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

October 14, 2013

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 – January 2013
Duke Energy Carolinas, LLC
McGuire Nuclear Station
Landfill #1 (Unlined), Permit #60-04

Certified Mail:

Dear Ms. Werner:

Duke Energy is providing the results of semi-annual groundwater monitoring for the unlined McGuire Nuclear Station Landfill #1, located in Huntersville, North Carolina.

On July 23-24, 2013, groundwater and surface water samples were collected in accordance with the SAP. 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 4.

Duke Energy personnel sample designated groundwater and surface water locations at McGuire Nuclear Station's Landfill #1 (Unlined) semi-annually during January and July. The next landfill monitoring event is planned for January 2014 with a report of monitoring results to follow.

If you have any questions or concerns, please contact Sean DeNeale at 704-382-4761/ Sean.DeNeale@duke-energy.com or John Williamson at 980-875-5894/John.Williamson@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

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):

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 #1 (Unlined)	13339 Hagers Ferry Road Huntersville, NC 28078	6004	.0500	July 23-24, 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
☐ Groundwater monitoring data from private water supply wells
☐ Leachate monitoring data
☒ Surface water monitoring data
☐ Methane gas monitoring data
☐ Corrective action data (specify) _____
☐ Other(specify) _____

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

Signature: William M. Miller Date: October 10, 2013

Affix NC Licensed/Professional Geologist Seal

NORTH CAROLINA PROFESSIONAL SEAL 17661 ENGINEER WILLIAM M. MILLER

William M. Miller 10/10/2013

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)

Revised 6/2009

SEMIANNUAL GROUNDWATER MONITORING REPORT

MCGUIRE NUCLEAR STATION

LANDFILL #1 (UNLINED) PERMIT NO. 6004

JULY 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

October 10, 2013

REPORT VERIFICATION

PROJECT: **SEMIANNUAL GROUNDWATER MONITORING REPORT**
MCGUIRE NUCLEAR STATION
LANDFILL #1 (UNLINED)
PERMIT NO. 6004

TITLE: **JULY 2013 SAMPLING EVENT**

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

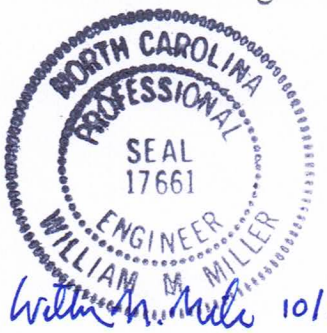
Prepared by: _____ Date: October 10, 2013

Checked by: _____ Date: 10/10/2013

Approved by: _____ Date: 10/10/2013

Project Manager: Ty Ziegler, PE

Professional Engineer Seal:



10/10/2013

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 #1 (UNLINED)
PERMIT NO. 6004

JULY 2013 SAMPLING EVENT

TABLE OF CONTENTS

Section 1
Background

The McGuire Nuclear Station Landfill #1 (Unlined)[1] is located at the Duke Energy Carolinas, LLC (Duke Energy) McGuire Nuclear Station, in Mecklenburg County, NC. The landfill is closed and no longer accepts waste. The landfill and nearby area are depicted on Figure 1. The approximate limit of waste is shown on Figure 2.

The landfill is located south of NC Highway 73, east of the Catawba River, and to the west of Cashion Road. Cashion Road runs along a topographic divide, with topography sloping away from Cashion Road to the northwest and to the southeast. Surface water to the northwest of Cashion Road drains towards the Catawba River. There are two surface water drainage features adjacent to the landfill. The surface water drainage feature located to the north of the landfill contains an unnamed perennial stream that drains to the northwest, towards another perennial unnamed stream that flows to the Catawba River. The surface water drainage feature located to the south and west of the landfill also drains to an unnamed stream that flows to the Catawba River.

As described in the Sampling and Analysis Plan[2] (SAP), the monitoring system at the landfill consists of the following:

Monitoring Wells:	MW-1
	MW-1D
	MW-2A
	MW-2D
	MW-3
	MW-3D
	MW-4
	MW-4D
	MW-11
	MW-11D
	MW-12
	MW-12D
Surface Water:	SW-1

[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 #1 as (Unlined) in reports.

[2] *McGuire Nuclear Station Landfill #1, Permit Number 60-04, Ground-Water Monitoring Program Sampling and Analysis Plan* (SAP), September 14, 1996, Revised, November 24, 1997, March 9, 2001.

The monitoring wells and the surface water sample location are shown on Figure 2. The wells were installed as well pairs with one shallow well and one deeper well adjacent to each other. The well with the "D" designation is the deeper well in each well pair. The shallow wells are screened to intercept the water table. The deep wells are constructed so that the bottom of the screen is located in residual material just above auger refusal. Monitoring wells MW-1 and MW-1D are located upgradient of the landfill.

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 North Carolina Department of Environment and Natural Resources (NCDENR) Division of Solid Waste and were analyzed by a North Carolina certified laboratory.

Section 2
Methods

2.1 Sampling and Analysis Methods

Collection of samples and documentation of sampling was performed by Duke Energy personnel. The groundwater and surface water samples were analyzed by Pace Analytical Services, Inc., Charlotte (North Carolina Laboratory Certification #12) and the Duke Energy Analytical Laboratory (North Carolina Laboratory Certification #248).

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

- Barium, chromium, and silver using US Environmental Protection Agency (EPA) Method 200.7
- Arsenic, cadmium, lead, and selenium using EPA Method 200.8
- Mercury using EPA Method 7470
- Sulfate using EPA Method 300.0
- Volatile organic compounds (VOCs) using EPA Method 8260

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

- 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-1, MW-1D, MW-2A, MW-2D, MW-3, MW-3D, MW-4, MW-4D, MW-11, MW-11D, MW-12, and MW-12D. Data was also received for surface water sample location SW-1. The samples were collected on July 23 and 24, 2013, and HDR received the data on August 22, 26 and September 17, 2013.
- Reviewed the laboratory analytical results for the 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 (*J*) to indicate a measured concentration that attains or is greater than the laboratory's method reporting limit (MRL), but lower than the Solid Waste Section Limit[3] (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, near MW-1/MW-1D and Cashion Road, toward the northwest, toward MW-3/MW-3D and MW-4/MW-4D.

