

Application Section IV. Necessity Narrative

Existing and/or unavoidable future violations(s) of permit conditions or limits(s):

Duke Energy Carolinas, LLC and Duke Energy Progress, LLC (collectively, "Duke Energy") have applied for NPDES permits authorizing seepage discharges to jurisdictional surface waters and wetlands located at the above-referenced sites. For the purposes of this document, seepage generally refers to ash impoundment water migrating through subsurface pore space in the earthen base or embankment and emerging to the surface before entering into a jurisdictional surface water. Duke Energy has no practical way to install additional surface water treatment because the seepage travels mostly or entirely under the surface prior to reaching surface waters. Additionally, seepage often emerges to the surface at locations that are difficult to reach or unsuitable for the installation of additional treatment, in many cases because installation of additional treatment would create impacts to wetlands and streams that outweigh the benefits. Data collected by Duke Energy and provided to the Department indicates that the discharges should not cause violations of water quality standards at most times and for most parameters. However, the data also indicate that quality of the discharge is variable based on seasonal variations, weather patterns, and other site specific conditions such that seepage may cause or contribute to pollution of the waters of the State. Duke Energy proposes to monitor the seepage and lay out a schedule by which ash basin closure work can commence and/or continue as the means to address the seepage. Additionally, Duke Energy believes that should any interim actions be needed at select facilities where initial closure activities are not having the desired effect, those activities can be addressed through the mechanism of a Special Order by Consent.

The existing treatment process and any process modifications that have been made to date to ensure optimum performance of existing facilities:

The ash basins have been in operation for many decades and use of the basins is in the process of being phased out. Ash basins have historically been considered Best Available Technology (BAT) for ash sluice treatment as they provide excellent settling and neutralization of various wastestreams. Ash basins are classified as Grade 1 Physical/Chemical treatment systems by the State of North Carolina. Basins are monitored per NPDES permit requirements and have an excellent compliance record with NPDES permit terms. Duke Energy has converted sites to either partial or complete dry ash handling at sites when necessary based on site-specific water quality impacts. Seepage from unlined basins cannot be eliminated entirely without closing the basin, but Duke Energy has taken a variety of steps to minimize seepage and associated water quality impacts. Since 2014, Duke Energy has performed weekly and monthly inspections of basin dams and semi-annual inspections of broader areas downgradient of the dams to identify evidence of potential seeps. When reasonably feasible, seeps have been eliminated by grouting toe drains, installing dam improvements, and regrading to redirect flows. In a limited number of cases, seepage flows have been captured and returned to the basins. The remaining seeps have

been evaluated and are not reasonably amenable to this type of solution. Accessing areas of seepage would in many cases involving cutting roads and utility access to remote areas often in wetlands requiring many permits for impacts to mitigate a small flow that can be adequately addressed through monitoring and basin closure. Much of the seepage is diffuse and collection and or treatment at the point of emergence would lead to greater impacts than addressing the source proactively. The means necessary to address continued seepage flows is by removing industrial flows to the ash basins at existing facilities, removing the remaining water from the basin(s) and closing the basins, as dictated by site specific conditions, through either capping in place as allowed under the federal CCR rule and CAMA or other DEQ approved closure method such as excavation or a hybrid cap in place. Full and complete closure will take some time given the large footprint of each of the basins, but experience has shown at Riverbend and Dan River that removing water from the basins can have a significant effect on lessening seepage and can be carried out on a much shorter timetable.

Section V. Certification

To be submitted under separate cover.

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Apr 30 2019

Section VI. Predicted compliance schedule

Under the Order, Duke Energy proposes to undertake the following activities.

1. **Sample as required by the NPDES permits.**
2. **Redirect flows away from ash basins to newly constructed treatment components in accordance with dates required by the Coal Ash Management Act.**
3. **Complete conversion of dry disposal of bottom ash at Allen, Belews Creek, Rogers, Marshall and Roxboro stations by January 14, 2019.**
4. **Reroute wastewater flows currently going to Ash Basins 1, 2, and 3 at Buck station by the later of May 15, 2018 or six months following the issuance of a new NPDES permit.**
5. **Decant ash basins.** Initiate decanting within 150 days of completing wastewater flow reroutes. Absent a force majeure event, complete Cape Fear mitigation decanting by June 15, 2018 and HF Lee mitigation decanting by November 15, 2018. ("Mitigation decanting" is the removal of free-standing or bulk water to reduce seepage, as discussed in the Department's December 17, 2015 letter to Duke Energy. Depending on site-specific considerations, additional decanting may be required as part of the basin closure process. As discussed with the Department, sheet flow stormwater runoff will continue to enter some basins after decanting has been initiated.)
6. **Dewater the ash basins.** Remove the interstitial water from the ash basins, as necessary to support final selected closure method, in accordance with NPDES permit terms.
7. **Reevaluate seepage flows after completing the decanting and dewatering.**
8. **If a seep continues to exist and discharge pollutants more than three months after the conclusion of dewatering and such seep is causing a violation of water quality standards in the receiving surface water then Duke shall propose additional corrective measures to minimize further environmental impact.**
9. **Submit semi-annual reports on the status of decanting and dewatering at each station.**

10. During the period in which Duke Energy is engaged in dewatering and decanting and any subsequent corrective action, it will **comply with alternate limits as set out in the Special Order by Consent.**

11. **Safely close ash basins** in accordance with requirements under CAMA and CCR rule.

Section VII. Funding Source Identification

Duke Energy will provide adequate funds to engineer, permit and implement the proposed activities listed in Section VI. As detailed in the company's filings with the Securities and Exchange Commission (available at [http:// www.duke-energy.com/our-company/investors](http://www.duke-energy.com/our-company/investors)), Duke Energy has sufficient resources to fund the activities proposed in this application without the need for external funding sources.

Non-refundable application fee of \$400.00

NORTH CAROLINA
ENVIRONMENTAL MANAGEMENT COMMISSION

COUNTIES OF GASTON, CATAWBA,
AND RUTHERFORD

IN THE MATTER OF)	
NORTH CAROLINA)	SPECIAL ORDER BY CONSENT
NPDES PERMITS NC0004979, NC0004987)	EMC SOC WQ S17-009
& NC0005088)	
)	
HELD BY)	
DUKE ENERGY CAROLINAS, LLC)	

Pursuant to the provisions of North Carolina General Statutes (G.S.) 143-215.2, this Special Order by Consent is entered into by Duke Energy Carolinas, LLC, hereinafter referred to as Duke Energy, 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. Duke Energy and the Commission are referred to hereafter collectively as the "Parties."

1. **Stipulations:** Duke Energy and the Commission hereby stipulate the following:
 - a. This Special Order by Consent ("Special Order") addresses issues related to the elimination of seeps (as defined in subparagraphs e, f, and g below) from Duke Energy's coal ash basins during the separate and independent process of basin closure under the Coal Ash Management Act, G.S. 130A-309.200 through 130A-309.231 ("CAMA") and the Federal Coal Combustion Residuals Rule, 40 CFR Parts 257 and 261. The Environmental Protection Agency first directed permitting authorities to consider potential impacts on surface water of seeps from earthen impoundments in 2010. At that time, Duke Energy began discussions with the North Carolina Department of Environmental Quality ("the Department") regarding seeps at multiple Duke Energy facilities, including identifying certain seeps in permit applications and providing data to the Department regarding seeps. In 2014, Duke Energy provided a comprehensive evaluation of all areas of wetness and formally applied for NPDES permit coverage of all seeps. Since 2014, Duke Energy has performed periodic inspections and promptly notified the Department of new seeps and sought NPDES permit coverage where appropriate. On March 4, 2016, the Department issued Notices of Violation ("NOVs") to Duke Energy related to seeps.

Decanting (i.e., removal of the free water on the surface of the coal ash basins), which is required before ash basins can be closed, is expected to substantially reduce or eliminate the seeps. In order to accomplish this goal of substantially reducing or eliminating seeps, this Special Order affords certain relief to Duke Energy related to the non-engineered seeps (as defined in subparagraphs f and g below), while requiring Duke Energy to accelerate the schedule for decanting as specified more fully below. Engineered seeps (as defined in subparagraphs e and f below) will be addressed in the NPDES permits. After completion of decanting, for any remaining seeps, whether engineered or non-engineered, Duke Energy must take appropriate corrective action as specified more fully below.

- b. Duke Energy has been issued North Carolina NPDES permits for operation of an existing wastewater treatment works at each of the following coal fired, electric generation facilities (“Duke Energy Facilities,” or in the singular, “Facility”):

Facility	Permit Number	County	Issuance Date	Receiving Water for Primary Outfall
Allen	NC0004979	Gaston	1/18/2011	Catawba River
Marshall	NC0004987	Catawba	9/9/2016	Catawba River
Rogers	NC0005088	Rutherford	2/20/2012	Broad River

- c. The Duke Energy Facilities listed above will continue to operate and generate coal ash, and each is subject to the provisions of this Special Order.
- d. Wastewater treated at coal-fired electric stations includes water mixed with ash produced through the combustion of coal for the steam generation process. Ash is controlled and collected through the use of water, creating a slurry that is conveyed to impoundments or basins with earthen dike walls. In the ash basin, the solids separate from the liquid portion, with the resulting supernatant discharged under the terms of the NPDES permit.

- e. The coal ash basins at the Duke Energy Facilities are unlined, having no impermeable barrier installed along their floors or sides. Earthen basins and dike walls are prone to the movement of liquid through porous features within those structures through a process known as seepage. Each of the Duke Energy Facilities covered by this Special Order exhibits locations adjacent to, but beyond the confines of, the coal ash basins where seepage of coal ash wastewater from the coal ash basins may intermix with groundwater, reach the land surface (or “daylight”), and may flow from that area. Once such seepage reaches the land surface, it is referred to as a “seep.” Each of the seeps identified at the Duke Energy Facilities and addressed in this Special Order exhibit some indication of the presence of coal ash wastewater. Both (a) confirmed seeps and (b) areas identified as potential seeps that were later dispositioned, are identified in Attachment A.
- f. Some of Duke Energy’s coal ash impoundments contain engineered features on or within the dam structures (such as toe drains or filter blankets) to collect seepage. This wastewater is conveyed via a pipe or an engineered channel directly to a receiving water. These discrete, identifiable, point source discharges are or will be covered and regulated by the respective NPDES permits and designated as outfalls therein. The characteristics of these wastewater flows are similar to those discharging from other permitted outfalls for ash basin effluent. In this Special Order, such features are referred to as “engineered seeps.” Seeps that do not convey wastewater via a pipe or engineered channel directly to a receiving stream are referred to as “non-engineered seeps.”
- g. Non-engineered seeps at the Duke Energy Facilities often exhibit low flow volume and may be both transient and seasonal in nature, and may, for example, manifest as an area of wetness that does not flow to surface waters, a point of origin of a stream feature, or flow to an existing stream feature. These circumstances of the non-engineered seeps make them difficult to discern, characterize, quantify and/or monitor as discrete point source discharges. This creates challenges in permit development and compliance monitoring because it is difficult to accurately monitor for flow and discharge characterization. Non-engineered seeps at the Duke Energy Facilities present significant challenges to their inclusion in NPDES permits as point source discharges, but they do cause or contribute to pollution of classified waters of the State. Therefore, these non-engineered seeps are addressed in this Special Order rather than in an NPDES permit.

- h. Investigations and observations conducted by the Department and U. S. Army Corps of Engineers staff have concluded that some seeps emanating from Duke Energy's coal ash ponds create and/or flow into features delineated as classified waters of the State or Waters of the United States.
- i. Collectively, the volume of non-engineered seeps is generally low compared to the volume of permitted wastewater discharges at the Duke Energy Facilities.
- j. In 2014, Duke Energy conducted a survey of each coal-fired electric generation station to identify potential seeps from the coal ash surface impoundments. Duke Energy included all areas of wetness identified around the impoundments as seeps, and submitted applications to include those seeps in NPDES permits. Beginning in 2015, Duke Energy has implemented semi-annual surveys to identify new seeps in the vicinities of the coal ash basins. Additional seeps have been observed and documented during these surveys and reported to the Department pursuant to a Discharge Identification Plan mandated by CAMA. Additional investigation has determined that not all of areas identified in 2014 are seeps, but each Duke Energy facility does have multiple seeps.
- k. The Department issued NOVs to Duke Energy on March 4, 2016 for the seeps that emanate from the unlined coal ash surface impoundments at the Duke Energy Facilities.
- l. Non-engineered seeps create conditions such that certain surface water quality standards may not consistently be met at all Duke Energy monitoring sites.
- m. The presence of coal ash influenced water in the non-engineered seeps causes or contributes to pollution of the waters of this State, and Duke Energy is within the jurisdiction of the Commission as set forth in G.S. Chapter 143, Article 21.
- n. A list of seeps identified in the vicinities of the coal ash surface impoundments at the Allen, Marshall and Rogers plants, as well as their locations, and the bodies of water those seeps may flow into (if applicable), can be found in Attachment A to this Special Order.
- o. Duke Energy must close the coal ash surface impoundments at all North Carolina coal-fired electric generating stations in accordance with applicable requirements set out in CAMA and the Federal Coal Combustion Residuals Rule, requirements of which are independent of the resolution of seeps addressed in this Special Order.
- p. Decanting of wastewater performed at Duke Energy's coal ash basins is expected to eliminate or substantially reduce the seeps from the ash basins at the Duke Energy Facilities.

q. Since this Special Order is by consent, the Parties acknowledge that review of the same is not available to the Parties in the N.C. Office of Administrative Hearings. Furthermore, neither party shall file a petition for judicial review concerning the terms of this Special Order.

2. Duke Energy, desiring to resolve the matters causing or contributing to pollution of the waters of the State described above, hereby agrees to do the following:

a. **Penalties**

1) **Upfront Penalty.** Pay the Department, by check payable to the North Carolina Department of Environmental Quality, a penalty in the amount of \$84,000, calculated based upon \$4,000 each for 21 seeps identified prior to January 1, 2015. No penalty shall be assessed for seeps identified after December 31, 2014, given Duke Energy's inclusion of seeps in permit applications and compliance with the Discharge Identification Plan required under CAMA. The payment of penalties in this Special Order related to issues arising prior to 2015 is not an admission or result of any wrongdoing or evidence of mismanagement, negligence, imprudence, or final determination of violations of laws, rules or standards by Duke Energy and is instead an agreed-to condition required by DEQ as consideration for this Special Order.

