

**NORTH CAROLINA DIVISION OF
AIR QUALITY**

Air Permit Review

Permit Issue Date:

Region: Mooresville Regional Office
County: Lincoln
NC Facility ID: 5500082
Inspector's Name: Melinda Wolanin
Date of Last Inspection: 06/04/2015
Compliance Code: 3 / Compliance - inspection

<p style="text-align: center;">Facility Data</p> <p>Applicant (Facility's Name): Duke Energy Corporation LCTS</p> <p>Facility Address: Duke Energy Corporation LCTS 6769 Old Plank Road - SR 1511 Stanley, NC 28164</p> <p>SIC: 4911 / Electric Services NAICS: 221112 / Fossil Fuel Electric Power Generation</p> <p>Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V</p>	<p style="text-align: center;">Permit Applicability (this application only)</p> <p>SIP: 2D: .0521, .0524, .0530, .0614, .1111 NSPS: GG NESHAP: YYYY, ZZZZ PSD: SO2, PM10, NOx, CO, VOC, H2SO4, Pb PSD Avoidance: NOx NC Toxics: n/a 112(r): n/a Other: Acid Rain, CSAPR</p> <p>Removed: CAIR</p>
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Contact Data			Application Data
<p style="text-align: center;">Facility Contact</p> Benjamin Loveland Senior EHS Professional (704) 742-3114 6769 Old Plank Road Stanley, NC 28164	<p style="text-align: center;">Authorized Contact</p> Michael Brissie Station Manager (704) 742-3005 6769 Old Plank Road Stanley, NC 28164	<p style="text-align: center;">Technical Contact</p> Ann Quillian Sr. Environmental Specialist (919) 546-6610 PO Box 1551 Raleigh, NC 27602	<p>Application Number: 5500082.14A Date Received: 06/26/2014 Application Type: Renewal Application Schedule: TV-Renewal</p> <p style="text-align: center;">Existing Permit Data</p> <p>Existing Permit Number: 07171/T09 Existing Permit Issue Date: 11/01/2011 Existing Permit Expiration Date: 03/31/2015</p>

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2014	10.11	88.18	1.62	19.34	4.71	0.5306	0.2246 [Manganese & compounds]
2013	1.51	33.58	1.77	35.41	2.85	0.3931	0.2994 [Formaldehyde]
2012	0.2300	17.85	1.63	8.54	1.59	0.2437	0.1650 [Formaldehyde]
2011	4.21	87.50	2.87	36.31	7.01	0.9653	0.6035 [Formaldehyde]
2010	0.7100	42.17	2.22	17.82	3.55	0.5310	0.3692 [Formaldehyde]

<p>Review Engineer: Russell Braswell</p> <p>Review Engineer's Signature: _____ Date: _____</p>	<p style="text-align: center;">Comments / Recommendations:</p> <p>Issue 07171/T10 Permit Issue Date: Permit Expiration Date:</p>
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1. Purpose of Application:

Duke Energy Corporation LCTS (Duke) currently operates under Air Quality Permit 07171T09, which was set to expire on March 31, 2015. Duke submitted this application in order to renew the permit. The renewal application was received at least nine months before the expiration date. Therefore, the existing permit will remain in effect, regardless of the expiration date, until this renewal application is approved or denied.

In addition to the renewal of the permit, Duke also submitted a Compliance Assurance Monitoring (CAM) plan and a renewal for the Title IV Acid Rain program.

2. Facility Description:

According to the most recent inspection report¹, the facility is a peak-shaving and backup power facility with a nominal generating capacity of 1,200 megawatts. The facility only operates on an as-needed basis.

3. History/Background Since the Previous Permit Renewal:

- April 15, 2010 Permit T08 issued. This action renewed the Title V permit.
- November 1, 2011 Permit T09 issued. This action synchronized the expiration dates of the Title V and Title IV permits.

4. Application Chronology:

- June 26, 2014 Application received.
- August 29, 2015 Application transferred to Russell Braswell
- August 9 to 24, 2015 Internal discussions regarding the transition from CAIR to CSAPR
- February 12, 2016 Email sent to Ann Quillian regarding the proposed CAM plan. Ann responded on February 18.
- March 3, 2016 An initial draft of the permit and review were sent to DAQ staff (Tom Anderson, Mark Cuilla, Samir Parekh, Denise Hayes, Melinda Wolanin) and Duke staff (Ann Quillian). For a summary of comments received, see Attachment 2.
- XXXXXXXX Public Notice / EPA Review
- XXXXXXXX Permit issued.

