

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

Issue Date: May 9, 2025

Region: Winston-Salem Regional Office
County: Rockingham
NC Facility ID: 7900156
Inspector's Name: Robert Barker
Date of Last Inspection: 05/08/2024
Compliance Code: 3 / Compliance - inspection

Facility Data

Applicant (Facility's Name): Duke Energy Carolinas, LLC-
Rockingham Co Comb. Turb.

Facility Address:

Duke Energy Carolinas, LLC-Rockingham Co Comb. Turb.
240 Ernest Drive
Reidsville, NC 27320

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: 02D: .0501, .0516, .0521, .0524, .0530,
.1111, .1425, .1806

02Q: .0317, .0400

NSPS: Subparts GG and IIII

NESHAP: Subpart ZZZZ

PSD: Major stationary source

PSD Avoidance: n/a

NC Toxics: Avoidance of 02D .1100

112(r): No RMP required

Other: CSAPR, Title IV permit

Contact Data

Application Data

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Application Numbers: 7900156.24A & .24B

Date Received: 11/25/2024 (.24A & .24B)

Application Type: Renewal/Modification

Application Schedule: TV-Renewal

Existing Permit Data

Existing Permit Number: 08731/T16

Existing Permit Issue Date: 06/03/2020

Existing Permit Expiration Date: 05/30/2025

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2023	2.62	206.65	9.09	126.59	13.62	4.37	2.99 [Formaldehyde]
2022	4.60	372.63	15.83	225.81	25.32	7.90	5.36 [Formaldehyde]
2021	2.20	184.69	8.25	117.42	13.30	4.12	2.79 [Formaldehyde]
2020	2.10	166.64	7.55	107.52	11.70	3.72	2.55 [Formaldehyde]
2019	3.02	244.41	10.90	155.42	16.67	5.36	3.68 [Formaldehyde]

Review Engineer: Russell Braswell

Review Engineer's Signature:

Date:

Russell Braswell

May 9, 2025

Comments / Recommendations:

Issue 08731T17

Permit Issue Date: May 9, 2025

Permit Expiration Date: April 30, 2030

1. Purpose of Applications

1.1 Application 7900156.24A: Title V renewal with modification

Duke Energy Carolinas, LLC-Rockingham County Combustion Turbines (DEC; the facility) operates a power plant in Rockingham County under Title V permit 08731T16 (the existing permit). The existing permit expires May 30, 2025. In accordance with General Condition K of the existing permit, DEC submitted this application in order to renew the Title V permit. Because the application for Title V permit renewal was received more than six months before the expiration of the existing permit (DAQ receipt date November 25, 2024), the existing permit will remain in effect, regardless of expiration date, until DAQ issues a response to this application for permit renewal.

In addition to renewing the permit, DEC requested the following changes to the existing permit:

- Update the CO CEMS monitoring requirements in the permit to match other Title V permits issued to other Duke Energy facilities (the application refers this to as “harmonization”).
- Clarify the SO₂ monitoring requirements for NSPS Subpart GG.

1.2 Application 7900156.24B: Title IV renewal (consolidated with .24A)

In addition to the Title V permit, this facility holds a Title IV permit (a.k.a. acid rain permit or Part 72 permit). The Title IV permit has the same expiration date as the Title V permit. DEC submitted this application in order to renew the Title IV permit. This application requests that the Title V and Title IV permits have the same issuance and expiration dates. The application does not request any other changes to the existing Title IV permit.

2. Application Chronology

Date	Event
November 25, 2024	Applications received. DAQ determined that these applications were complete upon receipt.
December 23, 2024	Application comments were received from DAQ WSRO staff.
January 30, 2025	An initial draft of the renewed permit and this application review were sent to DAQ Permits staff.
March 1, 2025	Comments received from DAQ Permits staff on the January 30 draft.
March 3, 2025	A revised draft of the renewed permit and this application review were sent to DAQ WSRO staff, DAQ SSCB staff, and DEC staff.
March 10, 2025	Comments received from DAQ WSRO staff and DAQ SSCB staff on the March 3 draft.
March 18, 2025	DEC staff stated via email that DEC had no comments on the March 3 draft.
March 24, 2025	The Public notice and EPA review periods began.
April 14, 2025	DEC submitted application 7900156.25A for significant modification (part I). That application will be processed separately and will not be consolidated with the applications for Title V and IV renewal.
April 23, 2025	The public notice period ended.
May 8, 2025	The EPA review period ended.
May 9, 2025	Permit issued.

3. Facility and Application Discussion

3.1 Facility description

This facility is an electricity generating facility that primarily generates electricity with five simple-cycle combustion turbines. According to DAQ's most recent inspection report, "the facility is designed to generate electricity during peak demand, which typically corresponds to hot summer afternoons and occasionally to cold winters. The plant can theoretically run 24 hours per day, 7 days per week, but the permit limits each turbine to 3,000 hours per year."

3.2 Title V permit history

This facility's Title V permit was most recently renewed on June 3, 2020. Since that date, no revised permits have been issued to this facility.

