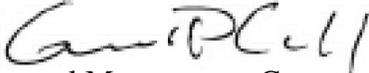


March 1, 2018

To: J. D. Solomon, Chairman
North Carolina Environmental Management Commission

From: Gerard Carroll, Member 
North Carolina Environmental Management Commission

Subject: Hearing Officer's Report and Recommendations
Draft Special Order by Consent S17-009
Duke Energy Carolinas, LLC
Allen Steam Station, Gaston County
Marshall Steam Station, Catawba County
Rogers Energy Complex (Cliffside Steam Station), Cleveland & Rutherford Counties

On February 13, 2018, I served as the Hearing Officer for the Subject Public Hearing held at the James W. Warren Citizen Center, 115 West Main Street, in Lincolnton, NC. The purpose of the public hearing was to allow the public to comment on the draft Special Order by Consent (SOC).

The Hearing Officer's Report for the SOC includes comments from the public hearing and the public comment period. Public notice of consideration of the draft SOC and notification of the holding of a public meeting on the matter were published in three newspapers (The Mooresville Tribune and The Shelby Star on January 10, 2018, and the Charlotte Observer on January 11, 2018). The draft SOC, its public notice and the public hearing were also the subject of a January 9, 2018 press release from DEQ, and information regarding the draft SOC was posted on DEQ's website. The public comment period closed on February 14, 2018.

In addition to listening to oral comments at the public hearing, I have reviewed all written comments received during the public comment period, including those submitted via email, the postal service, and those hand-delivered at the public hearing. In preparation of this report I have considered all the public comments, the public record, and the site visit.

The report has been prepared using the following outline:

- I. Site History / Background
- II. Site Visit – Allen Steam Station, February 8, 2018
- III. February 13, 2018, Public Hearing and Comments Summary
- IV. Recommendations
- V. Attachments

Hearing Officer's Report

**February 13, 2018, Public Hearing
Draft Special Order by Consent (SOC)
For Duke Energy Carolinas, LLC
for the**

**Allen Steam Station – Gaston County
Marshall Steam Station – Catawba County
Rogers Energy Complex (Cliffside Steam Station) – Cleveland & Rutherford Counties**

I. History / Background

Duke Energy's Allen Steam Station, Marshall Steam Station and Rogers Energy Complex (formerly known as Cliffside Steam Station) are coal fired steam electric generating facilities. The Allen Steam Station began operating in 1957; the Rogers Energy Complex began operating in 1940, and the Marshall Steam Station began operating in 1965. Each facility to some degree utilizes water for the containment and conveyance of the residual products of the combustion of coal. These and other waste streams are directed to large impoundments commonly called coal ash basins where the solids separate from the liquid portion and settle at the bottom of the basins. The supernatant of the liquid portion is discharged as regulated by the facilities' NPDES permits. Each facility has an active ash basin. The Allen and Rogers plants also have retired ash basins on their property.

The Duke Energy coal ash basins are unlined, earthen impoundments. Such earthen structures are prone to experience the flow of liquid through the porous spaces that exist in the dams, sides, or bottoms. The wastewater flow through those porous spaces is known as seepage. When seepage reaches the land's surface on the outer wall of a basin, or upon the surface of the surrounding terrain, it is referred to as a seep. Earthen dam structures will often have engineered features within their construction that are designed to collect and convey inevitable seepage and precipitation falling on their outer facing walls in order to keep them from becoming saturated and potentially unstable. Such engineered seeps from the coal ash basins can be identified, contained and monitored as distinct point source discharge locations, and therefore can be included as outfalls in NPDES permits, and subject to the requirements therein.

The areas around the Duke Energy coal ash basins have been routinely examined since 2014 to identify the manifestation of non-engineered seeps. The non-engineered seeps can be of varying volume and may be transient in terms of both time and location of their appearance. Although the U. S. Environmental Protection Agency (EPA) has provided opinions affirming wastewater flow from non-engineered seeps should be regulated, EPA has also stated that the nature of the non-engineered seeps makes them difficult to characterize as point source discharges that may be covered by NPDES permits. This paradox has confounded different approaches to address such situations, and has contributed to the delays in the issuance of some NPDES permits.

On October 3, 2017 Duke Energy applied for a SOC to address issues associated with the non-engineered seeps at its Allen, Marshall and Rogers facilities. The primary intent of the SOC as drafted is to eliminate or substantially reduce the number of non-engineered seeps at the Allen, Marshall and Rogers facilities, and to have this occur as soon as possible while ensuring protection of North Carolina's surface waters. The SOC calls for the expedited decanting (removal of the free water within the basins to a level just a few feet above that the settled solids) of the coal ash basins. Such action will reduce the hydraulic pressure (or head) that contributes to seepage and remove the potential source of the seeps. Following these changes, it is anticipated that most seeps will disappear. Any seeps that remain following completion of decanting will be evaluated and further characterized. Solutions for seeps found to exert continuing negative effects on surface water quality will be appropriately addressed within groundwater corrective action plans and/or overall site closure plans. The corrective action and site closure plans, and any measures they may call for, are outside the scope of the SOC and will stand on their own authority.