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. Results below the bold line in Table 2 are EPA Method 8260 constituents detected above the method detection limit (MDL) in at least one groundwater sample. EPA Method 8260 constituents not listed were not detected above the laboratory's MDLs. The groundwater monitoring analytical results for the semiannual constituents are compared to the groundwater standards found in Title 15A NCAC 02L .0202 (g) (2L Standards). A summary of 2L Standard exceedances and a preliminary analysis of the cause and significance of the exceedances are presented in Table 4.

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

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

Surface water sample location SW-1 is located on an unnamed stream. The unnamed stream is a tributary to the Catawba River, which is classified by the NCDENR Division of Water Quality as a Class WS-IV water at its confluence with the unnamed stream. As a result, the field and analytical results from this location are compared to Title 15A, North Carolina Administrative

Code (NCAC), Subchapter 2B Standards (2B Standards) for Class WS-IV waters. 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
- 1,2-Dibromoethane (EDB)
- Acrylonitrile
- Mercury
- Silver
- Vinyl chloride

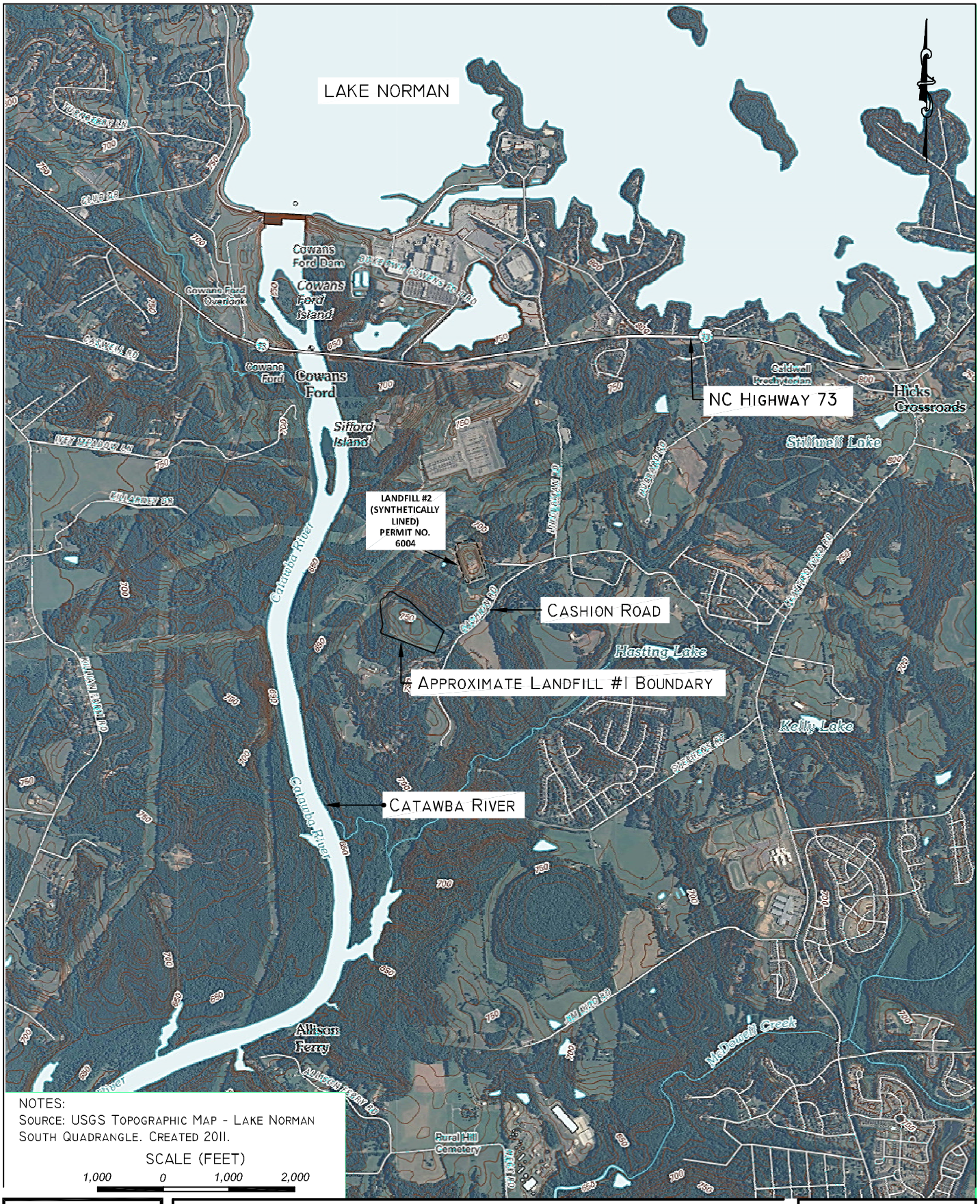
The MDLs for the abovementioned constituents were all below their corresponding SWSLs as required by the February 23, 2007 NCDENR memo. These constituents were not detected above the MDL in the analyzed samples, and are not considered to exceed their respective 2L or 2B Standards.

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

The results of the radiological analysis are presented in Table 5. A copy of this report has been submitted to the Radiation Protection Section of the North Carolina Department of Health and Human Services 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.

