

**NORTH CAROLINA DIVISION OF
AIR QUALITY**

Application Review

Issue Date:

Region: Winston-Salem Regional Office
County: Alamance
NC Facility ID: 0100237
Inspector's Name: Maria Aloyo
Date of Last Inspection: 07/26/2017
Compliance Code: 3 / Compliance - inspection

Facility Data Applicant (Facility's Name): New South Lumber Company, Inc. - Graham Plant Facility Address: New South Lumber Company, Inc. - Graham Plant 4408 Mt Hermon - Rock Creek Road Graham, NC 27253 SIC: 2421 / Sawmills & Planing Mills General NAICS: 321113 / Sawmills Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V				Permit Applicability (this application only) SIP: 02D .0504, 02D .0512, 02D .02D .0516, 02D .0521, 02D .0524, 02D .1100, 02D .1109, 02D 1111, 02D .1806, 02Q .0711 NSPS: NSPS Dc NESHAP: MACT DDDD, ZZZZ, and DDDDD PSD: N/A PSD Avoidance: N/A NC Toxics: Yes 112(r): N/A Other: Title V Permit Renewal			
Contact Data				Application Data			
Facility Contact Kristie Hill HR Manager (336) 376-5803 4408 Mt. Hermon-Rock Creek Road Graham, NC 27253	Authorized Contact Mark Blalock Plant Manager (336) 376-5801 4408 Mt. Hermon-Rock Creek Road Graham, NC 27253	Technical Contact Kristie Hill HR Manager (336) 376-5803 4408 Mt. Hermon-Rock Creek Road Graham, NC 27253	Application Number: 0100237.17B Date Received: 10/31/2017 Application Type: Renewal Application Schedule: TV-Renewal Existing Permit Data Existing Permit Number: 06740/T19 Existing Permit Issue Date: 10/12/2017 Existing Permit Expiration Date: 08/31/2018				
Total Actual emissions in TONS/YEAR:							
CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2016	8.59	75.57	307.88	96.98	39.41	22.98	14.98 [Methanol (methyl alcohol)]
2015	8.39	73.83	301.87	58.60	37.93	25.31	15.12 [Methanol (methyl alcohol)]
2014	7.53	66.29	294.81	52.63	34.12	24.62	14.77 [Methanol (methyl alcohol)]
2013	9.36	82.35	272.79	65.63	37.36	22.78	13.66 [Methanol (methyl alcohol)]
2012	8.56	75.26	252.38	61.23	35.10	21.52	12.64 [Methanol (methyl alcohol)]
Review Engineer: Betty Gatano Review Engineer's Signature: _____ Date: _____					Comments / Recommendations: Issue 06740/T20 Permit Issue Date: _____ Permit Expiration Date: _____		

1. Purpose of Application

New South Lumber Company, Inc. – Graham Plant (New South) currently holds Title V Permit No. 06740T19 with an expiration date of August 31, 2018 for a lumber mill in Graham, Alamance County, North Carolina. This permit application is for a permit renewal without modification. The renewal application was received on October 31, 2017, 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.

2. Facility Description

New South is a lumber mill that processes whole logs into dimensional lumber. The logs are initially debarked and then passed through the saw mill to cut and trim the logs into pieces approximately the size of the final product. From the saw mill, the cut lumber is dried in the facility's kilns (ID Nos. K-1 through K-6), which are heated by steam provided by the facility's four existing boilers (ID Nos. B-1 through B-4). After 22 to 24 hours of drying in the kilns, the dry lumber is then processed by the facility's planer mill (ID No. No. PM-2). The dust from both the sawing operations and the facility's planer mill is burned in one of the facility's four wood fired boilers (ID Nos. B-1 through B-4).

3. History/Background/Application Chronology

Permit History since Last Permit Renewal

September 3, 2013	TV permit renewed. Air Permit No. 06740T18 was issued on September 3, 2013 with an expiration date of August 31, 2018.
October 12, 2017	Air Permit No. 06740T19 was issued as an administrative amendment to correct a typographical error in the emission limit for formaldehyde from kiln 3 (ID No. K-3) under 15A NCAC 02D .1100.

Application Chronology

October 31, 2017	Received application for permit renewal.
November 13, 2017	Sent acknowledgment letter indicating the application for permit renewal was complete.
November 30, 2017	Comments on the TV permit renewal application were received from Maria Aloyo from the Winston-Salem Regional Office (WSRO). Among other comments, Ms. Aloyo noted "During the inspection, the facility stated that they wanted to remove boiler B-1 from the permit during the upcoming renewal. However, the renewal application does not mention removing boiler B-1 from the permit. Boiler B-1 has not been in operation since 2009."
January 5, 2017	Betty Gatano sent an e-mail to Kathy Ferry, consultant for New South, requesting an update on the status of boiler B-1.

