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Each of these AOWs were identified in the April 7, 2016 AOW Disposition Summary Table. This is a document developed by Duke Energy which classifies each AOW at the facility with regard to whether the AOW contains contaminants of concern and whether the AOW discharges to waters of the state. Duke Energy also provided a companion document, the "Proposed Categorization of Areas of Wetness" memo, which was dated October 23, 2015 and indicated which categories of AOWs Duke Energy classified as seeps. Based on the information provided in these documents, the Audit Team identified the AOWs highlighted in gray on the following table as seeps.

**Areas of Wetness Summary
Cape Fear Facility**

| AOW ID | Status | Latitude | Longitude | Contains Pollutants (COC)* | Point Source Flow to Waters of the State* | Identified in DAP |
|--------|--------|-----------|------------|----------------------------|---|-------------------|
| S-01 | Active | 35.594102 | -79.045478 | N | N | Y |
| S-02 | Active | 35.593275 | -79.044527 | Y | N | Y |
| S-03 | Active | 35.592505 | -79.045727 | Y | N | Y |
| S-04 | Active | 35.593009 | -79.042762 | Y | Y | Y |
| S-05 | Active | 35.590292 | -79.046627 | Y | Y | Y |
| S-06 | Active | 35.589811 | -79.045365 | Y | N | Y |
| S-07 | Active | 35.58993 | -79.043569 | Y | Y | Y |
| S-08 | Active | 35.585847 | -79.04267 | Y | Y | Y |
| S-09 | Active | 35.585944 | -79.039791 | Y | Y | Y |
| S-10 | Active | 35.585806 | -79.038592 | Y | Y | Y |
| S-11 | Active | 35.585012 | -79.041236 | N | N | Y |
| S-12 | Active | 35.587903 | -79.044679 | N | N | Y |
| S-13 | Active | 35.58463 | -79.047426 | Y | N | Y |
| S-14 | Active | 35.582439 | -79.047787 | Y | Y | Y |
| S-15 | Active | 35.588886 | -79.051373 | Y | Y | Y |
| S-16 | Active | 35.590387 | -79.051418 | Y | Y | Y |
| S-17 | Active | 35.590535 | -79.051419 | Y | Y | Y |
| S-18 | Active | 35.590248 | -79.051411 | Y | Y | N |

Notes

Seeps are point source discharges containing CCR pollutants which discharge to waters of the state.

*COC = Contaminants of Concern identified by Duke Energy as above background at the facility.

*Pollutant information based on Duke Energy Proposed Categorization of Areas of Wetness memo.

*Point source information based on Duke Energy Proposed Categorization of Areas of Wetness memo or the Audit Teams' observations.

DAP = Discharge Assessment Plan



2. **Seeps are from point sources and flow to navigable waters** – The Audit Team observed each of the AOW locations highlighted in the table above. All of the highlighted AOWs were seeping except AOWs S-14 and S-18, which were dry at the time of our review. However, S-14 was documented by Duke Energy to be a point source flowing to a navigable river. Duke Energy also documented S-18 to be a “wet reddish mineral deposit staining river bank soils” on the bank of the Cape Fear River in their August 3, 2016 correspondence with the state. Based on the Audit Team field observations and the documentation of Duke Energy, the Audit Team concluded that the highlighted AOWs are point sources which can or do discharge directly to a water of the state via a discrete conveyance.
3. **Seeps contain CCR pollutants** – Characterizations provided by Duke Energy in their AOW Disposition Summary Table indicate that each of the AOWs, except S-18 were identified as containing contaminants of concern (COCs) above background levels.

With regard to S-18, analytical characterization data was not available to conclusively show whether it contains contaminants of concern. However, it was noted by Duke Energy as having a wet reddish brown mineral deposit. This is very similar to S-16, which is adjacent to S-18 and also had a very similar reddish brown mineral deposit and CCR constituents including boron, iron, and manganese at concentrations above background.

Each of the other seeps identified by Duke Energy had detections of boron and elevated concentrations of iron, manganese, and sometimes arsenic. Table 7-7 from the Comprehensive Site Assessment Report provided as Attachment B-2 to this report shows consistently elevated concentrations of arsenic, boron, and manganese in the ash pore water, suggesting the presence of these compounds is related to the ash in the basins and the ash in the basins is impacting the seepage discharges.



4. **Seeps are not authorized by an NPDES permit** – Seeps S-04, S-14, S-15, S-16, S-17, and S-18 are not authorized by a current NPDES permit and do not reach a jurisdictional waterbody via a permitted NPDES outfall. These seeps therefore constitute instances of noncompliance.

Unlike Seeps S-04, S-14, S-15, S-16, S-17, and S-18 which discharge via an outfall that is not authorized by an existing NPDES permit, Seeps S-05, S-07, S-08, S-09, and S-10 discharge via an outfall authorized under Duke's existing NPDES permit. These seeps contain pollutants which were disclosed as part of the NPDES application process and Duke Energy is in compliance with the terms of the NPDES permit. Therefore, the finding related to Seeps S-04, S-14, S-15, S-16, S-17 and S-18 does not include Seeps S-05, S-07, S-08, S-09, and S-10.

It should be noted a 2016 Order of the North Carolina Superior Court in the case of *State of North Carolina v. Duke Energy Progress*, C.A. No. 13-CVS-11032, addresses several compliance issues at the facility, including seeps that were alleged by the state to be unauthorized by the NPDES permit. Although the Order does not indicate that Duke Energy is currently in compliance with the law, it does require Duke Energy to implement corrective action that is intended to address seeps under DEQ oversight. The Order states that "the issues alleged in the various Complaints with regard to unpermitted discharges, and with regard to violations of NPDES permits and groundwater standards at these facilities will be remedied by compliance with the provisions of this Order and the provisions of CAMA."

3.2 EXCEEDANCES OF THE STATE GROUNDWATER QUALITY STANDARDS

Requirement – Title 15A of the North Carolina Administrative Code (NCAC), Subchapter 02L.0202, Groundwater Standards. The state groundwater rules establish maximum contaminant levels for groundwater at or beyond the compliance boundary for the ash basins. 15A NCAC 2L.0103(d) provides that "[n]o person shall conduct or cause to be conducted, any activity which



causes the concentration of any substance to exceed that specified” in the groundwater quality standards in 15A NCAC 2L.0202. Further, under N.C.G.S.A. § 143-215.1(i), “[a]ny person ... who is required to obtain an individual permit ... for a disposal system under the authority of G.S. 143-215.1 [water pollution control] ... shall have a compliance boundary ... beyond which groundwater quality standards may not be exceeded.” *See also* 15A NCAC 2L.0102(3) (defining “compliance boundary” as “a boundary around a disposal system at and beyond which groundwater quality standards may not be exceeded”). Industrial landfills are required to comply with the 2L standards at the compliance boundary in accordance with 15A NCAC 13B.503(2)(d)(iv).

In addition, under N.C.G.S.A. § 143-215.6A(a)(1), civil penalties may be assessed against any person who violates any standard established by the NCDEQ under the authority of N.C.G.S.A. § 143-214.1, which covers groundwater standards.

Finding – Constituents exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202, were documented in monitoring wells located at or beyond the compliance boundary for the ash basins shown on the drawings in the reports prepared by Duke Energy. Based on the groundwater monitoring analyses completed to-date, exceedances of the 2L standards or Interim Maximum Allowed Concentrations (IMACs) and provisional background values have been identified at or beyond the compliance boundaries as described below.

The groundwater data presented in the Corrective Action Plan 1 (CAP 1) Report demonstrates that constituents exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202, or IMAC and provisional background values for boron, sulfate, thallium and total dissolved solids (TDS), were documented in monitoring wells located at or beyond the compliance boundary for the five inactive ash basins. See Figures 1 and 2 of 3 from the CAP-1 report provided in Attachment C-1. Additional constituents of significance exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202, or IMAC and provisional background values, were documented on Table 1 through 6 of 7 provided in Attachment C-2 as follows:

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- At the 1956 Ash Basin, the hydraulic down gradient monitoring well CW-02 located along the Cape Fear River had exceedances of pH and manganese.
- At the 1963 Ash Basin, the hydraulic down gradient monitoring well CW-08 located along the Cape Fear River had exceedances of manganese.
- At the 1970 Ash Basin, the hydraulic down gradient monitoring well CW-01 located along the Cape Fear River had exceedances of iron. The hydraulic down gradient monitoring well CTMW-01 located along the Cape Fear River had exceedances of manganese.

At one or more times, antimony, arsenic, beryllium, cobalt, nickel, selenium and vanadium were detected exceeding the standard outside the Compliance Boundary. As presented in the CAP-1 Report (ES-3), exceedances of barium, chloride, chromium and zinc occur naturally at concentrations above their respective 2L values and Duke Energy is collecting additional analytical data and near basin groundwater samples to attempt to differentiate any influence of the ash basins from the naturally occurring concentrations of these metals.

Similar to the finding above, we note a 2016 Order of the North Carolina Superior Court in the case of *State of North Carolina v. Duke Energy Progress*, C.A. No. 13-CVS-11032, addresses several compliance issues at the facility, including groundwater contamination that was alleged by the state to violate DEQ's 2L Groundwater Rule. Although the Order does not indicate that Duke Energy is currently in compliance with the law, it does require Duke Energy to implement corrective action that is intended to address groundwater contamination under DEQ oversight. The Order states that "the issues alleged in the various Complaints with regard to unpermitted discharges, and with regard to violations of NPDES permits and groundwater standards at these facilities will be remedied by compliance with the provisions of this Order and the provisions of CAMA."

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3.3 GROUNDWATER ISSUES - CWA DISCHARGES FROM GROUNDWATER

Requirement – The CWA prohibits the discharge of any pollutant into the waters of the United States except in compliance with a permit issued pursuant to the CWA under the NPDES by EPA or a state with an approved program. 33 U.S.C. §§ 1311(a) and 1342. NCDEQ implements an approved NPDES program in North Carolina under 15A NCAC 2H.0100 et seq. Additionally, under N.C.G.S.A. §143-215.1(a), unauthorized discharges are a violation.

Finding –Groundwater west of 1956 Ash Basin contained pollutants above North Carolina 2L standards. The groundwater from this area discharges to Shaddox Creek, the Haw River and the Cape Fear River, which are waters of the state. The groundwater west of the 1963 Ash Basin and 1970 Ash Basin contained pollutants above North Carolina 2L standards. The groundwater from these areas discharges to the Cape Fear River. These areas are shown on the Figures 1 of 3 and 2 of 3 provided in Attachment C-1.

Areas of exceedances of comparative values in surface water are shown on Figure 1 of 7 provided in Attachment C-1. Surface water exceedances were document on Table 7 of 7 provided in Attachment C-2.

The facility is located in Chatham County, which is subject to the jurisdiction of the U.S. District Court for the Middle District of North Carolina, which follows the *Yadkin Riverkeeper* decision, as that is the current governing law in that area of the state. Specifically, this means that discharges of pollutants from a point source that travel to navigable surface waters through hydrologically connected groundwater are considered discharges to waters of the state and are therefore within the scope of the CWA.

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Similar to both Findings above, we note a 2016 Order of the North Carolina Superior Court in the case of *State of North Carolina v. Duke Energy Progress*, C.A. No. 13–CVS–11032, addresses several compliance issues at the facility, including seeps that were alleged by the state to be unauthorized by the NPDES permit. Although the Order does not indicate that Duke Energy is currently in compliance with the law, it does require Duke Energy to implement corrective action that is intended to address seeps under DEQ oversight. The Order states that “the issues alleged in the various Complaints with regard to unpermitted discharges, and with regard to violations of NPDES permits and groundwater standards at these facilities will be remedied by compliance with the provisions of this Order and the provisions of CAMA.”

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4.0 OPEN LINE OF INQUIRY

Open items and potential findings are items identified by the Audit Team while on-site that, due to limited available information or the need for additional research, could not be determined as being in compliance or out of compliance. There were no Open Items or Potential Findings identified during the Audit.

12/6/2016

Duke Energy Actions to Resolve Audit Findings

Facility: Cape Fear Generating Station

Date of Audit: 8-9 August, 2016

Date of Final Report: 31 October, 2016

| FINDING | DUKE ENERGY ACTIONS TO RESOLVE |
|---|---|
| Discharges via seeps are occurring and although Duke Energy has submitted applications to the North Carolina Department of Environmental Quality (NCDEQ) for permits under the Clean Water Act's (CWA) National Pollution Discharge Elimination System (NPDES) program, NCDEQ has not yet approved the permits, resulting in certain discharges being unauthorized under the CWA. | Duke Energy has applied for NPDES permits to cover these potential discharges. Duke Energy recently received a draft permit and continues to work with the regulator to finalize the permit. |
| Concentrations of ash-related constituents were documented that exceeded the standards for CLASS GA waters in monitoring wells located at or beyond the compliance boundary for the ash basins. | <p>Duke Energy is in the process of addressing groundwater impacts at Cape Fear under the procedures set out in the Coal Ash Management Act (CAMA), including the generation and submission to NCDEQ of a detailed Comprehensive Site Assessment and a two-part Corrective Action Plan. Duke Energy is currently engaged in the collection of additional information at the request of NCDEQ.</p> <p>Duke Energy and NCDEQ have entered into a settlement agreement in which they agreed that the procedures outlined in CAMA are specifically designed to address, and will address, the assessment and corrective action of alleged groundwater contamination associated with coal ash facilities at the Duke Energy sites. In combination with the specific requirements of CAMA, NCDEQ further acknowledges that this agreement fully addresses and resolves all issues related to groundwater contamination associated with coal ash facilities at the Duke Energy sites, including all groundwater violations alleged in the state enforcement actions currently pending.</p> |
| Groundwater discharges from the ash basins are reaching Shaddox Creek, the Haw River and the Cape Fear River via hydrological connections. These discharges are not authorized by an NPDES permit and are therefore violations of the CWA and North Carolina regulations. | Duke Energy objects to this finding. Neither the CWA nor North Carolina regulations regulate the discharge of groundwater to surface waters via hydrological connections. Duke Energy's actions as stated above will properly address groundwater at the Cape Fear Generating Station. |

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1055 Andrew Drive, Suite A
West Chester, PA 19380-4293
tel 610.840.9100 fax 610.840.9196
www.advancedgeoservices.com

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ENVIRONMENTAL AUDIT IN SUPPORT OF THE COURT APPOINTED MONITOR

**H.F. Lee Plant
Goldsboro, North Carolina
USA**

October 2016

Final Report Issued To:

Duke Energy and the Court Appointed Monitor

Prepared By:

**Advanced GeoServices Corp.
and
The Elm Consulting Group International LLC**

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3.0 AUDIT FINDINGS

The following Findings were identified by the Audit Team.

3.1 CWA SEEPAGE

Requirement – The Clean Water Act (CWA) prohibits the discharge of any pollutant into the waters of the United States except in compliance with a permit issued pursuant to the CWA the by Environmental Protection Agency (EPA) or a state with an approved program. 33 U.S.C. §§ 1311(a) and 1342. NCDEQ implements an approved NPDES program in North Carolina under 15A NCAC 2H.0100 et seq. Additionally, under N.C.G.S.A. § 143-215.1(a), unauthorized discharges are a violation.

Finding – The Audit Team observed seeps at the H.F. Lee Facility that discharge from point sources through discrete conveyances and eventually discharge to waters of the state. Documentation of these seeps collected by Duke Energy showed that they contain pollutants related to CCR stored in the 1982 Ash Basin, Ash Basin 2, and the LOLA. While Duke Energy has requested that these seeps be included in its pending NPDES permit renewal application, the seep discharges are not currently authorized by a NPDES permit and therefore constitute violations of the CWA and the NCDEQ NPDES program.

The following is a summary of the information which supports this Finding:

1. **Seeps are present at the facility** – AOWs S-01 through S-26 were identified in the Discharge Assessment Plan (DAP) prepared by Duke Energy and dated December 30, 2014. In addition, AOWs LOLA S-01, LOLA S-01A, LOLA S-01B, S-27, and S-28 were reported by Duke Energy to the NCDEQ on August 3, 2016. The locations of the AOWs are shown on the figure provided as Attachment B-1 and the coordinates are provided on the table below.

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Each of these AOWs (excluding S-27 and S-28) were identified in the April 7, 2016 AOW Disposition Summary Table. This is a document developed by Duke Energy which classifies each AOW at the facility with regard to whether the AOW contains contaminants of concern and whether the AOW discharges to waters of the state. Duke Energy also provided a companion document, the "Proposed Categorization of Areas of Wetness" memo, which was dated October 23, 2015, and indicated which categories of AOWs Duke Energy classified as seeps. Based on the information provided in these documents, and the observations of the AOWs during the facility inspection, the Audit Team identified the AOWs highlighted in gray on the table below as seeps.

2. **Seeps are from point sources and flow to navigable waters** – The Audit Team observed each of the AOWs highlighted and described in the table below and concludes that these AOWs are point sources discharging directly to a water of the state via a discrete conveyance. The Audit Team notes our characterizations of S-18, S-22, S-23, S-24, S-25, and LOLA S-01 as discrete conveyances, differed from the documentation provided by Duke Energy.



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Areas of Wetness Summary H.F. Lee Facility

| AOW ID | Status | Latitude | Longitude | Contains Pollutants (COC) * | Point Source Flow to Waters of the State * | Identified in the DAP |
|------------|--------|-----------|------------|-----------------------------|--|-----------------------|
| S-01 | Active | 35.386858 | -78.073453 | | | |
| S-02 | Active | 35.384001 | -78.081383 | | | |
| S-03 | Active | 35.382666 | -78.084374 | | | |
| S-03A | Active | 35.381806 | -78.084052 | | | |
| S-04 | Active | 35.381993 | -78.078784 | Y | N | Y |
| S-05 | Active | 35.379045 | -78.070293 | N | N | Y |
| S-06 | Active | 35.386968 | -78.071942 | | | |
| S-07 | Active | 35.382767 | -78.069655 | | | |
| S-08 | Active | 35.380517 | -78.068532 | | | |
| S-09 | Active | 35.379492 | -78.067718 | | | |
| S-18 | Active | 35.379222 | -78.101206 | | | |
| S-19 | Active | 35.38179 | -78.097649 | N | N | Y |
| S-20 | Active | 35.382406 | -78.082051 | N | N | Y |
| S-21 | Active | 35.382151 | -78.080376 | N | N | Y |
| S-22 | Active | 35.381466 | -78.077819 | | | |
| S-23 | Active | 35.381175 | -78.077136 | | | |
| S-24 | Active | 35.381063 | -78.076431 | | | |
| S-25 | Active | 35.380922 | -78.076001 | | | |
| S-26 | Active | 35.38164 | -78.078322 | Y | N | Y |
| S-27 | Active | 35.385848 | -78.075999 | | | |
| S-28 | Active | 35.385133 | -78.078197 | | | |
| LOLA S-01 | Active | 35.379568 | -78.075043 | | | |
| LOLA S-01A | Active | 35.379648 | -78.074632 | Y | N | N |
| LOLA S-01B | Active | 35.380846 | -78.077697 | Y | N | N |

Notes

Seeps are point source discharges containing CCR pollutants which discharge to waters of the state.

*COC = Contaminants of Concern identified by Duke Energy as above background at the facility.

*Point source information based on Duke Energy Proposed Categorization of Areas of Wetness memo or the Audit Teams' observations.

DAP = Discharge Assessment Plan

The Audit Team notes that sampling locations S-10 through S-17 are identified in the DAP as surface water samples; therefore, they are not included in the above table.

The Audit Team notes that seepage water from AOWs S-6 through S-9 are currently being collected and discharged into the 1982 Ash Basin and only discharge to waters of the state under high flow conditions.

- Seeps contain CCR pollutants – Characterizations provided by Duke Energy in their AOW Disposition Summary Table as well as test results indicate that each of the AOWs identified as a seep contain elevated levels of boron, iron, and often contain elevated levels of arsenic and manganese. Table 7-7 from the Comprehensive Site Assessment Report provided as Attachment B-2 to this report

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shows consistently elevated concentrations of arsenic, boron, and manganese in the ash pore water, suggesting the presence of these compounds is related to the ash in the basins and the ash in the basins is impacting the seepage discharges.

4. **Seeps are not authorized by an NPDES permit** – Neither the seeps nor the outfalls where the seeps discharge to jurisdictional waterbodies are authorized by a current NPDES permit.

A 2016 Order of the North Carolina Superior Court in the case of *State of North Carolina v. Duke Energy Progress*, C.A. No. 13-CVS-11032, addresses several compliance issues at the site, including seeps that were not alleged by the state to be unauthorized by NPDES permit. Although the Order does not indicate that Duke Energy is currently in compliance with the law, it does require Duke Energy to implement corrective action that is intended to address seeps under DEQ oversight. The Order states that “the issues alleged in the various Complaints with regard to unpermitted discharges, and with regard to violations of NPDES permits and groundwater standards at these facilities will be remedied by compliance with the provisions of this Order and the provisions of CAMA.”

3.2 EXCEEDANCES OF THE STATE GROUNDWATER QUALITY STANDARDS

Requirement – Title 15A of the North Carolina Administrative Code (NCAC), Subchapter 02L.0202, Groundwater Standards. The state groundwater rules establish maximum contaminant levels for groundwater at or beyond the compliance boundary for the ash basins. 15A NCAC 2L.0103(d) provides that “[n]o person shall conduct or cause to be conducted, any activity which causes the concentration of any substance to exceed that specified” in the groundwater quality standards in 15A NCAC 2L.0202. Further, under N.C.G.S.A. § 143-215.1(i), “[a]ny person ... who is required to obtain an individual permit ... for a disposal system under the authority of G.S. 143-215.1 [water pollution control] ... shall have a compliance boundary ... beyond which groundwater quality standards may not be exceeded.” *See also* 15A NCAC 2L.0102(3) (defining “compliance boundary” as “a boundary around a disposal system at and beyond which

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groundwater quality standards may not be exceeded"). Industrial landfills are required to comply with the 2L standards at the compliance boundary in accordance with 15A NCAC 13B.503(2)(d)(iv).

In addition, under N.C.G.S.A. § 143-215.6A(a)(1), civil penalties may be assessed against any person who violates any standard established by the NCDEQ under the authority of N.C.G.S.A. § 143-214.1, which covers groundwater standards.

Finding – Constituents exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202, were documented in monitoring wells located at or beyond the compliance boundary for Ash Basins 1, 2, and 3, the LOLA and the 1982 Ash Basin. Based on the groundwater monitoring analyses completed to-date, exceedances of the 2L standards or Interim Maximum Allowed Concentrations (IMACs) and provisional background values have been identified as described below.

Based on the groundwater data presented in the Corrective Action Plan – Part 1 (CAP 1) Report, constituents, including boron, exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202, or IMAC and provisional background values were documented in monitoring wells located at or beyond the compliance boundary for the Ash Basins 1, 2, and 3, the LOLA, and the 1982 Ash Basin as shown on the figures provided in Attachment C-1. Additional constituents exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202, or IMAC and provisional background values were documented on the tables provided in Attachment C-2. It may be noted that no compliance boundaries were identified in the project documentation for the LOLA.

Figure 1 of 4 in Attachment C-1 depicts groundwater exceedances east of the Ash Basins 1, 2, and 3, along the Neuse River. These include cobalt, iron and manganese and other constituent exceedances in compliance monitoring wells CW-01 through CW-04 located east of the Inactive Ash Basins.



Figure 2 of 4 in Attachment C-1 depicts groundwater exceedances south/southwest of the 1982 Ash Basin along the Neuse River. Figure 4 of 4 in Attachment C-1 depicts groundwater exceedance for boron east of the 1982 Ash Basin compliance boundary and to the south along the Neuse River. In addition, iron, manganese, vanadium and other constituent exceedances were identified in compliance monitoring wells AMW-04BC and MW-03 located south of the Active Ash Basin.

The above identified constituents were also identified in the coal ash pore water (see Table 1 of 2 in Attachment B-2) and the Audit Team concluded their presence is related to the coal ash located at the Site.

A 2016 Order of the North Carolina Superior Court in the case of *State of North Carolina v. Duke Energy Progress*, C.A. No. 13-CVS-11032, addresses several compliance issues at the site, including groundwater contamination that was alleged by the state to violated DEQ's 2L Groundwater Rule. Although the Order does not indicate that Duke Energy is currently in compliance with the law, it does require Duke Energy to implement corrective action that is intended to address groundwater contamination under DEQ oversight. The Order states that "the issues alleged in the various Complaints with regard to unpermitted discharges, and with regard to violations of NPDES permits and groundwater standards at these facilities will be remedied by compliance with the provisions of this Order and the provisions of CAMA."

3.3 CCR SEEPAGE RELEASES

Requirement – The "Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments," 40 C.F.R. Part 257, Subpart D, include the following requirements:

- 40 C.F.R. § 257.90(d): "In the event of a release from a CCR unit, the owner or operator must immediately take all necessary measures to control the source(s) of releases so as to reduce or eliminate, to the maximum extent feasible, further

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releases of contaminants into the environment. The owner or operator of the CCR unit must comply with all applicable requirements in §§ 257.96, 257.97, and 257.98.”

- 40 C.F.R. § 257.82(b): “Discharge from the CCR unit must be handled in accordance with the surface water requirements under § 257.3-3.”

The 1982 Ash Basin was retired in 2012 from receiving ash waste, however, the 1982 Ash Basin contains impounded ash and water and therefore is not exempt from the above regulations.

Finding – The CCR rule does not define what constitutes a “release from a CCR unit.” However, the preamble to the rule makes clear that the rule was intended to apply to both aboveground and below-ground “releases” from a CCR unit. *See* 80 Fed. Reg. 21,301, 21,399, 21,406 (Apr. 17, 2015).

The Audit Team recommended that EPA (the agency that promulgated the CCR rule) clarify whether it intended that aboveground seeps of liquid from CCR units must be addressed as “releases” under the CCR rule.

Subsequently, the U.S. Department of Justice (DOJ) provided the CAM with the interpretation of DOJ and EPA that seeps from CCR units “are regulated under the ‘corrective action’ provisions [of the CCR rule] as ‘non-groundwater releases,’ irrespective of their structural impact.” DOJ/EPA also opined “that a release need not be ‘catastrophic’ to be regulated under [these] provision[s].” Per DOJ/EPA, “[o]nce a seep is discovered, the owner or operator of an impoundment must ‘immediately take all necessary measures to control the source(s) of releases so as to reduce or eliminate, to the maximum extent feasible, further releases of contaminants into the environment.’ 40 C.F.R. § 257.90(d). This provision applies whether or not the seep reaches surface water (river, stream, etc.).”

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AOWs S-04 and S-26 are associated with the 1982 Ash Basin which is subject to the CCR Rule. These AOWs were observed by the Audit Team and found to be isolated wet areas with saturated soils or standing pooled water that did not appear to be attributable to storm events. Data supplied by Duke Energy confirm that these AOWs contain CCR constituents. The Audit Team observed these AOWs and did not observe a location where these saturated soils or standing pooled waters discharged to the waters of the state. Duke Energy also developed characterizations which state these AOWs do not discharge directly to the waters of the State. Since both the documentation of Duke Energy and the observations of the Audit Team confirm these AOWs do not discharge to waters of the state, these AOWs would not appropriately be covered by an NPDES permit. Duke Energy has not taken any measures to control these releases so as to reduce or eliminate, to the maximum extent feasible, further releases of contaminants into the environment, in accordance with the CCR rule at 40 C.F.R. §257.90(d).

As previously noted, a 2016 Order of the North Carolina Superior Court in the case of *State of North Carolina v. Duke Energy Progress*, C.A. No. 13-CVS-11032, addresses several compliance issues at the site, including seeps that were not alleged by the state to be unauthorized by NPDES permit. Although the Order does not indicate that Duke Energy is currently in compliance with the law, it does require Duke Energy to implement corrective action that is intended to address seeps under DEQ oversight. The Order states that "the issues alleged in the various Complaints with regard to unpermitted discharges, and with regard to violations of NPDES permits and groundwater standards at these facilities will be remedied by compliance with the provisions of this Order and the provisions of CAMA."

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4.0 OPEN ITEMS/POTENTIAL FINDINGS

Open items and potential findings are items identified by the Audit Team while on-site that, due to limited available information or the need for additional research, could not be determined as being in compliance or out of compliance. There were no Open Items or Potential Findings identified during the Audit.

12/6/2016

Duke Energy Actions to Resolve Audit Findings

Facility: H.F. Lee Plant
Date of Audit: 10-12 August, 2016
Date of Final Report: 31 October, 2016

| FINDING | DUKE ENERGY ACTIONS TO RESOLVE |
|---|--|
| Discharges via seeps are occurring and although Duke Energy has submitted applications to the North Carolina Department of Environmental Quality (NCDEQ) for permits under the Clean Water Act's (CWA) National Pollution Discharge Elimination System (NPDES) program, NCDEQ has not yet approved the permits, resulting in certain discharges being unauthorized under the CWA. | Duke Energy has applied for NPDES permits to cover these potential discharges. |
| Concentrations of ash-related constituents were documented that exceeded the standards for Class GA waters in monitoring wells located at or beyond the compliance boundary for the Ash Basins 1-3, the Lay of Land Area, and the 1982 Ash Basin. | <p>Duke Energy is in the process of addressing groundwater impacts at HF Lee under the procedures set out in the Coal Ash Management Act (CAMA), including the generation and submission to NCDEQ of a detailed Comprehensive Site Assessment and a two-part Corrective Action Plan. Duke Energy is currently engaged in the collection of additional information at the request of NCDEQ.</p> <p>Duke Energy and NCDEQ have entered into a settlement agreement in which they agreed that the procedures outlined in CAMA are specifically designed to address, and will address, the assessment and corrective action of alleged groundwater contamination associated with coal ash facilities at the Duke Energy sites. In combination with the specific requirements of CAMA, NCDEQ further acknowledges that this agreement fully addresses and resolves all issues related to groundwater contamination associated with coal ash facilities at the Duke Energy sites, including all groundwater violations alleged in the state enforcement actions currently pending.</p> |
| Two areas of wetness designated S-04 and S-26 containing CCR contaminants were observed with no discernable means for flow to waters of the state. Since these areas are not covered by the NPDES program, they constitute releases under the CCR Rule, requiring corrective action. | S-04 and S-26 are being incorporated into the NPDES permit because they can flow to outfall 126 along with stormwater. They are therefore not regulated by the CCR Rule. |

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ENVIRONMENTAL AUDIT IN SUPPORT OF THE COURT APPOINTED MONITOR

**Mayo Steam Electric Plant
Roxboro, North Carolina
USA**

October 2016

Final Report Issued To:

Duke Energy and the Court Appointed Monitor

Prepared By:

**Advanced GeoServices Corp.
and
The Elm Consulting Group International LLC**



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3.0 AUDIT FINDINGS

The following Findings were identified by the Audit Team.

3.1 CWA SEEPAGE

Requirement – The Clean Water Act (CWA) prohibits the discharge of any pollutant into the waters of the United States except in compliance with a permit issued pursuant to the CWA by the Environmental Protection Agency (EPA) or a state with an approved program. 33 U.S.C. §§ 1311(a) and 1342. NCDEQ implements an approved NPDES program in North Carolina under 15A NCAC 2H.0100 *et seq.* Additionally, under N.C.G.S.A. § 143-215.1(a), unauthorized discharges are a violation.

Finding – The Audit Team observed seeps at the Mayo Facility that discharge from point sources through discrete conveyances to waters of the United States. Documentation of these seeps collected by Duke Energy showed the seep discharges contain pollutants related to CCR stored in the Active Ash Basin. The Audit Team reviewed documentation showing Duke Energy had requested that all of these AOWs be included in its pending NPDES permit renewal application. The seep discharges are not currently authorized by a NPDES permit and therefore constitute violations of the CWA and the NCDEQ NPDES program.

The following is a summary of the information which supports this Finding:

1. **Seeps are present at the facility** – AOWs S-01 through S-08 were identified in the Discharge Assessment Plan (DAP) prepared by Duke Energy and dated December 30, 2014. In addition, AOW S-09 was discovered and reported by Duke Energy to NCDEQ on November 16, 2015, and AOW-10 was discovered and reported by Duke Energy to NCDEQ on April 22, 2016 and characterized in correspondence dated July 5, 2016. The locations of the AOWs are shown on the figure provided

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as Attachment B-1 to this report and the coordinates are provided on the table below.

Each of these AOWs (excluding S-10 which was only recently identified) were identified in the April 7, 2016, AOW Disposition Summary Table. This is a document developed by Duke Energy which classifies each AOW at the facility with regard to whether the AOW contains contaminants of concern and whether the AOW discharges to waters of the state. Duke Energy also provided a companion document, the "Proposed Categorization of Areas of Wetness" memo, which is dated October 23, 2015, and indicates which categories of AOWs Duke Energy classified as seeps. Based on the information in these documents, S-01, S-1A, S-2, S-2A, S-2B, S-3, S-4, and S-08 were identified as seeps by Duke Energy, since they are point source discharges, contain contaminants of concern at concentrations above background levels, and discharge to waters of the state. These seeps were observed by the Audit Team and we agree with the classification.

S-5 is not included in the table below. S-5 is a surface water sampling location within the Active Ash Basin and is not an AOW.



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**Areas of Wetness Summary
Mayo Plant**

| AOW ID | Status | Latitude | Longitude | Contains Pollutants (COC)* | Point Source Flow to Waters of the State* | Identified in DAP |
|--------|--------|-----------|------------|----------------------------|---|-------------------|
| S-1 | Active | 36.538849 | -78.893512 | Y | Y | Y |
| S-1A | Active | 36.538903 | -78.89351 | Y | Y | Y |
| S-2 | Active | 36.537964 | -78.891364 | Y | Y | Y |
| S-2A | Active | 36.538005 | -78.891611 | Y | Y | Y |
| S-2B | Active | 36.537989 | -78.891339 | Y | Y | Y |
| S-3 | Active | 36.538654 | -78.890714 | Y | Y | Y |
| S-4 | Active | 36.538896 | -78.89341 | Y | Y | Y |
| S-6 | Active | 36.521971 | -78.88526 | N | N | Y |
| S-7 | Active | 36.521798 | -78.892152 | N | N | Y |
| S-8 | Active | 36.537502 | -78.890398 | Y | Y | Y |
| S-9 | Active | 36.522902 | -78.886868 | N | N | N |
| S-10 | Active | 36.538422 | -78.890395 | Y | Y | N |

Notes

Seeps are point source discharges containing CCR pollutants which discharge to waters of the state.

The AOWs the Audit Team found to be seeps are shown as shaded on the table above.

COC = Contaminants of Concern identified by Duke Energy as above background at the facility.

*Pollutant information and point source information based on Duke Energy Proposed Categorization of Areas of Wetness memo.

DAP = Discharge Assessment Plan

2. **Seeps are from point sources and flow to navigable waters** – The Audit Team observed each of the seeps highlighted on the table above and agrees with the Duke Energy characterizations referenced above; i.e., that each highlighted seep and the consolidated discharge are point sources discharging directly to a water of the state via a discrete conveyance.
3. **Seeps contain CCR pollutants** – Characterizations provided by Duke Energy in their AOW Disposition Summary Table indicate that each of the AOWs identified as a seep contains contaminants of concern (COCs) above background levels. Tables 7-7 and 9-2 from the Comprehensive Site Assessment Report are provided

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as Attachment B-2 to this report. Table 7-7 shows boron and manganese at concentrations that are consistently elevated in the ash pore water. Table 9-2 shows that boron and manganese concentrations are elevated at each of the seeps except for S-1A and S-2A, where data were not available.

4. **Seeps are not authorized by an NPDES permit** – Neither the seeps nor the outfalls where the seeps discharge to jurisdictional waterbodies are authorized by a current NPDES permit.

3.2 EXCEEDANCES OF THE STATE GROUNDWATER QUALITY STANDARDS

Requirement – Title 15A of the North Carolina Administrative Code (NCAC), Subchapter 02L.0202, Groundwater Standards. The state groundwater rules establish maximum contaminant levels for groundwater at or beyond the compliance boundary for the ash basins. 15A NCAC 2L.0103(d) provides that “[n]o person shall conduct or cause to be conducted, any activity which causes the concentration of any substance to exceed that specified” in the groundwater quality standards in 15A NCAC 2L.0202. Further, under N.C.G.S.A. § 143-215.1(i), “[a]ny person ... who is required to obtain an individual permit ... for a disposal system under the authority of G.S. 143-215.1 [water pollution control] ... shall have a compliance boundary ... beyond which groundwater quality standards may not be exceeded.” See also 15A NCAC 2L.0102(3) (defining “compliance boundary” as “a boundary around a disposal system at and beyond which groundwater quality standards may not be exceeded”).

In addition, under N.C.G.S.A. § 143-215.6A(a)(1), civil penalties may be assessed against any person who violates any standard established by the NCDEQ under the authority of N.C.G.S.A. § 143-214.1, which covers groundwater standards.

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Finding – Constituents exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202, were documented in monitoring wells located at or beyond the compliance boundary for the Active Ash Basin. Based on the groundwater monitoring analyses completed to-date, exceedances of the 2L standards or Interim Maximum Allowed Concentrations (IMACs) have been identified as described below and as shown on Attachment C-1.

In Active Ash Basin CAMA compliance groundwater monitoring wells, the following exceedances of the 2L groundwater standards have been documented:

- Surficial Groundwater - MW-16S – Boron, Cobalt, Iron, Manganese and Strontium.
- Transition Zone Groundwater - Multiple Wells – Boron (CW-02), Manganese (CW-02 and CW-03), and pH (CW-02).
- Bedrock Groundwater - Multiple Wells – Antimony (MW-16BR), Iron (CW-05, CW-06, MW-05BR, MW-08BR and MW-09BR), Manganese (CW-02D, CW-05, CW-06, MW-03BR, MW-05BR, MW-07BR, MW-08BR and MW-09BR), and TDS (CW-06, MW-03BR, and MW-08BR).

The Active Ash Basin CCR compliance groundwater monitoring wells were sampled for the first time in June 2016 and data were not available to review during this Audit.

Duke Energy has indicated that it is working with the NCDEQ to determine the extent of potential impacts to groundwater and the source of elevated concentrations of compounds in groundwater.

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3.3 CCR CONTAINERIZED PILE MANAGEMENT

Requirement – The CCR rule regulates CCR piles in a manner similar to CCR landfills. A CCR pile is defined as “any non-containerized accumulation of solid, non-flowing CCR that is placed on the land.” 40 C.F.R. § 257.53. In the CCR rule preamble, EPA clarified that for a storage area to be considered containerized, and not considered a waste pile, the use of specific measures to control exposures are required, such as placement of CCR on an impervious base, or installation of leachate and runoff collection, or installation of walls or wind barriers (*See* 80 Fed. Reg. at 21,355-56). EPA explained that CCR managed in such a containerized fashion would not be a CCR pile or landfill under the CCR rule, since the potential for releases would be adequately mitigated. A containerized holding area would not be subject to 40 C.F.R. Part 257 requirements, including groundwater monitoring.

Duke Energy maintains an FGD residuals pile identified in the Operations and Maintenance Manual as the Gypsum Pad. The Gypsum Pad includes a radial conveyor to deliver gypsum to the pad, a truck wash, and truck scales. Gypsum intended for beneficial use and off-spec gypsum intended for disposal on-site are stored on the Gypsum Pad. Duke Energy utilizes a water spray truck to control fugitive dust and run-off from the gypsum pile. This combination of measures is intended to maintain the FGD residuals in a containerized manner so that the pile will not be subject to the CCR pile and CCR landfill requirements in 40 C.F.R. Part 257.

Finding – The containerization measures employed by Duke Energy at the Gypsum Pad are not adequate to containerize the FGD residuals. Although the Gypsum Pad has a liner which provides containment, and dust control measures utilizing water are implemented to control fugitive dust conditions, there are areas of the Gypsum Pad which were not adequately containerized.



Evidence of historical and current fugitive dust and run-off releases near the Gypsum Pad were observed during the visit at the Mayo Facility and in aerial photographs of the area. The Audit Team observed gypsum outside the containment system established for the Gypsum Pad. The non-containerized gypsum was most obvious under and near the conveyor system used to move the gypsum, including the conveyor that delivers the gypsum to the Gypsum Pad. The Audit Team was told by Duke Energy personnel that there were no containerization measures under the conveyor system. The gypsum was also observed being moved by vehicles within the Gypsum Pad and the vehicles tracked the gypsum outside the containerization area.

In response to the Audit Team's observations, Duke Energy is evaluating enhancements to its existing controls to reduce gypsum loss.

3.4 GROUNDWATER ISSUES - CWA DISCHARGES FROM GROUNDWATER

Requirement – The CWA prohibits the discharge of any pollutant into the waters of the United States except in compliance with a permit issued pursuant to the CWA by EPA or a state with an approved program. 33 U.S.C. §§ 1311(a) and 1342. NCDEQ implements an approved NPDES program in North Carolina under 15A NCAC 2H.0100 *et seq.* Additionally, under N.C.G.S.A. § 143-215.1(a), unauthorized discharges are a violation.

Finding – The Audit Team noted that groundwater northeast of the Active Ash Basin contained pollutants above North Carolina's groundwater standards in 15A NCAC 2L.0202. The groundwater from this area is hydrologically connected to surface waters and discharges to Crutchfield Branch. This area is shown on the Figure provided in Attachment C-1. The facility is located in Person County, which is subject to the jurisdiction of the U.S. District Court for the Middle District of North Carolina, which follows the *Yadkin Riverkeeper* decision, as that is the current governing law in those areas of the state. Specifically, this means that discharges of pollutants from a point source that travel to navigable surface waters through hydrologically connected groundwater are considered discharges to waters of the U.S. and are therefore within the scope of the CWA.



4.0 OPEN ITEMS/POTENTIAL FINDINGS

Open items and potential findings are items identified by the Audit Team while on-site that, due to limited available information or the need for additional research, could not be determined as being in compliance or out of compliance.

4.1 EXCEEDANCES OF THE STATE GROUNDWATER QUALITY STANDARDS

Requirement – Title 15A of the North Carolina Administrative Code (NCAC), Subchapter 02L.0202, Groundwater Standards. The state groundwater rules establish maximum contaminant levels for groundwater at or beyond the compliance boundary for the CCP Monofill.

Open Line of Inquiry –Solid waste compliance monitoring wells, located within the NCDEQ solid waste compliance boundary at the CCP Monofill, have shown exceedances of the 2L groundwater standard for chromium of 10 µg/L at MW-3 during the most recent round of sampling and MW-4 in the two most recent sampling rounds. The chromium concentration at MW-4 was as high as 160 µg/L during the November 2015 sampling event. Chromium was also identified in the pre-operational sampling events, but at much lower concentrations. However, given the uncertainty regarding whether the higher concentrations of the recent chromium exceedances are due to natural/background conditions, the chromium exceedances are being addressed as an open item/potential finding at this time.

Iron, manganese, and TDS exceedances were also observed above the 2L standards but the pattern of exceedances and the observation of similar conditions during pre-operational sampling, prior to construction of the CCP Monofill, suggests the elevated concentrations of these compounds are related to background conditions.

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Duke Energy continues to work with the NCDEQ as part of their comprehensive groundwater monitoring plan to determine the extent of potential groundwater impacts as well as the source of the elevated concentrations of contaminants.

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12/6/2016

Duke Energy Actions to Resolve Audit Findings

Facility: Mayo Steam Electric Plant
Date of Audit: 11-12 July, 2016
Date of Final Report: 31 October, 2016

| FINDING | DUKE ENERGY ACTIONS TO RESOLVE |
|---|--|
| Discharges via seeps are occurring and although Duke Energy has submitted applications to the North Carolina Department of Environmental Quality (NCDEQ) for permits under the Clean Water Act's (CWA) National Pollution Discharge Elimination System (NPDES) program, NCDEQ has not yet approved the permits, resulting in certain discharges being unauthorized under the CWA. | Duke Energy applied for and is awaiting the final NPDES permits to cover these potential discharges. Duke Energy recently received a draft permit and continues to work with the regulator to finalize the permit. |
| Concentrations of ash-related constituents were documented that exceeded the standards for Class GA waters in monitoring wells located at or beyond the compliance boundary for Active Ash Basin. | <p>Duke Energy is in the process of addressing groundwater impacts at Mayo under the procedures set out in the Coal Ash Management Act (CAMA), including the generation and submission to NCDEQ of a detailed Comprehensive Site Assessment and a two-part Corrective Action Plan. Duke Energy is currently engaged in the collection of additional information at the request of NCDEQ.</p> <p>Duke Energy and NCDEQ have entered into a settlement agreement in which they agreed that the procedures outlined in CAMA are specifically designed to address, and will address, the assessment and corrective action of alleged groundwater contamination associated with coal ash facilities at the Duke Energy sites. In combination with the specific requirements of CAMA, NCDEQ further acknowledges that this agreement fully addresses and resolves all issues related to groundwater contamination associated with coal ash facilities at the Duke Energy sites, including all groundwater violations alleged in the state enforcement actions currently pending.</p> |
| The containerization methods employed by Duke Energy at the Gypsum Pad are not adequate to containerize the FGD residuals. | Asphalting was completed in the area under the radial stacker. Additional curbing was added to better direct storm-water run-off. |
| Groundwater discharges from the ash basins are reaching the Crutchfield Branch via hydrological connections. These discharges are not authorized by an NPDES permit and are therefore violations of the CWA and North Carolina regulations. | Duke Energy objects to this finding. Neither the CWA nor North Carolina regulations regulate the discharge of groundwater to surface waters via hydrological connections. Duke Energy's actions as stated above will properly address groundwater at the Mayo Steam Electric Plant. |

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1055 Andrew Drive, Suite A
West Chester, PA 19380-4293
tel. 610.840.9100 fax 610.840.9199
www.advancedgeoservices.com

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ENVIRONMENTAL AUDIT IN SUPPORT OF THE COURT APPOINTED MONITOR

**Roxboro Steam Plant
Semora, North Carolina
USA**

October 2016

Final Report Issued To:

Duke Energy and the Court Appointed Monitor

Prepared By:

**Advanced GeoServices Corp.
and
The Elm Consulting Group International LLC**



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3.0 AUDIT FINDINGS

The following Findings were identified by the Audit Team.

3.1 CWA SEEPAGE

Requirement – The Clean Water Act (CWA) prohibits the discharge of any pollutant into the waters of the United States except in compliance with a permit issued pursuant to the CWA the by Environmental Protection Agency (EPA) or a state with an approved program. 33 U.S.C. §§ 1311(a) and 1342. NCDEQ implements an approved NPDES program in North Carolina under 15A NCAC 2H.0100 et seq. Additionally, under N.C.G.S.A. § 143-215.1(a), unauthorized discharges are a violation.

Finding – The Audit Team observed seeps at the Roxboro Facility that discharge from point sources through discrete conveyances and eventually discharge to waters of the United States. Documentation of these seeps collected by Duke Energy showed they contain pollutants related to CCR stored in both the West Ash Basin and the East Ash Basin. While Duke Energy has requested that these seeps be included in its pending NPDES permit renewal application, the seep discharges are not currently authorized by an NPDES permit and therefore constitute violations of the CWA and the NCDEQ NPDES program.

The following is a summary of the information which supports this Finding:

1. **Seeps are present at the facility** – AOWs S-01 through S-14 were identified in the Discharge Assessment Plan (DAP) prepared by Duke Energy and dated December 30, 2014. AOWs S-15, S-16, and S-17 were initially classified as AOWs by Duke Energy, but upon further review, Duke Energy determined these locations did not meet the criteria of AOWs. AOWs S-18 and AOW S-19 were

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recently identified and reported by Duke Energy to the NCDEQ on July 5, 2016. The locations of the AOWs are shown on the figure provided as Attachment B-1 and the coordinates are provided on the table below.

Each of these AOWs (excluding the recently identified S-19) were identified in the April 7, 2016 AOW Disposition Summary Table. This is a document developed by Duke Energy which classifies each AOW at the facility with regard to whether the AOW contains contaminants of concern and whether the AOW discharges to waters of the state. Duke Energy also provided a companion document, the "Proposed Categorization of Areas of Wetness" memo, which was dated October 23, 2015, and indicated which categories of AOWs Duke Energy classified as seeps. Based on the information in these documents, S-09 through S-13 were identified as seeps by Duke Energy, since they contain contaminants of concern at concentrations above background levels and they discharge to waters of the state. S-01 through S-08, S-14, S-18, and S-19 are also identified as seeps by the Audit Team. However, these seeps reach a jurisdictional waterbody via a NPDES permitted outfall, the pollutants in the seep are known and are consistent with the pollutants in the NPDES permit, and Duke is in compliance with the NPDES permitted limits.



**Areas of Wetness Summary
Roxboro Steam Plant**

| AOW ID | Status | Latitude | Longitude | Contains Pollutants (COC)* | Point Source Flow to Waters of the State* | Identified in DAP |
|--------|--------|------------|------------|----------------------------|---|-------------------|
| S-01 | Active | 36.477043 | -79.076467 | Y | Y | Y |
| S-02 | Active | 36.477055 | -79.076727 | Y | Y | Y |
| S-03 | Active | 36.476994 | -79.076978 | Y | Y | Y |
| S-04 | Active | 36.476923 | -79.077204 | Y | Y | Y |
| S-05 | Active | 36.476751 | -79.077412 | Y | Y | Y |
| S-06 | Active | 36.47669 | -79.077643 | Y | Y | Y |
| S-07 | Active | 36.476736 | -79.077954 | Y | Y | Y |
| S-08 | Active | 36.476719 | -79.078064 | Y | Y | Y |
| S-09 | Active | 36.47823 | -79.056076 | Y | Y | Y |
| S-10 | Active | 36.479169 | -79.056963 | Y | Y | Y |
| S-11 | Active | 36.478569 | -79.056737 | Y | Y | Y |
| S-12 | Active | 36.478103 | -79.056735 | Y | Y | Y |
| S-13 | Active | 36.486175 | -79.059612 | Y | Y | Y |
| S-14 | Active | 36.483738 | -79.063751 | Y | Y | Y |
| S-18 | Active | 36.477947 | -79.073728 | Y | Y | N |
| S-19 | Active | 36.4771755 | -79.007639 | Y | Y | N |

Notes

Seeps are point source discharges containing CCR pollutants which discharge to waters of the state.

COC = Contaminants of Concern identified by Duke Energy as above background at the facility.

*Pollutant information and point source information based on Duke Energy Proposed Categorization of Areas of Wetness memo.

DAP = Discharge Assessment Plan

2. **Seeps are from point sources and flow to navigable waters** – The Audit Team observed each of the seeps listed in the table above and concludes that these seeps are point sources discharging directly to a water of the state via a discrete conveyance.
3. **Seeps contain CCR pollutants** – Characterizations provided by Duke Energy in their AOW Disposition Summary Table indicate that each of the AOWs identified as a seep contains contaminants of concern (COCs) above background levels.



Tables 7-7 and 9-2 from the Comprehensive Site Assessment Report provided as Attachment B-2 to this report shows that the water flowing from these seeps contains boron, manganese, and sulfate at concentrations that are consistently elevated in the ash pore water, suggesting the presence of these compounds is related to the ash in the basin and the ash in the basin is impacting the seepage discharges.

4. **Seeps are not authorized by an NPDES permit** – Neither the seeps nor the outfalls where the seeps discharge to jurisdictional waterbodies are authorized by a current NPDES permit.

3.2 EXCEEDANCES OF THE STATE GROUNDWATER QUALITY STANDARDS

Requirement – Title 15A of the North Carolina Administrative Code (NCAC), Subchapter 02L.0202, Groundwater Standards. The state groundwater rules establish maximum contaminant levels for groundwater at or beyond the compliance boundary for the ash basins. 15A NCAC 2L.0103(d) provides that “[n]o person shall conduct or cause to be conducted, any activity which causes the concentration of any substance to exceed that specified” in the groundwater quality standards in 15A NCAC 2L.0202. Further, under N.C.G.S.A. § 143-215.1(i), “[a]ny person ... who is required to obtain an individual permit ... for a disposal system under the authority of G.S. 143-215.1 [water pollution control] ... shall have a compliance boundary ... beyond which groundwater quality standards may not be exceeded.” *See also* 15A NCAC 2L.0102(3) (defining “compliance boundary” as “a boundary around a disposal system at and beyond which groundwater quality standards may not be exceeded”). Industrial landfills are required to comply with the 2L standards at the compliance boundary in accordance with 15A NCAC 13B.503(2)(d)(iv).

In addition, under N.C.G.S.A. § 143-215.6A(a)(1), civil penalties may be assessed against any person who violates any standard established by the NCDEQ under the authority of N.C.G.S.A. § 143-214.1, which covers groundwater standards.



Finding – Constituents exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202, were documented in monitoring wells located at or beyond the compliance boundary for the ash basins and the CCP Landfill. Based on the groundwater monitoring analyses completed to-date, exceedances of the 2L standards or Interim Maximum Allowed Concentrations (IMACs) have been identified as described below.

Constituents exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202, were documented in monitoring wells located at or beyond the compliance boundary for the ash basins and CCP Landfill as shown on the figures provided in Attachment C-1. Near the East Ash Basin (the Semi-Active Ash Basin) and the West Basin (the Active Ash Basin), as shown on Figure 1 of 5 in Attachment C-1, exceedances at or beyond the compliance boundary were identified for boron. In the East Ash Basin and the West Ash Basin, as shown on Figures 4 of 5 and 5 of 5 in Attachment C-1, exceedances at or beyond the compliance boundary were identified for boron, sulfate, TDS, and strontium. CCR related constituents with documented releases include boron, chromium, cobalt, iron, manganese, sulfate, TDS, pH and thallium.

NCDEQ has also noted exceedances of CCR related compounds near the CCP Landfill. NCDEQ requested additional assessment to be completed to help determine the source of these exceedances. The state noted in their June 27, 2016, correspondence that boron, selenium, sulfate, and total dissolved solids (TDS) have been reported at concentrations greater than the 2L standards in groundwater samples collected from GMW-6, while boron, selenium, and TDS have been detected above the 2L standards in GMW-11. These wells are near (GMW-11) and beyond (GMW-6) the compliance boundary.

The East and West Ash Basin and CCP Landfill CCR rule compliance groundwater monitoring wells were sampled for the first time in June 2016 and data were not available to review during this Audit.



Duke Energy continues to work with the NCDEQ as part of their comprehensive Groundwater Monitoring Plan to determine the extent of potential groundwater impacts as well as the source of the elevated concentrations.

3.3 CCR CONTAINERIZED PILE MANAGEMENT

Requirement – The CCR rule regulates CCR piles in a manner similar to CCR landfills. A CCR pile is defined as “any non-containerized accumulation of solid, non-flowing CCR that is placed on the land.” 40 C.F.R. § 257.53. In the CCR rule preamble, EPA clarified that for a storage area to be considered containerized, and not considered a waste pile, the use of specific measures to control exposures is required which could include placement of CCR on an impervious base, or installation of leachate and runoff collection, and walls or wind barriers. *See* 80 Fed. Reg. at 21,355-56. EPA explained that CCR managed in such a containerized fashion would not be a CCR pile or landfill under the CCR rule, since the potential for releases would be adequately mitigated. A containerized holding area would not be subject to 40 C.F.R. Part 257 requirements, including groundwater monitoring.

Duke Energy maintains a FGD residuals gypsum pile identified as the Temporary Storage Pad (TSP) with a large accumulation of FGD residuals at the facility. The pile is used to manage gypsum which will be both beneficially used and landfilled on-site. Duke Energy utilizes a water spray truck to control fugitive dust and run-off from the TSP. This combination of measures is intended to maintain the FGD residuals in a containerized manner so that the TSP will not be subject to the CCR pile and CCR landfill requirements in 40 C.F.R. Part 257.

Finding – The containerization measures employed by Duke Energy in the TSP area are not adequate. Evidence of historical and current fugitive dust and run-off releases from the TSP were observed during the facility tour and in aerial photographs of the area. Containment measures were not observed on the north side of the pad, the western side of the pad including the area under the conveyor, and the southwest side of the pad. Additionally, releases of gypsum



to the ground surface, beneath the conveyor, were observed within the plant area. These releases have the potential to impact groundwater.

Duke Energy is evaluating the use of asphalt, curbing, and other measures to enhance existing containment controls.

Well MW-03BR, the only well in the vicinity of the TSP, shows sulfate and TDS significantly above 2L standards. Gypsum is made up of calcium sulfate. These exceedances of sulfate and TDS may be related to the gypsum storage activities in this area.

3.4 GROUNDWATER ISSUES - CWA DISCHARGES FROM GROUNDWATER

Requirement – The CWA prohibits the discharge of any pollutant into the waters of the United States except in compliance with a permit issued pursuant to the CWA under the NPDES by EPA or a state with an approved program. 33 U.S.C. §§ 1311(a) and 1342. NCDEQ implements an approved NPDES program in North Carolina under 15A NCAC 2H.0100 et seq. Additionally, under N.C.G.S.A. § 143-215.1(a), unauthorized discharges are a violation.

Finding – The Audit Team noted that groundwater northeast of the Active Ash Basin contained pollutants above North Carolina 2L standards. The groundwater from this area discharges to the Intake Canal, which is a water of the state. This area is shown on the Figure provided in Attachment C-1. The facility is located in Person County, which is subject to the jurisdiction of the United States District Court for the Middle District of North Carolina, which follows the *Yadkin Riverkeeper* decision, as that is the current governing law in those areas of the state. Specifically, this means that discharges of pollutants from a point source that travel to navigable surface waters through hydrologically connected groundwater are considered discharges to waters of the United States and are therefore within the scope of the CWA.



3.5 DMR REPORTING

Requirement – Pursuant to NCDEQ-issued NPDES Permit No. NC00003425, Part II.E.5, monitoring results shall be reported on discharge monitoring reports (DMRs) at the frequency specified in the permit (e.g., monthly, quarterly or annually).

Finding – For the January 2016 sampling event, the DMRs for the Roxboro Facility were submitted on February 25, 2016. This submittal did not include the DMR for Internal Outfall 005. DMRs for the other monitored outfalls were included.

A DMR for Internal Outfall 005 was submitted to NCDEQ on July 15, 2016, after this omission was identified by the Audit Team.



4.0 OPEN ITEMS/POTENTIAL FINDINGS

Open items and potential findings are items identified by the Audit Team while on-site that, due to limited available information or the need for additional research, could not be determined as being in compliance or out of compliance.

4.1 STATE COMPLIANCE BOUNDARIES FOR GROUNDWATER

Requirement – Compliance boundaries for groundwater are set by the state per 15A NCAC 2L.0107. For disposal systems individually permitted on or after December 30, 1983, a compliance boundary shall be established 250 feet from the waste boundary or 50 feet within the property boundary, whichever is closer to the source. 15A NCAC 2L.0107(b). For disposal systems permitted prior to December 30, 1983, the compliance boundary is established at a distance of 500 feet from the waste boundary or at the property boundary, whichever is closer to the source. 15A NCAC 2L.0107(a).

Open Line of Inquiry – Drawings provided by Duke Energy, including the Figure provided in Attachment C-1, show the “Ash Basin Compliance Boundary” surrounding the TGP. There is no information available to the Audit Team documenting the development of the compliance boundary and explaining why the Ash Basin Compliance Boundary has been extended around the TGP. Following the Audit, Duke Energy submitted a revised compliance boundary to NCDEQ. No information was provided regarding state acceptance on this issue.

Since the TGP is not permitted as a disposal system, the Audit Team could not determine the basis for a compliance boundary in the TGP area.



4.2 CWA POLLUTANT DISCHARGE

Requirement – The CWA prohibits the discharge of any pollutant into the waters of the United States except in compliance with a permit issued pursuant to the CWA under the NPDES by EPA or a state with an approved program. 33 U.S.C. §§ 1311(a) and 1342. NCDEQ implements an approved NPDES program in North Carolina under 15a NCAC 2h.0100 et seq. Additionally, under N.C.G.S.A. § 143-215.1(a), unauthorized discharges are a violation.

Open Line of Inquiry – CertainTeed operates a conveyor on land owned by Duke Energy which moves gypsum from the temporary gypsum pad over the Intake Canal, which is a water of the state, and delivers gypsum to the Certain-Teed plant, where the gypsum is reused in wall board. During the facility tour, gypsum was observed on the ground in areas which drain to the Intake Canal and gypsum was observed on the banks of the Intake Canal. The gypsum has the potential to be discharged to the Intake Canal; such discharges are not permitted.

Duke Energy has stated CertainTeed is contractually responsible for operating and maintaining the conveyor and they will encourage them to take actions to control, minimize, or eliminate the potential for gypsum to discharge into the intake canal.

12/6/2016

Duke Energy Actions to Resolve Audit Findings

Facility: Roxboro Steam Plant
Date of Audit: 13-15 July, 2016
Date of Final Report: 31 October, 2016

| FINDING | DUKE ENERGY ACTIONS TO RESOLVE |
|---|--|
| Discharges via seeps are occurring and although Duke Energy has submitted applications to the North Carolina Department of Environmental Quality (NCDEQ) for permits under the Clean Water Act's (CWA) National Pollution Discharge Elimination System (NPDES) program, NCDEQ has not yet approved the permits, resulting in certain discharges being unauthorized under the CWA. | Duke Energy applied for and is awaiting the final NPDES permits to cover these potential discharges. Duke Energy recently received a draft permit and continues to work with the regulator to finalize the permit. |
| Concentrations of ash-related constituents were documented that exceeded the standards for Class GA waters in monitoring wells located at or beyond the compliance boundary for the ash basins and CCP Landfill. | Duke Energy is in the process of addressing groundwater impacts at Roxboro under the procedures set out in the Coal Ash Management Act (CAMA), including the generation and submission to NCDEQ of a detailed Comprehensive Site Assessment and a two-part Corrective Action Plan. Duke Energy is currently engaged in the collection of additional information at the request of NCDEQ. Duke Energy and NCDEQ have entered into a settlement agreement in which they agreed that the procedures outlined in CAMA are specifically designed to address, and will address, the assessment and corrective action of alleged groundwater contamination associated with coal ash facilities at the Duke Energy sites. In combination with the specific requirements of CAMA, NCDEQ further acknowledges that this agreement fully addresses and resolves all issues related to groundwater contamination associated with coal ash facilities at the Duke Energy sites, including all groundwater violations alleged in the state enforcement actions currently pending. |
| The containerization methods employed by Duke Energy at the Gypsum Temporary Storage Pad are not adequate to containerize the FGD residuals. | Asphalting was completed in the area under the radial stacker. A project is in planning to add additional retaining wall features to enhance containerization and stormwater runoff from the gypsum pad. This project will be completed in 2017. Additionally, for areas owned and operated by a contractor on Duke Energy property, the contractor has increased cleaning in the areas of spillage, and are evaluating options on the conveyor going over the canal. They are developing a new environmental control plan to document all of their changes. |
| Groundwater discharges from the ash basins are reaching the Intake Canal, which is a water of the state, via hydrological connections. These discharges are not authorized by an NPDES permit and are therefore violations of the CWA and North Carolina regulations. | Duke Energy objects to this finding. Neither the CWA nor North Carolina regulations regulate the discharge of groundwater to surface waters via hydrological connections. Duke Energy's actions as stated above will properly address groundwater at the Roxboro Steam Plant. |
| A Discharge Monitoring Report (DMR) for January, 2016 did not include data for Outfall 005 as required. | A corrected DMR was submitted on July 15, 2016. |



1055 Andrew Drive, Suite A
West Chester, PA 19380-1293
tel 610.840.9100 fax 610.840.9199
www.advancedgeoservices.com

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THE ELM CONSULTING GROUP INTERNATIONAL LLC

ENVIRONMENTAL AUDIT IN SUPPORT OF THE COURT APPOINTED MONITOR

**L. V. Sutton Energy Complex
Wilmington, North Carolina
USA**

May 2017

Final Report Issued to:

Duke Energy and the Court Appointed Monitor

Prepared By:

**Advanced GeoServices Corp.
and
The Elm Consulting Group International LLC**



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3.0 AUDIT FINDINGS

3.1 EXCEEDANCES OF THE STATE GROUNDWATER QUALITY STANDARDS

Requirement – The State groundwater rules establish maximum contaminant levels for groundwater at or beyond the compliance boundary for the Ash Basins. See 15A NCAC 02L.0202. 15A NCAC 02L.0103(d) provides that “[n]o person shall conduct or cause to be conducted, any activity which causes the concentration of any substance to exceed that specified” under the Class GA standards or the interim maximum acceptable concentrations (IMACs) established for groundwater quality pursuant to 15A NCAC 02L.0202. Further, under N.C.G.S.A. § 143-215.1(i), “[a]ny person ... who is required to obtain an individual permit ... for a disposal system under the authority of N.C.G.S.A. § 143-215.1 [water pollution control] ... shall have a compliance boundary ... beyond which groundwater quality standards may not be exceeded.” See also 15A NCAC 02L.0102(3) (defining “compliance boundary” as “a boundary around a disposal system at and beyond which groundwater quality standards may not be exceeded”).

In addition, under N.C.G.S.A. § 143-215.6A(a)(1), civil penalties may be assessed against any person who violates any standard established by the NCDEQ under the authority of N.C.G.S.A. § 143-214.1, which covers groundwater standards.

Finding - Constituents exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202, were documented in monitoring wells located at or beyond the compliance boundaries for the 1971 Ash Basin and the 1984 Ash Basin. The CAMA groundwater monitoring network consists of 62 wells. Based on the review of the 2016 CAMA groundwater monitoring analyses, pH, boron, chloride, TDS, arsenic, chromium(VI), cobalt, iron, manganese, and vanadium exceed the 2L groundwater standards one or more times at or beyond the compliance boundaries for the 1971 Ash Basin and the 1984 Ash Basin. The compliance boundaries and the locations of the exceedances are provided in Attachment B to this report.



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Duke Energy has stated its opinion that, pursuant to a September 2015 Settlement Agreement with the NCDEQ, "Duke Energy is not subject to any further financial penalties for exceedances of groundwater standards" and "Duke Energy is not subject to any further enforcement action based on exceedances of groundwater standards as long as it remains in substantial compliance with CAMA groundwater requirements."

The CAM has advised the Audit Team that the Audit scope does not include an evaluation of compliance with the September 2015 Settlement Agreement and therefore the Audit Team does not take a position on Duke Energy's opinion.

3.2 POSTED NOTICE OF INTENT TO CLOSE IMPOUNDMENTS

Requirement - The Disposal of Coal Combustion Residuals from Electric Utilities rule (CCR Rule) became effective on October 19, 2015. Under 40 C.F.R. § 257.102(g), no later than the date the owner or operator of a CCR unit initiates closure of a CCR unit, the owner or operator must prepare a notification of intent to close a CCR unit. The owner or operator has completed the notification when it has been placed in the facility's operating record, as required by § 257.105(i)(7). Under 40 C.F.R. § 257.107(a) and § 257.107(i)(7), the notification is also required to be placed on a publicly accessible Internet site with other CCR Rule compliance data and information.

Finding - On July 6, 2016, Duke Energy reportedly ceased placing CCR waste streams into the 1971 and 1984 Ash Basins. At the time of the Audit, the Notice of Intent to Close the 1971 and 1984 Ash Basins was not in the facility's operating record or posted by Duke Energy on their publicly available CCR Rule Compliance Data and Information website for the Sutton Facility.

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Following the Audit, Duke Energy advised the Audit Team that on February 9, 2017, Duke Energy placed Notices of Intent to Close the 1971 and 1984 Ash Basins in the Sutton Facility's operating record pursuant to 40 C.F.R. §§ 257.102(g) and 257.105(i)(7). Duke Energy also advised the Audit Team that on February 16, 2017, Duke Energy provided a notification of the Notices of Intent to Close the 1971 and 1984 Ash Basins to the relevant State Director (NCDEQ) pursuant to 40 C.F.R. § 257.106(i)(7) and posted the Notices of Intent to Close to Duke Energy's publicly accessible CCR Rule Compliance Data and Information web site in accordance with 40 C.F.R. § 257.107(i)(7).



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4.0 OPEN LINES OF INQUIRY

Open Lines of Inquiry are items identified by the Audit Team while on-site that, due to limited available information or the need for additional research, could not be determined as being in compliance or out of compliance.

There were no Open Lines of Inquiry identified during the Audit.

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5/10/2017

Duke Energy Actions to Resolve Audit Findings

Facility: L.V. Sutton Energy Complex
Date of Audit: 6-7 February, 2017
Date of Final Report: 5 May, 2017

| FINDING | DUKE ENERGY ACTIONS TO RESOLVE |
|--|---|
| Constituents exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202 were documented in monitoring wells located at or beyond the compliance boundaries for the 1971 and the 1984 Ash Basins. | Duke Energy is in the process of addressing groundwater impacts under the procedures set out in the Coal Ash Management Act (CAMA), including the generation and submission to NCDEQ of a detailed Comprehensive Site Assessment and a two-part Corrective Action Plan and any necessary supplemental information or revisions. Duke Energy is currently engaged in the collection of additional information at the request of NCDEQ. |
| At the time of the Audit, the Notice of Intent to Close the 1971 and 1984 Ash Basins were not in the facility's operating record or posted on the publicly available CCR Rule Compliance Data and Information website for the Sutton Facility as required by the CCR Rule. | Duke Energy posted the Notices for the Sutton Ash Basins to its publically accessible Web site and made the notifications required by the CCR rule. Additionally, Duke Energy reviewed its other locations to ensure all required Notices were posted. |
| OPEN LINES OF INQUIRY | DUKE ENERGY ACTIONS TO RESOLVE |
| None | n/a |



1055 Andrew Drive, Suite A
West Chester, PA 19380-4293
tel 610.840.9100 fax 610.840.9199
www.advancedgeoservices.com

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THE ELM CONSULTING GROUP INTERNATIONAL LLC

ENVIRONMENTAL AUDIT IN SUPPORT OF THE COURT APPOINTED MONITOR

**W. H. Weatherspoon Power Plant
Lumberton, North Carolina
USA**

May 2017

Final Report Issued to:

Duke Energy and the Court Appointed Monitor

Prepared By:

**Advanced GeoServices Corp.
and
The Elm Consulting Group International LLC**



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3.0 AUDIT FINDINGS

3.1 EXCEEDANCES OF THE STATE GROUNDWATER QUALITY STANDARDS

Requirement – The State groundwater rules establish maximum contaminant levels for groundwater at or beyond the compliance boundary for the Ash Basin. See 15A NCAC 02L .0202. 15A NCAC 02L.0103(d) provides that “[n]o person shall conduct or cause to be conducted, any activity which causes the concentration of any substance to exceed that specified” under the Class GA standards or the interim maximum acceptable concentrations (IMACs) established for groundwater quality pursuant to 15A NCAC 02L.0202. Further, under N.C.G.S.A. § 143-215.1(i), “[a]ny person ... who is required to obtain an individual permit ... for a disposal system under the authority of N.C.G.S.A. § 143-215.1 [water pollution control] ... shall have a compliance boundary ... beyond which groundwater quality standards may not be exceeded.” See also 15A NCAC 02L.0102(3) (defining “compliance boundary” as “a boundary around a disposal system at and beyond which groundwater quality standards may not be exceeded”).

In addition, under N.C.G.S.A. § 143-215.6A(a)(1), civil penalties may be assessed against any person who violates any standard established by the NCDEQ under the authority of N.C.G.S.A. § 143-214.1, which covers groundwater standards.

Finding – Constituents exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202, were documented in monitoring wells located at or beyond the compliance boundary for the Weatherspoon Facility Ash Basin. The CAMA groundwater monitoring network consists of 52 wells. Based on the review of the January 2016 CAMA groundwater monitoring analyses, pH and manganese exceed the 2L groundwater standards one or more times at or beyond the compliance boundary for the Weatherspoon Facility Ash Basin. Attachment B provides a summary of the locations of these exceedances during the January 2016 monitoring event.

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Exceedances of the 2L groundwater standards for TDS, cobalt, iron, and vanadium were also observed during groundwater monitoring completed at the Weatherspoon Facility and are also shown in Attachment B. These compounds are found in background groundwater in the vicinity of the Weatherspoon Facility. Duke Energy personnel reported that Duke is working with NCDEQ to develop a methodology to understand and quantify the contribution of background to the conditions at the Weatherspoon Facility and understand whether Duke Energy is responsible for exceedances of these constituents.

Duke has also stated its opinion that, pursuant to a September 2015 Settlement Agreement with the NCDEQ, "Duke Energy is not subject to any further financial penalties for exceedances of groundwater standards" and "Duke Energy is not subject to any further enforcement action based on exceedances of groundwater standards as long as it remains in substantial compliance with CAMA groundwater requirements."

The CAM has advised the Audit Team that the Audit scope does not include an evaluation of compliance with the September 2015 Settlement Agreement and therefore the Audit Team does not take a position on Duke Energy's opinion.



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4.0 OPEN LINES OF INQUIRY

Open Lines of Inquiry are items identified by the Audit Team while on-site that, due to limited available information, an unsettled area of law, or the need for additional research, could not be determined as being in compliance or out of compliance.

4.1 CLEAN WATER ACT DISCHARGES THROUGH WETLANDS

Requirements - The federal Clean Water Act prohibits the discharge of any pollutant into the waters of the United States except in compliance with a permit issued pursuant to the CWA under the National Pollutant Discharge Elimination System (NPDES) by EPA or a state with an approved program. 33 U.S.C. §§ 1311(a) and 1342. NCDEQ implements an approved NPDES program in North Carolina under 15A NCAC 2H.0100 *et seq.* "Waters of the United States" is defined in part as including wetlands, i.e., "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation adapted for life in saturated soil conditions." 40 C.F.R. § 110.1 (defining "navigable waters" and "waters of the U.S."). The U.S. Army Corps of Engineers issues jurisdictional determinations, which determine whether a wetland qualifies as "waters of the United States." On other Duke Energy Sites, NCDEQ has taken the position that a seep discharging into a jurisdictional wetland can be subject to NPDES permitting.

Open Line of Inquiry

Existing Conditions

Contaminated seepage exists around the Ash Basin and is collected in channels at the base of the Ash Basin. There are two discrete channels which capture the contaminated seepage from the Ash Basin. Contaminated seepage discharges are generated at S-11, S-24, S-12, S-13, S-14, S-23, S-

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04 and S-15 on the western and southern side of the basin. The flows are combined with discharges S-02, S-03, and S-05 from the eastern side of the basin, which are conveyed in a recently constructed effluent channel. Preliminary wetlands drawings completed by consultants to Duke Energy, and included as Attachment C to this report, show these flows discharge to wetlands prior to entering the Cooling Pond. The area of wetlands shown on the preliminary mapping provided in Attachment C was not certified as a jurisdictional wetland at the time of the Audit.

On the western side of the Ash Basin, contaminated seepage discharges from S-9 and S-16 flow in a discrete channel. The flow in the discrete channel discharges through an area shown as wetlands on the preliminary wetlands drawings, prior to entering the Cooling Pond. Discharges from S-9 and S-16 did not pass through an outfall prior to entering the wetlands.

Any water which enters the Cooling Pond from the Ash Basin may discharge through Outfall 001 into the Lumber River. However, due to the unique hydrogeologic conditions in the Cooling Pond area, Duke personnel reported that there is rarely a discharge through Outfall 001 into the Lumber River.

Regulatory Correspondence

As noted above, Duke Energy personnel stated during the Audit that only the preliminary wetlands mapping completed by Duke Energy's consultants was available and no jurisdictional delineations of the wetlands have been completed by the Army Corps of Engineers.

At the time of the Audit, NCDEQ had not yet issued the final NPDES permit for the Weatherspoon Facility.

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Open Line of Inquiry

The available information suggests the seepage from the Ash Basin may enter a jurisdictional wetland area, which would make the wetland a water of the State, prior to reaching the approved outfall. In the absence of information on whether the discharges from the channels is to a jurisdictional wetlands area, the Audit Team cannot conclude whether there is a violation of Section 402 of the Clean Water Act. For this reason, this is considered be an Open Line of Inquiry.

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Apr 30 2019

5/17/2017

Duke Energy Actions to Resolve Audit Findings

Facility: W.H. Weatherspoon Power Plant
Date of Audit: 8-9 February, 2017
Date of Final Report: 5 May, 2017

| FINDING | DUKE ENERGY ACTIONS TO RESOLVE |
|---|---|
| Constituents exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202 were documented in monitoring wells located at or beyond the compliance boundaries for the Ash Basin. | Duke Energy is in the process of addressing groundwater impacts under the procedures set out in the Coal Ash Management Act (CAMA), including the generation and submission to NCDEQ of a detailed Comprehensive Site Assessment and a two-part Corrective Action Plan and any necessary supplemental information or revisions. Duke Energy is currently engaged in the collection of additional information at the request of NCDEQ. |
| OPEN LINES OF INQUIRY | DUKE ENERGY ACTIONS TO RESOLVE |
| No jurisdictional delineations of the wetlands have been completed by the Army Corps of Engineers. Seepage from the Ash Basin may enter a jurisdictional wetland area prior to reaching the approved outfall. | Duke Energy continues to pursue US Army Corps of Engineers wetlands delineations at the Station. |

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1035 Andrew Drive, Suite A
West Chester, PA 19380-4293
tel 610.840.9100 fax 610.840.9199
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THE ELM CONSULTING GROUP INTERNATIONAL LLC

ENVIRONMENTAL AUDIT IN SUPPORT OF THE COURT APPOINTED MONITOR

**Asheville Steam Station
Arden, North Carolina
USA**

June 2017

Final Report Issued to:

Duke Energy and the Court Appointed Monitor

Prepared By:

**Advanced GeoServices Corp.
and
The Elm Consulting Group International LLC**



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3.0 AUDIT FINDINGS

The following Findings were identified by the Audit Team.

3.1 SEEPAGE UNDER THE CLEAN WATER ACT

Requirement - The Clean Water Act (CWA) prohibits the discharge of any pollutant into the waters of the United States except in compliance with a permit issued pursuant to the CWA under the National Pollutant Discharge Elimination System (NPDES) by EPA or a state with an approved program. 33 U.S.C. §§ 1311(a) & 1342. NCDEQ implements an approved NPDES program in North Carolina under 15A NCAC 2H.0100 *et seq.* Additionally, under NCGS § 143-215.1(a) unauthorized discharges of a pollutant to waters of the state are a violation of North Carolina law.

Finding - The Audit Team reviewed documentation of seeps located west of both the 1964 Ash Basin and the 1982 Ash Basin which contain pollutants that discharge from point sources through discrete conveyances to waters of the State. These seeps are not authorized by a current NPDES permit and therefore constitute violations of the CWA, and the NCDEQ NPDES permitting program.

The locations of the discharges are shown in boxes provided around the sampling points identified in Attachment B. Locations A-01, B-01, Pondered Water – F, C-01, E-01, F-01, F-02 all had discharges to the French Broad River or wetlands during the monitoring conducted at these locations in 2016. The French Broad River and the wetlands are waters of the State. Discharges N-01 and P-01 also had elevated levels of iron and manganese but these are believed by Duke Energy personnel to be associated with background conditions and not a result of the influence of the Ash Basin. Discharge location F-01 and F-02 were located in mapped jurisdictional wetland areas.



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In summary, seeps exist at the facility and discharges from these seeps flow into the French Broad River and wetlands at the facility. The seeps contain pollutants at the locations identified above and are not authorized by the current NPDES permit.

Duke Energy applied for renewal of its NPDES permit in June 2010, and this application had the effect of extending the December 2010 expiration date of the permit until NCDEQ acts on the renewal request. As of the date of the Audit, NCDEQ had not acted on the pending request. Duke Energy submitted a proposed amendment to its renewal application in July 2014 requesting coverage for seepage waters that had been identified at the facility during 2014. Duke Energy submitted supplemental information to NCDEQ in support of the NPDES permit application as recently as December 1, 2016.

3.2 EXCEEDANCES OF THE STATE GROUNDWATER QUALITY STANDARDS

Requirement - The state groundwater rules establish maximum contaminant levels for groundwater at or beyond the compliance boundaries for the 1964 and 1982 Ash Basins. *See* 15A NCAC 02L.0202 (Groundwater Standards). 15A NCAC 2L.0103(d) provides that “[n]o person shall conduct or cause to be conducted, any activity which causes the concentration of any substance to exceed that specified” under the Class GA standards or the interim maximum acceptable concentrations (IMACs) established for groundwater quality in 15A NCAC 2L.0202. Further, under NCGS. § 143- 215.1(i), “[a]ny person ... who is required to obtain an individual permit ... for a disposal system under the authority of G.S. 143-215.1 [water pollution control] ... shall have a compliance boundary ... beyond which groundwater quality standards may not be exceeded.” *See also* 15A NCAC 2L.0102(3) (defining “compliance boundary” as “a boundary around a disposal system at and beyond which groundwater quality standards may not be exceeded”).

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In addition, under NCGS § 143-215.6A(a)(1), civil penalties may be assessed against any person who violates any standard established by the NCDEQ under the authority of NCGS § 143-214.1, which covers groundwater standards.

Finding - Constituents exceeding the state standards for Class GA waters, established in 15A NCAC 2L.0202, were documented in monitoring wells located at or beyond the compliance boundaries for the 1964 and 1982 Ash Basins at the facility. Based on the review of the 2016 CAMA groundwater monitoring analyses, boron, chloride, cobalt, iron, manganese, sulfate and total dissolved solids (TDS) were observed to exceed the 2L or the IMAC groundwater standards one or more times at or beyond the compliance boundaries of the 1964 Ash Basin and 1982 Ash Basin. The compliance boundaries and the locations of the exceedances are provided in Attachment C.

Duke Energy has stated its opinion that, pursuant to a September 2015 Settlement Agreement with the NCDEQ, "Duke Energy is not subject to any further financial penalties for exceedances of groundwater standards" and "Duke Energy is not subject to any further enforcement action based on exceedances of groundwater standards as long as it remains in substantial compliance with CAMA groundwater requirements."

The CAM has advised the Audit Team that the Audit scope does not include an evaluation of compliance with the September 2015 Settlement Agreement and therefore the Audit Team does not take a position on Duke Energy's opinion.



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4.0 OPEN LINES OF INQUIRY

Open Lines of Inquiry are items identified by the Audit Team while on-site that, due to limited available information or the need for additional research, could not be determined as being in compliance or out of compliance.

4.1 GROUNDWATER ISSUES - CWA DISCHARGES FROM GROUNDWATER

Requirement - The federal CWA prohibits the discharge of any pollutant into the waters of the United States except in compliance with a permit issued pursuant to the CWA under the NPDES program by EPA or a state with an approved program. 33 U.S.C. §§ 1311(a) & 1342. NCDEQ implements an approved NPDES program in North Carolina under 15A NCAC 2H.0100 *et seq.* Additionally, under NCGS § 143-215.1(a) unauthorized discharges of a pollutant to waters of the state are a violation of North Carolina law.

Open Line of Inquiry - The Audit Team noted that groundwater with boron, total chromium, iron, manganese, cobalt, chloride, pH, sulfate and TDS above the North Carolina 2L or IMAC groundwater standards migrated and discharged to the French Broad River, which is a water of the State. Figures showing the migration of these compounds are provided in Attachment C to this report.

The federal courts have reached conflicting conclusions on the question of whether the federal CWA applies to discharges of pollutants into groundwater that migrate into surface waters. Not only is there a split across the federal courts nationwide, there is a split within the Fourth Circuit, which covers North Carolina. The federal court in the Eastern District of North Carolina held in *Cape Fear River Watch v. Duke Energy Progress*, 25 F. Supp.3d 798 (E.D.N.C. 2014), that the CWA does not apply to groundwater, regardless of whether that groundwater is hydrologically connected to navigable surface waters. In contrast, the federal court in the Middle District of North Carolina reached the opposite conclusion in *Yadkin Riverkeeper, Inc. v. Duke Energy Carolinas, LLC*, 2015 WL 6157706 (M.D.N.C. 2015), holding that “[t]his Court agrees with the line of cases



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affirming CWA jurisdiction over the discharge of pollutants to navigable surface waters via hydrologically connected groundwater, which serves as conduit between the point source and the navigable waters.” *Id.* at *9-10. Other federal district courts in the Fourth Circuit outside of North Carolina have also reached conflicting interpretations, but the U.S. Court of Appeals for the Fourth Circuit (*i.e.*, the appellate court) has not yet addressed this question.

Federal district court decisions are persuasive authority only, and do not constitute binding or controlling precedent. Therefore, until the Fourth Circuit or the U.S. Supreme Court issues an opinion affirming or rejecting CWA jurisdiction over the discharge of pollutants to navigable surface waters via hydrologically connected groundwater that serve as a conduit between the point source and the navigable waters, the Audit Team cannot determine whether the observed discharge of pollutants constitutes a violation of the CWA. The Audit Team therefore includes this observation as an Open Line of Inquiry.

4.2 EXCEEDANCES OF THE STATE GROUNDWATER QUALITY STANDARDS

Requirement - The state groundwater rules establish maximum contaminant levels for groundwater at or beyond the compliance boundaries for the 1964 and 1982 Ash Basins. *See* 15A NCAC 02L.0202. 15A NCAC 2L.0103(d) provides that “[n]o person shall conduct or cause to be conducted, any activity which causes the concentration of any substance to exceed that specified” under the Class GA standards or the IMACs established for the groundwater quality pursuant to 15A NCAC 2L.0202. Further, under NCGS § 143- 215.1(i), “[a]ny person ... who is required to obtain an individual permit ... for a disposal system under the authority of G.S. 143-215.1 [water pollution control] ... shall have a compliance boundary ... beyond which groundwater quality standards may not be exceeded.” *See also* 15A NCAC 2L.0102(3) (defining “compliance boundary” as “a boundary around a disposal system at and beyond which groundwater quality standards may not be exceeded”).



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In addition, under NCGS § 143-215.6A(a)(1), civil penalties may be assessed against any person who violates any standard established by the NCDEQ under the authority of NCGS § 143-214.1, which covers groundwater standards.

Open Line of Inquiry - As noted in Finding 3.2 above, constituents exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202, were documented in monitoring wells located at or beyond the compliance boundary for the 1964 and 1982 Ash Basins at the facility. Finding 3.2 concerns constituents detected at levels that allow the Audit Team to reach compliance conclusions. Based on the review of the 2016 CAMA groundwater monitoring analyses, there are some additional constituents, specifically, pH, and chromium, that were also observed above their 2L or IMAC standards one or more times at or beyond the compliance boundary of the 1964 Ash Basin and 1982 Ash Basin where the Audit Team could not reach specific compliance conclusions. The compliance boundaries and the locations of the exceedances are provided in Attachment C.

The Audit Team noted that the levels of these constituents exceeded the state groundwater standards but it was not possible to conclude whether these exceedances were due to ash basin discharges or background conditions. This was primarily due to the limited amount of data available and the low regulatory standards for these compounds, in connection with the detection limits of the available analytical methods. Duke Energy is completing additional studies to understand the influence of background conditions at the groundwater sampling locations.

