NORTH CAROLINA
ENVIRONMENTAL MANAGEMENT COMMISSION

COUNTY OF WAYNE

IN THE MATTER OF NORTH CAROLINA NPDES PERMIT NC0003417	)	SPECIAL ORDER BY CONSENT
HELD BY DUKE ENERGY PROGRESS, LLC	)	EMC SOC WQ S18-006

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 Progress, 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 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.

Both decanting and dewatering of the H. F. Lee Facility's coal ash basins will be required before the ash basins can be closed. Decanting (i.e., removal of the free water on the surface of the coal ash basin), has already been observed to affect existing seeps at Duke Energy's H. F. Lee Facility. Removal of remaining coal ash wastewater through continued decanting and dewatering (i.e. removal of sufficient interstitial water) 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-constructed seeps (as defined in subparagraph g below), while Duke Energy completes activities associated with closure of the ash basins at the H. F. Lee Facility. After completion of those activities, for any remaining seeps, Duke Energy must take appropriate corrective action as specified more fully below.

b. Duke Energy has been issued a North Carolina NPDES permit for operation of an existing wastewater treatment works at the following electric generation facility (the "H. F. Lee Facility"):

Facility	Permit Number	County	Issuance Date	Receiving Water for Primary Outfall
H. F. Lee	NC0003417	Wayne	07/23/2010	Neuse River

c. The H. F. Lee Facility listed above has ceased coal fired generation and now consists of a 3 x 1 combined cycle unit capable of being fired on natural gas or oil, and five simple cycle combustion turbines. The facility's coal ash basins still exist, and are subject to the provisions of this Special Order.

d. The H. F. Lee Facility also has a permitted wastewater cooling pond that was used during coal-fired operations, and continues to be used for the combined cycle plant. Several areas of minor seep flow from the cooling pond to the Neuse River have been observed. Chemical testing of the cooling pond seeps has revealed some contain minor concentrations of coal combustion residuals (CCR). The cooling pond seeps listed in Attachment A are also addressed by this Special Order.

e. 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.

f. The coal ash basins and the cooling pond at the H. F. Lee Facility 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. The H. F. Lee Facility exhibits locations adjacent to, but beyond the confines of, the coal ash basins and the cooling pond where seepage of wastewater from those 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 H. F. Lee Facility 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.

g. Seeps that are not on or within the dam structure or that do not convey wastewater via a pipe or constructed channel directly to a receiving stream are referred to as "non-constructed seeps." Non-constructed seeps at the H. F. Lee Facility 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-constructed 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-constructed seeps at the H. F. Lee Facility 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-constructed 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-constructed 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-constructed 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-constructed 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 H. F. Lee Facility, 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.** As settlement of all alleged violations due to seepage at these Duke Energy Facilities, pay the Department, by check payable to the North Carolina Department of Environmental Quality, a penalty in the amount of $72,000, calculated based upon $6,000 each for twelve non-constructed seeps identified prior to January 1, 2015.

A certified check in the amount of $72,000.00 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.

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. By entering into this Special Order, Duke Energy makes no admission of liability, violation or wrongdoing. Except as otherwise provided herein,[1] payment of the upfront penalty does not absolve Duke Energy of its responsibility for the occurrence or impacts of any unauthorized discharges in the area of the Duke Energy Facilities that may be discovered in the future, nor does the payment preclude DWR from taking enforcement action for additional violations of the State's environmental laws.

[1] See especially paragraph 2(a)(2) excepting newly identified seeps from future penalties under certain conditions.

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 and c), 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, by the deadline set forth herein, adequate amendments to groundwater Corrective Action Plans or Closure Plans to address all remaining seeps, through corrective action as applicable under paragraph 2(b)(7) of this Special Order.[2]	$5,000.00 per day, to a maximum of $1,000,000.00.

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.

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

Duke Energy is required to comply with the requirements of G.S. § 130A-309.216. Duke Energy has announced plans to construct an ash beneficiation plant at the H. F. Lee Facility capable of processing 300,000 tons of CCR material per year.

1) The Coal Ash Management Act (G.S. § 130A-309.210) required the cessation of CCR wastewater placement into the basins at the H. F. Lee Facility by October 1, 2014. Duke Energy commenced decanting in April 2016. Decanting will be completed by March 31, 2019.

2) Dewatering will be required in order to excavate the ash for the purpose of beneficiation. Duke Energy will begin the process of removal of interstitial water from the H. F. Lee Facility no later than July 31, 2019 and will continue as needed to support the beneficiation plant described above.

