NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date:

Region: Winston-Salem Regional Office
County: Stokes
NC Facility ID: 8500004
Inspector's Name: Robert Barker
Date of Last Inspection: 09/21/2020
Compliance Code: 3 / Compliance - inspection

Facility Data

Applicant (Facility's Name): Duke Energy Carolinas, LLC - Belews Creek Steam Station

Facility Address:
Duke Energy Carolinas, LLC - Belews Creek Steam Station
3195 Pine Hall Road
Walnut Cove, NC 27052

SIC: 4911 / Electric Services
NAICS: 221112 / Fossil Fuel Electric Power Generation

Facility Classification: Before: Title V **After:** Title V
Fee Classification: Before: Title V **After:** Title V

Permit Applicability (this application only)

SIP: 02Q .0501(b)(1), 02Q .0513, 02D .0501(e), 02D .0519, 02D .0521, 02D .0606, 02D .1100, 02D .1111 (Subparts UUUUU, DDDDD and ZZZZ), 02D .0530, 02D .0530(u), 02Q .0402, 02D .0614, 02D .0503, 02D .0516, 02D .0510, 02D .0540, 02D .0524 (Subpart OOO), 02Q .0317 (avoidance for 02D .0530), 02D .0515
NSPS: NA
NESHAP: NA
PSD: NA
PSD Avoidance: NA
NC Toxics: NA
112(r): NA (General Duty Clause)
Other: CSAPR

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Brenda Johnson Sr. EHS Professional (336) 445-0634 3195 Pine Hall Road Belews Creek, NC 27009	Michael Lanning General Manager III (336) 445-0501 3195 Pine Hall Road Belews Creek, NC 27009	Erin Wallace Lead Environmental Specialist (919) 546-5797 410 South Wilmington Street Raleigh, NC 27601

Application Data

Application Number: 8500004.21C (Title V Renewal) and 8500004.21D (Title IV Renewal)
Date Received: 07/27/2021 (.21C and .21D)
Application Type: Renewal (.21C and .21D)
Application Schedule: TV-Renewal (.21C) and Title IV (.21D)

Existing Permit Data

Existing Permit Number: 01983/T36
Existing Permit Issue Date: 07/07/2021
Existing Permit Expiration Date: 01/31/2022

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2019	3370.79	5699.34	81.72	688.24	778.24	53.73	26.92 [Fluorides (sum of all fluoride]
2018	4114.85	7303.30	90.86	762.97	851.57	60.34	30.22 [Fluorides (sum of all fluoride]
2017	4522.43	7053.81	108.66	910.11	979.24	72.00	36.25 [Fluorides (sum of all fluoride]
2016	5066.60	6792.52	123.64	1036.49	1149.04	81.38	40.94 [Fluorides (sum of all fluoride]
2015	6780.39	7101.62	137.84	1151.24	1273.12	173.88	117.16 [Hydrogen chloride (hydrochlori]

Review Engineer: Ed Martin **Review Engineer's Signature:** **Date:**	**Comments / Recommendations:** **Issue** 01983/T37 **Permit Issue Date:** **Permit Expiration Date:**

Chronology

April 6, 2021 Duke Energy Carolinas (DEC) submitted an updated NOx Averaging Plan for G. G. Allen, Roxboro, Cliffside, Belews Creek, Mayo, and Marshall for compliance with the Phase II NOx emissions limitations under the Acid Rain Program.

July 27, 2021 Title V renewal application 8500004.21C and Title IV renewal application 8500004.21D received and were complete for processing.

January 5, 2022 DEC was asked if they would agree to remove the COMS option from the permit for compliance with the PM limits in 02D .0521 and 02D .0606 (and previously 02D .0536) since a PM CEMS is required by the MATS rule and COMS have not been used for several years. This would avoid the need for a new CAM condition for using the COMS option for 02D .0503 which is now being added and simplify the permit.

January 7, 2022 DEC stated that they would like to proceed with the removal of the COMS option from the permit.

January 13, 2022 DEC stated that they have decided not to modify the NOx Averaging Plan at this time.

I. Facility Description

DEC's Belews Creek Steam Station is an electric utility that generates electrical power using boilers. The Belews Creek facility has two coal/No. 2 fuel oil-fired electric utility boilers (ID Nos. ES-1 and ES-2, 12,000 million Btu per hour heat input each), two No. 2 fuel oil-fired auxiliary boilers (ID Nos. ES-3 and ES-4, 172 million Btu per hour heat input, each), one No. 2 fuel oil-fired emergency/blackout protection diesel generator (2000 kW), one No. 2 fuel oil-fired diesel emergency air compressor (525 hp), two emergency diesel IC engines, and various supporting scrubber limestone equipment.

II. Purpose of Applications

Application 8500004.21C

The purpose of this permit application is to renew the existing Title V permit pursuant to 02Q .0513. The renewal application was received on July 27, 2021, at least six months before the January 31, 2022 expiration date of the current permit; therefore, the application was filed in a timely manner and the application shield pursuant to 15A NCAC 02Q .0512(b)(1) remains in effect. This renewal permit is being issued for another 5-year term and will expire 5 years from the date of issuance.

DEC requested the insignificant activities list be revised as shown in Section 2.3 of the permit and in Section III below. The insignificant activities being added would not violate any applicable emissions standard and whose potential emission of particulate, sulfur dioxide, nitrogen oxides, volatile organic compounds, and carbon monoxide before air pollution control devices, are each no more than five tons per year and whose potential emissions of hazardous air pollutants before air pollution control devices, are each below 1000 pounds per year.

This permit change is a significant Title V permit modification that does not contravene or conflict with a condition in the existing permit pursuant to rule 15A NCAC 02Q .0501(b)(1). Public notice of the draft permit is required.

The following application was consolidated with this application:

Application 8500004.21D (consolidated with Application 8500004.21C)
DEC's Acid Rain Permit Application was received July 27, 2021, for renewal of the acid rain permit for the ES-1 and ES-2 boilers.

III. Permit Changes

The following changes were made to Air Permit No. 01983T36:*

Page No.	Section	Description of Change(s)
Cover	--	Added new cover letter with new format. Amended permit numbers and dates.
4-5	1, table of permitted emission sources	Removed "CAM" designation for ES-1 and ES-2.
--	TOC	Revised the Acid Rain Permit Application date.
9	2.1 A, regulation table	Removed Subpart BBBBB from the Cross State Air Pollution Rule 40 CFR Part 97 for nitrogen oxides. Removed 15A NCAC 02D .0614 CAM (40 CFR Part 64). Added 15A NCAC 02D .0503. Removed footnote * at bottom of table.
11	2.1 A.3	Revised 02D .0521 to remove the COMS option.
12	2.1 A.7	Removed minor modification note *. Revised 02D .0606 to remove the COMS option.
12	2.1 A.7.a	Added *** Total Source Operating Time definition for the %EE and %MD calculations.
14	2.1 A.9	Removed "Federal-Enforceable Only" and removed 40 CFR Part 97, Subpart BBBBB.
16-17 old page	2.1 A.10	Removed NCAC 02D .0614: COMPLIANCE ASSURANCE MONITORING and reserved this section.
22	2.1 A.14	Added 15A NCAC 02D .0503: PARTICULATES FROM FUEL BURNING INDIRECT HEAT EXCHANGERS**.**
26	2.1 B.6.c	Removed BACT testing since this has been completed.
28	2.1 C.2.e	Added "All instances of deviations from the requirements of this permit must be clearly identified."
33	2.1 E.2.e	Added "All instances of deviations from the requirements of this permit must be clearly identified."
56	2.3	Removed IES-12, IES-14, IES-17, IES-24, IES-25, IES-55, IES-59, IES-71, IES-83 and IES-Screener. Added IES-95, IES-96, IES-97, IES-98 and IES-99. Revised IES-13, IES-30, IES-64, IES-65, I-76, IES-88 and IES-T03.
60	2.5	Removed effective dates. Effective dates are the same as the Title V permit itself.

		Revised the Acid Rain Permit Application date.
63	3	Updated General Conditions to version 6.0, dated 01/07/2022).

** New page unless noted.

IV. Permit History

February 6, 2017	Permit 01983T31 was issued to renew Title V and Title IV permits for five years.
December 1, 2017	Permit 01983T32 was issued to transfer the plant's existing flyash handling and storage sources, currently on their own separate permit, specifically Charah's Synthetic Minor Permit No. 04706R14, to the Belews Creek permit as a minor modification. Also, Duke requested a change, when using the PM CEMS option in Section 2.1.A.7.b of the permit, to modify the method for determining Good O&M to directly use the 0.030 pounds per million Btu heat input rather than the concentration of PM emissions that corresponds to 0.030 pounds per million Btu heat input to demonstrate that the sources are deemed to be properly operated and maintained.
September 5, 2018	Permit 01983T33 was issued to categorize the two auxiliary boilers (ID Nos. ES-3(AuxB1) and ES-4(AuxB2)) as limited-use boilers under 40 CFR 63, Subpart DDDDD "National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters."
April 8, 2019	Permit 01983T34 was issued to add natural gas co-firing capability to Units 1 and 2 and to convert Auxiliary Boilers 1 and 2 from No. 2 fuel oil-fired (propane for start-up only) to natural gas firing, removing all oil firing capabilities for these sources. This was a Prevention of Significant Deterioration (PSD) major modification to a major source for carbon monoxide (CO) and volatile organic compounds (VOCs) processed as the first step of a two-step significant modification pursuant to rule 15A NCAC 02Q .0501(b)(2) and .0504, satisfying the permitting requirements in 02D .0530 (PSD) and 02Q .0300.
June 25, 2021	Permit 01983T35 was issued for two Part II applications for: (1) operation of the Dry Flyash project in T32, and (2) for operation of the addition of natural gas and coal co-firing capability for Units 1 and 2 and converting Auxiliary Boilers 1 and 2 from oil to natural gas-firing in T34. This permit also removed the annual average opacity and particulate matter limits in 02D .0536 for Units 1 and 2 since that rule was repealed effective November 1, 2020, and no longer applies. In addition, the requirement to implement a Malfunction Abatement Plan (Malfunction Abatement Manual) as required by 02D .0535(d) and in 02D .0536 was removed from the permit for these units. Further, Units 1 and 2 are subject to the MATS (MACT 5U) regulation under 02D .1111 and therefore the provisions of 02D .0535 no longer apply, including the requirement for a Malfunction Abatement.
July 7, 2021	Permit 01983T36 was issued to excavate the existing Ash Basin and place the excavated coal combustion residuals (CCR) in a new lined Closure Landfill that will be located within the Ash Basin waste boundary. Also, four diesel-fired internal combustion engines (ICE) were added to the insignificant activity list.
TBD	Permit No. 01983T37 was issued to renew the Title V and Title IV permits for five years.

