsenic, ug/l	0.10	10.0	1.9 J	0.42 J	0.84 J	0.61 J	2.9 J	07/27/11	CMF	EPA200.8
Barium, ug/l	0.02	100.0	95.2 J	25.2 J	14.5 J	19.6 J	144	07/27/11	CMF	EPA200.8
Beryllium, ug/l	0.02	1.0	0.39 J	0.08 J	--- U	0.07 J	0.42 J	07/27/11	CMFD	EPA200.8
Cadmium, ug/l	0.02	1.0	0.13 J	--- U	0.08 J	0.04 J	0.17 J	07/27/11	CMF	EPA200.8
Cobalt, ug/l	0.03	10.0	1.7 J	0.64 J	0.40 J	0.43 J	1.9 J	07/27/11	CMF	EPA200.8
Copper, ug/l	0.02	10.0	2.3 J	0.45 J	0.68 J	0.37 J	1.4 J	07/27/11	CMF	EPA200.8
Total Chromium, ug/l	0.04	10.0	6.1 J	--- U	--- U	--- U	4.4 J	07/27/11	CMF	EPA200.8
Lead, ug/l	0.02	10.0	4.2 J	--- U	--- U	--- U	5.7 J	07/27/11	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	2.0 J	0.69 J	1.3 J	0.68 J	2.0 J	07/27/11	CMF	EPA200.8
Selenium, ug/l	0.20	10.0	0.30 J	--- U	--- U	--- U	0.66 J	07/27/11	CMF	EPA200.8
Silver, ug/l	0.02	10.0	--- U	07/27/11	CMF	EPA200.8				
Thallium, ug/l	0.02	5.5	0.07 J	--- U	0.13 J	0.05 J	0.06 J	07/27/11	CMF	EPA200.8
Vanadium, ug/l	0.14	25.0	13.3 J	0.56 J	0.73 J	0.45 J	10.3 J	07/27/11	CMF	EPA200.8
Zinc, ug/l	0.24	10.0	7.4 J	1.6 J	2.5 J	1.5 J	8.6 J	07/27/11	CMF	EPA200.8
Turbidity, NTU	1.0	1.0	82.6	10.8	15.9	165	272	07/20/11	RJH	SM2130B
Conductivity (at 25c), uMhos	1.0	1.0	81	74	167	41	179	07/20/11	RJH	SM2510B
Dissolved Oxygen, mg/l	0.1	0.1	7.91	4.60	0.94	5.64	7.56	07/20/11	RJH	SM4500CG
Temperature, °C			18.04	19.21	19.31	20.89	18.20	07/20/11	RJH	SM2550B
Static Water Level, feet			28.25	14.83	9.95	10.97	27.24	07/20/11	RJH	
Well Depth, feet			31.59	23.56	18.26	24.11	30.91	07/20/11	RJH	
ORP, mv			354.5	377.9	309.8	354.2	354.8	07/20/11	RJH	SM2580B

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#: 6053

LENOIR CO. LANDFILL (NEW)
COUNTY OF LENOIR
MR. TOM MILLER
P.O. BOX 756
KINSTON, NC 28502

DATE COLLECTED: 07/20/11
DATE REPORTED : 09/09/11

REVIEWED BY: 

