

**NORTH CAROLINA DIVISION OF
AIR QUALITY**

Air Permit Review

Permit Issue Date: **XX XX, 2010**

Region: Raleigh Regional Office
County: Person
NC Facility ID: 7300052
Inspector's Name: Steven Carr
Date of Last Inspection: 08/26/2009
Compliance Code: 3 / Compliance - inspection

Facility Data			Permit Applicability (this application only)
Applicant (Facility's Name): Georgia - Pacific Roxboro Facility Address: Georgia - Pacific Roxboro 1000 North Park Drive Roxboro, NC 27573 SIC: 2439 / Structural Wood Members, Nec NAICS: 321213 / Engineered Wood Member (except Truss) Manufacturing Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V			SIP: N/A NSPS: N/A NESHAP: N/A PSD: N/A PSD Avoidance: N/A NC Toxics: N/A 112(r): N/A Other: 15A NCAC 2D .1109 <i>[112(j) – Part 2 MACT Hammer for Boilers & Process Heaters]</i>
Application Data			
Facility Contact	Authorized Contact	Technical Contact	Application Number: 7300052.09B Date Received: 03/31/2009 Application Type: 112(j) Part 2 Application Schedule: TV-Significant Existing Permit Data Existing Permit Number: 07668/T20 Existing Permit Issue Date: 01/25/2010 Existing Permit Expiration Date: 12/31/2014
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Review Engineer: Jeff Twisdale Review Engineer's Signature: _____ Date: _____		Comments / Recommendations: Issue 07668/T21 Permit Issue Date: XX/XX/2010 Permit Expiration Date: 12/31/2014	

I. Purpose of Applications

Georgia-Pacific (GP) Wood Products, LLC is located in Roxboro, Person County, North Carolina. Application No. 7300052.09B, received March 31, 2009 and deemed complete on January 14, 2010, is a Part 2 Maximum Achievable Control Technology (MACT) "Hammer" application for one existing wood residual/bark-fired boiler and hot oil heater (**ID No. ES-1, 70.0 million Btu per hour (MMBtu/hr) heat input capacity**). Also, three insignificant activities including one natural gas-fired boiler (**ID No. ES-10, 6.3 MMBtu/hr heat input capacity**), and two natural gas-fired process heaters (**ID Nos. ES-9 and ES-11, 5.0 MMBtu/hr heat input capacity each**) will be added as emission sources since they will be subject to MACT "Hammer" otherwise known as Section 112(j) of the Clean Air Act (CAA) or 15A NCAC 2D .1109 "112(j) Case-by-Case MACT." Note that NC DAQ received Part 1 of this application on January 23, 2009.

II. Permit Modifications/Changes

The following table describes the modifications to the current permit.

Old Page(s)	New Page(s)	Condition/Item	Description of Change(s)
Global	Global	N/A	<ul style="list-style-type: none"> Change the issuance/effective dates of the permit; Change the application number and complete date; Change permit revision number to T21;
N/A	N/A	Insignificant Activities	<ul style="list-style-type: none"> Remove insignificant activities IES-9, IES-10, and IES-11 from the list and add as sources (<i>see below</i>)
3 - 4	3 - 4	Equipment List	<ul style="list-style-type: none"> Add sources ES-9, ES-10, and ES-11 due to Section 112(j) applicability (<i>all are existing sources and were insignificant</i>); Add 112(j) designations to the emission source ID No. column for those sources subject to 2D .1109
5	5	2.1 A	Modify the limits/standards summary table to also include 2D .1109 and the specific limits for HAPs
N/A	7 - 12	2.1 A.4	Add 2D .1109 specific conditions including limits, testing, monitoring, recordkeeping and reporting for ES-1
N/A	22 - 23	2.1 A.H.	Add 2D .0503, .0516, .0521 and .1109 specific conditions including limits (<i>monitoring and recordkeeping for 2D .1109</i>) for ES-9, ES-10 and ES-11
25 - 33	33 - 41	Section 3	Update General Conditions to version 3.1

Note: Condition/Item numbers are as they appear in Permit No. 07668T21, unless otherwise noted.

III. Regulatory Review – 15A NCAC 2D .1109 – CAA § 112(j); Case-by-Case MACT for Boilers & Process Heaters

- A. **Rule Summary:** On July 30, 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 valid 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.

On March 31, 2009, the NC DAQ received a Part 2 MACT "Hammer" application from this facility asking that the NC DAQ establish 112(j) emissions limitations. Then on January 14, 2010, the NC DAQ received an addendum to the Part 2 MACT "Hammer" application that included a Health-Based Compliance Alternative (HBCA) eligibility demonstration for the total selected metals (TSM) emission limit as well as other proposed emission limitations based on NC DAQ's 112(j) guidance.

