



Duke Energy
McGuire Nuclear Station
12700 Hegers Ferry Road
Huntersville, NC 28078

March 5, 2014

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 Groundwater Monitoring Report – December 2013
Duke Energy Carolinas, LLC
McGuire Nuclear Station
Landfill #2 (Synthetically Lined), Permit #60-04

Certified Mail: 7011 0470 0000 9847 1058

Dear Ms. Werner:

Duke Energy is providing the results of semi-annual groundwater monitoring for the Synthetically Lined McGuire Nuclear Station Landfill #2, located in Huntersville, North Carolina.

On December 11 and 12, 2013, groundwater and surface water samples were collected in accordance with the SAP (Sampling and Analysis Plan). Table 2 provides a summary of groundwater field and analytical results. Table 3 provides a summary of surface water field and analytical results. A table summarizing sampling results that equal or exceed NCAC 2L standards is provided as Table 5.

Duke Energy personnel sample designated groundwater and surface water locations at McGuire Nuclear Station's Landfill #2 (Synthetically Lined) semi-annually during December and June. The next landfill monitoring event is planned for June 2014 with a report of monitoring results to follow.

If you have any questions or concerns about this report, please contact Sean DeNeale by phone at 704-382-4761 or by email at Sean.DeNeale@duke-energy.com

Sincerely,

Charles J. Morris III
Duke Energy
McGuire Nuclear Station
Station Manager

Electronic cc: Mr. Ed Sullivan – Duke Energy Corporation
Mr. Tim Hunsucker – Duke Energy Corporation

Mr. Bill Miller – HDR Engineering, Inc.
Mr. Scott Spinner – HDR Engineering, Inc.
Mr. Sean DeNeale - Engineer I Duke Energy Environmental Services
Mr. John Williamson – McGuire Nuclear Station

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):

HDR Engineering, Inc. of the Carolinas (Consultant)

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

Name: William M. Miller Phone: 828-891-6296
E-mail: bill.miller@hdrinc.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 McGuire Nuclear Station Landfill #2 (Synthetically Lined)	13339 Hagers Ferry Road Huntersville, NC 28078	6004	.0500	December 11-12, 2013

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.

William M. Miller Senior Engineer (828) 891-6296

Facility Representative Name (Print) Title (Area Code) Telephone Number

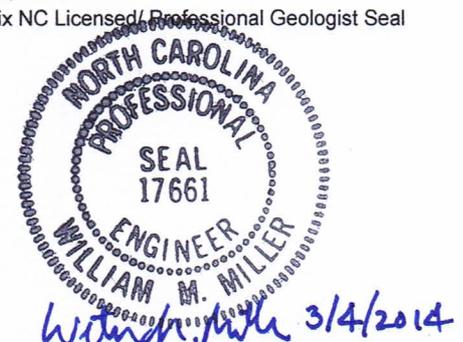
William M. Miller Signature Date

440 S. Church Street Suite 1000, Charlotte, NC 28202

Facility Representative Address

F-0116

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



**SEMIANNUAL GROUNDWATER
MONITORING REPORT**

MCGUIRE NUCLEAR STATION

**LANDFILL #2 (SYNTHETICALLY LINED)
PERMIT NO. 6004**

DECEMBER 2013 SAMPLING EVENT

**Prepared for:
DUKE ENERGY CAROLINAS, LLC
13339 Hagers Ferry Road
Huntersville, NC 28078**

**Prepared by:
HDR ENGINEERING, INC. OF THE CAROLINAS
Charlotte, North Carolina**

March 4, 2014



REPORT VERIFICATION

PROJECT: SEMIANNUAL GROUNDWATER MONITORING REPORT
MCGUIRE NUCLEAR STATION
LANDFILL #2 (SYNTHETICALLY LINED)
PERMIT NO. 6004

TITLE: DECEMBER 2013 SAMPLING EVENT

This document has been reviewed for accuracy and quality commensurate with the intended application.

Prepared by: Scott A. Smith

Date: March 4, 2014

Checked by: William M. Miller

Date: 3/4/2014

Approved by: T. Ziegler

Date: 3/4/2014

Project Manager: Ty Ziegler, PE

Professional Engineer Seal:



HDR Engineering, Inc. of the Carolinas
440 South Church St., Suite 1000
Charlotte, NC 28202

North Carolina Engineering Firm Number F-0116

**SEMIANNUAL GROUNDWATER MONITORING REPORT
MCGUIRE NUCLEAR STATION
LANDFILL #2 (SYNTHETICALLY LINED)
PERMIT NO. 6004**

DECEMBER 2013 SAMPLING EVENT

TABLE OF CONTENTS

Section	Title	Page No.
BACKGROUND		1
METHODS		3
2.1	Sampling and Analysis Methods	3
2.2	Statement of Work	4
RESULTS.....		5
3.1	Site Groundwater Flow	5
3.2	Analytical Results	5
 FIGURES		
1.	Site Location Map	
2.	Sample Locations	
3.	Generalized Groundwater Surface Contours	
 TABLES		
1.	Field Data Parameters	
2.	Groundwater Field and Analytical Results	
3.	Surface Water Field and Analytical Results	
4.	Leachate Sample Field and Analytical Results	
5.	Field and Analytical Results that Equal or Exceed NCAC 2L Groundwater Quality Standards	
6.	Radiological Analytical Results	
 APPENDICES		
A.	Chain-of-Custody Forms	

Section 1

Background

The McGuire Nuclear Station Landfill #2 (Synthetically Lined)¹ is located at the Duke Energy Carolinas, LLC (Duke Energy) McGuire Nuclear Station, in Mecklenburg County, NC. The landfill is permitted to accept waste specified by the Permit to Operate. The landfill was constructed with a high-density polyethylene (HDPE) synthetic liner and leachate collection and removal system. Leachate and contact stormwater are collected in a lined leachate collection basin and pumped to the McGuire Nuclear Station wastewater treatment system. The landfill is permitted under the North Carolina Department of Environment and Natural Resources (NCDENR) Solid Waste Permit No. 6004.

The landfill and nearby area are depicted on Figures 1 and 2. The landfill is located south of North Carolina Highway 73, north of Cashion Road, and to the west of Linderman Road. Cashion Road runs along a surface water divide, with surface flow draining to the northwest and to the southeast. A surface water drainage feature is located to the northeast of the landfill. This feature drains to the northwest, to a perennial, unnamed stream. Surface water sample location SW-1 is located in this unnamed stream (north of the landfill) and is upstream from the confluence with the surface water drainage feature. Surface water sample location SW-2 is also located in this unnamed stream, downstream from SW-1 and west of the landfill. The unnamed stream drains to the west, to the Catawba River. A second surface water drainage feature is located to the southwest of the landfill, draining to the northwest into the unnamed stream.

¹ In response to the North Carolina Division of Public Health, Radiation Protection Section, November 17, 2006 letter to Duke Energy, LLC, Duke Energy offered to indicate the McGuire Nuclear Station Landfill #2 as “(Synthetically Lined)” in reports.

As described in the Sampling and Analysis Plan² (SAP), the monitoring system at the landfill consists of the following:

Monitoring Wells:	MW-5	MW-5A
	MW-6	MW-6A
	MW-7	MW-7A
	MW-8	MW-8A
	MW-9	MW-9A
	MW-10A	
Surface Water:	SW-1	SW-2
Leachate Sample:	Leachate Pond	

The leachate sample is collected from the outfall of the leachate pipe which conveys leachate from the landfill to the leachate collection basin. The locations of the monitoring wells, the surface water sample locations, and the leachate collection basin are shown on Figure 2.