December 8, 2017	Kathy Ferry called Betty Gatano to provide an update on boiler B-1. Although the boiler has not been operational since 2009, the facility does not want to remove it from the permit at this time. In the future, the facility will submit a permit application to modify the boilers for compliance with the upcoming boiler MACT (compliance date 05/20/2019) and boiler B-1 will be addressed in that future application.
January 12, 2018	Betty Gatano had a phone conversation with Kathy Ferry regarding the subcategories of the boilers at New South. Ms. Ferry was under the impression the boilers met the definition of hybrid suspension grate (HSG) boilers under MACT DDDDD. Ms. Gatano indicated previous conversations with personnel from Canfor (New South's parent company) indicated otherwise. Ms. Gatano sent an e-mail to Ms. Ferry requesting the correct subcategories of the boilers under MACT Subpart DDDDD.
January 17, 2018	Kathy Ferry responded via e-mail with the subcategories of the boilers. According to Ms. Ferry, the company brought in boiler design experts and determined boilers B-2, B-3, and B-4 currently meet the Boiler MACT definition of solid fuel, stoker boilers designed to burn biomass.
January 24, 2018	Draft permit and permit review forwarded internally for review.
January 26, 2018	Comments received from Mark Cuilla, Permitting Supervisor.
February 5, 2018	Comments received from Maria Aloyo of the WSRO.
February 5, 2018	Draft permit and permit review forwarded to facility for review.
February 16, 2018	Comments received from Kathy Ferry. Ms. Ferry requested to increase the arsenic emission rates in the draft permit to rates proposed in New South's permit application submitted on May 2, 2011. (See Section 7 below).
February 22, 2018	Betty Gatano asked Tom Anderson, Supervisor of the Air Quality Analysis Branch (AQAB) of the DAQ, to review the proposed emission rates. In an e-mail that same day, Mr. Anderson indicated the proposed emission rates should not exceed the acceptable ambient level (AAL) for arsenic.
February 22, 2018	Draft permit and permit review sent out for comments a second time.
February 23, 2018	Mark Cuilla had no additional comments.
March 6, 2018	Comments received from Kathy Ferry. Ms. Ferry stated the arsenic emission rate for boiler B-1 evaluated in New South's previous modeling was 0.0318 lb/yr not 0.318 lb/yr listed in the draft permit. The value used in New South's modeling was based on anticipated usage rate of 10% of

the boiler. Because boiler B-1 has not operated since 2009 and will be removed from the site in the near future, DAQ concurred with using the lower emission rate for boiler B-1.

March 8, 2018

Draft permit and permit review forwarded to public notice.

4. Permit Changes and TVEE Discussion

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

Pages	Section	Description of Changes
Throughout permit and cover letter	-	Updated all dates and permit revision numbers.
Insignificant activities list	--	Moved the propane-fired emergency engine (118 hp) (ID No. IGen 1) to the insignificant activities list. This engine meets the definition of an insignificant activity under 15A NCAC 02Q .0503(8).
3	Section 1.0 – Equipment List	<ul style="list-style-type: none"> Moved the propane-fired emergency engine (118 hp) (ID No. IGen 1) to the insignificant activities list. Added MACT Subpart DDDDD labels to the boilers (ID Nos. B-1, B-2, B-3, and B-4). Added footnote stating the Permittee shall comply with this CAA §112(j) standard until May 19, 2019. Added footnote stating the Permittee shall comply with MACT Subpart DDDDD beginning May 20, 2019.
4	2.1 A – Regulations Table	Added reference to MACT Subpart DDDDD.
6	2.1 A.3.c and e	Updated permitting language under 15A NCAC 02D .0521 to the most current version.
7	2.1 B – Regulations Table	Added reference to MACT Subpart DDDDD.
8	2.1 B.2.b and c	<ul style="list-style-type: none"> Added noncompliance statements. Added references to 40 CFR 60 Subpart Dc, as applicable. Removed reference to the “May 9, 2008” testing and instead referenced “the most recently approved emission tests.”
8	2.1 B.2.g	<ul style="list-style-type: none"> Added recordkeeping requirements during startup, shutdown, and malfunction events. Renumbered permit accordingly.
10	2.1 C.2.c and e	Updated permitting language under 15A NCAC 02D .0521 to the most current version.
--	2.1 E	Removed permit condition for the propane-fired emergency engine (118 hp) (ID No. IGen 1). This emission source is an insignificant activity under 15A NCAC 02Q .0503(8) and was moved to the insignificant activities list.
12 – 13	2.2 A.1.a	Added arsenic emission limits to the table for TAP emission limits under 15A NCAC 02D .1100.

