

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):

Smith Gardner, Inc.

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

Name: Madeline German, PG

Phone: 919-828-0577 x222

E-mail: madeline@smithgardnerinc.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Martin County Closed MSW & Active C&D Landfill	SR 1440, Williamston, NC 27892	59-01	.0500	May 23, 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 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

919-828-0577 x222

Facility Representative Name (Print)

Title

(Area Code) Telephone Number

Signature

Date

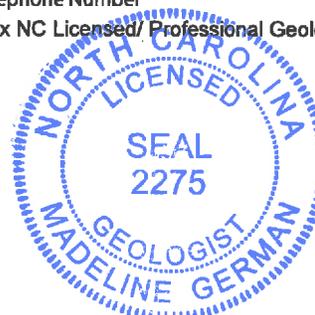
Affix NC Licensed/ Professional Geologist Seal

14 N. Boylan Ave, Raleigh, NC 27603

Facility Representative Address

CO828

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



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May 2013 Ground Water Monitoring Report

Martin County Landfill NC Solid Waste Permit No. 59-01

Prepared for:

**Martin County Solid Waste Management
Williamston, North Carolina**



July 2013

Prepared by:

SMITH+GARDNER

14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577



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May 2013 Groundwater Monitoring Report

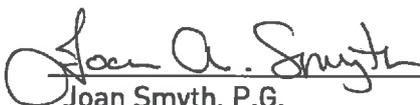
Martin County Landfill
NC Solid Waste Permit No. 59-01

Prepared For:
Martin County Solid Waste Management
Williamston, North Carolina

S+G Project No. MARTIN 11-2



Madeline German, P.G.
Project Geologist



Joan Smyth, P.G.
Senior Hydrogeologist



July 2013

SMITH+GARDNER

1411 Boylan Avenue, Raleigh NC 27603 | 919.829.0577

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**Martin County Landfill
NC Solid Waste Permit No. 59-01**

May 2013 Groundwater Monitoring Report

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1.0 INTRODUCTION

The Martin County Landfill, currently operating under Solid Waste Permit # 59-01 and 15A NCAC 13B.0544, is required to perform semi-annual ground water monitoring. The facility includes a closed MSW landfill and an active C&D landfill. This report presents the results from the groundwater monitoring event performed May 23, 2013. This report includes a field procedure summary, laboratory analyses, summary tables and laboratory analytical reports.

2.0 SITE GEOLOGY

The Martin Co. landfill is located off McCaskey Road near Williamston in the Coastal Plain physiographic province. According to the Geologic Map of North Carolina (1985) this area is underlain by the Yorktown Formation. The Yorktown Formation is characterized by fossiliferous clay with varying amounts of fine-grained sand, bluish gray, shell material commonly concentrated in lenses.

3.0 SAMPLING PROCEDURES

Environment 1 personnel conducted the monitoring network sampling event May 23, 2013. Samples were collected from four ground water monitoring wells (MW-1, MW-2R, MW-3 and MW-4) for the MSW landfill and from three ground water monitoring wells (CDW-2R, CDW-5 and CDW-6) for the C&D landfill. Four surface water locations (SW-1, SW-2, SW-3 and CDSW-2) are monitored for the facility. MW-1 serves as the background well for the facility.

Reported sampling methods followed the protocol outlined in the North Carolina Water Quality Monitoring Guidance Document for Solid Waste Facilities (NCDENR, DWM) and the Site Groundwater Monitoring Plan¹. The depth to water in each well was gauged to determine groundwater depth then purged three to five well volumes or until dry. Field measurements of pH, specific conductivity and temperature were recorded at each monitoring location. Water table elevations and field parameter results are included in **Tables 1 and 2**, respectively.

Samples were reportedly collected by Environment 1 personnel in laboratory prepared containers for the specified analytical procedures. Ground water samples were properly preserved, placed on ice, and transported to the laboratory facility (Environment 1, Inc. Wastewater ID: 10), within the specified hold times for each analysis.

4.0 FIELD AND LABORATORY RESULTS

4.1 Field Results

Field measurements for groundwater depth, pH, temperature and specific conductance were collected for each well sampled during this monitoring event. Results are

¹ Water Quality Monitoring Plan, Martin County C&D Landfill, January 2012. Richardson Smith Gardner and Associates, Inc.

consistent with previous monitoring events. Depth to ground water and field measurements are included in **Tables 1 and 2**.

