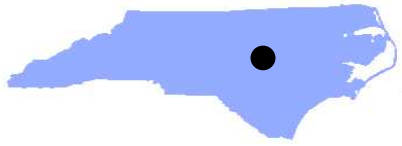
DEQ/DWR
FACT SHEET FOR NPDES PERMIT DEVELOPMENT
NPDES PERMIT NC0003433

Facility Information	
Applicant/Facility Name:	Duke Energy Progress LLC– Cape Fear Steam Electric Plant (decommissioned)
Applicant Address:	500 CP&L Road, Moncure, NC 27599
Facility Address:	500 CP&L Road, Moncure, NC 27599
Permitted Flow:	Outfall 007 – 0.73 MGD Daily Maximum Outfall 008 – 0.72 MGD Daily Maximum Outfall 009 – 0.005 MGD
Type of Waste:	100% Industrial (Ash basin clean up, remediation)
Facility/Permit Status:	Class II/Renewal and Major Modification SIC 4911
County:	Chatham

Miscellaneous					
Receiving Stream			Index	7Q10s (cfs)	QA (cfs)	IWC (7Q10s)
Outfall 007 – Unnamed tributary to Cape Fear River			18-(1)	0	0	100%
Outfalls 008 & 008A – Cape Fear River			18-(1)	65	3,170	1.7%
Outfall 009 – Cape Fear River			18-(1)	65	3,170	0.012%
Outfalls 001 & 005– Internal Outfalls						
Stream Classification:	WS-IV	Regional Office:	Raleigh		
303(d) Listed?:	No	USGS Topo Quad:	E22SE Moncure, NC		
HUC No.:	03030002	Permit Writer:	Bing Bai		
Subbasin:	03-06-07	Date:	June 3, 2018		

Cape Fear River Stream Statistics – 2016	
Drainage (mi^2):	-
Summer – 7Q10 (cfs):	65 [1]
Winter – 7Q10 (cfs):	89 [1]
30Q2 (cfs):	150 [1]
QA (cfs):	3,170 [1]



1. Based on USGS recommendation and data

Current Status

Duke Energy's ceased operation of its combined 400 megawatts, coal-fire and combustion turbine, Cape Fear Steam Electric Plant in 2011. The plant was dismantled and no longer withdraws water from the Cape Fear River nor discharges wastewater as defined for an active operation of a steam electric generation facility. Historically, there were five ash basins, some of which contain a visible water level. As part of the current active NPDES issued in 2011, storm water was separated and is covered under its own permit.

In July 2014 Duke Energy submitted a modification application to amend permit conditions to address operation changes and update identified seeps. Duke Energy requested in February 2016 the current modification application under review be accepted as the required permit renewal application. As part of the required data to develop the permit, Duke provided documents and data associated with identified seeps, ash basin bulk water decanting/dewatering analyses, and landfill leachate analyses. Additional groundwater monitoring well analyses were obtained from the Division's ground water unit. Based on the application amendments and data submitted through August 2016, and applicable Division guidance for this type facility, the initial draft permit was

issued October 5, 2016 with a public hearing held November 28, 20016. The hearing officer extend the deadline for receiving public comments to December 5, 2016. The hearing officer final report was delayed pending resolution of compliance boundary issues and changes in seep permitting requirements, and was issued March 2018.

The following recommendation from the hearing officer report will be implemented in this draft:

1) There will be only a single treatment system for decanting, dewatering, and groundwater remediation with a rated capacity of 0.72 MGD.
2) All required sampling types will be grab.
3) There will be no monitoring requirements for iron or magnesium.
4) Will revise the instream monitoring special condition to allow sampling to be done by the Middle Cape Fear Basin Association provided it is conducted at the locations specified in this permit.
5) Will apply USGS based flow information for this segment of the Cape Fear River to establish 7Q10, 30Q2, and QA based IWC values for Outfall 008.
6) Will re-evaluate limit requirements as determined by an RPA applying the new implemented IWC values for Outfall 008.
7) Will decrease Chronic Toxicity monitoring frequency when decanting to quarterly.
8) Revised flow measurement type to include pump logs when applicable but must use other methods defined in permit when discharge occurs and no pump are running.

The facility began a Division approved ash basin decanting as approved and defined in the Division's December 2015 and July 2016 letters. Discharge of treated decanting wastewater was allowed through existing Outfalls 001, 005, and 007 with weekly monitoring for arsenic, selenium, mercury, chromium, lead, cadmium, copper zinc, and total dissolved solids. The decanting-based discharge cannot contravene NC Water Quality Standards (WQS) or EPA criteria.

Based on additional changes the Division determined a second draft for public comment was necessary. These changes include using USGS combined upstream flow criteria for this segment of the Cape Fear River to define instream waste concentration, adding a new outfall for proposed beneficiation facility miscellaneous wastewater discharge, removing landfill leachate wastewater criteria from outfall wastewater characterization as no landfill was to be built, limiting treated ash basin wastewater discharge to decanting only for Outfall 007, adding a ground water boundary compliance map, and implementing permit conditions for the Division updated seep strategy. The following is a summary of the final revisions from the active permit reflected in this second draft, the majority of which were originally proposed in the first draft;

- Activation of the former 1963/1970 ash basin stormwater Outfall 008 as an NPDES outfall for discharging treated ash basins decanting/dewatering/groundwater remediation wastewater from a treatment facility with a stated maximum design capacity of 0.72 MGD to the Cape Fear River.
- Approval to discharge treated ash basin's decanting wastewater from a treatment facility with a stated maximum design capacity of 0.72 MGD, defined engineering seeps, and the episodic emergency discharge from internal Outfalls 001 and 005, to the existing facility's effluent channel Outfall 007.
- Approval to discharge 0.005 MGD of beneficiation miscellaneous wastewater from a new Outfall 009 to the Cape Fear River.
- Approval to relocate Outfall 005 to a different location on the effluent channel.