SCALE (FEET)
1,000 0 1,000 2,000

HDR Engineering, Inc. of the Carolinas
License Number: F-0116
440 South Church Street Charlotte, NC 28202

SITE LOCATION MAP
MCGUIRE NUCLEAR STATION
LANDFILL #1 (UNLINED)
PERMIT NO. 6004

DATE
OCT. 10, 2013

FIGURE
1

C:\pw\working\tpa\d0435924\Site Location Map.dwg

SW-1

CATAWBA RIVER

DUKE PROPERTY BOUNDARY

LINDERMAN ROAD

McGUIRE LANDFILL #2
PERMIT No. 6004

CASHION ROAD

MW-3
MW-3D

MW-4
MW-4D

MW-2A
MW-2D

LANDFILL
COMPLIANCE
BOUNDARY

LANDFILL
REVIEW
BOUNDARY

LIMIT OF
WASTE
(APPROX.)

McGUIRE LANDFILL #1
PERMIT No. 6004

DUKE PROPERTY BOUNDARY

CASHION ROAD

MW-11
MW-11D

MW-12
MW-12D

MW-1
MW-1D

DUKE PROPERTY BOUNDARY

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

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

SCALE (FEET)

200 0 200 400

HDR Engineering, Inc.
of the Carolinas

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

SAMPLE LOCATIONS
MCGUIRE NUCLEAR STATION
LANDFILL #1 (UNLINED)
PERMIT NO. 6004

DATE
OCT. 10, 2013

FIGURE
2

C:\pwworking\tpa\d0435924\MNS LF #1.dwg

MW-3
(672.02')
MW-3D
(671.50')

MW-4
(675.73')
MW-4D
(674.97')

MW-2A
(687.12')
MW-2D
(686.38')

MW-11
(694.79')
MW-11D
(694.05')

MW-12
(702.42')
MW-12D
(699.78')

MW-1
(702.40')
MW-1D
(701.80')

675
680
685
690
695
700

LANDFILL COMPLIANCE BOUNDARY

LANDFILL REVIEW BOUNDARY

LIMIT OF WASTE (APPROX.)

DUKE PROPERTY BOUNDARY

CASHION ROAD

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

MW-11
(694.79')

GROUNDWATER MONITORING WELLS
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 MEASURED ON JULY 23 AND 24, 2013.

SCALE (FEET)
100 0 100 200

HDR Engineering, Inc.
of the Carolinas
License Number: F-0116
440 S Church Street Charlotte, NC 28202

GENERALIZED GROUNDWATER SURFACE CONTOURS JULY 2013 MCGUIRE NUCLEAR STATION LANDFILL #1 (UNLINED) PERMIT NO. 6004

DATE
OCT. 10, 2013

FIGURE
3

C:\pwworking\tba\d0435924\MWS LF #1.dwg

TABLES

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

DATE	WELL No.	WELL DEPTH (feet)	DEPTH TO WATER (feet)	WATER ELEV. (feet)	APPEARANCE	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)
7/23/2013	MW-1	69.00	27.89	702.40	Normal	None	CP	N/A	6.71	21.00	NO	16.16	104	5.9	1.4	N/A	N/A
7/23/2013	MW-1D	88.60	28.87	701.80	Normal	None	CP	N/A	9.74	30.00	NO	16.10	90	5.9	1.6	N/A	N/A
7/24/2013	MW-2A	78.00	53.13	687.12	Normal	None	CP	N/A	4.06	17.00	NO	16.83	69	6.4	1.1	N/A	N/A
7/24/2013	MW-2D	110.10	54.41	686.38	Normal	None	CP	N/A	9.08	27.75	NO	16.67	61	6.7	1.7	N/A	N/A
7/24/2013	MW-3	71.00	57.02	672.02	Normal	None	CP	N/A	2.28	7.50	NO	15.80	78	6.2	2.2	N/A	N/A
7/24/2013	MW-3D	88.88	56.93	671.50	Normal	None	CP	N/A	5.21	16.50	NO	15.99	121	6.4	0.7	N/A	N/A
7/24/2013	MW-4	73.95	65.51	675.73	Normal	None	EOP	N/A	1.38	0.55	N/A	17.16	168	5.5	0.9	N/A	N/A
7/24/2013	MW-4D	101.48	65.72	674.97	Normal	None	CP	N/A	5.83	24.00	NO	16.39	126	6.1	0.8	N/A	N/A
7/23/2013	MW-11	38.54	27.83	694.79	Normal	None	CP	N/A	1.75	4.00	YES	15.86	14	4.3	18.9	N/A	N/A
7/23/2013	MW-11D	101.80	29.11	694.05	Normal	None	CP	N/A	11.86	27.50	NO	15.45	27	5.3	4.9	N/A	N/A
7/23/2013	MW-12	29.59	22.41	702.42	Normal	None	EOP	N/A	1.17	0.29	N/A	17.19	20	4.7	29.9	N/A	N/A
7/23/2013	MW-12D	68.56	25.02	699.78	Normal	None	CP	N/A	7.10	13.75	NO	15.28	90	6.1	5.8	N/A	N/A
7/24/2013	SW-1	N/A	N/A	N/A	Turbid	None	N/A	N/A	N/A	N/A	N/A	23.07	139	6.6	108.0	N/A	N/A

Notes:

1. Purge Methods; LF= Low Flow, CP=Conventional Purge (3-5 well volumes), NP=No Purge (HydraSleeve), EOP=Equipment Only Purge.
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. umho/cm indicates micro mhos per centimeter.
5. SU indicates Standard Units.
6. NTU indicates Nephelometric Turbidity Units.
7. mV-NHE indicates millivolts-Normal Hydrogen Electrode.
8. N/A indicates not applicable.
9. Information provided by Tim Hunsucker of Duke Energy Carolinas, LLC on August 22, 2013.

