NORTH CAROLINA DIVISION OF
AIR QUALITY

Application Review

Issue Date:

Region: Raleigh Regional Office
County: Chatham
NC Facility ID: 1900015
Inspector's Name: Steven Carr
Date of Last Inspection: 05/26/2016
Compliance Code: B / Violation - emissions

Facility Data

Applicant (Facility's Name): Arauco Panels USA, LLC

Facility Address:
Arauco Panels USA, LLC
985 Corinth Road
Moncure, NC 27559

SIC: 2493 / Reconstituted Wood Products
N**AICS**: 321219 / Reconstituted Wood Product Manufacturing

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

Permit Applicability (this application only)

SIP:
NSPS:
NESHAP: MACT DDDD
PSD:
PSD Avoidance:
NC Toxics:
112(r):
Other:

Contact Data

Facility Contact	**Authorized Contact**	**Technical Contact**
Yvonne Couts Environmental Coordinator (919) 545-5848 985 Corinth Road Moncure, NC 27559	Henry Scheller MDF Plant Manager (919) 545-5857 985 Corinth Road Moncure, NC 27559	John Bird Environmental Health & Safety Manager (919) 642-6658 985 Corinth Road Moncure, NC 27559

Application Data

Application Number: 1900015.17B
Date Received: 04/03/2017
Application Type: Modification
Application Schedule: TV-Significant
Existing Permit Data
Existing Permit Number: 03449/T48
Existing Permit Issue Date: 12/21/2017
Existing Permit Expiration Date: 06/30/2021

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2015	12.64	296.93	793.10	518.43	182.48	82.62	40.77 [Methanol (methyl alcohol)]
2014	14.18	309.21	571.44	550.64	138.51	73.16	32.11 [Methanol (methyl alcohol)]
2013	12.57	292.92	503.89	454.06	136.96	79.08	32.03 [Formaldehyde]
2012	13.66	313.22	533.29	523.84	137.67	222.00	140.87 [Formaldehyde]
2011	14.94	290.11	493.00	493.05	122.81	161.78	70.94 [Methanol (methyl alcohol)]

Review Engineer: Joseph Voelker

Review Engineer's Signature: Date:

Comments / Recommendations:
Issue 03449/T49
Permit Issue Date:
Permit Expiration Date:

I. Introduction and Purpose of Application

Arauco Panels USA LLC (formerly UNIBOARD USA LLC) owns and operates a facility in Moncure, NC that is permitted to produce medium density fiberboard (MDF) and particle board (PB).

The purpose of this application is as follows (excerpt from permit application):

> On November 15, 2015, Arauco entered into a Special Order by Consent (SOC) to remove the existing PGT Control devices (CD02-2, CD14-2, CD16-2, and CD-PB-PGT). Alternative control systems have been evaluated and Arauco is submitting this Air Permit Modification Application to convert the particleboard green rotary dryers to dry rotary dryers, as defined in Part 63.2292, and to demonstrate PCWP MACT compliance for the particleboard press through successful demonstration of the production based compliance option as defined in Table A to Subpart DDDD of Part 63.

The SOC referenced above addresses the steps by which compliance with 40 CFR 63 Subpart DDDD will be achieved for the MDF plant and the PB plant. This includes the submittal of permit applications. This application will address compliance of the PB plant. Compliance by the MDF plant was addressed in application no. 16A which resulted in the issuance of permit no. T45. This application will be processed as a significant modification pursuant to 15A NCAC 02Q .0516.

In addition, permit no. T48, issued December 21, 2017 addressed a significant modification to the MDF plant backup burners (application no. 1900015.17D, see chronology). It was processed via the two-step process pursuant to 15A NCAC 02Q .0504. That modification will also be subjected to public and EPA review along with the modifications addressed specifically in this application. The review for permit no. T48 will be included as an attachment to this review.

II. Chronology

Date	Description
April 3, 2017	An application was received and assigned application no. 1900015.17B
June 30, 2017	An application was received and assigned application no. 1900015.17C for a wastewater evaporator. Because of operational needs, the Permittee requested this application be processed before application no. 17B.
July 31, 2017	Permit No. T46 issued as a result of application 17 C.
August 18, 2017	An email from John Bird was received stating: 1. Please remove mentions of CL Dryer 2 from Air Permit. We do not plan on rebuilding. 2. Please remove mentions of wood fired Wellons scenario. We do not plan on rebuilding fuel conveyance system. 3. Attached is amended Form C9 for Press ES-DEF-2010 for production based compliance option.
September 01, 2017	An email was sent to the Permittee requesting: information supporting the controlling monitoring parameter for the PB press for MACT DDDD compliance and exhaust configuration for the PB press
September 01, 2017	An email from John Bird was received including: 1. a request to include an operation for painting and striping for marking wood panels 2. a diagram clarifying the exhaust configuration of the MDF press
September 6, 2017	An email from John Bird was received describing the parameters requested to be used for ensuring compliance with the production based compliance option for the PB press.
October 6, 2017	An email from John Bird was received confirming that the new exhaust for the PB press was the same one prior to permit No. T39
October 20, 2017	A draft permit was sent to Permittee
November 7, 2017	John Bird responded to the draft permit with concerns regarding the monitoring formaldehyde and methanol monitoring parameters for the production-based compliance option used for the PB press
November 16, 2017	An email from John Bird was received suggesting a monitoring parameter for the production-based compliance option used for the PB press. See discussion below.in Section IV.
November 22, 2017	An application was received and assigned application no. 1900015.17D. This application was for the replacement and reconfiguration of natural gas burners on the MDF dryer. Because of operational needs, the Permittee requested this application be processed before application no. 17B.
December 18, 2017	A revised draft permit for application no. 17B was sent to Permittee. A follow-up email was sent shortly thereafter with additional clarification and suggested revisions to the testing compliance dates for MACT DDDD.
December 21, 2017	Permit No. T48 was issued in response to application 190015.17D.
January 9, 2017	The Permittee responded via email that they had no additional comments on the draft and revisions sent on December 18, 2017.

III. Modification Description

As stated in Section I above, this application was submitted to revise the air permit to include the requirements by which the Permittee will comply with MACT Subpart DDDD (MACT 4D) for the PB plant. MACT applicability at the MDF plant will also be discussed since the permit will be revised to incorporate the specific compliance options and monitoring requirements chosen under 4D.

Applicability

63.2232 describes the affected sources. Arauco is considered an existing facility under 4D. Most of the affected sources under 4D have no applicable requirements. These sources are identified in the permit with a "MACT DDDD" descriptor. Operations at the facility with ongoing compliance requirements will be discussed as necessary below.

PB plant

At the PB plant the sources with substantial requirements under 4D are shown in the Table below. This table represents the sources as they are currently permitted.

Table 1

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
Particleboard Mill			
1430	Surface layer triple pass, rotary drum (#3) dryer with one wood suspension dust/natural gas-fired burner (60 million Btu per hour maximum rated heat input)	CD-1431 CD-PB-WESP CD-PB-PGT	High efficiency multi-cyclone with 2 tubes, each 132 inches in diameter Wet electrostatic precipitator Packed bed scrubber with photochemical gas treatment
1420	Core layer single pass, rotary drum (#1) dryer with one wood suspension dust/natural gas-fired burner (50 million Btu per hour maximum rated heat input)	CD-1421 CD-PB-WESP CD-PB-PGT	High efficiency multi-cyclone with 4 tubes, each 80 inches in diameter Wet electrostatic precipitator Packed bed scrubber with photochemical gas treatment
1410	Core layer single pass, rotary drum (#2) dryer with one wood suspension dust/natural gas-fired burner (50 million Btu per hour maximum rated heat input)	CD-1411 CD-PB-WESP CD-PB-PGT	High efficiency multi-cyclone with 4 tubes, each 80 inches in diameter Wet electrostatic precipitator Packed bed scrubber with photochemical gas treatment

Emission Source ID No.	**Emission Source Description**	**Control Device ID No.**	**Control Device Description**
3201 **PSD** **MACT** **DDDD**	One "Wellons" unit operating as a: a) wood suspension dust -fired burner (40 million Btu per hour maximum rated heat input); or a b) natural gas-fired burner (21.8 million Btu per hour maximum rated heat input); exhausting to either surface layer triple pass, rotary drum (#3) dryer [ID No. 1430] and/or core layer single pass, rotary drum (#1) dryer [ID No. 1420] and/or core layer single pass, rotary drum (#2) dryer [ID No. 1410]	CD-1431 AND/OR CD-1421 AND/OR CD-1411 AND CD-PB-WESP CD-PB-PGT	High efficiency multi-cyclone with 2 tubes, each 132 inches in diameter High efficiency multi-cyclone with 4 tubes, each 80 inches in diameter High efficiency multi-cyclone with 4 tubes, each 80 inches in diameter Wet electrostatic precipitator Packed bed scrubber with photochemical gas treatment
3201 **MACT** **DDDDD**	One "Wellons" unit operating as a: c) natural gas -fired indirect heat exchanger (21.8 million Btu per hour maximum rated heat input)	N/A	N/A
DEF- 2010 **PSD** **MACT** **DDDD**	Particleboard Press	CD-PB-PGT	Packed bed scrubber with photochemical gas treatment

The Permittee would like to make the following changes to the permitted equipment:
1. Under the SOC, CD-PB-PGT has already been dismantled. The PGT will be removed from the permit.
2. Remove wood-firing scenario for the Wellons unit. The fuel conveyance system has been removed and will not be rebuilt.
3. Remove mention of CL Dryer 2. This dryer was destroyed over 10 years ago and there is no plan for rebuilding.
4. With the removal of the PGT at the PB plant the exhaust from the PB press will be rerouted to an existing out-of-service stack. See additional discussion on this below.

