

STATEMENT OF BASIS

for the issuance of Draft Air Permit # 1803-AOP-R2

1. PERMITTING AUTHORITY:

Arkansas Department of Environmental Quality
8001 National Drive
Post Office Box 8913
Little Rock, Arkansas 72219-8913

2. APPLICANT:

Georgia-Pacific Oriented Strandboard Facility
State Highway 274
Fordyce, Arkansas 71742

3. PERMIT WRITER:

Michael H. Watt

4. PROCESS DESCRIPTION AND SIC CODE:

SIC Description: Oriented Strandboard Manufacturing
SIC Code: 2493

5. SUBMITTALS: 12/14/01 and 5/7/2002

6. REVIEWER'S NOTES:

Georgia-Pacific Corporation (GP) owns and operates an oriented strandboard (OSB) facility near Fordyce, Arkansas. This facility currently has the capacity to produce 475 million square feet (MMSF), on a 3/8-inch basis, of OSB annually. This facility includes five dryers, a press, and associated materials handling equipment. The dryers and press are currently controlled by three regenerative thermal oxidizers (RTOs). Two of the RTOs are dedicated to the dryers and the third controls emissions from the press. Particulate matter emissions resulting from material handling are controlled by a series of bag filters.

This modification makes the following changes:

1. Increases the permitted capacity of the plant from 475 million square feet on a 3/8-inch basis of OSB to 600 million square feet of OSB on a 3/8-inch basis. This increase in throughput is a result of under-estimation of initial equipment capacity. No new equipment is being added to achieve this increase,

2. Allows for GP to convert the Press RTO (SN-02) to a thermal catalytic oxidizer (TCO) by adding catalytic media above the existing ceramic media. **The facility will have the option of operation the oxidizer either as a TCO or RTO.** There will be no change in emissions or BACT associated with this change,
3. Increases the CO emission rates on the Dryer (SN-01) to allow for a lower RTO set temperature. The Dryer RTO set temperatures will change from 1630 to 1550 degrees Fahrenheit in an effort to slow deterioration of the ceramic media. **The RTO set temperature can be reset to a higher value provided that the facility demonstrates compliance with the applicable emission limits contained in this permit,**
4. Updates AP-42 emission factors for Wood Combustion and OSB Manufacturing (Sections 1.6 and 10.6 respectively), and
5. **Allows for visible emissions up to 20% opacity for SN-01 and SN-02 during the performance of off-line maintenance functions (i.e., the modified bakeout of the oxidizers.)**
7. COMPLIANCE STATUS: The following summarizes the current compliance status of the facility including active/pending enforcement actions and recent compliance activities and issues

This facility has no enforcement action pending at this time.

8. APPLICABLE REGULATIONS:

A. Applicability

Did the facility undergo PSD review in this permit (i.e., BACT, Modeling, et cetera) (Y/N) Y

Has this facility underwent PSD review in the past(Y/N) Y Permit # 1803-AOP-R0

Is this facility categorized as a major source for PSD? (Y/N) Y

\$ 100 tpy and on the list of 28 (100 tpy)? (Y/N) N

\$ 250 tpy all other (Y/N) Y

B. PSD Netting

Was netting performed to avoid PSD review in this permit? (Y/N) N

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C. Source and Pollutant Specific Regulatory Applicability

Source	Pollutant	Regulation [NSPS, NESHAP (Part 61 & Part 63), or PSD <u>only</u>]
Plantwide	PM, PM ₁₀ , VOC, CO, NO _x	PSD
Plantwide	Formaldehyde	Case-by-case MACT

9. EMISSION CHANGES:

The following table summarizes plantwide emission changes associated with this permitting action.

Plantwide Permitted Emissions (ton/yr)			
Pollutant	Air Permit 1803-AOP-R1	Air Permit 1803-AOP-R2	Change
PM	682.4	751.8	69.4
PM ₁₀	474.2	554.1	79.9
SO ₂	20.5	30.7	10.2
VOC	641.8	810.4	168.6
CO	179.0	1,179.2	1000.2
NO _x	368.1	380.3	12.2
Acetaldehyde	0	3.82	3.82
Formaldehyde	9.85	14.7	4.85
Methanol	0	2.85	2.85
Phenol	0	7.30	7.3
POM	0	0.01	0.01

10. MODELING:

Class I Area Impact Analysis

PSD Regulations require that written notification be provided to the Federal Land Manager in the event that a major source or modification is located within 100 kilometers of a Class I Area. GP is not located within 100 kilometers from a Class I Area. Therefore, neither notification to the Federal Land Manager nor a Class I Area Impact Analysis is required by PSD Regulations.

