STATEMENT OF BASIS

For the issuance of Air Permit # 1803-AOP-R24 AFIN: 07-00212

1. PERMITTING AUTHORITY:

Division of Environmental Quality
5301 Northshore Drive
North Little Rock, Arkansas 72118-5317

2. APPLICANT:

Georgia-Pacific Wood Products LLC - Fordyce, Arkansas OSB Plant
#1 Georgia-Pacific Road
Fordyce, Arkansas 71742

3. PERMIT WRITER:

Alexander Sudibjo

4. NAICS DESCRIPTION AND CODE:

NAICS Description: Reconstituted Wood Product Manufacturing
NAICS Code: 321219

5. ALL SUBMITTALS:

The following is a list of ALL permit applications included in this permit revision.

Date of Application	Type of Application (New, Renewal, Modification, Deminimis/Minor Mod, or Administrative Amendment)	Short Description of Any Changes That Would Be Considered New or Modified Emissions
1/20/2023	Modification	New cyclone to replace bagfilter for SN-03

6. REVIEWER'S NOTES:

With this modification, the facility is installing an ultra-high-efficiency cyclone to replace the bagfilter-type dust collector currently used to control emissions from SN-03. The cyclone is demonstrated as more appropriate for the source. Emission limits are being reduced at the source with the new controls. The facility's permitted annual emissions are decreasing by 0.4 tpy PM and 5.5 tpy PM_{10}.

7. COMPLIANCE STATUS:

As of January 20, 2023, there are no compliance issues with the facility. Additionally, ECHO (https://echo.epa.gov/detailed-facility-report?fid=AR0000000501300212) found no CAA violations by the facility as of November 10, 2021.

8. PSD/GHG APPLICABILITY:

a) Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, etc.)? N
If yes, were GHG emission increases significant?

b) Is the facility categorized as a major source for PSD? Y

- *Single pollutant ≥ 100 tpy and on the list of 28 or single pollutant ≥ 250 tpy and not on list*

If yes for 8(b), explain why this permit modification is not PSD. The emissions changes associated with this project are less than the PSD Significant Emission Rate threshold for each regulated NSR pollutant.

BACT Analysis

Identify All Potential Control Strategies

GP determined that two control strategies may reasonably be applied to the Screen Fines/Saw Trim Transfer Pneumatics system: fabric filters (i.e., baghouses or bagfilters) and mechanical collectors (i.e., cyclones or mechanical/inertial separators). Energyintensive technologies such as electrostatic precipitators and scrubbers, among other theoretical particulate matter emissions reduction technologies, are not considered potential control strategies for this application because a review of industry operations and prior BACT determinations indicates no such applications for pneumatic wood residual handling systems. GP conducted a search of EPA's RACT/BACT/LAER Clearinghouse (RBLC) for the following process types at comparable strand board manufacturing operations and similar wood products manufacturing operations:

- 30.510 Particle and Strand Board Manufacturing – Material Handling
- 30.540 Particle and Strand Board Manufacturing – Board Product Finishing (e.g., sanders, saws, and trimmers)
- 30.390 Plywood Manufacturing – Other Plywood Manufacturing Processes
- 30.700 Wood Working
- 30.999 Other Wood Products Industry Sources

This search indicated that baghouses, cyclones, and combinations thereof have nearly always been installed and operated for handling of wood residuals. GP rejected less efficient emissions reduction systems (e.g., enclosed storage and wet suppression of outdoor storage) as incompatible for the Screen Fines/Saw Trim Transfer Pneumatics system. GP identified and examined the most recent BACT determination for similar

sources, which appears to have been made by Arkansas DEQ for Union County Lumber Company's El Dorado Sawmill (AFIN 70-00032), which was permitted in August 2015 (Permit No. 2348-AOP-R0) and for Arauco's Grayling, Michigan Particleboard Plant, which was permitted in January 2017 and subsequently January 2022.

Determine Technical Feasibility of Control Strategies

Cyclones, baghouses, and combinations thereof are technically feasible for wood residual pneumatic systems. Factors that affect technical feasibility include the moisture content of wood residuals, considerations for safety (including fire and explosion prevention and maintenance access), and retrofits to existing operations.

GP obtained engineering specifications and estimated costs for the following wood residuals collection alternatives for the Screen Fines/Saw Trim Transfer Pneumatics system at Fordyce OSB:

a. Integrated cyclone/baghouse system
b. Baghouse
c. High-efficiency cyclone

Any of the preceding options is technically feasible, in general, for particulate-laden exhaust streams like those in the Screen Fines/Saw Trim Transfer Pneumatics system. For the specific retrofit application at Fordyce OSB, however, GP has determined that only the integrated cyclone/baghouse and the high-efficiency cyclone alternatives are technically feasible. GP's engineering assessment, prepared in consultation with equipment vendors, indicates that the baghouse alternative could only be installed on the roof of the existing facility, which would potentially require structural reinforcement that may not be technically feasible. Furthermore, routine maintenance of the baghouse at roof level would incur safety risks from exposure and fall hazards that GP deems unacceptable. Because the high-efficiency cyclone and integrated cyclone/baghouse could be constructed from the ground level adjacent to the existing operation and building, these two alternatives are considered technically feasible and the roof-mounted baghouse alternative is eliminated as technically infeasible. According to vendor specifications, the integrated cyclone/baghouse system and roof-mounted baghouse would each achieve an exhaust particulate concentration of 0.002 grains per dry standard cubic foot (gr/dscf); therefore, eliminating the roof-mounted baghouse as technically infeasible will not prevent consideration of the best performing alternative. Cost estimates are nevertheless shown for a roof-mounted baghouse for comparison purposes.