- Provisions to allow for the discharge of treated decanting wastewater to Outfall 008.
- Provisions to allow for the discharge of treated dewatering wastewater to Outfall 008.
- Provisions to allow for the discharge of combined treated dewatering and treated groundwater remediation wastewater to Outfall 008.
- Provisions to allow for the discharge of treated groundwater remediation wastewater to Outfall 008, once all dewatering activity is completed.
- Provisions for repurposing existing Internal Outfalls 001 and 005 as emergency only overflow discharges for 1985 (East) and1978 (West) Ash Basins decanting wastewater to the existing facility's effluent channel Outfall 007.
- Provisions for a new emergency only overflow Outfall 008A for 1963/1970 Ash Basin for discharging decanting wastewater to the Cape Fear River.
- Determination of constructed seep (French Drain) status, location, and entry point into effluent channel.
- Removal of all permit conditions associated with the operation of an Electric Generation Steam Plant that are no longer applicable.

The modified facility will have permitted discharges to two stream locations, an unnamed tributary to the Cape Fear River and directly to the Cape Fear River. All streams are classified as WS-IV and are not listed as impaired on the 2014 303(d) impairment list. Based on review of USGS 2016 recommendation, Outfall 007 receiving stream, the unnamed tributary to the Cape Fear River, has a 7Q10 summer flow considered to be "zero". USGS recommended using 65 cfs flow to approximate the 7Q10 summer and 95 cfs flow to approximate the 7Q10 winter for this portion of the Cape Fear River that are the receiving stream for Outfalls 008 and 009. Additional stream data was used from other nearby NPDES facilities and USGS gauge stations to determine 30 Q2 and QA flows for this segment of the Cape Fear River. This facility is subject to NC Senate Bill 729 (Coal Ash Management Act).

Outfall Description for Proposed Permit

Internal Outfall 001 – 1978 (West) Ash Basin

This existing outfall will be re-designated as requested by the Permittee as an emergency overflow discharge only. This will be limited to discharging excess 1978 ash basin decanting wastewater above the available treatment plant capacity during an eminent threat of 1978 (West) Ash Basin overflow to the facility's effluent channel. The channel discharges through Outfall 007.

Internal Outfall 005 – 1985 (East) Ash Basin

This existing outfall will be relocated and re-designated as requested by the Permittee as an emergency overflow discharge only. This will be limited to discharging excess 1985 ash basin decanting wastewater above the available treatment plant capacity during an eminent threat of 1985 (East) Ash Basin overflow to the facility's effluent channel. The channel will continue to discharge through Outfall 007.

Outfall 007 - Combined Wastewater

This existing outfall will be re-designated as a comingled wastewater discharge as requested by the Permittee consisting of treated decanting wastewater from the 0.72 MGD capacity treatment facility, area storm water, approved constructed seep, and episodic emergency discharge from Internal Outfalls 001 and 005. Outfall 007 discharges is to an unnamed tributary to the Cape Fear River.

Outfall 008 - Combined Wastewater
This outfall was a previous retired 1963/1970 Ash Basin storm water outfall and as requested by the Permittee will be re-activated as a NPDES discharge. It will be designated for comingled wastewater discharge consisting of treated wastewater from the 0.72 MGD capacity treatment facility for either decanting/dewatering/groundwater remediation. Outfall 008 discharges to the Cape Fear River.

Outfall 008A - 1963/1970 Ash Basin
This will be a new outfall requested by the Permittee and will be designated as an emergency discharge only. This will be limited to discharging excess 1963/1970 ash basin decanting wastewater above the available treatment plant capacity during an eminent threat of 1963/1970 Ash Basin overflow to the Cape Fear River.

Outfall 009 – Beneficiation Area Miscellaneous Wastewater
This will be a new outfall requested by the Permittee to address 0.005 MGD of potential miscellaneous wastewater that may occur in the Beneficiation process consisting of ash pile runoff, dust, and spills. Outfall 009 will discharge to the Cape Fear River.

Internal Outfall S-05 – Constructed Seep (French Drain)
This internal outfall is for discharge of combined French Drain to effluent channel of Outfall 007.

Compliance Review
During this permit cycle while operating as a steam electric generating facility up to shutting down in May 2014, the facility had two TSS limit violations on Internal Outfall 005 and some monitoring frequency violations. No fines were assessed.

A total of 11 chronic toxicity tests at 90% effluent concentration using ceriodaphnia dubia were performed and passed.

During this permit cycle samples were taken from 13 monitoring wells for 22 parameters 3/ Year. Groundwater violations were noted for Total Manganese, Total Iron, Total Boron, Total Vanadium, TSS, Total Cobalt, Sulfates, Total Selenium, Total Cadmium, Total Chromium, and Total Thallium. As required the Permittee is preparing an Action Plan to address groundwater remediation and a compliance boundary map that will be submitted to the Groundwater Protection Branch for final approval. The map will be attached to the final NPDES permit.

Instream Monitoring
As part of the required site seep investigation and reporting, instream samples were taken in July 2014 in the Haw River at the mouth of Shaddox Creek, upstream in Shaddox Creek, in the Cape Fear River just upstream of the mouth of the unnamed tributary that receives flow from Outfall 007, and in the Cape Fear River approximately 1.9 miles downstream from the mouth of the unnamed tributary. There was a notable reduction in impact to the concentration of the measured constituents that entered Haw River from Shaddox Creek most likely from dilution. The Cape Fear River samples did not show any significant differences. There were no reported values that violated NC water quality standards or EPA criteria.

