

**NORTH CAROLINA DIVISION OF
AIR QUALITY**

Application Review

Issue Date: XXXX XX, 2022

Region: Mooresville Regional Office
County: Stanly
NC Facility ID: 8400020
Inspector's Name: Alejandra Cruz
Date of Last Inspection: 08/26/2021
Compliance Code: 3 / Compliance - inspection

<p style="text-align: center;">Facility Data</p> <p>Applicant (Facility's Name): H. W. Culp Lumber Co, Inc.</p> <p>Facility Address: H. W. Culp Lumber Co, Inc. 491 Old US 52 Highway New London, NC 28127</p> <p>SIC: 2421 / Sawmills & Planing Mills General NAICS: 321113 / Sawmills</p> <p>Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V</p>	<p style="text-align: center;">Permit Applicability (this application only)</p> <p>SIP: NCAC 02D .0512, .0515, .0516, .0521, and .1806 NSPS: N/A NESHAP: N/A PSD: N/A PSD Avoidance: 15A NCAC .02Q .0317 NC Toxics: N/A 112(r): N/A Other: N/A</p>
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Contact Data			Application Data
<p style="text-align: center;">Facility Contact</p> <p>Mike Sasser ESH Manager (704) 463-7311 PO Box 235 New London, NC 28127+0235</p>	<p style="text-align: center;">Authorized Contact</p> <p>Henry Culp, III President (704) 463-7311 PO Box 235 New London, NC 28127</p>	<p style="text-align: center;">Technical Contact</p> <p>Sonya Cato Environmental Consultant (919) 980-1512 4007 NC Hwy 86 North Hillsborough, NC 27278</p>	<p>Application Number: 8400020.21A Date Received: 09/07/2021 Application Type: Renewal Application Schedule: TV-Renewal <p style="text-align: center;">Existing Permit Data</p> Existing Permit Number: 04897/T22 Existing Permit Issue Date: 05/11/2021 Existing Permit Expiration Date: 02/28/2022</p>

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2020	5.15	101.03	261.24	35.05	92.95	30.45	10.84 [Methanol (methyl alcohol)]
2019	3.90	76.47	231.05	26.53	72.47	25.95	9.60 [Methanol (methyl alcohol)]
2018	3.84	75.18	217.00	26.09	70.93	24.63	9.01 [Methanol (methyl alcohol)]
2017	3.95	77.47	228.68	26.87	75.19	25.82	9.50 [Methanol (methyl alcohol)]
2016	---	---	218.60	---	12.84	19.03	9.19 [Methanol (methyl alcohol)]

<p>Review Engineer: David B. Hughes</p> <p>Review Engineer's Signature: _____ Date: XXXX XX, 2022</p>	<p style="text-align: center;">Comments / Recommendations:</p> <p>Issue 04897/T23 Permit Issue Date: XXXX XX, 2022 Permit Expiration Date: XXXX XX, 2027</p>
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I. Purpose of Application

Application No. 8400020.21A

H. W. Culp Lumber Co, Inc. operates a Sawmills & Planning Mills General Plant in New London, Stanly County, North Carolina. H. W. Culp Lumber Co, Inc. currently holds a Title V Operating Permit No. **04897T22** with an expiration date of **February 28, 2022**.

This permitting action is a renewal of an existing Title V permit pursuant to 02Q .0513. The existing Title V permit (**04897T22**) was issued on **May 11, 2021**, with an expiration date of **February 28, 2022**. The renewal application was received on **August 27, 2021**, or at least six months prior to the expiration date. 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.

II. Facility Description

The facility is an operating sawmill with wood planing and wood drying operations.

III. History/Background/Application Chronology

March 27, 2017 – Permit **04897T19** issued as a Title V renewal.

December 15, 2017 – Permit **04897T20** issued as a Title V significant modification Part I. Added a direct unadulterated wood-fired process heater (**ID No. ES-Kiln-3**). Increased the maximum throughput in kilns (**ID Nos. ES-Kiln-1 and ES-Kiln-2**).

January 26, 2018 – Permit **04897T21** issued as a Title V significant modification Part I. Added a new fuel feed system (**ID No. ES-KFFS**) with associated cyclone (**ID No. C5**). This system will process fuel for kilns 2 and 3 (**ID Nos. ES-Kiln-2 and ES-Kiln-3**).

March 13, 2020 – The facility submitted notifications of initial startup for kiln (**ID No. ES-Kiln-3**) and kiln fuel feed system (**ID No. ES-KFFS**). The notifications stated that ES-Kiln-3 and ES-KFFS began operation on **February 28, 2020**.

