

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	April 28, 2008

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)

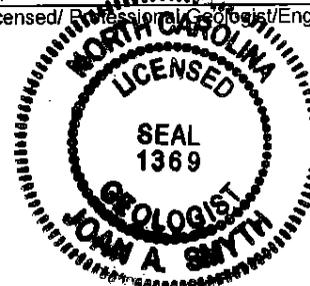
Title

(Area Code) Telephone Number

Signature

Date

Affix NC Licensed/ Professional Geologist/Engineer Seal here:



Ground Water Monitoring Report

April 2008 Monitoring Event

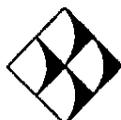
Davidson County

**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

June 2008



Richardson Smith Gardner & Associates, Inc.

Engineering and Geological Services

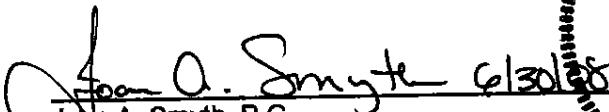
14 North Boylan Avenue
Raleigh, North Carolina 27603

**Ground Water Monitoring Report
Davidson County Construction & Demolition Debris Landfill
April 2008 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



June 2008



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
April 2008 Monitoring Event

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1.0 Introduction

On April 28th 2008, 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 15A NCAC 13B.1632. 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 Plan¹ 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, turbidity, 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 Solid Waste Section Limit (SWSL)² of barium, iron and manganese. The results are summarized in **Table 3**. Of these constituents, the following

1 Davidson County C&D Landfill Water Quality Monitoring Plan. G.N. Richardson and Associates, June 1998.

2 New Guidelines for electronic submittal of environmental monitoring data memo, NCDENR DWM, Solid Waste Section, October 27, 2006.

were detected at concentrations above the 2L standard:

- Iron; and
- Manganese.

Detected constituents below the Solid Waste Section Limit (SWSL) are denoted as “J” values and 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 landfill. The next ground water monitoring event is scheduled for October 2008.

Figures

Tables

Table 1
Ground Water Elevations
Davidson County C&D Landfill
4/28/2008

Well	Northing	Easting	TOC Elevation (feet)	Water Level (feet)	GW Elev (feet)
CDMW-2	763805.91	1651700.59	704.80	39.10	665.70
CDMW-3	763715.69	1651429.31	685.00	13.50	671.50
CDMW-4A	763055.46	1651793.86	718.36	46.00	672.36
CDMW-5	763497.87	1651153.73	699.80	25.00	674.80

Notes: Velocity Calculated from $V=K*I/n$ where:

V = velocity

K = Hydraulic Conductivity

I = Gradient

n = Porosity

Hydraulic Conductivity data from slug tests performed in 1994
 Porosity values assumed from Groundwater & Wells (Driscoll)
 Survey data collected by Surveying Solutions, P.C.

Table 2
Field Parameters
Davidson County C&D Landfill
4/29/2008

Well	pH (Std Units)	Conductivity (µmhos/cm)	Temperature (Celsius)	Turbidity (NTU)
CDMW-2	6.6	200	15.0	22.8
CDMW-3	6.2	540	15.0	76.7
CDMW-4A	7.1	530	15.0	85.3
CDMW-5	6.5	250	15.0	16.4

Note: Data collected by Clark Wipfield of RSG Engineers, Inc.

**Detected Inorganic Parameters
Davidson County C&D Landfill
4/28/2008**

Constituent	SWSL	2L	GWP	CDMW-2	CDMW-3	CDMW-4	CDMW-5
Inorganic							
Arsenic	10	50	---	0.2J	0.9J	0.6J	0.3J
Barium	100	2000	---	48.7J	151	11.2J	51.9J
Cadmium	1	1.75	---	0.1J	0.2J	0.1J	0.1J
Total Chromium	10	50	---	ND	1.2J	0.2J	0.4J
Iron	300	300	---	455	5720	619	928
Manganese	50	50	---	8.4J	143	452	287
Lead	10	15	---	0.1J	1.2J	0.3J	0.3J
Mercury	0.2	1.05	---	0.02J	0.05J	0.03J	0.02J
Selenium	10	50	---	0.3J	3.2J	1.9J	0.9J
Silver	10	17.5	---	0.1J	0.1J	0.1J	ND
Organic							
Trichlorofluoromethane	1	2100	---	ND	0.80J	ND	ND
Acetone	100	700	---	2.80J	2.90J	3.30J	2.70J
Toluene	1	1000	---	0.30J	0.20J	0.20J	0.30J