Note that DEC had previously submitted an application for a PSD major modification (application 7900156.19A, received March 26, 2019). On June 29, 2020, DEC withdrew that application, and therefore DAQ did not issue a revised permit in response to that application.

3.3 Title V permit renewal and modification

In addition to the request to renew the Title V permit, DEC requested two changes to the permit:

- "Duke Energy is requesting to align the CO CEMS monitoring requirements in the permit with Part 75 requirements. This alternative monitoring request is allowed under 15A NCAC 02D .0613. This alignment will allow for a more streamlined and consistent OEMS quality assurance approach."

The application includes the proposed monitoring language, and the approval letter sent by DAQ's Stationary Source Compliance Branch to DEC on November 13, 2024.

Given that DAQ has already approved this request, this change will be implemented in the permit.

- With regards to NSPS Subpart GG, "[DEC] is requesting that the permit clearly state that the sulfur content may be monitored as specified in 40 CFR 60.334(h) and (i) or using the approved alternative monitoring procedure."

NSPS Subpart GG requires fuel sulfur monitoring as a method of demonstrating compliance with the SO₂ limit under that rule. The rule allows for a custom monitoring schedule (see 40 CFR 60.334(h)(3) and (i)(3)) or direct fuel sampling (see 40 CFR 60.334(h)(1) and (i)(1) and (2)). The permit will be made clearer with regard to these options.

3.4 Title IV permit renewal

This facility's Title V permit incorporates the Title IV permit (a.k.a. acid rain permit) into Specific Condition 2.3. The Title IV permit has the same issue date and permit term as the Title V permit (five years).

3.5 Changes to the existing permit

Page No.	Section	Description of Changes
Throughout	Throughout	<ul style="list-style-type: none"> Updated dates and permit numbers. Updated formatting to match current DAQ standard. Changes to formatting are not intended to affect the Permittee's compliance requirements.
4	1	<ul style="list-style-type: none"> Noted that each turbine is controlled by water injection by adding CD-1 through CD-5 "water injection" to each turbine. This change is only for clarity, and does not represent a physical change to the facility.
5	2.1 A	<ul style="list-style-type: none"> Added 02Q .0400 and 02D .1425 to summary table.
6	2.1 A.2	<p><i>NSPS Subpart GG</i></p> <ul style="list-style-type: none"> Clarified fuel sulfur reporting requirements in Paragraph c. as requested by the Permittee. Removed repetitive CEMS requirements in Paragraph d.
7	2.1 A.3	<p><i>PSD</i></p> <ul style="list-style-type: none"> Changed CO CEMS RATA requirements in Paragraph i. as requested by the Permittee and approved by DAQ SSCB on November 13, 2024. Removed repetitive CEMS requirements in Paragraph i.
10	2.1 A.4 (new)	<p><i>02D .1425</i></p> <ul style="list-style-type: none"> Added this specific condition to incorporate 02D .1425 into the permit. This rule was promulgated in May 2022. This condition is state-enforceable only.
16	2.1 E	<ul style="list-style-type: none"> Removed references to the black-start generator being able to fire natural gas. This generator can only fire No. 2 fuel oil.
17	2.1 E.3	<p><i>NSPS Subpart IIII</i></p> <ul style="list-style-type: none"> Updated this condition to reflect regulatory updates.
19	2.1 E.6 (new)	<p><i>02D .0516</i></p> <ul style="list-style-type: none"> Added this condition because it applies to the emergency generator. Note that there are no specific monitoring, recordkeeping, or reporting requirements associated with this rule.
22	2.2 B.1	<p><i>MACT Subpart ZZZZ</i></p> <ul style="list-style-type: none"> Updated this condition to reflect regulatory updates.
27	2.4 (and throughout)	<p><i>CSAPR</i></p> <ul style="list-style-type: none"> Removed references to 40 CFR Part 97 Subpart BBBB because that rule has never applied to this facility. Removed "federally-enforceable only" header from this section.
n/a	2.5 (previous)	<p><i>Permit shield (former section)</i></p> <ul style="list-style-type: none"> Removed this section because it only included references to rules that have been repealed (e.g., Clean Air Interstate Plan)
28	3.	<ul style="list-style-type: none"> Created this section. Moved the list of insignificant activities to this section.
29	4. (new)	<ul style="list-style-type: none"> Created this section. Moved the General Conditions to this section. Updated General Conditions to version 8.0. Updates to the General Conditions are made to all Title V permits issued by DAQ as necessary and are not the result of any specific action of the Permittee.

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

4. Rules Review

DEC is subject to the following State Implementation Plan (SIP) rules and state-enforceable only rules, in addition to the General Conditions:

- 15A NCAC 02D .0501 “Compliance with Emissions Control Standards”
- 15A NCAC 02D .0516 “Sulfur Dioxide from Combustion Sources”
- 15A NCAC 02D .0521 “Control of Visible Emissions”
- 15A NCAC 02D .0524 “New Source Performance Standards”
- 15A NCAC 02D .0530 “Prevention of Significant Deterioration”
- 15A NCAC 02D .1111 “Maximum Achievable Control Technology”
- 15A NCAC 02D .1806 “Control and Prohibition of Odorous Emissions” [state-enforceable only]
- 15A NCAC 02Q .0317 “Avoidance Conditions” [state-enforceable only]
- 15A NCAC 02Q .0400 “Acid Rain Procedures”

In addition to the above, DEC is subject to the Cross State Air Pollution Rule (CSAPR), which is not directly incorporated into North Carolina’s SIP.