V. Regulatory Evaluation

The facility is subject to the following source-by-source regulations, in addition to the requirements in the General Conditions:

A. Two natural gas/coal-fired electric utility boilers equipped with alkaline-based fuel additive (ID Nos. ES-1 and ES-2), and associated flue gas conditioning systems (ID Nos. CD-1, CD-1A, CD-4, and CD-4A), low NOx burner systems (ID Nos. CD-2 and CD-5), SCR (ID Nos. CD-2A and CD-5A), hydrated lime dry sorbent injection (ID Nos. CD-U1DSI and CD-U2DSI, electrostatic precipitators (ID Nos. CD-3 and CD-6), and wet Flue Gas Desulfurization systems (ID Nos. CD (U1FGDa), CD (U1FGDb), CD (U2FGDa) and CD (U2FGDb))

1. 15A NCAC 02D .0501(e): COMPLIANCE WITH EMISSION CONTROL STANDARDS
In addition to any control or manner of operation necessary to meet emission standards in 15A NCAC 02D .0500, any source of air pollution shall be operated with such control or in such manner that the source shall not cause the ambient air quality standards of 15A NCAC 02D .0400 to be exceeded at any point beyond the premises on which the source is located. When controls more stringent than named in the applicable emission standards in 15A NCAC 02D .0500 are required to prevent violation of the ambient air quality standards or are required to create an offset, the permit shall contain a condition requiring these controls.

For the Flue Gas Desulfurization systems (ID No. CD(U1FGDa) and CD(U1FGDb)) and stack on Unit 1, emissions of sulfur dioxide from these sources shall not exceed 1.02 pounds per million Btu heat input in accordance with the permit application received May 16, 2005 and modeling analysis of May 2005. For the Flue Gas Desulfurization systems (ID No. CD(U2FGDa) and CD(U2FGDb)) and stack on Unit 2, emissions of sulfur dioxide from this source shall not exceed 1.02 pounds per million Btu heat input in accordance with the permit application received May 16, 2005 and modeling analysis of May 2005.

Monitoring/Recordkeeping
The Permittee shall ensure compliance with 15A NCAC 02D .0501(e) by determining sulfur dioxide emissions in pounds per million Btu using continuous emissions monitoring (CEM) systems meeting the requirements of 40 CFR Part 75 except that unbiased values may be used (missing data shall be filled in accordance with 40 CFR Part 75). Compliance with sulfur dioxide emission standards shall be determined by averaging hourly continuous emission monitoring system values over a 24-hour block period beginning at midnight. To compute the 24-hour block average, the average hourly values (missing data shall be filled in accordance with 40 CFR Part 75) shall be summed, and the sum shall be divided by 24. The minimum number of data points, equally spaced, required to determine a valid hour value shall be determined by 40 CFR Part 75.

Reporting
The Permittee shall submit quarterly continuous emissions monitoring data showing the 24-hour daily block values in pounds per million Btu for each 24-hour daily block averaging period during the reporting period.

CEMs Availability - The Permittee shall submit sulfur dioxide CEM systems monitor downtime reports, including monitor availability values (as calculated for 40 CFR Part 75) for the last hour of the reporting period.

2. 15A NCAC 02D .0519: CONTROL OF NITROGEN OXIDES EMISSIONS

Emissions of nitrogen oxides from these sources when burning coal and oil (No. 2 fuel oil or recycled No.2 fuel oil) shall be calculated by the following equation:

$$E = \frac{(E_C)(Q_C)+(E_O)(Q_O)}{Q_t}$$

Where:

E = emission limit for combined burning of coal and oil in pounds per million Btu heat input
Ec = 1.8 pounds per million Btu heat input for coal only
Eo = 0.8 pounds per million Btu heat input for oil only
Qc = coal heat input in Btu per hour
Qo = oil heat input in Btu per hour
Qt = Qc + Qo

Monitoring

The Permittee shall ensure compliance with 15A NCAC 02D .0519 by determining nitrogen oxide emissions in pounds per million Btu using a continuous emissions monitoring (CEM) system meeting the requirements of 40 CFR Part 75 except that unbiased values may be used (missing data shall be filled in accordance with 40 CFR Part 75).

Recordkeeping

The Permittee shall maintain records of monthly coal and gas consumption (written or electronic form) and shall submit such records within 30 days of a request by DAQ.

Reporting

The Permittee shall submit the continuous emissions monitoring system data showing the 24-hour daily block values for periods of excess nitrogen oxide emissions semi-annually.

3. 15A NCAC 02D .0521: CONTROL OF VISIBLE EMISSIONS

The permit condition for 15A NCAC 02D .0521 previously had two mutually exclusive options for monitoring, recordkeeping and reporting using either COMS or PM CEMS. The CEMS option was added several years ago when the facility began using PM CEMS for PM monitoring but wanted to retain the use of COMS in case problems arose with using CEMS. Now, since a PM CEMS is required by the MATS rule and COMS have not been used for several years, DEC agrees the COMS option is no longer needed and is being removed.

Emission Limits

Visible emissions shall not be more than 40 percent opacity when averaged over a six-minute period except that six-minute periods averaging not more than 90 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period.

Monitoring/Recordkeeping/Reporting

No monitoring/recordkeeping/reporting is required to demonstrate compliance with 15A NCAC 02D .0521.

4. 15A NCAC 02D .0606: SOURCES COVERED BY APPENDIX P OF 40 CFR PART 51 (SULFUR DIOXIDE MONITORING, CONTINUOUS OPACITY MONITORING, AND EXCESS EMISSIONS)

The permit condition for 15A NCAC 02D .0606 previously had two mutually exclusive options for monitoring, recordkeeping and reporting using either COMS or PM CEMS. The CEMS option was added several years ago when the facility began using PM CEMS for PM monitoring but wanted to retain the use of COMS in case problems arose with using CEMS. Now, since a PM CEMS is required by the MATS rule and COMS have not been used for several years, DEC agrees the COMS option is no longer needed and is being removed.

Monitoring/Recordkeeping

The alternative monitoring and recordkeeping procedure in this section (Section 2.1 A.7.b) applies as allowed by Paragraph 3.9 of Appendix P of 40 CFR Part 51. The Permittee shall install, certify, operate, and maintain a PM CEMS to monitor and record PM emissions according to the applicable Maximum Achievable Control Technology (MACT) standards in 40 CFR 63.10010(i), as specified in Section 2.1 A.11.bb.

The quarterly excess emissions (EE) reports shall be used as an indication of good operation and maintenance of the electrostatic precipitators. These sources shall be deemed to be properly operated and maintained if the percentage of time the PM emissions, calculated on a one-hour average, greater than 0.030 pounds per million Btu heat input* does not exceed 3.0 percent of the total operating time for any given calendar quarter, adjusted for monitor downtime (MD) as calculated below, except that Total Excess Emission Time contains all one-hour periods greater than 0.030 pounds per million Btu heat input*. In addition, these sources shall be deemed to be properly operated and maintained if the %MD does not exceed 2 percent for any given calendar quarter as calculated below.

* The PM monitored value subject to the 0.030 pounds per million Btu limit shall have a 5% CO_2 diluent cap, or a 14% O_2 diluent cap, substituted in the emission rate calculation for a startup or shutdown hour in which the measured CO_2 concentration is below 5% or whenever the measured O_2 concentration is above 14%.

Calculations for %EE and %MD

Percent Excess Opacity Emission (%EE) Calculation:

$$\%EE = \frac{Total\ \ Excess\ Emission\ Time\ *}{Total\ \ Source\ Operating\ Time\ *** - Monitor\ \ Downtime}\ x100$$

Percent Monitor Downtime (%MD) Calculation:

$$\%MD = \frac{Total\ \ Monitor\ \ Downtime\ **}{Total\ \ Source\ Operating\ Time\ ***}\ x\,100$$

* Total Excess Emission Time contains any one-hour period greater than 0.030 pounds per million Btu heat input of PM emissions, including startup, shutdown, and malfunction.

** Total Monitor Downtime includes Quality Assurance (QA) activities unless exempted by regulation or defined in an agency approved QA Manual. The amount of exempt QA Time will be reported in the quarterly report as such.

*** Total Source Operating Time is the number of hours in a calendar quarter that the emission source operates.

The Permittee shall use a continuous emissions monitoring system (CEMS) to monitor and record sulfur dioxide emissions. Continuous emissions monitoring and recordkeeping of sulfur dioxide emissions shall be performed as described in Paragraphs 2 and 3.1.1 through 3.1.5 of Appendix P of 40 CFR Part 51. The monitoring systems shall meet the minimum specifications described in Paragraphs 3.3 through 3.8 of Appendix P of 40 CFR Part 51. If the emission unit is also subject to 40 CFR Part 75, then facility may follow the Quality Assurance and Quality Control (QA/QC) procedures in Appendix B to Part 75 in lieu of the 40 CFR Part 51 QA/QC procedures.

The quarterly excess emissions (EE) reports required under Appendix P of 40 CFR Part 51 shall be used as an indication of good operation and maintenance of the flue gas desulfurization scrubbers. These sources shall be deemed to be properly operated and maintained if sulfur dioxide emissions do not exceed 1.02 pounds per million Btu calculated on a 24-hour basis. Compliance with

the sulfur dioxide emission standard is determined by averaging hourly continuous emission monitoring system values over a 24-hour block period beginning at midnight. To compute the 24-hour block average, the average hourly values are summed, and the sum is divided by 24. A minimum of four data points, equally spaced, is required to determine a valid hour value unless the continuous emission monitoring system is installed to meet the provisions of 40 CFR Part 75. If a continuous emission monitoring system is installed to meet the provisions of 40 CFR Part 75, the minimum number of data points is determined by 40 CFR Part 75. In addition, the flue gas desulfurization scrubbers shall be deemed to be properly operated and maintained if the %MD does not exceed 2 percent for any given calendar quarter as calculated in Section 2.1 A.7.a above.

Reporting

The Permittee shall submit the excess emissions and monitor downtime reports as required under Appendix P of 40 CFR Part 51 postmarked on or before January 30 of each calendar year for the preceding three-month period between October and December, April 30 of each calendar year for the preceding three-month period between January and March, July 30 of each calendar year for the preceding three-month period between April and June, and October 30 of each calendar year for the preceding three-month period between July and September as shown below. Reporting shall be in accordance with Paragraphs 4 and 5.1 of Appendix P of 40 CFR Part 51.

a. Excess PM emissions are defined as any one-hour average greater than 0.030 pounds per million Btu heat input. The quarterly report shall include the number of hours each day and the percent of operating hours during the quarter with average PM emissions recorded by the PM CEMS greater than 0.030 pounds per million Btu including the application of any applicable diluent caps during a startup or shutdown hour.
b. For sulfur dioxide, excess emissions are defined as greater than 1.02 pounds per million Btu calculated on a 24-hour block average basis.
c. All instances of deviations from the requirements of this permit must be clearly identified

State-Enforceable Only

5. 15A NCAC 02D .1100: CONTROL OF TOXIC AIR POLLUTANTS

Duke previously performed air dispersion modeling for ammonia emissions from the anhydrous ammonia injection systems on the boilers.

Emission Limit

In accordance with an application for an air toxic compliance demonstration, the Units 1 and 2 maximum anhydrous ammonia flue gas injection rate shall not exceed 121.5 pounds per hour each for a total of 243 pounds per hour.

Monitoring/Recordkeeping/Reporting

No monitoring/recordkeeping/reporting for ammonia emissions from the boilers is required.