Rank Feasible Alternatives by Control Effectiveness

Control effectiveness for wood residuals handling sources is typically expressed in terms of percent emissions reduction and the outlet grain loading. GP's review of the RBLC for comparable applications indicates reported particulate matter control effectiveness values ranging from 99% to 99.99% in terms of emissions reductions and emissions

performance values ranging from 0.001 to 0.005 grains per dry standard cubic foot (gr/dscf) in terms of exhaust particulate concentration. (Mass emission rates are also listed in RBLC; however, these are not directly comparable because they are dependent on specific characteristics of each process like inlet mass rate.) The following control effectiveness values were reported for each process code, beginning with the processes most comparable to the operation at Fordyce OSB.

- 30.510 Particle and Strand Board Manufacturing – Material Handling
- 30.540 Particle and Strand Board Manufacturing – Board Product Finishing (e.g., sanders, saws, and trimmers)
    - 0.0024 to 0.005 gr/dscf outlet grain loading
    - 99 to 99.99% emissions reduction
- 30.390 Plywood Manufacturing – Other Plywood Manufacturing Processes
    - 99 to 99.99% emissions reduction
- 30.700 Wood Working
    - 0.003 gr/dscf outlet grain loading
    - 99 to 99.99% emissions reduction
- 30.999 Other Wood Products Industry Sources
    - to 0.005 gr/dscf outlet grain loading
    - 99 to 99.99% emissions reduction

GP obtained the following emissions performance specifications from prospective equipment vendors for the technically feasible options:

- Integrated Cyclone/Baghouse or Conventional Baghouse
    - 0.002 grains per cubic foot at 14,000 cfm exhaust air flow (assumed to apply to filterable PM and PM_{10})
    - = 0.24 lb/hr and 1.05 tons/yr filterable PM and filterable PM_{10}
    - = 99.9999% collection efficiency based on 36,000 lb/hr inlet loading
- Ultra-high-efficiency Cyclone
    - = 2.64 lb filterable PM/hr and 11.6 tons/yr filterable PM
    - = 99.99% collection efficiency based on 23,400 lb/hr inlet loading (total mass)
    - = 99.78% collection efficiency based on 1,215 lb/hr inlet loading (mass less than 100 µm)
    - = 0.015 grains per cubic foot at 20,150 cubic feet per minute air flow
    - = 1.30 lb filterable PM_{10}/hr and 5.7 tons/yr filterable PM_{10}
    - = 93.05% collection efficiency based on 18.72 lb/hr inlet loading (mass less than 10 µm)
    - = 0.008 grains per cubic foot at 20,150 cubic feet per minute air flow

Evaluate Controls for Effectiveness

GP evaluated the ranked alternatives primarily on the basis of economic (i.e., cost) effectiveness. Energy and environmental impacts are also factors that may be used to distinguish alternative control strategies; however, in this application the energy and environmental impacts are similarly negligible. Energy impacts for both alternatives are primarily attributable to electricity needed to power the pneumatic systems, which are comparable for both options and can be accounted as direct operating costs in the economic analysis. Environmental impacts are minimal because both options would collect wood residuals for beneficial reuse; there are no added costs or impacts associated with waste disposal and transportation or other environmental factors.

Cost effectiveness was analyzed following EPA guidance using engineering estimates based on prospective vendor quotes to account for capital costs to engineer, design, procure, prepare, and install new equipment and operating costs to energize, operate, and maintain equipment. Cost effectiveness is quantified in terms of annualized dollars per ton of emissions reduction, relating the annualized capital cost recovery plus operating costs to the annual tons of emissions reduced.

The emissions reduction analysis relies on the baseline emissions rate to which the estimated emission rate of the control strategy is compared. The baseline generally represents the uncontrolled emission rate; however, EPA guidance recognizes there are situations where the uncontrolled emission rate is an unrealistic basis of comparison and would likely result in an overestimate of emissions reduction and underestimate of cost effectiveness. This situation is the case for the Screen Fines/Saw Trim Transfer Pneumatics system because at least some level of inherent process equipment must be operated to recover wood residuals from the process. In other words, the process weight rate of 23,400 lb/hr could not realistically be emitted to the atmosphere. Emissions from the alternative integral cyclone/baghouse and high-efficiency cyclone must be compared against a reasonable estimate of baseline emissions.

EPA guidance contemplates representing baseline emissions in such situations with a "realistic upper boundary case" that reflects "inherent physical or operational constraints" on the source. In this case, the current permit limitations (i.e., 2.7 lb/hr and 11.6 tpy) represent an appropriate emissions baseline because the permit conditions have been enforceable since implemented in 2002.

The resulting cost effectiveness values are $35,170 and $31,913 per ton of filterable PM_{10}. The cost effectiveness value would be the same for total PM_{10}, assuming the condensable PM emission rate, which would not be reduced by the integrated cyclone/baghouse or conventional baghouse, is added to both the baseline and reduced annual emission rate.

GP believes that these cost effectiveness values exceed the reasonable cost effectiveness threshold for PM and total PM_{10} and therefore determines that the integrated cyclone/baghouse is not cost effective for this application. This determination is consistent with Arkansas DEQ's recent BACT determinations for the El Dorado Sawmill,

which observed, "Safety concerns such as fire hazards must be considered with baghouses. Fabric filtration systems are costly to install and maintain. Where the process cyclone control is sufficient to achieve the selected BACT limit, fabric filters need not be introduced."

