

DENR USE ONLY:

Paper Report

Electronic Data - Email CD (data loaded: Yes / No)

Doc/Event #:

NC DENR

Environmental Monitoring Reporting Form

Division of Waste Management - Solid Waste

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 Belews Creek Steam Station Pine Hall Road Ash Landfill | 3195 Pine Hall Road Belews Creek, NC | 8503 | .0500 | April 23-24, 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
 Surface water monitoring data 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

Affix NC Licensed/ Professional Geologist Seal

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)

Revised 6/2009



**SEMIANNUAL GROUNDWATER
MONITORING REPORT**

BELEWS CREEK STEAM STATION

**PINE HALL ROAD ASH LANDFILL
PERMIT NO. 8503**

APRIL 2012 SAMPLING EVENT

Prepared for:
DUKE ENERGY CAROLINAS, LLC
Belews Creek Steam Station
3195 Pine Hall Road
Belews Creek, NC

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

June 22, 2012



REPORT VERIFICATION

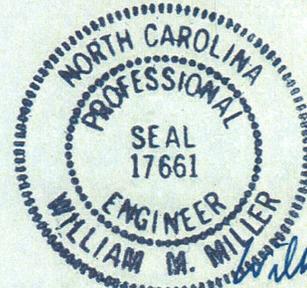
PROJECT: SEMIANNUAL GROUNDWATER MONITORING REPORT
BELEWS CREEK STEAM STATION
PINE HALL ROAD ASH LANDFILL
PERMIT NO. 8503

TITLE: APRIL 2012 SAMPLING EVENT

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

Prepared by: Abigail Vander Date: 6/22/2012
Checked by: William M. Miller Date: 6/22/2012
Approved by: T. Ziegler Date: 6/22/2012

Professional Engineer Seal:



William M. Miller 6/22/12
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
 BELEWS CREEK STEAM STATION
 PINE HALL ROAD ASH LANDFILL
 PERMIT NO. 8503**

APRIL 2012 SAMPLING EVENT

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Section 1

Background

The Pine Hall Road Ash Landfill is located at the Duke Energy Carolinas, LLC (Duke Energy) Belews Creek Steam Station, in Stokes County, North Carolina. The landfill is permitted under the North Carolina Department of Environment and Natural Resources (NCDENR) Solid Waste Permit No. 8503 and was closed in December 2008. The ash landfill was permitted to accept only fly ash from Belews Creek Steam Station operations.

The landfill was originally permitted in 1983. The original landfill was unlined and was permitted with a soil cap 1 foot thick on the side slopes and 2 feet thick on flatter areas. A subsequent expansion (Phase I Expansion) was permitted in 2003. This phase was also unlined, but was permitted with a synthetic cap system to be applied at closure.

After groundwater exceedances were observed in wells installed near the landfill, the placement of additional ash in the Phase I Expansion was halted. The closure design was changed to utilize an engineered, synthetic cover system for the entire landfill, both the original landfill and the Phase 1 Expansion. The construction of the synthetic cover system was completed in December 2008.

The ash landfill and nearby surrounding area are portrayed on Figure 1. The ash landfill is located to the north of the surface water divide that runs along Pine Hall Road and to the east of a surface water divide that runs along Middleton Loop Road. These surface water divides appear to mimic the shallow groundwater divides for the area near the landfill. Two surface water features are located in the area of the landfill. One surface water drainage feature drains along the eastern side of the landfill to the Ash Basin. The second surface water drainage feature is located on the western side of the landfill and drains to the Ash Basin. The surface water sample locations in these features are groundwater seeps and are believed to be representative of groundwater. Samples collected from these locations are compared to 15A North Carolina Administrative Code (NCAC) 2L groundwater quality standards (2L standards). Groundwater flow beneath the landfill is from Pine Hall Road, generally northward, toward the Ash Basin. The Ash Basin is operated as a water treatment facility and is permitted by the National Pollutant Discharge Elimination System (NPDES) program (NPDES Permit #NC0024406).

The groundwater monitoring system at the landfill consists of the following sample locations as listed below.

| | | |
|-------------------|-------|-------|
| Monitoring Wells: | MW-1 | MW-1D |
| | MW-2 | MW-3 |
| | MW-4 | MW-5 |
| | MW-6 | MW-7 |
| | MW2-7 | MW2-9 |
| | OB-4 | OB-5 |
| | OB-9 | |
| Surface Water | | |
| Sample Locations | SW-1A | SW-2 |

The locations of the monitoring wells and surface water sample locations are shown on Figure 2. Monitoring well MW-3 is defined by the *Groundwater Monitoring, Sampling and Analysis Plan* (SAP) for the Pine Hall Road Ash Landfill prepared by S&ME, Inc. dated November 8, 2010, and approved on November 23, 2010 to represent “background” groundwater quality.

The sampling was conducted by Duke Energy according to North Carolina Solid Waste Management Guidelines. The constituents sampled and analyzed for were selected by Duke Energy and NCDENR Division of Solid Waste and are listed in the SAP, hereafter referred to as semiannual constituents. The samples were analyzed by a North Carolina certified laboratory.

In addition to the semiannual constituents listed in the SAP, the groundwater samples were also analyzed for Part 40 Code of Federal Regulations (CFR) Appendix I constituents. Appendix I sampling and analysis was performed as part of the requirements contained in the *Closure Plan Approval* letter dated December 7, 2007, Document ID RC03425. Condition 11 of that document states:

Ground-water and surface water samples should be analyzed for Appendix I constituents in addition to currently analyzed constituents semi-annually. Appendix I analytical data will be evaluated, and based on results, the compliance Branch of the SWS may not require continued Appendix I analysis.

Section 2

Methods

2.1 Sampling and Analysis Methods

Groundwater sampling and documentation of sampling activities were performed by Duke Energy personnel (Duke Energy Carolinas Field Certification #5193). The groundwater samples were analyzed by Duke Energy Analytical Laboratory (North Carolina Laboratory Certification #248) and Pace Analytical Services, Inc. (North Carolina Laboratory Certifications #12 and #40).

The groundwater samples were analyzed for the following constituents and/or parameters:

- Metals using U.S. Environmental Protection Agency (EPA) Method 200.7 and 200.8
- Mercury using EPA Method 245.1
- Chloride, fluoride, nitrate as nitrogen, and sulfate using EPA Method 300.0
- Total dissolved solids using Standard Method (SM) 2540C
- Volatile organic compounds (VOCs) using EPA Method 8260

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-2, MW-3, MW-4, MW-5, MW-6, MW-7, MW2-7, MW2-9, OB-4, OB-5, and OB-9 and surface water sampling locations SW-1A and SW-2. No sample was collected from monitoring well MW-2 due to difficulty pumping water from the well. The samples were collected by Duke Energy personnel on April 23-24, 2012 and HDR received the data on May 9, 2012.
- 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 (*J*) to indicate a detected concentration that is greater than the laboratory's method reporting limit (MRL), but lower than the Solid Waste Section Limit (SWSL) and retained the laboratory supplied qualifier J to indicate values greater than the method detection limit (MDL) and below the MRL. 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 this Semiannual Groundwater Monitoring Report and submitted it to Duke Energy and to NCDENR.

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

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 the measured groundwater elevations in the wells from April 23-24, 2012.

Pine Hall Road is located generally along a surface water divide that also appears to be a groundwater divide. Groundwater flow at the site landfill is from areas of higher topography along Pine Hall Road, generally northward, toward the Ash Basin.

3.2 Analytical Results

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

The results of the field and laboratory analyses for the semiannual constituents are summarized in Table 2. The analysis results for the semiannual constituents are compared to the groundwater standards found in Title 15A NCAC 02L .0202 (g). The results of the laboratory analyses for Appendix I constituents are summarized in Table 3.

A summary of the 2L standards exceedances for the semiannual constituents and a preliminary analysis of the cause and significance of the exceedances are presented in Table 4 for sampling locations located inside of the review boundary and in Table 5 for sampling locations located at or beyond the review boundary. A summary of the 2L standards exceedances for Appendix I constituents and a preliminary analysis of the cause and significance of the exceedances are presented in Table 6 for sampling locations located inside of the review boundary and in Table 7 for sampling locations located at or beyond the review boundary.

The method detection limit (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
- Vanadium

The MDLs for the abovementioned constituents were all below their corresponding Solid Waste Section Limits (SWSL) as required by the February 23, 2007 NCDENR memo. Therefore, in accordance with the February 23, 2007 memo, the results for these constituents are qualified as estimated. These constituents, for samples that were not detected above the MDL, are not reported as exceedances of the 2L standards in Tables 3, 6, and 7.

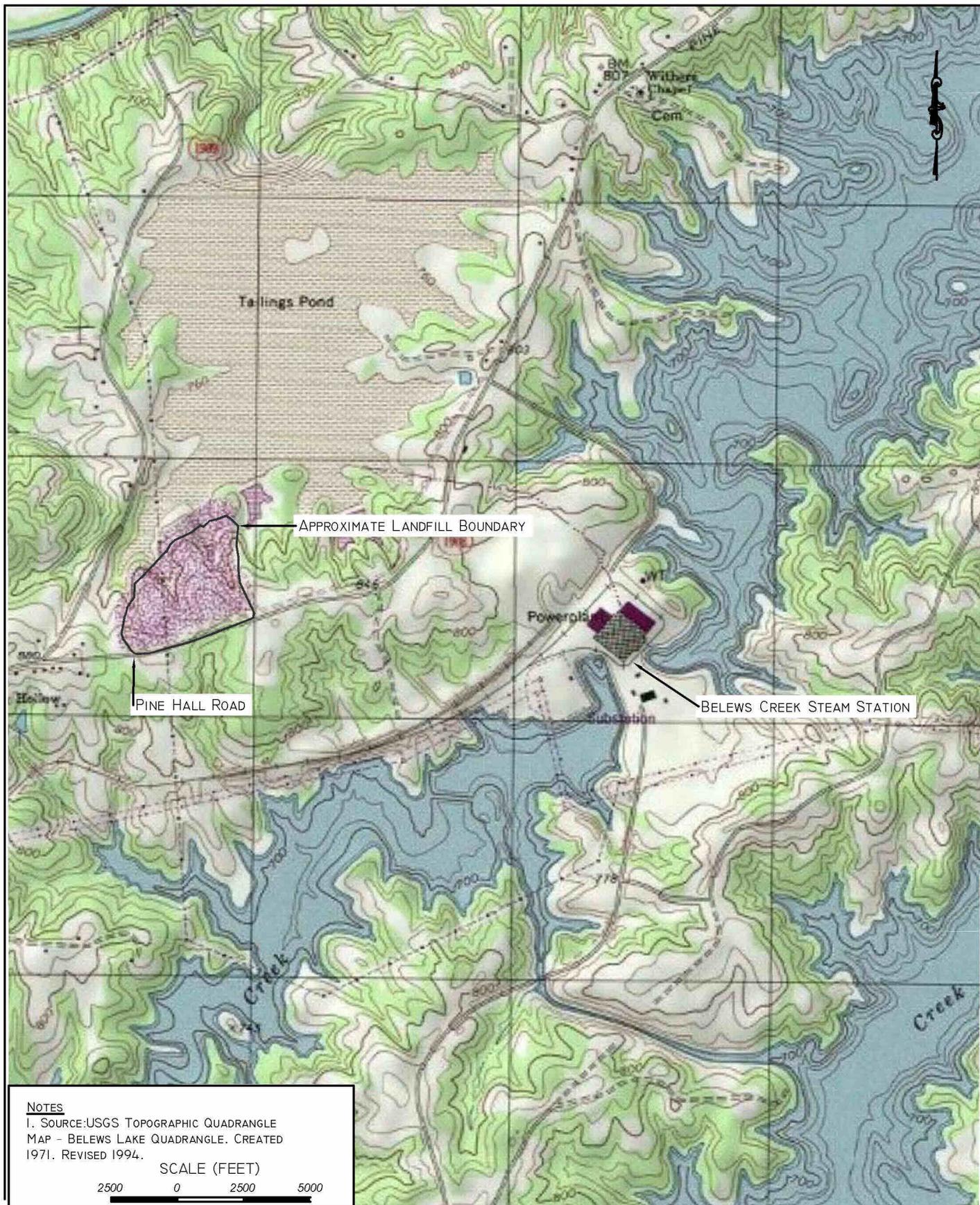
In addition to the constituents listed in Tables 4 through 7, the groundwater analytical results for the constituents at the following wells and surface water sample locations were equal to or above the SWSLs, but did not exceed the 2L limits:

- Barium in MW-7, MW2-9, and OB-5
- Chloroform in MW-6
- Copper in MW-5
- Lead in MW-7
- Mercury in OB-9
- Selenium in MW-4
- Zinc in MW-5, MW-7, MW2-7, OB-9, and SW-1A

The MDL for Beryllium was above the corresponding SWSL, however, no detections were observed above the MDL.