Pages	Section	Description of Changes
--	2.2 A.1.b	Removed condition requiring submittal of an air toxics demonstration for arsenic.
16	2.2 C.1.e	Modified condition to remove initial compliance date for the “Case-by-Case MACT” and the date of initial annual compliance certification. These requirements have been met.
16	2.2 C.1.g	Modified condition requiring initial compliance testing of boilers (ID Nos. B-2, B-3, and B-4) under 15A NCAC 02D .1109. The testing was completed on October 4 – 9, 2013.
16	2.2 C.1.h	Clarified notification requirement for restart of boiler (ID No. B-1).
16	2.2 C.1.i	Clarified testing requirements for boiler (ID No. B-1).
18	2.2 C.2	Added permit condition specifying compliance with 15A NCAC 02D .1111 as promulgated in 40 CFR 63, Subpart DDDDD beginning May 20, 2019.

The following changes will be made to the Title V Equipment Editor (TVEE) under this permit renewal:

- Moved the propane-fired emergency engine (ID No. IGen 1) to the insignificant activities list.
- Added “MACT Subpart DDDDD” label to the boilers (ID Nos. B-1, B-2, B-3, and B-4).

5. Regulatory Review

New South is subject to the following regulations. The permit will be updated to reflect the most current stipulations for all applicable regulations.

- 15A NCAC 02D .0504, Particulates from Wood Burning Indirect Heat Exchangers – Boilers B-1, B-2, and B-3 are subject to 02D .0504. Allowable particulate matter (PM) emissions are determined from the equation $E = 1.1698(Q)^{-0.2230}$, where E equals the allowable emission limit for PM (in pounds per million Btu) and Q equals the maximum heat input in million Btu per hour. With a Q of 76.5 million Btu/hr (19 million Btu/hr + 28.7 million Btu/hr + 28.7 million Btu/hr), the allowable PM emissions from these boilers equal 0.45 pounds per million Btu. New South must conduct inspection and maintenance on the multicyclones (ID Nos. MC-1, MC-2, MC-3, and MC-3A) to ensure compliance with this rule. No changes to the monitoring, recordkeeping, or reporting (MRR) is required under this permit renewal. Continued compliance is anticipated.

Boiler B-4 is not subject to 02D .0504 because it is subject to the PM emission standard under NSPS Subpart Dc as referenced in 15A NCAC 02D .0524.

- 15A NCAC 02D .0512, Particulates from Miscellaneous Wood Products Finishing Plants – The planer mill (ID No. PM-2) and the rough log debarker (ID No. Debarker) are subject to 02D .0512. New South must conduct inspection and maintenance on the control devices (ID Nos. C-2 and BH-1) on the planer mill to ensure compliance with this rule. No MRR is required for the debarker. No changes to the permit are required under this permit renewal, and continued compliance is anticipated.
- 15A NCAC 02D .0516, Sulfur Dioxide Emissions from Combustion Sources – The boilers (ID Nos. B-1 through B-4) are subject to 02D .0516. No MRR is required when wood is fired in the

boilers. This fuel is inherently low enough in sulfur to always be in compliance with this rule. No changes to the permit are required under this permit renewal, and continued compliance is anticipated.

- 15A NCAC 02D .0521, Control of Visible Emissions – The emission sources below are subject to 02D .0521. The sources were manufactured after July 1, 1971 and must not have visible emissions of more than 20 percent opacity when averaged over a six-minute period, except as specified in 15A NCAC 02D .0521(d).
 - Boilers (ID Nos. B-1, B-2, and B-3) – The facility is required to conduct daily visible emission observations to ensure compliance with 02D .0521. The permit condition will be updated to reflect the most current permitting language. Continued compliance is anticipated.
 - Planer Mill (ID No. PM-2) – The facility is required to conduct weekly visible emission observations to ensure compliance with 02D .0521. The permit condition will be updated to reflect the most current permitting language. Continued compliance is anticipated.
 - Rough log debarker (ID No. Debarker) – No MRR is required to ensure compliance. No changes are needed under the permit renewal.

Boiler B-4 is not subject to 02D .0504 because it is subject to the opacity standard under NSPS Subpart Dc as referenced in 15A NCAC 02D .0524.

- 15A NCAC 02D .0524, New Source Performance Standards (NSPS) – The boilers (ID Nos. B-2, B-3, and B-4) are subject to 40 CFR Part 60, Subpart Dc “Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.” More discussion on NSPS is provided under Section 6.
- 15A NCAC 02D .1100, Control of Toxic Air Pollutants (TAPs) – This rule is state-enforceable only. The facility has modeled limits for several TAPs. See Section 7 more discussion about NC air toxics.
- 15A NCAC 02D .1109, Case by Case Maximum Achievable Control Technology – Boilers (ID Nos. B-1 through B-4) are subject to 02D .1109. The requirements for Case-by-Case MACT for the boilers were added under Air Permit No. 06740T15 issued on June 28, 2010. More discussion on Case-by-Case MACT is provided under Section 6.
- 15A NCAC 02D .1111, Maximum Achievable Control Technology (MACT) – The following emission sources are subject to MACT standards:
 - Six steam heated lumber drying kilns (ID Nos. K1 through K-6) – NESHAP for Plywood and Composite Wood Products Manufacturing, 40 CFR Subpart DDDD.
 - Emergency generators (ID No. IGen 1) – NESHAP for Stationary Reciprocating Internal Combustion Engines (RICE), 40 CFR Part 63 Subpart ZZZZ.
 - Boilers (ID Nos. B-1 through B-4) – NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters,” 40 CFR 63 Subpart DDDDD (also referred to as the Boiler MACT or MACT 5D in this document). The Permittee must be in compliance with this rule by May 20, 2019.

