Prevention of Significant Air Quality Deterioration Review
Of Georgia-Pacific Wood Products LLC - Monticelle MDF
Located in Jasper County, Georgia

PRELIMINARY DETERMINATION
SIP Permit Application No. 16820
April 2007

State of Georgia
Department of Natural Resources
Environmental Protection Division
Air Protection Branch

Stationary Source Permitting Program (SSPP)
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SUMMARY

The Environmental Protection Division (EPD) has reviewed the application submitted by Georgia-Pacific Wood Products LLC – Monticello Medium Density Fiberboard (MDF) Plant for a permit to increase annual production capacity from 250 to 325 million square feet (MMSF). The proposed project will also include the following modifications:

- Conversion of the Regenerative Thermal Oxidizer (RTO) controlling the dryers and press to a Hybrid Thermal Catalytic Oxidizer (Hybrid TCO), allowing operation in either thermal or catalytic mode
- Ability to import steam from the Plywood Plant Boiler to supply steam to the MDF Plant, as needed
- Installation of a pneumatic system to transport MDF trim to the fuel house bin for the Plywood Plant Boiler
- Include the remaining sources (wet-line equipment, laminating pre-finishing equipment and sanding operations) at the Panelboard Plant into the Title V permit for the MDF Plant

The proposed project will result in an increase in emissions from the facility. For this project, Prevention of Significant Deterioration (PSD) review is triggered for particulate matter (PM/PM_{10}), ozone [based on a significant increase in volatile organic compounds (VOCs)], nitrogen oxides (NO_x) and carbon monoxide (CO).

The Plant is located in Monticello, Jasper County, Georgia. Jasper County has been designated by the US EPA as “attainment” or “unclassifiable” for SO_2, $PM_{2.5}$ and PM_{10}, NO_X, CO, and ozone (VOC) in accordance with Section 107 of the Clean Air Act, as amended, August 1977. The Plant is presently classified as a major stationary source under the PSD regulations.

The EPD review of the data submitted by Georgia-Pacific Wood Products - Monticello MDF Plant related to the proposed modifications indicates that the project will be in compliance with all applicable state and federal air quality regulations.

It is the preliminary determination of the EPD that the proposal provides for the application of Best Available Control Technology (BACT) for the control of particulate matter (PM/PM_{10}), volatile organic compounds (VOCs), nitrogen oxides (NO_x) and carbon monoxide (CO), as required by federal PSD regulation 40 CFR 52.21(j).

It has been determined through approved modeling techniques that the estimated emissions will not cause or contribute to a violation of any ambient air standard or allowable PSD increment in the area surrounding the facility or in Class I areas located within 200 km of the facility. It has further been determined that the proposal will not cause impairment of visibility or detrimental effects on soils or vegetation. Any air quality impacts produced by project-related growth should be inconsequential.

This Preliminary Determination concludes that an Air Quality Permit should be issued to Georgia-Pacific Wood Products - Monticello MDF Plant for the requested modifications. Various conditions have been incorporated into the current Title V operating permit to ensure and confirm compliance with all applicable air quality regulations. A copy of the draft permit amendment is included in Appendix A.

1.0 INTRODUCTION

On July 11, 2006, Georgia-Pacific Wood Products LLC - Monticello MDF Plant (hereafter Georgia-Pacific MDF) submitted an application for an air quality permit to increase annual production capacity from 250 to 325 million square feet at this plant. The proposed project will also include the following modifications:

- Conversion of the Regenerative Thermal Oxidizer (RTO) controlling the dryers and press to a Hybrid Thermal Catalytic Oxidizer (Hybrid TCO), allowing operation in either thermal or catalytic mode
- Ability to import steam from the Plywood Plant Boiler to supply steam to the MDF Plant, as needed
- Installation of a pneumatic system to transport MDF trim to the fuel house bin for the Plywood Plant Boiler
- Include the remaining sources (wet-line equipment, laminating pre-finishing equipment and sanding operations, Source Codes 2101, 2102, 2102A, 2201, 2202, 2202A, 2300) at the Panelboard Plant into the Title V permit for the MDF Plant

The facility is located at 791 Georgia-Pacific Road in Monticello, Jasper County.

Based on the proposed project description and data provided in the permit application, the estimated incremental increases of regulated pollutants from the facility are listed in Table 1 below:

Table 1-1: Emissions Increases from the Project

Pollutant	Baseline Years	Potential Emissions Increase (tpy)	PSD Significant Emission Rate (tpy)	Subject to PSD Review
PM_{10} / PM	2004-2005	74.54	15 / 25	Yes
VOC	2004-2005	213.02	40	Yes
NO_X	2004-2005	75.31	40	Yes
CO	2004-2005	431.90	100	Yes
SO_2	2004-2005	7.17	40	No
Pb	2004-2005	0.07	0.6	No

The definition of baseline actual emissions is the average emission rate, in tons per year, at which the emission unit actually emitted the pollutant during any consecutive 24-month period selected by the facility within the 10-year period immediately preceding the date a complete permit application was received by EPD. The net increases were calculated by subtracting the past actual emissions (based upon the annual average emissions from January 1, 2004 until December 31, 2005) from the future actual emissions of the modified equipment and associated emission increases from non-modified equipment. Table 1-2 details this emissions summary. The emissions calculations can be found in detail in the facility's PSD application (see Attachment B of Application No. 16820). These calculations have been reviewed and approved by the Division.

Table 1-2: Net Change in Emissions Due to the Major PSD Modification

Pollutant	Increase from Modified equipment		
	Past Actual	Future Actual	Emission Increases
PM_{10} / PM	5.50	80.03	74.54
VOC	84.79	297.81	213.02
NO_X	12.89	88.20	75.31
CO	15.00	446.90	431.90
SO_2	0.05	7.21	7.17
Pb	0.00	0.07	0.07

Based on the information presented in Tables 1-1 and 1-2 above, Georgia-Pacific MDF's proposed modification, as specified per Georgia Air Quality Application No. 16820, is classified as a major modification under PSD because the potential net emissions increases of PM_{10}/PM, NO_x, CO, and VOCs exceed their respective PSD significance levels.

Through its new source review procedure, EPD has evaluated Georgia-Pacific MDF's proposal for compliance with State and Federal requirements. The findings of EPD have been assembled in this Preliminary Determination.

2.0 PROCESS DESCRIPTION

Georgia-Pacific Wood Products LLC operates three facilities as part of a manufacturing complex. In addition to the MDF Plant, the other two facilities manufacture lumber and plywood. A fourth facility, that manufactured Panelboard, ceased operating in 2003. The finishing operations at the Panelboard Plant have served both that Plant and the MDF Plant in the past. Those operations will be maintained for the MDF Plant going forward. For that reason, the remaining Panelboard equipment is added to this permit.

The MDF Plant was originally permitted with an annual production limit of approximately 208 MMSF (1/8-inch basis). A 1999 PSD permit modification increased the annual production level to 250 MMSF, a level which more closely defined the Plant's perceived capacity. This PSD application seeks to increase annual allowable production to 325 MMSF.

The furnish for the MDF board consists of wet and dry chips and planer shavings. These raw materials may come from off-site locations or from the other facilities in the complex. The raw materials are passed through a refiner to create long, uniform fibers. The raw materials are steamed prior to the refiner and in the refiner for uniform fiber production. The furnish is then mixed with urea resin solids, a catalyst, scavenger, and wax. The furnish passes through a steam-heated flash tube dryer, where it is dried. The furnish then goes to the former and through a continuous roll press. The boards are then finished, by sawing, and stored prior to shipment. The fiberboard may also be sent to the Wet-line/Laminating process for additional finishing.

Steam for the manufacturing process is provided by the Plant's 62.5 million Btu per hour, natural gas-fired boiler. With this PSD application, the Plant is requesting the ability to utilize steam from the wood-fired boiler at the Plywood Plant as well. A 5 MMBTU/hr gas-fired hot oil system provides heat to the press. Emissions from the dryer pass through a pre-filter and then to a Regenerative Thermal Oxidizer (RTO), while the emissions from the press are sent directly to the same RTO. With this PSD application, the Plant is requesting approval to convert this RTO to a Hybrid TCO with the flexibility to operate the control system in either thermal or catalytic mode.

A RTO has been in place to control emissions from the dryer and press since the time of initial construction. The RTO utilizes a ceramic heat exchange media. The conversion to a catalytic unit involves the addition of a layer of catalyst on top of the existing ceramic saddles. A small portion of the ceramic media may be removed in order to accommodate the catalyst layer. The primary advantage of operating in catalytic mode is that the same level of pollutant destruction takes place, but at lower operating temperatures (generally in the range of 800 to 1,000 degrees Fahrenheit). As a result, less supplemental fuel is required, conserving natural gas and reducing both cost and emissions from the combustion of fuel. The Hybrid TCO designation reflects the fact that the unit is a hybrid and can operate in either catalytic (RCO) or thermal (RTO) mode. Retaining the functionality to operate as a RTO provides a safeguard, should catalyst failure require operation in the thermal mode.

With this modification application, Georgia-Pacific MDF is also requesting that the remaining sources at the Panelboard Plant (wet-line equipment, laminating pre-finishing equipment and sanding operations, Source Codes 2101, 2102, 2102A, 2201, 2202, 2202A, 2300) be added to this Title V permit for the MDF Plant. The facility is also requesting that the propane vaporizer (Emission Unit 3980) be removed from the current Panelboard Title V Permit and that the capability to burn propane no longer be reflected for any of the MDF Plant sources.

The Georgia-Pacific MDF permit application and supporting documentation are included in Appendix A of this Preliminary Determination and can be found online at www.georgiaair.org/airpermit.

3.0 REVIEW OF APPLICABLE RULES AND REGULATIONS

State Rules

Georgia Rule for Air Quality Control (Georgia Rule) 391-3-1-.03(1) requires that any person prior to beginning the construction or modification of any facility which may result in an increase in air pollution shall obtain a permit for the construction or modification of such facility from the Director upon a determination by the Director that the facility can reasonably be expected to comply with all the provisions of the Act and the rules and regulations promulgated thereunder. Georgia Rule 391-3-1-.03(8)(b) continues, saying that no permit to construct a new stationary source or modify an existing stationary source shall be issued unless such proposed source meets all the requirements for review and for obtaining a permit prescribed in Title I, Part C of the Federal Act [i.e., Prevention of Significant Deterioration of Air Quality (PSD)], and Section 391-3-1-.02(7) of the Georgia Rules (i.e., PSD).

Georgia Rule 391-3-1-.02(2)(b) limits the opacity of visible emissions from non-fuel burning equipment to less than 40 percent. This rule applies to all of the cyclones and baghouses, as well as the dryer and former/press.

Georgia Rule (e) limits particulate matter emissions per the following equation for new (installed after July 2, 1968) process equipment:

> $E = 4.1(P)^{0.67}$, where E = Emission rate in pounds per hour and P = Process input rate in tons per hour, for process input weight rates up to and including 30 tons per hour.

Rule (e) applies to the cyclones and baghouses, as well as the dryer and former/press. For some or all of this equipment, the rule may be subsumed by a more stringent limit under 40 CFR Part 52.21, 40 CFR Part 60, and/or 40 CFR Part 63.