Fish Tissue Study Near Ash Basins

As required a fish tissue study was conducted in the Cape Fear River in May 2014 to evaluate the uptake of arsenic, mercury, and selenium by fish near the ash basin discharge. There were four fish tissue samples out of the thirty-six sample taken, three upstream and one downstream, that were ≥ the Mercury 2006 NC Health Directors Action Advisory Level of 0.4 µg/g fresh weight. The fish tissue samples Mercury levels ranged from < 0.04 to 0.68 µg/g fresh weight. There was no exceedance of the arsenic or the selenium fish tissue fresh weight criteria for any fish tissue sampled.

Proposed Permitting Action

In accordance with the 2014 Coal Ash Management Act and additional Division approval, the facility began decanting of the ash basins using a 0.72 MGD capacity treatment system. To comply with the remainder of the act, ash basin dewatering and final disposal of the ash must be completed. As part of this renewal and modified permit, requirement will be developed for treated decanting wastewater, treated dewatering wastewater, and in this case a proposed ash disposal Beneficiation process 0.005 MGD waste sources. In addition, the Permittee has requested as part of the permit modification to include groundwater remediation as part of the dewatering activities to be continued once dewatering activities are completed. Under current Division seep strategy only the constructed seep, S-05, that discharges to the effluent channel will be covered under this permit.

Outfall 007

This outfall discharges at the end of the effluent channel and to an unnamed tributary with a "zero" 7Q10 summer flow, thus, has an IWC=100%. Base on evaluation of all the contributing wastewater characteristics associated with this outfall, the ash basin decanting waste water source was the most dominant. A reasonable potential analysis was conducted using 0.73 MGD as the estimated flow and using the ash basin bulk water concentration data collected in October 2014. Based on this analysis, the following permitting actions are proposed for this permit:

- Effluent Limit with Monitoring. The following parameters will receive a water quality-based effluent limit (WQBEL) since they demonstrated a reasonable potential to exceed applicable water quality standards/criteria: Arsenic, Antimony, Molybdenum, Nickel, Selenium, Zinc

- Monitoring Only. The following parameters will receive a monitor-only requirement since they did not demonstrate reasonable potential to exceed applicable water quality standards/criteria, but the maximum predicted concentration was >50% of the allowable concentration: Cadmium, Copper, Fluoride, Sulfates, TDS, Thallium, Lead

- No Limit or Monitoring: The following parameters will not receive a limit or monitoring, since they did not demonstrate reasonable potential to exceed applicable water quality standards/criteria and the maximum predicted concentration was <50% of the allowable concentration: Chlorides, Aluminum, Chromium III, Chromium VI, Total Chromium, Barium

To comply with mercury TMDL requirements and minimum ash basin decanting monitoring requirements, monthly monitoring using test method 1631E, or equivalent, will be required, with an annual average limit of 12 ng/L.

Additional decanting monitoring parameters and conditions and other general permit requirements are summarized in Table 1: Outfall 007 – Ash Basin Decanting.

Table 1: Outfall 007 - Ash Basin Decanting

Parameter	Monitoring Requirements	DMR Monitoring Frequency	Basis
Flow	0.73 MGD DM	Daily	Decanting strategy, 15A NCAC 2B .0505
pH	6.0 ≤ pH ≤ 9.0 S.U. Continuous monitoring/auto shutoff	Monthly	Decanting strategy, 15A NCAC 2B .0200
TSS	30.0 mg/L MA 100 mg/L DM Continuous monitoring/auto shutoff	Monthly	Decanting strategy, EPA requirement, 40 CFR 423
Oil & Grease	15.0 mg/L MA 20.0 mg/L DM	Monthly	Decanting strategy, 40 CFR 423
Total Antimony	5.6 µg/L MA 5.6 µg/L DM	Monthly	RP to exceed NC WQS and EPA criteria
Total Arsenic	10.0 µg/L MA 340.0 µg/L DM	Weekly	RP to exceed NC WQS and EPA criteria
Total Molybdenum	160 µg/L MA 160 µg/L DM	Monthly	RP to exceed NC WQS and EPA criteria
Total Lead	Monitor & Report, µg/L	Monthly	Pollutant of concern
Total Nickel	25.0 µg/L MA 335.2 µg/L DM	Monthly	RP to exceed NC WQS and EPA criteria
Total Selenium	5.0 µg/L MA 56.0 µg/L DM	Weekly	RP to exceed NC WQS and EPA criteria
Total Zinc	125.7 µg/L MA 125.7 µg/L DM	Monthly	RP to exceed NC WQS and EPA criteria
Total Mercury	12 ng/L, annual average	Weekly	Mercury TMDL
Total Cadmium	Monitor & Report, µg/L	Monthly	No RP, predicted value ≥ 50% of the Allowable Cw
Total Copper	Monitor & Report, µg/L	Monthly	No RP, predicted value ≥ 50% of the Allowable Cw
Fluoride	Monitor & Report, mg/L	Monthly	No RP, predicted value ≥ 50% of the Allowable Cw
Sulfates	Monitor & Report, mg/L	Monthly	No RP, predicted value ≥ 50% of the Allowable Cw
Total Dissolved Solids	Monitor & Report, mg/L	Monthly	No RP, predicted value ≥ 50% of the Allowable Cw
Total Thallium	Monitor & Report, µg/L	Monthly	No RP, predicted value ≥ 50% of the Allowable Cw
Turbidity	Net Turbidity ≤ 50 NTU	Monthly	Decanting strategy, EPA requirement
Effluent Hardness	Monitor & Report, mg/L	Quarterly	Required to assess dissolved metal limitations
Chronic Toxicity	90% concentration, P/F	Quarterly	Decanting strategy, DEQ Toxicity Policy
Nitrate/Nitrite as N	Monitor & Report, mg/L	Quarterly	Needed to calculate TN
Total Kjeldahl Nitrogen	Monitor & Report, mg/L	Quarterly	Needed to calculate TN
Total Nitrogen	Monitor & Report, mg/L	Quarterly	15A NCAC 02B .0500
Total Phosphorus	Monitor & Report, mg/L	Quarterly	15A NCAC 02B .0500

