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

NC DENR
Division of Waste Management - Solid Waste

# Environmental Monitoring Reporting Form

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

## Instructions:

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

## Solid Waste Monitoring Data Submittal Information

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

Richardson Smith Gardner and Associates. Inc.

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

Name: Joan A. Smyth, P.G. Phone: 919-828-0577 x 221

E-mail: joan@rsgengineers.com

| Facility name: | Facility Address: | Facility Permit # | NC Landfill Rule: (.0500 or .1600) | Actual sampling dates (e.g., October 20-24, 2006) |
|---|---|---|---|---|
| Lee County Landfills | 331 Landfill Road Lemon Springs, NC | 53-01 | .0500 | November 24, 2009 |

**Environmental Status: (Check all that apply)**

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

**Type of data submitted: (Check all that apply)**

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

**Notification attached?**

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

## Certification

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

| Joan A. Smyth, P.G. | Senior Hydrogeologist | 919-828-0577 x 221 |
|---|---|---|
| Facility Representative Name (Print) | Title | (Area Code) Telephone Number |

Joan A. Smyth 2/4/10

Signature Date

Affix NC Licensed/ Professional Geologist Seal


14 N. Boylan Avenue Raleigh, NC 27603

Facility Representative Address

C0828

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

Revised 6/2009

# Ground Water Monitoring Report

## Fall 2009 Monitoring Event

## Lee County Landfill
## Sanford, North Carolina
## NC Solid Waste Permit # 53-01

Prepared for:

**Lee County Solid Waste Superintendent**

805 South Fifth Street

Sanford, NC 27330

**February 2010**

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

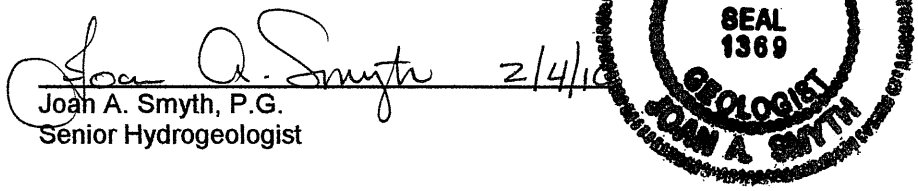
# Fall 2009 Ground Water Monitoring Report

## Lee County Landfill
## Sanford, North Carolina
## NC Solid Waste Permit # 53-01

Prepared for:

**Lee County Solid Waste Superintendent**
**805 South Fifth Street**
**Sanford, North Carolina 27330**

RSG Project No. **Lee 09-2**







Joan A. Smyth, P.G.
Senior Hydrogeologist

**February 2010**

RICHARDSON SMITH GARDNER
& ASSOCIATES
ENGINEERING & GEOLOGICAL
SERVICES

**Lee County Landfill**

**Ground Water Monitoring Report**
**Fall 2009 Monitoring Event**



**FIGURES**



**TABLES**



**APPENDICES**

## 1.0 Introduction

On November 24th, 2009, Richardson Smith Gardner & Associates, Inc. (RSG), personnel performed the required semi-annual ground water monitoring event at the Lee County Landfill required by 15A NCAC 13B.0500. This sampling event satisfies the requirements of the monitoring programs for this site. The following report summarizes the monitoring event, sampling procedures, field and laboratory results, and ground water characterization as required by NC Solid Waste Regulations. Also included are summary tables of ground water measurements, field parameters, detected constituents, and the laboratory analytical report.

## 2.0 Site Geology

The Lee County Landfill lies near the edge of the Coastal Plain Physiographic Province of North Carolina. The site lies within the Middendorf Formation which is underlain by saprolite and metavolcanic rocks. The Middendorf formation is relatively thin in this area. The Middendorf Formation consists of interbedded, lenses of sands, clays, silty clays, clayey sands and sandy clays. The formation is predominantly sand with varying amounts of silt and clay.

## 3.0 Lee County Landfill Monitoring Event

The following summarizes the monitoring event, sampling procedures, field and laboratory results, and ground water characterization as required by NC Solid Waste Regulations. Also included are summary tables of field measurements and detected constituents, as well as the laboratory analysis reports.

### 3.1 Sampling Procedures

The sampling event, performed by trained personnel from RSG engineers for Lee County Landfill, consisted of collecting samples from six (6) ground water wells (MW-5, MW-6, MW-9, MW-12, MW-13 & MW-14). One surface water sample was collected from SW-1.