Georgia Rule (d) [391-3-1-.02(2)(d)] contains requirements for fuel burning equipment. Emissions that may be regulated under Georgia Rule (d) include PM, opacity, and NO_X. Rule 391-3-1-.02(2)(d)3 limits the opacity of visible emissions for fuel burning equipment to less than 20 percent except for one six-minute period per hour of not more than 27 percent. Rule 391-3-1-.02(2)(d)2 limits particulate matter from new fuel burning equipment (constructed after June 1, 1972). The Hot Oil Heater (3550) and the miscellaneous heaters and ovens (2100) are subject to a limit of 0.5 lb/MMBTU and the Boiler (3460) is subject to a limit of $0.5(10/R)^{0.5}$ lb/MMBTU, where R is equal to the heat input for the unit. These rules are generally subsumed by more stringent opacity and particulate matter limits under 40 CFR Part 52.21, 40 CFR Part 60, and/or 40 CFR Part 63. All of the fuel-burning units are below the size threshold that would cause them to be subject to the NO_x limits contained in Rule 391-3-1-.02(2)(d)4.

Georgia Rule (g) [391-3-1-.02(2)(g)2] contains restrictions on fuel sulfur content for all fuel-burning units. Based on their sizes, Rule (g) specifies that the Boiler, Hot Oil System, and the miscellaneous ovens and heaters cannot burn a fuel with a sulfur content of more than 2.5% by weight under this rule. Rule (g) limits may be subsumed by more stringent limits under 40 CFR Part 52.21 or 40 CFR Part 60.

Georgia Rule (jj) [391-3-1-.02(2)(jj)] limits VOCs from surface coating of flat wood paneling. The laminating and wet line prefinishing areas are subject to this standard, which limits VOCs to 6 pounds per 1,000 square feet of coated finished product. Rule (jj) limits may be subsumed by more stringent limits under 40 CFR Part 52.21 or 40 CFR Part 63.

Federal Rule - PSD

The regulations for PSD in 40 CFR 52.21 require that any new major source or modification of an existing major source be reviewed to determine the potential emissions of all pollutants subject to regulations under the Clean Air Act. The PSD review requirements apply to any new or modified source which belongs to one of 28 specific source categories having potential emissions of 100 tons per year or more of any regulated pollutant, or to all other sources having potential emissions of 250 tons per year or more of any regulated pollutant. They also apply to any modification of a major stationary source which results in a significant net emission increase of any regulated pollutant.

The PSD regulations require that any major stationary source or major modification subject to the regulations meet the following requirements:

- Application of BACT for each regulated pollutant that would be emitted in significant amounts;
- Analysis of the ambient air impact;
- Analysis of the impact on soils, vegetation, and visibility;
- Analysis of the impact on Class I areas; and
- Public notification of the proposed plant in a newspaper of general circulation

Definition of BACT

The PSD regulation requires that BACT be applied to all regulated air pollutants emitted in significant amounts. Section 169 of the Clean Air Act defines BACT as an emission limitation reflecting the maximum degree of reduction that the permitting authority (in this case, EPD), on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such a facility through application of production processes and available methods, systems, and techniques. In all cases BACT must establish emission limitations or specific design characteristics at least as stringent as applicable New Source Performance Standards (NSPS). In addition, if EPD determines that there is no economically reasonable or technologically feasible way to measure the emissions, and hence to impose and enforceable emissions standard, it may require the source to use a design, equipment, work practice or operations standard or combination thereof, to reduce emissions of the pollutant to the maximum extent practicable.

The BACT determination should, at a minimum, meet two core requirements.[1] The first core requirement is that the determination follow a "top-down" selection approach. The second core requirement is that the selection of a particular control system as BACT must be justified in terms of the statutory criteria and supported by the record and must explain the basis for the rejection of other more stringent candidate control systems.

EPD's procedures for performing a top down BACT analysis are set forth in EPA's Draft New Source Review Workshop Manual (Manual), dated October 1990. One critical step in the BACT analysis is to determine if a control option is technically feasible.[2] If a control is determined to be infeasible, it is eliminated from further consideration. The Manual applies several criteria for determining technical feasibility. The first is straightforward: if the control has been installed and operated by the type of source under review, it is demonstrated and technically feasible.

For controls not demonstrated using this straightforward approach, the Manual applies a more complex approach that involves two concepts for determining technical feasibility: availability and applicability.

[1] The discussion of the core requirements is taken from the Preamble to the Proposed NSR Reform, 61 FR 38272.

[2] Discussion on technical feasibility is taken from the PSD Final Determination for AES Londonberry, L.L.C., Rockingham County, New Hampshire, authored by the U.S. EPA Region I, Air Permits Program.

A technology is considered available if it can be obtained through commercial channels. An available control is applicable if it can be reasonably installed and operated on the source type under construction. A technology that is available and applicable is technically feasible.

The Manual provides some guidance for determining availability. For example, a control is generally considered available if it has reached the licensing and permitting stages of development. However, the Manual further provides that a source would not be required to experience extended time delays or resource penalties to allow research to be conducted on new technologies. In addition, the applicant is not expected to experience extended trials learning how to apply a technology on a dissimilar source type. Consequently, technologies in the pilot scale testing stages of development are not considered available for BACT.

As mentioned before, the Manual also requires available technologies to be applicable to the source type under construction before a control is considered technically feasible. For example, deployment of the control technology on the existing source with similar gas stream characteristics is generally a sufficient basis for concluding technical feasibility. However, even in this instance, the Manual would allow for an applicant to make a demonstration on the contrary. For example, an applicant could show that unresolved technical difficulties with applying a control to the source under consideration (e.g., size of the unit, location of the proposed site, and operating problems related to the specific circumstances of the source) make a control technically infeasible.

According to the Environmental Appeals Board (see In re: Kawaihae Cogeneration Project, 7 E.A.D. 107 at page 1996, EAB 1997), the section on "collateral environmental impacts" of a proposed technology has been interpreted to mean that "if application of a control system results directly in the release (or removal) of pollutants that are not currently regulated under the Act, the net environmental impact of such emissions is eligible for consideration in making the BACT determination." The Appeals Board continues, "The Administration has explained that the primary purpose of the collateral impacts clause is… to temper the stringency of the technological requirements whenever one or more of the specified collateral impacts – energy, environmental, or economic – renders the use of the most effective technology inappropriate." Lastly, the Appeals Board states, "Unless it is demonstrated to the satisfaction of the permit issuer that such unusual circumstances exist, then the permit applicant must use the most effective technology."

The five steps of a top-down BACT review procedure identified by EPA per BACT guidelines are listed below:

- Step 1: Identification of all control technologies;
- Step 2: Elimination of technically infeasible options;
- Step 3: Ranking of remaining control technologies by control effectiveness;
- Step 4: Evaluation of the most effective controls and documentation of results; and
- Step 5: Selection of BACT.

The following is a discussion of the applicable federal rules and regulations pertaining to the equipment that is the subject of this preliminary determination, which is then followed by the top-down BACT analysis.

Federal Rule – New Source Performance Standards

The New Source Performance Standards (NSPS) contained in 40 CFR Part 60 that potentially apply to the Plant are discussed in the following sections.

The only MDF Plant source that is potentially subject to the NSPS is the natural gas-fired boiler (Source Code: 3460). In 40 CFR 60, Subpart Dc, NSPS are specified for boilers constructed after June 9, 1989 having a heat input capacity of 100 MMBTU/hour or less, but greater than or equal to 10 MMBTU/hour. The boiler at the MDF Plant is rated at 62.5 MMBTU/hour and was constructed after June 9, 1989. Since the criteria are met, the unit is subject to the requirements of NSPS Subpart Dc. Subpart Dc contains standards for sulfur dioxide and particulate matter. However, since the boiler does not combust oil, coal or wood, the sulfur dioxide standards and particulate matter standards do not apply. Even though the boiler is not subject to the sulfur dioxide or particulate matter emission limitations, there are a number of record keeping and reporting requirements that apply as cited in 40 CFR 60.48c(a), (g), and (i). Since the boiler is not being modified nor reconstructed as part of the proposed project, the unit is not subject to the recently promulgated changes to NSPS Subpart Dc.

The boiler at the Plywood Plant is not being modified as a result of this project. There are some minor piping changes planned around the MDF/Panelboard Plants to allow the transport of MDF trim to the fuel house bin for the Plywood Plant Boiler. Additional piping changes will be required to transport the steam from the steam header at the Plywood Plant to the MDF Plant processes. However, the Plywood Plant Boiler itself will not be modified. As such, NSPS applicability for the Plywood Plant Boiler is not impacted by this project.

There are two UF resin tanks present at the MDF Plant (Emission Units 3991 and 3992). Each of these tanks has a capacity of 13,000 gallons. At the time of construction, the threshold for coverage of storage tanks under NSPS Subpart Kb was 40 cubic meters (10,568 gallons). Since the capacity of the two tanks exceeded this threshold, they were subject to some very minor recordkeeping requirements. However, in October 2003, Subpart Kb was modified, with the threshold for coverage increased to 75 cubic meters (19,815 gallons). As such, these two tanks are no longer subject to the requirements of Subpart Kb and the requirements associated with this rule are being removed from the facility permits.

Federal Rule – National Emission Standards for Hazardous Air Pollutants

There are currently four (4) National Emission Standards for Hazardous Air Pollutants (NESHAPs) rules that are applicable for the MDF and/or Finishing Plant sources. In summary, these are as follows:

- Wood Furniture (surface coating) (40 CFR 63, Subpart JJ)
- Plywood and Composite Wood Products (40 CFR 63, Subpart DDDD)
- Wood Building Products (surface coating) (40 CFR 63, Subpart QQQQ)
- Industrial, Commercial and Institutional Boilers and Process Heaters (40 CFR 63, Subpart DDDDD)

The applicability and requirements for each of these rules are discussed further in the following sections.

The MACT regulations for Wood Furniture Manufacturing (Surface Coating) operations are contained in 40 CFR 63, Subpart JJ. This rule is applicable to the finishing operations associated with wood furniture components. Prior to the promulgation of Subpart QQQQ for Wood Building Products (Surface Coating), only that portion of the production associated with the wood furniture components was subject to Subpart JJ. At the Monticello Plant, approximately 85 to 90 percent of the finished board production meets the definition of Wood Building Products and is therefore subject to the provisions of Subpart QQQQ. The remaining 10 to 15 percent meets the definition of Furniture Component and this is the portion of the production that has been subject to Subpart JJ.

The MACT regulations for Industrial, Commercial and Institutional Boilers and Process Heaters are contained in 40 CFR 63, Subpart DDDDD. These rules were promulgated on September 13, 2004 with a final compliance date of September 13, 2007. A number of emission units at the MDF Plant are potentially subject to this rule, including the boiler (Source 3460), the Thermal Hot Oil System (Source 3550) and the various burners and heaters associated with the Wet-Line and Laminating Line. All of the units fire natural gas. With the exception of the boiler, all of the units have a rated capacity less than 10 MMBTU/hour. As such, these units are in the *small gaseous fuel subcategory* as defined at 40 CFR 63.7575. For this category, 40 CFR 63.7506(c)(3) clearly states that, "…the affected boilers and process heaters listed in paragraphs (c)(1) through (4)…are not subject to the initial notification requirements…and are not subject to any requirements in this subpart or in subpart A of this part…". As such, although these are "affected" sources, there are no requirements in the rule. The boiler has a rated capacity of 62.5 MMBTU/hour. Therefore, it is in the *large gaseous fuel subcategory*. According to 40 CFR 63.7506(b)(1), "The affected boilers and process heaters listed in paragraphs (b)(1) through (3)…are subject to only the initial notification requirement…". The Monticello Boiler meets the description provided in the referenced sections. The initial notification was filed for this unit prior to the March 12, 2005 deadline.

