NORTH CAROLINA DIVISION OF AIR QUALITY

Air Permit Review

Permit Issue Date: date, 2011

Region: Fayetteville Regional Office
County: Montgomery
NC Facility ID: 6200029
Inspector's Name: Gregory Reeves
Date of Last Inspection: 01/07/2010
Compliance Code: 3 / Compliance - inspection

Facility Data

Applicant (Facility's Name): Troy Lumber Co

Facility Address:
Troy Lumber Co
110 Leslie Street
Troy, NC 27371

SIC: 2421 / Sawmills & Planing Mills General
NAICS: 321912 / Cut Stock, Resawing Lumber, and Planing

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

Permit Applicability (this application only)

SIP:
NSPS:
NESHAP:
PSD:
PSD Avoidance:
NC Toxics:
112(r):
Other: 15A NCAC 2D .1109 (112j Case-by-Case MACT)

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Terry Brown HR Director (910) 576-6111 PO Box 748 Troy, NC 27371	Fred Taylor II Manager (910) 576-6111 PO Box 748 Troy, NC 27371	Lea Talbert Boiler Supervisor (910) 572-3814 110 Leslie Street Troy, NC 27371

Application Data

Application Number: 6200029.09A and 6200029.10B
Date Received: 09/14/2009 and 04/12/2010
Application Type: Renewal
Application Schedule: TV-Renewal

Existing Permit Data
Existing Permit Number: 02330/T16
Existing Permit Issue Date: 06/14/2010
Existing Permit Expiration Date: 01/31/2011

Review Engineer: Mark Cuilla

Review Engineer's Signature:
Date: date, 2011

Comments / Recommendations:
Issue 02330/T17
Permit Issue Date: date, 2011
Permit Expiration Date: date, 2016

I. Purpose of Application

This permitting action is twofold. The first is for renewal of an existing Title V permit pursuant to 2Q .0513. The existing Title V permit **(02330T16)** was issued on **June 14, 2010**, with an expiration date of **January 31, 2011**. The renewal application was received on **April 12, 2010**, or at least nine 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.

The second action is the inclusion of 15A NCAC 2D .1109, 112(j) Case-by-Case MACT requirements. In response to DAQ requests, the Permittee submitted the Part II 112j application on **September 14, 2009** with an update on **January 6, 2011**. The Permittee is seeking a health based compliance approach (HBCA) to establish HCl-equivalent emission rates, via the look-up tables.

II. Facility Description

The facility operates a chip and saw mill in Troy. Southern yellow pine logs are trucked into the facility, debarked, and processed through the sawmill where logs are cut into dimensional lumber. The rough cut lumber from the sawmill is stacked and dried in lumber kilns. The kilns are heated by steam produced from wood-fired boilers. Green woodwaste and some dry planer shavings are the primary fuels for the boilers. The dried lumber is finished by planning and trimming in the planer mill. Finished lumber is sorted by length, size, and grade, packaged and then shipped off site. The remaining green wood chips and planer shavings are sold and shipped off site as byproducts.

III. History/Background/Application Chronology

February 21, 2006 – Permit **02330T13** issued as a Title V renewal.

May 4, 2006 – Permit **02330T14** issued as a 502(b)(10) modification for the addition of a wood-fired boiler and associated control devices.

May 6, 2009 – Permit **02330T15** issued as a significant modification to modify kiln operating parameters and change facility VOC PSD class to major.

July 7, 2009 – 112j Case-by-Case MACT Part I letter received from Permittee.

September 14, 2009 – Permit application 6200029.09A received as a 112j Part II Case-by-Case MACT significant modification and assigned to Fern Paterson for processing.

January 7, 2010 – Facility was inspected by Gregory Reeves of the FRO.

April 12, 2010 – Permit application **6200029.10B** received as a Title V permit renewal application. The application was deemed complete for processing and assigned to David Putney for processing.

June 14, 2010 – Permit **02330T16** issued as a state-only modification to incorporate the toxics modeled emission rates as a result of the Director's SIC call for combustion sources.

September 29, 2010 – Permit application **6200029.10B** reassigned to Mark Cuilla for processing.