A certified check in the amount of \$84,000.00 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 thirty (30) days following the date on which this Special Order is approved and executed by the Commission, and received by Duke Energy.

2) **Stipulated Penalties.** Duke Energy agrees that unless excused under paragraph 5, Duke Energy 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 paragraphs 2(b, c, and d), or for failure to comply with interim action levels listed in Attachment A.

Failure to meet a deadline in the Compliance Schedule in 2(b) of this Special Order	\$1,000.00/day for the first seven days; \$2,000.00/day thereafter
Failure to meet any other deadline in this Special Order	\$1,000.00/day for the first seven days; \$2,000.00/day thereafter
Exceedance of an interim action level listed in Attachment A	\$4,500.00 per monitored exceedance
Monitoring frequency violations	\$1,000.00 per violation
Failure to submit, within 210 days of the completion of decanting at each Facility, adequate amendments to groundwater Corrective Action Plans or Closure Plans to address all remaining seeps, whether engineered or non-engineered, through corrective action as applicable under paragraph 2(d) of this Special Order. ¹	\$5,000.00 per day, to a maximum of \$1,000,000.00 per electric generating facility.

As long as Duke Energy remains in compliance with the terms of this Special Order, as well as CAMA and conditions of any approvals issued thereunder, the Department shall not assess civil penalties for newly identified seeps.

- b. **Compliance Schedule.** Duke Energy shall undertake the following activities in accordance with the indicated time schedule. No later than fourteen (14) calendar days after any date identified for accomplishment of any activity, Duke Energy shall submit to the Director of DWR written notice of compliance or noncompliance therewith. In the case of compliance, the notice shall include the date compliance was achieved along with supporting documentation if applicable. In the case of noncompliance, the notice shall include a 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.

Duke Energy shall accelerate compliance with the requirements of G.S. 130A-309.210(d) and (f) such that all projects necessary to eliminate discharges of stormwater into the surface impoundments at the Duke Energy Facilities and to convert to dry bottom ash handling shall be complete prior to the deadline for initiating decanting set out below.

- 1) **Complete dry ash handling projects in accordance with the following schedule**

¹ Failure to adequately implement any amended Corrective Action Plan or Closure Plan will be handled in the normal course.

<u>Facility</u>	<u>Fly Ash</u>	<u>Bottom Ash</u>
Allen	Complete	3/31/2019
Marshall	Complete	1/31/2019
Rogers	3/31/2018	8/31/2018

2) **Initiation of Decanting**

Allen	6/30/2019
Marshall	9/30/2019
Rogers	3/31/2019

3) **Completion of Decanting**

Allen	6/30/2020
Marshall	3/31/2021
Rogers	3/31/2020

This schedule is premised upon timely issuance of necessary permits or approvals, and no requirement imposed by DWR to implement physical/chemical treatment during decanting except as required by an NPDES permit. Should any of these assumptions prove to be incorrect, the Parties shall renegotiate these deadlines, provided that the final expiration date of this Special Order will not be affected by such renegotiation.

4) **Termination of Special Order**

This Special Order shall terminate on a facility-by-facility basis on the later of the following dates:

- 180 days following completion of decanting; or
- 30 days following the approval of an amended groundwater Corrective Action Plan and/or Closure Plan as appropriate (if an amendment is submitted in compliance with subparagraph d. below).

- c. **Additional Compliance Measures.** Duke Energy shall undertake the following additional compliance measures:
- 1) If the monitoring of any classified water of the State receiving flow from seeps regulated by this Special Order indicates exceedance of any interim action level established by the Special Order, Duke Energy shall increase monitoring at that location from quarterly to monthly until concentrations of monitored characteristics return to those observed at the initiation of the Special Order. If any interim action level established by the Special Order is exceeded by more than 20% in a single sampling event, or exceeded for two (2) consecutive monitoring events, in addition to paying the associated stipulated penalty, Duke Energy shall conduct a re-assessment of the contributing seep(s), including, but not limited to, evaluation of proposed remedial actions for treatment and/or control of the seep such that impacts to the receiving waters are quickly mitigated. A report compiling the findings of the re-assessment, including proposed remedial actions, shall be provided to the Director of DWR within 60 days of any applicable exceedance. Following its review, DWR shall notify Duke Energy of its concurrence or disapproval of Duke Energy's proposed remedial actions.
 - 2) Once the decanting process is initiated, within thirty (30) days after the end of each quarter, Duke Energy shall provide reports on the status of decanting work and other activities undertaken with respect to closure of each coal ash surface impoundment to DWR. The quarterly reports are due by April 30, July 30, October 30 and January 30 while this Special Order is in effect. The reports are to be submitted as follows: one copy must be mailed to the appropriate Regional Office Supervisor for each facility and one copy must be mailed to the Water Quality Permitting Program, Division of Water Resources, 1617 Mail Service Center, Raleigh, NC 27699-1617.

- 3) Duke Energy shall conduct annual comprehensive surveys of areas down gradient of ash basins identifying new seeps, and documenting the physical characteristics of previously documented seeps. All examinations of seeps must include identification of seeps by approximate latitude and longitude and date-stamped digital photographs of their appearance. A report summarizing the findings of the surveys, including a section analyzing the effect decanting of the basin(s) has on seep flows, accompanied by copies of the photographs noted above (“Annual Seep Report”), shall be submitted to DWR in conjunction with submittal of the April 30 quarterly report noted in 2(c)(2) above. This Annual Seep Report must list any seep that has been dispositioned (as described below) during the previous year, including an analysis of the manner of disposition. For purposes of this Special Order, “dispositioned” includes the following: (1) the seep is dry for at least three consecutive quarters; (2) the seep does not constitute, and does not flow to, waters of the State or Waters of the United States for at least three consecutive quarters; (3) the seep is no longer impacted by flow from any coal ash basin such that concentrations of all pollutants listed in Attachment B meet State criteria for four consecutive sampling events with at least seven days separating each event; or (4) the seep has been otherwise eliminated (e.g., through an engineering solution). If a seep that has been dispositioned through drying up reappears in any subsequent survey, such a seep will no longer be deemed dispositioned and can be subsequently re-dispositioned as specified above.
- 4) No later than 90 days following the completion of decanting at each Facility, and in the same manner as in the annual surveys, Duke Energy shall conduct a comprehensive survey of areas down gradient of ash basins identifying new seeps, and documenting the physical characteristics of previously documented seeps. All examinations of seeps must include identification of seeps by approximate latitude and longitude and date-stamped digital photographs of their appearance. A report summarizing the findings of this survey, including a section analyzing the effect decanting of the basin(s) has had on seep flows, accompanied by copies of the photographs noted above, shall be submitted to the Director of DWR (“Final Seep Report”). This Final Seep Report must list any seep that has been dispositioned (as described in subparagraph (3) above) during decanting process, including an analysis of the manner of disposition. The determination of whether a seep is dispositioned rests with the Director of DWR. At, or at any time prior to, submission of the Final Seep Report, Duke Energy shall seek formal certification from the Director of DWR, certifying the disposition of any seep that Duke Energy has characterized as dispositioned. Any seeps not certified as dispositioned by the Director of DWR shall not be deemed as dispositioned.

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d. **Further Corrective Action.** Following completion of decanting, if any seeps (including both engineered and non-engineered seeps) have not been certified by the Director of DWR as dispositioned (as described in subparagraph c. above), Duke Energy shall conduct a characterization of those seeps.² Duke Energy shall submit a report on the findings of these characterizations (“Seep Characterization Report”) to the Director of DWR within 150 days of completion of decanting at each Facility (i.e., within 60 days of the submittal of the Final Seep Report). The Seep Characterization Report must include all sampling data for each remaining seep as well as Duke Energy’s evaluation of the jurisdictional status of all seeps at the relevant Facility. The determination regarding whether a surface water feature is a classified water of the State rests with DWR.

Within 60 days of the submittal of the Seep Characterization Report, Duke Energy shall submit a complete and adequate proposed amendment to the groundwater Corrective Action Plan and/or Closure Plan as appropriate for the Facility describing how any seeps identified in the Seep Characterization Report will be managed in a manner that will be sufficient to protect public health, safety, and welfare, the environment, and natural resources. This proposed amendment will go to public comment. Duke Energy shall submit documentation that the proposed modification has been submitted to the appropriate division within the Department that has authority for approving modification of the groundwater Corrective Action Plan and/or Closure Plan. The content of, and DEQ’s review of, an amendment to a groundwater Corrective Action Plan shall be consistent with Title 15A, Chapter 2L of the N.C. Administrative Code (specifically including 2L.0106(h)-(o)). The amendment to the Corrective Action Plan and/or Closure Plans shall be implemented by Duke Energy in accordance with the deadlines contained therein, as approved or conditioned by the Department. Failure by Duke Energy to implement the amendment will be handled in the normal course by the Department in accordance with its enforcement procedures (i.e., outside this Special Order).

² If any seep is dispositioned between the time that the Final Seep Report is submitted and the time the Seep Characterization Report is submitted, an analysis of the manner of disposition must be included in the Seep Characterization Report, and Duke Energy must seek certification of such a disposition from the Director of DWR. Only if such certification is received prior to the due date of the proposed amendment described in paragraph 2(d) may such a seep, certified as dispositioned, be omitted from the proposed amendment.

For clarity, listed below is a summary of the timetable for the documents due after completion of decanting (as described in 2(c)(4) and 2(d) above):

Document	Due Date
Final Seep Report	90 days after completion of decanting
Seep Characterization Report	150 days after completion of decanting (i.e., 60 days after submission of Final Seep Report)
Proposed amendment to groundwater Corrective Action Plan and/or Closure Plan	210 days after completion of decanting (i.e., 60 days after submission of Seep Characterization Report)

e. Interim Action Levels.

- 1) Duke Energy shall perform representative monitoring of waters receiving flow from non-engineered seeps in accordance with the schedules listed in Attachments A and B, except as noted in paragraph 2(c)(1) above.
 - 2) Upon the complete execution of this Special Order, with regard to non-engineered seeps, interim action levels for the receiving waters which are minor tributaries are hereby established as noted in Attachment A. The interim action levels are site-specific. Duke Energy shall monitor at approved sampling sites to ensure interim action levels are met. Interim action levels shall remain effective in the designated surface waters until the applicable termination date in paragraph 2(b)(4) is reached.
 - 3) Monitoring associated with seeps covered by this Special Order is exempt from the electronic reporting requirements associated with NPDES permits. Results of monitoring required exclusively per the terms of this Special Order shall be reported to the Director of DWR in a spreadsheet/worksheet format agreed to by Duke Energy and DWR. Monitoring data shall be submitted to the Director of DWR in a digital format no later than 30 days following the end of each calendar quarter for as long as the Special Order is in effect. Monitoring data shall be sent to the following email address: desocdata@ncdenr.gov. Data from those sites with monitoring required exclusively per the terms of the Special Order will be posted on DWR's website to provide the public with the opportunity for viewing.
3. Duke Energy will continue to operate its coal ash surface impoundments in such a manner that their performance is optimized, and potential for surface waters to be affected by seeps is minimized.

4. Duke Energy shall make available on its external website the NPDES permits, this Special Order and all reports required under this Special Order for each of the Duke Energy Facilities no later than thirty (30) days following their effective or submittal dates.
5. Duke Energy and the Commission agree that the stipulated penalties specified in paragraph 2(a)(2) are not due if Duke Energy 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 Duke Energy or if the act or omission occurs in connection with a contractual relationship with Duke Energy;
 - d. An extraordinary event beyond the Duke Energy's control, specifically including any court order staying the effectiveness of any necessary permit or approval. Contractor delays or failure to obtain funding will not be considered as events beyond Duke Energy's control; or
 - e. Any combination of the above causes.
6. Failure within thirty (30) days of receipt of written demand by DWR to pay the stipulated 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.
7. Any non-engineered seeps causing or contributing to pollution of waters of the State associated with the coal ash impoundments at Duke Energy's Allen, Marshall and Rogers electric generation stations, and listed in Attachment A to this Special Order, are hereby deemed covered by this Special Order. Any newly-identified non-engineered seeps discovered during the annual investigations for seeps referenced in paragraph 2(c)(3) above, or at any other time while this Special Order is in effect, and timely reported to the Department per the terms of CAMA and this Special Order, shall be deemed covered by the terms of the Special Order, retroactive to the time of their discovery. Newly-identified non-engineered seeps must be sampled for the presence of those characteristics listed in Attachment B to this Order. Newly-identified non-engineered seeps found to be causing or contributing to pollution of the waters of the State, with the effect of causing a violation of water quality standards in surface waters not already referenced in the Special Order, may require modification of the Special Order to address those circumstances.

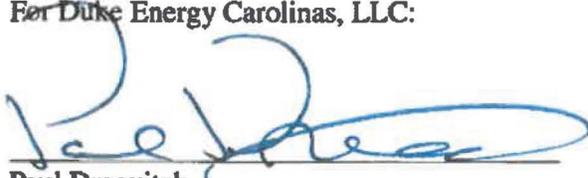
8. Noncompliance with the terms of this Special Order is subject to enforcement action in addition to the above stipulated penalties, including, but not limited to injunctive relief pursuant to G.S. 143-215.6C or termination of this Special Order by the Director of DWR upon ten (10) days' notice to Duke Energy. Noncompliance with the terms of this Special Order will not be subject to civil penalties in addition to the above stipulated penalties.
9. This Special Order 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 permits NC0004979, NC0004987 and NC0005088.
10. This Special Order may be modified at the Department's discretion, provided the Department is satisfied that Duke Energy has made good faith efforts to secure funding, complete all construction, and achieve compliance within the dates specified. In accordance with applicable law, modification of this Special Order will go to public notice prior to becoming effective.
11. Failure to pay the up-front penalty within thirty (30) days of execution of this Special Order will terminate this Special Order.
12. In addition to any other applicable requirement, each report required to be submitted by Duke Energy under this Special Order 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.
13. This Special Order shall become effective in accordance with state law, and once effective, Duke Energy shall comply with all schedule dates, terms, and conditions herein.

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This Special Order by Consent shall expire no later than June 30, 2022.