6/8/2017

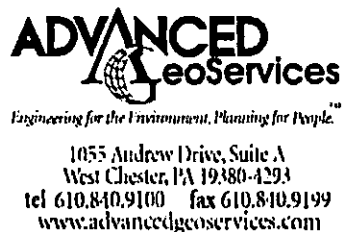
Duke Energy Actions to Resolve Audit Findings

Facility: Asheville Steam Station
Date of Audit: 22-23 March, 2017
Date of Final Report: 2 June, 2017

| FINDING | DUKE ENERGY ACTIONS TO RESOLVE |
|---|---|
| Discharges via seeps are occurring and although Duke Energy has submitted applications to the North Carolina Department of Environmental Quality (NCDEQ) for permits under the Clean Water Act's (CWA) National Pollution Discharge Elimination System (NPDES) program, NCDEQ has not yet approved the permits, resulting in certain discharges being unauthorized under the CWA. | Duke Energy applied for permits to cover these potential discharges and continues to work with the regulator to finalize the permit. Duke Energy is expeditiously dewatering and closing basins to control, reduce or eliminate these potential discharges altogether. |
| Constituents exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202 were documented in monitoring wells located at or beyond the compliance boundaries for the Ash Basin. | Duke Energy is in the process of addressing groundwater impacts under the procedures set out in the Coal Ash Management Act (CAMA), including the generation and submission to NCDEQ of a detailed Comprehensive Site Assessment and a two-part Corrective Action Plan and any necessary supplemental information or revisions. Duke Energy is currently engaged in the collection of additional information at the request of NCDEQ. |
| OPEN LINES OF INQUIRY | DUKE ENERGY ACTIONS TO RESOLVE |
| Groundwater discharges may be CWA violations. | Further discussions with the CAM resolved that this is a matter of unsettled law and will remain an Open Line of Inquiry until the matter is settled. In the mean time, Duke Energy's actions to address groundwater impacts also address this issue. |

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ENVIRONMENTAL AUDIT IN SUPPORT OF THE COURT APPOINTED MONITOR

**Mayo Steam Electric Plant
Roxboro, North Carolina
USA**

September 2017

Final Report Issued To:

Duke Energy and the Court Appointed Monitor

Prepared By:

**Advanced GeoServices Corp.
and
The Elm Consulting Group International LLC**

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9/26/2017

Apr 30 2019

Duke Energy Actions to Resolve Audit Findings

Facility: Mayo Steam Electric Plant
Date of Audit: 19-20 July, 2017
Date of Final Report: 13 September, 2017

| FINDINGS | DUKE ENERGY ACTIONS TO RESOLVE |
|---|--|
| Discharges via seeps are occurring and although Duke Energy has submitted applications to the North Carolina Department of Environmental Quality (NCDEQ) for permits under the Clean Water Act's (CWA) National Pollution Discharge Elimination System (NPDES) program, NCDEQ has not yet approved the permits, resulting in certain discharges being unauthorized under the CWA. | Duke Energy applied for permits to cover these potential discharges and continues to work with the regulator to finalize the permit. Duke Energy is expeditiously dewatering and closing basins to control, reduce or eliminate these potential discharges altogether. |
| Concentrations of ash-related constituents were documented that exceeded the standards for CLASS GA waters in monitoring wells located at or beyond the compliance boundary for the Active Ash Basin. | Duke Energy is in the process of addressing groundwater impacts under the procedures set out in the Coal Ash Management Act (CAMA), including the generation and submission to NCDEQ of a detailed Comprehensive Site Assessment and a two-part Corrective Action Plan and any necessary supplemental information or revisions. Duke Energy is currently engaged in the collection of additional information at the request of NCDEQ to understand the influence of background conditions at the groundwater sampling locations. |
| OPEN LINE OF INQUIRY | DUKE ENERGY ACTIONS TO RESOLVE |
| <p>Concentrations of ash-related constituents were documented that exceeded the standards for CLASS GA waters in monitoring wells located at or beyond the compliance boundary for:</p> <p>a. Active Ash Basin and may be due to naturally occurring (background) conditions.</p> <p>b. CCP Monofill with elevated boron concentrations from an unknown source measured in groundwater samples from two CCR wells located just north of the CCP Monofill.</p> | <p>a. Duke Energy is in the process of addressing groundwater impacts under the procedures set out in the Coal Ash Management Act (CAMA), including the generation and submission to NCDEQ of a detailed Comprehensive Site Assessment and a two-part Corrective Action Plan and any necessary supplemental information or revisions. Duke Energy is currently engaged in the collection of additional information at the request of NCDEQ to understand the influence of background conditions at the groundwater sampling locations.</p> <p>b. Duke Energy submitted to NCDEQ a Work Plan for Assessment of Groundwater at the CCP Monofill dated January 31, 2017, revised February 23, 2017. NCDEQ provided approval of the above work plan to Duke Energy on March 22, 2017. To delineate groundwater in the area of concern, Duke Energy planned to install 24 monitoring wells (8 cluster locations with 3 wells per location; shallow, transition, and bedrock zones) north and east of the CCP Monofill. Mobilization of drilling efforts occurred on August 9, 2017 which was proceeded by clearing and access preparations. As of September 18, 2017, 9 wells have been installed (5 cluster locations complete). Wells at each cluster location were eliminated due to inadequate or no presence of water in one of the three subsurface zones. Three cluster locations (9 wells) remain to be installed. The groundwater monitoring wells installed to date have undergone initial development. Following installation of the remaining wells, full development will be completed, analytical samples obtained, and assessment conducted.</p> |



3.0 AUDIT FINDINGS

The following Findings at the Mayo Facility were identified by the Audit Team.

3.1 SEEPAGE UNDER THE CLEAN WATER ACT

Requirement – The federal Clean Water Act (CWA) prohibits the discharge of any pollutant into the waters of the United States except in compliance with a permit issued pursuant to the CWA under the National Pollutant Discharge Elimination System (NPDES) by the United States Environmental Protection Agency (EPA) or a state with an approved program. 33 U.S.C. §§ 1311(a) and 1342. NCDEQ implements an approved NPDES program in North Carolina under 15A NCAC 02H.0100 *et seq.* Additionally, under N.C.G.S.A. § 143-215.1(a), unauthorized discharges of a pollutant to waters of the State are a violation of North Carolina law.

Finding – The Audit Team observed seeps at the Mayo Facility which contain pollutants and which discharge, from point sources through discrete conveyances, to waters of the United States. While Duke Energy has requested these seeps be included in the pending NPDES permit renewal application, these seeps are not authorized by a current NPDES permit and therefore constitute violations of the CWA, the NCDEQ NPDES permitting program, and N.C.G.S.A. § 143-215.1(a).

Point source discharges to surface waters have been identified at AOW sampling locations S-1, S-1A, S-2, S-2A, S-2B, S-3, S-4, S-8, and S-10 in and around the Active Ash Basin present at the Mayo Facility. The locations of these discharges are shown on the figures provided in Attachment B. The discharges at these locations, identified here as seeps, enter the Crutchfield Branch. Sampling conducted during 2016 and 2017 showed these discharges contained pollutants including pH, boron, iron, vanadium and elevated hardness levels. A summary of the sampling results is provided on the tables in Attachment B.



In summary, seeps exist at the Mayo Facility and the discharges from these seeps flow into the Crutchfield Branch, which is a water of the United States. The seeps contain pollutants, and the discharges are not authorized by the Mayo Facility's current NPDES permit.

NCDEQ is in the process of developing a final NPDES permit that would cover these seeps. A draft permit was issued in January 2017, which included the seeps, and Duke Energy has had continued correspondence with the NCDEQ over the last 6 months regarding final details and issuance of a final permit.

3.2 EXCEEDANCES OF THE STATE GROUNDWATER QUALITY STANDARDS

Requirement – The State groundwater rules establish maximum contaminant levels for groundwater at or beyond the compliance boundary for the Active Ash Basin. *See* 15A NCAC 02L.0202. 15A NCAC 02L.0103(d) provides that “[n]o person shall conduct or cause to be conducted, any activity which causes the concentration of any substance to exceed that specified” under the Class GA standards or the interim maximum acceptable concentrations (IMACs) established for groundwater quality pursuant to 15A NCAC 02L.0202. Further, under N.C.G.S.A. § 143-215.1(i), “[a]ny person ... who is required to obtain an individual permit ... for a disposal system under the authority of N.C.G.S.A. § 143-215.1 [water pollution control] ... shall have a compliance boundary ... beyond which groundwater quality standards may not be exceeded.” *See also* 15A NCAC 02L.0102(3) (defining “compliance boundary” as “a boundary around a disposal system at and beyond which groundwater quality standards may not be exceeded”).

In addition, under N.C.G.S.A. § 143-215.6A(a)(1), civil penalties may be assessed against any person who violates any standard established by the NCDEQ under the authority of N.C.G.S.A. § 143-214.1, which covers groundwater standards.



Finding – Constituents exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202, were documented in monitoring wells located at or beyond the compliance boundary for the Active Ash Basin. Based on the review of the 2016 and 2017 CAMA groundwater monitoring analyses and the NPDES groundwater monitoring analyses, pH, boron, iron and manganese were observed to exceed the 2L or IMAC groundwater standards one or more times at or beyond the compliance boundary of the Active Ash Basin. The compliance boundary and the locations of the exceedances are identified in Attachment C to this report. Attachment D provides the NPDES Groundwater Results.

Duke Energy has stated its opinion that, pursuant to a September 2015 Settlement Agreement with the NCDEQ, "Duke Energy is not subject to any further financial penalties for exceedances of groundwater standards" and "Duke Energy is not subject to any further enforcement action based on exceedances of groundwater standards as long as it remains in substantial compliance with CAMA groundwater requirements."

The CAM has advised the Audit Team that the Audit scope does not include an evaluation of compliance with the September 2015 Settlement Agreement and therefore the Audit Team does not take a position on Duke Energy's opinion.



4.0 OPEN LINES OF INQUIRY

Open Lines of Inquiry are items identified by the Audit Team while on-site that, due to limited available information or the need for additional research, could not be determined as being in compliance or out of compliance.

4.1 EXCEEDANCES OF THE STATE GROUNDWATER QUALITY STANDARDS

Requirement – The State groundwater rules establish maximum contaminant levels for groundwater at or beyond the compliance boundary for the Active Ash Basin. *See* 15A NCAC 02L.0202. 15A NCAC 02L.0103(d) provides that “[n]o person shall conduct or cause to be conducted, any activity which causes the concentration of any substance to exceed that specified” under the Class GA standards or the interim maximum acceptable concentrations (IMACs) established for groundwater quality pursuant to 15A NCAC 02L.0202. Further, under N.C.G.S.A. § 143-215.1(i), “[a]ny person ... who is required to obtain an individual permit ... for a disposal system under the authority of N.C.G.S.A. § 143-215.1 [water pollution control] ... shall have a compliance boundary ... beyond which groundwater quality standards may not be exceeded.” *See also* 15A NCAC 02L.0102(3) (defining “compliance boundary” as “a boundary around a disposal system at and beyond which groundwater quality standards may not be exceeded”).

In addition, under N.C.G.S.A. § 143-215.6(a)(1), civil penalties may be assessed against any person who violates any standard established by the NCDEQ under the authority of N.C.G.S.A. § 143-214.1, which covers groundwater standards.

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Open Line of Inquiry

Active Ash Basin

Constituents exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202, were documented in monitoring wells located at or beyond the compliance boundary for the Active Ash Basin. Based on the review of the 2016 and 2017 CAMA groundwater monitoring analyses, cobalt, iron, TDS and vanadium were observed to exceed the 2L or IMAC groundwater standards one or more times at or beyond the compliance boundary of the Active Ash Basin. However, these exceedances may be due to naturally occurring (background) conditions because these four substances have been measured in samples of groundwater taken from wells upgradient of the Active Ash Basin. Duke Energy is completing additional studies to understand the influence of background conditions at the groundwater sampling locations. The compliance boundary and the locations of the exceedances are identified in Attachment B to this report.

CCP Monofill

Elevated boron concentrations were measured in groundwater samples from two CCR wells (CCR-210D and CCR-209BR) located just north of the CCP Monofill. The highest boron concentrations measured were 3,910 ug/l at CCR-209BR and 1,000 ug/l at CCR-210D. Both samples were collected on March 29, 2017. These measured concentrations exceeded the NCDEQ 2L groundwater standard for boron of 700 ug/l. The groundwater samples with the elevated boron concentrations were collected from monitoring wells located inside the compliance boundary of the CCP Monofill.



Duke Energy completed an initial evaluation of the potential source of boron and identified two ancillary units to the landfill, a truck wheel wash station and leachate transfer vault as potential sources of groundwater impact during an initial review of landfill operations and groundwater data. Duke Energy has indicated that these units and other ancillary units are undergoing further groundwater assessment to determine the presence and extent of potential groundwater impacts.

As part of the groundwater impact investigation and assessment, Duke Energy completed improvements to the truck wash station to provide better containment. The improvements included placement of concrete containment around the truck wash station and regrading of the area around the truck wash station to promote drainage towards the truck wash station sump.

Duke Energy submitted to NCDEQ a Work Plan for Assessment of Groundwater at the CCP Monofill dated January 31, 2017, revised February 23, 2017. NCDEQ provided approval of the above work plan to Duke Energy on March 22, 2017. To delineate the groundwater in the area of the boron exceedances, Duke Energy plans to install up to 24 monitoring wells north and east of the CCP Monofill. Mobilization to begin the monitoring wells is anticipated in late July or August 2017.

Doc. Ex. 3758



1055 Andrew Drive, Suite A
West Chester, PA 19380-4293
tel 610.840.9100 fax 610.840.9199
www.advancedgeoservices.com

THE ELM CONSULTING GROUP INTERNATIONAL LLC

**ENVIRONMENTAL AUDIT IN SUPPORT OF
THE COURT APPOINTED MONITOR
Cape Fear Plant
Moncure, North Carolina
USA**

October 2017

Final Report Issued To:

Duke Energy and the Court Appointed Monitor

Prepared By:

**Advanced GeoServices Corp.
and
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3.0 AUDIT FINDINGS

The following Findings at the Cape Fear Facility were identified by the Audit Team.

3.1 SEEPAGE UNDER THE CLEAN WATER ACT

Requirement – The Clean Water Act (CWA) prohibits the discharge of any pollutant into the waters of the United States except in compliance with a permit issued pursuant to the CWA under the National Pollutant Discharge Elimination System (NPDES) by the United States Environmental Protection Agency (EPA) or a state with an approved program. 33 U.S.C. §§ 1311(a) and 1342. NCDEQ implements an approved NPDES program in North Carolina under 15A NCAC 02H.0100 *et seq.* Additionally, under N.C.G.S.A. § 143-215.1(a), unauthorized discharges of a pollutant to waters of the state are a violation of North Carolina law.

Finding – The Audit Team observed seeps at the Cape Fear Facility which contain pollutants and which discharge from point sources through discrete conveyances to waters of the United States. While Duke Energy has requested these seeps be included in the pending NPDES permit renewal application, these seeps are not authorized by a current NPDES permit and therefore constitute violations of the CWA, the NCDEQ NPDES permitting program, and N.C.G.S.A. § 143-215.1(a).

Point source discharges to surface waters have been identified at AOW sampling locations, S-15 and S-16 in and around the 1963 Ash Basin, the 1978 Ash Basin and the 1985 Ash Basin present at the Cape Fear Facility. The locations of these discharges are shown on the figure provided in Attachment B. Point source discharges were also observed at AOW sampling locations S-5 and S-7. However, these seeps reach a jurisdictional water body via a NPDES permitted outfall, the pollutants on the seep are known and are consistent with the pollutants in the NPDES permit and Duke Energy is in compliance with the NPDES permit limits. The discharges at these locations, identified here as seeps, enter the Cape Fear River. Sampling conducted during 2016 and 2017 showed these discharges contained pollutants including pH, arsenic, nickel, sulfate, total dissolved



solids (TDS) and elevated hardness levels. A summary of the sampling results is provided on the tables in Attachment B. Flow or dampness was located at other AOWs, but the flow rates were very low and the discharge could not be sampled accurately.

Duke Energy has modified the discharge outlet point from the combined S-16 and S-18 discharge. This modification passively captures and treats the discharge to raise the pH to within the anticipated range of the expected NPDES permit. This will allow Duke Energy to be in compliance at the time the permit is issued.

However, at this time, seeps exist at the Cape Fear Facility and the discharges from these seeps flow into the Cape Fear River, which is a water of the state. The seeps at the locations identified above contain pollutants and the discharges are not authorized by the Cape Fear Facility's currently effective NPDES permit.

As noted above, NCDEQ is in the process of developing a final NPDES permit which would include these seeps as outfalls. A draft permit was issued on October 5, 2016 and Duke Energy has had continued correspondence with the NCDEQ regarding final details of the permit.

3.2 EXCEEDANCES OF THE STATE GROUNDWATER QUALITY STANDARDS

Requirement – The State groundwater rules establish maximum contaminant levels for groundwater at or beyond the compliance boundaries for the ash basins. See 15A NCAC 02L.0202. 15A NCAC 02L.0103(d) provides that “[n]o person shall conduct or cause to be conducted, any activity which causes the concentration of any substance to exceed that specified” under the Class GA standards or the interim maximum acceptable concentrations (IMACs) established for groundwater quality pursuant to 15A NCAC 02L.0202. Further, under N.C.G.S.A. § 143-215.1(i), “[a]ny person ... who is required to obtain an individual permit ... for a disposal system under the authority of N.C.G.S.A. § 143-215.1 [water pollution control] ... shall have a compliance boundary ... beyond which groundwater quality standards may not be exceeded.” See



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also 15A NCAC 02L.0102(3) (defining “compliance boundary” as “a boundary around a disposal system at and beyond which groundwater quality standards may not be exceeded”).

In addition, under N.C.G.S.A. § 143-215.6A(a)(1), civil penalties may be assessed against any person who violates any standard established by the NCDEQ under the authority of N.C.G.S.A. § 143-214.1, which covers groundwater standards.

Finding – Constituents exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202, were documented in monitoring wells located at or beyond the compliance boundaries for the 1956 Ash Basin, 1963 Ash Basin, 1970 Ash Basin, 1978 Ash Basin and 1985 Ash Basin. Based on the review of the 2016 and 2017 CAMA groundwater monitoring analyses and the NPDES groundwater monitoring analyses, pH, boron, cobalt, iron, sulfate and manganese were observed to exceed the 2L or IMAC groundwater standards one or more times at or beyond the compliance boundaries of the 1956 Ash Basin, 1963 Ash Basin, 1970 Ash Basin, 1978 Ash Basin and the 1985 Ash Basin. The compliance boundaries and the locations of the exceedances are identified in Attachment C to this report. Attachment D provides the NPDES Groundwater Results.

Duke Energy has stated its opinion that, pursuant to a September 2015 Settlement Agreement with the NCDEQ, “Duke Energy is not subject to any further financial penalties for exceedances of groundwater standards” and “Duke Energy is not subject to any further enforcement action based on exceedances of groundwater standards as long as it remains in substantial compliance with CAMA groundwater requirements.”

The CAM has advised the Audit Team that the Audit scope does not include an evaluation of compliance with the September 2015 Settlement Agreement and therefore the Audit Team does not take a position on Duke Energy’s opinion.



4.0 OPEN LINES OF INQUIRY

Open Lines of Inquiry are items identified by the Audit Team while on-site that, due to limited available information or the need for additional research, could not be determined as being in compliance or out of compliance.

4.1 EXCEEDANCES OF THE STATE GROUNDWATER QUALITY STANDARDS

Requirement – The State groundwater rules establish maximum contaminant levels for groundwater at or beyond the compliance boundaries for the ash basins. *See* 15A NCAC 02L.0202. 15A NCAC 02L.0103(d) provides that “[n]o person shall conduct or cause to be conducted, any activity which causes the concentration of any substance to exceed that specified” under the Class GA standards or the IMACs established for groundwater quality pursuant to 15A NCAC 02L.0202. Further, under N.C.G.S.A. § 143-215.1(i), “[a]ny person ... who is required to obtain an individual permit ... for a disposal system under the authority of N.C.G.S.A. § 143-215.1 [water pollution control] ... shall have a compliance boundary ... beyond which groundwater quality standards may not be exceeded.” *See also* 15A NCAC 02L.0102(3) (defining “compliance boundary” as “a boundary around a disposal system at and beyond which groundwater quality standards may not be exceeded”).

In addition, under N.C.G.S.A. § 143-215.6(a)(1), civil penalties may be assessed against any person who violates any standard established by the NCDEQ under the authority of N.C.G.S.A. § 143-214.1, which covers groundwater standards.

Open Line of Inquiry – Constituents exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202, were documented in monitoring wells located at or beyond the compliance boundaries for the 1956 Ash Basin, 1963 Ash Basin, 1970 Ash Basin, 1978 Ash Basin and 1985 Ash Basin. Based on a review of the 2016 and 2017 groundwater monitoring analyses, TDS and vanadium were observed to exceed the IMAC groundwater standards one or more times at or



beyond the compliance boundaries of the 1956 Ash Basin, 1963 Ash Basin, 1970 Ash Basin, 1978 Ash Basin and 1985 Ash Basin. However, these exceedances may be due to naturally occurring (background) conditions because these substances have been measured in samples of groundwater taken from wells upgradient of the 1956 Ash Basin, 1963 Ash Basin, 1970 Ash Basin, 1978 Ash Basin and 1985 Ash Basin. Duke Energy is completing additional studies to understand the influence of background conditions at the groundwater sampling locations. The compliance boundaries and the locations of the exceedances are identified in Attachment C to this report.

As noted in Section 3.2, Duke Energy has stated its opinion that, pursuant to a September 2015 Settlement Agreement with the NCDEQ, "Duke Energy is not subject to any further financial penalties for exceedances of groundwater standards" and "Duke Energy is not subject to any further enforcement action based on exceedances of groundwater standards as long as it remains in substantial compliance with CAMA groundwater requirements."

The CAM has advised the Audit Team that the Audit scope does not include an evaluation of compliance with the September 2015 Settlement Agreement and therefore the Audit Team does not take a position on Duke Energy's opinion.

4.2 GROUNDWATER ISSUES - CWA DISCHARGES FROM GROUNDWATER

Requirement – The federal CWA prohibits the discharge of any pollutant into the waters of the United States except in compliance with a permit issued pursuant to the CWA under the NPDES program by EPA or a state with an approved program. 33 U.S.C. §§ 1311(a) and 1342. NCDEQ implements an approved NPDES program in North Carolina under 15A NCAC 2H.0100 *et seq.* Additionally, under N.C.G.S.A. § 143-215.1(a), unauthorized discharges of a pollutant to waters of the State are a violation of North Carolina law.



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Open Line of Inquiry – The Audit Team noted that groundwater containing boron, cobalt, iron, manganese, sulfate, vanadium and TDS above the North Carolina 2L or IMAC groundwater standards migrated from the 1956 Ash Basin, 1963 Ash Basin and 1970 Ash Basin, and discharged to the Cape Fear River, a water of the United States. The Audit Team also noted that groundwater containing cobalt, manganese, sulfate, vanadium and TDS above the North Carolina 2L or IMAC groundwater standards migrated from the 1985 Ash Basin, and discharged to the unnamed tributary, a water of the United States. These areas are identified in Attachment C to this report.

The federal courts have reached conflicting conclusions on the question of whether the CWA applies to discharges of pollutants into groundwater that migrate into surface waters. Not only is there a split across the federal courts nationwide, there is a split within the Fourth Circuit, which covers North Carolina. The federal court in the Eastern District of North Carolina held in *Cape Fear River Watch v. Duke Energy Progress*, 25 F. Supp.3d 798 (E.D.N.C. 2014), that the CWA does not apply to groundwater, regardless of whether that groundwater is hydrologically connected to navigable surface waters. In contrast, the federal court in the Middle District of North Carolina reached the opposite conclusion in *Yadkin Riverkeeper, Inc. v. Duke Energy Carolinas, LLC*, 2015 WL 6157706 (M.D.N.C. 2015), holding that “[t]his Court agrees with the line of cases affirming CWA jurisdiction over the discharge of pollutants to navigable surface waters via hydrologically connected groundwater, which serves as a conduit between the point source and the navigable waters.” *Id.* at *9-10. Other federal district courts in the Fourth Circuit outside of North Carolina have also reached conflicting interpretations, but the U.S. Court of Appeals for the Fourth Circuit (*i.e.*, the appellate court) has not yet addressed this question.

Federal district court decisions are persuasive authority only, and do not constitute binding or controlling precedent. Therefore, until the Fourth Circuit or the U.S. Supreme Court issues an opinion affirming or rejecting CWA jurisdiction over the discharge of pollutants to navigable surface waters via hydrologically connected groundwater that serve as a conduit between the point source and the navigable waters, the Audit Team cannot determine whether the observed discharge

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of pollutants constitutes a violation of the CWA. The Audit Team therefore includes this observation as an Open Line of Inquiry.

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10/24/2017

Duke Energy Actions to Resolve Audit Findings

Facility: Cape Fear Plant
Date of Audit: 9-10 August, 2017
Date of Final Report: 11 October, 2017

| FINDINGS | DUKE ENERGY ACTIONS TO RESOLVE |
|---|--|
| Discharges via seeps are occurring and although Duke Energy has submitted applications to the North Carolina Department of Environmental Quality (NCDEQ) for permits under the Clean Water Act's (CWA) National Pollution Discharge Elimination System (NPDES) program, NCDEQ is in the process of developing a final permit that would include these seeps as outfalls but this is not complete, resulting in certain discharges being unauthorized under the CWA. | Duke Energy applied for permits to cover these potential discharges and continues to work with the regulator to finalize the permit. Duke Energy is expeditiously dewatering and closing basins to control, reduce or eliminate these potential discharges altogether. |
| Concentrations of ash-related constituents were documented that exceeded the standards for CLASS GA waters in monitoring wells located at or beyond the compliance boundary for the 1956 Ash Basin, 1963 Ash Basin, 1970 Ash Basin, 1978 Ash Basin and 1985 Ash Basin. | Duke Energy is in the process of addressing groundwater impacts under the procedures set out in the Coal Ash Management Act (CAMA), including the generation and submission to NCDEQ of a detailed Comprehensive Site Assessment and a two-part Corrective Action Plan and any necessary supplemental information or revisions. Duke Energy is currently engaged in the collection of additional information at the request of NCDEQ to understand the influence of background conditions at the groundwater sampling locations. |
| OPEN LINE OF INQUIRY | DUKE ENERGY ACTIONS TO RESOLVE |
| Concentrations of ash-related constituents were documented that exceeded the standards for CLASS GA waters in monitoring wells located at or beyond the compliance boundary for the 1956 Ash Basin, 1963 Ash Basin, 1970 Ash Basin, 1978 Ash Basin and 1985 Ash Basin and may be due to naturally occurring (background) conditions. | Duke Energy is in the process of addressing groundwater impacts under the procedures set out in the Coal Ash Management Act (CAMA), including the generation and submission to NCDEQ of a detailed Comprehensive Site Assessment and a two-part Corrective Action Plan and any necessary supplemental information or revisions. Duke Energy is currently engaged in the collection of additional information at the request of NCDEQ to understand the influence of background conditions at the groundwater sampling locations. |
| Groundwater discharges may be CWA violations. | Further discussions with the CAM resolved that this is a matter of unsettled law and will remain an Open Line of Inquiry until the matter is settled. In the mean time, Duke Energy's actions to address groundwater impacts also address this issue. |

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1055 Andrew Drive, Suite A
West Chester, PA 19380-4293
tel 610.840.9100 fax 610.840.9199
www.advancedgeoservices.com

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ENVIRONMENTAL AUDIT IN SUPPORT OF THE COURT APPOINTED MONITOR

Roxboro Steam Plant
Semora, North Carolina
USA

November 2017

Final Report Issued To:

Duke Energy and the Court Appointed Monitor

Prepared By:

Advanced GeoServices Corp.
and
The Elm Consulting Group International LLC

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Apr 30 2019



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3.0 AUDIT FINDINGS

The following Findings at the Roxboro Facility were identified by the Audit Team.

3.1 SEEPAGE UNDER THE CLEAN WATER ACT

Requirement – The federal Clean Water Act (CWA) prohibits the discharge of any pollutant from a point source into the waters of the United States except in compliance with a permit issued pursuant to the CWA under the National Pollutant Discharge Elimination System (NPDES) by the United States Environmental Protection Agency (EPA) or a state with an approved program. 33 U.S.C. §§ 1311(a) and 1342. NCDEQ implements an approved NPDES program in North Carolina under 15A NCAC 02H.0100 *et seq.* Additionally, under N.C.G.S.A. § 143-215.1(a), unauthorized discharges of a pollutant to waters of the State are a violation of North Carolina law.

Finding – The Audit Team observed seeps at the Roxboro Facility which contain pollutants and which discharge, from point sources through discrete conveyances, to waters of the United States. While Duke Energy has requested these seeps be included in the pending NPDES permit renewal application, these seeps are not authorized by a current NPDES permit and therefore constitute violations of the CWA, the NCDEQ NPDES permitting program, and N.C.G.S.A. § 143-215.1(a).

Point source discharges to surface waters have been identified at locations in and around the Ash Basins present at the Roxboro Facility. The locations of discharges which were sampled are shown on the figures provided in Attachment B and are identified as S-2, S-3, S-4, S-7, S-8, S-9, S-13, S-14, S-18 and S-21. The discharges at S-2, S-3, S-4, S-7, S-8, S-14, S-18 and S-21 flow through permitted outfalls to a jurisdictional waterbody. The discharges at S-9, S-13, and S-21, enter the Intake Canal, which is a water of the United States. Flow was noted in other AOWs, but these flow rates were low and could not be sampled accurately. Sampling conducted during 2016 and 2017 showed the seepage discharges at the locations which enter the Intake Canal identified above contained pollutants including pH, boron, arsenic, iron, manganese, chloride, sulfate, total



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dissolved solids (TDS) and elevated hardness levels. A summary of all of the sampling results is provided on the tables in Attachment B.

In summary, seeps exist at the Roxboro Facility and the discharges from these seeps flow into the Intake Canal, which is a water of the United States. The seeps contain pollutants and are not authorized by the current NPDES permit.

NCDEQ is in the process of developing a final NPDES permit that would cover these seeps. A draft permit was issued in January 2017 and Duke Energy has had continued correspondence with the NCDEQ over the last 6 months regarding final details and issuance of the permit.

3.2 EXCEEDANCES OF THE STATE GROUNDWATER QUALITY STANDARDS

Requirement – The State groundwater rules establish maximum contaminant levels for groundwater at or beyond the compliance boundaries for the East and West Ash Basins. *See* 15A NCAC 02L.0202. 15A NCAC 02L.0103(d) provides that “[n]o person shall conduct or cause to be conducted, any activity which causes the concentration of any substance to exceed that specified” under the Class GA standards or the interim maximum acceptable concentrations (IMACs) established for groundwater quality pursuant to 15A NCAC 02L.0202. Further, under N.C.G.S.A. § 143-215.1(i), “[a]ny person ... who is required to obtain an individual permit ... for a disposal system under the authority of N.C.G.S.A. § 143-215.1 [water pollution control] ... shall have a compliance boundary ... beyond which groundwater quality standards may not be exceeded.” *See also* 15A NCAC 02L.0102(3) (defining “compliance boundary” as “a boundary around a disposal system at and beyond which groundwater quality standards may not be exceeded”).

In addition, under N.C.G.S.A. § 143-215.6A(a)(1), civil penalties may be assessed against any person who violates any standard established by the NCDEQ under the authority of N.C.G.S.A. § 143-214.1, which covers groundwater standards.



Finding – Constituents exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202, were documented in monitoring wells located at or beyond the compliance boundary for the East and West Ash Basins (which boundary extends around the Gypsum Storage Area). Based on the review of the 2016 and 2017 CAMA groundwater monitoring analyses and the NPDES groundwater monitoring analyses, pH, boron, iron, sulfate and TDS were observed to exceed the 2L or IMAC groundwater standards one or more times at or beyond the compliance boundary of the East and West Ash Basins. The compliance boundary and the locations of the exceedances are identified in Attachment C to this report. Attachment D provides the NPDES Ash Basin Groundwater Results.

Duke Energy has stated its opinion that, pursuant to a September 2015 Settlement Agreement with the NCDEQ, “Duke Energy is not subject to any further financial penalties for exceedances of groundwater standards” and “Duke Energy is not subject to any further enforcement action based on exceedances of groundwater standards as long as it remains in substantial compliance with CAMA groundwater requirements.”

The CAM has advised the Audit Team that the Audit scope does not include an evaluation of compliance with the September 2015 Settlement Agreement and therefore the Audit Team does not take a position on Duke Energy’s opinion.

3.3 EMERGENCY ACTION PLAN POSTING UNDER THE CCR RULE

Requirement – The federal CCR Rule requires the owner or operator of a CCR unit determined to be either a high hazard potential or significant hazard potential CCR surface impoundment to prepare and maintain a written Emergency Action Plan by April 17, 2017. 40 C.F.R. § 257.73(a)(3)(i). Among other information, the Emergency Action Plan must include contact information of emergency responders and a map which delineates the downstream area which would be affected in the event of a CCR unit failure. 40 C.F.R. § 257.73(a)(3)(i)(C) & (D). The

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Emergency Action Plan must be posted on a publicly accessible website within 30 days of placing the Emergency Action Plan in the Operating Record. 40 C.F.R. §§ 257.105(f)(6), 257.107(d) & 257.107(f)(5).

Finding – Pursuant to 40 C.F.R. § 257.73(a)(2)(g), the East and West Ash Basins were identified by Duke Energy as having a significant hazard potential classification. Duke Energy prepared a certification that the East and West Ash Basins have a significant hazard potential classification, and prepared Emergency Action Plans for the Basins. The Emergency Action Plans placed on the Duke Energy publicly accessible website redacted the contact information for emergency responders and the map delineating the downstream area that would be affected by a CCR unit rule. The CCR Rule does not authorize the redaction of information from Emergency Action Plans placed in the Operating Record for the publicly accessible versions of the Emergency Action Plans. The contact information and maps redacted from the Emergency Action Plans for the East and West Ash Basins are required to be within the publicly posted Emergency Action Plans.

On October 6, 2017, Duke Energy posted to its website revised Emergency Action Plans for all its sites, including Roxboro. The revised Roxboro plan identified the name, address, and business phone numbers for Duke Energy employees and external contacts on the emergency notification list and contained a map delineating the downstream area that Duke Energy had determined would be affected by a breach to the East and West Ash Basins.

Duke Energy Actions to Resolve Audit Findings

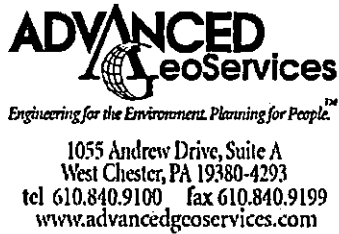
Facility: Roxboro Steam Station

Date of Audit: 17-18 July, 2017

Date of Final Report: 2 November, 2017

| FINDINGS | DUKE ENERGY ACTIONS TO RESOLVE |
|--|--|
| Discharges via seeps are occurring and although Duke Energy has submitted applications to the North Carolina Department of Environmental Quality (NCDEQ) for permits under the Clean Water Act's (CWA) National Pollution Discharge Elimination System (NPDES) program, NCDEQ is in the process of developing a final permit that would include these seeps as outfalls but this is not complete, resulting in certain discharges being unauthorized under the CWA. | Duke Energy applied for permits to cover these potential discharges and continues to work with the regulator to finalize the permit. Duke Energy is expeditiously dewatering and closing basins to control, reduce or eliminate these potential discharges altogether. |
| Concentrations of ash-related constituents were documented that exceeded the standards for CLASS GA waters in monitoring wells located at or beyond the compliance boundary for the East and West Ash Basins. | Duke Energy is in the process of addressing groundwater impacts under the procedures set out in the Coal Ash Management Act (CAMA), including the generation and submission to NCDEQ of a detailed Comprehensive Site Assessment and a two-part Corrective Action Plan and any necessary supplemental information or revisions. Duke Energy is currently engaged in the collection of additional information at the request of NCDEQ to understand the influence of background conditions at the groundwater sampling locations. |
| Emergency Action Plans placed on the Duke Energy publicly accessible website redacted the contact information for emergency responders and the map delineating the downstream area that would be affected by a CCR unit rule. The CCR Rule does not authorize the redaction of information from Emergency Action Plans placed in the Operating Record for the publicly accessible versions of the Emergency Action Plans. The contact information and maps redacted from the Emergency Action Plans for the East and West Ash Basins are required to be within the publicly posted Emergency Action Plans. | On October 6, 2017, Duke Energy posted Emergency Action Plans (EAP) for all of its sites, including Roxboro, which include no redactions and complete sets of the inundation maps depicting the downstream area that would be affected in the event of a CCR unit failure, along with emergency responder contact information. Although our EAP filed with the state and local emergency response offices concurrent with the posting of the EAP to Duke Energy's CCR Rule Compliance Data and Information Web site included this information, certain information was redacted from the publicly accessible EAP out of concern for protecting critical infrastructure information. The specific actions Duke Energy has taken go beyond the national minimum standards set out in the CCR rule. |

| OPEN LINES OF INQUIRY | DUKE ENERGY ACTIONS TO RESOLVE |
|---|---|
| <p>Drawings provided by Duke Energy show the "Ash Basin Compliance Boundary" surrounding the Gypsum Storage Area. There is no information available to the Audit Team documenting the development of the compliance boundary and explaining why the Ash Basin Compliance Boundary has been extended around the Gypsum Storage Area. Following the 2016 Audit, Duke Energy submitted a revised compliance boundary to NCDEQ. No information was provided regarding state acceptance on this issue. Recent studies completed by Duke Energy attribute 2L or IMAC groundwater exceedances to gypsum storage and management procedures in the Gypsum Storage Area.</p> <p>Since the Gypsum Storage Area is not permitted as a disposal system, the Audit Team could not determine the basis for a compliance boundary around the Gypsum Storage Area.</p> | <p>As the Audit Team correctly notes, following the 2016 audit, Duke Energy submitted a revised compliance boundary to NCDEQ. On October 31, 2017, Duke Energy sent to NCDEQ another update with detailed information again depicting no compliance boundary around the gypsum pad. However, it is important to stress that the site has an approved compliance boundary, and whether a new compliance boundary will be established is solely within the discretion of the state.</p> |
| <p>Groundwater discharges may be CWA violations.</p> | <p>Further discussions with the CAM resolved that this is a matter of unsettled law and will remain an Open Line of Inquiry until the matter is settled. In the meantime, Duke Energy's actions to address groundwater impacts also address this issue.</p> |
| <p>Concentrations of ash-related constituents were documented that exceeded the standards for CLASS GA waters in monitoring wells located at or beyond the compliance boundary for the area around the East and West Ash Basins and the Gypsum Storage Area and may be due to naturally occurring (background) conditions.</p> | <p>Duke Energy is in the process of addressing groundwater impacts under the procedures set out in the Coal Ash Management Act (CAMA), including the generation and submission to NCDEQ of a detailed Comprehensive Site Assessment and a two-part Corrective Action Plan and any necessary supplemental information or revisions. Duke Energy is currently engaged in the collection of additional information at the request of NCDEQ to understand the influence of background conditions at the groundwater sampling locations.</p> |
| <p>Synthetic gypsum had collected on the ground beneath a conveyor that transports gypsum from Duke Energy's temporary gypsum storage pad to a contractor's property for use. The contractor, CertainTeed, takes title to the synthetic gypsum at the temporary gypsum storage pad, before the material is placed on the conveyor system and moved over the intake canal, a water of the United States. The Audit Team believed that the synthetic gypsum beneath the conveyor on the bank of the intake canal would likely drain into the canal during a precipitation event. However, the Audit Team did not observe any significant, discrete erosion features running from where the synthetic gypsum was observed to the intake canal.</p> <p>Duke Energy has an NPDES Industrial Stormwater Management Permit and an Industrial Wastewater NPDES permit that do not address discharges of pollutants from the conveyor system directly to the intake canal.</p> | <p>Duke Energy and CertainTeed agree that if a Clean Water Act permit were required, it would be CertainTeed's obligation to obtain such permit. Although neither Duke Energy nor CertainTeed believe any such permit is required, the companies continue to work together to employ best practices to minimize spillage and to clean up any spillage that may occur.</p> |



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ENVIRONMENTAL AUDIT IN SUPPORT OF THE COURT APPOINTED MONITOR

**H.B. Robinson Facility
Hartsville, South Carolina
USA**

April 2017

Final Report Issued To:

Duke Energy and the Court Appointed Monitor

Prepared By:

**Advanced GeoServices Corp.
and
The Elm Consulting Group International LLC**



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3.0 AUDIT FINDINGS

The Audit Finding for the Robinson Facility is described below.

3.1 EXCEEDANCE OF STATE GROUNDWATER STANDARDS

Requirement – The Robinson facility’s NPDES permit requires Duke Energy to monitor four groundwater monitoring wells and report sampling results to SC DHEC. The groundwater beneath the Robinson facility is designated as Class GB (underground source of drinking water) under South Carolina’s Water Classification Standards, Regulation 61-68. Regulation 61-68 further provides that “all ground waters of the State shall be protected to a quality consistent with the use associated with the classes described herein. Further, the Department may require the owner or operator of a contaminated site to restore the ground water quality to a level that maintains and supports the existing and classified uses...”. The applicable water quality standards for Class GB Ground Waters for inorganic chemicals are the maximum contaminant levels (MCLs) as set forth in Regulation 61-58.5, the State Primary Drinking Water Regulations. The MCL for arsenic is 10 micrograms/liter (µg/L).

Finding – In September 2014, SC DHEC issued a Notice of Violation to Duke Energy alleging that groundwater monitoring data from groundwater under the Robinson facility identified arsenic in the groundwater at concentrations above the Class GB groundwater standard of 10 micrograms per liter (µg/L). Thus, SC DHEC determined that the presence of arsenic above the Class GB standard violated the requirement to protect the quality of groundwater to a quality consistent with Class GB groundwater. Based on the Audit Team’s review of the facility’s 2016 NPDES groundwater sampling data, water beneath and near the Ash Basin currently exceeds the South Carolina Class GB Water Classification Standard for arsenic. Recent sampling in well MW-7 identified concentrations of 144 µg/L of arsenic during the January 6, 2016 sampling event and 104 µg/L of arsenic during the July 13, 2016 sampling event. These concentrations are above the arsenic MCL of 10 µg/L. The arsenic MCL was also exceeded in the following wells based on the recent CCR groundwater sampling data collected at the Ash Basin:



| Sampling Date | CCR-2S | CCR-3S | CCR-4S |
|--------------------|---------|---------|----------|
| June 9, 2016 | 59 µg/L | 23 µg/L | 71 µg/L |
| August 1, 2016 | 54 µg/L | 24 µg/L | 104 µg/L |
| September 26, 2016 | 58 µg/L | 31 µg/L | 119 µg/L |

*The Audit Team notes the CCR data are preliminary and have not been reviewed by Duke Energy to confirm the holding times and data quality objectives have been met.

The locations of the NPDES monitoring wells and CCR monitoring wells referenced above are provided on figures provided in Attachments B-1 and B-2.

Duke Energy has stated to the Audit Team that pursuant to a July 2015 Consent Agreement with SC DHEC that resolved “issues related to alleged releases of coal combustion residuals (CCR) and CCR-related constituents to the environment, Duke Energy will assess and address all alleged releases and complete disposal of CCR at Robinson by no later than July 2023. In exchange for Duke Energy's full compliance with the terms of the Consent Agreement, DHEC provides Duke Energy with a covenant not to sue for the response actions covered by the Consent Agreement, including under the South Carolina Pollution Control Act, Hazardous Waste Management Act, and Solid Waste [Policy and] Management [] Act. ... Provided Duke Energy remains in substantial compliance with the terms of the Consent Agreement and performs any other work requested by DHEC, Duke Energy is not subject to an enforcement action based on exceedances of groundwater standards at Robinson.”

The CAM has advised the Audit Team that the Audit scope does not include an evaluation of compliance with the July 2015 Consent Agreement with SC DHEC and therefore the Audit Team does not take a position on Duke’s statement.

4/20/2017

Duke Energy Actions to Resolve Audit Findings

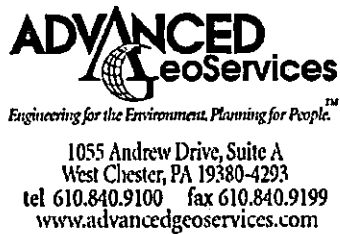
Facility: H.B. Robinson Facility
Date of Audit: 18-19 January, 2017
Date of Final Report: 18 April, 2017

| FINDING | DUKE ENERGY ACTIONS TO RESOLVE |
|---|--|
| Arsenic was identified in groundwater samples at levels exceeding the South Carolina Class GB groundwater standard. | Duke Energy is closing the ash management areas at Robinson pursuant to a 2015 Consent Agreement with the South Carolina Department of Health and Environmental Control. |
| OPEN LINES OF INQUIRY | DUKE ENERGY ACTIONS TO RESOLVE |
| None | n/a |

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THE ELM CONSULTING GROUP INTERNATIONAL LLC

ENVIRONMENTAL AUDIT IN SUPPORT OF THE COURT APPOINTED MONITOR

**H.F. Lee Plant
Goldsboro, North Carolina
USA**

November 2017

Final Report Issued To:

Duke Energy and the Court Appointed Monitor

Prepared By:

**Advanced GeoServices Corp.
and
The Elm Consulting Group International LLC**



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3.0 AUDIT FINDINGS

The following Findings at the H.F. Lee Facility were identified by the Audit Team.

3.1 SEEPAGE UNDER THE CLEAN WATER ACT

Requirement – The federal Clean Water Act (CWA) prohibits the discharge of any pollutant into the waters of the United States except in compliance with a permit issued pursuant to the CWA under the National Pollutant Discharge Elimination System (NPDES) by the United States Environmental Protection Agency (EPA) or a state with an approved program. 33 U.S.C. §§ 1311(a) and 1342. NCDEQ implements an approved NPDES program in North Carolina under 15A NCAC 02H.0100 *et seq.* Additionally, under N.C.G.S.A. § 143-215.1(a), unauthorized discharges of a pollutant to waters of the State are a violation of North Carolina law.

Finding – The Audit Team observed seeps at the H.F. Lee Facility which contain pollutants and which discharge from point sources through discrete conveyances to waters of the United States. While Duke Energy has requested these seeps be included in the pending NPDES permit renewal application, these seeps are not authorized by a current NPDES permit and therefore constitute violations of the CWA, the NCDEQ NPDES permitting program, and N.C.G.S.A. § 143-215.1(a).

Point source discharges to surface waters have been identified at AOW sampling locations S-02, S-06, S-07, S-08, S-09, S-15, S-22, S-23, S-24, S-25, S-27 and S-28 in and around the Active Ash Basin present at the H.F. Lee Facility. The locations of these discharges are shown on the figure provided in Attachment B. The discharges at these locations, identified here as seeps, enter the Neuse River. Sampling conducted during 2016 and 2017 showed these discharges contained pollutants including pH, arsenic, total dissolved solids (TDS) and elevated hardness levels. A summary of the sampling results is provided on the tables provided in Attachment B. Flow or dampness was located at other AOWs, but the flow rates were very low and the discharges could not be sampled accurately.



In summary, seeps exist at the H.F. Lee Facility and the discharges from these seeps flow into the Neuse River, which is a water of the United States. The seeps contain pollutants and the discharges are not authorized by the H.F. Lee Facility's current NPDES permit.

NCDEQ is in the process of developing a final NPDES permit that would cover these seeps. A draft permit was issued in November 2016.

3.2 EXCEEDANCES OF THE STATE GROUNDWATER QUALITY STANDARDS

Requirement – The State groundwater rules establish maximum contaminant levels for groundwater at or beyond the compliance boundary for the ash basins. *See* 15A NCAC 02L.0202. 15A NCAC 2L.0103(d) provides that “[n]o person shall conduct or cause to be conducted, any activity which causes the concentration of any substance to exceed that specified” under the Class GA standards or the interim maximum acceptable concentrations (IMACs) established for groundwater quality in 15A NCAC 2L.0202. Further, under N.C.G.S.A. § 143-215.1(i), “[a]ny person ... who is required to obtain an individual permit ... for a disposal system under the authority of G.S. 143-215.1 [water pollution control] ... shall have a compliance boundary ... beyond which groundwater quality standards may not be exceeded.” *See also* 15A NCAC 2L.0102(3) (defining “compliance boundary” as “a boundary around a disposal system at and beyond which groundwater quality standards may not be exceeded”).

In addition, under N.C.G.S.A. § 143-215.6A(a)(1), civil penalties may be assessed against any person who violates any standard established by the NCDEQ under the authority of N.C.G.S.A. § 143-214.1, which covers groundwater standards.



Finding – Constituents exceeding the standards for Class GA waters, established in 15A NCAC 2L.0202, were documented in monitoring wells located at or beyond the compliance boundaries for Ash Basins 1, 2, and 3, the LOLA and the Active Ash Basin. Based on the review of the 2016 and 2017 CAMA groundwater monitoring analyses and the NPDES groundwater monitoring analyses, pH, arsenic, boron, iron, selenium and manganese were observed to exceed the 2L or IMAC groundwater standards one or more times at or beyond the compliance boundaries of the Ash Basins 1, 2, and 3, the LOLA and the Active Ash Basin. The compliance boundaries and the locations of the exceedances are identified in Attachment C to this report. Attachment D provides the NPDES Groundwater Results.

Duke Energy has stated its opinion that, pursuant to a September 2015 Settlement Agreement with the NCDEQ, “Duke Energy is not subject to any further financial penalties for exceedances of groundwater standards” and “Duke Energy is not subject to any further enforcement action based on exceedances of groundwater standards as long as it remains in substantial compliance with CAMA groundwater requirements.”

The CAM has advised the Audit Team that the Audit scope does not include an evaluation of compliance with the September 2015 Settlement Agreement and therefore the Audit Team does not take a position on Duke Energy’s opinion.

3.3 EMERGENCY ACTION PLAN POSTING UNDER THE CCR RULE

Requirement – The federal CCR Rule requires the owner or operator of a CCR unit determined to be either a high hazard potential or significant hazard potential CCR surface impoundment to prepare and maintain a written Emergency Action Plan by April 17, 2017. 40 C.F.R. § 257.73(a)(3)(i). Among other information, the Emergency Action Plan must include contact information of emergency responders and a map which delineates the downstream area which would be affected in the event of a CCR unit failure. 40 C.F.R. § 257.73(a)(3)(i)(C) & (D). The



Emergency Action Plan must be posted on a publicly accessible website within 30 days of placing the Emergency Action Plan in the Operating Record. 40 C.F.R. §§ 257.105(f)(6), 257.107(d) & 257.107(f)(5).

Finding – Pursuant to 40 C.F.R. § 257.73(a)(2)(g), the Active Ash Basin Dam was identified by Duke Energy as having a significant hazard potential classification. Duke Energy prepared a certification that this Basin has a significant hazard potential classification, and prepared an Emergency Action Plan for the Basin. The Emergency Action Plan placed on the Duke Energy publicly accessible website redacted the names and contact information for Duke Energy employees and other emergency responders and the map delineating the downstream area that would be affected by a CCR unit release. The CCR Rule does not authorize the redaction of information from Emergency Action Plans placed in the Operating Record for the publicly accessible versions of the Emergency Action Plans. The contact information and maps redacted from the Emergency Action Plan for the Active Ash Basin are required to be within the publicly posted Emergency Action Plan.

On October 6, 2017, Duke Energy posted to its website Emergency Action Plans for all its sites, including H.F. Lee. The revised H. F. Lee plan that was posted to the website identified the name, address, and business phone numbers for Duke Energy employees and external contacts on the emergency notification list and contained a map delineating the downstream area that Duke Energy determined would be affected by a breach of the Active Ash Basin Dam.

Duke Energy Actions to Resolve Audit Findings

Facility: HF Lee Plant

Date of Audit: 7-8 August, 2017

Date of Final Report: 9 November, 2017

| FINDINGS | DUKE ENERGY ACTIONS TO RESOLVE |
|--|---|
| Discharges via seeps are occurring and although Duke Energy has submitted applications to the North Carolina Department of Environmental Quality (NCDEQ) for permits under the Clean Water Act's (CWA) National Pollution Discharge Elimination System (NPDES) program, NCDEQ is in the process of developing a final permit that would include these seeps as outfalls but this is not complete, resulting in certain discharges being unauthorized under the CWA. | Duke Energy applied for permits to cover these potential discharges and continues to work with the regulator to finalize the permit. Duke Energy is expeditiously dewatering and closing basins to control, reduce or eliminate these potential discharges altogether. |
| Concentrations of ash-related constituents were documented that exceeded the standards for CLASS GA waters in monitoring wells located at or beyond the compliance boundary for Ash Basins 1, 2, and 3, the LOLA and the Active Ash Basin. | Duke Energy is in the process of addressing groundwater impacts under the procedures set out in the Coal Ash Management Act (CAMA), including the generation and submission to NCDEQ of a detailed Comprehensive Site Assessment and a two-part Corrective Action Plan and any necessary supplemental information or revisions. Duke Energy is currently engaged in the collection of additional information at the request of NCDEQ to understand the influence of background conditions at the groundwater sampling locations. |
| Emergency Action Plans placed on the Duke Energy publicly accessible website redacted the contact information for emergency responders and the map delineating the downstream area that would be affected by a CCR unit rule. The CCR Rule does not authorize the redaction of information from Emergency Action Plans placed in the Operating Record for the publicly accessible versions of the Emergency Action Plans. The contact information and maps redacted from the Emergency Action Plans for the East and West Ash Basins are required to be within the publicly posted Emergency Action Plans. | On October 6, 2017, Duke Energy posted Emergency Action Plans (EAP) for all of its sites, including HF Lee, which include no redactions and complete sets of the inundation maps depicting the downstream area that would be affected in the event of a CCR unit failure, along with emergency responder contact information. Although our EAP filed with the state and local emergency response offices concurrent with the posting of the EAP to Duke Energy's CCR Rule Compliance Data and Information Web site included this information, certain information was redacted from the publicly accessible EAP out of concern for protecting critical infrastructure information. The specific actions Duke Energy has taken go beyond the national minimum standards set out in the CCR rule. |

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| OPEN LINE OF INQUIRY | DUKE ENERGY ACTIONS TO RESOLVE |
|--|--|
| Concentrations of ash-related constituents were documented that exceeded the standards for CLASS GA waters in monitoring wells located at or beyond the compliance boundary for Ash Basins 1, 2, and 3, the LOLA and the Active Ash Basin and may be due to naturally occurring (background) conditions. | Duke Energy is in the process of addressing groundwater impacts under the procedures set out in the Coal Ash Management Act (CAMA), including the generation and submission to NCDEQ of a detailed Comprehensive Site Assessment and a two-part Corrective Action Plan and any necessary supplemental information or revisions. Duke Energy is currently engaged in the collection of additional information at the request of NCDEQ to understand the influence of background conditions at the groundwater sampling locations. |
| Groundwater discharges may be CWA violations. | Further discussions with the CAM resolved that this is a matter of unsettled law and will remain an Open Line of Inquiry until the matter is settled. In the mean time, Duke Energy's actions to address groundwater impacts also address this issue. |

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Supplemental
Revised Lucas Exhibit No. 6

No. of 2L and IMAC Standards Exceedances At or Beyond the Compliance Boundary by Constituent

| Parameters | Generating Station | | | | | | | Violations Subtotal | TBD Subtotal |
|------------------------|--------------------|-----------|-----|------|---------|--------|--------------|---------------------|--------------|
| | Asheville | Cape Fear | Lee | Mayo | Roxboro | Sutton | Weatherspoon | | |
| Antimony | - | 2 | - | 18 | 4 | 4 | 1 | 23 | 6 |
| Arsenic | 1 | - | 18 | - | 1 | 13 | - | 15 | 18 |
| Barium | - | - | 1 | 2 | - | - | - | 3 | - |
| Beryllium | 1 | 8 | - | - | - | - | 3 | 1 | 11 |
| Boron | 78 | 51 | 26 | 11 | 20 | 161 | - | 301 | 46 |
| Cadmium | 6 | 1 | - | 1 | - | 1 | 2 | 8 | 3 |
| Chloride | 11 | - | - | - | 4 | 15 | - | 30 | - |
| Chromium | 5 | 1 | 1 | 19 | 16 | 1 | 4 | 45 | 2 |
| Chromium (VI) | 1 | - | - | 7 | - | - | - | 8 | - |
| Cobalt | 60 | 8 | 15 | 12 | 19 | 68 | 5 | 182 | 5 |
| Copper | - | - | - | - | - | - | - | - | - |
| Iron | 148 | 21 | 32 | 16 | 10 | 55 | 8 | 290 | - |
| Lead | - | - | - | 2 | 1 | 1 | - | 3 | 1 |
| Manganese | 210 | 104 | 66 | 90 | 34 | 137 | 19 | 660 | - |
| Nickel | - | 1 | - | - | - | - | 3 | 1 | 3 |
| pH | 17 | 121 | 104 | 39 | 127 | 108 | 7 | 523 | - |
| Selenium | 9 | 15 | 4 | - | 8 | 27 | - | 36 | 27 |
| Sulfate | 40 | 64 | - | - | 54 | 3 | 2 | 163 | - |
| Thallium | 10 | 9 | 2 | 5 | 7 | 54 | 4 | 69 | 22 |
| Total Dissolved Solids | 67 | 34 | - | 37 | 76 | 39 | 2 | 255 | - |
| Total Radium | 9 | - | 7 | 6 | 4 | 1 | 6 | 26 | 7 |
| Vanadium | 51 | 7 | 32 | 17 | 49 | 35 | 23 | 214 | - |
| Zinc | 1 | - | - | - | - | - | - | 1 | - |
| Violations Subtotal | 725 | 411 | 250 | 282 | 394 | 723 | 72 | 2,857 | |
| TBD Subtotal | - | 36 | 58 | - | 40 | - | 17 | | 151 |

Violations Subtotal + TBD Subtotal = 3,008

Notes:

*Highlighted fields are subject to change due to the provisional background threshold value not being established by DEP.

*Data compiled from DEP responses to Public Staff Data Request 20-3, dated October 10, 2017.

*Per DEP, 2L Exceedance counts exclude results where turbidity of sample > 10 NTU.

Nov 15 2017

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Kerin Exhibit 2
Page 1 of 152



Federal Register

**Monday,
June 21, 2010**

Part II

Environmental Protection Agency

**40 CFR Parts 257, 261, 264 et al.
Hazardous and Solid Waste Management
System; Identification and Listing of
Special Wastes; Disposal of Coal
Combustion Residuals From Electric
Utilities; Proposed Rule**

**ENVIRONMENTAL PROTECTION
AGENCY****40 CFR Parts 257, 261, 264, 265, 268,
271 and 302****[EPA-HQ-RCRA-2009-0640; FRL-9149-4]
RIN-2050-AE81****Hazardous and Solid Waste
Management System; Identification
and Listing of Special Wastes;
Disposal of Coal Combustion
Residuals From Electric Utilities****AGENCY:** Environmental Protection
Agency (EPA).**ACTION:** Proposed rule.

SUMMARY: The Environmental Protection Agency (EPA or Agency) is proposing to regulate for the first time, coal combustion residuals (CCRs) under the Resource Conservation and Recovery Act (RCRA) to address the risks from the disposal of CCRs generated from the combustion of coal at electric utilities and independent power producers. However, the Agency is considering two options in this proposal and, thus, is proposing two alternative regulations. Under the first proposal, EPA would reverse its August 1993 and May 2000 Bevill Regulatory Determinations regarding coal combustion residuals (CCRs) and list these residuals as special wastes subject to regulation under subtitle C of RCRA, when they are destined for disposal in landfills or surface impoundments. Under the second proposal, EPA would leave the Bevill determination in place and regulate disposal of such materials under subtitle D of RCRA by issuing national minimum criteria. Under both alternatives EPA is proposing to establish dam safety requirements to address the structural integrity of surface impoundments to prevent catastrophic releases.

EPA is not proposing to change the May 2000 Regulatory Determination for beneficially used CCRs, which are currently exempt from the hazardous waste regulations under Section 3001(b)(3)(A) of RCRA. However, EPA is clarifying this determination and seeking comment on potential refinements for certain beneficial uses. EPA is also not proposing to address the placement of CCRs in mines, or non-minefill uses of CCRs at coal mine sites in this action.

DATES: Comments must be received on or before September 20, 2010. EPA will provide an opportunity for a public hearing on the rule upon request. Requests for a public meeting should be submitted to EPA's Office of Resource

Conservation and Recovery by July 21, 2010. See the **FOR FURTHER INFORMATION CONTACT** section for contact information. Should EPA receive requests for public meetings within this timeframe, EPA will publish a document in the *Federal Register* providing the details of such meetings.

ADDRESSES: Submit your comments, identified by Docket ID No. EPA-HQ-RCRA-2009-0640, by one of the following methods:

- <http://www.regulations.gov>: Follow the on-line instructions for submitting comments.

- **E-mail:** Comments may be sent by electronic mail (e-mail) to rcra-docket@epa.gov, Attention Docket ID No. EPA-HQ-RCRA-2009-0640. In contrast to EPA's electronic public docket, EPA's e-mail system is not an "anonymous access" system. If you send an e-mail comment directly to the Docket without going through EPA's electronic public docket, EPA's e-mail system automatically captures your e-mail address. E-mail addresses that are automatically captured by EPA's e-mail system are included as part of the comment that is placed in the official public docket, and made available in EPA's electronic public docket.

- **Fax:** Comments may be faxed to 202-566-0272; Attention Docket ID No. EPA-HQ-RCRA-2009-0640.

- **Mail:** Send your comments to the Hazardous Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals From Electric Utilities Docket, Attention Docket ID No., EPA-HQ-RCRA-2009-0640, Environmental Protection Agency, Mailcode: 5305T, 1200 Pennsylvania Ave., NW., Washington, DC 20460. Please include a total of two copies.

- **Hand Delivery:** Deliver two copies of your comments to the Hazardous Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals From Electric Utilities Docket, Attention Docket ID No., EPA-HQ-RCRA-2009-0640, EPA/DC, EPA West, Room 3334, 1301 Constitution Ave., NW., Washington, DC 20460. Such deliveries are only accepted during the Docket's normal hours of operation, and special arrangements should be made for deliveries of boxed information.

Instructions: Direct your comments to Docket ID No. EPA-HQ-RCRA-2009-0640. EPA's policy is that all comments received will be included in the public docket without change and may be made available online at <http://www.regulations.gov>, including any personal information provided, unless

the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through <http://www.regulations.gov> or e-mail. The <http://www.regulations.gov> Web site is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through <http://www.regulations.gov>, your e-mail address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional information about EPA's public docket, visit the EPA Docket Center homepage at <http://www.epa.gov/epahome/dockets.htm>. For additional instructions on submitting comments, go to the **SUPPLEMENTARY INFORMATION** section of this document.

Docket: All documents in the docket are listed in the <http://www.regulations.gov> index. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly available docket materials are available either electronically in <http://www.regulations.gov> or in hard copy at the Hazardous Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals From Electric Utilities Docket, EPA/DC, EPA West, Room 3334, 1301 Constitution Ave., NW., Washington, DC 20460. This Docket Facility is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The Docket telephone number is (202) 566-0270. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The

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Oct 20 2017

Lucas Exhibit No. 8

| PLANT | Asheville | Cape Fear | HF Lee | Mayo | Roxboro | Sutton | Weatherspoon | Robinson |
|--------------------|--|---|--|--|--|--|--|--|
| DATE FILED | 1—March 22, 2013 2—Feb 20, 2015 | 1—Aug 16, 2013 2—Sept 3, 2014 3—Feb 20, 2015 | 1—Aug 16, 2013 2—Sept 3, 2014 3—Feb 20, 2015 | 1—Aug 16, 2013 2—June 13, 2016 3—June 20, 2017 | 1—Aug 16, 2013 2—May 16, 2017 | 1—Aug 16, 2013 2—Sept 12, 2013 3—March 10, 2015 4—Oct 13, 2015 | 1—Aug 16, 2013 | Settlement fully signed on July 17, 2015 |
| COURT & DOCKET NO. | 1—Wake superior 13-CVS-4061 2—Fed EDNC 5:15-CR-68-H | 1—Wake Superior 13-CVS-11032 2—Fed MDNC 14-CV-752 3—Fed EDNC 5:15-CR-68-H | 1—Wake Superior 13-CVS-11032 2—Fed EDNC 14-CV-494 3—Fed EDNC 5:15-CR-68-H | 1—Wake Superior 13-CVS-11032 2—Fed MDNC 1:16-CV-607 3—Fed MDNC 1:17-CV-661 | 1—Wake Superior 13-CVS-11032 2—Fed MDNC 1:17-CV-452 | 1—Wake Superior 13-CVS-11032 2—Fed EDNC 13-CV-200 3—OAH 15-EHR-02581 4—Wake Superior 15-CVS-13760 | 1—Wake superior 13-CVS-11032 | 15-23-HW SC DHEC (not a formal case) |
| PLAINTIFF | 1—DENR 2—US DOJ | 1—DEQ and SELC intervention 2—River Watch and Waterkeeper 3—US DOJ | 1—DEQ and SELC intervention 2—Riverkeeper and Waterkeeper 3—US DOJ | 1—DEQ and SELC intervention 2—Roanoke River Basin Assoc. 3—Roanoke River Basin Assoc. | 1—DEQ and SELC intervention 2—Roanoke River Basin Assoc. | 1—DEQ and SELC intervention (injunctive) 2—Cape Fear River Watch, Sierra Club, Waterkeeper 3—DENR (penalty) 4—SELC | 1—DEQ and SELC intervention | South Carolina Dept of Health and Environmental Control |
| GROUNDOS | 1—permit (discharge) and 2L groundwater violations 2—unpermitted discharge from engineered seeps | 1—unpermitted seep discharges and 2L groundwater violations 2—unpermitted surface water discharges and groundwater violations 3—failure to maintain risers | 1—unpermitted seep discharges and 2L groundwater violations 2—unpermitted surface water discharges and groundwater violations 3—unpermitted discharge from engineered seeps | 1—unpermitted seep discharges and 2L groundwater violations 2—unpermitted surface water discharges and groundwater violations 3—cap in place closure plan violates RCRA and fed CCR Rule | 1—unpermitted seep discharges and 2L groundwater violations 2—unlawful discharges in violation of the Clean Water Act | 1—unpermitted seep discharges and 2L groundwater violations 2—unpermitted surface water discharges and groundwater violations 3—groundwater exceedances 4—appeal of DEP-DENR settlement at DAM | 1—unpermitted seep discharges and 2L groundwater violations | Unspecified |
| OUTCOME | 1—dismissed because CAMA requirements satisfy the injunctive relief sought 2—DEP pled guilty to misdemeanor with fines and other costs of \$29.9 million plus restitution (for all sites in the case, not just Asheville) | 1—dismissed because CAMA requirements satisfy the injunctive relief sought 2—dismissal following state court dismissal — CAMA provides the relief 3—DEP pled guilty to 2 misdemeanors | 1—dismissed because CAMA requirements satisfy the injunctive relief sought 2—dismissal following state court dismissal 3—DEP pled guilty to misdemeanor with fines and other costs | 1—ongoing 2—ongoing 3—ongoing | 1—ongoing 2—ongoing | 1—dismissed because CAMA requirements satisfy injunctive relief sought 2—\$1 million settlement plus \$250,000 matching 3—DEP-DENR settlement with \$7 million payment and accelerated remediation at Beilews Creek, HF Lee and Asheville due to gw impact on wells 4—court held that Sutton settlement must be revised to not preclude claims for other facilities | 1—dismissed because CAMA requirements would satisfy the injunctive relief sought | DEP to excavate and remove coal ash, and to pay DHEC for its costs to oversee the settlement |

Source: Duke Energy Progress response of March 16, 2017, to Public Staff coal ash data request 1-4, and pleadings and judicial orders and settlements in the cases

Note: DEP was also named as a defendant in the federal criminal case in relation to the Dan River and Riverbend plants



FEDERAL REGISTER

Vol. 80

Friday,

No. 74

April 17, 2015

Part II

Environmental Protection Agency

40 CFR Parts 257 and 261

Hazardous and Solid Waste Management System; Disposal of Coal
Combustion Residuals From Electric Utilities; Final Rule

ENVIRONMENTAL PROTECTION AGENCY**40 CFR Parts 257 and 261****[EPA-HQ-RCRA-2009-0640; FRL-9919-44-OSWER]****RIN-2050-AE81****Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities****AGENCY:** Environmental Protection Agency (EPA).**ACTION:** Final rule.

SUMMARY: The Environmental Protection Agency (EPA or the Agency) is publishing a final rule to regulate the disposal of coal combustion residuals (CCR) as solid waste under subtitle D of the Resource Conservation and Recovery Act (RCRA). The available information demonstrates that the risks posed to human health and the environment by certain CCR management units warrant regulatory controls. EPA is finalizing national minimum criteria for existing and new CCR landfills and existing and new CCR surface impoundments and all lateral expansions consisting of location restrictions, design and operating criteria, groundwater monitoring and corrective action, closure requirements and post closure care, and recordkeeping, notification, and internet posting requirements. The rule requires any existing unlined CCR surface impoundment that is contaminating groundwater above a regulated constituent's groundwater protection standard to stop receiving CCR and either retrofit or close, except in limited circumstances. It also requires the closure of any CCR landfill or CCR surface impoundment that cannot meet the applicable performance criteria for location restrictions or structural integrity. Finally, those CCR surface impoundments that do not receive CCR after the effective date of the rule, but still contain water and CCR will be subject to all applicable regulatory requirements, unless the owner or operator of the facility dewater and installs a final cover system on these inactive units no later than three years from publication of the rule. EPA is deferring its final decision on the Bevill Regulatory Determination because of regulatory and technical uncertainties that cannot be resolved at this time.

DATES: This final rule is effective on October 14, 2015.**ADDRESSES:** EPA has established three dockets for this regulatory action under

Docket ID No. EPA-HQ-RCRA-2009-0640, Docket ID No. EPA-HQ-RCRA-2011-0392, and Docket ID No. EPA-HQ-RCRA-2012-0028. All documents in these dockets are available at <http://www.regulations.gov>. Although listed in the index, some information is not publicly available, e.g., Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically in <http://www.regulations.gov> or in hard copy at the OSWER Docket, EPA/DC, WJC West Building, Room 3334, 1301 Constitution Ave. NW., Washington, DC 20460. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the OSWER Docket is 202-566-0276.

FOR FURTHER INFORMATION CONTACT: For questions on technical issues: Alexander Livnat, Office of Resource Conservation and Recovery, Environmental Protection Agency, 5304P; telephone number: (703) 308-7251; fax number: (703) 605-0595; email address: livnat.alexander@epa.gov, or Steve Souders, Office of Resource Conservation and Recovery, Environmental Protection Agency, 5304P; telephone number: (703) 308-8431; fax number: (703) 605-0595; email address: souders.steve@epa.gov. For questions on the regulatory impact analysis: Richard Benware, Office of Resource Conservation and Recovery, Environmental Protection Agency, 5305P; telephone number: (703) 308-0436; fax number: (703) 308-7904; email address: benware.richard@epa.gov. For questions on the risk assessment: Jason Mills, Office of Resource Conservation and Recovery, Environmental Protection Agency, 5305P; telephone number: (703) 305-9091; fax number: (703) 308-7904; email address: mills.jason@epa.gov.

For more information on this rulemaking please visit <http://www.epa.gov/epawaste/nonhaz/industrial/special/fossil/index.htm>.

SUPPLEMENTARY INFORMATION:**A. Does this action apply to me?**

This rule applies to all coal combustion residuals (CCR) generated by electric utilities and independent power producers that fall within the North American Industry Classification

System (NAICS) code 221112 and may affect the following entities: Electric utility facilities and independent power producers that fall under the NAICS code 221112. The industry sector(s) identified above may not be exhaustive; other types of entities not listed could also be affected. The Agency's aim is to provide a guide for readers regarding those entities that potentially could be affected by this action. To determine whether your facility, company, business, organization, etc., is affected by this action, you should refer to the applicability criteria discussed in Unit VI.A. of this document. If you have any questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

B. What actions are not addressed in this rule?

This rule does not address the placement of CCR in coal mines. The U.S. Department of Interior (DOI) and, as necessary, EPA will address the management of CCR in minefills in separate regulatory action(s), consistent with the approach recommended by the National Academy of Sciences, recognizing the expertise of DOI's Office of Surface Mining Reclamation and Enforcement in this area. See Unit VI of this document for further details. This rule does not regulate practices that meet the definition of a beneficial use of CCR. Beneficial uses that occur after the effective date of the rule need to determine if they comply with the criteria contained in the definition of "beneficial use of CCRs." This rule does not affect past beneficial uses (*i.e.*, uses completed before the effective date of the rule.) See Unit VI of this document for further details on proposed clarifications of beneficial use. Furthermore, CCR from non-utility boilers burning coal are also not addressed in this final rule. EPA will decide on an appropriate action for these wastes through a separate rulemaking effort. See Unit IV of this document for further details. Finally, this rule does not apply to municipal solid waste landfills (MSWLFs) that receive CCR for disposal or use as daily cover.

C. The Contents of This Preamble Are Listed in the Following Outline

- I. Executive Summary
- II. Statutory Authority
- III. Background
- IV. Bevill Regulatory Determination Relating to CCR From Electric Utilities and Independent Power Producers
- V. Development of the Final Rule—RCRA Subtitle D Regulatory Approach

I/A

Public Staff
Junis Exhibit No. 20
Page 1 of 1

No. of 2L and IMAC Standards Exceedances At or Beyond the Compliance Boundary by Constituent

| Parameters | Generating Station | | | | | | | Violations Subtotal | TBD Subtotal |
|--------------------------|--------------------|--------------|------|-----------|-----------|----------|-----------|---------------------|--------------|
| | Allen | Belews Creek | Buck | Cliffside | Dan River | Marshall | Riverbend | | |
| IMAC Antimony | 6 | 45 | 1 | 7 | 13 | 4 | 19 | 95 | - |
| Arsenic | - | 13 | - | 1 | - | - | - | 14 | - |
| Barium | - | 5 | - | - | - | 11 | - | 16 | - |
| IMAC Beryllium | - | 36 | - | 1 | - | - | - | 37 | - |
| Boron | - | 104 | - | - | 21 | 69 | - | 194 | - |
| Cadmium | - | 33 | - | 1 | - | - | - | 34 | - |
| Chloride | - | 9 | - | - | - | - | - | 9 | - |
| Chromium | 1 | 95 | 4 | 11 | 1 | 12 | 8 | 120 | 12 |
| Chromium (VI) | - | - | - | - | - | 1 | - | - | 1 |
| IMAC Cobalt | 1 | 132 | 2 | 24 | 6 | 30 | 25 | 220 | - |
| Copper | - | - | - | - | - | - | - | - | - |
| Iron | 2 | 367 | 20 | 61 | 49 | 36 | 31 | 517 | 49 |
| Lead | - | 7 | - | - | - | - | - | 7 | - |
| Manganese | 4 | 398 | 26 | 83 | 70 | 54 | 50 | 685 | - |
| Mercury | - | 5 | - | 1 | - | - | - | 6 | - |
| Nickel | - | 3 | - | 1 | - | - | - | 4 | - |
| pH | 22 | 235 | - | 14 | - | 59 | 6 | 336 | - |
| Selenium | - | 94 | - | 2 | - | 7 | - | 103 | - |
| Sulfate | 5 | 77 | 5 | 46 | - | 25 | - | 158 | - |
| IMAC Thallium | 1 | 50 | - | 3 | 2 | 2 | - | 58 | - |
| Total Dissolved Solids | 3 | 95 | 3 | 47 | - | 30 | - | 178 | - |
| Federal MCL Total Radium | - | 9 | - | 4 | - | 9 | - | 22 | - |
| IMAC Vanadium | 8 | 114 | 12 | 55 | 42 | 21 | 26 | 278 | - |
| Zinc | - | - | - | - | - | - | - | - | - |
| Violations Subtotal | 53 | 1,926 | 73 | 362 | 155 | 357 | 165 | 3,091 | - |
| TBD Subtotal | - | - | - | - | 49 | 13 | - | - | 62 |

Violations Subtotal + TBD Subtotal = 3,153

Notes:

*Highlighted fields are subject to change due to the provisional background threshold value not being established by DEC and/or accepted NCDEQ.

*Data compiled from DEC supplemental responses to Public Staff Data Request 18A-1, dated December 8, 2017.

*Per DEC, 2L Exceedance counts exclude results where the sample results for turbidity > 10 NTU or pH > 8.5.

*Provisional Background Threshold Values reflect the values represented in the NCDEQ letters dated September 1, 2017 and October 11, 2017.

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Jan 24 2018
Apr 30 2019

Cost Recovery Issues

\$s in millions

| | Total Cost of Removal Reserve (as of 6/30/13) | Steam Cost of Removal Reserve (as of 6/30/13) | Non- Hazardous Cap In Place | Non- Hazardous Excavation & Disposal | Hazardous Excavation & Disposal |
|---------------|--|--|--------------------------------------|---|---------------------------------------|
| DEC | \$1,600 | \$224 | \$610 | \$1,300 | \$4,200 |
| DEP | 1,100 | 138 | 430 | 1,000 | 2,800 |
| DEI | 731 | 367 | 280 | 500 | 3,000 |
| DEO | 231 | - | 100 | 250 | 820 |
| DEK | 61 | 12 | 20 | 35 | 140 |
| DEF | 488 | 71 | 30 | 190 | 340 |
| Total 10 year | \$4,211 | \$812 | ~\$1,500 | ~3,300 | ~11,500 |

- Total cost to completion for nonhazardous excavation is \$7.1B and for hazardous excavation is \$23.0B
- The company could potentially reallocate portions of the "total" COR to cover the cap-in-place ash pond costs
 - Regulatory approval likely to be required to do this



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This table shows the various 10 year scenarios and the COR reserve balances. The second column shows the portion reserved for the steam assets. Just because the "steam" reserve is lower than the planned costs does not mean we could not use some of the other "total" COR reserve to cover the ash pond costs.

There are different points of view as to what type of approval would be required to access the COR funds not specifically allocated to steam currently. One point of view is that no approval is needed and the other is that we would have to notify regulators of the usage. As mentioned earlier, the next depreciation study would likely show that you would need to replenish these reserves at the next rate case; especially anything beyond the steam COR.

Public Staff
Junis Exhibit 32

I/A

FILED IN OPEN COURT
ON 5/14/15
Julie Richards Johnston, Clerk
US District Court
Eastern District of NC

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Jan 24 2018
Apr 30 2019

UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NORTH CAROLINA
WESTERN DIVISION
No. 5:15-CR-67-H-2
No. 5:15-CR-68-H-2

UNITED STATES OF AMERICA)
)
 v.) MEMORANDUM OF PLEA AGREEMENT
)
DUKE ENERGY CAROLINAS, LLC)

Pursuant to Rule 11(c)(1)(C) of the Federal Rules of Criminal Procedure, the United States of America, by and through the United States Attorneys for the Eastern District of North Carolina, the Middle District of North Carolina, and the Western District of North Carolina as well as the Environmental Crimes Section of the United States Department of Justice (collectively referred to herein as "the United States" or "the Government"), and the Defendant, DUKE ENERGY CAROLINAS, LLC (referred to herein as "the Defendant" or "DUKE ENERGY CAROLINAS") with the advice and concurrence of the Defendant's counsel, Julia S. Janson (Executive Vice-President, Secretary, and Chief Legal Officer, Duke Energy Carolinas, LLC) and James P. Cooney, III (Womble Carlyle Sandridge & Rice LLP) have agreed that the above-captioned case should be concluded in accordance with this Memorandum of Plea Agreement as follows:

1. This Memorandum constitutes the full and complete record of the Plea Agreement for criminal conduct in each of the prosecuting districts, that is, the Eastern District, Middle District, and Western District of North Carolina and as alleged in the following charging documents (hereinafter referred to collectively as the "Criminal Informations"):

United States v. Duke Energy Business Services LLC, and Duke Energy Progress, Inc., No. 5:15-CR-62-H;

United States v. Duke Energy Business Services LLC, Duke Energy Carolinas, LLC, and Duke Energy Progress, Inc., No. 5:15-CR-67-H; and

United States v. Duke Energy Business Services LLC, Duke Energy Carolinas, LLC, and Duke Energy Progress, Inc., No. 5:15-CR-68-H.

There are no other agreements between the parties in addition to or different from the terms herein.

2. The United States and the Defendant agree:

- a. That this Plea Agreement ("Agreement") is made pursuant to Rule 11(c)(1)(C) of the Federal Rules of Criminal Procedure ("Fed. R. Crim. P.") and that the sentence set forth herein is the appropriate disposition of this case. If the Court rejects this Agreement, it is further agreed that the Defendant may withdraw its plea and all of the parties may withdraw from this Agreement.
- b. The parties further acknowledge that based upon the Joint Factual Statement, a copy of which is attached hereto as Exhibit A, the Court has sufficient information in the record to enable it to meaningfully exercise its sentencing authority. Accordingly, if acceptable to the Court, the parties agree to waive the presentence investigation and report pursuant to Fed. R. Crim. P. 32(c), and to request that the Defendant be sentenced at the time the guilty plea is entered.
- c. The parties further agree and acknowledge that the Defendant's parent corporation, Duke Energy Corporation, shall guarantee all monetary penalties (criminal fine, restitution, community service, and mitigation) imposed upon the Defendant and the funding and performance due from the Defendant in connection with the nationwide and statewide environmental compliance plans under this Agreement as more fully set forth in the Guaranty Agreement, a copy of which is attached hereto at Exhibit B (without attachments) and fully incorporated herein by reference. The parties further agree and acknowledge that Duke Energy Corporation shall consent to the jurisdiction of the United States District Court for the Eastern District of North Carolina for the purpose of enforcing the Guaranty Agreement.
- d. Pursuant to Fed. R. Crim. P. 11(c)(1)(C), the parties agree that the following sentence is warranted in this case:

- i. Criminal Fines: At the time of imposition of sentencing, the Defendant shall make a payment of Criminal Fines totaling \$53.6 million (\$53,600,000) as follows:

Dan River Violations

- (1) \$38 million (\$38,000,000) for the negligent Clean Water Act discharge without a National Pollutant Discharge Elimination System ("NPDES") permit from the 48-inch stormwater pipe at Dan River Steam Station based upon a fine of twice the gross gain or loss pursuant to 33 U.S.C. § 1319(c)(1)(A) and 18 U.S.C. § 3571(c) and (d).
- (2) \$2 million (\$2,000,000) for the negligent Clean Water Act failure to maintain the coal ash impoundments and related appurtenances (48-inch stormwater pipe) as required by the applicable NPDES permit for the Dan River Steam Station, a fine within the statutory penalty range of \$2,500 to \$25,000 per day of violation pursuant to 33 U.S.C. § 1319(c)(1)(A) and 18 U.S.C. § 3571(c) and (d).
- (3) \$9.5 million (\$9,500,000) for the negligent Clean Water Act discharge without a NPDES permit from the 36-inch stormwater pipe at Dan River Steam Station, a fine within the statutory penalty range of \$2,500 to \$25,000 per day of violation pursuant to 33 U.S.C. § 1319(c)(1)(A) and 18 U.S.C. § 3571(c) and (d).
- (4) \$2 million (\$2,000,000) for negligent Clean Water Act failure to maintain the coal ash impoundments and related appurtenances (36-inch stormwater pipe) as required by the applicable NPDES permit for the Dan River Steam Station, a fine within the statutory penalty range of \$2,500 to \$25,000 per day of violation pursuant to 33 U.S.C. § 1319(c)(1)(A) and 18 U.S.C. § 3571(c) and (d).

Riverbend Violations

- (5) \$2.1 million (\$2,100,000) for the negligent Clean Water Act discharge in violation of the applicable NPDES permit at Riverbend Steam Station, a fine within the statutory penalty range of \$2,500 to \$25,000 per day of violation pursuant to 33 U.S.C. § 1319(c)(1)(A) and 18 U.S.C. § 3571(c) and (d).
- ii. Probation: A statutory-maximum term of five (5) years of probation is warranted. 18 U.S.C. § 3561(c)(2). Probation shall include the standard conditions of probation and the following special conditions, pursuant to 18 U.S.C. § 3563(a) and (b):
- (1) Compliance with the Law: The Defendant shall not commit another federal, state, or local crime during the term of probation.
- (2) Cooperation with Probation Office: The Defendant shall fully cooperate with the United States Probation Office. The Defendant shall answer truthfully all inquiries by the Probation Officer; shall provide full access to any of the Defendant's operating locations; shall give ten (10) days' prior notice of any intended change in principal business or mail address; and shall provide notice of any material change in the Defendant's economic circumstances that might affect the Defendant's ability to pay the fines and other financial obligations set forth herein.
- (3) Nationwide Environmental Compliance Plan: Under the terms of its plea agreement, co-defendant Duke Energy Business Services LLC ("DEBS") is required to develop, adopt, implement, and fund a comprehensive nationwide environmental compliance plan ("NECP") during its term of probation, consistent with sentencing policies set forth in USSG §8D1.4 and which incorporates

all of the agreed-upon obligations set forth in Paragraph 3(u)(v) of this Agreement. The Defendant shall take all steps necessary or required to assist DEBS in meeting this obligation.

- (4) Statewide Environmental Compliance Plan: The Defendant, along with its co-defendants Duke Energy Progress, Inc. ("DEP") and DEBS, shall develop, adopt, implement, and fund a comprehensive statewide environmental compliance plan ("ECP-NC") during its term of probation, consistent with sentencing policies set forth in USSG §8D1.4 and which incorporates all of the agreed-upon obligations set forth in Paragraph 3(u)(vi) of this Agreement.
- (5) Notice to Employees and Shareholders: Upon approval by the Court of the NECP and ECP-NC, the Defendant shall notify its employees of its criminal behavior, the NECP, and the ECP-NC. In addition, the Defendant shall cause a notice containing the same information to be sent to the shareholders of Duke Energy Corporation. Such notice shall be in a form prescribed by the Court-Appointed Monitor ("CAM") and at a time designated by the CAM.
- (6) Community Service Payment: Pursuant to USSG §8B1.3 and in furtherance of the sentencing principles provided for under 18 U.S.C. § 3553(a), at the time of sentencing, the Defendant shall make a community service payment totaling \$13.5 million (\$13,500,000), through the National Fish and Wildlife Foundation ("NFWF"), to fund environmental projects, studies, and initiatives designed to benefit, preserve, and restore the riparian environment and ecosystems of North Carolina and Virginia affected by the Defendant's conduct, as set forth in Paragraph 3(aa) of this Agreement.
- (7) Mitigation: In order to compensate for impacts to wetlands and other jurisdictional

waters of the United States impacted as a result of the Defendant's conduct, including temporal and secondary effects, at its facilities in North Carolina with coal ash impoundments, the Defendant shall provide \$5 million (\$5,000,000) to an authorized wetlands mitigation bank or conservation trust, approved by the Court, for the purchase of riparian wetland and/or riparian land and/or restoration equivalent located in the Broad River Basin, French Broad River Basin, Cape Fear River Basin, Catawba River Basin, Dan River Basin, Yadkin-Pee Dee River Basin, Neuse River Basin, Lumber River Basin, and Roanoke River Basin as set forth in more detail in Paragraph 3(bb) of this Agreement.

iii. Payment Liability/Financial Assurances: The Defendant shall be liable for and pay all fines, restitution, community service, and mitigation payments and shall fund the NECP and ECP-NC, all as set forth herein. The Defendant shall further be liable for any additional restitution payments as determined by the CAM.

(1) Reservation of Funds by Defendant: The Defendant further shall record appropriate reserves on financial statements for the purpose of recognizing the projected obligation to retire its coal ash impoundments in North Carolina. This obligation is currently estimated at a total of \$2.0 billion (\$2,000,000,000) on the Defendant's balance sheet. Each year during the term of probation, beginning on the date that the Agreement is accepted by the Court and occurring by March 31 of each year thereafter, the Defendant shall cause the Chief Financial Officer of Duke Energy Corporation, as further directed under the Guaranty Agreement attached hereto, to certify to the United States and the CAM that the Defendant and Duke Energy Corporation have sufficient assets reserved to meet the obligations imposed by law or regulation or as may otherwise be necessary

to fulfill the Defendant's obligations with respect to its coal ash impoundments within the State of North Carolina. If the CAM has any concerns regarding the assets available to meet obligations imposed by the Judgment in this case, the CAM shall immediately notify the Court and the parties.

- (2) Reservation of Funds by Parent Company: The Defendant further shall cause its parent holding company, Duke Energy Corporation, to record appropriate reserves on its consolidated financial statements for the purpose of recognizing the projected obligation to retire all coal ash impoundments, including those in North Carolina. This obligation is currently estimated at a total of \$3.4 billion (\$3,400,000,000) on Duke Energy Corporation's balance sheet for all coal ash impoundments (including those owned by the Defendant and co-defendant DEP). Each year during the term of probation, beginning on the date that the Agreement is accepted by the Court and occurring by March 31 of each year thereafter, the Defendant shall cause the Chief Financial Officer of Duke Energy Corporation, as further directed under the Guaranty Agreement attached hereto, to certify to the United States and the CAM that the Defendant and Duke Energy Corporation have sufficient assets reserved to meet the obligations imposed by law or regulation or as may otherwise be necessary to fulfill the Defendant's obligations with respect to its coal ash impoundments within the State of North Carolina. If the CAM has any concerns regarding the assets available to meet obligations imposed by the Judgment in this case, the CAM shall immediately notify the Court and the parties.
- (3) Security: Through the entire term of probation, the Defendant shall further maintain unused borrowing capacity in the amount of \$250 million (\$250,000,000) under the Master Credit Facility as security to

meet its obligations under this Agreement for the closing and remediation of coal ash impoundments, as more fully set forth in Paragraph 3(k) of this Agreement. The Defendant shall certify this set aside to the CAM on an annual basis, or more frequently as the CAM requires. If the CAM has any concerns regarding the security available to meet the obligations imposed by the Judgment in this case, the CAM shall immediately notify the Court and the parties.

- iv. Restitution for Counts of Conviction: Pursuant to 18 U.S.C. §§ 3663, 3663A, and 3563(b)(2), the Defendant shall make restitution to any victim in whatever amount the Court may order. Said restitution shall be due and payable immediately. Said restitution shall include at a minimum, as apportioned to this Defendant pursuant to 18 U.S.C. § 3664(h), restitution to be paid to the Clerk of the Court as follows:

- (1) \$63,309.45 to Virginia Beach, payable to:

City of Virginia Beach
c/o Department of Public Utilities
City of Virginia Beach
2405 Courthouse Drive
Virginia Beach, Virginia 23456
ATTN: "Coal Ash Spill - Water Quality
Sampling / CIP 5-967" as a reference

- (2) \$125,069.75 to City of Chesapeake, VA (Lake Gaston sampling costs) payable to:

City of Chesapeake
c/o David Jurgens,
Director of Public Utilities
306 Cedar Rd, 2nd floor
Chesapeake, VA 23322

- (3) and \$31,491.11 to the United States Army Corps of Engineers payable to:

FAO-USACE Wilmington
c/o Anita Bisette
69 Darlington Ave
Wilmington, NC 28406
(910-251-4803)

- v. Restitution for Relevant Conduct to Be Paid During Term of Probation: Pursuant to 18 U.S.C. § 3663, the Defendant shall pay restitution as directed by the CAM through the claims process set forth in Paragraphs 3(x)(iii)-(vi) of this Agreement.
- vi. Special Assessment: The Defendant shall pay special assessments, totaling \$625.00, before or at the time of sentencing, and shall provide a receipt from the Clerk of Court for the Eastern District of North Carolina to the United States as proof of payment.
- vii. Public Apology: Consistent with USSG §8D1.4(a), the Defendant and co-defendants DEBS and DEP shall place a full-page public apology in at least two national newspapers and three major North Carolina newspapers (one in Raleigh, one in Greensboro, and one in Charlotte) and on its publicly accessible company website.