With the exception of well MW-10A, the wells are installed as well pairs with one shallow well and one deeper well adjacent to one another. The well with the “A” designation is the deeper well in each well pair. Well pair MW-9 and MW-9A are installed adjacent to and downgradient from the leachate collection basin. The remaining wells are installed adjacent to the landfill.

According to the SAP, monitoring wells MW-5 and MW-5A are the upgradient wells, and are considered the background wells for the site. Surface water sample location SW-1 is considered the upgradient or background surface water sample location.

The sampling was conducted by Duke Energy according to the North Carolina Solid Waste Management Guidelines. The parameters and constituents sampled were selected by Duke Energy and the NCDENR Division of Solid Waste and were analyzed by a North Carolina certified laboratory.

² *McGuire Nuclear Station Landfill #2, Permit Number 6004 Groundwater Monitoring Program Sampling and Analysis Plan*, February 24, 2009.

Section 2

Methods

2.1 Sampling and Analysis Methods

Collection of samples and documentation of sampling was performed by Duke Energy personnel. The groundwater, surface water, and leachate samples were analyzed by TestAmerica Laboratories, Inc. (North Carolina Laboratory Certification #358) and the Duke Energy Analytical Laboratory (North Carolina Laboratory Certification #248).

The groundwater, surface water, and leachate samples were analyzed for the following constituents, in accordance with the SAP:

- Barium, chromium, and silver using Environmental Protection Agency (EPA) Method 200.7
- Arsenic, cadmium, lead, and selenium using EPA Method 200.8
- Mercury using EPA Method 245.1
- Chloride and sulfate using EPA Method 300.0
- Volatile organic compounds (VOCs) using EPA Method 8260B
- Total petroleum hydrocarbons (TPH) diesel range organics (DRO) using EPA Method 8015C Modified

In addition, the following analyses were performed in accordance with the requirements of the Radioactive Materials License No. 060-0379-7 issued by the North Carolina Department of Health and Human Services Radiation Protection Section:

- Gross alpha radioactivity using EPA Method 900
- Gross beta radioactivity using EPA Method 900
- Tritium using EPA Method 906.0 Modified
- Gamma radioactivity for select isotopes

2.2 Statement of Work

HDR Engineering, Inc. (HDR) completed the following tasks:

- Received field sampling information provided by Duke Energy (performed by Duke Energy personnel) for monitoring wells MW-5A, MW-6, MW-6A, MW-7A, MW-8, MW-8A, MW-9, MW-9A, and MW-10A. No water level reading or sample was collected from MW-5 or MW-7 due to insufficient water volume in the wells. Data were also received for surface water sample locations SW-1 and SW-2, as well as for the leachate pond sample. The samples were collected on December 11 and 12, 2013 and HDR received the data on January 16, 2014.
- Reviewed the laboratory analytical results for samples. The Electronic Data Deliverable (EDD), provided by Duke Energy, was adapted to conform to the format requirements of the NCDENR EDD template. HDR added an italicized J data qualifier to indicate a measured concentration that attains or exceeds the laboratory's method reporting limit (MRL), but is less than the Solid Waste Section Limit³ (SWSL). A copy of the original EDD is retained in HDR's files.
- Developed a generalized groundwater surface contour map using map data and groundwater elevation data supplied by Duke Energy.
- Prepared and submitted this Semiannual Groundwater Monitoring Report to Duke Energy.

³ Solid Waste Section Limits (SWSL) is defined by NCDENR as the lowest amount of analyte in a sample that can be quantitatively determined with suitable precision and accuracy. The SWSL is the concentration below which reported results must be qualified as estimated. NCDENR Division of Waste Management Memorandum dated February 23, 2007.

Section 3

Results

3.1 Site Groundwater Flow

Generalized groundwater surface contours for the site are shown on Figure 3. These contours were developed using groundwater elevations measured at the shallow wells on the date of sampling.

Groundwater flow in the area of the landfill is generally from the southeast end of the landfill toward the northwest and the unnamed stream described in Section 1. Groundwater flow on the east side of the landfill is towards the northeast, toward wells MW-6, MW-6A, and MW-10A, and the surface water drainage feature located northeast of the wells.

3.2 Analytical Results

A summary of the field data is presented in Table 1.

The groundwater sampling field and analytical results are summarized in Table 2. The groundwater monitoring analysis results for the semiannual constituents are compared to the groundwater standards found in Title 15A NCAC 02L .0202 (g) (2L Standards). A summary of the well analytical results that equal or exceed the 2L Standards is presented in Table 5.

The MDL was greater than the respective 2L Standard for the following constituents:

- 1,2,3-Trichloropropane
- 1,2-Dibromo-3-chloropropane (DBCP)
- 1,2-Dibromoethane (EDB)
- Vinyl chloride

Surface water sample locations SW-1 and SW-2 are located on an unnamed stream. The unnamed stream is a tributary of the Catawba River, which is classified by the NCDENR Division of Water Quality as a Class WS-IV water at the confluence with the unnamed stream. As a result, the field and analytical results from these locations are compared to Title 15A, NCAC, Subchapter 2B Standards (2B Standards) for Class WS-IV water. The field and analytical results of surface water sampling are summarized in Table 3.

The MDL was greater than the respective 2B Standard for the following constituents:

- 1,1,2,2-Tetrachloroethane
- 1,2,3-Trichloropropane
- 1,2-Dibromo-3-chloropropane (DBCP)
- 1,2-Dibromoethane (EDB)
- Acrylonitrile
- Silver
- Vinyl chloride

The MDLs for the abovementioned constituents were all below their corresponding SWSLs as required by the February 23, 2007 NCDENR memo. These constituents were not detected above the MDL in the analyzed samples, and are not considered to exceed their respective 2L or 2B Standards.

The field and analytical results for leachate sampling are summarized in Table 4. Due to required sample dilution, the MDL for cadmium was greater than the cadmium SWSL.

Concentrations with values that attain or exceed the SWSLs are noted on Tables 2, 3, and 4 by gray cells.

Selected samples were diluted as is normal laboratory practice to bring samples within the calibrated range of the analysis. Specifics regarding the samples that were diluted, including the dilution amount, are reported in the EDD.

The results of the radiological analyses are presented in Table 6. A copy of this report has been submitted to the North Carolina Department of Health and Human Services Radiation Protection Section for reference. HDR did not evaluate this data.

The chain-of-custody forms can be found in Appendix A.

FIGURES



NOTES:
SOURCE: USGS TOPOGRAPHIC MAP - LAKE NORMAN SOUTH QUADRANGLE. CREATED 2011.