These changes will result in the following table:

Table 2

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
Particleboard Mill			
1430	Surface layer triple pass, rotary drum (#3) dryer with one wood suspension dust/natural gas-fired burner (60 million Btu per hour maximum rated heat input)	CD-1431 CD-PB-WESP	High efficiency multi-cyclone with 2 tubes, each 132 inches in diameter Wet electrostatic precipitator
1420	Core layer single pass, rotary drum (#1) dryer with one wood suspension dust/natural gas-fired burner (50 million Btu per hour maximum rated heat input)	CD-1421 CD-PB-WESP	High efficiency multi-cyclone with 4 tubes, each 80 inches in diameter Wet electrostatic precipitator
3201	One "Wellons" unit operating as a natural gas-fired burner (21.8 million Btu per hour maximum rated heat input); exhausting to either surface layer triple pass, rotary drum (#3) dryer [ID No. 1430] and/or core layer single pass, rotary drum (#1) dryer [ID No. 1420] and/or	CD-1431 AND/OR CD-1421 AND CD-PB-WESP	High efficiency multi-cyclone with 2 tubes, each 132 inches in diameter High efficiency multi-cyclone with 4 tubes, each 80 inches in diameter Wet electrostatic precipitator
3201	One "Wellons" unit operating as a natural gas -fired indirect heat exchanger (21.8 million Btu per hour maximum rated heat input)	N/A	N/A
DEF- 2010	Particleboard Press	N/A	N/A
PB-BC	Particleboard Cooler	N/A	N/A

A brief discussion of each source will be presented:

Wellons Unit (ID No. 3201)

The Wellons unit provides heat to the particleboard press thermal oil system and exhausts either to the particleboard dryers or directly to the atmosphere. The unit will no longer be permitted to operate as a wood suspension dust -fired burner and will now simply be permitted to fire only natural gas.

Each of the dryers also have their own heat input source and as such the Wellons heat input is not necessary for the operation of the dryers. It is an affected source under MACT 4D when it is exhausted to the dryers and is an affected source under MACT 5D (boiler MACT) when it is operated as an indirect heat exchanger. When exhausted to the dryers its emissions are commingled with those of the dryers. By itself the Wellons unit is an affected source under 4D but has no applicable requirements.

Dryers (ID Nos. 1420 and 1430)

The core layer dryer (1420) and the surface layer dryer (1430) are rotary drum dryers. To date they were considered to meet the definition of a “green rotary dryer” under the MACT which is defined as

> Green rotary dryer means a rotary dryer that dries wood particles or fibers with an inlet moisture content of greater than 30 percent (by weight, dry basis) at any dryer inlet temperature or operates with an inlet temperature of greater than 600 °F with any inlet moisture content. A green rotary dryer is a process unit.

As such, they were subject to either production based compliance options or add-on control options as required under 63.2240. Arauco had been attempting to comply with the add-on control options using the PGT system. Through the SOC, Arauco is now proposing to comply with 4D for the dryers by removing the PGTs and meeting the work practice requirements for "dry rotary dryers" which are defined as

> Dry rotary dryer means a rotary dryer that dries wood particles or fibers with a maximum inlet moisture content of less than or equal to 30 percent (by weight, dry basis) and operates with a maximum inlet temperature of less than or equal to 600 °F. A dry rotary dryer is a process unit.

Arauco proposes to meet this requirement by utilizing furnish from another facility that has already been dried. 4D requires inlet moisture and temperature monitoring, but no emissions testing. Arauco has made no claims as to any HAP emissions reductions. However, based on NCASI data, dry dryers have VOC emissions of less than 27% of equivalent green dryers when processing southern yellow pine.

Particleboard Press (ID No. DEF-210)

The emissions from the press are currently permitted to be routed to the dryers or to the PGT after being captured by a "wood products total enclosure" as defined in 4D. The Permittee is now requesting to comply with 4D via the production based compliance option. As a "reconstituted wood product press" the press is subject to the emission limit of 0.30 lb of total HAP per thousand square feet of board, ¾" basis. The Permittee intends on re-routing the emissions to an existing out-of-service stack. This stack was the original press stack before modifications years ago re-routed the emissions to the dryers. The emissions will now be routed directly to the atmosphere. The Permittee does not plan on changing the configuration of the press enclosure but under the production based compliance option the continuous operation of a "wood products total enclosure" is not required after the initial testing. Implications on this rerouting of emissions with respect to other regulations will be discussed elsewhere.

Initial compliance requires testing for total HAP from the press (using a temporary or permanent total enclosure), monitoring production and the establishment of controlling operating parameters that will become enforceable operating limitations in the permit. Arauco has determined through preliminary testing that the majority (approximately 80%) of total HAP emissions from the press are methanol. Approximately 19% is formaldehyde. Arauco proposes to start using a low methanol resin and is convinced that by doing so can meet the production based compliance option. Since formaldehyde and methanol are the main contributors to the total HAP emissions from the press, Arauco would like to treat the formaldehyde and methanol content in the resin as a monitoring parameter (see 63.2262(n)). The Permittee shall limit the resin content of these two HAPs to the levels contained in the resin during the initial performance test. The Permittee shall determine the methanol and formaldehyde resin levels based on vendor supplied data on a per shipment basis.

Particleboard Cooler (ID No. PB-BC)

At existing sources, coolers have no applicable requirements.

MDF plant

At the MDF plant the sources with substantial requirements under 4D are shown in the Table below. This table represents the sources as they are currently permitted. Note that all the sources are ultimately controlled by the biofilter before exhausting to the atmosphere. Hence, all MDF sources with applicable requirements will be complying with the add-on controls option. The press must also meet the requirements of the definition of a wood products enclosure in 40CFR 63.2292. Upon discussions with the Permittee, it was discovered that the permit could be made clearer as to how the press, board cooler and press hall should be listed in the air permit. Each of these sources have their own exhaust points. The press and the press hall exhaust points both capture the emissions from the press. Therefore, the press and the press hall need to meet the requirements of a "wood products total enclosure" as defined under 4D and effectively are a single emission source. It could be argued that no reference to the press hall need to be mentioned as it is not an emission source in itself. However, it is advantageous from a process understanding perspective and will simply be consolidated into the press descriptor. Under 4D only the press is subject to any emission limitations. The board cooler emissions are by design captured and routed to the biofilter but are not required to meet the enclosure requirements or emission limitations under 4D since the facility is considered to be an "existing facility" under 4D.

Table 3

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
Medium Density Fiberboard (MDF) Facilities			
ES-01 **PSD** **MACT DDDD**	Refiner	CD01	Refiner Abort Cyclone (66 inches in diameter) [1]
		CD02 in series with CD18	Venturi scrubber Biofilter
		CD14 In series with CD18	Venturi scrubber Biofilter
ES-02-A **PSD** **MACT DDDD**	Energy System consisting of one dry/wet wood/ woodwaste-fired burner (205 million Btu per hour heat input)	CD02-A	Urea/water injection system
		CD02 In series with CD18	Venturi scrubber Biofilter
		CD14 In series with CD18	Venturi scrubber Biofilter
ES-02-B and ES-02-C-1 and ES-02-C-2, ES-02-D **PSD** **MACT DDDD**	Two Stage Dryer System and Three backup natural gas-fired dryer burners (35, 35, and 17 million Btu per hour heat input respectively)	CD02 In series with CD18	Venturi scrubber Biofilter
		CD14 In series with CD18	Venturi scrubber Biofilter
ES-16	MDF Press	CD02 In series with CD18	Venturi scrubber Biofilter
		CD14 In series with CD18	Venturi scrubber Biofilter
ES-06-B	MDF Board Cooler and Press Hall	CD02 In series with CD18	Venturi scrubber Biofilter
		CD14 In series with CD18	Venturi scrubber Biofilter

The press board cooler and press hall will appear in the revised permit as follows:

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
Medium Density Fiberboard (MDF) Facilities			
ES-16	MDF Press and Press Hall	CD02 In series with CD18	Venturi scrubber Biofilter
		CD14 In series with CD18	Venturi scrubber Biofilter

[1] For operation during startup, shutdown and malfunction only.