- B. **Wood-Fired Boiler:** One residual wood/bark-fired, water-tube design boiler (70.0 MMBtu/hr heat input capacity, **ID No. ES-1**) with the associated multicyclone (**ID No. CD-1**)

The facility proposed Total Selected Metals (TSM), Hydrogen Chloride (HCl), 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).

Also, the facility has chosen to comply with a HBCA for TSM that included a site-specific compliance demonstration for Manganese (Mn). The HBCA eligibility demonstration is consistent with the procedures provided by the EPA in the vacated § 112(d) standard for boilers and process heaters.

1. Total Selected Metals (TSM) or Filterable Particulate Matter (PM)

In accordance with the 112(j) application guidance provided by NC DAQ, affected facilities may propose either a TSM limit or a filterable PM limit. GP chose to comply with TSM emission limit. The regulated TSM normally includes arsenic, beryllium, cadmium, chromium, lead, Mn, nickel, and selenium, and the associated limit is based on the sum of emissions for those eight selected metals; however, GP chose an alternative to demonstrate compliance with the TSM emission limit. GP demonstrated eligibility for the HBCA for TSM emissions using the procedures consistent with the NC DAQ application guidance and will comply with the TSM emission standards based on the sum of emissions for seven selected metals (by excluding Mn emissions from the summation of TSM emissions).

GP modeled a maximum Mn emission rate of 0.55 lb/hr for this boiler in the site-specific assessment in HBCA. The Mn emission rate was based on an average Mn concentration of 72 ppm in the green wood fuel assuming a fuel heat content of 4,500 Btu/lb and minimum multicyclone removal efficiency of 50%. GP used data collected from a stack test at the Roxboro site on July 14, 2004. Mr. Tom Anderson of the Air Quality Analysis Branch (AQAB) evaluated the Air Toxics Risk Assessment that determines if the facility qualifies for the HBCA for TSM and approved it through a memo dated March 1, 2010.

Therefore, the facility is eligible for the HBCA for TSM emissions since the site-specific compliance demonstration indicates that none of the hazard quotient (HQ) values for Mn are greater than 1.0 at locations where people live or congregate (e.g., schools, daycare centers, etc.). Therefore, the TSM emission rates (*3.00 E-04 lb/MMBtu for green wood and 5.00 E-04 lb/MMBtu for dry wood*) will be included in the draft permit when firing wood (*green and dry*) with the notation that Mn shall not be included in the determination of TSM. *Note that GP primarily burns green wood, but can burn dry wood.*

To demonstrate compliance with the standard, GP will utilize an initial and periodic stack testing required to demonstrate compliance with the TSM limit as described in the NC DAQ guidance. Also, the Permittee shall maintain opacity of exhaust from the multicyclone (**ID No. CD-1**) at less than or equal to 20 percent (6-minute average) except for one 6-minute period per hour of not more than 27 percent. If the facility fails to meet 90% of the standard during stack testing, then a Continuous Opacity Monitoring System (COMS) for opacity may be required. Otherwise the existing monitoring and recordkeeping (*weekly observations recorded in a logbook*) for 2D .0521 for this boiler are sufficient to demonstrate compliance with this opacity requirement. In addition, the existing monitoring and recordkeeping (*monthly external and annual internal inspections of the multicyclone recorded in a logbook*) for 2D .0504 for this boiler are sufficient to demonstrate compliance with this TSM requirement. Compliance is expected.

2. Mercury (Hg)

This facility has proposed a Hg limit of 5.0 E-06 lbs/MMBtu, which is consistent with the NC DAQ application guidance.

To demonstrate compliance with the standard, GP will utilize an initial and periodic (*once every 5 years*) fuel analyses required to demonstrate compliance with the Hg limit as described in the NC DAQ 112(j) application guidance, and the fuel analyses details will be placed in the permit. Compliance is expected.

3. Hydrogen Chloride (HCl)

This facility has proposed an HCl limit of 0.02 lbs/MMBtu that is consistent with the NC DAQ 112(j) application guidance for this size/type of boiler.

To demonstrate compliance with the standard, GP will utilize an initial and periodic stack testing required to demonstrate compliance with the HCl limit as described in the NC DAQ 112(j) application guidance, and the testing details will be placed in the permit. Compliance is expected.

4. Carbon Monoxide (CO)

This facility proposed a CO limit of 508 ppmvd, corrected to 7% oxygen, which is consistent with the NC DAQ application guidance for this size/type of boiler.

