

## Werner, Elizabeth

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**From:** DeNeale, Sean [Sean.DeNeale@duke-energy.com]  
**Sent:** Friday, March 16, 2012 7:05 AM  
**To:** Werner, Elizabeth  
**Cc:** Burrell, Donna L; Sullivan, Ed M  
**Subject:** 1812 Marshall Industrial Landfill No. 1 Leachate Monitoring Feb 2012  
**Attachments:** Marshall ILF No. 1 (1812) February 2012 Leachate Sampling Report.pdf

Good morning Elizabeth,

Attached are an Environmental Monitoring Report Form, cover letter and leachate sampling results for Marshall Steam Station's Industrial Landfill No. 1 (Permit No. 1812). The data include analytical and field results from the semi-annual landfill leachate sampling event that took place on February 9, 2012. This report had previously been submitted by Altamont Environmental Inc. on behalf of Duke Energy but is henceforth anticipated to be submitted by Duke Energy. As mentioned in the form, the next sampling event is scheduled for August 2012 with documentation to follow. If you have any questions, please feel free to contact me.

Thank you,

*Sean DeNeale*

Duke Energy - EH&S

Engineer 1 - Waste & Remediation

Office: (704) 382-4761

Cell: (704) 617-2393

[Sean.DeNeale@duke-energy.com](mailto:Sean.DeNeale@duke-energy.com)

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):

Duke Energy, Inc.

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

Name: Sean DeNeale

Phone: (704) 382-4761

E-mail: Sean.DeNeale@duke-energy.com

Facility name:

Duke Energy Carolinas, LLC  
Marshall Steam Station  
Industrial Landfill No. 1  
Phase I, Cells 1 and 2

Facility Address:

8320 East NC Highway 150  
Terrell, NC 28682

Facility Permit #

1812

NC Landfill Rule:  
(.0500 or .1600)

.0500

Actual sampling dates (e.g.,  
October 20-24, 2006)

February 9, 2012

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.

D. Edwin M. Sullivan, P.E.

Consulting Engineer

(980) 373-3719

Facility Representative Name (Print)

Title

(Area Code) Telephone Number

*D. Edwin M. Sullivan*

03/16/2012

Affix NC Licensed/Professional Geologist Seal

Signature

Date

Duke Energy Corporation, Mail Code EC13K, P.O. Box 1006, Charlotte, NC 28201-1006

Facility Representative Address

#F-0566

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

Revised 6/2009





526 South Church Street  
Charlotte, NC 28202

Mailing Address:  
PO Box 1006  
Mail Code EC13K  
Charlotte, NC 28201-1006

704 382 4761

704 382 6240 fax

March 16, 2012

Ms. Elizabeth Werner  
North Carolina Department of Environment and Natural Resources  
Division of Waste Management  
Solid Waste Section  
1646 Mail Service Center  
Raleigh, NC 27699-1646

Subject: Semi-annual Leachate Sampling Results  
Duke Energy Carolinas, LLC  
Marshall Steam Station  
Industrial Landfill No. 1, Phase 1, Cells 1 and 2, Permit #1812

Dear Ms. Werner:

In accordance with the landfill *Operations Plan*, Duke Energy is providing the results of semi-annual leachate sampling for the Marshall Steam Station Industrial Landfill No. 1, located in Terrell, North Carolina.

On February 9, 2012, leachate samples were collected from the leachate collection system. The samples were collected by Duke Energy personnel. A summary of sampling results can be found in Table 1. As noted in the table, 15 NCAC 2L .0202 standards are provided for reference only. The parameters tested are not bound by state groundwater or surface water standards. The leachate is conveyed to the station's ash impoundment, which discharges via a NPDES permitted outfall. All laboratory analytical and field results are provided as Attachments 1 and 2, respectively.

Duke Energy personnel sample landfill leachate at Marshall Steam Station's Industrial Landfill No. 1 semi-annually during February and August. The next landfill leachate sampling event will occur during August 2012 with documentation to follow.

If you have any questions or concerns, please contact me at 704-382-4761 or at [Sean.DeNeale@duke-energy.com](mailto:Sean.DeNeale@duke-energy.com)

Sincerely,

Sean DeNeale, Engineer I  
Environment, Health & Safety

Cc: Ms. Donna Burrell – Marshall Steam Station  
Mr. Ed Sullivan – Duke Energy Corporation

Table 1  
 Marshall Steam Station  
 Industrial Landfill No. 1 (Permit No. 1812)  
 Leachate Analytical Data

