

**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	November 27, 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 1/6/14 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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# November 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**



**January 2014**

Prepared by:

# SMITH+GARDNER

14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577



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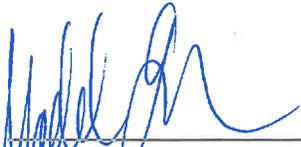
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# November 2013 Groundwater Monitoring Report

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

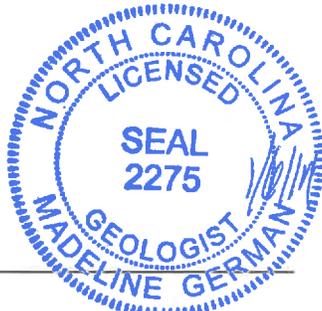
Prepared For:  
**Martin County Solid Waste Management  
Williamston, North Carolina**

**S+G Project No. MARTIN 11-2**



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Madeline German, P.G.  
Project Geologist



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Joan Smyth, P.G.  
Senior Hydrogeologist



**January 2014**

## SMITH+GARDNER

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

**November 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 November 27, 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 LOCATIONS

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 facility background well.

## 4.0 SAMPLING PROCEDURES

Environment 1 personnel conducted the monitoring network sampling event November 27, 2013. 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 Plan<sup>1</sup>. 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.

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

## 5.0 FIELD AND LABORATORY RESULTS

### 5.1 Field Results

Field measurements for groundwater depth, pH, temperature and specific conductance were collected for each well sampled during this monitoring event. Results are consistent with previous monitoring events. Depth to ground water and field measurements are included in **Tables 1 and 2**.

### 5.2 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)<sup>2</sup> for Appendix I constituents. The laboratory report is included as **Appendix A**.

### 5.3 Laboratory Results

#### 5.3.1 Inorganic Constituents

Laboratory analysis for this monitoring event indicated four inorganic constituents: arsenic (MW-4 and CDW-2R), barium (MW-2, MW-3, MW-4 and CDW-6), beryllium (MW-2) and cadmium (CDW-5 and CDW-6) 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.

#### 5.3.2 Organic Constituents

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

- 1,4-Dichlorobenzene (MW-4);
- Benzene (MW-2, MW-3 and MW-4) and
- Vinyl Chloride (MW-3 and MW-4).

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

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.

### 5.3.3 Surface Water Results

Zinc was detected above the 2B Standard for Class C waters in the sample from surface water location SW-2. No quantifiable organic detections were reported in surface water samples.