DEC’s applicability to these rules is discussed below.

4.1 15A NCAC 02D .0501 “Compliance with Emissions Control Standards”

Applicability: This rule generally requires that facilities not cause or contribute to an exceedance of the ambient standards (“NAAQS”) in 02D .0400. Per 02D .0501(c), this rule is included as a specific condition in the permit when controls more stringent than the others listed in Section 02D .0500 are deemed necessary to ensure compliance with the NAAQS.

Background: This rule was initially included in the permit with the T11 revision (issued October 1, 2010) when the emergency generator ES-EGEN-BS was added to the permit.

Requirements: In the application review for the T11 revision, it was determined that there would be no NAAQS exceedance provided that ES-EGEN-BS only be operated 1) during black-start conditions with a single turbine, or 2) during generator maintenance and readiness testing when only four or fewer turbines are operating.

Monitoring and recordkeeping: DEC must keep records of generator operation that show the generator is being operated only during those periods specified above.

Reporting: DEC must submit a summary report twice per year.

Compliance: Based on the most recent inspection, DEC appears to be in compliance with this rule. Continued compliance will be determined with subsequent inspections and reports.

4.2 15A NCAC 02D .0516 “Sulfur Dioxide from Combustion Sources”

Applicability: This rule applies to combustion sources that are not subject to an SO₂ emission limit under one of the rules specifically listed in 02D .0516(c). NSPS and MACT rules are included in 02D .0516(c), but note that PSD is not included.

- The turbines are subject to NSPS Subpart GG, which includes an SO₂ emission limit, and are therefore not subject to this rule.
- The emergency-use engines ES-EG-1 and ES-FP-1 are subject to this rule.
- The emergency-use engine ES-EGEN-BS is subject to this rule. However, the existing permit does not include a specific condition for this rule with regards to ES-EGEN-BS.

Emission limit: The emission limit is 2.3 pounds of SO₂ per million Btu of heat input.

Compliance: Each emission source subject to this rule can only burn diesel fuel. In order to calculate SO₂ emissions, the emission factors published by EPA in AP-42 can be applied. The published emission factor is an equation and must therefore be converted before being compared to the emission limit.

SO₂ from No. 2 fuel oil combustion (AP-42 Chapter 3.4, Table 3.4-1; diesel fuel, SO_x, S_I=0.5):

$$1.01 \times 0.5 = \frac{0.505 \text{ lb}}{\text{million Btu}}$$

Therefore, diesel fuel with a sulfur content of 0.5%, when burned in a large diesel-fired engine, is expected to comply with the SO₂ limit by a wide margin. Note that 0.5% equates to 5000 ppm, and that most modern diesel is 15 ppm (so-called “ultra-low sulfur diesel”), making this analysis even more conservative.

Monitoring, Recordkeeping, and Reporting: Based on the wide margin of compliance for each of the subject sources at this facility, DAQ has determined that no monitoring, recordkeeping, or reporting is required to demonstrate compliance with 15A NCAC 02D .0516.

Changes to the existing permit: The existing permit does not include a specific condition for 02D .0516 with regards to the engine ES-EGEN-BS. Such a condition will be added to the new permit. This change is only to correct the permit, and does not reflect a physical modification at the facility. Furthermore, because there will not be any specific monitoring, recordkeeping, or reporting associated with this new permit condition, adding this permit condition will not substantially impact DEC’s compliance requirements.

4.3 15A NCAC 02D .0521 “Control of Visible Emissions”

Applicability: This rule applies to sources of visible emissions (VE) that are not subject to another VE standard under 02D .0500. Generally, this rule is not applied to sources that are not expected to produce any VE (e.g., from a storage tank). Each source (excluding the storage tank) at this facility is subject to this rule.

Emission limits: The VE limit for this rule depends on the construction date of the individual source in question. For sources constructed before July 1, 1971, the VE limit is 40%. For other sources, the VE limit is 20%.

- Each turbine is subject to the 20% limit.
- Each emergency generator is subject to the 20% limit.

Requirements for turbines: DAQ has previously determined that no VE monitoring is required for the turbines while firing natural gas. However, DAQ has also determined that DEC must conduct VE testing

on the turbines while firing fuel oil. DEC must conduct a Method 9 VE test after firing fuel oil for 1,100 hours.

Requirements for emergency generators: DAQ has previously determined that no VE monitoring is required for the emergency generators.

Recordkeeping: DEC must keep records of oil firing in the turbines and records of any Method 9 VE testing performed.

Reporting: DEC must submit a semiannual summary report.