	15A NCAC 2L .0202 Standard	Analytical Result (ug/L)	
Constituent	(ug/L)	02/09/2012	
		Cell 1	Cell 2
Arsenic	10	4.10	28.8
Barium	700	103	92
Boron	700	224	5,970
Cadmium	2	< 1	< 1
Chloride	250 mg/L	6.7 mg/L	12 mg/L
Chromium	10	< 5	< 5
Copper	1 mg/L	< 0.005 mg/L	0.026 mg/L
Fluoride	2 mg/L	0.50 mg/L	0.74 mg/L
Iron	300	< 10	< 10
Lead	15	< 1	< 1
Manganese	50	2,210	3,490
Mercury	1	< 0.05	< 0.05
Nickel	100	58	118
Nitrate	10 mg/L	8.9 mg/L	23 mg/L
pH	6.5-8.5	5.48	4.27
Selenium	20	5.31	25.1
Silver	20	< 5	< 5
Sulfate	250 mg/L	180 mg/L	400 mg/L
Temperature (°C)	n/a	15.41	15.50
TDS	500 mg/L	310 mg/L	680 mg/L
Zinc	1 mg/L	0.009 mg/L	0.082 mg/L

NOTE: 15A NCAC 2L .0202 Standards are provided only for reference. Analytical results are for landfill leachate, which is **NOT** bound by state groundwater or surface water standards. Landfill leachate is conveyed to the station's ash impoundment, which discharges via a NPDES permitted outfall.

# **Attachment 1**

Marshall Industrial Landfill No. 1

Semi-Annual Monitoring Event

Leachate Analytical Results

February 9, 2012



# Analytical Laboratory

13339 Hagers Ferry Road  
Huntersville, NC 28078-7929  
McGuire Nuclear Complex - MG03A2  
Phone: 980-875-5245 Fax: 980-875-4349

## Order Summary Report

**Order Number:** J12020013

Customer Name(s): ED SULLIVAN

Customer Address: 8320 NC Hwy 150 East  
Mail Code: Marshall Steam Station  
Terrell, NC 28682

Lab Contact: Jason C Perkins Phone: 980-875-5348

**Report Authorized By:**  
(Signature)

  
Digitally signed by jay perkins  
DN: cn=jay perkins, o=Analytical  
Lab, ou, email=jay.perkins@duke-  
energy.com, c=US  
Date: 2012.02.22 16:15:09 -05'00'

**Date:** 2/22/2012

### Program Comments:

Please contact the Program Manager (Jason C Perkins) with any questions regarding this report.

### Data Flags & Calculations:

Any analytical tests or individual analytes within a test flagged with a Qualifier indicate a deviation from the method quality system or quality control requirement. The qualifier description is found at the end of the Certificate of Analysis (sample results) under the qualifiers heading. All results are reported on a dry weight basis unless otherwise noted.

### Data Package:

This data package includes analytical results that are applicable only to the samples described in this narrative. An estimation of the uncertainty of measurement for the results in the report is available upon request. This report shall not be reproduced, except in full, without the written consent of the Analytical Laboratory. Please contact the Analytical laboratory with any questions. The order of individual sections within this report is as follows:

*Job Summary Report, Sample Identification, Technical Validation of Data Package, Analytical Laboratory Certificate of Analysis, Analytical Laboratory QC Reports, Sub-contracted Laboratory Results, Customer Specific Data Sheets, Reports & Documentation, Customer Database Entries, Test Case Narratives, Chain of Custody (COC)*

### Certification:

The Analytical Laboratory holds the following State Certifications : North Carolina (DENR) Certificate #248, South Carolina (DHEC) Laboratory ID # 99005. Contact the Analytical Laboratory for definitive information about the certification status of specific methods.

**Sample ID's & Descriptions:**

<b>Sample ID</b>	<b>Plant/Station</b>	<b>Collection Date and Time</b>	<b>Collected By</b>	<b>Sample Description</b>
2012002434	MARSHALL	09-Feb-12 7:45 AM	LDC	CELL 1 LEACHATE
2012002435	MARSHALL	09-Feb-12 7:25 AM	LDC	CELL 2 LEACHATE
2012002436	MARSHALL	09-Feb-12 10:20 AM	LDC	FIELD BLANK
3 Total Samples				

# Technical Validation Review

## Checklist:

- |  |   |  |
|--|---|--|
| COC and .pdf report are in agreement with sample totals and analyses (compliance programs and procedures). | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |
| All Results are less than the laboratory reporting limits.   | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |
| All laboratory QA/QC requirements are acceptable.  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |
| The Vendor Laboratories have been qualified by the Analytical Laboratory                                   | NA                                      |  |