More discussion on MACT is provided under Section 6.

- 15A NCAC 02D. 1806, Control and Prohibition of Odorous Emissions – This condition is state-enforceable only and is applicable facility-wide. No changes to the permit condition is required under this permit renewal, and continued compliance is anticipated.
- 15A NCAC 02Q .0711, Emission Rates Requiring a Permit – This condition is state-enforceable only and is applicable facility-wide. See Section 7 more discussion about NC air toxics.

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

NSPS

The boilers (ID Nos. B-2, B-3, and B-4) are subject to 40 CFR Part 60, Subpart Dc “Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units.” This rule applies to boilers that are constructed, modified, or reconstructed after June 9, 1989 and have a maximum design heat input capacity ≥ 10 million Btu/hr and < 100 million Btu/hr. Requirements for these boilers under NSPS Subpart Dc are discussed in this section.

Boilers B-2 and B-3

Boilers B-2 and B-3 are wood fired boilers, each with a maximum heat capacity of 28.7 million Btu per hour. Wood fired boilers are not subject to a sulfur dioxide (SO₂) standard under NSPS Subpart Dc. Also, only boilers with a heat capacity of 30 million Btu per hour or greater are subject to the PM and opacity standards. Thus, the only requirement for boilers B-2 and B-3 under NSPS Subpart Dc is to record and maintain records of the amount of fuel combusted during each month, per 40 CFR 60.48c(g)(2). No changes to the permit condition are required, and continued compliance is anticipated.

Because these boilers are not subject to the PM, SO₂, or opacity standards under NSPS Dc, they are subject to 02D .0504, 02D .0516, and 02D .0521, as noted in Section 5.

Boiler B-4

Boiler B-4 is a wood fired boiler with a maximum heat capacity of 57.6 million Btu per hour. It was installed in 2007 and is subject to NSPS Subpart Dc. As noted above, wood fired boilers are not subject to a SO₂ standard under NSPS Subpart Dc. Because boiler B-4 is larger than 30 million Btu per hour, it is subject to the PM and opacity standards under NSPS Subpart Dc. The initial performance test to demonstrate compliance with the PM emission standard was conducted on March 18, 2008 with a retest conducted on May 9, 2008. The results of tests are provided in the table below.

Test Date	Pollutant	Test Result	Emission Limit	Compliance
03/18/2008	Filterable PM	0.050 lb/mmBtu	0.03 lb/mmBtu	No
05/09/2008	Filterable PM	0.007 lb/mmBtu	0.03 lb/mmBtu	Yes
<u>Notes:</u> <ul style="list-style-type: none"> • lb/mmBtu = pound per million Btu • The March 2008 testing results were approved in a memorandum by Shannon Vogel of the Stationary Source Compliance Branch (SSCB) dated May 29, 2008. • The May 2008 testing results were approved in a memorandum by Shannon Vogel of the SSCB dated June 20, 2008. 				

Additional testing on Boiler B-4 was conducted on October 9, 2013 for compliance with the Case-by-Case Boiler MACT. This testing also demonstrated compliance with the NSPS

emission limit for PM, as shown in the table below. Section 2.1 B.2.c of the air permit requires New South to use operational parameter measured during the 2008 test to ensure compliance with the NSPS emission limit for Boiler B-4. New South has requested to use the operational parameters measured during the 2013 testing rather than those measured in the older 2008 testing. Given the margin of compliance for PM noted in the table below, the DAQ concurs with this request, and the permit will be revised to reference “the most recently approved emission tests.”

Test Date	Pollutant	Test Result	Emission Limit	Compliance
10/09/2013	Filterable PM	0.0032 lb/mmBtu	0.03 lb/mmBtu	Yes
Notes: • lb/mmBtu = pound per million Btu • The testing results were approved in a memorandum by David Hughes of the SSCB dated March 3, 2014.				

Under NSPS Subpart Dc, a boiler with a maximum heat input capacity of greater than or equal to 30 million Btu per hour shall not have visible emissions more than 20 percent opacity when averaged over a six-minute period, except for one six-minute period per hour of not more than 27 percent opacity. To demonstrate compliance with this standard, New South has elected to install a continuous opacity monitoring system (COMS).

New South must also record and maintain records of the amount of fuel combusted during each month, per 40 CFR 60.48c(g)(2).

The permit condition will be updated to reflect the most current permitting language, and continued compliance is anticipated.

Because this boiler is not subject to the SO₂ standard under NSPS Dc, it is subject to 02D .0516, as noted in Section 5.