Compliance: Based on the most recent inspection report, DEC has never operated any of the turbines on fuel oil for more than 1,100 hours, and therefore no Method 9 test has ever been conducted on the turbines. DEC appeared to be in compliance with this rule during the most recent inspection, and continued compliance will be determined with subsequent inspections and reports.

4.4 15A NCAC 02D .0524 “New Source Performance Standards” (NSPS)

This rule incorporates the NSPS rules (40 CFR Part 60) into North Carolina’s SIP. See Section 5.1 for a discussion of NSPS rules that apply to this facility.

4.5 15A NCAC 02D .0530 “Prevention of Significant Deterioration”

This rule incorporates the PSD rules (40 CFR 51.166) into North Carolina’s SIP. See Section 5.5 for a discussion of DEC’s compliance requirements for PSD.

4.6 15A NCAC 02D .1111 “Maximum Achievable Control Technology” (MACT)

This rule incorporates the MACT/GACT rules (40 CFR Part 63) into North Carolina’s SIP. See Section 5.3 for a discussion of MACT rules that apply to this facility.

4.7 15A NCAC 02D .1425 “NO_x SIP Call Budget” [State-enforceable only]

Applicability: This rule applies to EGUs and large non-EGUs as defined in 02D .1401. Each turbine at this facility is subject to this rule. This rule became effective May 1, 2022.

Monitoring, Recordkeeping, and Reporting: This rule does not include a specific emission limit. Instead, DEC must calculate the total NO_x emissions from the turbines during the summer ozone period (as defined by 02D .1401(a)) and submit an annual NO_x report. DEC must use data gathered in accordance with 40 CFR Part 75 to prepare the report.

Changes to the existing permit: The existing permit does not include a specific condition for this rule. A specific condition for this rule will be added to the new permit. Compliance will be determined when the first annual NO_x report is received. This condition will be state-enforceable only.

4.8 15A NCAC 02D .1806 “Control and Prohibition of Odorous Emissions” [state-enforceable only]

Applicability: This rule applies to facilities that emit, or could potentially emit, odorous emissions. The existing permit includes a specific condition for this rule.

Monitoring, recordkeeping, and reporting: The existing permit does not require any monitoring, recordkeeping, or reporting for this rule.

Compliance: Based on the most recent inspection report, DEC appears to be in compliance with this rule. Continued compliance will be determined with subsequent inspections.

4.9 15A NCAC 02Q .0317 “Avoidance Conditions” (Avoidance of 02D .1100 “Control of Toxic Air Pollutants”; State-enforceable Only)

Applicability: This rule allows a Permittee to accept enforceable limits in order to avoid applicability of specific rules (see 02Q .0317(a)). DEC has accepted an enforceable limit on the operation of the emergency generator ES-EGEN-BS in order to avoid the applicability of 02D .1100. Because 02D .1100 is state-enforceable only (*i.e.*, not part of North Carolina’s approved SIP), this avoidance condition is also state-enforceable only.

Requirements: DEC agreed to operate the emergency generator ES-EGEN-BS for maintenance and testing purposes only when at least one of the five combustion turbines are not operating. This requirement was added to the Title V permit with the T11 revision (issued October 1, 2010).

Monitoring and recordkeeping: DEC must keep records of the use of ES-EGEN-BS to show that it was not being tested during times when all five turbines were operating.

Reporting: DEC must submit a semiannual summary report.

Compliance: DEC appeared to be in compliance with this rule during the most recent inspection, and continued compliance will be determined with subsequent inspections and reports.

4.10 15A NCAC 02Q .0400 “Acid Rain Procedures”

Background: This rule implements the acid rain permit requirements (40 CFR Part 72; a.k.a. “Title IV permit”) into North Carolina’s SIP.

Applicability: Fossil-fuel-fired electric generating units require a Title IV permit. In general, the Title IV permit limits SO₂ and NO_x emissions and requires annual emission monitoring, recordkeeping, and reporting. DEC currently holds a Title IV permit for this facility. The Title IV permit is incorporated into the Title V permit.

Requirements: In general, the Title IV permit requires tracking and trading emission credits across multiple facilities, including facilities not within the state of North Carolina. Therefore, compliance with the Title IV permit is generally determined by US EPA.

Renewal: The term of the Title IV permit is five years (the same as the Title V permit). DEC has applied to renew the current Title IV permit. DAQ will assign the Title IV permit’s issue and expiration date to be the same as the Title V permit.

5. NSPS, NESHAP, MACT, CAM, PSD, CSAPR, and §112(r)

5.1 New Source Performance Standards (NSPS; 40 CFR Part 60)

5.1.1 NSPS Subpart GG “Standards of Performance for Stationary Gas Turbines”

Applicability: This rule applies to combustion turbines that commenced construction, modification, or reconstruction after October 3, 1977. Each of the five turbines at this facility are subject to this rule.

Rule updates: This Title V permit was most recently renewed on June 3, 2020. NSPS Subpart GG was first promulgated in 1979, and has been subject to several minor revisions following that date. However, NSPS Subpart GG has not been revised following the most recent Title V permit.