For Duke Energy Carolinas, LLC:



Paul Draovitch
Senior Vice President, Environmental, Health & Safety

1/8/19
Date

For the North Carolina Environmental Management Commission:

J. D. Solomon, P.E.
Chair of the Commission

Date

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Non-Engineered Seeps

Seep ID Number	Approximate Location Coordinates		Description	Receiving Waterbody	Receiving Waterbody Classification	SOC Monitoring Requirements	Interim Action Level
	Latitude	Longitude					
S-1*	35.170632	-81.010093	Located south of active ash basin. Flow is in approximately 3 foot wide channel flowing southeast to Lake Wylie. Via sampling - No CCR impacts	Catawba River (Lake Wylie)	WS-V; B		
S-2	35.173761	-81.00578	Located south of the active ash basin at toe of dike. Flows to approximately 3 foot wide channel that flows to Lake Wylie.	Catawba River (Lake Wylie)	WS-V; B	Monitoring at point prior to entering Lake Wylie	pH 5-10 s. u. Hardness 400 mg/L
S-5	35.17698	-81.006087	Located east of active ash basin, between dike and river bank. Intermittent, unconfined diffuse flow towards Lake Wylie.	Catawba River (Lake Wylie)	WS-V; B	Instream Monitoring of Lake Wylie	
S-6	35.177049	-81.006128	Located east of active ash basin, between dike and river bank. Intermittent, unconfined diffuse flow towards Lake Wylie.	Catawba River (Lake Wylie)	WS-V; B	Instream Monitoring of Lake Wylie	
S-7	35.177736	-81.006334	Located east of active ash basin, between dike and river bank. Intermittent, unconfined diffuse flow towards Lake Wylie.	Catawba River (Lake Wylie)	WS-V; B	Instream Monitoring of Lake Wylie	
S-9**	35.185838	-81.00585	Former seep with flow through 24" corrugated metal pipe. Pipe has been grouted; discharge eliminated.	Catawba River (Lake Wylie)	WS-V; B		

*Location previously investigated as a seep. Monitoring has not indicated the presence of coal combustion residuals.

** Seep dispositioned via repair and/or non-flowing condition to potentially reach WOTUS, or other, as noted.

Monitoring shall be conducted at the approximate locations indicated on the attached site map.

All monitoring shall be conducted per the requirements found in Attachment B of this Order.

Allen Steam Station – Monitoring Locations



- ★ Upstream in Lake Wylie
- ★ Downstream in Lake Wylie

- ★ Representative Seep Monitoring

Attachment A
S17-009

Duke Energy Carolinas, LLC - Marshall Steam Station, p.1

Non-Engineered Seeps

Seep ID Number	Approximate Location Coordinates		Description	Receiving Waterbody	Receiving Waterbody Classification	SOC Monitoring Requirements	Interim Action Level
	Latitude	Longitude					
S-01	35.611722	-80.960389	General groundwater seepage forming a wet area that flows to an approximately 2 foot wide natural channel, located northeast of the active ash basin, then flows to Lake Norman.	Unnamed Tributary to Catawba River (Lake Norman)	WS-IV; B; CA	Monitoring at point prior to entering Lake Norman	pH 5-10 s. u. Hardness 200 mg/L
S-02	35.606642	-80.958931	Located east of active ash basin, minor area of wetness (AOW) between basin dike and river bank. Intermittent flow from culvert directs seasonal flow to Lake Norman.	Catawba River (Lake Norman)	WS-IV; B; CA	Instream Monitoring of Lake Norman	
S-03**	35.606714	-80.959059	Located east of active ash basin, minor area of wetness between basin dike and river bank. AOW was determined to be same area of wetness as AOW S-02 above.	Catawba River (Lake Norman)	WS-IV; B; CA		
S-04	35.6064	-80.959	Located east of active ash basin, non-flowing AOW in wetland area between basin dike and river bank. Potential sheet flow towards Lake Norman primarily during wet season.	Catawba River (Lake Norman)	WS-IV; B; CA	Instream Monitoring of Lake Norman	

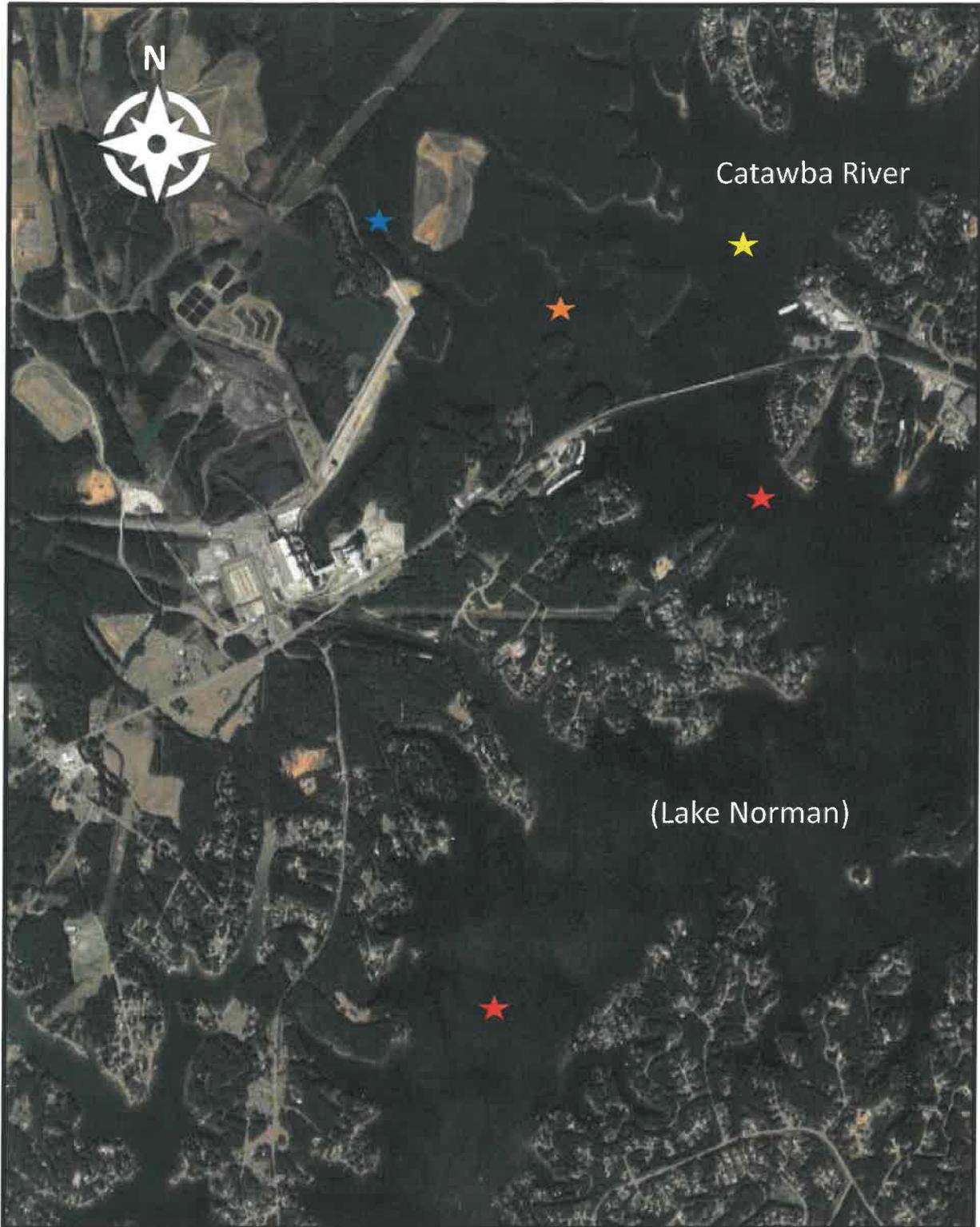
*Location previously investigated as a seep. Monitoring has not indicated the presence of coal combustion residuals.

** Seep dispositioned via repair and/or non-flowing condition to potentially reach WOTUS, or other, as noted.

Monitoring shall be conducted at the approximate locations indicated on the attached site map.

All monitoring shall be conducted per the requirements found in Attachment B of this Order.

Marshall Steam Station – Monitoring Locations



- ★ Upstream: Catawba River (Lake Norman)
- ★ Instream: Lake Norman – Holdsclaw Creek Arm
- ★ Downstream: Catawba River (Lake Norman)
- ★ Representative Seep Monitoring

Duke Energy Carolinas, LLC – Rogers Energy Complex (Cliffside Steam Station), p.1

Non-Engineered Seeps

Seep ID Number	Approximate Location Coordinates		Description	Receiving Waterbody	Receiving Waterbody Classification	SOC Monitoring Requirements	Interim Action Level
	Latitude	Longitude					
S-01*	35.215639	-81.775344	Steady flow within three foot wide stream located northwest of inactive Unit 5 Ash Basin	Broad River			
S-02	35.217217	-81.768678	Seep drainage in wetland area via 1-2 foot wide stream channel, located north of the inactive Unit 5 ash basin. Drainage collects seep flows from S-18, S-19 and S-19A. Flows north to the Broad River at a point approximately 50 feet downstream of the Inactive Unit 5 Ash Basin discharge outfall.	Unnamed Tributary (UT) to Broad River	WS-IV	Monitoring at established Duke Energy S-02 monitoring site	pH 5-10 s. u. Hardness 800 mg/L Mercury 0.1 µg/L Sulfates 500 mg/L TDS 1000 mg/L Thallium 0.5 µg/L
S-03	35.22001	-81.7577	Minor seepage and groundwater influence from closed Units 1-4 ash basin area to sample point within former condenser circulating water (CCW) discharge canal for retired units 1-4.	Broad River	WS-IV	Broad River Instream Monitoring	
S-05*	35.218147	-81.749844	Diffuse flow emerging from a small area along the bank of the Broad River and base of the active ash basin.	Broad River			
S-07	35.218642	-81.745975	Steady, clear and braided stream that flows in a relatively level area northeast of the active ash basin at edge of property line. Flow is north to Broad River.	UT to Broad River	WS-IV	Monitoring at established Duke Energy S-07 monitoring site	pH 5-10 s. u.
S-08*	35.208547	-81.755781	Natural conveyance tributary to Suck Creek	Suck Creek			
S-09*	35.217122	-81.754244	Minor, diffuse flow to Suck Creek near confluence with Broad River.	Suck Creek			

*Location previously investigated as a seep. Monitoring has not indicated the presence of coal combustion residuals.

** Seep dispositioned via repair and/or non-flowing condition to potentially reach WOTUS, or other, as noted.

Monitoring shall be conducted at the approximate locations indicated on the attached site map.

All monitoring shall be conducted per the requirements found in Attachment B of this Order.

Attachment A
S17-009

Duke Energy Carolinas, LLC – Rogers Energy Complex (Cliffside Steam Station), p.2

Seep ID Number	Approximate Location Coordinates		Description	Receiving Waterbody	Receiving Waterbody Classification	SOC Monitoring Requirements	Interim Action Level
	Latitude	Longitude					
S-10**	35.219472	-81.756731	Seep was located near bank of Broad River, from past toe drains adjacent to Unit 1-4 Inactive Ash Basin. Following ash basin excavation and toe drain removals, seep has disappeared	Broad River			
S-11**	35.2194	-81.756617	Seep was located near bank of Broad River, from past toe drains adjacent to Unit 1-4 Inactive Ash Basin. Following ash basin excavation and toe drain removals, seep has disappeared	Broad River			
S-12*	35.217658	-81.751783	Diffuse seepage to area of wetness (AOW) with no defined channel on bank of Broad River below ash storage area. AOW does not reach surface waters.	Broad River			
S-13**	35.218353	-81.754942	Minor flow was located at bank of Broad River, adjacent to Unit 1-4 Inactive Ash Basin. Following ash basin excavation, seep has disappeared.	Broad River	WS-IV		
S-14	35.214511	-81.755844	Seepage located along toe of dike (west side) of the active ash basin. Area of wetness - no flowing water observed. Any flow would move toward Suck Creek.	Suck Creek	WS-IV	Suck Creek Instream Monitoring	
S-15	35.214297	-81.756117	Second seepage area located along toe of dike (west side) of the active ash basin. Area of wetness - no flowing water observed. Any flow could move via poorly incised channel toward Suck Creek.	Suck Creek	WS-IV	Suck Creek Instream Monitoring	
S-16	35.2141	-81.756208	Third seepage area located along toe of dike (west side) of the active ash basin. Any minor flow could move via channelized area toward Suck Creek.	Suck Creek	WS-IV	Suck Creek Instream Monitoring	

*Location previously investigated as a seep. Monitoring has not indicated the presence of coal combustion residuals.

** Seep dispositioned via repair and/or non-flowing condition to potentially reach WOTUS, or other, as noted.

Monitoring shall be conducted at the approximate locations indicated on the attached site map.

All monitoring shall be conducted per the requirements found in Attachment B of this Order.

Attachment A
S17-009

Duke Energy Carolinas, LLC – Rogers Energy Complex (Cliffside Steam Station), p.3

Seep ID Number	Approximate Location Coordinates		Description	Receiving Waterbody	Receiving Waterbody Classification	SOC Monitoring Requirements	Interim Action Level
	Latitude	Longitude					
S-17**	35.217192	-81.769272	Minor seep at river edge and below the ordinary high water level of Broad River, west (upstream) of S-2.	Broad River			
S-18	35.216439	-81.768564	Seepage from riprap at toe of inactive Unit 5 Ash Basin. Flows north into wetland area draining to sampling site S-2.	UT to Broad River	WS-IV	Monitoring at S-02 monitoring site.	
S-19	35.216361	-81.768681	Seepage from wooded area at toe of inactive Unit 5 Ash Basin. Flows north into wetland area draining to sampling site S-2.	UT to Broad River	WS-IV	Monitoring at S-02 monitoring site.	
S-19A	35.216581	-81.769217	Seepage from wooded area at toe of inactive Unit 5 Ash Basin. Flows north into wetland area draining to sampling site S-2.	Broad River	WS-IV	Monitoring at S-02 monitoring site.	
S-20**	35.215856	-81.765217	Stagnant AOW at toe of northeast side of Inactive Unit 5 Ash Basin. AOW dispositioned via repair.	Broad River	WS-IV		
S-21	35.214625	-81.755953	Seep located along dike of the active ash basin (west side). Area of wetness - no flowing water observed. Any flow would move toward Suck Creek.	Suck Creek	WS-IV	Suck Creek Instream Monitoring	
S-22**	35.218278	-81.748258	Pipe has been plugged; discharge eliminated.				
S-23	35.217994	-81.750208	Seep to pooled area adjacent to the Broad River, located north of the active ash basin. Minor seepage from pool emerges with any flow draining north to the Broad River.	Broad River	WS-IV	Broad River Instream Monitoring	
S-24*	35.218139	-81.749428	Minor seepage to AOW near bank of Broad River and north of active basin.	Broad River			

*Location previously investigated as a seep. Monitoring has not indicated the presence of coal combustion residuals.