Select BACT

GP selects the next most effective alternative, the ultra-high-efficiency cyclone, as BACT for the Screen Fines/Saw Trim Transfer Pneumatics system at the Fordyce OSB Plant with filterable PM emissions of 2.64 lb/hr and 11.6 tons/year and total PM_{10} emissions of 1.47 lb/hr and 6.5 tons/year. Although the resulting emission rates would be slightly higher than the integrated cyclone/baghouse, the ultra-high-efficiency cyclone can be implemented for lower capital costs, will achieve lower emissions than permitted allowable rates for the existing bagfilter system that was previously determined to be BACT, and results in emissions performance within (PM) or lower (PM_{10}) than current permit limits and is comparable to prior BACT determinations. This determination is consistent with Arkansas DEQ and Union County Lumber's most recent application, which selected high efficiency cyclones as BACT for wood residual pneumatic handling systems.

9. SOURCE AND POLLUTANT SPECIFIC REGULATORY APPLICABILITY:

Source	Pollutant	Regulation (NSPS, NESHAP or PSD)
Facility	PM/PM_{10}, VOC, CO and NO_X	PSD
Facility	HAPs	NESHAP Subpart DDDD
15	HAPs	NESHAP Subpart QQQQ
17, 18, 19	HAPs	NESHAP Subpart ZZZZ
18	-	NSPS Subpart JJJJ
01A	-	NESHAP DDDDD

10. UNCONSTRUCTED SOURCES:

Unconstructed Source	Permit Approval Date	Extension Requested Date	Extension Approval Date	If Greater than 18 Months without Approval, List Reason for Continued Inclusion in Permit
N/A				

11. PERMIT SHIELD – TITLE V PERMITS ONLY:

Did the facility request a permit shield in this application? N
(Note - permit shields are not allowed to be added, but existing ones can remain, for minor modification applications or any Rule 18 requirement.)

If yes, are applicable requirements included and specifically identified in the permit?

If not, explain why.

For any requested inapplicable regulation in the permit shield, explain the reason why it is not applicable in the table below.

Source	Inapplicable Regulation	Reason
N/A		

12. COMPLIANCE ASSURANCE MONITORING (CAM) – TITLE V PERMITS ONLY:

List sources potentially subject to CAM because they use a control device to achieve compliance and have pre-control emissions of at least 100 percent of the major source level. List the pollutant of concern and a brief summary of the CAM plan (temperature monitoring, CEMs, opacity monitoring, etc.) and frequency requirements of § 64.

Source	Pollutant Controlled	Cite Exemption or CAM Plan Monitoring and Frequency
N/A		

13. EMISSION CHANGES AND FEE CALCULATION:

See emission change and fee calculation spreadsheet in Appendix A.

14. AMBIENT AIR EVALUATIONS:

The following are results for ambient air evaluations or modeling.

a) NAAQS

A NAAQS evaluation is not required under the Arkansas State Implementation Plan, National Ambient Air Quality Standards, Infrastructure SIPs and NAAQS SIP per Ark. Code Ann. § 8-4-318, dated March 2017 and the DEQ Air Permit Screening Modeling Instructions.

b) Non-Criteria Pollutants:

1st Tier Screening (PAER)

Estimated hourly emissions from the following sources were compared to the Presumptively Acceptable Emission Rate (PAER) for each compound. The Department has deemed the PAER to be the product, in lb/hr, of 0.11 and the Threshold Limit Value (mg/m^3), as listed by the American Conference of Governmental Industrial Hygienists (ACGIH).

Pollutant	TLV (mg/m^3)	PAER (lb/hr) = 0.11 × TLV	Proposed lb/hr	Pass?
Lead	0.05	0.006	0.03	N
Acetone	1187.12	130.5832	3.66	Y
Ammonia	17.41	1.915	2.97	N
Acetaldehyde	45.04	4.9544	8.06	N
Acrolein	0.23	0.0253	1.93	N
Formaldehyde	0.369	0.041	5.08	N
Methanol	262.09	28.8299	20.52	Y
Pentachlorophenol	0.5	0.055	7.20E-06	Y
Phenol	19.25	2.1175	3.05	N
Vinyl Acetate	35.21	3.8731	1.13	Y
m-Xylene	0.1	0.011	0.11	N
Antimony	0.5	0.055	1.49E-03	Y
Arsenic	0.01	0.0011	2.46E-03	N
Beryllium	5.0E-05	5.50E-06	1.09E-05	N
Cadmium	0.002	2.20E-04	1.47E-03	N
Chromium VI	0.05	5.50E-03	2.24E-03	Y
Chromium (total)	0.01	1.10E-03	2.10E-02	N
Cobalt	0.02	2.20E-03	1.09E-03	Y
Hydrogen Fluoride	0.409	0.045	0.06	N
Manganese	0.02	2.20E-03	3.70E-01	N
Mercury	0.025	2.75E-03	4.23E-04	Y
Nickel	0.1	0.011	2.02E-02	N
Selenium	0.2	0.022	4.40E-04	Y

2nd Tier Screening (PAIL)

AERMOD air dispersion modeling was performed on the estimated hourly emissions from the following sources, in order to predict ambient concentrations beyond the property boundary. The Presumptively Acceptable Impact Level (PAIL) for each compound has been deemed by the Department to be one one-hundredth of the Threshold Limit Value as listed by the ACGIH.

Emissions from emergency sources are not included in the model.

Pollutant	PAIL ($\mu g/m^3$) = 1/100 of Threshold Limit Value	Modeled Concentration ($\mu g/m^3$)	Pass?
Lead	0.5	4.33E-03	Y
Ammonia	174.13	56.77	Y
Acetaldehyde	450.41	25.77	Y
Acrolein	2.3	0.177	Y
Formaldehyde	15	14.37	Y
Phenol	192.5	0.502	Y
m-Xylene	1.0	0.105	Y
Arsenic	0.1	2.3E-04	Y
Beryllium	5.0E-04	1.0E-04	Y
Cadmium	0.02	1.5E-04	Y
Chromium (total)	0.1	1.12E-03	Y
Hydrogen fluoride	4.09	5.48E-03	Y
Manganese	2.0	0.035	Y
Nickel	1.0	1.52E-03	Y

c) H_2S Modeling:

A.C.A. §8-3-103 requires hydrogen sulfide emissions to meet specific ambient standards. Many sources are exempt from this regulation, refer to the Arkansas Code for details.