3. The Defendant agrees:

- a. Consent to Transfers: To consent to the entry of Rule 20 transfers for purposes of guilty pleas to the charges in the following matters:
 - i. United States v. Duke Energy Business Services LLC, Duke Energy Carolinas, LLC, and Duke Energy Progress, Inc., No. 1:15-CR-51-1 (MDNC); and
 - ii. United States v. Duke Energy Business Services LLC, Duke Energy Carolinas, LLC, and Duke Energy Progress, Inc., No. 3:15-CR-43-FDW (WDNC).
- b. Restitution for Counts of Conviction: Pursuant to 18 U.S.C. §§ 3663, 3663A, and 3563(b)(2), to make restitution as ordered by the Court and as set forth in this Agreement. Said restitution shall be due and payable immediately. Said restitution shall include

additional costs associated with the Dan River response as previously set forth in Paragraph 2(d)(iv) of this Agreement.

c. Restitution for Relevant Conduct to be Paid During Term of Probation: In addition to any order of restitution in connection with the counts of conviction, to make restitution to the following entities, as determined and directed by the CAM during the term of probation and pursuant to the agreed-upon claims process set forth in Paragraphs 3(x)(iii)-(vi):

i. City of Eden, North Carolina; Town of Madison, North Carolina; and other localities impacted by bromide discharges from the Belews Creek and Cliffside facilities

(1) For all costs, whenever incurred, associated with water treatment system upgrades resulting from the increase of trihalomethanes including, but not limited to, maintenance costs.

(2) All costs associated with investigating and responding to increased discharges of bromide and/or the increase of trihalomethanes.

ii. Other Local Governments with drinking water treatment systems impacted by bromide discharges from other facilities owned by the Defendant

(1) For all costs, whenever incurred, associated with water treatment system upgrades resulting from the increase of trihalomethanes including, but not limited to, maintenance costs.

(2) All costs associated with investigating and responding to increased discharges of bromide and/or the increase of trihalomethanes.

d. Crime Victims' Rights Act: Except as provided herein, at the time of the execution of this Agreement, the parties are not aware of any other

victim as that term is defined by 18 U.S.C. §§ 3663, 3663A, and 3771. The Defendant understands that the United States intends to fully comply with all obligations under 18 U.S.C. § 3771, including victim notification and restitution provisions.

- e. Appeal Waiver: To waive knowingly and expressly the right to appeal the conviction and whatever sentence is imposed on any ground, including any appeal pursuant to 18 U.S.C. § 3742, and further to waive any right to contest the conviction or the sentence in any post-conviction proceeding, including any proceeding under 28 U.S.C. § 2255, excepting an appeal or motion based upon grounds of ineffective assistance of counsel or prosecutorial misconduct not known to the Defendant at the time of the Defendant's guilty plea. The foregoing appeal waiver does not constitute or trigger a waiver by the United States of any of its rights to appeal provided by law.
- f. Waiver of Rights to Records: To waive all rights, whether asserted directly or through a representative, to request or receive from the United States any records pertaining to the investigation or prosecution of this matter, except as provided in the Fed. R. Crim. P. This waiver includes, but is not limited to, rights conferred by the Freedom of Information Act and the Privacy Act of 1974.
- g. Special Assessment: To pay a special assessment of \$125.00 for each misdemeanor count pursuant to the provisions of 18 U.S.C. § 3013. The assessment shall be paid by the Defendant at sentencing. The Defendant or Defendant's counsel shall provide a check in payment of the said assessment directly to the Clerk of Court, U.S. District Court-EDNC.
- h. Financial Statement: To complete and submit a financial statement under oath to the United States no later than two weeks prior to the entry of the guilty plea. The Defendant can satisfy this condition by submitting its most recent financial statement filed with the Securities and Exchange Commission.
- i. Reservation of Funds by Defendant: To record appropriate reserves on financial statements for the

purpose of recognizing the projected obligation to retire its coal ash impoundments in North Carolina, and, during each year during the term of probation, to certify that it has sufficient assets reserved to meet the obligations imposed by law and regulation as more fully set forth in Paragraph 2(d)(iii)(1) above. This obligation is currently estimated at a total of \$2.0 billion (\$2,000,000,000) on the Defendant's balance sheet.

- j. Reservation of Funds by Parent Company: To cause its parent holding company, Duke Energy Corporation, to record appropriate reserves on its consolidated financial statements for the purpose of recognizing the projected obligation to retire all coal ash impoundments, including those in North Carolina, and during each year during the term of probation, to cause its parent holding company to certify that it has sufficient assets reserved to meet the obligations imposed by law and regulation as more fully set forth in Paragraph 2(d)(iii)(2) above. This obligation is currently estimated at a total of \$3.4 billion (\$3,400,000,000) on Duke Energy Corporation's balance sheet for all coal ash impoundments (including those owned by the Defendant and co-defendant DEP).
- k. Security: Through the entire term of probation, to maintain unused borrowing capacity in the amount of \$250 million (\$250,000,000) under the Master Credit Facility as security to meet its obligations under this Agreement for the closing and remediation of coal ash impoundments, as more fully set forth in Paragraph 2(d)(iii)(3) of this Agreement. A copy of the certification for 2015 shall be filed with the Court at the time of entry of this Agreement.
- l. Cooperation: The Defendant shall continue to cooperate fully with the United States, and with all other authorities and agencies designated by the United States, and shall truthfully disclose all information with respect to the activities of the Defendant and its present and former directors, officers, employees, agents, consultants, contractors, and subcontractors thereof, regarding the conduct underlying the Criminal Informations about which the Defendant has any knowledge or about

which the United States shall inquire. This obligation of truthful disclosure includes the obligation of the Defendant to provide to the United States, upon request, any document, record, or other tangible evidence regarding the conduct underlying the Criminal Informations about which the United States shall inquire of the Defendant. Compliance with such cooperation requirements shall not be construed as requiring or effecting a waiver of the attorney-client privilege or work product protections.

- m. Such cooperation set forth in Paragraph (l) above shall include but not be limited to: (a) promptly disclosing any and all related criminal or potentially criminal conduct of which the Defendant is currently aware; (b) promptly producing all documents requested by the federal government or by grand jury subpoena; (c) promptly making employees available to the investigation team upon request for interview or for testimony in any proceeding, subject to those employees' own legal rights; and (d) making reasonable efforts to ensure its employees provide full and truthful information.
- n. If the Defendant, through its employees acting within the scope of their employment, provides false, incomplete, or misleading information or testimony, or fails to abide by any term of cooperation set forth in Paragraphs (l) and (m) above, this would constitute a material breach of this Agreement by the Defendant, and the Defendant shall be subject to prosecution for any federal criminal violation not barred by the applicable statute of limitations (or as waived pursuant to Paragraph 3(hh)) or other legal prohibition. Any information provided by the Defendant may be used against the Defendant in that prosecution.
- o. Additionally, the Defendant agrees that in the event of the Defendant's material breach of this Agreement the following are admissible against the Defendant in any prosecution of or action against the Defendant: (i) any statements made by the Defendant, under oath, at the guilty plea hearing (before either a Magistrate Judge or a District Judge); (ii) the Joint Factual Statement supporting this Agreement; and

(iii) any evidence derived from such statements. This includes the prosecution of the charges that are the subject of this Agreement or any charges that the United States agreed to dismiss or not file as part of this Agreement, but later pursues because of a material breach by the Defendant. Additionally, the Defendant knowingly and voluntarily waives any argument under the United States Constitution, any statute, Rule 410 of the Federal Rules of Evidence, Fed. R. Crim. P. 11(f) of the Federal Rules of Criminal Procedure, and/or any other federal rule, that the statements or any evidence derived from any statements should be suppressed or are inadmissible.

p. Compliance with the Law: Except as provided otherwise herein and in Paragraph (q) below, the Defendant agrees that it shall commit no new violations of federal, state, or local law, including those laws and regulations for which primary enforcement has been delegated to state authorities, and shall conduct its operations in accordance with the environmental laws of the United States and the State of North Carolina. If the Defendant learns of any such violations committed by its agents or employees during the term of probation, the Defendant shall notify the United States of the violations in accordance with the terms of the environmental compliance plans.

i. The Defendant understands that the Government shall not consider there to be a violation of the conditions of probation if the Defendant complies with federal environmental laws when there is a direct conflict between the state and federal environmental laws.

q. The Defendant shall comply with all federal, state, and other regulations relating to coal ash, and will have no new notices of violation, notices of deficiency, or other criminal, civil, or administrative enforcement actions based on conduct (including the failure to act) occurring after entry of the guilty plea.

i. The Defendant understands that it shall be considered a violation of the conditions of probation if the Defendant engages in the above

- conduct and such conduct or condition results in a final assessment (after conclusion of any appeals) in an amount greater than \$5,000 and imposed after the entry of the guilty plea and which the CAM deems material. Any conduct or conditions resulting in a final assessment in an amount greater than \$15,000 shall be presumed to be material.
- ii. It shall not be considered a violation of probation if the enforcement action is based upon information disclosed by the Defendant in its 2014 Topographic Map and Discharge Assessment Plan(s) and/or its 2014 NDPES permit renewal application(s) for its facilities in North Carolina.
- r. The Defendant shall comply with all legislative and regulatory mandates concerning closure of the coal ash impoundments which it operates, and shall complete full excavation and closure of all of the coal ash impoundments at its Dan River and Riverbend facilities in accordance with federal and state laws, including the United States Environmental Protection Agency's ("EPA") 2014 final rule governing the disposal of coal combustion residuals from electric utilities ("CCR Rule") and North Carolina's Coal Ash Management Act of 2014, by the dates dictated in those laws, currently the calendar year 2019. In so doing, the Defendant shall act diligently and in good faith to meet projected critical milestones in its closure plans for each site as set forth in the following documents: Duke Energy's Dan River Steam Station Coal Ash Excavation Plan dated November 13, 2014; and Duke Energy's Riverbend Steam Station Coal Ash Excavation Plan dated November 13, 2014 (collectively referred to as "Excavation Plans"), as may be amended with the approval of the North Carolina Department of Environment and Natural Resources ("DENR").
- i. With respect to excavated coal ash, the removed ash shall be stored in a lined CCR landfill space or lined impoundment meeting all requirements established by applicable statute, law, and regulation, including but not limited to 40 CFR Part 258 (Subtitle D of RCRA). Nothing in this Paragraph shall prohibit the Defendant from the

disposition of ash through beneficial reuse as contemplated by the CCR Rule.

- ii. Every six months, or on a more frequent basis as determined by the CAM, the Defendant shall provide the CAM with a detailed description of its efforts to excavate coal ash and close all of the coal ash impoundments at Dan River and Riverbend and whether it has met the critical milestones set forth in the Excavation Plans in the time period since the last report. The Defendant shall also include the status of all permits and permit applications with any regulatory body, including but not limited to DENR. The Defendant shall also make such reports publicly available on its website.

- (1) If the CAM has any concerns regarding whether the Defendant acted diligently or in good faith to meet its obligations under this provision, including the critical milestones set forth in the Excavation Plans, the CAM shall immediately notify the Court and the parties.

- iii. The Defendant shall contemporaneously provide an executive summary of the report in subparagraph (ii) above to the United States Attorneys' Offices for the Eastern, Middle, and Western Districts of North Carolina; the Department of Justice - Environmental Crimes Section; the United States Environmental Protection Agency - Criminal Investigation Division; and the United States Environmental Protection Agency - Legal Counsel Division. Upon request, the Defendant shall provide the full report for inspection and review by any of the governmental parties.

- (1) If the Government has any concerns regarding whether the Defendant acted diligently or in good faith to meet its obligation under this provision, including the critical milestones set forth in the Excavation Plans, the Government may elect to notify either the CAM or the Court, and may seek additional penalties as may be appropriate.

- iv. Six months prior to the end of the term of probation, the Defendant shall provide the Court, the CAM, and the Government with a full report of its efforts to excavate coal ash and to close all of the coal ash impoundments at Dan River and Riverbend and the anticipated completion date.
- v. The Government may seek additional fines and penalties should the Defendant fail to comply with such legislative or regulatory mandates and closure requirements under this Paragraph unless the compliance is delayed by a "force majeure" as that term is defined herein. The parties recognize that a change in law making performance impossible may be raised under the "force majeure" clause herein, but final determination shall be made by the Court.
- vi. The Defendant understands that the Government shall not consider there to be a violation of the conditions of probation if the Defendant complies with federal environmental laws when there is a direct conflict between the state and federal environmental laws. The Defendant, however, shall immediately notify the Court, the CAM, and the Government of the conflict of laws and the impact on excavation and closure plans.
- s. Criminal Fine: The Defendant shall pay a total criminal fine in the amount of \$53.6 million (\$53,600,000), allocated as set forth in Paragraph 2(d)(i) above.
- t. Stipulated Factual Basis for Fine: The Defendant stipulates that there is a factual basis for the imposition of a criminal fine in the amount of \$53.6 million (\$53,600,000) pursuant to 33 U.S.C. §§ 1319(c)(1)(A) and/or 18 U.S.C. § 3571(c) and (d) and that the payments made pursuant to Paragraph 2(d)(i) do not together exceed the statutory maximum fine available under each of the applicable statutes. The Defendant further waives any right to a jury or bench trial as to those payments.
- u. Environmental Compliance Plans: As a special condition of probation, the Defendant shall cause, assist, and otherwise take all steps necessary to

effectuate the obligation of co-defendant DEBS to develop, adopt, implement, and fund the NECP designed to ensure compliance with applicable environmental laws and regulations at all of the coal ash impoundments owned and operated (whether active or inactive) by any wholly-owned subsidiary of Duke Energy Corporation. In addition to requirements to be applied nationwide, the Defendant, along with co-defendants DEBS and DEP, shall develop, implement, and enforce the ECP-NC that also incorporates all of the requirements of the NECP. Both the NECP and the ECP-NC shall be filed with the Court as separate documents. Components of the NECP and the ECP-NC include, but are not limited to, the following:

i. Timing for Submission of NECP and ECP-NC:

Defendant DUKE ENERGY CAROLINAS, along with its co-defendants DEBS and DEP, shall develop and adopt the NECP and ECP-NC within seventy (70) days of the selection of the CAM. The final NECP and ECP-NC shall be submitted to the Court with copies to the United States Probation Office; the United States Attorneys' Offices for the Eastern, Middle, and Western Districts; the Department of Justice - Environmental Crimes Section; the Environmental Protection Agency - Criminal Investigation Division; and the United States Environmental Protection Agency - Legal Counsel Division. The Court must approve both the NECP and ECP-NC.

- (1) The United States acknowledges that two (2) wholly-owned subsidiaries of Duke Energy Corporation, Duke Energy Commercial Enterprises, Inc. (an indirect wholly-owned subsidiary) and Duke Energy SAM, LLC (a direct wholly-owned subsidiary) have entered into a purchase and sale agreement with a subsidiary of Dynegy Inc. in which Dynegy Inc. will acquire Duke Energy Ohio's unregulated Midwest generation business (which has been classified as Discontinued Operations on the Condensed Consolidated Statement of Operations). Approval is pending before the Federal Energy Regulatory Commission. Both of the subsidiaries handle coal ash.

- (2) If the sale above has not been closed at the time of the submission of the NECP to the Court for approval, it is expressly understood and agreed that these assets need not be included within the NECP with the following exception: if the sale is not closed within ninety (90) days of the approval of the NECP by the Court, the CAM may, at his/her option, require the NECP to be amended to include these subsidiaries.
- ii. Best Efforts: Defendant DUKE ENERGY CAROLINAS, along with its co-defendants DEBS and DEP, shall use best efforts to comply with each and all of the obligations under both the NECP and ECP-NC.
- (1) The requirement that the Defendant exercise "best efforts" to fulfill the obligation includes using commercially reasonable efforts to anticipate any potential "force majeure" event (as defined herein at Paragraph 3(y)) and to address the effects of any potential "force majeure" event: (a) as it is occurring, and (b) following the potential "force majeure" event, such that the delay is minimized to the greatest extent possible.
 - (2) If the CAM believes that the Defendant has not used "best efforts" to fulfill its obligations, the CAM shall provide written notice immediately to the Court and the parties.
 - (3) The final determination of whether the Defendant used "best efforts" shall be made by the Court with the advice of and recommendations from the CAM.
 - (4) If the Court concludes that the Defendant failed to exercise "best efforts" to fulfill an obligation of this Agreement, the Court may impose and the Government will be entitled to seek additional monetary penalties.

iii. Selection and Funding of CAM:

- (1) Funding: As part of the NECP and the ECP-NC, Defendant DUKE ENERGY CAROLINAS, along with its co-defendants DEBS and DEP, shall pay for a CAM who will be appointed by and report to the Court during the full period of probation.
- (2) Qualifications: The object of the selection process for the CAM is to select the most qualified candidate to oversee implementation of the NECP, the ECP-NC, and the bromide claims process. Therefore, the CAM must have staff, or be able to retain staff, with the following experience: (a) expertise and competence in the regulatory programs under the United States and State of North Carolina environmental laws; (b) sufficient expertise and competence to assess whether the Defendant, DEBS, and DEP have adequate management systems in place to ensure regulatory compliance, document such noncompliance, and prevent future noncompliance; and (c) sufficient expertise and competence to review claims for reimbursement under the process for identifying, verifying, and providing restitution for claims relating to bromide discharges described herein.
- (3) Nomination and Veto by Government: Within thirty (30) days of the entry of the Judgment, Defendant DUKE ENERGY CAROLINAS, along with its co-defendants DEBS and DEP, shall submit a list of three qualified candidates for the position of CAM from which the Court will select and appoint one of the candidates. Any nomination will include a detailed curriculum vitae or similar documentation setting forth the qualifications of the candidate. The Government shall have fifteen (15) days from the receipt of the nominations to file any reasonable objection to any or all of the proposed candidates. If the Government lodges an objection, then Defendant DUKE

ENERGY CAROLINAS, along with its co-defendants DEBS and DEP, must nominate a replacement candidate(s). The Government again shall have the right to lodge any reasonable objection to any replacement candidate; and the Court may adjust the time frame for the nominations of the CAM as necessary to ensure that the best possible candidates are nominated.

- (4) Court Selection: Upon receipt of a final list of candidates, the Court shall select one candidate as CAM by written order. In the event that the Court does not find any of the candidates satisfactory or if, during any point in the term of probation, the Court does not find the work of the selected CAM satisfactory, the Court may request Defendant DUKE ENERGY CAROLINAS, along with its co-defendants DEBS and DEP, to nominate additional candidates. The Court may adjust the time frame for the selection of the CAM as necessary to ensure that the best possible candidate is selected.
- iv. Reporting by CAM: On an annual basis, or more often as the Court directs, the CAM shall provide reports in writing to the Court, through the United States Probation Office, demonstrating compliance with the NECP and the ECP-NC by DUKE ENERGY CAROLINAS, DEBS and DEP. The report shall include, among other things, a detailed description of: (1) all excavation, closure, and/or proper remediation of the coal ash impoundments located in North Carolina and addressed in the ECP-NC; and (2) all three co-defendants' compliance with all appropriate environmental laws and regulations in connection with the management of their coal ash impoundments in North Carolina and elsewhere.
- (1) Public Access to Information: The CAM shall ensure, and the Defendant shall facilitate, the posting of copies of any environmental compliance audits, annual reports, and/or any other reports prepared pursuant to the

NECP or ECP-NC on a company web page with public access.

- Subject to the approval of the CAM, the Defendant may redact confidential business information or any information it reasonably believes could impair the security of its operations before such audits or reports are posted for public access.
- The CAM shall inspect such proposed redactions to determine the propriety of the redactions.
- Notwithstanding the foregoing, unredacted copies shall be provided to the Court. The Defendant may seek to have the filings placed under seal to protect any information that the CAM has deemed to warrant redaction.

(2) The CAM will contemporaneously provide copies of the reports (as posted) to the United States Attorneys' Offices for the Eastern, Middle, and Western Districts of North Carolina; the Department of Justice - Environmental Crimes Section; the United States Environmental Protection Agency - Criminal Investigation Division; and the United States Environmental Protection Agency - Legal Counsel Division. If the reports contain redactions, any of these parties may inspect the redactions and challenge the propriety of the redactions. The Court shall be the final arbiter of any challenge.

v. Nationwide ECP: The NECP shall include, among other things:

(1) Organizational Funding: Co-Defendant DEBS shall maintain and fund the operation of all of the company compliance organizations created in the wake of the Dan River release, including: ABSAT, the Coal Combustion Products organization, and the

National Ash Management Advisory Board. Subject to the approval of the CAM, DEBS may transfer operations and responsibilities between internal organizations or adjust funding of such organizations as appropriate, as long as the obligations of this Agreement are being met. To the extent necessary or required, the Defendant shall fund or otherwise pay for its proportionate share of the continued maintenance and operations of these compliance organizations.

- (2) Compliance Officer ("CO"): The Defendant, and its co-defendants DEBS and DEP, each shall identify or establish a position at the Vice President level or higher who will liaise directly with the CAM. The Defendant's designated CO shall have, among other duties, the primary responsibility for ensuring compliance with applicable environmental requirements and requirements of the NECP and ECP-NC.
- The COs shall submit detailed reports discussing the development, implementation, and enforcement of the NECP and ECP-NC at intervals deemed necessary by the CAM. The first report shall also include an explanation of the current corporate structure responsible for the operation and control of the coal ash impoundments and the names of the individuals filling the relevant positions. With the concurrence of the CAM, the COs may elect to submit a joint report detailing the required information for all three co-defendants. Any changes to the corporate coal ash oversight structure shall be immediately forwarded to the CAM and included in the next regular report.
 - Subject to the approval of the CAM, the Defendant may redact confidential business information or any information it reasonably believes could impair the

security of its operations before such reports are posted for public access.

- The CAM shall inspect such proposed redactions to determine the propriety of the redactions.
- Notwithstanding the foregoing, unredacted copies shall be provided to the Court. The Defendant may seek to have the filings placed under seal to protect any information that the CAM has deemed to warrant redaction.
- The CAM will contemporaneously provide copies of the reports (as posted) to the United States Attorneys' Offices for the Eastern, Middle, and Western Districts of North Carolina; the Department of Justice - Environmental Crimes Section; the United States Environmental Protection Agency - Criminal Investigation Division; and the United States Environmental Protection Agency - Legal Counsel Division. If the reports contain redactions, any of these parties may inspect the redactions and challenge the propriety of the redactions. The Court shall be the final arbiter of any challenge.

(3) Environmental Audits: Within the first ninety (90) days of his or her appointment, the CAM shall establish a schedule for conducting environmental audits of each of Duke Energy Corporation's and its affiliates' wholly-owned or operated domestic facilities with Duke Energy Corporation or affiliate-managed or affiliate-controlled coal ash impoundments outside North Carolina on an annual basis.

- Each year the Defendant can request that the CAM accept any full environmental audit prepared by ABSAT or a similar organization in that same calendar year for its facilities subject to the audits under the NECP.

- The CAM can reject any such request by the Defendant if the CAM concludes that the proposed environmental audit is not sufficiently comprehensive or not prepared by a competent organization.
- Copies of the environmental audit reports shall be posted on the Defendant's company webpage accessible to the public.
- Subject to the approval of the CAM, the Defendant may redact confidential business information or any information it reasonably believes could impair the security of its operations before such audits or reports are posted for public access.
- The CAM shall inspect such proposed redactions to determine the propriety of the redactions.
- Notwithstanding the foregoing, unredacted copies shall be provided to the Court and the United States Probation Officer. The Defendant may seek to have the filings placed under seal to protect any information that the CAM has deemed to warrant redaction.
- The CAM will contemporaneously provide copies of the reports (as posted) to the United States Attorneys' Offices for the Eastern, Middle, and Western Districts of North Carolina; the Department of Justice - Environmental Crimes Section; the United States Environmental Protection Agency - Criminal Investigation Division; and the United States Environmental Protection Agency - Legal Counsel Division. If the reports contain redactions, any of these parties may inspect the redactions to determine the propriety of the redactions. The Court shall be the final arbiter of any challenge.

- (4) Toll-Free Hotline/Electronic Mail Inbox:
The Defendant, along with co-defendants DEBS and DEP, will establish and maintain a toll-free hotline that will be answered twenty-four (24) hours a day, seven (7) days a week, through which any person may report suspected violations of applicable environmental laws or regulations, or violations of the NECP or ECP-NC. The Defendant may utilize existing toll-free hotlines subject to approval by the CAM. In addition, the Defendant, along with co-defendants DEBS and DEP, shall create an electronic mail inbox accessible from its webpages and accessible through a share link, through which any employee of Duke Energy Corporation, its subsidiaries, or its affiliates, or any other person may report suspected violations of applicable environmental laws or regulations or violations of the NECP or ECP-NC.
- Co-defendant DEBS shall periodically apprise employees and the public of the availability of the toll-free hotline and electronic mail inbox by posting notices on the Internet, Intranet (known within Duke Energy Corporation as the "Portal"), by distributing notice via its electronic mail system, by providing notices in appropriate employee work areas, and by publication in community outlets.
 - All reports to the toll-free hotline or electronic mail inbox of suspected violations of applicable environmental requirements, the NECP, or the ECP-NC shall promptly be provided to the appropriate CO for further action, and the appropriate CO shall maintain a record of the investigation and disposition of each such matter and disclose such matters in reports to the CAM.
- (5) Environmental Training Program: The Defendant, along with co-defendants DEBS and

DEP, shall adopt, implement, and enforce a comprehensive training program to educate all domestic employees of Duke Energy Corporation and its wholly-owned or operated affiliates on the environmental impact of coal ash impoundment operations and to be aware of the procedures and policies that form the basis of the NECP and ECP-NC.

- The goal of this training program is to ensure that every domestic employee of Duke Energy Corporation and its wholly-owned or operated affiliates understands applicable compliance policies and is able to integrate the compliance objectives in the performance of his/her job. The training shall include applicable notice and reporting requirements in the event of a release or discharge. Subject to the approval of the CAM, the Defendant may develop different training programs that are tailored to the employee's specific job description and responsibilities as long as the overall goal of the training requirement is met.
- Additionally, the Defendant and co-defendants DEBS and DEP shall provide training and written materials describing the safe and proper handling of pollutants, hazardous substances, and/or wastes.
- Copies of all written materials and training curricula shall be provided to the CAM.

vi. Statewide ECP: The ECP-NC, in addition to incorporating all of the requirements of the NECP, shall include, among other things, the following conditions:

- (1) Point of Contact ("POC"): With respect to each of its facilities with coal ash impoundments in North Carolina, the Defendant and co-defendant DEBS shall identify or establish a POC for the CAM

within each of the following three business services: (1) ABSAT; (2) Environmental, Health & Safety; and (3) Coal Combustion Products.

(2) Environmental Audits: Within the first ninety (90) days of his/her appointment, the CAM shall establish a schedule for conducting environmental audits of each of the Defendant's facilities with coal ash impoundments in North Carolina on an annual basis.

- Each year the Defendant can request that the CAM accept any full environmental audit prepared by ABSAT or a similar organization in that same calendar year for two of its facilities subject to the audits. The Defendant cannot make the request for the same facilities in consecutive years.
- The CAM can reject any such request by the Defendant if the CAM concludes that the proposed environmental audit is not sufficiently comprehensive or not prepared by a competent organization.
- Copies of the environmental audit reports shall be posted on the Defendant's company webpage accessible to the public.
- Subject to the approval of the CAM, the Defendant may redact confidential business information or any information it reasonably believes could impair the security of its operations before such audits or reports are posted for public access.
- The CAM shall inspect such proposed redactions to determine the propriety of the redactions.
- Notwithstanding the foregoing, unredacted copies shall be provided to the Court and

the United States Probation Officer. The Defendant may seek to have the filings placed under seal to protect any information that the CAM has deemed to warrant redaction.

- The CAM will contemporaneously provide copies of the reports (as posted) to the United States Attorneys' Offices for the Eastern, Middle, and Western Districts of North Carolina; the Department of Justice - Environmental Crimes Section; the United States Environmental Protection Agency - Criminal Investigation Division; and the United States Environmental Protection Agency - Legal Counsel Division. If the reports contain redactions, any of these parties may inspect the redactions to determine the propriety of the redactions. The Court shall be the final arbiter of any challenge.
- v. The Defendant shall ensure that any new, expanded, or reopened coal ash or coal ash wastewater impoundment facilities are lined to ensure no unpermitted discharges of coal ash or coal ash wastewater to any water of the United States. This includes all engineered, channelized, or naturally occurring seeps.
- w. Recordkeeping of Coal Ash Impoundment Volumes: Every six months, the Defendant shall determine the volume of wastewater and coal ash in each of its wet-storage coal ash impoundments in North Carolina. Additional determinations shall be made following the conclusion of activities that significantly change the volumes of materials in the impoundments, including but not limited to temporary rerouting of waste streams other than sluiced coal ash to the ash impoundment, dredging, and dewatering. Written or electronic records of the volumes shall be maintained by the Defendant in a location(s) accessible to facility staff and to any of the Defendant's employees responsible for making environmental or emergency reports.

x. Bromide Remediation Claims and Costs:

i. Identification: Within the first year of probation, or within ninety (90) days of the installation of a new Flue Gas Desulfurization ("FGD") scrubber system thereafter, the Defendant shall identify:

(1) all facilities operated by it in North Carolina that utilize or will utilize FGD scrubbers that will result in an increase in bromide discharge into surface waters; and

(2) all local governments that are downstream from such FGD scrubbers and draw water into water treatment facilities.

ii. Notification: Within the first year of probation, or within ninety (90) days of the installation of a new FGD scrubber system thereafter, the Defendant shall: (1) notify in writing the identified local governments of the increase or potential increase in bromide discharge; and (2) cooperate in studies of whether there has been or will be an impact on these water treatment facilities. The Defendant shall further advise the local government of the claims process established by the CAM, as described below. The Defendant will further note that the local government is not obligated to submit a claim through the process, is not bound by any recommendation of the CAM, and may pursue any civil and/or administrative remedies available to it. Copies of such correspondence shall be provided to the CAM, United States Probation Officer, and each of the prosecuting districts.

iii. Claims Process: The CAM shall establish a procedure by which local governments that are downstream of the Defendant's facilities with FGD scrubbers and experience increases in trihalomethanes at their water treatment facilities related to increases in bromide released by those facilities may submit evidence of these impacts and claims for restitution stemming from these impacts.

- (1) In these claims, the local governments bear the burden of proving by a preponderance of the evidence to the CAM that trihalomethanes have increased and that the Defendant's facility's discharge of bromide substantially contributed to the increase.
 - (2) The Defendant shall be permitted an opportunity to respond to any evidence or material submitted by local governments in this process.
 - (3) The CAM shall review proposed remediation actions and costs or anticipated costs associated with investigating, responding to, and remediating increased bromides and trihalomethanes for reasonableness in determining the correct amount of restitution. The CAM shall issue a written decision on every claim submitted. If the CAM determines that restitution to a local government in any amount is appropriate, the Defendant shall also reimburse the local government for costs associated with investigating and preparing its submission to the CAM, including reasonable attorneys' fees.
- iv. Appeals Process: Once the written decision is issued, the Defendant or the local government may appeal the decision to the United States District Court. In such an appeal, the decision of the CAM shall be subject to a rebuttable presumption of correctness. If the Defendant unsuccessfully appeals a written decision of the CAM, the Defendant shall bear all of the costs of the appeal, including the costs of the CAM and the reasonable attorneys' fees of the local government, with the Court making the final determination of the reasonableness of such fees. If the Defendant is successful on appeal, the Defendant shall bear the costs of the CAM and the local government shall bear the costs of its attorneys' fees.

- v. Payment of Claims: Once the CAM has issued its written opinion, the Defendant shall pay the approved costs to the claimant within thirty (30) days of the opinion, unless it files an appeal to the United States District Court as provided above. If, after appeal, the Court concurs with the CAM's opinion approving such costs, the Defendant shall pay the approved costs to the claimant and submit proof of payment to the Court within thirty (30) days of the Court's opinion. Nothing in this subparagraph will bar the CAM or the Court from ordering a different payment schedule as appropriate.
- vi. Deadline for Filing Claims: Local governments shall have until sixty (60) days prior to the end of the five-year (5-year) probationary term to submit a claim.
- y. Force Majeure. For purposes of this Agreement, a "force majeure" is defined as any event arising from causes beyond the reasonable control of the Defendant, any entity controlled by the Defendant, or its contractors that delays or prevents performance of any obligation despite the best efforts to fulfill the obligation and includes but is not limited to war, terrorism, civil unrest, labor dispute, act of God, change in law making performance impossible, or act of a governmental or regulatory body delaying performance or making performance impossible, including, without limitation, any appeal or decision remanding, overturning, modifying, or otherwise acting (or failing to act) on a permit or similar permission or action that prevents or delays an action needed for the performance of any work such that it prevents or substantially interferes with the Defendant's ability to perform. Force majeure does not include financial inability to complete the work, increased cost of performance, or changes in business or economic circumstances.
 - i. If the Defendant seeks to rely on "force majeure" to excuse performance or timely performance with any term of this Agreement, the Defendant must apply to the CAM with copies of such application provided to the Government and the United States Probation Officer.

- ii. The final determination of "force majeure" shall be made by the Court with the advice and recommendation from the CAM.
- iii. If the Court concludes that the Defendant's failure to fulfill an obligation of this Agreement was not excused by a "force majeure," the Court may impose and the Government will be entitled to seek additional monetary penalties.
- z. Funding of NECP and ECP-NC: A failure to fund or implement the NECP or ECP-NC during its term of probation would constitute a breach of this Agreement by the Defendant, and the Defendant shall be subject to prosecution for any federal criminal violation not barred by the applicable statute of limitations (or as waived pursuant to Paragraph 3(hh)) or other legal prohibition. Any information provided by the Defendant may be used against the Defendant in such a prosecution.
- aa. Community Service Payment: In addition to the community service payment made by co-defendant DEP, the Defendant, as guaranteed by Duke Energy Corporation and set forth in the Guaranty attached to this Agreement, shall pay \$13.5 million (\$13,500,000) to the National Fish and Wildlife Foundation ("NFWF"), a nonprofit organization established pursuant to 16 U.S.C. §§ 3701-3710, as community service by an organization. With respect to the work described in this Paragraph below, the Defendant shall assume no responsibilities or obligations other than making the payments described in Paragraph 3(aa)(i) below. The Defendant shall not seek any reduction in its tax obligations as a result of these community service payments nor shall the Defendant characterize, publicize, or refer to these payments as voluntary donations or contributions. Additionally, the Defendant shall not seek or take credit for any project performed using funds disbursed by NFWF pursuant to this Agreement in any related civil or administrative proceeding, including but not limited to, the Natural Resources Damages Assessment process.

- i. The Defendant will make the \$13.5 million (\$13,500,000) payment within sixty (60) days of entry of Judgment. Payments shall be made by certified check payable to the National Fish and Wildlife Foundation and mailed to the attention of its Chief Financial Officer at 1133 15th Street, NW, Suite 1100, Washington, DC 20005, and include a reference to the case number in this proceeding; or by electronic funds transfer in accordance with written instructions to be provided to the Defendant by NFWF at the time of transfer.
- ii. NFWF shall use the money it receives from the Defendant pursuant to this Agreement for the benefit, preservation, restoration, and improvement of the water resources of North Carolina and Virginia that have been impacted by the operation of coal ash storage ponds owned by the Defendant. NFWF shall conduct or fund projects in the following federal districts, in the following amounts:
 - (1) Eastern District of North Carolina: \$3.5 million (\$3,500,000);
 - (2) Middle District of North Carolina: \$3.5 million (\$3,500,000);
 - (3) Western District of North Carolina: \$3.5 million (\$3,500,000); and
 - (4) Eastern District of Virginia and Western District of Virginia: \$3 million (\$3,000,000).
- iii. The projects and initiatives considered by NFWF should include, but not be limited to: monitoring, study, restoration, and preservation of fish, wildlife, and plant resources; monitoring, study, clean up, remediation, sampling, and analysis of pollution and other threats to the riparian environment and ecosystem; research, study, planning, repair, maintenance, education, and public outreach relating to the riparian environment and ecosystem; environmental education and training

relating to the protection and preservation of riparian resources; and the protection and support of public drinking water systems.

- iv. The projects and initiatives considered by NFWF should be focused on the following river basins or watersheds: Broad River, Cape Fear River, Catawba River, Dan River, French Broad River, Lumber River, Roanoke River, Neuse River, and Yadkin River.. NFWF shall make every effort to fund at least one project and/or initiative in each of the river basins or watersheds.
- v. NFWF shall consult with appropriate state resource managers in North Carolina and Virginia, as well as federal resource managers, that have statutory authority for coordination or cooperation with private entities to help identify projects and maximize the environmental benefits of such projects. Specifically, NFWF should consult with the United States Environmental Protection Agency, the United States Fish and Wildlife Service, the United States Army Corps of Engineers, the North Carolina Department of Environment and Natural Resources, the North Carolina Wildlife Resources Commission, the Virginia Department of Environmental Quality, the Virginia Department of Conservation and Recreation, and the Virginia Department of Game and Inland Fisheries. NFWF shall further consult with localities as appropriate. NFWF is not bound by any recommendations from any of the state or federal agencies, resource managers, or localities consulted.
- vi. Projects shall be identified and funding obligated within five (5) years of the date of entry of Judgment in this case.
- vii. In identifying and selecting projects to receive funding pursuant to this Agreement and related Judgment, NFWF shall not incur liability of any nature in connection with any act or omission, made in good faith, in the administration of the funds or otherwise pursuant to this Agreement, excepting, however, liability resulting from

NFWF's gross negligence or willful misconduct. In addition, if and to the extent NFWF grants funds to or contracts with any governmental entity to implement any project under this Agreement and related Judgment: (a) NFWF shall be deemed to act solely as an administrative agent in contracting for, granting to, and disbursing funds for any such project; and (b) NFWF shall not be deemed to incur liability of any nature in connection with the design, engineering, construction, operation, or maintenance of any such project, including, without limitation, any impact or consequences of any such project on fish, wildlife, plant, or other natural resources, personal injury, or property damage.

viii. NFWF's use of funds received pursuant to this Agreement and related Judgment shall be subject to the reporting requirements of 16 U.S.C. § 3706. In addition, NFWF shall report to the United States Probation Office and to the parties regarding the status and disposition of money it has received pursuant to this Agreement and related Judgment, on at least an annual basis, until all such money has been spent.

bb. Mitigation: Within ninety (90) days of sentencing, in order to mitigate impacts to wetlands and other jurisdictional waters of the United States impacted as a result of the Defendant's operation of coal ash impoundments and any relevant criminal conduct, including temporal and secondary effects, at its facilities in North Carolina with coal ash impoundments, and in addition to the mitigation payment made by its co-defendant DEP, the Defendant shall provide \$5 million (\$5,000,000), which represents its share after apportionment of a total \$10 million (\$10,000,000) payment, to an authorized wetlands mitigation bank for the purchase of wetland and/or riparian land and/or restoration equivalent located in the Broad River Basin, French Broad River Basin, Cape Fear River Basin, Catawba River Basin, Dan River Basin, Yadkin-Pee Dee River Basin, Neuse River Basin, Lumber River Basin, and Roanoke River Basin. This mitigation payment is in addition to, and does not replace, Duke Energy Corporation's public commitment to fund its \$10 million

(\$10,000,000) Water Resources Fund for environmental and other philanthropic projects along lakes and rivers in the Southeast.

- i. Such wetland restoration shall be made through an authorized wetlands mitigation bank with no affiliation to any current or former employee of the North Carolina Department of Environment and Natural Resources in that employee's individual capacity.
- ii. The Defendant, along with its co-defendants DEBS and DEP, shall provide a list of three (3) proposed mitigation banks from which the Court will select the mitigation bank to receive the funds. If the Defendant is unable after reasonable efforts to identify one or more mitigation banks, the Defendant may substitute one or more conservation trust funds within the State of North Carolina in its proposal as long as all other conditions of this section are being met.
- iii. Such property must be purchased in the State of North Carolina by the selected authorized wetlands mitigation bank or conservation trust within four (4) years from the date of entry of Judgment.
- iv. Such property shall be held by and titled in the name of a third-party (with no affiliation to the Defendant or any of the Defendant's sister or parent corporations).
- v. Such property shall be held in permanent conservation status for the benefit of the citizens of North Carolina.
- vi. The Defendant shall ensure that the selected authorized wetlands mitigation bank or conservation trust provides a full accounting of all mitigation property purchased to the Court and the CAM, and documentary evidence that the property has been placed in permanent conservation status.

- cc. No Credit in Civil or Administrative Proceedings: The Defendant shall not seek or take credit for any fine, restitution, community service payment, mitigation payment, or funding of the environmental compliance plan (including the costs associated with the hiring or payment of staff or consultants needed to assist the CAM) under this Agreement in any related civil or administrative proceeding, including, but not limited to, the Natural Resources Damages Assessment process.
- dd. No Capitalization or Tax Deduction: The Defendant shall agree that: (1) it shall not capitalize into inventory or basis or take as a tax deduction, in the United States or elsewhere, any portion of the monetary payments (fine, restitution, community service, mitigation, or funding of the environmental compliance plans) made pursuant to this Agreement. Provided, however, that nothing in this Agreement shall bar or prevent the Defendant from appropriately capitalizing or seeking an appropriate tax deduction for restitution in connection with the remediation of bromide claims set forth in this Agreement or for costs which would have been incurred by the Defendant irrespective of the environmental compliance plans. Costs that would have been incurred irrespective of the environmental compliance plans include, by way of example only, costs for staffing and operating Central Engineering Services, ABSAT, Coal Combustion Products, or other similar organizations.
- ee. No Rate Increase Based Upon Monetary Penalties: The Defendant shall not reference the burden of, or the cost associated with, compliance with the criminal fines, the restitution related to counts of conviction, the community service payments, the mitigation obligation, the costs of the clean-up in response to the February 2, 2014, release at Dan River Steam Station, and/or the funding of the environmental compliance plans in any request or application for a rate increase on customers. Provided, however, that nothing in this Agreement shall bar or prevent the Defendant from seeking appropriate recovery for restitution in connection with the remediation of bromide claims set forth in this Agreement or for costs which would have been incurred by the Defendant irrespective of the

environmental compliance plans. Costs that would have been incurred irrespective of the environmental compliance plans include, by way of example only, costs for staffing and operating Central Engineering Services, ABSAT, Coal Combustion Products, or other similar organizations.

- ff. Public Apology: Consistent with USSG §8D1.4(a), and in conjunction with its co-defendants DEBS and DEP, the Defendant shall place a full-page advertisement in at least two national newspapers and three major North Carolina newspapers (one in Raleigh, one in Greensboro, and one in Charlotte) and on its publicly accessible company website. The full page advertisement shall run within five (5) days of entry of the plea. The language of the public apology must be agreed upon by each of the federal districts and is appended to this Agreement as Exhibit C.
- gg. The Defendant shall not reference this Agreement, any payments pursuant hereto, or other compliance herewith in any public relations, marketing, or advertising. The Defendant shall be permitted to make required disclosures under applicable securities laws.
- hh. Tolling of Statute of Limitations: To ensure compliance with the terms of the Agreement, the Defendant waives any statute of limitations as of the date of this Agreement through the full term of Defendant's probation and until all of the Defendant's obligations under this Agreement have been satisfied with regard to any conduct relating to or arising out of the conduct set forth in the Criminal Informations.
- ii. The Defendant waives any claim under the Hyde Amendment, 18 U.S.C. § 3006A (Statutory Note), for attorneys' fees and other litigation expenses arising out of the investigation or prosecution of this matter.
- jj. The Defendant agrees to withdraw from and not to participate in any joint defense agreement, informal or formal, in connection with the defense by any person designated as a "target" or "subject" of, or indicted for, any potential criminal charges relating

to the Clean Water Act violations in North Carolina that are the subject of this Agreement and any allegations of violations of Title 18 of which the Defendant is aware or becomes aware. The Defendant agrees to submit a written statement, signed by counsel and the appropriate corporate officer, reflecting this commitment to the United States prior to entry of this Agreement.

- kk. Term of Supervised Probation: The Defendant and the Government agree that the Defendant shall be placed on organizational supervised probation for a period of five (5) years from the date of sentencing pursuant to 18 U.S.C. § 3561(c)(2) and USSG §§8D1.1 and 8D1.2.

4. The Defendant represents and/or acknowledges:

- a. That the Defendant has had the assistance of an attorney in connection with the charges against it. That the attorney has carefully reviewed this Agreement with those persons designated by law and its bylaws to act on behalf of the Defendant (hereinafter referred to as "Designated Corporate Representative") and that this Agreement has been signed by a person authorized by law and the bylaws of the Defendant to execute agreements on behalf of the Defendant.
- b. That its Designated Corporate Representative has reviewed and discussed the Criminal Informations filed in each of the federal districts involved in this matter with the Defendant's attorney and that the attorney has explained the Government's evidence to that Designated Corporate Representative.
- c. That as a corporation, it is vicariously liable for the criminal acts of its employees acting within the scope of their employment for the benefit of the corporation.
- d. That it understands that this Agreement does not provide or promise any waiver of any civil or administrative actions, sanctions, or penalties that may apply, including but not limited to fines; penalties; claims for damages to natural resources; suspension, debarment, listing to restrict rights and

opportunities of the Defendant to contract with or receive assistance, loans, and benefits from United States agencies; licensing; injunctive relief; or remedial action to comply with any applicable regulatory requirement. The Defendant understands that this Agreement has no effect on any proceedings against any party not expressly mentioned herein, including the actual or potential criminal liability of any individuals.

- e. Guaranty: That it has sought and obtained a guarantee of its obligations under this Agreement from its parent holding company, Duke Energy Corporation, a copy of which is attached hereto as Exhibit B and incorporated herein by reference. Duke Energy Corporation further consents to the jurisdiction of the United States District Court for the Eastern District of North Carolina for the purpose of enforcing the Guaranty Agreement.
- f. Resolution: That it has filed with the Court prior to entry of this Agreement the original resolution from the board of directors (or equivalent written authorization as recognized by law) that gives the authority described in Paragraph 4(a) above to the Designated Corporate Representative and that authorizes such employee to execute this Agreement on behalf of the Defendant. A copy of the Resolution, attached hereto as Exhibit D, provides as follows:
 - i. The Defendant is a legally viable entity, authorized to plead guilty to the charges set forth in the Criminal Informations;
 - ii. The Defendant shall be bound by the specific terms of this Agreement;
 - iii. The parent corporation, Duke Energy Corporation, is authorized to guarantee all payments (criminal fine, restitution, community service, and mitigation), and funding and performance due from the Defendant in connection with its obligations under the NECP and ECP-NC under this Agreement, as set forth in the Guaranty Agreement.
 - iv. Any legal successor or assignee of Duke Energy Corporation shall remain liable, as the case may

be, for the guarantee of the Defendant's payment obligations and the funding and performance of both the NECP and ECP-NC hereunder, and an agreement to so remain liable shall be included by Duke Energy Corporation in the terms of any sale, acquisition, or merger.

- v. Any legal successor or assignee of the Defendant shall remain liable for the Defendant's obligations in this Agreement, and an agreement to so remain liable shall be included by the Defendant in the terms of any sale, acquisition, or merger of the Defendant with or by any other entity. Subject to the requirements of this subparagraph, nothing shall prevent the Defendant from undergoing a corporate reorganization or change in form. The Defendant shall record a copy of the Judgment with the Register of Deeds in each of the counties in North Carolina in which it owns and operates facilities with coal ash impoundments. Upon written request from the Defendant made only after fulfillment of all of the conditions of this Agreement and related Judgment, the Government shall take the necessary steps through the Register of Deeds to facilitate the removal of the notice of the Judgment.

5. The Defendant understands, agrees, and admits:

- a. That as to each Count of the Criminal Informations to which the Defendant is pleading guilty, the charge, code section, elements, and applicable penalties are as follows:

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United States v. Duke Energy Business Services LLC,
Duke Energy Carolinas, LLC, and Duke Energy Progress, Inc.,
No. 5:15-CR-67-H-2¹

Violations at Dan River Steam Station

COUNT ONE

- (1) Clean Water Act violation for the unpermitted discharge through the 48-inch stormwater pipe at the Dan River Steam Station and aiding and abetting
- (2) Code Sections violated: 33 U.S.C. §§ 1311, 1319(c)(1)(A), and 1342; and 18 U.S.C. § 2
- (3) Offense date: No later than February 2, 2014, through February 8, 2014
- (4) Elements of the Offense:
 - First: The Defendant did discharge a pollutant, to wit, coal ash and coal ash wastewater;
 - Second: from a point source;
 - Third: into a water of the United States;
 - Four: the Defendant did so without a permit;
 - Five: the Defendant acted negligently in so doing; and
 - Six: the Defendant aided and abetted another in so doing.
- (5) Maximum term of probation for a corporation: 5 years pursuant to 18 U.S.C. § 3561(c)(2) and USSG §8D1.2(a)(2)

¹Counts Five and Six are captured by the Plea Agreement in United States v. Duke Energy Progress, Inc., No. 5:15-CR-62-H-2; No. 5:15-CR-67-H-3; and No. 5:15-CR-68-H-3.

- (6) Minimum term of probation for a corporation:
0 years pursuant to 18 U.S.C. § 3561(c)(2) and
USSG §8D1.2(a)(2)
- (7) Maximum fine: Pursuant to 18 U.S.C. § 3571(c)
and (d), the greater of: not less than \$2,500 nor
more than \$25,000 per day of violation (33 U.S.C.
§ 1319(c)(1)(A)); \$200,000.00; or twice the gross
gain or loss.
- (8) : Restitution pursuant to 18 U.S.C. §§ 3663, 3663A,
and 3563(b)(2) as agreed to in Paragraphs 2(iv)-
(v) and 3(b)-(c) above.
- (9) Special assessment: \$ 125.00
- (10) Other penalties: Public Notice of Violation;
Development of a Compliance Program; Community
Service; and Remediation

COUNT TWO

- (1) Clean Water Act violation for the failure to
maintain the 48-inch stormwater pipe at the Dan
River Steam Station and aiding and abetting
- (2) Code Sections
violated: 33 U.S.C. §§ 1319(c)(1)(A),
and 1342; and
18 U.S.C. § 2
- (3) Offense date: No later than January 2012,
through February 2, 2014
- (4) Elements of the Offense:

First: The Defendant did violate a condition of
its NDPES permit issued by the State of
North Carolina pursuant to the Clean
Water Act; to wit, the requirement to
properly maintain its equipment as more
fully described in the Criminal
Information;

Second: the Defendant acted negligently in so
doing; and

Third: the Defendant aided and abetted another
in so doing.

- (5) Maximum term of probation for a corporation:
5 years pursuant to 18 U.S.C. § 3561(c)(2) and
USSG §8D1.2(a)(2)
- (6) Minimum term of probation for a corporation:
0 years pursuant to 18 U.S.C. § 3561(c)(2) and
USSG §8D1.2(a)(2)
- (7) Maximum fine: Pursuant to 18 U.S.C. § 3571(c)
and (d), the greater of not less than \$2,500 nor
more than \$25,000 per day of violation (33 U.S.C.
§ 1319(c)(1)(A)); \$ 200,000.00; or twice the
gross gain or loss.
- (8) Restitution pursuant to 18 U.S.C. §§ 3663, 3663A,
and 3563(b)(2) as agreed to in Paragraphs 2(iv) -
(v) and 3(b)-(c) above.
- (9) Special assessment: \$ 125.00
- (10) Other penalties: Public Notice of Violation;
Development of a Compliance Program; Community
Service; and Remediation

COUNT THREE

- (1) Clean Water Act violation for the unpermitted
discharge through the 36-inch stormwater pipe at
the Dan River Steam Station and aiding and
abetting
- (2) Code Sections
violated: 33 U.S.C. §§ 1311, 1319(c)(1)(A)
and 1342; and
18 U.S.C. § 2
- (3) Offense date: No later than January 2012
through February 21, 2014

(4) Elements of the Offense:

First: The Defendant did discharge a pollutant, to wit, coal ash and coal ash wastewater;

Second: from a point source;

Third: into a water of the United States;

Four: the Defendant did so without a permit;

Five: the Defendant acted negligently in so doing; and

Six: the Defendant aided and abetted another in so doing.

(5) Maximum term of probation for a corporation:
5 years pursuant to 18 U.S.C. § 3561(c)(2) and USSG §8D1.2(a)(2)

(6) Minimum term of probation for a corporation:
0 years pursuant to 18 U.S.C. § 3561(c)(2) and USSG §8D1.2(a)(2)

(7) Maximum fine: Pursuant to 18 U.S.C. § 3571(c) and (d), the greater of: not less than \$2,500 nor more than \$25,000 per day of violation (33 U.S.C. § 1319(c)(1)(A)); \$200,000.00; or twice the gross gain or loss.

(8) Restitution pursuant to 18 U.S.C. §§ 3663, 3663A, and 3563(b)(2) as agreed to in Paragraphs 2(iv) - (v) and 3(b)-(c) above.

(9) Special assessment: \$ 125.00

(10) Other penalties: Public Notice of Violation; Development of a Compliance Program; Community Service; and Remediation

COUNT FOUR

- (1) Clean Water Act violation for the failure to maintain the 36-inch stormwater pipe at the Dan River Steam Station and aiding and abetting
- (2) Code Sections violated: 33 U.S.C. §§ 1319(c)(1)(A), and 1342; and 18 U.S.C. § 2
- (3) Offense date: No later than January 2012, through February 6, 2014
- (4) Elements of the Offense:
 - First: The Defendant did violate a condition of its NDPES permit issued by the State of North Carolina pursuant to the Clean Water Act; to wit, the requirement to properly maintain its equipment as more fully described in the Criminal Information;
 - Second: the Defendant acted negligently in so doing; and
 - Third: the Defendant aided and abetted another in so doing.
- (5) Maximum term of probation for a corporation: 5 years pursuant to 18 U.S.C. § 3561(c)(2) and USSG §8D1.2(a)(2)
- (6) Minimum term of probation for a corporation: 0 years pursuant to 18 U.S.C. § 3561(c)(2) and USSG §8D1.2(a)(2)
- (7) Maximum fine: Pursuant to 18 U.S.C. § 3571(c) and (d), the greater of: not less than \$2,500 nor more than \$25,000 per day of violation (33 U.S.C. § 1319(c)(1)(A)); \$200,000.00; or twice the gross gain or loss.
- (8) Restitution pursuant to 18 U.S.C. §§ 3663, 3663A, and 3563(b)(2) as agreed to in Paragraphs 2(iv) - (v) and 3(b)-(c) above.

- (9) Special assessment: \$ 125.00
- (10) Other penalties: Public Notice of Violation;
Development of a Compliance Program; Community
Service; and Remediation

United States v. Duke Energy Business Services LLC,
Duke Energy Carolinas, LLC, and Duke Energy Progress, Inc.,
No. 5:15-CR-68-H-2²

VIOLATIONS AT RIVERBEND STEAM STATION

COUNT ONE

- (1) Clean Water Act violation for the unpermitted discharge from a toe drain at the ash impoundment at Riverbend Steam Station and aiding and abetting
- (2) Code Sections violated: 33 U.S.C. §§ 1311, 1319(c)(1)(A), and 1342; and 18 U.S.C. § 2
- (3) Offense date: No later than November 8, 2012, through December 30, 2014
- (4) Elements of the Offense:
 - First: The Defendant did discharge a pollutant, to wit, coal ash and coal ash wastewater;
 - Second: from a point source;
 - Third: into a water of the United States;
 - Four: the Defendant did so in violation of a permit;

²Count Two is captured by the Plea Agreement in United States v. Duke Energy Progress, Inc., No. 5:15-CR-62-H-2; No. 5:15-CR-67-H-3; and No. 5:15-CR-68-H-3.

Five: the Defendant acted negligently in so doing; and

Six: the Defendant aided and abetted another in so doing.

- (5) Maximum term of probation for a corporation:
5 years pursuant to 18 U.S.C. § 3561(c)(2) and USSG §8D1.2(a)(2)
- (6) Minimum term of probation for a corporation:
0 years pursuant to 18 U.S.C. § 3561(c)(2) and USSG §8D1.2(a)(2)
- (7) Maximum fine: Pursuant to 18 U.S.C. § 3571(c) and (d), the greater of: not less than \$2,500 nor more than \$25,000 per day of violation (33 U.S.C. § 1319(c)(1)(A)); \$200,000.00; or twice the gross gain or loss.
- (8) Restitution pursuant to 18 U.S.C. §§ 3663, 3663A, and 3563(b)(2) as agreed to in Paragraphs 2(iv) - (v) and 3(b)-(c) above.
- (9) Special assessment: \$ 125.00
- (10) Other penalties: Public Notice of Violation; Development of a Compliance Program; Community Service; and Remediation

Total Statutory Penalties: 5 years of probation; a minimum fine of \$45,740,000; a maximum fine of \$115,375,000; and \$625.00 special assessment.

6. The United States agrees:

- a. That pursuant to Fed. R. Crim. P. 11(c)(1)(C), the sentence set forth in Paragraph 2 above is warranted.
- b. That it reserves the right at sentencing to present any evidence and information pursuant to 18 U.S.C. § 3661, to offer argument or rebuttal, to recommend imposition of restitution, and to respond to any motions or objections filed by the Defendant.
- c. That, subject to the reservations within this Agreement, the United States shall not further

prosecute the Defendant, including all predecessors, successors, and assignees of the Defendant, for conduct constituting the basis for the Criminal Informations covered by this Agreement as set forth in the Joint Factual Statement or about which the United States Attorneys' Offices for the Eastern, Middle, and Western Districts and the Department of Justice - Environmental Crimes Section were otherwise aware of as of the date of this Agreement. This Agreement shall not apply to individuals. Should the Court determine that the Defendant has breached this Agreement, the Defendant will not be entitled to withdraw its plea of guilty, and the United States may prosecute the Defendant, and any predecessors, successors, and assignees of the Defendant for conduct constituting the basis for the Criminal Informations covered by this Agreement, notwithstanding the expiration of any applicable statutes of limitations following the signing of this Agreement. In any such prosecution, the United States may use the Defendant's admissions of guilt as admissible evidence against the Defendant.

- d. That it will make known to the Court at sentencing the full extent of the Defendant's cooperation.
- e. Pursuant to USSG §1B1.8, that self-incriminating information provided by the Defendant pursuant to this Agreement shall not be used against the Defendant in determining the applicable advisory Guideline range, except as provided by USSG §1B1.8 and except as stated in this Agreement. The United States may provide to the United States Probation Office any evidence concerning relevant conduct.
- f. Notwithstanding the foregoing, the United States Attorneys' Offices for the Eastern, Middle, and Western Districts of North Carolina and the Department of Justice - Environmental Crimes Section further recognize that this Agreement does not provide or promise any waiver of any civil or administrative actions, sanctions, or penalties that may apply, including but not limited to: fines; penalties; claims for damages to natural resources; suspension, debarment, listing to restrict rights and opportunities of the Defendant to contract with or receive assistance, loans, and benefits from United

States agencies; licensing; injunctive relief; or
remedial action to comply with any applicable
regulatory requirement.

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OFFICIAL COPY
OFFICIAL COPY

Jan 24 2018
Apr 30 2019

SO AGREED, THIS 20th DAY OF FEBRUARY, 2015.

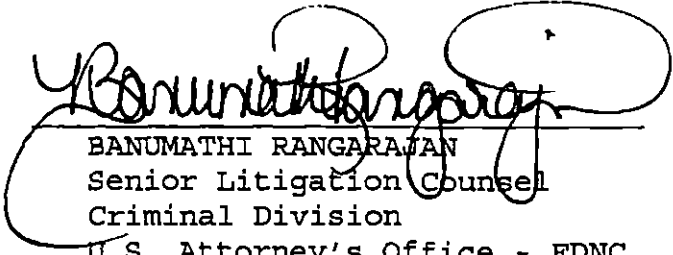
THOMAS G. WALKER
U.S. Attorney
Eastern District of North Carolina
North Carolina

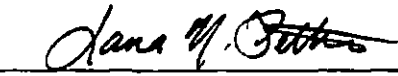
JOHN C. CRUDEN
Assistant Attorney General
Department of Justice
Environment and Natural
Resources Division


JILL WESTMORELAND ROSE
Attorney for the United States
Acting Under Authority
Conferred by 28 USC §515
Western District of North Carolina


CLIFTON T. BARRETT
Attorney for the United States
Acting Under Authority
Conferred by 28 USC §515
Middle District of North Carolina

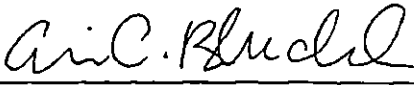
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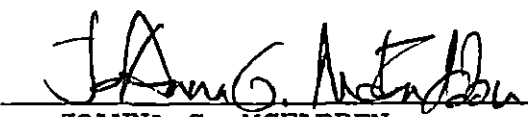

BANUMATHI RANGARAJAN
Senior Litigation Counsel
Criminal Division
U.S. Attorney's Office - EDNC

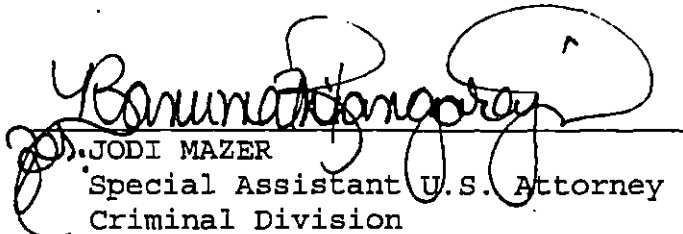

LANA N. PETTUS
Senior Trial Attorney
Environmental Crimes Section
U.S. Department of Justice

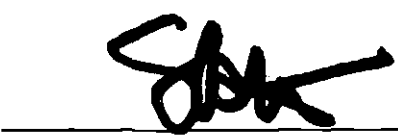

SETH M. WOOD
Assistant U.S. Attorney
Appellate Division
U.S. Attorney's Office - EDNC


STEPHEN INMAN
Deputy Chief
Criminal Division
U.S. Attorney's Office - MDNC


ERIN C. BLONDEL
Assistant U.S. Attorney
Criminal Division
U.S. Attorney's Office - EDNC


JOANNA G. MCFADDEN
Assistant U.S. Attorney
Criminal Division
U.S. Attorney's Office - MDNC


JODI MAZER
Special Assistant U.S. Attorney
Criminal Division
U.S. Attorney's Office - EDNC

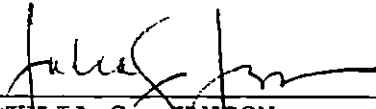

STEVEN R. KAUFMAN
Assistant U.S. Attorney
Criminal Division
U.S. Attorney's Office - WDNC

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OFFICIAL COPY


Jan 24 2018
Apr 30 2019

SO AGREED, THIS 20 DAY OF FEBRUARY, 2015.

DUKE ENERGY CAROLINAS, LLC
Defendant

BY: 

JULIA S. JANSON
Executive Vice-President,
Chief Legal Officer, and Corporate
Secretary
DUKE ENERGY CAROLINAS, LLC and
Authorized Designated Official for
DUKE ENERGY CAROLINAS, LLC



JAMES P. COONEY, III
Womble Carlyle Sandridge & Rice LLP
Counsel for the Defendant

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OFFICIAL COPY

Jan 24 2018
Apr 30 2019

The undersigned, Lynn J. Good, President and Chief Executive Officer of Duke Energy Corporation, the Guarantor, hereby acknowledges the terms and conditions of the foregoing Plea Agreement as they apply to the Guaranty set forth in Exhibit B.

SO ACKNOWLEDGED, THIS 20 DAY OF FEBRUARY, 2015.

DUKE ENERGY CORPORATION
Guarantor

BY: _____

Lynn J. Good
LYNN J. GOOD
President and
Chief Executive Officer
DUKE ENERGY CORPORATION

J. P. Cooney, III
JAMES P. COONEY, III
Womble Carlyle Sandridge & Rice, LLP
Counsel for the Guarantor

APPROVED, this 14th day of May, 2015.

Michael J. Murphy
UNITED STATES DISTRICT JUDGE

OFFICIAL COPY
OFFICIAL COPY

Jan 24 2018
Apr 30 2019

Doc. Ex. 273

AEGIS / #CP-4L

STANDSTILL AGREEMENT

1. This Standstill Agreement ("Agreement") is entered into by Associated Electric & Gas Insurance Services, Limited ("AEGIS") by and through Aegis Insurance Services, Inc. ("AISI"), its Managing General Agent, and Carolina Power & Light Company, its subsidiaries, divisions and affiliates ("Policyholder"), and shall become effective the ____ day of August 1996 and shall remain in effect for a period of 180 days or until this Agreement is terminated by either party pursuant to paragraph 19, infra, whichever occurs first in time. (This period will hereinafter be referred to as the "Standstill Period"). The time period may be extended by written consent of the parties.

2. The purpose of this Agreement is to provide the parties an opportunity to cooperate with respect to ENVIRONMENTAL CLAIMS and to resolve related insurance issues in a cost-effective and non-confrontational manner, while preserving their respective rights and defenses. The parties will use their best efforts to develop all information necessary to resolve such issues.

3. For the purposes of this Agreement, with respect to named sites listed in Appendix A, ENVIRONMENTAL CLAIMS are those matters which involve the actual, alleged or threatened discharge, dispersal, release or escape into or presence in the environment, of any pollutant, chemical, hazardous substance, waste, or other substance alleged to be actually or potentially harmful to health, the environment or property.

4. During the term of this Agreement, no party to this Agreement will institute suit against another party to this Agreement regarding coverage for ENVIRONMENTAL CLAIMS under any AEGIS policy of insurance. However, the notice requirements of the AEGIS policies remain in effect. During the Standstill Period, no substantive or procedural rights or duties of the Policyholder or AEGIS will change except as provided for in this Agreement; the parties intend by this provision that neither the Policyholder nor AEGIS shall legally benefit in any way or be prejudiced in any way during the Standstill Period or from the fact of entering into this Agreement. All statutes of limitation, laches, waiver, estoppel, or other defenses or causes of action will be tolled during the Standstill Period; any defense, contention, argument, privilege or legal right that existed prior to the Standstill Period will be preserved to the same extent it existed and without limitation.

5. AEGIS agrees that it will not institute litigation against Policyholder for a period of fourteen (14) days commencing from the termination of this Agreement. AEGIS shall be free to institute suit on the fifteenth (15) day after termination.

6. Any expert retained by the Policyholder or AEGIS specifically for these compromise negotiations shall be considered a "Settlement Expert." If after designating an expert as a Settlement Expert the Policyholder or AEGIS uses or relies upon its Settlement Expert for any purpose other than compromise negotiations, the expert(s) shall cease to be considered a Settlement Expert, ab initio.

OFFICIAL COPY

Apr 30 2019

7. The Policyholder or AEGIS may designate as a "Confidential Settlement Document" any document prepared by a Settlement Expert for the purpose of these compromise negotiations. Such documents immediately cease to be considered a Confidential Settlement Document if, without the designation as such, if: the document is properly obtained through discovery in the compromise negotiations between the Policyholder and AEGIS; or the document was used as a Confidential Settlement Document in any litigation between the Policyholder and AEGIS; or the document ceases to be considered a Settlement Expert by virtue of paragraph 6 above.

8. Confidential Settlement Documents will not be admissible in any litigation, arbitration, or other contested proceeding involving the Policyholder and AEGIS. The Policyholder shall not disclose the existence, substance, or author(s) of any Confidential Settlement Documents or the identity of any Settlement Expert. The Policyholder and AEGIS shall not seek discovery of Confidential Settlement Documents or Settlement Experts, except the Policyholder or AEGIS may seek discovery of otherwise discoverable information if the Settlement Expert is designated as an expert to testify at trial or has knowledge of facts learned other than in the course of serving as a Settlement Expert (in which case such discovery may be limited to information or documents not protected herein). Policyholder and AEGIS reserve all their objections to any such discovery sought from such experts. The Policyholder and AEGIS shall return all originals and copies of a Confidential Settlement Document upon the other party's request for that document.

9. To the extent that a party to this Agreement disputes whether the restrictions of this Agreement apply in any given context, the party seeking to be relieved of the restrictions may seek a court ruling concerning the confidentiality of a Confidential Settlement Document or other confidential information subject to the restrictions of this Agreement. The restrictions of this Agreement shall remain in full force pending the Court's ruling.

10. The designation of any document in compromise negotiations that would otherwise be subject to the attorney-client privilege or work product doctrine shall not constitute a waiver of the right to assert privilege or protection with respect to that document.

11. The Policyholder and AEGIS do not intend by this Agreement to waive any protection provided by Federal Rule of Evidence 408 ("Rule 408") or Federal Rule of Civil Procedure 26(b)(4)(B) for nontestifying experts and documents containing privileged attorney-client communications or attorney work product, including any Settlement Expert who is designated as a Settlement Expert pursuant to paragraph 6 above and any Confidential Settlement Document that ceases to be a Confidential Settlement Document.

12. Both during the Standstill Period and subsequent to it, the Policyholder and AEGIS agree not to reveal to any party or person (excluding employees, counsel, agents or insurers of AEGIS or the Policyholder) not present at or otherwise participating in the compromise negotiations or the substance of any discussion or other oral or written communications that take place during the negotiations of the substance of any Confidential Settlement Documents. The Policyholder and AEGIS further agree not to disclose to any person (excluding employees, counsel or agents of AEGIS or the Policyholder) not present at or otherwise participating in the compromise negotiations the identity of any person or persons or organizations (including any experts specially retained by the Policyholder or AEGIS for the compromise negotiations) involved in drafting documents designated by the Policyholder or AEGIS as a Confidential Settlement Document, both during the Standstill Period and subsequent to it.

13. In the event either party to this Agreement is subpoenaed to testify about the contents of any confidential Settlement Document(s) or other confidential information subject to the restrictions of this Agreement, or is subpoenaed to produce any Confidential Settlement Document(s), written notice and a copy of the subpoena shall be given to the other party within ten (10) days of receipt of the subpoena (or sooner if the subpoena is returnable in less than ten days). In addition, the party receiving the subpoena shall use its best efforts to prevent discovery of any information subject to the restrictions of this Agreement and of any Confidential Settlement Document(s) and shall assert such reasonable objections to the subpoena as the other party may request in writing.

14. The parties will not be required during the term of this Agreement to formulate or communicate any formal position regarding the possible existence or nonexistence of coverage for ENVIRONMENTAL CLAIMS under any AEGIS policy, or to formally reserve their respective rights, but they shall not be precluded from doing so.

15. The Policyholder will notify AEGIS of any settlement demands or offers to compromise any ENVIRONMENTAL CLAIM against the Policyholder, and will not settle or compromise any ENVIRONMENTAL CLAIM against the Policyholder without first notifying AEGIS.

16. The Policyholder shall respond promptly to all reasonable inquiries made by AEGIS. All reports, communications and notices relating to this AGREEMENT shall be directed as follows:

- A. AEGIS
ENVIRONMENTAL CLAIM
William Dunn, Litigation Counsel
AEGIS Insurance Services, Inc.
10 Exchange Place
Jersey City, NJ 07302

B. POLICYHOLDER
Lisa Cooper, Esq.
Carolina Power & Light Company
P.O. Box 1551
Raleigh, North Carolina 27602
and
Richard Fields
Lawrence Eisenstein
Swidler & Berlin
3000 K Street NW
Washington DC 20007

17. The resolution of any issues subject to this Agreement shall not set any precedent with respect to any legal or factual issue raised in any other dispute or litigation whether or not subject to this Agreement, unless the parties agree otherwise.

18. This Agreement is not intended to be an insurance policy interpretation or modification.

19. Either party may terminate this Agreement, at any time, by transmitting a letter by both telecopier and first class mail, during a business day, to the other party advising them of termination. Termination shall be effective on the day of receipt of the letter, as specified above. Immediately upon cancellation or expiration of this Agreement, all limitations and laches periods will resume, excepting only that the Standstill Period will be excluded and omitted from any calculations of time periods or periods of alleged delay.

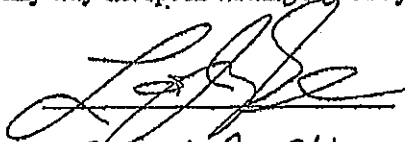
20. Compromise negotiations and Confidential Settlement Documents shall be considered "statements made in compromise negotiations" within the meaning of Rule 408 and thus subject to the protection of Rule 408.

21. This Agreement and its contents may not be used or relied upon in any judicial or quasi judicial proceeding for any purpose whatsoever except for purposes of preservation of the rights, duties, defenses, and arguments set forth above.

22. This Agreement is intended to facilitate and to encourage settlement and should be liberally construed and specifically enforced by the courts to enjoin or dismiss any action filed in breach of this Agreement in order to effectuate that purpose.

23. The terms of this Agreement constitute the entire Agreement and shall remain in effect until terminated by either party. The Agreement may not be modified, altered or changed in any way except in writing signed by duly authorized representatives of the parties.

BY:



TITLE:

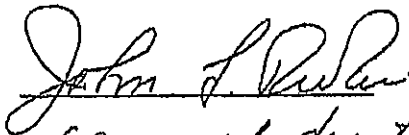
Counsel for CPL

COMPANY: Carolina Power & Light Company

DATE:

8/19/96

BY:



TITLE:

Counsel for AECIS

COMPANY:

AECIS

DATE:

8/22/96

APPENDIX A

Asheville MGP
Asheville St. Car & Gas Works
Durham MGP
Fayetteville MGP
Goldsboro MGP
Kinston MGP
New Bern MGP
Raleigh No. 1 MGP
Raleigh No. 2 MGP
Washington MGP
Wilmington MGP

Cape Fear Ash Ponds
Lee Ash Ponds
Robinson Ash Pond
Roxboro Ash Management Areas
Sutton Ash Ponds
Weatherspoon Ash Ponds

Fayetteville Substation
Jmelco, Little Rock, AR
Wilmington Oil Terminal
Waterville Lake

Extended to May 31, 1997

Doc. Ex. 280

EXTENSION OF STANDSTILL AGREEMENT

IT IS HEREBY UNDERSTOOD AND AGREED BY CAROLINA POWER & LIGHT COMPANY AND AEGIS, AS FOLLOWS:

The Standstill Agreement entered between the Insureds, Carolina Power & Light Company and AEGIS, is extended to May 31, 1997. All other terms and conditions of the Standstill Agreement remain the same.

BY:


John L. Rivkin

TITLE:

Counsel

COMPANY:

AEGIS

DATE:

2/28/97

BY:


Laurence J. Eisenstein

TITLE:

Counsel

COMPANY:

Carolina Power & Light Company

DATE:

February 28, 1997

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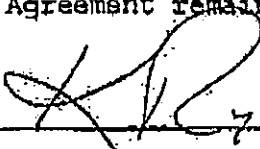
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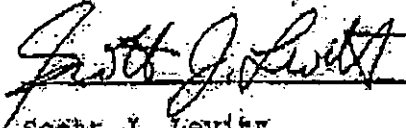
Extended to November 30, 2001

EXTENSION OF STANDSTILL AGREEMENT

IT IS HEREBY UNDERSTOOD AND AGREED BY CAROLINA POWER & LIGHT COMPANY AND ASSOCIATED ELECTRIC & GAS INSURANCE SERVICES, LIMITED ("AEGIS"), AS FOLLOWS:

The Standstill Agreement entered between the Insured, Carolina Power & Light Company, and AEGIS is extended to November 30, 2001. Appendix A of the Standstill Agreement shall be replaced with Appendix A, attached hereto. All other terms and conditions of the Standstill Agreement remain the same.


BY: Ken Ryan
TITLE: Counsel
COMPANY: AEGIS
DATE: 5/29/01


BY: Scott J. Levitt
TITLE: Counsel
COMPANY: Carolina Power & Light Company
DATE: May 10, 2001

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Apr 30 2019

APPENDIX A

Arcadian
Asheville Former Substation
Asheville MGP
Asheville St. Car & Gas Works
Bailey, NC Substation
Cape Fear Ash Ponds
Cherokee Oil
Durham MGP
Elliot's
Fayetteville MGP
Fayetteville Substation
Goldshoro MGP
Hartsville, South Carolina 115 KV Substation
Henderson v. CP&L
Kinston MGP
Jefferson
Jinco, Little Rock, AR
Lee Ash Ponds
Macon Dockery
Morehead City
Morehead City L&S
Morehead City ICT
New Bern MGP
Ogden
Parker v. CP&L
Powerhouse Square
Raleigh No. 1 MGP
Raleigh No. 2 MGP
Robinson Ash Pond
Roxboro Ash Management Areas
Seaboard Chemical Corp.
Spruce Pines Asheville Line and Service Warehouse
Sutton Ash Ponds
Various Asbestos-Related Bodily Injury Lawsuits
Washington MGP
Weatherspoon Ash Ponds
Waterville Lake
Wilmington MGP
Wilmington Oil Terminal
Wilmington South Line & Service Yard
Wrightsville Beach L&S

2011 Standstill Agreement

STANDSTILL AND CONFIDENTIALITY AGREEMENT

1. This Standstill and Confidentiality Agreement ("Agreement") is entered into by Associated Electric & Gas Insurance Services, Limited ("AEGIS") by and through AEGIS Insurance Services, Inc., its Managing General Agent, and Carolina Power & Light Company, its subsidiaries, divisions and affiliates ("Policyholder"), and shall become effective when it is fully executed by both parties, and shall remain in effect for a period of 180 days or until this Agreement is terminated by either party pursuant to paragraph 19, infra, whichever occurs first in time. (This period will hereinafter be referred to as the "Standstill Period"). The Standstill Period may be extended by written consent of the parties.
2. The purpose of this Agreement is to provide the parties an opportunity to cooperate with respect to ASH POND CLAIMS and to resolve related insurance issues in a cost-effective and non-confrontational manner, while preserving their respective rights and defenses. The parties will use their best efforts to develop all information necessary to resolve such issues.
3. For purposes of this Agreement, with respect to named sites listed in Appendix A, ASH POND CLAIMS are those matters which involve a requirement to investigate, clean up or remediate, or the actual, alleged or threatened discharge, dispersal, release or escape into or presence in the environment, of any coal combustion waste, other than air pollution claims.
4. During the term of this Agreement, no party to this Agreement will institute arbitration or suit against another party to this Agreement regarding coverage for ASH POND CLAIMS under any AEGIS policy of insurance. However, the notice requirements of the AEGIS policies remain in effect. During the Standstill Period, no substantive or procedural rights or duties of the Policyholder or AEGIS will change except as provided for in this Agreement; the parties intend by this provision that neither the Policyholder nor AEGIS shall legally benefit in any way or be prejudiced in any way during the Standstill Period or from the fact of entering into this Agreement. All statutes of limitation, laches, waiver, estoppel, or other defenses or causes of action will be tolled during the Standstill Period; any defense, contention, argument, privilege or legal right that existed prior to the Standstill Period will be preserved to the same extent it existed and without limitation.
5. The parties agree that they will not institute any action or arbitration against each other while this Agreement is in effect or for a period of fourteen (14) days commencing from the termination of this Agreement.
6. Any expert retained by the Policyholder or AEGIS specifically for these compromise negotiations shall be considered a "Settlement Expert." If after designating an expert as a Settlement Expert the Policyholder or AEGIS uses or relies upon its Settlement Expert for any purpose other than compromise negotiations, the expert(s) shall cease to be considered a Settlement Expert, ab initio.

7. The Policyholder or AEGIS may designate as a "Confidential Settlement Document" any document prepared by a Settlement Expert for the purpose of these compromise negotiations. A document shall immediately cease to be considered a Confidential Settlement Document, notwithstanding any designation as such, if: the document is properly obtained through a mechanism other than the compromise negotiations between the Policyholder and AEGIS; or the party that designated the document as a Confidential Settlement Document uses it for a purpose other than compromise negotiations in any action or arbitration between the Policyholder and AEGIS; or the author of the document ceases to be considered a Settlement Expert by virtue of paragraph 6, above.
8. Confidential Settlement Documents will not be admissible in any action, arbitration, or other contested proceeding involving the Policyholder and AEGIS. The Policyholder and AEGIS shall not disclose the existence, substance, or author(s) of any Confidential Settlement Documents or the identity of any Settlement Expert. The Policyholder and AEGIS shall not seek discovery of Confidential Settlement Documents or Settlement Experts; except the Policyholder or AEGIS may seek discovery of otherwise discoverable information if the Settlement Expert is designated as an expert to testify or has knowledge of facts learned other than in the course of serving as a Settlement Expert (in which case such discovery may be directed only to information or documents not protected herein). Policyholder and AEGIS reserve all their objections to any such discovery sought from such experts. The Policyholder and AEGIS will return all originals and copies of a Confidential Settlement Document upon the producing party's request for that document.
9. To the extent that a party to this Agreement disputes whether the restrictions of this Agreement apply in any given context, the party seeking to be relieved of the restrictions may seek a ruling concerning the confidentiality of a Confidential Settlement Document or other confidential information subject to the restrictions of this Agreement. The restrictions of this Agreement shall remain in full force pending the ruling.
10. Presentation of any document in compromise negotiations that would otherwise be subject to the attorney-client privilege or work product doctrine shall not constitute a waiver of the right to assert privilege or protection with respect to that document.
11. The Policyholder and AEGIS do not intend by this Agreement to waive any objections to discovery or protection provided by Federal Rule of Evidence 408 ("Rule 408") or Federal Rule of Civil Procedure 26(b)(4)(B) or equivalent state rules, for nontestifying experts and documents containing privileged attorney-client communications or attorney work product, including any Settlement Expert who ceases to be a Settlement Expert pursuant to paragraph 6, above, and any Confidential Settlement Document that ceases to be a Confidential Settlement Document pursuant to paragraph 7, above.
12. Both during the Standstill Period and subsequent to it, the Policyholder and AEGIS agree not to reveal to any party or person (excluding employees, counsel, agents or insurers of AEGIS or the Policyholder) not present at or otherwise participating in the

compromise negotiations or the substance of any discussion or other oral or written communications that take place during the negotiations of the substance of any Confidential Settlement Documents. The Policyholder and AEGIS further agree not to disclose to any person (excluding employees, counsel or agents of AEGIS or the Policyholder) not present at or otherwise participating in the compromise negotiations the identity of any person or persons or organizations (including any experts specifically retained by the Policyholder or AEGIS for the compromise negotiations) involved in drafting documents designated by the Policyholder or AEGIS as a Confidential Settlement Document, both during the Standstill Period and subsequent to it.

13. In the event either party to this Agreement is subpoenaed to testify about the contents of any Confidential Settlement Document(s) or other confidential information subject to the restrictions of this Agreement, or is subpoenaed to produce any Confidential Settlement Document(s), written notice and a copy of the subpoena shall be given to the other party within ten (10) days of receipt of the subpoena (or sooner if the subpoena is returnable in less than ten days). In addition, the party receiving the subpoena shall use its best efforts to prevent discovery of any information subject to the restrictions of this Agreement and of any Confidential Settlement Document(s) and shall assert such reasonable objections to the subpoena as the other party may request in writing.

14. The parties will not be required during the term of this Agreement to formulate or communicate any formal position regarding the possible existence or nonexistence of coverage for ASH POND CLAIMS under any AEGIS policy, or to formally reserve their respective rights, but they shall not be precluded from doing so.

15. The Policyholder will notify AEGIS of any settlement demands or offers to compromise any ASH POND CLAIM against the Policyholder, and will not settle or compromise any ASH POND CLAIM against the Policyholder without first notifying AEGIS.

16. The Policyholder shall respond promptly to all reasonable inquiries made by AEGIS. All reports, communications and notices relating to this AGREEMENT shall be directed as follows:

A. AEGIS

Steven J. Antunes, Esq.
Senior Litigation Counsel
AEGIS Insurance Services, Inc.
Claims Division
One Meadowlands Plaza
East Rutherford NJ 07073
stevenantunes@aegislimited.com

and

Kenneth E. Ryan, Esq.
Wiley Rein LLP
1776 K Street NW
Washington DC 20006
kryan@wileyrein.com

B. POLICYHOLDER

CP&L Company
P.O. Box 1551
Raleigh, North Carolina 27602

and

Lawrence Eisenstein, Esq.
Eisenstein & Malanchuk LLP
1048 Potomac Street NW
Washington DC 20007
leisenstein@em-law.com

17. The resolution of any issues subject to this Agreement shall not set any precedent with respect to any legal or factual issue raised in any other dispute or litigation whether or not subject to this Agreement, unless the parties agree otherwise.

18. This Agreement is not intended to be an insurance policy interpretation or modification.

19. Either party may terminate this Agreement at any time by transmitting a letter by either email, telecopier or first class mail, during a business day, to the other party advising them of termination. Termination shall be effective on the day of receipt of the letter, as specified above. Immediately upon cancellation or expiration of this Agreement, all limitations and laches periods will resume, excepting only that the Standstill Period will be excluded and omitted from any calculations of time period or period of alleged delay.

20. Compromise negotiations and Confidential Settlement Documents shall be considered "statements made in compromise negotiations" within the meaning of Rule 408 and thus subject to the protection of Rule 408, or equivalent state rules.

21. This Agreement and its contents may not be used or relied upon in any judicial or quasi-judicial proceeding for any purposes whatsoever except for purposes of preservation of the rights, duties, defenses, and arguments set forth above.

22. This Agreement is intended to facilitate and to encourage settlement and should be liberally construed and specifically enforced by the courts to enjoin or dismiss any action filed in breach of this Agreement in order to effectuate that purpose.

23. The terms of this Agreement constitute the entire Agreement and shall remain in effect until terminated by either party. The Agreement may not be modified, altered or changed in any way except in writing signed by duly authorized representatives of the parties.

BY:


Counsel

TITLE:

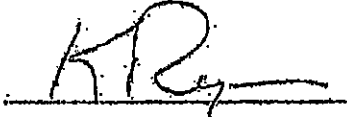
COMPANY:

Progress Energy

DATE:

6/15/2011

BY:



TITLE:

Counsel

COMPANY:

Wiley Rein for AEGIS

DATE:

6/16/11

APPENDIX A

Asheville Steam Plant Ash Ponds

Cape Fear Ash Ponds

Lee Ash Ponds

Mayo Ash Ponds

Robinson Ash Ponds

Roxboro Ash Ponds

Sutton Ash Ponds

Weatherspoon Ash Ponds

2016 Standstill Agreement

STANDSTILL AND CONFIDENTIALITY AGREEMENT

Recitals:

1. Duke Energy Corporation, Duke Energy Carolinas, LLC (formerly known as Duke Power Company), Duke Energy Progress, LLC (formerly known as Carolina Power & Light Company), Duke Energy Ohio, Inc. (formerly known as The Cincinnati Gas & Electric Company, Inc.), Duke Energy Beckjord, LLC, Duke Energy Indiana, LLC (formerly known as PSI Energy, Inc. and Public Service Company of Indiana, Inc.), and Duke Energy Kentucky, Inc. (formerly known as The Union Light, Heat and Power Company), collectively referred to as "Duke," faces or may face various costs arising out of coal combustion residuals at sites in North Carolina, South Carolina, Indiana, Ohio, Kentucky, and Florida,
2. These sites are:
 - a. Allen (Belmont, North Carolina)
 - b. Asheville (Asheville, North Carolina)
 - c. Belews Creek (Belews Creek, North Carolina)
 - d. Buck (Salisbury, North Carolina)
 - e. Cape Fear (Monrovia, North Carolina)
 - f. Cliffside (Mooresboro, North Carolina)
 - g. Dan River (Eden, North Carolina)
 - h. H.F. Lee (Goldensboro, North Carolina)
 - i. Marshall (Terrell, North Carolina)
 - j. Mayo (Roxboro, North Carolina)
 - k. Miami Fort (North Bend, Ohio)
 - l. Riverbend (Mount Holly, North Carolina)
 - m. Roxboro (Senoia, North Carolina)
 - n. Sutton (Wilmington, North Carolina)
 - o. Weatherspoon (Lumberton, North Carolina)
 - p. Robinson (Hartsville, South Carolina)
 - q. W.S. Lee (Belton, South Carolina)
 - r. Cayuga Station (Vermillion County, Indiana)
 - s. Dresser Station (Vigo County, Indiana)
 - t. Gallagher Station (Floyd County, Indiana)
 - u. Gibson Station (Gibson County, Indiana)
 - v. Wabash River Station (Vigo County, Indiana)
 - w. W.C. Beckjord (New Richmond, Ohio)
 - x. East Bend Station (Boone County, Kentucky)
 - y. Crystal River Steam Plant (Crystal River, Florida)
3. Duke asserts that certain coal ash related costs are covered under policies issued by Associated Electric & Gas Insurance Services Limited (AEGIS), Ranger Insurance Company ("Ranger") and American Centennial Insurance Company ("American Centennial"). AEGIS represents and warrants that AEGIS has authority to enter into this

Standstill and Confidentiality Agreement ("Agreement") on behalf of American Centennial, AEGIS and American Centennial are referred to collectively as "Insurers." AEGIS also represents and warrants that it is diligently working with Ranger with the expectation AEGIS will soon be in a position to warrant that AEGIS also has authority to enter into this Agreement on behalf of Ranger. When AEGIS is able to make this warranty on behalf of Ranger, the term "Insurers" will refer to AEGIS, American Centennial and Ranger. At that time, the Agreement will be amended to reflect that AEGIS is entering into the Agreement on behalf of itself, American Centennial and Ranger. On behalf of Insurers, AEGIS asserts that the coal ash related costs claimed by Duke are not covered under Insurers' policies. Duke disagrees.