May 11, 2021 – Permit **04897T22** issued as a Title V significant modification Part II. The permit Application No. **8400020.20A** combined two Part I's. Adding kiln 3 (**ID No. ES-Kiln-3**), increasing maximum throughput in kilns (**ID Nos. ES-Kiln-1 and ES-Kiln-2**), and adding new fuel system (**ID No. ES-KFFS**) with associated cyclone (**ID No. C5**).

August 27, 2021 - Permit application **8400020.21A** received as a Title V permit renewal application. The application was deemed complete for processing.

April 26, 2022 – Alejandra Cruz of the Mooresville Regional Office (MRO) completed the annual compliance inspection of the facility.

June 21, 2022 - DRAFT permit sent to Permittee, Supervisor, Samir Parekh (Stationary Source Compliance Branch, and MRO for comment. Sonya Cato of Alpha Environmental Management, Inc. provided comments on draft permit and review via e-mail on **August 3, 2022**. Samir Parekh of RCO

states via e-mail on **July 6, 2022** that he has reviewed the draft permit and has no comment. Mooresville Regional Office had no comments.
XXXX XX, 2022 – Draft permit and review sent to 30-day Public notice and 45-day review periods.
XXXX XX, 2022 – Public notice period ends; no comments received
XXXX XX, 2022 – EPA review period ends; no comments received
XXXX XX, 2022 – Jenny Sheppard (DAQ) updated the Title V Equipment Editor (TVEE).
XXXX XX, 2022 – Air Quality Permit No. **04897T23** issued.

IV. Permit Modifications/Changes and ESM Discussion

The following table describes the modifications to the current permit as part of the renewal process:

Page	Section	Description of Change
Cover	---	-Amended all dates and permit revision numbers
All	Header	-Amended permit revision number
3	List of Acronyms	-Moved List of Acronyms from end of permit.
7	2.1 B.1.c and d	-Updated monitoring language from Permit Shell for Three direct unadulterated wood-fired process heaters (ID Nos. ES-Kiln-1, ES-Kiln-2, and ES-Kiln-3).
13	Section 3 Insignificant Activities	-Moved Insignificant Activities list and removed footnote 3.
14 - 22	Section 4 General Conditions	-Updated shell conditions (v6.0, 01/07/2022).

There were no significant modifications to the equipment descriptions needed in Title V Equipment Editor (TVEE).

V. Regulatory Review

The facility is currently subject to the following regulations:

- 15A NCAC 02D .0512, Particulates from Wood Products Finishing Plants
- 15A NCAC 02D .0515, Particulates from Miscellaneous Industrial Processes
- 15A NCAC 02D .0516, Sulfur Dioxide Emissions from Combustion Sources
- 15A NCAC 02D .0521, Control of Visible Emissions
- 15A NCAC 02D .1806, Control and Prohibition of Odorous Emissions (*State-enforceable only*)
- 15A NCAC 02Q .0317, Avoidance Conditions (for 15A NCAC 2D .0530, Prevention of Significant Deterioration, and 15A NCAC 02D .1111, Maximum Achievable Control Technology (40 CFR 63, Subpart DDDD)

- A. Woodworking operations associated with the sawmill including the following:**
- **One log debarking operation (ID No. ES-10)**
 - **One log sawing sawdust transfer operation (ID No. ES-11)**

1. 15A NCAC 02D .0512 – Particulates from Miscellaneous Wood Products Finishing Plants

The facility shall not cause, allow, or permit particulate matter caused by the working, sanding, or finishing of wood to be discharged from any stack, vent, or building into the atmosphere without providing adequate duct work and properly designed collectors as set by 15A NCAC 02D .0512. There is no monitoring, recordkeeping, or reporting requirements for this condition.

Particulate matter emissions are negligible from the log barking and log sawing sawdust operations (ID Nos. ES-10 and ES-11) because they process wet wood. Continued compliance is expected.

2. 15A NCAC 02D .0521 – Control of Visible Emissions

The log debarking operation (ID No. ES-10) and the log sawing sawdust transfer operation (ID No. ES-11) are subject to the opacity limit of 40% as set by 15A NCAC 02D .0521. To ensure compliance, the facility is required to observe emission points weekly and record the observations in a logbook. They are also required to submit a semiannual summary report of the observations. Continued compliance is expected.