Is the facility exempt from the H_2S Standards Y
If exempt, explain: the facility does not have H_2S emissions.

15. CALCULATIONS:

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
01 OSB 5 Dryers	Stack Testing (March 2008 and Feb 2013)	<u>in lb/ODT</u> PM (fil): 0.40 PM (con): 0.37 PM_{10}: 0.77 NOx: 0.83 CO: 0.49 VOC: 0.20	2 RTOs & multiclones	85% (PM/PM_{10}) 90% (VOC) 40% (CO) 90% (HAPs)	<u>Production</u> 695,009 ODT/yr 79.34 ODT/hr <u>Dryer (Wood)</u> 1,752,000 MMBtu/yr 200 MMBtu/hr <u>Dryer (NG)</u> 1,718 MMscf/yr 0.196 MMscf/hr <u>TOH (Wood)</u> 700,800 MMBtu/yr 80 MMBtu/hr <u>TOH (NG)</u> 515 MMscf/yr 0.059 MMscf/hr <u>RTO (NG)</u> 412 MMscf/yr 4.7E-2 MMscf/hr 20% Safety Factor
	NCASI Wood Products (Feb 2013)	SO_2: 1.9e-2 lb/ODT Lead: 7.16e-5 lb/ODT Various HAPs			
01 Natural Gas Emissions	AP-42, 1.4	SO_2: 0.72 lb/MMscf Lead: 6.0e-4 lb/MMscf Various HAPs			
01 Wood Residuals	AP-42, 1.6	Lead: 5.76e-5 lb/MMBtu Various HAPs			
01A	AP-42, 1.4	<u>in lb/MMscf</u> PM (fil): 2.28 PM (con): 6.84 PM_{10}: 9.12 NOx: 120 CO: 100.8 SO_2: 0.72 VOC: 6.6 Lead 6.0E-04 Various HAPs	None	N/A	<u>Natural Gas</u> 515 MMscf/yr 5.88e-2 MMscf/hr 20% Safety Factor
02 OSB Press	<u>Uncaptured</u> Stack Testing	<u>in lb/MSF</u> PM (fil): 2.81E-01	Multiclones RTO/TCO	75% (PM)	600,000 MSF/yr 90 MSF/hr

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
	(2008, 2013, 2018) NCASI Wood Products (Feb 2013)	PM (con): 2.76E-01 $PM_{10}/PM_{2.5}$: 5.57E-01 CO: 1.80E-01 NOx: 1.30E-01 VOC: 1.15 Various HAPs		90% (VOC) 75% (CO) 95% capture efficiency	103 MMscf/yr 0.0118 MMscf/hr 20% Safety Factor
	<u>Captured</u> Stack Testing (2008, 2013, 2018) NCASI Wood Products (Feb 2013)	<u>in lb/MSF</u> PM (fil): 3.30E-02 PM (con): 5.24E-02 $PM_{10}/PM_{2.5}$: 8.53E-02 CO: 7.89E-02 NOx: 6.73E-02 VOC: 4.58E-02 Various HAPs			
02 RTO (Natural Gas)	AP-42, 1.4	<u>in lb/MMscf</u> SO_2: 0.72 Lead: 6.0E-04 Various HAPs			103 MMscf/yr 0.012 MMscf/hr
02 OSB Press	Manufacturer's Info	Force Field component MSDS		95.21% (VOC)	20 MMSF production
03	Manufacturer's Info + Mass Balance	PM (fil): 2.64 lb/hr, 11.6 tpy PM_{10}: 1.47 lb/hr, 6.5 tpy $PM_{2.5}$: 0.18 lb/hr, 0.8 tpy	High Efficiency Cyclone	99.99% for PM 96.64% for PM_{10}	600,000 MSF/yr 90 MSF/hr 13,623 dscfm 20% Safety Factor 23.400 lb/hr wood residual
	Wood Products Protocol 1 (WPP1)	VOC: 7.40E-02 lb/MSF			
	NCASI Wood Products (Feb 2013)	<u>in lb/MSF</u> Acetone: 1.18E-03 Formaldehyde: 3.61E-04 Methanol: 1.37E-03			
04	Stack Testing (2005 & 2018)	PM (fil): 1.50E-03 gr/dscf PM (con): 1.10E-03 gr/dscf	Receiver Bag Filter	80.00% for PM/PM_{10} 99.83% for PM/PM_{10}	600,000 MSF/yr 90 MSF/hr 24,084 dscfm 20% Safety Factor
	Wood Products Protocol 1 (WPP1)	VOC: 7.27E-02 lb/MSF			
	NCASI Wood Products (Feb	<u>in lb/MSF</u> Acetone: 1.18E-03			

