

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:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Duke Energy Carolinas, LLC Marshall Steam Station Industrial Landfill No. 1 Phase I, Cells 1 and 2	8320 East NC Highway 150 Terrell, NC 28682	1812	.0500	August 27, 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 Signature 09/21/2012 Date Affix NC Licensed/ Professional Geologist Seal

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

September 21, 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 August 27, 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 February 2013 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

Sincerely,

Sean DeNeale, Engineer I
Environment, Health & Safety

Cc: Ms. Donna Burrell – Marshall Steam Station
Mr. George Tolbert – 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)	08/27/2012	
		Cell 1	Cell 2
Arsenic	10	29.7	39.3
Barium	700	74	64
Boron	700	13,100	21,900
Cadmium	2	< 10	< 10
Chloride	250 mg/L	13 mg/L	18 mg/L
Chromium	10	< 5	< 5
Copper	1 mg/L	0.027 mg/L	0.025 mg/L
Fluoride	2 mg/L	1.9 mg/L	2.1 mg/L
Iron	300	43	17
Lead	15	< 10	< 10
Manganese	50	14,400	13,800
Mercury	1	< 0.05	< 0.05
Nickel	100	344	263
Nitrate	10 mg/L	22 mg/L	30 mg/L
pH	6.5-8.5	4.6	4.5
Selenium	20	170	229
Silver	20	< 5	< 5
Sulfate	250 mg/L	1,300 mg/L	1,400 mg/L
Temperature (°C)	n/a	19.77	19.83
TDS	500 mg/L	2,100 mg/L	2,300 mg/L
Zinc	1 mg/L	0.407 mg/L	0.257 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

August 27, 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: J12080212
Project Name: GW INDUSTRIAL LANDFILL 1
Customer Name(s): GW Ed Chuck Tim
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: 2012.09.06 11:16:12 -04'00'

Date: 9/6/2012

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. Subcontracted data included on the Duke Certificate of Analysis is to be used as information only. Certified vendor results can be found in the subcontracted lab final report. Duke Energy Analytical Laboratory subcontracts analyses to other vendor laboratories that have been qualified by Duke Energy to perform these analyses except where 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:

Sample ID	Plant/Station	Collection Date and Time	Collected By	Sample Description
2012017507	MARSHALL	27-Aug-12 7:40 AM	LDC	CELL 1 LEACHATE
2012017508	MARSHALL	27-Aug-12 7:15 AM	LDC	CELL 2 LEACHATE
2012017509	MARSHALL	27-Aug-12 11:15 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). Yes No
- All Results are less than the laboratory reporting limits. Yes No
- All laboratory QA/QC requirements are acceptable. Yes No

Report Sections Included:

- Job Summary Report
- Sample Identification
- Technical Validation of Data Package
- Analytical Laboratory Certificate of Analysis
- Analytical Laboratory QC Report
- Sub-contracted Laboratory Results
- Customer Specific Data Sheets, Reports, & Documentation
- Customer Database Entries
- Chain of Custody
- Electronic Data Deliverable (EDD) Sent Separately

Reviewed By: DataBase Administrator

Date: 9/6/2012

Certificate of Laboratory Analysis

This report shall not be reproduced, except in full.