The chain-of-custody forms are located in Appendix A.

FIGURES



NOTES

1. SOURCE: USGS TOPOGRAPHIC QUADRANGLE MAP - BELEWS LAKE QUADRANGLE. CREATED 1971. REVISED 1994.

SCALE (FEET)

2500 0 2500 5000



HDR Engineering, Inc.
of the Carolinas

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

**SITE LOCATION MAP
BELEWS CREEK STEAM STATION
PINE HALL ROAD ASH LANDFILL
PERMIT NO. 8503**

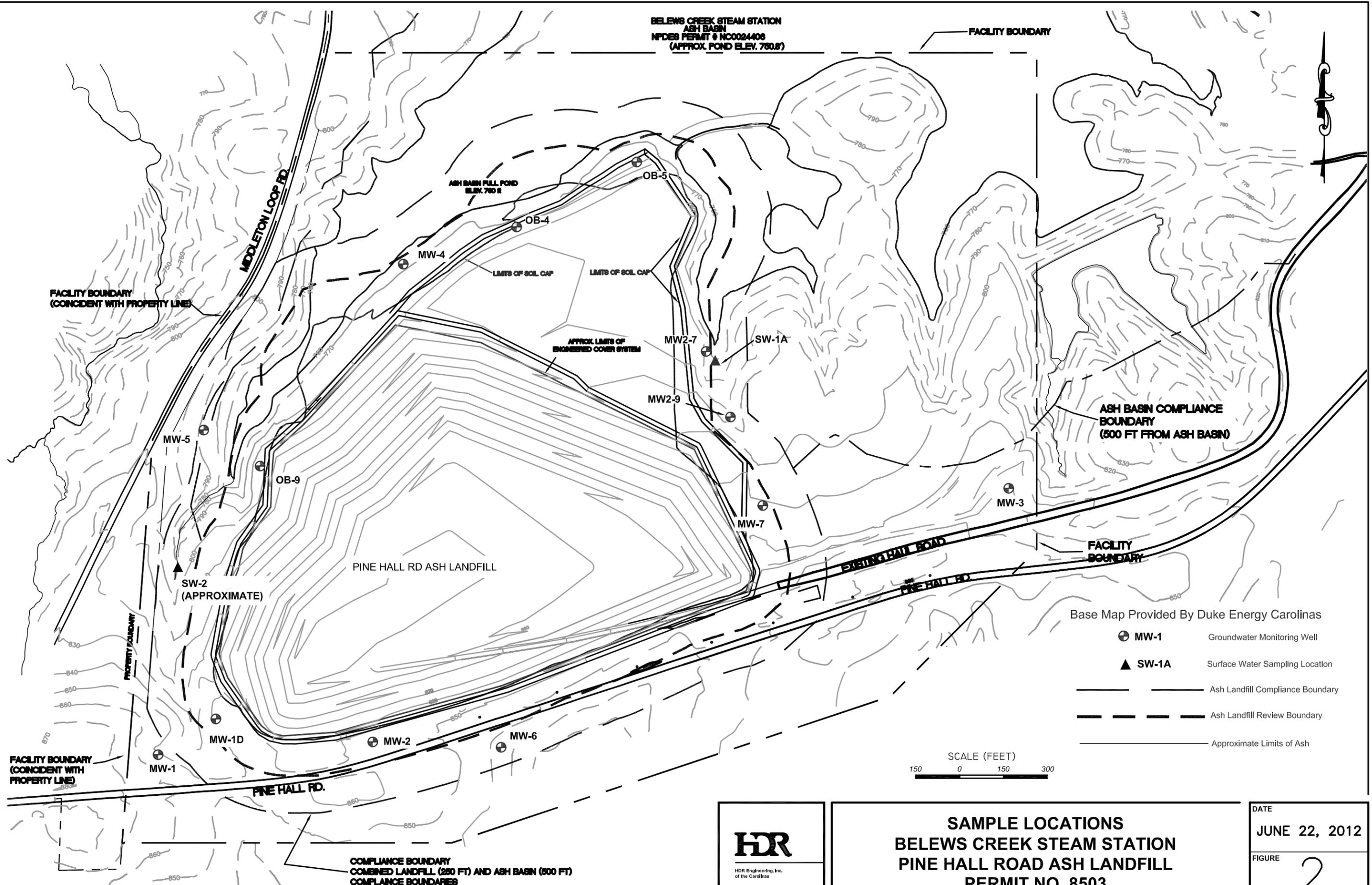
DATE

JUNE 22, 2012

FIGURE

1

C:\pwworking\tpa\0383242\Pinehall Rd 2012 Figures 2 & 3 WMM.dwg, HDR Fig 2, 6/21/2012 7:52:31 PM, avoorhee



BELEWS CREEK STEAM STATION
 ASH BASIN
 NPDES PERMIT # NC0024408
 (APPROX. POND ELEV. 760.8')

FACILITY BOUNDARY

FACILITY BOUNDARY
 (COINCIDENT WITH PROPERTY LINE)

ASH BASIN FULL POND
 ELEV. 760 R

LIMITS OF SOIL CAP

LIMITS OF SOIL CAP

APPROX. LIMITS OF
 ENGINEERED COVER SYSTEM

ASH BASIN COMPLIANCE
 BOUNDARY
 (500 FT FROM ASH BASIN)

PINE HALL RD ASH LANDFILL

Base Map Provided By Duke Energy Carolinas

- ⊕ MW-1 Groundwater Monitoring Well
- ▲ SW-1A Surface Water Sampling Location
- Ash Landfill Compliance Boundary
- - - Ash Landfill Review Boundary
- Approximate Limits of Ash

SCALE (FEET)
 150 0 150 300

FACILITY BOUNDARY
 (COINCIDENT WITH
 PROPERTY LINE)

COMPLIANCE BOUNDARY
 COMBINED LANDFILL (250 FT) AND ASH BASIN (500 FT)
 COMPLIANCE BOUNDARIES

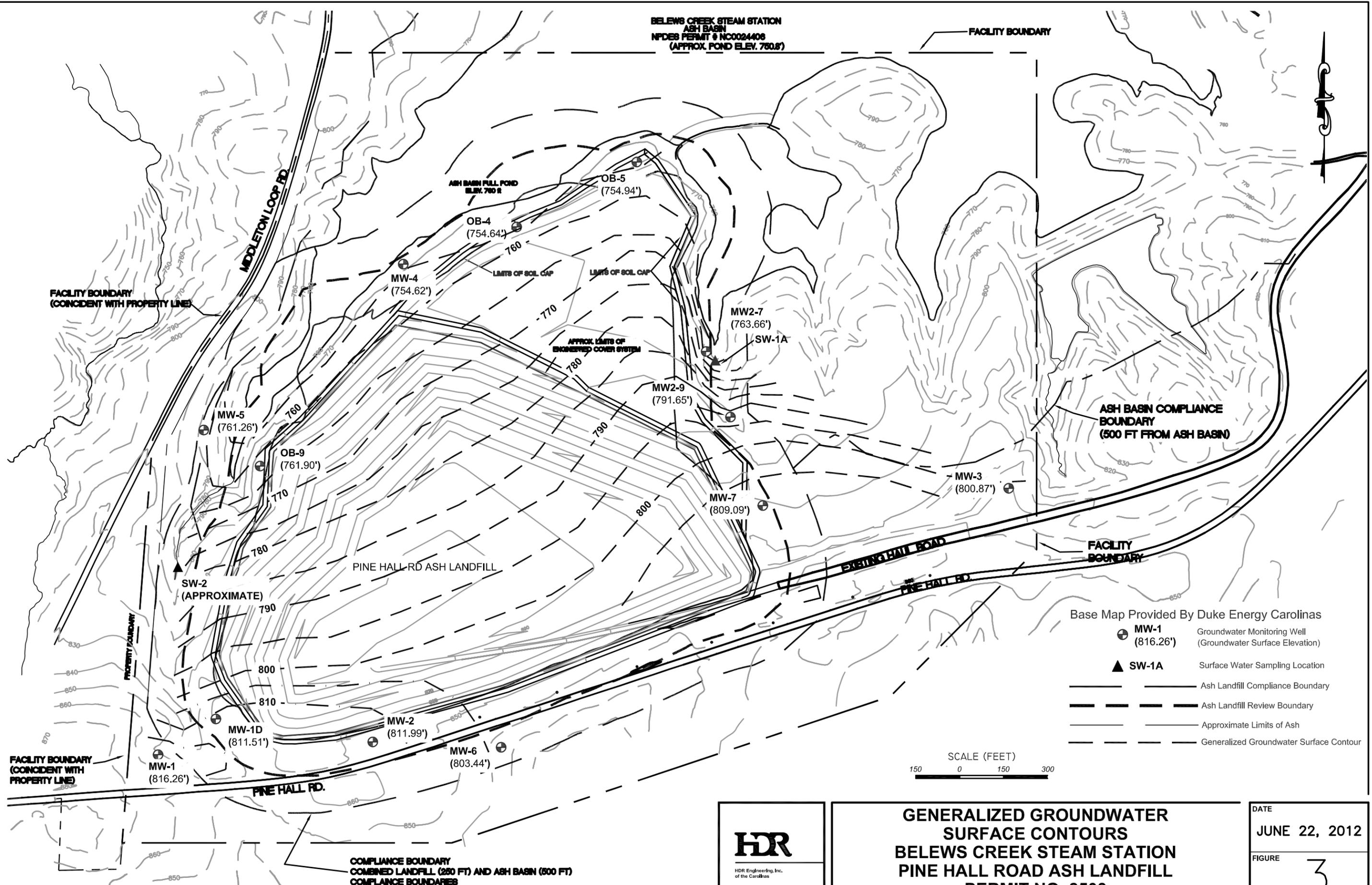
HDR
 HDR Engineering, Inc.
 of the Carolinas
 License Number: F-0116
 440 S Church Street Charlotte, NC 28202