** Seep dispositioned via repair and/or non-flowing condition to potentially reach WOTUS, or other, as noted.

Monitoring shall be conducted at the approximate locations indicated on the attached site map.

All monitoring shall be conducted per the requirements found in Attachment B of this Order.

Attachment A
S17-009

Duke Energy Carolinas, LLC – Rogers Energy Complex (Cliffside Steam Station), p.4

Seep ID Number	Approximate Location Coordinates		Description	Receiving Waterbody	Receiving Waterbody Classification	SOC Monitoring Requirements	Interim Action Level
	Latitude	Longitude					
S-25**	35.217689	-81.751894	Minor seepage to AOW below ash storage area. No measurable flow has been observed throughout site history.	Broad River			
S-26*	35.217425	-81.753931	Natural conveyance near bank of Suck Creek near confluence with the Broad River.	Suck Creek			
S-27	35.21383	-81.756478	Seep located along dike of the active ash basin (west side). Area of wetness - no flowing water observed. Any flow would move toward Suck Creek.	Suck Creek	WS-IV	Suck Creek Instream Monitoring	
S-28	35.211677	-81.753876	Minor diffuse groundwater seepage along steep bank of Suck Creek, west of the active ash basin dike.	Suck Creek	WS-IV	Suck Creek Instream Monitoring	
S-29	35.211542	-81.753993	Minor diffuse groundwater seepage along steep bank of Suck Creek, west of the active ash basin dike.	Suck Creek	WS-IV	Suck Creek Instream Monitoring	
S-30	35.211496	-81.75391	Minor diffuse groundwater seepage along steep bank of Suck Creek, west of the active ash basin dike.	Suck Creek	WS-IV	Suck Creek Instream Monitoring	
S-31	35.211482	-81.753887	Minor diffuse groundwater seepage along steep bank of Suck Creek, west of the active ash basin dike.	Suck Creek	WS-IV	Suck Creek Instream Monitoring	
S-32	35.211258	-81.753646	Minor diffuse groundwater seepage along steep bank of Suck Creek, west of the active ash basin dike.	Suck Creek	WS-IV	Suck Creek Instream Monitoring	
S-33**	35.218272	-81.754754	Seep was located at bank of Broad River, adjacent to Unit 1-4 Inactive Ash Basin. Following ash basin excavation, seep has disappeared	Broad River			
S-34*	35.217556	-81.753725	Natural conveyance near bank of Suck Creek	Suck Creek			
S-35*	35.208203	-81.755703	Natural conveyance tributary to Suck Creek	Suck Creek			

*Location previously investigated as a seep. Monitoring has not indicated the presence of coal combustion residuals.

** Seep dispositioned via repair and/or non-flowing condition to potentially reach WOTUS, or other, as noted.

Monitoring shall be conducted at the approximate locations indicated on the attached site map.

All monitoring shall be conducted per the requirements found in Attachment B of this Order.

Attachment A
S17-009

Duke Energy Carolinas, LLC – Rogers Energy Complex (Cliffside Steam Station), p.5

Seep ID Number	Approximate Location Coordinates		Description	Receiving Waterbody	Receiving Waterbody Classification	SOC Monitoring Requirements	Interim Action Level
	Latitude	Longitude					
S-36	35.210258	-81.753983	Minor diffuse groundwater seepage along bank of Suck Creek, west of the active ash basin dike. New area identified with no current data. Area to be monitored to determine status.	Suck Creek	WS-IV	Suck Creek Instream Monitoring	

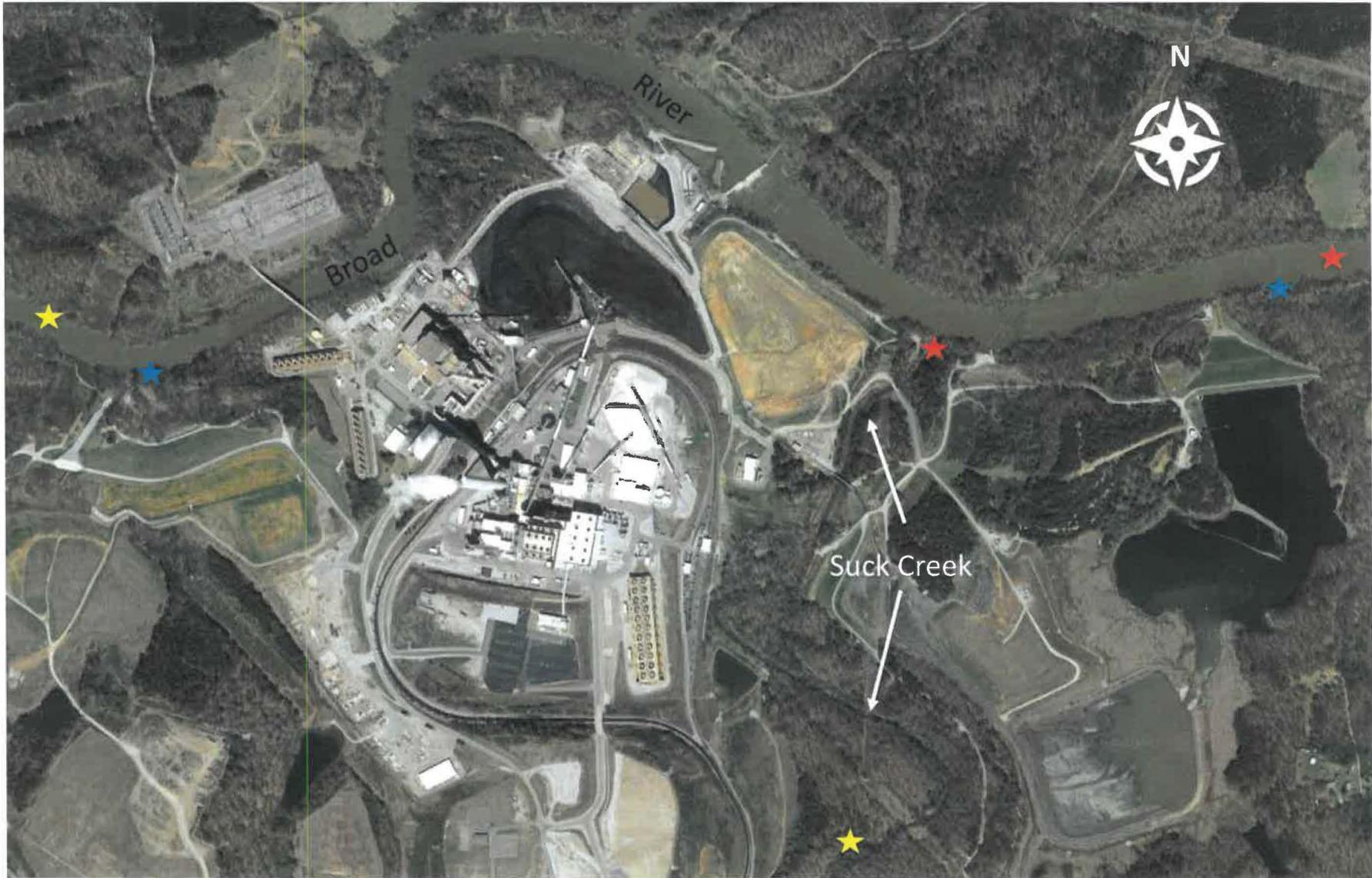
*Location previously investigated as a seep. Monitoring has not indicated the presence of coal combustion residuals.

** Seep dispositioned via repair and/or non-flowing condition to potentially reach WOTUS, or other, as noted.

Monitoring shall be conducted at the approximate locations indicated on the attached site map.

All monitoring shall be conducted per the requirements found in Attachment B of this Order.

Rogers Energy Complex (Cliffside Steam Station) – Monitoring Locations



- ★ Upstream in Broad River and Suck Creek
- ★ Downstream in Broad River and Suck Creek

- ★ Representative Seep Monitoring

SOC S17-009
Duke Energy Carolinas, LLC
Attachment B
Monitoring Requirements

The following represents the parameters to be analyzed and reported at all monitoring locations designated within this Special Order.

Parameter	Reporting Units	Monitoring Frequency
TSS	mg/L	Annually
Oil and Grease	mg/L	Annually
pH	Standard Units (s. u.)	Quarterly
Fluoride	µg/L	Quarterly
Total Mercury	ng/L	Quarterly
Total Barium	µg/L	Quarterly
Total Zinc	µg/L	Quarterly
Total Arsenic	µg/L	Quarterly
Total Boron	µg/L	Quarterly
Total Cadmium	µg/L	Quarterly
Total Chromium	µg/L	Quarterly
Total Copper	µg/L	Quarterly
Total Thallium	µg/L	Quarterly
Total Lead	µg/L	Quarterly
Total Nickel	µg/L	Quarterly
Total Selenium	µg/L	Quarterly
Nitrate/Nitrite as N	mg/L	Quarterly
Sulfates	mg/L	Quarterly
Chlorides	mg/L	Quarterly
TDS	mg/L	Quarterly
Total Hardness	mg/L	Quarterly
Temperature	° C	Quarterly
Conductivity, µmho/cm	µmho/cm	Quarterly

STATE OF NORTH CAROLINA
COUNTY OF ROCKINGHAM

NORTH CAROLINA DEPARTMENT OF
ENVIRONMENTAL QUALITY

IN THE MATTER OF)
DUKE ENERGY CAROLINAS, LLC)
)
FOR VIOLATIONS OF)
NPDES PERMIT NC0003468,)
N.C.G.S. 143-215.1(a)(1), and)
15A NCAC 2B .0211)

File No. DV-2016-0017

FINDINGS AND DECISIONS
AND ASSESSMENT OF
CIVIL PENALTIES

Acting pursuant to delegation provided by the Secretary of the Department of Environmental Quality, I, S. Jay Zimmerman, Director of the Division of Water Resources (DWR) make the following:

I. FINDINGS OF FACT

- A. Duke Energy Carolinas, LLC (Duke) is a limited liability company organized and existing in the State of North Carolina.
- B. Duke owns and operates energy production facilities and treatment facilities for wastewater generated by energy production activities at the Dan River Steam Station, located off of South Edgewood Road, south of the City of Eden, in Rockingham County, North Carolina.
- C. Duke was originally issued NPDES permit NC0003468 on August 30, 1976 for the discharge of treated wastewater from the Dan River Steam Station to the Dan River, class C waters of the state in the Roanoke River Basin. Since that time, the NPDES permit has been renewed several times, most recently on January 31, 2013 (with an effective date of March 1, 2013). In the most recent permit, the facility is named as the "Dan River Combined Cycle Station," as a result of Duke's retirement of the coal combustion energy production facility at the site, and its replacement with a facility using natural gas. Existing wastewater treatment units remained in operation following the transition in the means of energy production.
- D. NPDES permit NC0003468 contains specific requirements for the conveyance, treatment and discharge of wastewater to surface waters. Discharge of wastewater generated from various operations within the Dan River Steam Station is permitted at outfalls designated 001 (once-through cooling water, cooling tower blowdown, intake screen backwash, plant collection sumps and domestic wastewater), 001A (wastes from filtered water plant, including wash down water and laboratory wastes), 002 (ash basin discharge including low volume wastes, boiler cleaning wastewater, ash disposal, stormwater, boiler blowdown and metal washing) and 002A (yard sump overflow consisting of stormwater runoff, miscellaneous sumps and coal yard runoff), to the Dan River.

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- E. The Dan River Steam Station began operating in 1949 as a coal combustion plant. Such plants commonly employ a waste management system whereby the residual solids from the coal combustion process are mixed with water, and the resulting slurry is deposited in an impoundment designed for the purpose of storage and treatment of such wastewater (commonly known as a "coal ash pond" or "coal ash basin"). Solids separate from slurry and deposit at the bottom of the basin. The less contaminated supernatant remains at the surface of the basin, where it can be discharged under the terms and conditions of relevant laws and/or permits. From the beginning of its operation until 1956, the Dan River Steam Station generated a coal ash slurry that was deposited on the land surface at the site, where the solids separated from the water, with the water eventually flowing to the Dan River. Beginning in 1956, the Dan River Steam Station modified its wastewater treatment processes to use an ash pond waste disposal system.
- F. The Dan River Steam Station's first coal ash basin was constructed in 1956 and is commonly referred to as the "Primary Ash Basin." During 1968 and 1969, the Primary Ash Basin was expanded. During 1976 and 1977, the expanded Primary Ash Basin was divided to form a second ash basin (the "Secondary Ash Basin") that would receive flow from the Primary Ash Basin, providing wastewater with additional treatment prior to discharge. The resultant basins had surface areas of 27 acres (Primary) and 12 acres (Secondary).
- G. Stormwater pipes with diameters of 48 inches and 36 inches existed beneath the Primary Ash Basin with the purpose of conveying stormwater from different areas of the Dan River Steam Station property to the Dan River. The 36 inch pipe was made of reinforced concrete and ran for a length of approximately 600 feet. The 48 inch pipe was originally installed in 1954, and was made of galvanized, corrugated metal pipe. When it was first installed, its entire length was outside the boundary of the Primary Ash Basin and did not extend all the way to the Dan River. When the Primary Ash Basin was expanded in 1968 – 1969, the expanded basin covered the 48 inch pipe and the location of its outfall. The length of the pipe was extended to the Dan River at that time using reinforced concrete pipe at its outfall end.