4.2 Laboratory Analysis

Samples were transported to the Environment 1 laboratory facility in Greenville, NC under proper chain of custody analyzed at the specified DWM Solid Waste Quantitation Limits (SWSLs)² for Appendix I constituents. The laboratory report is included as **Appendix A**.

4.3 Laboratory Results

4.3.1 Inorganic Constituents

Laboratory analysis for this monitoring event indicated four inorganic constituents: arsenic (MW-4 and CDW-2R), barium (MW-2, MW-3, CDW-2R and CDW-6), beryllium (MW-2) and cadmium (CDW-5) were detected above the Solid Waste Section Reporting Limits (SWSLs). Arsenic in the samples from MW-4 and CDW-2R and cadmium in the sample from CDMW-5 were detected at concentrations above the groundwater standards outlined in 15A NCAC 2L.0200.

Detected inorganic constituents are presented in **Table 3**. Most detections were noted as “J” values by the laboratory because the detected concentration falls between the MDL and SWSL; therefore is a non-quantifiable value.

Surface water samples had no detections above their respective 2B standards.

4.3.2 Organic Constituents

Laboratory analysis for this monitoring event indicates six organic constituents (1,4-dichlorobenzene, benzene, chlorobenzene, cis 1,2-dichloroethene, xylenes and vinyl chloride) were detected above the SWSLs. The following constituents were detected at concentrations above their respective 2L Standards:

- Benzene (MW-2, MW-3 and MW-4); and
- Vinyl Chloride (MW-3).

Most organics were not reportable above the method detection limit (MDL) values. **Table 4** summarizes the list of constituents detected including non-quantifiable “J” value detections.

No quantifiable detections were reported in surface water samples.

² New Guidelines for Electronic Submittal of Environmental Monitoring Data Memo, NCDENR – Solid Waste Section, October 27, 2006

5.0 GROUND WATER CHARACTERIZATION

A potentiometric surface map was prepared from ground water elevation data collected during this sampling event. The data indicates that ground water is flowing generally to the north and east across most of the site. Hydraulic conductivity data is not available for these wells so ground water velocities could not be calculated. The potentiometric surface map is provided as **Figure 1**.

6.0 CONCLUSIONS

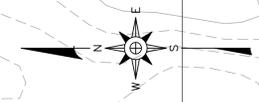
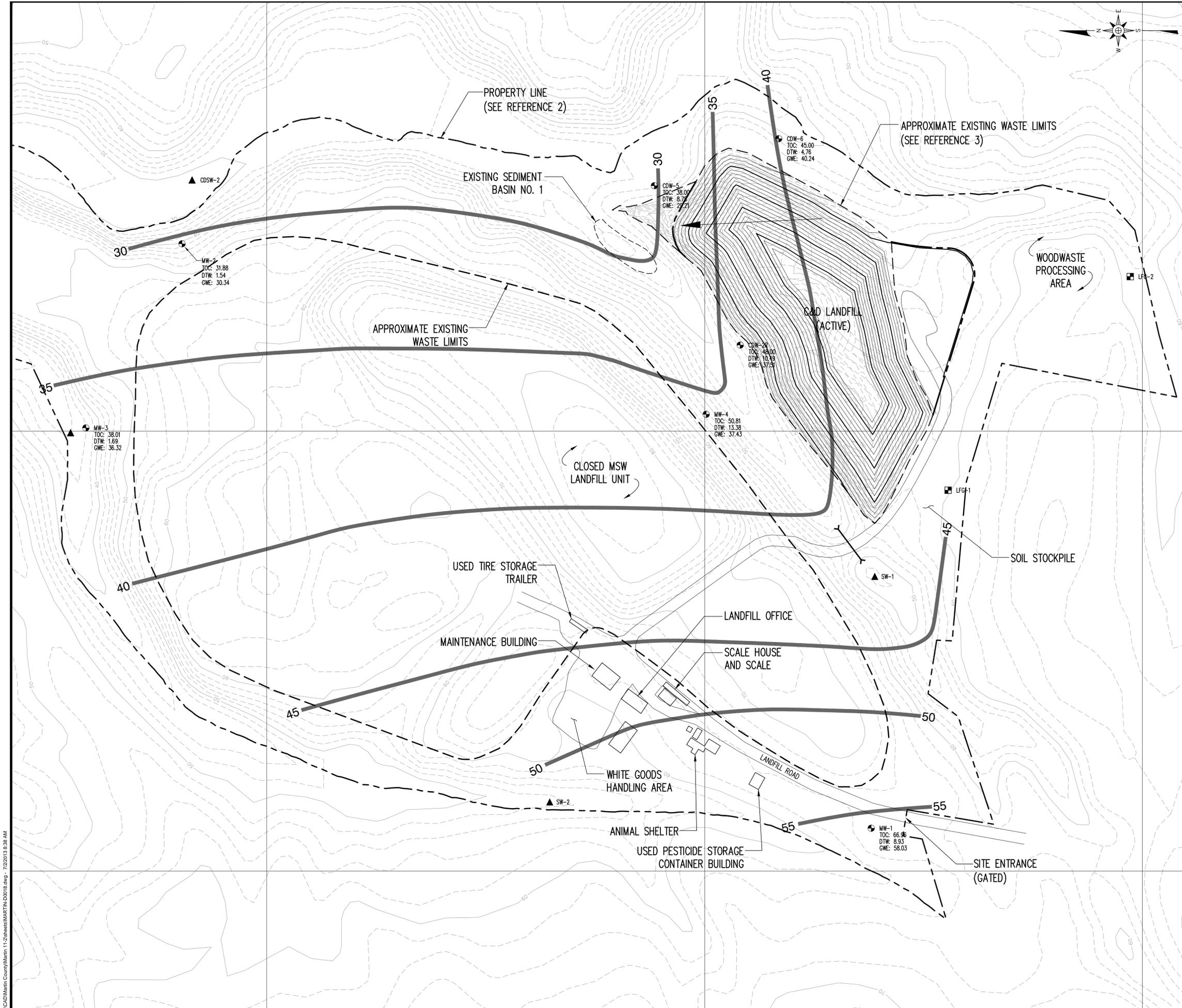
Monitoring event results indicate detectable concentrations of the inorganic constituents arsenic, barium, beryllium and cadmium. These constituents are found naturally in North Carolina and sample turbidity can yield results that are "biased high" due to these naturally occurring constituents. Organic constituents were also detected in samples from the site. These results are similar to previous sampling events. The next ground water monitoring event is scheduled for October 2013. A report with laboratory analysis will be submitted to NCDENR in accordance with 15A NCAC 13B .0544.