Order # J12080212

Site: CELL 1 LEACHATE

Collection Date: 27-Aug-12 7:40 AM

Sample #: 2012017507

Matrix: GW_RCRA

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
<u>ALKALINITY (FIXED END POINT 4.5)</u>								
Alkalinity (mg/L CaCO ₃)	6.0	mg/L (CaCO ₃)		0.1	1	SM2320B	8/28/2012 10:22:00 A	TJA7067
<u>INORGANIC IONS BY IC</u>								
Chloride	13	mg/L		10	100	EPA 300.0	8/28/2012 8:46:00 A	JAHERMA
Fluoride	1.9	mg/L		1	10	EPA 300.0	8/28/2012 8:46:00 A	JAHERMA
Nitrate	22	mg/L		1	10	EPA 300.0	8/28/2012 8:46:00 A	JAHERMA
Nitrate as N	5.0	mg-N/L		0.023	1	EPA 300.0	8/28/2012 8:46:00 A	JAHERMA
Sulfate	1300	mg/L		20	200	EPA 300.0	8/28/2012 8:46:00 A	JAHERMA
<u>MERCURY (COLD VAPOR) IN WATER</u>								
Mercury (Hg)	< 0.05	ug/L		0.05	1	EPA 245.1	8/30/2012 12:24:48 F	AGIBBS
<u>TOTAL EXTRACTABLE METALS BY ICP</u>								
Barium (Ba)	0.074	mg/L		0.005	1	EPA 200.7	8/29/2012 9:40:00 A	MHH7131
Boron (B)	13.1	mg/L		0.05	1	EPA 200.7	8/29/2012 9:40:00 A	MHH7131
Calcium (Ca)	353	mg/L		0.2	20	EPA 200.7	8/29/2012 9:40:00 A	MHH7131
Chromium (Cr)	< 0.005	mg/L		0.005	1	EPA 200.7	8/29/2012 9:40:00 A	MHH7131
Copper (Cu)	0.027	mg/L		0.005	1	EPA 200.7	8/29/2012 9:40:00 A	MHH7131
Iron (Fe)	0.043	mg/L		0.01	1	EPA 200.7	8/29/2012 9:40:00 A	MHH7131
Magnesium (Mg)	54.5	mg/L		0.1	20	EPA 200.7	8/29/2012 9:40:00 A	MHH7131
Manganese (Mn)	14.4	mg/L		0.005	1	EPA 200.7	8/29/2012 9:40:00 A	MHH7131
Nickel (Ni)	0.344	mg/L		0.005	1	EPA 200.7	8/29/2012 9:40:00 A	MHH7131
Potassium (K)	56.3	mg/L		2	20	EPA 200.7	8/29/2012 9:40:00 A	MHH7131
Silver (Ag)	< 0.005	mg/L		0.005	1	EPA 200.7	8/29/2012 9:40:00 A	MHH7131
Sodium (Na)	60.1	mg/L		1	20	EPA 200.7	8/29/2012 9:40:00 A	MHH7131
Zinc (Zn)	0.407	mg/L		0.005	1	EPA 200.7	8/29/2012 9:40:00 A	MHH7131
<u>TOTAL EXTRACTABLE METALS BY ICP-MS</u>								
Arsenic (As)	29.7	ug/L		10	10	EPA 200.8	8/30/2012 12:26:00 F	KRICHR
Cadmium (Cd)	< 10	ug/L		10	10	EPA 200.8	8/30/2012 12:26:00 F	KRICHR
Lead (Pb)	< 10	ug/L		10	10	EPA 200.8	8/30/2012 12:26:00 F	KRICHR
Selenium (Se)	170	ug/L		10	10	EPA 200.8	8/30/2012 12:26:00 F	KRICHR
<u>TOTAL DISSOLVED SOLIDS</u>								
TDS	2100	mg/L		10	1	SM2540C	8/29/2012 4:30:00 P	TJA7067

Certificate of Laboratory Analysis

This report shall not be reproduced, except in full.