**SAMPLE LOCATIONS
 BELEWS CREEK STEAM STATION
 PINE HALL ROAD ASH LANDFILL
 PERMIT NO. 8503**

DATE
JUNE 22, 2012

FIGURE
2

C:\pwworking\tpa\0383242\Pinehall Rd 2012 Figures 2 & 3 WMM.dwg, HDR Fig 3, 6/21/2012 7:51:26 PM, avoorhee



Base Map Provided By Duke Energy Carolinas

- ⊕ MW-1 (816.26') Groundwater Monitoring Well (Groundwater Surface Elevation)
- ▲ SW-1A Surface Water Sampling Location
- Ash Landfill Compliance Boundary
- - - Ash Landfill Review Boundary
- Approximate Limits of Ash
- - - Generalized Groundwater Surface Contour



**GENERALIZED GROUNDWATER
SURFACE CONTOURS
BELEWS CREEK STEAM STATION
PINE HALL ROAD ASH LANDFILL
PERMIT NO. 8503**

DATE
JUNE 22, 2012

FIGURE
3

TABLES

Table 1–Field Data Parameters
Duke Energy Carolinas, LLC/Belews Creek Steam Station
Pine Hall Road Ash Landfill - Permit No. 8503

| DATE | WELL NO. | WELL DEPTH (feet) | DEPTH TO WATER (feet) | WATER ELEV. (feet) | DEPTH TO PRODUCT (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) |
|-----------|----------|-------------------|-----------------------|--------------------|-------------------------|------|--------------|--------------------|-------------------|-------------------|---------------|--------------|--------------------------------|---------|-----------------|--------------|-----------|
| 4/23/2012 | MW-1 | 47.20 | 36.43 | 816.26 | N/A | N/A | CP | N/A | 1.76 | 5.25 | NO | 13.35 | 13 | 5.2 | 1.3 | 444 | 8.23 |
| 4/24/2012 | MW-1D | 90.53 | 42.64 | 811.51 | N/A | N/A | CP | N/A | 7.81 | 18.00 | NO | 13.65 | 133 | 6.8 | 0.7 | 330 | 3.62 |
| 4/24/2012 | MW-2 | 50.00 | 46.06 | 811.99 | N/A | N/A | CP | N/A | 0.64 | NS | NS | NS | NS | NS | NS | NS | NS |
| 4/24/2012 | MW-3 | 49.50 | 41.94 | 800.87 | N/A | N/A | CP | N/A | 1.23 | 1.75 | YES | 12.89 | 52 | 5.7 | 19.8 | 413 | 8.38 |
| 4/24/2012 | MW-4 | 40.20 | 12.96 | 754.62 | N/A | N/A | CP | N/A | 4.44 | 18.00 | NO | 14.54 | 199 | 6.1 | 3.6 | 273 | 5.23 |
| 4/23/2012 | MW-5 | 60.20 | 25.51 | 761.26 | N/A | N/A | CP | N/A | 5.66 | 17.25 | NO | 14.07 | 36 | 6.0 | 2.2 | 406 | 7.49 |
| 4/23/2012 | MW-6 | 36.84 | 33.47 | 803.44 | N/A | N/A | CP | N/A | 0.55 | 1.50 | NO | 13.76 | 52 | 5.7 | 3.4 | 396 | 2.18 |
| 4/24/2012 | MW-7 | 14.26 | 6.48 | 809.09 | N/A | N/A | CP | N/A | 1.27 | 7.50 | NO | 14.29 | 489 | 5.3 | 134.0 | 414 | 3.66 |
| 4/23/2012 | MW2-7 | 30.62 | 13.98 | 763.66 | N/A | N/A | CP | N/A | 2.71 | 13.75 | NO | 14.28 | 2186 | 5.2 | 3.5 | 424 | 1.94 |
| 4/24/2012 | MW2-9 | 14.61 | 5.73 | 791.65 | N/A | N/A | CP | N/A | 1.45 | 2.25 | YES | 13.39 | 473 | 6.3 | 12.8 | 200 | 0.97 |
| 4/23/2012 | OB-4 | 30.03 | 22.96 | 754.64 | N/A | N/A | CP | N/A | 1.15 | 5.00 | NO | 15.23 | 2764 | 7.6 | 5.5 | 281 | 0.69 |
| 4/24/2012 | OB-5 | 36.60 | 25.99 | 754.94 | N/A | N/A | CP | N/A | 1.73 | 5.25 | NO | 15.46 | 31 | 5.6 | 2.3 | 410 | 5.59 |
| 4/23/2012 | OB-9 | 48.57 | 37.69 | 761.90 | N/A | N/A | CP | N/A | 1.77 | 6.00 | NO | 14.53 | 2131 | 5.1 | 0.7 | 426 | 0.05 |
| 4/23/2012 | SW-1A | N/A | N/A | N/A | N/A | N/A | NP | N/A | N/A | N/A | N/A | 11.71 | 1674 | 6.0 | 3.3 | 360 | 8.55 |
| 4/23/2012 | SW-2 | N/A | N/A | N/A | N/A | N/A | NP | N/A | N/A | N/A | N/A | 11.68 | 355 | 6.7 | 10.1 | 304 | 8.87 |

Notes:

1. Purge Methods; LF=Low Flow, CP=Conventional Purge (3-5 well volumes), NP=No Purge (HydraSleeve), NS=No Sample Collected.
2. Field sampling performed by Duke Energy Carolinas, LLC personnel.
3. umho/cm indicates micro ohms per centimeter.
4. SU indicates Standard Units.
5. NTU indicates Nephelometric Turbidity Units.
6. mV-NHE indicates millivolts-Normal Hydrogen Electrode.
7. Information provided by Tim Hunsucker of Duke Energy Carolinas, LLC on May 9, 2012.

Table 2–Field and Analytical Results for Semiannual Constituents*
Duke Energy Carolinas, LLC/Belews Creek Steam Station
Pine Hall Road Ash Landfill - Permit No. 8503

| Sample Dates: April 23-24, 2012 | | | | Laboratory Certificate Codes: | | | | | | | |
|--|--------|---------|------------------|--|-------------|-----------|-----------|-------------|-------------|--------------------------------|----------------------|
| Field Sampling performed by Duke Energy Carolinas, LLC | | | | Duke Energy Carolinas Field #5193 | | | | | | | |
| | | | | Duke Energy Analytical Laboratory #248 | | | | | | Pace Analytical Laboratory #40 | |
| Parameter | SWS ID | Units | Certificate Code | Monitoring Wells | | | | | | SWSL | 15A NCAC 2L Standard |
| | | | | 8503 MW-1 | 8503 MW-1D | 8503 MW-2 | 8503 MW-3 | 8503 MW-4 | 8508 MW-5 | | |
| Field pH | 320 | SU | 5193 | 5.2 | 6.8 | NS | 5.7 | 6.1 | 6.0 | - | 6.5-8.5 |
| Field Specific Conductance | 323 | umho/cm | 5193 | 13 | 133 | NS | 52 | 199 | 36 | - | - |
| Temperature | 325 | °C | 5193 | 13.35 | 13.65 | NS | 12.89 | 14.54 | 14.07 | - | - |
| Top Casing | 328 | feet | - | 852.69 | 854.15 | 858.05 | 842.81 | 767.58 | 786.77 | - | - |
| Depth to Water | 318 | feet | - | 36.43 | 42.64 | 46.06 | 41.94 | 12.96 | 25.51 | - | - |
| Water Elevation | 319 | feet | - | 816.26 | 811.51 | 811.99 | 800.87 | 754.62 | 761.26 | - | - |
| Well Depth | 411 | feet | - | 47.20 | 90.53 | 50.00 | 49.50 | 40.20 | 60.20 | - | - |
| Arsenic | 14 | ug/L | 248 | 0.667 U | 0.667 U | NS | 0.667 U | 0.667 U | 0.667 U | 10 | 10 |
| Barium | 15 | ug/L | 248 | 17.9 J' | 3.34 U | NS | 58.6 J' | 3.34 U | 29.8 J' | 100 | 700 |
| Boron | 428 | ug/L | 248 | 33.4 U | 33.4 U | NS | 33.4 U | 376 | 33.4 U | NE | 700 |
| Cadmium | 34 | ug/L | 248 | 0.667 U | 0.667 U | NS | 0.667 U | 0.667 U | 0.667 U | 1 | 2 |
| Chloride | 455 | ug/L | 248 | 1,684 | 7,920 | NS | 9,770 | 2,236 | 1,897 | NE | 250,000 |
| Chromium | 51 | ug/L | 248 | 3.34 U | 3.34 U | NS | 3.34 U | 13.4 | 3.34 U | 10 | 10 |
| Copper | 54 | ug/L | 248 | 3.34 U | 3.34 U | NS | 3.34 U | 3.34 U | 85.3 | 10 | 1,000 |
| Fluoride | 312 | ug/L | 248 | 57.5 J | 164 J' | NS | 66 J | 96.2 J | 69.8 J | 2,000 | 2,000 |
| Iron | 340 | ug/L | 248 | 12.7 J' | 34.3 J' | NS | 195 J' | 127 J' | 37.2 J' | 300 | 300 |
| Lead | 131 | ug/L | 248 | 0.667 U | 0.667 U | NS | 0.667 U | 0.667 U | 7.84 J' | 10 | 15 |
| Manganese | 342 | ug/L | 248 | 23.5 J' | 56.8 | NS | 11.5 J' | 5.12 J' | 5.1 J' | 50 | 50 |
| Mercury | 132 | ug/L | 248 | 0.006 U | 0.006 U | NS | 0.006 U | 0.006 U | 0.006 U | 0.2 | 1 |
| Nickel | 152 | ug/L | 248 | 3.34 U | 3.34 U | NS | 3.34 U | 3.34 U | 3.34 U | 50 | 100 |
| Nitrate (as Nitrogen) | 303 | ug/L | 248 | 237 J' | 1,546 J' | NS | 5.55 J | 668 J' | 827 J' | 10,000 | 10,000 |
| Selenium | 183 | ug/L | 248 | 0.667 U | 0.667 U | NS | 0.667 U | 14.1 | 0.667 U | 10 | 20 |
| Silver | 184 | ug/L | 248 | 3.34 U | 3.34 U | NS | 3.34 U | 3.34 U | 3.34 U | 10 | 20 |
| Sulfate | 315 | ug/L | 248 | 375 J' | 1,772 J' | NS | 127 J' | 53,200 J' | 174 J' | 250,000 | 250,000 |
| Total Dissolved Solids | 311 | ug/L | 40 | 54,000 | 93,000 | NS | 48,000 | 143,000 | 41,000 | NE | 500,000 |
| Zinc | 213 | ug/L | 248 | 3.6 J | 4.26 J | NS | 3.76 J | 4.53 J | 97.8 | 10 | 1,000 |

Notes:

- Concentrations presented in micrograms per liter (µg/L) except where noted.
- 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 is from "North Carolina Administrative Code, Title 15A: Department of Environment and Natural Resources, Subchapter 2L - Groundwater Classifications and Standards," NCDENR (last amended on January 1, 2010).
- Grayed values indicate values that attain or exceed the SWSL standard.
- Bold values indicate values that attain or exceed the 15A NCAC 2L standard.
- 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 for parameters not detected at concentrations above the method detection limit (MDL). "J" is used for parameters detected at estimated concentrations above the MDL but below the laboratory's method reporting limit (MRL). An italicized J'-flag is a data qualifier, added by HDR, to indicate a detected concentration that is greater than the laboratory's MRL but less than the SWSL.
- Data obtained from Electronic Data Deliverable (EDD) provided by Tim Hunsucker of Duke Energy Carolinas, LLC on May 9, 2012.
- 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 listed are for the chloride with CAS number SW301 as specified on the Constituent Look-up webpage (last updated June 13, 2011).
- * Semiannual constituents refers to constituents required to be analyzed in the *Groundwater Monitoring, Sampling and Analysis Plan* for the Pine Hall Road Ash Landfill dated November 1, 2008.