MGD – Million gallons per day, MA – Monthly Average, DM – Daily Max

Outfall 008 - Decanting

As requested by the Permittee this new outfall will discharge to a segment of the Cape Fear River and based on stream flow data has a 7Q10 summer IWC = 1.7%. A reasonable potential analysis was conducted using the 0.72 MGD capacity of the treatment as the estimated flow and using the highest bulk water concentration data collected in October 2014. Based on this analysis, the following permitting actions are proposed for this permit:

- Effluent Limit with Monitoring. The following parameters will receive a water quality-based effluent limit (WQBEL) since they demonstrated a reasonable potential to exceed applicable water quality standards/criteria: NA

- Monitoring Only. The following parameters will receive a monitor-only requirement since they did not demonstrate reasonable potential to exceed applicable water quality standards/criteria, but the maximum predicted concentration was >50% of the allowable concentration: Arsenic, Selenium, Lead, Nickel
  NOTE: Arsenic and Selenium are major decanting pollutants of concern, weekly monitoring is required. Lead and Nickel are pollutants of concern, monthly monitoring is required.

- No Limit or Monitoring: The following parameters will not receive a limit or monitoring, since they did not demonstrate reasonable potential to exceed applicable water quality standards/criteria and the maximum predicted concentration was <50% of the allowable concentration: TDS, Cadmium, Chlorides, Aluminum, Chromium III, Chromium VI, Total Chromium, Copper, Fluoride, Molybdenum, Zinc, Antimony, Barium, Sulfates, Thallium.

To comply with mercury TMDL requirements and minimum ash basin decanting monitoring requirements, monthly monitoring using test method 1631E, or equivalent, will be required, with an annual average limit of 47 ng/L.

Additional decanting monitoring parameters and conditions and other general permit requirements are summarized in Table 2: Outfall 008 – Ash Basin Decanting.

Table 2: Outfall 008 -Ash Basin Decanting

Parameter	Monitoring Requirements	DMR Monitoring Frequency	Basis
Flow	0.72 MGD DM	Daily	Decanting strategy, 15A NCAC 2B .0505
pH	6.0 ≤ pH ≤ 9.0 S.U. Continuous monitoring/auto shutoff	Monthly	Decanting strategy, 15A NCAC 2B .0200
TSS	30.0 mg/L MA 100 mg/L DM Continuous monitoring/auto shutoff	Monthly	Decanting strategy, EPA requirement, 40 CFR 423
Oil & Grease	15.0 mg/L MA 20.0 mg/L DM	Monthly	Decanting strategy, 40 CFR 423
Total Mercury	47 ng/L, annual average	Weekly	Mercury TMDL
Total Arsenic	Monitor & Report, µg/L	Weekly	Decanting strategy, EPA requirement
Total Selenium	Monitor & Report, µg/L	Weekly	Decanting strategy, EPA requirement

Total Lead	Monitor & Report, µg/L	Monthly	Pollutant of concern
Total Nickel	Monitor & Report, µg/L	Monthly	Pollutant of concern
Turbidity	Net Turbidity ≤ 50 NTU	Monthly	Decanting strategy, EPA requirement
Effluent Hardness	Monitor & Report, mg/L	Quarterly	Required to assess dissolved metal limitations
Chronic Toxicity	1.7% concentration, P/F	Quarterly	Decanting strategy, DEQ Toxicity Policy
Nitrate/Nitrite as N	Monitor & Report, mg/L	Quarterly	Needed to calculate TN
Total Kjeldahl Nitrogen	Monitor & Report, mg/L	Quarterly	Needed to calculate TN
Total Nitrogen	Monitor & Report, mg/L	Quarterly	15A NCAC 02B .0500
Total Phosphorus	Monitor & Report, mg/L	Quarterly	15A NCAC 02B .0500

MGD – Million gallons per day, MA – Monthly Average, DM – Daily Max

Outfall 008 - Dewatering

As requested by the Permittee this new outfall will discharge to a segment of the Cape Fear River and based on stream flow data has a 7Q10 summer-based IWC = 1.7%. A reasonable potential analysis was conducted using the 0.72 MGD capacity of the treatment system as the estimated flow and using the highest 1985 (East) and 1978 (West) Ash Basins interstitial water concentration data collected in January 2015. Based on this analysis, the following permitting actions are proposed for this permit:

- Effluent Limit with Monitoring. The following parameters will receive a water quality-based effluent limit (WQBEL) since they demonstrated a reasonable potential to exceed applicable water quality standards/criteria: Selenium
  NOTE: Arsenic is a major dewatering pollutant of concern, weekly monitoring is required.

- Monitoring Only. The following parameters will receive a monitor-only requirement since they did not demonstrate reasonable potential to exceed applicable water quality standards/criteria, but the maximum predicted concentration was >50% of the allowable concentration: Aluminum, Arsenic, Cadmium, Copper, Lead, Nickel

- No Limit or Monitoring: The following parameters will not receive a limit or monitoring, since they did not demonstrate reasonable potential to exceed applicable water quality standards/criteria and the maximum predicted concentration was <50% of the allowable concentration: TDS, Chlorides, Chromium III, Chromium VI, Total Chromium, Fluoride, Molybdenum, Barium, Sulfates, Antimony, Zinc, Thallium

To comply with mercury TMDL requirements and minimum ash basin dewatering monitoring requirements, weekly monitoring using test method 1631E, or equivalent, will be required, with an annual average limit of 47 ng/L.