Table 2 - Groundwater Field and Analytical Results
Duke Energy Carolinas, LLC/McGuire Nuclear Station
Landfill #1 (Unlined) - Permit No. 6004

Sample Dates: July 23 and 24, 2013

Laboratory Certificate Codes:
Duke Energy Carolinas Field #5193
Duke Energy Analytical Laboratory #248
Pace Analytical Services, Inc. #12

Field Sampling performed by Duke Energy Carolinas, LLC

Parameter	SWS ID	Units	Certificate Code	Monitoring Wells					SWSL	15A NCAC 2L
				6004 MW-1	6004 MW-1D	6004 MW-2A	6004 MW-2D	6004 MW-3		
Field pH	320	SU	5193	**5.9**	**5.9**	**6.4**	6.7	**6.2**	-	6.5-8.5
Specific Conductance	323	umho/cm	5193	104	90	69	61	78	-	-
Temperature	325	°C	5193	16.16	16.10	16.83	16.67	15.80	-	-
Top of Casing	328	feet	-	730.29	730.67	740.25	740.79	729.04	-	-
Depth to Water	318	feet	-	27.89	28.87	53.13	54.41	57.02	-	-
Water Elevation	427	feet	-	702.40	701.80	687.12	686.38	672.02	-	-
Well Depth	411	feet	-	69.00	88.60	78.00	110.10	71.00	-	-
Arsenic	14	µg/L	248	0.132 J	0.109 J	0.118 J	0.078 U	0.078 U	10	10
Barium	15	µg/L	248	218	87 *J'*	18.4 *J'*	13.2 *J'*	36.4 *J'*	100	700
Cadmium	34	µg/L	248	0.101 U	0.101 U	0.101 U	0.101 U	0.101 U	1	2
Chromium	51	µg/L	248	0.5 U	0.5 U	1.13 J	1.3 J	0.5 U	10	10
Lead	131	µg/L	248	0.065 U	0.065 U	0.272 J	0.065 U	1.39 *J'*	10	15
Mercury	132	µg/L	248	0.0334 U	0.0334 U	0.0334 U	0.0334 U	0.0334 U	0.2	1
Selenium	183	µg/L	248	0.229 J	0.172 J	0.269 J	0.092 U	0.148 J	10	20
Silver	184	µg/L	248	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	10	20
Sulfate	315	µg/L	248	362 *J'*	308 *J'*	611 *J'*	351 *J'*	429 *J'*	250,000	250,000
Benzene	16	µg/L	12	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1	1
1,2-Dichloroethane	76	µg/L	12	0.12 U	0.22 J	0.12 U	0.12 U	0.12 U	1	0.4
cis-1,2-Dichloroethene	78	µg/L	12	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U	5	70
Methylene chloride	140	µg/L	12	0.97 U	0.97 U	0.97 U	0.97 U	0.97 U	1	5
Tetrachloroethene	192	µg/L	12	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	1	0.7
Trichloroethene	201	µg/L	12	0.47 U	0.47 U	0.47 U	0.47 U	0.47 U	1	3
Trichlorofluoromethane	203	µg/L	12	0.2 U	0.2 U	0.2 U	0.2 U	0.66 J	1	2,000
Xylene (total)	346	µg/L	12	0.66 U	0.66 U	0.66 U	0.66 U	0.66 U	5	500

Notes:

1. Concentrations presented in micrograms per liter (µg/L), except where noted.
2. SWS ID is the Solid Waste Section Identification Number.
3. 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.
4. 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.
5. NE indicates not established. Blank cells indicate that there is no information relevant to the respective row.
6. Grayed values indicate values that attain or exceed the SWSL Standard.
7. Bold values indicate values that attain or exceed the 15A NCAC 2L Standard.
8. Qualifiers in non-italicized text are laboratory data qualifiers or "flags". "U" is used for parameters not detected at concentrations above the method detection limit (MDL).
   "J" is used for parameters detected at estimated concentrations greater than the MDL but less than the laboratory's method reporting limit (MRL).
   An italicized *J'*-flag is a data qualifier, added by HDR to indicate a detected concentration which attains or is greater than the laboratory's MRL but less than the SWSL.
9. Analytical results obtained from Electronic Data Deliverable (EDD) provided by Tim Hunsucker of Duke Energy Carolinas, LLC on September 17, 2013.
10. NA indicates not analyzed.
11. SU indicates Standard Units.
12. umho/cm indicates micromhos per centimeter.
13. Parameters listed below the bold line are EPA Method 8260 parameters measured at concentrations greater than their MDL in one or more samples are listed on the table. All other EPA Method 8260 parameters were below their MDLs.

Table 2 - Groundwater Field and Analytical Results
Duke Energy Carolinas, LLC/McGuire Nuclear Station
Landfill #1 (Unlined) - Permit No. 6004

Sample Dates: July 23 and 24, 2013

Laboratory Certificate Codes:
Duke Energy Carolinas Field #5193
Duke Energy Analytical Laboratory #248
Pace Analytical Services, Inc. #12