## Report Sections Included:

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Job Summary Report                            | <input type="checkbox"/> Sub-contracted Laboratory Results                            |
| <input checked="" type="checkbox"/> Sample Identification                         | <input type="checkbox"/> Customer Specific Data Sheets, Reports, & Documentation      |
| <input checked="" type="checkbox"/> Technical Validation of Data Package          | <input type="checkbox"/> Customer Database Entries                                    |
| <input checked="" type="checkbox"/> Analytical Laboratory Certificate of Analysis | <input checked="" type="checkbox"/> Chain of Custody                                  |
| <input type="checkbox"/> Analytical Laboratory QC Report                          | <input checked="" type="checkbox"/> Electronic Data Deliverable (EDD) Sent Separately |

Reviewed By:     **DataBase Administrator**

Date:     **2/22/2012**

# Certificate of Laboratory Analysis

*This report shall not be reproduced, except in full.*

**Order # J12020013**

Site: CELL 1 LEACHATE

Collection Date: 09-Feb-12 7:45 AM

Sample #: **2012002434**

Matrix: GW\_WW

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
<b><u>ALKALINITY (FIXED END POINT 4.5)</u></b>								
Alkalinity (mg/L CaCO <sub>3</sub> )	6.1	mg/L (CaCO <sub>3</sub> )		0.1	1	SM2320B	10-Feb-12 08:48	TJA7067
<b><u>INORGANIC IONS BY IC</u></b>								
Chloride	6.7	mg/L		0.1	1	EPA 300.0	13-Feb-12 13:42	JAHERMA
Fluoride	0.50	mg/L		0.1	1	EPA 300.0	13-Feb-12 13:42	JAHERMA
Nitrate	8.9	mg/L		0.3	3	EPA 300.0	13-Feb-12 13:42	JAHERMA
Nitrate as N	2.0	mg-N/L		0.023	1	EPA 300.0	13-Feb-12 13:42	JAHERMA
Sulfate	180	mg/L		3	30	EPA 300.0	13-Feb-12 13:42	JAHERMA
<b><u>MERCURY (COLD VAPOR) IN WATER</u></b>								
Mercury (Hg)	< 0.05	ug/L		0.05	1	EPA 245.1	17-Feb-12 08:32	AGIBBS
<b><u>TOTAL EXTRACTABLE METALS BY ICP</u></b>								
Barium (Ba)	0.103	mg/L		0.005	1	EPA 200.7	13-Feb-12 11:23	DJSULL1
Boron (B)	0.224	mg/L		0.05	1	EPA 200.7	13-Feb-12 11:23	DJSULL1
Calcium (Ca)	50.8	mg/L		0.01	1	EPA 200.7	13-Feb-12 11:23	DJSULL1
Chromium (Cr)	< 0.005	mg/L		0.005	1	EPA 200.7	13-Feb-12 11:23	DJSULL1
Copper (Cu)	< 0.005	mg/L		0.005	1	EPA 200.7	13-Feb-12 11:23	DJSULL1
Iron (Fe)	< 0.01	mg/L		0.01	1	EPA 200.7	13-Feb-12 11:23	DJSULL1
Magnesium (Mg)	13.6	mg/L		0.005	1	EPA 200.7	13-Feb-12 11:23	DJSULL1
Manganese (Mn)	2.21	mg/L		0.005	1	EPA 200.7	13-Feb-12 11:23	DJSULL1
Nickel (Ni)	0.058	mg/L		0.005	1	EPA 200.7	13-Feb-12 11:23	DJSULL1
Potassium (K)	5.16	mg/L		0.1	1	EPA 200.7	13-Feb-12 11:23	DJSULL1
Silver (Ag)	< 0.005	mg/L		0.005	1	EPA 200.7	13-Feb-12 11:23	DJSULL1
Sodium (Na)	5.46	mg/L		0.05	1	EPA 200.7	13-Feb-12 11:23	DJSULL1
Zinc (Zn)	0.009	mg/L		0.005	1	EPA 200.7	13-Feb-12 11:23	DJSULL1
<b><u>TOTAL EXTRACTABLE METALS BY ICP-MS</u></b>								
Arsenic (As)	4.10	ug/L		1	1	EPA 200.8	13-Feb-12 13:47	KRICHAR
Cadmium (Cd)	< 1	ug/L		1	1	EPA 200.8	13-Feb-12 13:47	KRICHAR
Lead (Pb)	< 1	ug/L		1	1	EPA 200.8	13-Feb-12 13:47	KRICHAR
Selenium (Se)	5.31	ug/L		1	1	EPA 200.8	13-Feb-12 13:47	KRICHAR
<b><u>TOTAL DISSOLVED SOLIDS</u></b>								
TDS	310	mg/L		10	1	SM2540C	13-Feb-12 15:16	TJA7067

# Certificate of Laboratory Analysis

This report shall not be reproduced, except in full.