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FIGURES

**May 2013 Ground Water Monitoring Report
Martin County Landfill
Solid Waste Permit No. 59-01**

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PREPARED FOR:
MARTIN COUNTY

PREPARED BY:
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SMITH+GARDNER ENGINEERS
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SEAL

SEAL

REV.	DATE	DESCRIPTION

PROJECT TITLE:
MSW AND C&D LANDFILL MONITORING REPORT

DRAWING TITLE:
GROUNDWATER POTENTIOMETRIC MAP MAY 2013

DESIGNED: M.M.G. PROJECT NO: MARTIN 11-2
 DRAWN: K.C.B. SCALE: AS SHOWN
 APPROVED: DATE: JULY 2013
 FILENAME: MARTIN-D0018
 SHEET NUMBER: DRAWING NUMBER:
FIG. 1

- LEGEND**
- EXISTING CONTOUR (SEE REFERENCE 1)
 - - - PROPERTY LINE (SEE REFERENCE 2)
 - · - · - APPROXIMATE EXISTING WASTE LIMITS
 - · - · - LIMIT OF FUTURE WASTE PLACEMENT
 - 50 GROUNDWATER SURFACE CONTOUR (5' INTERVAL)(DASHED WHERE INFERRED)
 - MW-2 EXISTING MONITORING WELL
 - TOC TOP OF CASING ELEVATION
 - DTW MEASURED DEPTH TO WATER
 - GWE GROUNDWATER SURFACE ELEVATION
 - ▲ SW-1 SURFACE WATER SAMPLING LOCATION
 - LFG-1 LANDFILL GAS SAMPLING LOCATION

NOTE
1. CDW WELLS TOC ELEVATION NOT SURVEYED, GROUNDWATER ELEVATIONS AND CONTOURS ARE ESTIMATED.

- REFERENCES**
- OVERALL BASE TOPOGRAPHY REFERENCES NCDOT GIS DEPARTMENT DATA RELEASE MARCH 2005.
 - PROPERTY LINE FROM GIS PARCEL DATA PROVIDED BY MARTIN COUNTY GIS DEPARTMENT.
 - TOPOGRAPHY WITHIN THE APPROXIMATE EXISTING WASTE LIMITS FROM FIELD SURVEY DATED JUNE 22, 2011 BY ROANKE LAND SURVEYING, WILLIAMSTON, NC.
 - GROUNDWATER POTENTIOMETRIC SURFACE FROM DATA COLLECTED ON MAY 23, 2013.