December 14, 2010 – DRAFT permit sent to Permittee and FRO for comment prior to public notice and EPA review.

January 6, 2011 – Supplemental information on 112j Part II application received from Permittee and added to file for processing. Application **6200029.09A** was consolidated into TV permit renewal application **6200029.10B** for processing.

January 7, 2011 – DRAFT permit sent to Permittee and FRO once again for review of the new 112j material.

date, 2011 – DRAFT permit sent to 30-day public notice and 45-day EPA review.

IV. Permit Modifications/Changes and ESM Discussion

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

Page(s)	Section(s)	Description of Change(s)
Attachment	Insignificant activities	-updated shell language and permit number
Cover	-	-amended permit numbers and all dates
All	Header	-amended permit number
3	Equipment table 2.1 A	-added NSPS Subpart and Case-by-Case MACT designations where needed -clarified control equipment arrangement
3-4	2.1 A (table)	-corrected rule cross reference and added Case-by-Case MACT reference
4	2.1 A.1.b 2.1 A.1.c	-added specific PM testing requirement per FRO request -clarified control equipment arrangement
5	2.1 A.2.b 2.1 A.3.b	-corrected testing rule cross reference -added specific VE testing requirement per FRO request
5-6	2.1 A.3.c	-updated shell language
6-8	2.1 A.4	-added Case-by-Case MACT language
8	2.1 B 2.1 B (table) 2.1 B.1.a 2.1 B.1.b	-clarified control equipment arrangement -corrected rule cross reference and added Case-by-Case MACT reference -added ID numbers -corrected testing rule cross reference
9	2.1 B.1.c 2.1 B.2.a 2.1 B.2.b 2.1 B.2.c	-added ID numbers and updated shell language -added ID numbers -corrected testing rule cross reference -added ID numbers and updated shell language
10	2.1 B.3.b 2.1 B.3.c 2.1 B.5 (old)	-corrected testing rule cross reference -added ID numbers and updated shell language -removed notification of operation requirements of this Section (entire Section) per FRO request (notification has been completed)
11-13	2.1 B.5 (new)	-added Case-by-Case MACT language
13	2.1 C.1.b.ii 2.1 C.1.c	-updated shell language -updated shell language
14	2.1 C.2.b 2.1 C.2.c	-corrected testing rule cross reference -updated shell language
16	2.2 A.2	-clarified modeled emission rates where necessary -removed redundant row in table for ES-B1
19-28	General Conditions	-updated conditions (v3.3)

There were only minor, non-significant modifications to the equipment descriptions needed in ESM.

V. Regulatory Review

The facility is currently subject to the following regulations:

15A NCAC 2D .0504, Particulates from Woodburning Indirect Heat Exchangers
15A NCAC 2D .0512, Particulates from Wood Products Finishing Plants
15A NCAC 2D .0516, Sulfur Dioxide Emissions from Combustion Sources
15A NCAC 2D .0521, Control of Visible Emissions
15A NCAC 2D .0524, New Source Performance Standards (40 CFR 60, Subpart Dc)
15A NCAC 2D .1806, Control and Prohibition of Odorous Emissions
15A NCAC 2D .1100, Control of Toxic Air Pollutants
15A NCAC 2D .1111, Maximum Achievable Control Technology (40 CFR 63, Subpart DDDD)
15A NCAC 2Q .0711, Emission Rates Requiring a Permit

A regulatory review for these current permit conditions will not be included in this document. However, as part of this permit renewal, the permit has been modified to add a reference to 15A NCAC 2D .1109, 112j Case-by-Case MACT (see Section VI of this Document for a discussion).

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

NSPS – The Permittee is subject to NSPS Subpart Dc including initial notification of start-up [60.48c(a)] and recording the of amount of wood combusted during each day [60.48c(g)] for its wood-fired boiler **(ID No. ES-Boiler2)**. This permit renewal does not affect this status.

