NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date:

Region: Washington Regional Office
County: Craven
NC Facility ID: 2500158
Inspector's Name: Kurt Tidd
Date of Last Inspection: 02/01/2022
Compliance Code: 3 / Compliance - inspection

Facility Data

Applicant (Facility's Name): Craven County Wood Energy, L.P.

Facility Address:
Craven County Wood Energy, L.P.
201 Executive Parkway
New Bern, NC 28562

SIC: 4911 / Electric Services
NAICS: 221119 / Other 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 .0503, .0504, .0515, .0516, .0519, .0521, . 0524, .0614, .1111; 02Q .0317, .0504
NSPS: 40 CFR 60 Subpart Db
NESHAP: GACT JJJJJJ; 02Q .0317 (DDDDD Avoidance)
PSD: 02D .0530 (BACT)
PSD Avoidance: NA
NC Toxics: 02D .1100
112(r): NA
Other: NA

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Wesley Manspeaker Plant Engineer (252) 633-9525 201 Executive Parkway New Bern, NC 28562	Thomas Clift Plant Manager (252) 633-9525 201 Executive Parkway New Bern, NC 28562	Wesley Manspeaker Plant Engineer (252) 633-9525 201 Executive Parkway New Bern, NC 28562

Application Data

Application Number: 2500158.22B, 2500158.21B
Date Received: 02/21/2022, 8/26/2021
Application Type: Renewal, 502(b)(10)
Application Schedule: TV-Renewal

Existing Permit Data
Existing Permit Number: 06419/T28
Existing Permit Issue Date: 06/10/2022
Existing Permit Expiration Date: 08/31/2022

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2021	330.01	433.16	27.74	1247.60	104.82	14.76	5.37 [Hydrogen chloride (hydrochlori]
2020	217.20	323.90	18.39	802.74	68.02	10.05	3.71 [Hydrogen chloride (hydrochlori]
2019	380.60	506.90	26.37	1182.36	74.82	14.27	5.32 [Hydrogen chloride (hydrochlori]
2018	293.61	488.47	24.67	1155.34	71.99	14.98	6.36 [Hydrogen chloride (hydrochlori]
2017	149.41	629.92	28.19	1340.58	83.13	20.18	5.15 [Styrene]

Review Engineer: Eric L. Crump, P.E.

Review Engineer's Signature: **Date:**

Comments / Recommendations:
Issue 06419/T29
Permit Issue Date:
Permit Expiration Date:

1. Purpose of Application

Craven County Wood Energy, L.P. (hereinafter referred to as CCWE) is a biomass electricity generation facility located in New Bern, Craven County, North Carolina. The facility currently operates under Title V Permit No. 06419T28 with an expiration date of August 31, 2022. CCWE has applied for renewal of their Title V air quality permit. The renewal application was received on February 21, 2022, or at least six months prior to the expiration date as required by General Condition 3.K of the current permit. Therefore, the existing permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied.

Through permit application No. 2500158.22B, CCWE proposes the following changes to the existing permit:

- Revised permit language to specify Method 5, filterable PM, as the test method to determine ongoing compliance with the Best Available Control Technology (BACT) particulate matter (PM) emission limit of 0.041 Ib/MMBtu.
- Removal of the current calculation formula for styrene emissions in Section 2.2 A.3.b of the permit, due to North Carolina Division of Air Quality (DEQ) approved testing demonstrating styrene emissions are much lower than indicated by the current formula.
- Replacement of an existing 250 horsepower (hp) diesel-fired emergency fire pump engine (ID No. ES-11) with an engine of the same make, year, and model rated at 196 hp (this was a Section 502(b)(10) change – permit application No. 2500158.21B).
- Revision to the permit to reference "Clean Wood" (a subset of clean cellulosic biomass) under the list of Biomass fuel in Section 1 of the permit to be consistent with operational restrictions identified in Section 2.2 A.l.b.
- Change “Weyerhaeuser sludge” wherever mentioned in the permit to “International Paper sludge.” This reflects the fact that the Weyerhaeuser paper mill which supplied sludge to CCWE was purchased by International Paper in 2016.

In addition, in a letter dated February 2, 2023, CCWE proposes to add two new buildings: (1) an additional poultry litter storage building similar to the existing poultry litter storage building, and (2) a fly ash storage building. Both buildings are proposed as insignificant activities under 15A NCAC 02Q .0505(8). The fly ash storage building was withdrawn from this proposal in a May 11, 2023 email.

2. Facility Description

CCWE generates electricity from the combustion of clean cellulosic biomass, creosote-treated wood, plywood trimmings, particle board, paper mill sludge, and brooder/grow-out house poultry litter. The facility generates steam in a spreader-stoker boiler with a rated capacity of 666 million British thermal units per hour (Btu/hr). The steam produced powers a turbine/generator which produces a maximum of 52 megawatts (MW) of gross electricity. Approximately 48 MW is sold to Progress Energy; the facility itself requires about 3-4 MW to operate. The facility strives to operate 24 hours per day, 7 days per week.

3. Application Chronology

September 26, 2017	DAQ issues Permit No. 06419T24 to CCWE as a Title V renewal.
September 26, 2017	DAQ receives permit application No. 2500158.17A from CCWE as the second part of a two-step permit modification to (1) increase brooder house poultry litter fuel usage for boiler ID No. ES5A to 20% by weight or no more than 121,615

	tons per year on a 12-month rolling average basis; and (2) reduce the frequency of fuel usage reporting to comply with NC Toxic Air Pollutant (TAP) rules from quarterly to semiannually.
February 8, 2018	DAQ issues Permit No. 06419T25 to CCWE as a Title V permit modification.
October 9, 2019	CCWE sends letter to DAQ proposing to build a poultry litter storage building on site to keep the litter dry prior to combustion. CCWE estimates potential emissions from the building will be less than five tons per year of PM.
December 18, 2019	DAQ issues Permit Applicability Determination No. 3485, stating (1) the PM emissions from the poultry litter storage building would be an insignificant activity, (2) the State-only fugitive dust control requirement pursuant to 15A NCAC 02D .0540 shall continue to be followed to ensure compliance, and (3) the storage building does not require a permit modification and can be added to the facility as an off-permit change. The storage building should be added to the insignificant activities list at the next permit revision.
July 17, 2020	DAQ acknowledges receipt of permit application No. 2500158.20A from CCWE on June 15, 2020 as a minor modification to conduct vendor recommended updates to improve the performance of the electrostatic precipitator for boiler ES5A.
September 30, 2020	Division of Air Quality (DAQ) issues Permit No. 06419T26 to CCWE as a minor modification to the Title V permit.
January 31, 2021	CCWE's Acid Rain Permit, which had been attached to their Title V permit, expires.
June 25, 2021	DAQ acknowledges receipt of permit application No. 2500158.21A from CCWE on June 18, 2021 as an administrative amendment to include the revised NCAC 02D .1806 requirements (effective September 1, 2019) in the permit since the poultry litter storage building was completed in early 2021.
August 6, 2021	DAQ receives Section 502(b)(10) modification request dated August 5, 2021 from CCWE for a like-kind replacement of an existing 250 hp diesel-fired emergency fire pump engine (ES-11).
August 16, 2021	DAQ issues Permit No. 06419T27 to CCWE as an administrative amendment to the Title V permit. The existing poultry litter storage building (ID No. IPLSB) with internal air circulation fans to further reduce potential odors is added to the permit's insignificant activities list through an off-permit change pursuant to 15A NCAC 02Q .0523(b). In addition, since the facility with the approved poultry litter storage building qualifies for the 15A NCAC 02D .1806(d)(11) exemption ("any facility that stores products that are grown, produced, or generated on one or more agricultural operations and that are "renewable energy resources," as defined in G.S. 62-133.8(a)(8) if the facility identifies the sources of potential odor emissions and specifies odor management practices in their permit pursuant to 15A NCAC 02Q .0300 or .0500 to minimize objectionable odor beyond the property lines."), permit language noting specific activities to avoid 02D .1806 pursuant to 02D .1806(d)(11) was added to the permit.

August 17, 2021	DAQ emails acknowledgement to CCWE of receipt of their August 5, 2021 Section 502(b)(10) modification request for a like-kind replacement of an existing 250 hp diesel-fired emergency fire pump engine (ES-11).
January 31, 2022	DAQ acknowledges receipt of permit application No. 2500158.22A from CCWE on January 21, 2021 as a minor modification to include mold inhibitor-treated wood as a non-hazardous secondary material on the approved fuel list for the biomass-fired boiler (ES5A) controlled by the electrostatic precipitator (CD5A-2).
March 1, 2022	DAQ acknowledges receipt of permit application No. 2500158.22B from CCWE on February 21, 2022 as a permit renewal.
June 10, 2022	DAQ issues Permit No. 06419T28 to CCWE as a minor modification to the Title V permit.
October 13, 2022	CCWE submits application for renewal of their Acid Rain Permit, which expired on January 31, 2021.
October 19, 2022	Draft permit sent to Stationary Source Compliance Branch (SSCB) for review.
October 25, 2022	DAQ receives comments on draft permit from SSCB.
November 9, 2022	Draft permit and review sent for DAQ supervisory review.
January 18, 2023	DAQ sends draft permit to Stationary Source Compliance Branch (SSCB) for review and comment.
January 26, 2023	DAQ receives comments on draft permit from SSCB.
February 2, 2023	DAQ receives letter from CCWE requesting an off permit change for addition of a proposed poultry litter storage building and fly ash storage building.
February 10, 2023	DAQ supervisor provides comments on draft permit and review.
February 10, 2023	DAQ sends draft permit to CCWE and Washington Regional Office (WaRO) for review and comment.
February 23, 2023	DAQ receives comments on draft permit from WaRO.
February 23, 2023	Phone conversation between Eric Crump, DAQ and Christopher Occhipinti, NTH Consultants to discuss comments on draft permit, with particular focus on whether the permit should specify Method 5 as the sole method for determining compliance with the Best Available Control Technology (BACT) particulate matter (PM) emission limit for the boiler.
March 8, 2023	Internal meeting with Permit Section, SSCB, and WaRO staff to discuss CCWE concerns regarding PM test method. It is concluded that the permit as written references Method 5 (for filterable PM) as the only required method for determining compliance with the BACT PM limit for the boiler. The permit

	renewal should proceed with no change. However, due to changes in the regulatory definition of PM since BACT was first determined (now defined as including filterable and condensable PM with nominal aerodynamic diameter of 10 micrometers or less), the permit should be reopened for cause to evaluate the current BACT limit.
March 10, 2023	Eric Crump, DAQ, relays decision to reopen permit for cause by phone call to Christopher Occhipinti, NTH Consultants, and Kathyrn Cunningham, CMS Energy.
April 10, 2023	Meeting with DAQ, SSCB, WaRO, NTH Consultants, and CCWE to discuss basis for reopening permit for cause.
April 24, 2023	DAQ receives comments on draft permit from CCWE.
May 8, 2023	Applicability Determination No. 3985 assigned to the February 2, 2023 letter from CCWE requesting an off permit change for addition of a proposed poultry litter storage building and fly ash storage building.
May 11, 2023	Email from Christopher Occhipinti, NTH Consultants to DAQ, stating that the ash building proposed in the February 2, 2023 letter (Applicability Determination No. 3985) will be owned and operated by CE Nutrients, a separate entity leasing land for the building from CCWE. Therefore, CCWE will not need the fly ash building added to their permit.
xxx	Permit renewal notice published, 30-day public notice and comment period begins, and 45-day EPA comment period begins.
xxx	30-day public notice and comment period ends.
xxx	45-day EPA comment period ends.