4. Insurers and Duke wish to enter into good faith negotiations to discuss whether the Parties may resolve their dispute through some form of confidential arbitration or other alternative dispute resolution process in lieu of litigation. Insurers and Duke seek a period of time to allow these negotiations to proceed without prejudice to their respective rights and defenses.

Insurers and Duke Agree as Follows:

5. A negotiation period will be in effect until February 28, 2017 (the "Negotiation Period"), although this period may be extended by mutual consent of the parties in writing. During the Negotiation Period, no Party will start litigation concerning Duke's claim for coverage for these costs. Starting litigation during the Negotiation Period would breach this Agreement. The Parties agree that a court is authorized to dismiss an action filed in breach of this Agreement.
6. Notwithstanding Paragraph 5, this Agreement does not bar Duke or Insurers from filing suit at any time, even during the Negotiation Period, if Duke or Insurers become aware that another liability insurer of Duke has filed suit in any jurisdiction regarding coverage for coal combustion residuals at any or all of the sites in Paragraph 2, whether or not Duke or Insurers have been served with process. Duke and Insurers agree that none of them shall request or cooperate with any insurer not party to this Agreement to file such a suit.
7. During the Negotiation Period, no rights or defenses change. Rights or defenses that existed before the Negotiation Period will be neither enhanced nor diminished during the Negotiation Period. In this regard, any statutes of limitations, if not already expired, will be tolled during the Negotiation Period. For clarity, AEGIS maintains the applicable statute of limitations is expired and now bars any suit by Duke relating to the North Carolina and South Carolina sites. Duke disagrees.
8. All written and oral communications between the Parties during the Negotiation Period in furtherance of determining whether the Parties may resolve their dispute through some form of confidential arbitration or other alternative dispute resolution process in lieu of litigation are "compromise negotiations" pursuant to Federal Rule of Evidence 408 and any applicable state rule or law. Notwithstanding, communications between the Parties

Doc. Ex. 294

during the Negotiation Period that are separate from and outside the Parties' efforts to resolve these disputes (e.g., regular claims correspondence) are not subject to Federal Rule of Evidence 408 or any applicable state rule or law.

9. After the Negotiation Period ends, either Party may sue the other concerning Duke's claim for costs related to the sites identified in paragraph 2 above,
10. There may be a disagreement about the legal effect of standstill agreements previously entered into by, between or among the Parties or some of them. Each party's position as to the legal effect of those previous agreements is reserved. The Parties nonetheless agree that only this Agreement governs the current Negotiation Period.
11. This Agreement may be executed in counterparts, each of which when so executed and delivered will be deemed to be an original, and all of which taken together will constitute one instrument.
12. The Parties have executed this Agreement by their duly authorized representatives.
13. This Agreement may not be amended or modified except by a written instrument signed by the duly authorized representatives of both Parties.

DUKE (as defined above)

By: 

Printed: Matthew Jeweler

Title: Counsel, Pillsbury Winthrop Shaw Pittman LLP, on behalf of Duke

Date: 12/23/16

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Apr 30 2019

Doc. Ex. 295

AEGIS INSURANCE SERVICES, INC., on behalf
of ASSOCIATED ELECTRIC & GAS
INSURANCE SERVICES LIMITED AND
AMERICAN CENTENNIAL INSURANCE
COMPANY

By: 

Printed: Steven Zuckerman

Title: Partner, Public Policy Unit, for AEGIS

Date: 12/23/2016

OFFICIAL COPY

Apr 30 2019

I/A

MA/STW

Attorney General's Office - Fountain Cross Exhibit 1

Duke Power Company
Legal Department
422 South Church Street
Charlotte, NC 28242-0001
(704) 382-8121



DUKE POWER

(704)382-8137 Fax

STEVE C. GRIFFITH, JR.
ELLEN T. RUFF
W. EDWARD POE, JR.
WILLIAM LARRY PORTER
PETER C. BUCK
JOHN E. LANSCHIE
WILLIAM J. BOWMAN, JR.
ALBERT V. CARR, JR.
ROBERT M. BISANAR
EDWARD M. MARSH, JR.
RONALD V. SHEARIN
W. WALLACE GREGORY, JR.
JEFFERSON D. GRIFFITH, III
JEFFREY M. TREPEL
PAUL R. NEWTON
MICHAEL LIU
ROBERT T. LUCAS III
KAROL P. MACK
GARRY S. RICE
LISA F. VAUGHN
CHRISTIN JARVIS
MARY LYNN GRIGG
SALLY G. HELWEG
LESLI N. MUST

November 20, 1996

~~**CONFIDENTIAL**~~

*per DEC
this exhibit
is non-
confidential

By Certified Mail, Return Receipt Requested

Mr. Jeff Schupack
Environmental Claims Department
AEGIS Insurance Services, Inc.
10 Exchange Place
Jersey City, NJ 07302

William Dunn, Esquire
Litigation Counsel
AEGIS Insurance Services, Inc.
10 Exchange Place
Jersey City, NJ 07302

✓ John L. Rivkin, Esquire
Rivkin, Radler & Kremer
EAB Plaza
Uniondale, NY 11556-0111

Re: Insured: Duke Power Company
Sites/Claims: Various Property Damage (See behind Tab B) and
Asbestos-Related Bodily Injury Claims

Dear Gentlemen:

Duke Power Company ("Duke") is writing to provide you with: (1) an update regarding the status of certain manufactured gas plant ("MGP") claims for which Duke already has provided notice and demanded coverage under the policies sold by you; (2) notice of certain additional claims as well as notice of circumstances that may give rise to claims for coverage; and (3) a formal demand for coverage. Attachment A lists insurance policies issued or fronted by Aegis known to date that provide coverage to Duke. Attachment B is a list of sites and claims for which notice is herein provided or supplemented. At each of the sites listed, Duke believes that certain substances have or may have been released into the environment, resulting in property damage that has or may give rise to third party claims for environmental investigation or cleanup.

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Apr 30 2019

TO: Aegis
November 20, 1996
Page 5

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and 1948. The NCDEHNR conducted a preliminary assessment of the site and recommended that a site inspection be conducted at the site. A tar-like substance has been observed in onsite soil. The High Point MGP is included in the MOU entered into with the NCDEHNR. To date, no sampling or soil, ground water, surface water, or sediment has been conducted at this site.

d. Salisbury, North Carolina MGP Site

The Salisbury MGP operated from at least 1887 to the mid 1950s. The Salisbury MGP is included in the MOU entered into with the NCDEHNR. To date, no sampling or soil, ground water, surface water, or sediment has been conducted at this site.

e. Spartanburg, South Carolina MGP Site

A gas works operated on this site from approximately 1889 to 1952. To date, no sampling or soil, ground water, surface water, or sediment has been conducted at this site. However, geotechnical borings undertaken in preparation for site development have been conducted on the site in the past. Soil saturated with tar has been observed during these activities.

2. Coal-Fired Power Plants

Duke conducts coal-fired power generation activities at seven plants in North Carolina (Allen, Belews Creek, Buck, Cliffside, Dan River, Marshall, and Riverbend) and one plant in South Carolina (Lee). The coal combustion process generates at least four residuals: fly ash, bottom ash, boiler slag, and boiler blowdown. These solid wastes contain various contaminants. The residual coal ash is produced in large quantities and is managed in ash management areas. At some power plants, Duke sluices ash residual with water to ash basins or dredge ponds where the ash was allowed to settle. At others, Duke manages dry ash in landfills or disposal areas.

a. Allen Coal-Fired Power Plant, North Carolina

The Allen power plant operated as a coal-burning power plant from 1957 and has a total capacity of 1,125,000 kilowatts. The plant is in a rural area approximately 7 miles south of Belmont, North Carolina. The Allen power plant has five electric generating units. Ground water sampling at this site show the presence of contaminants above the applicable state cleanup criteria.

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TO: Aegis
November 20, 1996
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Apr 30 2019

b. Belews Creek Coal-Fired Power Plant, North Carolina

The Belews Creek power plant, which began operating in 1974, has a total capacity of over 2.2 million kilowatts. The plant is located in a rural area 8 miles southeast of Walnut Cove, North Carolina. Belews has two electric generating units. The NCDEHNR required the installation and regular sampling of monitoring wells at this site in accordance with the facility's solid waste permit for its fly ash landfill. Testing from these wells show the presence of contaminants in the ground water above the applicable state cleanup criteria.

c. Buck Coal-Fired Power Plant, North Carolina

The Buck plant began its operations in 1926 and has a combined capacity of 364,000 kilowatts. The plant is located approximately 5 miles east of Spencer, North Carolina in a primarily rural area. The Buck plant has four electric generating units. No investigations or cleanup have been conducted at this site to date.

d. Cliffside Coal-Fired Power Plant, North Carolina

The Cliffside power plant began operating in 1940 and is capable of producing 760,000 kilowatts of power. The plant is located in a rural area 3 miles south of Cliffside, North Carolina. The Cliffside power plant has five electric generating units. No investigation has been conducted at this site to date.

e. Dan River Coal-Fired Power Plant, North Carolina

The Dan River power plant began operations in 1949 and is capable of producing 272,000 kilowatts of power. The Dan River power plant has three electric generating units. The plant is located southeast of Eden, North Carolina in a rural area. The NCDEHNR has required ground water monitoring. Sampling of ground water at the site demonstrates the presence of contaminants above the applicable state cleanup criteria.

f. Marshall Coal-Fired Power Plant, North Carolina

The Marshall power plant began operation in 1965 and is capable of producing over 2 million kilowatts of power. The plant is located in Terrell, North Carolina in a rural area. The Marshall power plant has four electric generating units. Sampling of ground water at this site demonstrates the presence of contaminants above the applicable state cleanup criteria.

TO: Aegis
November 20, 1996
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Apr 30 2019

g. Riverbend Coal-Fired Power Plant, North Carolina

The Riverbend Power plant began operation in 1929 and provides 454,000 kilowatts of power. The plant is located in a rural area 6 miles north of Mt. Holly, North Carolina. The Riverbend plant has four electric generating units. No investigation has been conducted at this site to date.

h. Lee Coal-Fired Power Plant, South Carolina

The Lee power plant began operation in 1951 and generates a total of 388,000 kilowatts of power. The plant is located in a rural area approximately 6 miles southeast of Pelzer, South Carolina. The Lee plant has three electric generating units. Sampling of ground water at this site demonstrates the presence of contaminants above the applicable state cleanup criteria.

3. Hydroelectric Facilities

Duke owns and operates 25 active hydroelectric ("hydro") plants or pump storage facilities. Upstream industrial discharges in the Catawba River may have resulted in the deposition and accumulation of contaminants in dammed areas at least two of these plants: the Fishing Creek Hydro facility and the Wylie Hydro facility.

a. Fishing Creek Hydro Facility

The Fishing Creek Hydro is located on the Catawba River in Chester and Lancaster Counties, South Carolina. The Fishing Creek dam was constructed in 1916. The dam has created a 2,580-acre reservoir. Bowater, Inc. ("Bowater") operates a pulp and paper mill which is located approximately 8 miles upstream (north) of the Fishing Creek dam. Bowater operated a chlorine-bleaching system for at least 40 years, presumably unregulated for much of this period. Bowater discharges treated wastewater into the Catawba River.

b. Wylie Hydro Facility

The Wylie Hydro is located on the Catawba River in York County, South Carolina just south of the North Carolina border. Wylie Dam was constructed in 1924, damming the Catawba River and creating a large reservoir (Lake Wylie), which has a surface area of approximately 12,450 acres. Sandoz Chemical Corporation ("Sandoz") operates a large chemical manufacturing plant

2016 Standstill Agreement

STANDSTILL AND CONFIDENTIALITY AGREEMENT

Recitals:

1. Duke Energy Corporation, Duke Energy Carolinas, LLC (formerly known as Duke Power Company), Duke Energy Progress, LLC (formerly known as Carolina Power & Light Company), Duke Energy Ohio, Inc. (formerly known as The Cincinnati Gas & Electric Company, Inc.), Duke Energy Beckjord, LLC, Duke Energy Indiana, LLC (formerly known as PSI Energy, Inc. and Public Service Company of Indiana, Inc.), and Duke Energy Kentucky, Inc. (formerly known as The Union Light, Heat and Power Company), collectively referred to as "Duke," faces or may face various costs arising out of coal combustion residuals at sites in North Carolina, South Carolina, Indiana, Ohio, Kentucky, and Florida.
2. These sites are:
 - a. Allen (Belmont, North Carolina)
 - b. Asheville (Asheville, North Carolina)
 - c. Belews Creek (Belews Creek, North Carolina)
 - d. Buck (Salisbury, North Carolina)
 - e. Cape Fear (Monrovia, North Carolina)
 - f. Cliffside (Mooresboro, North Carolina)
 - g. Dan River (Eden, North Carolina)
 - h. H.F. Lee (Goldsboro, North Carolina)
 - i. Marshall (Terrell, North Carolina)
 - j. Mayo (Roxboro, North Carolina)
 - k. Miami Fort (North Bend, Ohio)
 - l. Riverbend (Mount Holly, North Carolina)
 - m. Roxboro (Senoia, North Carolina)
 - n. Sutton (Wilmington, North Carolina)
 - o. Weatherspoon (Lumberton, North Carolina)
 - p. Robinson (Hartsville, South Carolina)
 - q. W.S. Lee (Belton, South Carolina)
 - r. Cayuga Station (Vermillion County, Indiana)
 - s. Dresser Station (Vigo County, Indiana)
 - t. Gallagher Station (Floyd County, Indiana)
 - u. Gibson Station (Gibson County, Indiana)
 - v. Wabash River Station (Vigo County, Indiana)
 - w. W.C. Beckjord (New Richmond, Ohio)
 - x. East Bend Station (Boone County, Kentucky)
 - y. Crystal River Steam Plant (Crystal River, Florida)
3. Duke asserts that certain coal ash related costs are covered under policies issued by Associated Electric & Gas Insurance Services Limited (AEGIS), Ranger Insurance Company ("Ranger") and American Centennial Insurance Company ("American Centennial"). AEGIS represents and warrants that AEGIS has authority to enter into this

Standstill and Confidentiality Agreement ("Agreement") on behalf of American Centennial, AEGIS and American Centennial are referred to collectively as "Insurers." AEGIS also represents and warrants that it is diligently working with Ranger with the expectation AEGIS will soon be in a position to warrant that AEGIS also has authority to enter into this Agreement on behalf of Ranger. When AEGIS is able to make this warranty on behalf of Ranger, the term "Insurers" will refer to AEGIS, American Centennial and Ranger. At that time, the Agreement will be amended to reflect that AEGIS is entering into the Agreement on behalf of itself, American Centennial and Ranger. On behalf of Insurers, AEGIS asserts that the coal ash related costs claimed by Duke are not covered under Insurers' policies. Duke disagrees.

4. Insurers and Duke wish to enter into good faith negotiations to discuss whether the Parties may resolve their dispute through some form of confidential arbitration or other alternative dispute resolution process in lieu of litigation. Insurers and Duke seek a period of time to allow these negotiations to proceed without prejudice to their respective rights and defenses.

Insurers and Duke Agree as Follows:

5. A negotiation period will be in effect until February 28, 2017 (the "Negotiation Period"), although this period may be extended by mutual consent of the parties in writing. During the Negotiation Period, no Party will start litigation concerning Duke's claim for coverage for these costs. Starting litigation during the Negotiation Period would breach this Agreement. The Parties agree that a court is authorized to dismiss an action filed in breach of this Agreement.
6. Notwithstanding Paragraph 5, this Agreement does not bar Duke or Insurers from filing suit at any time, even during the Negotiation Period, if Duke or Insurers become aware that another liability insurer of Duke has filed suit in any jurisdiction regarding coverage for coal combustion residuals at any or all of the sites in Paragraph 2, whether or not Duke or Insurers have been served with process. Duke and Insurers agree that none of them shall request or cooperate with any insurer not party to this Agreement to file such a suit.
7. During the Negotiation Period, no rights or defenses change. Rights or defenses that existed before the Negotiation Period will be neither enhanced nor diminished during the Negotiation Period. In this regard, any statutes of limitations, if not already expired, will be tolled during the Negotiation Period. For clarity, AEGIS maintains the applicable statute of limitations is expired and now bars any suit by Duke relating to the North Carolina and South Carolina sites. Duke disagrees.
8. All written and oral communications between the Parties during the Negotiation Period in furtherance of determining whether the Parties may resolve their dispute through some form of confidential arbitration or other alternative dispute resolution process in lieu of litigation are "compromise negotiations" pursuant to Federal Rule of Evidence 408 and any applicable state rule or law. Notwithstanding, communications between the Parties

during the Negotiation Period that are separate from and outside the Parties' efforts to resolve these disputes (e.g., regular claims correspondence) are not subject to Federal Rule of Evidence 408 or any applicable state rule or law.

9. After the Negotiation Period ends, either Party may sue the other concerning Duke's claim for costs related to the sites identified in paragraph 2 above.
10. There may be a disagreement about the legal effect of standstill agreements previously entered into by, between or among the Parties or some of them. Each party's position as to the legal effect of those previous agreements is reserved. The Parties nonetheless agree that only this Agreement governs the current Negotiation Period.
11. This Agreement may be executed in counterparts, each of which when so executed and delivered will be deemed to be an original, and all of which taken together will constitute one instrument.
12. The Parties have executed this Agreement by their duly authorized representatives.
13. This Agreement may not be amended or modified except by a written instrument signed by the duly authorized representatives of both Parties.

DUKE (as defined above)

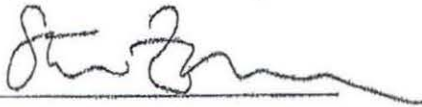
By: Matthew Jeweler

Printed: Matthew Jeweler

Title: Counsel, Pillsbury Winthrop Shaw Pittman LLP, on behalf of Duke

Date: 12/23/16

AEGIS INSURANCE SERVICES, INC., on behalf
of ASSOCIATED ELECTRIC & GAS
INSURANCE SERVICES LIMITED AND
AMERICAN CENTENNIAL INSURANCE
COMPANY

By: 

Printed: Steven Zukerman

Title: Partner, Rivkin Rivkin LLP, for AEGIS.

Date: 12/23/2016

| Duke Energy Progress | | | Kerin Exhibit 10 | |
|---|------------------------------|---|-------------------------------|---|
| Breakdown of 2015-2016 Compliance Spend by site | | | Page 1 of 1 | |
| All numbers presented on a system basis | | | | |
| Site | 2015 & 2016 compliance spend | Type of spend | Legal justification for spend | Spend justification |
| Asheville | \$ 106,975,851 | Closure plan preparation and submission to NCDEQ, engineering preparation of implementation drawings and estimates, site mobilization, ash excavation, transportation, off site delivery, water treatment planning | CAMA § 130A-309.212.(a)(1)b. | Bid event 58726 resulted in Waste Management being selected as the vendor. Closure plan preparation and submission, ash excavation off site required by CAMA. (Asheville is a high-priority site, with ash basin closure required by August, 2022. 8/22 is an extended closure date allowed by the Mountain Energy Act.) Water treatment (i.e. dewatering) necessary to prepare ash basins for excavation. |
| Cape Fear | \$ 16,052,310 | Closure plan preparation and submission to NCDEQ, engineering preparation of implementation drawings and estimates, site mobilization, dewatering, and preparation for bid event for excavation and closure | CAMA § 130A-309.212 | Under a Motion for Summary Judgment ordered on April 4, 2016, the Cape Fear site must be excavated within ten years of receiving the applicable permits. Given this order, it is imperative to begin engineering and project planning in the current time to ensure completion when expected. Closure plan preparation and submission is required by CAMA. Water treatment (i.e. dewatering) necessary to prepare ash basins for excavation. |
| HF Lee | \$ 20,759,183 | Closure plan preparation and submission to NCDEQ, engineering preparation of implementation drawings and estimates, dewatering, and installation of the water treatment system | CAMA § 130A-309.212 | Under a Motion for Summary Judgment ordered on April 4, 2016, the HF Lee site must be excavated within twelve years of the date of the order. Given this end date, it is imperative to begin engineering and project planning in the current time to ensure completion when expected. Closure plan preparation and submission is required by CAMA. Water treatment (i.e. dewatering) is necessary to prepare ash basins for excavation. |
| Mayo | \$ 14,867,363 | Closure plan preparation and submission to NCDEQ, engineering preparation of implementation drawings and estimates | CAMA § 130A-309.212 | The Mayo plant is anticipating a low priority ranking from CAMA when certain dam safety activities are completed and approved by North Carolina DEQ in 2018. Engineering and project planning in the current time are needed to synchronize work between all of the coal ash sites being closed in the next 20 years as well as to gain synergies between excavation/capping plans for all the sites. Closure plan preparation and submission is required by CAMA. |
| Robinson | \$ 6,415,618 | Engineering preparation of implementation drawings and estimates | CCR Rule | The Robinson plant is being excavated to a lined landfill pursuant to a Consent Agreement with SC DHEC. |
| Roxboro | \$ 20,370,325 | Closure plan preparation and submission to NCDEQ, engineering preparation of implementation drawings and estimates | CAMA § 130A-309.212 | The Roxboro plant is anticipating a low priority ranking from CAMA when certain dam safety activities are completed and approved by North Carolina DEQ in 2018. Engineering and project planning in the current time are needed to synchronize work between all of the coal ash sites being closed in the next 20 years as well as to gain synergies between excavation/capping plans for all the sites. Closure plan preparation and submission is required by CAMA. |
| Sutton | \$ 116,858,895 | Closure plan preparation and submission to NCDEQ, engineering preparation of implementation drawings and estimates. Ash excavation, transportation and off site delivery, landfill construction, water treatment and dewatering | CAMA § 130A-309.212.(a)(1)b. | Bid event 60184 resulted in TransAsh being selected as the low cost vendor. Closure plan preparation and submission, ash excavation off site required by CAMA. (Sutton is a high-priority site, with ash basin closure required by August, 2019.) Water treatment (i.e. dewatering) necessary to prepare ash basins for excavation. |
| Weatherspoon | \$ 9,120,242 | Closure plan preparation and submission to NCDEQ, engineering preparation of implementation drawings and estimates | CAMA § 130A-309.212 | Under a Motion for Summary Judgment ordered on April 4, 2016, the Weatherspoon site must be excavated within twelve years of the date of the order. Given this end date, it is imperative to begin engineering and project planning in the current time to ensure completion when expected. Closure plan preparation and submission is required by CAMA. |
| | \$ 311,419,787 | | | |
| Note: | | | | |
| After the entry of summary judgment the HB630 amendments to CAMA codified this requirement. Session Law 2016-95, Section 3(a) and (b) (excerpted below). See references below in HB630 supporting the decision to excavate these sites. | | | | |
| SECTION 3.(a) Notwithstanding G.S. 130A-309.213 or G.S. 130A-309.214, as amended by Section 1 of this act, and except as otherwise preempted by the requirements of federal law, the following coal combustion residuals surface impoundments shall be deemed intermediate-risk and, as soon as practicable, but no later than August 1, 2028, shall be closed in conformance with Section 3(b) of this act: | | | | |
| (1) Coal combustion residuals surface impoundments located at the H.F. Lee Steam Station, owned and operated by Duke Energy Progress, and located in Wayne County. | | | | |
| (2) Coal combustion residuals surface impoundments located at the Cape Fear Steam Station, owned and operated by Duke Energy Progress, and located in Chatham County. | | | | |
| (3) Coal combustion residuals surface impoundments located at the Weatherspoon Steam Station, owned and operated by Duke Energy Progress, and located in New Hanover County. | | | | |
| SECTION 3.(b) The impoundments identified in subsection (a) of this section shall be closed as follows: | | | | |
| (1) Impoundments located in whole above the seasonal high groundwater table shall be dewatered. Impoundments located in whole or in part beneath the seasonal high groundwater table shall be dewatered to the maximum extent practicable. | | | | |
| (2) All coal combustion residuals shall be removed from the impoundments and transferred for (i) disposal in a coal combustion residuals landfill, industrial landfill, or municipal solid waste landfill or (ii) use in a structural fill or other beneficial use as allowed by law. The use of coal combustion products (i) as structural fill shall be conducted in accordance with the requirements of Subpart 3 of Part 21 of Article 9 of the General Statutes and (ii) for other beneficial uses shall be conducted in accordance with the requirements of Section .1700 of Subchapter B of Chapter 13 of Title 15A of the North Carolina Administrative Code (Requirements for Beneficial Use of Coal Combustion By-Products) and Section .1200 of Subchapter T of Chapter 2 of Title 15A of the North Carolina Administrative Code (Coal Combustion Products Management), as applicable. | | | | |
| (3) If restoration of groundwater quality is degraded as a result of the impoundment, corrective action to restore groundwater quality shall be implemented by the owner or operator as provided in G.S. 130A-309.211. | | | | |

I/A

Duke Energy Carolinas
2017 Estimated Compliance Spend by site, January through November
All numbers presented on a system basis

Kerin Exhibit 10
Page 1 of 2

| Site | 2017 Estimated Spend, January through November | Type of spend | Legal justification for spend | Spend justification |
|--------------|--|--|-------------------------------|---|
| Allen | \$ 12,012,956 | 2017 spend includes Environmental Health and Safety costs, engineering, and basin closure projects. | CAMA § 130A-309.212 | Closure of basins required under CAMA. |
| Belews Creek | \$ 18,280,219 | 2017 spend includes Environmental Health Safety costs, engineering, and basin closure projects. | CAMA § 130A-309.212 | Closure of basins required under CAMA. |
| Buck | \$ 36,872,991 | 2017 spend includes Environmental Health and Safety costs, basin closure costs, mobilization and beneficitation facility costs. | HB630 § 130A-309.216 | Closure of basins required under CAMA. Buck has been chosen as a beneficitation site, which is an HB 630 requirement. |
| Cliffside | \$ 25,448,541 | 2017 spend includes mobilization/infrastructure costs, water management, ash processing, basin support projects, inspections and maintenance, and Environmental Health and Safety costs. | CAMA § 130A-309.212 | Closure of basins required under CAMA. |
| Dan River | \$ 34,361,513 | 2017 spend includes mobilization/infrastructure costs, water management, ash processing, landfill construction, engineering closure costs and Environmental Health and Safety costs. | CAMA § 130A-309.212.(a)(1)b. | Dan River is a high-priority site in CAMA, with ash basin closure required by August, 2019. |
| Marshall | \$ 22,194,337 | 2017 spend includes basin support projects, Environmental Health and Safety costs, inspections and maintenance | CAMA § 130A-309.212 | Closure of basins required under CAMA. |
| Riverbend | \$ 94,201,625 | 2017 spend includes ash processing, water management and Environmental Health and Safety costs | CAMA § 130A-309.212.(a)(1)b. | Riverbend is a high-priority site in CAMA, with ash basin closure required by August, 2019. |
| WS Lee | \$ 31,034,085 | 2017 spend includes mobilization, ash processing, and engineering closure plans | CAMA § 130A-309.212 | The WS Lee plant is being excavated to a lined landfill pursuant to a Consent Agreement with SC DHEC. |
| | \$ 274,406,267 | | | |

I/A

| Duke Energy Carolinas | | | | |
|---|------------------------------|--|-------------------------------|---|
| Breakdown of 2015-2016 Compliance Spend by site | | | | |
| All numbers presented on a system basis | | | | |
| Site | 2015 & 2016 compliance spend | Type of spend | Legal justification for spend | Spend justification |
| Allen | \$ 32,663,755 | Closure plan preparation and submission to NCDEQ, engineering preparation of implementation drawings and estimates, basin support projects and EHS costs | CAMA § 130A-309.212 | The Allen plant is anticipating a low priority ranking from CAMA when certain dam safety activities are completed and approved by North Carolina DEQ in 2018. Engineering and project planning in the current time are needed to synchronize work between all of the coal ash sites being closed in the next 20 years as well as to gain synergies between excavation/capping plans for all the sites. Closure plan preparation and submission is required by CAMA. |
| Belews Creek | \$ 36,340,942 | Closure plan preparation and submission to NCDEQ, engineering preparation of implementation drawings and estimates, basin support projects and EHS costs | CAMA § 130A-309.212 | The Belews Creek plant is anticipating a low priority ranking from CAMA when certain dam safety activities are completed and approved by North Carolina DEQ in 2018. Engineering and project planning in the current time are needed to synchronize work between all of the coal ash sites being closed in the next 20 years as well as to gain synergies between excavation/capping plans for all the sites. Closure plan preparation and submission is required by CAMA. |
| Buck | \$ 19,857,022 | Basin support projects, EHS costs, beneficiation facility planning | HB630 § 130A-309.216 | NC House Bill 630 mandates that three sites must be identified for ash beneficiation before 7/1/17. Buck was chosen as one of those sites. Basin support projects include wastewater treatment, dry fly ash and dry bottom ash systems. EHS costs include groundwater activities. |
| Cliffside | \$ 47,220,530 | Closure plan preparation and submission to NCDEQ, engineering preparation of implementation drawings and estimates, landfill construction, site infrastructure, basin support projects and EHS costs | CAMA § 130A-309.212 | The Cliffside plant is anticipating a low priority ranking from CAMA when certain dam safety activities are completed and approved by North Carolina DEQ in 2018. Engineering and project planning in the current time are needed to synchronize work between all of the coal ash sites being closed in the next 20 years as well as to gain synergies between excavation/capping plans for all the sites. Closure plan preparation and submission is required by CAMA. |
| Dan River | \$ 108,876,242 | Closure plan preparation and submission to NCDEQ, engineering preparation of implementation drawings and estimates, ash excavation and transportation, site infrastructure, basin support projects and EHS costs | CAMA § 130A-309.212.(a)(1)b. | Closure plan preparation and submission, ash excavation off-site or on site landfilled required by CAMA. (Dan River is a high-priority site, with ash basin closure required by August, 2019.) Basin support projects include wastewater treatment, dry fly ash and dry bottom ash systems. EHS costs include groundwater activities. |
| Marshall | \$ 31,372,013 | Closure plan preparation and submission to NCDEQ, engineering preparation of implementation drawings and estimates, basin support projects and EHS costs | CAMA § 130A-309.212 | The Marshall plant is anticipating a low priority ranking from CAMA when certain dam safety activities are completed and approved by North Carolina DEQ in 2018. Engineering and project planning in the current time are needed to synchronize work between all of the coal ash sites being closed in the next 20 years as well as to gain synergies between excavation/capping plans for all the sites. Closure plan preparation and submission is required by CAMA. Basin support projects include wastewater treatment, dry fly ash and dry bottom ash systems. EHS costs include groundwater activities. |
| Riverbend | \$ 126,071,624 | Closure plan preparation and submission to NCDEQ, engineering preparation of implementation drawings and estimates. Ash excavation, transportation and off site delivery, landfill construction, water treatment and dewatering, EHS costs | CAMA § 130A-309.212.(a)(1)b. | Closure plan preparation and submission, ash excavation off site required by CAMA. (Riverbend is a high-priority site, with ash basin closure required by August, 2019.) Water treatment (i.e. dewatering) necessary to prepare ash basins for excavation. EHS costs include groundwater activities. |
| WS Lee | \$ 55,032,063 | Closure plan preparation and submission to NCDEQ, engineering preparation of implementation drawings and estimates, mobilization and infrastructure, excavation and transportation, basin support projects, EHS costs | CAMA § 130A-309.212 | Under a consent agreement executed between the South Carolina Department of Health and Environmental Control and Duke Energy Carolinas, WS Lee ash basins must be excavated. Basin support projects include wastewater treatment, dry fly ash and dry bottom ash systems. EHS costs include groundwater activities. |
| | \$ 457,434,191 | | | |

DUKE ENERGY CAROLINAS, LLC
Docket No. E-7, Sub 1146
North Carolina Retail Operations
REVENUE IMPACT OF PUBLIC STAFF ADJUSTMENTS
RESTATED TO BEGIN FROM COMPANY REBUTTAL FILING
For the Test Year Ended December 31, 2016
(In Thousands)

Boswell Thrd Supplemental and Stipulation Exhibit 1
Schedule 1
Page 2 of 4
Corrected

| Line No. | Item | Per Public Staff, Beginning From Company Rebuttal | Reclassify Public Staff Income Tax Adjustments 9/ | Per Public Staff - Reclassified 10/ | Per Company Updated Stipulation Exhibit 11/ | Differences Between Company and Public Staff 15/ |
|-------------------------------|---|---|---|-------------------------------------|---|--|
| | | (a) | (b) | (c) | (d) | (e) |
| Unsettled Issues: | | | | | | |
| Unsettled Tax Issues | | | | | | |
| 29 | Reflect impact of Tax Cuts and Jobs Act on income tax expense | (233,912) 3/ | 22,339 | (211,573) | (211,512) | |
| 30 | Include flowback of protected federal EDIT due to Tax Cuts and Jobs Act | (34,440) | - | (34,440) | (34,440) | |
| 31 | Remove unprotected federal EDIT due to Tax Cuts and Jobs Act for treatment as a rider | 85,510 4/ | - | 85,510 | 15,100 13/ | |
| 32 | Amortization Expense related to Tax Cuts and Jobs Act | - | - | - | 200,000 | |
| 33 | Include flowback of unprotected PP&E related due to Tax Cuts and Jobs Act | - | - | - | (36,662) 14/ | |
| 34 | Total Unsettled Tax Issues (Sum of Lines 29-33) | (182,842) | 22,339 | (160,503) | (67,514) | (92,989) |
| Other Unsettled Issues | | | | | | |
| 35 | Adjust revenues and revenue related expenses | 724 | - | 724 | - | 724 |
| 36 | Update plant and accumulated depreciation to December 31, 2017 | (70,119) | - | (70,119) | - | (70,119) |
| 37 | Update revenues to December 31, 2017 (combined with adjustment on Line 35) | - | - | - | - | - |
| 38 | Adjust outside services | (1,439) | - | (1,439) | - | (1,439) |
| 39 | Remove ongoing environmental costs | (201,226) | - | (201,226) | - | (201,226) |
| 40 | Adjust depreciation rates | (40,209) | - | (40,209) | - | (40,209) |
| 41 | Adjust deferred environmental costs | (120,363) | - | (120,363) | - | (120,363) |
| 42 | Adjust Lee nuclear cost amortization | (17,947) | - | (17,947) | - | (17,947) |
| 43 | Adjust nuclear decommissioning expense | (27,202) | - | (27,202) | - | (27,202) |
| 44 | Adjust inflation | (137) | - | (137) | - | (137) |
| 45 | Adjust cash working capital under present rates | 1,732 | - | 1,732 | (641) 15/ | 2,373 |
| 46 | Adjust cash working capital under proposed rates | (5,363) | - | (5,363) | (1,006) 15/ | (4,357) |
| 47 | Lee CC depreciation | (293) | - | (293) | 293 | (586) |
| 48 | Rounding | (0) | - | (0) | - | (0) |
| 49 | Total Other Unsettled Issues (Sum of Lines 35-48) | (481,842) | - | (481,842) | (1,354) | (480,488) |
| 50 | Total Unsettled Issues (L34 + L49) | (664,684) | 22,339 | (642,345) | (68,868) | (573,477) |
| 51 | Recommended Increase / (decrease) in base rate revenue requirement (L28 + L50) | \$ (101,230) 5/ | \$ - | \$ (101,230) | \$ 472,249 | \$ (573,479) |

DUKE ENERGY CAROLINAS, LLC
Docket No. E-7, Sub 1146
North Carolina Retail Operations
REVENUE IMPACT OF PUBLIC STAFF ADJUSTMENTS
RESTATED TO BEGIN FROM COMPANY REBUTTAL FILING
For the Test Year Ended December 31, 2016
(In Thousands)

Boswell Third Supplemental and Stipulation Exhibit 1
Schedule 1
Page 3 of 4
Corrected

| Line No. | Item | Per Public Staff, Beginning From Company Rebuttal (a) | Reclassify Public Staff Income Tax Adjustments 9/ (b) | Per Public Staff - Reclassified 10/ (c) | Per Company Updated Stipulation Exhibit 11/ (d) | Differences Between Company and Public Staff 15/ (e) |
|----------|--|---|---|---|---|--|
| 52 | Recommended increase / (decrease) in base rate revenue requirement (L50) | \$ (101,230) | | \$ (101,230) | \$ 472,249 | \$ (573,479) |
| 53 | Annual state EDIT Rider recommended for 4-year period | (60,102) 2/ | | (60,102) | (60,102) | - |
| 54 | Annual federal unprotected EDIT Rider recommended by Public Staff for five year period and by DEC for five year period | (224,365) 4/ | | (224,365) | (39,620) 13/ | (184,745) |
| 55 | Recommended change in revenue requirement for first four years (L52 + L53 + L54) | <u>\$ (385,697)</u> | <u>\$ -</u> | <u>\$ (385,697)</u> | <u>\$ 372,527</u> | <u>\$ (758,224)</u> |
| 56 | Recommended change in revenue requirement for fifth year (L55 - L53) | <u>\$ (325,595)</u> | <u>\$ -</u> | <u>\$ (325,595)</u> | <u>\$ 432,629</u> | <u>\$ (758,224)</u> |
| 57 | Revenue requirement impact of Company proposed Grid Reliability and Resiliency (GRR) Rider | \$ 35,235 7/ | | \$ 35,235 | \$ 35,235 | \$ - |
| 58 | Public Staff adjustment to remove GRR Rider | (35,235) 8/ | | (35,235) | - | (35,235) |
| 59 | Revenue requirement impact of GRR Rider per Public Staff (L57 + L58) | <u>\$ -</u> | <u>\$ -</u> | <u>\$ -</u> | <u>\$ 35,235</u> | <u>\$ (35,235)</u> |

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**DIFFERENCE BETWEEN PUBLIC STAFF AND DEC ON COAL ASH -
AFTER FILING OF BOSWELL CORRECTED THIRD SUPPLEMENTAL AND STIPULATION EXHIBIT 1 AND
REVISED MCMANEUS STIPULATION EXHIBIT 1 - UPDATED FOR POST-HEARING ISSUES**

| | N.C. Retail Expense/Rate Base Amount (000s) | Revenue Requirement Factor | Revenue Requirement (000s) |
|---|---|----------------------------------|----------------------------------|
| PUBLIC STAFF: | | | |
| 1 Deferred costs - balance for amortization | \$ 470,652 | | |
| 2 Amortization period | 25 | | |
| 3 Annual amortization | <u>\$ 18,882</u> [1] | 0.9966903 | \$ 18,944 |
| 4 Unamortized balance in rate base | <u>\$ -</u> | 0.0897660 | - |
| 5 Total amount related to deferred costs | | | <u>18,944</u> |
| 6 Run rate | <u>\$ -</u> | 0.9966903 | - |
| 7 Legal costs | <u>\$ -</u> | 0.9966903 | - |
| 8 Total revenue requirement | | | <u>\$ 18,944</u> |

DEC:

| | | | |
|--|-------------------|-----------|-------------------|
| 1 Deferred costs - balance for amortization | \$ 566,755 | | |
| 2 Amortization period | 5 | | |
| 3 Annual amortization | <u>\$ 113,351</u> | 0.9966903 | \$ 113,727 |
| 4 Unamortized balance in rate base, net-of-tax | <u>\$ 284,958</u> | 0.0897660 | 25,580 |
| 5 Total amount related to deferred costs | | | <u>139,307</u> |
| 6 Run rate | <u>\$ 200,561</u> | 0.9966903 | 201,226 |
| 7 Legal costs | <u>\$ 1,435</u> | 0.9966903 | 1,439 |
| 8 Total revenue requirement | | | <u>\$ 341,972</u> |

DIFFERENCE BETWEEN PUBLIC STAFF AND DEC:

| | |
|--|---------------------|
| Annual amortization | \$ (94,783) |
| Unamortized balance in rate base | <u>(25,580)</u> |
| Total amount related to deferred costs | (120,363) [2] |
| Run rate | (201,226) [2] |
| Legal costs | <u>(1,439) [2]</u> |
| Total revenue requirement difference | <u>\$ (323,028)</u> |

[1] Includes an additive factor of \$56,000. In rebuttal, the Company increased its proposed amortization expense by this amount; however, the Public Staff did not reflect a corresponding decrement offset in its proposed adjustment at hearing, and does not recommend one in the proposed order.

[2] Agrees with Boswell Third Supplemental and Stipulation Exhibit 1 (Corrected), Schedule 1, Column (c), Lines 38, 39, and 41.

Public Staff
Junis Exhibit 17
Page 1 of 1

| PLANT | Allen | Belews Creek | Buck | Cliffside | Dan River | Marshall | Riverbend | W.S. Lee |
|-----------|--|--|--|--|---|---|---|---|
| DATE | 1—Aug 16, 2013 2—Aug 23, 2017 | 1—Aug 16, 2013 2—Aug 23, 2017 3—Dec 5, 2017 | 1—Aug 16, 2013 2—Sept 3, 2014 3—Aug 23, 2017 | 1—Aug 16, 2013 2—Aug 23, 2017 | 1—Aug 16, 2013 2—Feb 20, 2015 3—Feb 8, 2016 4—Feb 15, 2-17 5—Feb 24, 2017 | 1—Aug 16, 2013 2—Aug 23, 2017 | 1—May 24, 2013 2—June 11, 2013 3—Feb 20, 2015 | Settlement fully signed July 17, 2015 |
| COURT | 1—Mecklenburg Superior 13-CVS-14661 2—Wake Superior 17-CVS-10341 | 1—Mecklenburg Superior 13-CVS-14661 2—Wake Superior 17-CVS-10341 3—Fed MDNC 17-CV-1097 | 1—Mecklenburg Superior 13-CVS-14661 2—Fed MDNC 14-CV-753 3—Wake Superior 17-CVS-10341 | 1—Mecklenburg Superior 13-CVS-14661 2—Wake Superior 17-CVS-10341 | 1—Mecklenburg Superior 13-CVS-14661 2—Fed EDNC 5:15-CR-67 3—OAH 16-EHR-02477 4—Rockingham Superior 17-CVS-241 5—Rockingham Superior 17-CVS-298 | 1—Mecklenburg Superior 13-CVS-14661 2—Wake Superior 17-CVS-10341 | 1—Mecklenburg Superior 13-CVS-9352 2—Fed WDNC 13-CV-355 3—Fed EDNC 5:15-CR-68 | 14-13-HW SC DHEC (not a formal case) |
| PLAINTIFF | 1—DEQ w/ SELC Intervening 2—Amy Brown, et al. | 1—DENR w/ SELC intervening 2—Amy Brown, et al. 3—SELC | 1—DEQ w/ SELC intervening 2—Yadkin Riverkeeper and Waterkeeper Alliance 3—Amy Brown, et al. | 1—DEQ w/ SELC Intervening 2—Amy Brown, et al. | 1—DEQ w/ SELC Intervening 2—US DOJ 3—DEQ (penalty) 4—Nigel and Donna Buist 5—Michael Beck, et al. | 1—DENR w/ SELC intervening 2—Amy Brown, et al. | 1—DEQ w/ SELC intervening 2—Catawba Riverkeeper 3—US DOJ | South Carolina Dept of Health and Environmental Control |
| GROUND | 1—unpermitted seeps and 2L groundwater violations 2—civil tort class action | 1—unpermitted seeps and 2L groundwater violations 2—civil tort class action 3—unpermitted surface water discharges and other NPDES permit violations | 1—unpermitted seeps and 2L groundwater violations 2—unpermitted surface water discharges and groundwater violations 3—tort class action | 1—unpermitted seeps and 2L groundwater violations 2—tort class action | 1—unpermitted seeps and 2L groundwater violations 2—failure to maintain stormwater pipes and negligent discharges 3—unpermitted discharges from stormwater pipes, etc. 4—civil tort 5—civil tort | 1—unpermitted seeps and groundwater violations 2—civil tort class action | 1—unpermitted seeps and groundwater violations 2—unpermitted surface water discharges and groundwater violations 3—unpermitted engineered seep | unspecified |
| OUTCOME | 1—ongoing 2—ongoing | 1—ongoing 2—ongoing 3—ongoing | 1—SELC claims dismissed because of plan to use HB 630 beneficiation at Buck; DEQ claim remains 2—settled because of DEC's decision to use HB 630 beneficiation at Buck 3—ongoing | 1—ongoing 2—ongoing | 1—dismissed because CAMA requirements satisfy the Injunctive relief sought 2—DEC pled guilty to four misdemeanors 3—penalty case settled with DEC to pay DEQ \$5.98 million for the spill and \$16,250 for seeps. 4—ongoing 5—ongoing | 1—ongoing 2—ongoing | 1—dismissed because CAMA requirements would satisfy the Injunctive relief sought 2—dismissed following result in 1 3—DEC pled guilty to one misdemeanor | DEC to excavate and remove coal ash, and to pay DHEC for costs of overseeing settlement |

Source: Duke Energy Carolinas responses of March 16, 2017 and December 14, 2017 to Public Staff Coal Ash Data Requests 1-4 and 22, pleadings and orders in the cases, and settlement agreements.

Note: DEP was also named as a defendant in the federal criminal case against DEC's Dan River and Riverbend stations.

I/A

E-7 Sub 1146; Junis Part 5 of 6

Public Staff
Junis Exhibit 21
Page 1 of 1

Groundwater Quality- Final Audit Reports

| <u>Generating Station</u> | <u>Constituent(s) Observed to Exceed the 2L or the IMAC Standards One or More Times</u> | |
|---------------------------|--|--|
| | 2016 Final Audit Report Findings | 2017 Final Audit Report Findings |
| Allen | OLOI- Boron, iron, and manganese | Boron and manganese OLOI- Chromium, cobalt, iron, and vanadium |
| Belews Creek | Sulfate and total dissolved solids (TDS) OLOI- Antimony, arsenic, boron, cadmium, chromium, cobalt, iron, manganese, nitrate, pH, TDS, and vanadium | Boron, chloride, cobalt, iron, manganese, nitrate, pH, sulfate and TDS OLOI- Antimony, arsenic, beryllium, chromium, selenium, thallium, and vanadium |
| Buck | OLOI- Chromium, iron, manganese, sulfate, and vanadium | Boron, cobalt, iron, manganese, sulfate, and TDS OLOI- Antimony and vanadium |
| Cliffside | OLOI- Chromium, iron, manganese, sulfate, and TDS | Antimony, arsenic, chromium, iron, manganese, sulfate, and TDS OLOI- Chromium, iron, manganese, and pH |
| Dan River | Boron, chromium, iron, manganese, sulfate, and TDS | Manganese |
| Marshall | Boron and sulfate OLOI- Other constituents | Boron, cobalt, iron, and manganese OLOI- Chromium and vanadium |
| Riverbend | OLOI- Sulfate and TDS | Cobalt, iron, manganese, sulfate, and TDS OLOI- Antimony, chromium, and vanadium |
| WS Lee | No findings | No findings |

OLOI- Open Line of Inquiry

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**Public Staff
Junis Exhibit 22
Page 1 of 1**

Seeps- Final Audit Reports

| <u>Generating Station</u> | 2016 Final Audit Report Findings | 2017 Final Audit Report Findings |
|---------------------------|---|--|
| Allen | 9 unauthorized seeps, point source, containing CCR pollutants which discharge to waters of the state and 2 other areas of wetness (AOW) | 9 unauthorized seeps Outfalls, including these seeps, are proposed in the draft NPDES permit |
| Belews Creek | 5 unauthorized seeps, point source, containing CCR pollutants which discharge to waters of the state and 10 other AOW | 7 unauthorized seeps Outfalls, including these seeps, are proposed in the pre-draft fact sheet for NPDES permit |
| Buck | 8 unauthorized seeps, point source, containing CCR pollutants which discharge to waters of the state and 9 other AOW | 7 seep outfalls are proposed in the pre-draft fact sheet for NPDES permit |
| Cliffside | 15 unauthorized seeps, point source, containing CCR pollutants which discharge to waters of the state and 20 other AOW | 6 unauthorized seeps Outfalls, including these seeps, are proposed in the draft NPDES permit |
| Dan River | 11* unauthorized seeps, point source, containing CCR pollutants which discharge to waters of the state and 3 other AOW | No findings presented related to seeps |
| Marshall | 2 unauthorized seeps, point source, containing CCR pollutants which discharge to waters of the state | No findings presented related to seeps |
| Riverbend | 7 unauthorized seeps, point source, containing CCR pollutants which discharge to waters of the state and 15 other AOW | No findings presented related to seeps |
| WS Lee | No findings Open items and potential findings- 16 areas of seepage, including toe drains, likely containing pollutants | No findings or OLOIs identified during the site visit |

*Duke Energy personnel indicated to the Audit Team that they considered 7 of the identified seeps to be an extension of seep S-1.

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| | | | | | | | |
|---------------------------------------|------------------|-------------------|----------------|----------------|------------------|----------------|--|
| Duke Energy Carolinas | | | | | | | |
| Ash Management ARO Cash Flows Summary | | | | | | | |
| as of December 31, 2016 | | | | | | | |
| w/ inflation | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | Total | Total Spend | Spend | Spend | Total | | |
| | Project (2015+) | 1/1/15 - 12/31/16 | 2015 | 2016 | CF Forecast | 2017 | |
| DEC | | | | | | | |
| <u>Operating</u> | | | | | | | |
| Allen | \$ 283,368,413 | \$ 32,663,754 | \$ 13,233,460 | \$ 19,430,295 | \$ 250,704,659 | \$ 13,105,043 | |
| Belews Creek | 410,870,792 | 36,340,942 | 9,861,194 | 26,479,748 | 374,529,850 | 19,942,057 | |
| Cliffside | 265,070,155 | 47,220,531 | 25,869,494 | 21,351,036 | 217,849,624 | 27,762,045 | |
| Marshall | 395,806,013 | 31,372,013 | 13,212,194 | 18,159,819 | 364,434,000 | 24,212,004 | |
| Total Operating Plants | \$ 1,355,115,374 | \$ 147,597,241 | \$ 62,176,342 | \$ 85,420,899 | \$ 1,207,518,133 | \$ 85,021,148 | |
| | | | | | | | |
| <u>Retired</u> | | | | | | | |
| Buck | \$ 291,561,042 | \$ 19,857,022 | \$ 10,035,189 | \$ 9,821,833 | \$ 271,704,020 | \$ 40,225,081 | |
| Dan River | 232,828,640 | 108,876,242 | 38,612,244 | 70,263,998 | 123,952,398 | 37,485,287 | |
| Riverbend | 419,062,052 | 126,071,625 | 39,667,308 | 86,404,316 | 292,990,428 | 102,765,409 | |
| WS Lee (SC) | 324,240,779 | 55,032,062 | 19,687,325 | 35,344,738 | 269,208,717 | 33,855,365 | |
| Total Retired Plants | \$ 1,267,692,514 | \$ 309,836,951 | \$ 108,002,066 | \$ 201,834,885 | \$ 957,855,563 | \$ 214,331,142 | |
| | | | | | | | |
| Total Duke Energy Carolinas | \$ 2,622,807,887 | \$ 457,434,192 | \$ 170,178,409 | \$ 287,255,783 | \$ 2,165,373,695 | \$ 299,352,290 | |

What constitutes a fair rate of return on common equity is a conclusion of law that must be predicated on adequate factual findings. *State ex rel. Util. Comm'n v. Public Staff*, 322 N.C. 689, 693, 370 S.E.2d 567, 570 (1988). In finding essential, ultimate facts, the Commission must consider and make its determination based upon all factors particularized in section 62-133, including "all other material facts of record" that will enable the Commission to determine what are reasonable and just rates. N.C.G.S. § 62-133; *State ex rel. Util. Comm'n v. State*, 239 N.C. 333, 344, 80 S.E.2d 133, 141; *accord State ex rel. Util. Comm'n v. Westco Tel. Co.*, 266 N.C. 450, 456, 146 S.E.2d 487, 491 (1966).

CUCA I at 348 N.C. 462, 500 S.E.2d at 701.

The Regulation of Public Utilities Theory and Practice

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Apr 30 2019

CHARLES F. PHILLIPS, JR.

Robert G. Brown

Professor of Economics

Washington and Lee University

1993

PUBLIC UTILITIES REPORTS, INC.

Arlington, Virginia

the other. The first is the adjustment of a general revenue level to the demands of a fair return. The second is the adjustment of a rate schedule conforming to that level, so as to eliminate discriminations and unfairness from its details.¹⁵

Rate Level. The first aspect of rate regulation, the determination of a utility's total revenue requirement, can be expressed as a formula:

$$R = O + (V - D)r$$

where: R is the total revenue required

O is the operating costs

V is the gross value of the tangible and intangible property

D is the accrued depreciation of the tangible and reproducible property

r is the allowed rate of return.

The formula indicates that determining the total revenue required (generally for a twelve-month period) involves three major steps. First, allowable operating costs must be ascertained. These include all types of operating expenses (wages, salaries, fuel, maintenance, advertising, research and charitable contributions) plus annual charges for depreciation and operating taxes. Operating costs represent the largest percentage of a utility's total revenue requirement. Many of these costs are determined by normal competitive factors (wages, salaries, fuel and maintenance) or by various levels of government (taxes). Others are determined by the individual firms (expenditures on advertising, research and development, and charitable contributions; purchases from affiliated subsidiaries) or by the regulatory commissions (annual depreciation rates). A public utility legally may spend any amount it chooses for such purposes, but a commission may not allow all expenditures made for rate-making purposes. When an expenditure is disallowed, in effect, it is charged to a utility's stockholders rather than to its customers.¹⁶

Second, the net or depreciated value of the tangible and intangible property, or net investment in the property, of the enterprise must be determined. This net value or investment ($V - D$) is referred to as the "rate base"; the process of determining its value as "valuation." Referring again to legal phraseology, a public utility is entitled to the opportunity to earn a "fair rate of return" on this net value or investment; that is, on the rate base. The determination of the rate base has been the source of major controversies between public utilities and the commissions ever since the early days of regulation.

Tangible property represents the value of, or investment in, plant and equipment "used and useful" in providing a particular utility's services. Methods of arriving at the value of a company's property differ. In recent years, with an increasing price level, utilities have argued in favor of repro-

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early railroad valuations, in the form of allowances for roadbed solidification.¹⁵⁰

At the same time, it is difficult to explain the logic of deducting observed depreciation, however measured, from a reproduction cost or fair value rate base determined by general price indexes. Such a property valuation, as noted earlier, represents a purely imaginary figure.

Other Elements of Value

While the determination of the depreciated value of the tangible and reproducible property has occupied most of the courts', commissions' and utilities' time, several other elements of value also have received attention — working capital allowances, property held for future use, land, intangibles and customer contributions. Each is briefly discussed below. The issues surrounding construction work in progress are considered in the next section.

Working Capital Allowance

The question of working capital must be considered in every rate case and several important problems are raised in determining a suitable allowance. Working capital — the funds representing necessary investment in materials and supplies, and the cash required to meet current obligations and to maintain minimum bank balances — is included in the rate base so that investors are compensated for capital they have supplied to a utility. The amount required depends largely on a utility's purchasing and billing methods, as well as its construction program. When purchases are made on credit, when deposits or payments are required in advance, when accruals are made for the payment of taxes in advance of payment dates, or when customers pay for the service at the time it is used, working capital requirements may be small. When materials and supplies must be purchased long before use, when customers are billed monthly, quarterly, semiannually or even annually, or when the business is seasonal, such requirements may be large.

The calculation of an electric utility's working capital allowance is illustrated in Table 8-2. The cash component may be determined in three basic ways: (1) A detailed lead/lag study, which measures the amount of time before expenses must be paid (expense lead) and compares it with the amount of time before revenues are received (revenue lag). (2) A formula approach (developed to avoid a costly lead/lag study in every case), which commonly uses one-eighth of a utility's annual operating and maintenance expenses, excluding fuel and purchased power. The factor of one-eighth equates to a forty-five-day time lag between the rendering of the service by a utility and payment by the customer.¹⁵¹ (3) The balance sheet method, representing the

**STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH**

DOCKET NO. E-22, SUB 479

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of
Application of Virginia Electric and Power)
Company, d/b/a Dominion North Carolina) ORDER GRANTING
Power, for Adjustment of Rates and Charges) GENERAL RATE INCREASE
Applicable to Electric Utility Service in)
North Carolina)

HEARD: Wednesday, August 15, 2012, at 7:00 p.m., in Halifax County Historic Courthouse, District Courtroom, 10 North King Street, Halifax, North Carolina;

Wednesday, August 29, 2012, at 7:00 p.m., in Martin County Government Building, Williamston City Hall, Assembly Room, Second Floor, 102 E. Main Street, Williamston, North Carolina;

Wednesday, September 5, 2012, at 7:00 p.m., in the Pasquotank County Courthouse B, 206 East Main Street, Elizabeth City, North Carolina;

Thursday, September 6, 2012, at 7:00 p.m., Dare County Justice Center, Courtroom A, 962 Marshall C. Collins Drive, Manteo, North Carolina; and

Tuesday, October 16, 2012, through Thursday, October 18, 2012, at 9:00 a.m., Commission Hearing Room 2115, Dobbs Building, 430 North Salisbury Street, Raleigh, North Carolina

BEFORE: Commissioner Bryan E. Beatty, Presiding; Chairman Edward S. Finley, Jr., and Commissioners William T. Culpepper, III, Susan W. Rabon, ToNola D. Brown-Bland, and Lucy T. Allen

APPEARANCES:

For Dominion North Carolina Power:

Joseph K. Reid, III, and Kristian M. Dahl, McGuire Woods, LLP, One James Center, 901 East Cary Street, Richmond, Virginia 23219

James Y. Kerr, II, McGuire Woods, LLP, 434 Fayetteville Street, Suite 2600, Raleigh, North Carolina 27601

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Robert W. Kaylor, Law Office of Robert W. Kaylor, P.A., 3700 Glenwood Avenue, Suite 330, Raleigh, North Carolina 27612

For Carolina Industrial Group for Fair Utility Rates I:

Ralph McDonald, Bailey and Dixon, L.L.P., Post Office Box 1351, Raleigh, North Carolina 27602

For Nucor Steel-Hertford:

Damon E. Xenopoulos, Brickfield, Burchette, Ritts & Stone, P.C., 1025 Thomas Jefferson Street, N.W., 8th Floor, West Tower, Washington, D.C. 20007

Joseph W. Eason, Nelson, Mullins, Riley & Scarborough, LLP, 4140 ParkLake Avenue, Suite 200, Post Office Box 30519, Raleigh, North Carolina 27622-0519

For the Using and Consuming Public:

Gisele L. Rankin, Staff Attorney, William E. Grantmyre, Staff Attorney, Robert S. Gillam, Staff Attorney, Dianna W. Downey, Staff Attorney, and Timothy R. Dodge, Staff Attorney, Public Staff-North Carolina Utilities Commission, 4326 Mail Service Center, Raleigh, North Carolina 27699-4326

Margaret A. Force, Assistant Attorney General, North Carolina Department of Justice, Post Office Box 629, Raleigh, North Carolina 27602-0629, and Christopher J. Ayers, Poyner Spruill, LLP, 301 Fayetteville Street, Suite 1900, Raleigh, North Carolina 27601

BY THE COMMISSION: On February 29, 2012, Virginia Electric and Power Company, d/b/a Dominion North Carolina Power (DNCP or Company), gave notice pursuant to Commission Rule R1-17(a) of its intent to file a general rate case application. On March 30, 2012, DNCP filed its application requesting authority to adjust and increase its rates for retail electric service in North Carolina effective on April 30, 2012. DNCP requested authority to increase its rates and charges to produce an additional \$63,665,000, which would be an increase in overall base revenues (including fuel and non-fuel base revenues) of approximately 19.11%. DNCP used a test period ending December 31, 2011, with estimates of changes to revenues, expenses, rate base, and cost of capital through June 30, 2012, as well as estimating investment in plant-in-service and annualized operating expenses for the Virginia City Hybrid Energy Center (VCHEC) through July 16, 2012, its scheduled commercial operations date.

On March 30, 2012, DNCP filed the direct testimony and exhibits of Paul D. Koonce, President and Chief Operating Officer for DNCP; Robert B. McKinley, Vice President, Generation Construction, for DNCP; James P. Carney, Vice President Corporate Finance and Assistant Treasurer of DNCP; Robert B. Hevert,

61. DNCP's Bear Garden Generating Station (Bear Garden or Station) began operating commercially on May 23, 2011. In supplemental testimony filed on August 17, 2012, DNCP requested that it be allowed to defer, amortize, and recover certain previously incurred Bear Garden costs, including cost of capital, depreciation expense, and non-fuel operating expenses, net of purchased power cost savings, for the period June 1, 2011 through June 30, 2012. The Company further requested that amortization of such costs be added to its previously proposed test-period level of operating expenses. DNCP did not propose that the unamortized balance of the present Bear Garden costs be included in rate base.

62. DNCP's request for deferral, amortization, and prospective recovery of certain costs associated with Bear Garden was appropriately submitted as an exception to the general rule that "costs incurred in providing service are deemed to have been recovered through rates in effect at the time the service was rendered." This proceeding is not the first time DNCP has sought recovery of these costs, as the Company did so in its 2010 general rate case. In that case, DNCP entered into a Stipulation, approved by the Commission, which expressly provided that DNCP could seek recovery of Bear Garden costs in a future proceeding. The exclusion of Bear Garden costs from the cost of service established in the Company's last general rate case, relatively speaking, had the effect of reducing the ROE granted by 55 basis points, which is material. Additionally, Bear Garden costs had a 41 basis point impact to the Company's earnings, as reported in the Company's quarterly surveillance report (ES-1 report), filed with the Commission for the 12 months ended June 31, 2012. DNCP's actual earnings during the period that the Bear Garden costs were incurred were substantially below the Company's last approved jurisdictional return on common equity (ROE) of 10.7%.

63. Since Bear Garden began commercial operations, it has significantly reduced the level of fuel costs billed to customers. As customers are substantively benefiting from Bear Garden having been placed in service, it is reasonable to require that they bear the costs incurred in providing those benefits. The nature of the costs for which DNCP seeks deferral are virtually identical to that for which the Commission has allowed deferral in the past. Approval of the Company's request is consistent with Commission precedent, given the facts and circumstances of this case.

64. DNCP has significant, ongoing capital expansion plans and large capital needs. Approval of the Company's present proposal will have a favorable impact on its earnings and financial standing in general and, as such, will enhance the Company's ability to access and obtain capital on more favorable terms, which will ultimately accrue to the benefit of the Company's North Carolina retail ratepayers as well as to its investors.

65. The issue before the Commission in this case is one of cost deferral, a recognized practice allowing recovery of unusual expenses arising from extraordinary circumstances and or events. Cost deferral, in appropriate circumstances, does not constitute impermissible retroactive ratemaking. Given the facts and circumstances in this case, DNCP's failure to specifically request formal approval in a more timely manner does not warrant denial of its request. However, as nothing prohibited DNCP from requesting formal Commission approval for deferral accounting at an earlier time, it would have been far more appropriate for the Company to have done so. Therefore, in planning for and

The Attorney General and City of Durham contend that twenty-three of the Commission's thirty-one findings of fact actually are "mere conclusions." For example, Finding of Fact No. 6, which appellants seem to find particularly objectionable, states that "[t]he decisions made by Duke Power Company to construct and complete Catawba Unit 1 were reasonable, prudent, and made in good faith." Appellants are correct in asserting that this statement is a conclusion of law rather than a finding of fact. Findings of fact are statements of what happened in space and time. These facts, when considered together, provide the basis for concluding, as the Commission did here, whether an action or decision was reasonable or prudent.

State ex rel. Utilities Com. v. Eddleman, 320 N.C. 344, 351, 358 S.E.2d 339, 345-346 (1987)

However, "it is well established that facts found under misapprehension of the law will be set aside on the theory that the evidence should be considered in its true legal light." *42 East, LLC v. D.R. Horton, Inc.*, 218 N.C. App. 503, 518, 722 S.E.2d 1, 11 (2012) (citation and internal quotation marks omitted). Further, conclusions of law which are mischaracterized as findings of fact will be treated on review as conclusions of law. *See, e.g., Wiseman Mortuary, Inc. v. Burrell*, 185 N.C. App. 693, 697, 649 S.E.2d 439, 442 (2007); *see also In re Everette*, 133 N.C. App. 84, 85, 514 S.E.2d 523, 525 (1999) ("As a general rule . . . any determination requiring the exercise of judgment, or the application of legal principles, is more properly classified as a conclusion of law."). A trial court's conclusions of law are reviewed *de novo*, as are any questions of statutory interpretation. *See, e.g., Dare Cnty Bd. of Educ. v. Sakaria*, 127 N.C. App. 585, 588, 492 S.E.2d 369, 371 (1997).

Rutherford Elec. Mbrshp. Corp. v. Time Warner Entertainment – Advance / Newhouse P'ship, 240 N.C. App. 199, 771 S.E.2d 768 (2015).

In the present case, as previously summarized, appellant presented substantial evidence as to her actual expenses of operation and projected future expenses of operation, as well as the necessity of repairs to the water tank and the estimated cost thereof. Although no evidence of the original cost of the system or accumulated depreciation of original cost previously recovered was available to her, she presented evidence of her cost of acquisition of the entire property upon which the facilities are located and estimates of replacement costs of the facilities. The Commission based its denial of appellant's application to abandon service upon its Finding of Fact 11:

11. The financial evidence offered by applicant fails to show that there is no reasonable probability of her realizing sufficient revenues from the utility services to meet her utility expenses.

The Commission repeated virtually the same language in its third Conclusion of Law:

3. The Applicant has failed to show that there is no reasonable probability of her realizing sufficient revenue to meet the expenses of the operation of the public utility water and sewer systems. . . .

Though denominated a finding of fact by the Commission, the statement contained in Finding of Fact 11 is in reality a conclusion of law in that it applies principles of law, rather than a determination of facts from the appellant's evidence, to resolve the issue. In order to review this legal conclusion, we must determine whether facts otherwise found by the Commission are sufficient to support its legal determination that appellant's evidence did not establish her entitlement to abandon service. *See Jones v. Andy Griffith Products,*

Inc., 35 N.C. App. 170, 241 S.E. 2d 140, *disc. rev. denied*, 295 N.C. 90, 244 S.E. 2d 258 (1978).

State ex rel. Utilities Com. v. Mackie, 79 N.C. App. 19, 338 S.E.2d 888 (1986).

McGuireWoods LLP
434 Fayetteville Street
Suite 2600
PO Box 27507 (27611)
Raleigh, NC 27601
Phone: 919.755.6600
Fax: 919.755.6699
www.mcguirewoods.com

Mary Lynne Grigg
Direct: 919.755.6573

McGUIREWOODS

mgrigg@mcguirewoods.com

OFFICIAL COPY

Apr 30 2018

March 22, 2018

VIA ELECTRONIC FILING

M. Lynn Jarvis, Chief Clerk
North Carolina Utilities Commission
Dobbs Building
430 North Salisbury Street
Raleigh, North Carolina 27603

Re: *Application by Duke Energy Carolinas, LLC for Adjustment of Rates and
Charges Applicable to Electric Utility Service in North Carolina*
Docket No. E-7, Sub 1146

Dear Ms. Jarvis:

Attached for filing in the above-referenced proceeding and at the request of Chairman Finley, please find Duke Energy Carolinas, LLC's ("DEC" or the "Company") Revised Kerin Exhibit 11 reflecting the NC jurisdictional allocation of the CCR AROs. For purposes of this request, the Company has applied the Allocation Factor – Peak Demand at Generation Level to total ARO cash flows, both CAMA-related and non-CAMA related, for each DEC plant. The CAMA-related portion of costs have not been separately identified. Since the CAMA-related costs have not been separately identified, it also includes a comparison to witness McManeus' CAMA-related costs.

Please do not hesitate to contact me should you have any questions. Thank you for your assistance with this matter.

Very truly yours,

/s/Mary Lynne Grigg

MLG:kjg

Enclosures

| | | | | | | | | | | | | | | | | | |
|--|------------------|-------------------|----------------|----------------|------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|---------------|--|
| Duke Energy Carolinas | | | | | | | | | | | | | | | | | |
| Ash Management ARO Cash Flows Summary | | | | | | | | | | | | | | | | | |
| as of December 31, 2016 | | | | | | | | | | | | | | | | | |
| w/ inflation | | | | | | | | | | | | | | | | | |
| | Total | Total Spend | Spend | Spend | Total | | | | | | | | | | | | |
| | Project (2015+) | 1/1/15 - 12/31/16 | 2015 | 2016 | CF Forecast | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | |
| DEC - Total System | | | | | | | | | | | | | | | | | |
| Operating | | | | | | | | | | | | | | | | | |
| Allen | \$ 283,368,413 | \$ 32,663,754 | \$ 13,233,460 | \$ 19,430,295 | \$ 250,704,659 | \$ 13,105,043 | \$ 12,053,553 | \$ 5,275,730 | \$ 5,313,498 | \$ 38,819,927 | \$ 32,408,258 | \$ 23,892,118 | \$ 22,983,156 | \$ 18,323,039 | \$ 17,148,282 | \$ 9,586,768 | |
| Belews Creek | 410,870,792 | 36,340,942 | 9,861,194 | 26,479,748 | 374,529,850 | 19,942,057 | 18,654,570 | 11,369,459 | 11,543,025 | 11,679,458 | 51,944,490 | 44,719,108 | 42,028,813 | 34,910,411 | 33,602,452 | 22,111,974 | |
| Cliffside | 265,070,155 | 47,220,531 | 25,869,494 | 21,351,036 | 217,849,624 | 27,762,045 | 25,920,397 | 7,819,587 | 14,458,233 | 12,940,928 | 14,323,105 | 19,079,622 | 14,899,581 | 17,246,637 | 12,855,295 | 12,701,031 | |
| Marshall | 395,806,013 | 31,372,013 | 13,212,194 | 18,159,819 | 364,434,000 | 24,212,004 | 17,697,455 | 5,898,237 | 5,928,160 | 55,464,481 | 46,938,350 | 38,545,166 | 37,500,019 | 28,933,385 | 27,638,905 | 13,126,124 | |
| Total Operating Plants | \$ 1,355,115,374 | \$ 147,597,241 | \$ 62,176,342 | \$ 85,420,899 | \$ 1,207,518,133 | \$ 85,021,148 | \$ 74,325,974 | \$ 30,363,013 | \$ 37,242,916 | \$ 118,904,794 | \$ 145,614,203 | \$ 126,236,014 | \$ 117,411,569 | \$ 99,413,472 | \$ 91,244,934 | \$ 57,525,897 | |
| Retired | | | | | | | | | | | | | | | | | |
| Buck | \$ 291,561,042 | \$ 19,857,022 | \$ 10,035,189 | \$ 9,821,833 | \$ 271,704,020 | \$ 40,225,081 | \$ 89,813,164 | \$ 20,062,269 | \$ 9,412,882 | \$ 9,533,453 | \$ 6,757,651 | \$ 6,933,350 | \$ 6,162,267 | \$ 6,322,486 | \$ 6,486,871 | \$ 6,655,529 | |
| Dan River | 232,828,640 | 108,876,242 | 38,612,244 | 70,263,998 | 123,952,398 | 37,485,287 | 30,953,401 | 32,811,367 | 10,719,318 | 2,893,834 | 207,927 | 213,333 | 218,879 | 224,570 | 230,409 | 236,400 | |
| Riverbend | 419,062,052 | 126,071,625 | 39,667,308 | 86,404,316 | 292,990,428 | 102,765,409 | 104,618,751 | 65,287,773 | 9,166,087 | 5,068,422 | 139,179 | 142,797 | 146,510 | 150,319 | 154,228 | 158,238 | |
| WS Lee (SC) | 324,240,779 | 55,032,062 | 19,687,325 | 35,344,738 | 269,208,717 | 33,855,365 | 50,160,558 | 63,066,933 | 51,704,987 | 30,881,386 | 22,538,870 | 6,469,059 | 253,270 | 259,855 | 266,611 | 273,543 | |
| Total Retired Plants | \$ 1,267,692,514 | \$ 309,836,951 | \$ 108,002,066 | \$ 201,834,885 | \$ 957,855,563 | \$ 214,331,142 | \$ 275,545,874 | \$ 181,228,342 | \$ 81,003,275 | \$ 48,377,094 | \$ 29,643,626 | \$ 13,758,538 | \$ 6,780,926 | \$ 6,957,230 | \$ 7,138,118 | \$ 7,323,709 | |
| | | | | | | | | | | | | | | | | | |
| Total Duke Energy Carolinas | \$ 2,622,807,887 | \$ 457,434,192 | \$ 170,178,409 | \$ 287,255,783 | \$ 2,165,373,695 | \$ 299,352,290 | \$ 349,871,849 | \$ 211,591,355 | \$ 118,246,191 | \$ 167,281,889 | \$ 175,257,830 | \$ 139,994,553 | \$ 124,192,495 | \$ 106,370,702 | \$ 98,383,052 | \$ 64,849,606 | |
| | | | | | | | | | | | | | | | | | |
| Factor - Peak Demand at Generation Level (Note 1) | | | 69.4869% | 68.3768% | | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | |
| | | | | | | | | | | | | | | | | | |
| DEC - NC Retail | | | | | | | | | | | | | | | | | |
| Operating | | | | | | | | | | | | | | | | | |
| Allen | | | \$ 9,195,521 | \$ 13,285,814 | | \$ 8,781,269 | \$ 8,076,699 | \$ 3,535,097 | \$ 3,560,404 | \$ 26,011,987 | \$ 21,715,733 | \$ 16,009,341 | \$ 15,400,275 | \$ 12,277,680 | \$ 11,490,514 | \$ 6,423,786 | |
| Belews Creek | | | 6,852,238 | 18,106,004 | | 13,362,532 | 12,499,828 | 7,618,310 | 7,734,611 | 7,826,030 | 34,806,335 | 29,964,839 | 28,162,158 | 23,392,346 | 22,515,924 | 14,816,524 | |
| Cliffside | | | 17,975,910 | 14,599,156 | | 18,602,455 | 17,368,426 | 5,239,654 | 9,687,998 | 8,671,300 | 9,597,453 | 12,784,642 | 9,983,731 | 11,556,418 | 8,613,920 | 8,510,553 | |
| Marshall | | | 9,180,744 | 12,417,103 | | 16,223,686 | 11,858,497 | 3,952,220 | 3,972,270 | 37,164,968 | 31,451,882 | 25,827,878 | 25,127,559 | 19,387,332 | 18,519,943 | 8,795,394 | |
| Total Operating Plants | | | \$ 43,204,413 | \$ 58,408,077 | | \$ 56,969,942 | \$ 49,803,449 | \$ 20,345,280 | \$ 24,955,283 | \$ 79,674,285 | \$ 97,571,403 | \$ 84,586,701 | \$ 78,673,723 | \$ 66,613,776 | \$ 61,140,301 | \$ 38,546,257 | |
| Retired | | | | | | | | | | | | | | | | | |
| Buck | | | \$ 6,973,142 | \$ 6,715,855 | | \$ 26,953,535 | \$ 60,180,918 | \$ 13,443,083 | \$ 6,307,270 | \$ 6,388,061 | \$ 4,528,085 | \$ 4,645,815 | \$ 4,129,137 | \$ 4,236,495 | \$ 4,346,644 | \$ 4,459,656 | |
| Dan River | | | 26,830,452 | 48,044,273 | | 25,117,688 | 20,740,880 | 21,985,843 | 7,182,671 | 1,939,065 | 139,325 | 142,947 | 146,664 | 150,477 | 154,390 | 158,404 | |
| Riverbend | | | 27,563,583 | 59,080,507 | | 68,859,801 | 70,101,667 | 43,747,241 | 6,141,901 | 3,396,187 | 93,259 | 95,684 | 98,172 | 100,724 | 103,343 | 106,030 | |
| WS Lee (SC) | | | 13,680,112 | 24,167,601 | | 22,685,393 | 33,610,980 | 42,259,127 | 34,645,852 | 20,692,625 | 15,102,574 | 4,334,708 | 169,708 | 174,120 | 178,647 | 183,292 | |
| Total Retired Plants | | | \$ 75,047,288 | \$ 138,008,236 | | \$ 143,616,417 | \$ 184,634,444 | \$ 121,435,294 | \$ 54,277,694 | \$ 32,415,938 | \$ 19,863,242 | \$ 9,219,155 | \$ 4,543,681 | \$ 4,661,817 | \$ 4,783,024 | \$ 4,907,382 | |
| | | | | | | | | | | | | | | | | | |
| Total Duke Energy Carolinas | | | \$ 118,251,701 | \$ 196,416,313 | | \$ 200,586,360 | \$ 234,437,894 | \$ 141,780,574 | \$ 79,232,977 | \$ 112,090,223 | \$ 117,434,645 | \$ 93,805,855 | \$ 83,217,404 | \$ 71,275,593 | \$ 65,923,324 | \$ 43,453,639 | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| Note 1: for purposes of this request the Company has applied the Allocation Factor - Peak Demand at Generation Level to total ARO cash flows, both CAMA-related and non-CAMA related, for each Duke Energy Carolinas plant. The CAMA related portion of costs have not been separately identified. | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| McManeus Exhibits - NC-1800 | | | | | | | | | | | | | | | | | |
| Total Spend Excluding NC CAMA Only Costs | | | \$ 163,905,963 | \$ 270,104,362 | | \$ 269,237,450 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | |
| Factor - Demand at Generation Level (Factor 1) | | | 69.4869% | 68.3768% | | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | |
| NC Retail Spend Excluding NC CAMA Only Costs | | | \$ 113,893,173 | \$ 184,688,719 | | \$ 180,407,372 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | |
| | | | | | | | | | | | | | | | | | |
| NC CAMA Only Costs | | | \$ 6,272,446 | \$ 17,151,422 | | \$ 30,114,840 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | |
| Factor - Demand at Generation Level (Factor 1) - NC State Only | | | 93.1688% | 92.8075% | | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | |
| NC Retail CAMA Only Costs | | | \$ 5,843,962 | \$ 15,917,806 | | \$ 27,928,659 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | |
| | | | | | | | | | | | | | | | | | |
| NC Retail Only Spend | | | \$ 119,737,135 | \$ 200,606,525 | | \$ 208,336,031 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | |
| | | | | | | | | | | | | | | | | | |
| Variance to Mcmaneus Exhibits | | | \$ (1,485,434) | \$ (4,190,212) | | \$ (7,749,672) | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | |

| | | | | | | | | | | | | | | | | | | | |
|---|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Duke Energy Carolinas | | | | | | | | | | | | | | | | | | | |
| Ash Management ARO Cash Flows Summary | | | | | | | | | | | | | | | | | | | |
| as of December 31, 2016 | | | | | | | | | | | | | | | | | | | |
| w/ inflation | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| DEC - Total System | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 |
| Operating | | | | | | | | | | | | | | | | | | | |
| Allen | \$ 1,210,465 | \$ 1,226,292 | \$ 1,256,950 | \$ 1,288,373 | \$ 1,320,583 | \$ 1,353,597 | \$ 1,387,437 | \$ 1,422,123 | \$ 1,457,676 | \$ 1,494,118 | \$ 1,531,471 | \$ 1,569,758 | \$ 1,609,002 | \$ 1,649,227 | \$ 1,690,458 | \$ 1,732,719 | \$ 1,776,037 | \$ 1,820,438 | \$ 1,865,949 |
| Belews Creek | 1,232,036 | 1,248,145 | 16,257,719 | 1,463,003 | 1,499,578 | 1,537,067 | 1,575,494 | 1,614,881 | 1,655,253 | 1,696,635 | 1,739,051 | 1,782,527 | 1,827,090 | 1,872,767 | 1,919,586 | 1,967,576 | 2,016,766 | 2,067,185 | 2,118,864 |
| Cliffside | 913,888 | 925,838 | 948,984 | 972,709 | 997,026 | 1,021,952 | 1,047,501 | 1,073,688 | 1,100,531 | 1,128,044 | 1,156,245 | 1,185,151 | 1,214,780 | 1,245,149 | 1,276,278 | 1,308,185 | 1,340,890 | 1,374,412 | 1,408,772 |
| Marshall | 1,487,115 | 1,506,560 | 1,544,224 | 1,582,829 | 1,622,400 | 1,662,960 | 1,704,534 | 1,747,147 | 1,790,826 | 1,835,597 | 1,881,487 | 1,928,524 | 1,976,737 | 2,026,155 | 2,076,809 | 2,128,729 | 2,181,948 | 2,236,496 | 2,292,409 |
| Total Operating Plants | \$ 4,843,503 | \$ 4,906,836 | \$ 20,007,877 | \$ 5,306,914 | \$ 5,439,587 | \$ 5,575,577 | \$ 5,714,966 | \$ 5,857,840 | \$ 6,004,286 | \$ 6,154,394 | \$ 6,308,253 | \$ 6,465,960 | \$ 6,627,609 | \$ 6,793,299 | \$ 6,963,131 | \$ 7,137,210 | \$ 7,315,640 | \$ 7,498,531 | \$ 7,685,994 |
| | | | | | | | | | | | | | | | | | | | |
| Retired | | | | | | | | | | | | | | | | | | | |
| Buck | \$ 6,891,903 | \$ 7,513,266 | \$ 7,701,098 | \$ 7,893,626 | \$ 8,910,734 | \$ 715,164 | \$ 733,043 | \$ 751,369 | \$ 770,153 | \$ 789,407 | \$ 809,142 | \$ 829,371 | \$ 850,105 | \$ 871,357 | \$ 893,141 | \$ 915,470 | \$ 938,357 | \$ 961,816 | \$ 985,861 |
| Dan River | 242,546 | 245,717 | 251,860 | 258,157 | 264,611 | 271,226 | 278,007 | 284,957 | 292,081 | 299,383 | 306,867 | 314,539 | 322,403 | 330,463 | 338,724 | 347,192 | 355,872 | 364,769 | 373,888 |
| Riverbend | 162,352 | 164,475 | 168,587 | 172,801 | 177,121 | 181,549 | 186,088 | 190,740 | 195,509 | 200,396 | 205,406 | 210,541 | 215,805 | 221,200 | 226,730 | 232,398 | 238,208 | 244,164 | 250,268 |
| WS Lee (SC) | 280,655 | 284,325 | 291,433 | 298,719 | 306,186 | 313,841 | 321,687 | 329,729 | 337,973 | 346,422 | 355,082 | 363,960 | 373,058 | 382,385 | 391,945 | 401,743 | 411,787 | 422,081 | 432,633 |
| Total Retired Plants | \$ 7,577,456 | \$ 8,207,783 | \$ 8,412,978 | \$ 8,623,302 | \$ 9,658,652 | \$ 1,481,780 | \$ 1,518,825 | \$ 1,556,795 | \$ 1,595,715 | \$ 1,635,608 | \$ 1,676,498 | \$ 1,718,411 | \$ 1,761,371 | \$ 1,805,405 | \$ 1,850,540 | \$ 1,896,804 | \$ 1,944,224 | \$ 1,992,830 | \$ 2,042,650 |
| | | | | | | | | | | | | | | | | | | | |
| Total Duke Energy Carolinas | \$ 12,420,959 | \$ 13,114,619 | \$ 28,420,855 | \$ 13,930,216 | \$ 15,098,239 | \$ 7,057,357 | \$ 7,233,791 | \$ 7,414,636 | \$ 7,600,002 | \$ 7,790,002 | \$ 7,984,752 | \$ 8,184,370 | \$ 8,388,980 | \$ 8,598,704 | \$ 8,813,672 | \$ 9,034,014 | \$ 9,259,864 | \$ 9,491,360 | \$ 9,728,644 |
| | | | | | | | | | | | | | | | | | | | |
| Factor - Peak Demand at Generation Level (Note 1) | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% |
| | | | | | | | | | | | | | | | | | | | |
| DEC - NC Retail | | | | | | | | | | | | | | | | | | | |
| Operating | | | | | | | | | | | | | | | | | | | |
| Allen | \$ 811,093 | \$ 821,699 | \$ 842,242 | \$ 863,298 | \$ 884,880 | \$ 907,002 | \$ 929,677 | \$ 952,919 | \$ 976,742 | \$ 1,001,161 | \$ 1,026,190 | \$ 1,051,844 | \$ 1,078,140 | \$ 1,105,094 | \$ 1,132,721 | \$ 1,161,039 | \$ 1,190,065 | \$ 1,219,817 | \$ 1,250,312 |
| Belews Creek | 825,547 | 836,342 | 10,893,776 | 980,311 | 1,004,819 | 1,029,939 | 1,055,688 | 1,082,080 | 1,109,132 | 1,136,860 | 1,165,282 | 1,194,414 | 1,224,274 | 1,254,881 | 1,286,253 | 1,318,410 | 1,351,370 | 1,385,154 | 1,419,783 |
| Cliffside | 612,367 | 620,374 | 635,884 | 651,781 | 668,075 | 684,777 | 701,897 | 719,444 | 737,430 | 755,866 | 774,763 | 794,132 | 813,985 | 834,335 | 855,193 | 876,573 | 898,487 | 920,949 | 943,973 |
| Marshall | 996,468 | 1,009,497 | 1,034,735 | 1,060,603 | 1,087,118 | 1,114,296 | 1,142,154 | 1,170,707 | 1,199,975 | 1,229,974 | 1,260,724 | 1,292,242 | 1,324,548 | 1,357,662 | 1,391,603 | 1,426,393 | 1,462,053 | 1,498,604 | 1,536,070 |
| Total Operating Plants | \$ 3,245,476 | \$ 3,287,913 | \$ 13,406,636 | \$ 3,555,993 | \$ 3,644,893 | \$ 3,736,015 | \$ 3,829,415 | \$ 3,925,151 | \$ 4,023,280 | \$ 4,123,862 | \$ 4,226,958 | \$ 4,332,632 | \$ 4,440,948 | \$ 4,551,972 | \$ 4,665,771 | \$ 4,782,415 | \$ 4,901,975 | \$ 5,024,525 | \$ 5,150,138 |
| | | | | | | | | | | | | | | | | | | | |
| Retired | | | | | | | | | | | | | | | | | | | |
| Buck | \$ 4,618,043 | \$ 5,034,399 | \$ 5,160,259 | \$ 5,289,265 | \$ 5,970,797 | \$ 479,208 | \$ 491,188 | \$ 503,468 | \$ 516,055 | \$ 528,956 | \$ 542,180 | \$ 555,735 | \$ 569,628 | \$ 583,869 | \$ 598,465 | \$ 613,427 | \$ 628,763 | \$ 644,482 | \$ 660,594 |
| Dan River | 162,522 | 164,647 | 168,764 | 172,983 | 177,307 | 181,740 | 186,283 | 190,940 | 195,714 | 200,607 | 205,622 | 210,763 | 216,032 | 221,432 | 226,968 | 232,642 | 238,459 | 244,420 | 250,530 |
| Riverbend | 108,787 | 110,209 | 112,964 | 115,789 | 118,683 | 121,650 | 124,692 | 127,809 | 131,004 | 134,279 | 137,636 | 141,077 | 144,604 | 148,219 | 151,925 | 155,723 | 159,616 | 163,606 | 167,696 |
| WS Lee (SC) | 188,058 | 190,517 | 195,280 | 200,162 | 205,166 | 210,295 | 215,552 | 220,941 | 226,465 | 232,126 | 237,929 | 243,878 | 249,975 | 256,224 | 262,629 | 269,195 | 275,925 | 282,823 | 289,894 |
| Total Retired Plants | \$ 5,077,410 | \$ 5,499,772 | \$ 5,637,266 | \$ 5,778,198 | \$ 6,471,953 | \$ 992,893 | \$ 1,017,716 | \$ 1,043,159 | \$ 1,069,237 | \$ 1,095,968 | \$ 1,123,368 | \$ 1,151,452 | \$ 1,180,238 | \$ 1,209,744 | \$ 1,239,988 | \$ 1,270,987 | \$ 1,302,762 | \$ 1,335,331 | \$ 1,368,714 |
| | | | | | | | | | | | | | | | | | | | |
| Total Duke Energy Carolinas | \$ 8,322,886 | \$ 8,787,685 | \$ 19,043,902 | \$ 9,334,191 | \$ 10,116,846 | \$ 4,728,908 | \$ 4,847,131 | \$ 4,968,309 | \$ 5,092,517 | \$ 5,219,830 | \$ 5,350,326 | \$ 5,484,084 | \$ 5,621,186 | \$ 5,761,716 | \$ 5,905,758 | \$ 6,053,402 | \$ 6,204,738 | \$ 6,359,856 | \$ 6,518,852 |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| Note 1: for purposes of this request the Company has ap | | | | | | | | | | | | | | | | | | | |
| Factor - Peak Demand at Generation Level to total ARO c | | | | | | | | | | | | | | | | | | | |
| CAMA-related and non-CAMA related, for each Duke Ene | | | | | | | | | | | | | | | | | | | |
| The CAMA related portion of costs have not been separa | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| McManeus Exhibits - NC-1800 | | | | | | | | | | | | | | | | | | | |
| Total Spend Excluding NC CAMA Only Costs | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Factor - Demand at Generation Level (Factor 1) | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% |
| NC Retail Spend Excluding NC CAMA Only Costs | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| | | | | | | | | | | | | | | | | | | | |
| NC CAMA Only Costs | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Factor - Demand at Generation Level (Factor 1) - NC Sta | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% |
| NC Retail CAMA Only Costs | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| | | | | | | | | | | | | | | | | | | | |
| NC Retail Only Spend | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| | | | | | | | | | | | | | | | | | | | |
| Variance to Mcmaneus Exhibits | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |

| | | | | | | | | | | | |
|---|--------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|--------------|---------------|---------------|
| Duke Energy Carolinas | | | | | | | | | | | |
| Ash Management ARO Cash Flows Summary | | | | | | | | | | | |
| as of December 31, 2016 | | | | | | | | | | | |
| w/ inflation | | | | | | | | | | | |
| | | | | | | | | | | | |
| DEC - Total System | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 |
| Operating | | | | | | | | | | | |
| Allen | \$ 1,912,598 | \$ 1,960,412 | \$ 2,009,423 | \$ 2,059,658 | \$ 2,111,150 | \$ 2,163,929 | \$ 2,076,629 | \$ 2,128,545 | \$ 2,181,758 | \$ 2,236,302 | \$ 2,292,210 |
| Belews Creek | 2,171,836 | 2,226,132 | 2,062,866 | 2,114,438 | 2,167,299 | 2,221,481 | 2,277,018 | 2,333,944 | 2,392,292 | 2,452,100 | 2,513,402 |
| Cliffside | 1,443,992 | 1,480,091 | 1,517,094 | 1,555,021 | 1,352,373 | 1,386,182 | 1,420,837 | 1,456,358 | 1,492,767 | 1,530,086 | 1,568,338 |
| Marshall | 2,236,212 | 2,292,117 | 2,349,420 | 2,408,155 | 2,468,359 | 2,530,068 | 2,483,463 | 2,545,549 | 2,609,188 | 2,674,418 | 2,741,278 |
| Total Operating Plants | \$ 7,764,637 | \$ 7,958,753 | \$ 7,938,803 | \$ 8,137,273 | \$ 8,099,181 | \$ 8,301,661 | \$ 8,257,947 | \$ 8,464,396 | \$ 8,676,006 | \$ 8,892,906 | \$ 9,115,229 |
| | | | | | | | | | | | |
| Retired | | | | | | | | | | | |
| Buck | \$ 1,010,507 | \$ 1,035,770 | \$ 1,061,664 | \$ 1,088,206 | \$ 1,115,411 | \$ 1,143,296 | \$ 1,171,879 | \$ 1,201,176 | \$ 1,231,205 | \$ 1,261,985 | \$ 1,293,535 |
| Dan River | 383,235 | 392,816 | 402,637 | 412,703 | 423,020 | - | - | - | - | - | - |
| Riverbend | 256,524 | 262,937 | 269,511 | 276,249 | 283,155 | - | - | - | - | - | - |
| WS Lee (SC) | 443,449 | 454,536 | 465,899 | 477,546 | 489,485 | 501,722 | - | - | - | - | - |
| Total Retired Plants | \$ 2,093,717 | \$ 2,146,059 | \$ 2,199,711 | \$ 2,254,704 | \$ 2,311,071 | \$ 1,645,019 | \$ 1,171,879 | \$ 1,201,176 | \$ 1,231,205 | \$ 1,261,985 | \$ 1,293,535 |
| | | | | | | | | | | | |
| Total Duke Energy Carolinas | \$ 9,858,353 | \$ 10,104,812 | \$ 10,138,513 | \$ 10,391,976 | \$ 10,410,252 | \$ 9,946,679 | \$ 9,429,826 | \$ 9,665,572 | \$ 9,907,211 | \$ 10,154,891 | \$ 10,408,764 |
| | | | | | | | | | | | |
| Factor - Peak Demand at Generation Level (Note 1) | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% |
| | | | | | | | | | | | |
| DEC - NC Retail | | | | | | | | | | | |
| Operating | | | | | | | | | | | |
| Allen | \$ 1,281,570 | \$ 1,313,609 | \$ 1,346,450 | \$ 1,380,111 | \$ 1,414,614 | \$ 1,449,979 | \$ 1,391,482 | \$ 1,426,269 | \$ 1,461,926 | \$ 1,498,474 | \$ 1,535,936 |
| Belews Creek | 1,455,278 | 1,491,659 | 1,382,260 | 1,416,817 | 1,452,237 | 1,488,543 | 1,525,757 | 1,563,901 | 1,602,998 | 1,643,073 | 1,684,150 |
| Cliffside | 967,572 | 991,762 | 1,016,556 | 1,041,970 | 906,182 | 928,836 | 952,057 | 975,859 | 1,000,255 | 1,025,262 | 1,050,893 |
| Marshall | 1,498,414 | 1,535,874 | 1,574,271 | 1,613,628 | 1,653,968 | 1,695,317 | 1,664,089 | 1,705,691 | 1,748,333 | 1,792,042 | 1,836,843 |
| Total Operating Plants | \$ 5,202,834 | \$ 5,332,905 | \$ 5,319,537 | \$ 5,452,525 | \$ 5,427,001 | \$ 5,562,676 | \$ 5,533,385 | \$ 5,671,720 | \$ 5,813,513 | \$ 5,958,851 | \$ 6,107,822 |
| | | | | | | | | | | | |
| Retired | | | | | | | | | | | |
| Buck | \$ 677,109 | \$ 694,036 | \$ 711,387 | \$ 729,172 | \$ 747,401 | \$ 766,086 | \$ 785,238 | \$ 804,869 | \$ 824,991 | \$ 845,616 | \$ 866,756 |
| Dan River | 256,794 | 263,214 | 269,794 | 276,539 | 283,452 | - | - | - | - | - | - |
| Riverbend | 171,889 | 176,186 | 180,591 | 185,105 | 189,733 | - | - | - | - | - | - |
| WS Lee (SC) | 297,141 | 304,570 | 312,184 | 319,989 | 327,988 | 336,188 | - | - | - | - | - |
| Total Retired Plants | \$ 1,402,932 | \$ 1,438,006 | \$ 1,473,956 | \$ 1,510,805 | \$ 1,548,575 | \$ 1,102,274 | \$ 785,238 | \$ 804,869 | \$ 824,991 | \$ 845,616 | \$ 866,756 |
| | | | | | | | | | | | |
| Total Duke Energy Carolinas | \$ 6,605,766 | \$ 6,770,910 | \$ 6,793,492 | \$ 6,963,330 | \$ 6,975,576 | \$ 6,664,950 | \$ 6,318,624 | \$ 6,476,589 | \$ 6,638,504 | \$ 6,804,467 | \$ 6,974,578 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Note 1: for purposes of this request the Company has ap | | | | | | | | | | | |
| Factor - Peak Demand at Generation Level to total ARO c | | | | | | | | | | | |
| CAMA-related and non-CAMA related, for each Duke Ene | | | | | | | | | | | |
| The CAMA related portion of costs have not been separa | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| McManeus Exhibits - NC-1800 | | | | | | | | | | | |
| Total Spend Excluding NC CAMA Only Costs | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Factor - Demand at Generation Level (Factor 1) | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% | 67.0068% |
| NC Retail Spend Excluding NC CAMA Only Costs | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| | | | | | | | | | | | |
| NC CAMA Only Costs | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Factor - Demand at Generation Level (Factor 1) - NC Sta | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% | 92.7405% |
| NC Retail CAMA Only Costs | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| | | | | | | | | | | | |
| NC Retail Only Spend | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| | | | | | | | | | | | |
| Variance to Mcmaneus Exhibits | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |

Duke Energy Carolinas
Ash Management ARO Cash Flows Summary
Detail Tab Footnotes
as of December 31, 2016

Note: Certain types of actual amounts may not be in the same categories as forecasted amounts

- a. Contingency estimate covers discrete items.
- b. Coal Combustion Products (CCP) Basin Support Projects estimate reflects CCR related support projects affecting the timing or method of closure (ex. Dam stability projects)
- c. CCP Oversight & LRP - Coal Combustion Products Oversight & Long Range Plan
- d. CCP Inspections and Maintenance - Coal Combustion Products Inspections and Maintenance
- e. CCP Engineering - Coal Combustion Products Engineering
- f. EHS - Environmental, Health and Safety: estimate includes well installation, well sampling (groundwater monitoring), bottled water and permanent water supplies
- g. Post-Closure Maintenance - 30 years of required costs post-closure
- h. Previous Landfill ARO Cash Flows - estimated cash flows for landfill AROs initially recorded before CAMA and CCR (not included in Cost of Removal depreciation rates)
- i. Inflation Impacts - compounded inflation impacts

| | | | | | | | | | | | |
|--|-----------------------|-----------|----------------------|----------------------|----------------------|----------------------|---------------------|---------------------|----------------------|----------------------|----------------------|
| Duke Energy Carolinas | | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Allen | | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | Actual | Actual | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>Total</u> | <u>FN</u> | <u>2015</u> | <u>2016</u> | <u>2017</u> | <u>2018</u> | <u>2019</u> | <u>2020</u> | <u>2021</u> | <u>2022</u> | <u>2023</u> |
| Mobilization and Site Preparation | \$ 1,067,496 | | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 747,247 | \$ 320,249 | \$ - |
| Site Infrastructure | 1,538,907 | | - | - | - | - | - | - | 1,077,235 | 307,781 | - |
| Water Treatment & Management | 24,119,435 | | 8,495 | 14,640 | - | - | - | - | 7,228,890 | 4,819,260 | 2,409,630 |
| Ash Processing | 50,825,601 | | - | - | - | - | - | - | 10,165,120 | 10,165,120 | 10,165,120 |
| Construct Landfill & Cap-In-Place | - | | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | 5,552,274 | | - | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | 14,813,745 | | 526,425 | 747,923 | - | - | - | - | 4,061,819 | 2,707,879 | 1,353,940 |
| Duke Cost | 15,536,436 | | 1,068,379 | 1,389,211 | - | - | - | - | 2,617,230 | 2,617,230 | 2,617,230 |
| Site Maintenance Landfill, etc. | - | | - | - | - | - | - | - | - | - | - |
| Contingency | 12,461,119 | a | - | - | - | - | - | - | 3,738,336 | 2,492,224 | 2,492,224 |
| Basin Closure | \$ 125,915,013 | | \$ 1,603,299 | \$ 2,151,774 | \$ - | \$ - | \$ - | \$ - | \$ 29,635,877 | \$ 23,429,744 | \$ 19,038,144 |
| CCP Basin Support Projects | 13,711,015 | b | 1,689,563 | 10,830,094 | 1,191,359 | - | - | - | - | - | - |
| CCP Oversight & LRP | 4,400,609 | c | 2,207,939 | 433,905 | 159,888 | 159,888 | 159,888 | 159,888 | 159,888 | 159,888 | 159,888 |
| CCP Inspections and Maintenance | 8,217,721 | d | - | - | 952,904 | 951,600 | 648,135 | 708,135 | 708,135 | 708,135 | 708,135 |
| CCP Engineering | 966,769 | e | - | - | 333,369 | 333,368 | 200,021 | 100,011 | - | - | - |
| EHS | 45,466,947 | f | 7,732,659 | 6,014,522 | 10,147,889 | 10,027,889 | 3,890,995 | 3,845,733 | 3,807,259 | - | - |
| Post-Closure Maintenance | 24,986,023 | g | - | - | - | - | - | - | - | - | - |
| Previous Landfill ARO Cash Flows | 5,186,046 | h | | | - | - | - | - | - | 3,484,746 | 56,710 |
| Inflation Impacts | 54,518,269 | i | - | - | 319,635 | 580,808 | 376,690 | 499,731 | 4,508,768 | 4,625,745 | 3,929,241 |
| Total Allen | \$ 283,368,413 | | \$ 13,233,460 | \$ 19,430,295 | \$ 13,105,043 | \$ 12,053,553 | \$ 5,275,730 | \$ 5,313,498 | \$ 38,819,927 | \$ 32,408,258 | \$ 23,892,118 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | | |

| | | | | | | | | | | | |
|--|----------------------|----------------------|----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Duke Energy Carolinas | | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Allen | | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2024</u> | <u>2025</u> | <u>2026</u> | <u>2027</u> | <u>2028</u> | <u>2029</u> | <u>2030</u> | <u>2031</u> | <u>2032</u> | <u>2033</u> | <u>2034</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - | 153,891 | - | - | - | - | - | - | - |
| Water Treatment & Management | 2,409,630 | 2,409,630 | 2,409,630 | 2,409,630 | - | - | - | - | - | - | - |
| Ash Processing | 10,165,120 | 5,082,560 | 5,082,560 | - | - | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | 2,220,910 | 2,220,910 | 1,110,455 | - | - | - | - | - | - | - |
| Engineering Closure Plans | 1,353,940 | 1,353,940 | 1,353,940 | 1,353,940 | - | - | - | - | - | - | - |
| Duke Cost | 2,617,230 | 1,305,694 | 651,386 | 652,847 | - | - | - | - | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - | - | - | - | - | - | - | - | - |
| Contingency | 1,246,112 | 1,246,112 | 623,056 | 623,056 | - | - | - | - | - | - | - |
| Basin Closure | \$ 17,792,032 | \$ 13,618,845 | \$ 12,341,482 | \$ 6,303,818 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | 159,888 | 159,888 | 159,888 | 159,888 | - | - | - | - | - | - | - |
| CCP Inspections and Maintenance | 708,135 | 708,135 | 708,135 | 708,135 | - | - | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | - | - | - | - | 832,867 | 832,867 | 832,867 | 832,867 | 832,867 | 832,867 | 832,867 |
| Previous Landfill ARO Cash Flows | 56,710 | 56,710 | 56,710 | 56,710 | 56,710 | 56,710 | 56,710 | 56,710 | 56,710 | 56,710 | 56,710 |
| Inflation Impacts | 4,266,391 | 3,779,461 | 3,882,068 | 2,358,217 | 320,887 | 336,715 | 367,372 | 398,796 | 431,005 | 464,020 | 497,860 |
| Total Allen | \$ 22,983,156 | \$ 18,323,039 | \$ 17,148,282 | \$ 9,586,768 | \$ 1,210,465 | \$ 1,226,292 | \$ 1,256,950 | \$ 1,288,373 | \$ 1,320,583 | \$ 1,353,597 | \$ 1,387,437 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | | |

| | | | | | | | | | | | |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Duke Energy Carolinas | | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Allen | | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2035</u> | <u>2036</u> | <u>2037</u> | <u>2038</u> | <u>2039</u> | <u>2040</u> | <u>2041</u> | <u>2042</u> | <u>2043</u> | <u>2044</u> | <u>2045</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - | - | - | - | - | - | - | - | - |
| Water Treatment & Management | - | - | - | - | - | - | - | - | - | - | - |
| Ash Processing | - | - | - | - | - | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | - | - | - | - | - | - | - | - | - | - | - |
| Duke Cost | - | - | - | - | - | - | - | - | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - | - | - | - | - | - | - | - | - |
| Contingency | - | - | - | - | - | - | - | - | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | - | - | - | - | - | - | - | - | - | - | - |
| CCP Inspections and Maintenance | - | - | - | - | - | - | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | 832,867 | 832,867 | 832,867 | 832,867 | 832,867 | 832,867 | 832,867 | 832,867 | 832,867 | 832,867 | 832,867 |
| Previous Landfill ARO Cash Flows | 56,710 | 56,710 | 56,710 | 56,710 | 56,710 | 56,710 | 56,710 | 56,710 | 56,710 | 56,710 | 56,710 |
| Inflation Impacts | 532,546 | 568,099 | 604,541 | 641,894 | 680,180 | 719,424 | 759,649 | 800,880 | 843,142 | 886,459 | 930,860 |
| Total Allen | \$ 1,422,123 | \$ 1,457,676 | \$ 1,494,118 | \$ 1,531,471 | \$ 1,569,758 | \$ 1,609,002 | \$ 1,649,227 | \$ 1,690,458 | \$ 1,732,719 | \$ 1,776,037 | \$ 1,820,438 |
| | | | | | | | | | | | |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | | |

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|--|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Duke Energy Carolinas | | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Allen | | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2046</u> | <u>2047</u> | <u>2048</u> | <u>2049</u> | <u>2050</u> | <u>2051</u> | <u>2052</u> | <u>2053</u> | <u>2054</u> | <u>2055</u> | <u>2056</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - | - | - | - | - | - | - | - | - |
| Water Treatment & Management | - | - | - | - | - | - | - | - | - | - | - |
| Ash Processing | - | - | - | - | - | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | - | - | - | - | - | - | - | - | - | - | - |
| Duke Cost | - | - | - | - | - | - | - | - | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - | - | - | - | - | - | - | - | - |
| Contingency | - | - | - | - | - | - | - | - | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | - | - | - | - | - | - | - | - | - | - | - |
| CCP Inspections and Maintenance | - | - | - | - | - | - | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | 832,867 | 832,867 | 832,867 | 832,867 | 832,867 | 832,867 | 832,867 | 832,867 | 832,867 | 832,867 | 832,867 |
| Previous Landfill ARO Cash Flows | 56,710 | 56,710 | 56,710 | 56,710 | 56,710 | 56,710 | 56,710 | - | - | - | - |
| Inflation Impacts | 976,371 | 1,023,020 | 1,070,835 | 1,119,845 | 1,170,081 | 1,221,572 | 1,274,351 | 1,243,762 | 1,295,677 | 1,348,891 | 1,403,435 |
| Total Allen | \$ 1,865,949 | \$ 1,912,598 | \$ 1,960,412 | \$ 2,009,423 | \$ 2,059,658 | \$ 2,111,150 | \$ 2,163,929 | \$ 2,076,629 | \$ 2,128,545 | \$ 2,181,758 | \$ 2,236,302 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | | |

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| Duke Energy Carolinas | |
| CCR ARO Project Cost Estimates - Allen | |
| As of 12/31/2016 | |
| | |
| | Forecast |
| <u>Item</u> | <u>2057</u> |
| Mobilization and Site Preparation | \$ - |
| Site Infrastructure | - |
| Water Treatment & Management | - |
| Ash Processing | - |
| Construct Landfill & Cap-In-Place | - |
| Site Restoration, Demobilization, Closing | - |
| Engineering Closure Plans | - |
| Duke Cost | - |
| Site Maintenance Landfill, etc. | - |
| Contingency | - |
| Basin Closure | \$ - |
| CCP Basin Support Projects | - |
| CCP Oversight & LRP | - |
| CCP Inspections and Maintenance | - |
| CCP Engineering | - |
| EHS | - |
| Post-Closure Maintenance | 832,867 |
| Previous Landfill ARO Cash Flows | - |
| Inflation Impacts | 1,459,342 |
| Total Allen | \$ 2,292,210 |
| | |
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| | |
| FN - Please see Footnotes on Page 4 for further explanations | |

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|--|----------------|----|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Duke Energy Carolinas | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Belews Creek | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | |
| | | | | | | | | | | |
| | | | Actual | Actual | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| Item | Total | FN | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
| Mobilization and Site Preparation | \$ 960,273 | | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 672,191 |
| Site Infrastructure | 660,000 | | - | - | - | - | - | - | - | 462,000.00 |
| Water Treatment & Management | 33,252,815 | | 234,323 | 66,639 | - | - | - | - | - | 9,885,555.90 |
| Ash Processing | 84,806,384 | | - | - | - | - | - | - | - | 16,961,276.78 |
| Construct Landfill & Cap-In-Place | - | | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | 4,210,447 | | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | 14,336,621 | | 408,995 | 669,254 | - | - | - | - | - | 3,977,511.60 |
| Duke Cost | 16,805,026 | | 1,161,598 | 1,406,771 | - | - | - | - | - | 4,270,997.18 |
| Site Maintenance Landfill, etc. | - | | - | - | - | - | - | - | - | - |
| Contingency | 17,985,999 | a | - | - | - | - | - | - | - | 5,395,800 |
| Basin Closure | \$ 173,017,566 | | \$ 1,804,916 | \$ 2,142,664 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 41,625,332 |
| CCP Basin Support Projects | 24,294,926 | b | 846,248 | 18,294,822 | 5,153,856 | - | - | - | - | - |
| CCP Oversight & LRP | 5,474,339 | c | 1,536,856 | 472,499 | 314,999 | 314,999 | 314,999 | 314,999 | 314,999 | 314,999 |
| CCP Inspections and Maintenance | 27,253,481 | d | - | - | 2,432,936 | 2,430,367 | 2,445,999 | 2,493,022 | 2,493,022 | 2,493,022 |
| CCP Engineering | 597,987 | e | - | - | 206,202 | 206,202 | 123,721 | 61,861 | - | - |
| EHS | 56,342,936 | f | 5,673,174.00 | 5,569,763.00 | 11,347,672 | 11,267,672 | 7,576,038 | 7,490,613 | 7,418,002 | - |
| Post-Closure Maintenance | 24,255,422 | g | - | - | - | - | - | - | - | - |
| Previous Landfill ARO Cash Flows | 19,872,049 | h | - | - | - | 3,536,448 | 96,916 | 96,916 | 96,916 | 96,916 |
| Inflation Impacts | 79,762,087 | i | - | - | 486,392 | 898,882 | 811,786 | 1,085,614 | 1,356,519 | 7,414,221 |
| Total Belews | \$ 410,870,792 | | \$ 9,861,194 | \$ 26,479,748 | \$ 19,942,057 | \$ 18,654,570 | \$ 11,369,459 | \$ 11,543,025 | \$ 11,679,458 | \$ 51,944,490 |
| | | | | | | | | | | |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | |

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| Duke Energy Carolinas | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Belews Creek | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | |
| | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2023</u> | <u>2024</u> | <u>2025</u> | <u>2026</u> | <u>2027</u> | <u>2028</u> | <u>2029</u> | <u>2030</u> | <u>2031</u> | <u>2032</u> |
| Mobilization and Site Preparation | \$ 288,082 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | 198,000.00 | - | - | - | - | - | - | - | - | - |
| Water Treatment & Management | 6,590,370.60 | 6,590,370.60 | 3,295,185.30 | 3,295,185.30 | 3,295,185.30 | - | - | - | - | - |
| Ash Processing | 16,961,276.78 | 16,961,276.78 | 16,961,276.78 | 12,720,957.59 | 4,240,319.20 | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - | 2,526,268.33 | 1,684,178.88 | - | - | - | - | - |
| Engineering Closure Plans | 3,977,511.60 | 1,325,837.20 | 1,325,837.20 | 1,325,837.20 | 1,325,837.20 | - | - | - | - | - |
| Duke Cost | 2,847,331.46 | 2,847,331.46 | 1,423,665.73 | 1,423,665.73 | 1,423,665.73 | - | - | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - | - | - | - | - | - | - | - |
| Contingency | 3,597,200 | 3,597,200 | 1,798,600 | 1,798,600 | 1,798,600 | - | - | - | - | - |
| Basin Closure | \$ 34,459,772 | \$ 31,322,016 | \$ 24,804,565 | \$ 23,090,514 | \$ 13,767,786 | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | 314,999 | 314,999 | 314,999 | 314,999 | 314,999 | - | - | - | - | - |
| CCP Inspections and Maintenance | 2,493,022 | 2,493,022 | 2,493,022 | 2,493,022 | 2,493,022 | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | - | - | - | - | - | 808,514 | 808,514 | 808,514 | 808,514 | 808,514 |
| Previous Landfill ARO Cash Flows | 96,916 | 96,916 | 96,916 | 96,916 | 96,916 | 96,916 | 96,916 | 10,697,516 | 201,639 | 201,639 |
| Inflation Impacts | 7,354,399 | 7,801,860 | 7,200,909 | 7,607,001 | 5,439,250 | 326,605 | 342,715 | 4,751,689 | 452,850 | 489,425 |
| Total Belews | \$ 44,719,108 | \$ 42,028,813 | \$ 34,910,411 | \$ 33,602,452 | \$ 22,111,974 | \$ 1,232,036 | \$ 1,248,145 | \$ 16,257,719 | \$ 1,463,003 | \$ 1,499,578 |
| | | | | | | | | | | |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | |

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| Duke Energy Carolinas | | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Belews Creek | | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2033</u> | <u>2034</u> | <u>2035</u> | <u>2036</u> | <u>2037</u> | <u>2038</u> | <u>2039</u> | <u>2040</u> | <u>2041</u> | <u>2042</u> | <u>2043</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - | - | - | - | - | - | - | - | - |
| Water Treatment & Management | - | - | - | - | - | - | - | - | - | - | - |
| Ash Processing | - | - | - | - | - | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | - | - | - | - | - | - | - | - | - | - | - |
| Duke Cost | - | - | - | - | - | - | - | - | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - | - | - | - | - | - | - | - | - |
| Contingency | - | - | - | - | - | - | - | - | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | - | - | - | - | - | - | - | - | - | - | - |
| CCP Inspections and Maintenance | - | - | - | - | - | - | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | 808,514 | 808,514 | 808,514 | 808,514 | 808,514 | 808,514 | 808,514 | 808,514 | 808,514 | 808,514 | 808,514 |
| Previous Landfill ARO Cash Flows | 201,639 | 201,639 | 201,639 | 201,639 | 201,639 | 201,639 | 201,639 | 201,639 | 201,639 | 201,639 | 201,639 |
| Inflation Impacts | 526,914 | 565,341 | 604,728 | 645,100 | 686,482 | 728,898 | 772,374 | 816,937 | 862,614 | 909,433 | 957,423 |
| Total Belews | \$ 1,537,067 | \$ 1,575,494 | \$ 1,614,881 | \$ 1,655,253 | \$ 1,696,635 | \$ 1,739,051 | \$ 1,782,527 | \$ 1,827,090 | \$ 1,872,767 | \$ 1,919,586 | \$ 1,967,576 |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | | |

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| Duke Energy Carolinas | | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Belews Creek | | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2044</u> | <u>2045</u> | <u>2046</u> | <u>2047</u> | <u>2048</u> | <u>2049</u> | <u>2050</u> | <u>2051</u> | <u>2052</u> | <u>2053</u> | <u>2054</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - | - | - | - | - | - | - | - | - |
| Water Treatment & Management | - | - | - | - | - | - | - | - | - | - | - |
| Ash Processing | - | - | - | - | - | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | - | - | - | - | - | - | - | - | - | - | - |
| Duke Cost | - | - | - | - | - | - | - | - | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - | - | - | - | - | - | - | - | - |
| Contingency | - | - | - | - | - | - | - | - | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | - | - | - | - | - | - | - | - | - | - | - |
| CCP Inspections and Maintenance | - | - | - | - | - | - | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | 808,514 | 808,514 | 808,514 | 808,514 | 808,514 | 808,514 | 808,514 | 808,514 | 808,514 | 808,514 | 808,514 |
| Previous Landfill ARO Cash Flows | 201,639 | 201,639 | 201,639 | 201,639 | 201,639 | 104,723 | 104,723 | 104,723 | 104,723 | 104,723 | 104,723 |
| Inflation Impacts | 1,006,612 | 1,057,032 | 1,108,711 | 1,161,683 | 1,215,979 | 1,149,629 | 1,201,201 | 1,254,062 | 1,308,244 | 1,363,781 | 1,420,707 |
| Total Belews | \$ 2,016,766 | \$ 2,067,185 | \$ 2,118,864 | \$ 2,171,836 | \$ 2,226,132 | \$ 2,062,866 | \$ 2,114,438 | \$ 2,167,299 | \$ 2,221,481 | \$ 2,277,018 | \$ 2,333,944 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | | |

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| Duke Energy Carolinas | | | |
| CCR ARO Project Cost Estimates - Belews Creek | | | |
| As of 12/31/2016 | | | |
| | | | |
| | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2055</u> | <u>2056</u> | <u>2057</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - |
| Water Treatment & Management | - | - | - |
| Ash Processing | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - |
| Engineering Closure Plans | - | - | - |
| Duke Cost | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - |
| Contingency | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - |
| CCP Oversight & LRP | - | - | - |
| CCP Inspections and Maintenance | - | - | - |
| CCP Engineering | - | - | - |
| EHS | - | - | - |
| Post-Closure Maintenance | 808,514 | 808,514 | 808,514 |
| Previous Landfill ARO Cash Flows | 104,723 | 104,723 | 104,723 |
| Inflation Impacts | 1,479,055 | 1,538,863 | 1,600,165 |
| Total Belews | \$ 2,392,292 | \$ 2,452,100 | \$ 2,513,402 |
| | | | |
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| FN - Please see Footnotes on Page 4 for further explanations | | | |

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| Duke Energy Carolinas | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Cliffside | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | |
| | | | | | | | | | | |
| | | | Actual | Actual | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>Total</u> | <u>FN</u> | <u>2015</u> | <u>2016</u> | <u>2017</u> | <u>2018</u> | <u>2019</u> | <u>2020</u> | <u>2021</u> | <u>2022</u> |
| Mobilization and Site Preparation | \$ 4,858,142 | | \$ 2,351 | \$ 26,151 | \$ 643,952 | \$ - | \$ - | \$ 643,952 | \$ 3,219,760 | \$ 321,976 |
| Site Infrastructure | 10,449,998 | | 241,750 | 177,100 | 501,557 | 100,311 | 100,311 | 1,504,672 | 1,003,115 | 1,805,607 |
| Water Treatment & Management | 11,972,723 | | | | 1,260,287 | - | - | 630,143 | 630,143 | 2,520,573 |
| Ash Processing | 30,455,392 | | 13,413 | 39,881 | 6,400,442 | - | - | - | - | 3,200,221 |
| Construct Landfill & Cap-In-Place | 5,685,844 | | 1,255,962 | 4,429,882 | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | 11,872,831 | | | | - | - | - | - | - | - |
| Engineering Closure Plans | 4,334,785 | | | 74,457 | 250,608 | - | - | - | 501,215 | 1,002,430 |
| Duke Cost | 11,235,989 | | 439,896 | 462,009 | 543,899 | 271,950 | 271,950 | 271,950 | 815,849 | 1,631,697 |
| Site Maintenance Landfill, etc. | 3,107,864 | | 1,346,598 | 1,761,265 | - | - | - | - | - | - |
| Contingency | 6,743,655 | a | - | - | 337,183 | 168,591 | 168,591 | 168,591 | 168,591 | 1,180,140 |
| Basin Closure | \$ 100,717,221 | | \$ 3,299,971 | \$ 6,970,747 | \$ 9,937,927 | \$ 540,852 | \$ 540,852 | \$ 3,219,308 | \$ 6,338,673 | \$ 11,662,643 |
| CCP Basin Support Projects | 42,788,784 | b | 9,665,855 | 7,938,333 | 8,334,596 | 15,350,000 | 1,500,000 | - | - | - |
| CCP Oversight & LRP | 6,693,970 | c | 3,960,679 | 245,055 | 226,203 | 226,203 | 226,203 | 226,203 | 226,203 | 226,203 |
| CCP Inspections and Maintenance | 4,780,063 | d | - | - | 1,109,503 | 1,107,659 | 268,100 | 278,100 | 288,100 | 288,100 |
| CCP Engineering | 689,782 | e | - | - | 237,856 | 237,856 | 142,713 | 71,357 | - | - |
| EHS | 43,183,313 | f | 8,942,989 | 6,196,902 | 7,238,836 | 7,208,836 | 4,583,394 | 4,529,207 | 4,483,147 | - |
| Post-Closure Maintenance | 17,095,527 | g | - | - | - | - | - | - | - | - |
| Previous Landfill ARO Cash Flows | 7,827,400 | h | - | - | - | - | - | 4,774,270 | 101,771 | 101,771 |
| Inflation Impacts | 41,294,095 | i | - | - | 677,123 | 1,248,990 | 558,323 | 1,359,788 | 1,503,033 | 2,044,387 |
| Total Cliffside | \$ 265,070,155 | | \$ 25,869,494 | \$ 21,351,036 | \$ 27,762,045 | \$ 25,920,397 | \$ 7,819,587 | \$ 14,458,233 | \$ 12,940,928 | \$ 14,323,105 |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | |

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| Duke Energy Carolinas | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Cliffside | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | |
| | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2023</u> | <u>2024</u> | <u>2025</u> | <u>2026</u> | <u>2027</u> | <u>2028</u> | <u>2029</u> | <u>2030</u> | <u>2031</u> | <u>2032</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | 3,009,344 | - | - | - | 2,006,230 | - | - | - | - | - |
| Water Treatment & Management | 1,890,430 | 1,260,287 | 1,260,287 | 1,260,287 | 1,260,287 | - | - | - | - | - |
| Ash Processing | 6,400,442 | 6,400,442 | 4,800,331 | 1,600,110 | 1,600,110 | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | 4,749,132 | 4,749,132 | 2,374,566 | - | - | - | - | - |
| Engineering Closure Plans | 501,215 | 501,215 | 501,215 | 501,215 | 501,215 | - | - | - | - | - |
| Duke Cost | 2,175,596 | 2,175,596 | 1,087,798 | 543,899 | 543,899 | - | - | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - | - | - | - | - | - | - | - |
| Contingency | 1,348,731 | 1,180,140 | 674,365 | 674,365 | 674,365 | - | - | - | - | - |
| Basin Closure | \$ 15,325,758 | \$ 11,517,679 | \$ 13,073,129 | \$ 9,329,009 | \$ 8,960,672 | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | 226,203 | 226,203 | 226,203 | 226,203 | 226,203 | - | - | - | - | - |
| CCP Inspections and Maintenance | 288,100 | 288,100 | 288,100 | 288,100 | 288,100 | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | - | - | - | - | - | 569,851 | 569,851 | 569,851 | 569,851 | 569,851 |
| Previous Landfill ARO Cash Flows | 101,771 | 101,771 | 101,771 | 101,771 | 101,771 | 101,771 | 101,771 | 101,771 | 101,771 | 101,771 |
| Inflation Impacts | 3,137,790 | 2,765,827 | 3,557,434 | 2,910,211 | 3,124,284 | 242,267 | 254,216 | 277,362 | 301,087 | 325,405 |
| Total Cliffside | \$ 19,079,622 | \$ 14,899,581 | \$ 17,246,637 | \$ 12,855,295 | \$ 12,701,031 | \$ 913,888 | \$ 925,838 | \$ 948,984 | \$ 972,709 | \$ 997,026 |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | |

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| Duke Energy Carolinas | | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Cliffside | | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2033</u> | <u>2034</u> | <u>2035</u> | <u>2036</u> | <u>2037</u> | <u>2038</u> | <u>2039</u> | <u>2040</u> | <u>2041</u> | <u>2042</u> | <u>2043</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - | - | - | - | - | - | - | - | - |
| Water Treatment & Management | - | - | - | - | - | - | - | - | - | - | - |
| Ash Processing | - | - | - | - | - | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | - | - | - | - | - | - | - | - | - | - | - |
| Duke Cost | - | - | - | - | - | - | - | - | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - | - | - | - | - | - | - | - | - |
| Contingency | - | - | - | - | - | - | - | - | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | - | - | - | - | - | - | - | - | - | - | - |
| CCP Inspections and Maintenance | - | - | - | - | - | - | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | 569,851 | 569,851 | 569,851 | 569,851 | 569,851 | 569,851 | 569,851 | 569,851 | 569,851 | 569,851 | 569,851 |
| Previous Landfill ARO Cash Flows | 101,771 | 101,771 | 101,771 | 101,771 | 101,771 | 101,771 | 101,771 | 101,771 | 101,771 | 101,771 | 101,771 |
| Inflation Impacts | 350,330 | 375,879 | 402,067 | 428,909 | 456,422 | 484,623 | 513,529 | 543,158 | 573,528 | 604,656 | 636,563 |
| Total Cliffside | \$ 1,021,952 | \$ 1,047,501 | \$ 1,073,688 | \$ 1,100,531 | \$ 1,128,044 | \$ 1,156,245 | \$ 1,185,151 | \$ 1,214,780 | \$ 1,245,149 | \$ 1,276,278 | \$ 1,308,185 |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | | |

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| Duke Energy Carolinas | | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Cliffside | | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2044</u> | <u>2045</u> | <u>2046</u> | <u>2047</u> | <u>2048</u> | <u>2049</u> | <u>2050</u> | <u>2051</u> | <u>2052</u> | <u>2053</u> | <u>2054</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - | - | - | - | - | - | - | - | - |
| Water Treatment & Management | - | - | - | - | - | - | - | - | - | - | - |
| Ash Processing | - | - | - | - | - | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | - | - | - | - | - | - | - | - | - | - | - |
| Duke Cost | - | - | - | - | - | - | - | - | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - | - | - | - | - | - | - | - | - |
| Contingency | - | - | - | - | - | - | - | - | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | - | - | - | - | - | - | - | - | - | - | - |
| CCP Inspections and Maintenance | - | - | - | - | - | - | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | 569,851 | 569,851 | 569,851 | 569,851 | 569,851 | 569,851 | 569,851 | 569,851 | 569,851 | 569,851 | 569,851 |
| Previous Landfill ARO Cash Flows | 101,771 | 101,771 | 101,771 | 101,771 | 101,771 | 101,771 | 101,771 | - | - | - | - |
| Inflation Impacts | 669,268 | 702,790 | 737,150 | 772,370 | 808,470 | 845,472 | 883,399 | 782,522 | 816,332 | 850,986 | 886,507 |
| Total Cliffside | \$ 1,340,890 | \$ 1,374,412 | \$ 1,408,772 | \$ 1,443,992 | \$ 1,480,091 | \$ 1,517,094 | \$ 1,555,021 | \$ 1,352,373 | \$ 1,386,182 | \$ 1,420,837 | \$ 1,456,358 |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | | |

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| Duke Energy Carolinas | | | |
| CCR ARO Project Cost Estimates - Cliffside | | | |
| As of 12/31/2016 | | | |
| | | | |
| | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2055</u> | <u>2056</u> | <u>2057</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - |
| Water Treatment & Management | - | - | - |
| Ash Processing | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - |
| Engineering Closure Plans | - | - | - |
| Duke Cost | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - |
| Contingency | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - |
| CCP Oversight & LRP | - | - | - |
| CCP Inspections and Maintenance | - | - | - |
| CCP Engineering | - | - | - |
| EHS | - | - | - |
| Post-Closure Maintenance | 569,851 | 569,851 | 569,851 |
| Previous Landfill ARO Cash Flows | - | - | - |
| Inflation Impacts | 922,916 | 960,235 | 998,487 |
| Total Cliffside | \$ 1,492,767 | \$ 1,530,086 | \$ 1,568,338 |
| | | | |
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| FN - Please see Footnotes on Page 4 for further explanations | | | |

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| Duke Energy Carolinas | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Marshall | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | |
| | | | | | | | | | | |
| | | | Actual | Actual | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>Total</u> | <u>FN</u> | <u>2015</u> | <u>2016</u> | <u>2017</u> | <u>2018</u> | <u>2019</u> | <u>2020</u> | <u>2021</u> | <u>2022</u> |
| Mobilization and Site Preparation | \$ 3,113,164 | | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ 2,179,215 | \$ 933,949 |
| Site Infrastructure | 1,846,707 | | - | - | - | - | - | - | 1,292,695 | 369,341 |
| Water Treatment & Management | 26,843,058 | | - | - | - | - | - | - | 8,052,917 | 5,368,612 |
| Ash Processing | 98,042,200 | | - | - | - | - | - | - | 19,608,440 | 19,608,440 |
| Construct Landfill & Cap-In-Place | - | | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | 9,325,619 | | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | 15,398,179 | | - | - | - | - | - | - | 4,619,454 | 3,079,636 |
| Duke Cost | 23,183,932 | | 2,372,827 | 5,815,847 | - | - | - | - | 2,999,052 | 2,999,052 |
| Site Maintenance Landfill, etc. | - | | - | - | - | - | - | - | - | - |
| Contingency | 16,672,748 | a | - | - | - | - | - | - | 5,001,824 | 3,334,550 |
| Basin Closure | \$ 194,425,608 | | \$ 2,372,827 | \$ 5,815,847 | \$ - | \$ - | \$ - | \$ - | \$ 43,753,597 | \$ 35,693,579 |
| CCP Basin Support Projects | 28,370,692 | b | 1,296,438 | 7,837,795 | 10,436,458 | 8,800,001 | - | - | - | - |
| CCP Oversight & LRP | 6,679,150 | c | 2,098,426 | 834,461 | 340,569 | 340,569 | 340,569 | 340,569 | 340,569 | 340,569 |
| CCP Inspections and Maintenance | 17,045,066 | d | - | - | 1,312,533 | 1,309,756 | 1,602,531 | 1,602,531 | 1,602,531 | 1,602,531 |
| CCP Engineering | 721,173 | e | - | - | 248,680 | 248,680 | 149,208 | 74,604 | - | - |
| EHS | 33,272,152 | f | 7,444,503 | 3,671,716 | 6,157,892 | 6,092,892 | 3,331,997 | 3,300,122 | 3,273,028 | - |
| Post-Closure Maintenance | 29,881,054 | g | - | - | - | - | - | - | - | - |
| Previous Landfill ARO Cash Flows | 10,527,360 | h | - | - | 5,125,334 | 52,794 | 52,794 | 52,794 | 52,794 | 2,601,994 |
| Inflation Impacts | 74,883,759 | i | - | - | 590,537 | 852,763 | 421,138 | 557,540 | 6,441,962 | 6,699,677 |
| Total Marshall | \$ 395,806,013 | | \$ 13,212,194 | \$ 18,159,819 | \$ 24,212,004 | \$ 17,697,455 | \$ 5,898,237 | \$ 5,928,160 | \$ 55,464,481 | \$ 46,938,350 |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | |

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| Duke Energy Carolinas | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Marshall | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | |
| | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| Item | <u>2023</u> | <u>2024</u> | <u>2025</u> | <u>2026</u> | <u>2027</u> | <u>2028</u> | <u>2029</u> | <u>2030</u> | <u>2031</u> | <u>2032</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - | - | 184,671 | - | - | - | - | - |
| Water Treatment & Management | 2,684,306 | 2,684,306 | 2,684,306 | 2,684,306 | 2,684,306 | - | - | - | - | - |
| Ash Processing | 19,608,440 | 19,608,440 | 9,804,220 | 9,804,220 | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | 3,730,248 | 3,730,248 | 1,865,124 | - | - | - | - | - |
| Engineering Closure Plans | 1,539,818 | 1,539,818 | 1,539,818 | 1,539,818 | 1,539,818 | - | - | - | - | - |
| Duke Cost | 2,999,052 | 2,999,052 | 1,499,526 | 749,763 | 749,763 | - | - | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - | - | - | - | - | - | - | - |
| Contingency | 3,334,550 | 1,667,275 | 1,667,275 | 833,637 | 833,637 | - | - | - | - | - |
| Basin Closure | \$ 30,166,165 | \$ 28,498,890 | \$ 20,925,392 | \$ 19,341,992 | \$ 7,857,318 | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | 340,569 | 340,569 | 340,569 | 340,569 | 340,569 | - | - | - | - | - |
| CCP Inspections and Maintenance | 1,602,531 | 1,602,531 | 1,602,531 | 1,602,531 | 1,602,531 | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | - | - | - | - | - | 996,035 | 996,035 | 996,035 | 996,035 | 996,035 |
| Previous Landfill ARO Cash Flows | 96,854 | 96,854 | 96,854 | 96,854 | 96,854 | 96,854 | 96,854 | 96,854 | 96,854 | 96,854 |
| Inflation Impacts | 6,339,047 | 6,961,174 | 5,968,039 | 6,256,959 | 3,228,851 | 394,225 | 413,671 | 451,335 | 489,940 | 529,511 |
| Total Marshall | \$ 38,545,166 | \$ 37,500,019 | \$ 28,933,385 | \$ 27,638,905 | \$ 13,126,124 | \$ 1,487,115 | \$ 1,506,560 | \$ 1,544,224 | \$ 1,582,829 | \$ 1,622,400 |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | |

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| Duke Energy Carolinas | | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Marshall | | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2033</u> | <u>2034</u> | <u>2035</u> | <u>2036</u> | <u>2037</u> | <u>2038</u> | <u>2039</u> | <u>2040</u> | <u>2041</u> | <u>2042</u> | <u>2043</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - | - | - | - | - | - | - | - | - |
| Water Treatment & Management | - | - | - | - | - | - | - | - | - | - | - |
| Ash Processing | - | - | - | - | - | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | - | - | - | - | - | - | - | - | - | - | - |
| Duke Cost | - | - | - | - | - | - | - | - | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - | - | - | - | - | - | - | - | - |
| Contingency | - | - | - | - | - | - | - | - | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | - | - | - | - | - | - | - | - | - | - | - |
| CCP Inspections and Maintenance | - | - | - | - | - | - | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | 996,035 | 996,035 | 996,035 | 996,035 | 996,035 | 996,035 | 996,035 | 996,035 | 996,035 | 996,035 | 996,035 |
| Previous Landfill ARO Cash Flows | 96,854 | 96,854 | 96,854 | 96,854 | 96,854 | 96,854 | 96,854 | 96,854 | 96,854 | 96,854 | 96,854 |
| Inflation Impacts | 570,071 | 611,645 | 654,258 | 697,937 | 742,708 | 788,598 | 835,635 | 883,848 | 933,266 | 983,920 | 1,035,840 |
| Total Marshall | \$ 1,662,960 | \$ 1,704,534 | \$ 1,747,147 | \$ 1,790,826 | \$ 1,835,597 | \$ 1,881,487 | \$ 1,928,524 | \$ 1,976,737 | \$ 2,026,155 | \$ 2,076,809 | \$ 2,128,729 |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | | |

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| Duke Energy Carolinas | | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Marshall | | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2044</u> | <u>2045</u> | <u>2046</u> | <u>2047</u> | <u>2048</u> | <u>2049</u> | <u>2050</u> | <u>2051</u> | <u>2052</u> | <u>2053</u> | <u>2054</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - | - | - | - | - | - | - | - | - |
| Water Treatment & Management | - | - | - | - | - | - | - | - | - | - | - |
| Ash Processing | - | - | - | - | - | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | - | - | - | - | - | - | - | - | - | - | - |
| Duke Cost | - | - | - | - | - | - | - | - | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - | - | - | - | - | - | - | - | - |
| Contingency | - | - | - | - | - | - | - | - | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | - | - | - | - | - | - | - | - | - | - | - |
| CCP Inspections and Maintenance | - | - | - | - | - | - | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | 996,035 | 996,035 | 996,035 | 996,035 | 996,035 | 996,035 | 996,035 | 996,035 | 996,035 | 996,035 | 996,035 |
| Previous Landfill ARO Cash Flows | 96,854 | 96,854 | 96,854 | 44,060 | 44,060 | 44,060 | 44,060 | 44,060 | 44,060 | - | - |
| Inflation Impacts | 1,089,059 | 1,143,607 | 1,199,520 | 1,196,116 | 1,252,022 | 1,309,325 | 1,368,060 | 1,428,264 | 1,489,973 | 1,487,428 | 1,549,514 |
| Total Marshall | \$ 2,181,948 | \$ 2,236,496 | \$ 2,292,409 | \$ 2,236,212 | \$ 2,292,117 | \$ 2,349,420 | \$ 2,408,155 | \$ 2,468,359 | \$ 2,530,068 | \$ 2,483,463 | \$ 2,545,549 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | | |

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|--|---------------------|---------------------|---------------------|
| Duke Energy Carolinas | | | |
| CCR ARO Project Cost Estimates - Marshall | | | |
| As of 12/31/2016 | | | |
| | | | |
| | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2055</u> | <u>2056</u> | <u>2057</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - |
| Water Treatment & Management | - | - | - |
| Ash Processing | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - |
| Engineering Closure Plans | - | - | - |
| Duke Cost | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - |
| Contingency | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - |
| CCP Oversight & LRP | - | - | - |
| CCP Inspections and Maintenance | - | - | - |
| CCP Engineering | - | - | - |
| EHS | - | - | - |
| Post-Closure Maintenance | 996,035 | 996,035 | 996,035 |
| Previous Landfill ARO Cash Flows | - | - | - |
| Inflation Impacts | 1,613,153 | 1,678,383 | 1,745,243 |
| Total Marshall | \$ 2,609,188 | \$ 2,674,418 | \$ 2,741,278 |
| | | | |
| | | | |
| FN - Please see Footnotes on Page 4 for further explanations | | | |

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|--|-----------------------|-----------|----------------------|---------------------|----------------------|----------------------|----------------------|---------------------|---------------------|---------------------|
| Duke Energy Carolinas | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Buck | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | |
| | | | | | | | | | | |
| | | | Actual | Actual | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>Total</u> | <u>FN</u> | <u>2015</u> | <u>2016</u> | <u>2017</u> | <u>2018</u> | <u>2019</u> | <u>2020</u> | <u>2021</u> | <u>2022</u> |
| Mobilization and Site Preparation | \$ 2,208,863 | | \$ - | \$ - | \$ 1,104,432 | \$ 552,216 | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | 7,024,263 | | - | - | 439,016 | 439,016 | 439,016 | 439,016 | 439,016 | 439,016 |
| Water Treatment & Management | 27,112,353 | | 123,962 | 288,391 | - | - | 1,907,143 | 1,907,143 | 1,907,143 | 1,907,143 |
| Ash Processing | 51,536,000 | | - | - | - | - | 3,681,143 | 3,681,143 | 3,681,143 | 3,681,143 |
| Construct Landfill & Cap-In-Place | - | | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | 2,749,600 | | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | 784,299 | | 58,185 | 726,114 | - | - | - | - | - | - |
| Capex - Equipment & Facility Cost | 101,062,913 | | 403,765 | 659,148 | 20,000,000 | 70,000,000 | 10,000,000 | - | - | - |
| Revenue - Contract Delta | (39,356,800) | | - | - | - | - | (2,811,200) | (2,811,200) | (2,811,200) | (2,811,200) |
| Duke Cost | 15,494,991 | | - | - | 387,375 | 387,375 | 1,549,499 | 1,549,499 | 1,549,499 | 1,549,499 |
| Contingency | 15,101,144 | a | - | - | 2,869,217 | 4,983,378 | 604,046 | 604,046 | 604,046 | 604,046 |
| Basin Closure | \$ 183,717,627 | | \$ 585,912 | \$ 1,673,653 | \$ 24,800,040 | \$ 76,361,985 | \$ 15,369,647 | \$ 5,369,647 | \$ 5,369,647 | \$ 5,369,647 |
| CCP Basin Support Projects | 12,147,589 | b | 900,587 | 3,716,065 | 6,425,486 | 1,105,451 | - | - | - | - |
| CCP Oversight & LRP | 2,447,631 | c | 1,680,020 | 189,599 | 52,547 | 52,547 | 52,547 | 52,547 | 52,547 | 52,547 |
| CCP Inspections and Maintenance | 4,459,943 | d | - | - | 564,555 | 564,127 | 363,951 | 370,914 | 370,914 | 370,914 |
| CCP Engineering | 556,131 | e | - | - | 191,769 | 191,769 | 115,061 | 57,531 | - | - |
| EHS | 33,569,005 | f | 6,868,670 | 4,242,516 | 7,209,584 | 7,209,584 | 2,728,605 | 2,676,968 | 2,633,076 | - |
| Post-Closure Maintenance | 14,100,060 | g | - | - | - | - | - | - | - | - |
| Previous Landfill ARO Cash Flows | - | h | - | - | - | - | - | - | - | - |
| Inflation Impacts | 40,563,057 | i | - | - | 981,100 | 4,327,702 | 1,432,458 | 885,275 | 1,107,270 | 964,543 |
| Total Buck | \$ 291,561,042 | | \$ 10,035,189 | \$ 9,821,833 | \$ 40,225,081 | \$ 89,813,164 | \$ 20,062,269 | \$ 9,412,882 | \$ 9,533,453 | \$ 6,757,651 |
| | | | | | | | | | | |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | |

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| Duke Energy Carolinas | | | | | | | | | |
| CCR ARO Project Cost Estimates - Buck | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | |
| | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2023</u> | <u>2024</u> | <u>2025</u> | <u>2026</u> | <u>2027</u> | <u>2028</u> | <u>2029</u> | <u>2030</u> | <u>2031</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | 439,016 | 439,016 | 439,016 | 439,016 | 439,016 | 439,016 | 439,016 | 439,016 | 439,016 |
| Water Treatment & Management | 1,907,143 | 1,907,143 | 1,907,143 | 1,907,143 | 1,907,143 | 1,907,143 | 1,907,143 | 1,907,143 | 1,907,143 |
| Ash Processing | 3,681,143 | 3,681,143 | 3,681,143 | 3,681,143 | 3,681,143 | 3,681,143 | 3,681,143 | 3,681,143 | 3,681,143 |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - | - | - | - | 687,400 | 687,400 | 687,400 |
| Engineering Closure Plans | - | - | - | - | - | - | - | - | - |
| Capex - Equipment & Facility Cost | - | - | - | - | - | - | - | - | - |
| Revenue - Contract Delta | (2,811,200) | (2,811,200) | (2,811,200) | (2,811,200) | (2,811,200) | (2,811,200) | (2,811,200) | (2,811,200) | (2,811,200) |
| Duke Cost | 1,549,499 | 774,750 | 774,750 | 774,750 | 774,750 | 774,750 | 774,750 | 774,750 | 774,750 |
| Contingency | 604,046 | 604,046 | 604,046 | 604,046 | 604,046 | 604,046 | 302,023 | 302,023 | 302,023 |
| Basin Closure | \$ 5,369,647 | \$ 4,594,897 | \$ 4,594,897 | \$ 4,594,897 | \$ 4,594,897 | \$ 4,594,897 | \$ 4,980,275 | \$ 4,980,275 | \$ 4,980,275 |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | 52,547 | 52,547 | 52,547 | 52,547 | 52,547 | - | - | - | - |
| CCP Inspections and Maintenance | 370,914 | 370,914 | 370,914 | 370,914 | 370,914 | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | - | - | - | - | - | 470,002 | 470,002 | 470,002 | 470,002 |
| Previous Landfill ARO Cash Flows | - | - | - | - | - | - | - | - | - |
| Inflation Impacts | 1,140,242 | 1,143,909 | 1,304,128 | 1,468,513 | 1,637,171 | 1,827,004 | 2,062,990 | 2,250,822 | 2,443,349 |
| Total Buck | \$ 6,933,350 | \$ 6,162,267 | \$ 6,322,486 | \$ 6,486,871 | \$ 6,655,529 | \$ 6,891,903 | \$ 7,513,266 | \$ 7,701,098 | \$ 7,893,626 |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | |

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| Duke Energy Carolinas | | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Buck | | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2032</u> | <u>2033</u> | <u>2034</u> | <u>2035</u> | <u>2036</u> | <u>2037</u> | <u>2038</u> | <u>2039</u> | <u>2040</u> | <u>2041</u> | <u>2042</u> |
| Mobilization and Site Preparation | \$ 552,216 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | 439,016 | - | - | - | - | - | - | - | - | - | - |
| Water Treatment & Management | 1,907,143 | - | - | - | - | - | - | - | - | - | - |
| Ash Processing | 3,681,143 | - | - | - | - | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | 687,400 | - | - | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | - | - | - | - | - | - | - | - | - | - | - |
| Capex - Equipment & Facility Cost | - | - | - | - | - | - | - | - | - | - | - |
| Revenue - Contract Delta | (2,811,200) | - | - | - | - | - | - | - | - | - | - |
| Duke Cost | 774,750 | - | - | - | - | - | - | - | - | - | - |
| Contingency | 302,023 | - | - | - | - | - | - | - | - | - | - |
| Basin Closure | \$ 5,532,490 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | - | - | - | - | - | - | - | - | - | - | - |
| CCP Inspections and Maintenance | - | - | - | - | - | - | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | 470,002 | 470,002 | 470,002 | 470,002 | 470,002 | 470,002 | 470,002 | 470,002 | 470,002 | 470,002 | 470,002 |
| Previous Landfill ARO Cash Flows | - | - | - | - | - | - | - | - | - | - | - |
| Inflation Impacts | 2,908,241 | 245,162 | 263,041 | 281,367 | 300,151 | 319,405 | 339,140 | 359,369 | 380,103 | 401,355 | 423,139 |
| Total Buck | \$ 8,910,734 | \$ 715,164 | \$ 733,043 | \$ 751,369 | \$ 770,153 | \$ 789,407 | \$ 809,142 | \$ 829,371 | \$ 850,105 | \$ 871,357 | \$ 893,141 |
| | | | | | | | | | | | |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | | |

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| Duke Energy Carolinas | | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Buck | | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2043</u> | <u>2044</u> | <u>2045</u> | <u>2046</u> | <u>2047</u> | <u>2048</u> | <u>2049</u> | <u>2050</u> | <u>2051</u> | <u>2052</u> | <u>2053</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - | - | - | - | - | - | - | - | - |
| Water Treatment & Management | - | - | - | - | - | - | - | - | - | - | - |
| Ash Processing | - | - | - | - | - | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | - | - | - | - | - | - | - | - | - | - | - |
| Capex - Equipment & Facility Cost | - | - | - | - | - | - | - | - | - | - | - |
| Revenue - Contract Delta | - | - | - | - | - | - | - | - | - | - | - |
| Duke Cost | - | - | - | - | - | - | - | - | - | - | - |
| Contingency | - | - | - | - | - | - | - | - | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | - | - | - | - | - | - | - | - | - | - | - |
| CCP Inspections and Maintenance | - | - | - | - | - | - | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | 470,002 | 470,002 | 470,002 | 470,002 | 470,002 | 470,002 | 470,002 | 470,002 | 470,002 | 470,002 | 470,002 |
| Previous Landfill ARO Cash Flows | - | - | - | - | - | - | - | - | - | - | - |
| Inflation Impacts | 445,468 | 468,355 | 491,814 | 515,859 | 540,505 | 565,768 | 591,662 | 618,204 | 645,409 | 673,294 | 701,877 |
| Total Buck | \$ 915,470 | \$ 938,357 | \$ 961,816 | \$ 985,861 | \$ 1,010,507 | \$ 1,035,770 | \$ 1,061,664 | \$ 1,088,206 | \$ 1,115,411 | \$ 1,143,296 | \$ 1,171,879 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | | |

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|--|---------------------|---------------------|---------------------|---------------------|
| Duke Energy Carolinas | | | | |
| CCR ARO Project Cost Estimates - Buck | | | | |
| As of 12/31/2016 | | | | |
| | | | | |
| | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2054</u> | <u>2055</u> | <u>2056</u> | <u>2057</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - | - |
| Water Treatment & Management | - | - | - | - |
| Ash Processing | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - | - |
| Engineering Closure Plans | - | - | - | - |
| Capex - Equipment & Facility Cost | - | - | - | - |
| Revenue - Contract Delta | - | - | - | - |
| Duke Cost | - | - | - | - |
| Contingency | - | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - |
| CCP Oversight & LRP | - | - | - | - |
| CCP Inspections and Maintenance | - | - | - | - |
| CCP Engineering | - | - | - | - |
| EHS | - | - | - | - |
| Post-Closure Maintenance | 470,002 | 470,002 | 470,002 | 470,002 |
| Previous Landfill ARO Cash Flows | - | - | - | - |
| Inflation Impacts | 731,174 | 761,203 | 791,983 | 823,533 |
| Total Buck | \$ 1,201,176 | \$ 1,231,205 | \$ 1,261,985 | \$ 1,293,535 |
| | | | | |
| | | | | |
| FN - Please see Footnotes on Page 4 for further explanations | | | | |

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|--|----------------|-----------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|
| Duke Energy Carolinas | | | | | | | | | |
| CCR ARO Project Cost Estimates - Dan River | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | |
| | | | | | | | | | |
| | | | Actual | Actual | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>Total</u> | <u>FN</u> | <u>2015</u> | <u>2016</u> | <u>2017</u> | <u>2018</u> | <u>2019</u> | <u>2020</u> | <u>2021</u> |
| Mobilization and Site Preparation | \$ 4,610,059 | | \$ 57,489 | \$ 2,018,504 | \$ 1,267,033 | \$ 633,517 | \$ 633,517 | \$ - | \$ - |
| Site Infrastructure | 3,769,662 | | 129,930 | 56,006 | 1,791,863.00 | 895,931.50 | 716,745.20 | 179,186.30 | - |
| Water Treatment & Management | 14,048,320 | | 54,848 | 430,472 | 5,425,199.87 | 4,068,899.90 | 3,390,749.92 | 678,149.98 | - |
| Ash Processing | 94,245,424 | | 15,673,893 | 45,073,903 | 13,399,051.37 | 13,399,051.37 | 6,699,525.68 | - | - |
| Construct Landfill & Cap-In-Place | 10,405,751 | | - | 3,006,817 | 3,699,467.24 | - | 3,699,467.24 | - | - |
| Site Restoration, Demobilization, Closing | 6,290,670 | | - | - | - | - | 5,032,535.95 | 1,258,133.99 | - |
| Engineering Closure Plans | 6,884,604 | | 1,685,367 | 1,101,941 | 1,229,188.80 | 1,229,188.80 | 1,229,188.80 | 409,729.60 | - |
| Duke Cost | 13,176,323 | | 1,822,092 | 2,209,666 | 2,743,369.46 | 2,743,369.46 | 2,743,369.46 | 914,456.49 | - |
| Contingency | 14,618,419 | a | - | - | 3,654,605 | 3,654,605 | 3,654,605 | 3,654,605 | - |
| Basin Closure | \$ 168,049,232 | | \$ 19,423,619 | \$ 53,897,309 | \$ 33,209,778 | \$ 26,624,562 | \$ 27,799,704 | \$ 7,094,261 | \$ - |
| CCP Basin Support Projects | 17,155,073 | b | 2,591,093 | 14,053,397 | 510,583 | - | - | - | - |
| CCP Oversight & LRP | 6,441,539 | c | 6,201,001 | 43,840 | 39,340 | 39,340 | 39,340 | 39,340 | 39,340 |
| CCP Inspections and Maintenance | 3,172,205 | d | - | - | 628,579 | 628,259 | 630,211 | 642,578 | 642,578 |
| CCP Engineering | 288,213 | e | - | - | 99,384 | 99,384 | 59,630 | 29,815 | - |
| EHS | 22,540,401 | f | 10,396,531 | 2,269,453 | 2,083,348 | 2,070,348 | 1,939,731 | 1,905,179 | 1,875,809 |
| Post-Closure Maintenance | 5,347,454 | g | - | - | - | - | - | - | - |
| Previous Landfill ARO Cash Flows | - | h | - | - | - | - | - | - | - |
| Inflation Impacts | 9,834,523 | i | - | - | 914,275 | 1,491,508 | 2,342,751 | 1,008,145 | 336,106 |
| Total Dan River | \$ 232,828,640 | | \$ 38,612,244 | \$ 70,263,998 | \$ 37,485,287 | \$ 30,953,401 | \$ 32,811,367 | \$ 10,719,318 | \$ 2,893,834 |
| | | | | | | | | | |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | |

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|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Duke Energy Carolinas | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Dan River | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | |
| | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| Item | <u>2022</u> | <u>2023</u> | <u>2024</u> | <u>2025</u> | <u>2026</u> | <u>2027</u> | <u>2028</u> | <u>2029</u> | <u>2030</u> | <u>2031</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - | - | - | - | - | - | - | - |
| Water Treatment & Management | - | - | - | - | - | - | - | - | - | - |
| Ash Processing | - | - | - | - | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | - | - | - | - | - | - | - | - | - | - |
| Duke Cost | - | - | - | - | - | - | - | - | - | - |
| Contingency | - | - | - | - | - | - | - | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | - | - | - | - | - | - | - | - | - | - |
| CCP Inspections and Maintenance | - | - | - | - | - | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | 178,248 | 178,248 | 178,248 | 178,248 | 178,248 | 178,248 | 178,248 | 178,248 | 178,248 | 178,248 |
| Previous Landfill ARO Cash Flows | - | - | - | - | - | - | - | - | - | - |
| Inflation Impacts | 29,678 | 35,084 | 40,631 | 46,322 | 52,161 | 58,151 | 64,298 | 67,469 | 73,612 | 79,908 |
| Total Dan River | \$ 207,927 | \$ 213,333 | \$ 218,879 | \$ 224,570 | \$ 230,409 | \$ 236,400 | \$ 242,546 | \$ 245,717 | \$ 251,860 | \$ 258,157 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | |

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| Duke Energy Carolinas | | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Dan River | | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| Item | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - | - | - | - | - | - | - | - | - |
| Water Treatment & Management | - | - | - | - | - | - | - | - | - | - | - |
| Ash Processing | - | - | - | - | - | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | - | - | - | - | - | - | - | - | - | - | - |
| Duke Cost | - | - | - | - | - | - | - | - | - | - | - |
| Contingency | - | - | - | - | - | - | - | - | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | - | - | - | - | - | - | - | - | - | - | - |
| CCP Inspections and Maintenance | - | - | - | - | - | - | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | 178,248 | 178,248 | 178,248 | 178,248 | 178,248 | 178,248 | 178,248 | 178,248 | 178,248 | 178,248 | 178,248 |
| Previous Landfill ARO Cash Flows | - | - | - | - | - | - | - | - | - | - | - |
| Inflation Impacts | 86,362 | 92,978 | 99,758 | 106,708 | 113,832 | 121,134 | 128,619 | 136,291 | 144,154 | 152,214 | 160,476 |
| Total Dan River | \$ 264,611 | \$ 271,226 | \$ 278,007 | \$ 284,957 | \$ 292,081 | \$ 299,383 | \$ 306,867 | \$ 314,539 | \$ 322,403 | \$ 330,463 | \$ 338,724 |
| | | | | | | | | | | | |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | | |

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| Duke Energy Carolinas | | | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Dan River | | | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| Item | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - | - | - | - | - | - | - | - | - | - |
| Water Treatment & Management | - | - | - | - | - | - | - | - | - | - | - | - |
| Ash Processing | - | - | - | - | - | - | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - | - | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | - | - | - | - | - | - | - | - | - | - | - | - |
| Duke Cost | - | - | - | - | - | - | - | - | - | - | - | - |
| Contingency | - | - | - | - | - | - | - | - | - | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | - | - | - | - | - | - | - | - | - | - | - | - |
| CCP Inspections and Maintenance | - | - | - | - | - | - | - | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | 178,248 | 178,248 | 178,248 | 178,248 | 178,248 | 178,248 | 178,248 | 178,248 | 178,248 | - | - | - |
| Previous Landfill ARO Cash Flows | - | - | - | - | - | - | - | - | - | - | - | - |
| Inflation Impacts | 168,944 | 177,624 | 186,520 | 195,640 | 204,987 | 214,568 | 224,388 | 234,454 | 244,772 | - | - | - |
| Total Dan River | \$ 347,192 | \$ 355,872 | \$ 364,769 | \$ 373,888 | \$ 383,235 | \$ 392,816 | \$ 402,637 | \$ 412,703 | \$ 423,020 | \$ - | \$ - | \$ - |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | | | |

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| Duke Energy Carolinas | | | |
| CCR ARO Project Cost Estimates - Dan River | | | |
| As of 12/31/2016 | | | |
| | | | |
| | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2055</u> | <u>2056</u> | <u>2057</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - |
| Water Treatment & Management | - | - | - |
| Ash Processing | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - |
| Engineering Closure Plans | - | - | - |
| Duke Cost | - | - | - |
| Contingency | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - |
| CCP Oversight & LRP | - | - | - |
| CCP Inspections and Maintenance | - | - | - |
| CCP Engineering | - | - | - |
| EHS | - | - | - |
| Post-Closure Maintenance | - | - | - |
| Previous Landfill ARO Cash Flows | - | - | - |
| Inflation Impacts | - | - | - |
| Total Dan River | \$ - | \$ - | \$ - |
| | | | |
| | | | |
| FN - Please see Footnotes on Page 4 for further explanations | | | |

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| Duke Energy Carolinas | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Riverbend | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | |
| | | | | | | | | | | |
| | | | Actual | Actual | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>Total</u> | <u>FN</u> | <u>2015</u> | <u>2016</u> | <u>2017</u> | <u>2018</u> | <u>2019</u> | <u>2020</u> | <u>2021</u> | <u>2022</u> |
| Mobilization and Site Preparation | \$ - | | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | 17,242,077 | | 8,356,823 | 8,707,033 | 53,466 | 53,466 | 53,466 | 17,822 | - | - |
| Water Treatment & Management | 25,894,659 | | 8,370,726 | 1,326,902 | 4,373,198 | 4,373,198 | 4,373,198 | 1,619,703 | 1,457,733 | - |
| Ash Processing | 197,393,000 | | 1,608,680 | 6,172,319 | 80,585,100 | 80,585,100 | 28,441,800 | - | - | - |
| Construct Landfill & Cap-In-Place | 65,059,902 | | 2,680,842 | 62,379,060 | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | 17,187,854 | | - | - | - | - | 17,187,854 | - | - | - |
| Engineering Closure Plans | 1,802,321 | | - | - | 540,696 | 540,696 | 540,696 | 180,232 | - | - |
| Duke Cost | 8,972,460 | | 296,919 | 315,223 | 2,257,286 | 2,257,286 | 2,257,286 | 1,504,857 | 83,603 | - |
| Site Maintenance Landfill, etc. | 5,854,205 | | 2,351,682 | 3,502,523 | - | - | - | - | - | - |
| Contingency | 24,769,374 | a | - | - | 8,669,281 | 8,669,281 | 4,953,875 | 2,229,244 | 247,694 | - |
| Basin Closure | \$ 364,175,851 | | \$ 23,665,671 | \$ 82,403,061 | \$ 96,479,028 | \$ 96,479,028 | \$ 57,808,176 | \$ 5,551,858 | \$ 1,789,030 | \$ - |
| CCP Basin Support Projects | 2,200,931 | b | 299,794 | 1,220,360 | 680,777 | - | - | - | - | - |
| CCP Oversight & LRP | 6,190,074 | c | 5,766,038 | 102,294 | 64,348 | 64,348 | 64,348 | 64,348 | 64,348 | - |
| CCP Inspections and Maintenance | 1,769,648 | d | - | - | 391,027 | 390,503 | 319,373 | 329,373 | 339,373 | - |
| CCP Engineering | 449,716 | e | - | - | 155,074 | 155,074 | 93,045 | 46,522 | - | - |
| EHS | 24,531,930 | f | 9,935,805 | 2,678,601 | 2,488,680 | 2,488,680 | 2,341,246 | 2,311,921 | 2,286,995 | - |
| Post-Closure Maintenance | 3,579,398 | g | - | - | - | - | - | - | - | 119,313 |
| Previous Landfill ARO Cash Flows | - | h | - | - | - | - | - | - | - | - |
| Inflation Impacts | 16,164,504 | i | - | - | 2,506,473 | 5,041,118 | 4,661,585 | 862,065 | 588,675 | 19,865 |
| Total Riverbend | \$ 419,062,052 | | \$ 39,667,308 | \$ 86,404,316 | \$ 102,765,409 | \$ 104,618,751 | \$ 65,287,773 | \$ 9,166,087 | \$ 5,068,422 | \$ 139,179 |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | |

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| Duke Energy Carolinas | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Riverbend | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | |
| | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2023</u> | <u>2024</u> | <u>2025</u> | <u>2026</u> | <u>2027</u> | <u>2028</u> | <u>2029</u> | <u>2030</u> | <u>2031</u> | <u>2032</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - | - | - | - | - | - | - | - |
| Water Treatment & Management | - | - | - | - | - | - | - | - | - | - |
| Ash Processing | - | - | - | - | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | - | - | - | - | - | - | - | - | - | - |
| Duke Cost | - | - | - | - | - | - | - | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - | - | - | - | - | - | - | - |
| Contingency | - | - | - | - | - | - | - | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | - | - | - | - | - | - | - | - | - | - |
| CCP Inspections and Maintenance | - | - | - | - | - | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | 119,313 | 119,313 | 119,313 | 119,313 | 119,313 | 119,313 | 119,313 | 119,313 | 119,313 | 119,313 |
| Previous Landfill ARO Cash Flows | - | - | - | - | - | - | - | - | - | - |
| Inflation Impacts | 23,484 | 27,197 | 31,006 | 34,914 | 38,924 | 43,039 | 45,161 | 49,273 | 53,488 | 57,808 |
| Total Riverbend | \$ 142,797 | \$ 146,510 | \$ 150,319 | \$ 154,228 | \$ 158,238 | \$ 162,352 | \$ 164,475 | \$ 168,587 | \$ 172,801 | \$ 177,121 |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | |

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| Duke Energy Carolinas | | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Riverbend | | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2033</u> | <u>2034</u> | <u>2035</u> | <u>2036</u> | <u>2037</u> | <u>2038</u> | <u>2039</u> | <u>2040</u> | <u>2041</u> | <u>2042</u> | <u>2043</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - | - | - | - | - | - | - | - | - |
| Water Treatment & Management | - | - | - | - | - | - | - | - | - | - | - |
| Ash Processing | - | - | - | - | - | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | - | - | - | - | - | - | - | - | - | - | - |
| Duke Cost | - | - | - | - | - | - | - | - | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - | - | - | - | - | - | - | - | - |
| Contingency | - | - | - | - | - | - | - | - | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | - | - | - | - | - | - | - | - | - | - | - |
| CCP Inspections and Maintenance | - | - | - | - | - | - | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | 119,313 | 119,313 | 119,313 | 119,313 | 119,313 | 119,313 | 119,313 | 119,313 | 119,313 | 119,313 | 119,313 |
| Previous Landfill ARO Cash Flows | - | - | - | - | - | - | - | - | - | - | - |
| Inflation Impacts | 62,236 | 66,775 | 71,427 | 76,195 | 81,083 | 86,093 | 91,228 | 96,492 | 101,887 | 107,417 | 113,085 |
| Total Riverbend | \$ 181,549 | \$ 186,088 | \$ 190,740 | \$ 195,509 | \$ 200,396 | \$ 205,406 | \$ 210,541 | \$ 215,805 | \$ 221,200 | \$ 226,730 | \$ 232,398 |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | | |

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| Duke Energy Carolinas | | | | | | | | | | | | |
| CCR ARO Project Cost Estimates - Riverbend | | | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2044</u> | <u>2045</u> | <u>2046</u> | <u>2047</u> | <u>2048</u> | <u>2049</u> | <u>2050</u> | <u>2051</u> | <u>2052</u> | <u>2053</u> | <u>2054</u> | <u>2055</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - | - | - | - | - | - | - | - | - | - |
| Water Treatment & Management | - | - | - | - | - | - | - | - | - | - | - | - |
| Ash Processing | - | - | - | - | - | - | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - | - | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | - | - | - | - | - | - | - | - | - | - | - | - |
| Duke Cost | - | - | - | - | - | - | - | - | - | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - | - | - | - | - | - | - | - | - | - |
| Contingency | - | - | - | - | - | - | - | - | - | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | - | - | - | - | - | - | - | - | - | - | - | - |
| CCP Inspections and Maintenance | - | - | - | - | - | - | - | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | 119,313 | 119,313 | 119,313 | 119,313 | 119,313 | 119,313 | 119,313 | 119,313 | - | - | - | - |
| Previous Landfill ARO Cash Flows | - | - | - | - | - | - | - | - | - | - | - | - |
| Inflation Impacts | 118,895 | 124,850 | 130,954 | 137,211 | 143,624 | 150,198 | 156,935 | 163,842 | - | - | - | - |
| Total Riverbend | \$ 238,208 | \$ 244,164 | \$ 250,268 | \$ 256,524 | \$ 262,937 | \$ 269,511 | \$ 276,249 | \$ 283,155 | \$ - | \$ - | \$ - | \$ - |
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| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | | | |

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| Duke Energy Carolinas | | |
| CCR ARO Project Cost Estimates - Riverbend | | |
| As of 12/31/2016 | | |
| | | |
| | Forecast | Forecast |
| <u>Item</u> | <u>2056</u> | <u>2057</u> |
| Mobilization and Site Preparation | \$ - | \$ - |
| Site Infrastructure | - | - |
| Water Treatment & Management | - | - |
| Ash Processing | - | - |
| Construct Landfill & Cap-In-Place | - | - |
| Site Restoration, Demobilization, Closing | - | - |
| Engineering Closure Plans | - | - |
| Duke Cost | - | - |
| Site Maintenance Landfill, etc. | - | - |
| Contingency | - | - |
| Basin Closure | \$ - | \$ - |
| CCP Basin Support Projects | - | - |
| CCP Oversight & LRP | - | - |
| CCP Inspections and Maintenance | - | - |
| CCP Engineering | - | - |
| EHS | - | - |
| Post-Closure Maintenance | - | - |
| Previous Landfill ARO Cash Flows | - | - |
| Inflation Impacts | - | - |
| Total Riverbend | \$ - | \$ - |
| | | |
| | | |
| FN - Please see Footnotes on Page 4 for further explanations | | |

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| Duke Energy Carolinas | | | | | | | | | | |
| CCR ARO Project Cost Estimates - WS Lee | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | |
| | | | | | | | | | | |
| | | | Actual | Actual | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>Total</u> | <u>FN</u> | <u>2015</u> | <u>2016</u> | <u>2017</u> | <u>2018</u> | <u>2019</u> | <u>2020</u> | <u>2021</u> | <u>2022</u> |
| Mobilization and Site Preparation | \$ 9,259,791 | | \$ 1,173,279 | \$ 108,304 | \$ 2,991,828 | \$ 2,991,828 | \$ 1,994,552 | \$ - | \$ - | \$ - |
| Site Infrastructure | 6,205,949 | | 782,530 | 1,619,483 | 760,787 | 760,787 | 570,590 | 570,590 | 380,394 | 380,394 |
| Water Treatment & Management | 40,935,835 | | 132,329 | 9,773 | - | 16,316,293 | 16,319,293 | 8,158,147 | - | - |
| Ash Processing | 133,035,230 | | 9,143,284 | 20,919,276 | 18,306,253 | 18,306,253 | 18,306,253 | 18,306,253 | 18,306,253 | 11,441,408 |
| Construct Landfill & Cap-In-Place | 21,429,790 | | - | - | - | - | 12,857,874 | 8,571,916 | | - |
| Site Restoration, Demobilization, Closing | 9,307,375 | | - | - | - | - | - | 2,792,213 | 2,792,213 | 1,861,475 |
| Engineering Closure Plans | 9,888,982 | | 755,659 | 1,445,217 | 2,050,161 | 1,025,081 | 1,025,081 | 1,025,081 | 1,025,081 | 1,025,081 |
| Duke Cost | 25,828,770 | | 1,458,761 | 2,832,155 | 3,361,399 | 3,361,399 | 3,361,399 | 3,361,399 | 3,112,407 | 3,112,407 |
| Site Maintenance Landfill, etc. | - | | - | - | - | - | - | - | - | - |
| Contingency | 18,466,055 | a | - | - | 4,616,514 | 4,039,450 | 3,462,385 | 3,462,385 | 1,154,128 | 1,154,128 |
| Basin Closure | \$ 274,357,777 | | \$ 13,445,841 | \$ 26,934,207 | \$ 32,086,942 | \$ 46,801,091 | \$ 57,897,427 | \$ 46,247,983 | \$ 26,770,475 | \$ 18,974,893 |
| CCP Basin Support Projects | 10,478,774 | b | 3,260,648 | 7,218,126 | - | - | - | - | - | - |
| CCP Oversight & LRP | 2,760,826 | c | 2,454,749 | 135,792 | 28,381 | 28,381 | 28,381 | 28,381 | 28,381 | 28,381 |
| CCP Inspections and Maintenance | 2,216,166 | d | - | - | 478,610 | 478,379 | 308,544 | 313,544 | 318,544 | 318,544 |
| CCP Engineering | 599,403 | e | - | - | 206,691 | 206,691 | 124,014 | 62,007 | - | - |
| EHS | 2,613,745 | f | 526,086 | 1,056,612 | 229,000 | 229,000 | 205,550 | 190,250 | 177,245 | - |
| Post-Closure Maintenance | 6,187,645 | g | - | - | - | - | - | - | - | - |
| Previous Landfill ARO Cash Flows | - | h | - | - | - | - | - | - | - | - |
| Inflation Impacts | 25,026,442 | i | - | - | 825,741 | 2,417,017 | 4,503,016 | 4,862,821 | 3,586,741 | 3,217,053 |
| Total WS Lee | \$ 324,240,779 | | \$ 19,687,325 | \$ 35,344,738 | \$ 33,855,365 | \$ 50,160,558 | \$ 63,066,933 | \$ 51,704,987 | \$ 30,881,386 | \$ 22,538,870 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | |

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|--|--------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Duke Energy Carolinas | | | | | | | | | | |
| CCR ARO Project Cost Estimates - WS Lee | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | |
| | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2023</u> | <u>2024</u> | <u>2025</u> | <u>2026</u> | <u>2027</u> | <u>2028</u> | <u>2029</u> | <u>2030</u> | <u>2031</u> | <u>2032</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | 380,394 | - | - | - | - | - | - | - | - | - |
| Water Treatment & Management | - | - | - | - | - | - | - | - | - | - |
| Ash Processing | - | - | - | - | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | 1,861,475 | - | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | 512,540 | - | - | - | - | - | - | - | - | - |
| Duke Cost | 1,867,444 | - | - | - | - | - | - | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - | - | - | - | - | - | - | - |
| Contingency | 577,064 | - | - | - | - | - | - | - | - | - |
| Basin Closure | \$ 5,198,918 | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | - | - | - | - | - | - | - | - | - | - |
| CCP Inspections and Maintenance | - | - | - | - | - | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | 206,255 | 206,255 | 206,255 | 206,255 | 206,255 | 206,255 | 206,255 | 206,255 | 206,255 | 206,255 |
| Previous Landfill ARO Cash Flows | - | - | - | - | - | - | - | - | - | - |
| Inflation Impacts | 1,063,886 | 47,015 | 53,600 | 60,356 | 67,288 | 74,400 | 78,070 | 85,178 | 92,464 | 99,932 |
| Total WS Lee | \$ 6,469,059 | \$ 253,270 | \$ 259,855 | \$ 266,611 | \$ 273,543 | \$ 280,655 | \$ 284,325 | \$ 291,433 | \$ 298,719 | \$ 306,186 |
| | | | | | | | | | | |
| | | | | | | | | | | |
| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | |

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|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Duke Energy Carolinas | | | | | | | | | | | |
| CCR ARO Project Cost Estimates - WS Lee | | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | | |
| | | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2033</u> | <u>2034</u> | <u>2035</u> | <u>2036</u> | <u>2037</u> | <u>2038</u> | <u>2039</u> | <u>2040</u> | <u>2041</u> | <u>2042</u> | <u>2043</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - | - | - | - | - | - | - | - | - |
| Water Treatment & Management | - | - | - | - | - | - | - | - | - | - | - |
| Ash Processing | - | - | - | - | - | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | - | - | - | - | - | - | - | - | - | - | - |
| Duke Cost | - | - | - | - | - | - | - | - | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - | - | - | - | - | - | - | - | - |
| Contingency | - | - | - | - | - | - | - | - | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | - | - | - | - | - | - | - | - | - | - | - |
| CCP Inspections and Maintenance | - | - | - | - | - | - | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | 206,255 | 206,255 | 206,255 | 206,255 | 206,255 | 206,255 | 206,255 | 206,255 | 206,255 | 206,255 | 206,255 |
| Previous Landfill ARO Cash Flows | - | - | - | - | - | - | - | - | - | - | - |
| Inflation Impacts | 107,586 | 115,432 | 123,475 | 131,718 | 140,167 | 148,828 | 157,705 | 166,804 | 176,130 | 185,690 | 195,488 |
| Total WS Lee | \$ 313,841 | \$ 321,687 | \$ 329,729 | \$ 337,973 | \$ 346,422 | \$ 355,082 | \$ 363,960 | \$ 373,058 | \$ 382,385 | \$ 391,945 | \$ 401,743 |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | | |

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|--|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------|-------------|-------------|
| Duke Energy Carolinas | | | | | | | | | | | | |
| CCR ARO Project Cost Estimates - WS Lee | | | | | | | | | | | | |
| As of 12/31/2016 | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast | Forecast |
| <u>Item</u> | <u>2044</u> | <u>2045</u> | <u>2046</u> | <u>2047</u> | <u>2048</u> | <u>2049</u> | <u>2050</u> | <u>2051</u> | <u>2052</u> | <u>2053</u> | <u>2054</u> | <u>2055</u> |
| Mobilization and Site Preparation | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| Site Infrastructure | - | - | - | - | - | - | - | - | - | - | - | - |
| Water Treatment & Management | - | - | - | - | - | - | - | - | - | - | - | - |
| Ash Processing | - | - | - | - | - | - | - | - | - | - | - | - |
| Construct Landfill & Cap-In-Place | - | - | - | - | - | - | - | - | - | - | - | - |
| Site Restoration, Demobilization, Closing | - | - | - | - | - | - | - | - | - | - | - | - |
| Engineering Closure Plans | - | - | - | - | - | - | - | - | - | - | - | - |
| Duke Cost | - | - | - | - | - | - | - | - | - | - | - | - |
| Site Maintenance Landfill, etc. | - | - | - | - | - | - | - | - | - | - | - | - |
| Contingency | - | - | - | - | - | - | - | - | - | - | - | - |
| Basin Closure | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - | \$ - |
| CCP Basin Support Projects | - | - | - | - | - | - | - | - | - | - | - | - |
| CCP Oversight & LRP | - | - | - | - | - | - | - | - | - | - | - | - |
| CCP Inspections and Maintenance | - | - | - | - | - | - | - | - | - | - | - | - |
| CCP Engineering | - | - | - | - | - | - | - | - | - | - | - | - |
| EHS | - | - | - | - | - | - | - | - | - | - | - | - |
| Post-Closure Maintenance | 206,255 | 206,255 | 206,255 | 206,255 | 206,255 | 206,255 | 206,255 | 206,255 | 206,255 | - | - | - |
| Previous Landfill ARO Cash Flows | - | - | - | - | - | - | - | - | - | - | - | - |
| Inflation Impacts | 205,532 | 215,827 | 226,379 | 237,194 | 248,281 | 259,644 | 271,292 | 283,230 | 295,467 | - | - | - |
| Total WS Lee | \$ 411,787 | \$ 422,081 | \$ 432,633 | \$ 443,449 | \$ 454,536 | \$ 465,899 | \$ 477,546 | \$ 489,485 | \$ 501,722 | \$ - | \$ - | \$ - |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| FN - Please see Footnotes on Page 4 for further explanations | | | | | | | | | | | | |

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|--|-------------|-------------|
| Duke Energy Carolinas | | |
| CCR ARO Project Cost Estimates - WS Lee | | |
| As of 12/31/2016 | | |
| | | |
| | Forecast | Forecast |
| <u>Item</u> | <u>2056</u> | <u>2057</u> |
| Mobilization and Site Preparation | \$ - | \$ - |
| Site Infrastructure | - | - |
| Water Treatment & Management | - | - |
| Ash Processing | - | - |
| Construct Landfill & Cap-In-Place | - | - |
| Site Restoration, Demobilization, Closing | - | - |
| Engineering Closure Plans | - | - |
| Duke Cost | - | - |
| Site Maintenance Landfill, etc. | - | - |
| Contingency | - | - |
| Basin Closure | \$ - | \$ - |
| CCP Basin Support Projects | - | - |
| CCP Oversight & LRP | - | - |
| CCP Inspections and Maintenance | - | - |
| CCP Engineering | - | - |
| EHS | - | - |
| Post-Closure Maintenance | - | - |
| Previous Landfill ARO Cash Flows | - | - |
| Inflation Impacts | - | - |
| Total WS Lee | \$ - | \$ - |
| | | |
| | | |
| FN - Please see Footnotes on Page 4 for further explanations | | |

BATEMAN SUPPLEMENTAL EXHIBIT 1, PAGE 54
Doc. Ex. 90

Duke Energy Progress, LLC
Docket No. E-2, Sub 1142
Amortize deferred environmental costs
For the test period ended December 31, 2016
(Dollars in thousands)

NC-1801(C)
Page 1 of 1
Supplemental

| Line No. | Description | Total NC Retail |
|-------------|---|--------------------|
| 1 | | |
| 2 | Projected Ending Balance | \$ 236,315 [1] |
| 3 | | |
| 4 | Balance for Amortization | \$ 236,315 |
| 5 | | |
| 6 | Years to Amortize | 5 |
| 7 | | |
| 8 | Annual amortization (L4/L16) | \$ 47,263 |
| 9 | | |
| 10 | Statutory tax rate | 37.0599% [2] |
| 11 | | |
| 12 | Impact to income taxes (-L4 x L6) | \$ (17,516) |
| 13 | | |
| 14 | Impact to operating income (-L8 - L12) | \$ (29,747) |
| 15 | | |
| 16 | Impact to Rate Base | |
| 17 | | |
| 18 | COS Coal Ash Deferral in Rate Base 12/31/2016 | \$ 153,032 |
| 19 | | |
| 20 | Projected 2017 Coal Ash Balance for Rate Base (L2) | 236,315 |
| 21 | Less 2018 Coal Ash Deferral Amortization (-L8) | (47,263) |
| 22 | Projected Coal Ash Deferral Balance in rate base 12/31/2018 | 189,052 |
| 23 | | |
| 24 | Change in Coal Ash Deferred Asset in Rate Base (L22-L18) | \$ 36,020 |
| 25 | | |
| 26 | Change in ADIT on Working Capital (-L 24 x L10) | \$ (13,349) |

[1] NC-1802 - Deferral Col (p) Line 33

[2] NC-0104 - 2017 Composite Tax rate, Line 10

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GAS - RATES

DOCKET NO. G-5, SUB 327

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of
Application of Public Service Company
of North Carolina, Inc., for an
Adjustment of its Rates and Charges

ORDER GRANTING
PARTIAL RATE INCREASE

HEARD IN: Statesville: July 12, 1994, at 7:00 p.m., Courtroom No. 2, Iredeil
County Hall of Justice, 201 Water Street, Statesville,
North Carolina

Gastonia: July 13, 1994, at 7:00 p.m., Courtroom A, Gaston County
Courthouse, 151 South Street, Gastonia, North Carolina

Asheville: July 14, 1994, at 7:00 p.m., District Courtroom 1-A
(Night Court, Ground Floor), Buncombe County
Courthouse, 60 Courthouse Plaza, Asheville, North
Carolina

Raleigh: August 15, 1994, at 7:00 p.m., Commission Hearing Room
No. 2115, Second Floor, Dobbs Building, 430 North
Salisbury Street, Raleigh, North Carolina

August 16-19, 1994, Commission Hearing Room No. 2115,
Second Floor, Dobbs Building, 430 North Salisbury
Street, Raleigh, North Carolina

BEFORE: Commissioner Laurence A. Cobb, Presiding; and Commissioners Charles H.
Hughes and Ralph A. Hunt

APPEARANCES:

For Public Service Company of North Carolina, Inc.:

William A. Davis, II, and Daniel W. Clark, Tharrington, Smith, and
Hargrove, 209 Fayetteville Street Mall, Raleigh, North Carolina 27602

For Carolina Utility Customers Association, Inc.:

Sam J. Ervin, IV, Byrd, Byrd, Whisnant, McMahon & Ervin, Post Office
Drawer 1269, Morganton, North Carolina 28680-1269

For the City of Durham:

W. I. Thornton, Jr., City Attorney, City of Durham, 101 City Hall
Plaza, Durham, North Carolina 27701

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GAS - RATES

For the North Carolina Department of Justice:

Margaret A. Force, J. Mark Payne, and Richard L. Griffin, Assistant Attorneys General, Department of Justice, Post Office Box 629, Raleigh, North Carolina 27626
For: The Using and Consuming Public

For the Public Staff:

Vickie L. Moir, Gisele L. Rankin, and James D. Little, Staff Attorneys, Public Staff - North Carolina Utilities Commission, Post Office Box 29520, Raleigh, North Carolina 27626-0520
For: The Using and Consuming Public

BY THE COMMISSION: On March 9, 1994, Public Service Company of North Carolina, Inc. (PSNC or Company) filed an application with the North Carolina Utilities Commission (Commission) seeking authority to adjust its rates and charges for natural gas service in North Carolina and to make certain changes to its rules, regulations and tariffs. PSNC requested that the proposed rates be effective on and after April 8, 1994. Concurrent with the filing of its application, the Company filed a Petition to Omit or Modify Portions of G-1 Filing Requirements.