5. Permit Modifications/Changes and TVEE Discussion:

All references to CAIR have been removed from the permit and replaced with CSAPR. See Section 6. for details.

RACT has been removed from the permit. See Section 7.e. for details

1 Melinda Wolanin, June 4, 2015

CAM has been added to the permit. See Section 7.f. for details.

The list of changes to the permit can be found in Attachment 1.

6. Regulatory Review:

Duke is subject to the following regulations, in addition to the requirements in the General Conditions:

- a. 15A NCAC 2D .0521 "Control of Visible Emissions"
- b. 15A NCAC 2D .0524 "New Source Performance Standards"
(40 CFR Part 60, Subpart GG)
- c. 15A NCAC 2D .0530 "Prevention of Significant Deterioration"
- d. 15A NCAC 2D .0614 "Compliance Assurance Monitoring"
- e. 15A NCAC 2D .1111 "Maximum Achievable Control Technology"
(40 CFR Part 63, Subparts YYYY and ZZZZ)
- f. 15A NCAC 2Q .0317 "Avoidance Conditions"
(PSD Avoidance)
- g. 15A NCAC 2Q .0400 "Acid Rain Procedures"
- h. 40 CFR Part 97, Subparts AAAAA, BBBB, and CCCCC "Cross State Air Pollution Rules" [CSAPR]

An extensive review for each applicable regulation is not included in this document, as the facility's status with respect to these regulations has not changed. The permit will be updated to reflect the most current stipulations for all applicable regulations. For a discussion of the changes to the PSD permit stipulation, see Section 7.c. For a discussion of the new CAM plan, see Section 7.f. For a discussion of the removal of RACT from the permit, see Section 7.e.

a. CAIR requirements

According to 40 CFR 52.35(f) and 52.36(e), CAIR no longer applies as of January 1, 2015. This rule has been replaced by CSAPR. Because the rule no longer applies, all references thereto have been removed from the permit.

On February 1, 2016, the rules under 15A NCAC 02D .2400 expired. Therefore, references to those rules have also been removed from the permit.

b. CSAPR requirements

CSAPR (specifically, 40 CFR Part 97, Subparts AAAAA, BBBB, and CCCCC) was originally scheduled to take effect on January 1, 2012. This rule was planned as a replacement for CAIR. However, CSAPR was challenged in court and initially vacated by the DC Circuit Court. Legal issues were finally resolved in April 2014, when the US Supreme Court reversed that decision. Because the regulation was delayed by court proceedings, the effective date of the rule was moved to January 1, 2015.

Under this rule, each of the boilers at the facility is considered a "large electric generating unit", per 40 CFR 52.34. This rule and all requirements thereof are considered Federal-enforceable only. Compliance will be determined by the US EPA, not NC DAQ. A reference to this rule has been added to the permit.

7. NSPS, MACT/GACT, PSD/NSR, 112(r), RACT, CAM:

a. NSPS

1. Subpart GG "Standards of Performance for Stationary Gas Turbines"

This rule applies to all turbines built after 1977 with a capacity of greater than 10 mmBtu/hr. All of the turbines at this facility are subject.

The rule has emission standards for NO_x and SO₂. In order to demonstrate compliance with NO_x, Duke has installed a continuous monitoring system for fuel use and water injection.

b. MACT

1. Subpart YYYY "NESHAP for Stationary Combustion Turbines"

This rule applies to most combustion turbines located at HAP-Major facilities.

40 CFR 63.6090(a)(1) defines "Existing stationary combustion turbine" as a unit that commenced construction or reconstruction before January 14, 2003. All of the turbines at this facility meet this definition. 40 CFR 63.6090(a)(4) states that existing turbines do not have to meet the requirements of 40 CFR Part 63, Subparts A or YYYY.

2. Subpart ZZZZ "NESHAP for Stationary Reciprocating Internal Combustion Engines"

This rule applies to all engines at HAP-Major and Minor facilities. The requirements differ based on the classification of the facility.

For existing emergency-use engines at a HAP major facility, the general requirements are:

- a. Use fuel that meets the requirements of 40 CFR 63.6604(a).
- b. Change oil, filters, and hoses and belts according to Table 2c of the rule.
- c. Minimize time spent at idle and startup.