4. Changes to Permit and Title V Equipment Editor (TVEE) Discussion

The following table summarizes changes made to the current CCWE permit as a result of this permit renewal (or modification):

Page No.	Section	Description of Changes
Cover and throughout	---	• Updated all dates and permit revision numbers • Changed each instance of "Weyerhaeuser sludge" to "Paper plant sludge"
Insignificant Activities List	Attachment	Moved to Section 3 of permit
2	Table of Contents	• Removed Section 2.5, Permit Shield • Changed Section 3 from "General Conditions" to "Insignificant Activities per 15A NCAC 02Q .0503(8)" • Added new Section 4, "General Conditions"
3	List of Acronyms	Relocated here (formerly last page of permit)

Page No.	Section	Description of Changes
4	1	• Changed horsepower output of emergency fire pump ES-11 from 250 hp to 196 hp • Removed footnote regarding second step of 02Q .0501(c)(2) modification for boiler ES5A
5	2.1 A 2.1 A.1 2.1 A.1.c	Updated format of limits/standards table Updated section to reflect the most current stipulations for 15A NCAC 02D .0515 Modified text to clarify that the hammer mill and wood reclaim conveyer are part of the wood handling and storage operations (ID No. FA)
6	2.1 A.1.d, f 2.1 A.1.g	Modified text to clarify that the hammer mill and wood reclaim conveyer are part of the wood handling and storage operations (ID No. FA) Updated to reflect the most current stipulations for 15A NCAC 02D .0515
7	2.1 A.2.e 2.1 A.3.b	Updated to reflect the most current stipulations for 15A NCAC 02D .0521 • Added source ID number for wood handling and storage operations • Updated to reflect current permit format for noncompliance statements
8	2.1 A.3.f	Updated to reflect the most current stipulations for 15A NCAC 02D .0530
9	2.1 B	• Deleted controls from boiler description (for consistency with rest of permit) • Updated format of limits/standards table • Added “excluding biomass combustion” to summary of limits/standards for NO_X (02D .0519) in limits/standards table • Deleted Subpart BBBBB from list of applicable regulations for SO_2 and NO_X in limits/standards table
10	2.1 B.2.b 2.1 B.2.c	Added description of variable “E” in emissions rate equation Changed “this source to “the boiler (ID No. ES5A)
11	2.1 B.2.g 2.1 B.2.i 2.1 B.3.a 2.1 B.4.b 2.1 B.4.d	Added new paragraph g stating no reporting required for combustion of used oil, natural gas, or propane. Re-lettered subsequent two paragraphs accordingly. Updated to reflect the most current stipulations for 15A NCAC 02D .0503 Deleted the phrase “or wood in combination with other fuels (i.e. biomass fuel alone or in combination with used oil, natural gas, and/or propane)” from this paragraph. Inserted “JJ” into the first sentence after the words “General Condition” Inserted the word “Sections” in front of paragraph numbers

Page No.	Section	Description of Changes
12	2.1 B.5.b	Inserted "JJ" into the first sentence after the words "General Condition"
	2.1 B.6	Updated section to reflect the most current stipulations for 15A NCAC 02D .0524 (40 CFR 60, Subpart Db)
14	2.1 B.7.c	Updated section to reflect the most current stipulations for 15A NCAC 02D .0530
	2.1 B.8	• Deleted stipulation for 15A NCAC 02Q .0504, "Option for Obtaining Construction and Operation Permit." Renumbered subsequent paragraphs accordingly. • Updated section (formerly 2.1 B.9) to reflect the most current stipulations for 15A NCAC 02D .0614
15	2.1 B.9	Updated section to reflect the most current stipulations for 15A NCAC 02D .1111 (40 CFR 63, Subpart JJJJJJ)
18	2.1 B.10	Added new section with stipulations for 15A NCAC 02D .1425 NO_X SIP Call Budget
19	2.1 C	• Changed horsepower output of emergency fire pump ES-11 from 250 hp to 196 hp • Updated format of limits/standards table
	2.1 C.3	Updated section to reflect the most current stipulations for 15A NCAC 02D .1111 (40 CFR 63, Subpart ZZZZ)
23	2.2 A	Updated format of limits/standards table
	2.2 A.1.a	• Added date of most recent approved air toxic compliance demonstration • Defined "AAL" as "acceptable ambient level" • Reformatted toxic pollutant table to list toxics in alphabetical order
26	2.2 A.1.c.v	Updated to January 2013 version of the NC DAQ Toxics Protection Branch Recycled Oil Management Plan
	2.2 A.1.d	Minor edits for clarity made to this section
	2.2 A.1.e	Updated to reflect the most current stipulations for 15A NCAC 02D .1100
27	2.2 A.3	Updated to reflect the most current stipulations for 15A NCAC 02D .0317 (avoidance conditions for MACT)
	2.2 A.3.d	Removed styrene emissions equation
	2.2 A.3.e	Added new paragraph establishing requirements for changing emission factors, and re-lettered subsequent paragraphs
28	2.2 A.3.g	Deleted requirement to maintain record of applicability determination onsite

Page No.	Section	Description of Changes
29	2.3 2.3 D 2.4 2.5	• Changed expiration date of acid rain permit to coincide with expiration of Title V air permit • Changed all references to "Department of Environmental Quality and Natural Resources" to "Department of Environmental Quality" Changed reference to most recent acid rain permit application submittal date • Changed all references to "TR" in first paragraph to "CSAPR" • Deleted mention of Subpart BBBB Deleted permit shield section
30	3	• Section 3 is now "Insignificant Activities per 15A NCAC 02Q .0503(8)" • Added source ID Nos. I11 and I12 (two poultry litter storage buildings) to insignificant activities list
31-39	4	Updated General Conditions to Version 6.0 dated January 7, 2022
40-43	Attachment	Attached Acid Rain Permit Application for Craven County Wood Energy, LP, dated October 13, 2022

The following additions has been made to the TVEE:

- ID No. I11, One poultry litter storage building
- ID No. I12, One poultry litter storage building

The following revision has been made to the TVEE:

Source ID No.	Original TVEE Description	New TVEE Description
ES5A	One boiler (666 million Btu per hour maximum heat input rate) fired on: Biomass fuel consisting of: Clean cellulosic biomass Creosote treated wood Mold inhibitor treated wood Plywood trimmings Particle board Weyerhauser paper sludge Brooder/grow out house poultry litter Natural gas (startup fuel only) Propane (startup fuel only) Used oil (onsite generation only) [NSPS Db, PSD BACT, GACT JJJJJJ]]	One boiler (666 million Btu per hour maximum heat input rate) fired on: Biomass fuel consisting of: Clean cellulosic biomass Creosote treated wood Mold inhibitor treated wood Plywood trimmings Particle board Paper plant sludge Brooder/grow out house poultry litter Natural gas (startup fuel only) Propane (startup fuel only) Used oil (onsite generation only) [NSPS Db, PSD BACT, GACT JJJJJJ]

5. Description of Changes and Estimated Emissions

Revise permit language to specify Method 5 (filterable PM) as the test method to determine ongoing compliance with the Best Available Control Technology (BACT) PM emission limit of 0.041 lb/MMBtu. In the permit application, CCWE states the following:

- Prior to 2008, the CCWE permit language included reference to Method 5 (a test for filterable PM) as the method for satisfying PM test requirements. At the time the permit was first issued, Method 202 (for condensable PM) had not yet been developed.
- NC DAQ memoranda established that condensable PM testing was not needed for woodwaste[1], or for demonstrating compliance with new source performance standards[2] (NSPS).
- When Permit No. 06419T16 was issued in 2004, the nomenclature for "particulate matter" in the permit's PSD BACT limit was changed to "PM/PM10".
- After the 2008 promulgation of 15A NCAC 02D .2609, Particulate Testing Methods (which included both Method 5 and Method 202), DAQ issued Permit No. 06419T20, which removed any reference to a specific PM test method.
- With the issuance of Permit No. 06419T28 on June 10, 2022, the reference to PM10 (which clarified that the 0.041 lb/MMBtu emission limit applied to PM rather than PM10) was removed from the permit,

While CCWE believes history indicates that Method 5 is the preferred method for determining compliance with the 0.041 lb/MMBtu PM/PM10 emission limit, they state that changes to the permit language over the years have made the testing requirement less clear. CCWE is asking for a change in the permit language that clearly establishes Method 5 as the single method for determining compliance with the PM/PM10 emission limit. The current permit language (Section 2.1 B.7.b, which refers the reader to Section 2.1 B.6.c) does not provide a specific test method; rather it states that "The testing must be performed in accordance with a testing protocol approved by NC DAQ, General Condition JJ found in Section 4, and 15A NCAC 02D .2601.

In reply to CCWE's argument, DAQ notes the following:

- Given that the original PSD limits were established under the PSD application for CCWE's initial air permit (issued on January 24, 1989), it is highly probable they were based on filterable PM emissions only.
- EPA Method 201 - Determination of PM_{10} Emissions (40 CFR Part 51, Appendix M, Section 1.1 - Applicability) states: "The EPA recognizes that condensable emissions not collected by an in-stack method are also PM_{10}, and that emissions that contribute to ambient PM_{10} levels are the sum of condensable emissions and emissions measured by an in-stack PM_{10} method, such as this method or Method 201A. Therefore, for establishing source contributions to ambient levels of PM_{10}, such as for emission inventory purposes, EPA suggests that source PM_{10} measurement include both in-stack PM_{10} and condensable emissions."
- EPA Method 202—a method for measuring condensable PM—was first promulgated in 1991 (56 FR 65433, December 17, 1991). In addition, a "back-half analysis for condensable PM emissions was in use for years before Method 202 was promulgated. This further supports the historical understanding that PM_{10} is comprised of both condensable and filterable particles.
- An internal review of stack test results dating back to 2002 indicates condensable PM has usually been considered for compliance with the 0.041 lb/mmBtu PM BACT limit in the permit. The test results further indicate condensable PM comprises a significant portion of CCWE total PM emissions—at times more than twice the amount of filterable PM emissions.