Field Sampling performed by Duke Energy Carolinas, LLC

Parameter	SWS ID	Units	Certificate Code	Monitoring Wells					SWSL	15A NCAC 2L
				6004 MW-3D	6004 MW-4	6004 MW-4D	6004 MW-11	6004 MW-11D		
Field pH	320	SU	5193	**6.4**	**5.5**	**6.1**	**4.3**	**5.3**	-	6.5-8.5
Specific Conductance	323	umho/cm	5193	121	168	126	14	27	-	-
Temperature	325	°C	5193	15.99	17.16	16.39	15.86	15.45	-	-
Top of Casing	328	feet	-	728.43	741.24	740.69	722.62	723.16	-	-
Depth to Water	318	feet	-	56.93	65.51	65.72	27.83	29.11	-	-
Water Elevation	427	feet	-	671.50	675.73	674.97	694.79	694.05	-	-
Well Depth	411	feet	-	88.88	73.95	101.48	38.54	101.80	-	-
Arsenic	14	µg/L	248	0.078 U	0.078 U	0.078 U	0.078 U	0.078 U	10	10
Barium	15	µg/L	248	24 *J'*	65.3 *J'*	26.3 *J'*	8.67 *J'*	10.4 *J'*	100	700
Cadmium	34	µg/L	248	0.101 U	0.101 U	0.101 U	0.101 U	0.101 U	1	2
Chromium	51	µg/L	248	0.737 J	0.5 U	0.5 U	0.904 J	0.573 J	10	10
Lead	131	µg/L	248	0.065 U	0.065 U	0.065 U	0.229 J	0.065 U	10	15
Mercury	132	µg/L	248	0.0334 U	0.0334 U	0.0334 U	0.0334 U	0.0334 U	0.2	1
Selenium	183	µg/L	248	0.207 J	0.139 J	0.092 U	0.307 J	0.216 J	10	20
Silver	184	µg/L	248	0.7 U	0.7 U	0.7 U	0.7 U	0.7 U	10	20
Sulfate	315	µg/L	248	978 *J'*	1,190 *J'*	299 *J'*	374 *J'*	620 *J'*	250,000	250,000
Benzene	16	µg/L	12	0.25 U	0.25 U	0.38 J	0.25 U	0.25 U	1	1
1,2-Dichloroethane	76	µg/L	12	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	1	0.4
cis-1,2-Dichloroethene	78	µg/L	12	0.61 J	1.4 *J*	8	0.19 U	0.19 U	5	70
Methylene chloride	140	µg/L	12	0.97 U	0.97 U	3.6	0.97 U	0.97 U	1	5
Tetrachloroethene	192	µg/L	12	0.46 U	**2.2**	**1**	0.46 U	0.46 U	1	0.7
Trichloroethene	201	µg/L	12	0.47 U	0.76 J	**3.1**	0.47 U	0.47 U	1	3
Trichlorofluoromethane	203	µg/L	12	0.7 J	0.2 U	0.2 U	0.2 U	0.2 U	1	2,000
Xylene (total)	346	µg/L	12	1.5 J	0.66 U	13.2	0.66 U	0.66 U	5	500

Notes:

1. Concentrations presented in micrograms per liter (µg/L), except where noted.
2. SWS ID is the Solid Waste Section Identification Number.
3. 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.
4. 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.
5. NE indicates not established. Blank cells indicate that there is no information relevant to the respective row.
6. Grayed values indicate values that attain or exceed the SWSL Standard.
7. Bold values indicate values that attain or exceed the 15A NCAC 2L Standard.
8. Qualifiers in non-italicized text are laboratory data qualifiers or "flags". "U" is used for parameters not detected at concentrations above the method detection limit (MDL).
   "J" is used for parameters detected at estimated concentrations greater than the MDL but less than the laboratory's method reporting limit (MRL).
   An italicized *J'*-flag is a data qualifier, added by HDR to indicate a detected concentration which attains or is greater than the laboratory's MRL but less than the SWSL.
9. Analytical results obtained from Electronic Data Deliverable (EDD) provided by Tim Hunsucker of Duke Energy Carolinas, LLC on September 17, 2013.
10. NA indicates not analyzed.
11. SU indicates Standard Units.
12. umho/cm indicates micromhos per centimeter.
13. Parameters listed below the bold line are EPA Method 8260 parameters measured at concentrations greater than their MDL in one or more samples are listed on the table. All other EPA Method 8260 parameters were below their MDLs.

Table 2 - Groundwater Field and Analytical Results
Duke Energy Carolinas, LLC/McGuire Nuclear Station
Landfill #1 (Unlined) - Permit No. 6004

Sample Dates: July 23 and 24, 2013

Laboratory Certificate Codes:
Duke Energy Carolinas Field #5193
Duke Energy Analytical Laboratory #248
Pace Analytical Services, Inc. #12

Field Sampling performed by Duke Energy Carolinas, LLC

Parameter	SWS ID	Units	Certificate Code	Monitoring Wells		Trip Blank	Field Blank	SWSL	15A NCAC 2L
				6004 MW-12	6004 MW-12D				
Field pH	320	SU	5193	**4.7**	**6.1**	-	-	-	6.5-8.5
Specific Conductance	323	umho/cm	5193	20	90	-	-	-	-
Temperature	325	°C	5193	17.19	15.28	-	-	-	-
Top of Casing	328	feet	-	724.83	724.80	-	-	-	-
Depth to Water	318	feet	-	22.41	25.02	-	-	-	-
Water Elevation	427	feet	-	702.42	699.78	-	-	-	-
Well Depth	411	feet	-	29.59	68.56	-	-	-	-
Arsenic	14	µg/L	248	0.191 J	0.078 U	NA	0.078 U	10	10
Barium	15	µg/L	248	23.8 *J'*	11.8 *J'*	NA	0.161 J	100	700
Cadmium	34	µg/L	248	0.101 U	0.101 U	NA	0.101 U	1	2
Chromium	51	µg/L	248	2.01 J	0.5 U	NA	0.5 U	10	10
Lead	131	µg/L	248	0.728 J	0.065 U	NA	0.065 U	10	15
Mercury	132	µg/L	248	0.0334 U	0.0334 U	NA	0.0334 U	0.2	1
Selenium	183	µg/L	248	0.544 J	0.178 J	NA	0.201 J	10	20
Silver	184	µg/L	248	0.7 U	0.7 U	NA	0.7 U	10	20
Sulfate	315	µg/L	248	143 *J'*	112 *J'*	NA	31.4 J	250,000	250,000
Benzene	16	µg/L	12	0.25 U	0.25 U	0.25 U	0.25 U	1	1
1,2-Dichloroethane	76	µg/L	12	0.12 U	0.12 U	0.12 U	0.12 U	1	0.4
cis-1,2-Dichloroethene	78	µg/L	12	0.19 U	0.19 U	0.19 U	0.19 U	5	70
Methylene chloride	140	µg/L	12	0.97 U	0.97 U	0.97 U	0.97 U	1	5
Tetrachloroethene	192	µg/L	12	0.46 U	0.46 U	0.46 U	0.46 U	1	0.7
Trichloroethene	201	µg/L	12	0.47 U	0.47 U	0.47 U	0.47 U	1	3
Trichlorofluoromethane	203	µg/L	12	0.2 U	0.2 U	0.2 U	0.2 U	1	2,000
Xylene (total)	346	µg/L	12	0.66 U	0.66 U	0.66 U	0.66 U	5	500

