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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)).
- In accordance with NC General Statutes Chapter 89C and 89E and NC Solid Waste Management Rules 15A NCAC 13B, be sure to affix a seal to the bottom of this page, when applicable.
- 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 Smyth, P.G.

Phone: 919-828-0577 x 122

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)
Davidson County C&D Landfill	220 Landfill Road Lexington, NC 27292	29-06	.0500	October 11, 2007

**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.

Joan Smyth, P.G.

Senior Hydrogeologist

919-828-0577 x 122

Facility Representative Name (Print)

Title

(Area Code) Telephone Number

Signature

Date

Affix NC Licensed/ Professional Geologist/Engineer Seal here:



**Ground Water Monitoring Report**

**October 2007 Monitoring Event**

**Davidson County**

**Construction & Demolition Debris Landfill  
Lexington, North Carolina  
NC Solid Waste Permit # 29-06**

Prepared for:

**Davidson County Integrated Solid Waste**

1242 Old Highway 29  
Thomasville, NC 27360-0024

**November 2007**



**Richardson Smith Gardner & Associates, Inc.**

**Engineering and Geological Services**

14 North Boylan Avenue  
Raleigh, North Carolina 27603

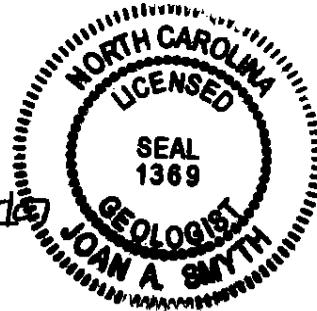
**Ground Water Monitoring Report  
Davidson County Landfill  
Construction & Demolition Debris Landfill  
October 2007 Semi - Annual Report**

Prepared for:

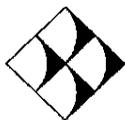
**Davidson County Integrated Solid Waste  
1242 Old Highway 29  
Thomasville, NC 27360**

RSG Project No. **Davdco - 13A**

  
Joan A. Smyth, P.G.  
Senior Hydrogeologist



**November 2007**



**RICHARDSON SMITH GARDNER & ASSOCIATES**  
Engineering and Geological Services  
14 N. Boylan Avenue  
Raleigh, North Carolina 27603

**Davidson County C&D Landfill**

**Ground Water Monitoring Report  
October 2007 Monitoring Event**

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- Table 2 – C&D Landfill Field Parameters
- Table 3 – C&D Landfill Detected Inorganic Parameters

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## 1.0 Introduction

On October 11<sup>th</sup>, 2007, Richardson Smith Gardner & Associates, Inc. (RSG), personnel performed the required semi-annual ground water monitoring event at the Davidson County C&D Landfill. 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.

### Davidson County C&D Landfill

#### 2.1 Sampling Procedures

Ground water sampling was performed at the four (4) ground water monitoring well locations associated with the C&D landfill. It should be noted that due to construction of Phase-2, CDMW-4 was abandoned and replaced with CDMW-4A. The surface water sampling location (SW-3) associated with this site was found to be dry during this event; therefore no sample could be collected. Sampling procedures followed the protocols set forth in the site's Sampling and Analysis Plan and the North Carolina Water Quality Monitoring Guidance Document for Solid Waste Facilities. Each well was gauged to determine ground water depth and then purged of three well volumes or until dry. The wells were purged and allowed to stabilize prior to sample collection. Ground water purging and sample collection was performed using a factory sealed Teflon™ bailer.

Field measurements of temperature, pH, and conductivity were taken at each well. 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 via overnight delivery to the laboratory. Field blanks were also collected for quality control purposes.

During the sampling process, each well was inspected for signs of damage or unusual conditions. All wells were found to be in good condition and free of obstructions.

#### 2.2 Field and Laboratory Results

Ground water samples were collected from the four monitoring wells (CDMW-2, CDMW-3, CDMW-4A and CDMW-5) located down gradient of the C&D Landfill. Analysis of these samples indicated detectable levels above the Practical Quantitation Limit (PQL) of barium, iron and manganese. Out of these constituents, iron and manganese were detected of levels above 2L/MCL standards. The results are summarized in **Table 3**.