## **6.0 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**.

## **7.0 CONCLUSIONS**

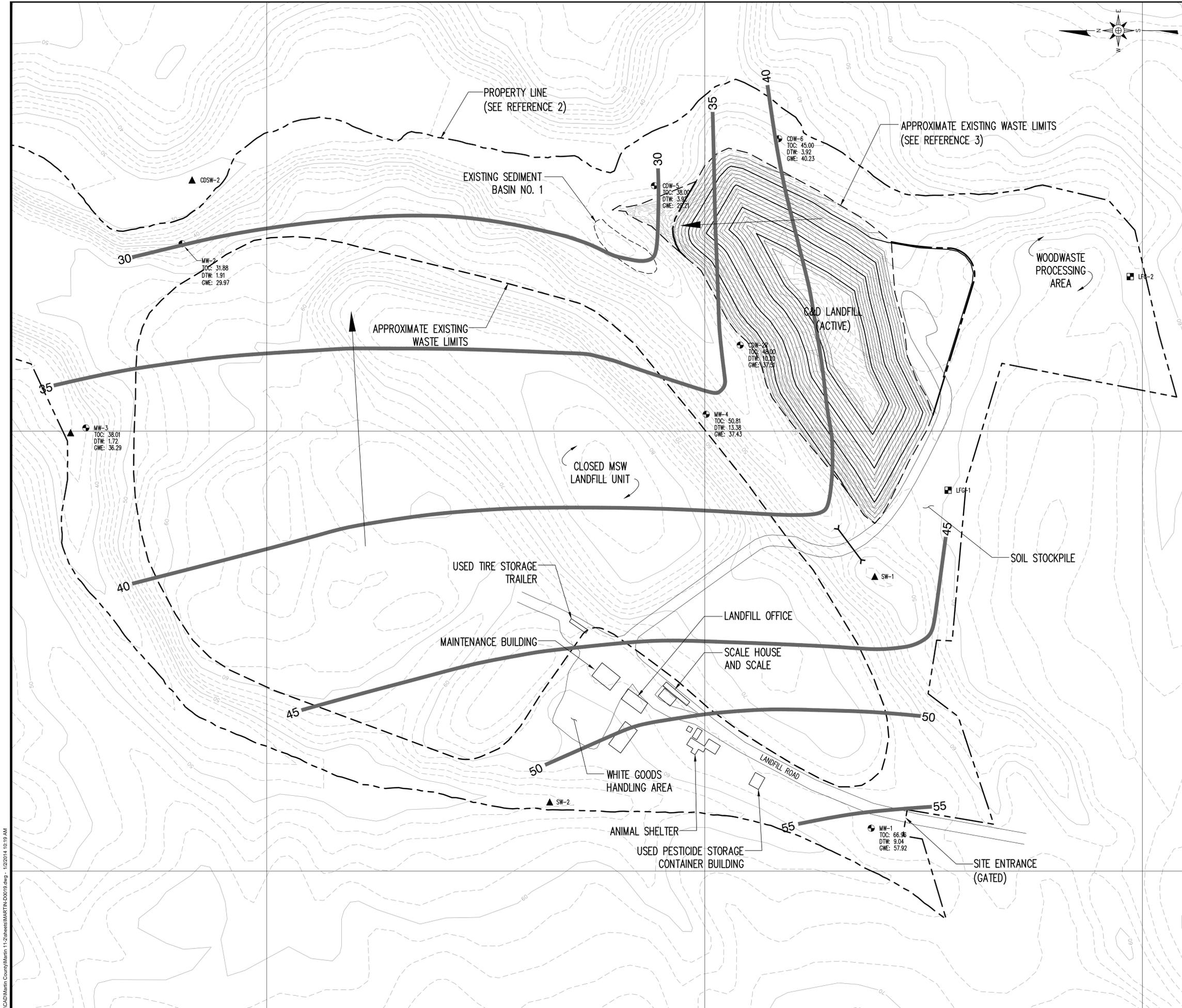
Monitoring event results indicate detectable concentrations of the inorganic constituents arsenic, barium, beryllium and cadmium. These constituents are found naturally in North Carolina and sample turbidity can yield results that are “biased high” due to these naturally occurring constituents. Organic 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 May 2014. A report with laboratory analysis will be submitted to NCDENR in accordance with 15A NCAC 13B .0544.

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## **FIGURES**

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

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**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**

- 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 NOVEMBER 27, 2013.

0 100' 200' 300'

PREPARED FOR:  
**MARTIN COUNTY**

PREPARED BY:  
NC LIC. NO. C-3828 (ENGINEERING)  
**SMITH+GARDNER ENGINEERS**  
14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577

SEAL

SEAL

REV.	DATE	DESCRIPTION

PROJECT TITLE:  
**MSW AND C&D LANDFILL MONITORING REPORT**

DRAWING TITLE:  
**GROUNDWATER POTENTIOMETRIC MAP NOVEMBER 2013**

DESIGNED BY: M.M.G.	PROJECT NO: MARTIN 11-2
DRAWN BY: K.C.B.	SCALE: AS SHOWN
APPROVED BY:	DATE: DEC 2013
FILENAME: MARTIN-D0019	SHEET NUMBER:
DRAWING NUMBER: <b>FIG. 1</b>	

G:\CAD\Martin County\Martin 11-2\Sheet\MARTIN-D0019.dwg - 12/20/13 11:10:19 AM

## **TABLES**

**November 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  
11/27/2013**

Well	TOC Elevation (feet)	Depth to Water (feet)	GW Elevation (feet)
MW-1	66.96	9.04	57.92
MW-2	31.88	1.91	29.97
MW-3	38.01	1.72	36.29
MW-4	50.81	13.38	37.43
CDW-2R	48*	10.20	37.51
CDW-5	38*	3.92	29.21
CDW-6	45*	3.92	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 12/30/13 Client ID # 6023.