3) Once the dewatering process is initiated, within (30) days after the end of each quarter, Duke Energy shall provide reports on the status of dewatering work and other activities undertaken with respect to excavation of each coal ash surface impoundment to DWR. The quarterly reports are due by April 30, July 30, October 30, and January 30. The reports are to be submitted as follows: one copy must be mailed to DWR's Washington Regional Office Supervisor, 943 Washington Square Mall, Washington, NC 27889, and one copy must be mailed to the Water Quality Permitting Program, Division of Water Resources, 1617 Mail Service Center, Raleigh NC 27699-1617. The quarterly reporting requirement shall remain in force until completion of two years of beneficiation operations.

4) Duke Energy shall conduct annual comprehensive surveys of areas down gradient of the ash basins, the Lay of Land Area (LOLA) and the cooling pond, 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(b)(3) 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 three consecutive quarters; (3) the seep is no longer impacted by flow from any coal ash basin as determined by the Director of DWR in accord with applicable law and best professional judgment; 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.

5) No later than October 31, 2021 Duke Energy shall conduct a comprehensive survey of areas down gradient of ash basins at the H. F. Lee Facility, 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 (4) 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.

6) If any seeps have not been certified by the Director of DWR as dispositioned (as described in subparagraph 4) above), Duke Energy shall conduct a characterization of those seeps.[3] Duke Energy shall submit a report on the findings of these characterizations ("Seep Characterization Report") to the Director of DWR no later than December 31, 2021 (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 H. F. Lee Facility. The determination regarding whether a surface water feature is a classified water of the State rests with DWR.

7) 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). Notwithstanding the foregoing provisions of this paragraph, any cooling pond seeps contained in the Seep Characterization Report shall be addressed in a separate report (rather than a proposed amendment to the groundwater Corrective Action Plan and/or Closure Plan), specific to the matters of those seeps, and describe how remaining cooling pond seeps will be managed in a manner that will be sufficient to protect public health, safety, and welfare, the environment, and natural resources. The report shall be submitted to DWR's Complex

[3] 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(b)(7) may such a seep, certified as dispositioned, be omitted from the proposed amendment.

Permitting Unit within 60 days of the submittal of the Seep Characterization Report ("Cooling Pond Seep Report").

For clarity, listed below is a summary of the timetable for the documents due after completion of steps above:

Document	**Due Date**
Final Seep Report	October 31, 2021
Seep Characterization Report	December 31, 2021
Proposed amendment to groundwater Corrective Action Plan and/or Closure Plan, **and/or** Cooling Pond Seep Report	February 28, 2022

8) **Termination of Special Order**

This Special Order shall terminate on the later of the following dates:

- January 31, 2022; 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 2(b)(7) above).

c. **Interim Action Levels.**

1) Upon the complete execution of this Special Order, with regard to non-constructed 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)(8) is reached.

2) Duke Energy shall perform monitoring of waters receiving flow from non-constructed seeps in accordance with the schedules listed in Attachments A and B, except as noted in paragraph 2(c)(3) below.

3) 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.

4) 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 the H. F. Lee Facility's 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 the H. F. Lee Facility 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-constructed seeps causing or contributing to pollution of waters of the State associated with the coal ash impoundments and the cooling pond at Duke Energy's H. F. Lee Facility, and listed in Attachment A to this Special Order, are hereby deemed covered by this Special Order. Any newly-identified non-constructed seeps discovered 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-constructed seeps must be sampled for the presence of those characteristics listed in Attachment B to this Order. Newly-identified non-constructed 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 permit NC0003417.

10. This Special Order may be modified at the Commission's discretion, provided the Commission 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.

This Special Order by Consent shall expire no later than February 28, 2023.

For Duke Energy Progress, LLC:

_____ _____

Paul Draovitch
Senior Vice President, Environmental, Health & Safety

Date

For the North Carolina Environmental Management Commission:

_____ _____

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

Date

Attachment A
S18-006
Duke Energy Progress, LLC – H. F. Lee Energy Complex, p.1

Seep ID Number	Approximate Location Coordinates		Description	Receiving Waterbody	Receiving Waterbody Classification	SOC Monitoring	Interim Action Levels
	Latitude	Longitude					
LOLA S-01	35.379568	-78.075043	Seep from the land area north of the cooling pond, between the cooling pond and the Neuse River. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
LOLA S-01A	35.379648	-78.074632	Seep from the land area north of the cooling pond, between the cooling pond and the Neuse River. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
LOLA S-01B	35.380846	-78.077697	Seep from the land area north of the cooling pond, between the cooling pond and the Neuse River. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
S-01	35.386858	-78.073453	Low volume seep to small channel north of active ash basin at the toe of the dike. Flows west, then south, toward confluence with Neuse River at sampling site S-03A.	Ditch system draining areas north and west of active ash basin	WS-IV; NSW	Monitoring at location S-03A	See S-03A
S-02	35.384001	-78.081383	Low volume seep to small channel north of active ash basin at the toe of the dike. Flows west, then south, toward confluence with Neuse River at sampling site S-03A.	Ditch system draining areas north and west of active ash basin	WS-IV; NSW	Monitoring at location S-03A	See S-03A

*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
S18-006
Duke Energy Progress, LLC – H. F. Lee Energy Complex, p.2

Seep ID Number	Approximate Location Coordinates		Description	Receiving Waterbody	Receiving Waterbody Classification	SOC Monitoring	Interim Action Levels
	Latitude	Longitude					
S-03**	35.382666	-78.084374	Channel on west side of active ash basin. Directs flow from ditch on north side of active ash basin south toward Neuse River. Not a seep.	Ditch system draining areas north and west of active ash basin	WS-IV; NSW	Monitoring at location S-03A	See S-03A
S-03A**	35.381806	-78.084052	Site just before confluence of S-03 channel conveying flow from upstream sites and the Neuse River. Not a seep.	Ditch system draining areas north and west of active ash basin	WS-IV; NSW	Monitoring at location S-03A prior to entering Neuse River	Arsenic 400 µg/L Hardness 500 mg/L TDS 800 mg/L
S-04	35.381993	-78.078784	Stagnant, ponded water inland from river terrace below southwest side of active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
S-05**	35.379045	-78.070293	Static AOW near riprap area on the south side of the southeast corner of active ash basin. Location has been repaired. No flow observed in recent observations.	Neuse River	WS-IV; NSW	N/A – Seep Dispositioned	N/A – Seep Dispositioned
S-06	35.386968	-78.071942	Low volume seep to small channel on east side of active ash basin at the toe of the dike. Flows south, toward confluence with Neuse River at sampling site S-09.	Ditch system draining areas north and east of active ash basin	WS-IV; NSW	Monitoring at location S-09	See S-09
S-07	35.382767	-78.069655	Low volume seep to small channel on east side of active ash basin at the toe of the dike. Flows south, toward confluence with Neuse River at sampling site S-09.	Ditch system draining areas north and east of active ash basin	WS-IV; NSW	Monitoring at location S-09	See S-09

*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
S18-006
Duke Energy Progress, LLC – H. F. Lee Energy Complex, p.3

Seep ID Number	Approximate Location Coordinates		Description	Receiving Waterbody	Receiving Waterbody Classification	SOC Monitoring	Interim Action Levels
	Latitude	Longitude					
S-08	35.38051	-78.068532	Static AOW near riprap area on the east side of the southeast corner of active ash basin. Any flow collects in channel and flows south toward S-09. No flow observed in recent observations.	Ditch system draining areas north and east of active ash basin	WS-IV; NSW	Monitoring at location S-09	See S-09
S-09**	35.379492	-78.067718	Monitoring location just before confluence of channel on east side of active ash basin conveying flow from upstream sites and the Neuse River. Not a seep.	Ditch system draining areas north and east of active ash basin	WS-IV; NSW	Monitoring at location S-09 prior to entering Neuse River	Arsenic 400 µg/L Hardness 500 mg/L TDS 800 mg/L
S-18	35.379222	-78.101206	Stagnant, ponded water inland from river terrace below east side of inactive ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
S-19*	35.38179	-78.097649	Stagnant, ponded water inland from river terrace below northeast side of inactive ash basin. From sampling – No CCR impacts.	Neuse River	WS-IV; NSW	N/A – Seep Dispositioned	N/A – Seep Dispositioned
S-20**	35.382406	-78.082051	Seep near well CMW-10, along the south side of active ash basin. Location has been repaired to eliminate seep.	Neuse River	WS-IV; NSW	N/A – Seep Dispositioned	N/A – Seep Dispositioned
S-21**	35.382151	-78.080376	Stagnant seep along south side of active ash basin. Any flow reinfiltrates prior to reaching surface water.	Neuse River	WS-IV; NSW	N/A – Seep Dispositioned	N/A – Seep Dispositioned
S-22	35.381466	-78.077819	Seep along south side of active ash basin. Flows toward Neuse River.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
S-23	35.381175	-78.077136	Seep along south side of active ash basin. Flows toward Neuse River.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply

*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
S18-006
Duke Energy Progress, LLC – H. F. Lee Energy Complex, p.4

Seep ID Number	Approximate Location Coordinates		Description	Receiving Waterbody	Receiving Waterbody Classification	SOC Monitoring	Interim Action Levels
	Latitude	Longitude					
S-24	35.381063	-78.076431	Seep along south side of active ash basin. Flows toward Neuse River.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
S-25	35.380922	-78.076001	Seep along south side of active ash basin. Flows toward Neuse River.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
S-26	35.38164	-78.078322	Seep within a small drainage channel for ponded water within the river bank below south side of active ash basin. Flows toward Neuse River.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
S-27	35.385848	-78.075999	Low volume seep to small channel north of active ash basin at the toe of the dike. Flows west, then south, toward confluence with Neuse River at sampling site S-03A.	Ditch system draining areas north and west of active ash basin	WS-IV; NSW	Monitoring at location S-03A	See S-03A
S-28	35.385133	-78.078197	Low volume seep to small channel north of active ash basin at the toe of the dike. Flows west, then south, toward confluence with Neuse River at sampling site S-03A.	Ditch system draining areas north and west of active ash basin	WS-IV; NSW	Monitoring at location S-03A	See S-03A
S-29	35.37862	-78.10593	Seep to Halfmile Branch on southwest side of retired ash basin #2.	Halfmile Branch	WS-IV; NSW	Instream monitoring of Halfmile Branch	See Halfmile Branch Instream Monitoring (p. 8)

*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
S18-006
Duke Energy Progress, LLC – H. F. Lee Energy Complex, p.5

Seep ID Number	Approximate Location Coordinates		Description	Receiving Waterbody	Receiving Waterbody Classification	SOC Monitoring	Interim Action Levels
	Latitude	Longitude					
CPS-01	35.37924	-78.07377	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
CPS-02	35.37901	-78.07298	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
CPS-03	35.37895	-78.06270	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
CPS-04	35.37902	-78.06707	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
CPS-05	35.37998	-78.06574	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
CPS-06	35.37179	-78.06642	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
CPS-07	35.37177	-78.06661	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply

*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
S18-006
Duke Energy Progress, LLC – H. F. Lee Energy Complex, p.6

Seep ID Number	Approximate Location Coordinates		Description	Receiving Waterbody	Receiving Waterbody Classification	SOC Monitoring	Interim Action Levels
	Latitude	Longitude					
CPS-08	35.37711	-78.06780	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
CPS-09	35.36922	-78.07880	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
CPS-10	35.36840	-78.08125	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
CPS-11	35.36829	-78.08141	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
CPS-12	35.36816	-78.08156	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
CPS-13	35.37972	-78.07540	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
CPS-14	35.37963	-78.07527	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply

*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
S18-006
Duke Energy Progress, LLC – H. F. Lee Energy Complex, p.7

Seep ID Number	Approximate Location Coordinates		Description	Receiving Waterbody	Receiving Waterbody Classification	SOC Monitoring	Interim Action Levels
	Latitude	Longitude					
CPS-15	35.37962	-78.07460	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
CPS-16	35.37942	-78.07423	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
CPS-17	35.37465	-78.06165	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
CPS-18	35.37195	-78.06605	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
CPS-19	35.37192	-78.06625	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
CPS-20	35.37202	-78.06630	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply
CPS-21	35.36983	-78.07580	Seep from the berm surrounding the cooling pond. Not a seep emanating from the active ash basin.	Neuse River	WS-IV; NSW	Instream monitoring of the Neuse River	N/A – 2B Standards Apply

*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.