6. CROSS STATE AIR POLLUTION RULES (CSAPR) PERMIT REQUIREMENTS

The CSAPR trading programs requirements of 40 CFR Part 97, Subpart AAAAA "TR NOx Annual Trading Program", Subpart BBBBB "TR NOx Ozone Season Trading Program", and Subpart CCCCC "TR SO_2 Group 1 Trading Program" were previously included in the permit. However, DAQ has concluded that the previously applicable requirements of the Cross-State Air Pollution Rule in Subpart BBBBB of 40 CFR 97 for ozone season NOx for the Title V permits for all affected units in NC no longer apply and will be removed as follows.

Removal of CSAPR NOx Ozone Season (Subpart BBBBB) Trading Program Requirements

Background

The EPA established the original Cross-State Air Pollution Rule (CSAPR or "Transport Rule")[1] to address the interstate transport of emissions with respect to the 1997 ozone National Ambient Air Quality Standards (NAAQS) and the 1997 and 2006 fine particulate matter (PM2.5) NAAQS. This CSAPR was a federal implementation plan (FIP), requiring the upwind states to eliminate their "significant" contributions to the downwind states' non-attainment of these pollutants. With

[1] 76 FR 48208 (August 8, 2011).

regard to the NOx ozone season trading program under this rule, EPA required NOx reductions in two phases (Phase 1 and Phase 2) for the affected states including NC.

Then the EPA finalized the CSAPR Update (CSAPR Update)[2] to address the interstate transport of emissions with respect to the 2008 ozone NAAQS. Through this rulemaking, EPA determined that NC did not contribute significantly to nonattainment in or interference with maintenance for the 2008 ozone standard for any downwind states[3]. Thus, EPA did not finalize the FIP for NC for this NAAQS, because the EPA's analysis supporting the final rule did not indicate that NC was linked to any identified downwind nonattainment or maintenance receptors with respect to the 2008 ozone standard[4].

In addition, because the 2008 ozone NAAQS is more stringent than the 1997 ozone NAAQS, EPA concluded that North Carolina was not linked to any remaining air quality concerns with respect to the 1997 ozone standard for which the state was regulated in the original CSAPR as above[5].

Addressing the D. C. Circuit Court[6] remand with respect to NC's Phase 2 NOx budget under the 1997 ozone standard, EPA concluded that the emissions from the state did not significantly contribute to nonattainment or interfere with maintenance of either the 1997 ozone NAAQS or 2008 ozone NAAQS in other states, and removed the state from the CSAPR ozone season trading program beginning in 2017 when the Phase 2 ozone season emission budget was scheduled to be implemented[7]. Accordingly, starting with the 2017 ozone season, NC was no longer subject to the CSAPR NOx ozone season trading program requirements (40 CFR 97 Subpart BBBBB) and electric generating units (EGUs) in the state were not allocated further allowances by EPA nor obligated to demonstrate compliance with CSAPR NOx ozone season requirements[89].

Even for the more stringent 2015 ozone NAAQS, EPA proposed[10] to approve NC's State Implementation Plan (SIP), concluding that North Carolina sources would not significantly contribute to nonattainment or interfere with maintenance of the 2015 ozone NAAQS in any other state. EPA supplemented[11] this approval with the updated modeling analysis based on the most current and technically accurate information, supporting its finding that NC's implementation plan contained adequate measures to prohibit emissions that would significantly contribute or interfere with the maintenance of the 2015 ozone standard in any other states.

DAQ Title V Permitting

DAQ included the original CSAPR requirements in Title V permits for all affected units in NC, including the boilers (ID Nos. ES-1 and ES-2) at the Belews Creek Steam Station, after the US Supreme Court[12] upheld the CSAPR. Specifically, DAQ included in the permits the CSAPR trading programs requirements for annual NOx (40 CFR 97 Subpart AAAAA), ozone season NOx (Subpart BBBBB), and annual SO_2 (Subpart CCCCC).

Conclusion

With EPA's removal of NC ozone season NOx reductions requirements for the 1997 ozone NAAQS and EPA's determination that NC is not subject to ozone season NOx reductions requirements for 2008 ozone NAAQS, the DAQ will revise the Title V permits for all affected

[2] 81 FR 74504 (October 26, 2016).
[3] 81 FR 74506, 74507.
[4] Id., 81 FR 74524.
[5] Id.
[6] *EME Homer City Generation, L.P., v. EPA*, No. 795 F.3d 118, 129–30, 138, July 28, 2015.
[7] Id.
[8] 81 FR 74555.
[9] States that are Affected by the Cross-State Air Pollution Rule (CSAPR) | US EPA (https://www.epa.gov/csapr/states-are-affected-cross-state-air-pollution-rule-csapr) and 40 CFR 97.510(a)(16).
[10] 84 FR 71854 (December 30, 2019).
[11] 86 FR 37942 (July 19, 2021).
[12] *EPA v. EME Homer City Generation, L. P.*, No. 12-1182, Decided April 29, 2014.

units in NC under the original CSAPR by removing the previously applicable requirements in Subpart BBBBB (40 CFR 97) for ozone season NOx.

7. 15A NCAC 02D .1111: MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY (40 CFR PART 63, SUBPART UUUUU)

The Subpart UUUUU requirements were added to permit 01983T30 on August 29, 2016. Each of the Electric Generating Units are subject to all applicable requirements pertaining to existing, coal-fired EGUs with heating value greater than or equal to 8,300 Btu/lb.

In accordance with 40 CFR 63.9984(b), the EGUs are required to comply with all applicable requirements of Subpart UUUUU by no later than April 16, 2015. However, the DAQ has granted a 1-year extension in accordance with 40 CFR 63.6(i)(4)(i)(A), for complying with the applicable standards under the regulation until April 16, 2016.

Emission Limitations

The following limits apply:

a. i. limit the emissions of filterable particulate matter (PM) to 3.0E-2 lb/MMBtu or 3.0E-1 lb/MWh; or
   ii. limit the emissions of total non-Hg HAP metals to 5.0E-5 lb/MMBtu or 5.0E-1 lb/GWh; or
   iii. limit the emissions of individual HAP metals to:

Constituent	Allowable Level
Antimony (Sb)	8.0E-1 lb/TBtu or 8.0E-3 lb/GWh
Arsenic (As)	1.1E0 lb/TBtu or 2.0E-2 lb/GWh
Beryllium (Be)	2.0E-1 lb/TBtu or 2.0E-3 lb/GWh
Cadmium (Cd)	3.0E-1 lb/TBtu or 3.0E-3 lb/GWh
Chromium (Cr)	2.8E0 lb/TBtu or 3.0E-2 lb/GWh
Cobalt (Co)	8.0E-1 lb/TBtu or 8.0E-3 lb/GWh
Lead (Pb)	1.2E0 lb/TBtu or 2.0E-2 lb/GWh
Manganese (Mn)	4.0E0 lb/TBtu or 5.0E-2 lb/GWh
Nickel (Ni)	3.5E0 lb/TBtu or 4.0E-2 lb/GWh
Selenium (Se)	5.0E0 lb/TBtu or 6.0E-2 lb/GWh

b. i. limit the emissions of hydrogen chloride (HCl) to 2.0E-3 lb/MMBtu or 2.0E-2 lb/MWh; or
   ii. limit the emissions of sulfur dioxide (SO_2) to 2.0E-1 lb/MMBtu or 1.5E0 lb/MWh.

c. limit the emissions of mercury (Hg) to 1.2E0 lb/TBtu or 1.3E-2 lb/GWh.

DEC has chosen to comply with this rule for the Belews Creek Steam Station by limiting emissions as follows:

a. filterable particulate matter (PM) to 3.0E-2 lb/MMBtu or 3.0E-1 lb/MWh (using PM CEMS),
b. sulfur dioxide (SO2) to 2.0E-1 lb/MMBtu or 1.5E0 lb/MWh (using SO2 CEMS), and
c. mercury (Hg) to 1.2E0 lb/TBtu or 1.3E-2 lb/GWh (using Hg CEMS and/or sorbent trap(s)).

8. 15A NCAC 02D .0530: PREVENTION OF SIGNIFICANT DETERIORATION

Emission Limits

The following Best Available Control Technology (BACT) limits shall not be exceeded:

POLLUTANT	BACT EMISSION LIMIT	CONTROL TECHNOLOGY
CO	0.08 lb/million Btu (6-hour average), all operations except startups and shutdowns	Good combustion practices

	Work practice standards during startups and shutdowns	Work practice standards
VOCs	0.0055 lb/million Btu (6-hour average), all operations except startups and shutdowns	Good combustion practices
	Work practice standards during start-ups and shut-downs	Work Practice Standards

For startup of a unit, the Permittee shall use clean fuels as defined in Section 2.1.A.12.b.iii of the permit for ignition. When firing coal, the Permittee shall utilize all of the applicable control technologies except dry scrubber and SCR. The Permittee shall start dry scrubber and SCR systems, if present, appropriately to comply with relevant standards applicable during normal operation.

While firing coal during shutdown, the Permittee shall vent emissions to the main stack(s) and operate all applicable control devices and continue to operate those control devices after the cessation of coal being fed into the EGU and for as long as possible thereafter considering operational and safety concerns. If, in addition to the fuel used prior to initiation of shutdown, another fuel shall be used to support the shutdown process, that additional fuel shall be one or a combination of the clean fuels defined in Section 2.1.A.12.b.iii of the permit and shall be used to the maximum extent possible, taking into account considerations such as not compromising boiler or control device integrity.

Testing

The Permittee shall demonstrate compliance with the BACT emission limits for Units 1 and 2 when burning (i) natural gas only and (ii) natural gas and coal co-firing, by conducting annual performance tests at greater than 90% of maximum rated heat input, utilizing EPA reference methods, as in effect on the date of permit issuance, as follows:

POLLUTANT	TEST METHOD
Carbon Monoxide	Method 10
Volatile Organic Compounds	Method 25A or Method 18

Monitoring/Recordkeeping/Reporting

The Permittee shall perform periodic tune-ups on Units 1 and 2 in accordance with the MACT Subpart UUUUU requirements in Section 2.1.A.11.s of the permit and comply with the associated Subpart UUUUU recordkeeping and reporting.

9. 15A NCAC 02D .0530(u): USE OF PROJECTED ACTUAL EMISSIONS TO AVOID APPLICABILITY OF PREVENTION OF SIGNIFICANT DETERIORATION REQUIREMENTS

Monitoring/Recordkeeping/Reporting

The Permittee has used projected actual emissions to avoid applicability of prevention of significant deterioration requirements, pursuant to Application 8500004.18A, for the natural gas co-firing project. The Permittee shall perform the following:

a. The Permittee shall maintain records of annual emissions in tons per year, on a calendar year basis related to the natural gas co-firing project, for five years following resumption of regular operations after the change is made.
b. The Permittee shall submit a report to the director within 60 days after the end of each calendar year during which these records must be generated. The report shall contain the items listed in 40 CFR 51.166(r)(6)(v)(a) through (c).
c. The Permittee shall make the information documented and maintained under this condition available to the Director or the general public pursuant to the requirements in 40 CFR 70.4(b)(3)(viii).

d. The reported actual emissions (post-construction emissions) for each of the five calendar years will be compared to the projected actual emissions (pre-construction projection) as included below:

Regulated NSR Pollutant	Projected Actual Emissions* (tons per year)	
	Unit 1 (ID No. ES-1)	Unit 2 (ID No. ES-2)
NOx (as NO_2)	3,435	3,104
PM (filterable)	205.7	154.1
PM_{10}	516.58	411.68
$PM_{2.5}$	447.27	362.35
SO_2	3,838.75	2,991.86
HF	15.7	12.9
Lead	0.0213	0.0299
Sulfuric Acid Mist	130	45.6
GHG as CO_{2e}	5,794,839	5,065,913

10. 15A NCAC 02Q .0402 ACID RAIN PERMITTING PROCEDURES (40 CFR Part 72) Phase II Acid Rain Permit Requirements
DEC submitted a renewal Acid Rain Permit Application, received July 27, 2021 (application 8500004.21D), for these sources.