On March 24, 1994, the Commission issued an Order Granting Petition which allowed PSNC to omit or modify portions of the G-1 filing requirements as set out in the order.

On April 6, 1994, the Commission issued an Order suspending the proposed rates, declaring the matter to be a general rate case, setting the matter for investigation and hearing, establishing the test period, requiring public notice, and establishing dates for the prefiling of testimony.

Carolina Utility Customers Association, Inc. (CUCA), and the City of Durham filed Motions to Intervene which were allowed by the Commission. The Attorney General filed Notice of Intervention, and the Public Staff intervened through its appearance at the hearing.

Public hearings were held as scheduled. The following public witnesses appeared and testified:

| | |
|---------------------|--|
| <u>Statesville:</u> | Faye K. Rogers |
| <u>Gastonia:</u> | William Martin |
| <u>Asheville:</u> | Marjorie Lockwood, William E. Gravely |
| <u>Raleigh:</u> | Steven Jurovics, J.L. Cook, Norman F. Carden III, June Horvitz |

Witnesses for the parties presented evidence in Raleigh beginning on August 16, 1994.

PSNC presented the testimony and/or exhibits of the following witnesses:

1. Charles E. Ziegler, Jr., Chairman, President and Chief Executive Officer of PSNC;

GAS - RATES

22. Prior to the commencement of the evidentiary hearings in this proceeding, PSNC and the Public Staff entered into a stipulation in which the parties to that document agreed that the current depreciation rates should continue to be used except for the rates for account numbers 376 (Distribution Mains) and 380 (Distribution Services).

23. It is appropriate to use the stipulated depreciation rates in this proceeding, which are 2.81% for Distribution Mains and 4.43% for Distribution Services.

24. The Stipulation pertaining to the Company's depreciation rates as set forth in the attached Appendix B should be approved.

MANUFACTURED GAS PLANT TRACKER - RIDER F

25. PSNC owns six sites, either solely or jointly with others, that were formerly operated as manufactured gas plants (MGP). The Company acquired the sites in the late-1930s and early-1940s and operated them until the early-1950s. The plants were used to manufacture gas for more than 50 years; the Company operated them for a maximum of 15 years. The MGP sites are currently the subject of investigations under environmental laws.

26. The Company's proposed Rider F - Manufactured Gas Plant Tracker, would allow the Company to adjust its rates periodically to recover the costs it incurs related to the clean-up of MGP sites. The Company's proposed Rider F should be rejected.

27. The proposed Rider F would provide a limited opportunity for prudence review of clean-up costs and would provide less motivation for PSNC to minimize costs or seek contributions from others.

28. A general rate case is the appropriate forum for reviewing the MGP clean-up costs. Deferral and amortization of the MGP costs in a general rate case will result in more stable rates than would recovery of these costs through the Company's proposed tracker and will afford an adequate opportunity for prudence review.

29. The unamortized balance of MGP costs should not be included in rate base. The resulting sharing of clean-up costs between ratepayers and shareholders will provide PSNC motivation to minimize costs and to pursue contributions from other potentially responsible parties and insurers.

30. It is appropriate to increase O&M expenses by \$50,000 to reflect the amortization over a three-year period of \$150,001 of incurred MGP costs.

RATE BASE

31. The appropriate level of gas utility plant in service for use in this proceeding is \$499,618,895.

32. The appropriate level of accumulated depreciation for use in this proceeding is \$153,457,716.

GAS - RATES

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Public Staff witness Hoard recommended that the Commission not approve the Company's proposed tracker. Mr. Hoard stated that Public Staff counsel had advised him that the Commission has previously ruled that a tracker of the type proposed by PSNC would preclude appropriate regulatory oversight of the utility's overall expenses and that, absent specific statutory authority, the Commission does not have the authority to approve such a tracker. Public Staff witness Hoard testified that trackers have been approved for significant cost items, such as gas costs for gas utilities and fuel costs for electric utilities, but he pointed out that there is specific authority given to the Commission for changing utility rates as the result of changes in these types of costs. Mr. Hoard stated that just because a cost changes or varies significantly over time does not necessarily result in a tracker.

Public Staff witness Hoard was also questioned on whether a tracker mechanism would result in smoother ratemaking treatment over time relative to deferral and amortization. Mr. Hoard testified that a tracker could allow the Company's rates to jump up and down depending on much has been incurred, resulting in more volatility in rates than if the costs were amortized as he has recommended.

Public Staff witness Hoard also testified that the appropriate forum for reviewing and analyzing and investigating MGP costs is a rate case due to the potential liability and complexity of the issue. He stated that an expedited proceeding, such as a tracker proceeding, would not give MGP clean-up costs the full attention that they receive in a rate case. Mr. Hoard explained that more resources can be marshalled in a rate case proceeding than in an expedited proceeding to assure that the clean-up costs are prudently incurred and that the Company's initial operation of the sites was prudent. Mr. Hoard testified that the Public Staff's review of MGP costs would be a much more manageable task and that the Public Staff could do a better job of performing its investigation in the context of a rate case than in the context of an expedited tracker proceeding.

Mr. Hoard recommended that the Company's O&M expenses be increased by \$50,000 to reflect the amortization of \$150,001 of actual incurred MGP costs over a three-year period. Mr. Hoard testified that the Commission may want to determine the appropriate amortization period for future MGP clean-up costs on a case-by-case basis in the future considering the dollars involved and the rate impacts of its decisions.

Mr. Hoard also recommended that the unamortized balance of MGP costs not be included in rate base. Public Staff witness Hoard testified that he does not believe it is the responsibility of current ratepayers to absolve shareholders of all cost responsibility for cleaning up the sites. He stated that excluding the unamortized balance of deferred MGP costs from rate base would require shareholders to share in the cost by being required to bear the carrying costs associated with the unamortized balance of LGP costs. Mr. Hoard noted that this ratemaking treatment is consistent with the Commission's treatment in the past for abandoned plant costs by electric utilities. Mr. Hoard also testified that although interest is accrued on the deferred gas cost accounts of gas utilities, the Commission does not normally allow utilities to accrue interest on expenses deferred as the result of accounting orders.

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Company witness Dickey testified that if the Public Staff's ratemaking treatment is adopted, carrying costs on the uncollected balance should be allowed to lessen the impact on PSNC. He recommended that the overall cost of capital rate or 10% be applied to the uncollected balance.

In his brief, the Attorney General argued against adoption of the Company's proposed tracker. He argued that there is insufficient evidence concerning the costs, duration, and rate impact of such a tracker at this time, that the entire burden of MGP clean-up costs should not be placed on current ratepayers as current operating expenses, that the proposed tracker would not provide sufficient opportunity for prudence review, and that the tracker would not provide sufficient motivation for PSNC to minimize costs.

The Commission concludes that the Company's proposed MGP tracker should not be approved. Assuming, without deciding, that the Commission would have legal authority to approve such a tracker, the Commission believes that this is not an appropriate situation for such an extraordinary rate mechanism. Provisional, non-fixed rates should be reserved for limited circumstances. Public Service is just beginning to investigate MGP clean-up. Management of the MGP sites could take decades and cost tens of millions of dollars. Approval of the proposed tracker would have far reaching consequences which cannot be known at this early stage. Further, complicated prudence issues are likely to arise in connection with the MGP clean-up. Among the factors to be considered in passing these costs on to the ratepayers are whether the Company's initial operation of each site was prudent, whether the clean-up costs were prudently incurred, and whether contributions should be provided by prior and joint owners. The Company's proposed tracker would provide a limited opportunity for review of these prudence issues. Finally, the Company's proposed tracker should be rejected because a passthrough of MGP clean-up costs to current ratepayers will inevitably undermine PSNC's motivation to minimize costs and to pursue contributions from others. Based on the foregoing concerns, the Commission rejects the Company's proposed MGP tracker.

On the other hand, the approach advocated by the Public Staff addresses all of these concerns. Public Staff witness Hoard recommended that actual incurred MGP clean-up costs should be recovered in this case by amortization over a three-year period. He further testified as follows regarding this issue:

I recommend that the Company continue to record its actual incurred MGP costs in Account 186.10 0012 - Environmental Compliance Costs (a miscellaneous deferred debit subaccount), as approved by the Commission in its order dated May 11, 1993, in Docket No. G-5, Sub 317. The additional MGP costs will be eligible for recovery through rates in the Company's next rate case. Of course, these additional costs will be subject to investigation and review in the next rate case by the Public Staff and the Commission before they can be recovered through rates. The appropriate amortization period applicable to those costs should be addressed during the next proceeding.

GAS - RATES

The MGP costs that are approved for recovery in this proceeding should be transferred to a separate account and the Company should credit the account each month to reflect the monthly amortization of the costs to expenses.

The Commission concludes that the Company should account for the MGP clean-up costs in the manner described by Mr. Hoard. The Commission concludes that this approach is appropriate as a matter of law and as a matter of policy. It is proper and in the public interest for the Commission to allow PSNC to recover the prudently-incurred clean-up costs from current ratepayers as reasonable operating expenses, even though the MGP sites are not used and useful in providing gas service to current customers. At the same time, however, it is not appropriate for ratepayers to relieve shareholders of all cost responsibility associated with the ratemaking treatment of MGP clean-up. We conclude that the proper balance between ratepayer and shareholder interests is achieved by amortizing the prudently-incurred costs to O&M expenses in general rate cases but denying the Company any recovery from ratepayers of the carrying costs on the deferred and the unamortized MGP clean-up cost balances. A sharing of MGP clean-up costs between ratepayers and shareholders has been adopted by several other state commissions. See, e.g., AG Dickey Cross Examination Exhibits 1 and 2; 146 PUR 4th 123; 147 PUR 4th 1. This treatment is analogous to the treatment ordered by this Commission for the costs of abandoned nuclear plants of electric utilities, which was upheld as reasonable by the North Carolina Supreme Court. See State ex. rel. Utilities Commission v. Thornburg, 325 N.C. 463 (1989). This approach will provide an appropriate forum where prudence issues can receive the regulatory oversight they deserve in the context of general rate cases. This approach will give the Company an incentive to minimize clean-up costs and to pursue contributions. Finally, the Commission concludes that this approach will result in greater rate stability. Rather than recovered over a 12-month period, the costs can be amortized over an appropriate period, determined in each case, depending upon their magnitude.

The Commission finds it appropriate to allow the Company to recover its \$150,001 of actual incurred MGP costs by increasing O&M expenses by \$50,000 to reflect the amortization of these costs over a three-year period. The Commission is aware that witness Richardson testified that the Company had spent a slightly higher amount as of June 30, 1994, but the June 30, 1994, figure was not presented until the hearing and there was no opportunity for other parties to investigate these additional costs. The Commission therefore believes that \$150,001 is the appropriate amount for use in this case. These costs are being amortized over a three-year period in consideration of the dollars involved and the rate impact and also to be consistent with the amortization period found reasonable for rate case expenses in this proceeding.

To assist the Commission in monitoring the progress of the Company's MGP clean-up, the Commission requires the Company to file annual reports on their investigation and remediation efforts. These reports shall be filed October 1 of each year and shall be maintained in a separate docket in the Chief Clerk's Office.

Site Facts - DEC

| Site | Commercial Operation Date | Generation Capacity (MW) | Retirement Date, if applicable | Possible closure approach | Quantity of ash on site in basins (in million tons MT) | Is a CCR landfill envisioned for the site? |
|---------------|---------------------------|--------------------------|--------------------------------|------------------------------------|--|--|
| Allen | 1957 | 1127 | n/a | Cap in Place | 16.6MT | No |
| Belews Creek | 1974 | 2220 | n/a | Cap in Place | 12.2MT | No |
| Buck | 1941 | 370 | U3&4 -2011 U5&6 2013 | Beneficiation | 6.5MT | No |
| Cliffside 5 | 1940 | 1396 | n/a | Cap in Place | 7.4MT | No |
| Cliffside 1-4 | 1940 | 210 | 2011 | Onsite landfill | 0 | Yes |
| Dan River | 1949 | 290 | 2012 | Offsite excavation/onsite landfill | 1.6MT | Yes |
| Riverbend | 1952 | 466 | 2013 | Offsite excavation | 2.1MT | No |
| WS Lee | 1951 | 200 | 2014 | Onsite landfill | 2.3MT | Yes |
| Marshall | 1965 | 2078 | n/a | Cap in Place | 16.7MT | No |

Note: quantities represent basin ash only and do not include fill or landfill ash quantities

Prepared by:



H.B. ROBINSON STEAM ELECTRIC PLANT
ASH BASIN

CLOSURE PLAN

OCTOBER 10, 2016

Certified by:



HDR Engineering, Inc. of the Carolinas

440 S. Church Street, Suite 1000

Charlotte, NC 28202

South Carolina Certificate of Authorization No. C0318

ROB_CLOSE_PLN

Rev. 0

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Rev. 0

Duke Energy Progress, LLC (Duke Energy) prepared this Closure Plan for the Coal Combustion Residuals (CCR) surface impoundment (Ash Basin) at the H.B. Robinson Steam Electric Plant (Robinson) pursuant to the requirements of 40 C.F.R. § 257.102(b) of the Disposal of CCR from Electric Utilities rule, 80 Fed. Reg. 21302 (April 17, 2015) (CCR Rule). HDR Engineering, Inc. of the Carolinas (HDR) was retained by Duke Energy to certify that this Closure Plan meets the requirements of 40 C.F.R. § 257.102. The information contained in this Closure Plan will be used to assist Duke Energy in the closure of the Ash Basin located in Darlington County, South Carolina, on property owned by Duke Energy. This Closure Plan may be amended pursuant to the requirements of 40 C.F.R. § 257.102(b)(3). Presented below are:

1. A narrative of closure activities;
2. A description of the procedures to remove CCR and decontaminate the CCR unit;
3. An estimate of the in-place CCR inventory requiring closure;
4. An estimate of the largest area of the CCR unit requiring a final cover (as needed);
5. A closure schedule; and
6. A written certification from a qualified professional engineer, licensed in South Carolina, that this Closure Plan meets the requirements of 40 C.F.R. § 257.102.

1 NARRATIVE OF CLOSURE ACTIVITIES

The purpose of this Closure Plan is to describe the steps required to close the Ash Basin at Robinson consistent with recognized and generally accepted good engineering practices. Closure of the Ash Basin will be designed to reduce the need for long-term maintenance and control the post-closure release of constituents into environmental pathways (i.e., air, surface water, groundwater).

The Ash Basin will be closed through the removal of CCR, and the closure will be performed pursuant to 40 CFR § 257.102(c). CCR will be removed as described in the following section.

2 CCR REMOVAL AND DECONTAMINATION

The procedures to remove CCR from the Ash Basin include dewatering and utilizing appropriate equipment and methods to excavate and move the CCR to a permitted on-site landfill. Dewatering will include removal of bulk water/free liquids and interstitial/pore water (as needed) to allow for safe excavation.

The existing embankment will be breached pursuant to a South Carolina Department of Health and Environmental Control (SCDHEC) Dam Safety permit approval. This breach is intended to promote free drainage of storm water from the closure area.

Existing appurtenant structures, such as ditches, culverts, and miscellaneous piping, will be decontaminated and abandoned in place, or removed and disposed in a permitted disposal facility, or placed in a beneficial use facility identified at the time of closure. Decontamination

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Rev. 0

procedures may consist of pressure washing, scrubbing, or other generally accepted decontamination procedures.

Pursuant to 40 C.F.R. § 257.102(c), closure will be complete when groundwater monitoring concentrations do not exceed the applicable groundwater protection standard established pursuant to 40 C.F.R. § 257.95(h) for constituents listed in appendix IV to 40 C.F.R. Part 257.

3 ESTIMATE OF IN-PLACE CCR INVENTORY

The volume of CCR present in the Ash Basin was calculated and is presented in Table 1 below, pursuant to 40 C.F.R. § 257.102(b)(1)(iv). The volume is the estimated inventory of CCR that will be open (and require closure) at one time, and the estimate is based on bathymetric surveys, historical topography, and soil borings as of May 2016. The annual surface impoundment inspections completed, pursuant to 40 C.F.R. § 257.83(b), and posted to the Duke Energy CCR website, pursuant to 40 C.F.R. § 257.107(g)(5), contain the most recent estimates of CCR material in the Ash Basin.

Table 1. Estimated In-Place CCR Inventory

| Basin | Quantity of CCR (cubic yards) |
|-----------|----------------------------------|
| Ash Basin | 2,632,000 |

4 ESTIMATE OF LARGEST AREA REQUIRING FINAL COVER

Closure of the Ash Basin will be accomplished by closure-by-removal pursuant to 40 C.F.R. § 257.102(c); therefore, no final cover will be constructed in support of closure.

5 CLOSURE SCHEDULE

Closure of the Ash Basin will be initiated pursuant to 40 C.F.R. § 257.102(e) and is anticipated to be completed within seven years of the commencement of closure activities. The closure time frame includes a two-year time extension beyond the time specified in 40 C.F.R. § 257.102(f)(1)(ii) on the basis that the anticipated time required to close the Ash Basin will need to be lengthened due to:

- The Ash Basin being larger than 40 acres (estimated 72 acres); and
- The need to relocate transmission lines to close a non-CCR-Rule-regulated ash storage area subject to Consent Agreement 15 – 23 – HW with the state of South Carolina.

The completed demonstration establishing why it is not feasible to complete closure of the Ash Basin within the five-year time frame due to factors beyond the facility's control will be prepared and placed in the facility's operating record prior to the end of any two-year period pursuant to 40 C.F.R. § 257.102(f)(2).

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Rev. 0

Prior to commencing closure construction, design documents will be prepared to support applications for required local, state, and federal permits. Closure construction design documents will include construction drawings, technical specifications, and quality assurance testing work plans. The permits required for closure construction activities will be evaluated at the time of closure, and but are anticipated to include permits from SCDHEC and the U.S. Army Corps of Engineers. Preliminary time frames of anticipated closure activities are included below in Table 2. Duke Energy estimates that all of the closure activities for the Ash Basin will be completed by 2026.

Table 2. Estimated Time frames for Closure Activities

| Closure Activity | Time Frame (years)* |
|---|---------------------|
| SCDHEC Closure Plan Approval | 1 |
| SCDHEC Landfill Permit Approval | 1.5 |
| SCDHEC Permitting Approvals (NDPES, E&SC, Air) | 1 |
| Dewatering and Stabilization | 1.5 |
| SCDHEC Dam Decommissioning Approval | 0.5 |
| CCR Excavation | 3 |

*Estimated closure activity time frames may include some overlap.

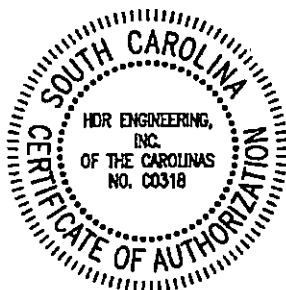
6 QUALIFIED PROFESSIONAL ENGINEER CERTIFICATION

I, Philip A. Westmoreland being a registered Professional Engineer in the state of South Carolina, do hereby certify to the best of my knowledge, information, and belief, that the information contained in this written Closure Plan dated October 10, 2016, was developed pursuant to the requirements of 40 C.F.R. § 257.102 and has been prepared in accordance with recognized and generally accepted good engineering practices.

SIGNATURE _____



DATE Oct 10, 2016



E-7 Sub 1146; Junis Part 6 of 6

I/A
Public Staff
Junis Exhibit 30

THE STATE OF SOUTH CAROLINA
BEFORE THE DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

IN RE: DUKE ENERGY CAROLINAS, LLC
W.S. LEE STEAM STATION
ANDERSON COUNTY

CONSENT AGREEMENT
14 -13- HW

This Consent Agreement is entered into between the South Carolina Department of Health and Environmental Control (SCDHEC or the Department) and Duke Energy Carolinas, LLC (Duke Energy) with respect to the investigation and remediation of two ash placement areas at the William States (W.S.) Lee Steam Station located at 205 Lee Steam Road, Belton, South Carolina in Anderson County (Tax Map Number 260-00-01-003-000). The Site shall include the "Inactive Ash Basin" and the "Ash Fill Area," and all areas where ash, other coal combustion residuals, or their constituents, including contaminants, (collectively Coal Combustion Residuals or CCR or ash) may have potentially migrated from these ash placement areas, collectively referred to as the "Site."

Duke Energy is entering into this Consent Agreement to assess and address any release or threat of release of Coal Combustion Residuals or other pollutants from the Site to the environment and to provide for the final disposition of the Site. Duke Energy will take all necessary steps in compliance with all environmental laws to prevent future releases from the Site. In the interest of resolving the matters herein without delay, Duke Energy agrees to the entry of this Consent Agreement without litigation and without the admission or adjudication of any issue of fact or law, except for purposes of enforcing this agreement. Duke Energy agrees that this Consent Agreement shall be deemed an admission of fact and law only as necessary for enforcement of this Consent

Agreement by the Department or in subsequent actions relating to this Site by the Department.

FINDINGS OF FACT

Based on information known by the Department, the following findings of fact are asserted by the Department for purposes of this Consent Agreement:

1. Duke Energy owns and operates W.S. Lee Steam Station as a cycling station to supplement supply when electricity demand is high. Three (3) coal-fired units, which became operational in the 1950's, generate approximately 370 megawatts (MW) of electricity. Units 1 and 2 were introduced to service beginning in 1951 followed by Unit 3 in 1959. Two (2) combustion turbines (CTs) were added in 2007 and generate an additional approximate 84 MWs. The CTs use diesel fuel or natural gas as their fuel source and serve as emergency back-up power to Oconee Nuclear Station.
2. Prior to 1974, CCR was placed in the Inactive Ash Basin, which is an unregulated basin located south of the power plant. Constructed in 1951 and expanded in 1959, the Inactive Ash Basin was formed by an approximately 3,700 feet long rim dike that impounds approximately 19 acres. The dike has a maximum height of 60 feet above grade with a crest elevation of 690 feet above sea level.
3. CCR is believed to have been used in the past as backfill into a borrow area identified as the Ash Fill Area, which is located near the Inactive Ash Basin.
4. On May 1, 2014, Duke Energy initiated geotechnical characterization of the Inactive Ash Basin.
5. On May 30, 2014, Duke Energy submitted a plan for the geotechnical characterization on the Ash Fill Area.

CONCLUSIONS OF LAW

The Department has the authority to implement and enforce laws and related regulations pursuant to the South Carolina Hazardous Waste Management Act, S.C. Code Ann. §44-56-10, et. seq. (Rev. 2002 and Supp. 2013), the Pollution Control Act, S.C. Code Ann. §48-1-10 et seq. (Rev. 2008 and Supp. 2013) and the South Carolina Solid Waste Policy and Management Act, S.C. Code Ann. §44-96-10, et. seq. (Rev. 2002 and Supp. 2013). These Acts authorize the Department to issue orders; assess civil penalties; conduct studies, investigations, and research to abate, control and prevent pollution; and to protect the health of persons or the environment.

NOW, THEREFORE IT IS AGREED, with the consent of Duke Energy and the Department, and pursuant to the South Carolina Hazardous Waste Management Act, the Pollution Control Act, and/or the Solid Waste Policy and Management Act, that Duke Energy shall:

1. Within ninety (90) days of receipt of this fully executed Consent Agreement, submit to the Department for review and approval, an Ash Removal Plan for the Site. The Ash Removal Plan shall include a time schedule for implementation of all major activities required by the Plan. The Ash Removal Plan must include, but is not limited to, characterization of the ash, provisions for the safe removal of the ash, management of storm water during the project, and management alternatives for the ash by either beneficial reuse or disposition in a South Carolina permitted Class 3 solid waste disposal facility or a facility meeting equivalent standards outside of South Carolina. The Ash Removal Plan shall also include an evaluation of the stability of the rim dike and any other slopes impounding the CCR placement areas during ash removal activities. Any comments generated through the Department's review of the Ash Removal Plan, must be addressed in writing by Duke Energy within fifteen (15) days of Duke Energy's receipt of said comments. Upon the Department's approval of the Ash Removal Plan and the time schedule for implementation thereof, the Ash Removal Plan

and schedule shall be incorporated herein and become an enforceable part of this Consent Agreement.

2. Submit, along with but under separate cover from the Ash Removal Plan, a Health and Safety Plan (HASP) consistent with Occupational Safety and Health Administration regulations. The HASP shall be submitted to the Department in the form of one (1) electronic copy (.pdf format). Duke Energy agrees the HASP is submitted to the Department for informational purposes only. The Department expressly denies any liability that may result from Duke Energy's implementation of the HASP.
3. Begin implementation of the Ash Removal Plan described in paragraph 1 within fifteen (15) days of Duke Energy's receipt of the Department's written approval of the Ash Removal Plan.
4. Upon completion of the work approved in the Ash Removal Plan, submit an Ash Removal Report to the Department. The Ash Removal Report shall summarize the activities taken during implementation of the Ash Removal Plan and shall contain appropriate documentation that ash has been removed from the Site in accordance with the Ash Removal Plan.
5. Within thirty (30) days of approval of the Ash Removal Report, submit an Assessment Plan to the Department. The Assessment Plan shall include, but is not limited to, the following: a description of work needed for the delineation of the vertical and horizontal extent of any contamination, including an assessment of surface water, groundwater, and soil underlying the Site; an evaluation of risks to human health and the environment; and a schedule for implementation.
6. Upon completion of the activities outlined in the approved Assessment Plan, submit to the Department an Assessment Report summarizing the findings of the investigations performed pursuant to the Assessment Plan. The Department shall review the Assessment Report to

determine completion of the field investigation and sufficiency of the documentation. If the Department determines that additional field investigation is necessary, Duke Energy shall conduct additional field investigation to complete such task. Alternatively, if the Department determines the field investigation to be complete, but the conclusions in Duke Energy's Assessment Report are not approved, Duke Energy shall submit a Revision to the Assessment Report within thirty (30) days after receipt of the Department's disapproval. The Revision shall address the Department's comments.

7. Within sixty (60) days of approval of the Assessment Report, submit to the Department a Closure Plan which details the actions to be taken for the final disposition of the Site, and evaluates the need for additional remediation of soils, surface water and groundwater. If remedial actions are necessary, Duke Energy shall also submit to the Department for approval a Remedial Plan, which includes a proposed remedy, justification for the proposed remedy, the design of the proposed remedy and a schedule for implementation. The schedule of implementation must extend through full completion of the remedy. The Closure Plan and, if necessary, the Remedial Plan shall be based upon the results of the field investigation, ash removal activities and the following seven (7) criteria:
 - a. Overall protection of human health and the environment;
 - b. Compliance with applicable or relevant and appropriate standards;
 - c. Long-term effectiveness and permanence;
 - d. Reduction of toxicity, mobility or volume;
 - e. Short-term effectiveness;
 - f. Implementability;
 - g. Costs.
8. Any comments generated through the Department's review of the Closure Plan and any required Remedial Plan must be addressed in writing by Duke Energy within fifteen (15) days of Duke Energy's receipt of said comments. This fifteen (15) day deadline may be

extended by mutual agreement of the parties if the comment resolution requires extensive revision, such as re-engineering. Upon Department approval of the Closure Plan, Remedial Plan and the implementation schedule, the Closure Plan, Remedial Plan, and implementation schedule shall be incorporated herein and become an enforceable part of this Consent Agreement.

9. Begin to implement the Closure Plan and the Remedial Plan within forty-five (45) days of the Department's approval of the Plans; and thereafter, take all necessary and reasonable steps to ensure timely completion of the Plans.
10. Upon Duke Energy's successful completion of the terms of this Consent Agreement, submit to the Department a written Final Report. The Final Report shall contain all necessary documentation supporting Duke Energy's remediation of the Site and successful and complete compliance with this Consent Agreement. Once the Department has approved the Final Report, the Department will provide Duke Energy a written approval of completion that provides a Covenant Not to Sue to Duke Energy for the response actions specifically covered in this Consent Agreement, approved by the Department and completed in accordance with the approved work plans and reports.
11. Notwithstanding any other provision of this Consent Agreement, including the Covenant Not to Sue, the Department reserves the right to require Duke Energy to perform any additional work at the Site or to reimburse the Department for additional work if Duke Energy declines to undertake such work, if: (i) conditions at the Site, previously unknown to the Department, are discovered after completion of the work approved by the Department pursuant to this Consent Agreement and warrant further assessment or remediation to address a release or threat of a release in order to protect human health or the environment, or (ii) information is received, in whole or in part, after completion of the work approved by the Department pursuant to this Consent Agreement, and these previously unknown conditions or this

information indicates that the completed work is not protective of human health and the environment. In exigent circumstances, the Department reserves the right to perform the additional work and Duke Energy will reimburse the Department for the work.

12. In consideration for the Department's Covenant Not to Sue, Duke Energy agrees not to assert any claims or causes of action against the Department arising out of response activities undertaken at the Site, or to seek any other costs, damages or attorney's fees from the Department arising out of response activities undertaken at the Site except for those claims or causes of action resulting from the intentional or grossly negligent acts or omissions of the Department. However, Duke Energy reserves all available defenses, not inconsistent with this Consent Agreement, to any claims or causes of action asserted against Duke Energy arising out of response activities undertaken at the Site by the Department.
13. Submit to the Department a written monthly progress report within thirty (30) days of the execution of this Consent Agreement and once every month thereafter until completion of the work required under this Consent Agreement. The progress reports shall include the following: (a) a description of the actions which Duke Energy has taken toward achieving compliance with this Consent Agreement during the previous month; (b) results of sampling and tests, in summary format received by Duke Energy during the reporting period; (c) description of all actions which are scheduled for the next month to achieve compliance with this Consent Agreement, and other information relating to the progress of the work as deemed necessary or requested by the Department; and (d) information regarding the percentage of work completed and any delays encountered or anticipated that may affect the approved schedule for implementation of the terms of this Consent Agreement, and a description of efforts made to mitigate delays or avoid anticipated delays.
14. Prepare all Plans and perform all activities under this Consent Agreement following appropriate DHEC and EPA guidelines. All Plans and associated reports shall be prepared

in accordance with industry standards and endorsed by a Professional Engineer (P.E.) and/or Professional Geologist (P.G.) duly-licensed in South Carolina. Unless otherwise requested, one (1) paper copy and one (1) electronic copy (.pdf format) of each document prepared under this Consent Agreement shall be submitted to the Department's Project Manager. Unless otherwise directed in writing, all correspondence, work plans and reports should be submitted to the Department's Project Manager at the following address:

Tim Hornosky
South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management
2600 Bull Street
Columbia, South Carolina 29201
hornostr@dhec.sc.gov

15. Reimburse the Department on a quarterly basis, for all past, present and future costs, direct and indirect, incurred by the Department pursuant to this Consent Agreement and as provided by law. Oversight Costs include, but are not limited to, the direct and indirect costs of negotiating the terms of this Consent Agreement, reviewing plans and reports, supervising corresponding work and activities, and costs associated with public participation. The Department shall provide documentation of its Oversight Costs in sufficient detail so as to show the personnel involved, amount of time spent on the project for each person, expenses, and other specific costs. Payments are due to the Department within thirty (30) days of the date of the Department's invoice; however, it is not a violation of this Consent Agreement if late payment is cured within thirty (30) additional days.
16. Notify the Department in writing at least five (5) days before the scheduled deadline if any event occurs which causes or may cause a delay in meeting any of the above-scheduled dates for completion of any specified activity pursuant to this Consent Agreement. Duke Energy shall describe in detail the anticipated length of the delay, the precise cause or

causes of delay, if ascertainable, the measures taken or to be taken to prevent or minimize the delay, and the timetable by which Duke Energy proposes that those measures will be implemented. The Department shall provide written notice to Duke Energy as soon as practicable that a specific extension of time has been granted or that no extension has been granted. An extension shall be granted for any scheduled activity delayed by an event of *force majeure* which shall mean any event arising from causes beyond the control of Duke Energy that causes a delay in or prevents the performance of any of the conditions under this Consent Agreement including, but not limited to: a) acts of God, fire, war, insurrection, civil disturbance, explosion; b) adverse weather conditions that could not be reasonably anticipated causing unusual delay in transportation and/or field work activities; c) restraint by court order or order of public authority; d) inability to obtain, after exercise of reasonable diligence and timely submittal of all required applications, any necessary authorizations, approvals, permits, or licenses due to action or inaction of any governmental agency or authority; and e) delays caused by compliance with applicable statutes or regulations governing contracting, procurement or acquisition procedures, despite the exercise of reasonable diligence by Duke Energy. Events which are not *force majeure* include by example, but are not limited to, unanticipated or increased costs of performance, changed economic circumstances, normal precipitation events, or failure by Duke Energy to exercise due diligence in obtaining governmental permits or performing any other requirement of this Consent Agreement or any procedure necessary to provide performance pursuant to the provisions of this Consent Agreement. Any extension shall be granted at the sole discretion of the Department, incorporated by reference as an enforceable part of this Consent Agreement, and, thereafter, be referred to as an attachment to the Consent Agreement.

17. Employees of the Department, their respective consultants and contractors will not be denied access during normal business hours or at any time work under this Consent Agreement is


being performed or during any environmental emergency or imminent threat situation, as determined by the Department or as allowed by applicable law.

IT IS AGREED THAT this Consent Agreement shall be binding upon and inure to the benefit of Duke Energy and its officers, directors, agents, receivers, trustees, heirs, executors, administrators, successors, and assigns and to the benefit of the Department and any successor agency of the State of South Carolina that may have responsibility for and jurisdiction over the subject matter of this Consent Agreement. Duke Energy may not assign its rights or obligations under this Consent Agreement without the prior written consent of the Department.

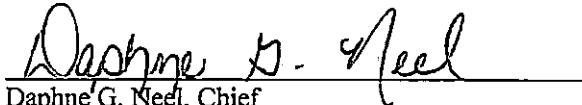
IT IS FURTHER AGREED that failure to meet any deadline or to perform the requirements of this Consent Agreement without an approved extension of time and failure to timely cure as noted below, may be deemed a violation of the Pollution Control Act, the South Carolina Hazardous Waste Management Act and/or the Solid Waste Management and Policy Act, as amended. Upon ascertaining any such violation, the Department shall notify Duke Energy in writing of any such deemed violation and that appropriate action may be initiated by the Department in the appropriate forum to obtain compliance with the provisions of this Consent Agreement and the aforesaid Acts. Duke Energy shall have thirty (30) days to cure any deemed violations of this Consent Agreement. Applicable penalties may begin to accrue after issuance of the Department's determination that the alleged violation has not been cured during that thirty (30) day period.

(Signature Page Follows)


FOR THE SOUTH CAROLINA DEPARTMENT
OF HEALTH AND ENVIRONMENTAL CONTROL


Elizabeth A. Dieck
Director of Environmental Affairs

Date: 9/29/14



Daphne G. Neel, Chief
Bureau of Land and Waste Management

Date: 9/29/14


Van Keisler, P.G., Director
Division of Compliance and Enforcement

Date: 9-29-14

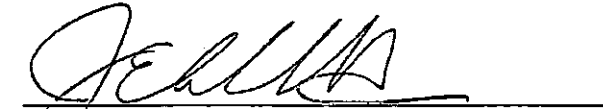
Reviewed By:


Attorney
Office of General Counsel

Date: 9/29/14

WE CONSENT:

DUKE ENERGY CAROLINA, LLC


(Signature)

Date: 9/25/14

John Elnitsky, Senior Vice President, Ash Basin Strategy
(Please clearly print name and title)

OFFICIAL COPY
OFFICIAL COPY

Jan 24 2018
Apr 30 2019

I/A

Supplemental
Revised Lucas Exhibit No. 5

OFFICIAL COPY
OFFICIAL COPY
Nov 15 2017
Apr 30 2019

Number of DEP's NPDES Violations* over past 10 Years

| Parameter | Mayo | Roxboro | Asheville | H. F. Lee | Sutton | Cape Fear | Subtotal |
|--------------------|------|---------|-----------|-----------|--------|-----------|----------|
| Beryllium | 1 | | | | | | 1 |
| Boron | 61 | | | | | | 61 |
| Chloride | 1 | | | | | | 1 |
| Flow | | 1 | | | | | 1 |
| Fluoride | 1 | | | | | | 1 |
| Manganese | 26 | | | | | | 26 |
| Mercury | 66 | | | | | | 66 |
| Oil & Grease | | | 1 | | | | 1 |
| Selenium | 9 | | | | | | 9 |
| Thallium | 34 | | | | | | 34 |
| Toxicity | | | | | | 1 | 1 |
| TSS | | 1 | | | | | 1 |
| Subtotal | 199 | 2 | 1 | 0 | 0 | 1 | 203 |
| Failure to Monitor | 84 | 8 | 0 | 116 | 31 | 16 | 255 |
| Total | 283 | 10 | 1 | 116 | 31 | 17 | 458 |

Data is from the Department of Environmental Quality's Monitoring Reports

*Note that these violations do not include unauthorized discharges such as seeps. As set out in the federal plea agreement with DEP, unauthorized discharges are Clean Water Act violations. As stated in DEQ enforcement complaints, unauthorized discharges are also violations of G.S. 143-215.1. Therefore the NPDES violations shown here are just a subset of environmental violations that exist in addition to the 15 NCAC 2L exceedances shown on Exhibit 6.

ELECTRICITY - RATES

OFFICIAL COPY

Apr 30 2019

3. That CP&L shall file with the Chief Clerk of the Commission on or before March 18, 1988, a statement setting forth the amount of net refund (i.e., revenues collected through operation of the .068¢/kWh EMF increment rider less revenues refunded through operation of the .046¢/kWh EMF decrement rider including related interest) due to customers pursuant to Ordering Paragraph Nos. 1 and 2 above and a proposed plan for making said refund.

4. That ten copies of all workpapers developed in this regard shall be filed with the Commission's Chief Clerk.

ISSUED BY ORDER OF THE COMMISSION.

This the 29th day of February 1988.

(SEAL)

NORTH CAROLINA UTILITIES COMMISSION
Sandra J. Webster, Chief Clerk

DOCKET NO. E-2, SUB 537
DOCKET NO. E-2, SUB 333

DOCKET NO. E-2, SUB 537

In the Matter of
Application by Carolina Power & Light Company)
for Authority to Adjust and Increase Its)
Rates and Charges)

DOCKET NO. E-2, SUB 333)

ORDER GRANTING PARTIAL
INCREASE IN RATES AND
CHARGES

In the Matter of)
Investigation of Carolina Power & Light Company's)
Land Requirements Acquisition, and Disposal at the)
Shearon Harris Nuclear Power Plant)

HEARD IN: Wayne Center, Corner of George and Chestnut Streets, Goldsboro,
North Carolina, on March 29, 1988.

New Hanover County Judicial Building, 4th and Princess Streets,
Wilmington, North Carolina, on March 30, 1988.

Commissioner's Board Room, Room 204, Buncombe County Courthouse,
and Superior Courtroom, Fifth Floor, Buncombe County Courthouse,
Asheville, North Carolina, on March 30, 1988.

Commission Hearing Room 2115, Dobbs Building, 430 North
Salisbury Street, Raleigh, North Carolina, on April 4, 14-15,
18-22, 25-29, May 5-6, 9-13, 16-20, 23-27, 31, June 1-3, 6-10,
and 13-16, 1988.

BEFORE: Commissioner Robert K. Koger, Presiding; and Chairman Robert O.
Wells and Commissioners Sarah Lindsay Tate, Edward B. Hipp, Ruth
E. Cook, Julius A. Wright, and William W. Redman, Jr.

ELECTRICITY - RATES

APPEARANCES:

For Carolina Power & Light Company:

Richard E. Jones, Vice President and General Counsel, Robert W. Kaylor, Associate General Counsel, Margaret S. Glass, Associate General Counsel, Robert S. Gillam, Associate General Counsel, and Mark S. Calvert, Associate General Counsel, Post Office Box 1551, Raleigh, North Carolina 27602

and
Edgar M. Roach, Jr., William D. Johnson, and Edward S. Finley, Jr., Hunton & Williams, Attorneys at Law, Post Office Box 109, Raleigh, North Carolina 27602

For the Public Staff:

Antoinette R. Wike, Chief Counsel; Robert B. Cauthen, Jr., David T. Drooz, Paul L. Lassiter, and James D. Little, Staff Attorneys, Post Office Box 29520, Raleigh, North Carolina 27626-0520

For: The Using and Consuming Public

For the North Carolina Department of Justice:

Jo Anne Sanford, Special Deputy Attorney General; Lemuel W. Hinton, and Karen E. Long, Assistant Attorneys General, North Carolina Department of Justice, Post Office Box 629, Raleigh, North Carolina 27602

For: The Using and Consuming Public

For the United States Department of Defense:

David W. LaCroix, Assistant Counsel, and Vicki O'Keefe, Assistant Counsel, Naval Facilities Engineering Command, 200 Stovall Street, Alexandria, Virginia 22332-2300

For Carolina Utility Customers Association, Inc. (CUCA):

Thomas R. Eller, Jr., Law Offices, Suite 205, Crabtree Center, 4600 Marriott Drive, Raleigh, North Carolina 27612

For Carolina Industrial Group for Fair Utility Rates (CIGFUR-II)

Ralph McDonald, Carson Carmichael III, and Alan J. Miles, Bailey & Dixon, Attorneys at Law, Post Office Box 12865, Raleigh, North Carolina 27605

For North Carolina Electric Membership Corporation (NCEMC):

Thomas K. Austin, Attorney, Post Office Box 27306, Raleigh, North Carolina 27611

ELECTRICITY - RATES

For North Carolina Fair Share:

Daniel F. Read and Robin Hudson, Guley, Eakes, and Volland,
Attorneys at Law, Post Office Box 3573, Durham, North Carolina
27702

For Herself (As a Customer of Carolina Power & Light Company):

Elizabeth Anne Cullington, Route 5, Box 440, Pittsboro, North
Carolina 27312

BY THE COMMISSION: On September 10, 1987, Carolina Power & Light Company (Applicant, Company, or CP&L) filed an application with the North Carolina Utilities Commission (NCUC or Commission) seeking authority to adjust and increase its rates and charges for electric service to its North Carolina retail customers. The application sought rates that would produce additional annual revenues of approximately \$205 million when applied to a test period consisting of the 12 months ended March 31, 1987, for an approximately 13.86% increase in total North Carolina retail revenues. The requested rates bore an effective date of October 10, 1987, if not suspended. In accordance with the schedule for hearing and stipulations in the Commission's July 24, 1986, Order in Docket No. E-2, Sub 511, the Company waived its right to place the new rates into effect as provided in G.S. 62-134 and G.S. 62-135 but retained the right to place the rates into effect no later than 300 days from the date the rates could have become effective if not suspended.

The principal reasons set forth in the application for the increase in rates are as follows: (1) the need to include in rates the Harris Nuclear Power Plant investment deferred pursuant to the Commission's Order in Docket No. E-2, Sub 511, and (2) the need to recover the costs associated with adding new transmission and distribution facilities, maintenance and modifications at generating facilities, the cancellation of Mayo Unit No. 2, and other increases in the overall cost of providing service.

On October 9, 1987, the Commission entered an Order declaring the application to be a general rate case; suspending the proposed rates for a period of 300 days from the effective date; establishing the test period; scheduling public hearings; requiring public notice; and consolidating the application with the investigation into CP&L's land requirements, methods of land acquisition and planned disposition of excess land, if any, at the Harris site in Docket No. E-2, Sub 333. By this Order, the Commission set testimony filing dates, the hearing dates, and the rate suspension period in accordance with its order of July 24, 1986, in Docket No. E-2, Sub 511, and its Rule R1-24(g).

On August 14, 1987, the Attorney General filed Notice of Intervention pursuant to G.S. 62-20 on behalf of the using and consuming public.

On September 9, 1987, the Carolina Utility Customers Association, Inc. (CUCA), filed a Petition to Intervene and Protest. On September 11, 1987, the Commission issued an Order allowing CUCA's intervention.

ELECTRICITY - RATES

valid and accurate recording of the project's costs, and were generally adhered to adequately.

7. CP&L has met the prudence standard in its financing of the Shearon Harris plant. CP&L's financial management practices relating to Shearon Harris were generally reasonable and efficient.

8. Except as hereinafter found and discussed, the costs of the Shearon Harris nuclear plant are reasonable and were prudently incurred.

9. CP&L's failure to redesign the Harris plant's cable tray riser supports until May 1982, combined with its slow compliance with the Appendix R fire protection requirements, caused five months of avoidable delay. This delay is a direct result of imprudent actions, or lack of actions, by CP&L. The cost of this delay is \$131,030,000 (\$71,365,000 on a North Carolina retail jurisdictional basis), which should be disallowed from the cost of the plant to be put into CP&L's rate base.

10. Management imprudence resulted in an unreasonable number of design and construction errors on the Harris project. Quantification of the Field Change Requests relating to CP&L's design deficiencies and construction misfabrication is an appropriate measure of the cost of design and construction errors that exceeded a reasonable level. This quantification indicates that \$11,244,000 (\$6,124,000 on a North Carolina retail jurisdictional basis) should be disallowed from the cost of the plant to be put into CP&L's rate base.

11. CP&L should be allowed to recover as an expense its abandonment loss sustained as a result of the Company's having cancelled and abandoned its Mayo Unit No. 2 in March 1987. Recovery of the investment in that unit should be accomplished over a ten-year amortization period. CP&L should be allowed to continue to recover the cancellation costs of Harris Units 2, 3, and 4. Costs of \$180,558,000 (\$98,340,000 on a North Carolina retail jurisdictional basis) proposed for inclusion in rate base as part of Harris Unit 1 should be reallocated and assigned as cancellation costs of Harris Units 2, 3, and 4; these costs should be excluded from rate base and should be treated in a manner consistent with the other CP&L cancellation costs discussed herein.

12. The exclusion by the Company of income tax savings associated with the debt-related portion of the accumulated Job Development Investment Tax Credits (JDITC) from its Allowance for Funds Used During Construction (AFUDC) rate is inconsistent with the Commission's ratemaking treatment of JDITC and should be changed.

13. The reasonable application of the terms of CP&L's contracts to sell portions of its Mayo, Harris, Roxboro, and Brunswick generating facilities to the North Carolina Eastern Municipal Power Agency (NCEMPA) to a determination of the North Carolina retail revenue requirement in this proceeding requires the utilization of current costs and buyback percentages; utilization of the cost of common equity approved in this Order in the calculation of purchased capacity costs; recognition of the change in the state income tax rate; utilization of actual cost rates for Harris non-fuel energy costs; adjustments to reflect removal of Harris land-related costs; and levelization of the purchased capacity costs and purchased demand related expenses over the

ELECTRICITY - RATES

DOCKET NO. E-2, SUBS 537 & 333

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

| | | |
|---------------------------------------|---|-----------|
| In the Matter of | | |
| Application by Carolina Power & Light |) | ORDER |
| Company for an Increase in Rates and |) | ON REMAND |
| Charges |) | |

BY THE COMMISSION: In its opinion dated November 9, 1989, the North Carolina Supreme Court remanded this case to the Commission for further action consistent with the opinion. Specifically, the Supreme Court ordered the Commission to transfer \$389,442,000 of Harris Plant common facilities from rate base to cancelled plant. The Court further authorized the Commission to review the allowed rate of return and to make appropriate adjustments to reflect the fact that \$389,442,000 of prudently incurred costs were being transferred from rate base to cancelled plant. Finally, the Court authorized the Commission to include in rate base any common facilities the Commission expressly found were "used and useful".

The Public Staff and Carolina Power & Light Company have negotiated a proposed settlement of the issues remanded to the Commission. The Attorney General has no objection to the proposed settlement. The Public Staff, Attorney General and Carolina Power Light Company were the only parties involved in the appeal in this case and are the only parties that have filed briefs before the Commission on remand. Though the current level of rates will remain the same under the proposed settlement as those set in our previous order in this docket, the ratepayer will benefit over the entire life of the plant.

Based upon a careful review of the Supreme Court's opinion and our previous order, we find that the proposed settlement is a fair resolution of this case. The settlement would require treating \$389,442,000 of common facilities as cancelled plant, amortizing these costs through a special rider over 5.925 years from the date of the original order, and leaving the rate of return on common equity at 12.75%. This results in no change in the current level of rates, which we found to be just and reasonable; is fully consistent with the opinion of the Supreme Court; maintains the current allowed rate of return; and will result in lower rates for the consumer upon expiration of the special amortization rider in mid -1994. We hereby adopt the terms of the settlement. While this resolution of the issue maintains the current level of rates, the impact on CP&L's earnings will be a reduction of approximately \$71 million, or \$0.84 per share, and thus there will be an adverse effect on stockholders. However, we believe that by preserving cash flow for the Company over the amortization period and removing the \$389,442,000 from rate base, we have considered the interest of both the stockholders and the customer.

All parties to the appeal have consented to this order, as shown by the signatures of counsel for the Public Staff, the Attorney General, and the Company.

ELECTRICITY - RATES

IT IS, THEREFORE, ORDERED:

1. That within 10 days CP&L shall file proposed tariffs which shall implement the intent of this order by amending each tariff to transfer from base rates to a special amortization rider that amount per kWh required to amortize \$389,442,000 over 5.925 years, without any return on the unamortized balance, and providing for the automatic termination of the rider 5.925 years from the date of the original order in this case; and

2. That notice of the change in tariffs be included as a bill insert.

3. That this Order is based upon the unique circumstances in this case and shall not be relied upon as, or establish, a precedent in or for any future proceeding, except that, in CP&L's future rate cases, there will be no specific incremental adjustment to the rate of return based on this order.

ISSUED BY ORDER OF THE COMMISSION.

This the 10th day of July 1990.

NORTH CAROLINA UTILITIES COMMISSION
Sandra J. Webster, Chief Clerk

(SEAL)

CONSENTED TO:

PUBLIC STAFF -- NORTH CAROLINA UTILITIES COMMISSION

By: James D. Little, Staff Attorney

LACY H. THORNBURG, ATTORNEY GENERAL

By: Karen E. Long, Assistant Attorney General

CAROLINA POWER & LIGHT COMPANY

By: Richard E. Jones, Vice President,
General Counsel & Secretary

DOCKET NO. E-2, SUB 579

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

| | | |
|--|---|----------------------|
| In the Matter of |) | |
| Application by Carolina Power & Light |) | |
| Company for Authority to Adjust Its |) | ORDER APPROVING FUEL |
| Electric Rates and Charges Pursuant |) | CHARGE ADJUSTMENT |
| to G.S. § 62-133.2 and NCUC Rule R8-55 |) | |

HEARD IN: Commission Hearing Room 2115, Dobbs Building, 430 North Salisbury Street, Raleigh, North Carolina, on Tuesday, August 7, 1990, at 9:30 a.m.

BEFORE: Commissioner Sarah Lindsay Tate, Presiding; Chairman William W. Redman, Jr.; and Commissioners Robert O. Wells, Julius A. Wright, and Charles H. Hughes



Duke Energy responds to latest milestone in the safe basin closure process

🕒 April 1, 2019

Share This Story

CHARLOTTE, N.C. – Duke Energy today issued the following statement in response to an announcement by the North Carolina Department of Environmental Quality (NCDEQ) regarding the department's evaluation of closure options for coal ash basins at the company's Allen, Belews Creek, Cliffside/Rogers, Marshall, Mayo and Roxboro facilities. At the end of 2018, the company submitted to NCDEQ detailed scientific and engineering analyses for nine of the company's 31 North Carolina basins where site-specific closure plans had not yet been determined.

—

We are making strong progress to permanently close every ash basin in North Carolina in ways that fully protect people and the environment, while keeping costs down as much as possible for our customers.

With respect to the final six sites—which NCDEQ has ruled are low-risk—science and engineering support a variety of closure methods including capping in place and hybrid cap-in-place as appropriate

solutions that all protect public health and the environment. These closure options are also consistent with how hundreds of other basins around the country are expected to be closed.

Excavation at some sites will take decades, stretching well beyond the current state and federal deadlines.

Based on current estimates and closure timeframes, excavating these basins will add approximately \$4 billion to \$5 billion to the current estimate of \$5.6 billion for the Carolinas.

We will carefully review today's announcement and will continue to support solutions that protect our customers and the environment.

[Learn more](#) about the company's strong progress safely closing coal ash basins.

About Duke Energy

Duke Energy (NYSE: DUK), a Fortune 125 company headquartered in Charlotte, N.C., is one of the largest energy holding companies in the U.S. It employs 30,000 people and has an electric generating capacity of 51,000 megawatts through its regulated utilities, and 3,000 megawatts through its nonregulated Duke Energy Renewables unit.

Duke Energy is transforming its customers' experience, modernizing the energy grid, generating cleaner energy and expanding natural gas infrastructure to create a smarter energy future for the people and communities it serves. The Electric Utilities and Infrastructure unit's regulated utilities serve approximately 7.7 million retail electric customers in six states – North Carolina, South Carolina, Florida, Indiana, Ohio and Kentucky. The Gas Utilities and Infrastructure unit distributes natural gas to more than 1.6 million customers in five states – North Carolina, South Carolina, Tennessee, Ohio and Kentucky. The Duke Energy Renewables unit operates wind and solar generation facilities across the U.S., as well as energy storage and microgrid projects.

Duke Energy was named to Fortune's 2019 "World's Most Admired Companies" list, and Forbes' 2018 "America's Best Employers" list. More information about the company is available at [duke-energy.com](https://www.duke-energy.com). The [Duke Energy News Center](#) contains news releases, fact sheets, photos, videos and other materials. Duke Energy's [illumination](#) features stories about people, innovations, community topics and environmental issues. Follow Duke Energy on [Twitter](#), [LinkedIn](#), [Instagram](#) and [Facebook](#).

Media Contact:

24-Hour: 800.559.3853

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I/A

Lucas Exhibit No. 7

Groundwater - Final Audit Reports

| <u>Generating Station</u> | <u>Constituent(s) Observed to Exceed the 2L or the IMAC Standards One or More Times</u> | |
|---------------------------|---|--|
| | 2016 Final Audit Report | 2017 Final Audit Report |
| Asheville | Boron, iron, manganese, pH, and total dissolved solids (TDS) | Boron, chloride, cobalt, iron, manganese, sulfate, and total dissolved solids |
| Cape Fear | Boron, sulfate, thallium, and TDS | N/A* |
| Lee | Boron, cobalt, iron, manganese, and vanadium | N/A* |
| Mayo | Antimony, boron, cobalt, iron, manganese, pH, strontium, and TDS | Boron, iron, manganese, and pH |
| Roxboro | Boron, sulfate, strontium, and TDS | N/A* |
| Sutton | Not reviewed by Audit Team | Arsenic, boron, chloride, chromium(VI), cobalt, iron, manganese, pH, TDS, and vanadium |
| Weatherspoon | Not discussed | Manganese and pH |

*N/A- Not available is designated for Final Audit Reports that have not been completed and posted to DEP's website as of October 4, 2017.

6.
I/A

OFFICIAL COPY

Apr-30-2019

STATE OF NORTH CAROLINA

COUNTY OF WAKE

STATE OF NORTH CAROLINA *ex rel.*
NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL
RESOURCES, DIVISION OF
WATER QUALITY,

Plaintiff,

v.

DUKE ENERGY PROGRESS, INC., formerly
known as CAROLINA POWER & LIGHT
COMPANY d/b/a PROGRESS ENERGY
CAROLINAS, INC.,

Defendant.

FILED

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
2013 CVS 004061

AMENDED COMPLAINT
AND MOTION FOR
INJUNCTIVE RELIEF
RULE 15(a) N.C.R.C.P.
RULE 65, N.C.R.C.P.

Now, prior to service of a responsive pleading, comes the Plaintiff State of North Carolina, and amends its complaint as a matter of course, pursuant to Rule 15(a) of the North Carolina Rules of Civil Procedure (N.C. Gen. Stat. § 1A-1, Rule 15(a)), by rewriting the complaint as follows:

The Plaintiff State of North Carolina in accordance with Article 21 of Chapter 143 of the North Carolina General Statutes, and N.C. Gen. Stat. § 1A-1, Rule 65, complaining of the Defendants alleges and says:

PARTIES

1. Plaintiff is the sovereign State of North Carolina. This action is being brought upon the relation of the North Carolina Department of Environment and Natural Resources (hereinafter "DENR"), Division of Water Quality (hereinafter "DWQ"), an agency of the State established pursuant to the provisions of N.C. Gen. Stat. § 143B-279.1 *et seq.*, and vested with

the statutory authority regarding protection of the environment and enforcement of environmental laws pursuant to N.C. Gen. Stat. § 143-211 *et seq.*

2. Defendant, Duke Energy Progress Inc. (formerly Carolina Power & Light Company d/b/a Progress Energy Carolinas, Inc., prior to April 29, 2013), is a corporation organized and existing under the laws of the State of North Carolina. Defendant corporation has a corporate office in Wake County, North Carolina. Defendant's principal place of business is in Wake County, North Carolina and is located at 410 South Wilmington Street, PEB 17B5, Raleigh, North Carolina 27601. Defendant's Registered Agent is CT Corporation System, 150 Fayetteville Street, Box 1011, Raleigh, North Carolina 27601

3. Duke Energy Progress owns the following facilities ("Facilities").

a. *Former Duke Energy Facility:*

Riverbend Steam Station in Gaston County; and

b. *Former Progress Energy Carolinas Facility:*

Asheville Steam Electric Generating Plant ("Asheville Steam Electric Plant") in Buncombe County.

4. Defendant (or its predecessors) was doing business in the counties set forth in paragraph 3 above, at the time the violations or threatened violations were committed at the Facilities that gave rise to this action.

JURISDICTION AND VENUE

5. The Superior Court has jurisdiction of this action for injunctive relief for existing or threatened violations of various laws and rules and regulations governing the protection of the state's water resources pursuant to N.C. Gen. Stat. §§ 7A-245 and 143-215.6C, and for such other relief as the Court shall deem proper.

6. Wake County is a proper venue for this action because the county is the principal place of business for the Defendant violator.

GENERAL ALLEGATIONS

Applicable Laws and Regulations

7. Pursuant to N.C. Gen. Stat. § 143-215.3(a)(1), the Environmental Management Commission ("EMC" or the "Commission") has the power "[t]o make rules implementing Articles 21, 21A, 21B or 38 of . . . Chapter" 143 of the North Carolina General Statutes. These statutes, and the rules adopted under them, are designed to further the public policy of the State, as declared in N.C. Gen. Stat. § 143-211, "to provide for the conservation of its water and air resources . . . [and], within the context of this Article [21] and Articles 21A and 21B of this Chapter [143], to achieve and to maintain for the citizens of the State a total environment of superior quality."

8. N.C. Gen. Stat. § 143-211 further provides that "[s]tandards of water and air purity shall be designed to protect human health, to prevent injury to plant and animal life, to prevent damage to public and private property, to insure the continued enjoyment of the natural attractions of the State, to encourage the expansion of employment opportunities, to provide a permanent foundation for healthy industrial development and to secure for the people of North Carolina, now and in the future, the beneficial uses of these great natural resources."

9. The Commission has the power to issue permits with conditions attached as the Commission believes are necessary to achieve the purposes of Article 21 of Chapter 143 of the General Statutes. N.C. Gen. Stat. § 143-215.1(b)(4).

10. Pursuant to its authority in N.C. Gen. Stat. § 143-215.3(a)(4) to delegate such of its powers as it deems necessary, the Commission has delegated the authority to issue permits, and particularly discharge permits, to the Director of the Division of Water Quality. Title 15A of

the North Carolina Administrative Code ("NCAC"), rule 2H.0112¹. A copy of this rule is attached hereto as Plaintiff's Exhibit No. 1, and is incorporated herein by reference.

11. N.C. Gen. Stat. § 143-215.1 requires a permit before any person can "make any outlets into the waters of the state" or "cause or permit any waste, directly or indirectly, to be discharged to or in any manner intermixed with the waters of the State in violation of the water quality standards applicable to the assigned classifications ... unless allowed as a condition of any permit, special order or other appropriate instrument issued or entered into by the Commission under the provisions of this Article [Article 21 of Chapter 143 of the General Statutes]." N.C. Gen. Stat. §§ 143-215.1(a) (1) and (6).

12. The Commission's rules in the 15A NCAC Subchapter 2L (hereinafter "2L Rules"), "establish a series of classifications and water quality standards applicable to the groundwaters of the State." 15A NCAC 2L.0101(a). A copy of the 2L Rules is attached hereto as Plaintiff's Exhibit No. 2 and is incorporated herein by reference.

13. "Groundwaters" are defined in the 2L Rules as "those waters occurring in the subsurface under saturated conditions." 15A NCAC 2L.0102(11).

14. The 2L Rules "are applicable to all activities or actions, intentional or accidental, which contribute to the degradation of groundwater quality, regardless of any permit issued by a governmental agency authorizing such action or activity except an innocent landowner who is a bona fide purchaser of property which contains a source of groundwater contamination, who purchased such property without knowledge or a reasonable basis for knowing that groundwater contamination had occurred, or a person whose interest or ownership in the property is based or

¹ 15A NCAC 2H.0112

derived from a security interest in the property, shall not be considered a responsible party."

15A NCAC 2L.0101(b).

15. The policy section of the 2L Rules provides that the 2L Rules "are intended to maintain and preserve the quality of the groundwaters, prevent and abate pollution and contamination of the waters of the state, protect public health, and permit management of the groundwaters for their best usage by the citizens of North Carolina." 15A NCAC 2L.0103(a).

16. "Contaminant" is defined in the 2L Rules as "any substance occurring in groundwater in concentrations which exceed the groundwater quality standards specified in Rule .0202 of the Subchapter." 15A NCAC 2L.0102(4).

17. "Natural Conditions" are defined in the 2L Rules as "the physical, biological, chemical and radiological conditions which occur naturally." 15A NCAC 2L.0102(16).

18. The policy section of the 2L Rules provides further that, "[i]t is the policy of the Commission that the best usage of the groundwaters of the state is as a source of drinking water. These groundwaters generally are a potable source of drinking water without the necessity of significant treatment. It is the intent of these Rules to protect the overall high quality of North Carolina's groundwaters to the level established by the standards and to enhance and restore the quality of degraded groundwaters where feasible and necessary to protect human health and the environment, or to ensure their suitability as a future source of drinking water." 15A NCAC 2L.0103(a).

19. The policy section of the 2L Rules provides further that, "[n]o person shall conduct or cause to be conducted, any activity which causes the concentration of any substance to exceed that specified in Rule .0202 of this Subchapter, except as authorized by the rules of this Subchapter." 15A NCAC 2L.0103(d).

20. The groundwater "Standards" are specified in 15A NCAC 2L.0202. See 15A NCAC 2L.0102(23). Some groundwater standards and their concentrations are specifically listed in .0202(g) and (h). "Where naturally occurring substances exceed the established standard, the standard shall be the naturally occurring concentration as determined by the Director." 15A NCAC 2L.0202(b)(3). If a substance is not specifically listed and it is not naturally occurring, the substance cannot be permitted in concentrations at or above the practical quantitation limit in Class GA or Class GSA waters, except that the Director may establish interim maximum allowable concentrations ("IMAC") pursuant to 15A NCAC 2L.0202(c). These are listed in Appendix #1 of 15A NCAC 2L. The IMACs are the established standard until adopted by rule. See the last page of Plaintiff's Exhibit No. 2.

21. The DWQ Director established IMAC for Antimony on August 1, 2010 and for Thallium on October 1, 2010, substances for which standards had not been established under the 2L Rules. A copy of the Public Notice establishing the IMACs and a copy of the Approved IMACs are attached hereto as Plaintiff's Exhibit Nos. 3 and 4, respectively, and both exhibits are incorporated herein by reference. The interim maximum allowable concentration for Thallium is 0.0002 mg/L (0.2 µg/L) established pursuant to 15A NCAC 2L .0202(c). The interim maximum allowable concentration for Antimony is 1 µg/L established pursuant to 15A NCAC 2L .0202(c). See the last page of Plaintiff's Exhibit No. 2.

22. "It is the intention of the Commission to protect all groundwaters to a level of quality at least as high as that required under the standards established in Rule .0202 of this Subchapter." 15A NCAC 2L.0103(b).

23. A "Compliance Boundary" is defined in the 2L Rules as "a boundary around a disposal system at and beyond which groundwater quality standards may not be exceeded and

Doc. Ex. 2038

only applies to facilities which have received an individual permit issued under the authority of [N.C. Gen. Stat. §] 143-215.1 or [N.C. Gen. Stat. §]130A." 15A NCAC 2L.0102(3).

24. Pursuant to 15A NCAC 2L.0107(a), "[f]or disposal systems individually permitted prior to December 30, 1983, the compliance boundary is established at a horizontal distance of 500 feet from the waste boundary or at the property boundary, whichever is closer to the source."

25. The "Waste Boundary" is defined in the 2L Rules as "the perimeter of the permitted waste disposal area." 15A NCAC 2L.0102(26).

26. A "Corrective Action Plan" is defined in the 2L Rules as "a plan for eliminating sources of groundwater contamination or for achieving groundwater quality restoration or both. 15A NCAC 2L.0102(5). A site assessment pursuant to a corrective action should include the source and cause of contamination, any imminent hazards to public health and safety, all receptors and significant exposure pathways, the horizontal and vertical extent of the contamination, as well as all geological and hydrogeological features influencing the movement of the contamination. 15A NCAC 2L .01006 (g).

27. Pursuant to N.C. Gen. Stat. § 143-215.6C, "[w]henver the Department has reasonable cause to believe that any person has violated or is threatening to violate any of the provisions of this Part [Part 1, Article 21, of the General Statutes], any of the terms of any permit issued pursuant to this Part, or a rule implementing this Part, . . ." the Department is authorized to "request the Attorney General to institute a civil action in the name of the State upon the relation of the Department for injunctive relief to restrain the violation or threatened violation."

28. That section further provides that "[u]pon a determination by the court that the alleged violation of the provisions of this Part or the regulations of the Commission has occurred

or is threatened, the court shall grant the relief necessary to prevent or abate the violation or threatened violation." N.C. Gen. Stat. § 143-215.6C.

29. Additionally, the section provides that "[n]either the institution of the action nor any of the proceedings thereon shall relieve any party to such proceedings from any penalty prescribed for the violation of this Part." N.C. Gen. Stat. § 143-215.6C.

30. Defendant is a person consistent with N.C. Gen. Stat. § 143-212(4) and pursuant to N.C. Gen. Stat. § 143-215.6C.

Factual and Legal Allegations

31. Defendant implemented a voluntary groundwater monitoring program at the Facilities in 2006.

32. In 2009, Plaintiff DWQ required Defendant to place monitoring wells at the compliance boundaries of all Coal Ash Ponds at the Facilities.

33. DWQ approved Defendant's proposed compliance boundary and monitoring wells locations at each of the Facilities on the following dates:

a. ***Former Duke Energy Facility:***

Riverbend Steam Station – August 26, 2010; and,

b. ***Former Progress Energy Facility:***

Asheville Steam Electric Plant – October 20, 2010;

34. Defendant constructed compliance monitoring wells at the compliance boundaries of the Coal Ash Ponds at each of the Facilities on the following dates:

a. ***Former Duke Energy Facility:***

Riverbend Steam Station – December 2010;

b. ***Former Progress Energy Facility:***

Asheville Steam Electric Plant – August 2010;

35. Each of the Facilities has a specific set of parameters being monitored:

a. *Former Duke Energy Facility:*

Riverbend Steam Station – Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Chloride, Copper, Iron, Lead, Manganese, Mercury, Nickel, Nitrate, pH, Selenium, Sulfate, Thallium, TDS, Water Level, and Zinc; and,

b. *Former Progress Energy Facility:*

Asheville Steam Electric Plant – Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Chloride, Copper, Iron, Lead, Manganese, Mercury, Nickel, Nitrate, pH, Selenium, Sulfate, Thallium, TDS, Water Level, and Zinc;

36. In 2010, Defendant began submitting groundwater monitoring data to DWQ from the Facilities.

37. On June 17, 2011, the DWQ adopted a policy for compliance evaluation of long-term permitted facilities with no prior groundwater monitoring requirements (hereinafter "June 17, 2011 Policy"). A copy of the June 17, 2011 Policy is attached hereto as Plaintiff's Exhibit No. 5 and is incorporated herein by reference.

38. DWQ's June 17, 2011 Policy establishes an approach to evaluate groundwater compliance at long-term permitted facilities. Specifically, the policy requires staff and responsible parties to consider multiple factors before determining if groundwater concentrations in samples taken at the permitted facility are a violation of the groundwater standards, or if the concentration is naturally occurring. Such factors considered are well design, sample integrity, analytical methods, statistical testing, etc.

39. Both Facilities are subject to the June 17, 2011 Policy and DWQ has been working with the Defendant to move through the evaluative process as described in the policy.

40. DWQ's Aquifer Protection staff compiled tables of the analytical results of groundwater samples collected at the Facilities. Both of the Facilities began submitting data in 2010, and DWQ prepared charts of the Ash Pond Exceedances from 2010 to April 1, 2013. The charts are labeled by National Pollutant Discharge Elimination System ("NPDES") Permit number and facility name. The Riverbend chart is attached hereto as Plaintiff's Exhibit No. 6 ("Riverbend Steam Station Ash Pond Exceedances Chart"), and the Asheville Steam Electric Plant chart is attached hereto as Plaintiff's Exhibit No. 7 ("Asheville Steam Electric Ash Pond Exceedances Chart"), and both exhibits are incorporated herein by reference.

41. Each chart contains the following information: the well number, the parameter sampled, the date of the sample (month and year), the 2L limit (groundwater standard), the sampling result and the unit of measurement.

Duke Energy Facility

Riverbend Steam Station

42. On March 3, 1976, pursuant to N.C. Gen. Stat. § 143-215.1, other lawful statutes and regulations issued by the Commission, and the Clean Water Act, DWQ issued NPDES Permit No. NC0004961 to Duke Energy for the Riverbend Steam Station ("Riverbend Steam Station NPDES Permit"), located in Gaston County, North Carolina.

43. The Riverbend Steam Station NPDES Permit has been renewed subsequently. The current NPDES Permit was re-issued on January 18, 2011, with an effective date of March 1, 2011, and with an expiration date of February 28, 2015. A copy of the current Riverbend Steam Station NPDES Permit No. NC0004961 is attached hereto as Plaintiff's Exhibit No. 8, and is incorporated herein by reference.

44. The Riverbend Steam Station NPDES Permit authorizes the continued discharge of treated wastewater to receiving waters designated as the Catawba River (Class WS-IV & B-CA waters) in the Catawba River Basin in accordance with the effluent limitations, monitoring requirements and other conditions set forth therein.

45. Among other things, the Riverbend Steam Station NPDES Permit authorizes the continued discharge of once-through cooling water through Outfall 001. This discharge consists of intake screen backwash and water from the plant chiller system, turbine lube oil coolers, condensate coolers, main turbine steam condensers and the intake tunnel dewatering sump.

46. In addition, the Riverbend Steam Station NPDES Permit authorizes a continued discharge from an Ash Pond through Outfall 002. The Ash Pond discharge consists of induced draft fan and preheater bearing cooling water, stormwater from roof drains and paving, treated groundwater, track hopper sump (groundwater), coal pile runoff, laboratory drain and chemical makeup tanks and drums rinsate wastes, ash transport water, general plant/trailer sanitary wastewater, metal cleaning waste, chemical metal cleaning waste, combustion turbine cooling water discharges, turbine and boiler rooms sumps, vehicle rinse water, and stormwater from pond areas and upgradient watershed.

47. Further, the Riverbend Steam Station NPDES Permit authorizes the continued discharge of yard sump overflows through Outfall 002A.

48. Outfalls 002 and 002A consist of coal pile runoff, ash transport water, metal cleaning wastes, treated domestic wastewater, remediated groundwater, low volume wastes, blowdown from wet cooling towers for combined cycle unit, and boiler blowdown.

49. The effluent limitations and monitoring requirements in the Riverbend Steam Station NPDES Permit for the discharge from Outfall 001 requires sampling for the following

parameters: Flow and Temperature, with the temperature requirements in effect when only units with a shared control system are operating.

50. The Riverbend Steam Station NPDES Permit prohibits Chlorination of the once-through condenser cooling water discharged through Outfall 001.

51. The effluent limitations and monitoring requirements in the Riverbend Steam Station NPDES Permit for Outfall 002 require sampling for the following parameters: Flow, Total Suspended Solids, Oil and Grease, Total Copper, Total Iron, Total Arsenic, Total Selenium, Total Mercury, Total Phosphorus, Total Nitrogen, pH, and Chronic Toxicity.

52. The metal cleaning waste, coal pile runoff, ash transport water, domestic wastewater and low volume waste must be discharged into the Ash Settling Pond.

53. No chemicals, cleaners or other additives may be present in the vehicle wash water to be discharged through Outfall 002.

54. The effluent limitations and monitoring requirements in the Riverbend Steam Station NPDES Permit for Outfall 002A require sampling for the following parameters: Flow, pH, Total Suspended Solids, Oil and Grease, Fecal Coliform, Total Copper and Total Iron.

55. The Riverbend Steam Station NPDES Permit prohibits the discharge of floating solids or visible foam other than in trace amounts from any of its outfalls.

Unpermitted Seeps at the Riverbend Steam Station

56. As mentioned above, the Defendant's Riverbend Steam Station has three permitted outfalls (001, 002 and 002A) discharging directly into the Catawba River which are included in the Riverbend Steam Station NPDES Permit.

57. Defendant's Riverbend Steam Station NPDES Permit does not authorize the Defendant to make any outlet or discharge any wastewater or stormwater other than those included in the Riverbend Steam Station NPDES Permit.

58. Upon information and belief, Plaintiff believes there are non-engineered seeps at Defendant's Riverbend Steam Station, which are different locations from the outfalls described in the Riverbend Steam Station NPDES Permit.

59.. A seep or discharge from the Ash Pond or any other part of the Riverbend Steam Station that is not included in the Riverbend Steam Station NPDES Permit is an unpermitted discharge in violation of N.C. Gen. Stat. § 143-215.1(a)(1) and (a)(6).

Exceedances of 2L Groundwater Standards at the Riverbend Steam Station

60. DWQ's Aquifer Protection staff compiled tables of the analytical results of groundwater samples collected at the Buck Steam Station from 2010 through April 1, 2013, and prepared a chart of the Ash Pond Exceedances which are listed in the Riverbend Steam Station Ash Pond Exceedances Chart. See Plaintiff's Exhibit No. 6.

61. The Riverbend Steam Station Ash Pond Exceedances Chart shows 21 exceedances from the 2L Groundwater Standards for Iron (300 µg/L) in MW-11SR, MW-14, MW-15, MW-7SR, MW-8D, and MW-8I during 7 sampling events from February 2011 to March 2013.

62. The Riverbend Steam Station Ash Pond Exceedances Chart shows 38 exceedances from the 2L Groundwater Standard for Manganese (50 µg/L) in MW-11DR, MW-11SR, MW-114, MW-15, MW-7SR, and MW-8D during 7 sampling events from February 2011 to March 2013.

63. DWQ staff is working with the Defendant to determine if these exceedances are naturally occurring or if corrective action will be required.

Progress Energy Facility

Asheville Steam Electric Plant

64. On June 30, 1981, pursuant to N.C. Gen. Stat. § 143-215.1, other lawful statutes and regulations issued by the Commission, and the Clean Water Act, DWQ issued NPDES Permit No. NC00000396 to Progress Energy for the Asheville Steam Electric Plant ("Asheville Steam Electric Plant NPDES Permit"), located in Buncombe County, North Carolina.

65. The Asheville Steam Electric Plant NPDES Permit has been renewed subsequently. The current NPDES Permit was re-issued on November 16, 2005, with an expiration date of December 31, 2010. However, since the Defendant timely applied for re-issuance 180 days prior to the expiration date, pursuant to N.C. Gen. Stat. § 150B-3, Defendant can continue to operate under the November 15, 2005 NPDES permit until a new permit has been issued. A copy of the November 15, 2005 NPDES permit No. NC0000396 is attached hereto as Plaintiff's Exhibit No. 9, and is incorporated herein by reference.

66. On June 11, 2010, Progress Energy submitted a renewal application to DWQ. While the renewal application is being processed, Defendant continues to operate the Asheville Steam Electric Plant under the 2005 Asheville Steam Electric Plant NPDES permit, as modified in 2009 to include a name change.

67. The Asheville Steam Electric Plant NPDES Permit authorizes the discharge of treated wastewater to receiving waters designated as the French Broad River, Lake Julian, and an unnamed tributary to Powell Creek in the French Broad River Basin in accordance with the

effluent limitations, monitoring requirements and other conditions set forth in the Asheville Steam Electric Plant NPDES Permit.

68. Among other things, the Asheville Steam Electric Plant NPDES Permit authorizes an Ash Pond Treatment System at Outfall 001 that discharges directly into the French Broad River. The ash pond receives ash transport water, coal pile runoff, storm water runoff, various low volume wastes (such as boiler blowdown, backwash from the water treatment processes, ash hopper seal water, plant drains), air preheater cleaning water, and chemical metal cleaning wastewater discharged from Internal Outfall 004 (potentially).

69. The Asheville Steam Electric Plant NPDES Permit authorizes a Once-Through Non-Contact Cooling Water System that discharges a wastestream directly into Lake Julian through Outfall 002.

70. The Asheville Steam Electric Plant NPDES Permit authorizes a Chemical Metal Cleaning Treatment System that occasionally discharges a wastestream via Internal Outfall 004 to the Ash Pond Treatment System or to the old ash pond (with DWQ approval). Generally, chemical metal cleaning wastes are treated by evaporation in boilers.

71. The Asheville Steam Electric Plant NPDES Permit authorizes a FGD wet scrubber wastewater treatment system which discharges to the secondary settling basin after the Ash Pond via Internal Outfall 005 (with an ultimate discharge through Outfall 001).

72. The Asheville Steam Electric Plant NPDES Permit authorizes a Stormwater Discharge System to discharge stormwater from Outfalls SW-1, SW-2, SW-3, SW-4, SW-5 and SW-6. Stormwater drainage from the new access road used to transport coal and oil truck deliveries discharges from Outfalls SW-1, SW-2 and SW-3 directly to Lake Julian. Stormwater drainage from the old access road used to transport coal and oil truck deliveries discharges from

Outfalls SW-4 and SW-6 directly to Lake Julian, and Outfall SW-5 directly to an unnamed tributary to Powell Creek.

73. The effluent limitations and monitoring requirements in the Asheville Steam Electric Plant NPDES Permit for the discharge from Outfall 001 (Ash Pond Treatment System) require sampling for the following parameters: Flow, Oil and Grease, Total Suspended Solids, pH, Total Mercury, Total Arsenic, Total Beryllium, Total Cadmium, Total Chlorides, Total Chromium, Total Copper, Total Fluoride, Total Lead, Total Manganese, Total Nickel, Total Selenium, Total Silver, Total Thallium, Total Zinc, Total Nitrogen, Total Phosphorus, Chronic Toxicity and Fish Tissue Sampling.

74. The effluent limitations and monitoring requirements in the Asheville Steam Electric Plant NPDES Permit for the discharge from Outfall 002 (Once-Through Non-Contact Cooling Water System) require sampling for the following parameters: Total Residual Chlorine, Time of Chlorine Addition, Temperature and pH.

75. The effluent limitations and monitoring requirements in the Asheville Steam Electric Plant NPDES Permit for the discharge from Internal Outfall 004 (Chemical Metal Cleaning Treatment System) require sampling for the following parameters: Total Copper and Total Iron.

76. The effluent limitations and monitoring requirements in the Asheville Steam Electric Plant NPDES Permit for the discharge to the secondary settling basin after the Ash Pond via Internal Outfall 005 (FGD wet scrubber wastewater treatment system) require sampling for the following parameters: Flow, Total Suspended Solids, Total Mercury, Total Arsenic, Total Beryllium, Total Cadmium, Total Chlorides, Total Chromium, Total Copper, Total Fluoride,

Total Lead, Total Manganese, Total Nickel, Total Selenium, Total Silver, Total Thallium and Total Zinc.

77. The effluent limitations and monitoring requirements in the Asheville Steam Electric Plant NPDES Permit for discharge from Outfalls SW-1, SW-2, SW-3, SW-4, SW-5 and SW-6 (Stormwater Discharge System) require sampling for the following parameters: Color, Odor, Clarity, Floating Solids, Suspended Solids, Foam, Oil Sheen and Other Obvious Indicators of Stormwater pollution.

Unpermitted Seeps at the Asheville Steam Electric Plant

78. As mentioned above, the Defendant's Asheville Steam Electric Plant has four permitted outfalls and six stormwater outlets discharging directly into the French Broad River or Lake Julian which are included in the Asheville Steam Electric Plant NPDES Permit.

79. Defendant's Asheville Steam Electric Plant NPDES Permit does not authorize the Defendant to make any outlet or discharge any wastewater or stormwater other than those included in the Asheville Steam Electric Plant NPDES Permit.

80. On March 11, 2013, DWQ staff inspected the Asheville Steam Electric Plant and observed several seeps from the facility discharging into surface waters adjacent and flowing to the French Broad River. Seeps identified at the site, included engineered discharges from the toe-drains of the 1964 and 1982 Coal Ash Ponds, discharges from the Asheville Steam Electric Plant property west and southwest of the coal ash ponds, including areas west of Interstate Highway 26, up to the banks of the French Broad River. These locations are different from the outfalls or stormwater outlets described in the Asheville Steam Electric Plant NPDES Permit.

81. Upon information and belief, Plaintiff believes there are other non-engineered seeps at Defendant's Asheville Steam Electric Plant, which are different locations from the outfalls and stormwater outlets described in the Asheville Steam Electric Plant NPDES Permit.

82. A seep or discharge from the Ash Pond or any other part of the Asheville Steam Electric Plant that is not included in the Asheville Steam Electric Plant NPDES Permit is an unpermitted discharge in violation of N.C. Gen. Stat. § 143-215.1(a)(1) and (a)(6).

Exceedances in Violation of 2L Standards at the Asheville Steam Electric Plant

83. DWQ's Aquifer Protection staff compiled a table of the analytical results of groundwater samples collected at the Asheville Steam Electric Plant from 2010 through April 1, 2013, and prepared a chart of the Ash Pond Exceedances which are listed in the Asheville Steam Electric Ash Pond Exceedances Chart. See Plaintiff's Exhibit No. 7.

84. The Asheville Steam Station Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Iron (300 ug/L) in samples taken at Monitoring Wells CB-3, CB-4B, CB-5, and CB-6. Although Iron is a naturally occurring element, its presence in groundwater and specific occurrence at this site indicate impacts to groundwater resulting from coal burning activities.

85. The Asheville Steam Station Ash Pond Exceedances Chart shows exceedances from the 2L standard for Manganese (50 ug/L) in samples taken at Monitoring Wells GW-1, CB-2, CB-3, CB-3R, CB-4, CB-5, CB-6, and CB-8. Although Manganese is a naturally occurring element, its presence in groundwater and specific occurrence at this site indicate impacts to groundwater resulting from coal burning activities.

86. The Asheville Steam Station Ash Pond Exceedances Chart shows exceedances from the 2L standard for Boron (700 ug/L) in samples taken at Monitoring Wells CB-3R, CB-6, and CB-8. Although Boron is a naturally occurring element, its presence in groundwater and specific occurrence at this site indicate impacts to groundwater resulting from coal burning activities.

87. The Asheville Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L GW standard for Thallium (0.2 µg/L) in samples taken at Monitoring Wells CB-3 and CB-3R. Although Thallium is a naturally occurring element, its presence in groundwater and specific occurrence at this site indicate impacts to groundwater resulting from coal burning activities.

88. The Asheville Steam Station Ash Pond Exceedances Chart shows exceedances from the 2L standard for TDS (500 mg/L) in samples taken at Monitoring Wells CB-8. The presence of Total Dissolved Solids in groundwater and the specific occurrence at this site indicate impacts to groundwater resulting from coal burning activities.

89. Defendant's exceedances of the groundwater standards for Iron, Manganese, Boron, Thallium, and TDS at the compliance boundary of the Asheville Steam Electric Plant Ash Pond are violations of the groundwater standards as prohibited by 15A NCAC 2L.0103(d).

Other Exceedances of 2L GW Standards at the Asheville Steam Electric Plant

90. The Asheville Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Iron in samples taken at Monitoring Wells CB-1, CB-2, CB-7, CB-8, and GW-1.

91. The Asheville Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Manganese in samples taken at Monitoring Well CB-1 and CB-7.

92. The Asheville Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Boron in samples taken at Monitoring Well CB-3.

93. The Asheville Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standards for Chloride in samples taken at Monitoring Well CB-8.

94. The Asheville Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standards for Selenium in in samples taken at Monitoring Well CB-8.

95. The Asheville Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standards for Sulfate in samples taken at Monitoring Well CB-6.

96. The Asheville Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standards for Thallium in samples taken at Monitoring Well CB-2.

97. The Asheville Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standards for TDS in samples taken at Monitoring Well CB-6.

98. DWQ staff is working with the Defendant to determine if these exceedances are naturally occurring or if corrective action will be required.

CLAIMS FOR RELIEF

99. The allegations contained in paragraphs 1 through 99 are incorporated into these claims for relief as if fully set forth herein.

100. Defendant's unpermitted seeps from both of the Facilities are violations of N.C. Gen. Stat. §§ 143-215.1(a)(1) and (a)(6).

101. Defendant's exceedances of the groundwater standards for Boron, Iron, Manganese, Selenium, Thallium, and TDS at the compliance boundary of the Asheville Steam Electric Plant Ash Pond are violations of the groundwater standards as prohibited by 15A NCAC 2L.0103(d).

102. Plaintiff is entitled to injunctive relief, as set forth more specifically in the prayer for relief, pursuant to N.C. Gen. Stat. § 143-215.6C.

103. Defendant's violations of N.C. Gen. Stat. §§ 143-215.1(a)(1) and (a)(6) for the unpermitted seeps and Defendant's violations and potential violations of the groundwater standards, without assessing the problem and taking corrective action, poses a serious danger to the health, safety and welfare of the people of the State of North Carolina and serious harm to the water resources of the State.

PRAYER FOR RELIEF

WHEREFORE, the Plaintiff, State of North Carolina, prays that the Court grant to it the following relief:

1. That the Court accepts this verified complaint as an affidavit upon which to base all orders of the Court.

Doc. Ex. 2053

2. That the Court preliminarily, and upon final judgment permanently enter a mandatory injunction requiring the Defendant to abate the violations of N.C. Gen. Stat. § 143-215.1, NPDES Permits and groundwater standards at the Facilities;

3. That the Court preliminarily, and upon final judgment permanently enter a mandatory injunction requiring the Defendant take the steps required in the attached "Ash Ponds Assessment Needs", which is attached hereto as Plaintiff's Exhibit No. 10 and is incorporated herein by reference;

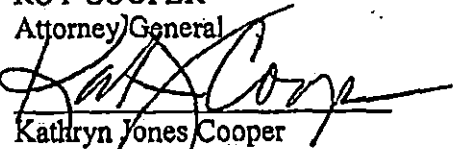
4. That the Defendant be taxed with the costs of this action.

5. Any other and further relief that the Court deems to be just and proper.

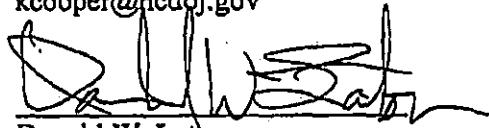
Respectfully submitted, this the 20th day of May, 2013.

