DENR/DEMLR
FACT SHEET FOR NPDES STORMWATER PERMIT DEVELOPMENT
NPDES No. NCS000574

Facility Information			
Applicant/Facility Name:	Rogers Energy Complex		
Applicant Address:	526 South Church Street, Charlotte, NC 28202		
Facility Address:	573 Duke Power Road, Mooresboro, NC 28114		
Permitted Flow:	N/A (Stormwater Discharges Only)		
Industrial Activities:	Primary SIC Code: 4911 – Electric Services		
Permit Status:	New NPDES Stormwater Permit		
County:	Cleveland and Rutherford Counties		
Miscellaneous			
Receiving Stream:	Suck Creek and the Broad River	Regional Office:	Asheville and Mooresville Regional Office
Stream Classification:	WS-IV	State Grid / USGS Quad:	F10SE Pea Ridge
303(d) Listed?	No	Permit Writer:	M. Randall
Subbasin:	03-08-02	Date:	November 8, 2014

Facility Location: Lat. 35° 13' 8" N Long. 81° 46' 3" W

BACKGROUND

The Rogers Energy Complex (formerly Cliffside Steam Station) is a coal fired electric generating facility operated by Duke Energy Carolinas, LLC (Duke Energy. The facility is located on Duke Power Road, off NC State Road 1002 just south of Cliffside North Carolina, on the Broad River. The facility currently has two units (Units 5 and 6). Units 1 through 4 were retired in October 2011 and are in the process of being decommissioned.

The Broad River supplies the Condenser Cooling Water (CCW) and other service water systems from the intake located just upstream from the diversion dam on the Broad River. The pumps have traveling screens for debris removal. Debris collected on the screens consist of twigs, leaves, and other material indigenous to the river and is flushed back to the river.

Within the switchyards and buildings, runoff flows over land to ditches and catch basins and underground piped conveyances. Stormwater from areas with significant materials or activities is routed through treatment systems prior to discharge. Stormwater runoff from the plant yards, coal handling areas, coal pile, Units 5 and 6, and the FGD site goes to the yard drainage basin, effluent form the holding basin is pumped to the ash basin. Stormwater runoff from the switchyards is routed through oil tank traps prior to discharge.

STORMWATER OUTFALLS AND DRAINAGE AREA DESCRIPTIONS

Outfall SW001 (Drainage Area 1)

Drainage Area 1 includes the Unit 5, 115 kV switchyard and relay house. The switchyard is relatively flat and elevated slightly above the surrounding area. The southern and western perimeters are curbed, and ditches divert runoff around the switchyard. There is approximately 2 acres of gravel area and 1 acre of paved roadways within the drainage area. Approximately 30 % of the drainage area is impervious. Stormwater runoff flows to a 30,000 gallon oil trap tank.

Outfall SW002 (Drainage Area 2)

Drainage Area 2 includes the Unit 5, 239 kV switchyard. The switchyard is relatively flat and elevated slightly above the surrounding area. The southern and eastern perimeters are curbed, and ditches divert runoff around the switchyard. There is approximately 2.7 acres of gravel area and 1 acre of paved roadways within the drainage area. Approximately 40 % of the drainage area is impervious. Stormwater runoff flows to a 20,000 gallon oil trap tank.

Outfall SW003 (Abandoned)

Outfall SW003 formerly conveyed stormwater runoff from industrial activities surrounding the Unit 5 Powerhouse. The outfall was plugged and abandoned around 2010 and all stormwater runoff is conveyed to the ash basin. As long as outfall SW003 does not discharge, no analytical sampling is required. Any modifications to these outfalls that result in a potential stormwater discharge associated with past or present industrial activities will require a permit modification.

Outfall SW004 (Drainage Area 4)

Drainage Area 4 includes Unit 1 through 4 switchyards. The switchyard is relatively flat and elevated slightly above the surrounding area and curbed except the northwest end. Less than 5 % of the drainage area is paved. Stormwater runoff flows to a 20,000 gallon oil trap tank.

Outfall SW005 (Drainage Area 5)

Trenches are used to return river water used to wash debris from the intake screens. Roof drainage from Units 1 through 4 turbine rooms is discharged via French drains. The trenches are covered with grating and deigned to prevent run-on from adjacent areas.