Following discussions on this issue between DAQ and CCWE on April 10, 2023, DAQ concludes that the CCWE permit renewal should be issued with the understanding that Method 5 would be used for determining compliance with BACT PM limit, and the current permit language should remain unchanged.

[1] Overcash, Keith. "Condensable Particulate Matter Testing for Woodwaste Boilers." NC Department of Environment and Natural Resources (NC DENR), 8 Nov 2001.
[2] Klimek, Alan. "NC DAQ Procedures to Quantify Condensable Particulate Matter." NC DENR, 6 Oct 1999.

However, the BACT limit should be reviewed with consideration of both filterable and condensable PM going forward. Upon renewal, the CCWE permit will be reopened for cause, and CCWE will submit a new application without permit fee so the PM BACT limits can be properly accessed and addressed.

Removal of the current calculation formula for styrene emissions from the permit. Section 2.2 A.3.b of the CCWE permit has a condition under 15A NCAC 02Q .0317: Avoidance Conditions. The condition, states that for CCWE to remain classified as a minor source for hazardous air pollutants (HAPs), facility-wide emissions must be less than 10 tons per year (tpy) of each individual HAP, and less than 25 tpy of all HAP combined. The permit condition provides formulas and emission factors for calculating annual emissions of HAPs. When the CCWE permit was last renewed (Air Permit No. 06419T24, September 26, 2017), the permit condition included an emission factor of 1.90×10^{-3} pounds of styrene per million British thermal units (lb/MMBtu), from the U.S. Environmental Protection Agency's (EPA's) AP-42 emission factor for wet wood (see Section 1.6). In 2019, CCWE conducted site-specific emissions testing[3] for styrene under an approved NCDEQ protocol, which determined a styrene emission factor of less than 3.24×10^{-5} lb/MMBtu, which is not only two orders of magnitude less than the previous emissions factor but is also the detection limit for the test method. This new emissions factor was included when the permit was modified on September 30, 2020 (Air Permit No. 06419T26). However, given how small the newer emissions factor is, CCWE is proposing to remove the requirement for calculating styrene emissions (including the emission factor and footnote references) from the permit. CCWE states that they will still continue to calculate styrene emissions as part of HAP recordkeeping.

Upon review, DAQ concurs with this finding, and therefore will remove the styrene emissions calculation requirement from the permit. Continued compliance is expected.

Replace existing 250-hp diesel-fired emergency fire pump engine (ID No. ES-11) with an engine of the same make and model rated at 196 hp. As documented in the application chronology in Section 2 of this review, DAQ received a Section 502(b)(10) change notification dated August 5, 2021 from CCWE for this engine replacement (a Caterpillar model 3208 196-hp diesel-fired engine built in 1989). DAQ acknowledged receipt of this notification, noting that the permit shield would not extend to this modification until it was incorporated into the permit at either the next significant modification or upon permit renewal. This change notification was assigned Application No. 2500158.21B. At the time the changes are incorporated into the permit, CCWE would be required to submit all applicable application forms for the engine. CCWE has submitted the appropriate forms with application No. 2500158.22B. This replacement engine is not a new engine, and for that reason does not trigger the requirements for the current reciprocating internal combustion engine MACT standard (40 CFR Part 63, Subpart ZZZZ) finalized on August 10, 2022. This change is not expected to increase emissions at the facility. Continued compliance is expected.

Include "Clean Wood" in the list of biomass fuel in Section 1 of the permit to be consistent with operational restrictions identified in Section 2.2 A.l.b.i. Section 1 of the permit presents a list of acceptable biomass fuels that may be used to fire boiler ES5A. Section 2.2 A.l.b.i of the permit specifies the categories of biomass fuel that may be fired in boiler ES5A, and in what quantities each type of biomass may be fired. Paragraph (D) of Section 2.2 A.l.b.i includes clean wood as a type of biomass fuel that " . . . can be burned at any wood fuel mixture." CCWE has requested that clean wood be included in the list of biomass fuels in Section 1 for the sake of consistency throughout the permit. This change corrects an accidental omission from the permit and will not have an impact of emissions from the facility. Continued compliance is expected.

[3] Environmental Source Samplers, Inc. Compliance Air Emissions Test Report, Craven County Wood Energy, LP, Project ID: 1118-10, New Bern, NC. 28 Jun 2019

Change "Weyerhaeuser sludge" wherever mentioned in the permit to "International Paper sludge." This proposed wording change to the permit would reflect the fact that the Weyerhaeuser paper mill which for years supplied sludge to CCWE has been owned by International Paper since 2016. For the sake of minimizing the need for future changes, the wording in the permit will be changed to "Paper plant sludge." This wording change will not impact facility emissions, but will eliminate the need to revise the permit in the event the paper mill ownership changes in the future.

Addition of poultry litter storage building to insignificant activities list. As documented in the preceding permit chronology, in accordance with Permit Applicability Determination No. 3485, the poultry litter storage building qualifies as an insignificant activity under 15A NCAC 02Q .0503(8) because its emissions would not violate any applicable emissions standard, its potential uncontrolled criteria pollutant emissions are no more than five tons per year and its potential uncontrolled HAP emissions are below 1000 pounds per year. As an insignificant activity, no conditions will be included in the permit for this source. The storage building (ID No. I11) will not be subject to any permit conditions and will be added to the insignificant activities list in this permit revision.[4]

Addition of a second poultry litter storage building and a new fly ash storage building. As described in a February 2, 2023 letter from CCWE (assigned Applicability Determination No. 3985), the second poultry litter storage building would be similar to the initial storage building, providing additional fuel storage. Like the initial litter storage building, the second building will use fans for internal ventilation, with no direct exhaust to the ambient air. While overall facility litter storage would increase, there would be no increase in the overall limits on poultry litter burned at the CCWE facility. Like its predecessor, the second poultry litter storage building qualifies as an insignificant activity under 15A NCAC 02Q .0503(8). As an insignificant activity, this second storage building (ID No. I12) will not be subject to any permit conditions and will be added to the insignificant activities list in this permit revision.

The new 6,000 square foot fly ash storage building would be used to store fly ash resulting from combustion of biomass from boiler ES5A. The stored fly ash would be used as a soil amendment. A subsequent email dated May 11, 2023 clarified that the fly ash storage building will be owned and operated by CE Nutrients, a separate entity who is leasing land for the building from CCWE. As a result, CCWE does not need the fly ash building added to their permit. CE Nutrients will pursue the construction of the fly ash building with DAQ as a permitting action separate from CCWE.

In addition, CCWE notes in their permit application that a 15 kilowatt (kW) ultra-low sulfur diesel-fired Generac generator located on the premises does not need to be included in the CCWE permit because the generator is owned and operated by T-Mobile. This determination was made based on a discussion between CCWE and NC DAQ on July 2, 2018.

6. Regulatory Review

CCWE is subject to the following state regulations under Title 15A of the North Carolina Administrative Code (15A NCAC), in addition to the requirements in the General Conditions:

15A NCAC 02D .0503, Particulates from Fuel Burning Indirect Heat Exchangers. This rule applies to PM emissions from the combustion of fuel in indirect heat exchangers, such as boilers, that are discharged from any stack or chimney into the atmosphere. The regulation provides the following

[4] It should be noted that classifying an emission source or activity as insignificant does not mean it is exempted from any applicable requirement, or that CCWE is exempted from demonstrating compliance with any applicable requirement. CCWE is required to have documentation— including calculations, if necessary—available at the facility at all times that demonstrates that an emission source or activity is insignificant.

equation for determining the emission limit for fuel burning equipment that burns both wood and other fuels in combination, or for wood and other fuel burning equipment that is operated such that emissions are measured on a combined basis:

$$E_C = \frac{(E_w)(Q_W) + (E_O)(Q_O)}{Q_t}$$

Where: Ec = emission limit for combination or combined emission source(s) in lb/MMBtu
Ew = plant site emission limit for wood only as determined pursuant to 02D .0504 in lb/MMBtu
Eo = the plant site emission limit for other fuels only as determined by Paragraphs (a), (b) and (c) of this rule (02D .0503) in lb/MMBtu.
Qw = the actual heat input from wood to the combination or combined emission source(s) in Btu/hr.
Qo = the actual heat input from other fuels to the combination or combined emission source(s) in Btu/hr.
Qt = Qw + Qo, the actual total heat input (wood and other fuels) to the combination or combined emission source(s) in Btu/hr.

Boiler ES5A at CCWE is subject to this regulation. Given that the boiler has a 666 MMBtu/hr maximum heat input rate (Q),

$E_W = 1.1698Q^{-0.2230} = 1.1698 \times 666^{-0.2230} = 0.274$ lb/mmBtu.

And using the formula given in 02D .0503 to calculate E_O,

$E_O = 1.090Q^{-0.2594} = 1.090 \times 666^{-0.2594} = 0.202$ lb/mmBtu.

This yields the formula established in the permit to determine E_C, the emission limit in lb/mmBtu for boiler ES5A:

$$E_C = \frac{0.274Q_W + 0.202Q_O}{Q_W + Q_O}$$

Where: Q_W = actual wood heat input rate, in mmBtu/hr; and
Q_O = actual combined heat input rate of all fuels other than wood (i.e., biomass fuel alone or in combination with used oil, natural gas, and/or propane), in mmBtu/hr

It should be noted that when the boiler is fired with any combination of fuels that does not include biomass fuel (i.e., used oil, natural gas, and/or propane only), this simplifies the equation for the boiler emission limit such that emissions may not exceed 0.202 lb/MMBtu heat input. The boiler therefore operates under two different operating scenarios: a primary operating scenario, where wood fuel is fired in combination with other fuels, and an alternative operating scenario, where the boiler is fired with any combination of fuels that does not include wood. Whenever CCWE elects to make a change from one operating scenario to another, they are required to record in a logbook the scenario under which it is operating.