- H. From 1976 until 2010, safety inspections of the coal ash basins were required to be performed every five years pursuant to directives of the North Carolina Utilities Commission. Duke hired consultants to perform the inspections and prepare reports containing observations, conclusions and recommendations. In reports generated by their consultants in 1981 and 1986, it was recommended that Duke perform quantitative monitoring of the inflow and outflow of both the 48 inch and 36 inch stormwater pipes [in addition to qualitative (visual) monitoring] in order to determine if wastewater was leaking into the pipes from the coal ash basins. In those reports, inspection of the interiors of the pipes was recommended if any leaks were suspected, in order to determine if they were indicative any threat to the structural integrity of the pipes. The 1986 inspection report stated the desire to see such monitoring performed on the 48 inch stormwater pipe was because "part of this culvert is constructed of corrugated metal pipe which would be expected to have less longevity of satisfactory service than the reinforced concrete pipe."
- I. The sixth independent consultant's report, submitted to Duke in February 2007 and based upon the results of a November 2006 inspection conducted by staff of MACTEC Engineering and Consulting, Inc. referenced that Duke engineers had formerly performed annual safety inspections of the coal ash basins, but since 2001 that program of routine inspections has not been maintained. It additionally stated that routine monthly site inspections performed by Dan River Steam Station personnel had been conducted during "most months of 2001, 2002, 2004, 2005 and 2006," but that "Monthly inspections were not performed in 2003."
- J. The sixth independent consultant's report contained the following recommendation:
- The outflow of the drainage pipes extending under the primary ash basins to the river should be monitored for turbidity of the discharge, which would be indicative of soil entrance into the pipes through leaks under the basin. The appearance of turbidity would make it advisable to perform a TV camera inspection of the pipe to help determine if the leak or leaks are a threat.
- K. No documentation exists of Duke performing quantitative flow monitoring or video inspection of either the 48 inch or the 36 inch stormwater pipes running beneath the Primary Ash Basin as a means to evaluate those pipes for wastewater intrusion.

- L. In an independent engineering report regarding the Dan River Steam Station's coal combustion waste (CCW) impoundments prepared by Paul C. Rizzo Associates, Inc. in September 2009 for the U.S. Environmental Protection Agency (EPA) as part of EPA's nationwide effort to determine the structural status of coal ash basins in the aftermath of the coal ash spill at the Tennessee Valley Authority's Kingston Plant in December 2008, the Primary and Secondary Ash Basins were characterized as being "significant hazard potential structures," because their failure was "not likely to result in loss of life, but may cause significant economic loss, environmental damage, disruption of lifeline facilities, or can impact other concerns." The report continued by stating "The predominate risk of failure for the Primary and Secondary Ponds is environmental damage."
- M. Duke has received no authority to discharge wastewater generated from activities at the Dan River Steam Station to waters of the state apart from that granted by NPDES permit NC0003468.
- N. Part II, Section B. 2. of NPDES Permit NC0003468 states: "The Permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit with a reasonable likelihood of adversely affecting human health or the environment [40 CFR 122.41(d)]."
- O. Part II, Section C. 2. of NPDES Permit NC0003468 states, in part: "The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit."
- P. North Carolina General Statute 143-215.1(a)(1) states that no person shall make any outlet to the waters of the state without first receiving a permit for the activity.
- Q. 15A NCAC 2B .0211(1) states that best usage for Class C waters are "aquatic life propagation and maintenance of biological integrity (including fishing, and fish), wildlife, secondary recreation, agriculture and any other usage except for primary recreation or as a source of water supply for drinking, culinary or food processing purposes."
- R. 15A NCAC 2B .0211(2) states that Class C waters "will be suitable for aquatic life propagation and maintenance of biological integrity (including fishing, and fish), wildlife, secondary recreation, agriculture; sources of water pollution which preclude any of these uses on either a short-term or a long-term basis will be considered violating a water quality standard."

- S. On February 2, 2014, a portion of a corrugated metal section of a 48 inch stormwater pipe running underneath the Dan River Steam Station's Primary Ash Pond ruptured. This event led to the discharge of approximately 27 million gallons of coal ash wastewater and between 30,000 and 39,000 tons of coal ash into the Dan River. The discharge created turbid conditions in the Dan River and led to the deposition of coal ash downstream as far as the Kerr Lake Reservoir (as far as 70 miles downstream). Discharge of wastewater from the 48 inch pipe continued until the outlet of the pipe was permanently sealed on February 8, 2014.
- T. Engineering estimates of corrugated metal pipe place its maximum effective lifespan at around fifty (50) years due to its susceptibility to corrosion. This effective lifespan is lessened if the pipe is placed in a potentially corrosive environment. At the time of the rupture of the 48 inch stormwater pipe running beneath the Primary Ash Basin, the corrugated metal pipe portion was sixty (60) years old.
- U. On February 6, 2014, Duke conducted a video inspection of a 36 inch, reinforced concrete, stormwater pipe running underneath the Dan River Steam Station's Primary Ash Pond. The examination revealed the infiltration of wastewater from the ash pond occurring to varying degrees at various points throughout its length, with the wastewater ultimately conveyed to the Dan River. Discharge from the 36 inch pipe continued until the pipe was permanently sealed on February 21, 2014. Analyses of the water being discharged to the Dan River via the 36 inch stormwater pipe conducted on February 14 and February 17, 2014 indicated the flow contained characteristics of coal ash wastewater, including arsenic concentrations of 140 µg/L and 180 µg/L on those respective dates.
- V. In the *Joint Factual Statement* agreed to between the United States of America and Duke Energy Business Services, LLC, Duke Energy Carolinas, LLC and Duke Energy Progress, Inc., and filed in the United States District Court for the Eastern District of North Carolina on May 14, 2015, Duke affirmed that the following violations of the NPDES permit occurred:
- o Failure to properly operate and maintain the treatment works covered by NPDES permit NC0003468 (§s 1 & 80).
 - o Failure to take all reasonable steps to minimize or prevent any discharge of coal ash that would adversely affect the environment (§s 1 & 80).

Additionally, in the *Joint Factual Statement*, Duke affirmed that the following non-permitted violations occurred:

- o Discharge of wastewater from the 48 inch stormwater pipe without first obtaining a NPDES permit for the activity from February 2, 2014 until February 8, 2014 (§s 41 - 42 & 81 - 89).

- Discharge of wastewater from the 36 inch stormwater pipe without first obtaining a NPDES permit for the activity from at least January 1, 2012 until February 21, 2014 (§§ 41 - 42 & 90 - 93).
 - Release of between 30,000 and 37,000 tons of coal ash from the Primary Ash Basin to the Dan River, with its deposition occurring over 62 miles of the river downstream of the release, resulting in the removal of best usage of Class C waters (§§ 1, 81, 87, 88 & 96).
- W. Duke Energy Carolinas, LLC has not been assessed civil penalties for violations of NPDES permits or water quality statutes and regulations during the five years preceding this assessment.
- X. The cost to the State of the enforcement procedures in this matter totaled \$207,005.41.

Based upon the above Findings of Fact, I make the following:

II. CONCLUSIONS OF LAW

- A. Duke Energy Carolinas, LLC is a "person" within the meaning of G.S. 143-215.6A pursuant to G.S. 143-212 (4).
- B. NPDES Permit NC0003468 is required by G.S. 143-215.1.
- C. The Dan River constitutes waters of the State within the meaning of G.S. 143-212(6) and G.S. 143-215.1(a)(1).
- D. Coal ash and coal ash wastewater described in the Findings of Fact above are "waste" pursuant to G.S. 143-213(18)(b).
- E. The discharge of coal ash and/or coal ash wastewater from the 48 and/or 36 inch stormwater pipes preceding, during and following the February 2, 2014 event at the Dan River Steam Station constituted activities that had a reasonable likelihood of adversely affecting human health or the environment.
- F. Having been made aware on numerous occasions of the potential for the introduction of coal ash wastewater to the stormwater pipes running beneath the Dan River Steam Station's Primary Ash Pond, the jeopardy such an activity posed to the structural integrity of the ash pond, and the severe consequences that could occur should the integrity of the ash pond be compromised, Duke failed to take all reasonable steps to minimize or prevent any discharge or sludge disposal from the Dan River Steam Station treatment works with a reasonable likelihood of adversely affecting human health or the environment from at least January 1, 2012, in violation of Part II, Section B. 2. of NPDES Permit NC0003468.

- G. Duke failed to properly operate and maintain the Dan River Steam Station wastewater treatment works since at least January 1, 2012, in violation of Part II, Section C. 2. of NPDES permit NC0003468, by allowing conditions to exist that led to inflow of coal ash wastewater into the 48 inch and the 36 inch stormwater pipes running underneath the Primary Ash Pond, ultimately resulting in the structural failure of the 48 inch pipe and the release of coal ash and coal ash wastewater from the ash pond into the Dan River.
- H. The discharge of coal ash and coal ash wastewater from the Dan River Steam Station Primary Ash Pond to the Dan River via inflow into the ruptured section of the 48 inch stormwater pipe running beneath the Primary Ash Pond constituted making an outlet to waters of the state.
- I. Duke violated G.S. 143-215.1(a)(1) from February 2, 2014 until February 8, 2014, by making an outlet to waters of the waters of the state without first obtaining a permit for its discharge of coal ash and coal ash wastewater via the 48 inch stormwater pipe.
- J. The discharge of coal ash wastewater from the Dan River Steam Station Primary Ash Pond to the Dan River via inflow into the 36 inch reinforced concrete stormwater pipe running beneath the Primary Ash Pond constituted making an outlet to waters of the state.
- K. Duke violated G.S. 143-215.1(a)(1) since at least January 1, 2012 until February 21, 2014, by making an outlet to waters of the waters of the state without first obtaining a permit for its discharge of coal ash wastewater via the 36 inch stormwater pipe.
- L. Duke may be assessed civil penalties in this matter pursuant to G.S. 143-215.6A(a)(2) and G.S. 143-215.6A(b1), which provide that a civil penalty of not more than ten thousand dollars (\$10,000.00) per violation may be assessed against a person who is required but fails to apply for or to secure a permit required by G.S. 143-215.1, or who violates or fails to act in accordance with the terms, conditions or requirements of a permit issued pursuant to G.S. 143-215.1.
- M. 15A NCAC 2B .0211(1) and 15A NCAC 2B .0211(2), are water quality standards established pursuant to G.S. 143-214.1.
- N. Duke violated 15A NCAC 2B .0211(1) on 171 occasions from February 2, 2014 through July 22, 2014, by allowing the discharge of coal ash and coal ash wastewater from the Dan River Steam Station's Primary Ash Pond to the Dan River, such that natural aquatic habitat was covered by deposition of thousands of tons of coal ash on the stream bed, and citizens of North Carolina were advised to avoid consumption of fish from and recreational contact with the Dan River, thereby removing best usage of Class C waters.

- O. Duke may be assessed civil penalties in this matter pursuant to G.S. 143-215.6A(a)(1) and G.S. 143-215.6A(b1), which provide that a civil penalty of not more than ten thousand dollars (\$10,000.00) per violation may be assessed against a person who violates any classification, standard, limitation, or management practice established pursuant to G.S. 143-214.1, 143-214.2 or 143-215.
- P. The State's enforcement costs in this matter may be assessed against Duke pursuant to G.S. 143-215.3(a)(9).
- Q. S. Jay Zimmerman, pursuant to delegation provided by the Secretary of the Department of Environmental Quality, has the authority to assess civil penalties in this matter.

Based upon the above Findings of Fact and Conclusions of Law, I make the following:

III. DECISION

Accordingly, Duke Energy Carolinas, LLC is hereby assessed a civil penalty of:

\$ 763,000.00 For 763 of 763 violations of Part II, Section B. 2. of NPDES permit NC0003468 by failing to take all reasonable steps to minimize or prevent any discharge or sludge disposal from the Dan River Steam Station treatment works with a reasonable likelihood of adversely affecting human health or the environment from at least January 1, 2012 until February 1, 2014.

\$ 953,000.00 For 782 of 782 violations of Part II, Section C. 2. of NPDES permit NC0003468 by failing to properly operate and maintain the Dan River Steam Station treatment works from at least January 1, 2012 until February 21, 2014.

\$ 70,000.00 For 7 of 7 violations of G.S. 143-215.1(a)(1) by making an outlet to waters of the State via the 48 inch stormwater pipe from February 2, 2014 through February 8, 2014, without having first secured a permit for the activity.

\$ 3,128,000.00 For 782 of 782 violations of G.S. 143-215.1(a)(1) by making an outlet to waters of the State via the 36 inch stormwater pipe from January 1, 2012 through February 21, 2014, without having first secured a permit for the activity.

\$ 1,710,000.00 For 171 of 171 violations of 15A NCAC 2B .0211(1), the water quality standard for best usage of Class C waters, by removing best usage from the Dan River from February 2, 2014 through July 22, 2014.

\$ 6,626,000.00 TOTAL CIVIL PENALTY

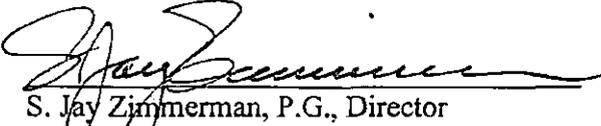
\$ 207,005.41 Enforcement Costs

\$ 6,831,005.41 TOTAL AMOUNT DUE

As required by G.S. 143-215.6A(c), in determining the amount of penalty, I considered the factors set out in 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 violations;
- (2) The duration and gravity of the violations;
- (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 violations were 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

2/3/2016
Date


S. Jay Zimmerman, P.G., Director
Division of Water Resources

IIA

SETTLEMENT AGREEMENT

This AGREEMENT TO SETTLE AND RELEASE OF CLAIMS (the "Agreement") is made and entered by and among North Carolina Department of Environmental Quality ("DEQ") and Duke Energy Carolinas, LLC ("Duke Energy"). DEQ and Duke Energy (collectively, the "Parties") agree to the following terms as a basis upon which to resolve the issues between them relating to the releases and alleged releases of coal ash from the 48-inch and 36-inch storm water pipes at Duke Energy's Dan River Steam Station (the "Dan River Plant"), any other alleged unpermitted discharges at the Dan River Plant, and any and all alleged effects on water quality therefrom. By this Agreement, the undersigned settling Parties mutually agree to compromise, settle, and forgo all current, prior, and future claims related to the 2014 Dan River NOV, the Dan River Penalty Assessment, and the 2016 Dan River NOV (each as defined herein), subject to the terms and conditions set forth below.