Order # J12020013

Site: CELL 2 LEACHATE

Collection Date: 09-Feb-12 7:25 AM

Sample #: 2012002435

Matrix: GW\_WW

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
<b><u>ALKALINITY (FIXED END POINT 4.5)</u></b>								
Alkalinity (mg/L CaCO3)	1.6	mg/L (CaCO3)		0.1	1	SM2320B	10-Feb-12 08:48	TJA7067
<b><u>INORGANIC IONS BY IC</u></b>								
Chloride	12	mg/L		0.2	2	EPA 300.0	13-Feb-12 15:17	JAHERMA
Fluoride	0.74	mg/L		0.1	1	EPA 300.0	13-Feb-12 15:17	JAHERMA
Nitrate	23	mg/L		0.6	6	EPA 300.0	13-Feb-12 15:17	JAHERMA
Nitrate as N	5.2	mg-N/L		0.023	1	EPA 300.0	13-Feb-12 15:17	JAHERMA
Sulfate	400	mg/L		6	60	EPA 300.0	13-Feb-12 15:17	JAHERMA
<b><u>MERCURY (COLD VAPOR) IN WATER</u></b>								
Mercury (Hg)	< 0.05	ug/L		0.05	1	EPA 245.1	17-Feb-12 08:34	AGIBBS
<b><u>TOTAL EXTRACTABLE METALS BY ICP</u></b>								
Barium (Ba)	0.092	mg/L		0.005	1	EPA 200.7	13-Feb-12 11:27	DJSULL1
Boron (B)	5.97	mg/L		0.05	1	EPA 200.7	13-Feb-12 11:27	DJSULL1
Calcium (Ca)	87.7	mg/L		0.01	1	EPA 200.7	13-Feb-12 11:27	DJSULL1
Chromium (Cr)	< 0.005	mg/L		0.005	1	EPA 200.7	13-Feb-12 11:27	DJSULL1
Copper (Cu)	0.026	mg/L		0.005	1	EPA 200.7	13-Feb-12 11:27	DJSULL1
Iron (Fe)	< 0.01	mg/L		0.01	1	EPA 200.7	13-Feb-12 11:27	DJSULL1
Magnesium (Mg)	27.4	mg/L		0.005	1	EPA 200.7	13-Feb-12 11:27	DJSULL1
Manganese (Mn)	3.49	mg/L		0.005	1	EPA 200.7	13-Feb-12 11:27	DJSULL1
Nickel (Ni)	0.118	mg/L		0.005	1	EPA 200.7	13-Feb-12 11:27	DJSULL1
Potassium (K)	15.7	mg/L		0.1	1	EPA 200.7	13-Feb-12 11:27	DJSULL1
Silver (Ag)	< 0.005	mg/L		0.005	1	EPA 200.7	13-Feb-12 11:27	DJSULL1
Sodium (Na)	30.4	mg/L		0.05	1	EPA 200.7	13-Feb-12 11:27	DJSULL1
Zinc (Zn)	0.082	mg/L		0.005	1	EPA 200.7	13-Feb-12 11:27	DJSULL1
<b><u>TOTAL EXTRACTABLE METALS BY ICP-MS</u></b>								
Arsenic (As)	28.8	ug/L		1	1	EPA 200.8	13-Feb-12 13:50	KRICHAR
Cadmium (Cd)	< 1	ug/L		1	1	EPA 200.8	13-Feb-12 13:50	KRICHAR
Lead (Pb)	< 1	ug/L		1	1	EPA 200.8	13-Feb-12 13:50	KRICHAR
Selenium (Se)	25.1	ug/L		1	1	EPA 200.8	13-Feb-12 13:50	KRICHAR
<b><u>TOTAL DISSOLVED SOLIDS</u></b>								
TDS	680	mg/L		10	1	SM2540C	13-Feb-12 15:16	TJA7067

# Certificate of Laboratory Analysis

This report shall not be reproduced, except in full.