Outfall SW006 (Abandoned)

Outfall SW006 has been abandoned and the drainage area is largely routed to the yard sump. As long as outfall SW006 does not discharge, no analytical sampling is required. Any modifications to these outfalls that result in a potential stormwater discharge associated with past or present industrial activities will require a permit modification.

Outfall 007 (Emergency and Drainage Area Overflow)

Outfall 007, an emergency and drainage basin overflow, mixes with industrial waste. Discharges from Outfall 007 is not a normal occurrence. Any modifications to this outfall that result in a potential stormwater discharge associated with past or present industrial activities will require a permit modification.

Outfall SW008 (Drainage Area 8)

Drainage Area 8 previously discharges in-stream sand mining wastewater, stormwater runoff, and wastewater under a NODES permitNCG520000. Operations ceased in 2012 and there no longer is a discharge. As long as outfall SW008 does not discharge, no analytical sampling is required. Any modifications to these outfalls that result in a potential stormwater discharge associated with past or present industrial activities will require a permit modification.

Outfall SW009 (Drainage Area 9)

Drainage Area 9 includes the inactive Unit 5 ash basin, a soil/stockpile, a pond, and three laydown areas. Stormwater runoff is collected and conveyed to a sedimentation basin. Overflow from the sedimentation basin is conveyed to a rock channel and then discharged to the Broad River.

Outfall SW010 (Drainage Area 10)

Drainage Area 10 conveys water from a perennial stream. As long as outfall SW010 only conveys water from a perennial stream that starts from the adjoining property no analytical sampling is required. Any modifications to these outfalls that result in a potential stormwater discharge associated with past or present industrial activities will require a permit modification.

Outfall SW011 (Drainage Area 11)

Drainage Area 11 conveys stormwater runoff from a gravel parking area and railroad tracks into a sedimentation basin. Overflow is piped to Suck Creek.

Outfall SW012 (Drainage Area 12)

Drainage Area 12 includes a gravel parking lot, locomotive storage building, a 600 gallon oil water separator, a portion of the gypsum and fly ash haul road, and railroad tracks. Stormwater runoff is conveyed to a sediment basin that discharges to Suck Creek.

Drainage Area 13 (combined with Drainage Area 16)

Drainage Area 13 was combined with Drainage Area 16. There is no drainage area 13. Any modifications to these drainage areas that result in a potential stormwater discharge associated with past or present industrial activities will require a permit modification.

Drainage Area 14 (Sheet flow)

Any modifications to Drainage Area 14 that result in a potential stormwater discharge associated with past or present industrial activities will require a permit modification.

Outfall SW015 (Drainage Area 15)

SW015 represents a group of ten, 8 inch diameter high density polyethylene drains. Drainage Area 15 includes railroad tracks where limestone is loaded/unloaded from rail cars.

Outfall SW016 (Drainage Area 16)

Drainage Area 16 includes railroad tracks, a gravel parking lot and laydown area, a portion of the haul road to the fly ash/gypsum landfill, part of Duke Power Road. SW016 represents a group of

outfalls that include five separate corrugated metal pipe (CMP) outfalls (36 inch, 30 inch, 42 inch, 24 inch and 54 inch CMP).

The Landfill Drainage Area

The Landfill Drainage Area has four separate corrugated metal pipe outfalls (18 inch, 42 inch, 36 inch and 21 inch CMP). Stormwater runoff from inactive cells and exterior slopes drain to a sedimentation basin and then through one of four separate outfalls. Stormwater runoff from active cells at the landfill is directed into the leachate collection system, pumped to the leachate collection basin, then to the ash basin.

Unit 6 Switchyard Area includes the Unit 6 500 kV switchyard. The switchyard is relatively flat and elevated slightly above the surrounding area. A curb surrounds the southern and eastern perimeters and ditches divert upland runoff around the switchyard. Drainage from the 11.8 acres of gravel surface is conveyed via three concrete culverts, an 18 inch, 24 inch and 30 inch. The runoff then shallow flows toward the Broad River.

WHY THIS FACILITY IS SUBJECT TO A PERMIT

Federal NPDES regulations define **stormwater discharge associated with industrial activity** in 40 CFR §122.26 (b)(14) as "the discharge from any conveyance that is used for collecting and conveying storm water and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program under this part 122. For the categories of industries identified in this section, the term includes, but is not limited to, storm water [sic] discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters (as defined at part 401 of this chapter); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and final products; and **areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water.** For the purposes of this paragraph, material handling activities include storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product, by-product or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water [sic] drained from the above described areas."