**Table 2  
Field Parameters  
Martin County Landfill  
11/27/2013**

Well Identification #	Temperature (°Celsius)	Specific Conductivity (uMhos/cm)	pH (SU)
MW-1	17	178	7.2
MW-2	14	774	5.5
MW-3	14	926	6.6
MW-4	14	1099	6.5
CDW-2R	16	999	6.2
CDW-5	17	915	5.8
CDW-6	14	1231	5.8
SW-1	13	134	6.5
SW-2	12	87	6.7
SW-3	12	272	6.7
CDSW-2	12	136	7

**Note:** 1. Data from Environment 1 laboratory report dated 12/30/13, Client ID# 6023

Table 3  
Detected Inorganic Constituents  
Martin County Landfill  
11/27/2013

Constituents	MDL	SWSL	2L or GWP	2B	MW-1	MW-2	MW-3	MW-4	CDW-2R	CDW-5	CDW-6	SW-1	SW-2	SW-3	CDSW-2
Antimony	0.02	6	1 <sup>§</sup>	640	0.08 J	0.12 J	0.65 J	0.30 J	NA	NA	NA	0.12 J	0.34 J	0.12 J	NA
Arsenic	0.05	10	10	10	1.1 J	1.4 J	0.40 J	<b>42</b>	<b>17</b>	2.4 J	5.6 J	1.5 J	2.5 J	1.7 J	1.5 J
Barium	0.06	100	700	2000000	55.1	<b>164</b>	<b>167</b>	<b>118</b>	89.8 J	32.3 J	<b>133</b>	42.2 J	32.9 J	61.1 J	29.7 J
Beryllium	0.03	1	4 <sup>§</sup>	6.5	0.06 J	<b>3</b>	0.08 J	0.03 J	NA	NA	NA	0.08 J	0.09 J	0.10 J	NA
Cadmium	0.05	1	2	2	0.16 J	0.51 J	0.13 J	0.18 J	0.39 J	<b>2</b>	<b>1</b>	0.11 J	0.38 J	0.14 J	0.14 J
Cobalt	0.02	10	1 <sup>§</sup>	270	0.11 J	0.54 J	0.23 J	0.51 J	NA	NA	NA	1.0 J	0.45 J	1.0 J	NA
Copper	0.06	10	1000	7	0.91 J	2.4 J	0.72 J	0.93 J	NA	NA	NA	3.7 J	9.8 J	4.9 J	NA
Total Chromium	0.04	10	10	50	<0.04	0.27 J	<0.04	0.79 J	0.90 J	0.10 J	1.4 J	2.3 J	4.2 J	2.6 J	0.86 J
Lead	0.02	10	15	25	0.08 J	0.37 J	0.08 J	0.06 J	0.20 J	0.61 J	1.3 J	3.9 J	13	14	1.6 J
Nickel	0.45	50	100	88	1.2 J	3.9 J	3.3 J	4.5 J	NA	NA	NA	1.9 J	2.8 J	2.5 J	NA
Selenium	0.06	10	20	5	0.17 J	3.6 J	1.7 J	1.2 J	2.4 J	5.1 J	5.9 J	0.46 J	0.24 J	0.54 J	0.44 J
Silver	0.03	10	20	0.06	0.05 J	<0.03	0.08 J	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Thallium	0.02	5.5	0.28 <sup>§</sup>	0.24	0.21 J	<0.02	0.05 J	<0.02	NA	NA	NA	<0.02	0.05 J	0.03 J	NA
Vanadium	0.07	25	0.3 <sup>§</sup>	NE	0.64 J	3.5 J	0.34 J	1.2 J	NA	NA	NA	4.6 J	7.1 J	4.9 J	NA
Zinc	0.47	10	1000	50	1.8 J	8.0 J	2.0 J	4.2 J	NA	NA	NA	24	<b>95</b>	36	NA

**NOTE:**

- SWSL - Solid Waste Section Quantitation Limit
- 2L - Groundwater Standards (15A NCAC 2L 0200)
- GWP - Groundwater Protection Standard (identified by <sup>§</sup>)
- MDL - Method Detection Limit
- 2B - NCAC 2B Standard for Class C waters
- Shading - Concentrations above 2L standard
- Bold - 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 12/30/13, Client ID# 6023.