This rule only applies to an emission source on the insignificant list. Therefore, it won't be included in the text of the permit.

c. PSD

The facility has PSD limits and additional limits to avoid further PSD requirements.

1. PSD limits

The facility is required, in general, to use good combustion control, low sulfur fuel, and water injection. In order to comply with annual emission limits, the facility has annual operation restrictions both on the entire facility and individual turbine.

Previously, the permit included PSD limits for arsenic and fluorides, both of which are HAPs. 40 CFR 51.166(b)(49)(i)(b)(4)(v) and 40 CFR 52.21(b)(50)(i)(b)(4)(v) both specifically state that HAPs cannot be considered under the PSD program. Therefore, these limits have been removed from the permit.

2. *PSD avoidance limits*

The facility has limits on NO_x emissions during the summer ozone season. Monitoring for the Acid Rain Permit already requires monitoring and calculating facility-wide NO_x emissions. Duke uses this to demonstrate compliance with the ozone season NO_x limit.

d. 112(r)

The facility does not appear to store any 112(r)-subject materials in quantities greater than their respective thresholds. Therefore, the facility does not have any increased requirements under Section 112(r) of the Clean Air Act.

e. RACT

The previous permit had a stipulation for 15A NCAC 02D .1417. This rule allocated annual NO_x emissions to the facility on a per-turbine basis. This rule was also repealed in 2010, and therefore has been removed from the permit.

There are no other RACT rules that could apply to the facility:

- 02D .1408 only applies to turbines with a heat input less than 250 mmBtu/hr. All of the turbines at this facility are approximately 1,300 mmBtu/hr.
- 02D .1413(a) specifically excludes combustion turbines from applicability.
- 02D .1418 only applies to turbines constructed after October 2000. All of the turbines at this facility were constructed before this date.
- 02D .1423 only applies to turbines that are also subject to .1418.

Given that there are no applicable RACT rules, no RACT rule will be added to the permit to replace .1417.

f. CAM

CAM applies to a control device if the following criteria are met:

1. The unit being controlled is subject to a non-exempt emission standard (as defined by 2D .0614(b)(1)),
2. The control device is being used to comply with the emission standard, and
3. The unit being controlled has potential emissions of the pollutant subject to the emission standard of greater than major source thresholds.

Water injection is the only control device used at the facility. Water injection only controls NO_x emitted from turbines, and Duke uses these control devices to comply with NSPS Subpart GG, PSD, and PSD avoidance. Each turbine has potential NO_x emissions greater than the major source threshold. The following table examines CAM applicability for each regulation:

Regulation	Limit	Exempt from CAM?	Notes
NSPS Subpart GG	Determined by equation, but ultimately higher than the PSD limit	No	n/a

Regulation	Limit	Exempt from CAM?	Notes
PSD	58 ppm (NG) 25 ppm (No. 2)	No	n/a
PSD Avoidance	384.2 tons per ozone season	Yes	2D .0614(b)(1)(E)

Because the NSPS and PSD limits are not exempt from CAM, a CAM plan is required.

In the renewal application, Duke proposed a CAM plan that used the existing fuel meter and water injection meter (both required by NSPS Subpart GG) as the indicator of NOx control. The plan compares the recorded water-to-fuel ratio with the ratios determined during the most recent emission testing. Duke originally proposed that the threshold for developing a Quality Improvement Plan be only one excursion, but later² requested that the threshold be excursions for 5% of operating time. Furthermore, Duke wanted exceedances during periods of startup, shutdown, malfunction, and operations under the alternative operating scenario to not be included when determining excursions.

According to 40 CFR 64.7(d)(1), exceedances "excused by startup or shutdown" do not count as excursions. 40 CFR 64.7(c) states "Data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities shall not be used for purposes of this part, including data averages and calculations". This specifies that *monitoring* malfunctions do not count towards excursions, but other malfunctions (such as with the water injection system) are not excused.

Regardless of whether an exceedance is considered an excursion, Duke must report all exceedances on a semiannual basis.

The revised CAM plan has been written into the permit.

8. Acid Rain Permit

This facility is required to have a permit as part of the Phase II Acid Rain program. This program is administered by the EPA, not NCDAQ. While the Acid Rain permit is mentioned in the permit, EPA will ultimately determine compliance.