I. RECITALS

WHEREAS, Duke Energy owns and operates the Dan River Plant, located in Rockingham County, North Carolina;

WHEREAS, the Dan River Plant formerly produced electricity through coal combustion;

WHEREAS, on January 31, 2013, Duke Energy was issued NPDES Permit No. NC0003468, effective March 1, 2013, for operation of an existing wastewater treatment works at the Dan River Plant and for discharging treated wastewater into the Dan River;

WHEREAS, soon after the Dan River Plant was constructed, two pipes (the "48-Inch Pipe" and the "36-Inch Pipe") were installed to carry storm water runoff from various areas of the Dan River Plant property to the Dan River;

WHEREAS, on February 28, 2014, DEQ sent Duke Energy a Notice of Violation (the "2014 Dan River NOV") based upon the following alleged violations at the Dan River Plant: (1) allowing unpermitted discharges of waste water via the 48-Inch Pipe and the 36-Inch Pipe; (2) failing to properly operate and maintain the coal ash pond; (3) failing to take reasonable steps to prevent a discharge that had a reasonable likelihood of affecting human health or the environment; and (4) violating water quality standards;

WHEREAS, on February 8, 2016, DEQ assessed a \$6.8 million civil penalty (the "Dan River Penalty Assessment") against Duke Energy based upon alleged violations as described in the 2014 Dan River NOV;

WHEREAS, on March 4, 2016, DEQ sent Duke Energy a Notice of Violation (the "2016 Dan River NOV") alleging certain unauthorized discharges of wastewater (commonly referred to as "seeps") from the area around the Dan River Plant's coal ash surface impoundments;

WHEREAS, the volume of the unauthorized discharges addressed by the 2016 Dan River NOV is low compared to the volume of permitted waste water discharges from the Dan River Plant;

WHEREAS, on March 10, 2016, Duke Energy filed a Petition for Contested Case at the North Carolina Office of Administrative Hearings, challenging the Dan River Penalty Assessment on both legal and factual grounds (the "Dan River Petition");

WHEREAS, on April 11, 2016, DEQ filed its Prehearing Statement and Document Constituting Agency Action (the "DEQ PHS") and Duke Energy filed its Prehearing Statement (the "Duke Energy PHS");

WHEREAS, the Parties have engaged in extensive discovery regarding the arguments raised in the Dan River Petition, the DEQ PHS and the Duke Energy PHS; and

WHEREAS, DEQ and Duke Energy have determined that it is in the best interest of the Parties, the environment, and the citizens of North Carolina, that they enter into a compromise settlement to avoid the time and expense of prolonged litigation so that the Parties may direct efforts towards the implementation and execution of the mandates of the North Carolina Coal Ash Management Act and allow Duke Energy to focus on plans to safely close all of its North Carolina ash basins.

NOW, THEREFORE, in consideration of the promises and covenants contained herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, DEQ and Duke Energy agree to compromise, settle, and dismiss with prejudice all claims and causes of action related to the matters raised by the 2014 Dan River NOV, the 2016 Dan River NOV, and the Dan River Penalty Assessment upon fulfillment of the terms and conditions set forth below:

II. DUKE ENERGY'S OBLIGATIONS

A. Petitioner agrees to pay to Respondent the sum of five million, nine hundred eighty three thousand, seven hundred fifty dollars (\$5,983,750.00) in full settlement of all current, prior, and future claims related to the matters raised in the 2014 Dan River NOV and/or the Dan River Penalty Assessment, whether currently known or unknown.

B. Petitioner agrees to pay to Respondent the sum of sixteen thousand, two hundred fifty dollars (\$16,250.00) in full settlement of all current, prior, and future claims related to the matters raised in the 2016 Dan River NOV, based upon Duke Energy's agreement to an up-front penalty in the amount of \$4,000.00 for each of 4 seeps identified on or before December 31, 2014 and \$250.00 for the 1 seep identified between January 1, 2015 and the date of this Agreement, 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.

C. The sums set forth in parts II.A and II.B shall collectively be referred to as the "Payment." The Payment shall be made by check and made payable to the North Carolina Department of Environmental Quality and delivered to the following address:

North Carolina Department of Environmental Quality
Sam M. Hayes
217 West Jones Street
Raleigh, North Carolina 27603

The Payment shall be made within thirty (30) days of the receipt by Duke Energy of the acknowledgment described in part III.A. below.

D. Within fifteen (15) days of the receipt by Duke Energy of the acknowledgment described in part III.A. below, Duke Energy shall file and serve a Voluntary Withdrawal with Prejudice of the Dan River Petition, Case No. 16-EHR-02477.

E. Duke Energy shall not make any public statement regarding this Agreement without obtaining prior consent from DEQ as to the content of that statement.

III. DEQ'S OBLIGATIONS

A. Within five (5) days of the execution of this Agreement, DEQ shall communicate to Duke Energy, in writing, its withdrawal and rescission, with prejudice, of the 2014 Dan River NOV, the 2016 Dan River NOV, and the Dan River Penalty Assessment.

B. DEQ shall not issue any further Notices of Violation, Notices of Regulatory Requirements, other similar notices, unilateral orders or civil penalty assessments to, file any judicial action against, or take any administrative, regulatory, or other enforcement actions against Duke Energy based on or in any way related to any previous or future impacts of the

matters referred to in the 2014 Dan River NOV, the 2016 Dan River NOV, or the Dan River Penalty Assessment.

C. DEQ shall not make any public statement regarding this Agreement without obtaining prior consent from Duke Energy as to the content of that statement.

IV. LEGAL PROVISIONS

A. Binding Nature of Agreement. The Parties represent and agree that the persons executing this Agreement have full and sufficient authority to sign and agree to be bound by the Agreement, and that this Agreement shall be binding upon DEQ and Duke Energy, and their successors and assigns, upon its execution by all parties.

B. No Admissions. By entering into this Agreement, the Parties make no admission of liability, violation, or wrongdoing whatsoever, by themselves, any of their affiliates, or any or their present or former officers, directors, employees, or agents, and this Agreement may not be offered into evidence in any action or proceeding for any purpose other than as may be expressly provided in this Agreement. Specifically, the payment of \$5,983,750.00 in settlement of the 2014 NOV and Dan River Penalty Assessment is not an admission that DEQ properly calculated the Dan River Penalty Assessment or had adequate factual and/or legal grounds therefor.

C. Attorney's Fees, Costs, and Expenses. The Parties agree to bear their own respective attorney's fees, costs, and other expenses that have been incurred in connection with any stage of the state enforcement actions or Duke Energy's Petition for Contested Case related to the Dan River Penalty Assessment.

D. Governing Law and Interpretation. This Agreement shall be governed and interpreted in accordance with the laws of the State of North Carolina without regard to the

conflict-of-law provisions of North Carolina or any other state, and any provision herein that violates a statute or rule shall be void and unenforceable.

E. Enforceability and Remedies for Breach. The Parties stipulate and agree that this Agreement may be enforced in any court of competent jurisdiction in North Carolina, and that venue is appropriate in either Wake or Mecklenburg County. The Parties' sole and exclusive remedy for breach of this Agreement shall be an action for specific performance or injunction. In no event shall any Party be entitled to monetary damages for breach of this Agreement. In addition, no legal action for specific performance or injunction shall be brought or maintained until: (a) the non-breaching Party provides written notice to the allegedly breaching Party which explains with particularity the nature of the claimed breach, and (b) within thirty (30) days after receipt of said notice, the allegedly breaching Party fails to cure the claimed breach or, in the case of a claimed breach which cannot be reasonably remedied within a thirty (30) day period, the allegedly breaching Party fails to commence to cure the claimed breach within such thirty (30) day period, and thereafter diligently completes the activities reasonably necessary to remedy the claimed breach. This Agreement may be introduced as evidence in any action involving either or both Parties for the purpose of implementing its terms.

F. Severability. The invalidity or unenforceability of any provision of this Agreement shall in no way affect the validity or enforceability of any other provision; the invalid or unenforceable provision shall be stricken, without assessing damages or imposing penalties to either Party arising out of said provisions by any court of competent jurisdiction.

G. Headings. The headings used in this Agreement are for convenience of reference only and shall in no way define, limit, expand or otherwise affect the meaning of any provision of this Agreement.

H. Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument.

I. Amendment. This Agreement may not be modified, altered or changed except in a written document that is signed by all Parties and that makes specific reference to this Agreement.

J. Entire Agreement. This Agreement sets forth the entire agreement between the Parties, and fully supersedes any prior agreements or understandings between the Parties related to the subject matter of this Agreement, including but not limited to the matters raised in the 2014 Dan River NOV, the Dan River Penalty Assessment, and the 2016 Dan River NOV.

K. Review and Signing. Each Party and counsel for each Party has reviewed this Agreement. Accordingly, this Agreement shall be construed without regard to any presumption or other rule of construction requiring resolution of ambiguities against the drafting Party.

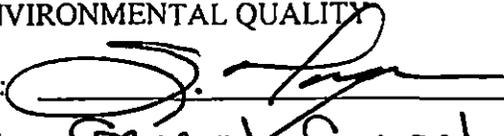
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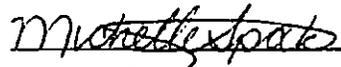
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IN WITNESS WHEREOF, DEQ and Duke Energy, and their respective counsel have executed this Agreement as of September 23, 2016.

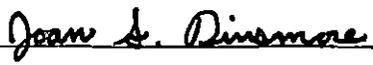
NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY

By: 
Its: General Counsel
Date: 9/23/16

DUKE ENERGY CAROLINAS, LLC

By: 
Its: Associate General Counsel
Date: 9/23/2016

McGUIREWOODS LLP

By: 
Date: 09/23/16

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SETTLEMENT AGREEMENT

This is an AGREEMENT TO SETTLE AND FOR RELEASE OF CLAIMS (“Agreement”) made and entered by and among North Carolina Department of Environmental Quality (“DEQ”) (formerly known as the North Carolina Department of Environment and Natural Resources) on the one hand, and Duke Energy Carolinas, LLC and Duke Energy Progress, LLC (formerly known as Duke Energy Progress, Inc.) (together, “Duke Energy”) on the other. DEQ and Duke Energy (collectively, the “Parties”) agree to the following terms as a basis upon which to resolve the issues between them relating to alleged exceedances of state groundwater standards associated with coal ash facilities at sites operated by Duke Energy and its predecessors. By this Agreement, the undersigned settling Parties mutually agree to compromise, settle, and forgo all current, prior, and future claims related to exceedances of groundwater standards associated with coal ash facilities at Duke Energy’s North Carolina facilities.

I. RECITALS

WHEREAS, Duke Energy owns and operates the following facilities that are the subject of this Agreement (collectively, the “Duke Energy Sites”):

- (1) the Allen Steam Station, located in Gaston County;
- (2) the Asheville Steam Electric Generating Plant, located in Buncombe County (the “Asheville Plant”);
- (3) the Belews Creek Steam Station (“Belews Creek Plant”), located in Stokes County;
- (4) the Buck Steam Station, located in Rowan County, which has been retired and is no longer used for the production of electricity;

- (5) the Cape Fear Steam Electric Generating Plant, located in Chatham County, which has been retired and is no longer used for the production of electricity;
- (6) the Dan River Steam Station, located in Rockingham County, which has been retired and is no longer used for the production of electricity;;
- (7) the H.F. Lee Steam Electric Generating Plant (“H.F. Lee Plant”), located in Wayne County, which has been retired and is no longer used for the production of electricity;
- (8) the Marshall Steam Station, located in Catawba County;
- (9) the Mayo Steam Electric Generating Plant, located in Person County;
- (10) the Riverbend Steam Station, located in Gaston County, which has been retired and is no longer used for the production of electricity;
- (11) the Rogers Energy Complex (formerly Cliffside Steam Station), located in Cleveland and Rutherford Counties;
- (12) the Roxboro Steam Electric Generating Plant in Person County;
- (13) the L.V. Sutton Electric Plant, located in New Hanover County (the “Sutton Plant”), which has been retired and is no longer used for the production of electricity; and,
- (14) the Weatherspoon Steam Electric Plant, located in Robeson County, which has been retired and is no longer used for the production of electricity.

WHEREAS, the National Pollutant Discharge Elimination System (“NPDES”) Permits associated with the Duke Energy Sites contain requirements for Duke Energy to monitor groundwater at the Duke Energy Sites and to report the results to DEQ.

WHEREAS, Duke Energy has at all times complied with its groundwater monitoring and reporting requirements of its NPDES Permits for each of the Duke Energy Sites.

WHEREAS, on June 17, 2011, DEQ issued its “Policy for Compliance Evaluations of Long-Term Permitted Facilities with No Prior Groundwater Monitoring Requirement” (hereinafter, the “2011 Policy for Compliance Evaluations”). The 2011 Policy for Compliance Evaluations attempts to address the situation where groundwater monitoring indicates that a “long-term permitted facility” is out of compliance with the 2L standards, including the conditions under which DENR might issue a NOV to the affected facility.

WHEREAS, the 2011 Policy for Compliance Evaluations includes a detailed flow chart dictating the steps to be taken by DEQ should Duke Energy report any exceedance of North Carolina’s groundwater standards as established pursuant to N.C.G.S. Chapter 143 and 15A N.C.A.C. Subchapter 2L at the Duke Energy Sites. Those steps include, but are not limited to: (1) verify the accuracy and significance of the results of the groundwater testing; (2) determine whether and to what extent the identified substance could be naturally occurring; and, (3) evaluate other possible sources of the identified substance.

WHEREAS, on August 26, 2014, DEQ sent Duke Energy a Notice of Violation based upon the exceedances of the State’s groundwater standards reported to DEQ for the Sutton Plant (the “Sutton NOV”).

WHEREAS, on September 20, 2014, the North Carolina Coal Ash Management Act (“CAMA”) became effective. CAMA requires, among other actions, closure and dewatering of all ash ponds at the Duke Energy Sites and dictates, in detail, a procedure for assessing, monitoring and where appropriate, remediating groundwater quality in areas around coal ash

impoundments in North Carolina that follows closely the procedures outlined in DEQ's 2011 Policy for Compliance Evaluations.

WHEREAS, Duke Energy submitted monitoring that showed exceedances of the State's groundwater standards at or beyond the compliance boundary at the Asheville Plant.