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES-06-B	MDF Board Cooler	CD02 In series with CD18	Venturi scrubber Biofilter
		CD14 In series with CD18	Venturi scrubber Biofilter

Pursuant to Table 1B in 4D, the Permittee must comply with one of the following six compliance options by using an emissions control system (i.e., the biofilter).

(1) Reduce emissions of total HAP, measured as THC (as carbon) [a], by 90 percent; or
(2) Limit emissions of total HAP, measured as THC (as carbon) [a], to 20 ppmvd; or
(3) Reduce methanol emissions by 90 percent; or
(4) Limit methanol emissions to less than or equal to 1 ppmvd if uncontrolled methanol emissions entering the control device are greater than or equal to 10 ppmvd; or
(5) Reduce formaldehyde emissions by 90 percent; or
(6) Limit formaldehyde emissions to less than or equal to 1 ppmvd if uncontrolled formaldehyde emissions entering the control device are greater than or equal to 10 ppmvd.

The Permittee has not determined with which of the emission limitations it will demonstrate compliance. All six will be included in the revised air permit. Compliance will require initial and subsequent testing of the biofilter to demonstrate compliance with one of the six emission limitations above and to establish operating parameters for the biofilter. The Permittee will be required to submit a permit application to included minimum and maximum biofilter bed temperature limits in the permit upon completion of the initial performance test.

For both plants, the appropriate monitoring recordkeeping, notification and reporting requirements will be included in the revised permit.

IV. Regulatory Review

Only the regulations for which compliance may be affected by the changes proposed in this modification application will be discussed.

MDF Plant
The modifications addressed in this application will require no modifications to the existing permit's emission limitations, monitoring, recordkeeping or reporting requirements outside of MACT 4D. All changes to the permit conditions will be listed in the Table of change in Section VII of this review document.

PB Plant
With the changes being made at the PB plant, some of the existing permit conditions need to be revisited to ensure compliance.

15A NCAC 02D .0512: PARTICULATES FROM WOOD PRODUCTS FINISHING PLANTS
In the current permit (and previous ones) this regulation has been applied to the press (DEF-210) and board cooler (PB-BC). The permit contains the following condition.

> No monitoring, recordkeeping or reporting shall be required for the particulate matter emissions from the particleboard press **(ID No. DEF-2010)** and particleboard cooler (ID No. PB-BC).

Prior to the rerouting of the PB press to the PGT in recent years the permit contained the following condition.

> Particulate matter emissions from the particleboard press [ID No. DEF-2010] and particleboard cooler [ID No. PB-BC] are uncontrolled therefore no monitoring, recordkeeping or reporting shall be required.

Thus, the requirements for no monitoring recordkeeping and reporting was in place when the exhaust configuration of the press was in the previous configuration to which it is now being returned. Therefore, no changes to the permit are necessary.

15A NCAC 02D .0521: CONTROL OF VISIBLE EMISSIONS
Since the emission point is changing for the sources previously controlled by the PGT, this permit needs to be revised. This will simply involve revising the VE readings for the press to occur at the emission point of the press, now identified as EP-DEF-210 and for the Wellons unit and dryers at their emission points, which are the exhaust of the wet ESP (CD-PB-ESP). No other changes are necessary.

15A NCAC 02D .0530: PREVENTION OF SIGNIFICANT DETERIORATION
The PB Press in conjunction with the board cooler, has the following BACT Limits that were imposed sometime prior to 2001 (last readily retrievable permit) which was well before the emissions were rerouted to the PGT.

Particleboard Press (**ID No. DEF-2010**) and Board Cooler (**ID No. PB-BC**)	PM_{10}	3.29 lbs/hour	none
	VOC	32.1 lbs/hour as C	none
	Opacity	20 percent	none

The permit does not require any testing, monitoring, recordkeeping, or reporting for these pollutants from the press and it appears the permit has been this way since these limits were imposed (again, sometime prior to 2001). No changes need to be made to the permit to address the rerouting of the PB press emissions.

The following footnote appears at the end of the table in section 2.1 E.6.a:

BACT emission limits are a total for three particleboard dryers (ID Nos. 1410, 1420, and 1430).

Since dryer No. 2 was destroyed years ago (ID No. 1410), the footnote will be revised to read:

BACT emission limits are a total for two particleboard dryers (ID Nos. 1420 and 1430).

The following footnote appears at the end of the table in section 2.1 E.6.a.:

All BACT limits were established prior to the installation of the scrubber (ID No. CD-PB-PGT).

This footnote was added when the scrubber was added to the permit. The intent was to memorialize the fact that the installation of the scrubber was not a PSD triggering project and that the scrubber was not necessary for compliance with the PSD limitations. Since the scrubber is being removed, this footnote is no longer needed and will also be removed.

Condition 2.1 E.6.c reads:

Under the provisions of NCGS 143-215.108, the Permittee shall demonstrate compliance with the emission limits in condition a. above by testing the particleboard dryers **(ID Nos. 1410, 1420, and 1430)** for PM_{10}, VOC, CO and NOx in accordance with a testing protocol approved by the DAQ. Details of the emissions testing and reporting requirements can be found in Section 3 - General Condition JJ of the permit. Testing shall be completed and the results submitted within 90 days of start-up of particleboard dryer **(ID No. 1410)**. All three dryers shall be in operation during this source testing.

The intent of this test condition was to test all three dryers in operation to ensure compliance with the BACT limits. The Permittee had tested with two of the dryers in operation. Dryer No. 2 (ID No. 1410) was never repaired and operated which would have allowed for testing. Because the rebuilding of the dryer at this point would have triggered a PSD review since it has been so many years since it was destroyed and the dryer is being removed from the permit, this testing condition will also be removed from the permit.

Condition 2.1 E.6.f.iii reads:

The Permittee shall maintain a minimum water injection rate to the wet electrostatic precipitator of 7.8 gallons per minute (gpm, 3-hour block average).

This monitoring parameter was added as the result of the testing requirement that appeared in permit no. T44 at 2.1 E.6.x which stated:

During the stack test for VOC as required in Section 2.1 E.6.v. above, the Permittee shall collect data for water injection rates for wet ESP and establish minimum water injection rate to assure compliance with the VOC emission limit in condition a. above. The Permittee shall request a permit revision to include the minimum water injection rate for wet ESP established in Section 2.1 E.6.x. through an "administrative permit amendments" procedure within 90 days from the submittal of stack test results in Section 2.1 E.6.v. above. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .0530 if the requirements of the Section 2.1 E.6.x. are not complied with.

The use of water injection rate to assure compliance with the VOC BACT limit was a direct result of the application which claimed that the Wet ESP with good combustion control was BACT for VOC.

The Permittee has requested that since the VOC emissions from the dryers are expected to be greatly reduced through the use of the "low moisture furnish," perhaps to as much as only 27 % of a conventional green rotary dryer (see MACT 4D discussion above), to remove this monitoring requirement, and substitute the use of dry furnish (i.e, operation as a dry rotary dryer under MACT 4D) as the revised "monitoring requirement." This seems to be a reasonable request. A testing requirement will be added to the permit to ensure that compliance with this BACT limit will be achieved. Note that the BACT limit is not being revised; just the monitoring and recordkeeping.

15A NCAC 02D .0614: COMPLIANCE ASSURANCE MONITORING [40 CFR 64]

The current permit has CAM requirements for the sources controlled by the WESP for the VOC limits imposed by 02D .0530 (PSD). As discussed above for PSD, the Permittee has requested that the MACT 4D monitoring required to meet the "dry rotary dryer" definition be used to meet the monitoring requirements for PSD instead of the WESP liquid injection rate previously implemented. The request was granted and the PSD monitoring, recordkeeping and reporting was revised accordingly.

For CAM purposes, the permittee is requesting to align the monitoring for CAM with the revised PSD monitoring requirements, namely use the MACT 4D monitoring instead of the current once every 15 minutes liquid flow readings to the wet ESP. Note this situation is similar to the VOC CAM for PSD implemented for the MDF dryers. In that situation, the MDF dryers use a biofilter to destroy organic HAP for MACT 4D purposes which if operated properly will be effective at destroying VOCs. The monitoring imposed by MACT 4D for the biofilter will ensure proper operation of the biofilter for organic HAP destruction and presumably for VOC destruction. This is considered to be presumptively acceptable monitoring and is allowed at 40 CFR 64.4(b)(4). The Permittee would like to use presumptively acceptable monitoring for VOC from the sources controlled by the WESP at the PB plant, which are the PB dryers. The PB dryers will be subject to the monitoring, recordkeeping and reporting requirements to meet the definition of a dry rotary dryer under MACT 4D and as a result is expected to have VOC emissions much less than the PSD imposed VOC BACT limit. Note that the PSD condition was revised to include a VOC testing condition of the dry rotary dryer to ensure compliance with the BACT limit. This request seems reasonable. The Permit will be revised at Section 2.1 E.7.d to state that :

For VOC, the Permittee has elected to satisfy the presumptively acceptable monitoring requirements under MACT DDDD for the dry rotary dryer as allowed at 40 CFR 64.4(b)(4). The Permittee shall be deemed in noncompliance with 15A NCAC 02D .0530 if the moisture and temperature values are outside the indicator ranges found at Section 2.2 A.1.j.