9. Toxic Air Pollutants

The permit does not include any TAP emission limits. This renewal will not trigger a review of TAP emissions.

10. Facility Emissions Review

For a historical summary of emissions from this facility, see the table on the first page of this review.

This renewal is not expected to change potential emissions from the facility.

11. Compliance Status

- a. Notices of Violation/Recommendation for Enforcement since the previous renewal

None.

² In Ann Quillian's response to the initial draft, she suggested revisions to the original CAM plan submittal.

b. Inspection status

The facility was most recently inspected by Melinda Wolanin on June 4, 2015. The facility appeared to be in compliance with the permit at that time.

12. Other Regulatory Concerns

A PE seal was not required for this permit renewal.

A zoning consistency form was not required for this permit renewal.

13. Public Notice/EPA and Affected State(s) Review

A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 2Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 2Q .0522, a copy of each permit application, each proposed permit and each final permit pursuant shall be provided to EPA.

Also pursuant to 2Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice provided to the public under 2Q .0521 above.

14. Recommendations

Issue permit 07171T10.

Change List

Page(s)*	Section*	Description of Change(s)
Throughout	Throughout	<ul style="list-style-type: none"> • Updated dates/permit numbers/application numbers. • Removed references to CAIR because that regulation no longer applies. • Added references to CSAPR. • Updated format of stipulations to the DAQ standard. • Changed "DENR" to "DEQ". • Removed process rates from section headers (this information is in the Permitted Emission Source List). • Changed "2D" and "2Q" to "02D" and "02Q".
Insignificant Activities List	Insignificant Activities List	<ul style="list-style-type: none"> • Removed portable sources. • Added MACT 4Z callout.
3	Permitted Emission Source List	<ul style="list-style-type: none"> • Added footnote regarding MACT 4Y. • Added water injection to list of control devices. This is only to clarify how Duke uses water injection, and does not reflect a change in the facility's operations.
	2.1.A.1.	<ul style="list-style-type: none"> • Added recordkeeping requirement regarding the number of hours spent running on No. 2 oil.
	2.1.A.2.	<ul style="list-style-type: none"> • Reformatted emission limit section. No change in requirements, this should just be easier to read. • Added paragraph regarding the Alternative Operating Scenario.
	2.1.A.3.	<ul style="list-style-type: none"> • Removed HAPs from PSD limits per 51.166(b)(49)(i)(b)(4)(v) and 40 CFR 52.21(b)(50)(i)(b)(4)(v). • Added paragraph regarding the Alternative Operating Scenario. • Changed reporting schedule to semiannual (was quarterly).
	2.1.A.4.	<ul style="list-style-type: none"> • Added CAM requirements
	2.1.A.5. (former)	<ul style="list-style-type: none"> • Removed 15A NCAC 02D .1417 because the rule had been repealed.
	2.1.A.7.	<ul style="list-style-type: none"> • Added CSAPR requirements
	2.3. (former)	<ul style="list-style-type: none"> • Removed CAIR requirements.
	3.	<ul style="list-style-type: none"> • Updated General Conditions to v4.0..

* This refers to the current permit unless otherwise stated.

Summary of Comments Received on Initial Draft

- Mark Cuilla, by email on March 4, 2016

1. Mark pointed out several typos in the permit.

Response: These have been fixed.

2. Mark suggested that the PSD reporting schedule be reduced to semiannual.

Response: Given that Duke has not violated the PSD emission limits, and does not operate near the emission limits, I agree with this suggestion.

- Ann Quillian, by email on March 30, 2016

1. Ann pointed out that the authorized official on the permit was incorrect.

Response: Fixed.

2. Ann revised the CAM plan. Originally, the QIP threshold had been set at a single excursion. Ann suggested the standard 5% of operating time. She also wanted periods of startup, shutdown, malfunction, and operation under the alternative operating scenario to not be included when determining excursions.

Response: In a subsequent email discussion, Ann and I discussed her revisions to the CAM plan. I agreed to all of the proposed changes, with one exception. Exceedances caused by monitoring malfunctions are not considered excursions, but other malfunctions are. Ultimately, we both agreed on a revised CAM plan.

3. Ann suggested that the permit review section that covers the CAM plan be updated to reflect the revisions.

Response: I agree.