The permit does not require monitoring, recordkeeping, or reporting for particulate emissions from firing used oil, natural gas, and/or propane in this boiler, since particulate emissions from combustion

of these fuels are expected to be low. Particulate emissions shall be controlled by a multicyclone (**CD5A-1**) in series with an electrostatic precipitator (ESP) (**CD5A-2**). CCWE must perform I&M on the controls as recommended by the manufacturers, which at a minimum shall include:

- a monthly visual inspection of the ductwork and material collection units for leaks and of critical components of the ESP
- a weekly check for any ESP equipment that does not generate an alarm when turned off (to ensure it is switched on), and
- an annual internal inspection of the multicyclone's structural integrity.

I&M inspection results shall be kept in a logbook on site, and a maintenance report shall be sent to DAQ upon request. In addition, a summary report of monitoring and recordkeeping activities shall be submitted semi-annually. This permit renewal does not change this status. Continued compliance is expected.

15A NCAC 02D .0504, Indirect Heat Particulates from Wood Burning Exchangers. This regulation applies to fuel burning equipment that burns 100 percent wood (with no other fuels in combination) for the primary purpose of producing heat or power by indirect heat transfer. PM emissions from wood combustion shall not exceed the allowable limits in the following table:

Maximum Heat Input (MMBtu/hr)	Allowable Emission Limit (lb/MMBtu)
≤ 10	0.70
100	0.41
1,000	0.25
≥ 10,000	0.15

If the heat input falls between any two consecutive heat inputs listed in the above table, the allowable PM emission limit shall be calculated using the following equation:

$$E = 1.1698 \times Q^{-.2230}$$

Where:

E = allowable emissions limit for PM in pounds per million Btu (lb/MMBtu); and
Q = maximum heat input in million Btu per hour (MMBtu/hr).

This rule applies to the boiler when it operates under its primary operating scenario—when firing wood only or wood in combination with other fuels (i.e., biomass fuel alone or in combination with used oil, natural gas, and/or propane). Given that the boiler has a 666 MMBtu/hr maximum heat input rate (Q), using the above equation from 02D .0504 to calculate the particulate emissions limit,

$$E = 1.1698 \times Q^{-.2230} = 1.698 \times (666)^{-.2230} = 0.274 \text{ lb/MMBtu}$$

The permit requires CCWE to determine compliance by performing testing once per permit term. CCWE must complete the testing and submit the associated test report to NC DAQ at least nine calendar months before the permit expires, unless an alternative date is approved by DAQ. At least 45 days prior to testing, CCWE shall develop and submit a testing protocol to the DAQ Washington Regional Office Supervisor for review and approval; the protocol must conform with the permit General Conditions and 15A NCAC 02D .2601. The I&M requirements will be satisfied by meeting those required under 02D .0503. This permit renewal does not affect this status. Continued compliance is expected.

15A NCAC 02D .0515: Particulates from Miscellaneous Industrial Processes. This rule addresses emissions of PM from stacks, vents, or outlets for any industrial process for which no other particulate emission control standards apply. For such processes, the allowable emission rates shall not exceed the level calculated using one of the following equations, as appropriate for the process rate of the source:

$E = 4.10(P)^{-0.67}$ for process rates less than or equal to 30 tons per hour (ton/hr)
$E = 55.0(P)^{0.11} - 40$ for process rates greater than 30 ton/hr

Where:

E = allowable emissions limit for PM in pounds per hour (lb/hr), and
P = process rate in ton/hr (i.e., the total weight per hour of all materials introduced into a specific process that may cause any emission of PM. Liquid and gaseous fuels and combustion air are not included in the process weight).

The bottom ash handling system (**F6A-1**), the fly ash handling system (**F6A-2**), and the wood handling and storage operations (**FA**) are subject to this regulation. Bottom ash and fly ash from the boiler (**ES5A**) must be conveyed in the ash handling systems and wood waste from the hammer mill must be conveyed in the wood reclaim conveyor to storage via enclosed systems to minimize particulate emissions. In addition, CCWE must employ the following dust suppression techniques:

- Water quenching of bottom ash after discharge from the boiler grate (**ES5A**);
- Enclosed dust collectors and water suppression system on the fly ash handling system (**F6A-2**), and
- Partial enclosed conveyors and transfer towers wherein all transfer points are closed, on the wood reclaim conveyor.

CCWE must establish an inspection and maintenance (I&M) schedule/checklist and perform such I&M on the ash handling systems, the hammer mill, and the wood reclaim conveyor as recommended by the manufacturer. At minimum, I&M shall include monthly external inspections of:

- the enclosed work area around the hammer mill, enclosed conveyors, and transfer towers to ensure covers are properly fitted;
- the bottom ash handling system to ensure structural integrity; and
- the water spray dust suppression system on the fly ash handling system.

I&M inspection results shall be kept in a logbook on site, and a maintenance report shall be sent to DAQ upon request. In addition, a summary report of monitoring and recordkeeping activities shall be submitted semi-annually. This permit renewal does not change this status. Continued compliance is expected.

15A NCAC 02D .0516, Sulfur Dioxide Emissions from Combustion Sources. Under this regulation, emissions of sulfur dioxide (SO_2) from any source of combustion discharged from any vent, stack, or chimney shall not exceed 2.3 pounds of SO_2 per million British thermal units (MMBtu) input. The boiler (**ES5A**) is subject to this regulation. The permit does not require monitoring, recordkeeping, or reporting for SO_2 emissions when firing biomass fuel, natural gas, and/or propane in this boiler, since SO_2 emissions from combustion of these sources are expected to be low. However, when firing used oil in this boiler, CCWE is required to comply with the following monitoring, recordkeeping, and reporting requirements (listed with the permit requirements for 02D .1100: Control of Toxic Air Pollutants):

- Monitor the amount of used oil burned in the boiler each month.
- Monitor the used oil burned in the boiler for equivalency with unadulterated No. 4 fuel oil by conducting a chemical analysis of the used oil in accordance with the NC DAQ Toxics Protection Branch Recycled Oil Management Plan at least once per year.
- Maintain monthly records of the monitoring performed
- Submit a quarterly summary report of monitoring and recordkeeping activities to the DAQ Regional Supervisor, with all instances of deviations from the permit requirements clearly identified.
- Submit an annual report at the end of each calendar year to the Regional Supervisor, DAQ with:
    - The results of the testing performed for the previous year; and
    - The total gallons of used oil burned in the boiler during the previous year.

This permit renewal does not change this status. Continued compliance is expected.

15A NCAC 02D .0519: Control of Nitrogen Dioxide and Nitrogen Oxide Emissions. This regulation establishes a nitrogen dioxide emission limit of 5.8 pounds per ton of acid produced from a nitric acid manufacturing plant. It also establishes nitrogen oxide (NO_X) emission limits for different types of boilers, depending on whether the boiler is fired with oil, gas, or coal (note: the regulation does not address or regulate the use of biomass as fuel). Since oil and gas are used to fire the boiler (**ES5A**), which has a heat input capacity of 250 MMBtu/hr or more, emissions of NO_X from the boiler shall not exceed 0.8 lb/MMBtu of heat input while burning natural gas, propane, or used oil. No monitoring, recordkeeping, or reporting is required for NO_X emissions from the combustion of those fuels in this boiler. This permit renewal does not change this status. Continued compliance is expected.

15A NCAC 02D .0521, Control of Visible Emissions. This regulation establishes opacity limits for visible emissions generated by fuel burning operations and industrial processes where visible emissions are expected to occur (except during startups, shutdowns, and malfunctions approved according to procedures in 15A NCAC 02D .0535, Excess Emissions Reporting and Malfunctions). The regulation establishes opacity limits for visible emissions from sources based on the date the sources were manufactured.

The wood handling and storage operations (**FA**), the bottom ash handling system (**F6A-1**), and the fly ash handling system (**F6A-2**), and the emergency reciprocating internal combustion engines (RICE) (**ES-11 and ES-12**) are subject to this regulation. Because these sources were manufactured after July 1, 1971, this regulation limits them to 20 percent opacity averaged over a six-minute period. The six-minute averaging periods may exceed 20 percent not more than once in any hour, and not more than four times in any 24-hour period. In no event shall the six-minute average exceed 87 percent opacity.

To ensure compliance, CCWE is required to observe the emission points for wood handling and storage operations (**FA**), the bottom ash handling system (**F6A-1**), and the fly ash handling system (**F6A-2**) once a week for any visible emissions above normal. If visible emissions are observed to be above normal, CCWE must act appropriately to correct the above-normal emissions as soon as practicable and within the monitoring period; alternatively, they must demonstrate that the percent opacity is below the established limit in accordance with 15A NCAC 02D .2610 (Method 9). For the bottom ash and fly ash handling systems, CCWE must maintain the results of the monitoring, corrective actions, or testing in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. A summary report of the monitoring and recordkeeping

activities must be submitted semiannually. No monitoring, recordkeeping, or reporting is required for visible emissions from the emergency RICE (**ID Nos. ES-11 and ES-12**).This permit renewal does not change this status. Continued compliance is expected.

15A NCAC 02D .0524, New Source Performance Standards. See Section 8 of this review.

15A NCAC 02D .0530, Prevention of Significant Deterioration. The purpose of this rule is to implement a program for the prevention of significant deterioration of air quality as required by 40 CFR 51.166. This is discussed in further detail in Section 9 of this review.

15A NCAC 02D .0614: Compliance Assurance Monitoring [40 CFR 64]. See Section 11 of this review.

15A NCAC 02D .1100, Control of Toxic Air Pollutants (State-enforceable only). See Section 12 of this review.

15A NCAC 02D .1111, Maximum Achievable Control Technology. See Section 7 of this review.

State-Enforceable Only: Limitation to Avoid 15A NCAC 02D .1806. This rule provides for the control and prohibition of objectionable odorous emissions. The rule includes several exemptions, one of which applies to the poultry litter supplied for fuel in boiler ES5A. 02D 1806(d)(11) exempts "any facility that stores products that are grown, produced, or generated on one or more agricultural operations and that are "renewable energy resources," as defined in G.S. 62-133.8(a)(8) if the facility identifies the sources of potential odor emissions and specifies odor management practices in their permit pursuant to 15A NCAC 02Q .0300 or .0500 to minimize objectionable odor beyond the property lines."

To avoid the applicability of 15A NCAC 02D .1806, CCWE has agreed to implement the following management practices to minimize odor from poultry litter:

- Any poultry litter arriving on the facility's property shall be in adequately covered trucks.
- CCWE shall use on-site fuel handling and management practices to minimize emissions and spillage and improve combustion conditions of the poultry litter, to include:
    - performing loading and off-loading procedures inside a poultry litter storage area in an expeditious manner,
    - reasonably using the "first in, first out" (FIFO) method to process and use poultry litter,
    - immediately transporting loaded trucks when transferring poultry litter from storage to fuel processing, and
    - not storing any poultry litter on site for more than 90 days.