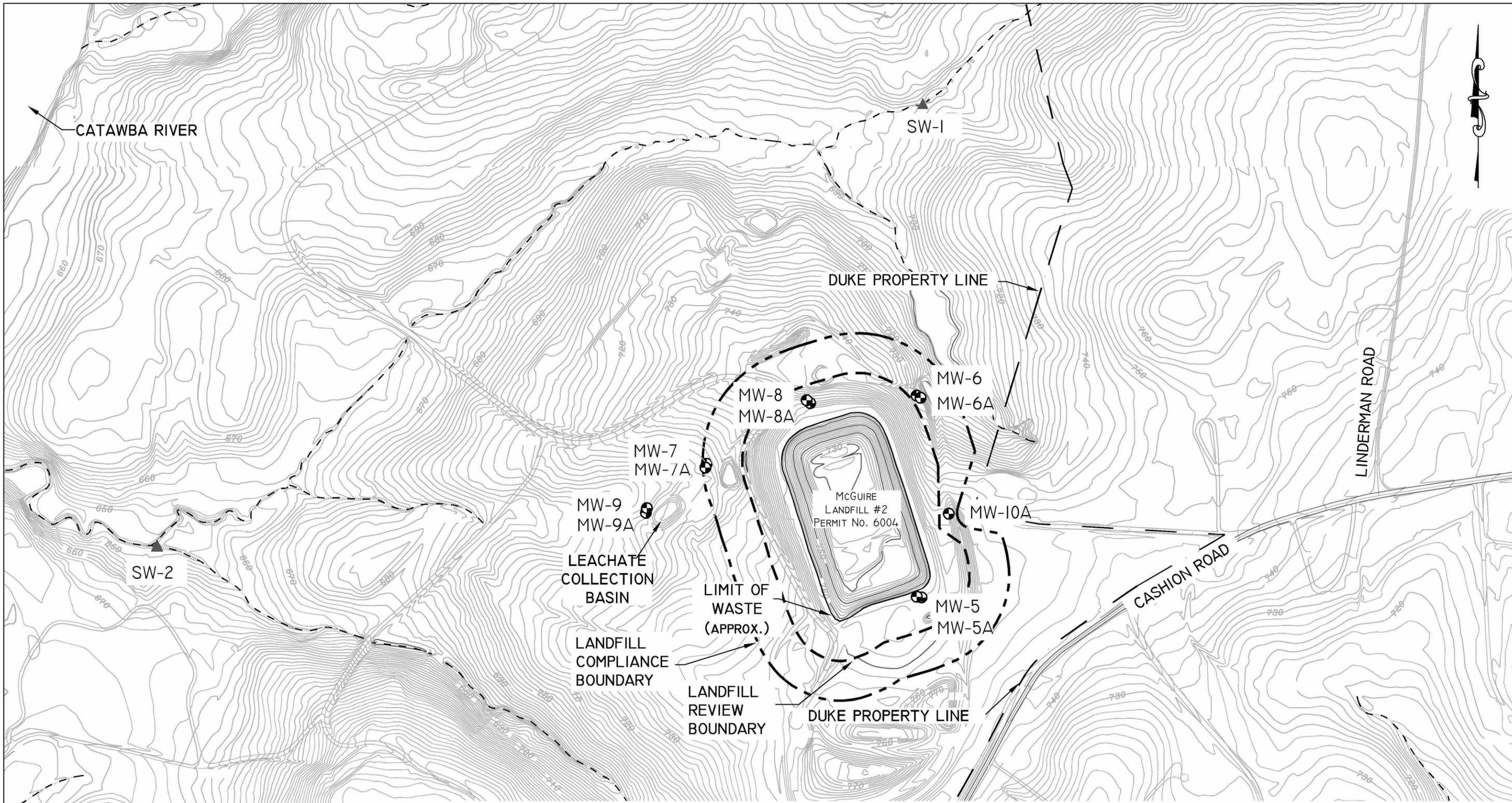


HDR
HDR Engineering, Inc.
of the Carolinas

License Number: F-0116
440 South Church Street, Charlotte, NC 28202

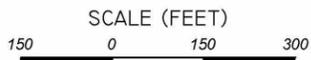
**SITE LOCATION MAP
MCGUIRE NUCLEAR STATION
LANDFILL #2 (SYNTHETICALLY LINED)
PERMIT NO. 6004**

DATE	MARCH 4, 2014
FIGURE	1



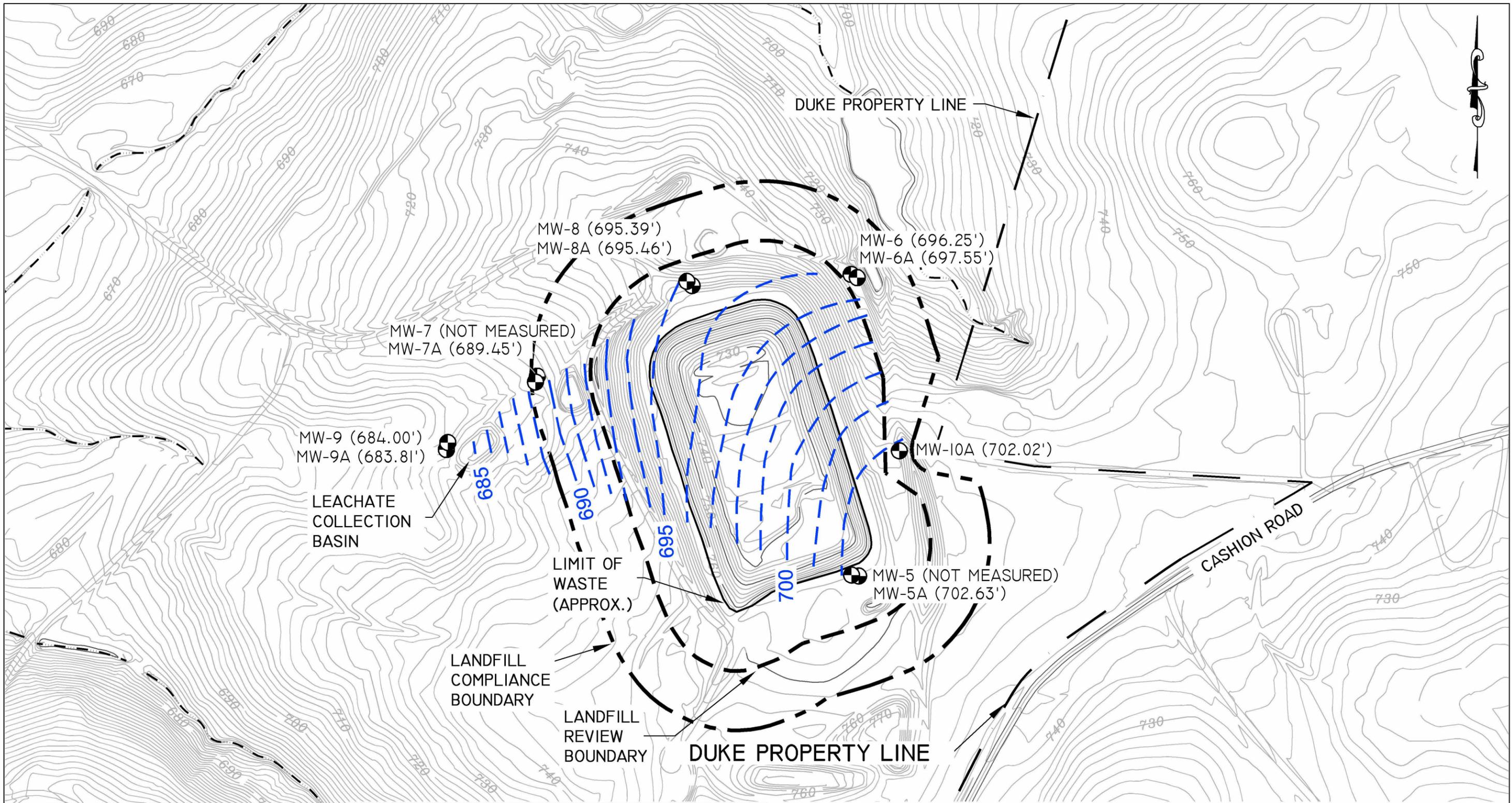
BASE MAP AND STREAM DATA PROVIDED BY DUKE ENERGY CAROLINAS, LLC.

