DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER RESOURCES
FACT SHEET FOR NPDES PERMIT DEVELOPMENT
NPDES No. NC0005088

Facility Information			
Applicant/Facility	Duke Energy Carolinas, LLC / Rogers Energy Complex		
Applicant Address:	526 Church St., Charlotte, NC 28202		
Facility Address:	573 Duke Power Road, Mooresboro, NC 28024		
Permitted Flow (MGD):	Not limited		
Type of Waste:	Industrial & domestic		
Facility Classification:	I		
Permit Status:	Major Modification		
County:	Rutherford & Cleveland		
Miscellaneous			
Receiving Stream:	Broad River/UT to Broad River (Outfall 106)	State Grid:	G11NE
Stream Classification:	WS-IV	USGS Quad:	Chesnee
Drainage Area (mi^2):	849 - Broad River	Basin/Subbasin:	Broad/03-08-02
Summer 7Q10 (cfs)	287 Broad River	303(d) Listed?	No
Winter 7Q10 (cfs):	440 Broad River	HUC:	03050105
30Q2 (cfs)	635 Broad River	Regional Office:	Asheville
Average Flow (cfs):	1460 Broad River	Permit Writer:	Sergei Chernikov, Ph.D.
IWC (%):	7.7 (002) 3.1 (005)	Date:	3/30/2020

SUMMARY

Duke Energy Carolinas operates the Rogers Energy Complex (REC); formerly known as Cliffside Steam Station; a two-unit coal fired steam electric generating facility. Units 1-4 have been removed from service. The station now operates only two units; Units 5 and 6. The total combined output is 1500 megawatts. Each unit has a Flue Gas Desulfurization (FGD) system. The site has an industrial landfill for combustion byproducts where fly ash, bottom ash, gypsum and WWTP sludge is deposited.

Water for cooling is withdrawn from the Broad River. Both units use cooling towers for heat dissipation. Blowdown from Unit 5 is discharged to the ash basin. Blowdown from Unit 6 can be used in the unit's make up water or discharged to the ash basin.

The receiving water is the Broad River, class WS-IV waters in the Broad River Basin. Previous permits had this section classified as C. The correct classification is WS-IV and it will be modified in the permit.

REC is subject to EPA effluent guideline limits per 40 CFR 423 - Steam Electric Power Generating Point Source Category. The facility is also subject to the Cooling Water Intake Structures Rules (40 CFR 125) effective October 14, 2014 and to the North Carolina Senate Bill 729 - Coal Ash Management Act.

The facility requested a Major Modification to extend compliance schedule for FGD wastewater from 12/31/2021 to 12/31/2023 due to the latest EPA changes to 40 CFR 423. EPA has proposed significant changes to 40 CFR 423 that are scheduled to be summarized by the end of summer (2020). These changes will provide several alternatives for facilities that are retired by a certain date. Duke Energy needs an additional time to evaluate the retirement dates and potential treatment needs.

Outfall Descriptions:

Outfall 002 - Ash basin
The ash basin receives wastewaters collected in the Yard Drainage Basin (effluent from the domestic WWTP, cooling tower blowdown from Unit 5, landfill leachate, floor drains, treated FGD wet scrubber water, limestone unloading and storage area, and stormwater), sluiced ash, cooling tower blowdown from Unit 6, equipment backwashes, boiler blowdown, drainage from recirculating cooling systems, demineralizing resin, cooling water from heat exchangers, rinse water from limestone unloading and storage area, stormwater, low volume waste including flight conveyor quench water overflow), and miscellaneous waste streams. This outfall discharges to the Broad River.

Outfall 002A - Emergency Yard Drainage Overflow
This outfall was closed in 2016. This was an emergency outfall from the yard drainage basin.

Internal Outfall 004 - FGD
If the wastewater from the FGD system is not used in Unit 6 it is treated in the FGD WWTS which consists of equalization tank, reaction tank, flocculating clarifier, and gravity filters. The effluent is discharged to the Yard Drainage Basin. A new treatment system will be installed for the FGD wastewaters. The effluent of the treatment system will be combined with the effluent from proposed outfall 005 before discharging to the Broad River.

Proposed Outfalls:
Outfall 005 - New Wastewater Treatment System
A new treatment system will be installed to treat wastewaters from the holding basin effluent (Outfall 002C – fly ash silo sump, coal, gypsum and limestone piles runoff), Basement Basin effluent (RO reject, stormwater and Unit 6 sanitary system), Unit 6 cooling tower blowdown, landfill leachate, Unit 6 process sump (mechanical drag chain overflow, and low volume waste including flight conveyor quench water overflow) Unit 5 process sump (sanitary system, low volume wastes, mechanical drag chain overflow and cooling tower blowdown), and ash basin dewatering/decanting. The FGD WWTS discharge (Internal Outfall 004) and heat exchanger non-contact cooling water will be combined with the discharge from the WWTS before discharge to the Broad River. The treatment system will be a physical/chemical treatment system with flow equalization, pH neutralization, coagulation and flocculation, and filters. This outfall will discharge to the Broad River.

Outfall 002B – Basement Basin
This will be an emergency outfall from the Basement Basin if a significant rain event overflows the system. An existing structure will be used as a holding cell for process wastewater, treated sanitary wastewater and stormwater that currently go to the P-5 yard basin. The effluent from this holding cell will be pumped to the ash basin during normal operations. When the new WWTS starts operations the holding cell will receive stormwater runoff from Unit 6, RO reject wastewater, Unit 6

treated sanitary wastewater and process and stormwater from Unit 5. Effluent will be pumped to the new WWTS. An auxiliary basin will hold excess water during storm events. The emergency outfall will discharge to the Broad River.

Outfall 002C – Holding Basin
This will be an emergency outfall from a new holding basin if a significant rain event overflows the system. This holding basin will receive stormwater, coal pile runoff, gypsum pile runoff, limestone pile runoff and flows from the holding cell auxiliary basin (stormwater runoff from Unit 6, RO reject wastewater, treated sanitary wastewater and process and stormwater from Unit 5). The effluent from this holding basin will be pumped to the new WWTS. The emergency overflow will discharge to the Broad River.

Outfalls 104 and 106 Constructed Seeps
Outfalls 104 discharge seepage from the ash basin into the Broad River and Outfall 106 discharges seepage to an UT to the Broad River. A Special Order by Consent ("Special Order"), EMC SOC 17-009, also addresses Outfalls 104 and 106. In this Special Order, these outfalls are called "engineered seeps." Duke Energy shall follow the requirements of the Special Order with regard to these engineered seeps, including but not limited to the requirement that if any of the engineered seeps are not dispositioned (as described in EMC SOC 17-009 § 2(c)(3)) following decanting of the ash basins (as described in EMC SOC 17-009 § 1(a)) at Rogers Energy Complex, Duke Energy shall submit an amendment to its groundwater Corrective Action Plan and/or Closure Plan for the Rogers Energy Complex describing how any of the non-dispositioned engineered seeps will be remediated in a manner sufficient to protect public health, safety, and welfare, the environment, and natural resources (as described in EMC SOC 17-009 § 2(d))