The nearest PSD Class I Area to the plant is the Caney Creek Wilderness Area, located at a distance of 151 km from the facility. Even though not required by the PSD Regulations, at the request of the Arkansas Department of Pollution Control & Ecology, an ambient impact modeling analysis for PM₁₀ and NO_x (the pollutants that underwent NAAQS modeling in the initial PSD permit) was conducted for the Wilderness Area. The results of the analysis indicated that the proposed plant will not have an adverse impact on the Class I Area.

Class I Screening Analysis Results for PM₁₀		
Averaging Period	Maximum Concentration (µg/m³)	Screening Level (µg/m³)
Annual	0.005	0.2
24-Hour	0.072	0.3

Class I Screening Analysis Results for NO_x		
Averaging Period	Maximum Concentration (µg/m³)	Screening Level (µg/m³)
Annual	0.004	0.1

Air Toxics Analysis

The facility emits formaldehyde from the dryers and the presses. In order to determine if these emissions pose a significant health risk to the general public, an analysis was performed using the procedures outlined in the ADEQ's Non-Criteria Pollutant Control Strategy (Revised 1996) and federal guidelines on air quality modeling. The Control Strategy contains procedures for estimating the Presumptively Acceptable Impact Levels (PAILs). PAILs are 1/100th of the Threshold Limit Value (TLV) for the pollutant emitted.

Air Toxics Analysis Results for Formaldehyde		
Averaging Period	Maximum Concentration ($\mu\text{g}/\text{m}^3$)	Maximum Allowable Concentration ($\mu\text{g}/\text{m}^3$)
24-Hour	0.40	3.7

Preliminary Impact Analysis

A preliminary impact analysis was performed to determine if significance impacts occur and to define the impact area that they occur in. This information was then used as a basis for the NAAQS analysis and the PSD increment-consuming analysis.

At this facility, PM_{10} , CO, and NO_x emission rates exceed the PSD significant emission rate levels. Therefore, a significant impact analysis was performed for PM_{10} , CO, and NO_x to determine whether the emissions result in impacts in excess of the PSD modeling significance levels. The results were also compared to the EPA monitoring de minimis levels to determine if pre-construction monitoring is required.

Results indicated that PM_{10} impacts exceeded modeling and monitoring significance levels. NO_x impacts did not exceed the modeling significance level or monitoring significance level. CO emissions were below modeling and monitoring significance levels.

The maximum concentration results and the significance levels for PM₁₀, CO, and NO_x are included in the following tables.

Significant Impact Analysis Modeling				
Pollutant	Maximum Concentration Results (µg/m³)			
	Annual	24-Hour	8-Hour	1-Hour
PM ₁₀	5.2	32.9	-	-
CO	-	-	60.5	118.2
NO _x	0.74	-	-	-

Significant Impact Analysis Modeling				
Pollutant	Modeling Significance Levels (µg/m³)			
	Annual	24-Hour	8-Hour	1-Hour
PM ₁₀	1.0	5.0	-	-
CO	-	-	500.0	2000.0
NO _x	1.0	-	-	-

Significant Impact Analysis Modeling				
Pollutant	Monitoring Significance Levels (µg/m³)			
	Annual	24-Hour	8-Hour	1-Hour
PM ₁₀	-	10.0	-	-
CO	-	-	575.0	-
NO _x	14.0	-	-	-

NAAQS Analysis

The NAAQS are the maximum concentrations, measured in terms of the total concentration of pollutant in the atmosphere. In the NAAQS analysis, GP's emissions were combined with those from other nearby sources that have the potential to contribute significantly to the receptors within the radius of impact (ROI). This analysis was performed for PM₁₀. Source data on all permitted sources within 50 km of the impact areas was requested from the Arkansas Department of Pollution Control and Ecology.