NESHAPS/MACT

The boilers (ID Nos. B-1 through B-4), the kilns (ID Nos. K-1 through K-6), and the emergency engine (ID No. IGen 1) are subject to MACTs.

MACT subpart DDDD

The facility’s six lumber drying kilns (ID Nos. K-1 through K-6) are subject to “NESHAP from Plywood and Composite Wood Products,” 40 CFR Part 63 Subpart DDDD. Per the rule, these sources have no requirements other than initial notification. As indicated in the review for the previous permit renewal,¹ New South has verified the initial notification for the kilns was submitted to DAQ on April 26, 2006. This permit renewal does not affect this status.

¹ Mark Cuilla (December 19, 2008).

MACT Subpart ZZZZ

The facility has an existing emergency engine (ID No. IGen 1) used to drive emergency water pumps to the boilers in the event of a power outage. Adding water to the boilers during an emergency allows the boilers to be brought down in a controlled manner without sustaining damage from overheating. The engine is a 4-stroke, lean-burn unit, firing propane as fuel. It was originally manufactured in 1991 and is considered an existing source under the MACT Subpart ZZZZ. The table below provides an overview of requirements under MACT Subpart ZZZZ for this engine.

Source ID	Description	Overview of MACT 4Z Requirements
IGen 1	Propane-fired emergency engine (118 hp)	<ul style="list-style-type: none"> • Install a non-resettable hour meter on the engine • Change oil and filter every 500 hours of operation or annually • Inspect all hoses and belts every 500 hours of operation or annually and replace if necessary • Operate no more than 100 hours for maintenance and readiness testing • Inspect spark plugs every 1,000 hours of operation or annually • Achieve compliance by October 19, 2013

Previously, DAQ had a policy of requiring emission sources at Title V facilities to comply with 15A NCAC 02Q .0102(b)(6), even though the rule says explicitly it is not applicable to Title V facilities. At the time this engine was permitted, this policy was in place, and the engine was included in the permit because it was subject to a MACT.

This policy has since been redacted, and regulation 15A NCAC 02Q .0102(b)(6) has been repealed. Insignificant activities at Title V facilities are now determined based solely on 15A NCAC 02Q .0503(7), “Insignificant by Category,” or 15A NCAC 02Q .0503(8), “Insignificant by Size or Production Rate.” This engine (ID No. IGen 1) meets the definition of insignificant under 15A NCAC 02Q .0503(8), as shown in the following table.

Emission Source ID	Emissions (tons/yr)				
	PM/PM10/PM2.5	NOx	SOx	CO	VOC
IGen 1	0.00	1.02	0.00	0.14	0.03
Notes: <ul style="list-style-type: none"> • IGen is a 118 hp engine. • Emissions calculated using emission factors in Table 3.2-2 from US EPA AP-42 (August 2000), for a four stroke, lean burning engine. Emission factors were converted to lb/hp-hr, assuming a 30percent efficiency as per guidance in earlier version of US EPA AP-42 (Supplement B 10/1996). • Annual emissions assume 500 hours of operation per year for emergency engines. 					

This engine will be moved to the insignificant activities list under this permit renewal. However, the engine remains subject to all applicable rules including MACT Subpart ZZZZ. Continued compliance is anticipated.

Case-by-Case MACT

Boilers (ID Nos. B-1 through B-4) are subject to the Case-by-Case MACT. Requirements were added under Air Permit No. 06740T15 issued on June 28, 2010. Emission limits for the boilers are provided in the table below.

Pollutant	Limit
Particulate Matter (filterable)	0.27 lb/ million Btu
Mercury (Hg)	0.000005 lb/ million Btu
Hydrogen Chloride (HCl)	0.02 lb/ million Btu
Carbon Monoxide	269 ppmvd, corrected to 7% O ₂ for boilers B-1, B-2, and B-3 508 ppmvd, corrected to 7% O ₂ for boiler B-4

New South conducted source testing for boilers B-2 through B-4 in October 2013 to demonstrate compliance with the Case-by-Case MACT. Boiler B-1 has not been operational since 2009, and no testing was required for this boiler. As shown in the table below, compliance with the emission limits under the Case-by-Case MACT was demonstrated.