Sampling procedures followed the protocols set forth in the North Carolina Water Quality Monitoring Guidance Document for Solid Waste Facilities. Each well was inspected to determine if any repairs are required. No damage was noted. Each well was then gauged to determine ground water depth and then purged of three well volumes or until dry. Ground water purging and sample collection was performed using a factory sealed teflon bailer.

Field measurements of pH, specific conductivity, turbidity, and temperature, were taken at each well and surface water sampling location. Monitoring well boring logs are included in **Appendix A**. Samples were collected in laboratory containers provided by Environment 1, Inc. (NC Laboratory Certification # 10). Upon collection, the samples were sealed, placed on ice, and transported to the above referenced laboratory. All samples were preserved and remained on fresh ice prior to shipment, and were received by the laboratory and analyzed within specified holding times.

During the sampling process, all wells were found to be in good condition and free of obstructions.

### 3.2 Field and Laboratory Results

All samples were transported to the laboratory facility under proper chain of custody analyzed at the specified Solid Waste Section Limits (SWSLs) for Appendix I constituents[1]. The laboratory analysis was received by our office and reviewed for accuracy. The laboratory report is attached as **Appendix B**. Ground water and field measurements included as **Tables 1 and 2,** respectively, remained similar to previous results.

Inorganic laboratory analysis detected six (6) inorganic constituents (barium, beryllium, cobalt, lead, selenium and zinc) in five (5) wells. Three (3) inorganic constituents were detected above their 15A NCAC 2L.0200 (2L) / Ground Water Protection (GWP) standards:

- beryllium (MW-5, MW-6 & MW-13);
- cobalt (MW-12); and
- lead (MW-14).

Surface water sampling was conducted at one point (SW-1), with the results included in **Table 3** and locations shown in **Figure 1**. One constituent, zinc were detected in SW-1 above the SWSL limit.

Organic analyses resulted in five (5) parameters detected in one (1) well. Detected organic constituents are shown in **Table 4**. Two (2) organic constituents were detected above the 2L standard:

- benzene (MW-12); and
- 1,4-dichlorobenzene (MW-12)

A review of historical data indicates general stability of detected constituents across the site. It should be noted that many of the recent detections shown are "J" values below the SWSL.

## 4.0 Site Ground Water Characterization

A potentiometric surface map was prepared for the entire site from ground water elevation data collected during this sampling event. Ground water velocity was calculated for each monitoring well on-site using the equation V = (KI)/n where:

K = hydraulic conductivity
I = ground water gradient

[1] New guidelines for electronic submittal of environmental monitoring data memo, NCDENR DWM, Solid Waste Section, October 27, 2006.

n = porosity

Ground water gradients at the Lee County Landfill ranged from 0.0007 feet/feet (MW-13) to 0.042 feet/feet (MW-7). Ground water velocity could not be calculated as no hydraulic conductivity data is available. These gradient information is included in **Table 1**. The potentiometric surface map indicates that ground water is flowing generally to the south and southwest across most of the site. This is consistent with ground water flow patterns previously seen at this site. The potentiometric surface map (**Figure 1**) is also attached for your review.

## 5.0 Conclusions

During the fall 2009 monitoring event all proper sampling protocols were followed. Analysis of samples indicated the detection of inorganic and organic constituents in certain wells above the 2L or GWP standards. The inorganic constituent concentrations are likely due to turbidity in the samples when they were collected. Turbidity can bias concentration results higher due to the metals found in the soils.. In general, detected ground water concentrations at the site have remained stable as compared with historical values.

The next ground water monitoring event is tentatively scheduled for April 2010. The results of this event will be reported to NCDENR upon completion of analysis of laboratory data.

Figures

APPROXIMATE PROPERTY LINE

EXISTING DRAINAGE DITCH

MW-11
TOC=399.600
DTW=10.55
GWE=389.050

MW-6
TOC=402.100
DTW=8.95
GWE=393.150

MW-9
TOC=384.200
DTW=9.15
GWE=375.050

MW-10
TOC=377.000
DTW=7.95
GWE=369.050

MW-7
TOC=360.300
DTW=8.85
GWE=351.450

MW-14
TOC=358.610
DTW=6.78
GWE=351.830

MW-13
TOC=363.930
DTW=9.24
GWE=354.690

MW-5
TOC=351.100
DTW=6.25
GWE=344.850

MW-4
TOC=345.900
DTW=10.8
GWE=335.100

MW-12
TOC=337.400
DTW=3.65
GWE=333.750

AREA 1
AREA 2
AREA 3
AREA 4
AREA 5
AREA 6
C&D AREA

APPROXIMATE STREAM

385 390 380 375 370 365 360 355 350 345 340 335

N W E S

LEGEND

- GROUNDWATER MONITORING WELL (LOCATION APPROXIMATE)
- DIRECTION OF GROUNDWATER FLOW

REFERENCES

1. TOPOGRAPHY PROVIDED BY NCDOT G.I.S. DEPARTMENT.
2. PARCEL BOUNDARIES FROM LEE COUNTY G.I.S. STRATEGIC SERVICES DEPARTMENT.