- SWSL - Solid Waste Section Quantitative Limits
- GWP - Ground Water Protection Standards
- ND - Not detected at or above SWSL
- Shading - Levels above 2L standard or no 2L standard
- Bold Letters - Constituents detected above SWSL limit
- J - Constituents detected below SWSL limit
- Note - Trip Blank detected 2.20J of Acetone and 4.40 of Toluene
- All SWSL, 2L Standards and Results are in ug/l.
- Lab data analysis by Environmental 1, Inc.

Appendix A

Laboratory Analytical Report

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

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

ID#: 6050

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

DATE COLLECTED: 04/29/08
DATE REPORTED : 05/22/08

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	32	145	234	95		04/30/08	TRB	SM2320B
Chloride, mg/l	5.0	5.0	21	47	35	27		05/01/08	MDM	SM4500-CLB
Total Dissolved Residue, mg/l	1.0	1.0	157	351	328	210		05/05/08	TRB	SM2540C
Sulfate, mg/l	5.0	250.0	39.5 J	48.7 J	36.8 J	24.5 J		05/02/08	TRB	SM4500-SO4
Arsenic, ug/l	0.07	10.0	0.2 J	0.9 J	0.6 J	0.3 J		05/07/08	CMF	EPA200.8
Barium, ug/l	0.34	100.0	48.7 J	151	11.2 J	51.9 J		05/07/08	CMF	EPA200.8
Cadmium, ug/l	0.04	1.0	0.1 J	0.2 J	0.1 J	0.1 J		05/07/08	CMF	EPA200.8
Total Chromium, ug/l	1.38	10.0	--- U	1.2 J	0.2 J	0.4 J		05/07/08	CMF	EPA200.8
Iron, ug/l	14.0	300.0	456	5720	619	928		05/13/08	ADD	SM3111B
Manganese, ug/l	0.50	50.0	8.4 J	143	452			05/13/08	LFJ	EPA200.7
Manganese, ug/l	0.50	50.0				287		05/19/08	LFJ	EPA200.7
Lead, ug/l	0.04	10.0	0.1 J	1.2 J	0.3 J	0.3 J		05/07/08	CMF	EPA200.8
Mercury, ug/l	0.13	0.20	0.02 J	0.05 J	0.03 J	0.02 J		05/07/08	CMF	EPA200.8
Selenium, ug/l	0.14	10.0	0.3 J	3.2 J	1.9 J	0.9 J		05/07/08	CMF	EPA200.8
Silver, ug/l	2.32	10.0	0.1 J	0.1 J	0.1 J	--- U		05/07/08	CMF	EPA200.8

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

Environment 1, Incorporated

Report Number: 10

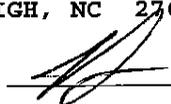
P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

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: 04/29/08
DATE ANALYZED: 05/07/08
DATE REPORTED: 05/22/08