ROY COOPER
Attorney General

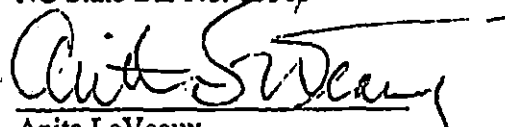
By


Kathryn Jones Cooper
Special Deputy Attorney General
NC State Bar No. 12176
kcooper@ncdoj.gov

By


Donald W. Laton
Assistant Attorney General
NC State Bar No. 13363

By


Anita LeVeaux
Assistant Attorney General
NC State Bar No. 13667

N.C. Department of Justice
Environmental Division
Post Office Box 629

Doc. Ex. 2054

Raleigh, NC 27602-0629
(919) 716-6600 phone
(919) 716-6750 facsimile
kcooper@ncdoj.gov

Attorneys for the Plaintiff
State of North Carolina ex rel.
North Carolina Department of
Environment and Natural Resources
Division of Water Quality

Doc. Ex. 2055

STATE OF NORTH CAROLINA

VERIFICATION

COUNTY OF WAKE

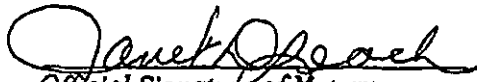
Jeffrey Poupart, first being duly sworn, deposes and says that he is the Point Source Branch Supervisor of the Surface Water Protection Section of the Division of Water Quality in the North Carolina Department of Environment and Natural Resources; that he has read the foregoing verified Amended Complaint and Motion Injunctive Relief, and that he is acquainted with the facts and circumstances alleged therein; and believes them to be true.


Jeffrey Poupart

Wake County, North Carolina

I certify that the following person appeared before me this day, acknowledging to me that he signed the foregoing document: Jeffrey Poupart.

20th day of May, 2013.


Official Signature of Notary
JANET D. LEACH
Notary's printed or typed name

My Commission Expires: 9-15-2013



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Apr 30 2019

13CV011032

STATE OF NORTH CAROLINA **FILED** IN THE GENERAL COURT OF JUSTICE
COUNTY OF WAKE 772 03 14 21 # 23 SUPERIOR COURT DIVISION
13 CVS _____

STATE OF NORTH CAROLINA *ex rel.* C.S.C.
NORTH CAROLINA DEPARTMENT OF
ENVIRONMENT AND NATURAL
RESOURCES,

Plaintiff,

v.

DUKE ENERGY PROGRESS, INC.,

Defendant.

COMPLAINT
AND MOTION FOR
INJUNCTIVE RELIEF
RULE 65 N.C.R.C.P.

The Plaintiff State of North Carolina in accordance with Article 21 of Chapter 143 of the North Carolina General Statutes, and N.C. Gen. Stat. § 1A-1, Rule 65, complaining of the Defendant alleges and says:

PARTIES

1. Plaintiff is the sovereign State of North Carolina. This action is being brought upon the relation of the North Carolina Department of Environment and Natural Resources ("DENR") and its Division of Water Resources ("DWR" or "division"),¹ an agency of the State established pursuant to the provisions of N.C. Gen. Stat. § 143B-279.1 *et seq.*, and vested with the statutory authority regarding protection of the environment and enforcement of environmental laws pursuant to N.C. Gen. Stat. § 143-211 *et seq.*

2. Defendant, Duke Energy Progress, Inc. (formerly Carolina Power & Light Company d/b/a Progress Energy Carolinas, Inc., prior to April 29, 2013), is a corporation

¹ DENR's Division of Water Quality and Division of Water Resources have been combined and are currently operating under the name of Division of Water Resources. All actions taken by the DWQ are considered to have been taken by the DWR.

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Apr 30 2019

organized and existing under the laws of the State of North Carolina. Defendant's principal place of business is in Wake County, North Carolina and is located at 410 South Wilmington Street, PEB 17B5, Raleigh, North Carolina 27601. Defendant's Registered Agent is CT Corporation System, 150 Fayetteville Street, Box 1011, Raleigh, North Carolina 27601

3. Defendant owns the following six (6) Facilities ("6 Facilities"):

- (1) ***Mayo Steam Electric Generating Plant*** ("Mayo Steam Electric Plant") in Person County;
- (2) ***Roxboro Steam Electric Generating Plant*** ("Roxboro Steam Electric Plant") in Person County;
- (3) ***Cape Fear Steam Electric Generating Plant*** ("Cape Fear Steam Electric Plant") in Chatham County;
- (4) ***H.F. Lee Steam Electric Plant*** ("Lee Steam Electric Plant") in Wayne County;
- (5) ***Weatherspoon Steam Electric Plant*** in Robeson County; and
- (6) ***L. V. Sutton Electric Plant*** ("Sutton Electric Plant") in New Hanover County.

4. Defendant or its predecessor was doing business in all of the counties set forth in paragraph 3 above, at each of the 6 Facilities, at the time the violations or threatened violations were committed that gave rise to this action.

JURISDICTION AND VENUE

5. The Superior Court has jurisdiction of this action for injunctive relief for existing or threatened violations of various laws and rules and regulations governing the protection of the State's water resources pursuant to N.C. Gen. Stat. §§ 7A-245 and 143-215.6C, and for such other relief as the Court shall deem proper.

6. Wake County is a proper venue for this action because Defendant's principal place of business is located in Wake County.

GENERAL ALLEGATIONS

Applicable Laws and Regulations

7. Pursuant to N.C. Gen. Stat. § 143-215.3(a)(1), the Environmental Management Commission ("EMC" or the "Commission") has the power "[t]o make rules implementing Articles 21, 21A, 21B or 38 of . . . Chapter" 143 of the North Carolina General Statutes. These statutes, and the rules adopted under them, are designed to further the public policy of the State, as declared in N.C. Gen. Stat. § 143-211, "to provide for the conservation of its water and air resources . . . [and], within the context of this Article [21] and Articles 21A and 21B of this Chapter [143], to achieve and to maintain for the citizens of the State a total environment of superior quality."

8. N.C. Gen. Stat. § 143-211 further provides that "[s]tandards of water and air purity shall be designed to protect human health, to prevent injury to plant and animal life, to prevent damage to public and private property, to insure the continued enjoyment of the natural attractions of the State, to encourage the expansion of employment opportunities, to provide a permanent foundation for healthy industrial development and to secure for the people of North Carolina, now and in the future, the beneficial uses of these great natural resources."

9. The Commission has the power to issue permits with conditions attached which the Commission believes are necessary to achieve the purposes of Article 21 of Chapter 143 of the General Statutes. N.C. Gen. Stat. § 143-215.1(b)(4).

10. Pursuant to its authority in N.C. Gen. Stat. § 143-215.3(a)(4) to delegate such of its powers as it deems necessary, the Commission has delegated the authority to issue permits,

and particularly discharge permits, to the Director of the Division of Water Resources ("Director"). See Title 15A of the North Carolina Administrative Code ("NCAC"), rule 2H.0112². A copy of this rule is attached hereto as Plaintiff's Exhibit No. 1, and is incorporated herein by reference.

11. N.C. Gen. Stat. § 143-215.1 requires a permit before any person can "make any outlets into the waters of the State" or "cause or permit any waste, directly or indirectly, to be discharged to or in any manner intermixed with the waters of the State in violation of the water quality standards applicable to the assigned classifications ... unless allowed as a condition of any permit, special order or other appropriate instrument issued or entered into by the Commission under the provisions of this Article [Article 21 of Chapter 143 of the General Statutes]." N.C. Gen. Stat. §§ 143-215.1(a) (1) and (6).

12. The Commission's rules in 15A NCAC Subchapter 2L (hereinafter "2L Rules") "establish a series of classifications and water quality standards applicable to the groundwaters of the State." 15A NCAC 2L.0101(a). A copy of the 2L Rules is attached hereto as Plaintiff's Exhibit No. 2 and is incorporated herein by reference.

13. "Groundwaters" are defined in the 2L Rules as "those waters occurring in the subsurface under saturated conditions." 15A NCAC 2L.0102(11).

14. The 2L Rules "are applicable to all activities or actions, intentional or accidental, which contribute to the degradation of groundwater quality, regardless of any permit issued by a governmental agency authorizing such action or activity except an innocent landowner who is a bona fide purchaser of property which contains a source of groundwater contamination, who

² 15A NCAC 2H.0112. This Rule actually delegates the authority to issue discharge permits to the Director of the former DWQ. However, this authority has now been delegated to the Director of the DWR.

purchased such property without knowledge or a reasonable basis for knowing that groundwater contamination had occurred, or a person whose interest or ownership in the property is based or derived from a security interest in the property, shall not be considered a responsible party." 15A NCAC 2L.0101(b).

15. The policy section of the 2L Rules provides that the 2L Rules "are intended to maintain and preserve the quality of the groundwaters, prevent and abate pollution and contamination of the waters of the state, protect public health, and permit management of the groundwaters for their best usage by the citizens of North Carolina." 15A NCAC 2L.0103(a).

16. "Contaminant" is defined in the 2L Rules as "any substance occurring in groundwater in concentrations which exceed the groundwater quality standards specified in Rule .0202 of the Subchapter." 15A NCAC 2L.0102(4).

17. "Natural Conditions" are defined in the 2L Rules as "the physical, biological, chemical and radiological conditions which occur naturally." 15A NCAC 2L.0102(16).

18. The policy section of the 2L Rules provides further that, "[i]t is the policy of the Commission that the best usage of the groundwaters of the state is as a source of drinking water. These groundwaters generally are a potable source of drinking water without the necessity of significant treatment. It is the intent of these Rules to protect the overall high quality of North Carolina's groundwaters to the level established by the standards and to enhance and restore the quality of degraded groundwaters where feasible and necessary to protect human health and the environment, or to ensure their suitability as a future source of drinking water." 15A NCAC 2L.0103(a).

19. The policy section of the 2L Rules provides further that, "[n]o person shall conduct or cause to be conducted, any activity which causes the concentration of any substance to exceed

that specified in Rule .0202 of this Subchapter, except as authorized by the rules of this Subchapter." 15A NCAC 2L.0103(d).

20. The groundwater "Standards" are specified in 15A NCAC 2L.0202. *See* 15A NCAC 2L.0102(23). Some groundwater standards and their concentrations are specifically listed in 15A NCAC 2L.0202(g) and (h). If a substance is not specifically listed and if it is naturally occurring, the standard is the naturally occurring concentration as determined by the Director. 15A NCAC 2L.0202(c). If a substance is listed, if it is naturally occurring and the substance exceeds the established standard, the standard shall be the naturally occurring concentration as determined by the Director. 15A NCAC 2L .0202(b)(3). If a substance is not specifically listed and it is not naturally occurring, the substance cannot be permitted in concentrations at or above the practical quantitation limit in Class GA or Class GSA waters, except that the Director may establish interim maximum allowable concentrations ("IMAC") pursuant to 15A NCAC 2L.0202(c). These are listed in Appendix #1 of 15A NCAC 2L. The IMACs are the established standard until adopted by rule. *See* the last page of Plaintiff's Exhibit No. 2.

21. The DWQ Director established the IMAC for Antimony on August 1, 2010 and for Thallium on October 1, 2010, substances for which standards had not been established under the 2L Rules. A copy of the Public Notice establishing the IMACs and a copy of the Approved IMACs are attached hereto as Plaintiff's Exhibit Nos. 3 and 4, respectively, and both exhibits are incorporated herein by reference. The interim maximum allowable concentration for Thallium is 0.2 micrograms per liter ("µg/L") established pursuant to 15A NCAC 2L .0202(c). The interim maximum allowable concentration for Antimony is 1 µg/L established pursuant to 15A NCAC 2L .0202(c). *See* the last page of Plaintiff's Exhibit No. 2.

22. "It is the intention of the Commission to protect all groundwaters to a level of quality at least as high as that required under the standards established in Rule .0202 of this Subchapter." 15A NCAC 2L.0103(b).

23. A "Compliance Boundary" is defined in the 2L Rules as "a boundary around a disposal system at and beyond which groundwater quality standards may not be exceeded and only applies to facilities which have received an individual permit issued under the authority of [N.C. Gen. Stat. §] 143-215.1 or [N.C. Gen. Stat. §]130A." 15A NCAC 2L.0102(3).

24. Pursuant to 15A NCAC 2L.0107(a), "[f]or disposal systems individually permitted prior to December 30, 1983, the compliance boundary is established at a horizontal distance of 500 feet from the waste boundary or at the property boundary, whichever is closer to the source."

25. The "Waste Boundary" is defined in the 2L Rules as "the perimeter of the permitted waste disposal area." 15A NCAC 2L.0102(26).

26. A "Corrective Action Plan" is defined in the 2L Rules as "a plan for eliminating sources of groundwater contamination or for achieving groundwater quality restoration or both." 15A NCAC 2L.0102(5). A site assessment pursuant to a corrective action plan should include the source and cause of contamination, any imminent hazards to public health and safety, all receptors and significant exposure pathways, the horizontal and vertical extent of the contamination, as well as all geological and hydrogeological features influencing the movement of the contamination. 15A NCAC 2L.0106 (g).

27. Pursuant to N.C. Gen. Stat. § 143-215.6C, "[w]henEVER the Department has reasonable cause to believe that any person has violated or is threatening to violate any of the provisions of this Part [Part 1, Article 21, of the General Statutes], any of the terms of any permit

issued pursuant to this Part, or a rule implementing this Part, . . .” the Department is authorized to “request the Attorney General to institute a civil action in the name of the State upon the relation of the Department for injunctive relief to restrain the violation or threatened violation.”

28. The statute further provides that “[u]pon a determination by the court that the alleged violation of the provisions of this Part or the regulations of the Commission has occurred or is threatened, the court shall grant the relief necessary to prevent or abate the violation or threatened violation.” N.C. Gen. Stat. § 143-215.6C.

29. Additionally, the section provides that “[n]either the institution of the action nor any of the proceedings thereon shall relieve any party to such proceedings from any penalty prescribed for the violation of this Part.” N.C. Gen. Stat. § 143-215.6C.

30. Defendant is a person consistent with N.C. Gen. Stat. § 143-212(4) and pursuant to N.C. Gen. Stat. § 143-215.6C.

Factual and Legal Allegations

All 6 Facilities

31. With the exception of the Sutton Electric Plant, which began groundwater monitoring in 1984, and added new monitoring wells between 1990 and 2011, Defendant implemented a voluntary groundwater monitoring program at most of the 6 Facilities in 2006.

32. In 2009, the DWQ required Defendant to place monitoring wells at the compliance boundaries of all of the Coal Ash Ponds at all 6 Facilities.

33. The DWQ approved Defendant’s proposed locations of compliance boundary wells and monitoring wells at each of the 6 Facilities on the following dates:

- (1) ***Mayo Steam Electric Plant***– November 12, 2010;
- (2) ***Roxboro Steam Electric Plant*** – November 12, 2010;

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- (3) *Cape Fear Steam Electric Plant* – January 4, 2011;
- (4) *Lee Steam Electric Plant* – January 4, 2011;
- (5) *Weatherspoon Steam Electric Plant* – November 1, 2010; and
- (6) *Sutton Electric Plant* – March 17, 2011 and October 24, 2011.

34. Defendant constructed compliance monitoring wells at the compliance boundaries of the Coal Ash Ponds at each of the 6 Facilities on the following dates:

- (1) *Mayo Steam Electric Plant* – November 2010;
- (2) *Roxboro Steam Electric Plant* – October and November 2010;
- (3) *Cape Fear Steam Electric Plant* – September 2010;
- (4) *Lee Steam Electric Plant* – July 2010 and September 2012;
- (5) *Weatherspoon Steam Electric Plant* – August 2010; and
- (6) *Sutton Electric Plant* – 1990 to 2012.

35. Each of the 6 Facilities has a specific set of parameters being monitored:

- (1) *Mayo Steam Electric Plant* – Aluminum, Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Chloride, Copper, Iron, Lead, Manganese, Mercury, Nickel, Nitrate, pH, Selenium, Sulfate, Thallium, Total Dissolved Solids, Water Level, and Zinc;
- (2) *Roxboro Steam Electric Plant* – Aluminum, Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Chloride, Copper, Iron, Lead, Manganese, Mercury, Nickel, Nitrate, pH, Selenium, Sulfate, Thallium, Total Dissolved Solids, Water Level, and Zinc;
- (3) *Cape Fear Steam Electric Plant* – Aluminum, Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Chloride, Copper, Iron, Lead, Manganese, Mercury, Nickel, Nitrate, pH, Selenium, Sulfate, Thallium, Total Dissolved Solids, Water Level, and Zinc;
- (4) *Lee Steam Electric Plant* – Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Chloride, Copper, Iron, Lead, Manganese, Mercury, Nickel, Nitrate, pH, Selenium, Sulfate, Thallium, Total Dissolved Solids, Water Level, and Zinc;
- (5) *Weatherspoon Steam Electric Plant* – Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Chloride, Copper, Iron,

Lead, Manganese, Mercury, Nickel, Nitrate, pH, Selenium, Sulfate, Thallium, Total Dissolved Solids, Water Level, and Zinc; and

- (6) *Sutton Electric Plant* – Antimony, Arsenic, Barium, Boron, Cadmium, Chromium, Chloride, Copper, Iron, Lead, Manganese, Mercury, Nickel, Nitrate, pH, Selenium, Sulfate, Thallium, Total Dissolved Solids, Water Level, and Zinc.

36. In 2010 and 2011, with the exception of the Sutton Electric Plant, Defendant began submitting groundwater monitoring data to the DWQ from 5 of the 6 Facilities. Although actual groundwater monitoring started in 1984, the Sutton Electric Plant NPDES Permit required groundwater monitoring to begin in the spring of 1990.

37. On June 17, 2011, the DWQ adopted a Policy for Compliance Evaluation of Long-Term Permitted Facilities with No Prior Groundwater Monitoring Requirements (hereinafter the "Policy for Compliance Evaluation"). A copy of the Policy for Compliance Evaluation is attached hereto as Plaintiff's Exhibit No. 5 and is incorporated herein by reference.

38. The Policy for Compliance Evaluation establishes an approach to evaluate groundwater compliance at long-term permitted facilities. Specifically, the Policy for Compliance Evaluation requires staff and responsible parties to consider multiple factors before determining if groundwater concentrations in samples taken at the permitted facility are a violation of the groundwater standards, or if the concentration is naturally occurring. Such factors considered are well design, sample integrity, analytical methods, statistical testing, etc.

39. All 6 Facilities are subject to the Policy for Compliance Evaluation and Plaintiff has been working with the Defendant to move through the evaluative process as described in the policy.

40. Plaintiff's Aquifer Protection staff compiled tables of the analytical results of groundwater samples collected at the 6 Facilities. The 6 Facilities began submitting data in

2010, and Plaintiff's Aquifer Protection staff prepared 6 charts of the Ash Pond Exceedances from 2010 to July 16, 2013. The 6 charts are labeled by National Pollutant Discharge Elimination System (NPDES) Permit number and facility name. Each chart is attached hereto and labeled individually as Plaintiff's Exhibit: No. 6 (Mayo Steam Electric Plant Ash Pond Exceedances Chart); No. 7 (Roxboro Steam Electric Plant Ash Pond Exceedances Chart); No. 8 (Cape Fear Steam Electric Plant Ash Pond Exceedances Chart); No. 9 (Lee Steam Electric Plant Ash Pond Exceedances Chart); No. 10 (Weatherspoon Steam Electric Plant Ash Pond Exceedances Chart); and No. 11 (Sutton Electric Plant Ash Pond Exceedances Chart); respectively, and are incorporated herein by reference.

41. Each of the 6 charts contains the following information: the well number, the parameter sampled, the date of the sample, the 2L Groundwater Standard, the sampling result and the unit of measurement.

Mayo Steam Electric Plant

42. On July 12, 1982, pursuant to N.C. Gen. Stat. § 143-215.1, other lawful statutes and regulations issued by the Commission, and the Clean Water Act, the DWQ issued NPDES Permit No. NC0038377 to Progress Energy for the Mayo Steam Electric Plant ("Mayo Steam Electric Plant NPDES Permit"), located in Person County, North Carolina.

43. The Mayo Steam Electric Plant NPDES Permit has been renewed subsequently. The current NPDES Permit was re-issued on October 14, 2009, with an expiration date of March 31, 2012. On September 28, 2011, Progress Energy submitted a renewal application to the DWQ. Since the Defendant timely applied for re-issuance 180 days prior to the expiration date, pursuant to N.C. Gen. Stat. § 150B-3, Defendant can continue to operate under the 2009 Mayo Steam Electric Plant NPDES Permit until a new permit has been issued. A copy of the 2009

Mayo Steam Electric Plant NPDES Permit No. NC0038377 is attached hereto as Plaintiff's Exhibit No. 12, and is incorporated herein by reference.

44. A Special Order by Consent was approved by the EMC for the Mayo Steam Electric Plant on June 25, 2012 and transmitted to Progress Energy on June 26, 2012. A copy of the transmittal letter and EMC SOC WQ S10-012 is attached hereto as Plaintiff's Exhibit No. 13 and is incorporated herein by reference. To the extent that the SOC modifies the terms of the 2009 NPDES Permit for the Mayo Steam Electric Plant, the SOC controls those terms of the permit until a new NPDES permit is issued or a judicial order is issued.

45. The Mayo Steam Electric Plant NPDES Permit authorizes the discharge of treated wastewater to receiving waters designated as the Mayo Reservoir in the Roanoke River Basin in accordance with the effluent limitations, monitoring requirements and other conditions set forth in the Mayo Steam Electric Plant NPDES Permit.

46. The Mayo Steam Electric Plant NPDES Permit authorizes a cooling tower system less than once per year when the cooling towers and circulating water system are drained by gravity and discharges a wastestream directly into the Mayo Reservoir through Outfall 001.

47. The Mayo Steam Electric Plant NPDES Permit authorizes a cooling tower blowdown system that indirectly discharges to Mayo Reservoir via Internal Outfall 008 to the Ash Pond Treatment System at Outfall 002. Cooling tower blowdown is usually mixed with ash sluice water prior to discharge to the ash pond.

48. The Mayo Steam Electric Plant NPDES Permit authorizes an Ash Pond Treatment System at Outfall 002 that discharges directly into the Mayo Reservoir. The Ash Pond receives ash transport water, coal pile runoff, storm water runoff, cooling tower blowdown and various low volume wastes such as boiler blowdown, oily waste treatment, wastes/backwash from the

water treatment processes including Reverse-Osmosis wastewater, plant area wash down water, equipment heat exchanger water, and treated domestic wastewater.

49. The Mayo Steam Electric Plant NPDES Permit authorizes a stormwater discharge system to discharge stormwater to the Mayo Reservoir through Outfalls 004, 005, 006a, 006b, 006c, 006d, 006e, and 010. Drainage from the outside storage area discharges at Outfall 004. Drainage from the industrial area and the oil/bottled gas storage area discharges at Outfall 005. Drainage from the cooling tower(s) chemical feed building structure and the cooling tower area discharges at Outfalls 006a, 006b, 006c, 006d and 006e. Drainage from the haul road for coal ash, limestone, gypsum and gaseous anhydrous ammonia discharges at Outfall 010.

50. The effluent limitations and monitoring requirements in the Mayo Steam Electric Plant NPDES Permit for the discharge from Outfall 001 (cooling tower system) require sampling for the following parameters: Flow, Free Available Chlorine, Time of Chlorine Addition, Total Chromium, Total Zinc, Priority Pollutants and pH. The Mayo Steam Electric Plant NPDES Permit prohibits the discharge of polychlorinated biphenyl compounds ("PCBs") such as those used for transformer fluid.

51. The effluent limitations and monitoring requirements in the Mayo Steam Electric Plant NPDES Permit for the indirect discharge from Outfall 008 (cooling tower blowdown system) to the Ash Pond Treatment System require sampling for the following parameters: Flow, Free Available Chlorine, Time of Chlorine Addition, Total Chromium, Total Zinc, Priority Pollutants and pH. The Mayo Steam Electric Plant NPDES Permit does not authorize a direct discharge to the Mayo Reservoir.

52. The effluent limitations and monitoring requirements in the Mayo Steam Electric Plant NPDES Permit for the discharge from Outfall 002 (Ash Pond Treatment System) require

sampling for the following parameters without FGD wastewater: Flow, Oil and Grease, Total Suspended Solids, Total Selenium, Acute Toxicity, Total Arsenic, Total Copper, Total Iron and pH. After the FGD system is used to treat FGD wastewater, the Mayo Steam Electric Plant NPDES Permit requires sampling for the following parameters: Flow, Oil and Grease, Total Suspended Solids, Total Selenium, Acute Toxicity, Total Mercury, Total Arsenic, Total Cadmium, Total Chlorides, Total Chromium, Total Copper, Total Fluoride, Total Lead, Total Manganese, Total Nickel, Total Silver, Total Zinc, Total Barium, Total Thallium, Total Vanadium, Total Antimony, Total Boron, Total Cobalt, Total Molybdenum, Total Iron and pH. Among other things, the SOC authorizes Defendant to comply with all terms of its NPDES permit except for Interim Limits for Mercury, Selenium, Boron, Manganese and Thallium during the period of the SOC.

53. The Mayo Steam Electric Plant NPDES Permit also requires Acute Toxicity monitoring, Fish Tissue Sampling for Arsenic only, an annual biological, physical and chemical study of Selenium, and annual monitoring of the waters of Crutchfield Branch, 100 yards downstream of the ash pond, for Arsenic, Copper and Selenium.

54. The effluent limitations and monitoring requirements in the Mayo Steam Electric Plant NPDES Permit for the discharge from Outfall 010 (stormwater discharge system) require sampling for the following parameters: 13 Priority Pollutant Metals (Silver, Arsenic, Beryllium, Cadmium, Chromium, Copper, Mercury, Nickel Lead, Antimony, Selenium, Thallium, Zinc), Aluminum, Boron, Chemical Oxygen Demand, Total Suspended Solids, Sulfate, Oil and Grease, pH and Total Rainfall.

Unpermitted Seeps at the Mayo Steam Electric Plant

55. As mentioned above, the Defendant's Mayo Steam Electric Plant has two permitted outfalls and eight stormwater outlets discharging directly into the Mayo Reservoir which are included in the Mayo Steam Electric Plant NPDES Permit.

56. Defendant's Mayo Steam Electric Plant NPDES Permit does not authorize the Defendant to make any outlet or discharge any wastewater or stormwater other than those included in the Mayo Steam Electric Plant NPDES Permit.

57. The Mayo Steam Electric Plant NPDES Permit expressly prohibits a discharge from the ash pond to Crutchfield Branch. Condition A.(8) states: "There shall be no direct discharge from the ash pond to Crutchfield Branch. There shall be no violation of water quality standards in Crutchfield Branch due to any indirect discharge from the ash pond. The permittee shall monitor the waters of Crutchfield Branch, 100 yards downstream of the dike, once per year by grab sample for the following: arsenic, copper, and selenium."

58. Seeps identified at Defendant's Mayo Steam Electric Plant, include engineered discharges from the toe-drains of its Ash Pond, which are at different locations from the outfalls and stormwater outlets described in the Mayo Steam Electric Plant NPDES Permit. Defendant's Ash Pond dam has 2 engineered toe-drains (running east and west) that continuously discharge to Crutchfield Branch and Defendant does not have a permit for this direct discharge.

59. A seep or discharge from the Ash Pond of the Mayo Steam Electric Plant that is not included in the Mayo Steam Electric Plant NPDES Permit is an unpermitted discharge in violation of N.C. Gen. Stat. § 143-215.1(a)(1) and (a)(6).

Exceedances of the 2L Groundwater Standards at the Mayo Steam Electric Plant

60. The Plaintiff's Aquifer Protection staff compiled tables of the analytical results of groundwater samples collected at the Mayo Steam Electric Plant from November 2010 through July 16, 2013, and prepared a chart of the Ash Pond Exceedances which are listed in the Mayo Steam Electric Plant Ash Pond Exceedances Chart. See Plaintiff's Exhibit No. 6.

61. The Mayo Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Chromium (10 µg/L) in compliance wells BG-1 and BG-2 during three sampling events from December 2010 to July 2012, with concentrations ranging from 10.2 µg/L to 40.1 µg/L.

62. The Mayo Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Manganese (50 µg/L) in compliance wells BG-1, BG-2, CW-1, CW-1D, CW-2, CW-2D, CW-3, CW-5 and CW-6 during eight sampling events from December 2010 through May 2013, with concentrations ranging from 52.6 µg/L to 1,440 µg/L.

63. The Mayo Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Total Dissolved Solids (500 milligrams per liter ("mg/L")) in compliance wells CW-3 and CW-6 during three sampling events from July 2012 through April 2013, with concentrations ranging from 520 mg/L to 550 mg/L.

64. The Mayo Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Total Iron (300 µg/L) in compliance wells BG-1, BG-2, CW-2D, CW-3, CW-4, CW-5 and CW-6 during eight sampling events from December 2010 through May 2013, with concentrations ranging from 312 µg/L to 2,660 µg/L.

65. The DWR staff is working with the Defendant to determine if these exceedances are naturally occurring or if corrective action will be required.

Roxboro Steam Electric Plant

66. On June 30, 1981, pursuant to N.C. Gen. Stat. § 143-215.1, other lawful statutes and regulations issued by the Commission, and the Clean Water Act, the DWQ issued NPDES Permit No. NC0003425 to Progress Energy for the Roxboro Steam Electric Plant ("Roxboro Steam Electric Plant NPDES Permit"), located in Person County, North Carolina.

67. The Roxboro Steam Electric Plant NPDES Permit has been renewed subsequently. The current NPDES Permit was re-issued on April 9, 2007, with an expiration date of March 31, 2012. On October 10, 2011, Progress Energy submitted a renewal application to the DWQ. Since the Defendant's predecessor timely applied for re-issuance 180 days prior to the expiration date, pursuant to N.C. Gen. Stat. § 150B-3, Defendant can continue to operate under the 2009 Roxboro Steam Electric Plant NPDES Permit until a new permit has been issued. A copy of the 2007 Roxboro Steam Electric Plant NPDES Permit No. NC0003425 is attached hereto as Plaintiff's Exhibit No. 14, and is incorporated herein by reference.

68. The Roxboro Steam Electric Plant NPDES Permit authorizes the discharge of treated wastewater to receiving waters designated as the Hyco Lake in the Roanoke River Basin in accordance with the effluent limitations, monitoring requirements and other conditions set forth in the Roxboro Steam Electric Plant NPDES Permit.

69. The Roxboro Steam Electric Plant NPDES Permit authorizes a Heated Water Discharge Canal System at Outfall 003. At the point that the discharge canal enters Hyco Lake, it contains flows from several wastestreams including once through cooling water, stormwater runoff and the effluent from the Ash Pond at Internal Outfall 002.

70. The Roxboro Steam Electric Plant NPDES Permit authorizes a coal pile runoff treatment system at Outfall 006 that handles runoff from the coal pile and other coal handling areas, including limestone piles, gypsum piles and truck wheel washwater. The waters are routed to a retention pond for treatment by neutralization, sedimentation and equalization prior to being discharged directly into Hyco Lake.

71. The Roxboro Steam Electric Plant NPDES Permit authorizes an Ash Pond Treatment System at Internal Outfall 002 that discharges to the heated water discharge canal and ultimately into the Hyco Lake through Outfall 003. The Ash Pond treats ash transport, low volume wastewater, runoff from the ash landfill, dry flyash handling system washwater, coal pile runoff silo washwater, stormwater runoff, cooling tower blowdown from unit number 4 and domestic sewage plant effluent.

72. The Roxboro Steam Electric Plant NPDES Permit authorizes a cooling tower blowdown system from unit number 4 at Internal Outfall 005 which discharges into the Ash Transport System, and ultimately flows into the Ash Pond at Internal Outfall 002.

73. The Roxboro Steam Electric Plant NPDES Permit authorizes a chemical metal cleaning treatment system at Internal Outfall 009 that occasionally discharges a wastestream to the Ash Pond Treatment System. It contains chemical metal cleaning wastes.

74. The Roxboro Steam Electric Plant NPDES Permit authorizes a domestic wastewater treatment system at Internal Outfall 008 that flows into the Ash Pond Treatment System.

75. The Roxboro Steam Electric Plant NPDES Permit authorizes discharges from an FGD treatment system at Internal Outfall 010. This wastestream is generated from blowdown

from the FGD treatment unit. After treatment in the bioreactors, this effluent is discharged into the heated water discharge canal.

76. The effluent limitations and monitoring requirements in the Roxboro Steam Electric Plant NPDES Permit for the discharge from Outfall 003 (heated water discharge canal system to the Hyco Reservoir) require sampling for the following parameters: Flow, Total Residual Chlorine, Total Phosphorus, Total Nitrogen, Temperature, Total Arsenic, pH and Acute Toxicity. The Roxboro Steam Electric Plant NPDES Permit prohibits the discharge of floating solids or visible foam in other than trace amounts.

77. The effluent limitations and monitoring requirements in the Roxboro Steam Electric Plant NPDES Permit for the discharge from Outfall 006 (coal pile runoff treatment system to the Hyco Reservoir) require sampling for the following parameters: Flow, Total Suspended Solids, Acute Toxicity and pH.

78. The effluent limitations and monitoring requirements in the Roxboro Steam Electric Plant NPDES Permit for the discharge from Internal Outfall 002 (Ash Pond Treatment System) require sampling for the following parameters: Flow, Total Selenium, Oil and Grease and Total Suspended Solids.

79. The effluent limitations and monitoring requirements in the Roxboro Steam Electric Plant NPDES Permit for the discharge from Internal Outfall 005 (cooling tower blowdown system) require sampling for the following parameters: Flow, Free Available Chlorine, Total Residual Chlorine, Total Chromium, Total Zinc and 126 Priority Pollutants.

80. The effluent limitations and monitoring requirements in the Roxboro Steam Electric Plant NPDES Permit for the discharge from Internal Outfall 008 (domestic wastewater

treatment system) to the Ash Pond require sampling for the following parameters: Flow, Biochemical Oxygen Demand, Total Suspended Solids, Total Ammonia and pH.

81. The effluent limitations and monitoring requirements in the Roxboro Steam Electric Plant NPDES Permit for the discharge from Internal Outfall 009 (heated water discharge canal system) require sampling for the following parameters: Flow, Total Suspended Solids, Oil and Grease, Total Copper and Total Iron.

82. The effluent limitations and monitoring requirements in the Roxboro Steam Electric Plant NPDES Permit for the discharge from Internal Outfall 010 (FGD treatment system), require sampling for the following parameters: Flow, Total Beryllium, Total Mercury, Total Antimony, Total Selenium, Total Silver and Total Vanadium.

83. Stormwater runoff to the heated water discharge canal is included in the Roxboro Steam Electric Plant NPDES Permit.

Unpermitted Seeps at the Roxboro Steam Electric Plant

84. As mentioned above, the Defendant's Roxboro Steam Electric Plant has seven permitted outfalls, with two outfalls (Outfalls 003 and 006) discharging directly into Hyco Lake which are included in the Roxboro Steam Electric Plant NPDES Permit.

85. Defendant's Roxboro Steam Electric Plant NPDES Permit does not authorize the Defendant to make any outlet or discharge any wastewater or stormwater other than those included in the Roxboro Steam Electric Plant NPDES Permit.

86. Seeps identified at Defendant's Roxboro Steam Electric Plant, include 7 engineered discharges to the heated water discharge canal, which are at different locations from the outfalls and stormwater outlets described in the Roxboro Steam Electric Plant NPDES Permit.

87. Seeps identified at Defendant's Roxboro Steam Electric Plant, include 2 stormwater discharges directly to Hyco Lake, which are at different locations from the outfalls and stormwater outlets described in the Roxboro Steam Electric Plant NPDES Permit.

88. A seep or discharge from the Ash Pond or any other part of the Roxboro Steam Electric Plant that is not included in the Roxboro Steam Electric Plant NPDES Permit is an unpermitted discharge in violation of N.C. Gen. Stat. § 143-215.1(a)(1) and (a)(6).

Exceedances in Violation of 2L Groundwater Standards at the Roxboro Steam Electric Plant

89. The Plaintiff's Aquifer Protection staff compiled a table of the analytical results of groundwater samples collected at the Roxboro Steam Electric Plant from November 2010 through July 16, 2013, and prepared a chart of the Ash Pond Exceedances which are listed in the Roxboro Steam Electric Plant Ash Pond Exceedances Chart. See Plaintiff's Exhibit No. 7.

90. The Roxboro Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Sulfate (250 mg/L) in monitoring well CW-5 during seven sampling events from November 2010 to April 2013, with concentrations ranging from 296 mg/L to 873 mg/L. Although Sulfate is a naturally occurring compound, its presence in groundwater and specific occurrence at this site indicates impacts to groundwater resulting from the wastewater treatment and disposal associated with coal burning activities. Monitoring well CW-5 is located at the compliance boundary of the Ash Pond Treatment System at the Roxboro Steam Electric Plant.

91. Defendant's exceedances of the 2L Groundwater Standards for Sulfate at or beyond the compliance boundary of the Roxboro Steam Electric Plant Ash Pond are violations of the groundwater standards as prohibited by 15A NCAC 2L.0103(d).

**Other Exceedances of 2L Groundwater Standards
at the Roxboro Steam Electric Plant**

92. The Roxboro Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Total Chromium (10 µg/L) in compliance well BG-1 during five sampling events from November 2010 to November 2012, with concentrations ranging from 11.1 µg/L to 42.7 µg/L. The last sample from this well remained an exceedance of the 2L Groundwater Standard. The Roxboro Steam Electric Plant Ash Pond Exceedances Chart shows additional exceedances from the 2L Groundwater Standard for Total Chromium in wells CW-1, CW-2D, and CW-4 during three sampling events from November 2010 through July 2011, with concentrations ranging from 16.9 µg/L to 29.6 µg/L.

93. The Roxboro Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Manganese (50 µg/L) in compliance well CW-3D during eight sampling events from November 2010 through April 2013, with concentrations ranging from 84.8 µg/L to 416 µg/L. The Roxboro Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Manganese in compliance wells CW-1 and CW-2 during one sampling event in November 2010, with concentrations of 180 µg/L and 52.9 µg/L, respectively.

94. The Roxboro Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Total Dissolved Solids (500 mg/L) in CW-3, CW-4 and CW-5 during seven sampling events from November 2010 through April 2013, with concentrations ranging from 570 mg/L to 652 mg/L in CW-3; with a value of 612 mg/L in CW-4 in November 2011; and with concentrations ranging from 616 mg/L to 1,510 mg/L in CW-5.

95. The Roxboro Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Total Iron (300 µg/L) in compliance well BG-1 during six sampling events, from November 2010 to November 2012 with concentrations ranging from 307 µg/L to 881 µg/L. The Roxboro Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Total Iron in compliance wells CW-1, CW-2, CW-2D, CW-3, CW-3D and CW-4 during eight sampling events from November 2010 through April 2013, with concentrations ranging from 321 µg/L to 2,290 µg/L.

96. The DWR staff is working with the Defendant to determine if these exceedances are naturally occurring or if corrective action will be required.

Cape Fear Steam Electric Plant

97. On August 30, 1976, pursuant to N.C. Gen. Stat. § 143-215.1, other lawful statutes and regulations issued by the Commission, and the Clean Water Act, the DWQ issued NPDES Permit No. NC0003433 to Progress Energy for the Cape Fear Steam Electric Plant ("Cape Fear Steam Electric Plant NPDES Permit"), located in Chatham County, North Carolina.

98. The Cape Fear Steam Electric Plant NPDES Permit has been renewed subsequently. The current Cape Fear Steam Electric Plant NPDES Permit was re-issued on July 22, 2011, with an effective date of September 1, 2011, and with an expiration date of July 31, 2016. A copy of the current Cape Fear Steam Electric Plant NPDES Permit No. NC0003433 is attached hereto as Plaintiff's Exhibit No. 15, and is incorporated herein by reference.

99. The Cape Fear Steam Electric Plant NPDES Permit authorizes the discharge of treated wastewater to receiving waters designated as an unnamed tributary to the Cape Fear River in the Cape Fear River Basin in accordance with the effluent limitations, monitoring requirements and other conditions set forth in the NPDES permit.

100. The Cape Fear Steam Electric Plant NPDES Permit authorizes the West Ash Pond Treatment System (Internal Outfall 001) to discharge through Outfall 007 into an unnamed tributary of the Cape Fear River. The West Ash Pond receives treated wastewater including ash sluice waters (bottom and fly), coal pile runoff, No. 2 fuel oil tank runoff, settling basin drains, sand bed filter backwash, parking lot drains, equipment cooling tower blowdown and drain, boiler blowdown, metal cleaning waste, oil unloading area drains, softener regenerate, demineralizer regenerate, acid/caustic sump wastewater, yard and floor drains, and ash trench drain wastewater.

101. The Cape Fear Steam Electric Plant NPDES Permit authorizes a Once-Through Cooling Water and Stormwater System (Internal Outfall 003) that discharges a wastestream through Outfall 007 into an unnamed tributary of the Cape Fear River.

102. The Cape Fear Steam Electric Plant NPDES Permit authorizes the East Ash Pond Treatment System (Internal Outfall 005) to discharge through Outfall 007 into an unnamed tributary of the Cape Fear River. The East Ash Pond receives treated wastewater including ash sluice waters (bottom and fly), runoff from yard drains, air preheater washes, electrostatic precipitator washes, metal cleaning wastes, spent sandblast material, and treated sanitary wastewater.

103. The Cape Fear Steam Electric Plant NPDES Permit authorizes the discharge of the Combined Wastewater to the Cape Fear River at Outfall 007, which is a combination of all the internal outfalls.

104. The effluent limitations and monitoring requirements in the Cape Fear Steam Electric Plant NPDES Permit for the discharge from Internal Outfall 001 (West Ash Pond Treatment System) require sampling for the following parameters: Flow, Oil and Grease, Total

Suspended Solids, Total Arsenic, Total Selenium, Ammonia-Nitrogen, Total Iron and Total Copper.

105. The effluent limitations and monitoring requirements in the Cape Fear Steam Electric Plant NPDES Permit for the discharge from Internal Outfall 003 (Once-Through Cooling Water and Stormwater System) require sampling for Flow.

106. The effluent limitations and monitoring requirements in the Cape Fear Steam Electric Plant NPDES Permit for the discharge from Internal Outfall 005 (East Ash Pond Treatment System) require sampling for the following parameters: Flow, Oil and Grease, Total Suspended Solids, Total Arsenic, Total Selenium, Fecal Coliform, Ammonia-Nitrogen, Total Iron and Total Copper.

107. The effluent limitations and monitoring requirements in the Cape Fear Steam Electric Plant NPDES Permit for the discharge from Outfall 007 (Combined wastewater and stormwater discharge) require sampling for the following parameters: Flow, Total Chromium, Total Arsenic, Total Selenium, Total Mercury, Total Nickel, Total Copper, Total Nitrogen, Total Phosphorus, Fecal Coliform, Temperature, pH and Chronic Toxicity. The permit also prohibits the discharge of floating solids or visible foam in other than trace amounts.

Unpermitted Seeps at the Cape Fear Steam Electric Plant

108. As mentioned above, the Defendant's Cape Fear Steam Electric Plant has four permitted outfalls, with one (Outfall 007) discharging directly into the Cape Fear River or into an unnamed tributary to the Cape Fear River, which are included in the Cape Fear Steam Electric Plant NPDES Permit.

109. Defendant's Cape Fear Steam Electric Plant NPDES Permit does not authorize the Defendant to make any outlet or discharge any wastewater or stormwater other than those included in the Cape Fear Steam Electric Plant NPDES Permit.

110. Seeps identified at Defendant's Cape Fear Steam Electric Plant, include potential discharges from its 1985 Ash Pond, which are at different locations from the outfalls and stormwater outlets described in the Cape Fear Steam Electric Plant NPDES Permit.

111. During an NPDES inspection on September 23, 2009, documented sample results from swamp/drainage area near permitted Internal Outfall 005 indicated the possibility of seepage from the 1985 Ash pond. A grab sample was taken during the inspection by Progress Energy and processed at Tritest Lab in Raleigh. Another grab sample was taken by DWQ and processed at the DWQ Lab. The lab results showed the following: for Aluminum (the Tritest Lab reported 216 µg/L; the DWQ Lab reported 1,400 µg/L); for Arsenic (the Tritest Lab reported <3 µg/L; the DWQ Lab reported 140 µg/L); for Molybdenum (the Tritest Lab reported <5 µg/L; the DWQ Lab reported 550 µg/L); for Selenium (the Tritest Lab reported <2 µg/L; the DWQ Lab reported 240 µg/L); and for Vanadium (the Tritest Lab reported 13.3 µg/L; the DWQ Lab reported 250 µg/L). Based on its review of the above results, the Plaintiff's Raleigh Regional Office Surface Water Protection Staff concludes there may be seepage from Defendant's 1985 Ash Pond.

112. A seep or discharge from the Ash Ponds or any other part of the Cape Fear Steam Electric Plant that is not included in the Cape Fear Steam Electric Plant NPDES Permit is an unpermitted discharge in violation of N.C. Gen. Stat. § 143-215.1(a)(1) and (a)(6).

**Exceedances in Violation of 2L Groundwater Standards
at the Cape Fear Steam Electric Plant**

113. Plaintiff's Aquifer Protection staff compiled a table of the analytical results of groundwater samples collected at the Cape Fear Steam Electric Plant from December 2010 through July 16, 2013, and prepared a chart of the Ash Pond Exceedances which are listed in the Cape Fear Steam Electric Plant Ash Pond Exceedances Chart. See Plaintiff's Exhibit No. 8.

114. The Cape Fear Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Boron (700 µg/L) in monitoring well CMW-1 during eight sampling events from December 2010 to March 2013, with concentrations ranging from 1,790 µg/L to 2,950 µg/L; in monitoring well CMW-6 during six sampling events from December 2010 to March 2013, with concentrations ranging from 704 µg/L to 1,010 µg/L; and in monitoring well CMW-8 during eight sampling events from December 2010 to March 2013, with concentrations ranging from 1,070 µg/L to 1,340 µg/L. Although Boron is a naturally occurring element, its presence in groundwater and specific occurrence at this site indicates impacts to groundwater resulting from the waste water treatment and disposal associated with coal burning activities.

115. Monitoring well CMW-1 is located at the southwest corner of the compliance boundary of the West Ash Pond Treatment System at the Cape Fear Steam Electric Plant. Well CMW-1 is located immediately adjacent to the compliance boundary and the Cape Fear River. Monitoring well CMW-6 is located at the southeast corner of the compliance boundary of the East Ash Pond Treatment System at the Cape Fear Steam Electric Plant. The monitoring well is located approximately 300 feet southeast of the East Ash Pond. Monitoring well CMW-8 is located on the western side of the compliance boundary of the West Ash Pond Treatment System

at the Cape Fear Steam Electric Plant. CMW-8 is located immediately between the compliance boundary and the Cape Fear River.

116. The Cape Fear Steam Electric Plant Ash Pond Exceedances Chart also shows exceedances from the 2L Groundwater Standard for Selenium (20 µg/L) in monitoring well CMW-3 during eight sampling events from December 2010 to March 2013, with concentrations ranging from 20.6 µg/L to 41.2 µg/L. Although Selenium is a naturally occurring element, its presence in groundwater and specific occurrence at this site indicates impacts to groundwater resulting from the wastewater treatment and disposal associated with coal burning activities.

117. The Cape Fear Steam Electric Plant Ash Pond Exceedances Chart also shows exceedances from the 2L Groundwater Standard for Sulfate (250 mg/L) in monitoring well CMW-2 during seven sampling events from November 2010 to March 2013, with concentrations ranging from 260 mg/L to 630 mg/L. Although Sulfate is a naturally occurring compound, its presence in groundwater and specific occurrence at this site indicates impacts to groundwater resulting from the waste water treatment and disposal associated with coal burning activities.

118. Monitoring well CMW-2 is located adjacent to the 1956 Semi-Active Ash Pond located in the northwest corner of the site. CMW-2 is also located on the west-northwest compliance boundary, immediate adjacent to the Cape Fear River

119. Defendant's exceedances of the 2L Groundwater Standards for Boron, Selenium and Sulfate at or beyond the compliance boundary of the Cape Fear Steam Electric Plant Ash Ponds are violations of the groundwater standards as prohibited by 15A NCAC 2L.0103(d).

**Other Exceedances of 2L Groundwater Standards
at the Cape Fear Steam Electric Plant**

120. The Cape Fear Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Arsenic (10 µg/L) in compliance well

CTMW-8 during one sampling event in June 2012, with a concentration of 10.5 µg/L. However, Arsenic is naturally occurring and no other exceedances of arsenic have been identified in this well or in other compliance monitoring wells.

121. The Cape Fear Steam Electric Plant Ash Pond Exceedances Chart consistently shows exceedances from the 2L Groundwater Standard for Iron (300 µg/L) in CMW-1 during eight sampling events from December 2010 to March 2013, with a maximum observed concentration of 54,600 µg/L; in compliance wells CMW-7, CMW-8, CTMW-1 and CTMW-8 during eight sampling events from December 2010 to March 2013, with concentrations ranging from 416 µg/L to 52,700 µg/L; in compliance wells BGMW-4, BGTMW-4, CMW-2, CMW-3, CMW-5, CMW-6, CTMW-2 and CTMW-7 during eight sampling events from December 2010 to March 2013, with concentrations ranging from 303 µg/L to 5,950 µg/L.

122. The Cape Fear Steam Electric Plant Ash Pond Exceedances Chart consistently shows exceedances from the 2L Groundwater Standard for Manganese (50 µg/L) in compliance monitoring wells BGMW-4, CMW-1, CMW-2, CMW-3, CMW-5, CMW-6, CMW-7, CMW-8, CTMW-1, CTMW-2, CTMW-7 and CTMW-8, during eight sampling events from December 2010 to March 2013, with concentrations ranging from 51.9 µg/L to 18,000 µg/L.

123. The Cape Fear Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Boron in monitoring well CMW-3 during seven sampling events from December 2010 through March 2013, with concentrations ranging from 714 µg/L to 1,260 µg/L. The Cape Fear Steam Electric Plant Ash Pond Exceedances Chart also shows an exceedance from the 2L Groundwater Standard for Sulfate in CMW-3 during one sampling event with a concentration of 388 mg/L. Monitoring well CMW-3 is located at the

northwest corner of the compliance boundary of the West Ash Pond Treatment System at the Cape Fear Steam Electric Plant, adjacent to the 1956 Semi-Active Ash Pond.

124. The Cape Fear Steam Electric Plant Ash Pond Exceedances Chart consistently shows exceedances from the 2L Groundwater Standard for Total Dissolved Solids (500 mg/L) in compliance wells CMW-2, CMW-3, CMW-6, and CTMW-8, during eight sampling events from December 2010 to March 2013, with concentrations ranging from 502 mg/L to 1,100 mg/L.

125. The Cape Fear Steam Electric Plant Ash Pond Exceedances Chart consistently shows exceedances from the 2L Groundwater Standard for pH levels in monitoring well BGTMW-4 during three sampling events from December 2010 to March 2013, with concentrations of 10.3, 9.4 and 9.1, respectively. However, recent sampling events did not identify pH outside the acceptable 2L Groundwater Standard range of 6.5 to 8.5.

126. The DWR staff is working with the Defendant to determine if these exceedances are naturally occurring or if corrective action will be required.

Lee Steam Electric Plant

127. On June 30, 1977, pursuant to N.C. Gen. Stat. § 143-215.1, other lawful statutes and regulations issued by the Commission, and the Clean Water Act, the DWQ issued NPDES Permit No. NC0003417 to the Progress Energy for the H.F. Lee Steam Electric Plant ("Lee Steam Electric Plant NPDES Permit"), located in Wayne County, North Carolina.

128. The Lee Steam Electric Plant NPDES Permit has been renewed subsequently. The current Lee Steam Electric Plant NPDES Permit was re-issued on October 14, 2009, with an effective date of November 1, 2009, and with an expiration date of May 31, 2013. A copy of the current Lee Steam Electric Plant NPDES Permit No. NC0003417 is attached hereto as Plaintiff's Exhibit No. 16, and is incorporated herein by reference.

129. The Lee Steam Electric Plant NPDES Permit was also modified on November 1, 2009, to reflect a name change.

130. On November 20, 2012, Defendant submitted a renewal application to the DWQ. While the renewal application is being processed, Defendant continues to operate the Lee Steam Electric Plant under the 2009 Lee Steam Electric Plant NPDES Permit.

131. The Lee Steam Electric Plant NPDES Permit authorizes the discharge of treated wastewater to receiving waters designated as the Neuse River in the Neuse River Basin in accordance with the effluent limitations, monitoring requirements and other conditions set forth in the Lee Steam Electric Plant NPDES Permit.

132. The Lee Steam Electric Plant NPDES Permit authorizes an Ash Pond Treatment System at Outfall 001 that discharges directly into the Neuse River. The Ash Pond receives ash transport water, including effluent from a Rotamix System, storm water runoff, various low volume wastes (such as filter plant blowdown and wash water, combustion turbine wash water), and precipitator and air pre-heater wash water.

133. The Lee Steam Electric Plant NPDES Permit authorizes the discharge of re-circulated condenser cooling water, non-contact cooling water, coal pile runoff, low volume waste, sanitary wastes, stormwater runoff and evaporative cooler wastewater and contaminant stormwater from the combustion turbine site directly into the Neuse River through Outfall 002.

134. The Lee Steam Electric Plant NPDES Permit authorizes the discharge of filter plant wastewater, equipment and contaminant drains, reverse osmosis reject and filter backwash, and quenched-heat recovery steam generator blowdown via Outfall 003 directly into the Neuse River. Generally, chemical metal cleaning wastes are treated by evaporation in boilers.

Unpermitted Seeps at the Lee Steam Electric Plant

135. As mentioned above, the Defendant's Lee Steam Electric Plant has three permitted outfalls discharging directly into the Neuse River which are included in the Lee Steam Electric Plant NPDES Permit.

136. Defendant's Lee Steam Electric Plant NPDES Permit does not authorize the Defendant to make any outlet or discharge any wastewater or stormwater other than those included in the Lee Steam Electric Plant NPDES Permit.

137. Upon information and belief, Plaintiff believes there are non-engineered seeps at Defendant's Lee Steam Electric Plant, which are at different locations from the outfalls described in the Lee Steam Electric Plant NPDES Permit.

138. A seep or discharge from the Ash Pond or any other part of the Lee Steam Electric Plant that is not included in the Lee Steam Electric Plant NPDES Permit is an unpermitted discharge in violation of N.C. Gen. Stat. § 143-215.1(a)(1) and (a)(6).

**Exceedances In Violation of the 2L Groundwater Standards
at the Lee Steam Electric Plant**

139. Plaintiff's Aquifer Protection staff compiled tables of the analytical results of groundwater samples collected at the Lee Steam Electric Plant from December 2010 through July 16, 2013, and prepared a chart of the Ash Pond Exceedances which are listed in the Lee Steam Electric Plant Ash Pond Exceedances Chart. See Plaintiff's Exhibit No. 9.

140. The Lee Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Arsenic (10 µg/L) in compliance well CMW-6 during six sampling events from December 2010 through June 2012, with a maximum concentration of 665 µg/L; in replacement well CMW-6R during two sampling events from October 2012 and March 2013, with concentrations of 30.2 µg/L and 10.2 µg/L, respectively; and in CMW-10 during one

sampling event in December 2010, with a concentration of 12 µg/L. Although Arsenic is a naturally occurring element, its presence in groundwater and specific occurrence at this site indicates impacts to groundwater resulting from the wastewater treatment and disposal associated with coal burning activities.

141. The Lee Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Boron (700 µg/L) in CMW-5 and CMW-6 (with the last two samples taken in CMW-6's replacement well CMW-6R) during eight sampling events from December 2010 through March 2013, with maximum concentrations of 3,940 µg/L and 4,940 µg/L, respectively; in CMW-8 during two sampling events in April 2012 and in March 2013, with concentrations of 754 µg/L and 1,170 µg/L, respectively; and in CW-3 during three sampling events from October 2011 through March 2012, with a maximum concentration of 947 µg/L. Although Boron is a naturally occurring element, its presence in groundwater and specific occurrence at this site indicates impacts to groundwater resulting from the waste water treatment and disposal associated with coal burning activities.

142. The Lee Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Chromium (10 µg/L) in CMW-10 during two sampling events in December 2010 and March 2012, with concentrations of 50.3 µg/L and 20.2 µg/L, respectively. Although Chromium is a naturally occurring element, its presence in groundwater and specific occurrence at this site indicates impacts to groundwater resulting from the wastewater treatment and disposal associated with coal burning activities.

143. Defendant's exceedances of the 2L Groundwater Standards for Arsenic, Boron, and Chromium at or beyond the compliance boundary of the Lee Steam Electric Plant are violations of the groundwater standards as prohibited by 15A NCAC 2L .0103(d).

Other Exceedances of 2L Groundwater Standards at the Lee Steam Electric Plant

144. The Lee Steam Electric Plant Ash Pond Exceedances Chart shows consistent exceedances from the 2L Groundwater Standard for Iron (300 µg/L) in compliance well BGMW-9 during eight sampling events from December 2010 through March 2013, with a maximum concentration of 2,960 µg/L; in compliance wells CMW-10, CMW-6/CMW-6R, and CMW-7 during eight sampling events from December 2010 through March 2013, with maximum concentrations of 33,600 µg/L, 11,200 µg/L and 12,400 µg/L, respectively; in compliance well BW-1 during five sampling events from October 2011 through March 2013, with a maximum concentration of 26,700 µg/L; in compliance well CMW-5 during six sampling events from December 2010 through March 2013, with a maximum concentration of 1,140 µg/L; in compliance well CW-2 during five sampling events from October 2011 through March 2013, with a maximum concentration of 17,500 µg/L; in compliance well CW-4 during five sampling events from October 2011 through March 2013; with a maximum concentration of 13,200 µg/L; in compliance well CTMW-1 during seven sampling events from December 2010 through March 2013, with a maximum concentration of 3,690 µg/L; in compliance wells CW-1 and CW-3 during four sampling events from October 2011 through March 2013, with maximum concentrations of 8,540 µg/L and 28,600 µg/L, respectively; and in compliance wells BGMW-10 and CMW-8 during one sampling event in March 2013 with maximum concentrations of 6,050 µg/L and 898 µg/L, respectively.

145. The Lee Steam Electric Plant Ash Pond Exceedances Chart consistently shows exceedances from the 2L Groundwater Standard for Manganese (50 µg/L) in compliance wells CMW-6/6R and CMW-7 during eight sampling events from December 2010 through March 2013, with maximum concentrations of 936 µg/L and 616 µg/L, respectively; in compliance wells CMW-10 and CTMW-1 during seven sampling events from December 2010 through

March 2013, with maximum concentrations of 732 µg/L and 102 µg/L, respectively; in compliance well BGMW-9 during six sampling events from December 2010 through October 2012, with a maximum concentration 322 µg/L; in compliance well CMW-5 during five sampling events from December 2010 through March 2012, with a maximum concentration of 163 µg/L; in compliance wells CW-1, CW-2, CW-3, CW-4, and BW-1 during eight sampling events from October 2011 through March 2013, with maximum concentrations of 494 µg/L, 205 µg/L, 3,080 µg/L, 1,260 µg/L and 1,130 µg/L, respectively; in compliance well CMW-8 during two sampling events in March 2012 and March 2013, with concentrations of 51.1 µg/L and 2,340 µg/L, respectively; and in compliance well BGMW-10 during one sampling event in March 2013, with a concentration of 83 µg/L.

146. The Lee Steam Electric Plant Ash Pond Exceedances Chart shows an exceedance from the 2L Groundwater Standard for Total Dissolved Solids (500 mg/L) in CW-1 during one sampling event in March 2012, with a concentration of 1,900 mg/L.

147. The DWR staff is working with the Defendant to determine if these exceedances are naturally occurring or if corrective action will be required.

Weatherspoon Steam Electric Plant

148. On March 20, 1980, pursuant to N.C. Gen. Stat. § 143-215.1, other lawful statutes and regulations issued by the Commission, and the Clean Water Act, the DWQ issued NPDES Permit No. NC0005363 to Progress Energy for the Weatherspoon Steam Electric Plant ("Weatherspoon Steam Electric Plant NPDES Permit"), located in Robeson County, North Carolina.

149. The Weatherspoon Steam Electric Plant NPDES Permit has been renewed subsequently. The current Weatherspoon Steam Electric Plant NPDES Permit was re-issued on

November 20, 2009, with an effective date of January 1, 2010, and with an expiration date of July 31, 2014. A copy of the current Weatherspoon Steam Electric Plant NPDES Permit No. NC0005363 is attached hereto as Plaintiff's Exhibit No. 17, and is incorporated herein by reference.

150. The Weatherspoon Steam Electric Plant NPDES Permit authorizes the continued discharge from a 225-acre cooling pond ("Ash Pond") under extremely severe weather conditions, where unavoidable to prevent loss of life, severe property damage, or damage to the cooling pond structure, or during pond maintenance. The Ash Pond receives recirculated cooling water, coal pile runoff, storm water runoff, ash sluice water, domestic wastewater, various low volume wastes including reject water from operation of a reverse osmosis water treatment unit, and chemical metal cleaning wastewater, discharged from Outfall 001 (potentially).

151. The Weatherspoon Steam Electric Plant NPDES Permit authorizes the continuous discharge of Non-Contact Cooling Water from heat exchanger units through Outfall 002.

152. The Weatherspoon Steam Electric Plant NPDES Permit authorizes a Stormwater Discharge System to discharge stormwater from outfalls SW-1, SW-2, and SW-3 into the Lumber River.

153. The effluent limitations and monitoring requirements in the Weatherspoon Steam Electric Plant NPDES Permit for the discharge from Outfall 001 (Ash Pond) require sampling for the following parameters: Flow, Oil and Grease, Total Suspended Solids, Total Copper, Total Iron, Total Arsenic, Total Selenium pH, Temperature and Acute Toxicity.

154. The effluent limitations and monitoring requirements in the Weatherspoon Steam Electric Plant NPDES Permit for the discharge from Outfall 002 (Non-Contact Cooling Water

system) require sampling for the following parameters: Flow, Temperature, Total Residual Chlorine, Time of Chlorine Addition and pH.

155. The effluent limitations and monitoring requirements in the Weatherspoon Steam Electric Plant NPDES Permit for the Stormwater Discharge System require sampling for the following parameters: 40 CFR Part 43 Appendix A 13 Priority Pollutant Metals, Aluminum, Boron, Chemical Oxygen Demand, Total Suspended Solids, Sulfate, Oil and Grease, pH and Total Rainfall. Stormwater from the Weatherspoon Plant must also be assessed for qualitative monitoring requirements, including: Color, Odor, Clarity, Floating Solids, Suspended Solids, Foam, Oil Sheen, Erosion or deposition at the outfall and other obvious indicators of stormwater pollution.

**Exceedances in Violation of 2L Groundwater Standards
at the Weatherspoon Steam Electric Plant**

156. The Aquifer Protection staff of Plaintiff's predecessor division compiled a table of the analytical results of groundwater samples collected at the Weatherspoon Steam Electric Plant from November 2010 through July 16, 2013, and prepared a chart of the Ash Pond Exceedances which are listed in in the Weatherspoon Steam Electric Plant Ash Pond Exceedances Chart. See Plaintiff's Exhibit No. 10.

157. The Weatherspoon Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the alternate 2L Groundwater Standard for Iron (above the naturally occurring background concentration of 2,040 µg/L) in compliance wells CW-1 and CW-3 during eight sampling events from November 2010 through March 2013, with concentrations ranging from 2,060 µg/L to 4,140 µg/L; and in monitoring well CW-3 during two sampling events in June 2011 and June 2012, with concentrations of 3,740 µg/L and 2,120 µg/L, respectively. Although Iron is a naturally occurring element, its presence in groundwater and specific occurrence at this

site indicates impacts to groundwater resulting from the waste water treatment and disposal associated with coal burning activities.

158. Defendant's exceedances of the 2L Groundwater Standards for Iron at or beyond the compliance boundary of the Weatherspoon Steam Electric Plant Ash Pond are violations of the groundwater standards as prohibited by 15A NCAC 2L.0103(d).

**Other Exceedances of 2L Groundwater Standards
at the Weatherspoon Steam Electric Plant**

159. The Weatherspoon Steam Electric Plant Ash Pond Exceedances Chart shows an exceedance from the 2L Groundwater Standard for Thallium (0.2 µg/L) in background monitoring well BW-1 during one sampling event in June 2012, with a concentration of 0.66 µg/L. Background monitoring well BW-1 is located at the compliance boundary of the Ash Pond Treatment System at the Weatherspoon Plant. Well BW-1 is located about 600 feet northwest of the active ash pond. Whether one exceedance of the Thallium standard is sufficient to constitute a violation is unclear.

160. The Weatherspoon Steam Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Manganese (50 µg/L) in monitoring well CW-1 during two sampling events in November 2010 and June 2011, with concentrations of 53.4 µg/L and 53.5 µg/L respectively; and in monitoring well CW-3 during one sampling event in March 2013, with a concentration of 55 µg/L.

161. The DWR staff is working with the Defendant to determine if these exceedances are naturally occurring or if corrective action will be required.

Sutton Electric Plant

162 On June 30, 1977, pursuant to N.C. Gen. Stat. § 143-215.1, other lawful statutes and regulations issued by the Commission, and the Clean Water Act, the DWQ issued NPDES Permit No. NC0001422 to the Progress Energy for the L. V. Sutton Electric Plant ("Sutton Electric Plant NPDES Permit"), located in New Hanover County, North Carolina.

163. The Sutton Electric Plant NPDES Permit has been renewed subsequently. The current Sutton Steam Electric Plant NPDES Permit was re-issued on December 2, 2011, with an effective date of January 1, 2012, and with an expiration date of December 31, 2016. A copy of the current Sutton Electric Plant NPDES Permit No. NC0001422 is attached hereto as Plaintiff's Exhibit No. 18, and is incorporated herein by reference.

164. The Sutton Electric Plant NPDES Permit authorizes the discharge of wastewater to receiving waters designated as the Cape Fear River in the Cape Fear River Basin in accordance with the effluent limitations, monitoring requirements and other conditions set forth in the Sutton Electric Plant NPDES Permit.

165. The Sutton Electric Plant NPDES Permit authorizes the discharge of cooling pond blowdown, recirculation cooling water, non-contact cooling water and treated wastewater from Internal Outfalls 002, Internal Outfall 003, and Internal Outfall 004 via Outfall 001, which discharges directly into the Cape Fear River, Class C-Swamp waters in the Cape Fear River Basin.

166. The Sutton Electric Plant NPDES Permit authorizes the discharge of coal pile runoff, low volume wastes, ash sluice water (including wastewater generated from the Rotomix system), and stormwater through Internal Outfall 002.

167 The Sutton Electric Plant NPDES Permit authorizes the discharge of chemical metal cleaning waste through Internal Outfall 003. Generally, chemical metal cleaning wastes are treated by evaporation in boilers.

168 The Sutton Electric Plant NPDES Permit authorizes the discharge of coal pile runoff, low volume wastes, and stormwater runoff from Internal Outfall 004.

169. The Sutton Electric Plant NPDES Permit authorizes the discharge of ultrafilter water treatment system filter backwash, closed cooling water cooler blowdown, reverse osmosis/electrodeionization system reject wastewater and other low volume wastewater to the Cooling Pond from new Internal Outfall 005 after beginning operation of a natural gas fired combined cycle generation facility.

170. The Sutton Electric Plant NPDES Permit authorizes the discharge of low volume wastewater including the heat recovery steam generator blowdown and auxiliary boiler blowdown into the cooling pond from the new Internal Outfall 006 after beginning operation of a natural gas fired combined cycle generation facility.

171. The effluent limitations and monitoring requirements in the Sutton Electric Plant NPDES Permit for discharges from Outfall 001 require sampling for the following parameters: Flow, Temperature, Total Residual Chlorine, Time of Chlorine Addition, Total Copper, Total Nitrogen, Total Phosphorus, Dissolved Oxygen, Acute Toxicity, Total Mercury, pH, Total Suspended Solids, Total Selenium, and Total Arsenic.

172. The effluent limitations and monitoring requirements in the Sutton Electric Plant NPDES Permit for discharges from Internal Outfall 002 require sampling for the following parameters: Flow, Oil and Grease, Total Suspended Solids, Total Arsenic, Total Selenium, and Amonia-Nitrogen.

173. The effluent limitations and monitoring requirements in the Sutton Electric Plant NPDES Permit for discharges from Internal Outfall 003 require sampling for the following parameters: Flow, Total Copper and Total Iron.

174. The effluent limitations and monitoring requirements in the Sutton Electric Plant NPDES Permit for discharges from Outfall 004 require sampling for the following parameters: Flow, Oil and Grease, Total Suspended Solids, Total Selenium, Total Arsenic and Ammonia-Nitrogen.

175. The effluent limitations and monitoring requirements in the Sutton Electric Plant NPDES Permit for Internal Outfall 005 require sampling for the following parameters: Flow, Oil and Grease, Total Suspended Solids, and pH.

176. The effluent limitations and monitoring requirements in the Sutton Electric Plant NPDES Permit for Internal Outfall 006 require sampling for the following parameters: Flow, Oil and Grease, Total Suspended Solids, and pH.

Exceedances in Violation of 2L Groundwater Standards at the Sutton Electric Plant

177. The groundwater monitoring requirements in the Sutton Electric Plant NPDES Permit require sampling the following compliance wells MW-4B (background), MW-5C (background), MW-7C, MW-11, MW-12, MW-19, MW-21C, MW-22B, MW-22C, MW-23B, MW-23C, MW-24B, MW-24C, MW-27B, MW-28B, MW-28C and MW-31C. All current wells being sampled are located at or beyond the Compliance Boundary. Prior to October 24, 2012, the groundwater monitoring requirements in the Sutton Electric Plant NPDES Permit required sampling the following wells MW-2C, MW-4B (background), MW-5C (background), MW-6C, MW-7C, MW-8, MW-9, MW-10, MW-11, MW-12, MW-17, MW-18, and MW-19. Some wells sampled prior to October 24, 2012, were located inside the Compliance Boundary.

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178. Plaintiff's Aquifer Protection staff compiled a table of the analytical results of groundwater samples collected at the Sutton Electric Plant from March 2010 through July 16, 2013, and prepared a chart of the Ash Pond Exceedances which are listed in the Sutton Electric Plant Ash Pond Exceedances Chart. *See* Plaintiff's Exhibit No. 11.

179. The Sutton Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Thallium (0.2 µg/L) in compliance wells MW-19 during four sampling events from October 2011 through March 2013, with a maximum concentration of 0.62 µg/L; and in compliance wells MW-22C and MW-24B during two sampling events in October 2012 and March 2013, with maximum concentrations of 0.35 µg/L and 0.586 µg/L, respectively. Although Thallium is a naturally occurring element, its presence in groundwater and specific occurrence at this site indicates impacts to groundwater resulting from the wastewater treatment and disposal associated with coal burning activities.

180. The Sutton Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Antimony (1 µg/L) in compliance well MW-24B during two sampling events in October 2012 and March 2013 with a maximum concentration of 1.1 µg/L. Although Antimony is a naturally occurring element, its presence in groundwater and specific occurrence at this site indicates impacts to groundwater resulting from the wastewater treatment and disposal associated with coal burning activities.

181. The Sutton Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Boron (700 µg/L) in compliance well MW-7C during two sampling events in March 2012 and June 2012, with a maximum concentration of 767 µg/L; in compliance well MW-12 during four sampling events from March 2012 through March 2013, with a maximum concentration of 1,510 µg/L; in MW-19 during five sampling events from

October 2011 through March 2013, with a maximum concentration of 1,940 µg/L; in compliance well MW-21C during two sampling events in October 2012 and March 2013, with a maximum concentration of 1,720 µg/L; in compliance well MW-22C during two sampling events in October 2012 and March 2013, with a maximum concentration of 2,100 µg/L; in compliance well MW-23B during two sampling events in October 2012 and March 2013 with a maximum concentration of 1,330 µg/L; in compliance well MW-23C during two sampling events in October 2012 and March 2013, with a maximum concentration of 2,580 µg/L; in compliance well MW-24B during two sampling events from in October 2012 and March 2013, with a maximum concentration of 1,420 µg/L; in compliance well MW-24C during two sampling events in October 2012 and March 2013, with a maximum concentration of 1,160 µg/L; in compliance well MW-28C during one sampling event in March 2013, with a concentration of 1,030 µg/L; and in compliance well MW-31C during sampling events in October 2012 and March 2013, with a maximum concentration of 1,120 µg/L. Although Boron is a naturally occurring element, its presence in groundwater and specific occurrence at this site indicates impacts to groundwater resulting from the wastewater treatment and disposal associated with coal burning activities.

182. The Sutton Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Selenium (20 µg/L) in compliance well MW-27B during two sampling events in October 2012 and March 2013, with a maximum concentration of 37.1 µg/L. Although Selenium is a naturally occurring element, its presence in groundwater and specific occurrence at this site indicates impacts to groundwater resulting from the wastewater treatment and disposal associated with coal burning activities.

183. The Sutton Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Total Dissolved Solids (500 mg/L) at compliance well MW-24C during two sampling events from October 2012 to March 2013, with a maximum concentration of 579 mg/L. The presence of Total Dissolved Solids in groundwater and the specific occurrence at this site indicates impacts to groundwater resulting from the wastewater treatment and disposal associated with coal burning activities.

184. The Sutton Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Sulfate (250 mg/L) in compliance well MW-21C during one sampling event in October 2012, with a concentration of 814 mg/L. Although Sulfate is a naturally occurring compound, its presence in groundwater and specific occurrence at this site indicates impacts to groundwater resulting from the waste water treatment and disposal associated with coal burning activities.

185. The Sutton Electric Plant Ash Pond Exceedances Chart consistently shows exceedances from the 2L GW standard for Manganese (50 µg/L) in compliance well MW-7C during four sampling events from March 2012 through March 2013, with a maximum concentration of 458 µg/L; in compliance well MW-12 during four sampling events from March 2012 through March 2013, with a maximum concentration of 281 µg/L; in compliance well MW-19 during three sampling events from October 2011 through March 2013, with a maximum concentration of 508 µg/L; in compliance well MW-21C during two sampling events in October 2012 and March 2013, with a maximum concentration of 1,460 µg/L; in compliance well MW-22B during one sampling event in October 2012, with a concentration of 116 µg/L; and in compliance wells MW-22C, MW-23B, MW-23C, MW 24B, MW-24C, MW-28C, and MW-31C during two sampling events in October 2012 and March 2013, with maximum concentrations of

798 µg/L, 348 µg/L, 1,150 µg/L, 805 µg/L, 2,360 µg/L, 367 µg/L and 1,800 µg/L, respectively. Although Manganese is a naturally occurring element, its presence in groundwater and specific occurrence at this site indicates impacts to groundwater resulting from the wastewater treatment and disposal associated with coal burning activities.

186. The Sutton Electric Plant Ash Pond Exceedances Chart consistently shows exceedances from the 2L Groundwater Standard for Iron (300 µg/L) in compliance well MW-11 during one sampling event in March 2011 with a concentration of 420 µg/L; in compliance well MW-21C during two sampling events in October 2012 and March 2013, with a maximum concentration of 7,680 µg/L; in compliance well MW-24C during one sampling event in October 2012, with a concentration of 2,860 µg/L; and in compliance well MW-31C during two sampling events in October 2012 and March 2013, with a maximum concentration of 2,820 µg/L. Although Iron is a naturally occurring element, its presence in groundwater and specific occurrence at this site indicates impacts to groundwater resulting from the waste water treatment and disposal associated with coal burning activities.

187. The Sutton Electric Plant Ash Pond Exceedances Chart shows an exceedance from the 2L Groundwater Standard for Lead (15 µg/L) in compliance well MW-12 during one sampling event in March 2012, with a concentration of 17.3 µg/L. Although Lead is a naturally occurring element, its presence in groundwater and specific occurrence at this site indicates impacts to groundwater resulting from the wastewater treatment and disposal associated with coal burning activities.

188. The Sutton Electric Plant Ash Pond Exceedances Chart shows an exceedance from the 2L Groundwater Standard for Arsenic (10 µg/L) in compliance well MW-21C during one sampling event in March 2013, with a concentration of 15 µg/L. Although Arsenic is a

naturally occurring element, its presence in groundwater and specific occurrence at this site indicates impacts to groundwater resulting from the waste water treatment and disposal associated with coal burning activities.

189. Defendant's exceedances of the 2L Groundwater Standards for Thallium, Antimony, Boron, Selenium, Total Dissolved Solids, Sulfate, Manganese, Iron, Lead and Arsenic at or beyond the compliance boundary of the Sutton Electric Plant Ash Ponds are violations of the groundwater standards as prohibited by 15A NCAC 2L.0103(d).

**Risk Factors Due to Exceedances of the 2L Groundwater Standards
at the Sutton Electric Plant**

190. Violations above 2L Groundwater Standards have been measured in compliance wells MW-7C, MW-19, MW-21C, MW-22B, MW-22C, MW-23B, MW-23C, and MW-28C which are located upgradient of two water supply wells (PW#3 and PW#4) serving the New Hanover Water System identified as CFPWA/NHC-421 (No. NC0465191). Water supply wells PW#3 and PW#4 are located approximately 2,200 feet from the compliance boundary or approximately 2,700 feet from the edge of the ash ponds.

191. Compliance well MW-7C has shown violations of the 2L Groundwater Standards for Boron, Iron, and Manganese. Compliance well MW-19 has shown pH, Boron, Iron, Manganese, and Thallium violations. Compliance well MW-21C has shown violations Sulfate, Arsenic, Boron, Iron, and Manganese. Compliance well MW-22B has shown pH and Manganese violations. Compliance well MW-22C has shown pH, Boron, Iron, Manganese, and Thallium violations. Compliance well MW-23B has shown pH, Boron, and Manganese violations. Compliance well MW-28C has shown pH, Boron, and Manganese.

Other Exceedances of the 2L Groundwater Standards at the Sutton Electric Plant

192. The Sutton Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Manganese (50 µg/L) in compliance well MW-10 during four sampling events from October 2011 to June 2012, with a maximum concentration of 96.7 µg/L; in compliance well MW-11 during four sampling events from March 2012 through March 2013, with a maximum concentration of 99.6 µg/L; in compliance well MW-27B during two sampling events in October 2012 and March 2013, with a maximum concentration of 229 µg/L; in background well MW-4B during one sampling event in June 2012, with a concentration of 265 µg/L; and in background well MW-5C during four sampling events from March 2012 to March 2013, with a maximum concentration of 447 µg/L.

193. The Sutton Electric Plant Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Iron (300 µg/L) in compliance well MW-7C during two sampling events in March 2012 and June 2012, with a maximum concentration of 707 µg/L; in compliance well MW-12 during four sampling events from March 2011 to October 2012, with a maximum concentration of 1,490 µg/L; in compliance well MW-19 during one sampling event in March 2010, with a concentration of 322 µg/L; in compliance well MW22-C during one sampling event in March 2013, with a concentration of 431 µg/L; in background well MW-4B during eight sampling events from March 2010 through March 2013, with a maximum concentration of 1,650 µg/L.

194. The Sutton Electric Plant Ash Pond Exceedances Chart consistently shows exceedances from the 2L Groundwater Standard for pH (6.5-8.5) in compliance wells MW-5C, MW-7C, MW-10, MW-11, MW-12, MW-19, MW-22B, MW-22C, MW-23B, MW-23C, MW-

24B, MW-24C, MW-27B, MW-28C, and MW-31C during eight sampling events from March 2010 through March 2013 with levels ranging from 4.5 to 6.47.

195. The DWR staff is working with the Defendant to determine if these exceedances are naturally occurring or if corrective action will be required.

CLAIMS FOR RELIEF

196. The allegations contained in paragraphs 1 through 195 are incorporated into these claims for relief as if fully set forth herein.

197. With the exception of the Weatherspoon Steam Electric Plant and the Sutton Electric Plant, which have no unpermitted seeps, Defendant's unpermitted seeps from the 4 of the 6 Facilities (Mayo, Roxboro, Cape Fear and Lee) are violations of N.C. Gen. Stat. §§ 143-215.1(a)(1) and (a)(6).

198. Defendant's exceedances of the groundwater standards for Sulfate at or beyond the compliance boundary of the Roxboro Steam Electric Plant Ash Pond are violations of the 2L Groundwater Standards as prohibited by 15A NCAC 2L.0103(d).

199. Defendant's exceedances of the groundwater standards for Boron, Selenium and Sulfate at or beyond the compliance boundary of the Cape Fear Steam Electric Plant Ash Ponds are violations of the 2L Groundwater Standards as prohibited by 15A NCAC 2L.0103(d).

200. Defendant's exceedances of the groundwater standards for Arsenic, Boron, and Chromium at or beyond the compliance boundary of the Lee Steam Electric Plant Ash Ponds Treatment System are violations of the 2L Groundwater Standards as prohibited by 15A NCAC 2L.0103(d).

201. Defendant's exceedances of the groundwater standards for Iron at or beyond the compliance boundary of the Weatherspoon Steam Electric Plant Ash Pond are violations of the 2L Groundwater Standards as prohibited by 15A NCAC 2L.0103(d).

202. Defendant's exceedances of the groundwater standards for Thallium, Antimony, Boron, Selenium, Total Dissolved Solids, Sulfate, Manganese, Iron, Lead and Arsenic at or beyond the compliance boundary of the Sutton Electric Plant Ash Ponds are violations of the 2L Groundwater Standards as prohibited by 15A NCAC 2L.0103(d).

203. Plaintiff is entitled to injunctive relief, as set forth more specifically in the prayer for relief, pursuant to N.C. Gen. Stat. § 143-215.6C.

204. Defendant's violations of N.C. Gen. Stat. §§ 143-215.1(a)(1) and (a)(6) for the unpermitted seeps and Defendant's violations and potential violations of the 2L Groundwater Standards, without assessing the problem and taking corrective action, poses a serious danger to the health, safety and welfare of the people of the State of North Carolina and serious harm to the water resources of the State.

PRAYER FOR RELIEF

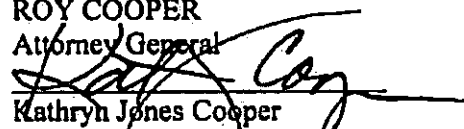
WHEREFORE, the Plaintiff, State of North Carolina, prays that the Court grant to it the following relief:

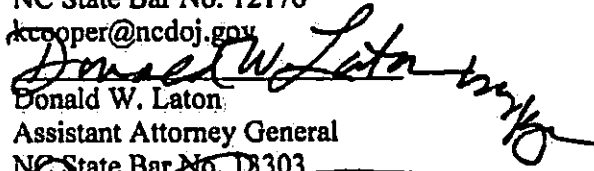
1. That the Court accepts this verified complaint as an affidavit upon which to base all orders of the Court;
2. That the Court preliminarily, and upon final judgment permanently enter a mandatory injunction requiring the Defendant to abate the violations of N.C. Gen. Stat. § 143-215.1, NPDES Permits and groundwater standards at the 6 Facilities;
3. That the Court preliminarily, and upon final judgment permanently enter a mandatory injunction requiring the Defendant take the steps required in the attached "Ash Ponds

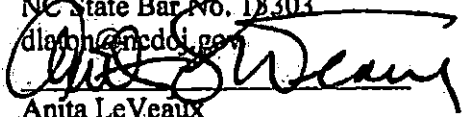
Assessment Needs", which is attached hereto as Plaintiff's Exhibit No. 19, and is incorporated herein by reference;

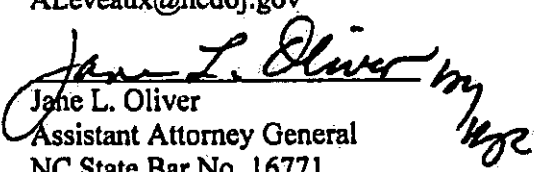
4. That the Defendant be taxed with the costs of this action;
5. Any other and further relief that the Court deems to be just and proper.

Respectfully submitted, this the 16th day of August, 2013.

By 
ROY COOPER
Attorney General
Kathryn Jones Cooper
Special Deputy Attorney General
NC State Bar No. 12176
kcooper@ncdoj.gov

By 
Donald W. Laton
Assistant Attorney General
NC State Bar No. 12303
dlaton@ncdoj.gov

By 
Anita LeVeaux
Assistant Attorney General
NC State Bar No. 13667
ALeVeaux@ncdoj.gov

By 
Jane L. Oliver
Assistant Attorney General
NC State Bar No. 16771
joliver@ncdoj.gov
N.C. Department of Justice
Environmental Division
Post Office Box 629
Raleigh, NC 27602-0629
(919) 716-6600 phone
(919) 716-6750 facsimile

Attorneys for the Plaintiff
State of North Carolina ex rel.
North Carolina Department of
Environment and Natural Resources

Doc Ex 2807



North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

Donald R. van der Vaart
Secretary

March 10, 2015

CERTIFIED MAIL - # 7004 2890 0004 0654 2115
RETURN RECEIPT REQUESTED

Harry K. Sideris
Senior Vice President
Environmental, Health & Safety
Duke Energy
526 South Church Street
Mail Code EC3XP
Charlotte, North Carolina 28202

SUBJECT: Assessment of Civil Penalties for Violation(s) of
N.C. General Statute(s) 143-215.1
L.V. Sutton Electric Plant
New Hanover County
NPDES Permit No. NC0001422
Enforcement File No. LV-2015-0035

Dear Mr. Sideris:

This letter transmits notice of a civil penalty assessed against Duke Energy in the amount of \$25,108,000.00, and \$8,883.61 in investigative costs, for a total of \$25,116,883.61. Attached is a copy of the assessment document explaining this penalty.

This action was taken under the authority vested in me by delegation provided by the Secretary of the Department of Environment and Natural Resources. Any continuing violation(s) may be the subject of a new enforcement action, including an additional penalty.

Within **thirty days** of receipt of this notice, you must do **one** of the following:

1. Submit payment of the penalty:

Payment should be made directly to the order of the Department of Environment and Natural Resources (do not include waiver form). Payment of the penalty will not foreclose further enforcement action for any continuing or new violation(s). Please submit payment to the attention of:

S. Jay Zimmerman, P.G.
Director, Division of Water Resources
1636 Mail Service Center
Raleigh, North Carolina 27699-1636

1611 Mail Service Center, Raleigh, North Carolina 27699-1611
Phone: 919-707-9000 \ Internet: <http://www.ncwater.org/>

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Apr 30 2019

Doc. Ex. 3808

Assessment of civil penalty
L.V. Sutton Electric Plant
Enforcement # LV-2015-0035

OR

2. Submit a written request for remission including a detailed justification for such request:

Please be aware that a request for remission is limited to consideration of the five factors listed below, as they may relate to the reasonableness of the amount of the civil penalty assessed. Requesting remission is not the proper procedure for contesting whether the violation(s) occurred or the accuracy of any of the factual statements contained in the civil penalty assessment document. Because a remission request forecloses the option of an administrative hearing, such a request must be accompanied by a waiver of your right to an administrative hearing and a stipulation and agreement that no factual or legal issues are in dispute. Please prepare a detailed statement that establishes why you believe the civil penalty should be remitted, and submit it to the Division of Water Resources at the address listed below. In determining whether a remission request will be approved, the following factors shall be considered:

- (1) whether one or more of the civil penalty assessment factors in NCGS 143B-282.1(b) were wrongfully applied to the detriment of the violator;
- (2) whether the violator promptly abated continuing environmental damage resulting from the violation;
- (3) whether the violation was inadvertent or a result of an accident;
- (4) whether the violator has been assessed civil penalties for any previous violations; or
- (5) whether payment of the civil penalty will prevent payment for the remaining necessary remedial actions.

Please note that all evidence presented in support of your request for remission must be submitted in writing. The Director of the Division of Water Resources will review your evidence and inform you of their decision in the matter of your remission request. The response will provide details regarding the case status, directions for payment, and provision for further appeal of the penalty to the Environmental Management Commission's Committee on Civil Penalty Remissions (Committee). Please be advised that the Committee cannot consider information that was not part of the original remission request considered by the Director. Therefore, it is very important that you prepare a complete and thorough statement in support of your request for remission.

In order to request remission, you must complete and submit the enclosed "Request for Remission of Civil Penalties, Waiver of Right to an Administrative Hearing, and Stipulation of Facts" form within thirty (30) days of receipt of this notice. The Division of Water Resources also requests that you complete and submit the enclosed "Justification for Remission Request." Both forms should be submitted to the following address:

S. Jay Zimmerman, P.G.
Director, Division of Water Resources
1636 Mail Service Center
Raleigh, North Carolina 27699-1636

OR

3. File a petition for an administrative hearing with the Office of Administrative Hearings:

If you wish to contest any statement in the attached assessment document you must file a petition for an administrative hearing. You may obtain the petition form from the Office of Administrative Hearings. You must file the petition with the Office of Administrative Hearings within thirty (30) days of receipt of

Doc. Ex. 3809

Assessment of civil penalty
L.V. Sutton Electric Plant
Enforcement # LV-2015-0035

this notice. A petition is considered filed when it is received in the Office of Administrative Hearings during normal office hours. The Office of Administrative Hearings accepts filings Monday through Friday between the hours of 8:00 a.m. and 5:00 p.m., except for official state holidays. The petition may be filed by facsimile (fax) or electronic mail by an attached file (with restrictions) - provided the signed original, one (1) copy and a filing fee (if a filing fee is required by NCGS §150B-23.2) is received in the Office of Administrative Hearings within seven (7) business days following the faxed or electronic transmission. You should contact the Office of Administrative Hearings with all questions regarding the filing fee and/or the details of the filing process. The mailing address and telephone and fax numbers for the Office of Administrative Hearings are as follows:

Office of Administrative Hearings
6714 Mail Service Center
Raleigh, NC 27699-6714
Tel: (919) 431-3000
Fax: (919) 431-3100

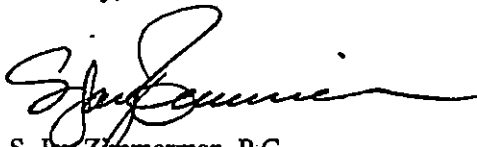
One (1) copy of the petition must also be served on DENR as follows:

Sam M. Hayes
General Counsel, DENR
1601 Mail Service Center
Raleigh, NC 27699-1601

Failure to exercise one of the options above within thirty (30) days of receipt of this notice, as evidenced by an internal date/time received stamp (**not a postmark**), will result in this matter being referred to the Attorney General's Office for collection of the penalty through a civil action.