0 500' 1000'

RICHARDSON SMITH GARDNER & ASSOCIATES
14 N. Boylan Ave. Raleigh, N.C. 27603
ph: 919-828-0577 fax: 919-828-3899
www.rsgengineers.com

FIGURE NO. 1
FILE NAME LEE-B0007
SCALE: AS SHOWN
CHECKED BY: J.A.S.
PROJECT NO. LEE 09-2
DRAWN BY: W.R.B.
DATE: Dec. 2009

TITLE:
FALL 2009 POTENTIOMETRIC SURFACE MAP
LEE COUNTY LANDFILL
SANFORD, NORTH CAROLINA

G:\CAD\Lee County\Lee 09-1\sheets\LEE-B0007.dwg - 12/1/2009 3:59 PM

Tables

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

By: JAS
Date: 11/25/2009

# Table 1
# Lee County Landfill
# Ground Water Elevations
# 11/24/2009

| Well | TOC Elevation (feet) | Depth to Water (feet) | GW Elev (feet) | Gradient (ft/ft) |
|---|---|---|---|---|
| MW-4 | 345.9 | 10.8 | 335.1 | 0.015 |
| MW-5 | 351.1 | 6.25 | 344.85 | 0.007 |
| MW-6 | 402.1 | 8.95 | 393.15 | 0.011 |
| MW-7 | 360.3 | 8.85 | 351.45 | 0.042 |
| MW-9 | 384.2 | 9.15 | 375.05 | 0.010 |
| MW-10 | 377 | 7.95 | 369.05 | 0.022 |
| MW-11 | 399.6 | 10.55 | 389.05 | 0.017 |
| MW-12 | 337.4 | 3.65 | 333.75 | 0.018 |
| MW-13 | 363.93 | 9.24 | 354.69 | 0.0007 |
| MW-14 | 358.61 | 6.78 | 351.83 | 0.009 |

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

By: BSH
Date: 11/24/2009

# Table 2
# Lee County Landfill
# Field Parameters
# 11/24/2009

| Well Identification # | Temperature (°Celsius) | Turbidity (NTU) | Specific Conductivity (uS/cm) | pH |
|---|---|---|---|---|
| MW-5 | 15 | 126 | 120 | 10.3 |
| MW-12 | 15 | 120 | 1780 | 10.1 |
| MW-14 | 15 | 59 | 70 | 10.6 |
| MW-13 | 15 | 100 | 40 | 11.1 |
| MW-9 | 15 | 209 | 50 | 11.4 |
| MW-6 | 15 | 119 | 20 | 5.2 |
| SW-1 | 18 | 22 | 390 | 6 |

**Note:**

1. pH measured with a 'Hanna" pH/EC/TDS Meter, type HI9811
2. Water Levels measured with a Slope Indicator Water Level Meter
3. Turbidity not measured due to meter malfunction.
4. Temperature measured with a laboratory grade thermometer.
5. Data Collected by Don Misenheimer & Britt Ransom of RSG Engineers Inc.
6. nm = Not Measured