This permit renewal does not change this status. Continued compliance is expected.

15A NCAC 02Q .0317: Avoidance Conditions. See Section 7 of this review.

02Q .0504, Option for Obtaining Construction and Operation Permit. This regulation was included in the permit to complete the second step of the two-step permit significant modification process pursuant to 15A NCAC 02Q .0501(b)(2) or (c)(2). The permit modification was to increase brooder house poultry litter fuel usage for boiler **ES5A** to 20% by weight or no more than 121,615 tons per year on a 12-month rolling average basis; and to reduce the frequency of fuel usage reporting to comply with NC Toxic Air Pollutant (TAP) rules from quarterly to semiannually.

Under this permit condition, CCWE was required to file an amended application following the procedures of Section 15A NCAC 02Q .0500 within one year from the date of permit issuance (no later than September 27, 2017). They met this requirement by submitting Application No. 2500158.16A on September 26, 2017. On February 8, 2018, DAQ issued Permit No. 06419T25 to CCWE, completing the modification process and satisfying this permit requirement. Therefore, this permit condition will be removed in this renewal. Compliance is expected.

Phase II Acid Rain Permit Requirements. The Acid Rain Program was authorized under Title IV of the Clean Air Act Amendments (CAAA) of 1990. Title IV specifies a two-stage strategy to reduce NO_X emissions from coal-fired electric power plants. Phase I, promulgated April 13, 1995, reduced annual NO_X emissions in the U.S. States by over 400,000 tons per year between 1996 and 1999. Phase II, beginning in the year 2000, reduced emissions by approximately 1.17 million tons per year (Phase II).[5] As discussed in the application review for Air Permit No. 06419T20 (D. Putney, Application No. 2500158.06A, January 19, 2010), the U.S. EPA determined that the CCWE facility is subject to the Acid Rain Program. The following SO_2 allowance allocations and NO_X requirements have been established and included in the permit for the affected unit shown:

ES5A (Acid Rain ID No. 4A)	SO_2 allowances, under Tables 2, 3, or 4 of 40 CFR Part 73	None
	NO_X limit	See 40 CFR Parts 76.5, 76.6, and 76.7.

The Phase II Permit Application submitted for this facility, as approved by DAQ, are part of this permit. The owners and operators of the Phase II acid rain sources must comply with the standard requirements and special provisions set forth in their Acid Rain Permit Application dated January 6, 2006.

The Acid Rain permit expired on January 31, 2021—several months before the expiration of the Title V permit. The renewal application for the acid rain permit, which is separate from the Title V permit application process, was due six months prior to the acid rain permit expiration date. Therefore, CCWE is subject to enforcement action for late submittal of their acid rain permit renewal application. CCWE was informed that an acid rain permit application was overdue, and the application was received by DAQ on October 13, 2022. A new acid rain permit will be issued concurrently with the Title V permit renewal and will have the same expiration date as the Title V permit.

Cross State Air Pollution Rules Permit Requirements. On July 6, 2011, the U.S. EPA finalized the Cross-State Air Pollution Rule (CSAPR). CSAPR was a federal implementation plan (FIP), requiring certain states in the eastern half of the U.S. (a.k.a. upwind states) to improve air quality by reducing power plant emissions of SO_2 and NO_X that cross state lines and contribute to the downwind states' non-attainment of these pollutants. With 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.

[5] U.S. Environmental Protection Agency. Clean Air Markets; Phase II of the Acid Rain Program. Downloaded from https://www.epa.gov/airmarkets/phase-ii-acid-rain-program, September 15, 2022.

Then the EPA finalized the CSAPR Update (CSAPR Update)[6] 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[7]. 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[8].

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[9].

Addressing the D. C. Circuit Court[10] 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[11]. 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 NO_X ozone season requirements[12][13].

Finally, it needs to be noted that even for the more stringent 2015 ozone NAAQS, EPA proposed[14] 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[15] 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 included the original CSAPR requirements in Title V permits for all affected units in NC, including the boiler ES5A at the CCWE facility, after the US Supreme Court[16] upheld the CSAPR. Specifically, DAQ included in the permits the CSAPR trading programs requirements for annual NO_X (40 CFR 97 Subpart AAAAA), ozone season NOx (Subpart BBBBB), and annual SO_2 (Subpart CCCCC).

With EPA's removal of NC ozone season NOx reductions requirements for 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 CCWE permit by removing the previously applicable requirements in Subpart BBBBB (40 CFR 97) for ozone season NOx.

[6] 81 FR 74504 (October 26, 2016).
[7] 81 FR 74506, 74507.
[8] Id., 81 FR 74524.
[9] Id.
[10] *EME Homer City Generation, L.P., v. EPA*, No. 795 F.3d 118, 129–30, 138, July 28, 2015.
[11] Id.
[12] 81 FR 74555.
[13] States that are Affected by the Cross-State Air Pollution Rule (CSAPR) | US EPA and 40 CFR 97.510(a)(16).
[14] 84 FR 71854 (December 30, 2019).
[15] 86 FR 37942 (July 19, 2021).
[16] *EPA v. EME Homer City Generation, L. P.*, No. 12-1182, Decided April 29, 2014.

Section 2.5 of the permit states that CCWE is shielded from the following non-applicable requirements:

- The EPA's Clean Air Interstate Rules (CAIR) are not applicable to the boiler (**ES5A**), pursuant to 40 CFR 52.35(f) and 52.36(e). CAIR has been replaced by the Cross State Air Pollution Rule (CSAPR).
- The requirements of 15A NCAC 02D .2400 "Clean Air Interstate Rules" no longer apply to the boiler (ID No. ES5A). According to 15A NCAC 02D .2401(a), the purpose of the 02D .2400 rules is to implement CAIR. Because CAIR no longer applies, the 02D .2400 rules also no longer apply.

NOTE: The CCWE permit has been updated to reflect the most current stipulations for all applicable regulations.

7. National Emission Standards for Hazardous Air Pollutants (NESHAPS): Maximum and/or Generally Achievable Control Technology (MACT/GACT)

CCWE is under an avoidance condition for MACT standards and is subject to two GACT standards (GACT ZZZZ and JJJJJJ). Each of these elements is discussed below.

MACT Avoidance. To remain classified a minor source for HAPs and avoid applicability of any NESHAPs, CCWE has accepted an avoidance condition under 02Q .0317 in their air permit. Under this condition, CCWE must ensure facility emissions shall be less than 10 tons per year of each individual HAP, and less than 25 tons per year of all HAPs combined. The permit provides the following example equations for calculating HAP emissions from boiler **ES5A**, unless other HAP emission factors are approved by the DAQ:

$$HCl\ Emissions\ \left(\frac{ton}{yr}\right) = TF\ \times FHV \times \frac{2000\ lb}{1\ ton}\ \times uHCl_{ef} \times \frac{1.0\ MMBtu}{1.0\ \times 10^{6}\ Btu}$$

$$Styrene\ Emissions\ \left(\frac{ton}{yr}\right) = TF\ \times FHV \times \frac{2000\ lb}{1\ ton}\ \times uSTY_{ef} \times \frac{1.0\ MMBtu}{1.0\ \times 10^{6}\ Btu}$$

$$Other\ HAP\ Emissions\ \left(\frac{ton}{yr}\right) = TF\ \times FHV \times \frac{2000\ lb}{1\ ton}\ \times HAP_{ef} \times \frac{1.0\ MMBtu}{1.0\ \times 10^{6}\ Btu}$$

Where

TF = Total Biomass Fuel Use (tons/yr) based on 80% woody biomass and ≤ 20% poultry litter mixture

FHV = Fuel Heating Value (Btu/lb) = 4,797 Btu/lb average based on the biomass fuel mixture above

uHClef = Uncontrolled HCl Emission Factor = 1.54 E-3 lb HCl/MMBtu fuel[17]

uSTYef = Uncontrolled Styrene Emission Factor = 1.90 E-3 lb Styrene/MMBtu fuel[18]

HAPef = HAP Emission Factor (lbHAP)/MMBtu fuel)[19]

[17] The hydrogen chloride emission factor is based on the stack emissions test performed on the boiler (ID No. ES5A) on September 11, 2015, and approved July 7, 2016 by DAQ's Stationary Source Compliance Branch.
[18] The styrene emission factor is based on EPA's AP-42 Section 1.6 for wet wood.
[19] The other HAP emission factors are based on a combination of stack emissions tests and EPA's AP-42 Section 1.6.

As discussed earlier in Section 5 of this review, the calculation for styrene is being dropped from this permit condition. All other conditions remain unchanged.

The avoidance condition limits the total biomass fuel mixture to the boiler **ES5A** to no more than 121,615 tons per year of brooder house poultry litter, on a 12-month rolling average basis. Prior to the issuance of Permit No. 06419T23, poultry litter combustion at CCWE was limited to 20 percent by weight of the total biomass combusted. CCWE requested this limit be changed to a fixed weight limit based upon 20 percent of the maximum potential fuel use—608,076 tons annually, as determined from submitted calculations. This change, incorporated into the permit upon the issuance of Permit No. 06419T23 on September 27, 2016, allowed CCWE to track litter usage more effectively while remaining below their MACT avoidance limits.[20] CCWE must maintain the following monthly usage records of fuel fired in the boiler:

For fuel that contains that contains HAP, CCWE must record the following quantities monthly:

- Tons of HAP emitted on individual equipment (**ES5A**) and for the plant each month and for the 12-month period ending on that month,
- Tons of HAP emitted by the plant each month and for the 12-month period ending on that month,
- Tons of all HAP emitted by the plant each month and for the 12-month period ending on that month.
- Amount of fuels fired such as woody biomass and brooder house poultry litter containing HAP on a monthly basis.

The permit also requires that CCWE "keep a record of the applicability determination on site at the source for a period of five years after the determination, or until the source becomes an affected source. The determination must include the analysis demonstrating why the Permittee believes the source is unaffected pursuant to 40 CFR Part 63.10(b)(3)."

Finally, CCWE is required to submit semiannual reports to the Regional Supervisor, DAQ summarizing:

- total pounds of HAP emitted during the previous calendar year,
    - for each month during the semiannually period, and
    - for each 12-month period ending on each month during the semiannual period using a 12-month rolling average;
- greatest quantity in pounds of an individual HAP emitted:
    - for each month during the semiannually period, and
    - for each 12-month period ending on each month during the semiannual period using a 12-month rolling average.

This permit renewal does not affect this status. Continued compliance is expected.

<u>40 CFR Part 63, Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines</u>. The diesel-fired emergency fire pump (**ES-11**) and diesel-fired emergency generator (**ES-12**) are subject to this rule.