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	0.80 J	---	---	U	
6. 1,1-Dichloroethene	0.14	5.0	---	U	---	---	---	U	
7. Acetone	1.21	100.0	2.80 J	2.90 J	3.30 J	2.70 J	2.20 J	---	U
8. Iodomethane	0.12	10.0	---	U	---	---	---	---	U
9. Carbon Disulfide	0.14	100.0	---	U	---	---	---	---	U
10. Methylene Chloride	0.14	1.0	---	U	---	---	---	---	U
11. trans-1,2-Dichloroethene	0.13	5.0	---	U	---	---	---	---	U
12. 1,1-Dichloroethane	0.16	5.0	---	U	---	---	---	---	U
13. Vinyl Acetate	0.20	50.0	---	U	---	---	---	---	U
14. Cis-1,2-Dichloroethene	0.14	5.0	---	U	---	---	---	---	U
15. 2-Butanone	0.85	100.0	---	U	---	---	---	---	U
16. Bromochloromethane	0.11	3.0	---	U	---	---	---	---	U
17. Chloroform	0.13	5.0	---	U	---	---	---	---	U
18. 1,1,1-Trichloroethane	0.11	1.0	---	U	---	---	---	---	U
19. Carbon Tetrachloride	0.13	1.0	---	U	---	---	---	---	U
20. Benzene	0.16	1.0	---	U	---	---	---	---	U
21. 1,2-Dichloroethane	0.12	1.0	---	U	---	---	---	---	U
22. Trichloroethene	0.13	1.0	---	U	---	---	---	---	U
23. 1,2-Dichloropropane	0.17	1.0	---	U	---	---	---	---	U
24. Bromodichloromethane	0.13	1.0	---	U	---	---	---	---	U
25. Cis-1,3-Dichloropropane	0.17	1.0	---	U	---	---	---	---	U
26. 4-Methyl-2-Pentanone	0.68	100.0	---	U	---	---	---	---	U
27. Toluene	0.13	1.0	0.30 J	0.20 J	0.20 J	0.30 J	4.40	---	U
28. trans-1,3-Dichloropropane	0.14	1.0	---	U	---	---	---	---	U
29. 1,1,2-Trichloroethane	0.20	1.0	---	U	---	---	---	---	U
30. Tetrachloroethene	0.16	1.0	---	U	---	---	---	---	U
31. 2-Hexanone	1.00	50.0	---	U	---	---	---	---	U
32. Dibromochloromethane	0.14	3.0	---	U	---	---	---	---	U
33. 1,2-Dibromoethane	0.13	1.0	---	U	---	---	---	---	U
34. Chlorobenzene	0.13	3.0	---	U	---	---	---	---	U
35. 1,1,1,2-Tetrachloroethane	0.14	5.0	---	U	---	---	---	---	U
36. Ethylbenzene	0.16	1.0	---	U	---	---	---	---	U
37. Xylenes	0.48	5.0	---	U	---	---	---	---	U
38. Dibromomethane	0.17	10.0	---	U	---	---	---	---	U
39. Styrene	0.16	1.0	---	U	---	---	---	---	U
40. Bromoform	0.11	3.0	---	U	---	---	---	---	U
41. 1,1,2,2-Tetrachloroethane	0.16	3.0	---	U	---	---	---	---	U
42. 1,2,3-Trichloropropane	0.06	1.0	---	U	---	---	---	---	U
43. 1,4-Dichlorobenzene	0.21	1.0	---	U	---	---	---	---	U
44. 1,2-Dichlorobenzene	0.13	5.0	---	U	---	---	---	---	U
45. 1,2-Dibromo-3-Chloropropane	0.26	13.0	---	U	---	---	---	---	U
46. Acrylonitrile	1.49	200.0	---	U	---	---	---	---	U
47. trans-1,4-Dichloro-2-Butene	0.14	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: 6050 Week: 11

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

(919) 828-0577

SAMPLE LOCATION	COLLECTION		TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	DISINFECTION			Alkalinity	Chloride	TDS	Sulfate	Metals	EPA 8260B	8260 Dup. 1	8260 Dup. 2	PARAMETERS	CLASSIFICATION:
	DATE	TIME				<input type="checkbox"/> CHLORINE	<input type="checkbox"/> UV	<input type="checkbox"/> NONE										
CDMW-2	4-29-08	2:35		15°C	8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>										
CDMW-3	4-29-08	3:00		15°C	7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>										
CDMW-4A	4-29-08	12:00		15°C	7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>										
CDMW-5	4-29-08	3:45		15°C	7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>										
Trip Blank					2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>										
RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	COMMENTS:	CHLORINE NEUTRALIZED AT COLLECTION P ² CHECK (UAG) CONTAINER TYPE, PG CHEMICAL PRESERVATION A - NONE D - NaOH B - HNO ₃ E - HCL C - H ₂ SO ₄ F - ZINC ACETATE G - NA THIOSULFATE SAMPLES COLLECTED BY: (Please Print) V N CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY SAMPLES RECEIVED IN LAB AT 4.6 °C Britt Ransim											
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME		all samples grab RECEIVED BY (SIG.) RECEIVED BY (SIG.)											
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME													

Instructions for completing this form are on the reverse side.