RICHARDSON SMITH GARDNER & ASSOCIATES
ENGINEERING & GEOLOGICAL SERVICES

By: BSH
Date: 11/24/2009

**Table 3**
**Lee County Landfill**
**Detected Inorganic and Organic Constituents**
**11/24/2009**

| Constituents | SWSL | 2L or GWP Standards | MW-5 | MW-6 | MW-9 | MW-12 | MW-13 | MW-14 | SW-1 |
|---|---|---|---|---|---|---|---|---|---|
| **Inorganic Constituents** | | | | | | | | | |
| Antimony | 6 | 1.4 | ND | ND | ND | 0.1 J | ND | ND | 0.2 J |
| Arsenic | 10 | 50 | 0.3 J | 0.2 J | 0.2 J | 7.2 J | ND | ND | 0.4 J |
| Barium | 100 | 2000 | **223** | 59.1 J | 82.9 J | **1529** | **258** | **129** | 86.1 J |
| Beryllium | 1 | 4 | **12** | **4** | 0.4 J | 0.7 J | **7** | **3.4** | ND |
| Cadmium | 1 | 1.75 | 0.4 J | 0.2 J | 0.2 J | 0.7 J | 0.5 J | 0.8 J | 0.1 J |
| Cobalt | 10 | 70 | 1.4 J | 1.7 J | 1 J | **290** | 4.9 J | 5.6 J | 0.5 J |
| Copper | 10 | 1000 | 5.7 J | 3 J | 2.5 J | 2.8 J | 2.2 J | 1.7 J | 2.9 J |
| Chromium, total | 10 | 50 | 2.5 J | 0.4 J | 1.9 J | 0.9 J | 0.5 J | 1 J | 0.5 J |
| Lead | 10 | 15 | 7.4 J | 1.4 J | 4.5 J | 2.5 J | 3.4 J | **22** | 0.5 J |
| Nickel | 50 | 100 | 1.8 J | 1.8 J | 1.1 J | 32.3 J | 4.2 J | 5.2 J | 3.1 J |
| Selenium | 10 | 50 | 0.8 J | ND | ND | **16** | ND | ND | 1.2 J |
| Silver | 10 | 17.5 | 0.1 J | 0.1 J | ND | 0.1 J | ND | 0.1 J | 0.1 J |
| Thallium | 5 | 0.28 | 0.1 J | 0.1 J | 0.1 J | ND | 0.2 J | 0.3 J | 0.1 J |
| Vanandium | 25 | 3.5 | 14.3 J | 3.6 J | 4.7 J | 2.1 J | 1.2 J | 0.9 J | 1.4 J |
| Zinc | 10 | 1050 | **37** | 9.4 J | 5.4 J | 6.5 J | **21** | **27** | **25** |
| **Organic Constituents** | | | | | | | | | |
| Chloroethane | 10 | 2800 | ND | ND | ND | **76.9** | ND | ND | ND |
| Benzene | 1 | 1 | ND | ND | ND | **3.7** | ND | ND | ND |
| 1,1-Dichloroethane | 5 | 70 | ND | ND | ND | **9.4** | ND | ND | ND |
| 1,2-Dichloroethane | 1 | 0.38 | ND | ND | ND | 0.6 J | ND | ND | ND |
| Toluene | 1 | 1 | ND | ND | ND | 0.5 J | ND | ND | ND |
| Chlorobenzene | 3 | 50 | ND | ND | ND | **12.3** | ND | ND | ND |
| 1,4-Dichlorobenzene | 1 | 1.4 | ND | ND | ND | **3.9** | ND | ND | ND |
| 1,2-Diichlorobenzene | 5 | 24 | ND | ND | ND | 0.4 J | ND | ND | ND |

SWSL - Solid Waste Section Quantitation Limit
ND - Not detected at or above SWSL
Shading - Concentrations above 2L standard or Groundwater Protection Standard
Bold Letters - Constituent detected above SWSL
J - Constituent detected below SWSL

All SWSLs, 2L Standards and Results are in ug/l.

Data from Environment 1 laboratory report dated 10/27/2009, ID# 6057.

# Appendix A

## Monitoring Well Information

ARDSON SMITH GARDNER
& ASSOCIATES
NGINEERING & GEOLOGICAL
SERVICES

By: BSH
Date: 11/24/2009

# Appendix A
# Lee County Landfill
# Monitoring Well Information

| Well | TOC Elevation (feet) | Depth to Water (feet) | Depth to Bottom (feet) | Assumed Screened Interval |
|---|---|---|---|---|
| MW-4 | 345.9 | 10.8 | 19 | 9' - 19' |
| MW-5 | 351.1 | 6.25 | 19.68 | 9.68' - 19.68' |
| MW-6 | 402.1 | 8.95 | 40.4 | 30.4' - 40.4' |
| MW-7 | 360.3 | 8.85 | 22.25 | 12.25' - 22.25' |
| MW-9 | 384.2 | 9.15 | 22.85 | 12.85' - 22.85' |
| MW-10 | 377 | 7.95 | 24 | 14' - 24 |
| MW-11 | 399.6 | 10.55 | 22.84 | 12.84' - 22.84' |
| MW-12 | 337.4 | 3.65 | 13.3 | 8.3' - 13.3' |
| MW-13 | 363.93 | 9.24 | 24.3 | 14.3' - 24.3' |
| MW-14 | 358.61 | 6.78 | 18.4 | 8.4' - 18.4' |

Note: survey data from 9/07 and 1/14/08 by Surveying Solutions, P.C.
Depth to Water and Depth to Bottom measured from Top of Casing
No boring logs available for monitoirng wells
Screened interval assumed based upon depth to bottom measurements.