Table 4  
Detected Organic Constituents  
Martin County Landfill  
11/27/2013

Constituents	SWSL	2L	MDL	MW-2	MW-3	MW-4	CDW-2R	CDW-5	CDW-6
1,1- Dichloroethane	5	6	0.20	0.60 J	0.30 J	1.6 J	<0.20	<0.20	<0.20
1,4-Dichlorobenzene	1	6	0.39	<0.39	0.50 J	<b>6.2</b>	<0.39	<0.39	<0.39
1,2-Dichlorobenzene	5	20	0.32	<0.32	<0.32	0.50 J	<0.32	<0.32	<0.32
1,2-Dichloropropane	1	0.6	0.21	<0.21	<0.21	0.30 J	<0.21	<0.21	<0.21
Benzene	1	1	0.24	<b>2.2</b>	<b>1</b>	<b>4.6</b>	<0.24	<0.24	<0.24
Chlorobenzene	3	50	0.30	<b>3.5</b>	1.8 J	<b>19.1</b>	<0.30	<0.30	<0.30
Cis-1,2-Dichloroethene	5	70	0.25	0.90 J	<b>7.4</b>	0.30 J	<0.25	<0.25	<0.25
Tetrahydrofuran	NE	NE	0.39	NA	NA	NA	1	1.7	5.9
Toluene	1	600	0.23	<0.23	<0.23	<b>1.2</b>	<0.23	<0.23	<0.23
Xylenes	5	500	0.68	<0.68	<0.68	3.6 J	<0.68	<0.68	<0.68
Vinyl Chloride	1	0.03	0.63	<0.63	<b>1.4</b>	<b>8.8</b>	<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.

## **APPENDIX A**

### **Laboratory Analytical Results**

**November 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: 11/27/13  
DATE REPORTED : 12/30/13

REVIEWED BY: 

PARAMETERS	MDL	SWSL	MW-1	MW-2	MW-3	MW-4	SW-1	Analysis Date	Method
									Analyst
PH (field measurement), Units			7.2	5.5	6.6	6.5	6.5	11/27/13BF	4500HB-00
Antimony, ug/l	0.02	6.0	0.08 J	0.12 J	0.65 J	0.30 J	0.12 J	12/17/13LFJ	EPA200.8
Arsenic, ug/l	0.05	10.0	1.1 J	1.4 J	0.40 J	42	1.5 J	12/17/13LFJ	EPA200.8
Barium, ug/l	0.06	100.0	55.1 J	164	167	118	42.2 J	12/17/13LFJ	EPA200.8
Beryllium, ug/l	0.03	1.0	0.06 J	3	0.08 J	0.03 J	0.08 J	12/17/13LFJ	EPA200.8
Cadmium, ug/l	0.05	1.0	0.16 J	0.51 J	0.13 J	0.18 J	0.11 J	12/17/13LFJ	EPA200.8
Cobalt, ug/l	0.02	10.0	0.11 J	0.54 J	0.23 J	0.51 J	1.0 J	12/17/13LFJ	EPA200.8
Copper, ug/l	0.06	10.0	0.91 J	2.4 J	0.72 J	0.93 J	3.7 J	12/17/13LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	--- U	0.27 J	--- U	0.79 J	2.3 J	12/17/13LFJ	EPA200.8
Lead, ug/l	0.02	10.0	0.08 J	0.37 J	0.08 J	0.06 J	3.9 J	12/17/13LFJ	EPA200.8
Nickel, ug/l	0.45	50.0	1.2 J	3.9 J	3.3 J	4.5 J	1.9 J	12/17/13LFJ	EPA200.8
Selenium, ug/l	0.06	10.0	0.17 J	3.6 J	1.7 J	1.2 J	0.46 J	12/17/13LFJ	EPA200.8
Silver, ug/l	0.03	10.0	0.05 J	--- U	0.08 J	--- U	--- U	12/17/13LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	0.21 J	--- U	0.05 J	--- U	--- U	12/17/13LFJ	EPA200.8
Vanadium, ug/l	0.07	25.0	0.64 J	3.5 J	0.34 J	1.2 J	4.6 J	12/17/13LFJ	EPA200.8
Zinc, ug/l	0.47	10.0	1.8 J	8.0 J	2.0 J	4.2 J	24	12/17/13LFJ	EPA200.8
Conductivity (at 25c), uMhos/cm	1.0	1.0	178	774	926	1099	134	11/27/13BF	2510B-97
Temperature, °C			17	14	14	14	13	11/27/13BF	2550B-00
Static Water Level, feet			9.04	1.91	1.72	13.38		11/27/13BF	
Well Depth, feet			20.28	19.76	19.00	20.58		11/27/13BF	

