

ROY COOPER  
Governor

MICHAEL S. REGAN  
Secretary

LINDA CULPEPPER  
Director



NORTH CAROLINA  
Environmental Quality

December 17, 2019

Mr. Paul Draovitch, Senior Vice President  
Environmental, Health and Safety  
Duke Energy Carolinas, LLC  
Mail Code EC13K  
P.O. Box 1006  
Charlotte, North Carolina 28201-1006

Subject: Permit Major Modification  
Permit NC0004774  
Buck Combined Cycle Station  
Rowan County  
Facility Class I

Dear Mr. Draovitch:

The Division has received your request to eliminate temperature requirements for the coal-fired units due to the conversion to the natural gas. The request has been granted. This modification becomes effective immediately. Enclosed with this letter are 4 pages that include necessary changes. Please replace the existing permit pages with the modified pages.

**The permit modification contains the following significant changes from your current permit:**

- Elimination of the footnote temperature requirements for Outfall 001A and Outfall 006.

No other changes have been made. This permit modification is issued pursuant to the requirements of North Carolina General Statute 143-215.1 and the Memorandum of Agreement between North Carolina and the U.S. Environmental Protection Agency.

Please take notice that this permit is not transferable. Part II, E.4. addresses the requirements to be followed in case of change in ownership or control of this discharge.

If you have any questions or need additional information, please contact Sergei Chernikov, telephone number (919) 707-3606 or email: [sergei.chernikov@ncdenr.gov](mailto:sergei.chernikov@ncdenr.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Linda Culpepper".

Linda Culpepper, Director  
Division of Water Resources

cc: Central Files  
NPDES Files  
Mooresville Regional Office/Water Quality  
WSS/Aquatic Toxicology Unit (e-copy)  
EPA Region IV (e-copy)





### A.(3.) EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (Outfall 001A - CTCC Operations)

[15A NCAC 02B .0400 *et seq.*, 02B .0500 *et seq.*]

- a. During the period beginning upon both elimination of all remaining waste flows from the Buck Steam Station and diversion of CTCC Plant flows to Outfall 001A and lasting until diversion of CTCC Plant flows to Outfall 006 or until permit expiration, whichever is first, the Permittee is authorized to discharge wastewaters, as described herein, from Outfall 001A. Such discharges shall be limited and monitored by the Permittee as specified below:

PARAMETER	EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS		
	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type	Sample Location <sup>1</sup>
Flow, MGD			Daily	Pump logs or similar readings	Effluent
pH	≥ 6.0 and ≤ 9.0 standard units		Daily <sup>2</sup>	Grab	Effluent
Temperature	35°C (95°F)		Daily	Grab	Effluent
Temperature			Daily	Grab	Intake and Effluent
Total Nitrogen, mg/L <sup>3</sup>			Monthly	Grab	Effluent
Total Phosphorus, mg/L			Monthly	Grab	Effluent
Total Suspended Solids	23.0 mg/L	74.0 mg/L	2/Month	Grab	Effluent
Oil and Grease	11.0 mg/L	15.0 mg/L	2/Month	Grab	Effluent
Total Residual Chlorine <sup>4</sup>		28.0 µg/L	2/Month	Grab	Effluent
Free Available Chlorine <sup>4</sup>	200 µg/L	500 µg/L	2/Month	Grab	Effluent
Total Hardness, mg/L as CaCO <sub>3</sub>			2/Month	Grab	Effluent
Total Arsenic, µg/L <sup>5</sup>			Quarterly	Grab	Effluent
Total Selenium, µg/L <sup>5</sup>			Quarterly	Grab	Effluent
Total Mercury, ng/L <sup>5</sup>			Quarterly	Grab	Effluent
Total Aluminum, mg/L <sup>5</sup>			Quarterly	Grab	Effluent
Total Antimony, µg/L <sup>5</sup>			Quarterly	Grab	Effluent
Total Chromium <sup>5,6</sup>	200 µg/L	200 µg/L	2/Month	Grab	Effluent
Total Copper <sup>5</sup>			Quarterly	Grab	Effluent
Total Nickel, µg/L <sup>5</sup>			Quarterly	Grab	Effluent
Total Zinc <sup>5,6</sup>	1,000 µg/L	1,000 µg/L	2/Month	Grab	Effluent
Total Fluoride, mg/L			Quarterly	Grab	Effluent
Chloroform, µg/L <sup>7</sup>			Quarterly	Grab	Effluent
Chronic Toxicity <sup>8</sup>	P/F @ 0.1%		Quarterly	Grab	Effluent
The 126 priority pollutants except Total Chromium and Total Zinc <sup>5,6</sup>	No detectable amount		Annually	Grab	Effluent