- LEGEND**
-  GROUNDWATER MONITORING WELLS
 -  SURFACE WATER SAMPLE LOCATION
 -  APPROXIMATE LIMIT OF WASTE
 -  LANDFILL REVIEW BOUNDARY
 -  LANDFILL COMPLIANCE BOUNDARY
 -  DUKE PROPERTY BOUNDARY
 -  STREAM



SAMPLE LOCATIONS
MCGUIRE NUCLEAR STATION
LANDFILL #2 (SYNTHETICALLY LINED)
PERMIT NO. 6004

DATE	MARCH 4, 2014
FIGURE	2



BASE MAP AND STREAM DATA PROVIDED BY DUKE ENERGY CAROLINAS, LLC.

LEGEND	
	GROUNDWATER MONITORING WELLS
MW-9 (684.00')	GROUNDWATER ELEVATION (FEET)
	APPROXIMATE LIMIT OF WASTE
	LANDFILL REVIEW BOUNDARY
	LANDFILL COMPLIANCE BOUNDARY
	DUKE PROPERTY BOUNDARY
	STREAM
	GROUNDWATER SURFACE CONTOUR

NOTE: GROUNDWATER CONTOURS DRAWN FROM SHALLOW WELLS ONLY.

NOTE: GROUNDWATER ELEVATIONS FOR GENERALIZED GROUNDWATER SURFACE CONTOURS WERE INFERRED AT MONITORING WELLS MW-5 AND MW-7.



GENERALIZED GROUNDWATER SURFACE CONTOURS DECEMBER 2013
MCGUIRE NUCLEAR STATION
LANDFILL #2 (SYNTHETICALLY LINED)
PERMIT NO. 6004

DATE
MARCH 4, 2014

FIGURE
3

TABLES

**Table 1--Field Data Parameters
Duke Energy Carolinas, LLC/McGuire Nuclear Station
Landfill #2 (Synthetically Lined) - Permit No. 6004**

DATE	SAMPLE ID	WELL DEPTH (feet)	DEPTH TO WATER (feet)	WATER ELEV. (feet)	ODOR	Purge METHOD	PUMP RATE (mL/min)	WELL VOLUME (gal)	EVAC VOLUME (gal)	EVAC (yes/no)	TEMP (deg C)	SPECIFIC CONDUCTANCE (umho/cm)	pH (SU)	TURBIDITY (NTU)	ORP (mV-NHE)	DO (mg/L)
12/11/2013	MW-5	63.90	N/A	N/A	None	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
12/11/2013	MW-5A	96.00	65.79	702.63	None	CP	N/A	4.93	15.00	NO	15.85	56	6.1	3.5	369	7.64
12/11/2013	MW-6	37.20	32.20	696.25	None	CP	N/A	0.82	3.00	NO	15.77	144	5.9	6.7	382	5.73
12/11/2013	MW-6A	47.90	31.43	697.55	None	CP	N/A	2.69	8.25	NO	15.96	62	5.4	3.7	425	7.79
12/12/2013	MW-7	37.30	N/A	N/A	None	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
12/12/2013	MW-7A	59.40	35.21	689.45	None	CP	N/A	3.95	12.00	NO	15.96	115	6.4	3.9	349	6.68
12/11/2013	MW-8	71.50	64.21	695.39	None	EOP	N/A	1.19	0.54	N/A	15.42	139	6.3	17.1	354	7.67
12/11/2013	MW-8A	84.40	64.22	695.46	None	CP	N/A	3.29	10.50	NO	15.82	95	6.4	3.5	354	7.66
12/12/2013	MW-9	30.80	27.87	684.00	None	CP	N/A	0.48	1.50	NO	16.10	121	5.8	3.5	386	7.48
12/12/2013	MW-9A	47.80	28.32	683.81	None	CP	N/A	3.18	9.75	NO	16.97	106	6.1	3.4	368	4.22
12/12/2013	MW-10A	59.23	53.76	702.02	None	CP	N/A	0.89	1.00	YES	15.50	40	5.6	8.5	397	5.97
12/12/2013	SW-1	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A	N/A	6.88	106	6.4	23.0	249	8.04
12/12/2013	SW-2	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A	N/A	8.08	101	6.8	24.4	262	10.42
12/12/2013	LEACHATE POND	N/A	N/A	N/A	None	N/A	N/A	N/A	N/A	N/A	14.87	828	6.7	6.9	307	8.05

Notes:

1. Purge Methods; LF=Low Flow, CP=Conventional Purge (3-5 well volumes), NP=No Purge (HydraSleeve), EOP=Equipment Only Purge. Pump rate applicable to LF purging only.
2. Field sampling performed by Duke Energy Carolinas, LLC personnel.
3. EVAC indicates whether the water level in the well was drawn down to the level of the pump during purging.
4. There was insufficient water in MW-5 and MW-7 to obtain a depth to water reading or to collect a groundwater sample.
5. umho/cm indicates micromhos per centimeter.
6. SU indicates Standard Units.
7. NTU indicates Nephelometric Turbidity Units.
8. mV-NHE indicates millivolts-Normal Hydrogen Electrode.
9. mg/L indicates milligrams per liter.
10. N/A indicates not applicable.
11. NS indicates no sample.
12. Information provided by Tim Hunsucker of Duke Energy Carolinas, LLC on January 16, 2014.

**Table 2–Groundwater Field and Analytical Results
Duke Energy Carolinas, LLC/McGuire Nuclear Station
Landfill #2 (Synthetically Lined) - Permit No. 6004**

Sample Date: December 11-12, 2013				Laboratory Certificate Codes: Duke Energy Carolinas Field #5193 Duke Energy Analytical Laboratory #248 TestAmerica Laboratories, Inc. #358								
Field Sampling performed by Duke Energy Carolinas, LLC				Monitoring Wells							SWSL	15A NCAC 2L
Parameter	SWS ID	Units	Certificate Code	6004-MW-5	6004-MW-5A	6004-MW-6	6004-MW-6A	6004-MW-7	6004-MW-7A	SWSL	15A NCAC 2L	
Field pH	320	SU	5193	NS	6.1	5.9	5.4	NS	6.4	-	6.5-8.5	
Specific Conductance	323	umho/cm	5193	NS	56	144	62	NS	115	-	-	
Temperature	325	°C	5193	NS	15.85	15.77	15.96	NS	15.96	-	-	
Top Casing	328	feet	-	NS	768.42	728.45	728.98	NS	724.66	-	-	
Depth to Water	318	feet	-	-	65.79	32.20	31.43	-	35.21	-	-	
Water Elevation	427	feet	-	-	702.63	696.25	697.55	-	689.45	-	-	
Well Depth	411	feet	-	63.90	96.00	37.20	47.90	37.30	59.40	-	-	
Arsenic	14	µg/L	248	NS	0.246 J	0.078 U	0.078 U	NS	0.101 J	10	10	
Barium	15	µg/L	248	NS	25.3 J'	46.8 J'	52.4 J'	NS	4.44 J	100	700	
Cadmium	34	µg/L	248	NS	0.101 U	0.101 U	0.101 U	NS	0.101 U	1	2	
Chloride	455	µg/L	248	NS	1,190	12,200	6,100	NS	1,150	NE	250,000	
Chromium	51	µg/L	248	NS	0.5 U	2.35 J	0.71 J	NS	0.5 U	10	10	
Lead	131	µg/L	248	NS	0.065 U	0.065 U	0.065 U	NS	0.065 U	10	15	
Mercury	132	µg/L	248	NS	0.006 U	0.006 U	0.006 U	NS	0.3 U	0.2	1	
Selenium	183	µg/L	248	NS	0.125 J	0.342 J	0.092 U	NS	0.108 J	10	20	
Silver	184	µg/L	248	NS	0.7 U	0.7 U	0.7 U	NS	0.7 U	10	20	
Sulfate	315	µg/L	248	NS	2,750 J'	333 J'	32.8 J	NS	301 J'	250,000	250,000	
TPH DRO	NE	mg/L	358	NS	30.9 J	37.1 J	30.9 J	NS	29.2 J	NE	NE	
1,1,1-Trichloroethane	200	µg/L	358	NS	0.19 U	0.19 U	0.19 U	NS	0.19 U	1	200	
1,1-Dichloroethene	77	µg/L	358	NS	0.25 U	0.25 U	0.25 U	NS	0.25 U	5	350	
Chloromethane	137	µg/L	358	NS	0.36 U	0.785 J	0.42 J	NS	0.36 U	1	3	
Trichloroethene	201	µg/L	358	NS	0.2 U	0.2 U	0.2 U	NS	0.2 U	1	3	