The effective dates of the acid rain portion of the permit are the same as the Title V permit itself. The Acid Rain Permit Application dated July 20, 2021 will become part of the Title V permit (as an attachment).

The applicable acid rain rules for these sources, as specified in the Acid Rain Permit Application includes the following emission and monitoring requirements:

15A NCAC 02Q .0402 Acid Rain Procedures (40 CFR Part 72 Permits Regulation)
North Carolina air quality regulation 15A NCAC 02Q .0400 implements Phase II of the federal acid rain program pursuant to Title IV of the CAA as provided in 40 CFR Part 72. Issuance or denial of acid rain permits shall follow the procedures under 40 CFR Part 70 (Title V) and Part 72. If the provisions or requirements of Part 72 conflict with or are not included in Part 70, the Part 72 provisions and requirements shall apply and take precedence.

15A NCAC 2Q .0400 "Acid Rain Procedures" (40 CFR Part 73 "Sulfur Dioxide Allowance System")
Establishes the procedures for allocation, tracking, holding and transfer of sulfur dioxide emission allowances, including the initial allowances allocated to each applicable Phase II unit account to be held in calendar years 2010 and each year thereafter (Table 2, column F).

15A NCAC 2Q .0400 "Acid Rain Procedures" (40 CFR Part 76 "Acid Rain Nitrogen Oxides Emission Reduction Program")
Each coal-fired utility unit that is subject to an Acid Rain emissions limit for SO_2 under Phase I or Phase II of the CAA must meet the NOx emission limitations under 40 CFR Part 76 in compliance with 40 CFR 76.5, 76.6 or 76.7, as shown in the application. DEC has an Acid Rain NOx Averaging Plan for the coal fired units at their six facilities dated June 23, 2015, with the Belews Creek boilers subject to the annual average alternative contemporaneous emission limitation and annual heat input limits as shown in the Averaging Plan and in Section 2.4 of the permit.

15A NCAC 02Q .0402 Acid Rain Procedures (40 CFR Part 75 Continuous Emissions Monitoring)
This regulation establishes requirements for the installation, certification, operation, and maintenance of continuous emissions or opacity monitoring systems.

11. 15A NCAC 02D .0614: COMPLIANCE ASSURANCE MONITORING
This regulation has been removed since it was used for compliance with the particulate emissions limit when using the COMS option under 15A NCAC 02D .0536 that was previously in Section 2.1.A.4 of the permit. The 15A NCAC 02D .0536 rule was removed in permit 01983T35 since it was repealed effective November 1, 2020, as discussed in Section IV above. Therefore, 02D .0614 no longer applies.

12. 15A NCAC 02D .0503: PARTICULATES FROM FUEL BURNING INDIRECT HEAT EXCHANGERS
Since regulation 15A NCAC 02D .0536 was repealed effective November 1, 2020, it was removed in Permit 01983T35 as discussed in Section IV above. Regulation 02D .0503 is being added to the permit as recommended in a memorandum dated October 11, 2019, from Dennis Igboko, Stationary Source Compliance Branch.

Emission Limit
Emissions of particulate matter discharged from Units 1 and 2 into the atmosphere shall not exceed 0.079 pounds per million Btu heat input.

This rule applies to installations burning fuel, including natural gas and fuel oils, for the purpose of producing heat or power by indirect heat transfer. For the purpose of this rule, the maximum heat input shall be the total heat content of all fuels which are burned in a fuel burning indirect heat exchanger, of which the combustion products are emitted through a stack or stacks. The sum of maximum heat input of all fuel burning indirect heat exchangers at a plant site which are in operation, under construction, or permitted shall be considered as the total heat input for the purpose of determining the allowable emission limit for particulate matter for each fuel burning indirect heat exchanger. Fuel burning indirect heat exchangers constructed or permitted after February 1, 1983, shall not change the allowable emission limit of any fuel burning indirect heat exchanger whose allowable emission limit has previously been set. The removal of a fuel burning indirect heat exchanger shall not change the allowable emission limit of any fuel burning indirect heat exchanger whose allowable emission limit has previously been established. However, for any fuel burning indirect heat exchanger constructed after, or in conjunction with, the removal of another fuel burning indirect heat exchanger at the plant site, the maximum heat input of the removed fuel burning indirect heat exchanger shall no longer be considered in the determination of the allowable emission limit of any fuel burning indirect heat exchanger constructed after or in conjunction with the removal.

The affected sources to which this regulation applies are the following:

Source	Heat Input (mmBtu/hr)
Boiler ES-1	12,000
Boiler ES-2	12,000
Auxiliary boiler ES-3 (AuxB1)	172
Auxiliary boiler ES-4 (AuxB2)	172
ES-34a natural gas supply line heater	8
ES-34b natural gas supply line heater	8
ES-34c natural gas supply line heater	8
ES-34d natural gas supply line heater	8
Total	24,376

Allowable emissions of particulate matter from fuel combustion shall be calculated as follows:

$$E = 1.090\ Q^{-0.2594}$$

where: E = allowable particulate emission rate, pounds per million Btu
Q = maximum heat input rate (total at plant site), million Btu per hour

Therefore, emissions of particulate matter from the boilers shall not exceed the following:

$E = 1.090\ Q^{-0.2594}$
$= 1.090\ (24{,}376)^{-.2594}$
$= 0.079$ lb/mmBtu

The 02D .0503 limits are based on compliance with the MATS rule in Section 2.1 A.11 of the permit.

Streamlining the 02D .0503 condition with MATS
As allowed under 40 CFR 70.6(a)(3)(i)(A):

> *"If more than one monitoring or testing requirement applies, the permit may specify a streamlined set of monitoring or testing provisions provided the specified monitoring or testing is adequate to assure compliance at least to the same extent as the monitoring or testing applicable requirements that are not included in the permit as a result of such streamlining."*

The monitoring (including recordkeeping) for the MATS requirements in Section 2.1 A.11 of the permit is adequate to ensure compliance at least to the same extent as required for the 02D .0503 monitoring requirements in Section 2.1 A.14; therefore, streamlining is specified for compliance. The 0.030 pounds per million Btu heat input PM limit for MATS compliance is much more stringent than the 0.079 pounds per million Btu heat input PSD avoidance PM limit.

Monitoring/Recordkeeping
The monitoring and recordkeeping requirements in Sections 2.1 A.11.bb and dd of the permit shall satisfy the requirements of this section. A measured exceedance of 0.030 pounds per million Btu heat input (30-boiler operating day rolling average) or 0.30 pounds per megawatt hour (30-boiler operating day rolling average) shall be a violation of the corresponding emission standards in Section 2.1 A.14.a.

Reporting
The Permittee shall submit quarterly excess emissions and monitoring system performance reports. The compliance report shall include, at a minimum, the information required in 40 CFR 63.10 and contain the information specified in Section 2.1 A.11.qq, along with all 30-boiler operating day rolling average excess emissions (pounds per million Btu or pounds per megawatt hour) using the CEMS outlet data, including periods exempted during periods of startup and shutdown. The PM CEMS data submitted for compliance with 40 CFR Part 63 Subpart UUUUU can be used to satisfy the requirement of this section.

B. Two natural gas-fired auxiliary boilers (ID Nos. ES-3 and ES-4)

1. 15A NCAC 02D .0503: PARTICULATES FROM FUEL BURNING INDIRECT HEAT EXCHANGERS

Emission Limit
Emissions of particulate matter from the combustion of natural gas that are discharged from these sources into the atmosphere shall not exceed 0.079 pounds per million Btu heat input as shown in Section V.A.12 above.

Monitoring/Recordkeeping/Reporting
No monitoring/recordkeeping/reporting is required for particulate emissions from the firing of natural gas in this source.

2. 15A NCAC 02D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES

Emissions of sulfur dioxide from these sources shall not exceed 2.3 pounds per million Btu heat input.

Monitoring/Recordkeeping/Reporting
No monitoring/recordkeeping/reporting is required for sulfur dioxide emissions from the firing of natural gas in these sources.

3. 15A NCAC 02D .0521: CONTROL OF VISIBLE EMISSIONS
For sources manufactured as of July 1, 1971, visible emissions shall not be more than 40 percent opacity (except during startup, shutdowns, and malfunctions) when averaged over a six-minute period except that six-minute periods averaging not more than 90 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period.

Monitoring/Recordkeeping/Reporting
No monitoring/recordkeeping/reporting is required for visible emissions from the firing of natural gas in these sources.

4. 15A NCAC 02D .1111: MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY (40 CFR PART 63, SUBPART DDDDD)
The facility is major for HAPs and is subject to the MACT Subpart DDDDD for natural gas-fired auxiliary boilers ES-3 and ES-4.

These auxiliary boilers have a heat input of 172 mmBtu/hr each and are categorized as having a heat input capacity equal to or greater than 10 million Btu per hour.

These sources burn only natural gas and therefore fall under the "Units Designed to Burn Gas 1 Fuels" subcategory. The following is a summary of the requirements for these sources under MACT Subpart DDDDD.

- Work practice standards including requirement to conduct a tune-up of the natural gas-fired auxiliary boilers annually as specified in Table 3 of 40 CFR Part 63 Subpart DDDDD.
- Work practice standards including inspect the flame pattern, inspect the system controlling the air-to-fuel ratio, optimize total emissions of carbon monoxide, and measure the concentrations in the effluent stream of carbon monoxide in parts per million a requirement to operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.
- A one-time energy assessment performed by a qualified energy assessor.
- Maintain records for five years, with at least two years onsite, for each notification and report required to comply with Subpart DDDDD.
- The Permittee shall submit an annual compliance report.

5. 15A NCAC 02D .0530: PREVENTION OF SIGNIFICANT DETERIORATION

Emission Limits
The following Best Available Control Technology (BACT) limits shall not be exceeded:

POLLUTANT	BACT EMISSION LIMIT	CONTROL TECHNOLOGY
CO	0.08 lb/million Btu (6-hour average), all operations except startups and shutdowns	Good combustion practices and the use of pipeline quality natural gas
VOCs	0.0055 lb/million Btu (6-hour average), all operations except start-ups and shut-downs	

Testing

The initial one-time performance testing to demonstrate compliance with the BACT emission limits for the auxiliary boilers (ID Nos. ES-3 and ES-4) has been completed.

Monitoring/Recordkeeping/Reporting
The Permittee shall perform periodic tune-ups on the auxiliary boilers in accordance with the MACT Subpart DDDDD requirements in the permit and comply with the associated Subpart DDDDD recordkeeping and reporting.