The highest results of the NAAQS Analysis for PM₁₀ are contained in the following table:

NAAQS Analysis Results for PM₁₀				
Averaging Period	Maximum Concentration (µg/m³)	Background (µg/m³)	Total (µg/m³)	NAAQS (µg/m³)
Annual	9.1	27.0	36.1	50.0
24-Hour	65.0	56.0	121.0	150.0

PSD Increment Analysis

PSD Increment is the maximum allowable increase in concentration that is allowed to occur above a set baseline concentration for a specific pollutant. The baseline concentration is defined for each pollutant and averaging time. It is the ambient concentration existing at the time that the first complete PSD permit application is submitted for a distinct area.

Increment consuming sources were obtained using the same methodology for the NAAQS Analysis. Permitted dates of sources in Arkansas were evaluated to determine if the source was increment-consuming or in the baseline.

Emissions increases and decreases for all increment-affected sources located within the baseline area are modeled along with the emissions from GP.

The facility constructed an overall increment model. In this model, all increment consuming sources within the ROI were modeled. This was then compared to the total increment available. The highest results of the Increment Analysis for PM₁₀ is contained in the following table.

Total Increment Analysis Results for PM₁₀			
Averaging Period	Maximum Modeled Increment Consumption (µg/m³)	Total Increment (µg/m³)	Percent of Increment Consumed
Annual	5.2	17.0	29.4%
24-Hour	25.3	30.0	84.3%

According to §19.9.4(c)(4) of Regulation #19, if issuance of a permit would result in the consumption of more than 80% of the short-term increment, the permittee shall submit an assessment of (a) the effects that the consumption would have upon the industrial and economic development within the area, and (b) alternatives to the consumption including alternative siting of the source or portions. The results of this analysis are included below.

- (a) The area where greater than 80% of the 24-hour PM₁₀ increment consumed was found to be very localized, extending less than 100 meters to the north of the property line. Because of this limited area, no adverse impacts on industrial and economic developments are expected.

In addition, the sources that contribute the most to the increment consumption are fugitives such as haul roads, stock piles, and material handling processes. The existing dispersion model tends to over-estimate impacts from ground-level fugitive sources.

- (b) It would not be feasible to consider an alternative site to this facility. The facility is a new facility and the emissions would be the same wherever it is located. The proposed location is in an area that will have a limited impact on growth.

In summary, it has been determined that the primary sources contributing to the off-property impacts are ground-level fugitive sources and that the extent of the area exceeding 80% of the increment is limited.

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Air Quality Monitoring

The modeling information as indicated in the Preliminary Impact Analysis was also compared to monitoring de minimis concentrations to see if the facility would need to conduct pre-construction ambient air quality monitoring and post-construction ambient air quality monitoring. The facility will need pre-construction monitoring data for PM₁₀ emissions. In lieu of pre-construction monitoring, the Department has accepted use of existing data from a PM₁₀ monitor located in El Dorado because of its close proximity to the facility. The PM₁₀ background concentrations were established to be 27.0 µg/m³ for the annual averaging period and 56.0 µg/m³ for the 24-hour averaging period. This monitor will also be used for post-construction modeling to demonstrate compliance with the NAAQS.

Additional Impacts Review

An additional impacts analysis, addressing the potential impacts on visibility in the nearest Class I Area, was performed. The analysis demonstrates that the increase in impacts due to the facility is extremely low. Regardless of the existing conditions in the vicinity of the site or in the Class I Area, the proposed project will not cause any significant adverse effects.

The secondary NAAQS are designed to protect soils and vegetation. As discussed above, the proposed project will neither cause or contribute to a violation of the NAAQS. As such, no adverse impact on soils or vegetation is predicted.

A Level I visibility screening analysis was conducted following the procedures outlined in "Workbook for Estimating Visibility Impairment" (EPA, 1980). The Level I screening analysis is designed to provide a conservative estimate of plume visual impacts (i.e., impacts higher than expected). The EPA model VISCREEN was utilized for the analysis. PM₁₀ and NO_x emissions used for the calculations are based upon the total estimated emissions from the facility. The maximum visual impacts caused by the facility do not exceed the screening criteria inside or near the Class I Area.