Please be advised that additional penalties may be assessed for violations that occur after the review period of this assessment. If you have any questions, please contact S. Jay Zimmerman at (919) 807-6351.

Sincerely,



S. Jay Zimmerman, P.G.
Director, Division of Water Resources

ATTACHMENTS

cc: Jim Gregson, WQROS WiRO Supervisor w/ attachments
WQROS File Copy w/ attachments
WQ Permitting, Permit File NC0001422 w/ attachments
New Hanover County Health Department

Doc. Ex. 3810

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Apr 30 2019

STATE OF NORTH CAROLINA
COUNTY OF NEW HANOVER

DEPARTMENT OF ENVIRONMENT
AND NATURAL RESOURCES

| | | |
|-----------------------------|---|-------------------------------|
| IN THE MATTER OF ASSESSMENT |) | FINDINGS AND DECISIONS AND |
| OF CIVIL PENALTIES AGAINST |) | ASSESSMENT OF CIVIL PENALTIES |
| |) | |
| Duke Energy Progress, Inc. |) | |
| |) | |
| FOR VIOLATIONS OF: |) | |
| NCGS 143-215.1 |) | |
| 15A NCAC 2L .0103 (d) |) | |
| 15A NCAC 2L .0202 |) | FILE NO. LV-2015-0035 |

The Rules under the North Carolina Administrative Code Subchapter 2L (15A NCAC 02L) were established to maintain and preserve the quality of the groundwaters, prevent and abate pollution and contamination of the waters of the state, protect public health, and permit management of the groundwaters for their best usage by the citizens of North Carolina. It is the policy of the Environment Management Commission that the best usage of the groundwaters of the state is a source of drinking water. Therefore the intent of these Rules (15A NCAC 02L) is to protect the overall high quality of North Carolina's groundwater to the level established by the standards. With this intention and pursuant to North Carolina General Statutes (N.C.G.S.) 143-215.6(A) and the delegation provided by the Secretary of the Department of Environment and Natural Resources, I, Jay Zimmerman, Director of the Division of Water Resources (hereafter the Division), make the following:

I. FINDINGS OF FACT:

- A. Duke Energy Progress, Inc. (hereinafter Duke Energy) is a corporation organized and existing under the laws of the State of North Carolina and is in the business of electric power generation.
- B. Duke Energy owns and operates the L.V. Sutton Energy Complex, located at 801 Sutton Steam Plant Road, Wilmington, N.C. in New Hanover County (hereafter the facility).
- C. The groundwater in the area of the facility is classified as Class GA waters in accordance with the rules of the Environmental Management Commission, codified at Title 15A, North Carolina Administrative Code (NCAC), Subchapter 2L (15A NCAC 2L).
- D. The Compliance Boundary, as defined at 15A NCAC 2L .0102 (3), means a boundary around a disposal system at and beyond which groundwater quality standards may not be exceeded and only applies to facilities which have received a permit issued under authority of G.S. 143-215.1 or G.S. 130A.
- E. The Waste Boundary, as defined at 15A NCAC 2L .0102 (26), means the perimeter of the permitted waste disposal area.

Doc. Ex. 3811

- F. The Rules at 15A NCAC 2L .0103(d) prohibit any person from conducting, or causing to be conducted, any activity which causes the concentration of any substance to exceed that specified in 15A NCAC 2L .0202.
- G. The compliance boundary for disposal systems individually permitted prior to December 30, 1983, is established at a horizontal distance of 500 feet from the waste boundary or at the property boundary, whichever is closer to the source, pursuant to 15A NCAC 2L .0107(a).
- H. Permit No. NC0001422 was originally issued on June 30, 1977. On December 2, 2011, Carolina Power & Light d/b/a Progress Energy Carolinas, Inc. was issued the most recent NPDES permit No. NC0001422 for discharge of wastewater from the L.V. Sutton Energy Complex.
- I. By letter dated June 10, 2013, Duke Energy requested that all permits listed under Carolina Power & Light d/b/a Progress Energy Carolinas, Inc. be changed to Duke Energy Progress, Inc. This letter included an attachment listing all permits necessitating name changes, which included Permit No. NC0001422.
- J. Permit No. NC0001422 is required under North Carolina General Statute 143-215.1.
- K. Fly Ash and bottom Ash generated from coal combustion was stored in on-site Ash management areas. The Ash basin system consists of two Ash basins (built in approximately 1971 and 1984). This system is part of the Plant's wastewater treatment and disposal system covered under Permit No. NC0001422.
- L. Permit Condition A. (8) requires Groundwater Monitoring, well construction, and sampling in accordance with the Sampling Plan approved by the Division. The approved Groundwater Monitoring Plan for Permit No. NC0001422 established a Compliance Boundary around the permitted facility in accordance with the requirements of 15A NCAC 2L .0107(a).
- M. This disposal system was individually permitted prior to December 30, 1983; therefore the Compliance Boundary is established at either 500 feet from the effluent disposal area, or at the property boundary, whichever is closest to the effluent disposal area. Duke Energy does not meet the Rules in 15A NCAC 2L .0106(e)(2), and therefore, an exceedance of Groundwater Quality Standards at or beyond the Compliance Boundary is a violation subject to corrective action according to 15A NCAC 02L .0106(c).
- N. The approved Groundwater Monitoring Plan for Permit No. NC0001422 required monitoring for select groundwater parameters from monitor wells. The Groundwater Monitoring Plan was revised on March 17, 2011 and again on October 24, 2012.
- O. The Groundwater Quality Standards established in 15A NCAC 2L .0202 in Class GA waters for the following parameters are summarized in the following table:

| | |
|---------|----------|
| Arsenic | 10 ug/l |
| Boron | 700 ug/l |
| Iron | 300 ug/l |

Doc. Ex. 3812

| | |
|------------------------------|----------|
| Manganese | 50 ug/l |
| Selenium | 20 ug/l |
| Thallium | 0.2 ug/l |
| Total Dissolved Solids (TDS) | 500 mg/l |

- P. The Division received groundwater monitoring reports from Duke Energy beginning in 1995. Monitoring reports confirm that violations of the Groundwater Quality Standards have occurred at or beyond the compliance boundary at this facility.
- Q. Groundwater monitoring wells MW-4 and MW-5 represent background ambient conditions.
- R. The violations of Groundwater Quality Standards for Arsenic occurred in monitor well MW-21C, located at or beyond the Compliance Boundary. Concentrations of Arsenic were determined to be below detection levels in background wells. The concentrations of Arsenic in monitoring well(s) exceeded the Groundwater Quality Standards for the time period from October 2, 2013 through October 2, 2014, representing 365 days of continuous violation.
- S. The violations of Groundwater Quality Standards for Boron occurred in monitor wells MW-12, MW-19, MW-21C, MW-22C, MW-23B, MW-23C, MW-24B, MW-24C, and MW-31C located at or beyond the compliance boundary. Concentrations of Boron were determined to be below detection levels in background wells. The concentrations of Boron in monitoring well(s) exceeded the Groundwater Quality Standards for the time period from October 6, 2009 through October 2, 2014, representing 1,822 days of continuous violation.
- T. The violations of Groundwater Quality Standards for Iron occurred in monitor wells MW-21C, MW-24C, and MW-31C located at or beyond the compliance boundary. The concentrations of Iron in monitoring well(s) indicate a statistically significant difference when compared to the concentrations of Iron in the background wells, indicating an exceedance of the Groundwater Quality Standards for the time period from October 2, 2012 through October 2, 2014, representing 730 days of continuous violation.
- U. The violations of Groundwater Quality Standards for Manganese occurred in monitor wells MW-19, MW-21C, MW-22C, MW-23C, MW-24C, and MW-31C located at or beyond the compliance boundary. The concentrations of Manganese in monitoring well(s) indicate a statistically significant difference when compared to the concentrations of Manganese in the background wells, indicating an exceedance of the Groundwater Quality Standards for the time period from October 2, 2012 through October 2, 2014, representing 730 days of continuous violation.
- V. The violations of Groundwater Quality Standards for Selenium occurred in monitor well MW-27B, located at or beyond the compliance boundary. Concentrations of Selenium were determined to be below detection levels in background wells. The concentrations of Selenium in monitoring well(s) exceeded the Groundwater Quality Standards for the time period from October 2, 2012 through October 1, 2014, representing 729 days of continuous violation.
- W. The violations of Groundwater Quality Standards for Thallium occurred in monitor wells MW-19 and MW-24B located at or beyond the compliance boundary. Concentrations of

Doc. Ex. 3813

Thallium were determined to be below detection levels in background wells. The concentrations of Thallium in monitoring well(s) exceeded the Groundwater Quality Standards for the time period from March 9, 2010 through October 2, 2014, representing 1,668 days of continuous violation.

- X. The violations of Groundwater Quality Standards for Total Dissolved Solids (TDS) occurred in monitor well MW-24C located at or beyond the compliance boundary. Concentrations of TDS were determined to be below detection levels in background wells. The concentrations of TDS in monitoring well(s) exceeded the Groundwater Quality Standards for the time period from October 3, 2012 through October 1, 2014, representing 728 days of continuous violation.
- Y. On August 26, 2014, a Notice of Violation (NOV) and Notice of Intent to Enforce was issued to Duke Energy for conducting or controlling an activity that caused the concentration of contaminants in groundwater to exceed the groundwater standards adopted pursuant to N.C.G.S. 143-214.1 and set forth in 15A NCAC 2L .0202. The NOV was sent by Certified Mail, Return Receipt Requested and received on August 29, 2014.
- Z. The cost to the State of the enforcement procedures in this matter totaled \$8,883.61.

Based upon the above Findings of Fact, I make the following:

II. CONCLUSIONS OF LAW:

- A. Duke Energy Progress, Inc. is a "person" within the meaning of G.S. 143-215.6A pursuant to N.C.G.S. 143-212(4).
- B. Permit No. NC0001422 is required by N.C.G.S. 143-215.1.
- C. Permit No NC0001422 was originally issued on June 30, 1977.
- D. Compliance with all conditions set forth in Permit No. NC0001422 is required for wastewater treatment and disposal operations pursuant to G.S. 143-215.6A(a)(2).
- E. The Waste Boundary, as defined at 15A NCAC 2L .0102 (26), means the perimeter of the permitted waste disposal area.
- F. The Compliance Boundary, as defined at 15A NCAC 2L .0102 (3), means a boundary around a disposal system at and beyond which groundwater quality standards may not be exceeded and only applies to facilities which have received a permit issued under authority of G.S. 143-215.1 or G.S. 130A.
- G. Duke Energy violated 15A NCAC 2L .0103(d) by conducting an activity causing the concentration of contaminants in groundwater to exceed the groundwater standards adopted pursuant to N.C.G.S. 143-214.1 and set forth in 15A NCAC 2L .0202.

- H. Duke Energy violated N.C.G.S. 143-215.1. The Compliance Boundary for the disposal system is specified by regulations in 15A NCAC 2L, Groundwater Classifications and Standards. The Compliance Boundary for the disposal system constructed prior to December 30, 1983 is established at either (1) 500 feet from the waste disposal area, or (2) at the property boundary, whichever is closest to the waste disposal area. An exceedance of Groundwater Quality Standards at or beyond the Compliance Boundary is subject to Corrective Action in addition to the penalty provisions applicable under General Statute 143-215.6A(a)(1). The violations are a result from the sampling of the site's monitoring wells demonstrating the facility to be in violation of the Groundwater Quality Standards.
- I. Duke Energy violated 15A NCAC 2L .0202 and -.0103 on 365 days by exceeding the standard referenced in 15A NCAC 2L .0202 for Arsenic at or beyond the compliance boundary in monitor well(s) MW-21C, from October 2, 2013 through October 2, 2014.
- J. Duke Energy violated 15A NCAC 2L .0202 and -.0103 on 1,822 days by exceeding the standard referenced in 15A NCAC 2L .0202 for Boron at or beyond the compliance boundary in monitor well(s) MW-12, MW-19, MW-21C, MW-22C, MW-23B, MW-23C, MW-24B, MW-24C, and MW-31C, from October 6, 2009 through October 2, 2014.
- K. Duke Energy violated 15A NCAC 2L .0202 and -.0103 on 730 days by exceeding a statistically-established concentration that is higher than the standard referenced in 15A NCAC 2L .0202 for Iron, at or beyond the compliance boundary in monitor well(s) MW-21C, MW-24C, and MW-31C, from October 2, 2012 through October 2, 2014.
- L. Duke Energy violated 15A NCAC 2L .0202 and -.0103 on 730 days by exceeding a statistically-established concentration that is higher than the standard referenced in 15A NCAC 2L .0202 for Manganese, at or beyond the compliance boundary in monitor well(s) MW-19, MW-21C, MW-22C, MW-23C, MW-24C, and MW-31C, from October 2, 2012 through October 2, 2014.
- M. Duke Energy violated 15A NCAC 2L .0202 and -.0103 on 729 days by exceeding the standard referenced in 15A NCAC 2L .0202 for Selenium at or beyond the compliance boundary in monitor well(s) MW-27B, from October 2, 2012 through October 1, 2014.
- N. Duke Energy violated 15A NCAC 2L .0202 and -.0103 on 1,668 days by exceeding the standard referenced in 15A NCAC 2L .0202 for Thallium at or beyond the compliance boundary in monitor well(s) MW-19 and MW-24B, March 9, 2010 through October 2, 2014.
- O. Duke Energy violated 15A NCAC 2L .0202 and -.0103 on 728 days by exceeding the standard referenced in 15A NCAC 2L .0202 for Total Dissolved Solids (TDS) at or beyond the compliance boundary in monitor well(s) MW-24C, October 3, 2012 through October 1, 2014.
- P. N.C.G.S. 143-215.6A(a)(1) provides that the Secretary of the Department of Environment and Natural Resources may assess a civil penalty of not more than \$25,000.00 against any person who violates any classification, standard, limitation or management practice established pursuant to N.C.G.S. 143-214.1, 143-214.2 or 143-215.

Doc. Ex. 3815

Q. N.C.G.S. 143-215.6A(b) provides that if any action or failure to act for which a penalty may be assessed under this section is continuous, the Secretary may assess a penalty not to exceed twenty-five thousand dollars (\$25,000) per day for so long as the violation continues, unless otherwise stipulated.

R. N.C.G.S. 143-215.3(a)(9) provides that the reasonable costs of any investigation, inspection, or monitoring survey may be assessed against a person who violates any regulation, standards or limitations adopted by the Environmental Management Commission.

III. DECISION:

Pursuant to N.C.G.S. 143-215.6A, in determining the amount of the penalty, I have taken into account the Findings of Fact and Conclusions of Law and considered all the factors listed in N.C.G.S. 143B-282.1. Accordingly, Duke Energy shall be, and hereby is assessed a civil penalty of:

\$ 1,825,000.00 For violation of N.C.G.S. 143-215.1, 15A NCAC 2L .0202 and -.0103 on 365 days by exceeding the standard referenced in 15A NCAC 2L .0202 for Arsenic at or beyond the compliance boundary in monitor well(s) MW-21C, from October 2, 2013 through October 2, 2014 for a period of 365 days.

\$ 9,110,000.00 For violation of N.C.G.S. 143-215.1, 15A NCAC 2L .0202 and -.0103 on 1,822 days by exceeding the standard referenced in 15A NCAC 2L .0202 for Boron at or beyond the compliance boundary in monitor well(s) MW-12, MW-19, MW-21C, MW-22C, MW-23B, MW-23C, MW-24B, MW-24C, and MW-31C, from October 6, 2009 through October 2, 2014 for a period of 1,822 days.

\$ 730,000.00 For violation of N.C.G.S. 143-215.1, 15A NCAC 2L .0202 and -.0103 on 730 days by exceeding a statistically-established concentration that is higher than the standard referenced in 15A NCAC 2L .0202 for Iron, at or beyond the compliance boundary in monitor well(s) MW-21C, MW-24C, and MW-31C, from October 2, 2012 through October 2, 2014, for a period of 730 days.

\$ 730,000.00 For violation of N.C.G.S. 143-215.1, 15A NCAC 2L .0202 and -.0103 on 730 days by exceeding a statistically-established concentration that is higher than the standard referenced in 15A NCAC 2L .0202 for Manganese, at or beyond the compliance boundary in monitor well(s) MW-19, MW-21C, MW-22C, MW-23C, MW-24C, and MW-31C, from October 2, 2012 through October 2, 2014, for a period of 730 days.

\$ 3,645,000.00 For violation of N.C.G.S. 143-215.1, 15A NCAC 2L .0202 and -.0103 on 729 days by exceeding the standard referenced in 15A NCAC 2L .0202 for Selenium at or beyond the compliance boundary in monitor well(s) MW-27B, from October 2, 2012 through October 1, 2014, for a period of 729 days.

\$ 8,340,000.00 For violation of N.C.G.S. 143-215.1, 15A NCAC 2L .0202 and -.0103 on 1,668 days by exceeding the standard referenced in 15A NCAC 2L .0202 for Thallium

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Apr 30 2019

Doc. Ex. 3816

at or beyond the compliance boundary in monitor well(s) MW-19 and MW-24B, from March 9, 2010 through October 2, 2014, for a period of 1,668 days.

\$ 128,000.00 For violation of N.C.G.S. 143-215.1, 15A NCAC 2L .0202 and -.0103 on 728 days by exceeding the standard referenced in 15A NCAC 2L .0202 for Total Dissolved Solids (TDS) at or beyond the compliance boundary in monitor well(s) MW-24C, from October 3, 2012 through October 1, 2014, for a period of 728 days.

\$ 25,108,000.00 **TOTAL CIVIL PENALTY** which is 20 percent of the maximum penalty authorized by N.C.G.S. 143-215.6A; and

\$ 8,883.61 Enforcement costs

\$ 25,116,883.61 **TOTAL AMOUNT DUE**

Pursuant to N.C.G.S. 143-215.6A(c), in determining the amount of the penalty I have taken into account the Findings of Fact and Conclusions of Law and the factors set forth at N.C.G.S. 143B-282.1(b), which are:

- (1) The degree and extent of harm to the natural resources of the State, to the public health, or to private property resulting from the violation;
- (2) The duration and gravity of the violation;
- (3) The effect on ground or surface water quantity or quality or on air quality;
- (4) The cost of rectifying the damage;
- (5) The amount of money saved by noncompliance;
- (6) Whether the violation was committed willfully or intentionally;
- (7) The prior record of the violator in complying or failing to comply with programs over which the Environmental Management Commission has regulatory authority; and
- (8) The cost to the State of the enforcement procedures.

IV. NOTICE:

I reserve the right to assess civil penalties and investigative costs for any continuing violations occurring after the assessment period indicated above. Each day of a continuing violation may be considered a separate violation subject to a maximum \$25,000.00 per day penalty. Civil penalties and investigative cost may be assessed for any other rules and statutes for which penalties have not yet been assessed.


Doc. Ex. 3817

V. TRANSMITTAL:

This Civil Penalty Assessment is directed to be transmitted to Duke Energy , in accordance with N.C.G.S. 143-215.6A(d).

3/10/2015

Date


S. Jay Zimmerman, P.G.
Director, Division of Water Resources

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Apr 30 2019

Doc. Ex. 3818

STATE OF NORTH CAROLINA

DEPARTMENT OF ENVIRONMENT
AND NATURAL RESOURCES

COUNTY OF NEW HANOVER

IN THE MATTER OF ASSESSMENT
OF CIVIL PENALTIES AGAINST

) WAIVER OF RIGHT TO AN
) ADMINISTRATIVE HEARING AND
) STIPULATION OF FACTS

DUKE ENERGY PROGRESS
L.V. SUTTON ELECTRIC PLANT

PERMIT NO. NC0001422

)
)
)
)
) FILE NO. LV-2015-0035

Having been assessed civil penalties totaling \$25,116,883.61 for violation(s) as set forth in the assessment document of the Division of Water Resources dated, March 10, 2015, the undersigned, desiring to seek remission of the civil penalty, does hereby waive the right to an administrative hearing in the above-stated matter and does stipulate that the facts are as alleged in the assessment document. The undersigned further understands that all evidence presented in support of remission of this civil penalty must be submitted to the Acting Director of the Division of Water Resources within thirty (30) days of receipt of the notice of assessment. No new evidence in support of a remission request will be allowed after thirty (30) days from the receipt of the notice of assessment.

This the _____ day of _____, 2015

Signature

ADDRESS

TELEPHONE

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Apr 30 2019

Doc. Ex. 3819
JUSTIFICATION FOR REMISSION REQUEST

Case Number: LV-2015-0035

County: New Hanover

Assessed Party: Duke Energy Progress – L.V. Sutton Electric Plant

Permit No.: NC0001422

Amount assessed: \$25,116,883.61

Please use this form when requesting remission of this civil penalty. You must also complete the "Request For Remission, Waiver of Right to an Administrative Hearing, and Stipulation of Facts" form to request remission of this civil penalty. You should attach any documents that you believe support your request and are necessary for the Director to consider in determining your request for remission. Please be aware that a request for remission is limited to consideration of the five factors listed below as they may relate to the reasonableness of the amount of the civil penalty assessed. Requesting remission is not the proper procedure for contesting whether the violation(s) occurred or the accuracy of any of the factual statements contained in the civil penalty assessment document. By law [NCGS 133-215.6A(f)] remission of a civil penalty may be granted when one or more of the following five factors applies. Please check each factor that you believe applies to your case and provide a detailed explanation, including copies of supporting documents, as to why the factor applies (attach additional pages as needed).

- ☐ (a) one or more of the civil penalty assessment factors in NCGS 143B-282.1(b) were wrongfully applied to the detriment of the petitioner (the assessment factors are included in the attached penalty matrix and/or listed in the civil penalty assessment document);
- ☐ (b) the violator promptly abated continuing environmental damage resulting from the violation (i.e., explain the steps that you took to correct the violation and prevent future occurrences);
- ☐ (c) the violation was inadvertent or a result of an accident (i.e., explain why the violation was unavoidable or something you could not prevent or prepare for);
- ☐ (d) the violator had not been assessed civil penalties for any previous violations;
- ☐ (e) payment of the civil penalty will prevent payment for the remaining necessary remedial actions (i.e., explain how payment of the civil penalty will prevent you from performing the activities necessary to achieve compliance).

EXPLANATION:

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Apr 30 2019

Wright NC Public Staff Rebuttal Cross Exhibit 7 – Settlement Agreement
[dated 29 September 2015]

[DUPLICATE – *see* Wittliff Direct Exhibit 5.5]

DEQ and Duke Energy reach an estimated \$20 million settlement

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DEQ and Duke Energy reach an estimated \$20 million settlement

Raleigh

Sep 29, 2015

RALEIGH – The North Carolina Department of Environmental Quality, or DEQ, reached a settlement with Duke Energy today that holds Duke Energy accountable for groundwater contamination at all of its 14 coal ash facilities and requires accelerated cleanup of groundwater contamination at four sites. Duke Energy will pay an estimated \$20 million as a result of the settlement, which includes accelerating the clean-up of groundwater contamination at its Sutton Plant near Wilmington, Asheville Plant, H.F. Lee Plant in Goldsboro and at the Belews Creek Steam Station.

"This agreement holds Duke Energy accountable for past groundwater contamination and mandates that Duke Energy expeditiously clean up polluted groundwater near its coal ash sites," said DEQ Secretary Donald R. van der Vaart. "Our chief goal is to protect the environment and public health while requiring corrective action to restore groundwater quality. This settlement resolves the issue of fines for past violations and allows DEQ to commit all of its resources to overseeing Duke Energy's clean-up process."

In March 2015, DEQ levied a \$25.1 million fine against Duke Energy for groundwater contamination from coal ash at its Sutton facility. Duke Energy challenged in court DEQ's ability to issue fines for groundwater contamination based on a 2011 policy memo.

The 2011 policy memo, written by the Perdue administration, did provide for penalties to be assessed under certain circumstances. However, communication between the Perdue administration and Duke Energy discovered during the legal process makes it clear that the intent of the memo was to favor corrective action in lieu of fines. The McCrory administration

will immediately rescind the 2011 policy to clarify that state government has all the tools required to enforce the law and penalize future polluters in addition to requiring clean-up of contaminated sites.

The settlement includes \$7 million in fines and penalties for past groundwater contamination at all of its 14 coal ash facilities and an estimated \$10-\$15 million in accelerated remediation costs. The settlement requirements are in addition to Duke Energy's obligation under the Coal Ash Management Act of 2014 to close all of its coal ash ponds by 2029 and clean up all environmental damage caused by years of improper coal ash storage. Along with resolving the legal case, the estimated \$20 million settlement prevents the state from incurring additional legal fees associated with protracted litigation.

"North Carolina looks forward to working with all energy providers to supply clean, affordable power to the citizens of the state while protecting the environment and public health," said Secretary van der Vaart.

This press release is related to:

NCDEQ (/news/press-releases?

field_agency_department_tid=642&field_agency_department_tid_op=or)

Contact Information

Crystal Feldman

Crystal.Feldman@ncdenr.gov (mailto:Crystal.Feldman@ncdenr.gov)

919-707-8624

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[u=https%3A%2F%2Fdeq.nc.gov%2Fpress-release%2Fdeq-and-duke-energy-reach-estimated-20-million-settlement\)](https://www.facebook.com/sharer/sharer.php?u=https%3A%2F%2Fdeq.nc.gov%2Fpress-release%2Fdeq-and-duke-energy-reach-estimated-20-million-settlement)



**Public Staff
Junis Exhibit 14**

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Catherine B. Templeton, Director

Promoting and protecting the health of the public and the environment

February 27, 2014

CERTIFIED MAIL 91-7108-2133-3939-6234-5597

Mr. Allen Stowe, Water Management
Duke Energy Corporation
P.O. Box 1006 Mail Code EC121
Charlotte, North Carolina, 28201-1006

Re: Notice of Violation 153497
Duke Energy/Lee Steam Station (Site)
NPDES Permit SC0002291
Anderson County

Jan 24 2018
Apr 30 2019

Dear Mr. Stowe:

A February 24, 2014 Department Site visit and a review of the file for the referenced facility has found Duke Energy Corporation to be in violation of the reporting and maintenance requirements of the NPDES Permit. Annual coal ash basin monitoring reports for the monitoring periods ending July 31, 2011, July 31, 2012 and July 31, 2013 were not submitted annually as required. The referenced reports were submitted electronically February 21, 2014. Department review of these reports as well as the Department's February 24, 2014 Site visit has revealed the following concerns:

1. All areas of the dams that are not armored against erosion must be protected by a well-established dense stand of short growing grass. The dam holding back the secondary ash basin has trees and other deleterious vegetation taking hold near the toe drain directly below where seepage is daylighting from the dam embankment and foundation. All woody vegetation must be removed from the dams.
2. Erosion must be repaired on the upstream slope of the secondary ash pond.
3. All equipment required for lowering the basin levels must be available and properly maintained.
4. Visible seepage was observed emerging from the toe of slope on the secondary ash basin. In order to address this concern, a South Carolina registered professional engineer must develop the plan to address the visible seepage. Any repairs to the dam will require a DHEC permit from the Dams and Reservoirs Safety Program.

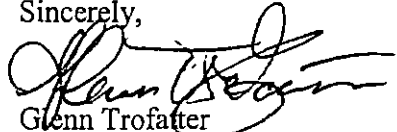
5. It is unclear whether the annual inspections of the ash basins were performed by a SC-registered PE. This is a requirement per Part V.E.7.b(1) of the permit. Please address whether the inspections were done in accordance with this requirement.
6. The status of several recommendations from the previous annual inspection reports in 2010 (section 12.1) and 2011 (Section 5.0) indicates that not all recommendations have been completed. Please provide explanation as to why these items have not yet been performed and a schedule of implementation for completing any work.
7. The recommendations indicate that the upstream slopes on both ash basin dams need to be retrofitted with soil berms to increase safety factors. This does not appear to have been accomplished to date. How is Duke planning to address this issue and when?
8. Recommendations from previous inspections include monitoring the shoreline in both ash basins for erosion and repair as necessary. Were any repairs necessary and were these repairs performed?
9. What does rusting of the hoist pulley in the primary ash basin discharge tower affect? What is the pulley used for?
10. Divider Dike: The status of repairs to the animal path is incomplete in the table in Attachment 1 of the 2012 report. Burrowing animals must be removed and any damage that has occurred from their presence must be repaired.
11. Divider Dike: From a site visit on February 24, 2014, it appears that the drainage ditch south of the dam has been repaired to prevent erosion and short-circuiting of runoff into the secondary basin. Please confirm this as it relates to the comment on the bottom of Page 7 of the 2012 inspection report.
12. Recommendations from the 2010 EPA report show that the seepage monitoring plan is complete. What was included in this plan and what was done to implement it? We understand that the seepage results provided to the Department on February 21, 2014 are actually results of sampling the storm water outfalls beyond each toe drain. Is there any monitoring data for the seeps before mixing with other waters into the toe drain?
13. Please explain the piezometer water level readings and how it was determined that there are no changes or anomalies to note in the report. Also, ensure all piezometers are painted and correctly labeled and ensure they all have lid covers.

You are hereby notified that failure to comply with the reporting requirements of the NPDES Permit is a violation of the Pollution Control Act, S.C. Code Ann. 48-1-110(d) (2008) and Water Pollution Control Permits, 3 S.C. Code Ann. Regs. 61-9.122.41(l) (4) (2011). The violations make Duke Energy Corporation subject to further enforcement action, which may include assessment of civil penalties as set forth in the Pollution Control Act, S.C. Code Ann. 48-1-330 (2008).

You are requested to submit a written response within ten (10) days of receipt of this notice. Your response should include an explanation for the violations cited above and measures that have been or will be taken to ensure compliance with permit conditions as well as address the Department concerns noted above. This response will not relieve Duke Energy Corporation of responsibility for the violations cited.

If you have any questions concerning this notice, you may call me at 803-898-4233. I will be glad to assist you.

Sincerely,



Glenn Trofatter
Water Pollution Control Division
Bureau of Water

cc: Chris McCluskey, Upstate Region, Anderson Office

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Jan 24 2018
Apr 30 2019



RECEIVED

MAR 11 2014

WATER POLLUTION CONTROL
DIVISION

Public Staff
Junis Exhibit 15
Environmental Services

Duke Energy
526 South Church Street
Charlotte, NC 28202

Mailing Address:
Mail Code EC13K/ P.O. Box 1006
Charlotte, NC 28201-1006

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March 7, 2014

South Carolina Department of Health
and Environmental Control
Bureau of Water
Water Pollution Control Division
2600 Bull Street
Columbia, SC 29201

Subject: Duke Energy Carolinas, LLC
Lee Steam Station
NPDES Permit #SC0002291
Notice of Violation 153497

Attention: Mr. Glenn Trofatter

Dear Mr. Trofatter:

Please find attached the written response of Duke Energy Carolinas, LLC (Duke Energy) to the Notice of Violation #153497 dated February 27, 2014 issued to Lee Steam Station following a dam inspection conducted by South Carolina Department of Health and Environmental Control on February 24, 2014. While our response addresses each of the concerns contained in the NOV, we believe several of those concerns merit further discussion with you to provide background on plans for the plant. To that end, we request an opportunity to meet with you to cover these matters.

We are also engaged in a comprehensive review of Duke Energy impoundments in the Carolinas and would welcome the opportunity to provide you a briefing on that undertaking as well.

Finally, after you have reviewed the attached response, if there is any documentation you require in addition to that provided, please advise.

We will continue our efforts to assure these issues are resolved in a timely manner.

If you have any questions concerning these responses, please contact Allen Stowe at (704) 382-4309.

Sincerely,

Terry Taylor
General Manager II
Lee Steam Station

Jan 24 2018
Apr 30 2019

Response to WS Lee NOV (2/27/14)

Concern 1. All areas of the dams that are not armored against erosion must be protected by a well established dense stand of short growing grass. The dam holding back the secondary ash basin has trees and other deleterious vegetation taking hold near the toe drain directly below where seepage is daylighting from the dam embankment and foundation. All woody vegetation must be removed from the dam.

Response: The woody vegetation noted has been removed.

Concern 2. Erosion must be repaired on the upstream slope of the secondary ash pond.

Response: We will develop an engineered repair plan, which includes drawings, specifications, and calculations, by May 30, 2014. We will work through the permitting process of the SCDHEC Dams and Reservoirs Safety Program to address the issue. We will begin work as soon as the permit is received.

Concern 3. All equipment required for lowering the basin levels must be available and properly maintained.

Response: The reservoir levels can be adjusted via removal or adding stop log to the discharge structure. The stop logs are placed/removed through use of a portable hoist and appropriate rigging equipment. This equipment is maintained in the station warehouse. Equipment is inspected before use and again after use when returned to the warehouse. Defective equipment is either discarded or repaired.

Concern 4. Visible seepage was observed emerging from the toe of the slope on the secondary ash basin. In order to address this concern, a South Carolina registered professional engineer must develop the plan to address the visible seepage. Any repairs to the dam will require a DHEC permit from the Dams and Reservoirs Safety Program.

Response: We understand that the installation of a weir and regular monitoring will satisfy the expressed concern by SCDHEC. Duke Energy will develop a plan to install a weir or a similar type of instrument to monitor seepage at the toe of the secondary dam as part of the engineered plan described in the response to concern 2.

Concern 5. It is unclear whether the annual inspections of the ash basins were performed by a SC registered PE. This is a requirement per Part V.E.7.b(1) of the permit. Please address whether the inspections were done in accordance with this requirement.

Response: In compliance with South Carolina Board of Registration for Professional Engineers and Surveyors Law and Regulation Reference Manual Section 40-22-280, (5), the annual inspections performed by Duke Energy employees were under the responsible charge of a professional engineer registered in South Carolina. The reports prepared by Duke Energy were prepared for internal use. These previously submitted reports have been amended to add the signature and seal of the registered engineer. The amended reports are enclosed.

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Jan 24 2018
Apr 30 2019

Concern 6. The status of several recommendations from the previous annual inspection reports in 2010 (section 12.1) and 2011 (Section 5 .0) indicates that not all recommendations have been completed. Please provide explanation as to why these items have not yet been performed and a schedule of implementation for completing any work.

Response: Duke Energy addressed each of the recommendations from the previous 2010 Specific Site Assessment for Coal Combustion Waste Impoundments (report prepared by GEI Consultants, Inc. on behalf of the US EPA) and 2011 Report of Internal Inspection as follows:

From the 2010 EPA report, section 12.1 Corrective Measures and Analyses for the Structures:

1. *We recommend formal monitoring and analysis of the seepage area downstream of the right abutment of the Secondary Ash Basin in order to evaluate whether seepage could potentially compromise the stability of the dam. Monitoring should include installation of a weir and grading to direct seepage toward the weir. The weir should then be monitored monthly in order to establish a baseline measurement of seepage quantity. Continued monitoring will then show whether the seepage quantity changes with time. In addition, we recommend measuring turbidity in the seepage. A large amount of fines in the seepage could indicate piping of material through the dam.*

Response:

Since 2012, the seepage from the above basins are monitored quarterly during the normal visual inspections required for the current Stormwater Pollution Prevention Plan (SWPP) prepared for Lee Steam Station. Under the SWPP, stormwater samples are required to be collected on a quarterly basis from stormwater outfalls at the facility for the life of the permit term. This includes three separate locations where seepage is collected from the primary and secondary toe drains as well as the seepage occurring along the right abutment of the secondary ash dike. Each of the three outfalls are monitoring points where the flow is photographed and the photos are filed and recorded for easy comparison with previous photographs to determine changes, trends, sedimentation and clarity. All photos are taken from the same approximate angle for easier comparisons. The purpose of the photos is to depict any change in flow so trends can be identified. This recommendation is complete.

2. *We recommend updated stability analyses be performed for both dams and the divider dike. Stability analyses for the dams should include piezometric surfaces based on recent readings of the standpipe piezometers installed on the downstream face. A further evaluation of the upstream slope steady state seepage and rapid drawdown load cases should be performed. Stability analyses should include pseudo-static seismic analyses.*

Response:

Duke Energy completed a supplemental stability analysis for the primary and secondary dikes using updated stability models to reflect current piezometric surfaces. The analyses consider steady-state, rapid drawdown, and pseudo-static loading conditions. The findings of the supplemental stability analysis are discussed in the response to concern 7. This recommendation is complete.

3. *The liquefaction potential of the sandy silt comprising the embankment fill and the foundation should be evaluated.*

Response:

Duke Energy will perform a liquefaction susceptibility analysis if materials that comprise the dam embankments or foundations appear potentially liquefiable as determined by the current state of engineering practice. Please note Section 9.5 of the EPA report states:

"Certain conditions are necessary for liquefaction, including saturated, loose, granular soils and an earthquake of sufficient magnitude and duration to cause significant strength loss in the soil. The soils comprising the dam and the foundation are described as micaceous sandy silt. The borings drilled in 1984 for the divider dike study indicate that blow counts as low as 3 to 4 blows per foot were obtained near the surface in the foundation soils. These soils may be susceptible to liquefaction when subjected to the design earthquake."

We understand that the main factors for triggering liquefaction are earthquake intensity/duration, groundwater elevation, soil type, soil relative density, particle size gradation, placement conditions, drainage conditions, confining pressures, and aging. It appears the opinion in the EPA report loosely correlates the low "blow counts" (SPT N-values) to liquefaction potential. Duke Energy does not concur with this opinion.

Alternately, we have reviewed the available laboratory data associated with these materials where low N-values were recorded. It appears that the low SPT N-values are not indicative of liquefiable soils or representative of the soil's actual density or shear strength. This is evidenced by the triaxial shear strength test data, which indicates these low N-value materials actually exhibit relatively high shear strength properties and densities. Instead, these N-values recorded in this soil stratum were likely augmented (lowered) due to the presence of shallow ground water. This phenomenon can occur if the level of water in the borehole is less than in situ groundwater level. Also, saturated soils with appreciable silt content may contract during the undrained shear conditions associated with driving the SPT sampler producing abnormally low N-values.

Furthermore, review of the boring logs indicates these soils are generally classified as sandy silt using the Unified Soil Classification System (USCS, ASTM D 2487). The soil classification suggests that these soils are comprised of 50% or more (by weight) of materials finer than the No. 200 sieve. While it is not impossible for silts to liquefy (depending on plasticity characteristics), liquefiable soils are more commonly associated with materials with lesser fines content.

Also, the boring logs indicate these materials are residual in deposition. Residual soils were formed by in-place weathering of the parent bedrock. The parent bedrock is reported as consisting of Lower Cambrian and Late Proterozoic age Sillimanite-mica schist. As such, these materials have undergone significant aging processes, a condition that suggests low liquefaction potential.

Based on these factors and the relatively low seismicity in this geologic setting, the potential for liquefiable soils is not apparent. This was the response we presented to the EPA, and the recommendations is complete. As such, a formal liquefaction susceptibility analysis is not

warranted, but we would welcome the opportunity to discuss this issue further with representatives from the SCDHEC Dams and Reservoirs Safety Program.

4. *The water level in piezometer L-9, near the toe of the Secondary Ash Basin dam, is about 10 feet higher than the water levels in the piezometers at the toe of the Primary Active Ash Pond dam, and is higher than the piezometric surface assumed at this location in the stability analyses performed in 1984. The elevated water level may be caused by the seepage downstream of the right abutment of the Secondary Ash Basin dam, and may indicate that the toe drain in this area is not functioning properly. Stability analyses should specifically investigate whether the elevated water level in this area could compromise the stability of the dam.*

Response:

This recommendation was included with the stability analysis referred in recommendation 2 of Section 12.1. This recommendation is complete.

5. *The water level in piezometer L-4 began rising in October 2009, and was elevated until April 2010. The cause of the elevated water level should be investigated and corrected if necessary, and analyses should be performed to evaluate whether an elevated water level in the vicinity of L-4 could potentially compromise the safety of the Primary Ash Pond Dam.*

Response:

Piezometer L-4 was replaced in 2012 under permit with SCDHEC. The data from the replaced piezometer was included with the stability analysis referred in recommendation 2 of Section 12.1. This recommendation is complete.

6. *The inside and outside of the drop box downstream of the Secondary Ash Basin should be monitored for continued degradation, and repaired or replaced if necessary.*

Response:

Repair of drop box is underway pending permit approval by SCDHEC. Repair plans were submitted to John Poole with SCDHEC Dams and Reservoirs Safety on January 6, 2014. Duke Energy will continue to monitor the condition of the drop box monthly. This recommendation is complete.

From the 2011 Report of Internal Inspection, section 5.0 RECOMMENDATIONS:

The following items should be addressed to preclude more substantial future repairs or safety concerns.

A) All Dams

- i) *Recommendation: Vegetation should be maintained pursuant to the Station specific VMIP. Action Taken: Duke maintains vegetation on critically vegetated areas in accordance with applicable O&M procedures.*
- ii) *Recommendation: Update stability analysis to evaluate steady-state conditions based on current piezometer readings, rapid draw down, and pseudo static seismic conditions per the EPA 2010 recommendations. Action Taken: Stability analysis was updated in 2012 per the EPA 2010 recommendations.*

- iii) *Recommendation: Given the age of the below grade piping, a camera survey to detect the condition of the discharge piping is warranted in the near future. Consider budgeting for year 2013.* Action Taken: Camera survey was completed in 2012.
- iv) *Recommendation: Monitor shoreline for erosion and repair as necessary.* Action Taken: Shoreline was monitored. The condition of the shoreline has not changed since 2007.
- v) *Recommendation: Eradicate burrowing animals, and fill animal burrow with fine (1/4-inch) bentonite chips.* Action Taken: Complete. The eradication of burrowing animals is a continuous process.
- B) Primary Ash Basin Dam
 - i) *Recommendation: Repair and reseed area disturbed by heavy equipment and mower ruts.* Action Taken: Complete
 - ii) *Recommendation: Paint and label piezometer casing.* Action Taken: Piezometers were painted in 2011. Since then, piezometer L-4 was replaced in 2012 under permit with SCDHEC. Painting of L-4 and correct labeling and missing caps have been installed since the February 24, 2014 visit.
- C) Primary Ash Basin Discharge Tower
 - i) *Recommendation: Continue vegetation control and debris removal at inlet and outlet.* Action Taken: Completed annually.
 - ii) *Recommendation: Repair hoist pulley to prevent further corrosion and maintain functionality.* Action Taken: Hoist pulley is not needed and has been removed since the February 24, 2014 visit.
- D) Divider Dike
 - i) *Recommendation: Monitor animal path and repair if conditions worsen.* Action Taken: Several beavers were eradicated in the Fall of 2013. The beaver path was then reseeded. New beaver activity has been detected February, 2014. We are actively eradicating these burrowing animals. The eradication of burrowing animals is a continuous process.
 - ii) *Recommendation: Remove debris and dead vegetation from rip rap areas.* Action Taken: Completed annually.
- E) Secondary Ash Basin Dam
 - i) *Recommendation: Monitor shoreline erosion and repair if conditions worsen.* Action Taken: Monitored.
 - ii) *Recommendation: Fill shallow hole on upstream slope beneath bridge.* Action Taken: Complete.
- F) Secondary Ash Basin Discharge Tower
 - i) *Recommendation: Continue vegetation control and debris removal from inlet and outlet.* Action Taken: Completed annually.
 - ii) *Recommendation: Repair decking and handrails on skimmer platform as necessary.* Action Taken: Monitor decking and handrail condition.
 - iii) *Recommendation: Repair erosion of concrete deck and drop box.* Action Taken: Repair of drop box is underway pending permit approval by SCDHEC. Repair plans were submitted to John Poole with SCDHEC Dams and Reservoirs Safety on January 6, 2014. Duke Energy will continue monthly monitoring of the concrete deck and drop box.

Concern 7. The recommendations indicate that the upstream slopes on both ash basin dams need to be retrofitted with soil berms to increase safety factors. This does not appear to have been accomplished to date. How is Duke planning to address this issue and when?

Response: Per 72-3,D.1.c. of the South Carolina Dams and Reservoirs Safety Act, we understand procedures developed by the United States Army Corps of Engineers (USACE) for design and analysis are acceptable.

Per the EPA recommendation, we have updated the stability analysis, and the analysis indicates stability safety factors calculated for all loading conditions along the downstream (exterior) side of the dam meet the minimum design safety factors as stated in USACE Engineering Manual 1110-2-1902 for new embankment dam design. However, the factor of safety modeled for the upstream (interior) side of the dam remain marginally below the minimum safety factors, with only one loading condition (seismic) where the factor of safety was less than 1, indicating a potentially unstable condition for an isolated section of the dam. Our analyses indicate critical slip surfaces associated with factors of safety below the minimum criteria are surficial, which does not represent a potential for deep seated failures that would lead to a breach of the dam during the unusual loading conditions. Furthermore, our current operational pool levels are below the maximum operating levels used for stability modeling to improve stability for all loading conditions.

The referenced USACE Engineering Manual further states that these minimum required factors of safety are advisory for existing dams and other types of slopes. What is considered an acceptable factor of safety should reflect the differences between new slopes, where stability must be forecast, and existing slopes, where information regarding past slope performance is available. Values of factors of safety that are lower than those required for new slopes can often be justified for existing slopes.

Historically, the dams have performed satisfactorily with few occurrences of shallow scarps or mowing ruts that have developed along the upstream side of the secondary basin consistent with the findings of the slope stability analyses. Duke Energy mitigated these shallow surface anomalies promptly through our O&M processes and vegetation maintenance implementation plan. As the station is retired from coal service and the pending CCR rule is finalized, the decision to close the ponds or make appropriate modifications will be made. Until that time, our inspection procedure requires special inspections to be conducted immediately after unusual conditions, such as significant rain and seismic events, to help detect areas that could be distressed and to facilitate immediate repair in accordance with our O&M processes. We would welcome the opportunity to discuss this issue further with representatives from the SCDHEC Dams and Reservoirs Safety Program.

Concern 8. Recommendations from previous inspections include monitoring the shoreline in both ash basins for erosion and repair as necessary. Were any repairs necessary and were these repairs performed?

Response: We continue to monitor the condition of the shoreline erosion, which has been consistent since 2007. Further, Duke Energy will develop an engineered plan for repair as described in the response to concern 2.

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Concern 9. What does rusting of the hoist pulley in the primary ash basin discharge tower affect? What is the pulley used for?

Response: Hoist pulley is not needed and has been removed since the February 24, 2014 visit.

Concern 10. Divider Dike: The status of repairs to the animal path is incomplete in the table in Attachment 1 of the 2012 report. Burrowing animals must be removed and any damage that has occurred from their presence must be repaired.

Response: Several beavers were eradicated in the Fall of 2013. The beaver path was then reseeded. New beaver activity has been detected February, 2014. We are actively eradicating these burrowing animals. The eradication of burrowing animals is a continuous process.

Concern 11. Divider Dike: From a site visit on February 24, 2014, it appears that the drainage ditch south of the dam has been repaired to prevent erosion and short-circuiting of runoff into the secondary basin. Please confirm this as it relates to the comment on the bottom of Page 7 of the 2012 inspection report.

Response: Confirmed.

Concern 12. Recommendations from the 2010 EPA report show that the seepage monitoring plan is complete. What was included in this plan and what was done to implement it? We understand that the seepage results provided to the Department on February 21, 2014 are actually results of sampling the storm water outfalls beyond each toe drain. Is there any monitoring data for the seeps before mixing with other waters into the toe drain?

Response: See response to concern 6 presented herein. Information specific to the seepage monitoring plan is under the 2010 EPA report responses, Section 12.1 Corrective Measures and Analyses for the Structures, recommendation 1.

Concern 13. Please explain the piezometer water level readings and how it was determined that there are no changes or anomalies to note in the report. Also, ensure all piezometers are painted and correctly labeled and ensure they all have lid covers.

Response: Piezometer water level readings are measured during the monthly inspections. Under the responsible charge of a South Carolina Registered Engineer, the data is plotted over time and analyzed by our engineers to confirm that the integrity of the dam is not adversely affected should variation from the levels in the slope stability model occur.

Piezometers were painted in 2011. Since then, piezometer L-4 was replaced in 2012 under permit with SCDHEC. Painting of L-4 and correct labeling and missing caps have been installed since the February 24, 2014 visit.



**Public Staff
Junis Exhibit 16**

JOHN ELNITSKY
Senior Vice President
Ash Basin Strategy

550 South Tryon Street
P.O. Box 1321, DEC 22C
Charlotte, NC 28201-1007

704-382-4371
john.elnitsky@duke-energy.com

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September 4, 2014

Mr. John Poole, P.E.
South Carolina Department of Health
and Environmental Control
Bureau of Water
Dam and Reservoirs Safety
2600 Bull Street
Columbia, SC 29201

RECEIVED

SEP 1

Stormwater, Construction &
Agricultural Permitting Division

Subject: Duke Energy Carolinas, LLC
WS Lee Steam Station
Primary (D 4887) and Secondary (D 4888) Ash Basin Dams
Re: May 30, 2014 Engineered Repair Plan/Permit Application
Follow-Up Response to DHEC August 21, 2014 Comments

Dear Mr. Poole:

Duke Energy is in receipt of your letter dated August 21, 2014 in response to Duke Energy's Engineered Repair Plan submitted to SCDHEC on May 30, 2014. In your letter, five additional items are specifically noted, and a response to the issues identified was requested to be provided by September 4, 2014. As requested, Duke Energy provides the following written follow-up responses and attachments concerning these items.

Comment 1

1. DHEC Comment 1 (08/21/14 letter): "Slope stability studies conducted for Duke Energy and EPA have concluded the upstream slopes at these dams fail to meet minimum factors of safety and recommend berms or other buttressing to improve their stability. Additionally, a recent analysis performed in 2014 found that a deep-seated failure might occur in the upstream side of the secondary ash basin dam. Surficial instability was also predicted to occur by the 2014 analysis. Some surficial instability was reported in a letter dated March 4, 2014 from Duke Energy to DHEC. Duke Energy must provide a plan to adequately address both surficial and deep seated stability of the secondary ash basin dam (D 4888)."

Duke Energy's Follow-Up Response: Duke Energy and the Department have shared prior correspondence on the subject of upstream stability of the WS Lee Dams (March 7, 2014 letter, Taylor to Trofatter). We maintain our opinions of overall stability considerations previously noted. That said, Duke Energy proposes the following path forward relative to addressing the concerns regarding the WS Lee Secondary Ash Basin Dam:

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September 4, 2014
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- Duke Energy will develop remedial design plans for the upstream slope of the Secondary Ash Basin Dam that will achieve industry standard factors of safety for the loading conditions of Maximum, Normal Operating Pool and Flood Surcharge Pool. We propose that these plans be developed and submitted to the Department on or before December 15, 2014.
- Duke Energy proposes to meet with the Department by October 30, 2014 to provide an update on longer-term planning for the WS Lee Primary and Secondary Ash Basins and whether this planning effects implementation of the potential Secondary Ash Basin Dam upstream slope remedial design measures.

Comment 2

- DHEC Comment 2 (08/21/14 letter): "DHEC must be notified immediately whenever changes occur at these dams that require corrective grading, including specifically, changes that are observed on or near the embankments or their foundations. Aside from emergency situations, DHEC must be contacted to determine if repairs can be initiated as routine maintenance. Duke Energy may contend that changes less than 12 feet in depth within the embankments are surficial. Irrespective of this contention, notification to DHEC must occur regardless of depth of slip surface or failure plain that created the change and the permitting requirements for the repair of these changes will be addressed on a case-by-case basis."

Duke Energy's Follow-Up Response: Duke Energy acknowledges and concurs with the above guidance. We will continue to follow this guidance and the related sections of the Dams and Reservoirs Safety Act Regulation 72-1 thru 72-9 (72-3.A. and B.).

Comment 3

- DHEC Comment 3 (08/21/14 letter): "In 2014, ESP Associates used the 6-hour duration Probable Maximum Precipitation (PMP) when developing a hydrograph to route through the hydraulic structures of the two active ash basins at WS Lee Steam. Duke Energy must submit a complete justification for the use of the 6-hour instead of the 72-hour duration that was used for the PMP in a previous evaluation completed for EPA by GEI Consultants in December of 2010."

Duke Energy's Follow-Up Response: The original analysis completed by ESP Associates at Duke Energy's direction evaluated the 6-hour duration PMP. The basis for using a 6-hour duration is found in the publication "Safety of Dams: Flood and Earthquake Criteria" by the National Research Council (U.S.) - Committee on Safety Criteria for Dams and published by National Academies in 1985 which states on page 219 of Appendix C, "Values of PMP are usually given for durations up to 72 hours, unless the basin of concern is small (less than a few hundred square miles), in which case 6- or 12-hour PMP may be adequate." However, in order to build additional

conservatism into the analysis and produce results comparable to the previous analysis performed by GEI Consultants for the EPA, Duke Energy instructed ESP Associates to update their analysis and report to include both a 6-hour and 72-hour $\frac{1}{2}$ and full PMP. The revised report indicates that both the Primary and Secondary can pass both PMP durations without overtopping. ESP Associates' revised report is provided as Attachment 1

Comment 4

- **DHEC Comment 4 (08/21/14 letter):** *"According to the report prepared by GEI Consultants, Inc., the water level in piezometer L-4 situated in the crest of the primary ash basin dam rose steadily from 2007 until 2009 and between December 2009 and April 2010 it rose about 17 feet. Then, in April 2010 the water returned to within several feet of its previous levels. Additionally, piezometer L-9 had readings about 10-feet higher than other piezometers located at the toe of the secondary ash basin dam. Provide explanations for what caused the sudden rise in water level in Piezometer L-4 and the elevated reading in L-9. Additionally, determine if the safety of the dams are threatened by the causes of the unusual readings in L-4 and the elevated water level in L-9."*

Duke Energy's Follow-Up Response: The anomalously high water level measurements in piezometer L-4 (Identified in site records as P-4 as shown in Attachment 2a) were exhibited during a period from December 2009 through February 2011. During the latter portion of this time period, Duke Energy discovered that piezometer L-4 was damaged (bent and broken) at depth, presumably by mowing equipment. Piezometer L-4 was replaced in April 2012. Water levels have been very consistent since replacing piezometer L-4 and very similar to those in the original piezometer L-4 prior to damage.

We believe damage to the original piezometer L-4, including damage to its surface casing, allowed surface water to enter and stand in the casing that was bent and broken at depth. We believe the anomalously high water levels over the noted period of record were measurements of "artificial" water—surface water that entered into and stood in the damaged piezometer casing—and not (representative) measurements of the phreatic surface through the embankment during this time. These observations are supported by the historically comparative and since consistent water levels measured and documented in replacement piezometer L-4. As such, the subject water levels, though still noted in the monitoring record, are not applicable to dam stability considerations and do not suggest a threat to dam stability.

While comparison of water level(s) between piezometer L-9 (Identified in site records as P-9 as shown in Attachment 2b) and other nearby piezometers is not unreasonable, we would offer that it is most reasonable to consider the historical consistency – or variability – of water levels in a given piezometer over its monitoring period of record.

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Mr. John Poole
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Observation of piezometer L-9's period of record monitoring between 1984 and 2014 as shown on Attachment 2b reveals that, in general terms, the range of phreatic surface elevations has only changed from $676\pm - 678\pm$ feet to $677\pm - 679\pm$ feet. In our opinion, this is a small change ($1\pm$ foot) over a period of 30 years, and in fact substantiates a very consistent phreatic surface over time through this section of the dam which is a desirable and affording condition relative to dam stability.

Piezometer L-9 is located at (distance) Station 20+80 along the combined Primary and Secondary Dam lengths, and near the Secondary Dam downstream toe. This section of the Secondary Dam is the most critical section relative to stability evaluations (i.e., highest downstream dam section relative to surrounding grades). In the most recent stability evaluations (S&ME's May 29, 2014 *Existing Dam Stability Evaluation*) previously submitted to the Department under separate cover, this section was modeled with a phreatic surface at elevation 678.5 feet in piezometer L-9 (*Table 3.1, Piezometer Groundwater Elevations*). Observation again of Attachments 2a and 2b reveals this modeled water level elevation is well representative of the embankment phreatic surface. Given that S&ME's stability evaluations found the downstream-related factors of safety to meet or exceed industry protocols, the subject water levels of piezometer L-9 do not suggest a threat to dam stability.

Comment 5

- **DHEC Comment 5 (08/21/14 letter):** *" Information contained in the 2010 report states that the soils comprising the dams and their foundations are described as sandy silt and borings drilled in the divider dike indicate blow counts as low as 3 to 4 blows per foot. The report also states that liquefaction may occur during the design earthquake. Duke must perform an analysis to determine if the soils may be susceptible to liquefaction when subjected to the design earthquake. If the analysis indicates liquefaction is a concern, provide plans that will mitigate the liquefaction potential for the dams, divider dike and/or their foundations, as needed."*

Duke Energy's Follow-Up Response: Duke Energy and the Department have shared prior correspondence on the subject of liquefaction potential at the WS Lee Dams (March 7, 2014 letter, Taylor to Trofatter). We maintain our opinions of liquefaction potential previously noted, including that the Divider Dike blow counts of 3 to 4 blows per foot were likely augmented (lowered) by shallow groundwater and/or soil contraction. That said, as a conservative and responsive action, Duke Energy directed S&ME to perform liquefaction evaluation of the WS Lee Divider Dike. S&ME's June 10, 2014 *Divider Dike Liquefaction Evaluation* is provided as Attachment 3. In short, the Divider Dike exploration and engineering evaluation identified no liquefiable soils within the Divider Dike or its foundation.

We hold to the opinion, based on liquefaction potential factors noted in prior correspondence, that the residual soils (both in-situ and as compacted embankment fill)

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comprising the Primary, Secondary, and Divider Dike Dams do not exhibit liquefiable characteristics. We believe this is further substantiated by the provided Divider Dike evaluation. As such, we consider the liquefaction potential comment(s) satisfied.

Duke Energy appreciates your receipt of this response submittal and your regulatory oversight of these subject facilities/structures. We trust this information is responsive to your needs at this time. If you have comments, questions, or desire additional information, please contact us.

If you have any questions concerning these responses, please contact Sean DeNeale at (704) 382-4761 or Sean.DeNeale@duke-energy.com.

Sincerely,



John Elnitsky
Senior Vice President

Enclosures:

- 1) ESP Associates' Revised Hydrologic Analysis
- 2) 2a - Temporal Water Levels in L-4 (P-4)
2b - Temporal Water Levels in L-9 (P-9)
- 3) S&ME's Divider Dike Liquefaction Evaluation

cc (via e-mail):

Jason Allen
Cari P. Boyce
Erin B. Culbert
Sean DeNeale
Mitchell C. Griggs
Alan Madewell
Garry Miller
Michael R. Olive
Tim Russell
Paige H. Sheehan
Harry Sideris
Terry Taylor
James R. Wells

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Water Resources
ENVIRONMENTAL QUALITY

Public Staff
Junis Exhibit 18

DONALD R. VAN DER VAART

Secretary

S. JAY ZIMMERMAN

Director

November 10, 2016

Mr. Harry K. Sideris, Senior Vice President - Environmental, Health & Safety
Duke Energy
526 South Church Street
Mail Code EC3XP
Charlotte, North Carolina 28202

Subject: **SPECIAL ORDER BY CONSENT**
SOC No. S16-005
Duke Energy Carolinas, LLC – Riverbend Steam Station WWTP
NPDES Permit NC0004961
Gaston County

Dear Mr. Sideris:

Attached for your records is a copy of the signed Special Order by Consent approved by the Environmental Management Commission.

The terms and conditions of the Order are in full effect, including those requiring submittal of written notice of compliance or non-compliance with any schedule date.

Pursuant to North Carolina General Statute 143-215.3D, water quality fees have been revised to include an annual fee for activities covered under a Special Order by Consent. Duke Energy Carolinas, LLC will be subject to a fee of \$500.00 on a yearly basis while under the Order. The initial fee payment will be invoiced at a later date, with future fee invoicing done on an annual basis.

If you have any questions concerning this matter, please contact the Division of Water Resources' Water Quality Regional Operations staff in the Mooresville Regional Office at (704) 663-1699, or Bob Sledge at (919) 807-6398.

Sincerely,

A handwritten signature in black ink, appearing to read 'S. Jay Zimmerman'.

S. Jay Zimmerman, P.G.

Attachment

cc: Central Files
NPDES Unit – SOC File
Mooresville Regional Office – DWR/Water Quality Regional Operations
ec: Sara Janovitz – EPA Region 4

NORTH CAROLINA
ENVIRONMENTAL MANAGEMENT COMMISSION

COUNTY OF GASTON

| | | |
|----------------------------|---|--------------------------|
| IN THE MATTER OF |) | |
| NORTH CAROLINA |) | SPECIAL ORDER BY CONSENT |
| NPDES PERMIT NC0004961 |) | EMC SOC WQ S16-005 |
| |) | |
| HELD BY |) | |
| DUKE ENERGY CAROLINAS, LLC |) | |

Pursuant to provisions of North Carolina General Statute (G.S.) 143-215.2, this Special Order by Consent is entered into by Duke Energy Carolinas, LLC, hereinafter referred to as Duke Energy Carolinas, and the North Carolina Environmental Management Commission, an agency of the State of North Carolina created by G.S. 143B-282, and hereinafter referred to as the Commission:

1. Duke Energy Carolinas and the Commission hereby stipulate the following:
 - a. Duke Energy Carolinas was issued North Carolina NPDES permit NC0004961 on February 12, 2016 (effective March 1, 2016) for operation of an existing wastewater treatment works at Riverbend Steam Station and for discharging treated wastewater to the Catawba River (Mountain Island Lake) and associated tributaries and wetlands, Class WS-IV waters of this State in the Catawba River Basin.
 - b. Duke Energy Carolinas is responsible for unauthorized discharges of wastewater from the area around Riverbend Steam Station's coal ash surface impoundments, as alleged in a Notice of Violation issued by the Department of Environmental Quality (Department) on March 4, 2016 (subsequently modified on March 24, 2016). These unauthorized discharges are the result of Duke Energy Carolinas' operation of unlined coal ash surface impoundments and emanate from the unlined coal ash surface impoundments. The unauthorized discharges are all of a similar nature, composition, and character, but vary in location and volume. Collectively, the volume of these discharges is low compared to the volume of permitted wastewater discharges from the station. Seeps are typical in earthen dams. Seeps can be seasonal and/or transient in nature. However, seepage can still constitute an unauthorized discharge.
 - c. Noncompliance with final effluent limits and unauthorized discharges constitute causing and contributing to pollution of the waters of this State named above, and Duke Energy Carolinas is within the jurisdiction of the Commission as set forth in G.S. Chapter 143, Article 21.

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Duke Energy Carolinas, LLC – Riverbend Steam Station WWTP
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- d. Duke Energy Carolinas is potentially unable to comply with effluent limits for pH and Total Hardness as established by NPDES permit NC0004961 (February 12, 2016) for Outfalls 101 – 112.
 - e. In 2014, Duke Energy Carolinas conducted a survey of the Riverbend Steam Station to identify potential unauthorized discharges resulting from seepage from the coal ash surface impoundments and submitted an application to include those discharges in an NPDES permit. Beginning in 2015, Duke Energy has implemented semi-annual surveys to identify any new discharges. Additional areas of wetness have been observed and documented during these surveys and reported to the Department pursuant to a Discharge Identification Plan.
 - f. Duke Energy has begun closing the coal ash surface impoundments at the Riverbend Steam Station, to be completed by August 1, 2019, as required by order of the North Carolina Superior Court, 13-CVS-9352 (June 1, 2016, Mecklenburg Co.) and North Carolina Session Law 2014-122, Sections 3(b)-(c).
 - g. Completion of the closure activities referenced in subparagraph (f) will eliminate the seeps from the ash basins at the Riverbend Steam Station.
 - h. Since this Special Order is by consent, neither party shall file a petition for a contested case or for judicial review concerning its terms.
2. Duke Energy Carolinas, desiring to comply with the terms of the permit identified in paragraph 1.a. and to resolve the matters of the unauthorized discharges in paragraph 1.b. above, hereby agrees to do the following:
- a. Pay up-front penalties in the following amounts.
 - 1) As settlement of all alleged violations due to unauthorized discharges via seepage at Riverbend Steam Station prior to entering this Special Order by Consent identified on or before December 31, 2014, Duke Energy Carolinas agrees to an up-front penalty in the amount of \$4,000 for each of the twelve seeps identified in Condition A.(16.) of NPDES permit NC0004961. A certified check in the amount of \$48,000 must be made payable to the Department of Environmental Quality and sent to the Director of the Division of Water Resources (DWR) at 1617 Mail Service Center, Raleigh, North Carolina 27699-1617 by no later than fifteen (15) days following the date on which this Order is approved and executed by the Commission and received by Duke Energy Carolinas. Except as otherwise provided herein, payment of the up-front penalties does not absolve Duke Energy Carolinas of its responsibility for the occurrence or impacts of any unauthorized discharges in the area of the Riverbend Steam Station that may be discovered in the future, nor does payment preclude

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Duke Energy Carolinas, LLC – Riverbend Steam Station WWTP
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DWR from taking enforcement action for additional violations of the State's environmental laws.

- 2) As settlement of all alleged violations due to unauthorized discharges via seepage at Riverbend Steam station prior to entering this Special Order by Consent identified between January 1, 2015 and the date of this Special Order by Consent, Duke Energy agrees to an up-front penalty in the amount of \$250 for each seep, the lesser penalty reflecting Duke Energy's submission and implementation of the Plan for the Identification of New Discharges in accordance with the North Carolina Coal Ash Management Act. There will be no civil penalty assessed for this time period.
- b. Undertake the following activities in accordance with the indicated time schedule:
- 1) Within 14 days of the effective date of this Special Order, Duke Energy Carolinas shall move to voluntarily dismiss its Petition for Contested Case Hearing challenging NPDES permit NC0004961 (February 12, 2016).
 - 2) Within 180 days of completion of all surface impoundment closure activities at Riverbend, the facility shall determine if a jurisdictional seep meets the state water quality standards established in 15A N.C.A.C. 2B .0200 and submit the results of this determination to DWR for evaluation.
- c. Duke Energy Carolinas shall address newly identified discharges as follows.
- 1) The discharges shall be identified as outfalls with the next number in a sequence following Outfall 112. They shall be subject to the same effluent limitations and monitoring requirements for Outfalls 101-112 contained in NPDES permit NC0004961 (February 12, 2016), except that monitoring frequency shall not be reduced to quarterly until one year from the date of identification. If, during the term of this Special Order, Duke Energy Carolinas identifies seepage in a new location, Duke Energy Carolinas shall comply with the terms of the NPDES permit issued on February 12, 2016 and this Special Order as to discharges from those areas, which shall be considered covered by the terms of this Special Order.
 - 2) If, during the term of this Special Order, Duke Energy Carolinas receives a jurisdictional determination from the U.S. Army Corps of Engineers identifying a previously uncharacterized discharge as a jurisdictional water of the United States, Duke Energy Carolinas will assess the jurisdictional water for compliance with water quality standards and implement one of the options set out in Condition A.(16.) of NPDES permit NC0004961 (February 12, 2016); however, interim standards for pH and Total Hardness set forth below in paragraph 2.e. and Attachment A of this Special Order by Consent shall apply rather than the pH and Hardness limits contained in NPDES permit NC0004961 (February 12, 2016).

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Duke Energy Carolinas, LLC – Riverbend Steam Station WWTP
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- 3) As long as Duke Energy Carolinas remains in compliance with the terms of this provision, NPDES permit NC0004961 (February 12, 2016), and the Coal Ash Management Act, DWR shall not assess civil penalties for newly identified discharges resulting from seepage unless the newly identified discharge is causing a violation of water quality standards in the receiving waters.
- d. Duke Energy Carolinas will submit quarterly progress reports summarizing the work and activities undertaken with respect to closure of coal ash surface impoundments at the Riverbend Steam Station. The reports are to be submitted as follows: one copy must be mailed to the Mooresville Regional Supervisor, Division of Water Resources/Regional Water Quality Operations Section, 601 East Center Avenue, Suite 301, Mooresville, NC 28115, and one copy must be mailed to the Water Quality Permitting Program, Division of Water Resources, 1617 Mail Service Center, Raleigh, NC 27699-1617. The quarterly reports are due in each respective office no later than the last day of January, April, July, and October for the duration of this Order.
- e. Duke Energy Carolinas will comply with all terms and conditions of NPDES permit NC0004961 (February 12, 2016). permit except 1) Condition A.(16.) as it applies to Outfall 102 and 2) effluent limitations for Total Hardness and pH as they apply to Outfalls 101-112.

Attachment A contains all current monitoring requirements and effluent limits associated with Outfalls 101-112 as contained in NPDES permit NC0004961 (February 12, 2016). Duke Energy Carolinas may also be required to monitor for other parameters, as deemed necessary by the Director of DWR, in future permits or administrative letters. During the time in which this Special Order by Consent is effective, Duke Energy Carolinas shall comply with the interim effluent limits for Total Hardness and pH as listed in the table below.

Under this Special Order by Consent, ONLY the items listed below have been modified from the NPDES permit NC0004961 (February 12, 2016) in effect for Outfalls 101-112 and any subsequently added outfalls:

| Parameter | Permit Limit | Interim Limits (SOC) |
|----------------|----------------------------|--------------------------|
| pH | 6.0-9.0 standard units | 4.0-9.0 standard units |
| Total Hardness | 100.0 mg/L monthly average | 200 mg/L monthly average |
| | 100.0 mg/L daily average | 200 mg/L daily average |

- f. No later than fourteen (14) calendar days after any date identified for accomplishment of any activity listed in paragraph 2.b. above, submit to the Director of DWR written notice of compliance (including the date compliance was achieved along with supporting documentation if applicable) or noncompliance therewith. In the case of noncompliance, the notice shall include a

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statement of the reason(s) for noncompliance, remedial action(s) taken, and a statement identifying the extent to which subsequent dates or times for accomplishment of listed activities may be affected.

- g. Duke Energy Carolinas will operate its coal ash surface impoundments to minimize any adverse impacts to the surface waters.
 - h. Duke Energy Carolinas shall continue to implement improvements to its environmental management system to strengthen its compliance programs. This improved environmental management system is based on International Organization for Standardization (ISO) 14000 standards as well as meets United States Environmental Protection Agency recommended systems. Duke Energy Carolinas shall submit semi-annual reports due July 31st and January 31st of each year covering the preceding first and second halves on the status of implementation of improvements to its environmental management system.
 - i. Duke Energy Carolinas shall make available on its external website the NPDES permit, this Special Order by Consent and all reports required under this Special Order.
 - j. Within 30 days following a request by the Department, Duke Energy shall provide all technical information necessary for the Department to complete a Reasonable Potential Analysis calculation to predict the effects of the total seep flow on the Catawba River.
3. Duke Energy Carolinas agrees that unless excused under paragraph 4, Duke Energy Carolinas will pay the Department, by check payable to the North Carolina Department of Environmental Quality, stipulated penalties according to the following schedule for failure to perform activities described in section 2., or for failure to comply with interim effluent limitations established in paragraph 2e.

| | |
|--|--|
| Failure to meet a schedule date | \$1,000 per day |
| Failure to comply with a modified effluent limit | \$1,000 for exceeding monthly average limit; \$500 for exceeding daily average limit. |
| Monitoring frequency violations for modified parameters; | \$100 per omitted value per parameter. |
| Failure to submit required reports or post required reports on website; | \$1,000 for the first violation; penalty doubles with each subsequent assessment for late reports. |
| Failure to eliminate all unauthorized discharges associated with the Riverbend Steam Station's coal ash surface impoundments or achieve consistent compliance with final effluent limits | \$50,000 |

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| | |
|--|--|
| established by NPDES permit NC0004961 by the expiration date of this Order. | |
|--|--|

4. Duke Energy Carolinas and the Commission agree that the stipulated penalties are not due if Duke Energy Carolinas satisfies DWR that noncompliance was caused solely by:
 - a. An act of God;
 - b. An act of war;
 - c. An intentional act or omission of a third party, but this defense shall not be available if the act or omission is that of an employee or agent of the defendant or if the act or omission occurs in connection with a contractual relationship with the permittee;
 - d. An extraordinary event beyond the permittee's control. Contractor delays or failure to obtain funding will not be considered as events beyond the permittee's control; or
 - e. Any combination of the above causes.
 - f. Failure within thirty (30) days of receipt of written demand to pay the penalties, or challenge them by a contested case petition pursuant to G.S. 150B-23, will be grounds for a collection action, which the Attorney General is hereby authorized to initiate. The only issue in such an action will be whether the thirty (30) days has elapsed.
5. Noncompliance with the terms of this Special Order by Consent is subject to enforcement action in addition to the above stipulations, including injunctive relief pursuant to G.S. 143-215.6.C.
6. This Special Order by Consent and any terms or conditions contained herein, hereby supersede any and all previous Special Orders, Enforcement Compliance Schedule Letters, terms, conditions, and limits contained therein issued in connection with NPDES permit NC0004961. In the event of an NPDES permit modification or renewal, any effluent limit or monitoring requirements contained therein shall supersede those contained in Attachment A of this Special Order by Consent, except as modified and contained in paragraph 2.e. above.
7. This Special Order by Consent may be amended provided the Department is satisfied that Duke Energy Carolinas has made good faith efforts to secure funding, complete all construction, and achieve compliance within the dates specified.
8. Failure to meet the scheduled date identified in paragraph 2.a. will terminate this Special Order by Consent and require Duke Energy Carolinas to comply with the terms and conditions contained in the permit identified in paragraph 1.a.

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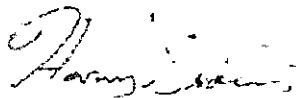
9. In addition to any other applicable requirement, each report required to be submitted by Duke Energy under this Special Order by Consent shall be signed by a plant manager or a corporate official responsible for environmental management and compliance, and shall include the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

10. This Special Order by Consent shall become effective in accordance with state law, and once effective, Duke Energy Carolinas shall comply with all schedule dates, terms, and conditions herein.

This Special Order by Consent shall expire on September 1, 2020.

For Duke Energy Carolinas, LLC:

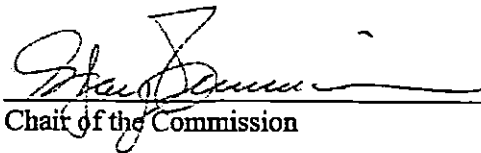


Harry Sideris
Senior Vice President, Environmental, Health & Safety

9/9/2016

Date

For the North Carolina Environmental Management Commission:

for, 
Chair of the Commission

11/10/2016
Date

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ATTACHMENT A
EMC SOC WQ S16-005
Duke Energy Carolinas, LLC – Riverbend Steam Station

EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS – INTERIM

During the period beginning on the effective date of this Special Order by Consent and lasting until expiration, the Permittee is authorized to discharge from outfalls 101 – 112 (Seep Discharges). Such discharges shall be limited and monitored¹ by the Permittee as specified below. Note that conditions for only those parameters indicated in **Bold** have been modified from the terms of NPDES permit NC0004961.

| EFFLUENT CHARACTERISTICS | LIMITS | | MONITORING REQUIREMENTS | | |
|-----------------------------------|-------------------|-------------------|------------------------------------|-------------|-----------------|
| | Monthly Average | Daily Maximum | Measurement Frequency ² | Sample Type | Sample Location |
| Flow, MGD | | | Monthly/Quarterly | Estimate | Effluent |
| pH ³ | | | Monthly/Quarterly | Grab | Effluent |
| Fluoride | 1.8 mg/L | 1.8 mg/L | Monthly/Quarterly | Grab | Effluent |
| Total Mercury ⁴ , ng/L | | | Monthly/Quarterly | Grab | Effluent |
| Total Barium | 1.0 mg/L | 1.0 mg/L | Monthly/Quarterly | Grab | Effluent |
| Total Iron, mg/L | | | Monthly/Quarterly | Grab | Effluent |
| Total Manganese, µg/L | | | Monthly/Quarterly | Grab | Effluent |
| Total Zinc, µg/L | | | Monthly/Quarterly | Grab | Effluent |
| Total Arsenic | 10.0 µg/L | 50.0 µg/L | Monthly/Quarterly | Grab | Effluent |
| Total Cadmium | 2.0 µg/L | 15.0 µg/L | Monthly/Quarterly | Grab | Effluent |
| Total Chromium | 50.0 µg/L | 1,022.0 µg/L | Monthly/Quarterly | Grab | Effluent |
| Total Copper, µg/L | | | Monthly/Quarterly | Grab | Effluent |
| Total Lead, µg/L | 25.0 µg/L | 33.8 µg/L | Monthly/Quarterly | Grab | Effluent |
| Total Nickel | 25.0 µg/L | 25.0 µg/L | Monthly/Quarterly | Grab | Effluent |
| Total Selenium | 5.0 µg/L | 56.0 µg/L | Monthly/Quarterly | Grab | Effluent |
| Nitrate as N | 10.0 mg/L | 10.0 mg/L | Monthly/Quarterly | Grab | Effluent |
| Sulfates | 250.0 mg/L | 250.0 mg/L | Monthly/Quarterly | Grab | Effluent |
| Chlorides | 250.0 mg/L | 250.0 mg/L | Monthly/Quarterly | Grab | Effluent |
| TDS | 500.0 mg/L | 500.0 mg/L | Monthly/Quarterly | Grab | Effluent |
| Total Hardness, mg/L | 200.0 mg/L | 200.0 mg/L | Monthly/Quarterly | Grab | Effluent |
| TSS | 30.0 mg/L | 100.0 mg/L | Monthly/Quarterly | Grab | Effluent |
| Oil and Grease | 15.0 mg/L | 20.0 mg/L | Monthly/Quarterly | Grab | Effluent |
| Temperature, °C | | | Monthly/Quarterly | Grab | Effluent |
| Specific Conductance, µmho/cm | | | Monthly/Quarterly | Grab | Effluent |

Notes:

1. No later than 270 days from the effective date of this permit, begin submitting discharge monitoring reports electronically using NC DWR's eDMR application system. See NPDES permit NC0004961 Condition A. (18.).
2. The facility shall conduct monthly sampling from the effective date of NPDES permit NC0004961. After one year from the effective date of the NPDES permit the monitoring will be reduced to quarterly
3. **The pH shall not be less than 4.0 standard units nor greater than 9.0 standard units.**
4. The facility shall use EPA method 1631E.

If the facility is unable to obtain a seep sample due to the dry or low flow conditions preventing the facility from obtaining a representative sample, the "no flow" should be reported on the DMR. This requirement is established in the Section D of the Standard Conditions of NPDES permit NC0004961 and 40 CFR 122.41 (j).

There shall be no discharge of floating solids or visible foam in other than trace amounts.

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Docket No. E-7 Sub 1146
Public Staff
Junis Exhibit 19

Paul Draovitch, P.E.
Senior Vice President
Environmental, Health & Safety
526 S Church Street
Mail Code EC3XP
Charlotte, NC 28202
(704) 382-4303

September 28, 2017

Mr Jeffrey Poupart
North Carolina Division of Water Resources
1617 Mail Service Center
Raleigh, NC 27699-1617

Re: Application for Special Order by Consent
Duke Energy Carolinas, LLC and
Duke Energy Progress, LLC

Dear Mr Poupart,

Duke Energy Carolinas, LLC and Duke Energy Progress, LLC are submitting herewith application for Special Order by Consent related to ash basin seepage for the Marshall Steam Station, Rogers Energy Complex, Allen Steam Station, Asheville Steam Station, Buck Steam Station, Roxboro Steam Station, Mayo Station, H F Lee Energy Complex, Weatherspoon Station, Cape Fear Station and Belews Creek Steam Station. A completed application (in triplicate) and check in the amount of \$400 00 for the nonrefundable application fee are enclosed.

Should you have any questions regarding this letter or require additional information, please contact Mr Shannon Langley at (919) 5462439 or at shannon.langley@duke-energy.com

"I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations."

Sincerely,

A handwritten signature in black ink, appearing to read 'Paul Draovitch', with a large, sweeping loop at the end.

Paul Draovitch, P.E.
SVP - Environmental, Health & Safety

Enclosures

Duke Energy cc. Richard Baker, Jim Wells, Matt Hanchey, Shannon Langley

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STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WATER RESOURCES

APPLICATION FOR A SPECIAL ORDER BY CONSENT (SOC)

I. PERMIT RELATED INFORMATION:

1. Applicant (corporation, individual, or other): Duke Energy Carolinas, LLC and Duke Energy Progress, LLC

2. Print or Type Owner's or Signing Official's Name and Title.

Paul Draovitch, Senior Vice President, Environment Health & Safety

3. Facility Name (as shown on Permit): See attached list of facilities

4. Owner Phone: (980) 373-4370 (or) _____

5. Owner Email: paul.draovitch@duke-energy.com

4. Application Date: September 15, 2017

5. NPDES Permit No. (if applicable): See attached list of facilities

6. Name of the specific wastewater treatment facility (if different from I.3. above):

See attached list of facilities

II. PRE-APPLICATION MEETING:

Prior to submitting this completed application form, applicants must meet with the appropriate regional office staff to discuss whether or not an SOC is appropriate for this situation. Please note the date this meeting occurred and who represented the permittee:

Representative: various Duke staff including Paul Draovitch Date: September 7, 2017

III. ADDITIONAL FLOW OR FLOW REALLOCATION:

In accordance with NCGS 143-215.67(b), only facilities owned by a unit of government may request additional flow.

Additional flow may be allowed under an SOC only in specific circumstances. These circumstances may include eliminating discharges that are not compliant with an NPDES or Non-discharge permit. These circumstances do not include failure to perform proper maintenance of treatment systems, collection systems or disposal systems. When requesting additional flow, the facility must include its justification and supporting documentation.

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If the requested additional flow is **non-domestic**, the facility must be able to demonstrate the ability to effectively treat the waste and dispose of residuals. The applicant must provide a detailed analysis of the constituents in the proposed non-domestic wastewater.

The total domestic additional flow requested: N/A gallons per day.

The total non-domestic additional flow requested: N/A gallons per day.

The total additional flow (*sum of the above*): N/A gallons per day.

Please attach a detailed description or project listing of the proposed allocation for additional flow, with an explanation of how flow quantities were estimated. Further, any additional flow requested must be justified by a complete analysis, by the permittee, that additional flow will not adversely impact wastewater collection/treatment facilities or surface waters.

IV. NECESSITY NARRATIVE:

Please attach a narrative providing a detailed explanation of the circumstances regarding the necessity of the proposed SOC. Include the following issues:

- Existing and/or unavoidable future violations(s) of permit conditions or limits(s),
- The existing treatment process and any process modifications that have been made to date to ensure optimum performance of existing facilities,
- Collection system rehabilitation work completed or scheduled (including dates),
- Coordination with industrial users regarding their discharges or pretreatment facilities. Identify any non-compliant significant industrial users and measure(s) proposed or already taken to bring the pretreatment facilities back into compliance. If any industrial facilities are currently under consent agreements, please attach these agreements,
- Date and outcome of last Industrial Waste Survey,
- Whether or not the facility is acting as a regional facility receiving wastewater from other municipalities having independent pretreatment programs.

V. CERTIFICATION:

The applicant must submit a report prepared by an independent professional with expertise in wastewater treatment. This report must address the following:

- An evaluation of existing treatment units, operational procedures and recommendations as to how the efficiencies of these facilities can be maximized. The person in charge of such evaluation must sign this document.
- A certification that these facilities could not be operated in a manner that would achieve compliance with final permit limits. The person making such determination must sign this certification.
- The effluent limits that the facility could be expected to meet if operated at their maximum efficiency during the term of the requested SOC (be sure to consider interim construction phases).
- Any other actions taken to correct problems prior to requesting the SOC.

VI. PREDICTED COMPLIANCE SCHEDULE:

The applicant must submit a detailed listing of activities along with time frames that are necessary to bring the facility into compliance. This schedule should include milestone dates for beginning construction, ending construction, and achieving final compliance at a minimum. In determining the milestone dates, the following should be considered:

- Time for submitting plans, specifications and appropriate engineering reports to DWR for review and approval.
- Occurrence of major construction activities that are likely to affect facility performance (units out of service, diversion of flows, etc) to include a plan of action to minimize impacts to surface waters.
- Infiltration/Inflow work, if necessary.
- Industrial users achieving compliance with their pretreatment permits if applicable.
- Toxicity Reduction Evaluations (TRE), if necessary.

VII. FUNDING SOURCES IDENTIFICATION:

The applicant must list the sources of funds utilized to complete the work needed to bring the facility into compliance. Possible funding sources include but are not limited to loan commitments, bonds, letters of credit, block grants and cash reserves. The applicant must show that the funds are available, or can be secured in time to meet the schedule outlined as part of this application.

If funding is not available at the beginning of the SOC process, the permittee must submit a copy of all funding applications to ensure that all efforts are being made to secure such funds.

Note: A copy of the application should be sufficient to demonstrate timeliness unless regional office has reason to request all information associated with securing funding.

THE DIVISION OF WATER RESOURCES WILL NOT ACCEPT THIS APPLICATION PACKAGE UNLESS ALL OF THE APPLICABLE ITEMS ARE INCLUDED WITH THE SUBMITTAL.

Required Items.

- a. One original and two copies of the completed and appropriately executed application form, along with all required attachments.
 - If the SOC is for a City / Town, the person signing the SOC must be a ranking elected official or other duly authorized employee.
 - If the SOC is for a Corporation / Company / Industry / Other, the person signing the SOC must be a principal executive officer of at least the level of vice-president, or his duly authorized representative.
 - If the SOC is for a School District, the person signing the SOC must be the Superintendent of Schools or other duly authorized employee.


Note: Reference to signatory requirements in SOC's may be found in the North Carolina Administrative Code [T15A NCAC 2H .1206(a)(3)].

- b. The non-refundable Special Order by Consent (SOC) processing fee of \$400.00. A check must be made payable to The Department of Environment and Natural Resources.
- c. An evaluation report prepared by an independent consultant with expertise in wastewater. (in triplicate)

APPLICANT'S CERTIFICATION:

(NO MODIFICATION TO THIS CERTIFICATION IS ACCEPTABLE)

I, Paul Draovitch, attest this application for a Special Order by Consent (SOC) has been reviewed by me and is accurate and complete to the best of my knowledge. I understand if all required parts of this application are not completed and if all required supporting information and attachments are not included, this application package may be returned as incomplete. *(Please be advised that the return of this application does not prevent DWR from collecting all outstanding penalties upon request).* Furthermore, I attest by my signature that I fully understand that an upfront penalty, which may satisfy as a full settlement of outstanding violations, may be imposed. {Note: Reference to upfront penalties in Special Orders by Consent may be found in the North Carolina Administrative Code [T15A NCAC 2H .1206(c)(3)] }.

 Date 4/28/17
Signature of Signing Official

Paul Draovitch, Senior Vice President, Duke Energy Carolinas, LLC & Duke Energy Progress, LLC

Printed Name of Signing Official

THE COMPLETED APPLICATION PACKAGE, INCLUDING THE ORIGINAL AND TWO COPIES OF ALL SUPPORTING INFORMATION AND MATERIALS, SHOULD BE SENT TO THE FOLLOWING ADDRESS:

NORTH CAROLINA DIVISION OF WATER RESOURCES
POINT SOURCE BRANCH
1617 MAIL SERVICE CENTER
RALEIGH, NORTH CAROLINA 27699-1617

IF THIS APPLICATION IS FOR A NON-DISCHARGE SYSTEM, THEN SEND TO:

NORTH CAROLINA DIVISION OF WATER QUALITY
AQUIFER PROTECTION SECTION
1636 MAIL SERVICE CENTER
RALEIGH, NORTH CAROLINA 27699-1636

**Duke Energy Carolinas, LLC and Duke
Energy Progress, LLC**

Application for Special Order by Consent

Supplemental information

September 2017

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- 1. Lists of facilities requested to be covered**
- 2. Application Section IV. Necessity narrative**
- 3. Application Section V. Certification**
- 4. Application Section VI. Predicted Compliance Schedule**
- 5. Application Section VII. Funding Sources Identification**
- 6. Non-refundable application fee of \$400.00**

Lists of Facilities for which coverage is requested

| Facility | Permit Number | County |
|----------------------------|---------------|--------------------------|
| Allen Steam Station | NC0004979 | Gaston |
| Asheville Steam Station | NC0000396 | Buncombe |
| Belews Creek Steam Station | NC0024406 | Stokes |
| Buck Steam Station | NC0004774 | Rowan |
| Cape Fear Station | NC0003433 | Chatham |
| H.F. Lee Energy Complex | NC0003417 | Wayne |
| Marshall Steam Station | NC0004987 | Catawba |
| Mayo Station | NC0038377 | Person |
| Rogers Energy Complex | NC0005088 | Rutherford/ Cleveland |
| Roxboro Steam Station | NC0003425 | Person |
| Weatherspoon Station | NC0005363 | Robeson |