The MACT regulations for Plywood and Composite Wood Products (PCWP) operations are contained at 40 CFR 63, Subpart DDDD. These rules were originally promulgated on July 30, 2004. EPA subsequently granted a petition for reconsideration of certain provisions in the final rule. In response, in July 2005, EPA proposed revisions to the rule. Based on comments received, EPA promulgated amendments to the PCWP MACT rule on February 16, 2006. The original compliance date for existing sources, such as those at the MDF Plant, was October 1, 2007. However, the February 2006 rule extended this deadline by one year, to October 1, 2008. The PCWP MACT rules apply to operations at the MDF Plant. The Initial Notification was submitted prior to the January 26, 2005 deadline and the facility will have to be in full compliance with the provisions of the rule prior to October 1, 2008.

State and Federal – Startup and Shutdown and Excess Emissions

Excess emission provisions for startup, shutdown, and malfunction are provided in Georgia Rule 391-3-1-.02(2)(a)7. Excess emissions from the units associated with the proposed modification will most likely result from a malfunction of the associated control equipment. The facility must minimize emissions during periods of startup, shutdown, and malfunction.

Federal Rule – 40 CFR 64 – Compliance Assurance Monitoring

Under 40 CFR 64, the *Compliance Assurance Monitoring* Regulations (CAM), facilities are required to prepare and submit monitoring plans for certain emission units with the Title V application. The CAM Plans are to provide an on-going and reasonable assurance of compliance with emission limits. Under the general applicability criteria, this regulation applies to units that use a control device to achieve compliance with an emission limit and whose pre-controlled emissions levels exceed the major source thresholds under the Title V permitting program. Although other units at this plant will potentially be subject to CAM upon renewal of the Title V operating permit, such units are not being modified under the proposed project and need not be considered for CAM applicability at this time.

All of the controlled emission sources at the MDF Plant are classified as "other pollutant-specific emissions units". Per 40 CFR 64.5(b), CAM plans for these sources are due at the time of renewal of the Title V permit.

4.0 CONTROL TECHNOLOGY REVIEW

For this PSD application, review is triggered for particulate matter (PM), ozone [based on a significant increase in volatile organic compound (VOC) emissions], nitrogen oxides (NO_x) and carbon monoxide (CO). As such, the BACT analysis has been completed for these pollutants.

None of the sources involved in this project are being physically modified and the prior annual limit of 250 MMSF was not accepted to avoid PSD review. Minor anticipated refinements (*e.g.,* improved synchronization, improved resin formulations, and other efforts to reduce downtime and increase utilization) taken either individually or as a group, do not qualify as modifications (*i.e.,* physical change or change in the method of operation) under the PSD regulations. However, the project is undergoing PSD review because, in some cases, the Plant is requesting limits higher than what is currently allowed. Part of this project involves the conversion of the existing RTO to a Hybrid TCO in order to reduce fuel costs. The Hybrid TCO designation reflects the fact that the unit is a hybrid that can operate in either catalytic or thermal mode. An RTO utilizes a ceramic heat exchange media. The conversion to a catalytic unit involves the addition of a layer of catalyst on top of the existing ceramic saddles. A small portion of the ceramic media may be removed in order to accommodate the catalyst layer. The primary advantage of operating in catalytic mode is that the same level of design pollutant destruction is maintained, but at lower operating temperatures (generally in the range of 600 to 1,000 degrees Fahrenheit). As a result, less supplemental fuel is required, reducing both cost and combustion-related emissions. Since the operation of the unit as a Hybrid TCO will be different than what was originally permitted, a BACT analysis was conducted for the dryer and the press.

For the MDF Plant Boiler, there are no modifications being proposed as part of this project. The unit will continue to fire clean natural gas. It is likely that this unit will actually be utilized less in the future since this project also requests approval to utilize steam generated by the wood-fired Plywood Plant Boiler at the MDF Plant. The Plywood Plant Boiler itself will not be modified, although piping will be added to carry the steam from the header at the Plywood Plant to the MDF Plant. No increase in the permitted capacity or emission limits is being requested for either boiler.

Other sources at the MDF Plant include the Hot Oil System and a number of material handling sources. These systems will not be modified, nor is any increase being sought in the permitted capacities or limits. There are also some affected sources associated with the Wet and Laminating Lines that have been part of the Monticello Panelboard Plant in the past. Again, there are no modifications proposed for these sources.

Based on this, only the flash tube dryer (Source Code: 3407) and press (Source Code: 3508) at the MDF Plant are required to be addressed as part of the BACT analysis.

(1) - BACT for Dryer (Source Code 3407)

The MDF dryer is indirectly steam heated with heat supplied by the Plant's boiler (and the Plywood Plant Boiler in the future). Most MDF dryers are direct-fired or use flue gas heat for drying. Both processes create totally different emissions. The steam heated dryer is much "cleaner" than the standard wood fueled direct heated dryer. The MDF Plant dryer emits wood dust, extracted organics (volatile organic compounds), and minor quantities of compounds usually considered to be combustion products (*e.g.,* carbon monoxide, nitrogen oxides, etc.) due to limited thermal decomposition (partial combustion) of wood furnish components during the drying process. The evaporated, extractable compounds, primarily consisting of terpenes and wood resins or pitch, are unique to wood drying. The quantity of these materials present in the dryer exhaust is dependent on the extractive content of the wood furnish, with softwood containing considerably more extractives than hardwoods. Because of the boiling point characteristics, a portion of the wood resin contributes to both particulate matter and volatile organic compounds.

Nitrogen Oxides (NO_x)

Step 1: Identify all Control Technologies

The following control alternatives were identified:

- Regenerative thermal oxidation (RTO) with low-NO_x burners
- Low-NO_x burners
- Low-NO_x burner with flue gas recirculation (FGR)
- Proper combustion practices
- Selective non-catalytic reduction (SNCR)

Step 2: Eliminate Technically Infeasible Options

A Direct Fired Dryer generates little or no NO_x emissions. Therefore, the minimal quantity of NO_x emissions estimated to be emitted by the steam-heated dryer is the result, primarily, of background sources (*e.g.,* fork trucks, etc.). Therefore, combustion modifications, such as low-NO_x burners, with or without flue gas recirculation, are not feasible. For the same reasons, add-on controls, such as selective catalytic reduction (SCR) and selective non-catalytic reduction (SNCR), are not technically feasible.

The primary source of the NO_x emissions associated with this process is natural gas combustion in the existing RTO whose purpose is to control PM, CO and VOC emissions. The existing unit is equipped with low-NO_x burner technology. Due to the varying air flow rates inside of this type of control device, ultra-low-NO_x burners are not technically feasible.

Step 3: Rank Remaining Control Technologies by Control Efficiency

NO_x emissions are not directly generated in the steam-heated dryer. Furthermore, the exhaust gas temperature is not sufficient to allow the use of SCR or SNCR systems, even to treat the background NO_x emissions that may be measured in the dryer exhaust. As such, there are no feasible NO_x control options for the dryer. The only feasible option for the Hybrid TCO is the use of low-NO_x burner technology. This technology has already been incorporated into the design of the existing RTO and will remain as it is transformed into the Hybrid TCO.

Step 4: Control Effectiveness Evaluation

There are no remaining technically feasible control options to be evaluated for cost effectiveness.

Step 5: Select BACT

When taking into consideration all of the pollutants (see further discussion for remaining pollutants), a Hybrid TCO, equipped with low-NO_x burners, is found to represent BACT.

Carbon Monoxide (CO)

Step 1: Identify all Control Technologies

As is the case with NO_x, since the dryer is steam-heated, the quantity of CO emissions in the exhaust is minimal and is attributable to various background sources, such as fork trucks or other equipment, or from limited thermal decomposition (partial combustion) of the wood in the dryer. As such, good combustion control or other combustion modification techniques that might normally be used to control CO emissions, are not applicable in this case. The majority of the CO associated with this process originates from the combustion of natural gas in the existing RTO that is in place to control PM, CO, and VOC emissions from the dryer and press.

The following control alternatives were identified:

- Good combustion controls
- RCO
- RTO

Step 2: Eliminate Technically Infeasible Options

Since the minimal quantity of CO emissions estimated for the steam-heated dryer is the result, primarily, of background sources, combustion modifications and/or good combustion practices are not feasible techniques to reduce CO emissions from the dryer. Other add-on controls, such as an RCO and RTO are, however, considered to be technically feasible for this application. If a Hybrid TCO were installed to solely reduce the minimal quantity of emissions from the steam-heated dryer and the press, it would not be economically feasible. The RTO (that is proposed for conversion to a Hybrid TCO) was put in place primarily for the control of VOCs and PM. The control of CO is a side benefit of having the control system in place.

Step 3: Rank Remaining Control Technologies by Control Efficiency

As discussed above, combustion modifications and/or good combustion practices are not feasible techniques to reduce CO emissions from the dryer. However, add-on controls, specifically RTO, RCO and the Hybrid TCO are considered to be technically feasible for this application.

Step 4: Control Effectiveness Evaluation

Since there is only one control option (with minimal variations) available for CO, a cost effectiveness evaluation is not presented.

Step 5: Select BACT

When taking into consideration all of the pollutants (see further discussion for remaining pollutants), a Hybrid TCO is found to represent BACT.

Volatile Organic Compounds (VOCs)

Step 1: Identify all Control Technologies

The following control options were considered to have a practical potential for application to MDF drying:

- RTO with particulate matter pre-cleaning
- RCO with particulate matter pre-cleaning
- Exhaust gas recycle with indirect heat exchange
- Biological air filtration (biofilter) with particulate matter control

All four options are capable of controlling VOC, PM and CO emissions. Biofilters are reported to control NO_x emissions as well.

RTO technology has been around for many years, but has only been applied to the wood products industry for approximately the past 15 years. The RTO relies on thermal oxidization to destroy organic PM/PM_{10}, VOC and CO emissions at temperatures over 1,400 °F. To increase the thermal efficiency of the system, ceramic beds are used to preheat the inlet air prior to combustion. This technology is very effective in the destruction of VOCs, CO and organic particulate matter. However, the RTO is ineffective at removing inorganic particulate matter and it generates some NO_x and CO from the combustion of natural gas (or propane) in order to reach the desired temperature. Inorganic particulate matter and condensable organics may cause fouling of the ceramic beds. The RTO can operate at, or close to the melting point of some of the inorganic particulate matter present in the dryer exhaust gases. Once melted, these by-products can permanently adhere to the ceramic bed, resulting in the occurrence of plugging, with the possibility of premature bed failure. Occasional bed burn-out and/or wash-out is required to clear the bed of inorganic particulate matter and to reduce the pressure drop build-up from the plugging. For this reason, RTO vendors universally recommend a high degree of pre-cleaning, often through the use of high efficiency cyclones, rotary bed protectors, or wet electrostatic precipitators (ESPs).

The RCO is similar in nature to the RTO except that a catalyst is employed to oxidize the VOCs. This unit operates at a much lower temperature (generally in the range of 600 to 1,000 °F), thus providing operational savings by burning less fuel (natural gas or propane). Destruction efficiency is similar to that of the RTO system, but it produces less NO_x and CO because of the reduced fuel consumption. As is the case with an RTO, additional inorganic particulate matter control may be required upstream of the RCO to prevent ceramic bed fouling.