Pollutant	Emission Rate	Emission Limit	Applicable Regulation	Compliance
Boiler B-2				
Test Date: October 8, 2013				
Filterable PM	0.23 lb/mmBtu	0.27 lb/mmBtu	2D .1109 112(J) Case by Case MACT	Yes
Carbon Monoxide	161 ppmvd @7% O ₂	269 ppmvd @7% O ₂		Yes
Hydrogen Chloride	0.00016 lb/mmBtu	0.02 lb/mmBtu		Yes
Mercury	1.75E-07 lb/mmBtu	5.0E-06 lb/mmBtu		Yes
Boiler B-3				
Test Date: October 4, 2013.				
Filterable PM	0.18 lb/mmBtu	0.27 lb/mmBtu	2D .1109 112(J) Case by Case MACT	Yes
Carbon Monoxide	204 ppmvd @7% O ₂	269 ppmvd @7% O ₂		Yes
Hydrogen Chloride	0.00012 lb/mmBtu	0.02 lb/mmBtu		Yes
Mercury	1.65E-07 lb/mmBtu	5.0E-06 lb/mmBtu		Yes
Boiler B-4				
Test Date: October 9, 2013				
Filterable PM	0.0032 lb/mmBtu	0.27 lb/mmBtu	2D .1109 112(J) Case by Case MACT	Yes
Carbon Monoxide	370 ppmvd @7% O ₂	508 ppmvd @7% O ₂		Yes
Hydrogen Chloride	0.00009 lb/mmBtu	0.02 lb/mmBtu		Yes
Mercury	1.25E-07 lb/mmBtu	5.0E-06 lb/mmBtu		Yes
Notes:				
<ul style="list-style-type: none">• lb/mmBtu = pound per million Btu• ppmvd @7% O₂ = parts per million corrected to 7% Oxygen• Source test results approved in a memorandum by David Hughes of the SSCB dated March 3, 2014.				

The permit also requires periodic testing to demonstrate compliance with the emission limits. Testing is to be conducted annually or every 5 years if the initial performance test results for a given pollutant are less than 80 percent of the emission limit. As shown in the table above, the test results were less than 80 percent of the emission limits for all pollutants with the exception of filterable PM from boiler B-2. Although the PM results for boiler B-2 were greater than 80 percent of the limit (0.23 lb/million Btu / 0.27 lb/million Btu = ~85 percent), the permit condition is written to require the **average** emissions results for PM, Hg, and HCl across all boilers tested to be less than 80 percent of the limit. (Please refer to the equation in Section 2.2 C.1.b of the Air Permit No. 06740T19). The average PM emission measured across all three boilers during the 2013 test is much less than 80 percent. Thus, the testing is not required for boilers B-2, B-3, and B-4 until October 2018. Testing for boiler B-1 is required within 180 days of restart of the boiler.

The facility complies with the Case-by-Case MACT for the boilers until May 19, 2019. Minor changes were made to the permit condition under the permit renewal. Continued compliance is anticipated.

MACT Subpart DDDDD

The boilers (ID Nos. B-1, B-2, B-3, and B-4) are subject to the NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR Part 63 Subpart DDDDD, beginning May 20, 2019. In preparation for compliance with the Boiler MACT, New South brought in boiler design experts who determined boilers B-2, B-3 and B-4 currently meet the Boiler MACT definition of solid fuel, stoker boilers designed to burn biomass. An overview of the status of each boiler with respect to the Boiler MACT is provided below:

- Boiler B-4 currently has an automated oxygen (O₂) trim system and is controlled via a dry electrostatic precipitator (ESP). The facility anticipates no modifications will be required to comply with the Boiler MACT.
- Boilers B-2 and B-3 will be modified to meet the definition of a HSG boiler designed to burn biomass. These boilers will also have automated O₂ trim systems. The facility does not anticipate any add-on pollution controls will be needed for boilers B-2 and B-3 to comply with the Boiler MACT following this conversion. New South is required to submit a permit application for this modification, and according to the consultant for the facility, efforts to prepare the permit application for the conversion to HSG boilers are underway.
- Boiler B-1 is not operating and will be removed from the permit as part of the permit modification to convert boilers B-2 and B-3 to HSG boilers.

Because the facility will be submitting a permit application to modify boilers B-2 and B-3, the DAQ does not recommend including a detailed permit condition for compliance with the Boiler MACT at this time. Instead the following permit condition will be included in the permit as part of this permit renewal:

2. 15A NCAC 02D .1111: MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY

Applicability [40 CFR 63.7485, §63.7490(d)]

- a. For the existing sources (**ID Nos. B-1 through B-4**), the Permittee shall comply with all applicable provisions, including the monitoring, recordkeeping, and reporting contained in Environmental Management Commission Standard 15A NCAC 02D .1111 "Maximum Achievable Control Technology" (MACT) as promulgated in 40 CFR Part 63, Subpart DDDDD. "National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters" and Subpart A "General Provisions."
- i. The Permittee shall comply with the CAA §112(j) standard in Section 2.2 C.1 through **May 19, 2019**. The Permittee shall be subject to the requirements of this standard starting **May 20, 2019**. Note that the requirements of this standard may require action on behalf of the Permittee prior to **May 20, 2019**.

The more detailed permit conditions for the Boiler MACT will be added to the permit as part of the permit modification to convert Boilers B-2 and B-3 to HSG boilers.