Since the monitoring under the MACT will be used to ensure compliance, the recordkeeping and reporting requirements under the MACT will also be used to satisfy the CAM recordkeeping and reporting requirements.

STATE ENFORCEABLE ONLY

15A NCAC 02D .1806: CONTROL AND PROHIBITION OF ODOROUS EMISSIONS

This rule requires the Permittee to not operate the facility without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility's boundary. This requirement is already included in the permit. This enforcement of this rule is generally complaint driven. It is unlikely that the modifications made pursuant to this application will result in any off-site odor issues. Continued compliance is expected.

STATE ENFORCEABLE ONLY
15A NCAC 02D .1100 TOXIC AIR POLLUTANTS

The current permit does not contain any 02D .1100 emission limitations. All 02D .1100 emission limits were removed in permit no. T38. All the TAP emitting sources were (are) MACT affected and met the toxics permitting exemption at 2Q .0702(a)(27). Such sources must be reviewed by the DAQ pursuant to NCGS 143-215.107(b) during modifications prior to allowing such exemptions. See the review for Permit No. T38 for full details. The review pursuant to NCGS 143-215.107(b) for this modification is as follows.

This permit application specifically addresses the changes Arauco will implement to comply with the MACT DDDD at the PB plant. Arauco will rely on the use of a biofilter at the MDF plant and was addressed in permit no. T38. To comply with the MACT at the PB plant, Arauco will modify the drying operation such that the dryers will meet the definition of "dry rotary dryers" under the MACT. The dryers will continue to exhaust to the WESP. For the PB press, Arauco will modify the resins it uses so it can meet the production based compliance options under the MACT. The press exhaust will be rerouted to the exhaust point that had been used up through permit no. T38. Permit No. T39 issued 09/27/2011 issued was the first permit in which the press exhaust was ultimately routed to the PB plant PGT via the dryers. The press exhaust will now be vented directly to the atmosphere.

To evaluate if this modification will pose an unacceptable risk to human health pursuant to NCGS 143-215.107(b), an estimate of the change in TAP emissions and AAL impacts facility-wide must be made.

The most recent relevant modeling exercises (see August 2015 and November 2016 memos) focused on formaldehyde as it is the TAP with the largest emissions and has shown to be the controlling pollutant from a toxics rule compliance perspective. The 2015 analysis modeled all sources of TAPs on site assuming uncontrolled emission rates. This was done to ensure the removal of the PGT controls from both plants as allowed under the SOC would not cause an exceedance of the formaldehyde AAL. This analysis showed a maximum impact of 92% of the AAL. The 2016 analysis updated the 2015 analysis with changes to the MDF dryer exhaust points. The changes involved temporary bypass stacks located adjacent to the existing stacks. This analysis showed a maximum impact of 91% of the AAL. In both modeling exercises the emission rates modeled were as follows:

- SP1410 - PB Dryers (Surface & Core) and SPDEF – PB Press: uncontrolled rate of 14.0 lb/hr
- SP3593/SP3594 – SP3593 is shut down; 0.056 lb/hr used representing current process rates
- EP2_N – MDF Dryers Scrubber Discharge Stack No. 1 – uncontrolled (inlet) rates of 36.0 lb/hr (hardwood) + 41.7 lb/hr (pine) = 77.7 lb/hr; 38.85 lb/hr here
- EP14_N – MDF Dryers Scrubber Discharge Stack No. 2 – uncontrolled (inlet) rates of 36.0 lb/hr (hardwood) + 41.7 lb/hr (pine) = 77.7 lb/hr; 38.85 lb/hr here
- EP16_N – MDF Press – exhaust ducted to Teaford furnace for destruction
- EP3_N – Fiber Sifter Filter – 0.037 g/s; La Baie test data
- EP4_N – Forming Line Cleanup Filter – 0.0172 g/s; La Baie test data
- EP5_N – Mat Reject System Filter – 0.0033 g/s; La Baie test data.

The sources of most concern facility-wide and the modeled emission rates in the 2015 and 2016 modeling demonstrations are as follows:

MDF plant

MDF dryers discharge stack No.1 and No. 2 = 38.85 lb/hr each or 77.7 lb/hr total
MDF press = included in the MDF dryer emissions

The conservatism of these numbers can be seen by comparison to the June 2011 test results, where the uncontrolled emissions of formaldehyde was 45.7 lb/hr total both dryers when wood-fired and 33.2 lb/hr when both dryers gas fired.

PB plant
PB Dryers = 14 lb/hr
PB press = included in the PB dryer emissions

These numbers appeared to be based on the results of the March 2012 tests, where the uncontrolled formaldehyde emissions from the dryers and the press together were determined to be 14 lb/hr (3.52 + 10.5).

When the biofilter was permitted at the MDF plant (see Permit No. T45) for the MDF dryers and press, the permittee estimated uncontrolled formaldehyde emissions of 35.78 lb/hr total from both discharge stacks (based on engineering source testing conducted in September 2015) and, assuming 90% control for MACT 4D compliance, 3.58 lb/hr of controlled formaldehyde emissions. Note that these values were consistent with the June 2011 test results discussed above. In short, for the MDF plant the expected uncontrolled and controlled emission rates of formaldehyde are much lower than the modeled emission rates.

In this permit application, the TAP emissions (notably formaldehyde) associated with the PB dryers are expected to decrease because of the lower dryer temperatures and hence less volatilization of VOCs (which includes formaldehyde). This decrease however has not been estimated. So, for purposes here, a conservative assumption is that the TAP emissions will remain unchanged as those included in the previous modeling analyses.

In this permit application, for the TAP emissions (notably formaldehyde) associated with the PB press, it is not clear if there will be a reduction. The press will be subject to the production based compliance option limit of 0.30 lb of total HAP per thousand square feet of board, ¾" basis but the permittee expects to meet this limit by primarily reducing the methanol emissions. The MACT 4D testing requirements however do require quantification of the formaldehyde emissions to calculate the total HAP value so any reductions could be determined after the testing.

In summary, with respect to the formaldehyde emissions for purposes of determining unacceptable risk to human health, the conservative assumption being made is there will be no reduction in formaldehyde emissions from the PB plant. However, there will be substantial reductions at the MDF plant. The following table summarizes the above discussion:

		2015/2016 models	actual emissions based on MACT Controls	emissions as percentage of rates modeled in 2015 / 2016
Model ID No.	source	lb/hr	lb/hr	
SP1410	PB dryers	14	14	
SP3593	laminator mill	0.06	0.06	
EP2N	MDF dryer stack 1*,**	38.85	4	
EP14N	MDF dryer stack 2*,**	38.85	0	
EP3	fiber sifter filter	0.29	0.29	
EP4	forming line cleanup filter	0.14	0.14	
EP5	mat reject system filter	0.26	0.26	
	total	92.45	18.75	20

* including MDF press

** after MACT controls, there is only one exhaust point, the biofilter

Therefore, conservatively assuming there will be no reductions in formaldehyde emissions from the PB plant after the implementation of the production based compliance option limitation and the dry rotary dryer and that any reductions that occur will be seen at the MDF plant, the actual facility-wide emissions of formaldehyde are expected to be on the order of 20% of those emissions modeled in the 2015 and 2016 analyses.

Based on this discussion, it is this engineers' opinion that the implementation of the requested compliance options for MACT 4D will not result in an unacceptable risk to human health pursuant to NCGS 143-215.107(b). Therefore, the MACT affected sources at the facility will retain the toxics permitting exemption at 2Q .0702(a)(27).

V. NSPS, NESHAPS, PSD, Toxics, Attainment Status, 112(r), and CAM

NSPS
No NSPS rules apply to the sources affected by this modification.

NESHAP/MACT
The facility is a major source of HAP. See discussion in Section IV.

PSD
Chatham County is in attainment for all pollutants. See discussion in Section IV for the implications of this modification with respect to PSD.

CAM
This modification will not result in an increase in any pollutants. CAM does not apply to this modification. See discussion in Section IV for the implications of this modification with respect to the existing CAM conditions.

112r
The Permittee 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 112(r). This permit modification does not affect the 112(r) status of the facility.

Toxics
See discussion in Section IV.

VI. Compliance History

The following compliance review was included in the recent permit review for Permit No. T47 issued August 30, 2017. It is still valid and will simply be repeated here. Note that the primary goal of this modification is to bring the facility into compliance with MACT 4D as outlined in SOC 2015-002 which is discussed below.