As part of this project, the Monticello Plant is proposing to convert the existing RTO to a Hybrid TCO, which is a hybrid unit that can operate in either catalytic or thermal mode. The conversion to a catalytic unit involves the addition of a layer of catalyst on top of the existing ceramic saddles. A small portion of the ceramic media may be removed in order to accommodate the catalyst layer. The primary advantage of operating in catalytic mode is that the same level of design pollutant destruction is maintained, but at lower operating temperatures, thus conserving natural gas and reducing both operating cost and emissions.

Another example of a high temperature oxidation control device is dryer exhaust recycle, which represents an example of a process change that eliminates the need for end-of-the-pipe control of organics. The system is based on proven components and has a control efficiency similar to that of an RTO/RCO, in excess of 90 percent.

Biofiltration is another option with the potential to reduce VOCs, as well as particulate matter. Biofiltration technology does not require natural gas to combust VOCs, therefore offering a substantial savings over both RTO and RCO. Exhaust gases from the dryer would be directed to the biofiltration unit after passing through a pre-cleaning device, such as a quench chamber, where water is sprayed into the chamber to cool the gas stream and to remove larger particles. This gas would then be passed through filter beds, which house micro-organisms. Here, VOCs and additional particulate matter are captured and degraded by the micro-organisms. The degradation process is aerobic and complete. The end products include carbon dioxide, water, mineral salts and biomass. While a number of different filter beds have been tested (*e.g.,* wood, bark shavings, chips, etc.), the filter of choice is activated carbon. Though more expensive, it provides for longer bed life without compaction. Bed temperatures need to be kept fairly constant for greatest efficiency and to prevent harm to the micro-organisms. The system requires a fairly large surface area for the beds and is predicted to have a maximum control efficiency of 80 percent for VOCs.

Step 2: Eliminate Technically Infeasible Options

The RTO, the RCO, and the Hybrid TCO have been shown to be successfully proven in this application.

The strict temperature limitations on biofiltration technology limit its potential to gas streams that can be consistently maintained below approximately 105°F. This is not the case with the MDF dryer exhaust unless very large quantities of dilution air are introduced. It should also be noted that other wood products manufacturing facilities have been unable to maintain high VOC removal efficiencies on a continuing basis.

An exhaust gas recycle system requires a high temperature heat exchanger in order to transfer heat from the heat source to the ambient air used to dry the wood. This requires very costly materials of construction. For this reason, exhaust gas recycle, which achieves VOC control at the about the same percent as a TCO, is not considered further.

Step 3: Rank Remaining Control Technologies by Control Efficiency

As discussed above, an exhaust gas recycle system is not considered feasible for this application. Although the Monticello Plant believes that a biofilter is not feasible in this application, it is included in the ranking. The only truly feasible options remaining are RTO, RCO and Hybrid TCO. These controls are ranked in Table 2:

Table 4-1: Ranking of VOC Control Options for Dryer

VOC Control Option	Effectiveness (%)
RTO w/pre-cleaning	90+
RCO w/pre-cleaning	90+
Hybrid TCO w/pre-cleaning	90+
Biofilter	80

Since GP is committed to operating a Hybrid TCO to control VOC emissions from the dryer and the press and this technique has the highest estimated removal efficiency, along with the RTO and RCO, there is no need to conduct an economic analysis.

Step 4: Control Effectiveness Evaluation

Since the Monticello Plant is committed to operating a Hybrid TCO to control VOC emissions from the dryer and the press and this technique has the highest estimated removal efficiency, a cost-effectiveness assessment was not conducted. It also reduces the generation of NO_X when in RCO mode, but allows the flexibility to operate as a RTO if the catalyst fails and must be removed. It is also economically beneficial for the facility to use the same Hybrid TCO to control emissions from both the dryer and the press.

Step 5: Select BACT

When taking into consideration all of the pollutants (see further discussion for other pollutants), a Hybrid TCO with a pre-filter is found to represent BACT.

Particulate Matter (PM/PM_{10})

Step 1: Identify all Control Technologies

The following control options can be considered to have a practical potential for application to MDF drying:

- RTO with particulate matter pre-cleaning
- RCO with particulate matter pre-cleaning
- Wet Electrostatic Precipitator (ESP)
- Wet Scrubber
- Baghouse

The RTO, the RCO and the Hybrid TCO have been discussed previously. These devices are very effective in removing VOCs, CO and PM.

An ESP is a collection device that uses electromotive forces to drive particles out of a gas stream onto collector plates. Electrodes in the center of the gas stream are maintained at a high voltage, which charges the particles. Wet ESPs operate a wet wall on the back of an ESP, with either continuous or intermittent water flow. The water flow is collected into a sump. ESPs have been proven on a wide variety of sources. Their application to wood dryer exhaust gas streams necessitates gas stream saturation equipment and wet electrode cleaning, due to the sticky nature of the particulate matter. This increases the operational complexity considerably and adds the additional complication of an extensive wastewater treatment requirement. Corrosion of internal metal surfaces can be reduced with stainless steel, but it is still a concern. The degree of particulate matter control possible is very high. Wet ESPs have been employed on wood dryer exhaust gas streams in several commercial scale applications. They are very efficient on filterable particulate matter as measured by US EPA Reference Method 5. However, when total filterable and condensable particulate mater control efficiency is evaluated, the overall control efficiency drops.

Wet scrubbers are collection devices that trap wet particles in order to remove them from a gas stream. They utilize inertial impaction and/or Brownian diffusion as the particle collection mechanism. Wet scrubbers generally use water as the cleaning liquid. Water usage and wastewater disposal requirements are important factors in the evaluation of a scrubber alternative. Types of scrubbers include spray scrubbers, cyclone scrubbers, packed-bed scrubbers, plate scrubbers and venturi scrubbers. The most common particulate matter removal scrubber is the venturi scrubber because of its simplicity (*i.e.,* no moving parts) and high collection efficiency. In this type of scrubber, a gas stream is passed through a venturi section, before which, a low-pressure liquid (usually water) is added to the throat. The liquid is atomized by the turbulence in the throat and begins to collect particles impacting the liquid as a result of differing velocities for the gas stream and atomized droplets. A separator is used to remove the particles or liquid from the gas stream. The most important design consideration is the pressure drop across the venturi. Generally, the higher the pressure drop, the higher the collection efficiency.

Baghouses are commonly used to remove particulate matter emissions where no VOCs are present. Exhaust gases are passed across a series of Nomex (or other type of filter material) bags which collect the particulate matter. A reverse air or pulse air system removes the particulates from the bags.

Step 2: Eliminate Technically Infeasible Options

The RTO, the RCO and the Hybrid TCO are considered technically feasible for the control of particulate matter from MDF dryers. Wet ESPs and scrubbers can be used in this application as well. Baghouses, on the other hand, would not typically be used on moist and resinous dryer gases because of fouling and the potential to “blind” the bags.

Step 3: Rank Remaining Control Technologies by Control Efficiency

As discussed above, the RTO, the RCO and the Hybrid TCO are considered technically feasible when utilized in conjunction with a pre-cleaning device for particulate matter. Wet ESPs and scrubbers are also considered to be technically feasible.

These controls are ranked by control effectiveness in Table 3 as follows:

Table 4-2: Ranking of PM Control Options for Dryer

PM Control Option	Effectiveness (%)
RTO w/pre-cleaning	90+
RCO w/pre-cleaning	90+
Hybrid TCO w/pre-cleaning	90+
Wet ESP	80 – 90+
Wet Scrubber	80

A listing in the RACT/BACT/LAER Clearinghouse (RBLC) for Paragon Panels indicates the use of a baghouse with an RTO. However, this facility is yet to be constructed so the technology is not demonstrated in that application. There are serious concerns with the use of a baghouse on moist and resinous dryer gases because of fouling and the potential to "blind" the bags. Also, while an RBLC entry for a Montana facility indicates a wet venturi scrubber with a biofilter, only the wet scrubber is highly effective in removing particulate matter. PM control efficiencies for biofilters are typically found to be in the range of only 0 to 5%.

While wet ESPs are very efficient at removing filterable particulate matter (90%+), when total filterable and condensable particulate matter control efficiency is evaluated, the overall control efficiency can drop to near 80%. Similarly, for wet scrubbers, the degree of control possible is very high for gas streams without a large fraction of submicron-sized particles. However, the exhaust from an MDF dryer contains a significant percentage of very small inorganic and organic particulate matter. For this reason, venturi scrubbers would only achieve a control efficiency of 80%, based on information provided by scrubber vendors.

Step 4: Control Effectiveness Evaluation

Since the Monticello Plant is committed to operating a Hybrid TCO to control PM emissions from the dryer and the press and this technique has the highest estimated removal efficiency, a cost-effectiveness assessment was not conducted.

Step 5: Select BACT

The Monticello Plant proposes a Hybrid TCO with a pre-filter as BACT for the dryer.

Conclusion for Dryer BACT

This combination of a Hybrid TCO, with a pre-filter and low-NO_x burners, jointly addresses all of the pollutants (PM, NO_x, CO and VOCs) emitted by the dryer that are subject to PSD and BACT review as part of this project.

Table 4-3: BACT Summary for the Flash Tube Dryer (Source Code 3407)

Pollutant	Control Technology	Proposed BACT Limit
NOx	Hybrid TCO with low NOx burners	5.1 pounds per hour
CO	Hybrid TCO	14.2 pounds per hour
VOC	Hybrid TCO with a prefilter	15.4 pounds per hour
PM	Hybrid TCO with a prefilter	6.6 pounds per hour

(2) - BACT for Press (Source Code 3508)

The board press is the final step in the MDF manufacturing process, prior to finishing. A mat of resinated furnish is continuously formed and fed to the press as a continuous sheet. When the rollers come into contact with the mat, the mat is heated, under pressure, to cure the urea-formaldehyde resin to hold the wood fibers together. Hot gases exiting the press would normally exhaust through building vents. However, as originally constructed, the gases from the press at the MDF Plant are directed to the same RTO which control the dryer. The design of the press incorporates as much of a total enclosure of the operation as possible, so capture efficiency can be assumed to be 100%. As discussed above, this PSD application proposes to convert the existing RTO to a Hybrid TCO that can operate either in thermal or catalytic mode. It is economically beneficial for the facility to use the same Hybrid TCO to control emissions from both the dryer and the press.

As with the board drying operation, selection of control options for the board press pollutant emissions must consider the high moisture content of the gas stream and the condensable VOC material present. There is also a small amount of particulate matter to consider. These considerations limit the control options to those systems that have been either demonstrated in practice (at least on a pilot scale) to be able to operate in the previously described conditions or can be reasonably expected to handle the conditions based on applications with similarly harsh conditions.

Nitrogen Oxides (NO_x)

<u>Step 1: Identify all Control Technologies</u>

The press is indirectly heated with hot oil and does not contain any burners. The small quantity of NO_x emissions estimated for this unit is an engineering estimate of background emissions that might be emanating from fork trucks or other equipment. As such, combustion-based controls, such as low-NO_x burners or low excess air firing, are not feasible for reducing NO_x emissions from this source.

A summary of the control technologies considered is as follow:

- RTO with low-NO_x burners
- Low-NO_x burners
- No controls
- RTO/Hybrid TCO with low-NO_x burners

As discussed above for the dryer, the majority of the NO_x associated with this process actually originates from the combustion of natural gas in the existing RTO that is in place to control PM, CO, and VOC emissions from the dryer and press. The existing unit is equipped with low-NO_x burner technology.