Notes:

1. Concentrations presented in micrograms per liter (µg/L), except where noted.
2. SWS ID is the Solid Waste Section Identification Number.
3. 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.
4. 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.
5. NE indicates not established. Blank cells indicate that there is no information relevant to the respective row.
6. Grayed values indicate values that attain or exceed the SWSL Standard.
7. Bold values indicate values that attain or exceed the 15A NCAC 2L Standard.
8. Qualifiers in non-italicized text are laboratory data qualifiers or "flags". "U" is used for parameters not detected at concentrations above the method detection limit (MDL).
   "J" is used for parameters detected at estimated concentrations greater than the MDL but less than the laboratory's method reporting limit (MRL).
   An italicized *J'* -flag is a data qualifier, added by HDR to indicate a detected concentration which attains or is greater than the laboratory's MRL but less than the SWSL.
9. Analytical results obtained from Electronic Data Deliverable (EDD) provided by Tim Hunsucker of Duke Energy Carolinas, LLC on September 17, 2013.
10. NA indicates not analyzed.
11. SU indicates Standard Units.
12. umho/cm indicates micromhos per centimeter.
13. Parameters listed below the bold line are EPA Method 8260 parameters measured at concentrations greater than their MDL in one or more samples are listed on the table. All other EPA Method 8260 parameters were below their MDLs.

Table 3 - Surface Water Field and Analytical Results
Duke Energy Carolinas, LLC/McGuire Nuclear Station
Landfill #1 (Unlined) - Permit No. 6004

Sample Dates: July 23 and 24, 2013

Laboratory Certificate Codes:
Duke Energy Carolinas Field #5193
Duke Energy Analytical Laboratory #248
Pace Analytical Services, Inc. #12

Field Sampling performed by Duke Energy Carolinas, LLC

Parameter	SWS ID	Units	Certificate Code	SW-1		SWSL	15A NCAC 2B
Field pH	320	SU	5193	6.6		-	6.0-9.0
Specific Conductance	323	umho/cm	5193	139		-	-
Temperature	325	°C	5193	23.07		-	-
Arsenic	14	µg/L	248	0.565	J	10	10
Barium	15	µg/L	248	49	J'	100	1,000
Cadmium	34	µg/L	248	0.101	U	1	2.0
Chromium	51	µg/L	248	0.5	U	10	50
Lead	131	µg/L	248	0.155	J	10	25
Mercury	132	µg/L	248	0.0334	U	0.2	0.012
Selenium	183	µg/L	248	0.352	J	10	5
Silver	184	µg/L	248	0.7	U	10	0.06
Sulfate	315	µg/L	248	712	J'	250,000	250,000
Toluene	196	µg/L	12	0.69	J	1	11

Notes:

1. Concentrations presented in micrograms per liter (µg/L), except where noted.
2. SWS ID is the Solid Waste Section Identification Number.
3. 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.
4. 15A NCAC 2B Standard is from "North Carolina Administrative Code, Title 15A: Deparment of Environment and Natural Resources, Subchapter 2B - Surface Water and Wetland Standards," (last amended on May 1, 2007) for Class WS-IV water.
5. 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 consituents 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.
6. Grayed values indicate values that attain or exceed the SWSL Standard.
7. Bold values indicate values that attain or exceed the 15A NCAC 2B Standard.
8. NE indicates not established. Blank cells indicate that there is no information relevant to the respective row.
9. Qualifiers in non-italicized text are laboratory data qualifiers or "flags". "U" is used for parameters not detected at concentrations greater than the method detection limit (MDL).
   "J" is used for parameters detected at estimated concentrations greater than the MDL but less than the laboratory's method reporting limit (MRL).
   An italicized J'-flag is a data qualifier, added by HDR, to indicate a detected concentration attains or is greater than the laboratory's MRL but less than the SWSL.
10. Analytical results obtained from Electronic Data Deliverable (EDD) provided by Tim Hunsucker of Duke Energy Carolinas on September 17, 2013.
11. SU indicates Standard Units.
12. umho/cm indicates micromhos per centimeter.
13. Parameters listed below the bold line are EPA Method 8260 parameters measured at concentrations greater than their MDL in one or more samples are listed on the table. All other EPA Method 8260 parameters were below their MDLs.

Table 4 - Field and Analytical Results that Equal or Exceed NCAC 2L Groundwater Quality Standards
Duke Energy Carolinas, LLC/McGuire Nuclear Station
Landfill #1 (Unlined) - Permit No. 6004

Sample Dates: July 23 and 24, 2013

Field sampling performed by Duke Energy Carolinas, LLC

Parameter	Well ID	Result	Units	15A NCAC 2L Standard	Historical Concentrations	Cause and Significance
pH	MW-1	5.9	SU	6.5 - 8.5	5.9 - 7.0	pH is the lowest reading at MW-1 over the period of monitoring.
	MW-1D	5.9			5.9 - 7.0	pH consistent with the lowest historical reading at MW-1D.
	MW-2A	6.4			5.7 - 7.4	pH consistent with historical readings at MW-2A.
	MW-3	6.2			5.7 - 7.5	pH consistent with historical readings at MW-3.
	MW-3D	6.4			6.1 - 7.1	pH consistent with historical readings at MW-3D.
	MW-4	5.5			5.3 - 8.1	pH consistent with historical readings at MW-4.
	MW-4D	6.1			6.1 - 7.1	pH consistent with the lowest historical reading at MW-4D.
	MW-11	4.3			4.3 - 5.3	pH is the lowest reading at MW-11 over the period of monitoring.
	MW-11D	5.3			5.3 - 6.2	pH is the lowest reading at MW-11D over the period of monitoring.
	MW-12	4.7			4.7 - 5.6	pH is the lowest reading at MW-12 over the period of monitoring.
	MW-12D	6.1			6.1 - 7.4	pH is the lowest reading at MW-12D over the period of monitoring.
Tetracholorethene	MW-4	2.2	µg/L	0.7	0.88 - 2.2	MW-4 is located approximately 15 feet outside the waste boundary and approximately 110 feet within the landfill review boundary.
	MW-4D	1			0.52 - 1	MW-4D is located approximately 15 feet outside the waste boundary and approximately 110 feet within the landfill review boundary.
Trichloroethene	MW-4D	3.1	µg/L	3	0.58 - 3.1	MW-4D is located approximately 15 feet outside the waste boundary and approximately 110 feet within the landfill review boundary.