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
	2013)	Formaldehyde: 3.61E-04 Methanol: 1.37E-03			
05	Stack Testing (2005 & 2018)	PM (fil): 2.10E-03 gr/dscf PM (con): 9.00E-04 gr/dscf	Receiver Bag Filter	80.00% for PM/PM_{10} 99.83% for PM/PM_{10}	600,000 MSF/yr 90 MSF/hr 33,800 dscfm 20% Safety Factor
	Wood Products Protocol 1 (WPP1)	VOC: 7.40E-02 lb/MSF			
	NCASI Wood Products (Feb 2013)	<u>in lb/MSF</u> Acetone: 1.18E-03 Formaldehyde: 3.61E-04 Methanol: 1.37E-03			
06	Stack Testing (2005 & 2018)	PM (fil): 3.00E-03 gr/dscf PM (con): 1.90E-03 gr/dscf	Receiver Bag Filter	80.00% for PM/PM_{10} 99.88% for PM/PM_{10}	600,000 MSF/yr 90 MSF/hr 15,175 dscfm 20% Safety Factor
	Wood Products Protocol 1 (WPP1)	VOC: 7.40E-02 lb/MSF			
	NCASI Wood Products (Feb 2013)	<u>in lb/MSF</u> Acetone: 1.18E-03 Formaldehyde: 3.61E-04 Methanol: 1.37E-03			
07	Stack Testing (2005)	PM (fil): 8.50E-03 gr/dscf	Receiver Bag Filter	80.00% for PM/PM_{10} 99.96% for PM/PM_{10}	600,000 MSF/yr 90 MSF/hr 835 dscfm 20% Safety Factor
	Wood Products Protocol 1 (WPP1)	VOC: 7.27E-02 lb/MSF			
	NCASI Wood Products (Feb 2013)	<u>in lb/MSF</u> Acetone: 1.18E-03 Formaldehyde: 3.61E-04 Methanol: 1.37E-03			
08	Stack Testing (2005)	PM (fil): 5.30E-03 gr/dscf	Receiver Bag Filter	80.00% for PM/PM_{10} 99.46% for PM/PM_{10}	695,009 ODT/yr 79.4 ODT/hr 600,000 MSF/yr 90 MSF/hr 14,248 dscfm 20% Safety Factor
	Wood Products Protocol 1 (WPP1)	VOC: 10.27 lb/hr VOC: 34.4 tpy			
	NCASI Wood	PM (con): 4.70E-03 lb/ODT			

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
	Products (Feb 2013)	Various HAPs			
09	Stack Testing (2005 & 2018)	PM (fil): 3.20E-03 gr/dscf PM (con): 1.20E-03 gr/dscf	Receiver Bag Filter	80.00% for PM/PM_{10} 99.96% for PM/PM_{10}	600,000 MSF/yr 90 MSF/hr 13,623 dscfm 20% Safety Factor
	Wood Products Protocol 1 (WPP1)	VOC: 7.27E-02 lb/MSF			
	NCASI Wood Products (Feb 2013)	<u>in lb/MSF</u> Acetone: 1.18E-03 Formaldehyde: 3.61E-04 Methanol: 1.37E-03			
10	<u>Debarker</u> NCASI July 2014 memo for $PM_{2.5}$ and EPA's PM Augmentation Tool	PM: 2.84E-04 lb/ton PM_{10}: 1.65E-04 lb/ton (58% of PM) $PM_{2.5}$: 5.40E-05 lb/ton (19% of PM)	None	N/A	1,178,220 ton logs/yr 135 ton logs/hr
	<u>Bark Hog</u> FIRE database, SCC Code 3-07-008-01	PM: 0.024 lb/ton PM_{10}: 0.011 lb/ton	None	N/A	117,822 ton bark/yr 13.5 ton bark/hr
11 Inside Spray Booth	Technical Data Sheets	PM/PM_{10}: 2.75E-02 lb/gal VOC: 3.10E-01 lb/gal Ammonia: 8.50E-02 lb/gal	Filter/ Enclosure	98%	85,324 gal/yr 0.18 gal/MSF 8.5 lb/gal 54% solids content 70% sprayer efficiency 20% Safety Factor
11 Outside Spray Booth	Technical Data Sheets	PM/PM_{10}: 5.61E-01 lb/gal VOC: 3.10E-01 lb/gal Ammonia: 8.50E-02 lb/gal	Filter/ Enclosure	75%	7,833gal/yr 0.018 gal/MSF 8.5 lb/gal 66% solids content 60% sprayer efficiency 20% Safety Factor

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)			Control Equipment	Control Equipment Efficiency	Comments
11 Stencil Application	Mass Balance	Ink density: 6.87 lb/gal Cleaner density: 6.59 lb/gal 100% acetone content 1% VOC/HAP content					<u>Ink usage rate</u> 0.092 gal/hr 806 gal/yr <u>Cleaner usage rate</u> 0.023 gal/hr 202 gal/yr
12 Roads	AP-42, Section 13.2.1 Paved Roads	PM PM_{10}	<u>sL</u> 0.74 0.74	<u>k</u> 0.011 0.0022	Sweeping, water truck, speed limits	N/A	@365 days/yr 334.3 mile/day 122,006.5 mile/yr No rain
	AP-42, Section 13.2.2 Unpaved Roads and measured silt data	PM PM_{10}	<u>sL</u> 1.5 1.5	<u>k</u> 4.9 1.5			@365 days/yr 82.9 mile/day 30,243.9 mile/yr 105 days rain
13	NCASI TB 424 Section 13.2.4	8.150 lb PM/day/acre 0.650 acre 0.18% silt # dry days: 260 days/yr % Time Wind = 13			None	N/A	Outside Bark Storage
15	MSDS	0.22% by wt content VOC 0.10% by wt Acetaldehyde 0.03% by wt CH_2O 0.07% by wt Methanol 0.10% by wt Vinyl Acetate			None	N/A	7,884,000 panels/yr 900 panels/hr 1.25 lb adhesive/panel
16	NCASI Wood Products (Feb 2013)	PM (fil): 2.76E-03 lb/ODT PM_{10}/ $PM_{2.5}$: 5.24E-03 lb/ODT Various HAPs			None	N/A	20% Safety Factor 600,000 MSF/yr 90 MSF/hr 695,009 ODT/yr 79 ODT/hr
	Wood Products Protocol 1 (WPP1)	VOC: 0.25 lb/MSF					
17	AP-42, 3.4	<u>Units in lb/HP-hr</u> PM (fil): 8.40E-04 PM_{10}/ $PM_{2.5}$: PM (fil) + PM (con) SO_2: 1.46E-05 VOC: 6.35E-04			None	N/A	20% Safety Factor 1,341 HP 9.4 MMBtu/hr 500 hr/yr