The Permittee shall notify the Raleigh Regional Office and the Division seven calendar days prior to commencing ash basin dewatering operation.

Additional dewatering monitoring parameters and conditions and other general permit requirements are summarized in Table 3: Outfall 008 – Ash Basin Dewatering.

Table 3: Outfall 008 -Ash Basin Dewatering

Parameter	Monitoring Requirements	DMR Monitoring Frequency	Basis
Flow	0.72 MGD DM	Daily	Dewatering strategy, 15A NCAC 2B .0505
pH	6.0 ≤ pH ≤ 9.0 S.U. Continuous monitoring/auto shutoff	Weekly	Dewatering strategy, 15A NCAC 2B .0200
TSS	30.0 mg/L MA 100 mg/L DM Continuous monitoring/auto shutoff	Weekly	Dewatering strategy, EPA requirement, 40 CFR 423
Oil & Grease	15.0 mg/L MA 20.0 mg/L DM	Weekly	Dewatering strategy, 40 CFR 423
Total Aluminum	Monitor & Report, mg/L	Weekly	No RP, predicted Cw ≥ 50% of Allowable Cw
Total Arsenic	Monitor & Report, µg/L	Weekly	Dewatering strategy, EPA requirement
Total Cadmium	Monitor & Report, µg/L	Weekly	No RP, predicted Cw ≥ 50% of Allowable Cw
Total Copper	466.9 µg/L MA 509.9 µg/L DM	Weekly	RP to exceed NC WQS and EPA criteria
Total Lead	0.17 mg/L MA 3.68 mg/L DM	Weekly	RP to exceed NC WQS and EPA criteria
Total Mercury	47 ng/L, annual average	Weekly	Mercury TMDL
Total Nickel	Monitor & Report, µg/L	Weekly	Pollutant of concern
Total Selenium	0.30 mg/L MA 2.73 mg/L DM	Weekly	RP to exceed NC WQS and EPA criteria
Turbidity	Net Turbidity ≤ 50 NTU	Weekly	Decanting strategy, EPA requirement
Effluent Hardness	Monitor & Report, mg/L	Quarterly	Required to assess dissolved metal limitations
Chronic Toxicity	1.7% concentration, P/F	Monthly	Dewatering strategy, DEQ Toxicity Policy
Nitrate/Nitrite as N	Monitor & Report, mg/L	Quarterly	Needed to calculate TN
Total Kjeldahl Nitrogen	Monitor & Report, mg/L	Quarterly	Needed to calculate TN
Total Nitrogen	Monitor & Report, mg/L	Quarterly	15A NCAC 02B .0500
Total Phosphorus	Monitor & Report, mg/L	Quarterly	15A NCAC 02B .0500

MGD – Million gallons per day, MA – Monthly Average, DM – Daily Max

Outfall 008 – Dewatering/Ground Water Remediation

As requested by the Permittee this new outfall will discharge to a segment of the Cape Fear River, and based on stream flow data and a maximum 0.72 MGD treatment system capacity has a 7Q10 summer-based IWC = 1.7%. A reasonable potential analysis was conducted using the 1.7% and using two source data points if available, one data point from the highest 1985 (East) and 1978 (West) Ash Basins interstitial water concentration data collected in January 2015 and a second data point from the highest ground water monitoring wells data collected in 2015 and 2016. Based on this analysis, the following permitting actions are proposed for this permit:

- Effluent Limit with Monitoring. The following parameters will receive a water quality-based effluent limit (WQBEL) since they demonstrated a reasonable potential to exceed applicable

water quality standards/criteria: TDS, Aluminum, Copper, Lead, Nickel, Selenium, Silver, Sulfates, Zinc
NOTE: Arsenic is a major dewatering pollutant of concern, weekly monitoring is required.

- Monitoring Only. The following parameters will receive a monitor-only requirement since they did not demonstrate reasonable potential to exceed applicable water quality standards/criteria, but the maximum predicted concentration was >50% of the allowable concentration: Beryllium, Copper, Cadmium, NOTE: Molybdenum is a major pollutant of interest, will be monitored weekly.

- No Limit or Monitoring: The following parameters will not receive a limit or monitoring, since they did not demonstrate reasonable potential to exceed applicable water quality standards/criteria and the maximum predicted concentration was <50% of the allowable concentration: Antimony, Chlorides, Chromium III, Chromium VI, Total Chromium, Fluoride, Barium, Thallium

To comply with mercury TMDL requirements and minimum ash basin dewatering monitoring requirements, weekly monitoring using test method 1631E, or equivalent, will be required, with an annual average limit of 47 ng/L.

The Permittee shall notify the Raleigh Regional Office and the Division seven calendar days prior to the introduction of remediation ground water with the dewatering wastewater. Additional dewatering monitoring parameters and ground water remediation monitoring parameters and other general permit requirements are summarized in Table 4: Outfall 008 – Ash Basin Dewatering/Ground Water Remediation.

