

**NORTH CAROLINA DIVISION OF
AIR QUALITY
Application Review**

Issue Date: TBD

Region: Raleigh Regional Office
County: Person
NC Facility ID: 7300045
Inspector's Name: Abdul Kadir
Date of Last Inspection: 08/09/2023
Compliance Code: 3 / Compliance - inspection

<p style="text-align: center;">Facility Data</p> <p>Applicant (Facility's Name): Duke Energy Progress, LLC - Mayo Electric Generating Plant</p> <p>Facility Address: Duke Energy Progress, LLC - Mayo Electric Generating Plant 10660 Boston Road Roxboro, NC 27574</p> <p>SIC: 4911 / Electric Services NAICS: 221112 / Fossil Fuel Electric Power Generation</p> <p>Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V</p>	<p style="text-align: center;">Permit Applicability (this application only)</p> <p>SIP: 02D .2100, 02Q .0400 NSPS: n/a NESHAP: n/a PSD: n/a PSD Avoidance: n/a NC Toxics: n/a 112(r): No RMP required Other: n/a</p>
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Contact Data			Application Data
<p style="text-align: center;">Facility Contact</p> <p>Leanne Wilson Sr. EHS Professional (336) 597-7324 10660 Boston Road Roxboro, NC 27574</p>	<p style="text-align: center;">Authorized Contact</p> <p>Jason Talbott General Manager III (336) 597-7324 10660 Boston Road Roxboro, NC 27574</p>	<p style="text-align: center;">Technical Contact</p> <p>Erin Wallace Manager EHS (919) 546-5797 410 South Wilmington Street Raleigh, NC 27601</p>	<p>Application Number: 7300045.23A Date Received: 08/08/2023 Application Type: Modification Application Schedule: TV-Significant Existing Permit Data Existing Permit Number: 03478/T50 Existing Permit Issue Date: 12/20/2022 Existing Permit Expiration Date: 02/28/2027</p>

Total Actual emissions in TONS/YEAR:							
CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2021	1293.88	1073.14	19.70	165.55	187.42	5.26	3.39 [Hydrogen chloride (hydrochlori)]
2020	867.30	575.84	10.39	87.67	101.17	2.95	1.95 [Hydrogen chloride (hydrochlori)]
2019	1123.20	1280.35	22.59	190.69	207.18	6.67	4.51 [Hydrogen chloride (hydrochlori)]
2018	1412.60	1583.64	22.17	187.07	209.03	6.56	4.44 [Hydrogen chloride (hydrochlori)]
2017	1511.00	1304.68	19.43	164.93	158.58	6.13	4.23 [Hydrogen chloride (hydrochlori)]

<p>Review Engineer: Russell Braswell</p> <p>Review Engineer's Signature: _____ Date: _____</p>	<p style="text-align: center;">Comments / Recommendations:</p> <p>Issue 03478/T51 Permit Issue Date: TBD Permit Expiration Date: February 28, 2027 (no change)</p>
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1.0 Purpose of Application

Duke Energy Progress, LLC – Mayo Electric Generating Plant (DEP; the facility) operates a power plant in Person County under Title V permit 03478T50 (the existing permit). The existing permit includes DEP’s Title IV permit (a.k.a. the acid rain permit). DEP submitted this application in order to incorporate an updated averaging plan for the acid rain permit.

This application was submitted pursuant to 15A NCAC 02Q .0501(b)(1) (a significant modification).

2.0 Application Chronology

Date	Event
August 8, 2023	Application .23A received.
August 24, 2023	Email sent to DEP requesting more information regarding updating the RMP.
August 28, 2023	Response received to the August 24 request.
September 5, 2023	An initial draft of the Title V permit and this application review were sent to DAQ Permits staff for initial review.
September 7, 2023	An updated draft of the Title V permit and this application review were sent to DAQ SSCB staff, DAQ RRO staff, and DEP staff.
XXXXXX	Public Notice / EPA review
XXXXXX	Permit issued.

3.0 Discussion

3.1 Title IV Permit Updates (a.k.a. Acid Rain Permit)

As part of the Title IV permit, DEP is subject to NOx emission limits for the coal-fired boilers. Emission limits for coal-fired boilers are based on the operating method of the boiler. According to DEP’s application, the boilers at this facility are “dry bottom wall-fired” boilers, which have a NOx emission limit of 0.46 pounds per million Btu.

As an alternative to that emission limit, the operator of a facility may choose to average the NOx emission rates of coal-fired boilers using the alternative contemporaneous emissions limitation (ACEL) method in 40 CFR 76.11. In order to use the ACEL method, the Btu-weighted annual average emission rate (see 40 CFR 76.11(d)(1)(ii)) for all of the ACEL units must be less than the Btu-weighted annual average emission rate of those units had they each been operated using the default emission limits under 40 CFR 76.5, 76.6, or 76.7 (see 40 CFR 76.11(a)(5)).