Detected constituents below the Practical Quantitation Limit (PQL), denoted as "J" values are also included in **Table 3**. The laboratory report is included in **Appendix A**.

### **3.0 Site Ground Water Characterization**

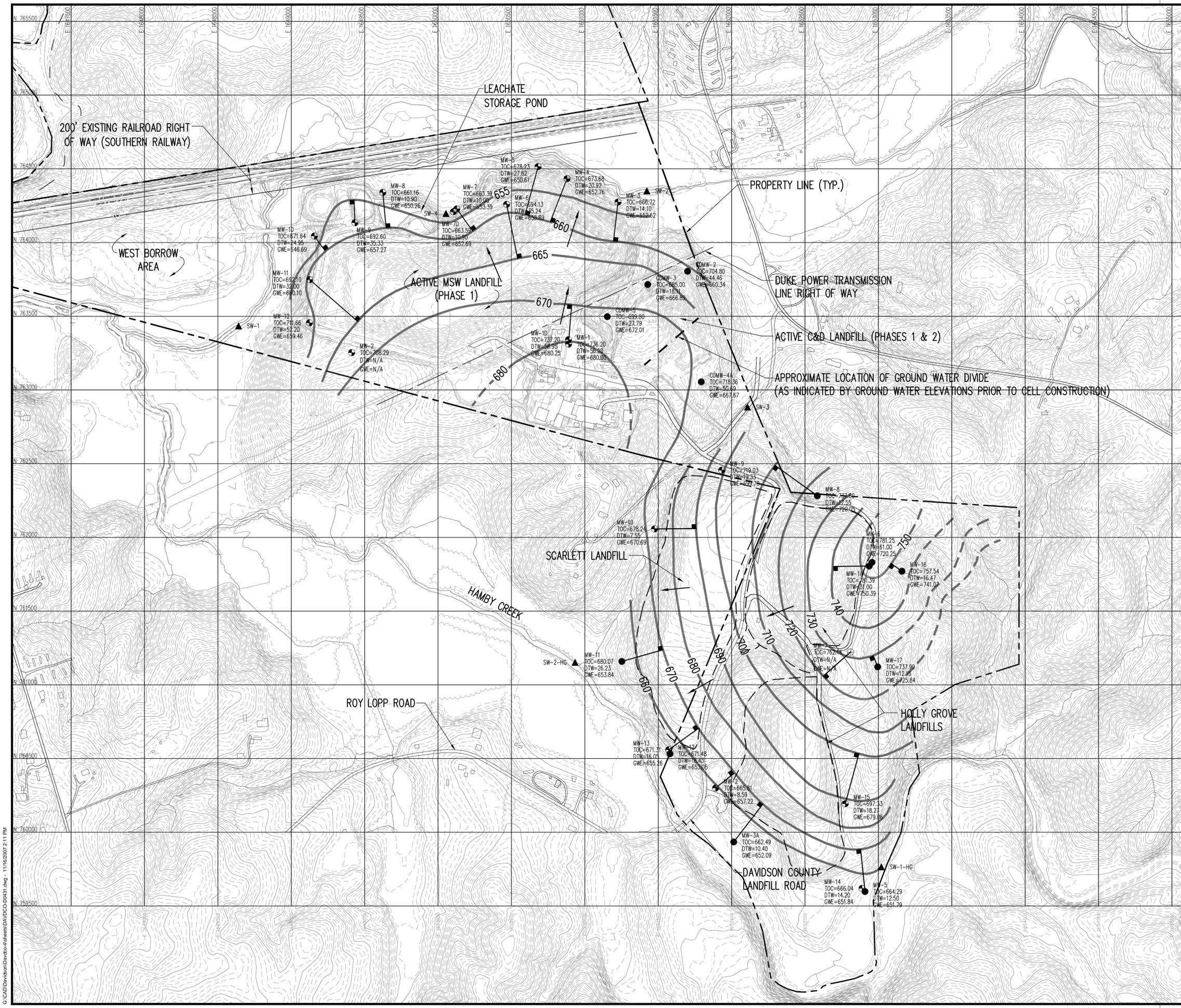
A potentiometric surface map was prepared for the entire site from ground water elevation data collected during this sampling event.