Emission limits: This rule includes emission limits for NO_x and SO₂.

$$\text{NO}_x: \quad \text{STD} = 0.0075 \times (14.4/Y) + F \quad (\text{see 40 CFR 60.332(a)(1)})$$

$$\text{SO}_2: \quad 0.015 \text{ by volume at 15\% O}_2 \text{ on a dry basis, or 0.8 percent sulfur in fuel, by weight} \\ (\text{see 40 CFR 60.333})$$

Requirements for NO_x: As allowed by 40 CFR 60.334(b), DEP has chosen to operate a CEMS for NO_x to demonstrate compliance with the NO_x limit.

Requirements for SO₂: The rule allows multiple methods of demonstrating compliance with the SO₂ limit. DEP uses the fuel sampling and monitoring method allowed under the acid rain permit (see 40 CFR 60.334(h) and (i)(1) and (2)). The permit also includes an optional custom site-specific fuel monitoring schedule (see 40 CFR 60.334(h)(3)).

Monitoring, recordkeeping, and reporting: DEP must keep records of CEMS usage and sulfur monitoring. DEP must submit a semiannual summary report.

Compliance: Based on the most recent inspection report, DEC appears to be in compliance with this rule. Continued compliance will be determined with subsequent inspections.

Changes to the existing permit:

- DEC has requested that the permit be clarified with regard to the fuel sulfur monitoring requirements. NSPS Subpart GG requires fuel sulfur monitoring as a method of demonstrating compliance with the SO₂ limit under that rule. The rule allows for a custom monitoring schedule (see 40 CFR 60.334(h)(3) and (i)(3)) or direct fuel sampling (see 40 CFR 60.334(h)(1) and (i)(1) and (2)). The permit will be made clearer with regard to these options.
- The existing permit included CEMS requirements specifying monitor data availability and specific requirements for data acquisition for the CEMS. Based on comments received from DAQ SSCB, these requirements are not required, and should be removed from the permit.

5.1.2 NSPS Subpart KKKK “Standards of Performance for Stationary Combustion Turbines” (and other NSPS rules for combustion turbines) [not applicable]

Applicability: NSPS Subpart KKKK applies to combustion turbines that commenced construction, modification or reconstruction after February 18, 2005. The turbines at this facility were constructed before that date and have not been modified or reconstructed after that date; therefore, this rule does not apply to these turbines.

Note that other NSPS rules that apply to combustion turbines (Subparts KKKKa, TTTT, and TTTTa) all have applicability dates later than NSPS Subpart KKKK. Therefore, these rules also do not apply to these turbines.

5.1.3 NSPS Subpart IIII “Standards of Performance for Stationary Compression Ignition Internal Combustion Engines”

Applicability: This rule applies to stationary compression ignition internal combustion engines (CI ICE) constructed, reconstructed, or modified after the applicability dates in 40 CFR 60.4200(a)(2). For the purposes of this rule, each engine at this facility is an emergency-use CI ICE.

- The engine ES-EGEN-BS is subject to this rule.
- The engines ES-EG-1 and ES-FP-1 are not subject to this rule because they were constructed before the applicability date and have not subsequently triggered applicability.

Rule updates: There have been minor revisions to NSPS Subpart IIII since the most recent Title V permit was issued.

- 87 FR 48603 (August 10, 2022): This update amended the rule to reflect a 2015 court decision which disallowed emergency engines to operate for demand response up to 100 hours per year.
- 89 FR 70512 (August 30, 2024): This update added electronic reporting requirements and clarified that annual oil changes must occur every 12 months (rather than calendar year, which could allow for changes to occur, for example, on December 31 and January 1). This update also clarified the CO emission standards in Table 4, but did not actually change those standards.

Those revisions will be addressed in this renewed permit.

Emission standards: Emergency CI engines subject to this rule must be certified to meet the applicable emission standards in 40 CFR 60.4205(b):

Rated power (kW)	Starting model year	NO _x + NMHC	CO	PM
kW > 560	2006	6.4	3.5	0.20

Fuel requirements: Diesel fuel must meet the sulfur requirements in 40 CFR 1090.305 (15 ppm sulfur, a.k.a. ultra-low sulfur diesel).

Monitoring requirements: DEC must install a non-resettable hour meter on each subject emergency engine. The engines must only be operated such that they meet the definition of emergency engine (e.g., not operated as a peak shaving engine).

Compliance requirements: The engines must be operated with good work practices and according to the manufacturer's instructions. To be designated as an emergency engine, the engine can operate for non-emergency purposes (*e.g.*, maintenance testing) for less than 100 hours per year. Up to 50 of those hours can be for non-emergency use, except for peak-shaving (with rare exceptions).

Changes to the existing permit: The specific condition for NSPS Subpart IIII has been updated to reflect recent rule updates. Specifically, the electronic reporting requirements found in 40 CFR 60.4214(d)(3) have been incorporated into the permit.