WHEREAS, on February 25, 2015, DEQ sent Duke Energy a Notice of Violation, this one based upon groundwater monitoring results reported to DEQ for the Asheville Plant (the "Asheville NOV").

WHEREAS, on March 10, 2015, DEQ assessed a \$25.1 million civil penalty (the "Penalty Assessment") against Duke Energy based upon groundwater monitoring results reported to DEQ for the Sutton Plant.

WHEREAS, on April 9, 2015, Duke Energy filed a Petition for Contested Case at the North Carolina Office of Administrative Hearings, challenging the Penalty Assessment on multiple legal and factual grounds (the "Sutton Petition").

WHEREAS, the Parties have engaged in extensive discovery regarding the arguments raised in the Sutton Petition, during which the Parties have concluded that:

- (1) The 2011 Policy for Compliance Evaluations is a current DEQ policy that was in effect at the time DEQ issued the Sutton NOV, the Asheville NOV and Penalty Assessment against Duke Energy;
- (2) The 2011 Policy for Compliance Evaluations applies to each of the Duke Energy Sites listed above;
- (3) The 2011 Policy for Compliance Evaluations states that as "long as the permittee is cooperative with the Division in taking the necessary steps to bring the facility into compliance, a notice of violation may not be necessary."
- (4) During the discovery process internal e-mails and testimony by former DENR management demonstrate that, although not expressly stated in the 2011 Policy for Compliance Evaluations, the intent at the time the 2011 Policy for Compliance Evaluations

was that corrective action would precede any enforcement and would be in lieu of monetary penalties.

WHEREAS, DEQ further acknowledges 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, DEQ 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 in Superior Court in Wake and Mecklenburg Counties.

WHEREAS, DEQ and Duke Energy have determined that it is in the best interest of the Parties, the environment, as well as the citizens of North Carolina, that they enter into a compromise settlement to avoid the time and expense of prolonged litigation so that the Parties may focus the same on the assessment and, if necessary, corrective action of alleged groundwater standard exceedances at the Duke Energy Sites.

WHEREAS, DEQ and Duke Energy have determined that the actions provided for in this Agreement and the provisions of CAMA represent the best course for prompt assessment and remediation of any alleged groundwater standard exceedances at the Duke Energy Sites.

NOW, THEREFORE, in consideration of the promises and covenants contained herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, DEQ and Duke Energy agree to compromise, settle, and dismiss with prejudice all claims and causes of action related to alleged groundwater standard exceedances associated with coal ash facilities at the Duke Energy Sites upon fulfillment of the terms and conditions set forth below:

II. DUKE ENERGY'S OBLIGATIONS

A. Consistent with 15A NCAC 2L .0106 Duke Energy shall implement accelerated remediation at the Sutton Plant on the following terms and conditions:

- (1) Duke Energy will commence installation of extraction wells on the eastern portion of the Sutton Plant property where data show constituents associated with the ash basins at concentrations over the 2L standards ("Constituents of Interest") have migrated off site.
- (2) Extraction wells will be used to pump the groundwater to arrest the off-site extent of the migration. The pumped groundwater will be treated as needed to meet standards and returned either to the ash basin or the discharge canal.
- (3) This extraction and treatment system will be installed as soon as practicable following receipt of all permits and approvals from DEQ, the issuance of which will occur as soon as practicable. This accelerated groundwater remediation is in addition to and shall be performed concurrent with the coal ash impoundment closure obligations set forth in CAMA.
- (4) The extraction wells shall remain operational until such time as Duke Energy demonstrates through sampling, analysis, and appropriate modeling, and subject to DEQ's written concurrence, that off-property constituents of interest have been remediated to 2L Standards and there is no reasonable potential for future off-site migration.
- (5) As part of accelerated remediation, DEQ agrees that dry ash can be removed from the head of the ash basins under a construction storm water permit and shall expedite such construction storm water permit in order for Duke Energy to commence the removal of ash which is the source of the constituents of interest from the Sutton Plant. DEQ will issue construction storm water permits for Sutton plant within 10 days of receiving Duke Energy's complete application. Only dry ash from the head of the ash basins will be removed with no impact to wastewater treatment or water levels in the basins. DEQ shall use its best efforts to complete the process of the issuance of the NPDES permit modification at the Sutton Plant to allow for the removal of water and ash beyond the areas covered under the construction storm water permit from the Sutton Plant.

B. Consistent with 15A NCAC 2L .0106 Duke Energy shall implement accelerated remediation at the Asheville Plant, Belews Creek Plant, and H.F. Lee Plant, which are the only three other Duke Energy facilities that demonstrated offsite groundwater impacts in isolated areas that are not impacting private wells in the Comprehensive Site Assessments conducted

pursuant to CAMA. Such accelerated remediation shall be tailored to each facility's unique characteristics.

C. Petitioner agrees to pay to Respondent the sum of seven million dollars (\$7,000,000.00) (the "Payment") in full settlement of all current, prior, and future claims related to exceedances of groundwater standards associated with coal ash facilities at Duke Energy's North Carolina facilities. The Payment shall be made by check and made payable to the North Carolina Department of Environmental Quality and delivered to the following address:

North Carolina Department of Environmental Quality

Sam M. Hayes

217 West Jones Street

Raleigh, North Carolina 27603

The Payment shall be made within thirty (30) days of the receipt by Duke Energy of the acknowledgment described in part III.A. below. The Payment shall be accepted and acknowledged in writing by DEQ as "Payment In Full" in this matter within thirty-five (35) days of the execution of this Agreement.

D. Within fifteen (15) days of the receipt by Duke Energy of the acknowledgment described in part III.A. below, Duke Energy shall file and serve a Voluntary Withdrawal with Prejudice of the Sutton Petition, Case No. 15-EHR-02581, the Petition for Contested Case Hearing filed by Duke Energy related to the Notice of Regulatory Requirements dated July 9, 2014, Case No. 14-EHR-09631, and the Petition for Contested Case Hearing filed by Duke Energy related to the determination that Sutton Lake is waters of state, Case No. 15-EHR-04922.

III. DEQ'S OBLIGATIONS

A. Within five (5) days of the execution of this Agreement, DEQ shall communicate to Duke Energy, in writing, its withdrawal and rescission, with prejudice, of the Sutton NOV, the Sutton NORR, the Asheville NOV, and the Penalty Assessment.

B. DEQ shall not issue any further Notices of Violation, Notices of Regulatory Requirements, other similar notices, unilateral orders or civil penalty assessments to, file any judicial action against, or take any administrative, regulatory, or other enforcement actions against Duke Energy based on or in any way related to any previous or future groundwater monitoring results or alleged groundwater conditions at any of the coal ash facilities at any of the Duke Energy Sites, as long as Duke Energy continues to be in substantial compliance with CAMA requirements as they relate to groundwater assessment and remediation and closure of ash basins, including corrective action plans. DEQ also shall not issue Notices of Violation, Notices of Regulatory Requirements, other similar notices, unilateral orders or civil penalty assessments to, file any judicial action against, or take any administrative, regulatory, or other enforcement actions against Duke Energy based on or in any way related to the classification of Sutton Lake as waters of the State as set forth in paragraph II.D. above.

C. Except as necessary under CAMA or unless ordered or required to change, alter, modify, or amend by a court of competent jurisdiction or by the enactment or amendment of any applicable federal or state statute, rule, or regulation, or in response to an immediate threat to public health, DEQ agrees to not materially modify the groundwater monitoring terms in the existing NPDES Permits and in issuing future NPDES Permits for the Duke Energy Sites. For purposes of this provision "immediate threat to public health" shall mean circumstances beyond exceedances of the applicable provisions of 15A N.C.A.C. Subchapter 2L (the "2L Standards"). Except as provided in part III.B above, DEQ further agrees to limit the

use of the results of any groundwater monitoring required by NPDES permits or CAMA for the determination of prioritizing the coal ash impoundments and approving closure plans. This provision shall not modify the rights, duties and obligations of DEQ or Duke Energy pursuant to CAMA.

D. DEQ agrees that applicable, enforceable groundwater quality standards and naturally occurring (also known as “background”) concentrations shall only be those established pursuant to applicable provisions of the “2L Standards.”

E. Duke Energy and DEQ acknowledge that Duke Energy has been receiving and may in the future continue to receive concerns from individuals or local governments regarding alleged adverse impacts to groundwater from beneficial re-use activities conducted under Distribution of Residual Solids Permits, Ash Reuse Permits or similar permits issued by DEQ or its predecessors authorizing ash reuse programs. Except as otherwise provided by CAMA and the Distribution of Residual Solids permits, Ash Reuse Permits, or similar permits issued by DEQ, DEQ shall be responsible for investigating (including, when necessary, collecting and analyzing groundwater samples) and respond to all such concerns and shall notify Duke Energy of all such responses.

F. DEQ will issue construction storm water permits for Sutton plant within 10 days of receiving Duke Energy’s complete application. Only dry ash from the head of the ash basins will be removed with no impact to wastewater treatment or water levels in the basins. DEQ shall use its best efforts to complete the process of the issuance of the NPDES permit modification at the Sutton Plant to allow for the removal of water and ash beyond the areas covered under the construction storm water permit from the Sutton Plant.

IV. LEGAL PROVISIONS

A. Binding Nature of Agreement. The Parties represent and agree that the persons executing this Agreement have full and sufficient authority to sign and agree to be bound by the Agreement, and that this Agreement shall be binding upon DEQ and Duke Energy, and their successors and assigns, upon its execution by all Parties.

B. No Admissions. By entering into this Agreement, the Parties to this Agreement make no admission of liability, violation, or wrongdoing whatsoever, by itself, any of its affiliated companies, or any or its or their present or former officers, directors, employees, or agents.

C. Attorney's Fees, Costs, and Expenses. The Parties agree to bear their own respective attorney's fees, costs, and other expenses that have been incurred in connection with any stage of the state enforcement actions or Duke Energy's Petition for Contested Case related to the Penalty Assessment.

D. Governing Law and Interpretation. This Agreement shall be governed and interpreted in accordance with the laws of the State of North Carolina without regard to the conflict of laws provisions of North Carolina or any other state, and any provision herein that violates a statute or rule shall be void and unenforceable.

E. Enforceability and Remedies for Breach. The Parties stipulate and agree that this Agreement may be enforced in any court of competent jurisdiction in North Carolina, and that venue is appropriate in either Wake or Mecklenburg County. The Parties' sole and exclusive remedy for breach of this Agreement shall be an action for specific performance or injunction. In no event shall any Party be entitled to monetary damages for breach of this Agreement. In addition, no legal action for specific performance or injunction shall be brought or maintained

until: (a) the non-breaching Party provides written notice to the allegedly breaching Party which explains with particularity the nature of the claimed breach, and (b) within thirty (30) days after receipt of said notice, the allegedly breaching Party fails to cure the claimed breach or, in the case of a claimed breach which cannot be reasonably remedied within a thirty (30) day period, the allegedly breaching Party fails to commence to cure the claimed breach within such thirty (30) day period, and thereafter diligently completes the activities reasonably necessary to remedy the claimed breach. This Agreement may be introduced as evidence in any action involving either or both Parties for the purpose of implementing its terms.

F. Severability. The invalidity or unenforceability of any provision of this Agreement shall in no way affect the validity or enforceability of any other provision; the invalid or unenforceable provision shall be stricken, without assessing damages or imposing penalties to either Party arising out of said provisions by any court of competent jurisdiction.

G. Headings. The headings used in this Agreement are for convenience of reference only and shall in no way define, limit, expand or otherwise affect the meaning of any provision of this Agreement.

H. Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument.

I. Amendment. This Agreement may not be modified, altered or changed except in a written document that is signed by all Parties and that makes specific reference to this Agreement.

J. Entire Agreement. This Agreement sets forth the entire agreement between the Parties, and fully supersedes any prior agreements or understandings between the Parties related

to the subject matter of this Agreement, including but not limited to alleged groundwater standard exceedances associated with coal ash ponds at the Duke Energy Sites.

K. Review and Signing. Each Party and counsel for each Party has reviewed this Agreement. Accordingly, this Agreement shall be construed without regard to any presumption or other rule of construction requiring resolution of ambiguities against the drafting Party.

L. The Parties agree that this Agreement does not affect in any way the Joint Enforcement Agreement between DEQ and U.S. EPA, the subject of which does not involve any alleged groundwater standard exceedances associated with coal ash facilities at the Duke Energy Sites.

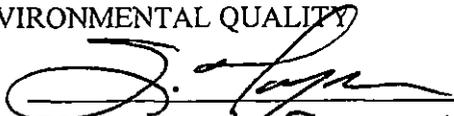
[Signature page follows]

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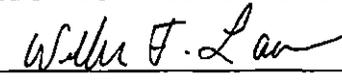
Jan 24 2018
Apr 30 2019

IN WITNESS WHEREOF, DEQ and Duke Energy, and their respective counsel have executed this Agreement as of September 29, 2015.