Order # J12020013

Site: FIELD BLANK

Collection Date: 09-Feb-12 10:20 AM

Sample #: 2012002436

Matrix: GW\_WW

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
<b><u>ALKALINITY (FIXED END POINT 4.5)</u></b>								
Alkalinity (mg/L CaCO <sub>3</sub> )	2.1	mg/L (CaCO <sub>3</sub> )		0.1	1	SM2320B	10-Feb-12 08:48	TJA7067
<b><u>INORGANIC IONS BY IC</u></b>								
Chloride	< 0.1	mg/L		0.1	1	EPA 300.0	10-Feb-12 23:05	JAHERMA
Fluoride	< 0.1	mg/L		0.1	1	EPA 300.0	10-Feb-12 23:05	JAHERMA
Nitrate	< 0.1	mg/L		0.1	1	EPA 300.0	10-Feb-12 23:05	JAHERMA
Nitrate as N	< 0.023	mg-N/L		0.023	1	EPA 300.0	10-Feb-12 23:05	JAHERMA
Sulfate	< 0.1	mg/L		0.1	1	EPA 300.0	10-Feb-12 23:05	JAHERMA
<b><u>MERCURY (COLD VAPOR) IN WATER</u></b>								
Mercury (Hg)	< 0.05	ug/L		0.05	1	EPA 245.1	17-Feb-12 08:37	AGIBBS
<b><u>TOTAL EXTRACTABLE METALS BY ICP</u></b>								
Barium (Ba)	< 0.005	mg/L		0.005	1	EPA 200.7	13-Feb-12 10:58	DJSULL1
Boron (B)	< 0.05	mg/L		0.05	1	EPA 200.7	13-Feb-12 10:58	DJSULL1
Calcium (Ca)	< 0.01	mg/L		0.01	1	EPA 200.7	13-Feb-12 10:58	DJSULL1
Chromium (Cr)	< 0.005	mg/L		0.005	1	EPA 200.7	13-Feb-12 10:58	DJSULL1
Copper (Cu)	< 0.005	mg/L		0.005	1	EPA 200.7	13-Feb-12 10:58	DJSULL1
Iron (Fe)	< 0.01	mg/L		0.01	1	EPA 200.7	13-Feb-12 10:58	DJSULL1
Magnesium (Mg)	< 0.005	mg/L		0.005	1	EPA 200.7	13-Feb-12 10:58	DJSULL1
Manganese (Mn)	< 0.005	mg/L		0.005	1	EPA 200.7	13-Feb-12 10:58	DJSULL1
Nickel (Ni)	< 0.005	mg/L		0.005	1	EPA 200.7	13-Feb-12 10:58	DJSULL1
Potassium (K)	< 0.1	mg/L		0.1	1	EPA 200.7	13-Feb-12 10:58	DJSULL1
Silver (Ag)	< 0.005	mg/L		0.005	1	EPA 200.7	13-Feb-12 10:58	DJSULL1
Sodium (Na)	< 0.05	mg/L		0.05	1	EPA 200.7	13-Feb-12 10:58	DJSULL1
Zinc (Zn)	< 0.005	mg/L		0.005	1	EPA 200.7	13-Feb-12 10:58	DJSULL1
<b><u>TOTAL EXTRACTABLE METALS BY ICP-MS</u></b>								
Arsenic (As)	< 1	ug/L		1	1	EPA 200.8	13-Feb-12 13:52	KRICHAR
Cadmium (Cd)	< 1	ug/L		1	1	EPA 200.8	13-Feb-12 13:52	KRICHAR
Lead (Pb)	< 1	ug/L		1	1	EPA 200.8	13-Feb-12 13:52	KRICHAR
Selenium (Se)	< 1	ug/L		1	1	EPA 200.8	13-Feb-12 13:52	KRICHAR

# CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM



For Detailed Instructions, see:  
http://dewwww/essenv/coc/

**Duke Energy Analytical Lab Services**  
Mail Code MGO3A2 (Building 7405)  
13339 Hagers Ferry Rd  
Huntersville, N. C. 28078  
(704) 875-5245  
Fax: (704) 875-5038

Analytical Laboratory Use Only			
LIMS # <b>J12020013</b>	MATRIX: <b>GW-RCRA</b>	Samples Originating From: <b>NC</b> <input checked="" type="checkbox"/> <b>SC</b> <input type="checkbox"/>	
Logged By: <b>S.A.</b>	Date & Time: <b>2/9/12 1345</b>	SAMPLE PROGRAM Ground Water <input checked="" type="checkbox"/> NPDES <input type="checkbox"/> Drinking Water <input type="checkbox"/> UST <input type="checkbox"/> RCRA Waste <input type="checkbox"/>	
VENDOR: <b>L/D</b>		Cooler Temp (C): <b>4</b>	

<sup>19</sup>Page 1 of 1  
**DISTRIBUTION**  
ORIGINAL to LAB,  
COPY to CLIENT

Rev 11/5/11

1) Project Name: <b>MARSHALL INDUSTRIAL LANDFILL #1</b> Permit # 18-12	2) Phone No: 875-5257	
3) Client: <b>LDC / TSH / Ed Sullivan</b>	4) Fax No: 875-4349	
5) Business Unit: 20035	6) Process: <b>BENVWS</b>	7) Resp. To: <b>MS00</b>
8) Project ID:	9) Activity ID:	10) Mail Code: MGO3A3