PARAMETERS	MDL	SWSL	MW-18	SW-3	P-22	P1-4	P1-14	Analysis		Method
								Date	Analyst	
PH (field measurement), Units			4.69	Missing				07/20/11	RJH	SM4500HB
Antimony, ug/l	0.14	6.0	---	U Missing				07/27/11	CMF	EPA200.8
Arsenic, ug/l	0.10	10.0	0.85	J Missing				07/27/11	CMF	EPA200.8
Barium, ug/l	0.02	100.0	24.3	J Missing				07/27/11	CMF	EPA200.8
Beryllium, ug/l	0.02	1.0	0.09	J Missing				07/27/11	CMFD	EPA200.8
Cadmium, ug/l	0.02	1.0	0.43	J Missing				07/27/11	CMF	EPA200.8
Cobalt, ug/l	0.03	10.0	0.52	J Missing				07/27/11	CMF	EPA200.8
Copper, ug/l	0.02	10.0	0.89	J Missing				07/27/11	CMF	EPA200.8
Total Chromium, ug/l	0.04	10.0	0.94	J Missing				07/27/11	CMF	EPA200.8
Lead, ug/l	0.02	10.0	1.1	J Missing				07/27/11	CMF	EPA200.8
Nickel, ug/l	0.04	50.0	0.84	J Missing				07/27/11	CMF	EPA200.8
Selenium, ug/l	0.20	10.0	---	U Missing				07/27/11	CMF	EPA200.8
Silver, ug/l	0.02	10.0	---	U Missing				07/27/11	CMF	EPA200.8
Thallium, ug/l	0.02	5.5	0.03	J Missing				07/27/11	CMF	EPA200.8
Vanadium, ug/l	0.14	25.0	3.0	J Missing				07/27/11	CMF	EPA200.8
Zinc, ug/l	0.24	10.0	5.1	J Missing				07/27/11	CMF	EPA200.8
Turbidity, NTU	1.0	1.0	572	Missing				07/20/11	RJH	SM2130B
Conductivity (at 25c), uMhos	1.0	1.0	31	Missing				07/20/11	RJH	SM2510B
Dissolved Oxygen, mg/l	0.1	0.1	8.24	Missing				07/20/11	RJH	SM4500OG
Temperature, °C			16.46	Missing				07/20/11	RJH	SM2550B
Static Water Level, feet			29.01	Missing	28.11	14.60	8.92	07/20/11	RJH	
Well Depth, feet			33.99	Missing				07/20/11	RJH	
ORP, mv			365.2	Missing				07/20/11	RJH	SM2580B

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#: 6053

LENOIR CO. LANDFILL (NEW)
COUNTY OF LENOIR
MR. TOM MILLER
P.O. BOX 756
KINSTON ,NC 28502

DATE COLLECTED: 07/20/11
DATE REPORTED : 09/09/11

REVIEWED BY: 

PARAMETERS	MDL	SWSL	P-14	P-3A	P-17	Equipment Blank	Analysis		Method Code	
							Date	Analyst		
Antimony, ug/l	0.14	6.0				---	U	07/27/11	CMF	EPA200.8
Arsenic, ug/l	0.10	10.0				0.49	J	07/27/11	CMF	EPA200.8
Barium, ug/l	0.02	100.0				0.04	J	07/27/11	CMF	EPA200.8
Beryllium, ug/l	0.02	1.0				---	U	07/27/11	CMFD	EPA200.8
Cadmium, ug/l	0.02	1.0				---	U	07/27/11	CMF	EPA200.8
Cobalt, ug/l	0.03	10.0				---	U	07/27/11	CMF	EPA200.8
Copper, ug/l	0.02	10.0				0.22	J	07/27/11	CMF	EPA200.8
Total Chromium, ug/l	0.04	10.0				---	U	07/27/11	CMF	EPA200.8
Lead, ug/l	0.02	10.0				---	U	07/27/11	CMF	EPA200.8
Nickel, ug/l	0.04	50.0				0.41	J	07/27/11	CMF	EPA200.8
Selenium, ug/l	0.20	10.0				---	U	07/27/11	CMF	EPA200.8
Silver, ug/l	0.02	10.0				---	U	07/27/11	CMF	EPA200.8
Thallium, ug/l	0.02	5.5				---	U	07/27/11	CMF	EPA200.8
Vanadium, ug/l	0.14	25.0				0.42	J	07/27/11	CMF	EPA200.8
Zinc, ug/l	0.24	10.0				0.80	J	07/27/11	CMF	EPA200.8
Static Water Level, feet			26.92	18.17	14.61			07/20/11	RJH	

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

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

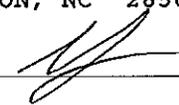
P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

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

CLIENT: LENOIR CO. LANDFILL (NEW)
COUNTY OF LENOIR
MR. TOM MILLER
P.O. BOX 756
KINSTON, NC 28502

CLIENT ID: 6053
ANALYST: MAO
DATE COLLECTED: 07/20/11
DATE ANALYZED: 07/29/11
DATE REPORTED: 09/09/11

Page: 1

REVIEWED BY: 