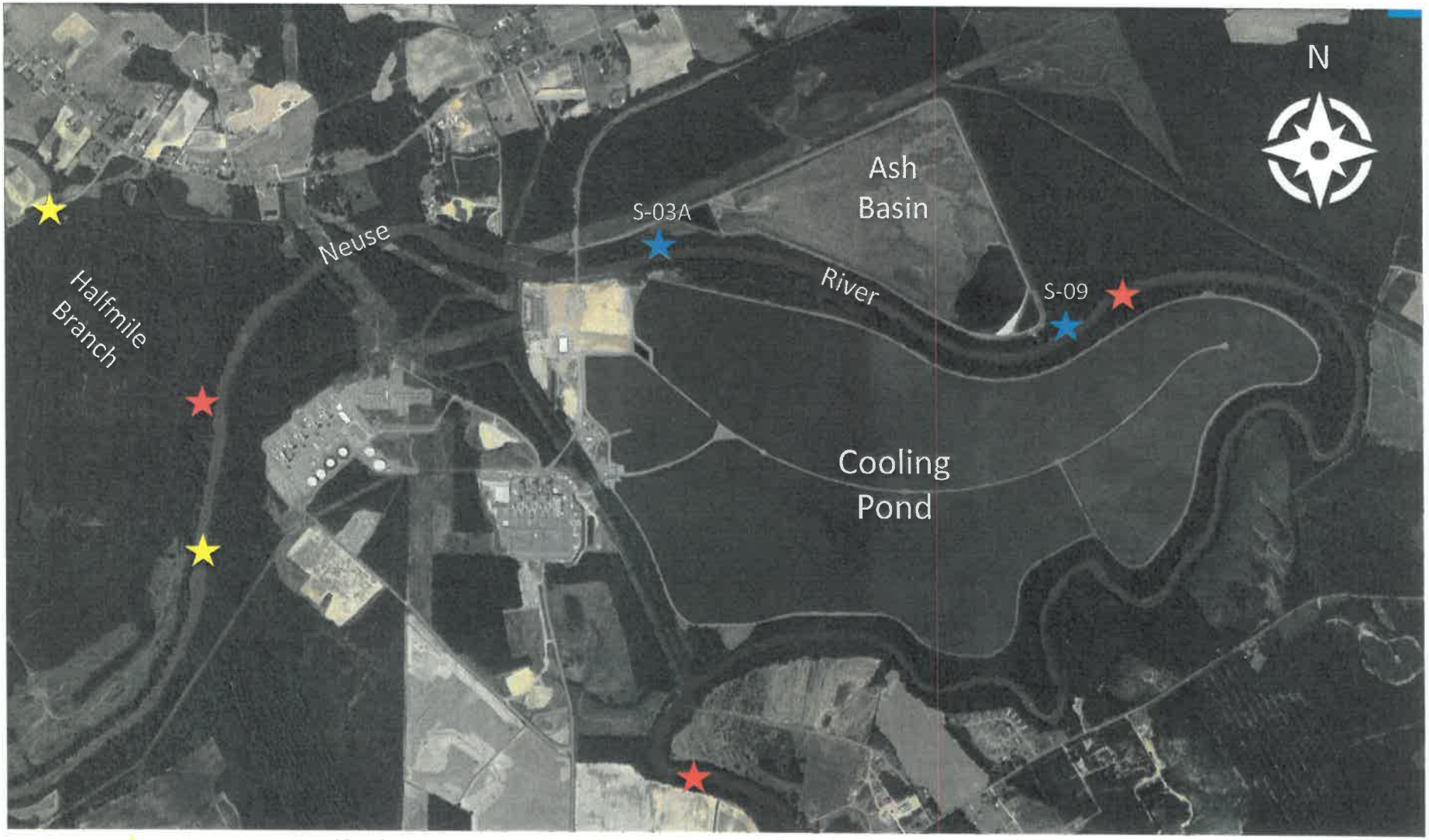
Attachment A
S18-006
Duke Energy Progress, LLC – H. F. Lee Energy Complex, p.8

Instream Monitoring

Description	Receiving Waterbody	Receiving Waterbody Classification	SOC Monitoring	Interim Action Levels
Instream Monitoring to evaluate potential impacts from seeps	Neuse River	WS-IV; NSW	Upstream & Downstream Monitoring of the Neuse River	N/A – 2B Standards Apply
Instream Monitoring to evaluate potential impacts from seeps	Halfmile Branch	WS-IV; NSW	Upstream & Downstream Monitoring of Halfmile Branch	Mercury 0.02 µg/L Selenium 30 µg/L

*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.

H. F. Lee Energy Complex – Water Quality Monitoring



Upstream: Halfmile Branch & Neuse River

Downstream: Halfmile Branch & Neuse River

Stream Monitoring

SOC S18-006
Duke Energy Progress, LLC – H. F. Lee Plant
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
Bromides	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

Analyses of all monitoring conducted per the terms of this SOC shall conform to the requirements of 15A NCAC 2B .0505(e)(4) and (5); i.e., standard methods and certified laboratories shall be used.