Order # J12080212

Site: CELL 2 LEACHATE

Collection Date: 27-Aug-12 7:15 AM

Sample #: 2012017508

Matrix: GW_RCRA

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
<u>ALKALINITY (FIXED END POINT 4.5)</u>								
Alkalinity (mg/L CaCO ₃)	4.9	mg/L (CaCO ₃)		0.1	1	SM2320B	8/28/2012 10:22:00 A	TJA7067
<u>INORGANIC IONS BY IC</u>								
Chloride	18	mg/L		10	100	EPA 300.0	8/27/2012 11:50:00 F	JAHERMA
Fluoride	2.1	mg/L		1	10	EPA 300.0	8/27/2012 11:50:00 F	JAHERMA
Nitrate	30	mg/L		1	10	EPA 300.0	8/27/2012 11:50:00 F	JAHERMA
Nitrate as N	6.7	mg-N/L		0.023	1	EPA 300.0	8/27/2012 11:50:00 F	JAHERMA
Sulfate	1400	mg/L		20	200	EPA 300.0	8/27/2012 11:50:00 F	JAHERMA
<u>MERCURY (COLD VAPOR) IN WATER</u>								
Mercury (Hg)	< 0.05	ug/L		0.05	1	EPA 245.1	8/30/2012 12:27:09 F	AGIBBS
<u>TOTAL EXTRACTABLE METALS BY ICP</u>								
Barium (Ba)	0.064	mg/L		0.005	1	EPA 200.7	8/29/2012 9:44:00 A	MHH7131
Boron (B)	21.9	mg/L		0.05	1	EPA 200.7	8/29/2012 9:44:00 A	MHH7131
Calcium (Ca)	324	mg/L		0.2	20	EPA 200.7	8/29/2012 9:44:00 A	MHH7131
Chromium (Cr)	< 0.005	mg/L		0.005	1	EPA 200.7	8/29/2012 9:44:00 A	MHH7131
Copper (Cu)	0.025	mg/L		0.005	1	EPA 200.7	8/29/2012 9:44:00 A	MHH7131
Iron (Fe)	0.017	mg/L		0.01	1	EPA 200.7	8/29/2012 9:44:00 A	MHH7131
Magnesium (Mg)	74.8	mg/L		0.1	20	EPA 200.7	8/29/2012 9:44:00 A	MHH7131
Manganese (Mn)	13.8	mg/L		0.005	1	EPA 200.7	8/29/2012 9:44:00 A	MHH7131
Nickel (Ni)	0.263	mg/L		0.005	1	EPA 200.7	8/29/2012 9:44:00 A	MHH7131
Potassium (K)	79.4	mg/L		2	20	EPA 200.7	8/29/2012 9:44:00 A	MHH7131
Silver (Ag)	< 0.005	mg/L		0.005	1	EPA 200.7	8/29/2012 9:44:00 A	MHH7131
Sodium (Na)	97.0	mg/L		1	20	EPA 200.7	8/29/2012 9:44:00 A	MHH7131
Zinc (Zn)	0.257	mg/L		0.005	1	EPA 200.7	8/29/2012 9:44:00 A	MHH7131
<u>TOTAL EXTRACTABLE METALS BY ICP-MS</u>								
Arsenic (As)	39.3	ug/L		10	10	EPA 200.8	8/30/2012 12:29:00 F	KRICHR
Cadmium (Cd)	< 10	ug/L		10	10	EPA 200.8	8/30/2012 12:29:00 F	KRICHR
Lead (Pb)	< 10	ug/L		10	10	EPA 200.8	8/30/2012 12:29:00 F	KRICHR
Selenium (Se)	229	ug/L		10	10	EPA 200.8	8/30/2012 12:29:00 F	KRICHR
<u>TOTAL DISSOLVED SOLIDS</u>								
TDS	2300	mg/L		10	1	SM2540C	8/29/2012 4:30:00 P	TJA7067

Certificate of Laboratory Analysis

This report shall not be reproduced, except in full.