Table 2–Field and Analytical Results for Semiannual Constituents*
Duke Energy Carolinas, LLC/Belews Creek Steam Station
Pine Hall Road Ash Landfill - Permit No. 8503

Sample Dates: April 23-24, 2012 Laboratory Certificate Codes:
Duke Energy Carolinas Field #5193
Duke Energy Analytical Laboratory #248
Pace Analytical Laboratory #40

Field Sampling performed by Duke Energy Carolinas, LLC

| Parameter | SWS ID | Units | Certificate Code | Monitoring Wells | | | | | | SWSL | 15A NCAC 2L Standard |
|----------------------------|--------|---------|------------------|------------------|------------|------------|------------|-----------|-----------|---------|----------------------|
| | | | | 8503 MW-6 | 8503 MW-7 | 8503 MW2-7 | 8503 MW2-9 | 8503 OB-4 | 8503 OB-5 | | |
| Field pH | 320 | SU | 5193 | 5.7 | 5.3 | 5.2 | 6.3 | 7.6 | 5.6 | - | 6.5-8.5 |
| Field Specific Conductance | 323 | umho/cm | 5193 | 52 | 489 | 2,186 | 473 | 2,764 | 31 | - | - |
| Temperature | 325 | °C | 5193 | 13.76 | 14.29 | 14.28 | 13.39 | 15.23 | 15.46 | - | - |
| Top Casing | 328 | feet | - | 836.91 | 815.57 | 777.64 | 797.38 | 777.60 | 780.93 | - | - |
| Depth to Water | 318 | feet | - | 33.47 | 6.48 | 13.98 | 5.73 | 22.96 | 25.99 | - | - |
| Water Elevation | 319 | feet | - | 803.44 | 809.09 | 763.66 | 791.65 | 754.64 | 754.94 | - | - |
| Well Depth | 411 | feet | - | 36.84 | 14.26 | 30.62 | 14.61 | 30.03 | 36.60 | - | - |
| Arsenic | 14 | ug/L | 248 | 0.667 U | 1.49 J' | 0.695 J | 1.07 J' | 53.9 | 0.667 U | 10 | 10 |
| Barium | 15 | ug/L | 248 | 56.2 J' | 229 | 38.9 J' | 135 | 35.8 J' | 122 | 100 | 700 |
| Boron | 428 | ug/L | 248 | 33.4 U | 3,673 | 21,580 | 598 | 29,680 | 33.4 U | NE | 700 |
| Cadmium | 34 | ug/L | 248 | 0.667 U | 0.667 U | 0.836 J | 0.667 U | 2.29 | 0.667 U | 1 | 2 |
| Chloride | 455 | ug/L | 248 | 4,447 | 11,190 | 14,920 | 4,990 | 19,940 | 5,134 | NE | 250,000 |
| Chromium | 51 | ug/L | 248 | 3.34 U | 7.28 J' | 3.34 U | 3.34 U | 3.34 U | 3.34 U | 10 | 10 |
| Copper | 54 | ug/L | 248 | 3.34 U | 3.34 U | 3.34 U | 3.34 U | 3.34 U | 3.34 U | 10 | 1,000 |
| Fluoride | 312 | ug/L | 248 | 76 J | 120 J | 359 J | 180 J' | 1,177 J' | 67.1 J | 2,000 | 2,000 |
| Iron | 340 | ug/L | 248 | 178 J' | 8,157 | 44.7 J' | 11,960 | 86.8 J' | 49.6 J' | 300 | 300 |
| Lead | 131 | ug/L | 248 | 0.667 U | 13.2 | 0.667 U | 0.667 U | 0.667 U | 0.667 U | 10 | 15 |
| Manganese | 342 | ug/L | 248 | 11.2 J' | 419 | 424 | 13,070 | 71.6 | 11.4 J' | 50 | 50 |
| Mercury | 132 | ug/L | 248 | 0.006 U | 0.134 J' | 0.141 J' | 0.006 U | 0.006 U | 0.006 U | 0.2 | 1 |
| Nickel | 152 | ug/L | 248 | 3.34 U | 3.43 J | 15.9 J' | 16.2 J' | 3.34 U | 3.34 U | 50 | 100 |
| Nitrate (as Nitrogen) | 303 | ug/L | 248 | 5.4 U | 7,851 J' | 34,630 | 613 J' | 6,284 J' | 5.4 U | 10,000 | 10,000 |
| Selenium | 183 | ug/L | 248 | 0.667 U | 35.4 | 192 | 1.59 J' | 206 | 0.667 U | 10 | 20 |
| Silver | 184 | ug/L | 248 | 3.34 U | 3.34 U | 3.34 U | 3.34 U | 3.34 U | 3.34 U | 10 | 20 |
| Sulfate | 315 | ug/L | 248 | 68.9 J | 173,600 J' | 1,240,000 | 37,560 J' | 1,676,000 | 147 J' | 250,000 | 250,000 |
| Total Dissolved Solids | 311 | ug/L | 40 | 59,000 | 366,000 | 2,010,000 | 275,000 | 2,480,000 | 26,000 | NE | 500,000 |
| Zinc | 213 | ug/L | 248 | 3.34 U | 70.3 | 26.5 | 4.07 J | 5.01 J' | 6.16 J' | 10 | 1,000 |

Notes:

- Concentrations presented in micrograms per liter (µg/L) except where noted.
- 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 is from "North Carolina Administrative Code, Title 15A: Department of Environment and Natural Resources, Subchapter 2L - Groundwater Classifications and Standards," NCDENR (last amended on January 1, 2010).
- Grayed values indicate values that attain or exceed the SWSL standard.
- Bold values indicate values that attain or exceed the 15A NCAC 2L standard.
- 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 for parameters not detected at concentrations above the method detection limit (MDL). "J" is used for parameters detected at estimated concentrations above the MDL but below the laboratory's method reporting limit (MRL). An italicized J'-flag is a data qualifier, added by HDR, to indicate a detected concentration that is greater than the laboratory's MRL but less than the SWSL.
- Data obtained from Electronic Data Deliverable (EDD) provided by Tim Hunsucker of Duke Energy Carolinas, LLC on May 9, 2012.
- 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 listed are for the chloride with CAS number SW301 as specified on the Constituent Look-up webpage (last updated June 13, 2011).
- * Semiannual constituents refers to constituents required to be analyzed in the *Groundwater Monitoring, Sampling and Analysis Plan* for the Pine Hall Road Ash Landfill dated November 1, 2008.

Table 2–Field and Analytical Results for Semiannual Constituents*
Duke Energy Carolinas, LLC/Belews Creek Steam Station
Pine Hall Road Ash Landfill - Permit No. 8503

Sample Dates: April 23-24, 2012 Laboratory Certificate Codes:
Duke Energy Carolinas Field #5193
Duke Energy Analytical Laboratory #248
Pace Analytical Laboratory #40
Field Sampling performed by Duke Energy Carolinas, LLC

| Parameter | SWS ID | Units | Certificate Code | Monitoing Well | Surface Water Sample Locations | | Field Blank | SWSL | 15A NCAC |
|----------------------------|--------|---------|------------------|------------------|--------------------------------|--------------|-------------|---------|-------------|
| | | | | 8503 OB-9 | 8503 SW-1A | 8503 SW-2 | | | 2L Standard |
| Field pH | 320 | SU | 5193 | 5.1 | 6.0 | 6.7 | - | - | 6.5-8.5 |
| Field Specific Conductance | 323 | umho/cm | 5193 | 2,131 | 1,674 | 355 | - | - | - |
| Temperature | 325 | °C | 5193 | 14.53 | 11.71 | 11.68 | - | - | - |
| Top Casing | 328 | feet | - | 799.59 | - | - | - | - | - |
| Depth to Water | 318 | feet | - | 37.69 | N/A | N/A | - | - | - |
| Water Elevation | 319 | feet | - | 761.90 | N/A | N/A | - | - | - |
| Well Depth | 411 | feet | - | 48.57 | N/A | N/A | - | - | - |
| Arsenic | 14 | ug/L | 248 | 1.36 J' | 0.667 U | 0.667 U | 0.667 U | 10 | 10 |
| Barium | 15 | ug/L | 248 | 17.4 J' | 44.1 J' | 30.5 J' | 3.34 U | 100 | 700 |
| Boron | 428 | ug/L | 248 | 30,260 | 16,770 | 2,988 | 33.4 U | NE | 700 |
| Cadmium | 34 | ug/L | 248 | 4.8 | 0.738 J | 0.667 U | 0.667 U | 1 | 2 |
| Chloride | 455 | ug/L | 248 | 12,360 | 12,150 | 5,234 | 29 J | NE | 250,000 |
| Chromium | 51 | ug/L | 248 | 3.34 U | 3.34 U | 3.34 U | 3.34 U | 10 | 10 |
| Copper | 54 | ug/L | 248 | 3.34 U | 3.34 U | 3.34 U | 3.34 U | 10 | 1,000 |
| Fluoride | 312 | ug/L | 248 | 370 J | 508 J | 90.6 J | 39.2 J | 2,000 | 2,000 |
| Iron | 340 | ug/L | 248 | 6.67 U | 105 J' | 168 J' | 6.67 U | 300 | 300 |
| Lead | 131 | ug/L | 248 | 0.667 U | 0.667 U | 0.667 U | 0.667 U | 10 | 15 |
| Manganese | 342 | ug/L | 248 | 3,396 | 1,346 | 65 | 3.34 U | 50 | 50 |
| Mercury | 132 | ug/L | 248 | 0.215 | 0.006 U | 0.006 U | 0.006 U | 0.2 | 1 |
| Nickel | 152 | ug/L | 248 | 18.3 J' | 4.94 J | 3.34 U | 3.34 U | 50 | 100 |
| Nitrate (as Nitrogen) | 303 | ug/L | 248 | 5,249 J' | 25,340 | 589 J' | 5.4 U | 10,000 | 10,000 |
| Selenium | 183 | ug/L | 248 | 378 | 128 | 22.3 | 0.667 U | 10 | 20 |
| Silver | 184 | ug/L | 248 | 3.34 U | 3.34 U | 3.34 U | 3.34 U | 10 | 20 |
| Sulfate | 315 | ug/L | 248 | 1,311,000 | 840,700 | 91,720 J' | 18 U | 250,000 | 250,000 |
| Total Dissolved Solids | 311 | ug/L | 40 | 2,030,000 | 1,470,000 | 203,000 | - | NE | 500,000 |
| Zinc | 213 | ug/L | 248 | 81.3 | 14.7 | 7.39 J' | 3.34 U | 10 | 1,000 |

Notes:

- Concentrations presented in micrograms per liter (µg/L) except where noted.
- 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 is from "North Carolina Administrative Code, Title 15A: Department of Environment and Natural Resources, Subchapter 2L - Groundwater Classifications and Standards," NCDENR (last a
- Grayed values indicate values that attain or exceed the SWSL standard.
- Bold values indicate values that attain or exceed the 15A NCAC 2L standard.
- 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 for parameters not detected at concentrations above the method detection limit (MDL). "J" is used for parameters detected at estimated concentrations above the MDL but below the laboratory's method reporting limit (MRL). An italicized J'-flag is a data qualifier, added by HDR, to indicate a detected concentration that is greater than the laboratory's MRL but less than the SWSL.
- Data obtained from Electronic Data Deliverable (EDD) provided by Tim Hunsucker of Duke Energy Carolinas, LLC on May 9, 2012.
- 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 for the analyses completed. Therefore, the SWSL and 2L listed are for the chloride with CAS number SW301 as specified on the Constituent Look-up webpage (last updated June 13, 2011).
- * Semiannual constituents refers to constituents required to be analyzed in the *Groundwater Monitoring, Sampling and Analysis Plan* for the Pine Hall Road Ash Landfill dated November 1, 2008.