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11. CALCULATIONS:

SN	Emission Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
01	Testing AP-42	14.89 lb/hr PM 25.25 lb/hr VOC 6.72 lb/hr CO 14.66 lb/hr NOX 0.37 lb/hr Formald 0.15 lb/ton	RTO	85 90 75 add 10 ppm 90 -	-
02	Testing	2.83 lb/hr PM 20.05 lb/hr VOC 7.25 lb/hr CO 10.73 lb/hr NOX 0.24 lb/hr Formald	TCO	75 90 - - 98	-
03	AP-42	0.01 Gr/dscf	Bag Filter	99.96	-
04	AP-42	0.01 Gr/dscf	Bag Filter	99.73	-
05	AP-42	0.01 Gr/dscf	Bag Filter	98.67	-
06	AP-42	0.01 Gr/dscf	Bag Filter	99.74	-

SN	Emission Source (AP-42, Testing, etc)	Emission Factor and units (lbs/ton, lbs/hr, etc)	Control Equipment Type (if any)	Control Equipment Efficiency	Comments (Emission factor controlled/uncontrolled, etc)
07	AP-42	0.01 Gr/dscf	Bag Filter	99.96	-
08	AP-42	0.01 Gr/dscf	Bag Filter	99.28	-
09	AP-42	0.01 Gr/dscf	Bag Filter	99.96	-
10	AP-42	Various Factors	-	-	-

12. TESTING REQUIREMENTS:

This permit requires stack testing of the following sources.

SN(s)	Pollutant	Test Method	Test Interval	Justification For Test Requirement
01	PM10 NOX CO VOC Formaldehyde Opacity	5 7E 10 25A Acetyla cetone 9	First 90 Days and Each Year	Basis for calculations
02	PM10 NOX CO VOC Formaldehyde Opacity	5 7E 10 25A Acetyla cetone 9	First 90 Days and Each Year	Basis for calculations

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13. MONITORING OR CEMS

The following are parameters that must be monitored with CEMs or other monitoring equipment (temperature, pressure differential, etc), frequency of recording and whether records are needed to be included in any annual, semiannual or other reports.

SN	Parameter or Pollutant to be Monitored	Method of Monitoring (CEM, Pressure Gauge, etc)	Frequency*	Report (Y/N)**
PW	RTO Temperature	CEM	15 minutes	N
PW	RTO Flow Rate	CEM	15 minutes	N
PW	ID Fan Static Pressure	CEM	Hourly	N

* Indicate frequency of recording required for the parameter (Continuously, hourly, daily, etc.)

** Indicates whether the parameter needs to be included in reports.

14. RECORD KEEPING REQUIREMENTS

The following are items (such as throughput, fuel usage, VOC content of coating, etc) that must be tracked and recorded, frequency of recording and whether records are needed to be included in any annual, semiannual or other reports.

SN	Recorded Item	Limit (as established in permit)	Frequency*	Report (Y/N)**
PW	OSB Throughput	600 million square feet on a 3/8-inch basis	Annual	Y

* Indicate frequency of recording required for the item (Continuously, hourly, daily, etc.)

** Indicates whether the item needs to be included in reports

15. OPACITY

SN	Opacity %	Justification (NSPS limit, Dept. Guidance, etc)	Compliance Mechanism (daily observation, weekly, control equipment operation, etc)
01	5%	Dept. Guidance	Weekly
01	20%	Dept. Guidance During Bakeout	Daily During Bakeout
02	5%	Dept. Guidance	Weekly
02	20%	Dept. Guidance During Bakeout	Daily During Bakeout
03	5%	Dept. Guidance	Weekly
04	5%	Dept. Guidance	Weekly
05	5%	Dept. Guidance	Weekly
06	5%	Dept. Guidance	Weekly
07	5%	Dept. Guidance	Weekly
08	5%	Dept. Guidance	Weekly
09	5%	Dept. Guidance	Weekly
10	20%	Dept. Guidance	Daily

16. DELETED CONDITIONS:

The following Specific Conditions were included in the previous permit, but deleted for the current permitting action.

There were none.

17. VOIDED, SUPERSEDED OR SUBSUMED PERMITS

List all active permits for this facility which are voided/superseded/subsumed by issuance of this permit.

Permit #
1803-AOP-R1

18. CONCURRENCE BY:

The following supervisor concurs with the permitting decision:

Phillip Murphy, P.E.