Order # J12080212

Site: FIELD BLANK

Collection Date: 27-Aug-12 11:15 AM

Sample #: 2012017509

Matrix: GW_RCRA

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
<u>ALKALINITY (FIXED END POINT 4.5)</u>								
Alkalinity (mg/L CaCO ₃)	3.3	mg/L (CaCO ₃)		0.1	1	SM2320B	8/28/2012 10:22:00 A	TJA7067
<u>INORGANIC IONS BY IC</u>								
Chloride	< 0.1	mg/L		0.1	1	EPA 300.0	8/27/2012 6:46:00 PI	JAHERMA
Fluoride	< 0.1	mg/L		0.1	1	EPA 300.0	8/27/2012 6:46:00 PI	JAHERMA
Nitrate	< 0.1	mg/L		0.1	1	EPA 300.0	8/27/2012 6:46:00 PI	JAHERMA
Nitrate as N	< 0.023	mg-N/L		0.023	1	EPA 300.0	8/27/2012 6:46:00 PI	JAHERMA
Sulfate	< 0.1	mg/L		0.1	1	EPA 300.0	8/27/2012 6:46:00 PI	JAHERMA
<u>MERCURY (COLD VAPOR) IN WATER</u>								
Mercury (Hg)	< 0.05	ug/L		0.05	1	EPA 245.1	8/30/2012 12:29:32 F	AGIBBS
<u>TOTAL EXTRACTABLE METALS BY ICP</u>								
Barium (Ba)	< 0.005	mg/L		0.005	1	EPA 200.7	8/29/2012 9:17:00 AI	MHH7131
Boron (B)	< 0.05	mg/L		0.05	1	EPA 200.7	8/29/2012 9:17:00 AI	MHH7131
Calcium (Ca)	0.034	mg/L		0.01	1	EPA 200.7	8/29/2012 9:17:00 AI	MHH7131
Chromium (Cr)	< 0.005	mg/L		0.005	1	EPA 200.7	8/29/2012 9:17:00 AI	MHH7131
Copper (Cu)	< 0.005	mg/L		0.005	1	EPA 200.7	8/29/2012 9:17:00 AI	MHH7131
Iron (Fe)	< 0.01	mg/L		0.01	1	EPA 200.7	8/29/2012 9:17:00 AI	MHH7131
Magnesium (Mg)	< 0.005	mg/L		0.005	1	EPA 200.7	8/29/2012 9:17:00 AI	MHH7131
Manganese (Mn)	< 0.005	mg/L		0.005	1	EPA 200.7	8/29/2012 9:17:00 AI	MHH7131
Nickel (Ni)	< 0.005	mg/L		0.005	1	EPA 200.7	8/29/2012 9:17:00 AI	MHH7131
Potassium (K)	< 0.1	mg/L		0.1	1	EPA 200.7	8/29/2012 9:17:00 AI	MHH7131
Silver (Ag)	< 0.005	mg/L		0.005	1	EPA 200.7	8/29/2012 9:17:00 AI	MHH7131
Sodium (Na)	< 0.05	mg/L		0.05	1	EPA 200.7	8/29/2012 9:17:00 AI	MHH7131
Zinc (Zn)	< 0.005	mg/L		0.005	1	EPA 200.7	8/29/2012 9:17:00 AI	MHH7131
<u>TOTAL EXTRACTABLE METALS BY ICP-MS</u>								
Arsenic (As)	< 1	ug/L		1	1	EPA 200.8	8/30/2012 12:32:00 F	KRICHR
Cadmium (Cd)	< 1	ug/L		1	1	EPA 200.8	8/30/2012 12:32:00 F	KRICHR
Lead (Pb)	< 1	ug/L		1	1	EPA 200.8	8/30/2012 12:32:00 F	KRICHR
Selenium (Se)	< 1	ug/L		1	1	EPA 200.8	8/30/2012 12:32:00 F	KRICHR



For Detailed Instructions, see:
<http://dewww/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

1) Project Name: **MARSHALL INDUSTRIAL LANDFILL #1**
 Permit # 18-12

3) Client: **LDC / TSH / Ed Sullivan**

5) Business Unit: 20035

6) Process: **BENVWS**

7) Resp. To: **MS00**

8) Project ID:

9) Activity ID:

10) Mail Code: **MGO3A3**

2) Phone No: 875-5257

4) Fax No: 875-4349

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

DISTRIBUTION
 ORIGINAL TO LAB,
 COPY TO CLIENT

Rev 3/27/12

Logged By: **RA** Date & Time: **8/27/12 1334**

VENDOR: _____

MATRIX: **GW-RCRA**

Samples Originating From: **NC**

SAMPLE PROGRAM: **Ground Water**

NPDES: _____

Drinking Water: _____

UST: _____

RCRA Waste: _____

PO # _____

MR # _____

15) Preserv.: 1=HCl, 2=H₂SO₄, 3=HNO₃, 4=Ice, 5=None

Cooler Temp (C): **28**

16) Analyses Required

18) Grab

Customer to complete all appropriate NON-SHADED areas.

14) Collection Information		Date	Time	Signature
6	X	8/27/12	0740	VOC
6	X	8/27/12	0715	VOC
5	X	8/27/12	1115	VOC

12) Chem Desktop No.	13) Sample Description or ID
2012017507	CELL 1 LEACHATE
2012017508	CELL 2 LEACHATE
2012017509	FIELD BLANK

17) TESTS	18) Grab	19) Alk (4:5)	20) NO ₃ -N, Cl, F, SO ₄ (C)	21) Hg (EPA 245.1)	22) Metals Prep - 3030C	23) Total # of Containers
6	X	1	1	1	(ICP - EPA 200.7) Ag, B, Ba, Ca, Cu, Cr, Fe, K, Mg, Mn, Na, Ni, Zn (13)	4
6	X	1	1	1	(IMS - EPA 200.8) As, Cd, Pb, Se (4)	1
5	X	1	1	1		1