PROPOSED MONITORING FOR STORMWATER DISCHARGES

The Division considered potential pollutants from past and present industrial activities (coal-fired electric generation, plant decommissioning, and future ash removal). Unlike most stormwater permits in its program, the Division is proposing a permit structure with outfall-specific monitoring for discharges. Parameters are based on potential pollutants in the drainage area, sampling results, and in some cases, dependent upon future activities (e.g., ash removal through the drainage area). Below is a table of the proposed monitoring for each outfall at the Rogers Energy Complex.

Stormwater Discharge Outfall (SDO) Monitoring	
Switchyards, Oil Trap Tanks, Roof Drains, and Intake Screen wash water SW001, SW002, SW004, and SW005	
Polychlorinated Biphenyls (PCBs)	Monitored semi-annually; **may be discontinued after the first year (two samples) if not detected**. **BASIS:** Electrical equipment in these drainage areas (powerhouse and switchyard areas) may have contained PCBs, which persist in the environment if ever released. (An empty Used PCB Mineral Oil Storage Tank elsewhere on the property stored this material at one time.) If all PCBs have been removed and past releases cleaned up, these compounds should not be detected.
Copper	Semi-annual monitoring. **BASIS:** Coal combustion waste (CCW) constituent
Selenium	Semi-annual monitoring. **BASIS:** Coal combustion waste (CCW) constituent
Mercury	Semi-annual monitoring with Method 1631E. **BASIS:** Coal combustion waste (CCW) constituent
Zinc	Semi-annual monitoring. **BASIS:** Coal combustion waste (CCW) constituent
Total Suspended Solids (TSS)	Semi-annual monitoring. **BASIS:** Potential pollutant from drainage area and BMP effectiveness indicator
Non-polar Oil & Grease (Method 1664 SGT-HEM)	Semi-annual monitoring. **BASIS:** Potential pollutant from lubricants; Method 1664 SGT-HEM targets petroleum-based O&G
pH	Semi-annual monitoring. **BASIS:** Pollutant indicator and important to interpreting toxicity potential of metals

Stormwater Discharge Outfall (SDO) Monitoring	
Haul Roads, Parking Lots, Laydown Areas, and Railroad Tracks Designated as Analytical Monitoring Requirements for Laydown Drainage Area 2, SW009, SW011, SW012, SW015, SW016 and the Landfill Drainage Area	
Total Suspended Solids (TSS)	Semi-annual monitoring. **BASIS:** Potential pollutant from drainage area and BMP effectiveness indicator
pH	Semi-annual monitoring. **BASIS:** Pollutant indicator and important to interpreting toxicity potential of metals
Priority Pollutant Metals Ag, As, Be, Cd, Cr, Cu, Hg, Ni, Pb, Sb, Se, Tl, and Zn.	Semi-annual monitoring *only if coal or coal ash transported through this drainage area*. **BASIS:** Coal combustion waste (CCW) constituents
Boron	Semi-annual monitoring *only if coal or coal ash transported through this drainage area*. **BASIS:** Coal combustion waste (CCW) constituent / coal tracer.

STORMWATER BENCHMARKS AND TIERED RESPONSE

Rather than limits, North Carolina NPDES Stormwater permits contain benchmark concentrations. Stormwater benchmarks are numerical action levels for stormwater monitoring. **Benchmarks are <u>not</u> effluent limits, and benchmark exceedances are not permit violations.** Benchmarks provide facilities a tool for assessing the significance of pollutants in stormwater discharges and the effectiveness of best management practices (BMPs). Benchmark concentrations are intended as guidelines for the facility's development and implementation of the Stormwater Pollution Prevention Plan (SPPP).

Benchmark exceedances require the permittee to increase monitoring, increase management actions, increase record keeping, and/or install stormwater BMPs in a tiered program. The permit establishes a tiered approach to specify actions the permittee must take in response to analytical results above benchmark concentrations (Part II, Section B., following Table 3). The tiered structure of the permit provides the permittee and NCDEMLR wide flexibility to address issues that may arise with one or more parameters and/or outfalls.