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: 11/27/13  
DATE REPORTED : 12/30/13

REVIEWED BY: 

PARAMETERS	MDL	SWSL	SW-2			SW-3		CDW2R		CDW5		CDW6		Analysis		Method Code
													Date	Analyst		
PH (field measurement), Units			6.7	6.7	6.2	5.8	5.8	11/27/13BF	4500HB-00							
Antimony, ug/l	0.02	6.0	0.34 J	0.12 J				12/17/13LFJ	EPA200.8							
Arsenic, ug/l	0.05	10.0	2.5 J	1.7 J	17	2.4 J	5.6 J	12/17/13LFJ	EPA200.8							
Barium, ug/l	0.06	100.0	32.9 J	61.1 J	89.8 J	32.3 J	133	12/17/13LFJ	EPA200.8							
Beryllium, ug/l	0.03	1.0	0.09 J	0.10 J				12/17/13LFJ	EPA200.8							
Cadmium, ug/l	0.05	1.0	0.38 J	0.14 J	0.39 J	2	1	12/17/13LFJ	EPA200.8							
Cobalt, ug/l	0.02	10.0	0.45 J	1.0 J				12/17/13LFJ	EPA200.8							
Copper, ug/l	0.06	10.0	9.8 J	4.9 J				12/17/13LFJ	EPA200.8							
Total Chromium, ug/l	0.04	10.0	4.2 J	2.6 J	0.90 J	0.10 J	1.4 J	12/17/13LFJ	EPA200.8							
Lead, ug/l	0.02	10.0	13	14	0.20 J	0.61 J	1.3 J	12/17/13LFJ	EPA200.8							
Mercury, ug/l	0.01	0.20			---	U	---	U	12/20/13ADD	245.1 R3-94						
Nickel, ug/l	0.45	50.0	2.8 J	2.5 J				12/17/13LFJ	EPA200.8							
Selenium, ug/l	0.06	10.0	0.24 J	0.54 J	2.4 J	5.1 J	5.9 J	12/17/13LFJ	EPA200.8							
Silver, ug/l	0.03	10.0	---	U	---	U	---	U	12/17/13LFJ	EPA200.8						
Thallium, ug/l	0.02	5.5	0.05 J	0.03 J				12/17/13LFJ	EPA200.8							
Vanadium, ug/l	0.07	25.0	7.1 J	4.9 J				12/17/13LFJ	EPA200.8							
Zinc, ug/l	0.47	10.0	95	36				12/17/13LFJ	EPA200.8							
Conductivity (at 25c), uMhos/cm	1.0	1.0	87	272	999	915	1231	11/27/13BF	2510B-97							
Temperature, °C			12	12	16	17	14	11/27/13BF	2550B-00							
Static Water Level, feet					10.20	3.92	3.92	11/27/13BF								
Well Depth, feet					22.84	18.59	18.50	11/27/13BF								

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: 11/27/13  
DATE REPORTED : 12/30/13

REVIEWED BY: 

PARAMETERS	MDL	SWSL	CDWS2		Analysis		Method
					Date	Analyst	Code
PH (field measurement), Units			7.0		11/27/13BF		4500HB-00
Arsenic, ug/l	0.05	10.0	1.5 J		12/17/13LFJ		EPA200.8
Barium, ug/l	0.06	100.0	29.7 J		12/17/13LFJ		EPA200.8
Cadmium, ug/l	0.05	1.0	0.14 J		12/17/13LFJ		EPA200.8
Total Chromium, ug/l	0.04	10.0	0.86 J		12/17/13LFJ		EPA200.8
Lead, ug/l	0.02	10.0	1.6 J		12/17/13LFJ		EPA200.8
Mercury, ug/l	0.01	0.20	--- U		12/20/13ADD		245.1 R3-94
Selenium, ug/l	0.06	10.0	0.44 J		12/17/13LFJ		EPA200.8
Silver, ug/l	0.03	10.0	--- U		12/17/13LFJ		EPA200.8
Conductivity (at 25c), uMhos/cm	1.0	1.0	136		11/27/13BF		2510B-97
Temperature, °C			12		11/27/13BF		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  
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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: 11/27/13  
DATE REPORTED: 12/30/13  
Page: 1