Customer to sign & date below

Requested By: **Michael Rayburn** Date/Time: **8/27/12 1305**

Accepted By: **[Signature]** Date/Time: **8/27/12 1305**

Accepted By: _____ Date/Time: _____

Seal/Lock Opened By: _____ Date/Time: _____

24) Comments: **Regulatory Agency: NCDENR/DWM - SW Section - State EDD Format Required / Permit # 18-12**
 Use indicated or comparable analytical methods

22) Requested Turnaround

14 Days

*7 Days _____

*48 Hr _____

*Other _____

* Add. Cost Will Apply

Customer must Complete

Attachment 2

Marshall Industrial Landfill No. 1

Semi-Annual Monitoring Event

Leachate Field Results

August 27, 2012

FIELD SAMPLING CALIBRATION FORM

STUDY: MARSHALL STEAM STATION - INDUSTRIAL WASTE LANDFILL 1 GROUNDWATER MONITORING
DATE (s): August 27, 2012 **SURFACE UNIT READER:** LDC
COLLECTORS: LDC, RLW, MJR **SURFACE UNIT SERIAL #:** 3825
ANALYZER MODEL#: MS5 **ANALYZER SERIAL #:** 60901
OTHER EQUIPMENT: TURBIDIMETER NO.1 - 3260.2 **WEATHER CONDITIONS:** Clear, calm, 70 to 80 deg F

PROCEDURE #: HYDROLAB 3210.4 **VALIDATED BY:**

LDC 8/29/12

Calibration Date / Time		DATE:	27-Aug-12	TIME:	630	DATE:	27-Aug-12	TIME:	1110
		BP (mmHg)				BP (mmHg)			
		746.7				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	363.5	→	350	Calibration Accepted	341.0	→	350	Calibration Pass
	SS	73.3	→	75	Calibration Accepted	73.0	→	75	Calibration Pass
pH (units)	B (7.00)	7.06	→	7.02	Calibration Accepted	7.09	→	7.01	Calibration Pass
	B (4.00)	3.97	→	4.00	Calibration Accepted	4.06	→	4.00	Calibration Pass
	B (10.00)	10.07	→	10.06	Calibration Accepted	10.14	→	10.03	Calibration Pass
		Buffer Temp.		20.15		Buffer Temp.		21.86	
Mid-Day Ck	B (7.00)								
Time:									
<input type="checkbox"/> ORP (mV)	SS (7.00) SS (4.00)	N/A N/A	→	285 462		N/A N/A	→	285 462	
<input type="checkbox"/> DO (mg/L)	W W AW	N/A	→			N/A	→		
<input checked="" type="checkbox"/> TURB (ntu)	SS	53.2	→	53.4	Calibration Accepted	53.5	→	53.4	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 SS	N/A N/A	→	N/A N/A		N/A N/A	→	N/A N/A	

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

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, MJR		
SAMPLING DATE(s)	<input checked="" type="checkbox"/> 27-Aug-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	TEMP (deg C)	SPECIFIC COND. (umho/cm)	pH (SU)	TURBIDITY (NTU)	ORP (mV-NHE)	DISSOLVED OXYGEN (mg/L)	
N/A	N/A	N/A	19.77	2138	4.57	1.0	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	8/27/2012	@ 0740	N/A	

QC By: LDC 8/29/12

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.



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, MJR		
SAMPLING DATE(s)	<input checked="" type="checkbox"/> 27-Aug-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-NHE)	<input type="checkbox"/>	DISSOLVED OXYGEN (mg/L)	<input type="checkbox"/>
N/A	N/A	N/A		19.83		2361		4.45		1.0		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	8/27/2012	@ 0715	N/A	

QC By: LDC 8/29/12

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.

**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)	DO (mg/l)
8/27/2012	CELL 1 LEACHATE	N/A	N/A	N/A	Normal	None	NP	N/A	N/A	N/A	N/A	19.77	2138	4.6	1.0	N/A	N/A
8/27/2012	CELL 2 LEACHATE	N/A	N/A	N/A	Normal	None	NP	N/A	N/A	N/A	N/A	19.83	2361	4.5	1.0	N/A	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