The SOC calls for continued observation and monitoring of non-engineered seeps, and the reporting of results of these activities to the Division of Water Resources. The SOC includes the establishment of site-specific interim action levels for particular water quality characteristics. Within defined surface waters, the SOC will allow water quality standards to be exceeded to the concentrations established by the interim action levels without being subject to the assessment of civil penalties. The interim action levels will not affect existing water quality standards in major surface water bodies. Results of monitoring that exceed the interim action levels will be subject to the assessment of stipulated penalties as called for in the SOC.

II. Site Visit

A site visit was conducted by the hearing officer at the Allen Steam Station on February 8, 2018. The Allen Steam Station site was chosen because of the variety of the types of seeps present at that location, and their accessibility. The site visit was conducted with Duke Energy staff as well as DWR staff. Both engineered and non-engineered seeps were viewed during the visit, as was the site's wastewater infrastructure.

III. February 13, 2018 Public Hearing and Comments Summary

A. Summary of Notice and Public Hearing

Public notice of consideration of the draft SOC and notification of the holding of a public meeting on the matter were published in three newspapers (The Mooresville Tribune and The Shelby Star on January 10, 2018, and the Charlotte Observer on January 11, 2018). The draft SOC, its public notice and the public hearing were also the subject of a January 9, 2018 press release from DEQ, and information regarding the draft SOC was posted on DEQ's website.

A public hearing was held on February 13, 2018, at 6:00 pm, at the James W. Warren Citizens Center, 115 West Main Street, in Lincolnton, NC. The venue was selected due to its satisfactory history in serving as a public meeting site, and its location being relatively equidistant from the areas near each of the facilities covered by the draft SOC.

Approximately 31 people attended the public hearing, including 8 staff members of the Division of Water Resources. A total of 23 individuals signed the attendance sign-in sheets at the hearing. The hearing was called to order at 6:07 pm. Mr. Gerard Carroll introduced himself as the hearing officer, along with Mr. Corey Basinger of DWR's Mooresville Regional Office, who assisted Mr. Carroll during the meeting. Mr. Carroll offered opening comments regarding the hearing and the scope of its concern. Points of emphasis were made regarding how additional public comment could be made by submitting written statements during the hearing or by using the email address. Attendees were informed that all comments needed to be submitted no later than February 14, 2018 in order to receive consideration.

Eight individuals registered in advance of the hearing to provide oral comments. No time limit was imposed upon those who wished to speak, but speakers were encouraged to keep their remarks concise and to the point. Three of the speakers provided written versions of their oral comments. Some of the speakers followed up by sending copies of their remarks as attachments to email submittals.

After all attendees that wished to speak had availed themselves of the opportunity, the assembled group was reminded of their opportunity to submit written comments on the matter no later than the close of business on Wednesday, February 14. The meeting was adjourned at 6:52 pm.

Items providing documentation of the public notice, public hearing and public comment are identified in the Attachments section of this report.

B. Comments by Speakers on Permit Terms

Many speakers' comments did not address the SOC specifically, but instead were directed toward terms included in a draft NPDES permit (NC0004987) for the Marshall Steam Station that had been placed at public notice at the same general time as was the SOC. Speakers whose remarks were directed toward permit terms were:

Michael Jones – Private Citizen
Jessica Albright – Private Citizen
Xavier Boatright – Clean Water for North Carolina
Amy Adams – Appalachian Voices

The following represents summaries of the presentations of the speakers noted above:

Michael Jones – Private Citizen

Mr. Jones is a resident of the Denver area who lives directly on Lake Norman. He is concerned about possible health effects resulting from characteristics of the wastewater being discharged. He uses water from the lake to irrigate his garden. He is concerned that if a large, accidental release occurs at the Marshall Steam Station, property values in the area could be reduced. He also commented that some pollutants are being excluded.

Jessica Albright – Private Citizen

Ms. Albright's comments were focused directly on the draft NPDES permit for the Marshall Steam Station, particularly on the provision within the permit that requires compliance with federal effluent limit guidelines for discharges from coal fired steam electric plants in 2023. An earlier draft of the permit called for compliance with those requirements by 2021.

Xavier Boatright – Clean Water for North Carolina

Mr. Boatright expressed CWFNC's appreciation that the SOC would require accelerated decanting of the coal ash basins at the Allen, Marshall and Cliffside plants. His additional comments had more direct focus on the terms of the draft permit for the Marshall Steam Station. In particular, he expressed concern regarding the discharge of wastewater during the dewatering phase, which will remove wastewater from the volume closest to and within the mass of accumulated coal ash that has settled at the bottom of the basins. The NPDES permit does not provide sufficient requirements to ensure harmful quantities of contaminants do not enter Lake Norman. Interim action levels were requested for toxic metals that may be found in the discharge. The permit should require the construction of a physical/chemical treatment system for the decanting/dewatering phases to ensure the discharge of safe levels of pollutants. Downstream communities must be notified when higher concentrations of pollutants are released in the discharges. Aquatic toxicity testing should be required following each decanting/dewatering event.