Notes:

1. 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.
2. Analytical results obtained from Electronic Data Deliverable (EDD) provided by Tim Hunsucker of Duke Energy Carolinas, LLC on September 17, 2013.
3. µg/L indicates micrograms per liter.
4. SU indicates Standard Units.
5. Historical concentrations based on data in Duke Energy Carolinas, LLC analytical results database.

Table 5 - Radiological Analytical Results
Duke Energy Carolinas, LLC/McGuire Nuclear Station
Landfill # 1 (Unlined) - Permit No. 6004

Sample Dates: July 23 and 24, 2013

Laboratory Certification Code
Duke Energy Analytical Laboratory #248

Field Sampling Performed by Duke Energy Carolinas, LLC

Parameter	Units	Certificate Code	Monitoring Wells												
			MW-1	MW-1D	MW-2A	MW-2D	MW-3	MW-3D	MW-4	MW-4D	MW-11	MW-11D	MW-12	MW-12D	SW-1
Alpha	pCi/L	248	<-0.160	<0.300	<-0.590	<-0.590	<-0.350	<-0.560	<-0.660	<-0.610	<0.0803	<-0.250	<-0.0022	<-0.310	<0.069
BaLa-140	pCi/L	248	<10.8	<10.9	<7.62	<13.7	<5.96	<11.4	<7.44	<9.21	<5.58	<8.62	<6.43	<5.74	<7.27
Be-7	pCi/L	248	<45.1	<71.9	<58.8	<62.6	<53.0	<61.5	<47.7	<48.7	<42.8	<26.8	<52.3	<46.3	<45.5
Beta	pCi/L	248	1.52	1.04	0.888	<0.534	<0.507	1.29	1.07	1.14	<-0.0840	<0.0340	<0.418	0.598	2.05
Co-58	pCi/L	248	<5.79	<7.71	<8.65	<10.3	<4.76	<8.11	<6.00	<5.99	<5.00	<4.18	<6.28	<4.86	<6.62
Co-60	pCi/L	248	<8.50	<10.3	<11.9	<11.3	<4.82	<9.92	<7.26	<6.99	<5.86	<4.23	<8.62	<6.92	<8.41
Cs-134	pCi/L	248	<6.28	<8.59	<6.96	<7.21	<5.15	<7.49	<5.95	<5.15	<4.96	<5.47	<5.04	<5.74	<6.99
Cs-137	pCi/L	248	<6.03	<7.89	<7.76	<6.08	<5.67	<8.97	<6.36	<6.45	<5.39	<5.17	<5.20	<5.34	<8.36
Fe-59	pCi/L	248	<10.8	<13.3	<5.19	<14.8	<11.1	<17.3	<10.4	<8.07	<8.41	<8.12	<9.55	<10.2	<11.5
H3GW	pCi/L	248	<-17.0	<-82.0	<-26.0	<-45.0	<-87.0	<-69.0	<17.1	<19.3	<-28.0	<-2.20	<2.13	<-28.0	<17.1
I-131	pCi/L	248	<7.32	<9.73	<6.45	<9.10	<6.52	<6.99	<5.25	<6.51	<5.47	<5.29	<7.20	<5.48	<7.86
K-40	pCi/L	248	159	136	77.4	<160	169	<129	<73.4	48.7	126	54.7	<99.1	206	117
Mn-54	pCi/L	248	<5.94	<7.33	<8.83	<8.15	<4.30	<8.96	<8.17	<6.49	<5.16	<5.05	<7.05	<5.50	<7.46
Nb-95	pCi/L	248	<8.24	<9.48	<6.81	<5.15	<5.46	<9.88	<5.07	<6.43	<5.90	<5.61	<5.86	<5.61	<7.17
Zn-65	pCi/L	248	<15.8	<21.8	<16.1	<15.2	<12.4	<15.4	<18.1	<10.8	<10.4	<13.5	<10.3	<10.5	<11.4
Zr-95	pCi/L	248	<10.4	<14.4	<14.1	<9.99	<8.85	<12.4	<13.8	<9.27	<9.48	<9.81	<14.3	<7.88	<14.2

Notes:

1. Concentrations presented in picocuries per liter (pCi/L).
2. Analytical results obtained from EnRad Laboratory Report Job: MCGUIRE_13JUN2013_A MNS LANDFILL 1 provided by Tim Hunsucker of Duke Energy Carolinas on August 26, 2013.

APPENDICES

APPENDIX A
CHAIN-OF-CUSTODY FORMS

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

92164437

DUKE ENERGY

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
(980) 875-5245
Fax: (980) 875-5038

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

Revised 5/14/13

Analytical Laboratory Use Only

LIMS # J13070139 | MATRIX: GW-RCRA | Samples Originating From NC √ SC ___

Logged By cpb | Date & Time 7-24-13 1541 | SAMPLE PROGRAM: Groundwater √, NPDES ___, Drinking Water ___, UST ___, RCRA Waste ___

VENDOR PACE | Cooler Temp (C) <1

PO # | [15]Preserv.: 1=HCL 2=H_2SO_4 3=HNO_3 4=Ice 5=None

MR #

Customer must Complete

[1]Project Name MNS Landfill 1 # 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: BLDFLGN | [7]Resp. To: MC00

[8]Project ID: | [9]Activity ID: | [10]Mail Code:

Customer to complete all appropriate NON-SHADED areas.