Customer to complete all appropriate NON-SHADED areas.				<sup>14</sup> Collection Information			<sup>16</sup> Analyses Required		<sup>17</sup> Comp.		<sup>18</sup> Grab		Alk (4.5)		NO <sub>3</sub> -N, Cl, F, SO <sub>4</sub> (IC)		Hg (EPA 245.1)		Metals Prep - 3030C		TDS		<sup>20</sup> Total # of Containers		
				Date	Time	Signature																			
Customer to complete appropriate columns to right				<sup>12</sup> Chem Desktop No.		<sup>13</sup> Sample Description or ID																			

LAB USE ONLY
<sup>11</sup> Lab ID
2012002434
2012002435
2012002436

<sup>21</sup> Relinquished By: <b>Ed Sullivan</b> Date/Time: <b>2/9/12 1350</b>	Accepted By: <b>Cindy Knox</b> Date/Time: <b>2-9-12 1350</b>
Relinquished By: _____ Date/Time: _____	Accepted By: _____ Date/Time: _____
Relinquished By: _____ Date/Time: _____	Accepted By: _____ Date/Time: _____
<sup>23</sup> Seal/Locked By: _____ Date/Time: _____	Sealed/Lock Opened By: _____ Date/Time: _____
<sup>24</sup> Comments: <b>Regulatory Agency : NCDENR/DWM -SW Section - State EDD Format Required / Permit # 18-12</b> Use indicated or comparable analytical methods	

Customer, important please indicate desired turnaround	<sup>22</sup> Requested Turnaround
	14 Days <input checked="" type="checkbox"/>
	*7 Days _____
	*48 Hr _____
	*Other _____ * Add. Cost Will Apply

## **Attachment 2**

Marshall Industrial Landfill No. 1

Semi-Annual Monitoring Event

Leachate Field Results

February 9, 2012

## FIELD SAMPLING CALIBRATION FORM

<b>STUDY:</b> MARSHALL STEAM STATION - INDUSTRIAL WASTE LANDFILL 1 GROUNDWATER MONITORING	
<b>DATE (s):</b> February 9, 2012	<b>SURFACE UNIT READER:</b> LDC
<b>COLLECTORS:</b> LDC, RLW	<b>SURFACE UNIT SERIAL #:</b> S06479
<b>ANALYZER MODEL#:</b> MS5	<b>ANALYZER SERIAL #:</b> 60901
<b>OTHER EQUIPMENT:</b> TURBIDIMETER NO.1 - 3260.1	<b>WEATHER CONDITIONS:</b> Clear, calm, 30 to 45 deg F

PROCEDURE #: HYDROLAB 3210.3 VALIDATED BY:

WSC 2/10/12

Calibration Date / Time		DATE:	9-Feb-12	TIME:	530	DATE:	9-Feb-12	TIME:	1400
		BP (mmHg)				BP (mmHg)			
		747.3				746.7			
Parameter	Calibration Standard	Instrument Value		Standard Value	Calibration Results	Instrument Value		Standard Value	Calibration Results
SPEC. COND. (uS/cm)	SS	0.0	→/←	0.0	Instrument Zeroed	0.0	→/←	0.0	Zero Pass
	SS	359.5	→	350	Calibration Accepted	342.9	→/←	350	Calibration Pass
	SS	73.0	→/←	75	Calibration Accepted	74.6	→/←	75	Calibration Pass
pH (units)	B (7.00)	7.12	→	7.01	Calibration Accepted	7.03	→/←	7.01	Calibration Pass
	B (4.00)	4.01	→	4.00	Calibration Accepted	4.06	→/←	4.00	Calibration Pass
	B (10.00)	10.06	→/←	10.02	Calibration Accepted	10.06	→/←	10.03	Calibration Pass
		Buffer Temp.		22.68		Buffer Temp.		22.35	
Mid-Day Ck	B (7.00)								
Time:		Buffer Temp.							
<input type="checkbox"/> ORP (mV)	SS (7.00)	N/A	→/←	285		N/A	→/←	285	
	SS (4.00)	N/A	→/←	462		N/A	→/←	462	
<input type="checkbox"/> DO (mg/L)	W								
	W								
	AW	N/A	→/←			N/A	→/←		
<input checked="" type="checkbox"/> TURB (ntu)	SS	53.5	→/←	53.1	Calibration Accepted	53.0	→/←	53.1	Calibration Accepted
Temp Cert Device #									
TEMP (deg C)	NIST	N/A	→/←	N/A	Adjustment Not Available	N/A	→/←	N/A	Adjustment Not Available
AMMONIUM (mg/L)	SS	N/A	→/←	N/A		N/A	→/←	N/A	
	SS	N/A	→/←	N/A		N/A	→/←	N/A	