Amy Adams – Appalachian Voices

Ms. Adams expressed her organization's opposition to the extension of the deadline for implementation and compliance with the effluent limit guidelines from 2021 until 2023. The NPDES permit either needs to include limits that will protect water quality, or require physical/chemical treatment of the discharge. Limits must be established for Bromide in order to protect downstream water supplies from the production of trihalomethanes during the production of treated water.

Written copies of prepared remarks were provided by Mr. Jones, Ms. Albright and Mr. Boatright. They can be viewed as part of Attachment D.

An extended version of comments offered by Ms. Adams was submitted by the Southern Environmental Law Center (SELC) on behalf of Appalachian Voices. A copy of that document can be found as Attachment I.

Response:

While the SOC does contain conditions requiring accelerated decanting of wastewater from the Marshall Steam Station's coal ash basin, its primary concern is that the activity is performed in order that seeps may be eliminated while protecting North Carolina's surface water. The specific requirements regulating discharges created during the decanting phase are appropriately contained in the NPDES permit, and therefore are beyond the scope of the SOC. All comments received that had a primary focus on the terms of the Marshall permit have been forwarded to DWR staff.

C. Comments by Other Speakers

The following is a summary of comments provided by other speakers:

Katie Hicks – Clean Water for North Carolina

Ms. Hicks expressed appreciation that the SOC addresses the matters of non-engineered seeps, treating them as unauthorized discharges that need to be eliminated as opposed to being incorporated into NPDES permits. The SOC is a move in the right direction in requiring expedited removal of water from the ash basins, but it should require more frequent monitoring at each seep during the process, with enforceable limits imposed for harmful metals.

Ms. Hicks did not support the concept of allowing discharges from engineered seeps to be covered as permitted discharges in NPDES permits, characterizing them as illegal construction for the continuing discharge of pollutants. She stated CWFNC does not believe the cap in place option for final disposition of coal ash basins is a solution to coal ash pollution, and that other alternatives should be considered for the subject facilities.

Noah Cleveland – Private Citizen; Volunteer with Clean Water for North Carolina

Mr. Cleveland expressed support for the removal of seeps as legal discharges in permits. He expressed his concern that the state's citizens may be exposed to greater health risks due to decisions made in associated with this matter. No amount of money saved from relaxing water quality standards is more important than peoples' health.

Debora Thompson – Private Citizen

Ms. Thompson offered her views on a variety of issues being faced by citizens in the Mooresboro and Cliffside areas that she contends are due to impacts caused by Duke Energy. Issues included pollution of the air and water, highway safety and overall quality of life for local residents, both young and old.

Sam Perkins – Catawba Riverkeeper; Catawba Riverkeeper Foundation

Mr. Perkins focused on four major points at which the SOC needs to be improved:

- The SOC must require the elimination of seeps.
- Engineered seeps should not be included in NPDES permits.
- The SOC should require monitoring at more locations and include a larger set of coal ash related parameters
- Particular errors need to be corrected in the document

George Barr – Private Citizen

Mr. Barr's name does not appear on the list of attendees who signed up to speak. He made his decision to speak during the course of the public meeting.

Mr. Barr is a resident of eastern Lincoln County and lives directly on Lake Norman. He stated Duke Energy has earmarked \$5.9 billion to purchase Piedmont Natural Gas infrastructure, and contended that same amount of money would clean up 59% of the pollution Duke Energy had caused in the past. Duke Energy is simply lining its pockets at the expense of North Carolina's citizens, and if North Carolina's government does not require adequate cleanup, it will be complicit in taking advantage of its citizens.

Ms. Hicks provided a copy of her prepared remarks at the meeting. Ms. Thompson provided a copy of her comments in a follow up email submittal. An extended version of remarks offered by Mr. Perkins was submitted by the Southern Environmental Law Center on behalf of the Catawba River Foundation. Copies of these written statements may be found as part of Attachment D and Attachment H.

Responses:

Ms. Hicks

The SOC as drafted contains sufficient monitoring to determine impacts of seeps on water quality in the vicinities of the coal ash basins. Quarterly monitoring called for in the SOC will serve to provide adequate depictions of water quality in surface waters affected by seeps. Due to the nature of non-engineered seeps, they are evaluated in terms of compliance with water quality standards or interim action levels, as opposed to enforceable (effluent) limits.

NPDES permit coverage of the engineered seeps at the coal ash basins is appropriate, as described more fully below in response to the SELC's comments.

Decisions regarding the option chosen for final closure of the coal ash basins are beyond the scope and purpose of the SOC.

Mr. Cleveland

Execution of the SOC as drafted will not pose a harm to public health as seep flows with concentrations below the interim action levels will be sufficient to protect water quality at the locations of downstream surface water supply intakes.

Ms. Thompson

Most of the comments and concerns provided by Ms. Thompson are beyond the scope of the SOC.

Mr. Perkins

Responses to Mr. Perkins' comments (and to some degree, those of others) are provided in the response to comments submitted by the Southern Environmental Law Center (SELC) on behalf of the Catawba Riverkeeper Foundation and other conservation groups.

Mr. Barr

The matters discussed by Mr. Barr are beyond the scope of the SOC. However, decanting of coal ash basins, which is an essential step in addressing issues associated with those structures, is expedited per the terms of the SOC.