**Table 3—Analytical Results for Appendix I - 40 CFR Part 258 Constituents
Duke Energy Carolinas, LLC/Belews Creek Steam Station
Pine Hall Road Ash Landfill - Permit No. 8503**

| Compound | 15A NCAC 2L Standard (µg/L) | SWSL Standard (µg/L) | 8503-MW-1 | 8503-MW-1D | 8503-MW-2 | 8503-MW-3 | 8503-MW-4 | 8503-MW-5 |
|----------------------------------|-----------------------------|----------------------|-----------|------------|-----------|-----------|-----------|-----------|
| (1) Antimony | 1* | 6 | 0.667 U | 0.667 U | NS | 0.667 U | 0.667 U | 0.667 U |
| (2) Arsenic | ** | ** | ** | ** | NS | ** | ** | ** |
| (3) Barium | ** | ** | ** | ** | NS | ** | ** | ** |
| (4) Beryllium | 4* | 1 | 3.34 U | 3.34 U | NS | 3.34 U | 3.34 U | 3.34 U |
| (5) Cadmium | ** | ** | ** | ** | NS | ** | ** | ** |
| (6) Chromium | ** | ** | ** | ** | NS | ** | ** | ** |
| (7) Cobalt | 1* | 10 | 0.818 J | 0.667 U | NS | 0.667 U | 0.667 U | 0.667 U |
| (8) Copper | ** | ** | ** | ** | NS | ** | ** | ** |
| (9) Lead | ** | ** | ** | ** | NS | ** | ** | ** |
| (10) Nickel | ** | ** | ** | ** | NS | ** | ** | ** |
| (11) Selenium | ** | ** | ** | ** | NS | ** | ** | ** |
| (12) Silver | ** | ** | ** | ** | NS | ** | ** | ** |
| (13) Thallium | 0.2* | 5.5 | 0.133 U | 0.133 U | NS | 0.133 U | 0.133 U | 0.133 U |
| (14) Vanadium | 0.3* | 25 | 0.667 U | 0.667 U | NS | 0.667 U | 0.667 U | 0.667 U |
| (15) Zinc | ** | ** | ** | ** | NS | ** | ** | ** |
| (16) Acetone | 6000 | 100 | 2.2 U | 2.2 U | NS | 2.2 U | 2.2 U | 2.2 U |
| (17) Acrylonitrile | NE | 200 | 1.9 U | 1.9 U | NS | 1.9 U | 1.9 U | 1.9 U |
| (18) Benzene | 1 | 1 | 0.25 U | 0.25 U | NS | 0.25 U | 0.25 U | 0.25 U |
| (19) Bromochloromethane | NE | 3 | 0.17 U | 0.17 U | NS | 0.17 U | 0.17 U | 0.17 U |
| (20) Bromodichloromethane | 0.6 | 1 | 0.18 U | 0.18 U | NS | 0.18 U | 0.18 U | 0.18 U |
| (21) Bromoform | 4 | 3 | 0.26 U | 0.26 U | NS | 0.26 U | 0.26 U | 0.26 U |
| (22) Carbon disulfide | 700 | 100 | 1.2 U | 1.2 U | NS | 1.2 U | 1.2 U | 1.2 U |
| (23) Carbon tetrachloride | 0.3 | 1 | 0.25 U | 0.25 U | NS | 0.25 U | 0.25 U | 0.25 U |
| (24) Chlorobenzene | 50 | 3 | 0.23 U | 0.23 U | NS | 0.23 U | 0.23 U | 0.23 U |
| (25) Chloroethane | 3000 | 10 | 0.54 U | 0.54 U | NS | 0.54 U | 0.54 U | 0.54 U |
| (26) Chloroform | 70 | 5 | 0.14 U | 0.14 U | NS | 0.14 U | 0.14 U | 0.14 U |
| (27) Dibromochloromethane | 0.4 | 3 | 0.21 U | 0.21 U | NS | 0.21 U | 0.21 U | 0.21 U |
| (28) 1,2-Dibromo-3-chloropropane | 0.04 | 13 | 2.5 U | 2.5 U | NS | 2.5 U | 2.5 U | 2.5 U |
| (29) 1,2-Dibromoethane (EDB) | 0.02 | 1 | 0.27 U | 0.27 U | NS | 0.27 U | 0.27 U | 0.27 U |
| (30) 1,2-Dichlorobenzene | 20 | 5 | 0.3 U | 0.3 U | NS | 0.3 U | 0.3 U | 0.3 U |
| (31) 1,4-Dichlorobenzene | 6 | 1 | 0.33 U | 0.33 U | NS | 0.33 U | 0.33 U | 0.33 U |
| (32) trans-1,4-Dichloro-2-butene | NE | 100 | 1 U | 1 U | NS | 1 U | 1 U | 1 U |
| (33) 1,1-Dichloroethane | 6 | 5 | 0.32 U | 0.32 U | NS | 0.32 U | 0.32 U | 0.32 U |
| (34) 1,2-Dichloroethane | 0.4 | 1 | 0.12 U | 0.12 U | NS | 0.12 U | 0.12 U | 0.12 U |
| (35) 1,1-Dichloroethene | 7 | 5 | 0.56 U | 0.56 U | NS | 0.56 U | 0.56 U | 0.56 U |
| (36) cis-1,2-Dichloroethene | 70 | 5 | 0.19 U | 0.19 U | NS | 0.19 U | 0.19 U | 0.19 U |
| (37) trans-1,2-Dichloroethene | 100 | 5 | 0.49 U | 0.49 U | NS | 0.49 U | 0.49 U | 0.49 U |
| (38) 1,2-Dichloropropane | 0.6 | 1 | 0.27 U | 0.27 U | NS | 0.27 U | 0.27 U | 0.27 U |
| (39) cis-1,3-Dichloropropene | 0.4 | 1 | 0.13 U | 0.13 U | NS | 0.13 U | 0.13 U | 0.13 U |
| (40) trans-1,3-Dichloropropene | 0.4 | 1 | 0.26 U | 0.26 U | NS | 0.26 U | 0.26 U | 0.26 U |
| (41) Ethylbenzene | 600 | 1 | 0.3 U | 0.3 U | NS | 0.3 U | 0.3 U | 0.3 U |
| (42) 2-Hexanone | 40* | 50 | 0.46 U | 0.46 U | NS | 0.46 U | 0.46 U | 0.46 U |
| (43) Bromomethane | 10* | 10 | 0.29 U | 0.29 U | NS | 0.29 U | 0.29 U | 0.29 U |
| (44) Chloromethane | 3 | 1 | 0.11 U | 0.11 U | NS | 0.11 U | 0.11 U | 0.11 U |
| (45) Dibromomethane | 70* | 10 | 0.21 U | 0.21 U | NS | 0.21 U | 0.21 U | 0.21 U |
| (46) Methylene Chloride | 5 | 1 | 0.97 U | 0.97 U | NS | 0.97 U | 0.97 U | 0.97 U |
| (47) 2-Butanone (MEK) | 4000 | 100 | 0.96 U | 0.96 U | NS | 0.96 U | 0.96 U | 0.96 U |
| (48) Iodomethane | NE | 10 | 0.32 U | 0.32 U | NS | 0.32 U | 0.32 U | 0.32 U |
| (49) 4-Methyl-2-pentanone (MIBK) | NE | 100 | 0.33 U | 0.33 U | NS | 0.33 U | 0.33 U | 0.33 U |
| (50) Styrene | 70 | 1 | 0.26 U | 0.26 U | NS | 0.26 U | 0.26 U | 0.26 U |
| (51) 1,1,1,2-Tetrachloroethane | 1* | 5 | 0.33 U | 0.33 U | NS | 0.33 U | 0.33 U | 0.33 U |
| (52) 1,1,1,2,2-Tetrachloroethane | 0.2 | 3 | 0.4 U | 0.4 U | NS | 0.4 U | 0.4 U | 0.4 U |
| (53) Tetrachloroethene | 0.7 | 1 | 0.46 U | 0.46 U | NS | 0.46 U | 0.46 U | 0.46 U |
| (54) Toluene | 600 | 1 | 0.26 U | 0.26 U | NS | 0.26 U | 0.26 U | 0.26 U |
| (55) 1,1,1-Trichloroethane | 200 | 1 | 0.48 U | 0.48 U | NS | 0.48 U | 0.48 U | 0.48 U |
| (56) 1,1,2-Trichloroethane | 0.6* | 1 | 0.29 U | 0.29 U | NS | 0.29 U | 0.29 U | 0.29 U |
| (57) Trichloroethene | 3 | 1 | 0.47 U | 0.47 U | NS | 0.47 U | 0.47 U | 0.47 U |
| (58) Trichlorofluoromethane | 2000 | 1 | 0.2 U | 0.2 U | NS | 0.2 U | 0.2 U | 0.2 U |
| (59) 1,2,3-Trichloropropane | 0.005 | 1 | 0.41 U | 0.41 U | NS | 0.41 U | 0.41 U | 0.41 U |
| (60) Vinyl acetate | 88* | 50 | 0.35 U | 0.35 U | NS | 0.35 U | 0.35 U | 0.35 U |
| (61) Vinyl chloride | 0.03 | 1 | 0.62 U | 0.62 U | NS | 0.62 U | 0.62 U | 0.62 U |
| (62) m,p,o-Xylenes | 500 | 5 | 0.66 U | 0.66 U | NS | 0.66 U | 0.66 U | 0.66 U |

- Notes:
- Concentrations presented in micrograms per liter (µg/L).
 - 15A NCAC 2L Standard is from "North Carolina Administrative Code, Title 15A: Department of Environment and Natural Resources, Subchapter 2L - Groundwater Classifications and Standard
 - * Indicates a 2L Interim Maximum Allowable Concentration (IMAC).
 - SWSL is the Solid Waste Section Limit. This limit (identified by NCDENR) is the lowest amount of analyte in a sample that can be quantitatively determined with suitable precision and accuracy.
 - Bold values indicate values that attain or exceed the 15A NCAC 2L Standard.
 - Grayed values indicate values that attain or exceed the SWSL standard.
 - NE means 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 for parameters not detected at concentrations above the Method Detection Limit (MDL). "J" is used for parameters detected at estimated concentrations above the Method Detection Limit (MDL) but below the laboratory's Method Reporting Limit (MRL). An italicized "J"-flag is a data qualifier, added by HDR, to indicate a detected concentration that is greater than the laboratory's MRL but less than the SWSL.
 - Data obtained from Electronic Data Deliverable (EDD) provided by Tim Hunsucker of Duke Energy Carolinas, LLC on May 9, 2012.
 - Laboratory Certificate Codes:
Duke Energy Analytical Laboratory #248 - Compounds (1) through (17), (19) through (59)
Pace Analytical Laboratory #40- Compound (18)
Pace Analytical Laboratory #12- Compound (60) through (62)
 - ** See Table 2 for Analytical Results