Ground water at the C&D landfill is migrating both to the north, west and south with a ground water divide located at the site. The ground water divide was made evident during site permitting when more piezometers were located in the area. The site topography also indicates a likely ground water divide across this site. The ground water to the north of the divide is likely influenced by the presence of the sedimentation basin adjacent to Phase 1. The potentiometric surface for the C&D landfill is shown on **Figure 1**.

### **4.0 Conclusions**

The results presented above from the C&D landfill indicate detectable levels of three inorganic constituents. These are likely due to sediments in the sample and are not indicative of ground water impact from the site.

Figures



REVISION	NO.	DATE

**RICHARDSON SMITH GARDNER & ASSOCIATES**  
 14 N. Boylan Ave.  
 Raleigh, N.C. 27603  
 www.rsgengineers.com  
 ph: 919-228-0577  
 fax: 919-228-3889

PROJECT TITLE:  
**DAVIDSON COUNTY LANDFILL  
 LEXINGTON COUNTY, NC**

- LEGEND**
- MW-1A PREVIOUSLY INSTALLED MONITORING WELL
  - MW-5 BEDROCK MONITORING WELL
  - ⊕ MW-7 ABANDONED MONITORING WELL
  - ▲ SW-1 EXISTING SURFACE WATER MONITORING STATION
  - GROUND WATER SURFACE COUNTER
  - DIRECTION OF GROUNDWATER FLOW
  - - - PROPERTY LINE
  - - - WASTE BOUNDARY
  - MEASUREMENT FOR HYDRAULIC GRADIENT CALCULATION

**NOTE**

- GROUND WATER DATA RECORDED ON OCTOBER 10, 11, & 12, 2007 BY RSG PERSONNEL.

**REFERENCES**

- OVERALL TOPOGRAPHY PER NORTH CAROLINA DEPARTMENT OF TRANSPORTATION, CONTOUR AND ELEVATION DATA GENERATED FROM LIGHT DETECTION AND RANGING (LIDAR) DATA OBTAINED FROM THE NORTH CAROLINA FLOOD MAPPING PROGRAM AND DATED SEPTEMBER 2004. TOPOGRAPHY IN ACTIVE C&D AND MSW AREAS FROM SPATIAL DATA, AERIAL DATED 5/7/07.



DRAWING TITLE:  
**POTENTIOMETRIC SURFACE MAP  
 LINED LANDFILL, C&D AND  
 HOLLY GROVE LANDFILLS  
 (FALL 2007)**

DESIGNED BY: J.A.S.	DRAWN BY: C.T.J.
CHECKED BY:	PROJECT NO.: DAVDCO-4
SCALE: AS SHOWN	DATE: NOV. 2007
FILE NAME: DAVDCO-D0431	DRAWING NO.:
SHEET NO.:	<b>FIG. 1</b>

G:\CAD\Davidson\Davidson\DAVDCO-D0431.dwg - 11/16/2007 2:11 PM

Tables



**Table 2**  
**Field Parameters**  
**Davidson County C&D Landfill**  
**10/11/2007**

<b>Well</b>	<b>pH (Std Units)</b>	<b>Conductivity (uhmos/cm)</b>	<b>Temperature (Celsius)</b>
CDMW-2	6.5	170	13.0
CDMW-3	6.2	460	15.0
CDMW-4A	7.2	540	15.0
CDMW-5	6.5	270	15.0

**Table 3**  
**Detected Inorganic Parameters**  
**Davidson County C&D Landfill**  
**10/11/2007**

Constituent	PQL	2L	CDMW-2	CDMW-3	CDMW-4A	CDMW-5
Arsenic	10	50	0.6 J	ND	1.6 J	0.6 J
Barium	100	2000	<b>120</b>	<b>128</b>	20 J	43.4 J
Cadmium	1	5	0.3 J	0.4 J	0.2 J	0.4 J
Total Chromium	10	50	3.7 J	1.5 J	1.4 J	0.6 J
Iron	300	---	<b>11950</b>	<b>2747</b>	<b>2211</b>	<b>754</b>
Manganese	50	---	<b>253</b>	<b>224</b>	<b>1923</b>	<b>302</b>
Lead	10	15	1.1 J	0.8 J	0.9 J	0.3 J
Mercury	0.2	1.1	ND	0.05 J	0.05 J	0.06 J
Selenium	10	50	0.9 J	1.1 J	0.9 J	0.6 J
Silver	10	18	ND	ND	ND	ND
<b>Organic Constituents</b>						
Trichlorofluoromethane	1	2100	ND	0.7 J	ND	ND
Acetone	100	700	1.3 J	1.3 J	4 J	1.7 J
Methylene Chloride	1	5	ND	0.2 J	ND	0.2 J
2-Butanone	100	---	ND	ND	1.1 J	ND
Toluene	1	1000	ND	ND	ND	ND