Table 4: Outfall 008 - Ash Basin Dewatering/Ground Water Remediation

Parameter	Monitoring Requirements	DMR Monitoring Frequency	Basis
Flow	0.72 MGD DM	Daily	Dewatering strategy, 15A NCAC 2B .0505
Temperature, °C	Monitor & Report	Weekly	Ground Water Remediation NCG510000
pH	6.0 ≤ pH ≤ 9.0 S.U. Continuous monitoring/auto shutoff	Weekly	Dewatering strategy, 15A NCAC 2B .0200
TSS	30.0 mg/L MA 100 mg/L DM Continuous monitoring/auto shutoff	Weekly	Dewatering strategy, EPA requirement, 40 CFR 423
Oil & Grease	15.0 mg/L MA 20.0 mg/L DM	Weekly	Dewatering strategy, 40 CFR 423
Total Aluminum	385.1 mg/L MA 385.1 mg/L DM	Weekly	RP to exceed NC WQS and EPA criteria
Total Arsenic	Monitor & Report, µg/L	Weekly	Dewatering strategy, EPA requirement
Total Beryllium	Monitor & Report, µg/L	Weekly	No RP, predicted Cw ≥ 50% of Allowable Cw

Total Cadmium	Monitor & Report, µg/L	Weekly	No RP, predicted Cw ≥ 50% of Allowable Cw
Total Copper	Monitor & Report, µg/L	Weekly	No RP, predicted Cw ≥ 50% of Allowable Cw
Total Lead	Monitor & Report, µg/L	Weekly	No RP, predicted Cw ≥ 50% of Allowable Cw
Total Mercury	47 ng/L, annual average	Weekly	Mercury TMDL
Total Nickel	1.48 mg/L MA 16.3 mg/L DM	Weekly	RP to exceed NC WQS and EPA criteria
Total Selenium	0.30 mg/L MA 2.73 mg/L DM	Weekly	RP to exceed NC WQS and EPA criteria
Total Silver	Monitor & Report, µg/L	Weekly	No RP, predicted Cw ≥ 50% of Allowable Cw
Total Zinc	Monitor & Report, µg/L	Weekly	No RP, predicted Cw ≥ 50% of Allowable Cw
TDS	Monitor & Report, mg/L	Weekly	No RP, predicted Cw ≥ 50% of Allowable Cw
Sulfates	Monitor & Report, mg/L	Weekly	No RP, predicted Cw ≥ 50% of Allowable Cw
Turbidity	Net Turbidity ≤ 50 NTU	Weekly	Dewatering strategy, EPA requirement
Effluent Hardness	Monitor & Report, mg/L	Quarterly	Required to assess dissolved metal limitations
Chronic Toxicity	1.7% concentration, P/F	Monthly	Dewatering strategy, DEQ Toxicity Policy
Conductivity, µmhos/cm	Monitor and Report	Quarterly	Ground Water Remediation, NCG510000
Nitrate/Nitrite as N	Monitor & Report, mg/L	Quarterly	Needed to calculate TN
Total Kjeldahl Nitrogen	Monitor & Report, mg/L	Quarterly	Needed to calculate TN
Total Nitrogen	Monitor & Report, mg/L	Quarterly	15A NCAC 02B .0500
Total Phosphorus	Monitor & Report, mg/L	Quarterly	15A NCAC 02B .0500

MGD – Million gallons per day, MA – Monthly Average, DM – Daily Max

In addition, a special condition will be added to require the Permittee to submit EPA Form 2C to update the ground water remediation characterization 180 days after its initial introduction to the treatment system. The Division may reopen the permit to assign additional limits or conditions

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Outfall 008 – Ground Water Remediation

As requested by the Permittee this new outfall will discharge to a segment of the Cape Fear River, and based on stream flow data and a maximum 0.72 MGD treatment system capacity has a 7Q10 summer-based IWC = 1.7%. The reasonable potential analysis was conducted using only the highest ground water monitoring wells data toxicant concentration collected in 2015 and 2016 yielded the same results as the reasonable potential analysis conducted for comingled dewatering and groundwater remediation waste sources. Therefore, the only changes will be the removal of conditions related to dewatering activity, and a reduction in various parameters monitoring frequency and TSS limits to comply with Division ground water remediation permitting strategy.

To comply with mercury TMDL requirements, quarterly monitoring using test method 1631E, or equivalent, will be required, with an annual average limit of 47 ng/L.

The Permittee shall notify the Raleigh Regional Office and the Division seven calendar days prior to the completion of dewatering activities and the continuation of remediation ground water treatment.

Ground Water Remediation requirements and conditions are summarized in Table 5: Outfall 008 – Ground Water Remediation.

Table 5: Outfall 008 - Ground Water Remediation

Parameter	Monitoring Requirements	DMR Monitoring Frequency	Basis
Flow	0.72 MGD MA	Weekly	15A NCAC 2B .0400 et seq., 02B .0500 et seq.
Temperature, ℃	Monitor & Report	Weekly	Ground Water Remediation, NCG510000
pH	6.0 ≤ pH ≤ 9.0 S.U.	Weekly	15A NCAC 2B .0200
TSS	30.0 mg/L MA 45.0 mg/L DM	Weekly	Ground Water Remediation, NCG510000
Oil & Grease	15.0 mg/L MA 20.0 mg/L DM	Weekly	40 CFR 423
Total Aluminum	385.1 mg/L MA 385.1 mg/L DM	2/Month	RP to exceed NC WQS and EPA criteria
Total Arsenic	Monitor & Report, µg/L	2/Month	No RP, predicted Cw ≥ 50% of Allowable Cw
Total Beryllium	Monitor & Report, µg/L	2/Month	No RP, predicted Cw ≥ 50% of Allowable Cw
Total Lead	Monitor & Report, µg/L	2/Month	No RP, predicted Cw ≥ 50% of Allowable Cw
Total Nickel	1.48 mg/L MA 16.3 mg/L DM	2/Month	RP to exceed NC WQS and EPA criteria
Total Selenium	Monitor & Report, µg/L	2/Month	No RP, predicted Cw ≥ 50% of Allowable Cw
Total Silver	Monitor & Report, µg/L	2/Month	No RP, predicted Cw ≥ 50% of Allowable Cw
Total Zinc	Monitor & Report, µg/L	2/Month	No RP, predicted Cw ≥ 50% of Allowable Cw
TDS	Monitor & Report, mg/L	2/Month	No RP, predicted Cw ≥ 50% of Allowable Cw
Sulfates	14,811 mg/L MA 14,811mg/L DM	2/Month	RP to exceed NC WQS and EPA criteria
Turbidity	Net Turbidity ≤ 50 NTU	2/Month	15 NCAC 2B .0500
Effluent Hardness	Monitor & Report, mg/L	Quarterly	Required to assess dissolved metal limitations
Chronic Toxicity	1.7% concentration, P/F	Quarterly	Dewatering strategy, DEQ Toxicity Policy