INSTRUMENT MAINTENANCE	DATE / TIME
<i>Conductance Subsystem</i>	
<input type="checkbox"/> Cleaned Electrodes	<input type="checkbox"/> Cleaned Electrodes
<input type="checkbox"/> Tested - OK	<input type="checkbox"/> Replaced ref Electrode KCL
<input type="checkbox"/> See Notes	<input type="checkbox"/> Replaced Ref. Electrode Tip
	<input type="checkbox"/> Tested - OK <input type="checkbox"/> See Notes
<i>Dissolved Oxygen Subsystem</i>	
<input type="checkbox"/> Replaced Teflon Membrane	<input type="checkbox"/> Cleaned Electrode Tip
<input type="checkbox"/> Replaced DO electrolyte	<input type="checkbox"/> Installed New Electrode
<input type="checkbox"/> Cleaned Electrode	<input type="checkbox"/> Removed Electrode / Installed Plug
<input type="checkbox"/> See Notes	<input type="checkbox"/> Tested - OK <input type="checkbox"/> See Notes
<i>Oxidation Reduction Subsystem</i>	
<input type="checkbox"/> Cleaned Electrode	<input type="checkbox"/> Cleaned Electrode & Wiper
<input type="checkbox"/> Tested - OK <input type="checkbox"/> See Notes	<input type="checkbox"/> Tested - OK <input type="checkbox"/> See Notes
<i>Temperature Subsystem</i>	
<input type="checkbox"/> Cleaned Electrode	<input type="checkbox"/> Reset / Calibrated
<input type="checkbox"/> Tested - OK <input type="checkbox"/> See Notes	<input type="checkbox"/> Tested - OK <input type="checkbox"/> See Notes
<i>pH Subsystem</i>	
<i>Ammonium Subsystem</i>	
<i>Turbidity Subsystem</i>	
<i>Depth Subsystem</i>	

KEY: B = Buffer      W = Winkler      → = Adjusted To      N/A = Not Applicable  
 SS = Standard solution      AW = Average Winkler      →/← = Not Adjusted To

**NOTES:**



# DUKE ENERGY

## GROUNDWATER MONITORING DATA SHEET FOR NO PURGE SAMPLING

PROCEDURE NO	3175.1
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SITE NAME	MARSHALL STEAM STATION	PERMIT #	18-12	SITE ID	N/A
PROJECT NAME	INDUSTRIAL LANDFILL 1	FIELD CREW	LDC, RLW		
SAMPLING DATE(s)	<input checked="" type="checkbox"/> 9-Feb-2012	WELL/LOCATION NAME	CELL 1 LEACHATE		

MONITORING WELL INFORMATION					
WELL DIAMETER (in)		TOC ELEV (ft msl)		MIDDLE OF WETTED SCREEN (ft toc)	
WELL DEPTH (ft TOC)		GS ELEV (ft msl)		PUMP INTAKE DEPTH (ft TOC)	
SCREEN LENGTH (ft)		ELEV REF		SCREEN INTERVAL (ft TOC)	0.00 TO 0.00

EQUIPMENT INFORMATION					
LEVEL METER SERIAL#	N/A	SAMPLING EQUIPMENT	GRAB	PURGE METHOD	
		TUBING DIAMETER (in)		No Purge	
PUMP CONTROLLER SETTINGS					
PRESSURE	(psi)	RECHARGE	(sec)	DISCHARGE	(sec)

SAMPLING INFORMATION					
INITIAL DEPTH TO WATER (ft TOC)	N/A	WATER COLUMN (ft)	N/A	<i>Well Volume = water column X conversion factor</i> (Conversion factor dependent on well diameter and selected well volume units)	
WATER ELEVATION (ft msl)	N/A	WELL VOLUME (gal)	N/A		
DETECTED ODOR	None	CONVERSION FACTOR	N/A		
APPEARANCE	Normal				

HYDRASLEEVE LENGTH (inches)	DEPLOYED DEPTH (top) (ft TOC)	DATE DEPLOYED	<input type="checkbox"/> TEMP (deg C)	<input type="checkbox"/> SPECIFIC COND. (umho/cm)	<input type="checkbox"/> pH (SU)	<input type="checkbox"/> TURBIDITY (NTU)	<input type="checkbox"/> ORP (mV -NEH)	<input type="checkbox"/> DISSOLVED OXYGEN (mg/L)	<input type="checkbox"/>
N/A	N/A	N/A	15.41	429	5.48	0.8	N/A	N/A	N/A

Deployed Top Weight		Water Column In Screen Above Top Of Hydrasleeve		NO PURGE SAMPLE			CHLORINE (mg/l)
		(ft) = (in)		SAMPLE COLLECTED BY	DATE	TIME	
				LDC	2/9/2012	@ 0745	NA

QC By: WC 2/10/12

WELL CONDITION	ADDITIONAL WELL CONDITION NOTES
PROTECTIVE CASING	
WELL PAD	
WELL CASING	
WELL TAG	

SAMPLING NOTES

Allow system to flush for several minutes prior to sampling - watch for low level alarm during pumping. Pumped 3 gal prior to sampling.