Notes:

- Concentrations presented in micrograms per liter (µg/L) and milligrams per liter (mg/L).
- SWS ID is the Solid Waste Section Identification Number.
- SWSL is the Solid Waste Section Limit. NCDENR defines the SWSL as the lowest amount of analyte in a sample that can be quantitatively determined with suitable precision and accuracy.
- 15A NCAC 2L Standard refers to Class GA Standards as found in 15A NCAC 02L .0202 Groundwater Quality Standards, last amended on April 1, 2013.
- Grayed values indicate values that attain or exceed the SWSL Standard.
- Bold values indicate values that attain or exceed the 15A NCAC 2L Standard.
- TPH DRO indicates Total Petroleum Hydrocarbons Diesel Range Organics.
- NE indicates not established. Blank cells indicate that there is no information relevant to the respective row.
- Qualifiers in non-italicized text are laboratory data qualifiers or "flags". "U" is used to identify results not detected at concentrations which attain the laboratory's method detection limit (MDL). "J" is used to identify estimated concentrations which attain or exceed the MDL but are less than the laboratory's method reporting limit (MRL).
An italicized J'-flag is a data qualifier, added by HDR to indicate concentrations which attain or exceed the laboratory's MRL but are less than the SWSL.
- SU indicates Standard Units.
- NS indicates no sample was collected.
- NA indicates not analyzed.
- According to the Constituent Look-up webpage on the NCDENR Division of Waste Management webpage, there is no SWSL or 2L Standard for chloride associated with CAS number 16887-00-6, which is the CAS reported by the laboratory for the analyses completed. Therefore, the SWSL and 2L Standard listed are for the chloride with CAS number SW301 as specified on the Constituent Look-up webpage (last updated June 13, 2011).
- Constituents listed below the bold line are EPA Method 8260 volatile organic compounds (VOCs) measured at concentrations which attain or exceed their MDL in one or more samples. Results for all other EPA Method 8260 constituents were less than their MDLs.
- Analytical results obtained from Electronic Data Deliverable (EDD) provided by Tim Hunsucker of Duke Energy Carolinas, LLC on January 16, 2014.

**Table 2–Groundwater Field and Analytical Results
Duke Energy Carolinas, LLC/McGuire Nuclear Station
Landfill #2 (Synthetically Lined) - Permit No. 6004**

Sample Date: December 11-12, 2013													Laboratory Certificate Codes: Duke Energy Carolinas Field #5193 Duke Energy Analytical Laboratory #248 TestAmerica Laboratories, Inc. #358	
Field Sampling performed by Duke Energy, LLC														
Parameter	SWS ID	Units	Certificate Code	Monitoring Wells					Trip Blank	Field Blank	SWSL	15A NCAC 2L		
				6004-MW-8	6004-MW-8A	6004-MW-9	6004-MW-9A	6004-MW-10A						
Field pH	320	SU	5193	6.3	6.4	5.8	6.1	5.6	-	-	-	6.5-8.5		
Specific Conductance	323	umho/cm	5193	139	95	121	106	40	-	-	-	-		
Temperature	325	°C	5193	15.42	15.82	16.10	16.97	15.50	-	-	-	-		
Top Casing	328	feet	-	759.60	759.68	711.87	712.13	755.78	-	-	-	-		
Depth to Water	318	feet	-	64.21	64.22	27.87	28.32	53.76	-	-	-	-		
Water Elevation	427	feet	-	695.39	695.46	684.00	683.81	702.02	-	-	-	-		
Well Depth	411	feet	-	71.50	84.40	30.80	47.80	59.23	-	-	-	-		
Arsenic	14	µg/L	248	0.078 U	0.078 U	0.078 U	0.078 U	0.078 U	NA	0.078 U	10	10		
Barium	15	µg/L	248	20.9 J'	23.8 J'	25 J'	9.84 J'	32.9 J'	NA	0.137 J	100	700		
Cadmium	34	µg/L	248	0.101 U	0.101 U	0.101 U	0.101 U	0.101 U	NA	0.101 U	1	2		
Chloride	455	µg/L	248	1,360	1,710	1,400	1,420	1,240	NA	51.5 J	NE	250,000		
Chromium	51	µg/L	248	1.46 J	0.5 U	1.53 J	1.52 J	5.43 J'	NA	0.5 U	10	10		
Lead	131	µg/L	248	0.065 U	0.065 U	0.065 U	0.065 U	0.157 J	NA	0.065 U	10	15		
Mercury	132	µg/L	248	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	NA	0.006 U	0.2	1		
Selenium	183	µg/L	248	0.152 J	0.135 J	0.154 J	0.123 J	0.208 J	NA	0.124 J	10	20		
Silver	184	µg/L	248	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	NA	0.7 U	10	20		
Sulfate	315	µg/L	248	639 J'	1,000 J'	73.1 J	176 J'	821 J'	NA	18 U	250,000	250,000		
TPH DRO	NE	mg/L	358	89.3 J	29.8 J	89 J	34.9 J	54.9 J	NA	28 U	NE	NE		
1,1,1-Trichloroethane	200	µg/L	358	0.19 U	0.19 U	0.224 J	0.19 U	0.19 U	0.19 U	0.19 U	1	200		
1,1-Dichloroethene	77	µg/L	358	0.25 U	0.25 U	0.843 J	0.455 J	0.321 J	0.25 U	0.25 U	5	350		
Chloromethane	137	µg/L	358	0.442 J	0.446 J	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	1	3		
Trichloroethene	201	µg/L	358	0.2 U	0.2 U	0.273 J	0.2 U	0.2 U	0.2 U	0.2 U	1	3		

Notes:

- Concentrations presented in micrograms per liter (µg/L) and milligrams per liter (mg/L).
- SWS ID is the Solid Waste Section Identification Number.
- SWSL is the Solid Waste Section Limit. NCDENR defines the SWSL as the lowest amount of analyte in a sample that can be quantitatively determined with suitable precision and accuracy.
- 15A NCAC 2L Standard refers to Class GA Standards as found in 15A NCAC 02L .0202 Groundwater Quality Standards, last amended on April 1, 2013.
- Grayed values indicate values that attain or exceed the SWSL Standard.
- Bold values indicate values that attain or exceed the 15A NCAC 2L Standard.
- TPH DRO indicates Total Petroleum Hydrocarbons Diesel Range Organics.
- NE indicates not established. Blank cells indicate that there is no information relevant to the respective row.
- Qualifiers in non-italicized text are laboratory data qualifiers or "flags". "U" is used to identify results not detected at concentrations which attain the laboratory's method detection limit (MDL).
"J" is used to identify estimated concentrations which attain or exceed the MDL but are less than the laboratory's method reporting limit (MRL).
An italicized J'-flag is a data qualifier, added by HDR to indicate concentrations which attain or exceed the laboratory's MRL but are less than the SWSL.
- SU indicates Standard Units.
- NS indicates no sample was collected.
- NA indicates not analyzed.
- According to the Constituent Look-up webpage on the NCDENR Division of Waste Management webpage, there is no SWSL or 2L Standard for chloride associated with CAS number 16887-00-6, which is the CAS reported by the laboratory for the analyses completed. Therefore, the SWSL and 2L Standard listed are for the chloride with CAS number SW301 as specified on the Constituent Look-up webpage (last updated June 13, 2011).
- Constituents listed below the bold line are EPA Method 8260 volatile organic compounds (VOCs) measured at concentrations which attain or exceed their MDL in one or more samples. Results for all other EPA Method 8260 constituents were less than their MDLs.
- Analytical results obtained from Electronic Data Deliverable (EDD) provided by Tim Hunsucker of Duke Energy Carolinas, LLC on January 16, 2014.