# Appendix B

## Laboratory Analytical Report

# Environment 1, Incorporated

REC'D DEC 29 2009

Drinking Water ID: 37715
Wastewater ID: 10

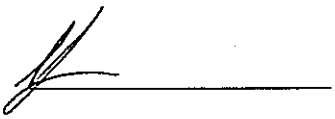
P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

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


ID#: 6074

LEE COUNTY LANDFILL
C/O MS. JOAN SMYTH
RICHARDSON SMITH GARDNER
14 N. BOYLAN AVENUE
RALEIGH ,NC 27603

DATE COLLECTED: 11/24/09
DATE REPORTED : 12/28/09

REVIEWED BY: 

| PARAMETERS | MDL | SWSL | MW-5 | MW-6 | MW-9 | MW-12 | MW-13 | Analysis Date | Analyst | Method Code |
|---|---|---|---|---|---|---|---|---|---|---|
| Antimony, ug/l | 0.06 | 6.0 | --- U | --- U | --- U | 0.1 J | | 12/01/09 | CMF | EPA200.8 |
| Antimony, ug/l | 0.06 | 6.0 | | | | | --- U | 12/07/09 | LFJ | EPA200.8 |
| Arsenic, ug/l | 0.17 | 10.0 | 0.3 J | 0.2 J | 0.2 J | 7.2 J | | 12/01/09 | CMF | EPA200.8 |
| Arsenic, ug/l | 0.17 | 10.0 | | | | | --- U | 12/07/09 | LFJ | EPA200.8 |
| Barium, ug/l | 0.04 | 100.0 | 223 | 59.1 J | 82.9 J | 1529 | | 12/01/09 | CMF | EPA200.8 |
| Barium, ug/l | 0.04 | 100.0 | | | | | 258 | 12/07/09 | LFJ | EPA200.8 |
| Beryllium, ug/l | 0.06 | 1.0 | 12 | 4 | 0.4 J | 0.7 J | | 12/01/09 | CMF | EPA200.8 |
| Beryllium, ug/l | 0.06 | 1.0 | | | | | 7 | 12/07/09 | LFJ | EPA200.8 |
| Cadmium, ug/l | 0.04 | 1.0 | 0.4 J | 0.2 J | 0.2 J | 0.7 J | | 12/01/09 | CMF | EPA200.8 |
| Cadmium, ug/l | 0.04 | 1.0 | | | | | 0.5 J | 12/07/09 | LFJ | EPA200.8 |
| Cobalt, ug/l | 0.02 | 10.0 | 1.4 J | 1.7 J | 1.0 J | 290 | | 12/01/09 | CMF | EPA200.8 |
| Cobalt, ug/l | 0.02 | 10.0 | | | | | 4.9 J | 12/07/09 | LFJ | EPA200.8 |
| Copper, ug/l | 0.04 | 10.0 | 5.7 J | 3.0 J | 2.5 J | 2.8 J | | 12/01/09 | CMF | EPA200.8 |
| Copper, ug/l | 0.04 | 10.0 | | | | | 2.2 J | 12/08/09 | LFJ | EPA200.8 |
| Total Chromium, ug/l | 0.10 | 10.0 | 2.5 J | 0.4 J | 1.9 J | 0.9 J | | 12/01/09 | CMF | EPA200.8 |
| Total Chromium, ug/l | 0.10 | 10.0 | | | | | 0.5 J | 12/07/09 | LFJ | EPA200.8 |
| Lead, ug/l | 0.04 | 10.0 | 7.4 J | 1.4 J | 4.5 J | 2.5 J | | 12/01/09 | CMF | EPA200.8 |
| Lead, ug/l | 0.04 | 10.0 | | | | | 3.4 J | 12/07/09 | LFJ | EPA200.8 |
| Nickel, ug/l | 0.04 | 50.0 | 1.8 J | 1.8 J | 1.1 J | 32.3 J | | 12/01/09 | CMF | EPA200.8 |
| Nickel, ug/l | 0.04 | 50.0 | | | | | 4.2 J | 12/07/09 | LFJ | EPA200.8 |
| Selenium, ug/l | 0.12 | 10.0 | 0.8 J | --- U | --- U | 16 | | 12/01/09 | CMF | EPA200.8 |
| Selenium, ug/l | 0.12 | 10.0 | | | | | --- U | 12/07/09 | LFJ | EPA200.8 |
| Silver, ug/l | 0.04 | 10.0 | 0.1 J | 0.1 J | --- U | 0.1 J | | 12/01/09 | CMF | EPA200.8 |
| Silver, ug/l | 0.04 | 10.0 | | | | | --- U | 12/07/09 | LFJ | EPA200.8 |
| Thallium, ug/l | 0.03 | 5.0 | 0.1 J | 0.1 J | 0.1 J | --- U | | 12/01/09 | CMF | EPA200.8 |
| Thallium, ug/l | 0.03 | 5.0 | | | | | 0.2 J | 12/07/09 | LFJ | EPA200.8 |
| Vanadium, ug/l | 0.28 | 25.0 | 14.3 J | 3.6 J | 4.7 J | 2.1 J | | 12/01/09 | CMF | EPA200.8 |
| Vanadium, ug/l | 0.28 | 25.0 | | | | | 1.2 J | 12/07/09 | LFJ | EPA200.8 |
| Zinc, ug/l | 0.14 | 10.0 | 37 | 9.4 J | 5.4 J | 6.5 J | | 12/01/09 | CMF | EPA200.8 |
| Zinc, ug/l | 0.14 | 10.0 | | | | | 21 | 12/07/09 | LFJ | EPA200.8 |