5.2 National Emission Standards for Hazardous Air Pollutants (NESHAP; 40 CFR Part 61)

There are no Part 61 NESHAP rules that apply to this facility.

5.3 National Emission Standards for Hazardous Air Pollutants for Source Categories (a.k.a. Maximum Achievable Control Technology, MACT, and Generally Available Control Technology, GACT; 40 CFR Part 63)

5.3.1 Major Source Status

DEC is an area source of hazardous air pollutants (HAP) because the facility does not have potential emissions of HAP greater than the thresholds listed in the definition of "major source" in 40 CFR 63.2 (*i.e.*, 10 tpy of any individual HAP or 25 tpy of total HAP). Because this facility is an area source of HAP, rules that apply exclusively to major sources of HAP (*e.g.*, Subpart YYYY) categorically do not apply to this facility.

5.3.2 MACT Subpart ZZZZ "National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines"

Applicability: This rule applies to all stationary reciprocating internal combustion engines (RICE). Each engine at this facility is subject to this rule. The rule has different requirements for engines based on the status of the facility (major or area source of HAP), use of the engine (emergency, nonemergency, etc.), age of the engine, and size of the engine.

Rule updates: There have been minor revisions to MACT Subpart ZZZZ since the most recent Title V permit was issued.

- 87 FR 48603 (August 10, 2022): This update amended the rule to reflect a 2015 court decision which disallowed emergency engines to operate for demand response up to 100 hours per year.
- 89 FR 70512 (August 30, 2024): This update added electronic reporting requirements and clarified that annual oil changes must occur every 12 months (rather than calendar year, which could allow for changes to occur, for example, on December 31 and January 1).

Note that these revisions are the same as for NSPS Subpart IIII. Those revisions will be addressed in this renewed permit.

RICE subject to NSPS: Per 40 CFR 63.6590(c), RICE subject to a requirement under 40 CFR Part 60 (*i.e.*, subject to an NSPS rule) demonstrate compliance with MACT by demonstrating compliance with the applicable NSPS. The engine ES-EGEN-BS is subject to NSPS Subpart IIII and therefore will comply with MACT Subpart ZZZZ by complying with NSPS Subpart IIII.

Emergency engines: The other engines at this facility (ES-EG-1 and ES-FP-1) are subject to this rule. Under this rule, these engines are considered emergency-use, compression ignition engines located at an area source of HAP.

Under this rule, such engines must:

- Perform regular oil and filter changes.
- Regularly inspect hoses and belts.
- Operate with good work practices and according to manufacturer instructions.
- Operate such that the engine meets the definition of “emergency stationary RICE.”
- Burn ultra-low sulfur diesel.
- Install a non-resettable hour meter on each engine.
- Keep records of maintenance and operation.
- Submit semiannual summary reports.

Compliance: Based on the most recent inspection report, DEC appeared to be in compliance with this rule. Continued compliance will be determined with subsequent inspections and reports.

Changes to the existing permit: The specific condition for MACT Subpart ZZZZ has been updated to reflect recent rule updates. Notably, the allowable interval for oil and filter changes has been updated from “1 year” to “1 year plus 30 days of the previous change.”

5.4 Compliance Assurance Monitoring (CAM; 15A NCAC 02D .0614 “Compliance Assurance Monitoring”)

Background: The compliance assurance monitoring (CAM) rule requires owners and operators to conduct monitoring to provide a reasonable assurance of compliance with applicable requirements under the act. Per 02D .0614(a), this rule potentially applies to any facility required to obtain a permit under 02Q .0500 (i.e., a Title V permit). This facility is required to obtain a permit under 02Q .0500. Therefore, CAM applicability must be examined.

Applicability: Monitoring focuses on emissions units that rely on pollution control device equipment to achieve compliance with applicable standards. An emission unit is subject to CAM, under 40 CFR Part 64, if all of the following conditions are met:

- I. The unit is subject to any (non-exempt, e.g., pre-November 15, 1990, Section 111 or 112 standard) emission limitation or standard for the applicable regulated pollutant.
- II. The unit uses any control device to achieve compliance with any such emission limitation or standard.
- III. The unit’s pre-control potential emission rate exceeds 100 percent of the amount required for a source to be classified as a major source under Title V.

The only control device used at this facility is water injection into the turbines.¹ Water injection is used to control NOx emissions from the turbines by lowering the peak combustion temperature within the combustion chamber, thereby reducing the formation of thermal NOx.

¹ Note that US EPA clearly considers water injection for the purpose of NOx control to be a control device for which CAM applicability must be considered. See Section B.17 of EPA’s Review Draft of Appendix B to *Technical*

The turbines are subject to NO_x emission limits under the acid rain permit, CSAPR, PSD, and NSPS Subpart GG.

- The acid rain permit is an exempt emission limitation pursuant to 15A NCAC 02D .0614(b)(1)(C).
- CSAPR is an emissions trading program and is therefore an exempt emission limitation pursuant to 15A NCAC 02D .0614(b)(1)(D).
- DEC uses a continuous emission monitoring system (CEMS), pursuant to NSPS Subpart GG, to demonstrate compliance with both NSPS Subpart GG and PSD. The use of CEMS constitutes a “continuous compliance determination method,” and therefore, per 02D .0614(b)(1)(F), any associated NO_x emission standard is exempt from CAM.