Metals benchmarks are calculated to mimic acute water quality standards and with the guidance of NC's Division of Water Resources (DWR). NC DWR follows established federal procedures for calculating acute standards when developing the benchmarks. Just like the acute standards, metals benchmarks normally reflect one half of the calculated Final Acute Value (the "½ FAV"). In most cases, translation into total recoverable values is based on an assumed hardness of 25 mg/l and a total suspended solids (TSS) concentration of 10 mg/l. Acute standards protect aquatic life from negative impacts of short-term exposure to higher levels of chemicals where the discharge enters a waterbody. The Stormwater Permitting Program applies this approach because of the ephemeral nature of rainfall events.

The Division may evaluate results to determine if a smaller suite of parameters for some outfalls is adequate to characterize potential pollution or BMP effectiveness. For example, one or more metals or other parameters may serve as an adequate tracer for the presence of ash pollution during disturbance or ash removal in specific drainage areas at this site. For parameters that do not have a stormwater benchmark, the Division may develop a benchmark value if appropriate toxicity data become available or if rising trends in concentrations suggest a persistent source.

A summary of the benchmarks in the draft permit, and their basis, is below:

Parameter	Benchmark	Basis
Antimony (Sb), mg/L	0.09	Acute Aquatic Criterion, ½ FAV
Arsenic (As), mg/L	0.34	Acute Aquatic Criterion, ½ FAV
Beryllium (Be), mg/L	0.065	Acute Aquatic Criterion, ½ FAV
Cadmium (Cd), mg/L	0.003	Acute Aquatic Criterion, ½ FAV
Chromium (Cr), mg/L	0.9	½ FAV, based on (Cr III + Cr VI) acute thresholds and assumption that industrial activities here are not a source of hexavalent chromium.
Copper (Cu), mg/L	0.010	Acute Aquatic Criterion, ½ FAV
Lead (Pb), mg/L	0.075	Acute Aquatic Criterion, ½ FAV
Mercury (Hg), ng/L	N/A	Monitoring only, CCW/Coal Constituent. Hg influenced by regional transport and wet deposition. Values above 12 ng/L (NC WQ standard) should be noted on the DMR but do not trigger Tier Responses.
Nickel (Ni), mg/L	0.335	Acute Aquatic Criterion, ½ FAV
Selenium (Se), mg/L	0.056	½ FAV, NC-specific, based on 1986 Study on Se impacts in North Carolina
Silver (Ag), mg/L	0.0003	Acute Aquatic Criterion, ½ FAV. (The Division notes this value is below the practical quantitation level (PQL) of 1 µg/L of EPA Method 200.8)
Boron (B), mg/L	N/A	Monitoring only, CCW/Coal Constituent. Narrative National Recommended Water Quality Criterion.

Parameter	Benchmark	Basis
Thallium (Tl), mg/L	N/A	Monitoring Only, CCW/Coal constituent. National Recommended Human Health Criterion.
Zinc (Zn), mg/L	0.126	Acute Aquatic Criterion, ½ FAV
Total Suspended Solids (TSS), mg/L	100	National Urban Runoff Program (NURP) Study, 1983
Polychlorinated biphenyl compounds (PCBs), µg/L	Detected	NC Water Quality Standards vs. present Arochlors quantitation levels (higher than standard)
Non-Polar Oil & Grease, *EPA Method 1664 (SGT-HEM)*, mg/L	15	Review of other state's daily maximum benchmark concentration for this more targeted O&G; NC WQ Standard that does not allow oil sheen in waters.
pH	6-9	NC Water Quality Standard (Range)

STORMWATER POLLUTION PREVENTION PLAN

The proposed permit conditions reflect the Environmental Protection Agency's (EPA) and North Carolina's pollution prevention approach to stormwater permitting. The Division's maintains that implementation of Best Management Practices (BMPs) and traditional stormwater management practices that control the source of pollutants meets the definition of Best Available Technology (BAT) and Best Conventional Pollutant Control Technology (BCT). The permit conditions are not numeric effluent limitations but are designed to be flexible requirements for implementing site-specific plans to minimize and control pollutants in stormwater discharges associated with the industrial activity. Title 40 Code of Federal Regulations (CFR) §122.44(k)(2) **authorizes the use of BMPs in lieu of numeric effluent limitations in NPDES permits when the agency finds numeric effluent limitations to be infeasible.** The agency may also impose BMP requirements which are "reasonably necessary" to carry out the purposes of the Act under the authority of 40 CFR 122.44(k)(3). The conditions proposed in this draft permit are included under the authority of both of these regulatory provisions. In essence, the pollution prevention and BMP requirements operate as limitations on effluent discharges that reflect the application of BAT/BCT.