G:\CD\Martin County\Martin 11-2\Drawings\MARTIN-D0018.dwg - 7/23/2013 8:38 AM

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TABLES

**May 2013 Ground Water Monitoring Report
Martin County Landfill
Solid Waste Permit No. 59-01**

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**Table 1
Ground Water Elevation Data
Martin County Landfill
5/23/2013**

Well	TOC Elevation (feet)	Depth to Water (feet)	GW Elevation (feet)
MW-1	66.96	8.93	58.03
MW-2	31.88	1.54	30.34
MW-3	38.01	1.69	36.32
MW-4	50.81	13.38	37.43
CDW-2R	48*	10.49	37.51
CDW-5	38*	8.79	29.21
CDW-6	45*	4.76	40.23

Well locations and elevations provided by Roanoke Land Surveying (RLS) survey dated 4/3/1990. CDW wells not yet surveyed, TOC is estimated from map elevation and tapemeasured stick-up. Depth to water from Environment 1 laboratory report dated 6/26/13 ID # 6023.

**Table 2
Field Parameters
Martin County Landfill
5/23/2013**

Well Identification #	Temperature (°Celsius)	Specific Conductivity (uMhos/cm)	pH (SU)
MW-1	17	234	7.3
MW-2	19	814	5.3
MW-3	18	983	6.6
MW-4	18	962	6.2
CDW-2R	17	1115	6.3
CDW-5	16	854	4.4
CDW-6	16	1026	5.6
SW-1	19	180	5.5
SW-2	20	69	3.9
SW-3	24	273	6.5
CDSW-2	21	228	6.7

Note: 1. Data from Environment 1 laboratory report dated 6/26/13, ID# 6023

Table 3
Detected Inorganic Constituents
Martin County Landfill
5/23/2013

Constituents	SWSL	2L or GWP	MDL	2B	MW-1	MW-2	MW-3	MW-4	CDMW-2R	CDMW-5	CDMW-6	SW-1	SW-2	SW-3	CDSW-2
Antimony	6	1 [§]	0.02	640	0.03 J	<0.02	<0.02	<0.02	NA	NA	NA	0.08 J	<0.02	<0.02	NA
Arsenic	10	10	0.05	10	2.9 J	1.6 J	0.78 J	38	13	2.3 J	4.1 J	1.9 J	0.28 J	1.3 J	2.1 J
Barium	100	700	0.06	2000000	83.6 J	190	174	83.1 J	102	37.8 J	118	69.7 J	47.0 J	67.8 J	73.3 J
Beryllium	1	4 [§]	0.03	6.5	0.12 J	2	<0.03	<0.03	NA	NA	NA	0.08 J	0.16 J	<0.03	NA
Cadmium	1	2	0.05	2	0.36 J	0.40 J	0.15 J	0.08 J	0.50 J	2	0.49 J	0.13 J	0.07 J	0.32 J	0.08 J
Cobalt	10	1 [§]	0.02	270	1.6 J	0.96 J	0.12 J	0.49 J	NA	NA	NA	1.2 J	0.40 J	0.67 J	NA
Copper	10	1000	0.06	7	0.21 J	0.71 J	0.52 J	0.15 J	NA	NA	NA	1.9 J	1.1 J	1.1 J	NA
Total Chromium	10	10	0.04	50	<0.04	<0.04	<0.04	0.81 J	1.3 J	0.12 J	0.46 J	1.2 J	0.43 J	<0.04	0.56 J
Lead	10	15	0.02	25	0.10 J	0.12 J	<0.02	<0.02	0.46 J	0.77 J	0.90 J	1.9 J	1.9 J	0.26 J	2.1 J
Mercury	0.2	1	0.01	0.012	NA	NA	NA	NA	0.07 J	0.05 J	-	NA	NA	NA	0.03 J
Nickel	50	100	0.45	88	0.99 J	4.2 J	3.0 J	2.6 J	NA	NA	NA	2.2 J	1.3 J	2.1 J	NA
Selenium	10	20	0.06	5	0.09 J	3.5 J	1.5 J	0.56 J	2.3 J	3.8 J	4.0 J	0.53 J	0.08 J	0.50 J	0.38 J
Thallium	5.5	0.28 [§]	0.02	0.24	<0.02	<0.02	<0.02	<0.02	NA	NA	NA	0.03 J	<0.02	<0.02	NA
Vanadium	25	0.3 [§]	0.07	NE	1.6 J	4.2 J	1.4 J	2.1 J	NA	NA	NA	3.3 J	0.96 J	2.3 J	NA
Zinc	10	1000	0.47	50	2.7 J	5.2 J	2.0 J	2.9 J	NA	NA	NA	14	8.1 J	9.5 J	NA