VOLATILE ORGANICS EPA METHOD 8260B

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

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

Environment 1, Incorporated

Drinking Water ID: 17715
Wastewater ID: 10

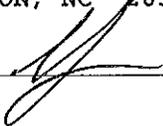
P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

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

CLIENT: LENOIR CO. LANDFILL (NEW)
COUNTY OF LENOIR
MR. TOM MILLER
P.O. BOX 756
KINSTON, NC 28502

CLIENT ID: 6053
ANALYST: MAO
DATE COLLECTED: 07/20/11
DATE ANALYZED: 07/29/11
DATE REPORTED: 09/09/11

Page: 2

REVIEWED BY: 

VOLATILE ORGANICS EPA METHOD 8260B

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

CLIENT: 6053 Week: 32

LENOIR CO. LANDFILL (NEW)
 COUNTY OF LENOIR
 MR. TOM MILLER
 P.O. BOX 756
 KINSTON NC 28502

(252) 566-4194

CHAIN OF CUSTODY RECORD

SAMPLE LOCATION	COLLECTION		TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	DISINFECTION		Field pH	Metals	Turbidity	Conductivity	DO	Temperature	Field Parameter	EPA 8260B	8260 Dup. 1	8260 Dup. 2	ORP	PARAMETERS
	DATE	TIME				CHLORINE	UV												
MW-13	07	20 11	1005	12.4	5	<input type="checkbox"/>	<input type="checkbox"/>												
MW-14	07	20 11	1038	19.2	4	<input type="checkbox"/>	<input type="checkbox"/>												
MW-15	07	20 11	1030	19.3	4	<input type="checkbox"/>	<input type="checkbox"/>												
MW-16	07	20 11	1018	22.9	4	<input type="checkbox"/>	<input type="checkbox"/>												
MW-17	07	20 11	0958	18.2	4	<input type="checkbox"/>	<input type="checkbox"/>												
MW-18	07	20 11	0950	16.4	4	<input type="checkbox"/>	<input type="checkbox"/>												
SW-3					4	<input type="checkbox"/>	<input type="checkbox"/>												
P-22	07	20 11			1	<input type="checkbox"/>	<input type="checkbox"/>												
P1-4	07	20 11			1	<input type="checkbox"/>	<input type="checkbox"/>												
P1-14	07	20 11			1	<input type="checkbox"/>	<input type="checkbox"/>												
P-14	07	20 11			1	<input type="checkbox"/>	<input type="checkbox"/>												
RELINQUISHED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME
RELINQUISHED BY (SIG.)			RECEIVED BY (SIG.)			RECEIVED BY (SIG.)													
COMMENTS: SW 3 DRY																			
CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY <input checked="" type="checkbox"/> SOLID WASTE SECTION <input type="checkbox"/> WASTEWATER (NPDES) <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> DMO/GW SAMPLES COLLECTED BY: H. D. Fox SAMPLES RECEIVED IN LAB AT 07 °C																			

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. No 222003

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

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

CLIENT: 6053 Week: 32

LENOIR CO. LANDFILL (NEW)
 COUNTY OF LENOIR
 MR. TOM MILLER
 P.O. BOX 756
 KINGSTON NC 28502

(252) 566-4194

CHAIN OF CUSTODY RECORD

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	DISINFECTION			Field pH	Metals	Turbidity	Conductivity	DO	Temperature	Field Parameter	EPA 8260B	8260 Dup. 1	8260 Dup. 2	ORP	PARAMETERS	CLASSIFICATION:
			TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS													
P-3A	07/20/11																	
P-17	07/20/11																	
Equipment Blank	07/20/11																	
Trip Blank																		
RELEINQUISHED BY (SIG.)			DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	COMMENTS:												
RELINQUISHED BY (SIG.)			DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	SAMPLER MUST PLACE A "C" FOR COMPOSITE SAMPLE OR A "G" FOR GRAB SAMPLE IN THE BLOCKS ABOVE FOR EACH PARAMETER REQUESTED.												