B. Three direct unadulterated wood-fired process heaters for drying lumber (ID Nos. ES-Kiln-1, ES-Kiln2, and ES-Kiln3)

1. 15A NCAC 02D .0515 – Particulates from Miscellaneous Industrial Processes

This permit condition regulates particulate matter (PM) emissions from point sources that is discharged to the atmosphere.

(a) The allowable emission rates for particulate matter from any stack, vent, or outlet, resulting from any industrial process for which no other emission control standards are applicable, shall not exceed the level calculated with the equation $E = 4.10(P)^{0.67}$ calculated to three significant figures for process rates less than or equal to 30 tons per hour. For process rates greater than 30 tons per hour, the allowable emission rates for particulate matter shall not exceed the level calculated with the equation $E = 55.0(P)^{0.11} - 40$ calculated to three significant figures. For the purpose of these equations “E” equals the maximum allowable emission rate for particulate matter in pounds per hour and “P” equals the process rate in tons per hour.

The kilns (ID Nos. ES-Kiln-1, ES-Kiln-2, and ES-Kiln-3) are subject to the particulate limits as set by 15 NCAC 02D .0515. The Permittee shall maintain production records such that the process rates “P” in tons per hour, as specified by the formulas contained above, can be derived and shall make these records available to a DAQ authorized representative upon request. No particulate emissions were observed during the last inspection. Continued compliance is expected.

2. 15A NCAC 02D .0516 – Sulfur Dioxide Emissions from Combustion Sources

Sulfur dioxide emissions from kilns (ID Nos. ES-Kiln-1, ES-Kiln-2, and ES-Kiln-3) are limited to 2.3 pounds per million Btu heat input. Sulfur dioxide emission rates are estimated to be less than the allowable SO₂ emission rates (2.3 lbs SO₂/MMBtu) due to the fact that wood fuel is inherently low sulfur burning fuel. Therefore, no monitoring recordkeeping, or reporting is required to demonstrate compliance with this limitation. Continued compliance is expected.

3. 15A NCAC 02D .0521 – Control of Visible Emissions

The kilns (ID Nos. ES-Kiln-1, ES-Kiln-2, and ES-Kiln3) are subject to the opacity limit of 20% as set by 15A NCAC 02D .0521. To ensure compliance, the facility is required to observe emission points weekly and record the observations in a logbook. They are also required to submit a semiannual summary report of the observations. Continued compliance is expected.

4. 15A NCAC 02Q .0317 – Avoidance Condition for 15A NCAC 02D .0530 - Prevention of Significant Deterioration

Kilns (ID Nos. ES-Kiln-1 and ES-Kiln-2) are subject to a VOC limit of 250 tons per consecutive 12-month period as set by 15A NCAC 02Q .0317 – Avoidance Condition for 15A NCAC 02D .0530 – Prevention of Significant Deterioration. The facility is also limited to process no more than 130,026,110 board feet of dried lumber on a 12-month rolling basis (bd ft/yr). The VOC emissions are required to be calculated with an emission factor of 3.83 pounds of VOC per thousand board feet of dried lumber, as provided in DAQ’s emission spreadsheet for kilns (DAQ’s “Wood Kiln Emission Calculator Revision C” June 2007). To ensure compliance, the facility is required to calculate the VOC emissions monthly and record the emissions in a logbook. The facility is also required to submit a semiannual summary report of the observations.

C. Woodworking operations consisting of:

- **One wood planning operation (ID No. ES1) with associated transfer cyclone (ID No. C1) in series with one bagfilter (ID No. 4B)**
- **One wood working operation (ID No. ES2) with associated cyclone (ID No. C2)**
- **One hammering operation (ID No. ES4) with associated cyclone (ID No. C4)**
- **One kiln fuel feed system (ID No. ES-KFFS) with associated cyclone (ID No. C5)**

1. 15A NCAC 02D .0512 Particulates from Wood Products Finishing Plants

The facility shall not cause, allow, or permit particulate matter caused by the working, sanding, or finishing of wood to be discharged from any stack vent, or building into the atmosphere without providing adequate duct work and properly designed collectors as set by 15A NCAC 02D .0512. To ensure compliance, the facility is required to perform monthly inspection and maintenance of the cyclones and bagfilter, monthly readings of the pressure gage of the bagfilter, and annual internal inspections of the bagfilter. The facility is required to maintain logbooks of the results of the inspection and maintenance activities. The facility is also required to submit a semiannual summary report of the observations. Continued compliance is expected.