**Table 3—Analytical Results for Appendix I - 40 CFR Part 258 Constituents
Duke Energy Carolinas, LLC/Belews Creek Steam Station
Pine Hall Road Ash Landfill - Permit No. 8503**

| Compound | 15A NCAC 2L Standard (µg/L) | SWSL Standard (µg/L) | 8503-MW-6 | 8503-MW-7 | 8503-MW2-7 | 8503-MW2-9 | 8503-OB-4 | 8503-OB-5 |
|----------------------------------|-----------------------------|----------------------|-----------|-----------|------------|------------|-----------|-----------|
| (1) Antimony | 1* | 6 | 0.667 U | 0.667 U | 0.667 U | 0.667 U | 29.9 | 0.667 U |
| (2) Arsenic | ** | ** | ** | ** | ** | ** | ** | ** |
| (3) Barium | ** | ** | ** | ** | ** | ** | ** | ** |
| (4) Beryllium | 4* | 1 | 3.34 U | 3.34 U | 3.34 U | 3.34 U | 3.34 U | 3.34 U |
| (5) Cadmium | ** | ** | ** | ** | ** | ** | ** | ** |
| (6) Chromium | ** | ** | ** | ** | ** | ** | ** | ** |
| (7) Cobalt | 1* | 10 | 0.667 U | 1.38 J | 0.667 U | 20 | 0.93 J | 0.667 U |
| (8) Copper | ** | ** | ** | ** | ** | ** | ** | ** |
| (9) Lead | ** | ** | ** | ** | ** | ** | ** | ** |
| (10) Nickel | ** | ** | ** | ** | ** | ** | ** | ** |
| (11) Selenium | ** | ** | ** | ** | ** | ** | ** | ** |
| (12) Silver | ** | ** | ** | ** | ** | ** | ** | ** |
| (13) Thallium | 0.2* | 5.5 | 0.133 U | 0.133 U | 0.133 U | 0.133 U | 13.1 | 0.133 U |
| (14) Vanadium | 0.3* | 25 | 0.667 U | 5.84 J | 0.667 U | 0.667 U | 192 | 0.667 U |
| (15) Zinc | ** | ** | ** | ** | NS | ** | ** | ** |
| (16) Acetone | 6000 | 100 | 2.2 U | 2.2 U | 2.2 U | 2.2 U | 2.2 U | 2.2 U |
| (17) Acrylonitrile | NE | 200 | 1.9 U | 1.9 U | 1.9 U | 1.9 U | 1.9 U | 1.9 U |
| (18) Benzene | 1 | 1 | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| (19) Bromochloromethane | NE | 3 | 0.17 U | 0.17 U | 0.17 U | 0.17 U | 0.17 U | 0.17 U |
| (20) Bromodichloromethane | 0.6 | 1 | 0.18 U | 0.18 U | 0.18 U | 0.18 U | 0.18 U | 0.18 U |
| (21) Bromoform | 4 | 3 | 0.26 U | 0.26 U | 0.26 U | 0.26 U | 0.26 U | 0.26 U |
| (22) Carbon disulfide | 700 | 100 | 1.2 U | 1.2 U | 1.2 U | 1.2 U | 1.2 U | 1.2 U |
| (23) Carbon tetrachloride | 0.3 | 1 | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| (24) Chlorobenzene | 50 | 3 | 0.23 U | 0.23 U | 0.23 U | 0.23 U | 0.23 U | 0.23 U |
| (25) Chloroethane | 3000 | 10 | 0.54 U | 0.54 U | 0.54 U | 0.54 U | 0.54 U | 0.54 U |
| (26) Chloroform | 70 | 5 | 6.3 | 0.14 U | 0.14 U | 0.14 U | 0.14 U | 0.14 U |
| (27) Dibromochloromethane | 0.4 | 3 | 0.21 U | 0.21 U | 0.21 U | 0.21 U | 0.21 U | 0.21 U |
| (28) 1,2-Dibromo-3-chloropropane | 0.04 | 13 | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U | 2.5 U |
| (29) 1,2-Dibromoethane (EDB) | 0.02 | 1 | 0.27 U | 0.27 U | 0.27 U | 0.27 U | 0.27 U | 0.27 U |
| (30) 1,2-Dichlorobenzene | 20 | 5 | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U |
| (31) 1,4-Dichlorobenzene | 6 | 1 | 0.33 U | 0.33 U | 0.33 U | 0.33 U | 0.33 U | 0.33 U |
| (32) trans-1,4-Dichloro-2-butene | NE | 100 | 1 U | 1 U | 1 U | 1 U | 1 U | 1 U |
| (33) 1,1-Dichloroethane | 6 | 5 | 0.32 U | 0.32 U | 0.32 U | 0.32 U | 0.32 U | 0.32 U |
| (34) 1,2-Dichloroethane | 0.4 | 1 | 0.12 U | 0.12 U | 0.12 U | 0.12 U | 0.12 U | 0.12 U |
| (35) 1,1-Dichloroethene | 7 | 5 | 0.56 U | 0.56 U | 0.56 U | 0.56 U | 0.56 U | 0.56 U |
| (36) cis-1,2-Dichloroethene | 70 | 5 | 0.19 U | 0.19 U | 0.19 U | 0.19 U | 0.19 U | 0.19 U |
| (37) trans-1,2-Dichloroethene | 100 | 5 | 0.49 U | 0.49 U | 0.49 U | 0.49 U | 0.49 U | 0.49 U |
| (38) 1,2-Dichloropropane | 0.6 | 1 | 0.27 U | 0.27 U | 0.27 U | 0.27 U | 0.27 U | 0.27 U |
| (39) cis-1,3-Dichloropropene | 0.4 | 1 | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U | 0.13 U |
| (40) trans-1,3-Dichloropropene | 0.4 | 1 | 0.26 U | 0.26 U | 0.26 U | 0.26 U | 0.26 U | 0.26 U |
| (41) Ethylbenzene | 600 | 1 | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U | 0.3 U |
| (42) 2-Hexanone | 40* | 50 | 0.46 U | 0.46 U | 0.46 U | 0.46 U | 0.46 U | 0.46 U |
| (43) Bromomethane | 10* | 10 | 0.29 U | 0.29 U | 0.29 U | 0.29 U | 0.29 U | 0.29 U |
| (44) Chloromethane | 3 | 1 | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U | 0.11 U |
| (45) Dibromomethane | 70* | 10 | 0.21 U | 0.21 U | 0.21 U | 0.21 U | 0.21 U | 0.21 U |
| (46) Methylene Chloride | 5 | 1 | 0.97 U | 0.97 U | 0.97 U | 0.97 U | 0.97 U | 0.97 U |
| (47) 2-Butanone (MEK) | 4000 | 100 | 0.96 U | 0.96 U | 0.96 U | 0.96 U | 0.96 U | 0.96 U |
| (48) Iodomethane | NE | 10 | 0.32 U | 0.32 U | 0.32 U | 0.32 U | 0.32 U | 0.32 U |
| (49) 4-Methyl-2-pentanone (MIBK) | NE | 100 | 0.33 U | 0.33 U | 0.33 U | 0.33 U | 0.33 U | 0.33 U |
| (50) Styrene | 70 | 1 | 0.26 U | 0.26 U | 0.26 U | 0.26 U | 0.26 U | 0.26 U |
| (51) 1,1,1,2-Tetrachloroethane | 1* | 5 | 0.33 U | 0.33 U | 0.33 U | 0.33 U | 0.33 U | 0.33 U |
| (52) 1,1,1,2,2-Tetrachloroethane | 0.2 | 3 | 0.4 U | 0.4 U | 0.4 U | 0.4 U | 0.4 U | 0.4 U |
| (53) Tetrachloroethene | 0.7 | 1 | 0.46 U | 0.46 U | 0.46 U | 0.46 U | 0.46 U | 0.46 U |
| (54) Toluene | 600 | 1 | 0.26 U | 0.26 U | 0.26 U | 0.26 U | 0.26 U | 0.26 U |
| (55) 1,1,1-Trichloroethane | 200 | 1 | 0.48 U | 0.48 U | 0.48 U | 0.48 U | 0.48 U | 0.48 U |
| (56) 1,1,2-Trichloroethane | 0.6* | 1 | 0.29 U | 0.29 U | 0.29 U | 0.29 U | 0.29 U | 0.29 U |
| (57) Trichloroethene | 3 | 1 | 0.47 U | 0.47 U | 0.47 U | 0.47 U | 0.47 U | 0.47 U |
| (58) Trichlorofluoromethane | 2000 | 1 | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| (59) 1,2,3-Trichloropropane | 0.005 | 1 | 0.41 U | 0.41 U | 0.41 U | 0.41 U | 0.41 U | 0.41 U |
| (60) Vinyl acetate | 88* | 50 | 0.35 U | 0.35 U | 0.35 U | 0.35 U | 0.35 U | 0.35 U |
| (61) Vinyl chloride | 0.03 | 1 | 0.62 U | 0.62 U | 0.62 U | 0.62 U | 0.62 U | 0.62 U |
| (62) m,p,o-Xylenes | 500 | 5 | 0.66 U | 0.66 U | 0.66 U | 0.66 U | 0.66 U | 0.66 U |

- Notes:
- Concentrations presented in micrograms per liter (µg/L).
 - 15A NCAC 2L Standard is from "North Carolina Administrative Code, Title 15A: Department of Environment and Natural Resources, Subchapter 2L - Groundwater Classifications and Standard
 - * Indicates a 2L Interim Maximum Allowable Concentration (IMAC).
 - SWSL is the Solid Waste Section Limit. This limit (identified by NCDENR) is the lowest amount of analyte in a sample that can be quantitatively determined with suitable precision and accuracy.
 - Bold values indicate values that attain or exceed the 15A NCAC 2L Standard.
 - Grayed values indicate values that attain or exceed the SWSL standard.
 - NE means 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 for parameters not detected at concentrations above the Method Detection Limit (MDL). "J" is used for parameters detected at estimated concentrations above the Method Detection Limit (MDL) but below the laboratory's Method Reporting Limit (MRL). An italicized "J"-flag is a data qualifier, added by HDR, to indicate a detected concentration that is greater than the laboratory's MRL but less than the SWSL.
 - Data obtained from Electronic Data Deliverable (EDD) provided by Tim Hunsucker of Duke Energy Carolinas, LLC on May 9, 2012.
 - Laboratory Certificate Codes:
 Duke Energy Analytical Laboratory #248 - Compounds (1) through (17), (19) through (59)
 Pace Analytical Laboratory #40- Compound (18)
 Pace Analytical Laboratory #12- Compound (60) through (62)
 - ** See Table 2 for Analytical Results