Conductivity, µmhos/cm	Monitor and Report	Quarterly	Ground Water Remediation, NCG510000
Nitrate/Nitrite as N	Monitor & Report, mg/L	Quarterly	Needed to calculate TN
Total Kjeldahl Nitrogen	Monitor & Report, mg/L	Quarterly	Needed to calculate TN
Total Nitrogen	Monitor & Report, mg/L	Quarterly	15A NCAC 02B .0500
Total Phosphorus	Monitor & Report, mg/L	Quarterly	15A NCAC 02B .0500

MGD – Million gallons per day, MA – Monthly Average, DM – Daily Max

Outfall 009 – Beneficiation Miscellaneous Wastewater

As requested by the Permittee this new outfall will discharge to a segment of the Cape Fear River, and based on stream flow data and a maximum 0.005 MGD discharge has a 7Q10 summer-based IWC = 0.012%. The expected sources of wastewater from the Beneficiation process area are ash pile run off, truck washing and ash dust spills. Data from an existing similar operation which included 21 toxicants was provided to characterize the proposed Beneficiation waste stream, and used to conducted a reasonable potential analysis.

No Limit or Monitoring: The following parameters will not receive a limit or monitoring, since they did not demonstrate reasonable potential to exceed applicable water quality standards/criteria and the maximum predicted concentration was <50% of the allowable concentration: Aluminum, Antimony, Cadmium, Chlorides, Barium, Beryllium, Total Chromium, Copper, Fluoride, Lead, Molybdenum, Nickel, Silver, Thallium, Zinc, Sulfates, TDS

NOTE: Monthly monitoring for Arsenic and Selenium will be required as they are toxicants of concern.

Beneficiation Miscellaneous requirements and conditions are summarized in Table 6: Outfall 009 – Ground Water Remediation.

Table 6: Outfall 009 – Beneficiation Miscellaneous Wastewater

Parameter	Monitoring Requirements	DMR Monitoring Frequency	Basis
Flow	0.005 MGD DM	Weekly	15A NCAC 2B .0400 et seq., 02B .0500 et seq.
Temperature, °C	Monitor & Report	Monthly	BPJ (untreated waste stream)
pH	6.0 ≤ pH ≤ 9.0 S.U.	Monthly	15A NCAC 2B .0200
TSS	30.0 mg/L MA 30.0 mg/L DM	Monthly	BPJ (untreated waste stream)
Oil & Grease	15.0 mg/L MA 20.0 mg/L DM	Monthly	40 CFR 423
Total Mercury	47 ng/L, annual average	Monthly	Mercury TMDL
Total Arsenic	Monitor & Report	Monthly	Toxicant of concern, BPJ (coal ash source)
Total Selenium	Monitor & Report	Monthly	Toxicant of concern, BPJ (coal ash source)
Turbidity	Net Turbidity ≤ 50 NTU	Monthly	15 NCAC 2B .0500

MGD – Million gallons per day, MA – Monthly Average, DM – Daily Max

Internal Outfalls 001, 005, and External Outfall 008A - Ash Basins Emergency Overflow Discharge

As requested by the Permittee internal outfalls will be permitted for the three ash basins to address potential emergency overflow only events. Outfall 005, an existing 1985 (East) Ash Basin internal outfall, will be relocate to a different section of the effluent channel and be repurposed as an episodic emergency overflow. Outfall 001, an existing 1968 (West) Ash Basin internal outfall, will be repurposed as an episodic emergency overflow and continue to discharge to the effluent channel. The 1963/1970 Ash basin will require a new episodic emergency overflow Outfall 008A which will be added to this permit.

An emergency discharge is defined as the ash basin decanting wastewater that is in excess of the facility 0.72 MGD treatment capacity that will overflow. Table 6 lists the notification [1] and monitoring requirement in the event of ash basin emergency overflow from internal outfalls:

Table 6: Ash Basin Emergency Overflow Outfalls 001, 005, 008A

Parameter	Monitoring Requirements [2]	Sample Type
Flow	Monitor & Report, MGD	Estimate
Outfall 001(Internal)	Monitor & Report Outfall 007 per A. (3.) [3]	
Outfall 005 (Internal)	Monitor & Report Outfall 007 per A. (3.) [3]	
Outfall 008A	Monitor & Report Outfall 008 per A. (8.) [3]	

Notes

1. The Permittee shall notify the Raleigh Regional Office (919) 791 – 4200 no later than the end of the next business day of the occurrence of an emergency discharge event including time of occurrence, duration, and cause.
2. During the duration of a discharge event, the flow shall be reported daily.
3. Effluent monitoring shall commence immediately at the impacted external outfall (Outfalls 007 or 008) for the limited parameters except for Mercury and Chronic Toxicity. Monitoring parameters and continue weekly during the emergency discharge event. Any external outfall's monitoring requirements in effect prior to an emergency discharge shall remain in effect.

Instream Monitoring

The facility shall conduct representative monthly in-stream monitoring for total arsenic, total selenium, total mercury, total chromium, dissolved lead, dissolved cadmium, dissolved copper, dissolved zinc, total bromide, total hardness (as $CaCO_3$), turbidity, and total dissolved solids (TDS) at locations list in Table 7. For the purpose of this requirement, semi-annual means that samples are collected twice per year with at least 120 calendar days between sampling events. The monitoring results shall be reported on the facility's Discharge Monitoring Reports and included with the NPDES permit renewal application.