NCDAQ has reviewed the compliance status of this facility. The most recent inspection was completed on May 26, 2016. Steven Kerr of the Raleigh Regional Office (RRO) indicated that the facility was in violation of several requirements, as discussed below in the compliance history. Additionally, a signed Title V Compliance Certification (Form E5) indicating that the facility was NOT in compliance with all applicable requirements was included with the permit application, received on June 30, 2017. The permit application also included Emission Source Compliance Schedule (Form E4) specifying steps necessary for the facility to return to compliance.

The following is the five-year compliance history for Arauco.

- A Notice of Violation / Notice of Recommendation for Enforcement (NOV/NRE) was issued on April 12, 2012. On March 15, 2012, Steve Carr of the RRO observed excess visible emissions from the PB Plant Dryer/Press exhaust stack and conducted a 30-minute EPA Reference Method 9 visible emissions test. Five (5) six-minute average opacity readings were 39%, 37%, 36%, 35% and 34%, respectively. These exceedances (>20% opacity) constituted four violations of the visible emissions standard, 15A NCAC 02D .0521 "Visible Emissions," as specified in Section 2.1 F.5.a. of Air Permit No. 03449T39. The Permittee also reported released emissions from the PB Plant Press (DEF-2010) bypassing the installed control devices (CD-PB-WESP, CD-PB-PGT) on two occasions in violations of "NESHAP for Plywood and Composite Wood Products," 40 CFR Part 63 Subpart DDDD.

- A NOV/NRE was issued on May 3, 2012. On March 28, 2012 and April 25, 2012, Steve Carr of the RRO visited Arauco to conduct compliance inspections. During these inspections, Mr. Carr discovered that at least seventy-two (thirty-six weekends) visible emission observations records (related to the Energy System at the MDF plant) were missing. Mr. Carr also discovered that one week and one month of visual inspection records associated with the PB plant and laminating mill were missing. In addition, Mr. Carr found two bagfilters that had missed annual internal inspections during 2011 and one month within the last year where a volatile organic compound work practice standard inspection was not documented.

- A Civil Penalty Assessment (CPA) in the amount of $20,774, including costs, was assessed on August 29, 2012 for the violations noted in the NOV/NREs dated April 12, 2012 and May 3, 2012. The CPA was paid in full on October 4, 2012.

- A NOV/NRE was issued on March 12, 2013. On January 31, 2013, the RRO received the second half 2012 semiannual

report for Arauco. Additionally, Steven Carr from the RRO conducted a compliance inspection at Arauco on February 27, 2013. The violations as reported in the semiannual report and as observed during the compliance inspection are as follows:

- Sections 2.1 B.2.c., 2.1 F.5.c., and 2.1 G.4.c. required the Permittee to perform weekly visible observations on emission points located at the MDF Mill, PB Mill, and Laminating Mill. According to the records, twenty-six (26) required visible emissions observations were not performed during the week of August 6, 2012. In addition, thirteen (13) required visible emissions observations were not performed during the week of June 28, 2012.
- Section 2.1 C.3.c. required the Permittee to perform daily visible emissions observations of the energy system (ID No. ES-02-A) emission points. This stipulation allows three days of missed observations for every six-month period. According to the semiannual report, there were a total of four days during the second 2012 semiannual period when the daily visible emissions observations were not performed.
- Section 2.1 F.6.f. required the Permittee to perform weekly external visual inspections of the multicyclones (CD-1421, CD-1431). An external visual inspection was not performed during the week of August 6, 2012.
- Section 2.1 .F.6.q. required the Permittee to perform weekly inspections of the burners, fans, blowers and process equipment associated with the PB dryers (ID Nos. 1420, 1430). According to the semiannual report, a weekly inspection was not performed during the week of August 6, 2012.
- Section 2.1 .F.6.h. required the Permittee to operate the PB Wet ESP (ID No. CD-PB-WESP) with a minimum of two functional fields. According to the semiannual report, there were three episodes lasting five minutes or more when the PB plant was running with only one Wet ESP field operational.
- Section 2.2 A.4.e. [referencing 40 CFR 63.6(e)(1)(i)] required the Permittee to operate all pollution control devices in a manner that minimizes emissions. According to the semiannual report, incidences had occurred during the second half of 2012 when control devices CD-PB-PGT, CD02, CD14, and CD16 were operated without sufficient reactant (hydrogen peroxide). Control device CD-PB-PGT operated approximately 0.25 hours without hydrogen peroxide on November 26, 2012. Control devices CD02, CD14, and CD16 operated approximately 2.83 hours on December 17, 2012 without hydrogen peroxide.

- A CPA in the amount of $23,574, including costs, was assessed on May 16, 2013 for the violations noted in the NOV/NRE dated March 12, 2013. The CPA was paid in full on June 14, 2013.

- A NOV was issued on October 23, 2015 for shut down of the PGT systems at the facility on September 10, 2015. With the shutdown of these systems, Arauco was in violation of 40 CFR Part 63, Subpart DDDD, "NESHAP for Plywood and Composite Wood Products." The Permittee has entered into SOC 2015-002 to address these violations.

- A NOV/NRE was issued on October 12, 2016 for violations observed during the May 2016 compliance inspection as well as numerous other violations, including the following:
  - A venturi scrubber (ID No. CD14) at the facility experienced periods of time when pressure drop readings and recirculating liquid flow rate levels fell below the limits stipulated in Section 2.1 C.1.f. of Air Permit No. 03449T45.
  - Visible emissions from the medium density fiberboard facility operations were logged as above normal for 25 times during the period of June 19, 2015 to February 4, 2016 with no subsequent follow up actions in violation of Section 2.1 C.2.c. of Air Permit No. 03449T45.
  - The Permittee is required to conduct annual internal inspections on the PB plant bagfilters in accordance with Section 2.1 E.2.c. Records/reports indicated that bagfilters (ID Nos. CD-3577, CD-3585, CD-3595, and CD-3577) did not receive an annual inspection for calendar year 2015.
  - Visible emissions from the PB mill operations were logged as above normal for 12 times during the period of October 2, 2015 to February 12, 2016 with no subsequent follow up actions in violation of Section 2.1 E.5.c. of Air Permit No. 03449T45.
  - Section 2.2 B.1.c. of the permit requires that 45% urea be injected into the Energy System (ID No. ES-02-A) at a minimum rate of 0.24 gallons per minute. The urea-injection rate monitoring records indicated that between November 6, 2015 and May 23, 2016, there were 335 three-hour block averages that fell below the minimum level.
  - The above violations were not noted in the original second half 2015 semiannual report or the 2015 Annual Compliance Certification.

  The NCDAQ intends to assess a CPA to address these violations.

VII. Changes Implemented in Revised Permit

Existing Condition No.	**New Condition No.**	**Changes**
Cover Letter	Same	• Updated permit revision numbers, issue and effective dates, etc.
insignificant activities list	Same	• Added I-Spray Paints (MACT DDDD) to address MACT DDDD Group 1 miscellaneous coating operations
Permit, page 1	Same	• Revised dates, permit numbers, etc.
Permitted Equipment List	Same	• Removed reference to Core Layer Dryer #2 (ID No 1410) and associated cyclone (ID no. 1411) • Removed reference to CD-PB-PGT at the PB plant • Removed reference to the wood suspension dust -fired burner (40 million Btu per hour maximum rated heat input) on the Wellons unit (ID no. 3201) • Revised descriptors for ES-16 and ES-06-B
Section 2.1 C	Same	• Revised descriptors for ES-16 and ES-06-B
1.f	same	• Added the following language: "These ranges are not required during performance testing." • Removed the following language as it is inconsistent with TV permitting procedures "If the Permittee re-evaluates compliance with the emission limit in condition a. at parameter ranges outside of those in Table 2.1.C.1.f. below, the Permittee shall, upon approval by the DAQ, attach the approval memo containing the revised operating parameters to this permit and maintain the parameters in the associated operating ranges contained therein."
Table 2.1 C.1.f	same	• Clarified table to indicate minimum operating range
2.1 C. 5	same	• Revised the CAM plan to reference the MACT DDDD M/R/R for the biofilter found at Section 2.2 A.1.h. and aa through ii, as applicable. The existing CAM plan relied on "presumptively acceptable monitoring as allowed under 40 CFR 64.4(b)(4)" and included explicitly the relevant M/R/R under MACT DDDD for the biofilter. Since the explicit M/R/R for the biofilter for MACT DDDD compliance is being added to the permit at Section 2.2 A.1, the redundant language found here will be removed and replaced with simple references.
Section 2.1 E	Same	• Removed reference to CD-PB-PGT at the PB plant • Removed reference to the wood suspension dust -fired burner (40 million Btu per hour maximum rated heat input) on the Wellons unit (ID no. 3201) • Removed reference to Core Layer Dryer #2 (ID No 1410) and associated cyclone (ID no. 1411) throughout Section.
E.3	Same	02D .0515 condition
d	same	• Corrected the following typographical error: from 2.1 E.6.d.ii., f., h., j., l., m., and n to 2.1 E.6 d.ii, e, f, i, m and n
E.6	Same	02D .0530 condition