#### Footnotes:

- Effluent sampling shall be conducted below the final treatment unit and prior to mixing with any other waste streams. Intake means the facility's raw water intake.
- Upon completing at least three consecutive months of daily pH readings, the Permittee may request that pH monitoring be reduced to Weekly. Such request should demonstrate to the Division's satisfaction that the results of weekly monitoring will adequately represent the measure and variability of effluent pH. If a request was approved for Outfall 001A, the approval may be extended to Outfall 006 without requiring resubmittal of the request.

(Footnotes continue on next page.)

**A.(3.) EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont.)**Footnotes (cont.):

3. Total Nitrogen =  $\text{NO}_2\text{-N} + \text{NO}_3\text{-N} + \text{TKN}$
  4. The Division shall consider all effluent TRC values reported below 50  $\mu\text{g/L}$  to be in compliance with the permit. However, the permittee shall continue to record and submit all values reported by a North Carolina certified laboratory (including field certified), even if these values fall below 50  $\mu\text{g/L}$ . Neither free available chlorine (FAC) nor TRC may be discharged from any single generating unit for more than two hours in any single day, and not more than one unit in the plant may discharge FAC or TRC, unless the discharger demonstrates to the Division that the unit(s) cannot operate at or below this level of chlorination.
  5. See Special Condition C.(6.) Metals Analyses.
  6. See Special Condition C.(7.) Priority Pollutant Limitations and Analysis.
  7. See paragraph (g) of this condition.
  8. See Special Condition C.(8.) Chronic Toxicity Permit Limit.
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- b. Authorized waste flows from the CTCC Plant are potable, service, and process water treatment wastes; floor drain wastes; cooling tower blowdown; heat recovery steam generator (HRSG) and auxiliary boiler blowdowns; and stormwater flows draining to the sump. Such waste flows shall not pass through the ash settling pond prior to discharge.
  - c. There shall be no discharge of metal cleaning waste or chemical metal cleaning waste.
  - d. There shall be no discharge of floating solids or visible foam in other than trace amounts.
  - e. This condition is not intended to authorize concurrent waste discharges through both Outfalls 001A and 006 except to the extent necessary to make an orderly transition to the newer outfall. The Permittee shall cease discharge at Outfall 001A as soon as practical after bringing Outfall 006 online.
  - f. Unless it has already done so in accordance with Special Condition A.(2.) (e), the Permittee shall analyze a representative sample of the CTCC Plant Wastewater Sump discharge and submit a complete and accurate EPA Application Form 2C for the sump discharge no later than the date established per Condition A.(2.) (e).
  - g. If chloroform monitoring was waived in accordance with conditions A.(2.) (a) and (f), the monitoring requirement specified in paragraph (a) of this condition is waived for the remainder of the permit term. If the initial chloroform analysis is conducted while this condition is effective, and if the initial analysis does not yield a reportable concentration of chloroform ( $\text{PQL} \leq 2.0 \mu\text{g/L}$ ), chloroform monitoring specified in paragraph (a) of this condition is waived for the remainder of the permit term.
  - h. The mixing zone for thermal discharges from the Buck facility is defined as that portion of the Yadkin River (High Rock Lake) extending from the Buck Combined Cycle Station water intake to High Rock Lake Dam. The thermal variance and mixing zone terminate on expiration of this permit. The Director may reopen the permit to extend or modify the variance based on the findings of the Thermal Mixing Zone Study (see Special Condition C.(13.) ) or other new information.
  - i. When High Rock Lake, as measured at the intake of the Buck Combined Cycle Station, is drawn down 10 feet or greater, the Permittee shall on a daily average basis ensure that the minimum unheated daily average stream flow does not fall below one third of the 7-day 10-year low flow (7Q10).
  - j. The Permittee shall notify the Division in writing no later than seven calendar days prior to diversion of CTCC Plant flows to Outfall 006; see Special Condition C.(2.) Notifications and Submittals.