Step 2: Eliminate Technically Infeasible Options

Since the minimal quantity of NO_x emissions estimated for the press is the result, primarily, of background sources, combustion modifications, such as low-NO_x burners, are not feasible.

The primary source of the NO_x emissions associated with this process is a result of natural gas combustion in the existing RTO that is in place to control PM, CO, and VOC emissions from the dryer and press. The existing unit is equipped with conventional low-NO_x burner technology. As discussed above for the dryer, ultra low-NO_x burners are only suitable for operation in a control device that has a steady and consistent air flow rate.

Step 3: Rank Remaining Control Technologies by Control Efficiency

NO_x emissions are not directly generated in the press. As such, there are no feasible NO_x control options for the press. The only feasible option for the Hybrid TCO is the use of low-NO_x burner technology. This technology is incorporated into the design of the existing RTO.

Step 4: Control Effectiveness Evaluation

There are no remaining technically feasible control options to be evaluated for cost effectiveness.

Step 5: Select BACT

When taking into consideration all of the pollutants (see further discussion for remaining pollutants), a Hybrid TCO, equipped with low-NO_x burners is found to represent BACT.

Carbon Monoxide (CO)

Step 1: Identify all Control Technologies

Similar to the discussion for NO_x emissions above, CO emissions from a board press are primarily the result of CO emissions that have been generated from other sources, such as the exhaust from fork lift trucks, floor sweepers or other mobile sources operating inside the manufacturing building. The manufacturing process is not thought to generate significant quantities of CO emissions. The small quantity of CO emissions estimated for this unit is an engineering estimate of background emissions.

A summary of the control technologies is as follows:

- RTO

The Monticello Plant is not aware of any other add-on controls that have been used for the control of CO emissions from MDF presses.

As discussed above for the dryer, the majority of the CO associated with this process originates from the combustion of natural gas in the existing RTO that is in place to control PM and VOC emissions from the dryer and the press. The RTO is also effective in the destruction of CO. However, in this case, the press itself is not generating CO emissions. As such, the RTO was installed to control PM and VOC emissions.

Step 2: Eliminate Technically Infeasible Options

Since the minimal quantity of CO emissions estimated for the press is the result, primarily, of background sources, combustion modifications and/or good combustion practices are not feasible techniques to reduce CO emissions from this source. Other add-on controls, such as an RCO and RTO are, however, considered to be technically feasible for this application. If a Hybrid TCO were installed solely to reduce the minimal quantity of emissions from the steam-heated dryer and the press, it would not be economically feasible. The RTO (that is proposed for conversion to a Hybrid TCO) was put in place primarily for the control of VOCs and PM. The control of CO is a side benefit of having the control system in place. It is also economically beneficial for the facility to use the same Hybrid TCO to control emissions from both the dryer and the press.

Step 3: Rank Remaining Control Technologies by Control Efficiency

As discussed above, combustion modifications and/or good combustion practices are not feasible techniques to reduce CO emissions from the press. Other add-on controls, such as the RCO and the RTO are, however, considered to be technically feasible for this application.

The only feasible options remaining include the RTO, the RCO and the Hybrid TCO.

Step 4: Control Effectiveness Evaluation

Since there is only one control option (with minimal variations) available for CO, a cost effectiveness evaluation is not presented.

Step 5: Select BACT

When taking into consideration all of the pollutants (see further discussion for remaining pollutants), a Hybrid TCO is found to represent BACT.

Volatile Organic Compounds (VOCs)

Step 1: Identify all Control Technologies

The following control options can be considered to have a practical potential for application to MDF presses:

- RTO/Hybrid TCO
- RCO
- Biological air filtration (biofilter)

These technologies are capable of controlling VOC, PM and CO emissions. In addition, a wet ESP, which is primarily a particulate matter control device (discussed below), has some limited potential for VOC control. The operation of these technologies for a press is essentially the same as for a dryer. Due to the fact that the air flow and particulate matter loading from the press are less, and the moisture content is somewhat lower, it is not necessary to use a particulate matter pre-cleaning device to treat the flue gases from the press. In the existing configuration at the MDF Plant, the flue gases from the dryer pass through the rotary bed protector and then to the RTO. The flue gases from the press are introduced downstream of the rotary bed protector and prior to the RTO.

Step 2: Eliminate Technically Infeasible Options

Both the RTO and the RCO, and the Hybrid TCO have been successfully proven in this application.

Biofilter pilot testing has shown that VOCs, CO, particulate matter, and even NO_x, can be controlled for OSB presses. However, at least two facilities using this technology in Michigan and Georgia have been unable to maintain high VOC removal efficiencies on a continuing basis. A full-scale biofilter has recently started up, or will start-up, in the near future at an OSB facility in Oklahoma. The BACT determination for that unit specified 70% control of VOCs with a biofilter.

Step 3: Rank Remaining Control Technologies by Control Efficiency

As discussed above, the RTO, the RCO, the Hybrid TCO and the biofilter are technically feasible for this application. The biofilter cannot achieve the control efficiency of an incinerator; also the flue gases exiting the press are at a temperature of approximately 140 °F. At least some level of dilution air would likely be needed in order to cool these gases to the optimum operating temperature (approximately 105 °F) for the biofilter.

These controls are ranked by control effectiveness in Table 4 as follows:

Table 4-4: Ranking of VOC Control Options for Press

VOC Control Option	Effectiveness (%)
RTO	90+
RCO	90+
Hybrid TCO	90+
Biofilter	80 or less

Step 4: Control Effectiveness Evaluation

Since the proposed Hybrid TCO is estimated to be more effective in the removal of VOCs than the biofilter, there is no need to develop a cost effectiveness analysis for the biofilter.

Step 5: Select BACT

When taking into consideration all of the pollutants (see further discussion for other pollutants), a Hybrid TCO is found to represent BACT.

Particulate Matter (PM/PM_{10})

Step 1: Identify all Control Technologies

The following control options can be considered to have a practical potential for application for MDF presses:

- RTO/Hybrid TCO
- RCO
- Wet ESP
- Wet Scrubber

As discussed previously, the RTO, the RCO and the hybrid TCO are also effective in removing VOCs and CO. The operation of the technologies listed above for controlling the press is essentially the same as for controlling the dryer.

Step 2: Eliminate Technically Infeasible Options

The RTO, the RCO, the Hybrid TCO, the Wet ESP and the scrubber are considered technically feasible for the control of particulate matter from the MDF presses.

Step 3: Rank Remaining Control Technologies by Control Efficiency

These controls are ranked by control effectiveness in Table 5 as follows:

Table 4-5: Ranking of PM Control Options for Press

PM Control Option	Effectiveness (%)
RTO	90+
RCO	90+
Hybrid TCO	90+
Wet ESP	80 – 90+
Wet Scrubber	80

Step 4: Control Effectiveness Evaluation

Since the Monticello Plant is already committed to operating a single Hybrid TCO to control PM emissions from both the dryer and the press, and this technique has the highest estimated removal efficiency, a cost-effectiveness assessment is not conducted.

Step 5: Select BACT

The Monticello Plant proposes a Hybrid TCO as BACT for the press.

Conclusion for Press BACT

This combination of a Hybrid TCO, with low-NO_x burners, jointly addresses all of the pollutants (PM, NO_x, CO and VOCs) that are subject to PSD and BACT review as part of this project.

Table 4-6: BACT Summary for the Press (Source Code 3508)

Pollutant	Control Technology	Proposed BACT Limit
NOx	Hybrid TCO with low NOx burners	5.1 pounds per hour
CO	Hybrid TCO	14.2 pounds per hour
VOC	Hybrid TCO	15.4 pounds per hour
PM	Hybrid TCO	6.6 pounds per hour

5.0 TESTING AND MONITORING REQUIREMENTS

The intent of this permit is to provide assurance of continuous compliance with the permit limits via testing, and monitoring conditions. In this preliminary determination, the word “compliance” refers to “continuous compliance”.

Boiler, Hot Oil System and Miscellaneous Ovens and Heaters

Testing Requirements
The original construction permit issued for the MDF Plant required initial testing of PM, NO_x and CO from the Boiler. The Hot Oil System had an initial testing requirement for PM and CO.

All of these units are fired with natural gas and, with the exception of the Boiler, all of the units are less than 10 MMBTU/hour in size. No further testing will be required for these units.

Monitoring Requirements
The Permittee will continue to be required to monitor natural gas usage in the Boiler on a monthly basis, as required by NSPS Subpart Dc.

Flash Tube Dryer and Press and Associated Pre-Filter and TCO

Testing Requirements
The original construction permit issued for the MDF Plant included testing for PM, PM_{10}, CO, NO_x, VOCs and formaldehyde within 180 days after initial start-up of the operation. That testing was carried out as required. The 1999 PSD permit modification added a one-time testing requirement for VOC destruction efficiency for the RTO as well as testing to ensure that the enclosure surrounding the former/press met the criteria for a total enclosure. That testing was carried out as required.

The Monticello MDF Plant will be required to test for PM, CO, NOx and VOC within 180 days of completion of this project. This testing is needed to provide reasonable assurance of compliance with the PSD limits in Condition 3.3.15. The testing will also be used to establish the minimum operating temperature for the unit while the TCO is operating in catalytic mode. The facility will also be required to determine (Condition 4.2.6) the capture efficiency for the board press enclosure per the requirements in 40 CFR 63 Subpart DDDD, within 180 days of completion of the project. This testing will also be used to establish a compliant negative pressure range for press capture system.

New Condition 4.2.5 is added; it requires the facility to conduct periodic testing for PM, VOC and HAP destruction efficiency once every 2 years. This testing is to help provide reasonable assurance of compliance with the PSD limits in Section 3. This condition has a provision for testing every 4 years if the performance tests show that emissions are less than 50 percent of the allowable.

If the facility chooses to switch mode and operate the Hybrid TCO in thermal mode for more than 180 days, new Condition 4.2.7 requires the facility to conduct performance tests for PM and VOC emissions. This testing is needed to provide reasonable assurance of compliance with the limits in Section 3.

Testing is also required if the current Hybrid TCO catalyst is replaced with another type of catalyst. New Condition 4.2.8 requires the facility to conduct performance tests for PM and VOC emissions if the facility decides to replace the current catalyst bed or alter it substantially. This testing is to help provide reasonable assurance of compliance with the PSD limits in Section 3.

Monitoring Requirements
As per the 1999 PSD permit, the plant is required to measure and record the combustion zone temperature of the oxidizer retention chamber in the RTO at a position prior to any substantial heat loss/exchange. The Plant is also required to measure and record the gas stream pressure at the inlet of, or the pressure drop, across the RTO. The pressure drop across the two rotary bed protectors is to be read and recorded at least once per shift.

As discussed previously, the MACT regulations for Plywood and Composite Wood Products (PCWP) operations are contained at 40 CFR 63, Subpart DDDD. These rules apply to the Monticello MDF Plant. The rule has a compliance date of October 1, 2008. For a catalytic oxidizer, the MACT requires that the unit be operated above a minimum temperature (3-hour block average) established during the performance test and that the activity level of the catalyst be checked at least once every 12 months.