Existing Condition No.	**New Condition No.**	**Changes**
a	same	• The footnote in the 2D .0530 condition which reads *BACT emission limits are a total for three particleboard dryers (ID Nos. 1410, 1420, and 1430).* was revised to read: *BACT emission limits are a total for the two remaining particleboard dryers (ID Nos. 1420, and 1430).* • The following footnote was removed: *All BACT limits were established prior to the installation of the scrubber (ID No. CD-PB-PGT).*
c	Same	• Removed the three dryer testing requirement since the dryer (ID No. 1410) was removed from the permit. • Added a source test following the introduction of the low moisture furnish to justify the monitoring under MACT 4D for BACT VOC monitoring.
f.iii	same	• Removed water injection rate monitoring requirement and replaced with meeting the MACT requirements for a dry rotary dryer to assure compliance with the VOC BACT limit
f.iv	same	• Added the following language: "The parameter ranges in Table 2.1 E.6.f are not required during performance testing." • Removed the following language as it is inconsistent with TV permitting procedures "If the Permittee revaluates compliance with the emission limit in condition a. at parameter ranges outside of those in Table 2.1.E.6.f., the Permittee shall, upon approval by the DAQ, attach the approval memo containing the revised operating parameters to this permit and maintain the parameters in the associated operating ranges contained therein."
g, j, and n	same	• Added reference to the MACT DDDD monitoring recordkeeping and reporting requirements for the dryer to assure compliance with the VOC BACT limit
E.7	same	02D .0614 condition
d	same	• Revised the CAM plan to reference the MACT DDDD M/R/R for the dry rotary dryer found at Section 2.2 A.1.
e and f	same	• Added reference to the MACT DDDD recordkeeping and reporting requirements for the dryer to assure compliance with the VOC BACT limit via CAM
Section 2.2 A.1	same	• Revised the MACT DDDD condition completely to include specific emission limitations monitoring, recordkeeping, reporting and notification requirements
Section 2.2 B.1	same	02Q .0317 (PSD Avoidance) Condition
c	same	• Removed the following language as it is inconsistent with General condition JJ. General Condition JJ requires test reports to be submitted within 30 days unless an exemption is requested The Permittee shall submit a written report of the test(s) results to the Regional Supervisor, DAQ within 60 days of completion of the test.

Existing Condition No.	**New Condition No.**	**Changes**
d	Same	• Added the following language: "This injection rate does not apply during performance test during performance testing." • Removed the following language as it is inconsistent with TV permitting procedures **"**If the Permittee conducts source testing such that the NOx emission factor listed in Table 2.2.B.1 was revaluated at a different injection rate or urea concentration, the Permittee shall, upon approval by the DAQ, attach the approval memo containing the revised operating parameters to this permit and maintain the parameters in the associated operating ranges contained therein."
f.	same	• Revised the following language If the Permittee conducts source testing that results in any emission factors greater than those in Table 2.2.B.1, the Permittee shall, upon approval by the DAQ, attach the approval memo containing the revised emission factors to this permit and use those factors in place of the respective emission factors in Table 2.2.B.1. to read If the Permittee conducts source testing that results in any emission factors greater than those in Table 2.2.B.1, the Permittee shall, submit a permit application to revise the permit with the test report required in Section 2.2 B.1c.
Section 2.3	NA	• Removed SOC 2015-002 requirements. The language addressed only part of the SOC requirements of the MDF plant and did not address the PB plant. The requirements of the SOC are implemented outside of the permit and their inclusion or exclusion in the permit does not affect its implementation.
Section 2.4	section 2.3	• Simple renumbering

VIII. 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 15 A 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 provided to the public under 02Q .0521 above.

IX. Recommendations

TBD

~~It is recommended that permit no. **03449T46** be issued.~~

Attachment A
Permit Review Document for Permit No. 03449T48
Issued December 21, 2017
Application no. 1900015.17D

NORTH CAROLINA DIVISION OF AIR QUALITY

Application Review

Issue Date: **December 21, 2017**

Region: Raleigh Regional Office
County: Chatham
NC Facility ID: 1900015
Inspector's Name: Will Wike
Date of Last Inspection: 09/26/2017
Compliance Code: B / Violation - emissions

Facility Data

Applicant (Facility's Name): Arauco Panels USA, LLC

Facility Address:
Arauco Panels USA, LLC
985 Corinth Road
Moncure, NC 27559

SIC: 2493 / Reconstituted Wood Products
NAICS: 321219 / Reconstituted Wood Product Manufacturing

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

Permit Applicability (this application only)

SIP:
NSPS:
NESHAP:
PSD:
PSD Avoidance:
NC Toxics:
112(r):
Other:

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Yvonne Couts Environmental Coordinator (919) 545-5848 985 Corinth Road Moncure, NC 27559	Henry Scheller Plant Manager (919) 545-5857 985 Corinth Road Moncure, NC 27559	John Bird Environmental Health & Safety Manager (919) 642-6658 985 Corinth Road Moncure, NC 27559

Application Data

Application Number: 1900015.17D
Date Received: 11/22/2017
Application Type: Modification
Application Schedule: TV-Minor

Existing Permit Data

Existing Permit Number: 03449/T47
Existing Permit Issue Date: 08/30/2017
Existing Permit Expiration Date: 06/30/2021

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2016	14.52	241.64	597.49	389.07	123.90	157.11	127.51 [Formaldehyde]
2015	12.64	296.93	793.10	518.43	182.48	82.62	40.77 [Methanol (methyl alcohol)]
2014	14.18	309.21	571.44	550.64	138.51	73.16	32.11 [Methanol (methyl alcohol)]
2013	12.57	292.92	503.89	454.06	136.96	79.08	32.03 [Formaldehyde]
2012	13.66	313.22	533.29	523.84	137.67	222.00	140.87 [Formaldehyde]

Review Engineer: Joseph Voelker

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

Comments / Recommendations:

Issue 03449/T48
Permit Issue Date: 12/21/2017
Permit Expiration Date: 06/30/2021

I. Introduction and Purpose of Application

Arauco Panels USA LLC (formerly UNIBOARD USA LLC) owns and operates a facility in Moncure, NC that is permitted to produce medium density fiberboard (MDF) and particle board (PB).

The purpose of this application is as follows (excerpt from permit application):

> Arauco Panels is requesting to replace the 78.5 mmBtu/hr backup natural gas burner ES-02-C with two 35 mm Btu/hr heaters in its stead to increase reliability of the plant during periods where the primary energy system, a 205 mmBtu/hr wood fired heater, is down for maintenance. During periods where the wood-fired energy system is not operating, the MDF plant does not operate at full capacity and struggles with quality and reliability. Also, the burner configuration, originally designed by the site's previous owner Uniboard, has a potential to increase risk for fire because the configuration is not up to modern standards for wood products safety.
>
> The new burners will be subject the Plywood and Composite Wood Products NESHAP (PCWP MACT DDDD) as they will directly fire the existing blow line MDF dryer. The burners ES -02-C and ES-02-A were deemed to not be subject to NSPS subpart Dc by the DAQ in 2011.

This application will be processed as a two-step significant modification pursuant to 15A NCAC 02Q .0504.

II. Chronology

Date	Description
11/15/2017	An email was received from Yvonne Couts (of Arauco) including a PDF copy of a minor modification application yet to be received by the DAQ.
11/20/2017	An email was sent to Ms. Couts stating that calculations were needed to show the project did not trigger PSD. The information submitted with the application was vague and included many assumptions that were not enforceable in the permit.
11/21/2017	Email exchanges occurred between Joe Voelker and John Bird discussing the need for detailed calculations showing that PSD (02D .0530) review would not be needed.
11/22/2017	A hardcopy application was received and assigned application no. 1900015.17D
11/22/2017	An email as received with emissions calculations. Upon review these calculations were not sufficient to meet the needs of addressing 02D .0530
12/8/2017	Baseline to projected actuals calculations for the project were received via email
12/12/2017	Phone conversation occurred between John Bird and Joe Voelker discussing some of the assumptions used in the spreadsheet. Since projected actual calculations are being relied upon to avoid PSD, a 02D .0530(u) recordkeeping will need to be added to the permit. Thus, the modification is significant (i.e., requires a case by case determination)

III. Modification Description

As discussed above in Section I, the permittee would like to replace and reconfigure the natural gas burner configuration on the MDF dryer to increase safety and throughput when operating the dryers with natural gas. The permittee expects to only operate in this scenario when there are problems with the wood combustion system but there are no permit limitations on the combustion of natural gas for this particular purpose.