#### A.(4.) EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (Outfall 006 - CTCC Operations)

[15A NCAC 02B .0400 *et seq.*, 02B .0500 *et seq.*]

- a. During the period beginning upon both elimination of all remaining waste flows from the Buck Steam Station and diversion of CTCC Plant flows to Outfall 006 and lasting until permit expiration, the Permittee is authorized to discharge wastewaters, as described herein, from Outfall 006. Such discharges shall be limited and monitored by the Permittee as specified below:

PARAMETER	EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS		
	Monthly Average	Daily Maximum	Measurement Frequency	Sample Type	Sample Location <sup>1</sup>
Flow, MGD			Daily	Pump logs or similar readings	Effluent
pH	≥ 6.0 and ≤ 9.0 standard units		Daily <sup>2</sup>	Grab	Effluent
Temperature	35°C (95°F)		Daily	Grab	Effluent
Temperature			Daily	Grab	Intake and Effluent
Total Nitrogen, mg/L <sup>3</sup>			Monthly	Grab	Effluent
Total Phosphorus, mg/L			Monthly	Grab	Effluent
Total Suspended Solids	23.0 mg/L	74.0 mg/L	2/Month	Grab	Effluent
Oil and Grease	11.0 mg/L	15.0 mg/L	2/Month	Grab	Effluent
Total Residual Chlorine <sup>4</sup>		28.0 µg/L	2/Month	Grab	Effluent
Free Available Chlorine <sup>4</sup>	200 µg/L	500 µg/L	2/Month	Grab	Effluent
Total Hardness, mg/L as CaCO <sub>3</sub>			2/Month	Grab	Effluent
Total Arsenic, µg/L <sup>5</sup>			Quarterly	Grab	Effluent
Total Selenium, µg/L <sup>5</sup>			Quarterly	Grab	Effluent
Total Mercury, ng/L <sup>5</sup>			Quarterly	Grab	Effluent
Total Aluminum, mg/L <sup>5</sup>			Quarterly	Grab	Effluent
Total Antimony, µg/L <sup>5</sup>			Quarterly	Grab	Effluent
Total Chromium <sup>5,6</sup>	200 µg/L	200 µg/L	2/Month	Grab	Effluent
Total Copper <sup>5</sup>			Quarterly	Grab	Effluent
Total Nickel, µg/L <sup>5</sup>			Quarterly	Grab	Effluent
Total Zinc <sup>5,6</sup>	1,000 µg/L	1,000 µg/L	2/Month	Grab	Effluent
Total Fluoride, mg/L			Quarterly	Grab	Effluent
Chloroform, µg/L <sup>7</sup>			Quarterly	Grab	Effluent
Chronic Toxicity <sup>8</sup>	P/F @ 0.1%		Quarterly	Grab	Effluent
The 126 priority pollutants except Total Chromium and Total Zinc <sup>5,6</sup>	No detectable amount		Annually	Grab	Effluent

#### Footnotes:

- Effluent sampling shall be conducted below the final treatment unit and prior to mixing with any other waste streams. Intake means the facility's raw water intake.
- Upon completing at least three consecutive months of daily pH readings, the Permittee may request that pH monitoring be reduced to Weekly. Such request should demonstrate to the Division's satisfaction that the results of weekly monitoring will adequately represent the measure and variability of effluent pH. If a request was approved for Outfall 001A, the approval may be extended to Outfall 006 without requiring resubmittal of the request.