- SWSL - Solid Waste Section Quantitation Limit
- 2L - Groundwater Standards (15A NCAC 2L 0200)
- GWP - Groundwater Protection Standard (identified by §)
- MDL - Method Detection Limit
- 2B - NCAC 2B Standard for Class C waters
- Shading - Concentrations above 2L standard
- Bold Letters - Constituent detected above SWSL
- < MDL - Constituent not detected above the MDL
- J - Detected constituents below SWSL but above MDL
- NA - Not Analyzed

SWSLs, 2L Standards and Results are presented in ug/l.
Data from Environment 1 laboratory report dated 6/26/13, ID# 6023.

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Table 4
Detected Organic Constituents
Martin County Landfill
5/23/2013

Constituents	SWSL	2L	MDL	MW-2	MW-3	MW-4	CDMW-2R	CDMW-5	CDMW-6	SW-1	CDSW2
1,1- Dichloroethane	5	6	0.20	0.90 J	0.50 J	1.30 J	<0.20	<0.20	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	1	6	0.39	<0.39	0.40 J	5	<0.39	<0.39	<0.39	<0.39	<0.39
1,2-Dichlorobenzene	5	20	0.32	<0.32	<0.32	0.40 J	<0.32	<0.32	<0.32	<0.32	<0.32
Benzene	1	1	0.24	2.6	1.1	4.5	<0.24	0.30 J	0.30 J	<0.24	<0.24
Chlorobenzene	3	50	0.30	2.40 J	1.60 J	9.9	<0.30	<0.30	<0.30	<0.30	<0.30
Cis-1,2-Dichloroethene	5	70	0.25	1.10 J	12.2	0.50 J	<0.25	<0.25	<0.25	<0.25	<0.25
Tetrahydrofuran	NE	NE	0.39	<0.39	<0.39	<0.39	1.1	2.2	6.9	<0.39	<0.39
Toluene	1	600	0.23	<0.23	<0.23	0.90 J	<0.23	<0.23	<0.23	0.30 J	0.30 J
Xylenes	5	500	0.68	<0.68	<0.68	8.2	<0.68	<0.68	<0.68	<0.68	<0.68
Vinyl Chloride	1	0.03	0.63	<0.63	1.9	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63

- SWSL - Solid Waste Section Quantitation Limit
- 2L - Groundwater Standards (15A NCAC 2L 0200)
- MDL - Method Detection Limit
- Shading - Concentrations above 2L standard
- Bold Letters - Constituent detected above SWSL
- < MDL - Constituent not detected above the MDL
- J - Detected constituents below SWSL but above MDL

SWSLs, 2L Standards and Results are presented in ug/l.
Data from Environment 1 laboratory report dated 12/13/12, ID# 6023.

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APPENDIX A

Laboratory Analytical Results

**May 2013 Ground Water Monitoring Report
Martin County Landfill
Solid Waste Permit No. 59-01**

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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#: 6023

MARTIN COUNTY LANDFILL
MR. MAURICE ROBINSON
P.O. BOX 668
WILLIAMSTON ,NC 27892

DATE COLLECTED: 05/23/13
DATE REPORTED : 06/26/13

REVIEWED BY: 