**Table 3—Surface Water Field and Analytical Results
Duke Energy Carolinas, LLC/McGuire Nuclear Station
Landfill #2 (Synthetically Lined) - Permit No. 6004**

Sample Date: December 11-12, 2013				Laboratory Certificate Codes: Duke Energy Carolinas Field #5193 Duke Energy Analytical Laboratory #248 TestAmerica Laboratories, Inc. #358			
Field Sampling performed by Duke Energy Carolinas, LLC							
Parameter	SWS ID	Units	Certificate Code	Surface Water Sampling Locations		SWSL	15A NCAC 2B
				6004-SW-1	6004-SW-2		
Field pH	320	SU	5193	6.4	6.8	-	6.0-9.0
Specific Conductance	323	umho/cm	5193	106	101	-	-
Temperature	325	°C	5193	6.88	8.08	-	-
Arsenic	14	µg/L	248	0.183 J	0.194 J	10	10
Barium	15	µg/L	248	32.5 J'	23.5 J'	100	1,000
Cadmium	34	µg/L	248	0.101 U	0.101 U	1	2.0
Chloride	455	µg/L	248	2,690	2,420	NE	230,000
Chromium	51	µg/L	248	0.5 U	0.547 J	10	50
Lead	131	µg/L	248	0.065 U	0.26 J	10	25
Mercury	132	µg/L	248	0.006 U	0.006 U	0.2	0.012
Selenium	183	µg/L	248	0.175 J	0.332 J	10	5
Silver	184	µg/L	248	0.7 U	0.7 U	10	0.06
Sulfate	315	µg/L	248	2,260 J'	3,350 J'	250,000	250,000
TPH DRO	NE	mg/L	12	64.2 J	68.6 J	NE	NE
EPA 8260 (VOCs)	SEE NOTE 13						

Notes:

- Concentrations presented in micrograms per liter (µg/L) and milligrams per liter (mg/L).
- SWS ID is the Solid Waste Section Identification Number.
- SWSL is the Solid Waste Section Limit. NCDENR defines the SWSL as the lowest amount of analyte in a sample that can be quantitatively determined with suitable precision and accuracy.
- 15A NCAC 2B Standard is from "North Carolina Administrative Code, Title 15A: Department of Environment and Natural Resources, Subchapter 2B - Surface Water and Wetland Standards," (last amended on May 1, 2007) for Class WS-IV water.
- The unnamed tributary to the Catawba River is classified as WS-IV waters. Regulation 15A NCAC 02B .0216 provides water quality standards for WS-IV waters. Class C water quality standards also apply to WS-IV waters. Class C water quality standards are provided in regulation 15A NCAC 02B .0211. For parameters and constituents where standards exist for both classes, the more stringent is listed as the 2B Standard. Reference 15A NCAC 2B .0200 Classifications and Water Quality Standards Applicable to Surface Waters and Wetlands of N.C. Amended Effective: May 1, 2007.
- Grayed values indicate values that attain or exceed the SWSL Standard.
- Bold values indicate values that attain or exceed the 15A NCAC 2B Standard.
- TPH DRO indicates Total Petroleum Hydrocarbons Diesel Range Organics.
- NE indicates not established. Blank cells indicate that there is no information relevant to the respective row.
- Qualifiers in non-italicized text are laboratory data qualifiers or "flags". "U" is used to identify results not detected at concentrations which attain the laboratory's method detection limit (MDL). "J" is used to identify estimated concentrations which attain or exceed the MDL but are less than the laboratory's method reporting limit (MRL). An italicized J' flag is a data qualifier, added by HDR to indicate concentrations which attain or exceed the laboratory's MRL but are less than the SWSL.
- According to the Constituent Look-up webpage on the NCDENR Division of Waste Management webpage, there is no SWSL for choride associated with CAS number 16887-00-6, which is the CAS reported by the laboratory for the analyses completed. Therefore, the SWSL listed is for the chloride with CAS number SW301 as specified on the Constituent Look-up webpage (last updated June 13, 2011).
- SU indicates Standard Units.
- No EPA Method 8260 volatile organic compounds (VOCs) were measured at concentrations which attain or exceed their MDL.
- Analytical results obtained from Electronic Data Deliverable (EDD) provided by Tim Hunsucker of Duke Energy Carolinas, LLC on January 16, 2014.

**Table 4–Leachate Sample Field and Analytical Results
Duke Energy Carolinas, LLC/McGuire Nuclear Station
Landfill #2 (Synthetically Lined) - Permit No. 6004**

Sample Date: December 11-12, 2013			Laboratory Certificate Codes: Duke Energy Carolinas Field #5193 Duke Energy Analytical Laboratory #248 TestAmerica Laboratories, Inc. #358		
Field Sampling performed by Duke Energy, LLC					
Parameter	SWS ID	Units	Certificate Code	6004-Leachate Pond	SWSL
Field pH	320	SU	5193	6.7	-
Specific Conductance	323	umho/cm	5193	828	-
Temperature	325	°C	5193	14.87	-
Arsenic	14	µg/L	248	1.52 J	10
Barium	15	µg/L	248	77.2 J'	100
Cadmium	34	µg/L	248	1.01 U	1
Chloride	455	µg/L	248	13,700	NE
Chromium	51	µg/L	248	0.5 U	10
Lead	131	µg/L	248	0.65 U	10
Mercury	132	µg/L	248	0.006 U	0.2
Selenium	183	µg/L	248	1.72 J	10
Silver	184	µg/L	248	0.7 U	10
Sulfate	315	µg/L	248	160,000 J'	250,000
TPH DRO	358	mg/L	12	3830	NE
cis-1,2-Dichloroethene	78	µg/L	358	0.252 J	5

Notes:

- Concentrations presented in micrograms per liter (µg/L) and milligrams per liter (mg/L).
- SWS ID is the Solid Waste Section Identification Number.
- SWSL is the Solid Waste Section Limit. NCDENR defines the SWSL as the lowest amount of analyte in a sample that can be quantitatively determined with suitable precision and accuracy.
- Grayed values indicate values that attain or exceed the SWSL Standard.
- TPH DRO indicates Total Petroleum Hydrocarbons Diesel Range Organics.
- NE indicates not established. Blank cells indicate that there is no information relevant to the respective row.
- Qualifiers in non-italicized text are laboratory data qualifiers or "flags". "U" is used to identify results not detected at concentrations which attain the laboratory's method detection limit (MDL).
"J" is used to identify estimated concentrations which attain or exceed the MDL but are less than the laboratory's method reporting limit (MRL).
An italicized J'-flag is a data qualifier, added by HDR to indicate concentrations which attain or exceed the laboratory's MRL but are less than the SWSL.
- According to the Constituent Look-up webpage on the NCDENR Division of Waste Management webpage, there is no SWSL for chloride associated with CAS number 16887-00-6, which is the CAS reported by the laboratory for the analyses completed. Therefore, the SWSL listed is for the chloride with CAS number SW301 as specified on the Constituent Look-up webpage (last updated June 13, 2011).
- SU indicates Standard Units.
- Constituents listed below the bold line are EPA Method 8260 volatile organic compounds (VOCs) measured at concentrations which attain or exceed their MDL. Results for all other EPA Method 8260 constituents were less than their MDLs.
- Analytical results obtained from Electronic Data Deliverable (EDD) provided by Tim Hunsucker of Duke Energy Carolinas, LLC on January 16, 2014.