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. No 222002

CHLORINE NEUTRALIZED AT COLLECTION

pH CHECK (LAB)

CONTAINER TYPE, P/G

CHEMICAL PRESERVATION

A - NONE D - NaOH
 B - HNO₃ E - HCL
 C - H₂SO₄ F - ZINC ACETATE
 G - Na THIOSULFATE

CLASSIFICATION:

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

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY

SAMPLES COLLECTED BY: (Please Print)
 H. Doe

SAMPLES RECEIVED IN LAB AT 02°C

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#: 6053 A

LENOIR CO. LANDFILL (NEW)
COUNTY OF LENOIR
MR. TOM MILLER
P.O. BOX 756
KINSTON ,NC 28502

DATE COLLECTED: 07/21/11
DATE REPORTED : 08/04/11

REVIEWED BY: 

PARAMETERS	MDL	LAGOON		Analysis		Method Code
		SWSL		Date	Analyst	
PH (field measurement), Units			9.15	07/21/11	RJH	SM4500HB
BOD, mg/l	2.0	2.0	2.4	07/21/11	TRB	SM5210B
COD, mg/l	20.0	20.0	53	07/26/11	TRB	HACH8000
Nitrate Nitrogen as N, mg/l	0.03	10.0	---	U	07/22/11	MPH EPA353.2
Total Phosphorus as P, mg/l	0.04	0.04	0.27	07/25/11	MPH	EPA365.4
Sulfate, mg/l	5.0	250.0	13.1	J	07/25/11	TRB SM426C
Antimony, ug/l	0.14	6.0	---	U	07/27/11	CMF EPA200.8
Arsenic, ug/l	0.10	10.0	2.0	J	07/27/11	CMF EPA200.8
Barium, ug/l	0.02	100.0	72.8	J	07/27/11	CMF EPA200.8
Beryllium, ug/l	0.02	1.0	---	U	07/27/11	CMF EPA200.8
Cadmium, ug/l	0.02	1.0	---	U	07/27/11	CMF EPA200.8
Cobalt, ug/l	0.03	10.0	0.10	J	07/27/11	CMF EPA200.8
Copper, ug/l	0.02	10.0	1.8	J	07/27/11	CMF EPA200.8
Total Chromium, ug/l	0.04	10.0	---	U	07/27/11	CMF EPA200.8
Lead, ug/l	0.02	10.0	---	U	07/27/11	CMF EPA200.8
Nickel, ug/l	0.04	50.0	5.8	J	07/27/11	CMF EPA200.8
Selenium, ug/l	0.20	10.0	1.2	J	07/27/11	CMF EPA200.8
Silver, ug/l	0.02	10.0	---	U	07/27/11	CMF EPA200.8
Thallium, ug/l	0.02	5.5	---	U	07/27/11	CMF EPA200.8
Vanadium, ug/l	0.14	25.0	0.43	J	07/27/11	CMF EPA200.8
Zinc, ug/l	0.24	10.0	2.6	J	07/27/11	CMF EPA200.8
Turbidity, NTU	1.0	1.0	7.1	07/21/11	RJH	SM2130B
Conductivity (at 25c), uMhos	1.0	1.0	1197	07/21/11	RJH	SM2510B
Dissolved Oxygen, mg/l	0.1	0.1	6.67	07/21/11	RJH	SM4500OG
Temperature, °C			31.12	07/21/11	RJH	SM2550B
ORP, mv			209.8	07/21/11	RJH	SM2580B

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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CLIENT: LENOIR CO. LANDFILL (NEW)
COUNTY OF LENOIR
MR. TOM MILLER
P.O. BOX 756
KINSTON, NC 28502

CLIENT ID: 6053 A

ANALYST: MAO
DATE COLLECTED: 07/21/11
DATE ANALYZED: 07/29/11
DATE REPORTED: 08/04/11

Page: 1

REVIEWED BY: 

VOLATILE ORGANICS EPA METHOD 8260B

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

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