J = Between MDL and SWSL, U = Below ALL Quanititation 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#: 6074

LEE COUNTY LANDFILL
C/O MS. JOAN SMYTH
RICHARDSON SMITH GARDNER
14 N. BOYLAN AVENUE
RALEIGH ,NC 27603

DATE COLLECTED: 11/24/09
DATE REPORTED : 12/28/09

REVIEWED BY: _____

| PARAMETERS | MDL | SWSL | MW-14 | SW-1 | Analysis Date | Analyst | Method Code |
|---|---|---|---|---|---|---|---|
| Antimony, ug/l | 0.06 | 6.0 | --- U | 0.2 J | 12/07/09 | LFJ | EPA200.8 |
| Arsenic, ug/l | 0.17 | 10.0 | --- U | 0.4 J | 12/07/09 | LFJ | EPA200.8 |
| Barium, ug/l | 0.04 | 100.0 | 129 | 86..1J | 12/07/09 | LFJ | EPA200.8 |
| Beryllium, ug/l | 0.06 | 1.0 | 3.4 | --- U | 12/07/09 | LFJ | EPA200.8 |
| Cadmium, ug/l | 0.04 | 1.0 | 0.8 J | 0.1 J | 12/07/09 | LFJ | EPA200.8 |
| Cobalt, ug/l | 0.02 | 10.0 | 5.6 J | 0.5 J | 12/07/09 | LFJ | EPA200.8 |
| Copper, ug/l | 0.04 | 10.0 | 1.7 J | 2.9 J | 12/08/09 | LFJ | EPA200.8 |
| Total Chromium, ug/l | 0.10 | 10.0 | 1 J | 0.5 J | 12/07/09 | LFJ | EPA200.8 |
| Lead, ug/l | 0.04 | 10.0 | 22 | 0.5 J | 12/07/09 | LFJ | EPA200.8 |
| Nickel, ug/l | 0.04 | 50.0 | 5.2 J | 3.1 J | 12/07/09 | LFJ | EPA200.8 |
| Selenium, ug/l | 0.12 | 10.0 | --- U | 1.2 J | 12/07/09 | LFJ | EPA200.8 |
| Silver, ug/l | 0.04 | 10.0 | 0.1 J | 0.1 J | 12/07/09 | LFJ | EPA200.8 |
| Thallium, ug/l | 0.03 | 5.0 | 0.3 J | 0.1 J | 12/07/09 | LFJ | EPA200.8 |
| Vanadium, ug/l | 0.28 | 25.0 | 0.9 J | 1.4 J | 12/07/09 | LFJ | EPA200.8 |
| Zinc, ug/l | 0.14 | 10.0 | 27 | 25 | 12/07/09 | LFJ | EPA200.8 |

J = Between MDL and SWSL, U = Below ALL Quanititation 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: LEE COUNTY LANDFILL
C/O MS. JOAN SMYTH
RICHARDSON SMITH GARDNER
14 N. BOYLAN AVENUE
RALEIGH, NC 27603

CLIENT ID: 6074

ANALYST: MAO
DATE COLLECTED: 11/24/09
DATE ANALYZED: 12/02/09
DATE REPORTED: 12/28/09



REVIEWED BY:

## VOLATILE ORGANICS
## EPA METHOD 8260B

| PARAMETERS, ug/l | MDL | SWSL | MW-5 | MW-6 | MW-9 | MW-12 | MW-13 |
|---|---|---|---|---|---|---|---|
| 1. Chloromethane | 0.77 | 1.0 | --- U | --- U | --- U | --- U | --- U |
| 2. Vinyl Chloride | 0.63 | 1.0 | --- U | --- U | --- U | --- U | --- U |
| 3. Bromomethane | 0.67 | 10.0 | --- U | --- U | --- U | --- U | --- U |
| 4. Chloroethane | 0.48 | 10.0 | --- U | --- U | --- U | 76.90 | --- U |
| 5. Trichlorofluoromethane | 0.24 | 1.0 | --- U | --- U | --- U | --- U | --- U |
| 6. 1,1-Dichloroethene | 0.17 | 5.0 | --- U | --- U | --- U | --- U | --- U |
| 7. Acetone | 9.06 | 100.0 | --- U | --- U | --- U | --- U | --- U |
| 8. Iodomethane | 0.26 | 10.0 | --- U | --- U | --- U | --- U | --- U |
| 9. Carbon Disulfide | 0.23 | 100.0 | --- U | --- U | --- U | --- U | --- U |
| 10. Methylene Chloride | 0.64 | 1.0 | --- U | --- U | --- U | --- U | --- U |
| 11. trans-1,2-Dichloroethene | 0.23 | 5.0 | --- U | --- U | --- U | --- U | --- U |
| 12. 1,1-Dichloroethane | 0.20 | 5.0 | --- U | --- U | --- U | 9.40 | --- U |
| 13. Vinyl Acetate | 0.20 | 50.0 | --- U | --- U | --- U | --- U | --- U |
| 14. Cis-1,2-Dichloroethene | 0.25 | 5.0 | --- U | --- U | --- U | --- U | --- U |
| 15. 2-Butanone | 2.21 | 100.0 | --- U | --- U | --- U | --- U | --- U |
| 16. Bromochloromethane | 0.27 | 3.0 | --- U | --- U | --- U | --- U | --- U |
| 17. Chloroform | 0.25 | 5.0 | --- U | --- U | --- U | --- U | --- U |
| 18. 1,1,1-Trichloroethane | 0.19 | 1.0 | --- U | --- U | --- U | --- U | --- U |
| 19. Carbon Tetrachloride | 0.22 | 1.0 | --- U | --- U | --- U | --- U | --- U |
| 20. Benzene | 0.24 | 1.0 | --- U | --- U | --- U | 3.70 | --- U |
| 21. 1,2-Dichloroethane | 0.27 | 1.0 | --- U | --- U | --- U | 0.60 J | --- U |
| 22. Trichloroethene | 0.23 | 1.0 | --- U | --- U | --- U | --- U | --- U |
| 23. 1,2-Dichloropropane | 0.21 | 1.0 | --- U | --- U | --- U | --- U | --- U |
| 24. Bromodichloromethane | 0.21 | 1.0 | --- U | --- U | --- U | --- U | --- U |
| 25. Cis-1,3-Dichloropropene | 0.24 | 1.0 | --- U | --- U | --- U | --- U | --- U |
| 26. 4-Methyl-2-Pentanone | 1.19 | 100.0 | --- U | --- U | --- U | --- U | --- U |
| 27. Toluene | 0.23 | 1.0 | --- U | --- U | --- U | 0.50 J | --- U |
| 28. trans-1,3-Dichloropropene | 0.28 | 1.0 | --- U | --- U | --- U | --- U | --- U |
| 29. 1,1,2-Trichloroethane | 0.25 | 1.0 | --- U | --- U | --- U | --- U | --- U |
| 30. Tetrachloroethene | 0.17 | 1.0 | --- U | --- U | --- U | --- U | --- U |
| 31. 2-Hexanone | 1.57 | 50.0 | --- U | --- U | --- U | --- U | --- U |
| 32. Dibromochloromethane | 0.24 | 3.0 | --- U | --- U | --- U | --- U | --- U |
| 33. 1,2-Dibromoethane | 0.26 | 1.0 | --- U | --- U | --- U | --- U | --- U |
| 34. Chlorobenzene | 0.30 | 3.0 | --- U | --- U | --- U | 12.30 | --- U |
| 35. 1,1,1,2-Tetrachloroethane | 0.22 | 5.0 | --- U | --- U | --- U | --- U | --- U |
| 36. Ethylbenzene | 0.21 | 1.0 | --- U | --- U | --- U | --- U | --- U |
| 37. Xylenes | 0.68 | 5.0 | --- U | --- U | --- U | --- U | --- U |
| 38. Dibromomethane | 0.28 | 10.0 | --- U | --- U | --- U | --- U | --- U |
| 39. Styrene | 0.19 | 1.0 | --- U | --- U | --- U | --- U | --- U |
| 40. Bromoform | 0.20 | 3.0 | --- U | --- U | --- U | --- U | --- U |
| 41. 1,1,2,2-Tetrachloroethane | 0.26 | 3.0 | --- U | --- U | --- U | --- U | --- U |
| 42. 1,2,3-Trichloropropane | 0.43 | 1.0 | --- U | --- U | --- U | --- U | --- U |
| 43. 1,4-Dichlorobenzene | 0.39 | 1.0 | --- U | --- U | --- U | 3.90 | --- 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 | --- U | --- U | --- U | --- U |
| 46. Acrylonitrile | 2.72 | 200.0 | --- U | --- U | --- U | --- U | --- U |
| 47. trans-1,4-Dichloro-2-Butene | 0.42 | 100.0 | --- U | --- U | --- U | --- U | --- U |