**Table 5—Field and Analytical Results that Equal or Exceed
NCAC 2L Groundwater Quality Standards
Duke Energy Carolinas, LLC/McGuire Nuclear Station
Landfill #2 (Synthetically Lined) - Permit No. 6004**

Sample Date: December 11-12, 2013						
Parameter	Sample ID	Result	Units	15A NCAC 2L Standard	Historical Concentrations	Cause and Significance
pH	MW-5A	6.1	SU	6.5 - 8.5	5.0 - 6.8	MW-5A is considered one of the background wells for the site. pH is consistent with historical readings at MW-5A.
	MW-6	5.9			5.6 - 6.3	pH is consistent with historical readings at MW-6.
	MW-6A	5.4			5.1 - 6.0	pH is consistent with historical readings at MW-6A.
	MW-7A	6.4			6.1 - 7.6	pH is consistent with historical readings at MW-7A.
	MW-8	6.3			6.0 - 7.0	pH is consistent with historical readings at MW-8.
	MW-8A	6.4			6.4 - 7.2	pH is consistent with the lowest historical reading at MW-8A.
	MW-9	5.8			4.8 - 6.2	pH is consistent with historical readings at MW-9.
	MW-9A	6.1			5.8 - 6.7	pH is consistent with historical readings at MW-9A.
	MW-10A	5.6			4.9 - 6.0	pH is consistent with historical readings at MW-10A.

Notes:

1. 15A NCAC 2L Standard refers to Class GA Standards as found in 15A NCAC 02L .0202 Groundwater Standards, last amended on April 1, 2013.
2. SU indicates Standard Units.
3. Historical concentrations based on data in Duke Energy Carolinas, LLC analytical results database.
4. Analytical results obtained from Electronic Data Deliverable (EDD) provided by Tim Hunsucker of Duke Energy Carolinas, LLC on January 16, 2014.

**Table 6–Radiological Analytical Results
Duke Energy Carolinas, LLC/McGuire Nuclear Station
Landfill # 2 (Synthetically Lined) - Permit No. 6004**

Sample Date: December 11-12, 2013															Laboratory Certificate Codes: Duke Energy Analytical Laboratory #248		
Field Sampling Performed by Duke Energy Carolinas, LLC																	
Parameter	Units	Certificate Code	Monitoring Well Identification											Leachate Pond	SW-1	SW-2	
			MW-5	MW-5A	MW-6	MW-6A	MW-7	MW-7A	MW-8	MW-8A	MW-9	MW-9A	MW-10A				
Gross Alpha	pCi/L	248	NS	<0.3	<0.25	<0.34	NS	<0.53	<0.36	<0.14	<0.20	<0.15	<0.12	<0.54	<0.39	<0.29	
BaLa-140	pCi/L	248	NS	<13.7	<12.4	<4.62	NS	<8.37	<13.6	<10.5	<10.3	<3.97	<13.3	<11.1	<8.39	<8.05	
Be-7	pCi/L	248	NS	<5.75	<53.3	<46.5	NS	<61.3	<51.1	<66.4	<55.4	<89.5	<66.2	<52.7	<40.7	<47.7	
Gross Beta	pCi/L	248	NS	<0.417	0.638	<0.60	NS	<0.450	<0.358	0.854	<0.282	<0.568	<0.338	12.4	1.71	0.984	
Co-58	pCi/L	248	NS	<7.67	<5.19	<5.32	NS	<7.34	<5.34	<5.74	<5.98	<10.7	<7.59	<5.67	<5.34	<4.84	
Co-60	pCi/L	248	NS	<5.40	<7.16	<5.33	NS	<9.9	<6.72	<7.41	<6.02	<13.1	<11.7	<7.50	<6.10	<6.68	
Cs-134	pCi/L	248	NS	<6.54	<4.68	<5.65	NS	<8.44	<5.57	<7.62	<5.86	<6.83	<6.88	<5.91	<5.24	<4.44	
Cs-137	pCi/L	248	NS	<4.91	<6.78	<5.79	NS	<11.2	<5.36	<7.34	<5.79	<8.44	<8.49	<6.63	<5.75	<5.92	
Fe-59	pCi/L	248	NS	<16.3	<15.7	<7.67	NS	<13.4	<8.98	<16.1	<13.3	<17.3	<15.7	<15.4	<11.6	<10.1	
H3GW (Tritium)	pCi/L	248	NS	<-110	<-130	261	NS	<-51	<-58	<-140	<-95	<-230	<-29	<71.3	<-40	<-5.0	
I-131	pCi/L	248	NS	<11.0	<7.62	<8.04	NS	<12.9	<8.62	<10.7	<9.78	<12.8	<11.8	<10.2	<8.20	<8.57	
K-40	pCi/L	248	NS	126	88.7	224	NS	<178	<109	<150	174	205	99.7	249	125	118	
Mn-54	pCi/L	248	NS	<6.87	<6.24	<5.18	NS	<6.66	<6.06	<7.82	<5.64	<9.71	<8.04	<6.77	<5.44	<4.16	
Nb-95	pCi/L	248	NS	<8.82	<6.11	<6.15	NS	<9.27	<4.62	<8.04	<6.22	<7.73	<9.39	<7.86	<5.59	<5.99	
Zn-65	pCi/L	248	NS	<19.0	<14.8	<12.1	NS	<18.3	<12.4	<14.8	<12.5	<21.2	<21.9	<16.5	<8.68	<10.2	
Zr-95	pCi/L	248	NS	<12.6	<10.0	<8.94	NS	<11.7	<11.3	<13.9	<8.07	<14.0	<14.1	<13.4	<8.72	<11.1	

Notes:

1. Concentrations presented in picocuries per liter (pCi/L).
2. There was insufficient water in MW-5 and MW-7 to obtain a groundwater sample.
3. NS indicates no sample was collected.
4. Data obtained from EnRad Laboratory Report Job: MCGUIRE_13NOV2013_A MNS LANDFILL 2 provided by Tim Hunsucker of Duke Energy Carolinas on January 16, 2014.