(Footnotes continue on next page.)

**A.(4.) EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (cont.)**Footnotes (cont.):

3. Total Nitrogen =  $\text{NO}_2\text{-N} + \text{NO}_3\text{-N} + \text{TKN}$
  4. The Division shall consider all effluent TRC values reported below 50  $\mu\text{g/L}$  to be in compliance with the permit. However, the permittee shall continue to record and submit all values reported by a North Carolina certified laboratory (including field certified), even if these values fall below 50  $\mu\text{g/L}$ . Neither free available chlorine (FAC) nor TRC may be discharged from any single generating unit for more than two hours in any single day, and not more than one unit in the plant may discharge FAC or TRC, unless the discharger demonstrates to the Division that the unit(s) cannot operate at or below this level of chlorination.
  5. See Special Condition C.(6.) Metals Analyses.
  6. See Special Condition C.(7.) Priority Pollutant Limitations and Analysis.
  7. See paragraph (g) of this condition.
  8. See Special Condition C.(8.) Chronic Toxicity Permit Limit.
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- b. Authorized waste flows from the CTCC Plant are potable, service, and process water treatment wastes; floor drain wastes; cooling tower blowdown; heat recovery steam generator (HRSG) and auxiliary boiler blowdowns; and stormwater flows draining to the sump. Such waste flows shall not pass through the ash settling pond prior to discharge.
  - c. There shall be no discharge of metal cleaning waste or chemical metal cleaning waste.
  - d. There shall be no discharge of floating solids or visible foam in other than trace amounts.
  - e. Conditions A.(3.) and A.(4.) are not intended to authorize concurrent waste discharges through both Outfalls 001A and 006 except as necessary to make an orderly transition to the new outfall. The Permittee shall cease discharge at Outfall 001A as soon as practical after bringing Outfall 006 online.
  - f. Unless it has already done so in accordance with Special Condition A.(2.) (e) or A.(3.) (f), the Permittee shall analyze a representative sample of the CTCC Plant Wastewater Sump discharge and submit a complete and accurate EPA Application Form 2C for the sump discharge no later than the date established in condition A.(2.) (e).
  - g. If chloroform monitoring was waived in accordance with conditions A.(2.) a) and (f) or conditions A.(4.) (a) and (g), the monitoring requirement specified in paragraph (a) of this condition is waived for the remainder of the permit term. If the initial chloroform analysis is conducted while this condition is effective, and if the initial analysis does not yield a reportable concentration of chloroform ( $\text{PQL} \leq 2.0 \mu\text{g/L}$ ), chloroform monitoring specified in paragraph (a) is waived for the remainder of the permit term.
  - h. The mixing zone for thermal discharges from the Buck facility is defined as that portion of the Yadkin River (High Rock Lake) extending from the Buck Combined Cycle Station water intake to High Rock Lake Dam. The thermal variance and mixing zone terminate on expiration of this permit. The Director may reopen the permit to extend or modify the variance based on the findings of the Thermal Mixing Zone Study (see Special Condition C.(13.)) or other new information.
  - i. When High Rock Lake, as measured at the intake of the Buck Combined Cycle Station, is drawn down 10 feet or greater, the Permittee shall on a daily average basis ensure that the minimum unheated daily average stream flow does not fall below one third of the 7-day 10-year low flow (7Q10).
  - j. The Permittee shall notify the Division in writing no later than seven calendar days following the closure of Outfall 001A to confirm its closure; see Special Condition C.(2.) Notifications and Submittals.