- ND - Not detected at or above PQL
- Shading - Levels above 2L standard or no 2L standard
- Bold Letters - Constituents detected above PQL limit
- J - Constituents detected below PQL limit

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

Appendix A

Laboratory Analytical Report

# Environment 1, Incorporated

REC'D NOV 01 2007

Wastewater ID: 10

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

PHONE (:52) 756-6208  
FAX (:52) 756-0633

ID#: 6050

DAVIDSON COUNTY LANDFILL (C&D)  
MS. JOAN SMYTH  
RICHARDSON SMITH GARDNER  
14 N. BOYLAN AVENUE  
RALEIGH, NC 27603

DATE COLLECTED: 10/11/07  
DATE REPORTED : 10/30/07

REVIEWED BY: 

PARAMETERS	MDL	SWSL	CDMW-2	CDMW-3	CDMW-4A	CDMW-5	Trip Blank	Analysis		Method Code
								Date	Analyst	
Total Alkalinity, mg/l	1.0	1.0	29	140	252	90		10/12/07	TRB	SM2320B
Chloride, mg/l	5.0	5.0	87	64	81	48		10/18/07	MDM	SM4500-CLB
Total Dissolved Residue, mg/l	1.0	1.0	182	324	379	297		10/18/07	TRB	SM2540C
Sulfate, mg/l	5.0	250.0	55.1 J	48.4 J	14.5 J	17.9 J		10/15/07	TRB	SM4500-SO4
Arsenic, ug/l	0.47	10.0	0.6 J	--- U	1.6 J	0.6 J		10/26/07	LFJ	EPA200.8
Barium, ug/l	0.34	100.0	120	128	20 J	43.4 J		10/26/07	LFJ	EPA200.8
Cadmium, ug/l	0.06	1.0	0.3 J	0.4 J	0.2 J	0.4 J		10/26/07	LFJ	EPA200.8
Total Chromium, ug/l	1.38	10.0	3.7 J	1.5 J	1.4 J	0.6 J		10/26/07	LFJ	EPA200.8
Iron, ug/l	12.0	300.0	11950	2747	2211	754		10/24/07	ADD	SM3111B
Manganese, ug/l	0.50	50.0	253	224	1923	302		10/17/07	LFJ	EPA200.7
Lead, ug/l	0.07	10.0	1.1 J					10/22/07	CMF	EPA200.8
Lead, ug/l	0.07	10.0		0.8 J	0.9 J	0.3 J		10/26/07	LFJ	EPA200.8
Mercury, ug/l	0.13	0.20	--- U	0.05 J	0.05 J	0.06 J		10/29/07	LFJ	EPA200.8
Selenium, ug/l	0.35	10.0	0.9 J	1.1 J	0.9 J	0.6 J		10/26/07	LFJ	EPA200.8
Silver, ug/l	2.32	10.0	--- U	--- U	--- U	--- U		10/26/07	LFJ	EPA200.8

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

# Environment 1, Incorporated

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

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

CLIENT: DAVIDSON COUNTY LANDFILL (C&D)  
MS. JOAN SMYTH  
RICHARDSON SMITH GARDNER  
14 N. BOYLAN AVENUE  
RALEIGH, NC 27603

CLIENT ID: 6050

ANALYST: MAO  
DATE COLLECTED: 10/11/07  
DATE ANALYZED: 10/24/07  
DATE REPORTED: 10/30/07

Page: 1

REVIEWED BY: 