- During periods of startup, minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.
- Except during periods of startup of the internal combustion engine:
    - Change oil and filter every 500 hours of operation or annually, whichever comes first;
    - Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first; and

[20] Email dated September 19, 2016 from C. Occhipinti, NTH Consultants to J. Twisdale, Permits Section, DAQ.

    - Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary
- Comply with the emission limitations, operating limitations and other requirements that apply at all times. [40 CFR 63.6605(a)]
- Operate and maintain the engines in a manner consistent with safety and good air pollution control practices for minimizing emissions.
- Operate and maintain the engines according to the manufacturer's emission-related written instructions or develop a maintenance plan for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.
- For the engine to be considered an emergency stationary RICE under this condition, any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year is prohibited. [40 CFR 63.6640(f)]
- Each engine must have a non-resettable hour meter if one is not already installed. [40 CFR 63.6625(f)]

CCWE shall keep records of the following:

- A copy of each notification and report that you submitted to comply with this subpart.
- Occurrence and duration of each malfunction of operation
- All required maintenance performed
- Actions taken during periods of malfunction to minimize emissions
- Hours of operation of the engine that is recorded through the non-resettable hour meter, including how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation.

Each record shall be kept in a form suitable and readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to 40 CFR 63.10(b)(1). Biannual summary reports of monitoring and recordkeeping activities must be submitted. This permit renewal does not affect this status. Continued compliance is expected.

<u>40 CFR Part 63, Subpart JJJJJJ, NESHAP for Area Sources: Industrial, Commercial, and Institutional Boilers</u>. Boiler **ES5A** is subject to this rule.

According to a WaRO inspection report (B. Huddleston, February 25, 2015), the initial tune up requirement was satisfied on February 24, 2014.The energy assessment requirement was satisfied on February 28, 2014. These dates will be noted in the permit renewal.

Biennial tune ups of boiler **ES5A** are required. Each tune up shall be conducted no more than 25 months after the previous tune-up, and while burning the type of fuel (or fuels in the case of boilers that routinely burn two types of fuels at the same time) that provided most of the heat input to the boiler over the 12 months prior to the tune-up.

Under Subpart JJJJJJ, CCWE shall maintain the following records:

- a copy of each notification and report submitted to comply with this rule and all documentation supporting any Notification of Compliance Status that was submitted.
- the following records to document conformance with the performance tune-ups:
    - Records that identify each boiler, the date of tune-up, the procedures followed for tune-up, and the manufacturer's specifications to which the boiler was tuned.

    - The concentrations of CO in the effluent stream in parts per million, by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler.
    - A description of any corrective actions taken as a part of the tune-up of the boiler.
    - The type and amount of fuel used over the 12 months prior to the tune-up of the boiler, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel use by each unit.
        - a copy of each boiler energy assessment report.
- Records of the occurrence and duration of each malfunction of the boiler or of the associated air pollution control and monitoring equipment.
- Records of actions taken during periods of malfunction to minimize emissions in accordance with the general duty to minimize emissions, including corrective actions to restore the malfunctioning boiler, air pollution control, or monitoring equipment to its normal or usual manner of operation.
- For operating units that combust non-hazardous secondary materials that have been determined not to be solid waste pursuant to 40 CFR 241.3(b)(1), CCWE shall keep a record which documents how the secondary material meets each of the legitimacy criteria under 40 CFR 241.3(d)(1).
    - If combusting a fuel that has been processed from a discarded non-hazardous secondary material pursuant to 40 CFR 241.3(b)(4), CCWE must keep records as to how the operations that produced the fuel satisfies the definition of processing in 40 CFR 241.2 and each of the legitimacy criteria in 40 CFR 241.3(d)(1).
    - If the fuel received a non-waste determination pursuant to the petition process submitted under 40 CFR 241.3(c), CCWE must keep a record that documents how the fuel satisfies the requirements of the petition process.
    - For operating units that combust non-hazardous secondary materials as fuel per 40 CFR 241.4, CCWE must keep records documenting that the material is a listed non-waste under 40 CFR 241.4(a).
- The records must be in a form suitable and readily available for expeditious review. Each record must be kept for 5 years following the date of each recorded action. Each record shall be kept on-site or be accessible from a central location by computer or other means that instantly provide access at the site for at least 2 years after the date of each recorded action. CCWE may keep the records off site for the remaining 3 years.

This permit renewal does not affect this status. Continued compliance is expected.

8. New Source Performance Standards (NSPS)

Boiler **ES5A** is subject to 40 CFR Part 60, Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units. Under this regulation, the following emission limits apply:

- PM emissions: less than or equal to 0.1 pounds per million Btu heat input;
- Visible emissions: shall not exceed 20 percent opacity (6-minute average), except that one 6-minute period with opacity not to exceed 27 percent is allowed per hour; and
- Annual capacity factor for wood: no less than 30 percent (0.30).
- NO_X emissions: the annual capacity factor for natural gas and/or propane shall be no greater than 10 percent (0.10).

The permit stipulations for Subpart Db have been updated to reflect the requirements of this subpart more clearly. They are summarized as follows:

- Testing: compliance shall be demonstrated on a five year basis by testing boiler **ES5A**, Each test shall be conducted within 61 months of the previous test. CCWE shall submit a testing protocol to the regional office for review and approval at least 45 days prior to the test date.
- Monitoring: CCWE must install, calibrate, operate, and maintain a continuous opacity monitoring system (COMS) to measure opacity and record measurements.
- Records: CCWE shall keep records of the following for at least two years:
  - the amounts of each fuel combusted in boiler **ES5A** during each day,
  - calculations of the annual capacity factor individually for each fuel for the reporting period,
  - records of opacity,
  - occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which a continuous monitoring system or monitoring device is inoperative, and
  - all measurements, including COMS measurements, COMS performance evaluations, COMS calibration checks, and maintenance.
- Reports: Biannual summary reports of monitoring and recordkeeping activities must be submitted, including reports of excess emissions and monitoring systems performance.

This permit renewal does not affect this status. Continued compliance is expected.

9. New Source Review (NSR)/Prevention of Significant Deterioration (PSD)

The sources listed in the following table are subject to the "Best Available Control Technology" (BACT) emission limits for PSD as shown.

Emission Source	Pollutants	Emission Limits
Wood handling and storage operations (**FA**)	PM	Work practices and equipment design
Bottom ash handling system (**F6A-1**) Fly ash handling system (**F6A-2**)	Opacity	0 percent
Boiler (**ID No. ES5A**)	PM	0.041 pounds per million Btu heat input
	Volatile Organic Compounds (VOC)	0.077 pounds per million Btu heat input
	Carbon Monoxide (CO)	0.66 pounds per million Btu heat input
	Nitrogen Oxides (NO_X)	0.35 pounds per million Btu heat input

The following work practices to control PM emissions from the wood handling and storage operations are specified:

- Wood deliveries shall be made in a covered truck and discharged into one of two hydraulic dumpers equipped with sidewall curtains.
- The wood reclaim conveyor shall be covered and all transfer points shall be enclosed.

- Wood unloading onto storage pile shall utilize enclosed telescoping chutes kept as close to receiving pile as possible when dumping; and
- For traffic on wood storage pile and wind erosion from wood storage pile, the high moisture content of the stored wood and the coarse wood cover will be utilized to reduce fugitive emissions.

To control opacity for the bottom ash handling system (**F6A-1**), and the fly ash handling system (**F6A-2**), CCWE shall observe the emission points once a week for any visible emissions above normal, using 40 CFR Part 60, Appendix A - Method 22. If any visible emissions are observed from either source, CCWE shall be deemed to be in noncompliance with this rule. CCWE must maintain the results of the monitoring, corrective actions, or testing in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. A summary report of the monitoring and recordkeeping activities must be submitted semiannually.

For the boiler **ES5A,** CCWE shall perform the monitoring, recordkeeping, and reporting requirements for the multicyclone **CD5A-1** and the ESP **CD5A-2** as for 02D .0503, Particulates from Fuel Burning Indirect Heat Exchangers, as discussed above in Section 5.

10. Risk Management Plan (RMP) Requirements

40 CFR Part 68 requires stationary sources storing more than threshold quantities of regulated substances to develop a RMP in accordance with Section 112(r) of the Clean Air Act. The RMP lists the potential effects of a chemical accident at the facility, steps the facility is taking to prevent an accident, and emergency response procedures to be followed if an accident should occur.

CCWE is not subject to Section 112(r) of the Clean Air Act requirements because it does not store any of the regulated substances in quantities above the thresholds in the Rule. This permit renewal does not affect the 112(r) status of the facility.

11. Compliance Assurance Monitoring (CAM)

The CAM rule (40 CFR 64) applies to each pollutant specific emissions unit located at a major source that is required to obtain a Title V, Part 70 or 71 permit if it meets all of the following criteria:

- It is subject to an emission limitation or standard, and
- It uses a control device to achieve compliance, and
- It has potential pre-control emissions that equal or exceed the major source threshold (i.e., either 100 tpy for criteria pollutants, 10 tpy of any individual HAP, or 25 tpy of any combination of HAP).

The following emission limitations or standards are exempted from the CAM rule:

- NSPS or NESHAP standards proposed after November 15, 1990;
- Stratospheric ozone protection requirements under Title VI of the Clean Air Act
- Acid rain program requirements;
- Emission limitations or standards or other requirements that apply solely under an approved emissions trading program;
- An emissions cap that meets requirements of 40 CFR 70.4(b)(12) or 71.6(a)(13);

- Emission limitations or standards for which a Part 70 or 71 permit specifies a continuous compliance determination method, as defined in 40 CFR 64.1, unless the applicable compliance method includes an assumed control device emission reduction factor that could be affected by the actual operation and maintenance of the control device (e.g., a surface coating line controlled by an incinerator for which continuous compliance is determined by calculating emissions on the basis of coating records and an assumed control device efficiency factor based on an initial performance test; in this example, this part would apply to the control device and capture system, but not to the remaining elements of the coating line, such as raw material usage).
- Certain municipally-owned utility units, as defined in 40 CFR 72.2.

Please note that the emission unit is not exempted from the CAM rule if nonexempt emission limitations or standards (e.g. a state rule or an older NSPS emission limits) apply to the emissions unit.

CAM was determined in a preceding application review (J. Sheppard, 06419T24, September 26, 2017) to apply to the boiler **ES5A** because it:

- is subject to a non-exempt emission limitation or standard (NSPS – 40 CFR Part 60 Subpart Db),
- uses a control device to achieve compliance (multicyclone followed by an electrostatic precipitator), and
- has potential pre-control emissions that exceed or are equivalent to the major source threshold (1050 tpy of PM pre-control emissions, exceeding the major source threshold of 100 tpy).