PSD

The facility is classified as a major source under Prevention of Significant Deterioration (PSD). A boiler (ID No. B-4), a sixth kiln (ID No. K-6), and the debarker (ID No. Debarker) were added to the permit under Air Permit No. 06740T10. Potential VOC emissions after the permit modification to add these emissions sources were 419 tons per year as reported in the application for the prior permit renewal.² New South became a PSD major source for VOCs at that point.

112(r)

The facility 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 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 precontrol potential emission rate exceeds either 100 tons/yr (for criteria pollutants) or 10/25 tons/yr (for HAPs).

As indicated in a previous permit renewal² and confirmed in the current permit application for TV permit renewal, precontrolled PM10 emissions from each of the control devices are less than 100 tons per year, and thus, CAM is not applicable to this facility. The table below summarizes the precontrolled emissions.

Emission Source ID No(s).	Control Device ID No(s).	Precontrolled Emissions (tpy)	Comments
B-1	MC-1	19.12	Based on an emission factor of 0.237 pounds per million Btu from 2000 testing.
B-2	MC-2 MC-2A	25.5	Based on an emission factor of 0.203 pounds per million Btu from 2000 testing.
B-3	MC-3 MC-3A	20.2	Based on an emission factor of 0.161 pounds per million Btu from 2000 testing.
B-4	MC-4 MC-4A ESP-4	3.0	Based on an emission factor of 0.012 pounds per million Btu for total PM (filterable and condensable) from May 9, 2008 testing.
PM-2	C-2 BH-1	0	No "in duct" PM10 emissions from planning. DAQ's "Woodworking Emission Calculator Revision C" July 2007.

A "Permit Shield for Non-Applicable Requirements" was added under Air Permit No. 06740T14, clarifying CAM is not applicable to the facility. This permit renewal does not affect the status of this condition.

² Mark Cuilla (December 19, 2008).

7. Facility Wide Air Toxics

New South's applicability to and compliance with the NC air toxics rules are discussed below.

TAPs permitting emission rate (TPER)

In a previous air toxics demonstration, New South was shown to emit eighteen TAPs with maximum facility-wide emissions below the level requiring a permit application. These TAPs are acetaldehyde, bis(2-ethylhexyl) phthalate, carbon disulfide, chlorine, chlorobenzene, chloroform, hydrochloric acid, hexane, manganese, mercury, methylene chloride, methyl isobutyl ketone, pentachlorophenol, styrene, toluene, trichloroethylene, vinyl chloride and xylene. A permit to emit any of these pollutants, with the exception of chlorine, in quantities above the TPER requires the submittal of a permit application.

Chlorine emissions were found to exceed the lb/day TPER and were evaluated as part of the previous TV permit renewal.³ The DAQ demonstrated via modeling the maximum chlorine impact from the boilers was only two percent of the chlorine AAL on a 24-hour averaging period. Therefore, the chlorine emissions do not pose an unacceptable risk to human health, and reference to chlorine emissions were removed from the permit under the previous TV permit renewal (Air Permit No. 06740T18).

No changes to the permit condition is required under this permit renewal.

Director's Call and Removal of Fuel Restrictions

In response to a Director's Call issued April 27, 2009, New South performed air dispersion modeling, consistent with the provisions of 15A NCAC 02D .1106, for all TAPs emitted in excess of their respective TPER⁴. The modeling demonstration evaluated arsenic, benzene, beryllium, cadmium, chromium, and nickel emissions from the four boilers and acrolein, formaldehyde, and phenol emissions from the four boilers and six lumber drying kilns. Modeled emission limits and restrictions on the amount of fuel that could be combusted in each boiler to ensure compliance with the arsenic AAL were included under Air Permit No. 06740T15. The fuel restrictions were revised under Air Permit No. 06740T17.

Boilers (ID Nos. B-1 through B-4) are subject to 15A NCAC 02D .1109, Case-by-Case MACT. Under Session Law 2012-091, which became effective on July 1, 2012, the General Assembly enacted changes to G.S. 143-215.107(a) to exempt certain emission sources subject to federal regulations – including case-by case-MACT standards – from NC air toxics regulations provided their emissions do not “present an unacceptable risk to human health.” As part of the previous TV permit renewal, New South requested to remove these fuel restrictions from the permit. DAQ conducted an evaluation and demonstrated that removing the fuel restriction did not pose an unacceptable to human health⁵. The fuel restrictions were removed under the previous TV permit renewal (Air Permit No. 06740T18).

³ Betty Gatano (September 3, 2013).

⁴ Although chlorine emissions were shown to exceed the lb/day TPER, New South did not include chlorine in its air dispersion modeling. Please refer to the permit review for Air Permit No. 06740T18 for a discussion of chlorine emissions and the NC air toxics rules (Betty Gatano, 09/02/2013).

⁵ Betty Gatano (September 3, 2013).