NESHAPS/MACT – The modification to add a new wood-fired boiler **(ID No. ES-Boiler2)** changed the status for this facility from Title III minor to major. Mike Gordon explained in his permit review for Permit No. **02330T15** that *"Because of the increased production, facility wide potentials have increased to approximately 32.1 tons per year. Methanol is the single largest emission at 13.7 tons per year. As a result of this change in status both steam heated wood drying kilns are subject to initial notification requirements of 40 CFR 63 Subpart DDDD. There are not other substantive requirements for steam heated wood drying kilns under Subpart DDDD."*

The Permittee currently has an open application **(6200029.09A)** in house for a 112j Part II modification to add Case-by-Case MACT requirements on the combustion sources. They note that they have conducted one round of boiler fuel testing and plan on conducting more to see where they stand with the TSM and other limits. They anticipate a potential issue with the manganese in the wood and will likely end up performing a Health Based Compliance Alternative analysis for the boilers. Until that time, the permit application is on hold.

This permit renewal does not affect the status of these requirements.

The second part of this application was for the addition of requirements for 15A NCAC 2D .1109 - CAA § 112(j); Case-by-Case MACT for Boilers & Process Heaters – On **July 20, 2007**, the D.C. Circuit Court vacated the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Industrial, Commercial, and Institutional Boilers and Process Heaters, which had been promulgated under 40 CFR 63, Subpart DDDDD. The North Carolina Attorney General's office has determined that the NESHAP vacatur equates to the failure of the U.S. EPA to promulgate a standard as required under Section 112(d) of the Clean Air Act (CAA). As a result, the site-specific Maximum Achievable Control Technology (MACT) standards required under CAA §112(j), commonly referred to as the MACT "hammer" provisions, have been triggered. North Carolina regulations implementing the MACT hammer are found at 15A NCAC 2D .1109.

NC DAQ has developed this guidance to provide standards and compliance procedures that it has determined meet the requirements of § 112(j) (http://daq.state.nc.us/permits/112j/). Troy Lumber Co. submitted a Part 2 MACT "Hammer" application **(No. 6200029.09A)**, which was received on **September 14, 2010**. An amendment to the application was received on **January 6, 2011**, including a demonstration of eligibility for a health-based compliance alternative emissions limitation. Affected sources at the facility include one wet wood-fired boiler **(ID No. ES-B1)** with a heat input capacity of greater than 30.0 MMBtu/hr and less than 100 MMBtu/hr and one wet wood-fired boiler **(ID No. ES-Boiler2)** with a heat input capacity of less than 30.0 MMBtu/hr.

The facility proposed to comply with filterable particulate matter (PM), mercury (Hg) and carbon monoxide (CO) emission limitations that are consistent with the NC DAQ application guidance (http://daq.state.nc.us/permits/112j/). NC DAQ has developed this guidance to provide standards and compliance procedures that it has determined meet the requirements of § 112(j). The facility has chosen to comply with a Health-Based Compliance Alternative (HBCA) for hydrogen chloride (HCl). A discussion of each standard proposed pursuant to 15A NCAC 2D .1109 is provided below:

a. **Filterable PM –** This facility has proposed a filterable PM limit of 0.27 pounds per million Btu, which is consistent with the NCDAQ application guidance.

b. **Mercury (Hg)**
This facility has proposed a mercury limit of 5.0e-06 lbs/MMBtu, which is consistent with the NC DAQ application guidance.

c. **Carbon Monoxide (CO)**
For the boiler with a heat input of greater than 30 MMBtu/hr **(ID No. ES-B1)**, this facility proposed a CO limit of 508 ppmvd, corrected to 7% oxygen, which is consistent with the NC DAQ application guidance.

For the boiler with a heat input of less than 30 MMBtu/hr **(ID No. ES-Boiler2)**, this facility proposed a CO limit of 269 ppmvd, corrected to 7% oxygen, which is consistent with the NC DAQ application guidance.

d. **HCl**
The facility proposed to establish a facility-specific HCl-equivalent emission rate using this HBCA approach provided by U.S. EPA in Appendix A of the vacated 112(d) standard. A summary of the HBCA eligibility demonstration and resulting emissions limitations is provided below.