2. 15A NCAC 02D .0521 – Control of Visible Emissions

The wood planning operation (ID No. ES1), hammermill operation (ID No. ES4), and kiln fuel feed system (ID No. ES-KFFS) are subject to the opacity limit of 20% as set by 15A NCAC 02D .0521. To ensure compliance, the facility is required to observe emission points weekly and record the observations in a logbook. They are also required to submit a semiannual summary report of the observations. Continued compliance is expected

D. Facility-Wide

1. 15A NCAC 02D .1806 – Control and Prohibition of Odorous Emissions (State-enforceable only)

The facility is subject to this regulation because it has the potential to be a source of odorous emissions. It requires the facility to utilize management practices or odor control equipment sufficient to prevent odorous emissions from causing or contributing to objectionable emissions beyond the facility boundaries.

VI. NSPS, NESHAPS/MACT, PSD, 112(r), CAM

NSPS – The Permittee is not currently subject to any New Source Performance Standards. This permit renewal does not affect this status.

NESHAPS/MACT - The Permittee is subject to 15A NCAC 02D .1111: Maximum Achievable Technology and 40 CFR Part 63 Subpart DDDD, “National Emission Standards for Hazardous Air Pollutants for the Plywood and Composite Wood Products”, for three direct unadulterated wood-fired process heaters for drying lumber (27, 60 and 60 million Btu per hour maximum heat input) (**ID Nos. ES-Kiln-1, ES-Kiln-2, and ES-Kiln-3**). The facility used emission factors from DAQ’s spreadsheet for kilns to determine the HAP emissions from the increased production rate of 130,026,110 bd ft/yr. The permit requires initial notification for ES-Kiln-3. This initial notification was sent into DAQ on March 13, 2020. This permit renewal does not affect this status.

PSD – The Permittee operates under a PSD avoidance condition limiting volatile organic compound emissions to less than 250 tons per year and limits kiln operations to less than 130,026,110 bd ft/yr on a 12-month rolling average basis from two lumber kilns (**ID Nos. ES-Kiln-1 and ES-Kiln-2**). The permit condition includes monthly calculations (amount of lumber dried times an emission factor of 3.83 pounds VOC per thousand board feet) and recordkeeping of VOC emissions and semiannual reporting requirements.

This facility was a PSD minor but with the addition of Kiln 3 they became PSD major. Because of the facility’s baseline to potential demonstration, no specific condition was necessary for Kiln 3. This permit renewal does not affect this status.

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

CAM – 40 CFR Part 64 is applicable to any pollutant-specific emission unit, if the following three conditions are met:

- the unit is subject to any (non-exempt: e.g. pre-November 15, 1990, Section 111 or Section 112 standard) emission limitation or standard for the applicable regulated pollutant.
- the unit uses any control device to achieve compliance with any such emission limitation or standard.
- the unit’s pre-control potential emission rate exceeds either 100 tpy (for criteria pollutants) or 10/25 tpy (for HAP’s).

The following table identifies the current equipment/control device relationships:

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES1	One wood planing operation	C1	One cyclone (168 inches in diameter)
		4B	One bagfilter (5,992 square feet of filter area)
ES2	One wood working operation	C2	One cyclone (51 inches in diameter)
ES4	One hammermill operation	C4	One cyclone (102 inches in diameter)
ES-KFFS	One kiln fuel feed system	C5	One cyclone (66 inches in diameter)
IES-11	One saw sharpening operation and associated	NA	One bagfilter (689 square feet of filter area)

The following table outlines the specific permit conditions for each source/control device arrangement and if the control device is installed to comply with that requirement:

Emission Source ID No(s).	Control Device ID No(s).	Permit Condition(s)*	Pollutant	Control Equipment Installed to Meet Permit Limit?
ES1	C1	15A NCAC 02D .0512	Particulate Matter	Yes
	4B			
ES2	C2	15A NCAC 02D .0512	Particulate Matter	Yes
ES4	C4	15A NCAC 02D .0512	Particulate Matter	Yes
ES-KFFS	C5	15A NCAC 02D .0512	Particulate Matter	Yes
IES-11	-	15A NCAC 02D .0512	Particulate Matter	Although the emission source is insignificant, compliance with regulations are required. The emission source is exempt from permitting, not exempt from the regulations.