Arsenic

At the time of the previous TV permit renewal, the North Carolina Science Advisory Board on Toxic Air Pollutants was conducting an analysis of the AAL for arsenic. Because of this review process, the toxic demonstration for arsenic emissions that was previously submitted was temporarily deferred, and all references to arsenic under 15A NCAC 02D .1100 were removed from the permit. A permit condition (Section 2.2 A.1.b) was added to the permit requiring New South to submit a revised toxic demonstration for arsenic once the AAL review process was completed and the revised AAL was approved by the North Carolina Environmental Management Commission (EMC). On November 14, 2013, the EMC approved the revised arsenic AAL. However, New South has yet to submit a revised air toxics demonstration for arsenic as required.

During the comment period for the previous TV permit renewal, numerous commenters expressed concern regarding the removal of the production restrictions on the boilers and the resulting increase of arsenic emissions. In response to the comments, the DAQ conducted air modeling of potential arsenic emissions from the boilers with the production restrictions removed. Emission rates of arsenic used in the modeling were based on stack testing conducted at New South in February 2011. The stack tests measured arsenic emissions at 1.36 E-6 lb/million Btu for boiler B-2 and 1.07 E-7 lb/million Btu for boiler B-4. Arsenic emissions from boiler B-2 were considered representative of boilers B-1 and B-3 because these boilers have similar emission controls. The emission rate for each boiler is shown in the table below.

Boiler	Max Heat Input (mmBtu/hr)	Emission Factor (lb/mm Btu)	Emission Rate (lb/hr)
B-1	19.1	1.36E-06	2.60E-05
B-2	28.7		3.90E-05
B-3	28.7		3.90E-05
B-4	57.6	1.07E-07	6.16E-06
<u>Notes:</u> <ul style="list-style-type: none">• mmBtu = million Btu• Source test results approved in a memorandum by Gregg O'Neal of the SSCB dated November 11, 2011.			

Alex Zarnowski of the Air Quality Analysis Branch ran a screening level air model using the emission rates for arsenic in the table above and worst-case stack parameters. This analysis demonstrated the maximum impact of arsenic was 78 percent of the old AAL on an annual averaging period and 9 percent of the new AAL.⁶ Given the large margin of compliance with conservative assumptions (i.e., worst-case stack parameters), the DAQ has determined no air toxics demonstration for arsenic is needed from New South.

With the exception of emissions from boiler B-1, New South has requested higher arsenic emissions rates than those measured during the 2011 test be used in the permit. The requested emission rates were initially proposed in a permit application from New South received on May 2, 2011. The requested emission rates for boilers B-2, B-2, and B-4 are approximately 40 percent higher than those measured during testing. Emissions from boiler B-1 are less than measured during the 2011 testing because New South is assuming a 10% usage factor for boiler B-1. The proposed emission rates for arsenic are shown in the table below.

⁶ Alex Zarnowski (August 28, 2013)

Boiler	Max Heat Input (mmBtu/hr)	Emission Factor (lb/mm Btu)	Emission Rate (lb/hr)	Emission Rate (lb/yr)
B-1	1.91	1.9E-06	3.63E-06	0.0318
B-2	28.7		5.45E-05	0.478
B-3	28.7		5.45E-05	0.478
B-4	57.6	1.5E-07	8.64E-06	0.078
<u>Notes:</u> <ul style="list-style-type: none"> • mmBtu = million Btu • Annual emissions determined by multiplying the hourly emissions by 8,760 hours. • The heat input of B-1 is based on 10% of the heat input of 19.1 mmBtu/hr for this boiler. Boiler B-1 has not operated since 2009 and will be removed from the site in the near future. 				

Tom Anderson, Supervisor of the AQAB, reviewed the proposed emission rates and determined “a 40 percent increase in emissions should not result in the AAL being exceeded.” The annual arsenic emissions noted in the table above will be added to the table of TAP emission limits under 02D .1100, and the condition requiring an air toxic demonstration will be removed under this TV permit renewal.

8. Facility Emissions Review

There is no change in Title V potential emissions for this renewal. Actual emissions for 2012 through 2016 as reported in the emission inventories are provided in the header to this permit review.

9. Compliance Status

DAQ has reviewed the compliance status of this facility. During the most recent inspection, conducted on July 26, 2017 by Maria Aloyo of the WSRO, the facility appeared to be in compliance with all applicable requirements.

Additionally, a signed Title V Compliance Certification (Form E5) indicating the facility was in compliance with all applicable requirements was included with the permit renewal.

10. 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 above. Virginia and the Forsyth County Office of Environmental Assistance and Protection are affected areas within 50 miles of this facility and will be notified accordingly.

11. Other Regulatory Considerations

- A P.E. seal is NOT required for this application.
- A zoning consistency determination is NOT required for this application.

12. Recommendations

The permit renewal application for New South Lumber Company – Graham Plant in Graham, Alamance County, North Carolina has been reviewed by DAQ to determine compliance with all procedures and requirements. DAQ has determined this facility is complying or will achieve compliance, as specified in the permit, with all requirements applicable to the affected sources. The DAQ recommends the issuance of Air Permit No. 06740T20.