DEP has developed a NOx averaging plan and established an ACEL for the coal-fired units at the following locations:

- Belews Creek (facility ID 8500004)
- Cliffside [excluding Unit 6] (facility ID 8100028)
- GG Allen (facility ID 3600039)
- Marshall (facility ID 1800073)
- Mayo (this facility)
- Roxboro (facility ID 7300029)

The existing Title IV permit (included in the existing Title V permit as Specific Condition 2.4) includes the ACEL and associated heat input limits for both coal-fired boilers at this facility.

DEP has revised the averaging plan for the above facilities, and has submitted this permit application in order to reflect the revised averaging plan. The revised plan reflects unit retirements at some of the above facilities. However, the ACEL and associated heat input limits for the coal-fired boilers at Mayo were not changed. Therefore, the limits in the existing permit will not change.

The below table includes all of the emission proposed ACELs and associated heat input limits.

Plant Name	Unit ID	Emission Limit (\$76.5, 76.6, or 76.7) (lb/MMBtu)	ACEL (lb/MMBtu)	Annual Heat Input Limit (MMBtu/yr)
Belews Creek	1	0.68	0.25	26,834,070
Belews Creek	2	0.68	0.25	27,664,080
Cliffside	5	0.40	0.25	13,315,200
GG Allen	1	0.40	0.45	18,755,160
GG Allen	5	0.40	0.45	36,013,720
Marshall	1	0.40	0.45	41,662,560
Marshall	2	0.40	0.45	39,787,920
Marshall	3	0.40	0.25	16,438,140
Marshall	4	0.40	0.45	65,577,360
Mayo	1A	0.46	0.25	10,731,000
Mayo	1B	0.46	0.25	10,731,000
Roxboro	1	0.46	0.25	10,341,180
Roxboro	2	0.40	0.25	15,794,280
Roxboro	CS003A	0.46	0.25	9,331,590
Roxboro	CS003B	0.46	0.25	9,331,590
Roxboro	CS004A	0.46	0.25	9,855,000
Roxboro	CS00BA	0.46	0.25	9,855,000

Btu-weighted annual emission rate averaged over the units if they are operated in accordance with the proposed averaging plan

0.358

Btu-weighted annual average emission rate for same units operated in compliance with 40 CFR 76.5, 76.6, or 76.7

0.452

The updated averaging plan will be included in the new Title V permit as Attachment 2.

3.2 15A NCAC 02D .2100 “Risk Management Program” and Section 112(r) of the Clean Air Act

This rule requires facilities that store materials above the threshold quantities in 40 CFR 68.130 to prepare and submit a risk management plan (RMP).

In the existing permit, DEP is required to develop and maintain an RMP because the facility stores more than 20,000 pounds of anhydrous ammonia.

According to the existing permit, DEP must update the current RMP no later than December 20, 2021 (a date that has already passed). However, DEP now states that the ammonia stored on-site is 19% concentration. According to 40 CFR 68.130, the concentration of aqueous ammonia that triggers an RMP is 20% or greater. Therefore, the concentration of ammonia currently in use at the facility is less than the threshold needed to trigger an RMP, and therefore this facility is no longer required to maintain an RMP.¹ Note that this facility has already de-registered the RMP with US EPA as of June 17, 2022.²

References to the Risk Management Program will be removed from the permit. Note that other parts of §112(r), such as the General Duty Clause, still apply to this facility; however, those portions of §112(r) are outside the purview of the Title V permit.

3.3 Changes to the Existing Permit

Page No.	Section	Description of Change(s)
Throughout	Throughout	<ul style="list-style-type: none"> Updated dates and permit numbers. Fixed formatting where appropriate. Changes to formatting are only for clarity and conformity with NC DAQ’s other Title V permits and are not intended to affect the Permittee’s compliance requirements. Updated submission date of the Permittee’s Acid Rain NOx Compliance Plan and Averaging Plan.
n/a	2.5 (former)	<ul style="list-style-type: none"> Removed this section because this facility is no longer required to maintain a Risk Management Plan.
54	3	<ul style="list-style-type: none"> Updated the description of IS-33.1 and IS-33.2 because the facility is now storing 19% concentration ammonia instead of anhydrous ammonia.
55	4	<ul style="list-style-type: none"> Updated General Conditions to version 7.0.

* This list is not intended to be a detailed record of every change made to the permit but a summary of those changes.