J = Between MDL and SWSL, U = Below ALL Quanititation 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: LEE COUNTY LANDFILL
C/O MS. JOAN SMYTH
RICHARDSON SMITH GARDNER
14 N. BOYLAN AVENUE
RALEIGH, NC 27603

CLIENT ID: 6074

ANALYST: MAO
DATE COLLECTED: 11/24/09
DATE ANALYZED: 12/02/09
DATE REPORTED: 12/28/09



REVIEWED BY:

## VOLATILE ORGANICS
## EPA METHOD 8260B

| PARAMETERS, ug/l | MDL | SWSL | MW-14 | SW-1 | 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 Quanititation Limits.

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

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

# CHAIN OF CUSTODY RECORD



**CLIENT:** 6074 **Week:** 47

LEE COUNTY LANDFILL
C/O MS. JOAN SMYTH
RICHARDSON SMITH GARDNER
14 N. BOYLAN AVENUE
RALEIGH NC 27603

(919) 828-0577

DISINFECTION
- ☐ CHLORINE
- ☐ UV
- ☐ NONE
- ☐ _____

| SAMPLE LOCATION | COLLECTION DATE | COLLECTION TIME | TOTAL CHLORINE, mg/l AT COLLECTION | TEMPERATURE, °C AT COLLECTION | # OF CONTAINERS | Metals | EPA 8260B | 8260 Dup. 1 | 8260 Dup. 2 |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | CHLORINE NEUTRALIZED AT COLLECTION | | | | |
| | | | | | pH CHECK (LAB) | 12 | 12 | 12 | 12 |
| | | | | | CONTAINER TYPE, P/G | P | G | G | G |
| | | | | | CHEMICAL PRESERVATION | A | E | E | E |
| MW-5 | 11-24 | 1:36 pm | | | 4 | ■ | ■ | ■ | ■ |
| MW-6 | 11-24 | 3:00 pm | | | 3 | ■ | ■ | ■ | |
| MW-9 | 11-24 | 2:42 pm | | | 3 | ■ | ■ | ■ | |
| MW-12 | 11-24 | 2:00 pm | | | 3 | ■ | ■ | ■ | |
| SW-1 | 11-24 | 3:18 pm | | | 3 | ■ | ■ | ■ | |
| MW-13 | 11-24 | 2:30 pm | | | 3 | ■ | ■ | ■ | |
| MW-14 | 11-24 | 2:10 pm | | | 3 | ■ | ■ | ■ | |
| Trip Blank | 11-24 | | | | 2 | | ■ | ■ | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

PARAMETERS

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

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

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

SAMPLES COLLECTED BY:
(Please Print)

SAMPLES RECEIVED IN LAB AT 0-3 °C

| RELINQUISHED BY (SIG.) (SAMPLER) | DATE/TIME | RECEIVED BY (SIG.) | DATE/TIME |
|---|---|---|---|
| Bryan Stowe | 11-24-01 4:15 pm | | 11/25/01 |
| RELINQUISHED BY (SIG.) | DATE/TIME | RECEIVED BY (SIG.) | DATE/TIME |
| RELINQUISHED BY (SIG.) | DATE/TIME | RECEIVED BY (SIG.) | DATE/TIME |

COMMENTS:

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

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

FORM #5

№ 193157