The combustion temperature in the Hybrid TCO will be used as an operating parameter to monitor the HAP destruction efficiency. The facility will continue to be required to measure and record the gas stream pressure at the inlet of, or the pressure drop, across the Hybrid TCO. The facility will also be required to install a device to monitor the negative pressure inside the press system. The negative pressure monitoring on the press is needed to ensure that the board press enclosure meets specifications as outlined in 40 CFR 63 Subpart DDDD; it is the operating parameter included to monitor the HAP capture efficiency.

Material Handling Equipment

Testing Requirements
The original construction permit issued for the MDF Plant included PM testing on all of the sources, including the material handling sources, no later than 180 days after initial start-up of the operation. In order to insure that the baghouses were operating properly and in compliance on an on-going basis, the permittee was required to monitor pressure drop and perform visible emission checks.

Monitoring Requirements
The Permittee will be required to read and record the pressure drop across each baghouse at least once per day. The readings must be recorded in a log. In addition, the Permittee will be required to continue to perform checks for visible emissions from each baghouse at least once per day or portion of each day of operation. If visible emissions are determined to be present, the Permittee must determine the cause and correct the problem in the most expeditious manner possible. The pressure drop reading, cause of the visible emissions and corrective actions taken must be recorded in a log.

6.0 AMBIENT AIR QUALITY REVIEW

An air quality analysis is required to determine the ambient impacts associated with the construction and operation of the proposed modifications. The main purpose of the air quality analysis is to demonstrate that emissions from the proposed modifications, in conjunction with other applicable emissions from existing sources (including secondary emissions from growth associated with the new project), will not cause or contribute to a violation of any applicable National Ambient Air Quality Standard (NAAQS) or PSD increment in a Class I or Class II area. NAAQS exist for NO_2, CO, $PM_{2.5}$, PM_{10}, SO_2, Ozone (O_3), and lead. PSD increments exist for SO_2, NO_2, and PM_{10}.

The proposed project at the Georgia-Pacific MDF plant triggers PSD review for PM_{10}/PM, NO_x, CO, and VOC. An air quality analysis was conducted to demonstrate the facility's compliance with the NAAQS and PSD Increment for PM_{10}, NO_2, and CO. An additional analysis was conducted to demonstrate compliance with the Georgia air toxics program. This section of the application discusses the air quality analysis requirements, methodologies, and results. Please refer to Attachment D in the PSD permit application. Supporting documentation may be found in the Air Quality Dispersion Report of the application and the additional information packages submitted by the applicant.

Modeling Requirements

The air quality modeling analysis was conducted in accordance with Appendix W of Title 40 of the Code of Federal Regulations (CFR) §51, *Guideline on Air Quality Models*, and Georgia EPD's *Guideline for Ambient Impact Assessment of Toxic Air Pollutant Emissions (Revised).*

The proposed project will cause net emission increases of PM_{10}/PM, NO_x, CO, and VOC that are greater than the applicable PSD Significant Emission Rates. Therefore, air dispersion modeling analyses are required to demonstrate compliance with the NAAQS and PSD Increment. VOC does not have established PSD modeling significance levels (MSL) (an ambient concentration expressed in either $\mu g/m^3$ or ppm). Modeling is not required for VOC emissions; however, the project will likely have no impact on ozone attainment in the area based on data from the monitored levels of ozone in Bibb County and the level of emissions increases that will result from the proposed project. The southeast is generally NO_X limited with respect to ground level ozone formation.

Significance Analysis: Ambient Monitoring Requirements and Source Inventories

Initially, a Significance Analysis is conducted to determine if PM_{10}/PM, NO_x, CO, and VOC emissions increases at the Georgia-Pacific MDF would significantly impact the area surrounding the facility. Maximum ground-level concentrations are compared to the pollutant-specific U.S. EPA-established significant impact levels (SILs). The SILs for the pollutants of concern are summarized in Table 6-1.

If a significant impact (i.e., an ambient impact above the SIL) does not result, no further modeling analyses would be conducted for that pollutant for NAAQS or PSD Increment. If a significant impact does result, further refined modeling would be completed to demonstrate that the proposed project would not cause or contribute to a violation of the NAAQS or consume more than the available Class II Increment.

Under current U.S. EPA policies, the maximum impacts due to the emissions increases from a project must also be assessed against monitoring *de minimis* levels to determine whether pre-construction monitoring should be considered. These monitoring *de minimis* levels are also listed in Table 6-1. If either the predicted modeled impact from an emission increase or the existing ambient concentration is less than the monitoring *de minimis* concentration, the permitting agency has the discretionary authority to exempt an applicant from pre-construction ambient monitoring. This evaluation is required for PM_{10}/PM, NO_x, and CO.

If any off-site pollutant impacts calculated in the Significance Analysis exceed the SIL, a Significant Impact Area (SIA) would be determined. The SIA encompasses a circle centered on this facility with a radius extending out to (1) the farthest location where the emissions increase of a pollutant from the project causes a significant ambient impact, or (2) a distance of 50 km, whichever is less. All sources within a distance of 50 km of the edge of a SIA are assumed to potentially contribute to ground-level concentrations within the SIA and would be evaluated for possible inclusion in the NAAQS and PSD Increment analyses.

Table 6-1: Summary of Modeling Significance Levels

Pollutant	Averaging Period	PSD Significant Impact Level (ug/m^3)	PSD Monitoring Deminimis Concentration (ug/m^3)
PM_{10}	Annual	1	--
	24-Hour	5	10
NO_X	Annual	1	14
CO	8-Hour	500	575
	1-Hour	2000	--

NAAQS Analysis

The primary NAAQS are the maximum concentration ceilings, measured in terms of total concentration of pollutant in the atmosphere, which define the "levels of air quality which the U.S. EPA judges are necessary, with an adequate margin of safety, to protect the public health." Secondary NAAQS define the levels that "protect the public welfare from any known or anticipated adverse effects of a pollutant." The primary and secondary NAAQS, listed in Table 6-2 below, are equivalent for NO_X and PM_{10}; no secondary NAAQS have been developed for CO.

Table 6-2: Summary of National Ambient Air Quality Standards

Pollutant	Averaging Period	NAAQS	
		Primary / Secondary (ug/m^3)	Primary / Secondary (ppm)
PM_{10}	Annual	50 / 50	--
	24-Hour	150 / 150	--
NO_X	Annual	100/100	0.053 / 0.053
CO	8-Hour	40,000/40,000	9 / None
	1-Hour	10,000/10,000	35 / None

If the maximum pollutant impact calculated in the Significance Analysis exceeds the SIL at an off-property receptor, a NAAQS analysis is required. The NAAQS analysis would include the potential emissions from all emission units at the Georgia-Pacific MDF plant, except for units that are generally exempt from permitting requirements and are normally operated only in emergency situations. The emissions modeled for this analysis would reflect the results of the BACT analysis for the modified emission unit. Facility emissions would then be combined with the allowable emissions of sources included in the regional source inventory. The resulting impacts, added to appropriate background concentrations, would be assessed against the applicable NAAQS to demonstrate compliance. For an annual average NAAQS analysis, the highest modeled concentration among five consecutive years of meteorological data would be assessed, while the highest second-high impact would be assessed for the short-term averaging periods.

PSD Increment Analysis

The PSD Increments were established to "prevent deterioration" of air quality in certain areas of the country where air quality was better than the NAAQS. To achieve this goal, U.S. EPA established PSD Increments for certain pollutants. The sum of the PSD Increment concentration and a baseline concentration defines a "reduced" ambient standard, either lower than or equal to the NAAQS that must be met in an attainment area. Significant deterioration is said to have occurred if the change in emissions occurring since the baseline date results in an off-property impact greater than the PSD Increment (i.e., increases in emissions "consume" more that the available PSD Increment).

U.S. EPA has established PSD Increments for NO_X, SO_2, and PM_{10}; no increments have been established for CO. The PSD Increments are further broken into Class I, II, and III Increments. The Georgia-Pacific MDF plant is located in a Class II area. The PSD Increments for PM_{10} and NO_X are listed in Table 6-3.

Table 6-3: Summary of PSD Increments

Pollutant	Averaging Period	PSD Increment	
		Class I (ug/m^3)	Class II (ug/m^3)
PM_{10}	Annual	4	17
	24-Hour	8	30
NO_X	Annual	2.5	25

To demonstrate compliance with the PSD Increments, the increment-affecting emissions (i.e., all emissions increases or decreases after the appropriate baseline date) from the facility and those sources in the regional inventory would be modeled to demonstrate compliance with the PSD Class II increment for any pollutant greater than the SIL in the Significance Analysis. For an annual average analysis, the highest incremental impact will be used. For a short-term average analysis, the highest second-high impact will be used.

The determination of whether an emissions change at a given source consumes or expands increment is based on the source classification (major or minor) and the time the change occurs in relation to baseline dates. In Jasper County, the major source baseline date for NO_X is February 8, 1988, and the major source baseline for SO_2 and PM_{10} is January 5, 1976. Emission changes at major sources that occur after the major source baseline dates affect Increment. In contrast, emission changes at minor sources only affect Increment after the minor source baseline date, which is set at the time when the first PSD application is completed in a given area, usually arranged on a county-by-county basis. The minor source baseline dates have been set in Jasper County for PM_{10} and SO_2 as January 30, 1980, and for NO_2 as April 12, 1991.

Modeling Methodology

Selection of Model

Two levels of air quality dispersion model sophistication exist: screening and refined dispersion modeling. Normally, screening modeling is performed to determine the need for refined modeling. When results from a screening model indicate potentially adverse impacts, a refined modeling analysis is performed. A refined modeling analysis can provide a more accurate estimate of a source's impact and requires more detailed and precise input data than does a screening model. Given the magnitude of emissions increases from the proposed project, refined modeling was relied upon to predict impacts.

A refined dispersion model requires several data inputs, including the quantity of emissions, meteorological history, and the initial conditions (e.g., velocity, flowrate, and temperature) of the stack exhaust to the atmosphere. Building structures that obstruct wind flow near emission points might cause stack discharges to become caught in the turbulent wakes of these structures, leading to downwash of the plumes. In addition, wind blowing around a building creates zones of turbulence that are greater than if the building were absent. These effects of building downwash inhibit dispersion and generally cause higher ground level pollutant concentrations. Therefore, building configurations near emission sources are also a data input into the model.

Modeling was completed using the EPA AERMOD model, Version 04300. AERMOD is a Gaussian plume dispersion model that estimates hour-by-hour ground-level concentrations of emissions from an elevated source. The model provides maximum 24-hour and annual average concentrations for receptors located on many grid types around the source for various downwind distances. The model also takes into account the effect of downwash caused by nearby buildings and structures.

The AERMOD model (version 04300) was used to evaluate conformance with NAAQS and PSD Increments. In order to evaluate aerodynamic building downwash effects on criteria pollutant concentrations, it was necessary to implement the Building Profile Input Program-Prime (BPIP).

Meteorological Data
For this analysis, a five-year sequential meteorological data set was used consisting of surface observations at the National Weather Service (NWS) station in Macon, Georgia and concurrent mixing heights from the NWS station in Athens, Georgia GA for the period 1987 through 1991.

The NWS data were processed into a format that could be input to the AERMOD model using the meteorological preprocessor program AERMET. The data were processed using the Lakes Environmental graphical interface using the latest version of AERMET (04300). The hourly surface data from 1987 through 1990 were obtained from the Solar and Meteorological Observation Network (SAMSON) CD and the data from 1991 were obtained from the Hourly United States Weather Observations (HUSWO) CD. Upper air sounding data were obtained in the required NCDC TD-6201 format from the Lakes website (www.webmet.com).