To demonstrate compliance with the standard, GP will utilize an initial and periodic stack testing required to demonstrate compliance with the Hg limit as described in the NC DAQ 112(j) application guidance, and the testing details will be placed in the permit. If the facility fails to meet 90% of the standard during stack testing, then Continuous Emission Monitoring System (CEMS) for CO may be required. Compliance is expected.

- C. Natural Gas-Fired Boiler and Process Heaters: One natural gas-fired boiler (6.3 MMBtu/hr heat input capacity, **ID No. ES-10**). Two natural gas-fired process heaters (5.0 MMBtu/hr heat input capacity each, **ID Nos. ES-9 and ES-11**).

NC DAQ did not identify any control technologies for the reductions in emissions of CO, metals, Hg, or HCl for natural gas-fired boilers or process heaters located in North Carolina. In addition, NC DAQ did not identify any such technologies using the U.S. EPA's AirControlNet software (v4.1). The NC DAQ has determined that MACT is the use of best work practice standards for natural gas-fired combustion sources of this size (e.g. 6.3 MMBtu/hr heat input capacity), consistent with the provisions in CAA § 112(d)(2)(D). NC DAQ thus, proposes to require "best combustion control" as the work-practice standard to satisfy the 112(j) requirements for these process heaters and boiler.

Monitoring

The Permittee will be required to perform annual inspection and maintenance of the boiler and the process heaters. In addition, the Permittee will be required to record the results of the annual inspection in a logbook (written or electronic format), which shall be retained on-site and made available to an authorized representative upon request.

Separately, it needs to be stated here that the boiler ES-10 and process heaters (ES-9 and ES-11) are currently listed as insignificant activities as IES-10, IES-9 and IES-11, respectively. With this permit revision, the boiler and process heaters will be included with the specific conditions to comply with the requirements in 15A NCAC 2D .0503, .0516, .0521, and .1109. The above discussion includes demonstration of compliance with 2D .1109 requirements. The following is a brief review of these other regulatory requirements (other than 2D .1109) for the boiler and process heaters.

2D .0503

Allowable emissions of particulate matter (PM) from these sources shall be calculated as follows:

$$E = 1.090 \times Q^{-0.2594} \quad \text{Where: } E = \text{allowable PM emission rate in lb/MMBtu heat input}$$
$$Q = \text{maximum heat input rate in MMBtu/hr at the plant site}$$

Allowable emission rate for the boiler and process heaters will be determined based on its maximum heat input rate and the maximum heat input rate of any other boiler (or indirect heat exchanger), which was already permitted/constructed at the time of the permit application for the boiler and process heaters was originally submitted (*application deemed it an insignificant activity*). The existing wood-fired boiler ES-1, 70.0 MMBtu/hr heat input capacity, has been in existence since the plant began operation. The natural gas-fired boiler ES-10 and process heaters (ES-9 and ES-11) were added later.

Therefore $Q = [70.0 \text{ MMBtu/hr} + 6.3 \text{ MMBtu/hr} + 5.0 \text{ MMBtu/hr} + 5.0 \text{ MMBtu/hr}] = 86.3 \text{ MMBtu/hr}$.
Hence, $E = 0.34 \text{ lb/MMBtu}$

This allowable emission rate can be equated to 2.14 lb/hr based upon the maximum heat rate of 6.3 MMBtu/hr for the boiler ES-10.

Using the PM (filterable only) emission factor of 0.003 lb/million Btu for natural gas as per NC DAQ spreadsheet, the maximum PM (filterable emission rate) can be estimated as 0.02 lbs/hr (for 6.3 million Btu/hr heat input rate).

Compliance is expected because the maximum emission rate of PM is less than the allowable emission rate. Therefore, monitoring is not required.

2D .0516

This regulation limits sulfur dioxide (SO₂) emissions to no greater than 2.3 lb/MMBtu of heat input for combustion sources. SO₂ emissions from the burning of natural gas are expected to be negligible due to low sulfur content. Compliance is expected, and no monitoring is required.

2D .0521

The boiler and process heaters are subject to this rule and limited to 20 percent opacity limit.

Visible emissions are expected to be low due to firing of natural gas. Compliance is expected, and no monitoring is required.

IV. Recommendations

This permit modification application for the GP facility located in Roxboro, Person County, North Carolina has been reviewed by NC DAQ to determine compliance with all procedures and requirements. NC DAQ has determined that this facility appears to be complying with all applicable requirements.

Recommend Issuance of Permit No. 07668T21 after completion of the public notice and EPA comment periods.