The key elements of the monitoring approach for PM, including parameters to be monitored, parameter ranges and performance criteria are presented in the following table.

Measure		**Indicator**
I.	Indicator	Opacity of ESP exhaust
	Measuring approach	Continuous opacity monitoring system (COMS) in ESP exhaust
II.	Indicator Range	The opacity indicator range for the ESP is a 1-hour average opacity of 20 percent. An excursion occurs when any 1-hour average opacity is greater than 20 percent. The excursion triggers corrective action and reporting requirement.
Quality Improvement Plan (QIP) Threshold		The QIP threshold is when the total duration of opacity excursions is greater than 5 percent of the source operating time during any 6-month period. The QIP shall be prepared as required under 40 CFR 64.8.

Measure	Indicator
III. Performance Criteria	
A. Data Representativeness	The COMS is installed at a representative location in the boiler ESP exhaust stack per 40 CFR 60, Appendix B, Performance Specification (PS-1)
B. Verification of Operational Status	NA.
C. QA/QC Practices and Criteria	The COMS was initially installed and evaluated per PS-1. Zero and span drift are checked daily and a quarterly filter audit is performed.
D. Monitoring Frequency	The opacity of the ESP exhaust is monitored continuously (every 10 seconds) using COMS
E. Data Collection Procedures	The data acquisition system shall retain all 6-minute opacity data.
F. Averaging Period	The 10-second opacity data are used to calculate the 6-minute averages according to PS-1.

This permit renewal does not affect the facility's status with respect to CAM. Continued compliance is expected.

12. Facility-wide Air Toxics Review

CCWE is subject to emission limits for the toxics listed below, in accordance with 15A NCAC 02D .1100, Control of Toxic Air Pollutants. These emission limits were established as a facility-wide worst-case single stack modeling demonstration[21].

Toxic Pollutant	Optimized Allowable Limit
Acetaldehyde	1.10E+05 lb/hr
Acetic Acid	1.51E+04 lb/hr
Acrolein	3.26E+02 lb/hr
Acrylonitrile	6.91E+05 lb/year
Ammonia	1.10E+04 lb/hr
Ammonium chromate	3.82E+02 lb/year
Ammonium dichromate	3.82E+02 lb/year
Aniline	4.08E+03 lb/hr
Arsenic	1.06E+03 lb/year
Aziridine	2.91E+03 lb/day
Benzene	5.52E+05 lb/year
Benzidine and salts	6.90E+01 lb/year
Benzo(a)pyrene	1.52E+05 lb/year
Benzyl chloride	2.04E+03 lb/hr
Beryllium	1.89E+04 lb/year
Beryllium chloride	1.89E+04 lb/year
Beryllium fluoride	1.89E+04 lb/year
Beryllium nitrate	1.89E+04 lb/year

Toxic Pollutant	Optimized Allowable Limit
Bis-chloromethyl ether	1.70E+03 lb/year
1,3-butadiene	7.82E+05 lb/year
Bromine	8.15E+02 lb/hr
Cadmium	2.53E+04 lb/year
Cadmium acetate	2.53E+04 lb/year
Cadmium bromide	2.53E+04 lb/year
Calcium chromate	3.82E+02 lb/year
Carbon disulfide	9.02E+04 lb/day
Carbon tetrachloride	3.08E+07 lb/year
Chlorine	3.67E+03 lb/hr
	1.82E+04 lb/day
Chlorobenzene	1.07E+06 lb/day
Chloroform	1.98E+07 lb/year
Chloroprene	1.43E+04 lb/hr
	2.13E+05 lb/day
Chromic acid	3.82E+02 lb/year
Chromium VI	3.82E+02 lb/year

[21] DAQ memo from M. Yoder, Air Quality Analysis Branch to B. Joyner, Washington Regional Office. Dispersion Modeling Analysis for CMS Generation, Inc., Craven County Wood Energy L.P., New Bern, Craven County, North Carolina. November 27, 2000.

Toxic Pollutant	Optimized Allowable Limit
Cresol	8.97E+03 lb/hr
Di(2-ethylhexyl) phthalate	1.46E+04 lb/day
p-dichlorobenzene	2.69E+05 lb/hr
Dichlorodifluoromethane	1.20E+08 lb/day
Dichlorofluoromethane	2.43E+05 lb/day
Dimethyl sulfate	1.46E+03 lb/day
1,4 -dioxane	2.72E+05 lb/day
Epichlorohydrin	3.82E+08 lb/year
Ethyl acetate	5.71E+05 lb/hr
Ethyl mercaptan	4.08E+02 lb/hr
Ethylene dibromide	1.84E+06 lb/year
Ethylene dichloride	1.75E+07 lb/year
Ethylene glycol monoethyl ether	4.89E+02 lb/hr
Ethylene oxide	1.24E+05 lb/year
Ethylenediamine	1.02E+04 lb/hr
	1.46E+05 lb/day
Fluorides	1.02E+03 lb/hr
	7.76E+03 lb/day
Formaldehyde	6.12E+02 lb/hr
Hexachlorocyclopentadiene	4.08E+01 lb/hr
	2.91E+02 lb/day
Hexachlorodibenzo-p-dioxin	3.49E+02 lb/year
n-Hexane	5.34E+05 lb/day
Hexane isomers	1.47E+06 lb/hr
Hydrazine	2.91E+02 lb/day
Hydrogen chloride	2.85E+03 lb/hr
Hydrogen cyanide	4.48E+03 lb/hr
	6.79E+04 lb/day
Hydrogen fluoride	1.02E+03 lb/hr
	1.46E+04 lb/day
Hydrogen sulfide	8.56E+03 lb/hr
Maleic anydride	4.08E+02 lb/hr
	5.82E+03 lb/day
Manganese & compounds	1.50E+04 lb/day
Manganese cyclopentadienyl tricarbonyl	2.91E+02 lb/day
Manganese tetroxide	3.01E+03 lb/day
Mercury	2.91E+02 lb/day
Mercury, alkyl	2.91E+02 lb/day
Mercury, aryl	2.91E+02 lb/day
Methyl chloroform	9.99E+05 lb/hr
	5.82E+06 lb/day
Methyl ethyl ketone	3.61E+05 lb/hr
	1.79E+06 lb/day

Toxic Pollutant	Optimized Allowable Limit
Methyl isobutyl ketone	1.22E+05 lb/hr
	1.24E+06 lb/day
Methyl mercaptan	2.04E+02 lb/hr
Methylene chloride	6.93E+03 lb/hr
	1.10E+08 lb/year
Nickel carbonyl	2.91E+02 lb/day
Nickel metal	2.91E+03 lb/day
Nickel subsulfide	9.66E+03 lb/year
Nickel, soluble	2.91E+02 lb/day
Nitric acid	4.08E+03 lb/hr
Nitrobenzene	2.04E+03 lb/hr
	2.91E+04 lb/day
n-Nitrosodimethylamine	2.30E+05 lb/year
Pentachlorophenol	1.02E+02 lb/hr
	1.46E+03 lb/day
Perchloroethylene	8.74E+08 lb/year
Phenol	3.87E+03 lb/hr
Phosgene	1.21E+03 lb/day
Phosphine	5.30E+02 lb/hr
Polychlorinated biphenyls	3.82E+05 lb/year
Potassium chromate	3.82E+02 lb/year
Potassium dichromate	3.82E+02 lb/year
Sodium chromate	3.82E+02 lb/year
Sodium dichromate	3.82E+02 lb/year
Strontium chromate	3.82E+02 lb/year
Styrene	4.32E+04 lb/hr
Sulfuric acid	4.08E+02 lb/hr
	5.82E+03 lb/day
1,1,2,2-tetrachloro-1,2-diflouroethane	2.52E+07 lb/day
1,1,2,2-tetrachloro-2,2-diflouroethane	2.52E+07 lb/day
1,1,1,2-tetrachloro-ethane	2.90E+07 lb/year
1,1,2-trichloro-1,2,2-triflouroethane	3.87E+06 lb/hr
Tetrachlorodibenzo-p-dioxin	1.38E+01 lb/year
Toluene	2.28E+05 lb/hr
	2.28E+06 lb/day
Toluene-2,4-diisocyanate	9.70E+01 lb/day
Trichloroethylene	2.86E+04 lb/day
Vinyl chloride	1.75E+06 lb/year
Vinylidene chloride	5.82E+04 lb/day
Xylene	2.65E+05 lb/hr
	1.31E+06 lb/day
Zinc chromate	3.82E+02 lb/year

To ensure compliance with these limits, total biomass fuel mixture to the boiler **ES5A** is limited to the following:

- No more than 50 percent, by weight, creosote treated wood;

- No more than 121,615 tons per year, brooder/grow out house poultry litter, on a 12-month rolling average basis; and/or
- No more than 50 percent, by weight, clean cellulosic biomass other than listed below in (D).
- Clean wood, mold inhibitor treated wood, plywood trimmings, particleboard, and/or International Paper sludge can be burned at any wood fuel mixture.
- The wood fuel mixture shall not include any pentachlorophenol treated railroad ties or utility poles.

CCWE may use a maximum of 3,000 gallons per year of used oil as a supplemental fuel in the boiler. CCWE shall only use used oil that is generated at this facility and that meets the qualifications of equivalency with No. 4 fuel oil as a supplemental fuel.

To ensure compliance with the fuel restrictions, CCWE shall conduct the following monitoring:

- Monitor the treatment method (i.e. pentachlorophenol-treated or creosote-treated) of railroad ties and utility poles burned in the boiler each month;
- Monitor the weight percent of clean wood, creosote treated wood, mold inhibitor treated wood, plywood trimmings, particleboard, International Paper sludge, clean cellulosic biomass, and brooder/grow out house poultry litter burned in the boiler each month;
- Monitor the poultry litter burned in the boiler each month to ensure that only poultry litter from brooder/grow out houses is used as fuel;
- Monitor the amount of used oil burned in the boiler each month; and
- Monitor the used oil burned in the boiler for equivalency with unadulterated No. 4 fuel oil by conducting a chemical analysis of the used oil in accordance with the NC DAQ Toxics Protection Branch Recycled Oil Management Plan at least once per year. As outlined in the current version of that document, dated January 2013, DAQ considers used oils that meet the following restrictions to be equivalent to unadulterated No. 4 fuel oil:

Constituent/Property	Allowable Level
Arsenic	1.0 parts per million, maximum
Cadmium	2.0 parts per million, maximum
Chromium	5.0 parts per million, maximum
Lead	100 parts per million, maximum
Total Halogens	1000 parts per million, maximum
Flash Point	130 degrees Fahrenheit (^{o}F), minimum
Sulfur	2.0% by weight, maximum
Ash	1.0% by weight, maximum

The DAQ reserves the right to require additional testing and/or monitoring of the used oil on an annual basis or without prior notice.