Land Use Analysis
The land type near the facility needed to be classified as either urban or rural so that appropriate dispersion parameters could be used within the modeling analysis. Two land classification procedures, one based on land-use criteria and the other based on population density, can be used to determine the appropriate application of either urban or rural dispersion coefficients in a modeling analysis. Of the two, the land-use procedure is preferred by U.S. EPA.

As recommended by the Division for previous modeling analyses conducted at this facility, a simplified Auer land use analysis was performed for the area surrounding the facility by drawing a 3-km circle around the center of the facility (please refer to the area map provided in Appendix A of the permit application). Since over 50 percent of the land in the area within the 3-km radius is shown as undeveloped land on the USGS map, the land use was classified as rural for this analysis. Accordingly, rural dispersion coefficients and mixing heights were specified in the ISC-PRIME model.

Background Concentrations
Background concentrations are defined as concentrations due to sources other than those quantified by the dispersion modeling and are necessary to determine total ambient air quality impacts to demonstrate compliance with the NAAQS. For example, background concentration would account for other small point sources not included in the modeling and natural background sources (*e.g.,* mobile sources).

Georgia EPD recommended conservative values for background concentrations because of the monitor locations, their proximity to the Monticello complex, data quality and representativeness. The background concentrations are summarized below:

Pollutant	Averaging Period	Background Concentration (ug/m^3)	Monitor Description
NO_2	Annual	14	Conyers Regional
PM_{10}	24-Hour	38	
	Annual	20	

Receptor Grids
Gridded and boundary model receptors in the Class II area were assigned terrain elevations using the appropriate Digital Elevation Model (DEM) data files at a scale of 1:24,000 (7.5-minute USGS quadrangle files). The boundary receptors were located at intervals of 50 meters along the fence line.

The 100-meter spaced gridded receptor network extends approximately 3 kilometers from the site boundary in all directions, and is more than sufficient to cover the significant impact area.

The edges of the most coarse receptor grid were inspected to determine if predicted impacts were decreasing. The analysis was supplemented with additional refined receptor sets if the receptor spacing at the maximum impact location was more than 100 meters. The analysis modeled all areas, including the property outside the fence, as ambient air.

Representation of Emission Sources

Coordinate System

In all PSD modeling analyses input and output files, the location of emission sources, structures, and receptors were represented in the Universal Transverse Mercator (UTM) coordinate system. The UTM grid divides the world into coordinates that are measured in north meters (measured from the equator) and east meters (measured from the central meridian of a particular zone, which is set at 500 km). The central location of the facility is approximately 248 km East and 3685 km North in Zone 17. Because the area of the facility where structures and emission units are located is flat, a single base elevation was used in the model data files for all sources. The base elevation for the facility is approximately 680 feet (207 meters) above sea level.

Source Types and Parameters

The ISCST3 dispersion model allows for emissions units to be represented as point, area, or volume sources. For point sources with unobstructed vertical releases, it is appropriate to use actual stack parameters (i.e., height, diameter, exhaust gas temperature, and gas exit velocity) in the modeling analyses. There are several types of point sources at the facility, including unobstructed vertical, angled vertical, horizontal, and downward releases.

All point sources were modeled with actual stack parameters, except for gas exit velocity. For unobstructed vertical releases, the actual velocity was modeled. For point sources with angled vertical releases, only the vertical component of the exit velocity was modeled. For horizontal and downward releases, discharges were modeled at a velocity of 0.003 feet per second (0.001 meters per second), in accordance with U.S. EPA guidance. As a conservative representation of such sources, the actual stack diameter was modeled, and stack-tip downwash was enabled as a regulatory default option, even though U.S. EPA guidance suggests that such sources should be modeled by turning off stack-tip downwash. Using the default representation is more conservative, since the model will subtract from the physical release the height of the source due to stack-tip downwash, even though the effect does not occur for horizontal stacks. A summary of source parameters used in the modeling analysis is included in the permit application in Appendix D, Page D-12.

The emission rates modeled in the significance analysis were set equal to the emission increases associated with this project. The particulate matter emission rates calculated as part of the PSD permit application were refined to determine the PM10 fraction and to include the condensable particulate matter. Several other refinements were made to the particulate matter emissions calculations as well. Appendix C of the Class II air quality dispersion modeling report submitted with the permit application contains details of the revised emission increase calculations for the facility used in the analysis and lists the emission rates modeled in the significance analysis.

The emission rates modeled in the full impact analysis were set equal to the potential emissions of the facility, which were provided with the permit application. For this modeling analysis, the particulate matter emission rates calculated as part of the permit application were refined to determine the PM10 fraction and to include condensable particulate matter. Several other refinements were made to the particulate matter emission calculations and short-term potential emission rates where required. Detailed data on the potential emission rates modeled in the full impact analysis is provided in Appendix D of the Class II air quality dispersion modeling report submitted with the application.

GEP Stack Height Analysis
The U.S. EPA has promulgated stack height regulations that restrict the use of stack heights in excess of "Good Engineering Practice" (GEP) in air dispersion modeling analyses. Under these regulations, that portion of a stack in excess of the GEP height is generally not creditable when modeling to determine source impacts. This requirement essentially prevents the use of excessively tall stacks to reduce groundlevel pollutant concentrations. In general, the lowest GEP stack height for any source is 65 meters by default. All modeled stack heights at this facility are less than the calculated GEP formula heights. The dimensions for all significant building structures at the facility were entered into the EPA program, Building Profile Input Program-Prime (BPIP). The BPIP program computes direction-specific building heights and widths. These data describe the downwash effects to the dispersion model.

Modeling Results

Table 6-4 shows that the proposed project will not cause ambient impacts of CO above the appropriate SILs. Because the emissions increases from the proposed project result in ambient impacts less than the SILs, no further PSD analyses were conducted for CO. Therefore, no NAAQS analysis is required for this pollutant. PSD increments have not been established for CO.

However, ambient impacts above the SILs were predicted for NO_X and PM_{10} for the 24-hour and annual averaging periods, requiring NAAQS and Increment analyses be performed for these pollutants.

Table 6-4: Class II Significance Analysis Results – Comparison to SILs

Pollutant	Averaging Period	Year	UTM East (km)	UTM North (km)	Maximum Impact (ug/m^3)	SIL (ug/m^3)	Significant?
NO_2	Annual	1991	248.247	3684.771	5.1	1	**Yes**
PM_{10}	24-hour	1989	248.137	3685.280	22.0	5	**Yes**
	Annual	1989	248.329	3685.138	4.7	1	**Yes**
CO	1-hour	1987	248.570	3684.904	123.0	2000	No
	8-hour	1989	248.230	3684.956	41.0	500	No

Data for worst year provided only.

As indicated in the tables above, maximum modeled impacts were below the corresponding SILs for CO. However, maximum modeled impacts were above the SILs for NO_X (Annual averaging period) and PM_{10} (24-Hour & Annual averaging periods). Therefore, a Full Impact Analysis was conducted for NO_X (Annual averaging period) and PM_{10} (24-Hour & Annual averaging periods).

Significant Impact Area
For any off-site pollutant impact calculated in the Significance Analysis that exceeds the SIL, a Significant Impact Area (SIA) must be determined. The SIA encompasses a circle centered on the facility being modeled with a radius extending out to the lesser of either: 1) the farthest location where the emissions increase of a pollutant from the proposed project causes a significant ambient impact, or 2) a distance of 50 kilometers. All sources of the pollutants in question within the SIA plus an additional 50 kilometers are assumed to potentially contribute to ground-level concentrations and must be evaluated for possible inclusion in the NAAQS and Increment Analysis.

Based on the results of the Significance Analysis, the distance between the facility and the furthest receptor from the facility that showed a modeled concentration exceeding the corresponding SIL was determined to be less than 2.2 kilometers for NO_x and PM_{10}. To be conservative, regional source inventories for both of these pollutants were prepared for sources located within 60 kilometers of the facility.

NAAQS and Increment Modeling

The next step in completing the NAAQS and Increment analyses was the development of a regional source inventory. Nearby sources that have the potential to contribute significantly within the facility's SIA are ideally included in this regional inventory. Georgia-Pacific MDF requested and received an inventory of NAAQS and PSD Increment sources from Georgia EPD. Georgia-Pacific MDF reviewed the data received and calculated the distance from the facility to each facility in the inventory. All sources more than 60 km outside the SIA were excluded.

The distance from the facility of each source listed in the regional inventories was calculated, and all sources located more than 60 kilometers from the facility were excluded from the analysis. Additionally, pursuant to the "20D Rule," facilities outside the SIA were also excluded from the inventory if the entire facility's emissions (expressed in tons per year) were less than 20 times the distance (expressed in kilometers) from the facility to the edge of the SIA. In applying the 20D Rule, facilities in close proximity to each other (within approximately 5 kilometers of each other) were considered as one source. Then, any Increment consumers from the provided inventory were added to the permit application forms or other readily available permitting information.

The regional source inventory used in the analysis is included in the permit application and the attached modeling report.

NAAQS Analysis

In the NAAQS analysis, impacts within the facility's SIA due to the potential emissions from all sources at the facility and those sources included in the regional inventory were calculated. Since the modeled ambient air concentrations only reflect impacts from industrial sources, a "background" concentration was added to the modeled concentrations prior to assessing compliance with the NAAQS.

The results of the NAAQS analysis are shown in Table 6-5. For the short-term averaging period, the impacts are the highest second-high impacts. For the annual averaging periods, the impacts are the highest impacts. When the total impact at all significant receptors within the SIA is below the corresponding NAAQS, compliance is demonstrated.

Table 6-5: NAAQS Analysis Results

Pollutant	Averaging Period	Year	UTM East (km)	UTM North (km)	Maximum Impact (ug/m^3)	Background (ug/m^3)	Total Impact (ug/m^3)	NAAQS (ug/m^3)	Exceed NAAQS?
NO_2	Annual	1991	248.245	3684.821	14.63	14	28.63	100	No
PM_{10}	Annual	1989	248.217	3684.895	29.98	20	49.98	50	No
	24-Hour	1989	248.237	3684.907	93.5	38	131.5	150	No

Data for worst year provided only.

As indicated in Table 6-5 above, the total modeled impact for NO_x (Annual average period) and PM_{10} (24-Hour & Annual average periods) do not exceed the corresponding NAAQS. This modeling demonstrates that the project changes will not cause or contribute to a violation of the NAAQS.

Increment Analysis

The modeled impacts from the NAAQS run were evaluated to determine whether compliance with the Increment was demonstrated. The results are presented in Table 6-6.

Table 6-6: Increment Analysis Results (Class II)

Pollutant	Averaging Period	Year	UTM East (km)	UTM North (km)	Maximum Impact (ug/m^3)	Increment (ug/m^3)	Exceed Increment?
NO_2	Annual	1991	248.247	3684.771	7.9	25	No
PM_{10}	24-hour	1989	248.247	3684.771	18.0	30	No
	Annual	1989	248.247	3684.771	4.4	17	No

Data for worst year provided only

Table 6-6 demonstrates that the impacts are below the corresponding Increments for NO_2 (Annual average period) and PM_{10} (24-Hour & Annual average periods) even with the conservative modeling assumption that all NAAQS sources were Increment sources.