SN	Emission Factor Source (AP-42, testing, etc.)	Emission Factor (lb/ton, lb/hr, etc.)	Control Equipment	Control Equipment Efficiency	Comments
		CO: 6.60E-03 NOx: 2.88E-02 PM (con): 9.24E-03 lb/MMBtu Various HAPs			
18	40 CFR 90.103	CO: 519 g/kW-hr NOx: 13.4 g/kW-hr	None	N/A	20% Safety Factor 17 kW 0.23 MMBtu/hr 500 hr/yr
	AP-42, 3.2-3	<u>Units in lb/MMBtu</u> PM (fil): 1.14E-02 PM (con): 1.19E-02 PM_{10}/ $PM_{2.5}$: PM (fil) + PM (con) SO_2: 7.06E-04 VOC: 3.55E-02 Various HAPs			
19	AP-42, 3.3	<u>Units in lb/hp-hr</u> PM/PM_{10}/ $PM_{2.5}$: 2.64E-03 SO_2: 2.46E-03 VOC: 3.02E-03 CO: 8.02E-03 NOx: 3.72E-02 Various HAPs	None	N/A	20% Safety Factor 1.86 MMBtu/hr 266 HP 500 hr/yr
20	Wash Water Sample Analysis	TOC content: 1,668.82 mg/L	None	N/A	2,268,000 gal/yr capacity
	AP-42, 1.4	<u>Units in lb/MMscf</u> PM (fil): 1.9 PM (con): 5.7 PM_{10}/ $PM_{2.5}$: PM (fil) + PM (con) SO_2: 0.6 VOC: 5.5 CO: 84 NOx: 100 Various HAPs	None	N/A	2.95 MMBtu/hr NG burner 259 gal/hr 2,268 Mgal/yr
	Testing	VOC: 1.39E-02 lb/gal	None	N/A	259 gal/hr 2,268 Mgal/yr

16. TESTING REQUIREMENTS:

The permit requires testing of the following sources.

SN	Pollutants	Test Method	Test Interval	Justification
01, 02	PM_{10} NO_X VOC [THC (as carbon)]	5 or 201 7E 25A	Every 5 years, alternate RTOs	63 DDDD
01,02	CO	10	Every 5 years, each RTO	Basis for Calculations
02	PM_{10} NO_X VOC [THC (as carbon)] CO	5 or 201 7E 25A 10	If TCO is operated, then within 180 days of operation, per PWC #3, after that every 5-yrs.	63 DDDD for CO basis of calc.
01, 02	Total HAPs	25A	Once	IPT
01, 02	Opacity	9	Every 5 years	63 DDDD
01, 02	Formaldehyde	Acetylacetone Method; . . . Or other test method upon the Department's approval.	Every 5 years	Basis for Calculations
03	PM and PM_{10}	5 or 201A and 202	Once	Emission verification

17. MONITORING OR CEMS:

The permittee must monitor the following parameters with CEMS or other monitoring equipment (temperature, pressure differential, etc.)

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
01	RTO A and RTO B Minimum Temperatures - 1550°F and 1552°F respectively Subsequent performance test that demonstrates compliance with permit may change the minimum	CEM	At least every 15 minutes & reduce the data to 3-hour block average to confirm compliance with minimum temps	Y

SN	Parameter or Pollutant to be Monitored	Method (CEM, Pressure Gauge, etc.)	Frequency	Report (Y/N)
	operating temperature			
01	Isolation Damper	CEM	As occurs changes in damp position: "Open" or "Closed"	N
02	RTO Minimum Temperature [1498 °F] TCO Minimum Temperature [1250 °F] Subsequent performance test that demonstrates compliance with permit may change the minimum operating temperature	CEM	At least every 15 minutes & reduce data to 3-hour block average to confirm compliance w/minimum temp TCO not operating currently.	Y

18. RECORDKEEPING REQUIREMENTS:

The following are items (such as throughput, fuel usage, VOC content, etc.) that must be tracked and recorded.

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
Facility	OSB Throughput	600 MMSF/yr on a 3/8-inch basis OSB	Monthly and 12 rolling months	Y
01 & 02 RTO	Performance Tests	$PM_{10,}$ VOC, $NO_{X,}$ and formaldehyde (one of 2 RTOA/B with 5 dryers operating)	Every 5 years Keep latest test	Y entire report
01 & 02 RTO	Performance Tests	CO (both RTO A & B separately with 5 dryers operating @90%+)	Every 5 years Keep latest test	Y entire report
01, 02	SSM Plan, SAM Reports and immediate reports of malfunctions	Report malfunctions (Submit start-up, shutdown & malfunction events inconsistent with SSM Plan) Keep current SSM Plan onsite and keep revised SSM Plans for 5 years	Every 6 months	Y
01	Minimum Operating Temperature of	Based on Minimum Temperature recorded during March 2008	Every 15 minutes &	N