The dryer system and burners appears in the permit as follows:

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES-02-B and ES-02-C and ES-02-D **PSD** **MACT DDDD**	Two Stage Dryer System and Two backup natural gas-fired dryer burners (78.5 and 17 million Btu per hour heat input respectively)	CD02 In series with CD18	Venturi scrubber Biofilter
		CD14 In series with CD18	Venturi scrubber Biofilter

It will appear in the revised permit as follows:

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES-02-B and ***ES-02-C-1, ES-02-C-2*** and ES-02-D **PSD** **MACT DDDD**	Two Stage Dryer System and Three backup natural gas-fired dryer burners (**35, 35** and 17 million Btu per hour heat input respectively)	CD02 In series with CD18	Venturi scrubber Biofilter
		CD14 In series with CD18	Venturi scrubber Biofilter

The total potential heat input of the dryer when firing natural gas will be reduced from 95.5 MMBtu/hr to 87 MMBtu/hr. However, the Permittee expects that when operated in the natural gas mode, production increases on the order of 18% in throughput over what has been achieved in practice are anticipated. So, increases in emissions during the natural gas fried scenario on a per unit time basis are to be expected. In contrast, since wet wood and woodwaste combustion results in higher emission rates of all criterial pollutants than natural gas combustion, it is expected that a reduction of emissions are to occur for every hour natural gas-firing displaces the wood-firing of the furnace.

Because of the lower emissions expected when firing natural gas and no changes in permitted throughputs are necessary, compliance is expected for all applicable regulations. All permit conditions as they exist in the current permit are sufficient to ensure compliance with all applicable regulations without any changes with one exception. 15A NCAC 02D .0530. "Prevention of significant Deterioration" (PSD) needs to be discussed separately.

IV. Regulatory Review

Only the regulations for which compliance may be affected by the changes proposed in this modification application will be discussed.

15A NCAC 02D. 0530: PREVENTION OF SIGNIFICANT DETERIORATION

The facility is a PSD major source. The MDF facility is subject to BACT limits for VOC utilizing the biofilter and PSD avoidance limits for NOx, PM10/2.5. The particleboard plant is also subject to BACT limits for PM10, VOC and opacity.

This project is intended to allow an increase in efficiency (i.e., throughput) of the dryers when firing natural gas. It is not intended to increase its overall "design capacity." The facility is able to achieve higher throughputs when firing wood. Even though firing natural gas will result in less emissions on a rate basis it will potentially allow for an increase in utilization of the entire MDF process on an annual basis. As such, the DAQ requested the Permittee to demonstrate that the project would not result in a significant increase in emissions as defined under PSD. The Permittee submitted a "baseline to projected actuals" analysis.

The Permittee supplied the following potential parameters to estimate the "expected" potential emissions.

Projected Throughputs for MDF Plant [1]

Activity and Usage Description	Projected Throughput	
Hours of Operation	8,759	hr/yr
MDF Plant Finishing Uptime Percentage	99	%
MDF Mat Reject Usage	10	%
Mat Reject	876	hr/yr
Refiner Abort	179	hr/yr
Energy System (Teaford) Abort	9,999	MMBtu/yr
Dryer Natural Gas Usage [2]	10	%
Maximum Press Production	212,850	MSF 3/4" per year
Maximum MDF Plant Press Production	85,140	MSF 3/4" per year
HDF Plant Production 50% HW/50% SW	127,710	MSF 3/4" per year
MDF Plant Production - SW	266,063	ODMT/yr
Natural Gas Combustion	285,120	MMBtu/yr

1. Projected throughputs are set at 99% of potential levels for uptime percentage and production, and one (1) hour less than potential levels for hours of operation.
2. Based on natural gas runtimes in the Teaford drying system over the period of 2011 through 2016, Arauco projects that natural gas will be used for 876 hours per year, or for approximately 10% of total projected throughput.

Note that the above represents "expected" potential throughputs. For example, the Permittee estimates the backup scenario operating approximately10 % (or 876 hours) of the year. The following table shows the recent historical hours of operation in the wood or natural gas firing modes. Note 2016 was much greater than this.

	Total Hrs Operated	*NG Furnace Operating Hrs*	*Wood Furnace Operating Hrs*
2011	***4762.54***	631.02	4131.52
2012	6145.30	0.00	6145.30
2013	6817.99	0.00	6817.99
2014	6509.14	175.24	6333.90
2015	7237.28	854.58	6382.69
2016	7125.78	1014.16	6111.61

To address PSD, the Permittee submitted calculations for simplicity and conservatism that:

- Assumed the project would result in the facility operating 8650 hours per year at full capacity.
- Assumed emissions from the dryer were the same when firing natural gas as when firing wood.

By assuming the emissions are the same when firing natural gas as when firing wood, the reliance on an accurate estimate of hours of operation during natural gas firing is eliminated. Also note that 8650 hours per year of operation is 20 % greater than hours of total operation in the past five years and is 27% greater than hours of operation in the wood firing mode in the past five years.

The following table shows the projected actuals calculations for all pollutants:

Table C.1-1. Baseline Actual Emissions

Source	Total PM [1] (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	VOC (tpy)	SO_2 (tpy)	NO_X (tpy)	CO (tpy)	Lead (tpy)
Baseline Calendar Years	*2015-16*	*2015-16*	*2015-16*	*2014-15*	*2015-16*	*2015-16*	*2015-16*	*2015-16*
MDF Operation	79.21	79.21	77.87	362.56	3.19	127.71	124.48	0.01
Total Emissions	**79.21**	**79.21**	**77.87**	**362.56**	**3.19**	**127.71**	**124.48**	**0.01**

Table C.1-2. Projected Actual Emissions [2]

Source	Total PM [1] (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	VOC (tpy)	SO_2 (tpy)	NO_X (tpy)	CO (tpy)	Lead (tpy)
MDF Operation	95.13	95.13	94.78	437.99	11.38	163.03	282.75	0.02
Total Emissions	**95.13**	**95.13**	**94.78**	**437.99**	**11.38**	**163.03**	**282.75**	**0.02**

Table C.1-3. Emissions that Could Have Been Accommodated [3]

Source	Total PM [1] (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	VOC (tpy)	SO_2 (tpy)	NO_X (tpy)	CO (tpy)	Lead (tpy)
Month Used for CHA	*July 2016*	*July 2016*	*July 2016*	*March 2014*	*July 2016*	*July 2015*	*July 2015*	*July 2016*
MDF Operation	87.03	87.03	85.24	444.34	3.61	147.02	217.33	6.89E-03
Total Emissions	**87.0**	**87.0**	**85.2**	**444.34**	**3.61**	**147.02**	**217.3**	**6.89E-03**

Table C.1-4. Project Emissions Increase Summary

Emissions	Total PM [1] (tpy)	PM_{10} (tpy)	$PM_{2.5}$ (tpy)	VOC (tpy)	SO_2 (tpy)	NO_X (tpy)	CO (tpy)	Lead (tpy)
Potential Emissions [4]	*90.49*	*90.49*	*90.14*	*409.37*	*10.51*	*158.23*	*264.57*	*0.02*
(B) Projected Actual Emissions	95.13	95.13	94.78	437.99	11.38	163.03	282.75	0.02
(A) Baseline Actual Emissions	79.21	79.21	77.87	362.56	3.19	127.71	124.48	6.07E-03
(C) Could Have Accommodated Increase (CHA Emissions - Baseline)	7.82	7.82	7.37	81.78	0.42	19.32	92.85	N/A
Total Change (B-A-C)	8.10	8.10	9.54	-6.34	7.76	16.01	65.42	0.02
SER [5]	25	15	10	40	40	40	100	0.6
% of SER	32%	54%	95%	< 1%	19%	40%	65%	3%
Exceeds?	No	No	No	No	No	No	No	No

Note that by including the existing ability to accommodate in the calculations the Permittee has shown this project will not result in a significant increase in emissions and will not trigger PSD review. However, a 5-year recordkeeping requirement will be placed into the permit as required pursuant to 02D .0530(u). Since the dryer emits the majority of all pollutants, the recordkeeping will be limited to the dryer.

The following table represents the dryer emissions operating for 8650 hours per year.

Compound	Emission Factor	Control Efficiency (%)	Reference	Uncontrolled Emissions (tpy)	Controlled Emissions (tpy)
PM_{10}	5.10E-01 lb/ODMT	-	1	67.00	67.00
$PM_{2.5}$	5.10E-01 lb/ODMT	-	1	67.00	67.00
NO_X	3.30E-01 lb/MMBtu	-	1	147.40	147.40
CO	6.00E-01 lb/MMBtu	-	2	268.01	268.01
SO_2	2.50E-02 lb/MMBtu	-	2	11.17	11.17
VOC	5.76E+00 lb/ODMT	50%	3	756.72	378.36
Lead	4.80E-05 lb/MMBtu	-	1	2.14E-02	2.14E-02
CO_2e	-	-	4	93,603.66	93,603.66
CO_2	206.793 lb/MMBtu	-	5	92,369.96	92,369.96
CH_4	0.016 lb/MMBtu	-	5	7.09	7.09
N_2O	0.008 lb/MMBtu	-	5	3.55	3.55

To simply, the recordkeeping will be limited to the pollutants of concern and the "controlling pollutants": PM10, PM2.5, NOx, CO and VOC.