The permit proposes some language specific to coal fired power plants (and in particular, to those plants being decommissioned). Determining specific BMPs that are appropriate for the site and activities are the permittee's responsibility, and the permit strives not to limit what BMPs can be used. The permittee should also refer to the BMPs described in both EPA's Multi-Sector Permit (MSGP) and Industrial Stormwater Fact Sheet for Steam Electric Power Generating Facilities (Sector O) for guidance on pollution prevention measures.

It is important to note that the majority of stormwater at this facility is ultimately routed into the waste treatment system (ash pond), and those discharges are regulated by the NPDES *wastewater* permit.

MERCURY MONITORING REQUIREMENTS

The proposed permit requires mercury to be measured in stormwater samples by EPA Method 1631E, which can detect levels as low as 0.5 ng/l. This requirement is consistent with recent federal rule-making that requires NPDES permittees to monitor discharges with sufficiently sensitive test procedures approved under 40 CFR §136. Modifications to 40 CFR §122.44(i) require a method that has a minimum level (ML) at or below the effluent limit (not applicable here), or the lowest minimum level (ML) of EPA approved analytical methods for the measured parameter. Based on results, Method 1631E will be required to quantify levels in these discharges. NC DEMLR understands that this method is more costly and requires a more intensive sampling protocol than

most other parameters, and that fish tissue sampling will be provided during the permit cycle. Therefore, no benchmark applies that would trigger tiered response actions. Proposed permit provisions also allow the permittee to use field blank and/or method blank concentrations to adjust reported mercury levels as long as documented is submitted with the Data Monitoring Report (DMR).

FLEXIBILITY IN TIER RESPONSES

Tier Two actions (upon two consecutive benchmark exceedances at an outfall) proposed in this draft permit differs slightly from the Program's standard template and includes **step 6**. That step provides an opportunity for the permittee to propose an **alternative monitoring plan for approval** by the Region.

Alternatively, in lieu of steps 2 and 3, the permittee may, after two consecutive exceedances, exercise the option of contacting the DEMLR Regional Engineer as provided below in Tier Three. The Regional Engineer may direct the response actions on the part of the permittee as provided in Tier Three, including reduced or additional sampling parameters or frequency.

If pursuing the alternative above after two consecutive exceedances, the permittee may propose an **alternative monitoring plan** for approval by the Regional Engineer.

The permit therefore allows the permittee to petition the Regional Office for monitoring changes *sooner than* **Tier Three** (upon any four benchmark exceedances) and gives guidance on one option to take. For example, the permitttee may request that mercury only be monitored semi-annually under the tiers, or that only parameters over the benchmark be monitored more frequently. In this way, changes to the monitoring scheme for any outfall could be handled outside of a permit modification.

OTHER PROPOSED REQUIREMENTS

- It is standard for Stormwater Pollution Prevention Plan (SPPP) requirements to include an annual certification that stormwater outfalls have been evaluated for the presence of *non-stormwater* discharges, and if any are identified, how those discharges are permitted. The draft permit requires this **facility to submit the first certification to DEMLR no later than 90 days after the effective date of the permit** (Part II, Section A.).
- Requirement to submit a request for permit modification if the facility identifies or creates any new outfalls, removes outfalls, or alters any drainage area that changes potential pollutants. This site may trigger this requirement during demolition or ash removal activities.
- Standard text that allows a permittee to forgo collecting samples outside of regular operating hours was omitted in Part II because this power plant is not currently operating. The Division expects the permittee to apply best professional judgment and consider the safety of its personnel in fulfilling sampling obligations under the permit.
- Proposed federal regulations will require electronic submittal of all discharge monitoring reports (DMRs). If a state does not establish a system to receive such submittals, then permittees must submit DMRs electronically to the Environmental Protection Agency (EPA). The Division anticipates that these regulations will be adopted and is beginning implementation. Permit provisions addressing this impending requirement is included in Part III, Section B. (General Conditions), 3.e.
- **Quarterly** Qualitative/Visual Monitoring to assure regular observation of outfalls throughout year.

PROPOSED SCHEDULE FOR PERMIT ISSUANCE:

Draft Permit to Public Notice: [Date]

Permit Scheduled to Issue: [Date]

STATE CONTACT:

If you have any questions about any of the above information or the attached permit, please contact Mike Randall at (919) 807-6374 or mike.randall@ncdenr.gov.