The look-up table approach to the HBCA requires the facility to determine the Allowable Toxicity Weighted Emission Rate in HCl-equivalent according to the following steps:

Step 1. Determine the worst-case HCl and Cl_2 emission rates (in lbs/hr) and calculate the toxicity-weighted emission rate in HCl-equivalents (in lbs/hr) using the following equation:

$$TW = E_{HCl} + E_{Cl_2}\left(\frac{RV_{HCl}}{RV_{Cl_2}}\right)$$

Where "RV" denotes the reference values. The reference value of HCl is 20 µg/m^3. The reference value for Cl_2 is 0.2 µg/m^3.

Step 2. Determine the shortest minimum stack height (in m) from any affected source.
Step 3. Determine the distance to property boundary (in m).
Step 4. Use the look-up table provided in the NC DAQ application guidance, which is identical to the look-up table provided in the vacated 112(d) standard, to determine the Allowable Toxicity Weighted Emission Rate in HCl-equivalent (in lbs/hr).
Step 5. Compare the Allowable Toxicity Weighted Emission Rate in HCl-equivalent to the maximum toxicity-weighted emission rate to determine eligibility.

Step 1: HCl-Equivalent Emission Rates - The calculation of the HCl-equivalent emission rates for the affected sources at this facility are provided below.

Boiler ID No.	Maximum Heat Input Capacity (MMBtu/hr)	HCl Emission Rate (lbs/hr)	Cl_2 Emission Rate (lbs/hr)	HCl-Equivalent Emission Rate (lbs/hr)
ES-B1	44.5	0.846	0.035	4.346
ES-Boiler2	28.7	0.545	0.023	2.845
			Total HCl-Equivalent Emission Rate:	**7.191**

* Potential HCl and Cl_2 emissions are based on the heat input capacity of the boiler and the AP-42 emission factors for wood combustion (Cl_2: 0.00079 lbs/MMBtu, HCl: 0.019 lbs/MMBtu).

Step 2: Minimum Stack Height - The minimum stack height of any affected boiler at the facility is 14.3 meters.
Step 3: Minimum Distance to Property Boundary - The minimum distance to property boundary of any affected boiler at the facility is 124 meters.
Step 4: Determine the Allowable Toxicity Weighted Emission Rate in HCl-Equivalents - Based on the following look-up table:

Table. Allowable Toxicity Weighted Emission Rate Expressed in HCl-Equivalents (lbs/hr)

Stack Ht. (m)	Distance to Property Boundary (m)											
	0	**50**	**100**	**150**	**200**	**250**	**500**	**1000**	**1500**	**2000**	**3000**	**5000**
5	114.9	114.9	114.9	114.9	114.9	114.9	144.3	287.3	373.0	373.0	373.0	373.0
10	188.5	188.5	**188.5**	188.5	188.5	188.5	195.3	328.0	432.5	432.5	432.5	432.5
20	386.1	386.1	386.1	386.1	386.1	386.1	386.1	425.4	580.0	602.7	602.7	602.7
30	396.1	396.1	396.1	396.1	396.1	396.1	396.1	436.3	596.2	690.6	807.8	816.5
40	408.1	408.1	408.1	408.1	408.1	408.1	408.1	448.2	613.3	715.5	832.2	966.0
50	421.4	421.4	421.4	421.4	421.4	421.4	421.4	460.6	631.0	746.3	858.2	1002.8
60	435.5	435.5	435.5	435.5	435.5	435.5	435.5	473.4	649.0	778.6	885.0	1043.4
70	450.2	450.2	450.2	450.2	450.2	450.2	450.2	486.6	667.4	813.8	912.4	1087.4
80	465.5	465.5	465.5	465.5	465.5	465.5	465.5	500.0	685.9	849.8	940.9	1134.8
100	497.5	497.5	497.5	497.5	497.5	497.5	497.5	527.4	723.6	917.1	1001.2	1241.3
200	677.3	677.3	677.3	677.3	677.3	677.3	677.3	682.3	919.8	1167.1	1390.4	1924.6

For a stack height of 10 meters and a distance to boundary of 100 meters, the allowable toxicity weighted emission rate is **188.5 lbs/hr**.