**Table 3—Analytical Results for Appendix I - 40 CFR Part 258 Constituents
Duke Energy Carolinas, LLC/Belews Creek Steam Station
Pine Hall Road Ash Landfill - Permit No. 8503**

| | Compound | 15A NCAC 2L Standard (µg/L) | SWSL Standard (µg/L) | 8503-08-9 | 8503-SW-1A | 8503-SW-2 | FIELD BLANK |
|------|-----------------------------|--------------------------------------|----------------------------|-----------|--------------|-----------|-------------|
| (1) | Antimony | 1* | 6 | 0.667 U | 0.667 U | 0.667 U | 0.667 U |
| (2) | Arsenic | ** | ** | ** | ** | ** | ** |
| (3) | Barium | ** | ** | ** | ** | ** | ** |
| (4) | Beryllium | 4* | 1 | 3.34 U | 3.34 U | 3.34 U | 3.34 U |
| (5) | Cadmium | ** | ** | ** | ** | ** | ** |
| (6) | Chromium | ** | ** | ** | ** | ** | ** |
| (7) | Cobalt | 1* | 10 | 0.667 U | 1.8 J | 0.667 U | 0.667 U |
| (8) | Copper | ** | ** | ** | ** | ** | ** |
| (9) | Lead | ** | ** | ** | ** | ** | ** |
| (10) | Nickel | ** | ** | ** | ** | ** | ** |
| (11) | Selenium | ** | ** | ** | ** | ** | ** |
| (12) | Silver | ** | ** | ** | ** | ** | ** |
| (13) | Thallium | 0.2* | 5.5 | 0.133 U | 0.133 U | 0.133 U | 0.133 U |
| (14) | Vanadium | 0.3* | 25 | 0.667 U | 0.667 U | 0.667 U | 0.667 U |
| (15) | Zinc | ** | ** | ** | ** | ** | ** |
| (16) | Acetone | 6000 | 100 | 2.2 U | 2.2 U | 2.2 U | 2.2 U |
| (17) | Acrylonitrile | NE | 200 | 1.9 U | 1.9 U | 1.9 U | 1.9 U |
| (18) | Benzene | 1 | 1 | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| (19) | Bromochloromethane | NE | 3 | 0.17 U | 0.17 U | 0.17 U | 0.17 U |
| (20) | Bromodichloromethane | 0.6 | 1 | 0.18 U | 0.18 U | 0.18 U | 0.18 U |
| (21) | Bromoform | 4 | 3 | 0.26 U | 0.26 U | 0.26 U | 0.26 U |
| (22) | Carbon disulfide | 700 | 100 | 1.2 U | 1.2 U | 1.2 U | 1.2 U |
| (23) | Carbon tetrachloride | 0.3 | 1 | 0.25 U | 0.25 U | 0.25 U | 0.25 U |
| (24) | Chlorobenzene | 50 | 3 | 0.23 U | 0.23 U | 0.23 U | 0.23 U |
| (25) | Chloroethane | 3000 | 10 | 0.54 U | 0.54 U | 0.54 U | 0.54 U |
| (26) | Chloroform | 70 | 5 | 0.14 U | 0.14 U | 0.14 U | 0.14 U |
| (27) | Dibromochloromethane | 0.4 | 3 | 0.21 U | 0.21 U | 0.21 U | 0.21 U |
| (28) | 1,2-Dibromo-3-chloropropane | 0.04 | 13 | 2.5 U | 2.5 U | 2.5 U | 2.5 U |
| (29) | 1,2-Dibromoethane (EDB) | 0.02 | 1 | 0.27 U | 0.27 U | 0.27 U | 0.27 U |
| (30) | 1,2-Dichlorobenzene | 20 | 5 | 0.3 U | 0.3 U | 0.3 U | 0.3 U |
| (31) | 1,4-Dichlorobenzene | 6 | 1 | 0.33 U | 0.33 U | 0.33 U | 0.33 U |
| (32) | trans-1,4-Dichloro-2-butene | NE | 100 | 1 U | 1 U | 1 U | 1 U |
| (33) | 1,1-Dichloroethane | 6 | 5 | 0.32 U | 0.32 U | 0.32 U | 0.32 U |
| (34) | 1,2-Dichloroethane | 0.4 | 1 | 0.12 U | 0.12 U | 0.12 U | 0.12 U |
| (35) | 1,1-Dichloroethene | 7 | 5 | 0.56 U | 0.56 U | 0.56 U | 0.56 U |
| (36) | cis-1,2-Dichloroethene | 70 | 5 | 0.19 U | 0.19 U | 0.19 U | 0.19 U |
| (37) | trans-1,2-Dichloroethene | 100 | 5 | 0.49 U | 0.49 U | 0.49 U | 0.49 U |
| (38) | 1,2-Dichloropropane | 0.6 | 1 | 0.27 U | 0.27 U | 0.27 U | 0.27 U |
| (39) | cis-1,3-Dichloropropene | 0.4 | 1 | 0.13 U | 0.13 U | 0.13 U | 0.13 U |
| (40) | trans-1,3-Dichloropropene | 0.4 | 1 | 0.26 U | 0.26 U | 0.26 U | 0.26 U |
| (41) | Ethylbenzene | 600 | 1 | 0.3 U | 0.3 U | 0.3 U | 0.3 U |
| (42) | 2-Hexanone | 40* | 50 | 0.46 U | 0.46 U | 0.46 U | 0.46 U |
| (43) | Bromomethane | 10* | 10 | 0.29 U | 0.29 U | 0.29 U | 0.29 U |
| (44) | Chloromethane | 3 | 1 | 0.11 U | 0.11 U | 0.11 U | 0.11 U |
| (45) | Dibromomethane | 70* | 10 | 0.21 U | 0.21 U | 0.21 U | 0.21 U |
| (46) | Methylene Chloride | 5 | 1 | 0.97 U | 0.97 U | 0.97 U | 0.97 U |
| (47) | 2-Butanone (MEK) | 4000 | 100 | 0.96 U | 0.96 U | 0.96 U | 0.96 U |
| (48) | Iodomethane | NE | 10 | 0.32 U | 0.32 U | 0.32 U | 0.32 U |
| (49) | 4-Methyl-2-pentanone (MIBK) | NE | 100 | 0.33 U | 0.33 U | 0.33 U | 0.33 U |
| (50) | Styrene | 70 | 1 | 0.26 U | 0.26 U | 0.26 U | 0.26 U |
| (51) | 1,1,1,2-Tetrachloroethane | 1* | 5 | 0.33 U | 0.33 U | 0.33 U | 0.33 U |
| (52) | 1,1,1,2-Tetrachloroethane | 0.2 | 3 | 0.4 U | 0.4 U | 0.4 U | 0.4 U |
| (53) | Tetrachloroethene | 0.7 | 1 | 0.46 U | 0.46 U | 0.46 U | 0.46 U |
| (54) | Toluene | 600 | 1 | 0.26 U | 0.26 U | 0.26 U | 0.26 U |
| (55) | 1,1,1-Trichloroethane | 200 | 1 | 0.48 U | 0.48 U | 0.48 U | 0.48 U |
| (56) | 1,1,2-Trichloroethane | 0.6* | 1 | 0.29 U | 0.29 U | 0.29 U | 0.29 U |
| (57) | Trichloroethene | 3 | 1 | 0.47 U | 0.47 U | 0.47 U | 0.47 U |
| (58) | Trichlorofluoromethane | 2000 | 1 | 0.2 U | 0.2 U | 0.2 U | 0.2 U |
| (59) | 1,2,3-Trichloropropane | 0.005 | 1 | 0.41 U | 0.41 U | 0.41 U | 0.41 U |
| (60) | Vinyl acetate | 88* | 50 | 0.35 U | 0.35 U | 0.35 U | 0.35 U |
| (61) | Vinyl chloride | 0.03 | 1 | 0.62 U | 0.62 U | 0.62 U | 0.62 U |
| (62) | m,p,o-Xylenes | 500 | 5 | 0.66 U | 0.66 U | 0.66 U | 0.66 U |

Notes:

- Concentrations presented in micrograms per liter (µg/L).
- 15A NCAC 2L Standard is from "North Carolina Administrative Code, Title 15A: Department of Environment and Natural Resources, Subchapter 2L - Groundwater"
- * Indicates a 2L Interim Maximum Allowable Concentration (IMAC).
- SWSL is the Solid Waste Section Limit. This limit (identified by NCDENR) is the lowest amount of analyte in a sample that can be quantitatively determined with
- Bold values indicate values that attain or exceed the 15A NCAC 2L Standard.
- Grayed values indicate values that attain or exceed the SWSL standard.
- NE means 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 for parameters not detected at concentrations above the Method Detection Limit (MDL) but below the laboratory's Method Reporting Limit (MRL). An italicized J-flag is a qualifier, added by HDR, to indicate a detected concentration that is greater than the laboratory's MRL but less than the SWSL.
- Data obtained from Electronic Data Deliverable (EDD) provided by Tim Hunsucker of Duke Energy Carolinas, LLC on May 9, 2012.
- Laboratory Certificate Codes:
 Duke Energy Analytical Laboratory #248 - Compounds (1) through (17), (19) through (59)
 Pace Analytical Laboratory #40 - Compound (18)
 Pace Analytical Laboratory #12 - Compound (60) through (62)
- ** See Table 2 for Analytical Results

**Table 4—Semiannual Constituents* 15A NCAC 2L Groundwater Quality Exceedances
for Wells Within Review Boundary
Duke Energy Carolinas, LLC/Belews Creek Steam Station
Pine Hall Road Ash Landfill - Permit No. 8503**