LAB USE ONLY [11]Lab ID		[13]Sample Description or ID	[14]Collection Information Date	Time	Signature	[16]Analyses Required: [16]TESTS	[16]Grab	F_Alk (4.5), SO4, Cl (IC) 4		Metals Prep - TRM (ICP-EPA-200.7) Ag, Ba, Ca, Cr, K, Mg, Na (7) 3	Hg (7470) (1)	(IMS-EPA-200.8) As, Cd, Pb, Se (4)	VOCs (EPA 8260B) (See Attached List) - PACE 1,4	Chlorene (pm)	[20]Total # of Containers	
2013015728		TRIP BLANK	7/23/13	0715	VC	1	X						3	n/a	3	W1
2013015729		MW-1	7/23/13	1255	VC	6	X	1		1			3	~~0~~	5	W2
2013015730		MW-1D	7/23/13	1315	VC	6	X	1		1			3	~~0~~	5	W3
2013015731		MW-2A	7/24/13	0915	VC	6	X	1		1			3	~~0~~	5	W4
2013015732		MW-2D	7/24/13	0940	VC	6	X	1		1			3	~~0~~	5	W5
2013015733		MW-3	7/24/13	1215	VC	6	X	1		1			3	~~0~~	5	W6
2013015734		MW-3D	7/24/13	1310	VC	6	X	1		1			3	~~0~~	5	W7
2013015735		MW-4	7/24/13	1020	VC	6	X	1		1			3	~~0~~	5	W8
2013015736		MW-4D	7/24/13	1110	VC	6	X	1		1			3	~~0~~	5	W9
2013015737		MW-11	7/23/13	0845	VC	6	X	1		1			3	~~0~~	5	W10
2013015738		MW-11D	7/23/13	1005	VC	6	X	1		1			3	~~0~~	5	W11
2013015739		MW-12	7/23/13	1045	VC	6	X	1		1			3	~~0~~	5	W12
2013015740		MW-12D	7/23/13	1115	VC	6	X	1		1			3	~~0~~	5	W13
2013015741		SW-1	7/24/13	1340	VC	6	X	1		1			3	~~0~~	5	W14
2013015742		FIELD BLANK	7/24/13	1400	VC	6	X	1		1			3	n/a	5	W15

Customer to complete appropriate columns to right

Customer to sign & date below

21)Relinquished By	Date/Time 7/23/13 1425	Accepted By:	Date/Time 7-23-13 1425
Relinquished By	Date/Time 7/24/13 1540 1600	Accepted By:	Date/Time 7/25/13 1450
Relinquished By	Date/Time 7/25/13 1300	Accepted By:	Date/Time 7-25-13 1300
23)Seal/Locked By	Date/Time 7-25-13 1328	Sealed/Lock Opened By	Date/Time 7.25.13 1328

24)Comments: Regulatory Agency : NCDENR/DWM -SW Section - State EDD Format Required / Permit # 60-04 Use indicated or comparible analytical methods

Customer, important please indicate desired turnaround

[22]Requested Turnaround

14 Days √

*7 Days ___

* 48 Hr ___

*Other ___

* Add. Cost Will Apply

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

DUKE ENERGY

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_13JUN2013_A	Sample Class	Samples Originating From NC √ SC ___	[19]Page 1 of 1
Logged By LYNN ILUZADA	Date & Time 5/13/13 8:50	SAMPLE PROGRAM Groundwater √ NPDES ___ Drinking Water ___ UST ___ RCRA Waste	DISTRIBUTION ORIGINAL to LAB, COPY to CLIENT
VENDOR	Cooler Temp (C)		Revised 10/31/12

Customer must Complete

1)Project Name MNS LANDFILL 1 # 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

PO # | [15]Preserv.:1=HCL 2=H_2SO_4 3=HNO_3 4=Ice 5=None

MR #

Customer to complete all appropriate NON-SHADED areas.

LAB USE ONLY

Customer to complete appropriate columns to right

[11]Lab ID		[13]Sample Description or ID	[14]Collection Information Date	Time	Signature	[16]Grab	[16]Analyses Required: Gamma	Gross A & B	Tritium	[20]Total # of Containers
259990		MW-1	7/23/13	1255	VC	X	1	1	1	3
259991		MW-1D	7/23/13	1315	VC	X	1	1	1	3
259992		MW-2A	7/24/13	0915	VC	X	1	1	1	3
259993		MW-2D	7/24/13	0940	VC	X	1	1	1	3
259994		MW-3	7/24/13	1215	VC	X	1	1	1	3
259995		MW-3D	7/24/13	1310	VC	X	1	1	1	3
259996		MW-4	7/24/13	1020	VC	X	1	1	1	3
259997		MW-4D	7/24/13	1110	VC	X	1	1	1	3
259998		MW-11	7/23/13	0845	VC	X	1	1	1	3
259999		MW-11D	7/23/13	1005	VC	X	1	1	1	3
260000		MW-12	7/23/13	1045	VC	X	1	1	1	3
260001		MW-12D	7/23/13	1115	VC	X	1	1	1	3
260002		SW-1	7/24/13	1340	VC	X	1	1	1	3

Customer to sign & date below

21)Relinquished By [signature]	Date/Time 7/24/13 1440	Accepted By: Lynn Iluzada	Date/Time 7/24/13 1440
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

24)Comments

Customer, important please indicate desired turnaround

[22]Requested Turnaround

14 Days √

*7 Days ___

* 48 Hr ___

*Other ___

* Add. Cost Will Apply