PARAMETERS	MDL	SWSL	MW-1	MW-2	MW-3	MW-4	SW-3	Analysis Date	Method Code
									Analyst
PH (field measurement), Units			7.3	5.3	6.6	6.2	6.5	05/23/13BF	4500HB-00
Antimony, ug/l	0.02	6.0	0.03 J	--- U	--- U	--- U	--- U	05/29/13LFFJ	EPA200.8
Arsenic, ug/l	0.05	10.0	2.9 J	1.6 J	0.78 J	38	1.3 J	05/29/13LFFJ	EPA200.8
Barium, ug/l	0.06	100.0	83.6 J	190	174	83.1 J	67.8 J	05/29/13LFFJ	EPA200.8
Beryllium, ug/l	0.03	1.0	0.12 J	2	---	---	---	05/29/13LFFJ	EPA200.8
Cadmium, ug/l	0.05	1.0	0.36 J	0.40 J	0.15 J	0.08 J	0.32 J	05/29/13LFFJ	EPA200.8
Cobalt, ug/l	0.02	10.0	1.6 J	0.96 J	0.12 J	0.49 J	0.67 J	06/06/13LFFJ	EPA200.8
Copper, ug/l	0.06	10.0	0.21 J	0.71 J	0.52 J	0.15 J	1.1 J	05/29/13LFFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	---	---	---	0.81 J	---	06/06/13LFFJ	EPA200.8
Lead, ug/l	0.02	10.0	0.10 J	0.12 J	---	---	0.26 J	05/29/13LFFJ	EPA200.8
Nickel, ug/l	0.45	50.0	0.99 J	4.2 J	3.0 J	2.6 J	2.1 J	05/29/13LFFJ	EPA200.8
Selenium, ug/l	0.06	10.0	0.09 J	3.5 J	1.5 J	0.56 J	0.50 J	05/29/13LFFJ	EPA200.8
Silver, ug/l	0.03	10.0	---	---	---	---	---	05/29/13LFFJ	EPA200.8
Thallium, ug/l	0.02	5.5	---	---	---	---	---	06/06/13LFFJ	EPA200.8
Vanadium, ug/l	0.07	25.0	1.6 J	4.2 J	1.4 J	2.1 J	2.3 J	05/29/13LFFJ	EPA200.8
Zinc, ug/l	0.47	10.0	2.7 J	5.2 J	2.0 J	2.9 J	9.5 J	05/29/13LFFJ	EPA200.8
Conductivity (at 25c), uMhos/cm	1.0	1.0	234	814	983	962	273	05/23/13BF	2510B-97
Temperature, °C			17	19	18	18	24	05/23/13BF	2550B-00
Static Water Level, feet			8.93	1.54	1.69	13.38		05/23/13BF	
Well Depth, feet			20.28	19.76	19.00	20.58		05/23/13BF	

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#: 6023

MARTIN COUNTY LANDFILL
MR. MAURICE ROBINSON
P.O. BOX 668
WILLIAMSTON ,NC 27892

DATE COLLECTED: 05/23/13
DATE REPORTED : 06/26/13

REVIEWED BY: 

PARAMETERS	MDL	SWSL	CDW2R	CDW5	CDW6	CDWS2	Analysis	Method
							Date	Analyst
PH (field measurement), Units			6.3	4.4	5.6	6.7	05/23/13BF	4500HB-00
Arsenic, ug/l	0.05	10.0	13	2.3 J	4.1 J	2.1 J	05/29/13LFJ	EPA200.8
Barium, ug/l	0.06	100.0	102	37.8 J	118	73.3 J	05/29/13LFJ	EPA200.8
Cadmium, ug/l	0.05	1.0	0.50 J	2	0.49 J	0.08 J	05/29/13LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	1.3 J	0.12 J	0.46 J	0.56 J	06/06/13LFJ	EPA200.8
Lead, ug/l	0.02	10.0	0.46 J	0.77 J	0.90 J	2.1 J	05/29/13LFJ	EPA200.8
Mercury, ug/l	0.01	0.20	0.07 J	0.05 J	---	0.03 J	06/17/13ADD	EPA6020A
Selenium, ug/l	0.06	10.0	2.3 J	3.8 J	4.0 J	0.38 J	05/29/13LFJ	EPA200.8
Silver, ug/l	0.03	10.0	---	---	---	---	05/29/13LFJ	EPA200.8
Conductivity (at 25c), uMhos/cm	1.0	1.0	1115	854	1026	228	05/23/13BF	2510B-97
Temperature, °C			17	16	16	21	05/23/13BF	2550B-00
Static Water Level, feet			10.49	8.79	4.76		05/23/13BF	
Well Depth, feet			22.87	18.67	13.73		05/23/13BF	

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: MARTIN COUNTY LANDFILL
MR. MAURICE ROBINSON
P.O. BOX 668
WILLIAMSTON, NC 27892

CLIENT ID: 6023
ANALYST: MAO
DATE COLLECTED: 05/23/13
DATE REPORTED: 06/26/13
Page: 1

REVIEWED BY: 

VOLATILE ORGANICS EPA METHOD 8260B R1(96)