Therefore, no CAM plan is required for this facility, and 15A NCAC 02D .0614 does not apply.

5.5 Prevention of Significant Deterioration (PSD)

Background: The Federal rules for PSD are implemented into North Carolina’s SIP under 15A NCAC 02D .0530 and 02D .0544. In general, a facility is a major stationary source for PSD if the facility has actual or potential emissions of a pollutant greater than the threshold listed in 40 CFR 51.166(b)(1).

Major stationary source: For facilities that fall under the specific categories listed in 40 CFR 51.166(b)(1)(i)(a), the threshold is 100 tpy. “Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input” is a listed category. However, there are no steam generating units or boilers at the facility. Fossil fuel-fired *steam* electric plants are a listed category, but there is no specific category for other electric plants. Therefore, the threshold for DEC is 250 tpy (see 40 CFR 51.166(b)(1)(i)(b)).

PSD requirements: As a result of a previous PSD review, the existing permit includes Best Available Control Technology (“BACT”) limits for all permitted emission sources at the facility except the generator ES-EGEN-BS. The BACT limits cover NO_x, SO₂, CO, VOC, PM, and sulfuric acid. The permit includes short-term emission standards and long-term emission limits for each pollutant and subject emission source (as applicable).

DEC’s compliance requirements are based on each subject emission source. The following table contains the general compliance requirements for each source.

Emission Source	Requirements	Demonstrate compliance by	Notes
All turbines	<ul style="list-style-type: none"> BACT applies at all times except: 1) low load during startup/shutdown; 2) turbine tuning; and 3) limited periods of low ambient temperatures. Maximum of 3,000 hours of full-load operation, with 1,000 hours of full-load operation on fuel oil per year. Only fire natural gas during April through October, excepting gas curtailment. Fuel oil sulfur content < 0.025% 	<ul style="list-style-type: none"> Keep records of operation; CEMS output, and fuel oil sulfur content. Operate a NOx CEMS as required by NSPS Subpart GG Operate a CO CEMS Report a summary of recordkeeping twice per year. 	<p>Included in Title V permit as of the T04 revision, issued December 18, 2002.²</p> <p>T12 revision (issued January 23, 2013) raised NOx limit during tuning events.</p> <p>T15 revision (issued March 18, 2016) raised NOx limit during low ambient temperatures</p>
Fuel oil storage tanks	<ul style="list-style-type: none"> Limit total fuel oil storage volume Limit annual fuel oil throughput 	<ul style="list-style-type: none"> Keep records of oil tank design capacity and fuel oil throughput Report a summary of fuel oil throughput twice per year. 	Included in Title V permit as of the T04 revision.
Emergency generator	<ul style="list-style-type: none"> Operate less than 500 hours per year. 	<ul style="list-style-type: none"> Keep records of operation, and report twice per year. 	
Emergency fire pump	<ul style="list-style-type: none"> Operate less than 500 hours per year. 	<ul style="list-style-type: none"> Keep records of operation, and report twice per year. 	

Compliance: Based on the most recent inspection, DEC appears to be in compliance with this rule. Continued compliance will be determined with subsequent inspections and reports.

Changes to the existing permit: The existing permit included CEMS requirements specifying monitor data availability and specific requirements for data acquisition for the CEMS. Based on comments received from DAQ SSCB, these requirements are not required, and should be removed from the permit.

5.6 Cross State Air Pollution Rule (CSAPR; 40 CFR Part 97)

Applicability: This group of rules applies to fossil-fuel-fired combustion sources that 1) produce electricity for sale, and 2) have a generator capacity greater than 25 megawatts. Each of the turbines are subject to this rule.

² This is the earliest Title V permit issued to DEC included in DAQ's electronic records.

Requirements: CSAPR limits NO_x and SO₂ emissions. In general, CSAPR requires tracking and trading emission credits across multiple facilities, including facilities not within the state of North Carolina. Therefore, compliance with CSAPR is generally determined by US EPA.

Changes to the existing permit:

- The existing permit includes a reference to 40 CFR Part 97 Subpart BBBBBB “CSAPR NOX Ozone Season Group 1 Trading Program.” This reference should not be included in the permit; this rule can only apply to facilities located in States specifically listed in 40 CFR 52.38(b)(2)(i)(B), which does not include North Carolina. The permit will be corrected to remove the reference to Subpart BBBBBB. Note that references to Subparts AAAAAA and CCCCCC are correct and will remain in the permit. Given that Subpart BBBBBB does not apply to this facility, removing references to Subpart BBBBBB will not affect DEC’s compliance requirements.
- The existing permit indicates that CSAPR is “federally-enforceable only.” This is an error; all specific conditions of the Title V permit are enforceable by the issuing agency (NC DAQ). The term “federally-enforceable only” will be removed from the specific condition for CSAPR. This change is only to ensure the Title V permit is correct, and is not expected to impact DEC’s compliance requirements.