Step 5: Compare the Allowable Toxicity Weighted Emission Rate in HCl-equivalent to the Maximum Toxicity-Weighted Emission Rate - The maximum HCl-equivalent emission rate (7.19 lbs/hr) is less than 4% of the allowable toxicity-weighted emission rate determined using the look-up table approach. Based on this large compliance margin, NC DAQ had determined that the facility is eligible to use the HBCA compliance option for HCl for its two wood-fired boilers.

PSD – Mike Gordon explained in his permit review for Permit No. **02330T15** that *"Troy Lumber Co. submitted an application **(6200029.08A)** for significant modification of their Title V permit on **April 4, 2008** requesting an increase in production capacity at the facility from 110,000 million board feet per year (MMbf/yr) to 137,500 MMbf/yr. This is a result of kiln loading improvements that allow the facility to increase the amount of wood dried per charge by 30,000 board feet. Each kiln is now capable of drying 150,000 board feet per charge (bf/charge) instead of the previous 120,000 bf/charge. As a result of this production increase the facility is now major for HAP's…Prior to this change the facility was classified as non-major for PSD purposes, however following the modification the facility's PTE for VOC's exceeded the major source threshold; therefore subsequent modifications will be subject to the significance levels for PSD applicability."* 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 64 requires that a continuous compliance assurance monitoring plan be developed for all equipment located at a major facility, that have pre-controlled emissions above the major source threshold, and use a control device to meet an applicable standard. CAM applicability for the facility's control devices was established during the latest TV renewal cycle (See Mark Cuilla's **February 21, 2006** permit review for permit **02330T13**). However, since that permit renewal the Permittee has added a second wood-fired boiler controlled by two multicyclones in series as follows:

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES-Boiler2 **(NSPS, Subpart Dc)**	One wood-fired underfire stoker boiler (28.69 million Btu per hour heat input) with flyash reinjection	CD-Boiler2-1 CD-Boiler2-2	Two multicyclones (18 nine-inch tubes each)

A check of the DAQ spreadsheet for wood waste combustion for this source, potential uncontrolled PM_{10} emissions for dry wood are estimated at 47.37 tons per year (38.58 tons per year wet wood). These amounts are less than the CAM applicability threshold; therefore CAM does not apply to this new source.

VII. Facility Wide Air Toxics

The Permittee is subject to both modeled emission rates per 15A NCAC 2D .1100 and TPERs per 15A NCAC 2Q .0711 as a result of a Director's SIP call for Combustion Sources. The current permit includes source-by-source emission rates, testing requirements, and operational limits (e.g., heat input limit and stack heights), as well as recordkeeping requirements (See Rahul Thaker's permit review for **02330T16** issued **June 14, 2010**). This permit renewal does not affect this status.

VIII. Facility Emissions Review

There is no change in emissions for this renewal.

The following table represents the latest years' emission inventories from the facility:

Pollutant(s)	2008 Actual Emissions (tpy)	2009 Actual Emissions (tpy)
CO	32.33	27.98
NO_x	41.84	37.13
PM_{10}	44.89	44.78
SO_2	4.75	4.22
VOC	175.33	190.51
Total HAPs/TAPs	19.47	19.72

IX. Stipulation Review

The facility was last inspected by Gregory Reeves of the FRO on **January 7, 2010**. Based on his observations the facility appeared to be in compliance with their Title V permit requirements.

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

Pursuant to 15A NCAC 2Q .0521, a notice of the DRAFT Title V Permit shall be placed in a newspaper of general circulation in the area where the facility is located. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 2Q .0522, a copy of each permit application, each proposed permit and each final permit pursuant shall be provided to EPA. Also pursuant to 2Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice provided to the public under 2Q .0521 above. The State of South Carolina and The Mecklenburg County Local Program are affected areas within 50 miles of this facility.

XI. Conclusions, Comments, and Recommendations

A professional engineer's seal was not required for this renewal.

A consistency determination was not required for this renewal.

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

RCO concurs with FRO's recommendation to issue the renewed air permit.