4.0 Draft Permit Review Summary

Initial draft: An initial draft of the Title V permit and this application review were sent to DAQ Permits staff on September 5, 2023. Comments were received on September 6, 2023. The comments pointed out typos in the draft permit and review, and requested additional clarification regarding the removal of the RMP requirements.

¹ Email from Erin Wallace (Environmental Operations, DEP), August 28, 2023.

² Email from Mike Ried (112(r) Program Coordinator, DAQ), September 6, 2023.

Subsequent draft: An updated draft of the Title V permit and this application review were sent to DAQ SSCB staff, DAQ RRO staff, and DEP staff on September 7, 2023. No comments were received.

5.0 Compliance Status and Other Regulatory Concerns

Compliance status: DAQ conducted a full compliance inspection of this facility on August 9, 2023. DEP appeared to be in compliance with the Title V permit at that time.

Compliance history: In the previous five years, DAQ has not issued a Notice of Violation to this facility.

Application fee: Applications for a significant modification require an application fee. DEP submitted the appropriate application fee via ePay.

PE Seal: Pursuant to 15A NCAC 02Q .0112 “Application requiring a Professional Engineering Seal,” a professional engineer’s seal (PE Seal) is required to seal technical portions of air permit applications for new sources and modifications of existing sources as defined in 15A NCAC 02Q .0103 that involve the criteria in 02Q .0112(a)(1)-(3). No PE Seal was required for this application.

Zoning: A Zoning Consistency Determination per 15A NCAC 02Q .0507(d) was not required for this application.

Removal of References to Affirmative Defense: EPA has promulgated a rule (88 FR 47029, July 21, 2023), with an effective date of August 21, 2023, removing the emergency affirmative defense provisions in operating permits programs, codified in both 40 CFR 70.6(g) and 71.6(g). EPA has concluded that these provisions are inconsistent with the EPA’s current interpretation of the enforcement structure of the CAA, in light of prior court decisions.³ Moreover, per EPA, the removal of these provisions is also consistent with other recent EPA actions involving affirmative defenses⁴ and will harmonize the EPA’s treatment of affirmative defenses across different CAA programs.

As a consequence of this EPA action to remove these provisions from 40 CFR 70.6(g), it will be necessary for states and local agencies that have adopted similar affirmative defense provisions in their Part 70 operating permit programs to revise their Part 70 programs (regulations) to remove these provisions. In addition, individual operating permits that contain Title V affirmative defenses based on 40 CFR 70.6(g) or similar state regulations will need to be revised.

DAQ has not adopted these discretionary affirmative defense provisions in its Title V regulations (15A NCAC 02Q .0500). Instead, DAQ has chosen to include them directly in individual Title V permits as General Condition J.

³ NRDC v. EPA, 749 F.3d 1055 (D.C. Cir. 2014).

⁴ In newly issued and revised New Source Performance Standards (NSPS), emission guidelines for existing sources, and NESHAP regulations, the EPA has either omitted new affirmative defense provisions or removed existing affirmative defense provisions. See, e.g., National Emission Standards for Hazardous Air Pollutants for the Portland Cement Manufacturing Industry and Standards of Performance for Portland Cement Plants; Final Rule, 80 FR 44771 July 27, 2015); National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters; Final Rule, 80 FR 72789 (November 20, 2015); Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Commercial and Industrial Solid Waste Incineration Units; Final Rule, 81 FR 40956 (June 23, 2016).

Per EPA, DAQ is required to promptly remove such impermissible provisions, as stated above, from individual Title V permits, after August 21, 2023, through normal course of permit issuance.

6.0 Public Notice and EPA Review

A notice of the draft Title V Permit shall be made pursuant to 15A NCAC 02Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Consistent with 15A NCAC 02Q .0518(b), the EPA will have a 45-day review period. Based on an agreement between DAQ and EPA, this period will generally coincide with the 30-day public notice period. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 02Q .0522, a copy of each permit application, each proposed permit and each final permit shall be provided to EPA. Also, pursuant to 02Q .0522, a notice of the draft Title V Permit shall be provided to each affected State at or before the time notice is provided to the public under 02Q .0521 above. DAQ voluntarily provides notice to each bordering State (Virginia, Tennessee, Georgia, and South Carolina).

- The Public Notice and EPA Review periods began on XXXX
- The Public Notice period ended on XXXX
- The EPA Review period ended on XXXX

7.0 Recommendations

This permit application has been reviewed by NC DAQ to determine compliance with all procedures and requirements. NC DAQ has determined that this facility appears to be complying with all applicable requirements.

DAQ recommends issuance of Permit No. 03478T51. RRO, SSCB, and DEP have received a copy of this permit and submitted comments that were incorporated as described in Section 4.0.