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

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

Applicability: In DAQ’s most recent inspection report (dated May 8, 2024), it was stated that “This facility is not subject to RMP requirements of the 112(r) program since it does not use or store any of the regulated chemicals in quantities above the threshold levels in that rule.” Therefore, DEC does not have any increased requirements under §112(r). Note that other parts of that rule, such as the General Duty clause, may still apply to this facility; those portions of §112(r) are beyond the scope of the Title V permit.

6. Toxic Air Pollutants

Background: In general, a facility that emits toxic air pollutants (TAP) at rates greater than the TAP permitting emission rate (TPER) listed in 15A NCAC 02Q .0711 must perform air dispersion modeling following the procedures in 15A NCAC 02D .1106. The results of this modeling must be less than the acceptable ambient limits (AAL) listed in 15A NCAC 02D .1104.

DEC has previously avoided triggering a review of TAP emissions by complying with an avoidance limit pursuant to 02Q .0317 (see Section 4.9 above).

The existing permit does not include any TAP emission limits. This Title V and Title IV renewal does not constitute a modification pursuant to 02Q .0706, and therefore no additional review of TAP emissions is required.

7. Compliance Status and Other Regulatory Concerns

Compliance status:

- The application includes a signed Form E5 “Title V Compliance Certification.” In this form, DEC certified compliance with all applicable requirements.
- This facility was most recently inspected on May 8, 2024 by Robert Barker. DEC appeared to be in compliance with the Title V permit at that time.
- Since the Title V permit was most recently renewed, DEC has been issued one Notice of Violation (NOV). On February 14, 2022, DAQ issued an NOV to DEC for an exceedance of the NOx BACT limit for Turbine CT-5. DAQ considers this matter resolved as of February 15, 2024.

Application fee: Applications for Title V renewal and Title IV renewal do not require an application fee.

PE Seal: Applications for Title V renewal and Title IV renewal do not require a PE Seal.

Zoning Consistency Determination: Applications for Title V renewal and Title IV renewal do not require a zoning consistency determination.

General Conditions: The General Conditions (Section 3 of the existing permit, Section 4 of the new permit) has been updated to DAQ’s latest version (Version 8.0). The General Conditions appear in each Title V permit issued by DAQ. Changes to the General Conditions are not targeted at any specific facility or triggered by any action of an applicant.

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

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

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

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

DAQ has not adopted these discretionary affirmative defense provisions in its Title V regulations (15A NCAC 02Q .0500). Instead, DAQ has chosen to include them directly in individual Title V permits as General Condition J. Per EPA, DAQ is required to promptly remove such impermissible provisions, as stated above, from individual Title V permits, after August 21, 2023, through normal course of permit issuance.

8. Facility Emissions Review

Title V: DEC is a major source for Title V (as defined in 40 CFR 70.2) because it has actual or potential emissions of regulated pollutants greater (e.g., NO_x) than 100 tpy. This application for Title V and Title IV permit renewal will not affect DEC's status as a major source for Title V.

HAP: DEC is an area source of HAP (as defined in 40 CFR 63.2) because it does not have potential emissions of HAP greater than the major source threshold. This application for Title V and Title IV permit renewal will not affect DEC status as an area source of HAP.

PSD: DEC is a major stationary source for PSD because it has actual or potential emissions of regulated NSR pollutants (e.g., NO_x) greater than the applicable threshold in 40 CFR 51.166(b)(1)(i)(b) (i.e., 250 tpy). This Title V and Title IV permit renewal will not affect DEC's status as a major stationary source under PSD.

9. Draft Permit Review Summary

Initial draft: An initial draft of the permit and this application review were sent to DAQ Permits staff on January 30, 2025. Comments were received on March 1, 2025. The comments indicated typos and other errors that needed to be corrected.

Subsequent draft: A revised draft of the permit and this application review were sent to DAQ SSCB staff, DAQ WSRO staff, and DEC on March 3, 2025.

1. DAQ SSCB staff responded on March 10, 2025 requesting that repetitive CEMS requirements and specific limits on monitor data availability be removed from the sections for NSPS Subpart GG and PSD.
2. DAQ WSRO staff responded on March 10, 2025 pointing out typos in the draft permit and application review.
3. DEC staff stated via email on March 18, 2025 that DEC had no comments on the March 3 draft.

10. Public Notice and EPA Review

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

- The Public Notice and EPA Review periods began on March 24, 2025.
- The Public Notice period ended on April 23, 2025. No comments were received.
- The EPA Review period ended on May 8, 2025. No response was received.

Changes after public notice: On April 14, 2025, DEC submitted an application for a significant modification to the Title V permit. This application review will be updated from the public notice version (published March 24, 2025) to briefly discuss this new application.

11. Recommendations

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

DAQ recommends issuance of Permit No. 08731T17. WSRO, SSCB, and DEC have received a copy of this permit and submitted comments that were incorporated as described in Section 9.