Instream monitoring is provisionally waived considering the permittee's participation in the Middle Cape Fear River Basin Association provided the Association agrees to sample for all the parameters listed in this condition and at the specified locations. Instream monitoring shall be conducted as stated in this permit should the permittee end its participation in the Association.

Table 7: Instream Monitoring Locations

Instream Sample Description	Location
Upstream Outfall 008	0.9 miles upstream from Outfall 008 in Cape Fear River
Downstream Outfall 008	Approximately 250 meters downstream from Outfall 008 in Cape Fear River

Fish Tissue Monitoring

The current permit's Fish Tissue Monitoring Near Ash Pond Discharge special condition will be modified to show the submittal of the proposed plan for approval by the Division shall be no later than180 days after the effective date of this permit, and to provide the addresses for submittal of the proposed plan and the subsequent required report. Once the plan is approved it will become an enforceable part of the permit.

Removal of Special Conditions No Longer Valid

As a result of the decommissioning and removing of the steam and turbine components, removing of the domestic WWTP, and eliminating of other related on-site sources, the following current permit Special Conditions are no longer applicable and will be removed from this permit renewal:

- A. (2.) Internal Outfall 003
- A. (6) Intake Screen Backwashing
- A. (7.) Biocide Condition
- A. (8.) Domestic Wastewater Treatment Plant
- A. (10.) Section 316 (b) of CWA

Constructed Seep (French Drain)

As part of the required effluent channel evaluation completed by the Division on September 2, 2016 and subsequent updates to confirm status of constructed seep, Outfall S-05 is the recognized combined flow of the two French Drain sources that collect in the effluent channel. Table 9: Coordinates and Assigned Outfall list the details related to S-05. The effluent channel flows go to Outfall 007 which discharges to an unnamed tributary to the Cape Fear River.

Table 9: Coordinates and Assigned Outfall

Discharge ID	Latitude	Longitude
S-05	35° 35' 25.62" N	79° 2' 46.96" W

Summary of Proposed Changes

1. Eliminated the current permit Internal Outfall 003 and its limitation page A. (2.); Special Conditions A. (6.) Intake Screen Backwash, A. (7.) Biocide Condition, A. (8.) Domestic Wastewater Treatment Plant, A. (10.) Section 316(b) of CWA; as they are no longer applicable.
2. Modified Supplement to Permit Cover Sheet to show the new outfalls' configuration.
3. Modified Internal Outfalls 001 and 005 limitation pages [new permit A. (1.) and A. (2.)] to repurpose their monitoring, narrative, and limit requirements for episodic emergency overflow of decanting wastewater from the West and East Ash Basins. Outfall 005 was relocated to different segment of the effluent channel.
4. Modified Outfall 007 limitation page [new permit A. (3.)], discharge to unnamed tributary to the Cape Fear River, to repurpose its monitoring, narrative, and limit requirements for

comingled ash basin treated decanting wastewater and any other collected wastewater in the effluent channel approved by the Division.

5. Added new Outfall 008 limitation pages [new permit A. (4.), A. (5.), A. (6.), A. (7.)], discharge to the Cape Fear River, for monitoring and limit requirements, and applicable narrative conditions, for combination of treated wastewater sources starting with ash basin decanting, followed by ash basin dewatering, followed by the introduction of groundwater remediation in combination with ash basin dewatering, and ending with groundwater remediation only.
6. Added new Outfall 008A limitation page [new permit A. (8.)] for monitoring, narrative, and limit requirements for the episodic emergency overflow of decanting wastewater from the 1963/1970 Ash Basin.
7. Added new Outfall 009 limitation page [new permit A. (9.)], discharge to the Cape Fear River, for monitoring, narrative, and limit requirements for miscellaneous Beneficiation area wastewater.
8. Modified Special Condition A. (10.) Chronic Toxicity Limit (Quarterly) for Outfalls 007 and 008.
9. Added Special Condition A. (11.) Chronic Toxicity Limit (Monthly) for Outfalls 007 and 008.
10. Added Special Condition A. (12.) Additional Conditions and Definitions for other applicable conditions associated with this permit.
11. Added Special Condition A. (13.) Instream Monitoring to implement monthly instream monitoring for Arsenic, Bromide, Cadmium, Chromium, Copper, Hardness, Lead, Mercury, Selenium, Zinc, TDS, Temperature and Turbidity at instream locations on the Cape Fear River.
12. Revised Special Condition A. (14.) Structural Integrity Inspections of Ash Basin Dam.
13. Modified Special Condition A. (15.) Fish Tissue Monitoring Near Ash Basin Discharge to redefine submittal and approval requirements for the required fish tissue monitoring plan, and to define the approved monitoring plan enforceable.
14. Added Special Condition A. (16.) Compliance Boundary. Boundary map will be attached to permit.
15. Added Special Condition A. (17.) Applicable State Law narrative to meet requirements of Senate Bill 729 (Coal Ash Management Act).
16. Added Special Condition A. (18.) Addition of Other Wastewater to Ash Basin Treatment System to require the submittal of EPA Form 2C upon addition of groundwater remediation wastewater to treatment system.
17. Added Special Condition A. (19.) Electronic Reporting of Discharge Monitoring Reports for electronic reporting of DMRs. Federal regulations require electronic submittal of all discharge monitoring reports (DMRs) and specify that, if a state does not establish a system to receive such submittals, then permittees must submit DMRs electronically to the Environmental Protection Agency (EPA).

Proposed Schedule

Draft Permit to Public Notice: June 27, 2018
Permit Scheduled to Issue: XXXX 2018

Fact Sheet Attachments

RPA Spreadsheet Summary for Outfalls 007, 008 and 009