D. Written Comments with Common Text

In addition to receiving oral and written comments at the public meeting, comments regarding the SOC were received via the postal service and email, as was provided in the public notice.

Three letters were received via the U.S. Mail. Copies of those letters are included within Attachment E.

Approximately 1,786 comments on the SOC were received at the email addresses publiccomments@ncdenr.gov and bob.sledge@ncdenr.gov. Most of the emailed comments were of the form letter variety. Common formats and content of the submittals is noted below:

Common Subject Line: I am writing to you today regarding the draft special order by consent to clean up Cliffside. 103 submittals

Dear N.C. Division of Water Resources Robert Sledge,

The NC Department of Environmental Quality's recent order is a long overdue step in recognizing that the coal ash ponds at the Cliffside (Rogers) station continues to have a negative impact on the surrounding communities and environment. However, before the Environmental Management Commission reviews and approves this plan, I urge DEQ to add additional language that provides a clear, compelling closure timeline, does not permit any seeps, and ensures any seeps remaining after dewatering are cleaned up.

Furthermore, we hope that, when the time comes, that DEQ will require full excavation of Cliffside's coal ash basins to lined storage away from the Broad River.

Thank you.

Common Subject Line: Strengthen Duke Energy consent order for Allen, Marshall & Rogers stations. 808 submittals.

Dear Division of Water Resources Bob Sledge,

The NC Department of Environmental Quality's recent order is a long overdue step in recognizing that the coal ash ponds at Duke Energy's Allen, Marshall, and Rogers stations continue to have a negative impact on the surrounding communities and environment. However, before the Environmental Management Commission reviews and approves this plan, I urge DEQ to add additional language that provides a clear, compelling closure timeline and bans all seeps.

As it is written now, DEQ's order doesn't specify how the ash basins will be closed nor provides an ultimate solution. It's also incomplete because it only addresses some seeps, and in fact, actually permits other human-made seeps that had previously been considered criminal violations of the Clean Water Act.

Duke continues to use its resources to further delay cleanup and try to explain away contaminated seeps coming from its unlined coal ash pits. Communities deserve a full cleanup, plain and simple. In this special order DEQ should require Duke to dewater its unlined, leaking ponds and switch to complete dry ash handling as fast as possible.

Thank you.

Common Subject Line: Marshall NPDES NC0004987 and SOC comments. 35 Submittals

Although the modifications to the Marshall NPDES permit lays the proper groundwork by addressing engineered seeps as well as the reduction of Duke's compliance boundary so that the Marshall steam station cannot legally dump contaminated water into a portion of Lake Norman, there are oversights that should be amended:

- I would like to see more detailed monitoring requirements and discharge limits so that corrective actions can be made prior to the event in which Duke Energy causes harm to our waterways.
- I would also like to see the compliance for dewatering date set to December 31, 2021, which was Duke's initial compliance date, in order to:
 - Eliminate on-going seeps and further protect groundwater and surrounding communities, and
 - Not allow Duke to begin dewatering after the possibility of the removal of federal effluent limitation guidelines.

As long as the pond still contains coal ash and contaminated water, nearby residents and drinking water continue to be threatened.

The Special Order of Consent is an overdue first step toward holding Duke Energy accountable for identifying and eliminating unengineered seeps that continue to threaten water sources; however, it needs to contain more strict pollutant limits to hold Duke accountable for contaminating water sources.

- The SOC does not require pretreatment of the wastes during the decanting phase to identify and mitigate the amount of contaminated water that is entering North Carolina waterways.
- It is unacceptable that DEQ will be unable to fine Duke for future identified unengineered seeps because of the timeframe of violations in the \$84,000 fine. As the SOC permits all seeps from 2015 to the present day, whether engineered or unengineered, I would like to see strict fines and penalties implemented in the SOC to ensure Duke will be incentivized to effectively comply.
- The SOC addresses unengineered seeps, but DWR plans to include engineered seeps (those that are intentionally built) in facilities' NPDES permits. Previously, the state recognized engineered seeps as illegal discharges. DWR should not permit them now – it should continue to hold Duke accountable. In 2015, Duke Energy paid \$102 million in fines for environmental crimes involving these same seeps.

Common Subject Line: Duke SOC 809 Submittals

3 Versions

Dear Mr. Sledge,

Every day, companies across North Carolina make decisions to respect or skirt our state environmental laws. The proposed Special Order by Consent for Duke Energy's coal ash ponds at three power plants sends exactly the wrong message. It's important that the state holds polluters accountable. In particular, allowing Duke Energy to include illegal 'engineered seeps' under its permit is a surrender. DEQ needs to make Duke Energy clean up these ash ponds, stop the seeps completely, and move the ash away from our drinking water supplies. Thank you.

Dear Mr. Sledge,

It is dismaying to hear that, after years of Duke Energy leaking toxic chemicals into our water supplies, DEQ is thinking about putting a seal of approval on any of these leaks. The draft Special Order by Consent would allow the company to fold its 'engineered seeps' into its overall permit. Rather than approving Duke Energy's pollution, DEQ should hold them accountable for their negligence. Please don't permit Duke Energy's engineered seeps. Thank you.