PARAMETERS, ug/l	Date Analyzed:		05/30/13	05/30/13	05/30/13	05/30/13	05/31/13
	MDL	SWSL	MW-1	MW-2	MW-3	MW-4	SW-3
1. Chloromethane	0.77	1.0	--- U				
2. Vinyl Chloride	0.63	1.0	--- U	--- U	1.90	--- U	--- 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	0.90 J	0.50 J	1.30 J	--- U
13. Vinyl Acetate	0.20	50.0	--- U				
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	1.10 J	12.20	0.50 J	--- 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	2.60	1.10	4.50	--- 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	--- U	--- U	0.90 J	--- 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	2.40 J	1.60 J	9.90	--- 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	--- U	--- U	8.20	--- 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	--- U	0.40 J	5.00	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	--- U	0.40 J	--- 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: 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: MARTIN COUNTY LANDFILL
MR. MAURICE ROBINSON
P.O. BOX 668
WILLIAMSTON, NC 27892

CLIENT ID: 6023

ANALYST: MAO
DATE COLLECTED: 05/23/13
DATE ANALYZED: 05/31/13
DATE REPORTED: 06/26/13

Page: 1

REVIEWED BY: 

VOLATILE ORGANICS EPA METHOD 8260B R1(96)

PARAMETERS, ug/l	MDL	SWSL	CDW2R	CDW5	CDW6	CDWS2
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	0.30 J	0.30 J	--- 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-Dichloropropane	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	0.30 J
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
48. Tetrahydrofuran	0.39	1.0	1.10	2.20	6.90	--- 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

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

ID#: 6023

MARTIN COUNTY LANDFILL
MR. MAURICE ROBINSON
P.O. BOX 668
WILLIAMSTON, NC 27892

DATE COLLECTED: 05/24/13
DATE REPORTED : 06/26/13

REVIEWED BY: 

PARAMETERS	MDL	SW-1		SW-2		Analysis		Method Code
		SWSL				Date	Analyst	
PH (field measurement), Units			5.5	3.9	05/24/13TB		4500HB-00	
Antimony, ug/l	0.02	6.0	0.08 J	---	U 06/07/13LFJ		EPA200.8	
Arsenic, ug/l	0.05	10.0	1.9 J	0.28 J	06/07/13LFJ		EPA200.8	
Barium, ug/l	0.06	100.0	69.7 J	47.0 J	06/07/13LFJ		EPA200.8	
Beryllium, ug/l	0.03	1.0	0.08 J	0.16 J	06/07/13LFJ		EPA200.8	
Cadmium, ug/l	0.05	1.0	0.13 J	0.07 J	06/07/13LFJ		EPA200.8	
Cobalt, ug/l	0.02	10.0	1.2 J	0.40 J	06/07/13LFJ		EPA200.8	
Copper, ug/l	0.06	10.0	1.9 J	1.1 J	06/07/13LFJ		EPA200.8	
Total Chromium, ug/l	0.04	10.0	1.2 J	0.43 J	06/07/13LFJ		EPA200.8	
Lead, ug/l	0.02	10.0	1.9 J	1.9 J	06/07/13LFJ		EPA200.8	
Nickel, ug/l	0.45	50.0	2.2 J	1.3 J	06/07/13LFJ		EPA200.8	
Selenium, ug/l	0.06	10.0	0.53 J	0.08 J	06/07/13LFJ		EPA200.8	
Silver, ug/l	0.03	10.0	---	---	U 06/07/13LFJ		EPA200.8	
Thallium, ug/l	0.02	5.5	0.03 J	---	U 06/07/13LFJ		EPA200.8	
Vanadium, ug/l	0.07	25.0	3.3 J	0.96 J	06/07/13LFJ		EPA200.8	
Zinc, ug/l	0.47	10.0	14	8.1 J	06/07/13LFJ		EPA200.8	
Conductivity (at 25c), uMhos/cm	1.0	1.0	180	69	05/24/13TB		2510B-97	
Temperature, °C			19	20	05/24/13TB		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

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CLIENT: MARTIN COUNTY LANDFILL
MR. MAURICE ROBINSON
P.O. BOX 668
WILLIAMSTON, NC 27892

CLIENT ID: 6023

ANALYST: MAO
DATE COLLECTED: 05/24/13
DATE ANALYZED: 05/31/13
DATE REPORTED: 06/26/13

Page: 1

REVIEWED BY: 

VOLATILE ORGANICS EPA METHOD 8260B R1(96)