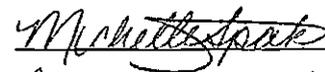
NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY

By: 
Its: General Counsel
Date: 9/29/15

KILPATRICK TOWNSEND & STOCKTON LLP

By: 
Its: _____
Date: 9/29/2015

DUKE ENERGY CAROLINAS, LLC

By: 
Its: Associate General Counsel
Date: 9/29/2015

DUKE ENERGY PROGRESS, LLC

By: 
Its: Associate General Counsel
Date: 9/29/2015

McGUIREWOODS LLP

By: 
Date: 9/29/15

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Jan 24 2018
APR 30 2019

I/A

Docket No.	Plant	Claimed Violations	Exhibits Containing Evidence of Violations
Mecklenburg Superior, 13-CVS- 14661	Allen		
		1) Unpermitted engineered seeps including toe drains	Junis Exhibit No. 19, Allen, Marshall and Cliffside SOC2 Junis Exhibit No. 22, Seep Final Audit Reports
		2) Unpermitted non-engineered seeps	Junis Exhibit No. 19, Allen, Marshall and Cliffside SOC2 Junis Exhibit No. 22, Seep Final Audit Reports
		3) 2L exceedances for iron, manganese, and nickle	Junis Exhibit No. 20, Groundwater Exceedances Violations Junis Exhibit No. 21, Groundwater Final Audit Report
	Belews Creek		
		1) Unpermitted engineered seeps including toe drains	Junis Exhibit No. 19, Allen, Marshall and Cliffside SOC2 Junis Exhibit No. 22, Seep Final Audit Reports
		2) 2L exceedances for chromium, iron, and manganese	Junis Exhibit No. 20, Groundwater Exceedances Violations Junis Exhibit No. 21, Groundwater Final Audit Report
	Buck		
		1) Unpermitted engineered seeps including toe drains	Junis Exhibit No. 19, Allen, Marshall and Cliffside SOC2 Junis Exhibit No. 22, Seep Final Audit Reports
		2) 2L violations for boron, manganese, TDS, sulfate, and iron	Junis Exhibit No. 20, Groundwater Exceedances Violations Junis Exhibit No. 21, Groundwater Final Audit Report
		3) 2L exceedances for chromium, manganese, and iron	Junis Exhibit No. 20, Groundwater Exceedances Violations Junis Exhibit No. 21, Groundwater Final Audit Report
	Cliffside		
		1) Unpermitted seeps including engineered toe drains	Junis Exhibit No. 19, Allen, Marshall and Cliffside SOC2 Junis Exhibit No. 22, Seep Final Audit Reports
		2) 2L exceedances for iron, manganese, chromium, pH, TDS, and sulfate	Junis Exhibit No. 20, Groundwater Exceedances Violations Junis Exhibit No. 21, Groundwater Final Audit Report
	Dan River		
		1) Unpermitted engineered seeps including toe drains	Junis Exhibit No. 19, Allen, Marshall and Cliffside SOC2 Junis Exhibit No. 22, Seep Final Audit Reports
		2) 2L violations for antimony, arsenic, boron, iron, manganese, TDS, and sulfate	Junis Exhibit No. 20, Groundwater Exceedances Violations Junis Exhibit No. 21, Groundwater Final Audit Report
		3) 2L exceedances for iron and manganese	Junis Exhibit No. 20, Groundwater Exceedances Violations Junis Exhibit No. 21, Groundwater Final Audit Report
	Marshall		
		1) 2L violations for boron, manganese, TDS, and sulfate	Junis Exhibit No. 20, Groundwater Exceedances Violations Junis Exhibit No. 21, Groundwater Final Audit Report
		2) 2L exceedances for iron and manganese	Junis Exhibit No. 20, Groundwater Exceedances Violations Junis Exhibit No. 21, Groundwater Final Audit Report
Mecklenburg Superior, 13-CVS- 9352	Riverbend		
		1) Unpermitted non-engineered seeps	Junis Exhibit No. 18, Riverbend SOC2 Junis Exhibit No. 22, Seep Final Audit Reports
		2) 2L exceedances for iron and manganese	Junis Exhibit No. 20, Groundwater Exceedances Violations Junis Exhibit No. 21, Groundwater Final Audit Report
Office of Administrative Hearings, 16-EHR- 02477	Dan River		
		1) NPDES permit violations	Junis Exhibit No. 30, Federal Criminal Case Joint Factual Statement Junis Exhibit No. 31, Federal Criminal Plea Agreement
		2) Other 15A NCAC 2B surface water quality standard violations	Junis Exhibit No. 30, Federal Criminal Case Joint Factual Statement Junis Exhibit No. 31, Federal Criminal Plea Agreement

**Duke Energy Carolinas
Response to
NC Public Staff Data Request
Data Request No. NCPS 55-31**

Docket No. E-7, Sub 1146

**Date of Request: February 8, 2018
Date of Response: February 12, 2018**

CONFIDENTIAL
 NOT CONFIDENTIAL

Confidential Responses are provided pursuant to Confidentiality Agreement

The attached response to NC Public Staff Data Request No. 55-31, was provided to me by the following individual(s): Trudy H. Morris, Project Manager II, Project Portfolio Manager, and was provided to NC Public Staff under my supervision.

John T. Burnett
Deputy General Counsel
Duke Energy Carolinas

North Carolina Public Staff
Data Request No. 55
DEC Docket No. E-7, Sub 1146
Item No. 55-31
Page 1 of 1

NCPS 55-31

Request:

On page 25, lines 12-14, Mr. Wells states "Certain of DE Carolinas' CCR impoundments feature engineered toe drains within the dam structures to collect seepage." Please provide a list of engineered toe drains by generating station and include: the year each toe drain was constructed, the year a permit was sought, and the year it was permitted by DEQ. If any toe drain has not been permitted, please explain its current status.

Response:

DEC does not have a list of the dates the toe drains were constructed and was unable to compile one in the time allotted for a response. Other information about toe drains is contained in the attached spreadsheet.



DEC Engineered AOW
Listing.xlsx

Site	Seep ID Number	Latitude	Longitude	Engineered	Permit Status
Allen	S-3	35.175196	-81.006	Yes	In NPDES application
Allen	S-4	35.175686	-81.00606	Yes	In NPDES application
Allen	S-8	35.178498	-81.0064	Yes	In NPDES application
Allen	S-8b	35.178156	-81.006517	Yes	In NPDES application
Allen	S-10	35.18055	-81.01354	Yes	In NPDES application
Belews Creek	S-11	36.299045	-80.075696	Yes	In NPDES application
Buck	S-11	35.707126	-80.374034	Yes	In NPDES application
Buck	S-12	35.707429	-80.373661	Yes	No permit needed, seep eliminated
Buck	S-17	35.7058	-80.3753	Yes	In NPDES application
Rogers	S-04	35.217567	-81.752586	Yes	In NPDES application
Rogers	S-06	35.218383	-81.748389	Yes	In NPDES application
Rogers	S-22	35.218278	-81.748258	Yes	No permit needed, seep eliminated

I/A

FILED

STATE OF NORTH CAROLINA
MECKLENBURG COUNTY

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
MECKLENBURG COUNTY, N.C. 13 CVS 14661

STATE OF NORTH CAROLINA *ex rel.*)
NORTH CAROLINA DEPARTMENT OF)
ENVIRONMENT AND NATURAL)
RESOURCES,)

Plaintiff,)

v.)

DUKE ENERGY CAROLINAS, LLC,)

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 Carolinas, LLC, is a corporation organized and existing under the laws of the State of North Carolina. Defendant’s principal place of business is located

¹ DENR’s Division of Water Quality and Division of Water Resources have been combined and are currently operating under the name of the 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

at 526 South Church Street, Charlotte, North Carolina 28202-1904. Defendant's Registered Agent is CT Corporation System, 150 Fayetteville Street, Box 1011, Raleigh, North Carolina 27601.

3. Defendant owns the following six Facilities ("6 Facilities"):
 - (1) *Cliffside Steam Station* in Rutherford County;
 - (2) *Buck Steam Station* in Rowan County;
 - (3) *Allen Steam Station* in Gaston County;
 - (4) *Belews Creek Steam Station* in Stokes County;
 - (5) *Dan River Combined Cycle Station* in Rockingham County; and
 - (6) *Marshall Steam Station* in Catawba County.

4. Defendant 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. Mecklenburg County is a proper venue for this action because Defendant's principal place of business is located in Mecklenburg 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 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 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

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.

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]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. 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. 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) *Cliffside Steam Station* – October 20, 2010;
- (2) *Buck Steam Station* – September 2, 2010;
- (3) *Allen Steam Station* – September 2, 2010;

- (4) *Belews Creek Steam Station* – October 19, 2010;
- (5) *Dan River Combined Cycle Station* – October 19, 2010; and
- (6) *Marshall Steam Station* – September 2, 2010.

34. Defendant completed construction of the compliance monitoring wells at the compliance boundaries of the Coal Ash Ponds at each of the 6 Facilities on the following dates:

- (1) *Cliffside Steam Station* – April 2011;
- (2) *Buck Steam Station* – December 2010;
- (3) *Allen Steam Station* – December 2010;
- (4) *Belews Creek Steam Station* – December 2010;
- (5) *Dan River Combined Cycle Station* – December 2010; and
- (6) *Marshall Steam Station* – August 2010.

35. Each of the 6 Facilities have a specific set of parameters being monitored:

- (1) *Cliffside Steam Station* – 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) *Buck Steam Station* – 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) *Allen Steam Station* – 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) *Belews Creek Steam Station* – 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) *Dan River Combined Cycle Station* – 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) ***Marshall Steam Station*** – 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, Defendant began submitting groundwater monitoring data to the DWQ from the 6 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 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 (Cliffside Steam Station Ash Pond Exceedances Chart); No. 7 (Buck Steam Station Ash Pond Exceedances Chart); No. 8 (Allen Steam Station Ash Pond Exceedances Chart); No. 9 (Belews Creek Steam Station Ash Pond Exceedances Chart); No. 10 (Dan River Combined Cycle Station Steam Station Ash Pond Exceedances Chart); and No. 11 (Marshall Steam Station 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.

Cliffside 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 Federal Water Pollution Control Act, as amended ("Clean Water Act" or "CWA"), 33 U.S.C. §§ 1251 *et seq.*, the DWQ issued NPDES Permit No. NC0005088, to Defendant or Defendant's predecessor for the Cliffside Steam Station ("Cliffside Steam Station NPDES Permit"), located on NCSR 1002, south of Cliffside, in Rutherford County, North Carolina.

43. The Cliffside Steam Station NPDES Permit has been renewed subsequently. The current NPDES Permit was re-issued on February 20, 2012, with an effective date of March 1, 2011, and with an expiration date of July 31, 2015. A copy of the current Cliffside Steam Station NPDES Permit No. NC0005088 is attached hereto as Plaintiff's Exhibit No. 12, and is incorporated herein by reference.

44. The Cliffside Steam Station NPDES Permit authorizes the continued discharge of treated wastewater to receiving waters designated as Broad River (Class C waters), in the Broad River Basin, in accordance with the effluent limitations, monitoring requirements and other conditions set forth in the Cliffside Steam Station NPDES Permit.

45. The Cliffside Steam Station NPDES Permit authorizes the continued discharge of treated wastewater through Outfall 002 from the Ash Settling Basin. The Ash Settling Basin contains low volume wastes, coal pile runoff, metal cleaning wastes, treated domestic wastewater, chemical metal cleaning wastes, water treatment system wastewaters, ash transport water, landfill leachate (landfill contains fly and bottom ash, and gypsum from the Flue Gas Desulfurization ("FGD") system), cooling towers blow down, and runoff from the limestone stacking area and the gypsum stacking area.

46. In addition, the Cliffside Steam Station NPDES Permit authorizes the continued discharge of emergency yard drainage basin overflow through Outfall 002A.

47. Further, the Cliffside Steam Station NPDES Permit authorizes the facility to discharge metal cleaning waste, coal pile runoff, ash transport water, domestic wastewater, landfill leachate, cooling tower blowdown, limestone and gypsum stacking area runoff, and low volume wastes from Internal Outfall 004 -- FGD Wastewater Treatment System into the Ash Settling Basin.

48. The effluent limitations and monitoring requirements in the Cliffside Steam Station NPDES Permit require sampling for the following parameters from the ash settling pond discharge from Outfall 002: Flow, Oil and Grease, Total Suspended Solids, Total Copper, Total Iron, Total Arsenic, Total Selenium, Chronic Toxicity, Total Nitrogen, Total Phosphorus, pH,

Total Cadmium, Total Chromium, Total Mercury, Total Nickel, Total Silver, Total Zinc, and Temperature.

49. The Cliffside Steam Station NPDES Permit prohibits the discharge of floating solids or visible foam other than in trace amounts.

50. The effluent limitations and monitoring requirements in the Cliffside Steam Station NPDES Permit require sampling for the following parameters from emergency yard drainage overflow from Outfall 002A: Flow, Oil and Grease, Total Suspended Solids, pH, Total Copper and Total Iron.

51. The effluent limitations and monitoring requirements in the Cliffside Steam Station NPDES Permit require sampling for the following parameters from the internal discharge from Outfall 004 -- FGD Wastewater Treatment System into the Ash Settling Basin: Total Suspended Solids, Total Arsenic, Total Cadmium, Total Chromium, Chloride, Total Mercury, Total Nickel, Total Selenium, Total Silver and Total Zinc.

Unpermitted Seeps at the Cliffside Steam Station

52. As mentioned above, the Defendant's Cliffside Steam Station has three permitted outfalls (two external outfalls (002) and (002A) which discharge directly into the Broad River and one internal outfall (004)) which are included in the Cliffside Steam Station NPDES Permit.

53. Defendant's Cliffside 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 Cliffside Steam Station NPDES Permit.

54. Seeps identified at Defendant's Cliffside Steam Station, include engineered discharges from the toe-drains of Ash Settling Basin, which are different locations from the outfalls described in the Cliffside Steam Station NPDES Permit.

55. A seep or discharge from the Ash Settling Basin or any other part of the Cliffside Steam Station that is not included in the Cliffside 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 the 2L Groundwater Standards at the Cliffside Steam Station

56. The Plaintiff's Aquifer Protection staff compiled tables of the analytical results of groundwater samples collected at the Cliffside Steam Station from April 2011 through July 16, 2013, and prepared a chart of the Ash Pond Exceedances which are listed in the Cliffside Steam Station Ash Pond Exceedances Chart. See Plaintiff's Exhibit No. 6.

57. The Cliffside Steam Station Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Iron (300 µg/L) in MW-20D, MW-20DR, MW-22DR, MW-23D, MW-23DR, MW-24D, MW-24DR and MW-25DR during seven sampling events from April 2011 through April 2013, with concentrations ranging from 330 µg/L to 9,890 µg/L.

58. The Cliffside Steam Station Ash Pond Exceedances Chart shows exceedances from the 2L Groundwater Standard for Manganese (50 µg/L) in MW-20D, MW-20DR, MW-21D, MW-22DR, MW 23-D, MW-23DR, MW-24D, MW-24DR and MW-25DR during seven sampling events from April 2011 through April 2013, with concentrations ranging from 51 µg/L to 750 µg/L.

59. The Cliffside Steam Station Ash Pond Exceedances Chart also shows an exceedance from the 2L Groundwater Standard for Chromium (10 µg/L) in MW-23D and MW-25DR during one sampling event on April 2011, with concentrations of 14 µg/L and 45 µg/L, respectively.

60. The Cliffside Steam Station Ash Pond Exceedances Chart also shows exceedances from the 2L Groundwater Standard for pH (6.5-8.5) in MW-25DR during three