6. 15A NCAC 02D .0530(u): USE OF PROJECTED ACTUAL EMISSIONS TO AVOID APPLICABILITY OF PREVENTION OF SIGNIFICANT DETERIORATION REQUIREMENTS

Monitoring/Recordkeeping/Reporting
The Permittee has used projected actual emissions to avoid applicability of prevention of significant deterioration requirements, pursuant to Application 8500004.18A, for the natural gas co-firing project modification in permit 01983T34 on April 8, 2019, as discussed in Section III above. The Permittee shall perform the following:

a. The Permittee shall maintain records of annual emissions in tons per year, on a calendar year basis related to the hot gas path modifications, for five years following resumption of regular operations after the change is made.
b. The Permittee shall submit a report to the director within 60 days after the end of each calendar year during which these records must be generated. The report shall contain the items listed in 40 CFR 51.166(r)(6)(v)(a) through (c).
c. The Permittee shall make the information documented and maintained under this condition available to the Director or the general public pursuant to the requirements in 40 CFR 70.4(b)(3)(viii).
d. The reported actual emissions (post-construction emissions) for each of the five calendar years will be compared to the projected actual emissions (pre-construction projection) as included below:

Regulated NSR Pollutant	**Projected Actual Emissions* (tons per year)**	
	Aux Boiler 1 (ID No. ES-3)	**Aux Boiler 2 (ID No. ES-4)**
NOx (as NO_2)	5.15	5.74
PM (filterable)	4.80E-02	5.35E-02
PM_{10}	1.31E-02	1.46E-02
$PM_{2.5}$	1.09E-02	1.21E-02
SO_2	1.52E-02	1.69E-02
HF	ND	ND
Lead	1.26E-05	1.41E-05
Sulfuric Acid Mist	ND	ND
GHG as CO_{2e}	3,011	3,356

C. One No. 2 fuel oil-fired emergency/blackout protection diesel generator (ID No. ES-4a (EmGen))

1. 15A NCAC 02D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES

Emission Limit
Emissions of sulfur dioxide from the diesel generator shall not exceed 2.3 pounds of sulfur dioxide per million Btu heat input.

Monitoring/Recordkeeping/Reporting
No monitoring/recordkeeping/reporting is required for sulfur dioxide emissions from the firing of No. 2 fuel oil in this source.

2. 15A NCAC 02D .0521: CONTROL OF VISIBLE EMISSIONS

Emission Limit
As a source manufactured after July 1, 1971, visible emissions from this source shall not be more than 20 percent opacity (except during startup, shutdowns, and malfunctions approved as such according to procedures approved under 15A NCAC 02D .0535) when averaged over a six-minute period.

Monitoring
To ensure compliance, the Permittee shall perform a Method 9 test for 1 hour using a pre-approved protocol to be submitted in accordance with General Condition JJ before the sources operate more than 1,100 hours using No. 2 fuel oil.

Recordkeeping
The Permittee shall keep records of the hours and associated dates when these sources are in operation using No. 2 fuel oil, and the dates of performance of Method 9 tests.

Reporting
The Permittee shall submit quarterly results of any Method 9 test.

3. 15A NCAC 02D .1111: MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY (40 CFR PART 63, SUBPART ZZZZ)
According to 40 CFR 63.6590(b)(3)(iii), existing emergency-use engines located at a major source of HAPs with a brake horsepower rating greater than 500 do not have to meet the requirements of 40 CFR Part 63, Subpart ZZZZ.

D. Limestone Unloading, Transfer, and Processing Equipment:

- **The following sources:**
  - **Limestone rail unloading station (ID No. ES-6 (RUL)),**
  - **two limestone rail unloading hoppers (ID No. ES-6a (RULa) and ES-6b (RULb)),**
  - **72 inches wide limestone rail unloading belt feeder (ID No. ES-7 (LUBF))**

  Each with shared pulse jet bagfilter (ID No. CD (RULBf))

- **The following sources:**
  - **48 inches wide limestone unloading conveyor (ID No. ES-8 (LCB1)),**
  - **48 inches wide limestone stack-out conveyor (ID No. ES-10 (LCB2)),**
  - **40 inches wide limestone reclaim grate feeder (ID No. ES-11a (LRGF)),**
  - **30 inches wide limestone reclaim conveyor (ID No. ES-11b (LCB3)),**
  - **30 inches wide limestone weigh feeder belt for silo 1 (ID No. ES-19 (LCB6)),**
  - **30 inches wide limestone weigh feeder belt for silo 2 (ID No. ES-20 (LCB7)),**
  - **limestone wet ball mill 1 (ID No. ES-21 (BM1)), and**
  - **limestone wet ball mill 2 (ID No. ES-22 (BM2))**

- **The following sources:**
  - **30 inches wide limestone plant feed conveyor (ID No. ES-13a (LCB3a)),**
  - **30 inches wide limestone silo fill conveyor 1 (ID No. ES-15 (SCB4)),**
  - **30 inches wide limestone silo fill conveyor 2 (ID No. ES-16 (SCB5)),**
  - **limestone storage silo 1 (ID No. ES-17 (LS1)), and**
  - **limestone storage silo 2 (ID No. ES-18 (LS2))**

  Each with shared pulse jet bagfilter (ID No. CD (LPTTBf))

1. 15A NCAC 02D .0510: PARTICULATES FROM SAND, GRAVEL, OR CRUSHED STONE OPERATIONS

The Permittee shall not cause, allow, or permit any material in a sand, gravel, or crushed stone operation to be produced, handled, transported or stockpiled without taking measures to reduce to a minimum any particulate matter from becoming airborne to prevent exceeding the ambient air quality standards beyond the property line for particulate matter, both PM10 and total suspended particulates.

Fugitive non-process dust emissions from sand, gravel, or crushed stone operations shall be regulated by 15A NCAC 02D .0540 below.

The Permittee shall control process-generated emissions from conveyors, screens, and transfer points, such that the applicable opacity standards in Sections V.D.3 and 4 below are not exceeded.

Monitoring/Recordkeeping/Reporting

The monitoring/recordkeeping/reporting required in Section V.D.4 below for particulate matter is sufficient to ensure compliance with 15A NCAC 02D .0510.

2. 15A NCAC 02D .0540: PARTICULATES FROM FUGITIVE NON-PROCESS DUST EMISSION SOURCES

a. The Permittee shall not cause or allow fugitive non-process dust emissions (i.e., particulate matter that is not collected by a capture system and is generated from areas such as pit areas, process areas, haul roads, stockpiles, and plant roads) to cause or contribute to substantive complaints (i.e., complaints that are verified with physical evidence acceptable to the DAQ).
b. If fugitive non-process dust emissions cause or contribute to substantive complaints, the Permittee shall:
    i. Within 30 days upon receipt of written notification from the Director of a second substantive complaint in a 12-month period, submit to the Director a written description of what has been done and what will be done to reduce fugitive non-process dust emissions from that part of the facility that caused the second substantive complaint;
    ii. Within 90 days of receipt of written notification from the Director of a second substantive complaint in a 12-month period, submit to the Director a control plan; and
    iii. Within 30 days after the Director approves the plan, be in compliance with the plan.
c. The Director may require that the Permittee develop and submit a fugitive non-process dust control plan if:
    i. Ambient air quality measurements or dispersion modeling acceptable to the DAQ show violation or a potential for a violation of an ambient air quality standard for particulates in 15A NCAC 02D .0400 “Ambient Air Quality Standards;” or
    ii. If the DAQ observes excessive fugitive non-process dust emissions from the facility beyond the property boundaries.

    The control plan shall be submitted to the Director no later than 90 days after notification. The facility shall be in compliance with the plan within 30 days after the Director approves the plan.
d. A fugitive dust control plan shall:
    i. Identify the sources of fugitive non-process dust emissions within the facility;
    ii. Describe how fugitive non-process dust will be controlled from each identified source;
    iii. Contain a schedule by which the plan will be implemented;
    iv. Describe how the plan will be implemented, including training of facility personnel; and
    v. Describe methods to verify compliance with the plan.
e. The Director shall approve the plan if he finds that:
    i. The plan contains all required elements;
    ii. The proposed schedule contained in the plan will reduce fugitive non-process dust emissions in a timely manner;
    iii. The methods used to control fugitive non-process dust emissions are sufficient to prevent fugitive non-process dust emissions from causing or contributing to a violation of the ambient air quality standards for particulates; and
        iv. The described compliance verification methods are sufficient to verify compliance with

the plan.

If the Director finds that the proposed plan does not meet the requirements, he shall notify the Permittee of any deficiencies in the proposed plan. The Permittee shall have 30 days after receiving written notification from the Director to correct the deficiencies.

f. If after a plan has been implemented, the Director finds that the plan inadequately controls fugitive non-process dust emissions; he shall require the Permittee to correct the deficiencies in the plan. Within 90 days after receiving written notification from the Director identifying the deficiency, the Permittee shall submit a revision to his plan to correct the deficiencies.

3. 15A NCAC 02D .0521: CONTROL OF VISIBLE EMISSIONS

Emission Limit

Visible emissions from the limestone rail unloading station (ID No. ES-6(RUL)) and the limestone stack-out conveyor (ID No. ES-10(LCB2)) shall not be more than 20 percent opacity (except during startups, shutdowns, and malfunctions) when averaged over a six-minute period.

Monitoring

To assure compliance, once a month the Permittee shall observe the emissions from the limestone rail unloading station (ID No. ES-6(RUL)) and the limestone stack-out conveyor (ID No. ES-10(LCB2)) for any visible emissions above normal. If visible emissions from this source are observed to be above normal, the Permittee shall either:

a. immediately shutdown the source and repair the malfunction,
b. be deemed to be in noncompliance with 15A NCAC 02D .0521, or
c. demonstrate that the percent opacity from the emission points of the emission sources in accordance with 15A NCAC 02D .2610 for 30 minutes is below the emission limit.

Recordkeeping

The results of the monitoring shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall record the following:

a. The date and time of each recorded action;
b. The results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and
c. The results of any corrective actions performed.

Reporting

The Permittee shall submit a semi-annual summary report of the observations.