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

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

CHAIN OF CUSTODY RECORD

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

CLIENT: 6023 Week: 21

MARTIN COUNTY LANDFILL
 MR. MAURICE ROBINSON
 P.O. BOX 668
 WILLIAMSTON NC 27892

(252) 792-1240

SAMPLE LOCATION	COLLECTION		TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	DISINFECTION			Field pH	Metals	Conductivity	Temperature	Field Parameter	EPA 8260B	8260 Dup. 1	8260 Dup. 2	PARAMETERS
	DATE	TIME				<input type="checkbox"/> CHLORINE	<input type="checkbox"/> UV	<input type="checkbox"/> NONE									
NDW-1					5												CLASSIFICATION: <input type="checkbox"/> WASTEWATER (NPDES) <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> DWQ/GW <input checked="" type="checkbox"/> SOLID WASTE SECTION
NDW-2					4												
NDW-3					4												
NDW-4					4												
NDW-5					4												
SW-1	5-24-13	0835		19	4												CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY <input checked="" type="checkbox"/> Y <input type="checkbox"/> N SAMPLES COLLECTED BY: (Please Print) TOM BEASLEY SAMPLES RECEIVED IN LAB AT <u>1.2</u> °C
SW-2	5-24-13	0825		20	4												
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	COMMENTS:
<i>Tom Beasley</i>	5-24-13	1520	<i>[Signature]</i>	5/24/13	1520	<i>[Signature]</i>											
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	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. No 258909

MARTIN COUNTY LANDFILL
 MR. MADRICE ROBINSON
 P.O. BOX 668
 WILLIAMSTON NC 27892

(252) 792-1240

CHAIN OF CUSTODY RECORD

SAMPLE LOCATION	COLLECTION		TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	DISINFECTON		Field pH	Metals	Conductivity	Temperature	Field Parameter	EPA 8260B	8260 Dup. 1	8260 Dup. 2	PARAMETERS	CLASSIFICATION:	
	DATE	TIME				CHLORINE	UV											
MW-1	5-23-13	12:25		17	5	<input type="checkbox"/>	<input type="checkbox"/>											
MW-2	5-23-13	11:50		19	4	<input type="checkbox"/>	<input type="checkbox"/>											
MW-3	5-23-13	11:25		18	4	<input type="checkbox"/>	<input type="checkbox"/>											
MW-4	5-23-13	11:00		18	4	<input type="checkbox"/>	<input type="checkbox"/>											
SW-1					4	<input type="checkbox"/>	<input type="checkbox"/>											
SW-2					4	<input type="checkbox"/>	<input type="checkbox"/>											
SW-3	5-23-13	11:15		24	4	<input type="checkbox"/>	<input type="checkbox"/>											
CDW2R	5-23-13	10:25		17	4	<input type="checkbox"/>	<input type="checkbox"/>											
CDW5	5-23-13	09:50		16	4	<input type="checkbox"/>	<input type="checkbox"/>											
CDW6	5-23-13	09:30		16	4	<input type="checkbox"/>	<input type="checkbox"/>											
CDWS2	5-23-13	10:55		21	4	<input type="checkbox"/>	<input type="checkbox"/>											
REINQUISHED BY (SIG.) <i>Tom Beasley</i>			DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)		DATE/TIME	RECEIVED BY (SIG.)		DATE/TIME	RECEIVED BY (SIG.)		DATE/TIME	RECEIVED BY (SIG.)		DATE/TIME	COMMENTS:
REINQUISHED BY (SIG.)			DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)		DATE/TIME	RECEIVED BY (SIG.)		DATE/TIME	RECEIVED BY (SIG.)		DATE/TIME	RECEIVED BY (SIG.)		DATE/TIME	COMMENTS:
REINQUISHED BY (SIG.)			DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)		DATE/TIME	RECEIVED BY (SIG.)		DATE/TIME	RECEIVED BY (SIG.)		DATE/TIME	RECEIVED BY (SIG.)		DATE/TIME	COMMENTS:
REINQUISHED BY (SIG.)			DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)		DATE/TIME	RECEIVED BY (SIG.)		DATE/TIME	RECEIVED 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. No 258881

COMMENTS: SW 1 + SW 2 will be collected 5-24-13

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

SAMPLES COLLECTED BY: (Please Print) Bobby Fox / Tom Beasley

SAMPLES RECEIVED IN LAB AT 10 °C

PARAMETERS

A - NONE D - NAOH
 B - HNO₃ E - HCL
 C - H₂SO₄ F - ZINC ACETATE/NAOH
 G - NATHIOSULFATE

CLASSIFICATION:

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