CCWE must maintain the monthly records of all monitoring activities listed above. Records of the treatment method of railroad ties and utility poles burned in the boiler shall be in the form of a certification from the railroad tie supplier(s) that no railroad ties or utility poles supplied to CCWE were treated with pentachlorophenol. In addition, CCWE shall provide a certification that all railroad ties and utility poles burned in the boiler were obtained from the railroad tie and utility pole supplier(s) that provided certifications. Similarly, the records of the source of poultry litter burned in the boiler shall be in

the form of a certification from the poultry litter supplier(s) that all poultry litter supplied to CCWE was obtained from brooder/grow out houses, and CCWE shall provide certification that all poultry litter burned in the boiler were obtained from the poultry litter supplier(s) that provided certifications. Biannual summary reports of the monitoring and recordkeeping activities shall be submitted. This permit renewal does not affect the status of the permit with regard to 15A NCAC 02D .1100. Continued compliance is expected.

13. Facility Emissions Review

The table in the header page of this review summarizes emissions after application of required emission controls reported by CCWE for the years 2017 through 2021. Over that time period, increases of SO_2 (from 149.41 tons in 2017 to 330.01 tons in 2021) and PM_{10} (from 83.13 tons in 2017 to 104.82.01 tons in 2021) were reported, while emissions of NO_X have generally decreased (from 629.92 tons in 2017 to 433.16 tons in 2021). A total HAP emissions decrease (from 20.18 tons in 2017 to 14,76 tons in 2021) was also reported, with hydrogen chloride being the largest individual HAP being emitted. There have been no changes to the permit as a result of this permit renewal that have increased potential emissions at the CCWE facility.

14. Compliance History and Status

The following chronology dates from when the CCWE permit was last renewed on September 26, 2017.

November 14, 2017	Dennis Igboko, DEQ issues review of 2017 third quarter opacity excess emissions report (EER). The review noted no unexcused opacity excursions, found the boiler had been operated with proper operation and maintenance practices, and found the opacity audit met audit requirements.
February 6, 2018	Betsy Huddleston, Washington Regional Office (WaRO) conducts facility compliance inspection. Except for the late submittal of the boiler opacity compliance assurance monitoring semi-annual report, CCWE appeared to be operating in compliance with all permit requirements.
February 21, 2018	WaRO issues Notice of Deficiency (NOD) to CCWE for late submittal of its first semi-annual report, as required in Section 2.1 B.8.e of the permit.
February 28, 2018	Dennis Igboko, DEQ issues review of 2017 fourth quarter opacity EER report. The review noted no unexcused opacity excursions, the boiler had been operated with proper operation and maintenance practices, and the opacity audit met audit requirements.
May 10, 2018	Dennis Igboko, DEQ issues review of 2018 first quarter opacity EER report. The review noted no unexcused opacity excursions, the boiler had been operated with proper operation and maintenance practices, and found the opacity audit met audit requirements.
August 21, 2018	Dennis Igboko, DEQ issues review of 2018 second quarter opacity EER report. The review noted no unexcused opacity excursions, found the boiler had been operated with proper operation and maintenance practices, and the opacity audit met audit requirements.

December 3, 2018	Dennis Igboko, DEQ issues review of 2018 third quarter continuous opacity monitoring system (COMS) report. The review noted no unexcused opacity excursions, the boiler had been operated with proper operation and maintenance practices, and the COMS audit met the quarterly specifications.
March 8, 2016	Betsy Huddleston, WaRO conducts review of records required by the CCWE permit. No records appeared to be missing or complete. The rest of the facility compliance inspection was rescheduled due to a boiler tube leak.
March 12, 2019	Dennis Igboko, DEQ issues review of 2018 third quarter COMS report. The review noted 10 six-minute periods of opacity exceedances that could not be excused, preventing CCWP from certifying continuous compliance in their Annual Compliance Certification (ACC) for 2018. The COMS unit appeared to indicate use of good operation and maintenance practices for minimizing emissions, and the COMS audit results met the quarterly specifications.
March 18, 2018	Betsy Huddleston, WaRO resumed the remainder of the facility compliance inspection. Facility appeared to be operating in compliance with all permit requirements.
May 23, 2019	Dennis Igboko, DEQ issues review of 2019 first quarter COMS report. 22 six-minute periods of opacity exceedances that could not be excused, preventing CCWP from certifying continuous compliance in their ACC for 2019. The COMS unit appeared to indicate use of good operation and maintenance practices for minimizing emissions, and the COMS audit results met the quarterly specifications.
August 14, 2019	Dennis Igboko, DEQ issues review of 2019 second quarter COMS report. The review noted 10 six-minute periods of opacity exceedances that could not be excused, preventing CCWP from certifying continuous compliance in their ACC for 2019. The COMS unit appeared to indicate use of good operation and maintenance practices for minimizing emissions, and the COMS audit results met the quarterly specifications.
November 14, 2019	Dennis Igboko, DEQ issues review of 2019 third quarter COMS report. The review noted 16 six-minute periods of opacity exceedances that could not be excused, preventing CCWP from certifying continuous compliance in their ACC for 2019. The COMS unit appeared to indicate use of good operation and maintenance practices for minimizing emissions, and the COMS audit results met the quarterly specifications.
February 20, 2020	Betsy Huddleston, WaRO conducts facility compliance inspection. CCWE appeared to be operating in compliance with all permit requirements.
May 4, 2020	Dennis Igboko, DEQ issues review of 2020 first quarter COMS report. The review noted 13 six-minute periods of opacity exceedances that could not be excused, preventing CCWP from certifying continuous compliance in their ACC for 2020. The COMS unit appeared to indicate use of good operation and maintenance practices for minimizing emissions, and the COMS audit results met the quarterly specifications.

August 20, 2020	Dennis Igboko, DEQ issues review of 2020 second quarter COMS report. The review noted 10 six-minute periods of opacity exceedances that could not be excused, preventing CCWP from certifying continuous compliance in their ACC for 2020. The COMS unit appeared to indicate use of good operation and maintenance practices for minimizing emissions, and the COMS audit results met the quarterly specifications.
October 20, 2020	Kurt Tidd, WaRO conducts facility compliance inspection. CCWE appeared to be operating in compliance with all permit requirements.
December 2, 2020	Dennis Igboko, DEQ issues review of 2020 third quarter COMS report. The review noted no unexcused opacity excursions, the boiler had been operated with proper operation and maintenance practices, and the COMS audit met the quarterly specifications.
January 31, 2021	CCWE's acid rain permit expires. A renewal application for this permit was due six months prior to this expiration date.
February 10, 2021	Kurt Tidd, WaRO conducts facility compliance inspection. CCWE appeared to be operating in compliance with all permit requirements.
April 13, 2021	Kurt Tidd and Betsy Huddleston, WaRO conducts facility compliance inspection in response to a particulate dust complaint. Samples of dust provided by the complainant were compared to ash samples provided by CCWE and did not appear to be similar. CCWE appeared to be operating in compliance with all permit requirements.
May 6, 2021	Dennis Igboko, DEQ issues review of 2020 fourth quarter COMS report. The review noted no unexcused opacity excursions, the boiler had been operated with proper operation and maintenance practices, and the COMS audit met the quarterly specifications.
October 10, 2021	Dennis Igboko, DEQ issues review of 2021 first and second quarter COMS reports. The review noted no unexcused opacity excursions, the boiler had been operated with proper operation and maintenance practices, the relative accuracy test audit report results met quality assurance specifications, and the COMS audit met the quarterly specifications. Because quality data has been achieved for four consecutive quarters, the auditing frequency continues to be semiannual.
November 9, 2021	Dennis Igboko, DEQ issues review of 2021 third quarter COMS reports. The review noted no unexcused opacity excursions, the boiler had been operated with proper operation and maintenance practices, the relative accuracy test audit report results met quality assurance specifications, and the COMS audit met the quarterly specifications.
December 9, 2021	Kurt Tidd, WaRO conducts facility compliance inspection. CCWE appeared to be operating in compliance with all permit requirements.
February 1, 2022	Kurt Tidd, WaRO conducts facility compliance inspection. CCWE appeared to be operating in compliance with all permit requirements.

February 11, 2022	Dennis Igboko, DEQ issues review of 2021 fourth quarter COMS and CEMS report. The review noted no unexcused opacity excursions, the boiler had been operated with proper operation and maintenance practices, the CEMS test results had met quality assurance specifications, and the COMS audit met the quarterly specifications.
June 7, 2022	Dennis Igboko, DEQ issues review of 2022 first quarter COMS and CEMS report. The review noted no unexcused opacity excursions, the boiler had been operated with proper operation and maintenance practices, the CEMS test results had met quality assurance specifications, and the COMS audit met the quarterly specifications.
October 13, 2022	CCWE submits Acid Raid Permit application to DAQ.

In summary, with the exception of the late submittal of a required report, late submittal of the acid rain permit renewal, and some unexcused opacity exceedances, all indications suggest the CCWE facility is operating in accordance with the requirements of its Title V air permit. Continued compliance is expected.

15. Public Notice/EPA and Affected State(s) 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 .0525, the EPA will have a concurrent 45-day review 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.

There are no affected state or local air programs within 50 miles of the facility.

Notice of the DRAFT Title V Permit to Affected States ran from XXXX, 2023, to XXXX, 2023. ***Discuss any comments received from Affected States or Local Programs.***

Public Notice of the DRAFT Title V Permit ran from XXXX, 2023, to XXXX, 2023. ***Discuss any public comments received.***

EPA's 45-day review period ran concurrent with the 30-day Public Notice, from XXXX, 2023, to XXXX, 2023. ***Discuss any comments received from EPA and U.S. EPA Region 4 regarding the DRAFT Title V Permit.***

16. Other Regulatory Considerations

The following items were not required in Permit Application No. 2500158.22B:

- Professional Engineer's seal
- Zoning consistency determination
- Permit fee.

17. Recommendations

DAQ has reviewed the permit application for Craven County Wood Energy, L.P. located in New Bern, Craven County to determine compliance with all procedures and requirements. DAQ has determined that this facility is complying or will achieve compliance, as specified in the permit, with all requirements that are applicable to the affected sources. DAQ recommends the issuance of Air Permit No. 06419T29.