* The following permit conditions, where applicable, are not included in the CAM analysis:

1. 15A NCAC 02D .0521 – This regulation limits visible emissions to specific opacity levels based on equipment manufacture date. Visible emissions are not criteria pollutants subject to CAM analysis.
2. 15A NCAC 02D .1806 – This regulation limits odorous emissions. Odors are state-enforceable limits and are not criteria pollutants subject to CAM analysis.

(ES1) One wood planing operation – This operation is the sizing of dimensional lumber after the drying process. As specified in DAQ woodworking spreadsheet¹, emissions of wood dust regulated as PM₁₀ from planing operations are estimated to be zero. Therefore, CAM does not apply.

(ES2) One wood working operation – This operation is the transport of dry wood shavings from the planer mill to the shavings bin (Note this source has been called “shavings transport” in the past). The saw dust handling PM₁₀ emissions are estimated to be 7.11 tons per year. The shavings handling PM₁₀ emissions are estimated to be 0.219 tons per year. The PM₁₀ results are estimated from H. W. Culps calculation worksheets from the 2020 emissions inventory. These amounts are less than the CAM applicability threshold of 100 tons per year. Therefore, CAM does not apply.

(ES4) One hammermill operation – This operation is the crushing of wood shavings in a hammermill and conveying material to collection bins prior to its use as a fuel in the woodwaste-fired boilers. The hammermill PM₁₀ emissions are estimated to be 0.687 tons per year. The PM₁₀ results are estimated from H. W. Culps calculation worksheets from the 2020 emissions inventory. This amount is less than the CAM applicability threshold of 100 tons per year. Therefore, CAM does not apply.

(ES-KFFS) One kiln fuel feed system – This fuel feed system will process fuel for Kilns 2 and 3 (**ID Nos. ES-Kiln-2 and ES-Kiln-3**). The PM emissions are estimated to be 49.9 tons per year and PM₁₀ emissions 0.512 tons per year. The PM and PM₁₀ results are estimated from H. W. Culps calculation worksheets from the 2020 emissions inventory. These amounts are less than the CAM applicability threshold of 100 tons per year. Therefore, CAM does not apply.

VII. Facility Wide Air Toxics

Toxic air permit limits were requested to be removed in permit No. 04897T20 due to the three kilns (**ID Nos. ES-Kiln-1, ES-Kiln-2 and ES-Kiln-3**) being subject to 40 CFR Part 63, Subpart DDDD. 15A NCAC 02Q .0702, exempts from the NC air toxics program, sources to a federal MACT standard as long as that exemption does not pose an unacceptable health risk.

H. W. Culp Lumber Co, Inc. submitted an air toxic dispersion modeling analysis for formaldehyde for the three kilns. The modeling was reviewed by Mr. Matthew Porter, Meteorologist II, Air Quality Analysis Branch (AQAB).

According to Mr. Porter’s memorandum dated November 29, 2017, the modeling of maximum-allowable facility-wide TAPs emissions adequately demonstrate compliance with AAL outlined in 15A NCAC 02D .1104, on a source-by-source basis, for formaldehyde. Therefore, the modeling analysis supports the determination that facility-wide formaldehyde emission increases and addition of ES-Kiln-3 poses no unacceptable risk to human health. This permit renewal does not affect this status.

VIII. Facility Emissions Review

See Table in the header for a summary of the actual emissions as reported to DAQ from the years 2016 to 2020.

¹ DAQ’s “Woodworking Emissions Calculator Revision C” June 2007

IX. Stipulation Review

The facility was last inspected by Alejandra Cruz on **August 26, 2021**. Based on her observations the facility appeared to be in compliance with their Title V permit requirements.

X. 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 pursuant 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. The Mecklenburg County Department of Environmental Protection is an affected area within 50 miles of this facility.

XI. Conclusions, Comments, and Recommendations

PE Seal

Pursuant to 15A NCAC 02Q .0112 “Application Requiring a Professional Engineering Seal,” a professional engineer’s seal (PE Seal) is required to seal technical portions of air permit applications for new sources and modifications of existing sources as defined in Rule .0103 of this Section that involve:

- (1) design;
- (2) determination of applicability and appropriateness; or
- (3) determination and interpretation of performance; of air pollution capture and control systems.

A professional engineer’s seal (PE Seal) was not required for this renewal.

Zoning

A zoning consistency determination was not required for this renewal.

Recommendations

MRO recommends issuance of the permit and was sent a DRAFT permit prior to issuance (See Section III of this document for a discussion).

The Raleigh Central Office (RCO) concurs with MRO’s recommendation to issue the Air Permit No. 04897T23.