4. 15A NCAC 02D .0524: NEW SOURCE PERFORMANCE STANDARDS (40 CFR PART 60, SUBPART OOO)

Emission Limits

a. The Permittee shall not allow to be discharged into the atmosphere from any transfer point on belt conveyors or from any other affected facility any stack emissions that:
    i. Contain particulate matter in excess of 0.05 g/dscm (0.022 gr/dscf); and
    ii. Exhibit greater than 7 percent opacity.
    iii. Emission sources with stack emissions affected by these requirements include:
        (A) Railcar unloading enclosure dust collection system with fabric filter (ID No. CD (RULBf)) installed on: two limestone rail unloading hoppers (ID No. ES-6a (RULa) and ES-6b (RULb)) and a limestone rail unloading belt feeder (ID No. ES-7 (LUBF));
        (B) Limestone plant dust collection system with fabric filter (ID No. CD (LPTTBf)) installed on: a limestone plant feed conveyor (ID No. ES-13a (LCB3a)), two limestone silo fill conveyors (ID Nos. ES-15(SCB4) and ES-16(SCB5)), and two limestone storage silos (ID Nos. ES-17(LS1) and ES-18(LS2)); and
        (C) Any vent as defined in 40 CFR 60.671 of any building enclosing any affected emission source.

b. The Permittee shall not allow to be discharged into the atmosphere from any transfer point on belt conveyors or from any other affected facility, fugitive emissions that exhibit greater than 10 percent opacity. Where any transfer points on belt conveyors or any other affected facility are enclosed inside a building, the Permittee may choose to comply with the emission standard requirements for building enclosures as defined below under Section V.D.4.d below instead.

c. On and after the date on which the performance test is completed, the Permittee shall not allow to be discharged into the atmosphere from any crusher, at which a capture system is not used, fugitive emissions that exhibit greater than 15 percent opacity. Affected sources include the two limestone wet ball mills (ID Nos. ES-21(BM1) and ES-22(BM2)) located inside the reagent preparation building. Since the affected sources are enclosed inside a building, the Permittee may choose to comply to comply with the emission standard requirements for building enclosures as defined below under Section V.D.4.d below instead.

d. In lieu of the meeting the requirements of Sections V.D.4.b and c above for NSPS-affected emissions sources enclosed inside a building, the Permittee may choose to comply with the following requirements:
   i. No visible fugitive emissions are allowed from any building enclosing any transfer point on a conveyor belt or any other affected facility except emissions from a vent as defined in §60.671.
   ii. Any vent as defined in 40 CFR 60.671 on any building enclosing any transfer point on a conveyor belt or any other affected facility shall not discharge emissions of particulate matter in excess of 0.05 g/dscm (0.022 gr/dscf) or visible emissions in excess of 7 percent opacity.
   iii. Affected buildings include the limestone unloading transfer tower which houses the transfer point between ES-8(LCB1) and ES-10(LCB2), the yard transfer tower which houses the transfer point between ES-11b(LCB3) and ES-13a(LCB3a), and the reagent preparation building which houses ES-19(LCB6), ES-20(LCB7), ES-21(BM1), and ES-22(BM2).

Monitoring

Particulate matter emissions from sources (ID Nos. ES-6a(RULa), ES-6b(RULb) and ES-7(LUBF)) shall be controlled by bagfilter (ID No. CD (RULBf)), and particulate matter emissions from sources (ID Nos. ES-13a (LCB3a), ES-15 (SCB4), ES-16 (SCB5), ES-17 (LS1) and ES-18 (LS2)) shall be controlled by bagfilter (ID No. CD (LPTTBf)). To assure compliance, the Permittee shall perform inspections and maintenance on the fabric filters as recommended by the manufacturer. In addition to the manufacturer's inspection and maintenance recommendations, or if there are no manufacturer's inspection and maintenance recommendations, as a minimum, the inspection and maintenance requirement shall include the following:

a. A monthly visual inspection of the system ductwork and baghouse for leaks; and
b. An annual (for each 12-month period following the initial inspection) internal inspection of the bagfilter's structural integrity.

To assure compliance with the opacity standards, once a month the Permittee shall observe the individual NSPS-affected emission sources (ID Nos. ES-6a(RULa), ES-6b(RULb), ES-7(LUBF), ES-8(LCB1), ES-11a(LRGF), ES-11b(LCB3), ES-13a(LCB3a), ES-15(SCB4), ES-16(SCB5), ES-17(LS1), ES-18(LS2), ES-19(LCB6), ES-20(LCB7), ES-21(BM1), and ES-22(BM2)) subject to an opacity standard, or the buildings/enclosures housing these sources, for any visible emissions above normal. If visible emissions from these sources are observed to be above normal, the Permittee shall either:

a. immediately shutdown the source and repair the malfunction,
b. be deemed to be in noncompliance with 15A NCAC 02D .0521 or
c. demonstrate that the percent opacity from the emission points of the emission sources in accordance with 15A NCAC 02D .2610 for 30 minutes is below the limit given in Sections V.D.4.a.ii, b, and c above.

Recordkeeping
The results of all inspection and maintenance activities shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall record the following:

a. The date and time of each recorded action;
b. The results of each inspection;
c. The results of any maintenance performed on the fabric filters, duct work, or baghouse; and
d. Any variance from manufacturer's recommendations, if any, and corrections made.

The results of the visible emission monitoring shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall record the following:

a. The date and time of each recorded action;
b. The results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and
c. The results of any corrective actions performed.

Reporting
The Permittee shall submit a semi-annual summary report of the monitoring and recordkeeping activities.

5. 15A NCAC 02Q .0317: AVOIDANCE CONDITION
(For 15A NCAC 02D .0530: PREVENTION OF SIGNIFICANT DETERIORATION)

Emissions and Operating Limits
In order to avoid applicability of 15A NCAC 02D .0530(g):

a. the limestone rail unloading system consisting of limestone rail unloading station (ID No. ES-6(RUL)), two limestone rail unloading hoppers (ID No. ES-6a (RULa) and ES-6b(RULb)), a 72 inches wide limestone rail unloading belt feeder (ID No. ES-7(LUBF)), and associated pulse jet baghouse (ID No. CD(RULBf)) shall:
   i. not operate more than 832 hours per consecutive 12-month period, and
   ii. keep particulate emissions below 1.71 tons per year;
b. the 30 inches wide limestone plant feed conveyor (ID No. ES-13a(LCB3a)), 30 inches wide limestone silo fill conveyor 1 (ID No. ES-15(SCB4)), 30 inches wide limestone silo fill conveyor 2 (ID No. ES-16(SCB5)), limestone storage silo 1 (ID No. ES-17(LS1)), limestone storage silo 2 (ID No. ES-18(LS2)), and associated pulse jet bagfilter (ID No. CD(LPTTBf)) shall:
   i. not operate more than 2,555 hours per consecutive 12-month period, and
   ii. keep particulate emissions below 1.85 tons per year; and
c. keep total particulate emissions from all sources added by Application No. 8500004.05B (received May 16, 2005) below the PSD significance level of 25 tons per year.

Monitoring/Recordkeeping
The Permittee shall keep monthly records in a logbook (written or electronic format) of the number of hours of operation for these sources.

Reporting
The Permittee shall submit a semi-annual summary report.

State-Only Requirement

6. 15A NCAC 02D .1100: CONTROL OF TOXIC AIR POLLUTANTS

Emission Limits
In accordance with the approved application for a facility-wide air toxic compliance demonstration, the permit limits in Section 2.2 D shall not be exceeded.

The Permittee has submitted a toxic air pollutant dispersion modeling analysis dated February 15, 2021, for the facility's toxic air pollutant emissions. The source limits were placed in Permit 01983T36, issued July 7, 2021, to excavate the existing Ash Basin and place the excavated coal combustion residuals (CCR) in a new lined Closure Landfill. The modeling analysis was reviewed and approved by the AQAB on April 13, 2021.

Monitoring/Recordkeeping/Reporting
There are no monitoring, recordkeeping, or reporting requirements.

E. No. 2 fuel oil fired emergency-use water pump (ID No. ES-23)

1. 15A NCAC 02D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES
Emissions of sulfur dioxide from the diesel generator shall not exceed 2.3 pounds of sulfur dioxide per million Btu heat input.

Monitoring/Recordkeeping/Reporting
No monitoring/recordkeeping/reporting is required for sulfur dioxide emissions from the firing of No. 2 fuel oil in this source.

2. 15A NCAC 02D .0521: CONTROL OF VISIBLE EMISSIONS
As a source manufactured after July 1, 1971, visible emissions from these turbines shall not be more than 20 percent opacity (except during startup, shutdowns, and malfunctions approved as such according to procedures approved under 15A NCAC 02D .0535) when averaged over a six-minute period.

Monitoring
To ensure compliance, the Permittee shall perform a Method 9 test for 1 hour using a pre-approved protocol to be submitted in accordance with General Condition JJ before the sources operate more than 1,100 hours using No. 2 fuel oil.

Recordkeeping
The Permittee shall keep records of the hours and associated dates when these sources are in operation using No. 2 fuel oil, and the dates of performance of Method 9 tests.

Reporting
The Permittee shall submit quarterly results of any Method 9 test.

3. 15A NCAC 02D .1111: MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY (40 CFR PART 63, SUBPART ZZZZ)
According to 40 CFR 63.6590(b)(3)(iii), existing emergency-use engines located at a major source of HAPs with a brake horsepower rating greater than 500 do not have to meet the requirements of 40 CFR Part 63, Subpart ZZZZ.

F. Limestone stockpile (ID No. F1)

1. 15A NCAC 02D .0540: PARTICULATES FROM FUGITIVE NON-PROCESS DUST EMISSION SOURCES
See Section V.D.2 above.

State-Only Requirement
2. 15A NCAC 02D .1100: CONTROL OF TOXIC AIR POLLUTANTS
See Section V.D.6 above.

G. Lime storage silos (ID Nos. ES-33a (Silo,wwtf) and ES-33b(Silo,wwtf)) and associated pulse jet bagfilters (ID Nos. CD-wwtfBfa and CD-wwtfBfb)

1. 15A NCAC 02D .0510: PARTICULATES FROM SAND, GRAVEL, OR CRUSHED STONE OPERATIONS

The Permittee shall not cause, allow, or permit any material to be produced, handled, transported or stockpiled without taking measures to reduce to a minimum any particulate matter from becoming airborne to prevent exceeding the ambient air quality standards beyond the property line for particulate matter, both PM10 and total suspended particulates.

Fugitive non-process dust emissions shall be controlled by 15A NCAC 02D .0540.

The Permittee shall control emissions from conveyors, screens, and transfer points, such that the applicable opacity standard is not exceeded.

Monitoring
Particulate matter emissions from the emission sources (ID Nos. ES-33a (Silo,wwtf) and ES-33b(Silo,wwtf)) shall be controlled by the associated bagfilters (ID Nos. CD-wwtfBfa and CD-wwtfBfb). To ensure compliance, the Permittee shall perform inspections and maintenance as recommended by the manufacturer. In addition to the manufacturer's inspection and maintenance recommendations, or if there are no manufacturer's inspection and maintenance recommendations, as a minimum, the inspection and maintenance requirement shall include the following:

a. A monthly visual inspection of the system ductwork and material collection unit for leaks; and
b. An annual (for each 12-month period following the initial inspection) internal inspection of the bagfilter's structural integrity.

The Permittee shall comply with the monitoring requirements in Section V.G.2.c below.

Recordkeeping
The results of the inspection and maintenance monitoring above shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall record the following:

a. The date and time of each recorded action;
b. The results of each inspection;
c. The results of any maintenance performed on the bagfilters; and
d. Any variance from manufacturer's recommendations, if any, and corrections made.

The Permittee shall keep records as required by Section V.G.2.d below.

The Permittee shall be deemed in noncompliance with 15A NCAC 02D .0510 if these records are not maintained.

Reporting
The Permittee shall submit a semi-annual summary report of the monitoring and recordkeeping activities.

The Permittee shall submit reports as required in Section V.G.2 below.

2. 15A NCAC 02D .0521: CONTROL OF VISIBLE EMISSIONS

Emission Limit
Visible emissions from these sources (ID Nos. ES-33a(Silo,wwtf) and ES-33b(Silo,wwtf)) shall not be more than 20 percent opacity (except during startups, shutdowns, and malfunctions) when averaged over a six-minute period.