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
	RTO A & RTO B	performance test, 1550 °F and 1552 °F, respectively, until subsequent tests establish new minimum temp.	reduce the data to 3-hour block average, Record Daily	
01 & 02	Inlet Fan Static Pressure readings	n/a	Recorded hourly and averaged every 12 hours.	N
01A	When venting to atmosphere, fuel used, and amount of fuel used	Only Natural Gas allowed to vent directly to atmosphere	As occurs	N
02	Minimum Operating Temperature of TCO & RTO	Based on Minimum Temperature recorded during March 2004 on TCO performance test , 1250 °F and March 2008 on RTO performance test, 1498 °F, until subsequent tests establish new minimum temp.	Every 15 minutes & reduce the data to 3-hour block average, Record Daily	N
11	VOC emitted & MSDS or equivalent documentation	18.0 tpy	Monthly	N
		0.31 VOC/gal	On going	
	Use only non-HAP coatings (see SC #67) & MSDS or equivalent documentation	Non-HAP coating is defined as coating with HAP contents below 0.1% by mass for OSHA defined carcinogens as specified in 29 CFR 1910.1200(d)(4), and below 1.0% by mass for other HAP compounds.	As necessary	
	MSDS or equivalent documentation of SN-11 ammonia containing materials	Ammonia content of material not to exceed one percent (1.0%) by weight	Ongoing	
11	Notification	According to the schedule in 40 CFR §63.2280 and according to	Ongoing	Y

SN	Recorded Item	Permit Limit	Frequency	Report (Y/N)
		40 CFR Part 63, Subpart A		
13	Combined storage area	0.65 acres	Annual	Y
15	If the affected source applies coating to products in the following subcategory: 1. Exterior Siding and Primed Doorskins 2. Flooring 3.Interior Wall Paneling or Tileboard 4.Other Interior Panels 5. Doors, Windows, and Miscellaneous	Must limit organic HAP emissions to the atmosphere to no more than the applicable emission limit(s) in the following table in grams HAP/liter solids (lb HAP/gal solids) is 1. 0 (0.00) 2. 0 (0.00) 3. 5 (0.04) 4. 0 (0.00) 5. 57 (0.48)	Monthly and 12 month rolling	N
15	VOC Acetaldehyde Formaldehyde Methanol Vinyl Acetate [May be MSDS sheets & spreadsheet]	Shall not exceed following Content Limit VOC -0.22 % by weight Acetaldehyde - 0.10 % by weight Formaldehyde -0.03 % by weight Methanol - 0.07 % by weight Vinyl Acetate - 0.10 % by weight	Monthly	N
17	Hours of Operation	Nte 500 operating hours per calendar year, based on non-resettable hour meter	As Necessary	N
18	Hours of Operation	Nte 500 operating hours per calendar year, based on non-resettable hour meter	As Necessary	N
19	Hours of Operation	Nte 500 operating hours per calendar year, based on non-resettable hour meter	As Necessary	N

19. OPACITY:

SN	Opacity	Justification for limit	Compliance Mechanism
01 and 02	10%	Rule 18.501 and A.C.A.	Monthly Observations
01 and 02	20%	Rule 19.503 and A.C.A.	Daily observation if off-line maintenance activities

SN	Opacity	Justification for limit	Compliance Mechanism
			performed between 6 a.m. and 6 p.m.
03	10%	Rule 18.501 and A.C.A.	Weekly Observations
04 thru 09	10%	Rule 18.501 and A.C.A.	Monthly Observations
10	20%	Rule 19.503 and A.C.A.	Monthly Observations
12 (off-site)	5%	A.C.A.	Water sprays, etc
13	20%	Rule 19.503 and A.C.A.	None
17	20%	Rule 19.503 and A.C.A.	Use of diesel fuel only
18	5%	Rule 18.501 and A.C.A.	Use of propane as fuel
19	20%	Rule 19.503 and A.C.A.	Use of diesel fuel only
20	5%	Rule 18.501 and A.C.A.	Use of natural gas as fuel

20. DELETED CONDITIONS:

Former SC	Justification for removal
N/A	

21. GROUP A INSIGNIFICANT ACTIVITIES:

The following is a list of Insignificant Activities including revisions by this permit.

Source Name	Group	Emissions (tpy)						
		PM/ PM_{10}	SO_2	VOC	CO	NO_X	HAPs	
							Single	Total
Four (4) Portable Heaters (0.07 MMBtu/hr total)	A-1	0.004	0.156	0.002	0.011	0.040	--	--
Kerosene Fueling Tank (250 gal)	A-2	--	--	8.15E-04	--	--	1.10E-04	1.10E-04
Maintenance Shop: Diesel Tank (250gal)	A-2	--	--	8.15E-04	--	--	1.10E-04	1.10E-04
Oil Storage Building: Gear Oil Tank (250 gal)	A-2	--	--	8.15E-04	--	--	1.10E-04	1.10E-04

Source Name	Group	Emissions (tpy)						
		PM/ PM_{10}	SO_2	VOC	CO	NO_X	HAPs	
							Single	Total
Oil Storage Building: Six (6) Hydraulic and Gear Oil Tanks (65 gal each)	A-2	--	--	4.89E-03	--	--	6.60E-04	6.60E-04
Mobile Equipment Shop: Used Oil Tank (250gal)	A-2	--	--	8.15E-04	--	--	1.10E-04	1.10E-04
Mobile Equipment Shop: Engine Oil Tank (120 gal)	A-2	--	--	8.15E-04	--	--	1.10E-04	1.10E-04
Mobile Equipment Shop: Hydraulic Oil Tank (65 gal)	A-2	--	--	8.15E-04	--	--	1.10E-04	1.10E-04
Mobile Equipment Shop: Transmission Fluid Tank (65 gal)	A-2	--	--	8.15E-04	--	--	1.10E-04	1.10E-04
Diesel Fueling Tank (3,200 gal)	A-3	--	--	2.33E-03	--	--	3.15E-04	3.15E-04
Emergency Generator Diesel Tank (2,000 gal)	A-3	--	--	8.15E-04	--	--	1.10E-04	1.10E-04
Fire Pump Diesel Tank (500 gal)	A-3	--	--	8.15E-04	--	--	1.10E-04	1.10E-04
Green End Hydraulic Oil Tank (550 gal)	A-3	--	--	8.15E-04	--	--	1.10E-04	1.10E-04
Hydraulic Room: Press Pit Used Oil Tank (6,000 gal)	A-3	--	--	5.07E-03	--	--	6.85E-04	6.85E-04
Thermal Oil Tank (2,000 gal)	A-3	--	--	8.15E-04	--	--	1.10E-04	1.10E-04
Thermal Oil Tank (400 gal)	A-3	--	--	8.15E-04	--	--	1.10E-04	1.10E-04
Oil Storage Building: Hydraulic Oil Tank (500 gal)	A-3	--	--	8.15E-04	--	--	1.10E-04	1.10E-04
Oil Storage Building: Used Oil Tank (280 gal)	A-3	--	--	8.15E-04	--	--	1.10E-04	1.10E-04
Two (2) Wax Tanks (10,000 gal each)	A-3	No emissions expected						
Coolant Tote (451 gal)	A-3	--	--	0.0	--	--	0.0	0.0
Maintenance Welding and Cutting	A-7	0.02	--	--	--	--	0.072	0.072