Dear Mr. Sledge,

I'm writing to urge you not to permit discharges of pollution from the 'engineered seeps' in Duke Energy's coal ash ponds. These are intentional discharges of toxic pollution, and Duke Energy should clean them up, in preparation for moving the coal ash to lined landfills away from water. Thank you.

Twenty-three (23) email comments regarding the SOC were received that did not have the general appearance of form letters. Copies of those comments are included as part of Attachment F. Common points raised in these comments included:

- Costs of coal ash cleanup should not be borne by Duke Energy customers.
- Coal Ash ponds should be completely emptied, with waste placed in lined landfills away from bodies of water.
- Removed coal ash should be recycled into usable products.
- The upfront penalty in the SOC is not high enough.

Responses to common comments:

The matters of the final method for closure of the coal ash basins are beyond the scope of this SOC.

NPDES permit coverage of the engineered seeps at the coal ash basins is appropriate, as discussed more fully below in response to the SELC's comments.

The amount of the upfront penalty assessed as part of the SOC is appropriate and commensurate with penalties assessed for the occurrence of seeps at other Duke Energy facilities.

The determination of who shall bear the cost of coal ash basin cleanup is in the hands of other regulatory agencies and beyond the scope of the SOC.

Some of the Duke Energy facilities do have long term plans for implementation of projects that will lead to the beneficial reuse of coal combustion residuals. These projects, though, are beyond the scope of the SOC.

E. Comments of the Broad River Alliance

Comments on the draft SOC were provided by Mr. David Caldwell on behalf of the Broad River Alliance. These comments can be found as Attachment G. They were directed specifically toward matters associated with the Rogers Energy Complex (Cliffside Steam Station). Summaries of the main points contained in those comments can be found below, followed by responses to those comments.

For seeps that remain following dewatering, the SOC should go beyond requiring submittal of a corrective action plan, and require specific actions that must be taken to eliminate the seeps.

Response:

The scope of the SOC extends to requiring decanting as a means toward eliminating or substantially reducing the number of seeps. Seeps that remain after completion of decanting will be evaluated and a determination will be made as to what further corrective action will be required. The specific requirements will be detailed in groundwater corrective action plans and/or site closure plans. Necessary remedial actions could take a variety of forms based on site specific circumstances. The conditions for further corrective action will be found in the enforceable terms of the corrective action plans and/or site closure plans, and are outside the scope of the SOC.

Interim action levels seem inadequate to monitor and evaluate the extent to which dewatering will affect water quality.

Response:

The interim action levels are site specific enforcement thresholds for particular parameters for which monitoring has shown that seeps may cause exceedances of water quality standards. They apply to water quality monitoring of surface waters that have been affected by seeps and are set to ensure protection of water quality in major surface water bodies. They do not represent the full number of characteristics to be monitored. The interim action levels were not established, and do not apply to discharges associated with the dewatering phases of ash basins. Such discharges will flow through NPDES-permitted outfalls. Their requirements are contained in NPDES permits.

“Representative seep” locations have not been well chosen.

Response:

“Representative” seep monitoring has not been established to suggest that monitoring of particular seeps will represent conditions associated with others. Monitoring locations have been chosen where a seep or multiple seeps are likely to affect surface waters receiving their flow. Monitoring at that location will represent water quality for points upstream within the stream. Prior monitoring of S-07 has sometimes indicated the presence of coal ash constituents. Therefore, the SOC requires monitoring of the stream prior to its confluence with the Broad River. S-02 is a monitoring location (not a seep) where the flows from a wetland system have an outlet to the Broad River. Monitoring at this location will capture the cumulative effects of flow from seeps S-18, S-19 and S-19A, all of which drain into small channels in the area.

The SOC should specify treatment methods to be used during the dewatering phase.

Response:

Requirements associated with the dewatering phases of coal ash basins are found within the NPDES permits and are beyond the scope of the SOC.

F. Comments of the Southern Environmental Law Center

The Southern Environmental Law Center (SELC) provided comments regarding the SOC on behalf of the Catawba Riverkeeper Foundation, Mountain True, the Sierra Club and the Waterkeeper Alliance. This document can be found as Attachment H. Summaries of the main points contained in those comments can be found below, followed by responses to those comments.

The SOC must be revised to close any loopholes that allow coal–ash contaminated seeps to flow indefinitely. Language regarding the conditions associated with seeps being “dispositioned” must be clarified.

The SOC allows dispositioning of a seep that is no longer impacted by flow from a coal ash basin as demonstrated by analyses from four consecutive sampling events showing that all concentrations of pollutants listed in Attachment B meet State criteria. SELC contends such flows must be evaluated against concentrations of those characteristics as found in analyses of legitimate background samples unimpacted by Duke Energy activities. Any increase in pollutant concentrations, not just those that exceed surface water quality standards, would be indicative of the influence of coal ash wastewater, a violation of the Clean Water Act, and liable for the imposition of additional corrective action requirements.