V. NSPS, NESHAPS, PSD, Toxics, Attainment Status, 112(r), and CAM

NSPS

No NSPS rules apply to the sources affected by this modification.

NESHAP/MACT

The facility is a major source of HAP. The dryer is subject to. 40 CFR Part 63 Subpart DDDD, "National Emission Standards for Hazardous Air Pollutants: Plywood and Composite Wood Products. The modification described above will not affect its compliance status with this regulation.

PSD

Chatham County is in attainment for all pollutants. See discussion in Section IV for the implications of this modification with respect to PSD.

CAM

This modification will not result in an overall potential increase in any pollutants. The dryer is already subject to CAM for all applicable pollutants (PM and VOC).

112r

The Permittee 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 112(r). This permit modification does not affect the 112(r) status of the facility.

VI. Compliance History

The following compliance review was included in the recent permit review for Permit No. T47 issued August 30, 2017. It is still valid and will simply be repeated here.

NCDAQ has reviewed the compliance status of this facility. The most recent inspection was completed on May 26, 2016. Steven Carr of the Raleigh Regional Office (RRO) indicated that the facility was in violation of several requirements, as discussed below in the compliance history. Additionally, a signed Title V Compliance Certification (Form E5) indicating that the facility was NOT in compliance with all applicable requirements was included with the permit application, received on June 30, 2017. The permit application also included Emission Source Compliance Schedule (Form E4) specifying steps necessary for the facility to return to compliance.

The following is the five-year compliance history for Arauco.

- A Notice of Violation / Notice of Recommendation for Enforcement (NOV/NRE) was issued on April 12, 2012. On March 15, 2012, Steve Carr of the RRO observed excess visible emissions from the PB Plant Dryer/Press exhaust stack and conducted a 30-minute EPA Reference Method 9 visible emissions test. Five (5) six-minute average opacity readings were 39%, 37%, 36%, 35% and 34%, respectively. These exceedances (>20% opacity) constituted four violations of the visible emissions standard, 15A NCAC 02D .0521 "Visible Emissions," as specified in Section 2.1 F.5.a. of Air Permit No. 03449T39. The Permittee also reported released emissions from the PB Plant Press (DEF-2010) bypassing the installed control devices (CD-PB-WESP, CD-PB-PGT) on two occasions in violations of "NESHAP for Plywood and Composite Wood Products," 40 CFR Part 63 Subpart DDDD.

- A NOV/NRE was issued on May 3, 2012. On March 28, 2012 and April 25, 2012, Steve Carr of the RRO visited Arauco to conduct compliance inspections. During these inspections, Mr. Carr discovered that at least seventy-two (thirty-six weekends) visible emission observations records (related to the Energy System at the MDF plant) were missing. Mr. Carr also discovered that one week and one month of visual inspection records associated with the PB plant and laminating mill were missing. In addition, Mr. Carr found two bagfilters that had missed annual internal inspections during 2011 and one month within the last year where a volatile organic compound work practice standard inspection was not documented.

- A Civil Penalty Assessment (CPA) in the amount of $20,774, including costs, was assessed on August 29, 2012 for the violations noted in the NOV/NREs dated April 12, 2012 and May 3, 2012. The CPA was paid in full on October 4, 2012.

- A NOV/NRE was issued on March 12, 2013. On January 31, 2013, the RRO received the second half 2012 semiannual report for Arauco. Additionally, Steven Carr from the RRO conducted a compliance inspection at Arauco on February 27, 2013. The violations as reported in the semiannual report and as observed during the compliance inspection are as follows:
  - Sections 2.1 B.2.c., 2.1 F.5.c., and 2.1 G.4.c. required the Permittee to perform weekly visible observations on emission points located at the MDF Mill, PB Mill, and Laminating Mill. According to the records, twenty-six (26) required visible emissions observations were not performed during the week of August 6, 2012. In addition, thirteen (13) required visible emissions observations were not performed during the week of June 28, 2012.
  - Section 2.1 C.3.c. required the Permittee to perform daily visible emissions observations of the energy system (ID No. ES-02-A) emission points. This stipulation allows three days of missed observations for every six-month period. According to the semiannual report, there were a total of four days during the second 2012 semiannual period when the daily visible emissions observations were not performed.
  - Section 2.1 F.6.f. required the Permittee to perform weekly external visual inspections of the multicyclones (CD-1421, CD-1431). An external visual inspection was not performed during the week of August 6, 2012.
  - Section 2.1 .F.6.q. required the Permittee to perform weekly inspections of the burners, fans, blowers and process equipment associated with the PB dryers (ID Nos. 1420, 1430). According to the semiannual report, a weekly inspection was not performed during the week of August 6, 2012.
  - Section 2.1 .F.6.h. required the Permittee to operate the PB Wet ESP (ID No. CD-PB-WESP) with a minimum of two functional fields. According to the semiannual report, there were three episodes lasting five minutes or more when the PB plant was running with only one Wet ESP field operational.
  - Section 2.2 A.4.e. [referencing 40 CFR 63.6(e)(1)(i)] required the Permittee to operate all pollution control devices in a manner that minimizes emissions. According to the semiannual report, incidences had occurred during the second half of 2012 when control devices CD-PB-PGT, CD02, CD14, and CD16 were operated without sufficient reactant (hydrogen peroxide). Control device CD-PB-PGT operated approximately 0.25 hours without hydrogen peroxide on November 26, 2012. Control devices CD02, CD14, and CD16 operated approximately 2.83 hours on December 17, 2012 without hydrogen peroxide.

- A CPA in the amount of $23,574, including costs, was assessed on May 16, 2013 for the violations noted in the NOV/NRE dated March 12, 2013. The CPA was paid in full on June 14, 2013.

- A NOV was issued on October 23, 2015 for shut down of the PGT systems at the facility on September 10, 2015. With the shutdown of these systems, Arauco was in violation of 40 CFR Part 63, Subpart DDDD, "NESHAP for Plywood and Composite Wood Products." The Permittee has entered into SOC 2015-002 to address these violations.

- A NOV/NRE was issued on October 12, 2016 for violations observed during the May 2016 compliance inspection as well as numerous other violations, including the following:
  - A venturi scrubber (ID No. CD14) at the facility experienced periods of time when pressure drop readings and recirculating liquid flow rate levels fell below the limits stipulated in Section 2.1 C.1.f. of Air Permit No. 03449T45.
  - Visible emissions from the medium density fiberboard facility operations were logged as above normal for 25 times during the period of June 19, 2015 to February 4, 2016 with no subsequent follow up actions in violation of Section 2.1 C.2.c. of Air Permit No. 03449T45.
  - The Permittee is required to conduct annual internal inspections on the PB plant bagfilters in accordance with Section 2.1 E.2.c. Records/reports indicated that bagfilters (ID Nos. CD-3577, CD-3585, CD-3595, and CD-3577) did not receive an annual inspection for calendar year 2015.
  - Visible emissions from the PB mill operations were logged as above normal for 12 times during the period of October 2, 2015 to February 12, 2016 with no subsequent follow up actions in violation of Section 2.1 E.5.c. of Air Permit No. 03449T45.
  - Section 2.2 B.1.c. of the permit requires that 45% urea be injected into the Energy System (ID No. ES-02-A) at a minimum rate of 0.24 gallons per minute. The urea-injection rate monitoring records indicated that between November 6, 2015 and May 23, 2016, there were 335 three-hour block averages that fell below the minimum level.
  - The above violations were not noted in the original second half 2015 semiannual report or the 2015 Annual Compliance Certification.

  The NCDAQ intends to assess a CPA to address these violations.

VII. Changes Implemented in Revised Permit

Existing Condition No.	**New Condition No.**	**Changes**
Cover Letter	Same	• Updated permit revision numbers, issue and effective dates, etc.
Permit, page 1	Same	• Revised dates, permit numbers, etc.
Permitted Equipment List	Same	• Removed burner ES-02-C • Added burners ES-02-C-1 and ES-02-C-2
Section 2.1 C	Same	• Removed burner ES-02-C • Added burners ES-02-C-1 and ES-02-C-2
NA	Section 2.1 C.6.	• Added 02D .0530(u) recordkeeping condition
NA	Section 2.1 C.7	• Added permit application submittal requirement and notification requirement

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

NA

IX. Recommendations

It is recommended that permit no. **03449T48** be issued.