## VOLATILE ORGANICS EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	CDMW-2	CDMW-3	CDMW-4A	CDMW-5	Trip Blank		
1. Chloromethane	0.18	1.0	---	U	---	U	---	U	
2. Vinyl Chloride	0.34	1.0	---	U	---	U	---	U	
3. Bromomethane	0.26	10.0	---	U	---	U	---	U	
4. Chloroethane	0.29	10.0	---	U	---	U	---	U	
5. Trichlorofluoromethane	0.13	1.0	---	U	0.70 J	---	U	---	U
6. 1,1-Dichloroethene	0.14	5.0	---	U	---	U	---	U	
7. Acetone	1.21	100.0	1.30 J	1.30 J	4.00 J	1.70 J	1.30 J	1.30 J	
8. Iodomethane	0.12	10.0	---	U	---	U	---	U	
9. Carbon Disulfide	0.14	100.0	---	U	---	U	---	U	
10. Methylene Chloride	0.14	1.0	---	U	0.20 J	---	0.20 J	0.20 J	
11. trans-1,2-Dichloroethene	0.13	5.0	---	U	---	U	---	U	
12. 1,1-Dichloroethane	0.16	5.0	---	U	---	U	---	U	
13. Vinyl Acetate	0.20	5.0	---	U	---	U	---	U	
14. Cis-1,2-Dichloroethene	0.14	5.0	---	U	---	U	---	U	
15. 2-Butanone	0.85	100.0	---	U	1.10 J	---	---	---	U
16. Bromochloromethane	0.11	3.0	---	U	---	U	---	U	
17. Chloroform	0.13	5.0	---	U	---	U	---	U	
18. 1,1,1-Trichloroethane	0.11	1.0	---	U	---	U	---	U	
19. Carbon Tetrachloride	0.13	1.0	---	U	---	U	---	U	
20. Benzene	0.16	1.0	---	U	---	U	---	U	
21. 1,2-Dichloroethane	0.12	1.0	---	U	---	U	---	U	
22. Trichloroethene	0.13	1.0	---	U	---	U	---	U	
23. 1,2-Dichloropropane	0.17	1.0	---	U	---	U	---	U	
24. Bromodichloromethane	0.13	1.0	---	U	---	U	---	U	
25. Cis-1,3-Dichloropropene	0.17	1.0	---	U	---	U	---	U	
26. 4-Methyl-2-Pentanone	0.68	100.0	---	U	---	U	---	U	
27. Toluene	0.13	1.0	---	U	---	U	---	U	
28. trans-1,3-Dichloropropene	0.14	1.0	---	U	---	U	---	U	
29. 1,1,2-Trichloroethane	0.20	1.0	---	U	---	U	---	U	
30. Tetrachloroethene	0.16	1.0	---	U	---	U	---	U	
31. 2-Hexanone	1.00	50.0	---	U	---	U	---	U	
32. Dibromochloromethane	0.14	3.0	---	U	---	U	---	U	
33. 1,2-Dibromoethane	0.13	1.0	---	U	---	U	---	U	
34. Chlorobenzene	0.13	3.0	---	U	---	U	---	U	
35. 1,1,1,2-Tetrachloroethane	0.14	5.0	---	U	---	U	---	U	
36. Ethylbenzene	0.16	1.0	---	U	---	U	---	U	
37. Xylenes	0.48	5.0	---	U	---	U	---	U	
38. Dibromomethane	0.17	10.0	---	U	---	U	---	U	
39. Styrene	0.16	1.0	---	U	---	U	---	U	
40. Bromoform	0.11	3.0	---	U	---	U	---	U	
41. 1,1,2,2-Tetrachloroethane	0.16	3.0	---	U	---	U	---	U	
42. 1,2,3-Trichloropropane	0.06	1.0	---	U	---	U	---	U	
43. 1,4-Dichlorobenzene	0.21	1.0	---	U	---	U	---	U	
44. 1,2-Dichlorobenzene	0.13	5.0	---	U	---	U	---	U	
45. 1,2-Dibromo-3-Chloropropane	0.26	13.0	---	U	---	U	---	U	
46. Acrylonitrile	1.49	200.0	---	U	---	U	---	U	
47. trans-1,4-Dichloro-2-Butene	0.14	100.0	---	U	---	U	---	U	

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