Response:

The matters within the scope of the draft SOC all pertain to issues related to surface water and surface water quality (e.g. identification of seeps, characterization of seeps, discharge and/or impacts to surface waters and the need for NPDES permit coverage for seep discharges). Evaluation of any seeps remaining after decanting is based upon ensuring protection of surface water through compliance with surface water quality standards. In fact, this draft SOC goes beyond surface water quality standards by requiring Duke Energy to meet certain *groundwater* criteria in the surface water. In particular, Duke Energy must meet the groundwater criteria for Boron, which is considered a leading coal ash tracer.

Additionally, most of the seeps are located on Duke Energy property that has been affected by decades of industrial activity, not just the influence of coal ash basins. Local streams within the confines of plant property may or may not be indicative of natural conditions. Choosing a stream too far away from the site may not provide applicable background concentrations due to the variability of concentrations of the noted characteristics within North Carolina surface waters.

The primary goal of the SOC is to eliminate or substantially reduce seeps from the coal ash basins. Decanting of wastewater from the basin should remove the causative source of the seep. Evidence provided by the decanting of the basins at Duke Energy's Dan River and Riverbend Steam Stations has shown this to be the case. Seeps that remain following decanting must be appropriately remediated to ensure protection of human health and the environment, including surface water. They will be addressed through a groundwater corrective action plan or a site closure plan.

In a response to a particular concern, the evaluation for applicability of disposition per meeting water quality standards would be performed relative to surface water quality standards (as well as groundwater standards for certain constituents), and not the interim action levels set by the SOC. The interim action levels are thresholds allowing concentrations of pollutants to be observed in surface waters up to those values before the Division of Water Resources will take enforcement action for violation of water quality standards. The action levels are particular to the seeps causing the increases in pollutant concentrations and the surface waters that are affected. They will only be effective during the time in which the permit is in effect.

Allowing disposition for seeps that do not constitute, or do not flow to waters of the State or Waters of the United States would allow seeps that connect to adjacent waterbodies via short groundwater hydrologic connections to continue.

Response:

The circumstances that have led to the necessity of the SOC have their root in the addressing of seeps that create or flow to surface waters. Given that the underlying premise of this SOC is that decanting is likely to eliminate or substantially reduce flow from ash basins, the scenario presented appears to be speculative and not grounded in empirical evidence. The non-engineered seeps at the Duke Energy sites are manifested at the land's surface in a variety of ways: as flow to existing streams, flow creating small channels, or small, isolated areas of wetness on the ground. If an area of wetness does not constitute jurisdictional waters and does not cause surface flow to jurisdictional waters, it is unlikely to be a point source discharge and water quality standards must be still met within nearby surface water bodies. The intent of the SOC is to reduce or eliminate flow to seeps that may appear and disappear along the course of a channel as it moves toward a larger body of water. Any isolated areas of wetness exhibiting no surface flow following the completion of decanting will be appropriately dispositioned and surface water quality protected.

Further Corrective Action

If decanting does not achieve expected results, Duke Energy must be required to take further corrective action and remediation measures that actually eliminate the seepage of pollutants to state waters from the coal ash basins.

Response:

The stated goal of the SOC is that decanting of the coal ash basins will substantially reduce or eliminate the seeps. The terms of the SOC call for evaluation and characterization of documented seeps such that they may be dispositioned or identified as requiring further corrective action. The nature of the potential solutions to address remaining seeps goes beyond the scope of the SOC, and will be addressed through amendments to the corrective action plan(s) and/or closure plans(s). This SOC attempts to expedite processes that will bring about the elimination of the majority of the seeps it covers, but it does not attempt to abrogate the authority of other statutes and rules that may more adequately address seeps that remain after the completion of decanting.

The SOC Must Address All Leaks from the Coal Ash Basins, not Just the Non-Engineered Seeps.

The SOC should provide coverage for the engineered seeps at the Duke Energy facilities, in addition to the non-engineered seeps, and instead of having the engineered seeps be included in the facilities' NPDES permits. Allowing permit coverage for such discharges defeats the purpose and function of the waste treatment system. Some of the engineered seeps coincide with jurisdictional waters as depicted on historical topographic maps and cannot be converted into point source discharges.

Response:

Earthen dams commonly contain features built into the overall dam structure, such as toe drains or chimney drains, that are designed to collect and convey liquid that will inevitably flow between the porous spaces in the dam, plus volumes of precipitation that fall on the outer, downslope sides of the dam. These structures are necessary to keep earthen dams from becoming saturated and structurally unstable. The impoundments at the Allen and Rogers facilities include toe drains in their design. At each facility, wastewater from the ash basin that has seeped into the dam structure is collected and conveyed to points external to the dam and directed to discrete discharge points via pipes or confined channels. These circumstances, among others, make them applicable for coverage as point source discharges. Duke Energy has sought permit coverage for such discharges for a number of years since awareness of the subject of seeps has heightened. Covering engineered seeps in the NPDES permit provides protection for North Carolina's surface waters by requiring regular and proper monitoring, as well as effluent limits necessary to protect surface waters. The reason the non-engineered seeps are included in the SOC is because they are not discernable, point source discharges, making them difficult to accurately monitor for flow and discharge characterization, as EPA has pointed out. Both engineered and non-engineered seeps need to be properly evaluated, and either dispositioned or remediated following completion of decanting.