Monitoring
To ensure compliance, once a month the Permittee shall observe the emission points (ID Nos. CD-wwtfBfa and CD-wwtfBfb) of these sources for any visible emissions above normal. If visible emissions from these sources are observed to be above normal, the Permittee shall either:

a. immediately shutdown the source and repair the malfunction,
b. be deemed to be in noncompliance with 15A NCAC 02D .0521 or,
c. demonstrate that the percent opacity from the emission points of the emission sources in accordance with 15A NCAC 02D .2610 for 30 minutes is below the above emission limit.

Recordkeeping
The results of the monitoring shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall record the following:

a. The date and time of each recorded action;
b. The results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and
c. The results of any corrective actions performed.

Reporting
The Permittee shall submit a semi-annual summary report of the observations.

3. 15A NCAC 02D .0540: PARTICULATES FROM FUGITIVE NON-PROCESS DUST EMISSION SOURCES
See Section V.D.2 above.

State-Only Requirement

4. 15A NCAC 02D .1100: CONTROL OF TOXIC AIR POLLUTANTS
See Section V.D.6 above.

H. Wastewater treatment facility (ID No. F3)

1. 15A NCAC 02Q .0317: AVOIDANCE CONDITION
(Avoidance of 15A NCAC 02D .0530: PREVENTION OF SIGNIFICANT DETERIORATION)

Emission Limit
In order to avoid applicability of 15A NCAC 02D .0530(g), emissions of hydrogen sulfide from the wastewater treatment facility (ID No. F-3) shall not exceed the PSD significance level of 10 tons per year as calculated by the following equation:

(24 kg/day hydrogen sulfide emission rate) x (365 days/yr) x (2.206 lb/kg) x (1 ton/2000 lb) = 9.66 tons/yr

Monitoring/Recordkeeping/Reporting
No monitoring/recordkeeping/reporting of hydrogen sulfide emissions from the wastewater treatment facility is required to demonstrate compliance with 15A NCAC 02Q .0317.

State-Enforceable Requirement

2. 15A NCAC 02D .1100: CONTROL OF TOXIC AIR POLLUTANTS
Duke performed modeling for hydrogen sulfide emissions from the wastewater treatment facility in accordance with the application approved December 21, 2005, for an air toxic compliance demonstration.

Emission Limit
Emissions of hydrogen sulfide from the wastewater treatment facility (ID No. F-3) shall not exceed 2.206 pounds per hour. To ensure compliance with the limit, the maximum sulfate concentration shall not exceed 4,000 milligrams per liter at the inlet to bioreactors of the wastewater treatment facility.

Monitoring/Recordkeeping/Reporting
No monitoring/recordkeeping/reporting for hydrogen sulfide emissions from the wastewater treatment facility is required.

I. Unit 1 hydrated lime storage silo (ID No. ES-U1SorbSilo) with associated bagfilter (ID No. CD-U1SorbSiloBf)
Unit 2 hydrated lime storage silo (ID No. ES-U2SorbSilo) with associated bagfilter (ID No. CD-U2SorbSiloBf)

Unit 1 Weigh hopper 1 (ID No. ES-U1WHopper1) with associated bagfilter (ID No. CD-U1WH1Bf)

Unit 1 Weigh hopper 2 (ID No. ES-U1Whopper2) with associated bagfilter (ID No. CD-U1WH2Bf)

Unit 1 Weigh hopper 3 (ID No. ES-U1Whopper3) with associated bagfilter (ID No. CD-U1WH3Bf)

Unit 2 Weigh hopper 1 (ID No. ES-U2WHopper1) with associated bagfilter (ID No. CD-U2WH1Bf)

Unit 2 Weigh hopper 2 (ID No. ES-U2Whopper2) with associated bagfilter (ID No. CD-U2WH2Bf)

Unit 2 Weigh hopper 3 (ID No. ES-U2Whopper3) with associated bagfilter (ID No. CD-U2WH3Bf)

1. 15A NCAC 02D .0515: PARTICULATES FROM MISCELLANEOUS INDUSTRIAL PROCESSES

Emission Limit
Emissions of particulate matter from these sources (ID No. ES-U1SorbSilo, ES-U2SorbSilo, ES-U1WHopper1, ES-U1Whopper2, ES-U1Whopper3, ES-U2WHopper1, ES-U2Whopper2, and ES-U2Whopper3) shall not exceed an allowable emission rate as calculated by the following equation:

$E = 4.10 \times P^{0.67}$ for $P \leq 30$ tons/hr, or
$E = 55.0 \times P^{0.11} - 40$ for $P > 30$ tons/hr

where:
E = allowable emission rate in pounds per hour
P = process weight in tons per hour

Monitoring
Particulate matter emissions from these sources shall be controlled by the bagfilters (ID Nos. CD-U1SorbSiloBf, CD-U2SorbSiloBf, CD-U1WH1Bf, CD-U1WH2Bf, CD-U1WH3Bf, CD-U2WH1Bf, CD-U2WH2Bf, and CD-U2WH3Bf). To ensure that optimum control efficiency is maintained, the Permittee shall perform inspections and maintenance as recommended by the manufacturer. In addition to the manufacturer's inspection and maintenance recommendations, or if there are no manufacturer's inspection and maintenance recommendations, as a minimum, the inspection and maintenance requirement must include the following:

a. an annual (for each 12-month period following the initial inspection) internal inspection of the bagfilters' structural integrity; and
b. a monthly visual inspection of the system ductwork, and material collection unit for leaks.

Recordkeeping
The results of inspection and maintenance shall be maintained in a logbook (written or electronic form) on site and made available to an authorized representative upon request. The logbook shall record the following:

a. the date and time of actions recorded;
b. the results of each inspection;
c. the results of any maintenance performed on the bagfilters; and
d. any variance from manufacturer's recommendations, if any, and corrections made.

Reporting
The Permittee shall submit the results of any maintenance performed on the bagfilters within 30 days of a written request by the DAQ.

The Permittee shall submit a semi-annual summary report of the monitoring and recordkeeping activities shown above.

2. 15A NCAC 02D .0521: CONTROL OF VISIBLE EMISSIONS

Emission Limit
Visible emissions from these sources (ID No. ES-U1SorbSilo, ES-U2SorbSilo, ES-U1WHopper1, ES-U1Whopper2, ES-U1Whopper3, ES-U2WHopper1, ES-U2Whopper2, and ES-U2Whopper3) shall not be more than 20 percent opacity (except during startups, shutdowns, and malfunctions) when averaged over a six-minute period.

Monitoring
To ensure compliance, once a month the Permittee shall observe the emission points of these sources for any visible emissions above normal. The Permittee shall establish "normal" for the source in the first 30 days following start-up of the sources. The monthly observations must be made for each month of the calendar year period to ensure compliance with this requirement. If visible emissions from this source are observed to be above normal, the Permittee shall either:
a. immediately shutdown the source and repair the malfunction,
b. be deemed to be in noncompliance with 15A NCAC 02D .0521, or
c. demonstrate that the percent opacity from the emission points of the emission sources in accordance with 15A NCAC 02D .0501(c)(8) for 30 minutes is below the above emission limit.

Recordkeeping
The results of the monitoring shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall record the following:
a. the date and time of each recorded action;
b. the results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and
c. the results of any corrective actions performed.

Reporting
The Permittee shall submit a semi-annual summary report of the observations.

3. 15A NCAC 02D .1100: CONTROL OF TOXIC AIR POLLUTANTS
See Section V.D.6 above.

J. Flyash handling sources:

Units 1 and 2 dry flyash transfer system (ID No. ES-TS-1) and associated bagfilter CD-BF-7)

Two flyash storage and handling silos (ID Nos. SILO-3 and SILO-5), with associated bagfilters (ID Nos. CD-BF-6 and BF-5)

One flyash storage and handling silo (ID No. SILO-4) and dry flyash truck loading station (ID No. DFAL-4a), each with associated bagfilter (ID No. BF-4)

One dry flyash truck loading station (ID No. DFAL-4b), with associated cartridge filter (ID No. CD-4b)

One wet flyash truck loading station (ID No. WFAL-3), with associated flyash conditioner injection (ID No. FAC-3)

One wet flyash truck loading station (ID No. WFAL-5), with associated flyash conditioner injection (ID No. FAC-5)

One flyash storage dome (ID No. DOME-1), with associated bagfilter (ID No. DBF-1)

1. 15A NCAC 02D .0515: PARTICULATES FROM MISCELLANEOUS INDUSTRIAL PROCESSES

   Emission Limit
   Emissions of particulate matter from these sources (ID Nos. ES-TS-1, SILO-3, SILO-4, SILO-5, DFAL-4a, DFAL-4b, WFAL-3, WFAL-5, and DOME-1) shall not exceed an allowable emission rate as calculated by the following equation:

   $E = 4.10 \times P^{0.67}$ for $P \leq 30$
   $E = 55.0 \times P^{0.11} - 40$ for $P > 30$

   where:
   E = allowable emission rate in pounds per hour
   P = process weight in tons per hour

   Monitoring
   Particulate matter emissions from these sources shall be controlled by the control devices as described above. To ensure that optimum control efficiency is maintained, the Permittee shall perform inspections and maintenance as recommended by the manufacturer. In addition to the manufacturer's inspection and maintenance recommendations, or if there are no manufacturer's inspection and maintenance recommendations, as a minimum, the inspection and maintenance requirement must include the following:
   a. an annual (for each 12-month period following the initial inspection) internal inspection of the cartridge/bagfilters' structural integrity; and
   b. a monthly visual inspection of the system ductwork, and material collection unit for leaks.

   Recordkeeping
   The results of inspection and maintenance shall be maintained in a logbook (written or electronic form) on site and made available to an authorized representative upon request. The logbook shall record the following:
   a. the date and time of actions recorded;
   b. the results of each inspection;
   c. the results of any maintenance performed on the filters and injection systems; and
   d. any variance from manufacturer's recommendations, if any, and corrections made.

   Reporting
   The Permittee shall submit the results of any maintenance performed on the filters within 30 days of a written request by the DAQ.

   The Permittee shall submit a semi-annual summary report of the monitoring and recordkeeping activities.

2. 15A NCAC 02D .0521: CONTROL OF VISIBLE EMISSIONS

   Emission Limit
   Visible emissions from these sources (ID Nos. ES-TS-1, SILO-3, SILO-4, SILO-5, DFAL-4a, DFAL-4b, WFAL-3, WFAL-5, and DOME-1) shall not be more than 20 percent opacity (except during startups, shutdowns, and malfunctions) when averaged over a six-minute period.

   Monitoring
   To ensure compliance, once a month the Permittee shall observe the emission points of these sources for any visible emissions above normal. The Permittee shall establish "normal" for these

sources (ID Nos. ES-TS-1, SILO-3 and SILO-5) within 30 days of commencement of operation of new or modified equipment. The monthly observations must be made for each month of the calendar year period to ensure compliance with this requirement. If visible emissions from this source are observed to be above normal, the Permittee shall either:

a. immediately shutdown the source and repair the malfunction,
b. be deemed to be in noncompliance with 15A NCAC 02D .0521 or
c. demonstrate that the percent opacity from the emission points of the emission sources in accordance with 15A NCAC 02D .0501(c)(8) for 30 minutes is below the above emission limit.

Recordkeeping

The results of the monitoring shall be maintained in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The logbook shall record the following:

a. the date and time of each recorded action;
b. the results of each observation and/or test noting those sources with emissions that were observed to be in noncompliance along with any corrective actions taken to reduce visible emissions; and
c. the results of any corrective actions performed.