| Sample Dates: April 23-24, 2012 | | | | | | |
|---------------------------------|---------|-----------|-------|-------------------------|-------------------------|---|
| Parameter | Well ID | Result | Units | 15A NCAC 2L Standard | Historic Concentrations | Cause and Significance |
| pH | MW-4 | 6.1 | SU | 6.5 - 8.5 | 5.4 - 6.7 | pH at MW-4 is consistent with historic readings at well. |
| | MW-7 | 5.3 | SU | | 5.2 - 6.2 | pH at MW-7 is consistent with historic readings at well. |
| | MW2-7 | 5.2 | SU | | 5.0 - 5.5 | pH at MW2-7 is consistent with historic readings at well. |
| | OB-5 | 5.6 | SU | | 5.0 - 5.7 | pH at OB-5 is consistent with historic readings at well. |
| | OB-9 | 5.1 | SU | | 4.9 - 5.7 | pH at OB-9 is consistent with historic readings at well. |
| Arsenic | OB-4 | 53.9 | ug/L | 10 | 29.46 - 91.80 | Arsenic concentration in OB-4 is consistent with historic readings at well. |
| Boron | MW-7 | 3,673 | ug/L | 700 | 12.4 - 6,740 | Boron concentration in MW-7 is consistent with historic readings at well. |
| | MW2-7 | 21,580 | ug/L | | 10,000 - 22,900 | MW2-7 is located inside of Review Boundary. Duke Energy is currently working on a groundwater assessment work plan to address the 2L exceedance in this well. |
| | OB-4 | 29,680 | ug/L | | 25,160 - 49,482 | Boron concentration in OB-4 is consistent with historic readings at well. |
| | OB-9 | 30,260 | ug/L | | 19,700 - 33,400 | Boron concentration in OB-9 is consistent with historic readings at well. |
| Cadmium | OB-4 | 2.29 | ug/L | 2 | 0.25 - 18.72 | Cadmium concentration in OB-4 is consistent with historic readings at well. |
| | OB-9 | 4.8 | ug/L | | 1.00 - 5.66 | Cadmium concentration in OB-9 is consistent with historic readings at well. |
| Chromium | MW-4 | 13.4 | ug/L | 10 | 5.80 - 29.00 | Chromium concentration in MW-4 is consistent with historic readings at well. |
| Iron | MW-7 | 8,157 | ug/L | 300 | 1,140 - 38,000 | Iron concentration in MW-7 is consistent with historic readings at well. |
| Manganese | MW-1D | 56.8 | ug/L | 50 | 15.70 - 483.00 | Manganese concentration in MW-1D is consistent with historic readings at well. |
| | MW-7 | 419 | ug/L | | 61.50 - 1,700 | Manganese concentration in MW-7 is consistent with historic readings at well. |
| | MW2-7 | 424 | ug/L | | 70.96 - 469.00 | MW2-7 is located inside of Review Boundary. Duke Energy is currently working on a groundwater assessment work plan to address the 2L exceedance in this well. |
| | OB-4 | 71.6 | ug/L | | 45.00 - 5,779 | Manganese concentration in OB-4 is consistent with historic readings at well. |
| | OB-9 | 3,396 | ug/L | | 1,010 - 3,766 | Manganese concentration in OB-9 is consistent with historic readings at well. |
| Nitrate as Nitrogen | MW2-7 | 34,630 | ug/L | 10,000 | 150.00 - 38,250 | Nitrate as Nitrogen concentration in MW2-7 is consistent with historic readings at well. |
| Selenium | MW-7 | 35.4 | ug/L | 20 | 5.00 - 66.73 | Selenium concentration in MW-7 is consistent with historic readings at well. |
| | MW2-7 | 192 | ug/L | | 66.32 - 204.00 | MW2-7 is located inside of Review Boundary. Duke Energy is currently working on a groundwater assessment work plan to address the 2L exceedance in this well. |
| | OB-4 | 206 | ug/L | | 10.63 - 350.40 | Selenium concentration in OB-4 is consistent with historic readings at well. |
| | OB-9 | 378 | ug/L | | 125.6 - 401.00 | Selenium concentration in OB-9 is consistent with historic readings at well. |
| Sulfate | MW2-7 | 1,240,000 | ug/L | 250,000 | 190,400 - 1,240,000 | Sulfate at MW2-7 is the highest historic value in the recording period. |
| | OB-4 | 1,676,000 | ug/L | | 26,000 - 1,746,550 | Sulfate concentration in OB-4 is consistent with historic readings at well. |
| | OB-9 | 1,311,000 | ug/L | | 44,790 - 1,311,000 | Sulfate concentration in OB-9 is the highest historic value in the recording period. |
| Total Dissolved Solids | MW2-7 | 2,010,000 | ug/L | 500,000 | 536,000 - 2,010,000 | TDS concentration in MW2-7 is consistent with historic readings at well. |
| | OB-4 | 2,480,000 | ug/L | | 2,260,000 - 2,900,000 | TDS concentration in OB-4 is consistent with historic readings at well. |
| | OB-9 | 2,030,000 | ug/L | | 1,530,000 - 2,170,000 | TDS concentration in OB-9 is consistent with historic readings at well. |

Notes:

1. Concentrations presented in micrograms per liter (µg/L) except where noted.
2. 15A NCAC 2L Standard is from "North Carolina Administrative Code, Title 15A: Department of Environment and Natural Resources, Subchapter 2L - Groundwater Classifications and Standards," NCDENR (last amended on January 1, 2010).
3. Data obtained from Electronic Data Deliverable (EDD) provided by Tim Hunsucker of Duke Energy Carolinas, LLC on May 9, 2012.
4. Historical concentrations based on data in Duke Energy Carolinas, LLC analytical results database.
5. Semiannual constituents refers to constituents required to be analyzed in the *Groundwater Monitoring, Sampling and Analysis Plan* for the Pine Hall Road Ash Landfill dated November 1, 2008.

**Table 5– Semiannual Constituents* NCAC 2L Groundwater Quality Exceedances
for Wells At or Beyond Review Boundary
Duke Energy Carolinas, LLC/Belews Creek Steam Station
Pine Hall Road Ash Landfill - Permit No. 8503**

| Sample Dates: April 23-24, 2012 | | | | | | |
|---------------------------------|---------|-----------|-------|-------------------------|-------------------------|---|
| Parameter | Well ID | Result | Units | 15A NCAC 2L Standard | Historic Concentrations | Cause and Significance |
| pH | MW-1 | 5.2 | SU | 6.5 - 8.5 | 4.3 - 5.6 | pH at MW-1 is consistent with historic readings at well. |
| | MW-3 | 5.7 | SU | | 5.0 - 6.1 | pH at MW-3 is consistent with historic readings at well. |
| | MW-5 | 6.0 | SU | | 5.0 - 6.4 | pH at MW-5 is consistent with historic readings at well. |
| | MW-6 | 5.7 | SU | | 4.9 - 5.7 | pH at MW-6 is consistent with historic readings at well. |
| | MW2-9 | 6.3 | SU | | 5.7 - 7.2 | pH at MW2-9 is consistent with historic readings at well. |
| | SW-1A | 6.0 | SU | | 5.5 - 6.1 | pH at SW-1A is consistent with historic readings at well. |
| Boron | SW-1A | 16,770 | ug/L | 700 | 11,400 - 20,250 | The surface water in the area of SW-1A is expected to flow into the Ash Basin. |
| | SW-2 | 2,988 | ug/L | | 2,988 - 19,161 | Boron concentration in SW-2 is consistent with historic readings at well. |
| Iron | MW2-9 | 11,960 | ug/L | 300 | 2,090 - 11,960 | Iron concentration in MW2-9 is the highest historic value in the recording period. The groundwater flow in the area of MW2-9 is expected to flow toward the Ash Basin. |
| Manganese | MW2-9 | 13,070 | ug/L | 50 | 2,526 - 13,070 | Manganese concentration in MW2-9 is the highest historic value in the recording period. The groundwater flow in the area of MW2-9 is expected to flow toward the Ash Basin. |
| | SW-1A | 1,346 | ug/L | | 45.22 - 1,660 | The surface water in the area of SW-1A is expected to flow into the Ash Basin. |
| | SW-2 | 65 | ug/L | | 63.65 - 4,130 | The surface water in the area of SW-2 is expected to flow into the Ash Basin. |
| Nitrate as Nitrogen | SW-1A | 25,340 | ug/L | 10,000 | 16,600 - 30,560 | The surface water in the area of SW-1A is expected to flow into the Ash Basin. |
| Selenium | SW-1A | 128 | ug/L | 20 | 39.1 - 159.0 | The surface water in the area of SW-1A is expected to flow into the Ash Basin. |
| | SW-2 | 22.3 | ug/L | | 18.2 - 61.4 | The surface water in the area of SW-2 is expected to flow into the Ash Basin. |
| Sulfate | SW-1A | 840,700 | ug/L | 250,000 | 31,600 - 960,600 | The surface water in the area of SW-1A is expected to flow into the Ash Basin. |
| Total Dissolved Solids | SW-1A | 1,470,000 | ug/L | 500,000 | 1,010,000 - 1,717,000 | The surface water in the area of SW-1A is expected to flow into the Ash Basin. |

Notes:

1. Concentrations presented in micrograms per liter (µg/L) except where noted.
2. 15A NCAC 2L Standard is from "North Carolina Administrative Code, Title 15A: Department of Environment and Natural Resources, Subchapter 2L - Groundwater Classifications and Standards," NCDENR (last amended on January 1, 2010).
3. Data obtained from Electronic Data Deliverable (EDD) provided by Tim Hunsucker of Duke Energy Carolinas, LLC on May 9, 2012.
4. Historical concentrations based on data in Duke Energy Carolinas, LLC analytical results database.
5. Semiannual constituents refers to constituents required to be analyzed in the *Groundwater Monitoring, Sampling and Analysis Plan* for the Pine Hall Road Ash Landfill dated November 1, 2008.

**Table 6–Appendix I Constituents 15A NCAC 2L Groundwater Quality Exceedances
for Wells Within Review Boundary
Duke Energy Carolinas, LLC/Belews Creek Steam Station
Pine Hall Road Ash Landfill - Permit No. 8503**

| Sample Dates: April 23-24, 2012 | | | | | | |
|---------------------------------|---------|--------|-------|-------------------------|-------------------------|--|
| Parameter | Well ID | Result | Units | 15A NCAC 2L Standard | Historic Concentrations | Cause and Significance |
| Antimony | OB-4 | 29.9 | ug/L | 1 | 7.1 - 98.5 | Antimony concentration in OB-4 is consistent with historic readings at well. |
| Cobalt | MW-7 | 1.38 | ug/L | 1* | 0.5 - 6.9 | Cobalt concentration in MW-7 is consistent with historic readings at well. |
| Thallium | OB-4 | 13.1 | ug/L | 0.2 | 9.4 - 25.8 | Thallium concentration in OB-4 is consistent with historic readings at well. |
| Vanadium | MW-7 | 5.84 | ug/L | 0.3* | 1.9 - 25.3 | Vanadium concentration in MW-7 is consistent with historic readings at well. |
| | OB-4 | 192 | ug/L | | 97.8 - 200.0 | Vanadium concentration in OB-4 is consistent with historic readings at well. |

Notes:

1. Concentrations presented in micrograms per liter (µg/L).
2. 15A NCAC 2L Standard is from "North Carolina Administrative Code, Title 15A: Department of Environment and Natural Resources, Subchapter 2L - Groundwater Classifications and Standards," NCDENR (last amended on January 1, 2010).
3. * Indicates a 2L Interim Maximum Allowable Concentration (IMAC).
4. Data obtained from Electronic Data Deliverable (EDD) provided by Tim Hunsucker of Duke Energy Carolinas, LLC on May 9, 2012.
5. Historical concentrations based on data in Duke Energy Carolinas, LLC analytical results database.
6. Only Appendix I constituents that are not included in Table 4 are listed.

**Table 7–Appendix I Constituents 15A NCAC 2L Groundwater Quality Exceedances
for Wells At or Beyond Review Boundary
Duke Energy Carolinas, LLC/Belews Creek Steam Station
Pine Hall Road Ash Landfill - Permit No. 8503**

| Sample Dates: April 23-24, 2012 | | | | | | |
|---------------------------------|---------|--------|-------|-------------------------|-------------------------|--|
| Parameter | Well ID | Result | Units | 15A NCAC 2L Standard | Historic Concentrations | Cause and Significance |
| Cobalt | MW2-9 | 20 | ug/L | 1* | 7.2 - 20.6 | Cobalt concentration in MW2-9 is consistent with historic readings at well. |
| | SW-1A | 1.8 | ug/L | | 1.63 - 2.50 | The surface water in the area of SW-1A is expected to flow into the Ash Basin. |

Notes:

1. Concentrations presented in micrograms per liter (µg/L).
2. 15A NCAC 2L Standard is from "North Carolina Administrative Code, Title 15A: Department of Environment and Natural Resources, Subchapter 2L - Groundwater Classifications and Standards," NCDENR (last amended on January 1, 2010).
3. * Indicates a 2L Interim Maximum Allowable Concentration (IMAC).
4. Data obtained from Electronic Data Deliverable (EDD) provided by Tim Hunsucker of Duke Energy Carolinas, LLC on May 9, 2012.
5. Historical concentrations based on data in Duke Energy Carolinas, LLC analytical results database.
6. Only Appendix I constituents that are not included in Table 5 are listed.

APPENDICES

APPENDIX A
CHAIN-OF-CUSTODY FORMS