DEQ staff have performed independent evaluations of the discharges from the engineered seeps at the Allen and Rogers (Cliffside) facilities. (There are no engineered seeps at Marshall.) At Allen, DEQ agrees with the SELC's contention that S-4 flows into the channel that is a remnant of a historical stream. As a result, the draft NPDES permit for the Allen Steam Station depicts this discharge as flowing into an unnamed tributary to the Catawba River, with limits and monitoring established as guided by the RPA of the discharge and the receiving stream. The DEQ evaluation concluded that the S-3 discharge structure is an effluent channel that conveys wastewater to the Catawba River.

A DEQ evaluation of S-06 at the Rogers Energy Complex agrees with the SELC that the discharge is to the location of a historic stream feature. However, the flow of Suck Creek has been rerouted and has its confluence with the Broad River approximately 1,500 feet upstream. Very minor volumes of stream flow enter the ash basin from outside its boundary. DEQ will continue its examination of the issue to determine the status of the flow between the toe of the dam and the Broad River. Once that status is determined, the discharge from the toe drain will be evaluated for the purposes of establishing limits and monitoring at this location in upcoming permits.

**The SOC Must Monitor All Detected Seeps and Contaminants
Attachment B must include a more comprehensive list of characteristics to be monitored.**

Response:

The list of 23 parameters to be monitored in Attachment B was derived from the lists of documented constituents of coal ash wastewater. This list goes above and beyond the list of parameters that have surface waters standards to include certain constituents which only have groundwater criteria. Duke Energy is, consequently, being held to a higher standard than is routinely applied to North Carolina's surface waters. The list will provide a sufficient analysis of parameters of concern that may be found in the seeps.

The SOC must be explicit in stating that where site-specific interim action levels are not set, existing water quality standards apply.

Response:

While the parties to the SOC are in agreement with the interpretation noted above, it is not believed that it is necessary to explicitly add such language to the existing text of the document. Subchapter 2B of the North Carolina Administrative Code is clear in stating all freshwaters shall be given classifications with associated surface water quality standards.

The number of sampling points must be expanded beyond those shown as "representative" seep sampling within the SOC in order to exercise adequate oversight over the seeps during the decant period.

Response:

The SOC is primarily concerned with issues directly associated with the seeps and their potential effects on surface waters they come in contact with. The term “representative” is not intended to state that the results of sampling from one location serves to represent those from all the others. Sampling is intended to identify potential effects to surface waters that may be attributable to the seeps. Where seeps are known to flow into streams, monitoring locations have been selected at locations within the streams prior to any confluence with a larger body of water. Thus, the sampling shall represent water quality at points upstream of the monitoring location. Some sampling sites, such as S-02 at Cliffside, have been selected to represent the cumulative impacts of multiple seeps that flow to a particular point. Additional monitoring upstream and downstream of the overall facility location is required by the SOC to ascertain potential cumulative impacts to water quality caused by seeps.

The list of seeps at Allen Steam Station ignores two seeps that had been identified by the Catawba Riverkeeper in the fall of 2016.

Response:

These two referenced seeps appear to be described as Area B and Area C as identified by Duke Energy. Both locations were found to be below the Ordinary High Water level in the Catawba River, and were dispositioned by Duke Energy prior to entering into the SOC.

The location for S-9 at Allen Steam Station as depicted on the Attachment A is about 1,000 feet too far north.

Response:

The SELC is likely referencing the wrong pipe. The S-9 location as depicted in the SOC appears to be correct. This pipe was identified by Duke Energy and plugged in June 2016. There is a 24 inch, corrugated metal pipe at Allen located about 1,000 feet south of the S-9 location. The pipe had collected flow from the area of the retired ash basin, but its landward end had been previously plugged. Flow observed coming from the pipe was that from groundwater infiltrating the pipe. Upon notification, the river end of the pipe was also plugged.

The SOC ignores S-1, a seep coinciding with a stream that flows southeast of the active ash basin.

Response:

Sampling of S-1 does not indicate the presence or influence of coal combustion residuals. The site is located beyond the extent of where seepage from the ash basin would be expected.

The SOC includes only one representative seep monitoring at location S-2. More monitoring locations are required to gauge impacts to surface waters in the area.

Response:

S-2 monitoring is established to ascertain impacts to the small stream to which seepage flows. The other seeps covered by the SOC are located just beyond the margin of Lake Wylie, and can often be underwater. Instream sampling of Lake Wylie will demonstrate any impacts to the stream by seeps.

The SOC needs another sampling point associated with seep S-1 at Marshall.

Response:

The SOC calls for sampling of the stream receiving seepage at a point just prior to its entering Lake Norman. The stream does receive seep flow at multiple points along its extent. One sample point at the lower end of the channel will pick up potential impacts from all upstream seep contributions.

The location of the instream monitoring location within the Holdsclaw Creek arm of Lake Norman needs to be moved further west to a location not affected by the cooling water intake.