Reporting

The Permittee shall submit a semi-annual summary report of the observations.

3. 15A NCAC 02D .0530(u): USE OF PROJECTED ACTUAL EMISSIONS TO AVOID APPLICABILITY OF PREVENTION OF SIGNIFICANT DETERIORATION REQUIREMENTS

The Permittee has used projected actual emissions to avoid applicability of prevention of significant deterioration requirements for a dry flyash handling project (ID Nos. SILO-3, SILO-4, SILO-5, DFAL-4a, DFAL-4b, WFAL-3, WFAL-5, and DOME-1).

The Permittee shall comply with the following record keeping and reporting requirements.

Recordkeeping/Reporting

The Permittee shall maintain records of annual emissions for particulates, PM_{10}, $PM_{2.5}$, and lead in tons per year on a calendar year basis related to the modification, for five years following the resumption of regular operations after completion of the dry flyash handling project.

The Permittee shall make the information, documented and maintained available to the Director or the general public pursuant to the requirements in 40 CFR 70.4(b)(3)(viii).

The Permittee shall submit a report to the Director within 60 days after the end of each calendar year during which the above records. The report shall contain the items listed in 40 CFR 51.166(r)(6)(v)*(a)* through *(c)*.

The reported actual emissions (post-construction emissions) for each of the five calendar years will be compared to the following projected actual emissions (pre-construction projection) as included in the Duke Energy Carolinas, LLC - Belews Creek Steam Station permit application 8500004.17A:

Pollutant	Projected Actual Emissions (tons per year)
	ID Nos. SILO-3, SILO-4, SILO-5, DFAL-4a, DFAL-4b, WFAL-3, WFAL-5, and DOME-1 (total)
Particulate Matter	0.80
PM_{10}	0.27
$PM_{2.5}$	0.27
Lead	6.26E-05

4. 15A NCAC 02D .0540: PARTICULATES FROM FUGITIVE NON-PROCESS DUST EMISSION SOURCES
See Section V.D.2 above.

State-Only Requirement

5. 15A NCAC 02D .1100: CONTROL OF TOXIC AIR POLLUTANTS
See Section V.D.6 above.

K. Four natural gas-fired, natural gas supply line heaters (ID Nos. ES-34a, ES-34b, ES-34c and ES-34d)

1. 15A NCAC 02D .0503: PARTICULATES FROM FUEL BURNING INDIRECT HEAT EXCHANGERS

Emission Limit
Emissions of particulate matter from the combustion of natural gas that are discharged from these sources into the atmosphere shall not exceed 0.079 pounds per million Btu heat input as shown in Section V.A.12 above.

Monitoring/Recordkeeping/Reporting
No monitoring/recordkeeping/reporting is required for emissions of particulate matter from the firing of natural gas in these sources to demonstrate compliance with 15A NCAC 02D .0503.

2. 15A NCAC 02D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES

Emission Limit
Emissions of sulfur dioxide from these sources shall not exceed 2.3 pounds per million Btu heat input.

Monitoring/Recordkeeping/Reporting
No monitoring/recordkeeping/reporting is required for sulfur dioxide emissions from the firing of natural gas in these sources.

3. 15A NCAC 02D .0521: CONTROL OF VISIBLE EMISSIONS

Emission Limit
For sources manufactured as of July 1, 1971, visible emissions shall not be more than 40 percent opacity (except during startup, shutdowns, and malfunctions) when averaged over a six-minute period except that six-minute periods averaging not more than 90 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period.

Monitoring/Recordkeeping/Reporting
No monitoring/recordkeeping/reporting is required for visible emissions from the firing of natural gas in these sources.

4. 15A NCAC 02D .1111: MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY (40 CFR PART 63, SUBPART DDDDD)
The facility is major for HAPs and is subject to the MACT Subpart DDDDD for natural gas-fired auxiliary boilers ES-3 and ES-4.

These natural gas-fired, natural gas supply line heaters have a heat input of 8 mmBtu/hr each and are categorized as having a heat input capacity of less than 10 million Btu per hour.

These sources burn only natural gas and therefore fall under the “Units Designed to Burn Gas 1 Fuels” subcategory. The following is a summary of the requirements for these sources under MACT Subpart DDDDD.

- Work practice standards including requirement to conduct a biennial tune-up of these natural gas-fired, natural gas supply line heaters as specified in Table 3 of 40 CFR Part 63 Subpart DDDDD.
- Work practice standards including inspect the flame pattern, inspect the system controlling the air-to-fuel ratio, optimize total emissions of carbon monoxide, and measure the concentrations in the effluent stream of carbon monoxide in parts per million a requirement to operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions.
- Maintain records for five years, with at least two years onsite, for each notification and report required to comply with Subpart DDDDD.
- The Permittee shall submit a biennial compliance report.

5. 15A NCAC 02D .0530: PREVENTION OF SIGNIFICANT DETERIORATION

Emission Limit
The following Best Available Control Technology (BACT) limits shall not be exceeded:

POLLUTANT	BACT EMISSION LIMIT	CONTROL TECHNOLOGY
CO	0.0914 lb/million Btu (6-hour average), all operations except startups and shutdowns	Good combustion practices and the use of pipeline quality natural gas
VOCs	0.0644 lb/million Btu (6-hour average), all operations except start-ups and shut-downs	

Monitoring/Recordkeeping/Reporting
The Permittee shall perform periodic tune-ups on the natural gas supply line heaters in accordance with the MACT Subpart DDDDD requirements in Section V.K.4 above and comply with the associated Subpart DDDDD recordkeeping and reporting.

L. Natural gas supply line pigging operation including fugitive emissions from pig receiver vent (ID No. ES-PIGGING) with associated temporary flare of natural gas from supply line (ID No. CD-PIG FLARE)

1. 15A NCAC 02D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES

Emissions of sulfur dioxide from these sources shall not exceed 2.3 pounds per million Btu heat input.

Monitoring/Recordkeeping/Reporting
No monitoring/recordkeeping/reporting is required for sulfur dioxide emissions from the firing of natural gas in these sources.

2. 15A NCAC 02D .0521: CONTROL OF VISIBLE EMISSIONS

Emission Limit
For sources manufactured as of July 1, 1971, visible emissions shall not be more than 40 percent opacity (except during startup, shutdowns, and malfunctions) when averaged over a six-minute period except that six-minute periods averaging not more than 90 percent opacity may occur not more than once in any hour nor more than four times in any 24-hour period.

Monitoring/Recordkeeping/Reporting
No monitoring/recordkeeping/reporting is required for visible emissions from the firing of natural gas in these sources.

3. 15A NCAC 02D .0530: PREVENTION OF SIGNIFICANT DETERIORATION

Emission Limit
The following Best Available Control Technology (BACT) limits shall not be exceeded:

POLLUTANT	BACT EMISSION LIMIT	CONTROL TECHNOLOGY
CO	work practices	flare
VOCs	work practices	

Monitoring/Recordkeeping
CO and VOC emissions from the natural gas supply line pigging operation shall be controlled as follows:

The flare shall be adequately sized and designed for combustion of the natural gas to be vented. Prior to each scheduled day for pigging, the flare will be inspected and maintained in accordance with the manufacturer's recommendations and a record of this activity maintained. A copy of the recommended inspection and maintenance procedure will be maintained on-site and any deviations from standard protocols due to site-specific considerations will be documented and maintained. The work practice standard for the receiver will be to keep access openings to the receiver closed at all times except when a pig is being placed into or removed from the receiver, or during active maintenance operations.

3. 15A NCAC 02D .1100: CONTROL OF TOXIC AIR POLLUTANTS
See Section V.D.6 above.

VI. Public Notice

Pursuant to 15A NCAC 02Q .0521, a notice of the draft Title V Operating Permit will be published on the DAQ website to provide for a 30-day comment period with an opportunity for a public hearing. Copies of the draft (proposed) permit, review and public notice will be sent to EPA on for their 45-day review, to persons on the Title V mailing list, to the Winston-Salem Regional Office, and to the Permittee.

VII. Other Requirements

PE Seal
NA. No controls are being added.

Zoning
There is no expansion of the facility, therefore zoning consistency is not needed.

Fee Classification
The facility fee classification before and after this modification will remain as "Title V".

VIII. Comments on the Draft Permit

The draft permit and review were sent to Erin Wallace at DEC, Robert Barker at WSRO and Samir Parekh with SSCB on February 14, 2022, for review.

DEC Comments
In an email from Erin Wallace on February 24, 2022, DEC had the following comments in a marked-up permit:

1. In Section 2.1 A.7.a for 02D .0606, does the equation of MD for the COMS option get removed since the entire COMS option was removed?

   Response
   No, previously the same equation was used for both the PM CEMS option and the COMS option but it was labeled as being for the COMS option. The calculation was corrected for calculating PM CEMS MD.

2. In Section 2.1 A.14.d for 02D .0503 reporting, Duke commented that the information referenced (ie, "the information required in 40 CFR 63.10 and contain the information specified in Section 2.1 A.11.qq") is currently contained in our MATS quarterly report cover sheets. Would the single submittal of the PM data be sufficient? Is DAQ asking for a separate report of the PM data? If so, I would request that this sentence be pared down to not reference 63.10 and 2.1 A.11.qq as there is a vast amount of MATS information, unrelated to the PM average in this condition.

   Response
   Since SSCB gets these reports, they were asked on February 25, 2022, to comment on Duke's questions.

   On March 1, 2022, Samir commented: I am okay with the single submittal of the PM CEMS report with the statement that "the report meets the requirement of 02D .0503 and 40 CFR Part 63 Subpart UUUUU". Since Dennis is reviewing these reports, he may have an additional comment.

   On March 2, 2022, Dennis Igboko emailed: The revised condition that includes Samir's recommendation is ok. Alternatively, you can use the language below:

   > *"The PM CEMS data submitted for compliance with 40 CFR Part 63 Subpart UUUUU can be used to satisfy the requirement of this section."*

   Finally, on the %EE and %MD calculations for 02D .0606, you did not define "Total Source Operating Time" unless I missed it. Note, previously SSCB indicated that the "Total Source Operating Time" footnote *** to the equation was no longer needed and could be removed from all 02D .0606 Duke permit conditions. Now it's being put back in, but it is more of a definition (see definition below) rather than related to operating less than 2200 hours during any quarter as before when SSCB said it was no longer needed.

   On March 3, 2022, Samir emailed: To be consistent, you might want to put the following definition, since it is defined in other PSD avoidance /BACT permit conditions for data substitution and %MD purposes.

   > *"Total Source Operating Time" is the number of hours in a calendar quarter where the emission source associated with the CEMS was operating.*

   This was then changed to:

   > *"Total Source Operating Time" is the number of hours in a calendar quarter that the emission source operates.*

WSRO Comment

1. In an email on February 21, 2022, Robert Barker commented that in the "Permit Changes" of the review and under the "Summary of Changes to Permit" in the permit, you may want to state that the Insignificant sources are now under 2.3.

   Response
   After I sent it out for review, I noticed that I forgot to show in the change table that the IAs were moved to 2.3 and I changed that after I had sent it out for review.

SSCB Comments

See response to Duke's comment 2 above.

IX. Recommendations

Later after notice.