REVIEWED BY: 

## VOLATILE ORGANICS EPA METHOD 8260B R1(96)

PARAMETERS, ug/l	Date Analyzed:		12/10/13 MW-1	12/09/13 MW-2	12/10/13 MW-3	12/10/13 MW-4	12/10/13 SW-1
	MDL	SWSL					
1. Chloromethane	0.77	1.0	--- U				
2. Vinyl Chloride	0.63	1.0	--- U	--- U	1.40	8.80	--- 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	0.60 J	0.30 J	1.60 J	--- U
13. Vinyl Acetate	0.20	50.0	--- U				
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	0.90 J	7.40	0.30 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	2.20	1.00	4.60	--- 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	--- U	--- U	0.30 J	--- 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	1.20	--- 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	3.50	1.80 J	19.10	--- 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	3.60 J	--- 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	0.50 J	6.20	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	--- U	0.50 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: 11/27/13  
DATE REPORTED: 12/30/13  
Page: 2

REVIEWED BY: 

## VOLATILE ORGANICS EPA METHOD 8260B R1(96)

PARAMETERS, ug/l	Date Analyzed:		12/10/13	12/10/13
	MDL	SWSL	SW-2	SW-3
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	--- U	--- 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.

# 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: 11/27/13  
DATE ANALYZED: 12/10/13  
DATE REPORTED: 12/30/13

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	--- 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
48. Tetrahydrofuran	0.39	1.0	1.00	1.70	5.90	--- U

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

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

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

CLIENT: 6023 Week: 48

MARTIN COUNTY LANDFILL  
 MR. MAURICE 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	DISINFECTION			Field pH	Metals	Conductivity	Temperature	Field Parameter	EPA 8260B	8260 Dup. 1	8260 Dup. 2	CHLORINE NEUTRALIZED AT COLLECTION	PH CHECK (LAB)	CONTAINER TYPE, P/G	CHEMICAL PRESERVATION
	DATE	TIME				<input type="checkbox"/> CHLORINE	<input type="checkbox"/> UV	<input type="checkbox"/> NONE												
MW-1	11-27-13	12:40	17	17	5	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	A	A	A	A	E	E	E					
MW-2	11-27-13	12:00	14	14	4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	P	P	P	P	G	G	G					
MW-3	11-27-13	11:30	14	14	4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	P	P	P	P	G	G	G					
MW-4	11-27-13	11:00	14	14	4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	P	P	P	P	G	G	G					
SW-1	11-27-13	10:30	13	13	4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	P	P	P	P	G	G	G					
SW-2	11-27-13	12:16	12	12	4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	P	P	P	P	G	G	G					
SW-3	11-27-13	11:10	12	12	4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	P	P	P	P	G	G	G					
CDWZR	11-27-13	11:40	16	16	4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	P	P	P	P	G	G	G					
CDW5	11-27-13	09:50	17	17	4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	P	P	P	P	G	G	G					
CDW6	11-27-13	09:25	14	14	4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	P	P	P	P	G	G	G					
CDWS2	11-27-13	10:25	12	12	4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	P	P	P	P	G	G	G					
REINQUISHED BY (SIG.) <i>Bobby Fox</i>			RECEIVED BY (SIG.) <i>Bobby Fox</i>	DATE/TIME	DATE/TIME	COMMENTS:														
REINQUISHED BY (SIG.)			RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME															

PARAMETERS:  
 A - NONE    D - NAOH  
 B - HNO<sub>3</sub>    E - HCL  
 C - H<sub>2</sub>SO<sub>4</sub>    F - ZINC ACETATE/NAOH  
 G - NA THIOSULFATE

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

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY  
 N

SAMPLES COLLECTED BY: *Bobby Fox*  
 (Please Print)

SAMPLES RECEIVED IN LAB AT 1-2 °C

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