Response:

Locations for monitoring as depicted on the maps are approximate, not precise sets of coordinates. The concern expressed by the comment is understandable. The location depicted intends to offer sampling coverage during those times when the facility is and is not producing electricity. During those times when the plant is not in operation, water movement would have a general tendency to flow toward the east. Duke Energy can be directed to modify the sampling location depending on the plant's operational status.

Multiple seeps at Cliffside are dismissed by the SOC as not being impacted by coal ash. Duke Energy's own sampling indicates otherwise.

Response:

One of the primary constituents examined in sampling is Boron, which serves as an indicator of the presence of coal ash influenced wastewater. Whereas a variety of constituents present in coal ash wastewater can also be naturally occurring in North Carolina surface waters, Boron will typically only be present in its waters if introduced by an outside source. Furthermore, it has a tendency to be one of the first constituents of coal ash to manifest its presence in surface water samples affected by coal ash. When it comes to evaluation of potential seeps, the presence of Boron is good evidence of the influence of coal ash, and its non-presence may be an indicator of a stream not impacted by coal ash. The presence of higher concentrations of the other constituents noted in the comment are not necessarily

indicative of the presence of coal ash, though DEQ reserves the right to re-evaluate the dispositioning of any seep and to incorporate (or re-incorporate) such a seep into the SOC if it was either improperly dispositioned or additional data demonstrates that it is impacted by coal ash.

S-01 at Cliffside is the seep furthest west at the facility site. During eight sampling events conducted at the S-01 sampling location since July 2014, Boron has never been detected. No exceedances of the water quality standard for mercury have been reported. North Carolina does not have a water quality standard for aluminum. The protective value for water supply waters used by the North Carolina is 6.5 mg/L. Results of sampling from S-1 have not exceeded this concentration.

Duke Energy's earliest efforts in coordinated seep sampling placed a premium on the accomplishment of the task of sample collection. This emphasis led to the collection of grab samples that could either be affected by the influence of stormwater flow, or by the disturbance of ground material in shallow channels during low flow circumstances. Since March 2016, Duke Energy has instituted standard operating procedures for the collection of seep samples that have yielded more consistent, reliable results. The highest reported values of sampling of S-01 occurred during the time prior to the establishment of standard procedures for collection of unadulterated seep samples.

During each visit when enough flow was present to secure a sample, no Boron has been detected at location S-05.

S-08 has been sampled 10 times since 2014. Boron has never been detected. Aluminum has not been detected in concentrations above the North Carolina protective value for water supply waters.

Duke Energy sampling of S-24, S-26, S-34 and S-35 are locations exhibiting little to no flow, and no presence of Boron in sampling.

The representative seeps at Cliffside (S-07 and S-02) are inadequate to monitor impacts to water quality from seeps.

Response:

S-02 is not a seep; it is an established sampling location downstream of a wetland area that receives flow from seeps S-18, S-19 and S-19A. S-02 is located at the outlet for flow from that stream system to the Broad River, and is suitable for evaluation of impacts to the upstream water quality. S-07 is an unlikely seep, but an April 2017 sampling event did detect the presence of Boron in the flow. The greatest extent of the stream is not on Duke Energy property, including those sites most suitable for sampling. The portion on Duke Energy property is braided and shallow, but it is the only accessible sampling location and shall be used to determine stream impacts. Upstream and downstream monitoring locations have been established in the Broad River and in Suck Creek in order to ascertain the overall impacts of the seeps to water quality.

More monitoring should be required in the vicinities of S-14, S-15, S-16 and S-21.

Response:

S-14, S-15, S-16 and S-21 are low flow seeps with drainage to the same general area of Suck Creek. The established downstream monitoring location near the mouth of Suck Creek (approximately ¼ mile downstream) should be sufficient to capture impacts of these seeps.

The draft NPDES permit for Marshall Steam Station must be modified to ensure water quality protection during the decanting and dewatering phases.

Response:

The matter of the NPDES permit for Marshall is beyond the scope of the SOC.

The SELC also provided comments on behalf of the Stokes County Chapter of the North Carolina NAACP, Appalachian Voices, and the Roanoke River Basin Association with regard to the draft NPDES permit for the Marshall Steam Station and the SOC. These comments can be found as Attachment I. The comments within this document are directed almost exclusively to matters associated with the Marshall Steam Station permit. This subject is beyond the scope of the SOC. Therefore, no response has been prepared regarding this set of comments. A copy of the document was also directed to DWR staff responsible for development of the NPDES permit.

IV. Recommendations

It is recommended that the Environmental Management Commission approve the SOC as drafted, and that the Chairman's signature be affixed to the document to effect its complete execution.

V. Attachments

Attachment A	Public Notice of the SOC and Public Hearing
Attachment B	Sign In Sheet for Non-Speaking Attendees
Attachment C	Sign In Sheet for Speaking Attendees
Attachment D	Written Comments Provided at Public Hearing
Attachment E	Written Comments Submitted via U. S. Postal Service
Attachment F	Extended Comments Submitted via email
Attachment G	Comments Submitted by the Broad River Alliance via email
Attachment H	Comments Submitted by the SELC Regarding the SOC
Attachment I	Comments Submitted by the SELC Regarding the NPDES Permit & SOC
Attachment I	Audio Recording of the Public Hearing (Meeting begins at 0:54)