Source Name	Group	Emissions (tpy)						
		PM/ PM_{10}	SO_2	VOC	CO	NO_X	HAPs	
							Single	Total
Gasoline Fueling Tank (500 gal)	A-13	--	--	4.92E-03	--	--	1.61E-03	0.23
Two (2) MDI Resin Tank (20,000 gal each)	A-13	--	--	1.30E-03	--	--	1.30E-03	1.30E-03
Sanderdust Truck Loading	A-13	4.28E-03	--	--	--	--	--	--
Five (5) Flake Dryer Bins	A-13	0.05	--	--	--	--	--	--
Bin Overfill Area	A-13	0.05	--	--	--	--	--	--
Thermal Oil Tank (15,000 gal)	A-13	--	--	0.01	--	--	6.50E-04	1.49E-03
Supplemental Fuel Handling	A-13	0.0047	--	--	--	--	--	--

22. VOIDED, SUPERSEDED, OR SUBSUMED PERMITS:

The following is a list of all active permits voided/superseded/subsumed by the issuance of this permit.

Permit #
1803-AOP-R23

APPENDIX A – EMISSION CHANGES AND FEE CALCULATION

Fee Calculation for Major Source

Revised 03-11-16

Facility Name: Georgia-Pacific Wood Products, LLC
d/b/a/ Fordyce OSB
Permit Number: 1803-AOP-R24
AFIN: 07-00212

$/ton factor	27.27	Annual Chargeable Emissions (tpy)	2176.72
Permit Type	Modification	Permit Fee $	1000

Minor Modification Fee $	500
Minimum Modification Fee $	1000
Renewal with Minor Modification $	500
Check if Facility Holds an Active Minor Source or Minor Source General Permit	☐
If Hold Active Permit, Amt of Last Annual Air Permit Invoice $	0
Total Permit Fee Chargeable Emissions (tpy)	-0.4
Initial Title V Permit Fee Chargeable Emissions (tpy)	

HAPs not included in VOC or PM: *Chlorine, Hydrazine, HCl, HF, Methyl Chloroform, Methylene Chloride, Phosphine, Tetrachloroethylene, Titanium Tetrachloride*

Air Contaminants: *All air contaminants are chargeable unless they are included in other totals (e.g., H2SO4 in condensible PM, H2S in TRS, etc.)*

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
PM		575	574.6	-0.4	-0.4	574.6
PM_{10}		527.7	522.2	-5.5		
$PM_{2.5}$		0	0	0		
SO_2		34.7	34.7	0	0	34.7
VOC		1116.8	1116.8	0	0	1116.8
CO		955.2	955.2	0		
NO_X		429.8	429.8	0	0	429.8
Lead	☐	0.09	0.09	0		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Acetaldehyde	☐	34.94	34.94	0		
Acrolein	☐	8.25	8.25	0		
Benzene	☐	0	0	0		
Formaldehyde	☐	19.34	19.34	0		
Hexane	☐	0	0	0		
Methanol	☐	73.83	73.83	0		
Pentachlorophenol	☐	3.15E-05	3.15E-05	0		
Phenol	☐	12.66	12.66	0		
Propionaldehyde	☐	0	0	0		
Styrene	☐	0	0	0		
Toluene	☐	0	0	0		
Vinyl Acetate	☐	4.93	4.93	0		
m-Xylene	☐	0.49	0.49	0		
Antimony	☐	6.51E-03	6.51E-03	0		
Arsenic	☐	1.08E-02	1.08E-02	0		
Beryllium	☐	4.78E-05	4.78E-05	0		
Cadmium	☐	6.44E-03	6.44E-03	0		
Chlorine	☑	1.17E+00	1.17E+00	0	0	1.17
Chromium VI	☐	9.80E-03	9.80E-03	0		
Chromium (total)	☐	6.05E-02	6.05E-02	0		
Cobalt	☐	4.75E-03	4.75E-03	0		
Hydrochloric Acid	☑	0.6	0.6	0	0	0.6
Hydrogen Fluoride	☑	0.26	0.26	0	0	0.26
Manganese	☐	1.59	1.59	0		
Mercury	☐	1.86E-03	1.86E-03	0		
Nickel	☐	7.08E-02	7.08E-02	0		
Selenium	☐	1.93E-03	1.93E-03	0		
Total HAPs	☐	178.26	178.26	0		

Pollutant (tpy)	Check if Chargeable Emission	Old Permit	New Permit	Change in Emissions	Permit Fee Chargeable Emissions	Annual Chargeable Emissions
Acetone	☑	13.85	13.85	0	0	13.85
Ammonia	☑	4.94	4.94	0	0	4.94
	☐	0	0	0		
	☐	0	0	0		
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