# DUKE ENERGY

## GROUNDWATER MONITORING DATA SHEET FOR NO PURGE SAMPLING

PROCEDURE NO	3175.1
--------------	--------

SITE NAME	MARSHALL STEAM STATION	PERMIT #	18-12	SITE ID	N/A
PROJECT NAME	INDUSTRIAL LANDFILL 1	FIELD CREW	LDC, RLW		
SAMPLING DATE(s)	<input checked="" type="checkbox"/> 9-Feb-2012	WELL/LOCATION NAME	CELL 2 LEACHATE		

MONITORING WELL INFORMATION					
WELL DIAMETER (in)		TOC ELEV (ft msl)		MIDDLE OF WETTED SCREEN (ft toc)	
WELL DEPTH (ft TOC)		GS ELEV (ft msl)		PUMP INTAKE DEPTH (ft TOC)	
SCREEN LENGTH (ft)		ELEV REF		SCREEN INTERVAL (ft TOC)	0.00 TO 0.00

EQUIPMENT INFORMATION					
LEVEL METER SERIAL#	N/A	SAMPLING EQUIPMENT	GRAB	PURGE METHOD	
		TUBING DIAMETER (in)		No Purge	
PUMP CONTROLLER SETTINGS					
PRESSURE	(psi)	RECHARGE	(sec)	DISCHARGE	(sec)

SAMPLING INFORMATION					
INITIAL DEPTH TO WATER (ft TOC)	N/A	WATER COLUMN (ft)	N/A	<i>Well Volume = water column X conversion factor</i> (Conversion factor dependent on well diameter and selected well volume units)	
WATER ELEVATION (ft msl)	N/A	WELL VOLUME (gal)	N/A		
DETECTED ODOR	None	CONVERSION FACTOR	N/A		
APPEARANCE	Normal				

HYDRASLEEVE LENGTH (inches)	DEPLOYED DEPTH (top) (ft TOC)	DATE DEPLOYED	<input type="checkbox"/> TEMP (deg C)	<input type="checkbox"/> SPECIFIC COND. (umho/cm)	<input type="checkbox"/> pH (SU)	<input type="checkbox"/> TURBIDITY (NTU)	<input type="checkbox"/> ORP (mV -NEH)	<input type="checkbox"/> DISSOLVED OXYGEN (mg/L)	<input type="checkbox"/>
N/A	N/A	N/A	15.50	872	4.27	2.0	N/A	N/A	N/A

Deployed Top Weight		Water Column In Screen Above Top Of Hydrasleeve		<b>NO PURGE SAMPLE</b>			<b>CHLORINE (mg/l)</b>
		(ft) = (in)		SAMPLE COLLECTED BY	DATE	TIME	
				LDC	2/9/2012	@ 0725	NA

QC By: woc 2/10/12

WELL CONDITION	ADDITIONAL WELL CONDITION NOTES
PROTECTIVE CASING	
WELL PAD	
WELL CASING	
WELL TAG	

**SAMPLING NOTES**

Allow system to flush for several minutes prior to sampling - watch for low level alarm during pumping. Pumped 3 gal prior to sampling.

**MARSHALL STEAM STATION  
INDUSTRIAL LANDFILL 1  
GROUNDWATER MONITORING FIELD DATA  
PERMIT # 18-12**

DATE	WELL NO.	WELL DEPTH (feet-toc)	DEPTH TO WATER (feet-toc)	WATER ELEV. (feet)	APPEARANCE	ODOR	Purge Method	AVG * PMP RATE (ml/min)	WELL VOL (gal)	EVAC VOL (gal)	EVAC (yes/no)	TEMP (deg C)	SPECIFIC CONDUCTANCE (umho/cm)	pH (units)	TURBIDITY (NTU)	ORP (mV-NHE)
2/9/2012	CELL 1 LEACHATE	0.00	N/A	N/A	Normal	None	NP	N/A		N/A	N/A	15.41	429	5.48	0.8	N/A
2/9/2012	CELL 2 LEACHATE	0.00	N/A	N/A	Normal	None	NP	N/A		N/A	N/A	15.50	872	4.27	2.0	N/A

Purge Methods

LF = Low Flow  
 LF(M) = Low Flow (Mod.)  
 C = Conventional  
 NP = No Purge  
 EOP = Equip. Only Purge  
 LO = Level Only

\* = Applicable to LF & LF(M) Purging Only

**DO**  
**(mg/l)**  

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**N/A**  
**N/A**