APPENDICES

APPENDIX A
CHAIN-OF-CUSTODY FORMS



CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Loc: 490

42744

12/26/2013

Duke Energy Analytical Lab Services

Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd
Huntersville, N. C. 28078
(980) 875-5245
Fax: (980) 875-5038

For Detailed Instructions, see:
<http://dewww/essenv/coc/>

Analytical Laboratory Use Only		
J13110376	MATRIX: GW-RCRA	Samples Originating From <input checked="" type="checkbox"/> NC <input type="checkbox"/> SC
Logged By: <i>J. B. [Signature]</i>	Date & Time: 12/13/13 0700	SAMPLE PROGRAM Ground Water <input checked="" type="checkbox"/> NPDES Drinking Water UST RCRA Waste
Test America PO#658489	V_America Cooler Temp (C): 0.7	
¹⁹ Preserv.: 1=HCL 2=H ₂ SO ₄ 3=HNO ₃ 4=Ice 5=None		

¹⁹ Pag DIS ORK COP
Revised 5/14/13

1) Project Name: MNS LANDFILL 2 # 60-04	Permit	2) Phone No: 980-875-5257
3) Client: C. Campbell / T Hunsucker		4) Fax No: 875-4349
5) Business Unit: 20036	6) Process: BLDLFLGN	7) Resp. To: MC00
8) Project ID:	9) Activity ID:	10) Mail Code: MGO3A3

MR #	Customer to complete all appropriate NON-SHADED areas.	¹⁰ Analyses Required	¹¹ Grab	VOC's (EPA8260) (See Attached List) Tamerica	F_Aik (4-5), SO ₄ , Cl (IC)	Metals Prep - TRM (ICP-EPA-200.7) Ag, Ba, Ca, Cr, K, Mg, Na (7) Hg (7470) (1) (IMS-EPA-200.8) As, Cd, Pb, Se (4)	(3015, 13620) TPH-HRO Tamerica	Chlorine (ppm)	²⁰ Total # of Containers
------	--	---------------------------------	--------------------	--	--	---	--------------------------------	----------------	-------------------------------------

LAB USE ONLY
¹¹ Lab ID
2013028450
2013028451
2013028452
2013028453
2013028454
2013028455
2013028456
2013028457
2013028458
2013028459
2013028460
2013028461
2013028462
2013028463
2013028464
2013028465
2013028466

	¹³ Sample Description or ID	¹⁴ Collection Information			¹⁰ TESTS	¹¹ Grab	VOC's (EPA8260) (See Attached List) Tamerica	F_Aik (4-5), SO ₄ , Cl (IC)	Metals Prep - TRM (ICP-EPA-200.7) Ag, Ba, Ca, Cr, K, Mg, Na (7) Hg (7470) (1) (IMS-EPA-200.8) As, Cd, Pb, Se (4)	(3015, 13620) TPH-HRO Tamerica	Chlorine (ppm)	²⁰ Total # of Containers
		Date	Time	Signature								
	TRIP BLANK	12/11/13	0710	WJC	1	X	3	1			n/a	3
	MW-5	12/11/13	0945	WJC	7	X	3	1	1			6
	MW-5A	12/11/13	1100	WJC	7	X	3	1	1			6
	MW-6	12/11/13	1145	WJC	7	X	3	1	1			6
	MW-6A	12/11/13	1145	WJC	7	X	3	1	1			6
	MW-7	12/12/13	0850	WJC	7	X	3	1	1			6
	MW-7A	12/11/13	1500	WJC	7	X	3	1	1			6
	MW-8	12/11/13	1540	WJC	7	X	3	1	1			6
	MW-8A	12/12/13	1040	WJC	7	X	3	1	1			6
	MW-9	12/12/13	1040	WJC	7	X	3	1	1			6
	MW-9A	12/12/13	1100	WJC	7	X	3	1	1			6
	MW-10A	12/12/13	0915	WJC	7	X	3	1	1			6
	SW-1	12/12/13	1310	WJC	7	X	3	1	1			6
	SW-2	12/12/13	1235	WJC	7	X	3	1	1			6
	LEACHATE POND	12/12/13	1200	WJC	7	X	3	1	1			6
	QC - WELL # MW-5A	12/11/13	0945	WJC	1	X	3	1	1			1
	FIELD BLANK	12/12/13	1415	WJC	7	X	3	1	1		n/a	6

21) Relinquished By: <i>ED Call</i> 12/12/13 0615	Accepted By: <i>[Signature]</i> 12/13 0645	Date/Time: 12/13/13 1300	Sealed/Lock Opened By: <i>[Signature]</i> 12-14-13 @ 1015	Date/Time: 1/1/14
22) Requested Turnaround: 14 Days <input checked="" type="checkbox"/>	7 Days <input type="checkbox"/>	48 Hr <input type="checkbox"/>	*Other Add. Cost Will Apply	
24) Comments: Regulatory Agency : NCDENR/DWM - SW Section - State EDD Format Required / Permit # 60-04 Use indicated or comparable analytical methods				
MW-5 WAS DRY - NO SAMPLE				
MW-7 WAS DRY - NO SAMPLE				

Customer must Complete

Customer to complete appropriate columns to right



CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Duke Energy EnRad Laboratories
 Mail Code MG03A2 (Building 7405)
 13339 Hagers Ferry Rd
 Huntersville, N. C. 28078
 (980) 875-5371
 Fax: (980) 875-5559

EnRad Laboratory Use Only		
LIMS # MCGUIRE_13NOV2013_A	Sample Class	Samples Originating From NC <input checked="" type="checkbox"/> SC <input type="checkbox"/>
Logged By: Stacie Crayton/ Violet Gregory		Date & Time 11/13/13 14:14
Vendor	Cooler Temp (C)	
PO #	¹⁵ Preserv.: 1=HCL 2=H ₂ SO ₄ 3=HNO ₃ 4=Ice 5=None	
MR #	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"/>	

¹⁹Page 1 of 1
DISTRIBUTION
 ORIGINAL to LAB,
 COPY to CLIENT

Revised 10/31/12

1) Project Name MNS LANDFILL 2 # 60-04	Permit	2) Phone No: 980-875-5257
3) Client C. Campbell / T Hunsucker	4) Fax No:	
5) Business Unit: 20036	6) Process: BLDFLGN	7) Resp. To: MC00
8) Project ID:	9) Activity ID:	10) Mail Code: MG03A3

Customer to complete all appropriate NON-SHADED areas.						16 Analysis Required	18 Grab	Gamma	Gross A & B	Tritium	20 Total # of Containers
14 Collection Information											
LAB USE ONLY	11 Lab ID	13 Sample Description or ID	Date	Time	Signature						
	277076	MW-5 NO SAMPLE			JAC	X	1	1	1		3
	277077	MW-5A	12/11/13	0945	JAC	X	1	1	1		3
	277078	MW-6	12/11/13	1100	JAC	X	1	1	1		3
	277079	MW-6A	12/11/13	1145	JAC	X	1	1	1		3
	277080	MW-7 NO SAMPLE			JAC	X	1	1	1		3
	277081	MW-7A	12/12/13	0850	JAC	X	1	1	1		3
	277082	MW-8	12/11/13	1500	JAC	X	1	1	1		3
	277083	MW-8A	12/11/13	1540	JAC	X	1	1	1		3
	277084	MW-9	12/12/13	1040	JAC	X	1	1	1		3
	277085	MW-9A	12/12/13	1100	JAC	X	1	1	1		3
	277086	MW-10A (1.0L)	12/12/13	0915	JAC	X	1	1	1		3
	277087	SW-1	12/12/13	1310	JAC	X	1	1	1		3
	277088	SW-2	12/12/13	1235	JAC	X	1	1	1		3
	277089	LEACHATE POND	12/12/13	1200	JAC	X	1	1	1		3
	277090	MW-5A QC (MW-5) (MCGUIRE_13NOV2013_B)	12/11/13	0945	JAC	X	1	1	1		3

Customer to complete appropriate columns to right

Customer to sign & date below

21) Relinquished By LS Cell	Date/Time 12/13/13 0625	Accepted By: Chae Lockridge	Date/Time 12/13/13 0530
Relinquished By	Date/Time	Accepted By:	Date/Time
Relinquished By	Date/Time	Accepted By:	Date/Time
23) Seal/Locked By	Date/Time	Sealed/Lock Opened By	Date/Time

²²Requested Turnaround
 14 Days
 *7 Days _____
 *48 Hr _____
 *Other _____
 *Add. Cost Will Apply

24) Comments

MW-5 WAS DRY - NO SAMPLES
 MW-7 WAS DRY - NO SAMPLES
 MW-10A - ONLY 1/2 GAMMA SAMPLE COLLECTED - WELL EVACUATES