Ambient Monitoring Requirements

Table 6-7: Significance Analysis Results – Comparison to Monitoring *De Minimis* Levels

Pollutant	Averaging Period	Year*	UTM East (km)	UTM North (km)	Monitoring De Minimis Level (ug/m^3)	Modeled Maximum Impact (ug/m^3)	Significant?
NO_2	Annual	1991	248.247	3684.771	14	5.1	No
PM_{10}	24-hour	1989	248.137	3685.280	10	22.0	**Yes**
CO	8-hour	1989	248.230	3684.956	575	41.0	No

Data for worst year provided only

The impacts for NO_2, CO and PM_{10} quantified in Table 6-4 of the Class I Significance Analysis are compared to the Monitoring *de minimis* concentrations, shown in Table 6-1, to determine if ambient monitoring requirements need to be considered as part of this permit action. Because the maximum modeled impacts for NO_2 and CO are below the corresponding de minimis concentrations, no pre-construction monitoring is required for NO_2 or CO.

For PM_{10}, the significance impact level is exceeded, but only if the paved roads are included in the analysis. The Division will rely on the use of existing ambient monitoring data provided by nearby Georgia EPD monitoring stations. Georgia EPD currently monitors for PM_{10}, so the facility is exempt from pre-construction monitoring for PM_{10}.

As noted previously, the VOC *de minimis* level is mass-based (100 tpy) rather than ambient concentration-based (ppm or $\mu g/m^3$). Projected VOC emissions increases resulting from the proposed modification exceed 100 tpy; however, the current Georgia EPD ozone monitoring network (which includes monitors in Macon and Athens) provided sufficient ozone data such that no pre-construction or post-construction ozone monitoring was necessary.

Class I Area Analysis

General Modeling Approach

Generally, if the facility undergoing a modification is within 200 kilometers of a PSD Class I area, then a significant impact analysis is also performed to evaluate the impact due to the project alone at the PSD Class I area. The nearest PSD Class I areas are the Cohutta and Joyce Kilmer Wilderness Areas, located 193 and 233 km from the Monticello Complex, respectively. The Cohutta Area is just within 200 km. As such, a "Q/d" value was calculated to determine the relative impact of the emissions (Q, in tons per year; total increase for PM_{10} and NO_x = 126.4 tpy) and distance (d, in km; distance = 193.2 km). For this Wilderness Area, this value was calculated as 0.65, indicating that the emission increases are relatively low given the distance to the Class I area. As such, a Class I area analysis was not required as part of this application.

7.0 ADDITIONAL IMPACT ANALYSES

PSD requires an analysis of impairment to visibility, soils, and vegetation that will occur as a result of a modification to the facility and an analysis of the air quality impact projected for the area as a result of the general commercial, residential, and other growth associated with the proposed project.

Soils and Vegetation

The effect of a proposed project's emissions on local soils and vegetation is often addressed through comparison of modeled impacts to the secondary NAAQS. The secondary NAAQS were established to protect general public welfare and the environment. Impacts below the secondary NAAQS are assumed to indicate a lack of adverse impacts on soils and vegetation. As discussed in Part 6.0 of this determination, the modeled ambient impacts associated with the proposed project are below the SILs. Therefore, no negative impacts on soils and vegetation are anticipated to result from the implementation of the proposed project.

Growth

The purpose of a growth analysis is to predict how much new growth is likely to occur as a result of the project and the resulting air quality impacts from this growth. No adverse impacts on growth are anticipated from the project since any workforce growth and associated residential and commercial growth that would be associated with the proposed project (expected to be minimal) would not cause a quantifiable impact on the air quality of the area surrounding the facility.

Visibility

Visibility impairment is any perceptible change in visibility (visual range, contrast, atmospheric color, etc.) from that which would have existed under natural conditions. Poor visibility is caused when fine solid or liquid particles, usually in the form of volatile organics, nitrogen oxides, or sulfur oxides, absorb or scatter light. This light scattering or absorption actually reduces the amount of light received from viewed objects and scatters ambient light in the line of sight. This scattered ambient light appears as haze.

Another form of visibility impairment in the form of plume blight occurs when particles and light-absorbing gases are confined to a single elevated haze layer or coherent plume. Plume blight, a white, gray, or brown plume clearly visible against a background sky or other dark object, usually can be traced to a single source such as a smoke stack.

Georgia's SIP and the Georgia *Rules for Air Quality Control* provide no specific prohibitions against visibility impairment other than regulations limiting source opacity and protecting visibility at federally protected Class I areas.

The Monticello Complex is isolated from the town. The nearest minor airport is the Covington Municipal Airport, approximately 39 km from the complex. In the area of the airstrip, the entire complex is not expected to cause a significant impact for any pollutant. With these low levels of predicted impacts, Georgia-Pacific MDF expects that the visibility at the airstrip will not be adversely affected by this modification.

Georgia Toxic Air Pollutant Modeling Analysis

Georgia EPD regulates the emissions of toxic air pollutant (TAP) emissions through a program authorized by the provisions of *Georgia Rules for Air Quality Control*, 391-3-1-.02(2)(a)3.(ii). A TAP is defined as any substance that may have an adverse effect on public health, excluding any specific substance that is covered by a State or Federal ambient air quality standard. Procedures governing the Georgia EPD's review of TAP emissions as part of air permit reviews are contained in the agency's "*Guideline for Ambient Impact Assessment of Toxic Air Pollutant Emissions (Revised)*." The *Guideline* implies that a pollutant is identified as a toxic air pollutant if any of the following toxicity determined values have been established for that pollutant:

- U.S. EPA Integrated Risk Information System (IRIS) reference concentration (RfC) or unit risk
- Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PEL)
- American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLV)
- National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limits (REL)
- Lethal Dose –50% (LD_{50}) Standards

Selection of Toxic Air Pollutants for Modeling

For projects with quantifiable increases in TAP emissions, an air dispersion modeling analysis is generally performed to demonstrate that off-property impacts are less than the established Acceptable Ambient Concentration (AAC) values. The TAPs evaluated are restricted to those that may increase due to the proposed project. Thus, the TAP analysis would generally be an assessment of off-property impacts due to facility-wide emissions of any TAP with an increase in emissions due to this proposal. To conduct a facility-wide TAP impact evaluation for all pollutants that could conceivably be emitted by the facility is impractical. A literature review would suggest that at least one molecule of hundreds of organic and inorganic chemical compounds could be emitted from the various combustion units. The vast majority of compounds potentially emitted however are emitted in only trace amounts that are not reasonably quantifiable.

For each TAP identified for further analysis, both the short-term and long-term AAC were calculated following the procedures given in Georgia EPD's *Guideline*. Figure 8-3 of Georgia EPD's *Guideline* contains a flow chart of the process for determining long-term and short-term ambient thresholds. Georgia-Pacific MDF referenced the resources previously detailed to determine the long-term (i.e., annual average) and short-term AAC (i.e., 24-hour or 15-minute). The AACs were verified by the EPD. Table D-34 in Application No. 16820 summarizes the total emission rates for the sources at the facility.

Determination of Toxic Air Pollutant Impact

The Georgia EPD *Guideline* recommends a tiered approach to model TAP impacts, beginning with screening analyses using SCREEN3, followed by refined modeling, if necessary, with ISCST3 or ISCLT3. For the refined modeling completed, the infrastructure setup for the SIA analyses was relied upon with appropriate sources added for the TAP modeling. Note that, per Georgia EPD's *Guideline*, downwash was not considered in the TAP assessment.

Initial Screening Analysis Technique

Generally, an initial screening analysis is performed in which the total TAP emission rate is modeled from the stack with the lowest effective release height to obtain the maximum ground level concentration (MGLC). [Note that the MGLC could occur within the facility boundary for this evaluation method.] The individual MGLC is obtained and compared to the smallest AAC. Due to the likelihood that this screening would result in the need for further analysis for most TAPs, the analyses were initiated with the secondary screening technique.

Secondary Screening Analysis Technique

For those pollutants that do not pass the initial screening modeling, Georgia TAP Modeling Guidelines recommend additional screening prior to using refined modeling. The second screening technique involves modeling the particular pollutants from each appropriate stack and adding the impact results from each of the stacks. The total impact is then compared to the AAC. That is, a unit emission rate of 1 g/s is modeled from each stack (or representative stack). MGLC impacts from the unit emission rate are scaled using the actual emissions of a particular TAP from a particular stack for each of the modeled stacks using the equation shown below. The impacts from each stack for a particular TAP are then added to reach a total impact, which is then compared to the AAC for that pollutant.

$$Q_2/Q_1 \times (X_1) = X_2$$

where:
Q_1 = the modeled stack emission rate (1 g/s)
Q_2 = the emission rate of individual TAP
X_1 = the MGLC for 1 g/s
X_2 = the MGLC for the individual TAP

For those impacts that are smaller than the appropriate AAC, it can be concluded that no significant impact is anticipated, and further modeling is not necessary. For those pollutants that indicate a significant impact is possible, refined modeling is performed to further evaluate the potential for significant impacts. The majority of the TAPs usually screen out, requiring no refined modeling.

Refined Modeling Methodology

For those pollutants indicating a possible significant impact during the secondary screening, a refined modeling analysis is performed using the modeling setup established for the criteria pollutant PSD modeling analysis. The methodology is the same as presented for the PSD modeling analysis except that downwash is to be excluded from the TAP analysis, per the Georgia EPD *Guideline*. The maximum impacts of all pollutants must be below the applicable AAC.

For those pollutants indicating a possible significant impact during the secondary screening, a refined modeling analysis can be performed using ISCST3 or AERMOD. The methodology is the same as presented for the PSD modeling analysis except that downwash is excluded from the TAP analysis, per the Georgia EPD *Guideline*. The maximum impacts of all pollutants must be below the applicable AAC.

Air Toxics Modeling Summary

Georgia-Pacific MDF submitted the toxic impact assessment with Application No. 16820 in Section D-6. The Division independently verified the results by conducting toxics modeling. The results of air toxics modeling are presented on the attached spreadsheet and show conformance with the respective GA EPD Acceptable Ambient Concentrations. Each source of pollutants was modeled using the EPA AERMOD model. The results of this analysis are summarized in Tables D-35, D-36 and D-37 in Application No. 16820. These tables show levels below the AACs for all compounds.

The results for refined modeling for formaldehyde and acetaldehyde, the worst case toxics using the EPA AERMOD model, are presented below:

Pollutant	Chronic Averaging Period	Max. Conc. (ug / m^3)	AAC (ug / m^3)	Max. 15-min Conc. (ug / m^3)	AAC (ug / m^3)
Formaldehyde	Annual	0.74	0.77	20.9	245
Acetaldehyde	24-Hour	0.39	0.46	6.4	4500

8.0 EXPLANATION OF DRAFT PERMIT CONDITIONS

The permit requirements for this proposed facility are included in draft Permit Amendment No. 2493-159-0012-V-01-1.

Section 1.0: Facility Description

Please refer to Section 2.

Section 2.0: Requirements Pertaining to the Entire Facility

Condition 2.2.1 is modified to increase the production capacity of fiberboards from 250 to 325 million square feet at this plant. This condition allows the increase, per the PSD review.

Section 3.0: Requirements for Emission Units

Condition 3.2.1 is a modified condition that requires the facility to achieve a destruction efficiency of 90 percent for VOC emissions on the Hybrid TCO at all times, whether it is operating in the thermal or the catalytic mode.

Condition 3.3.5 is a modified condition that requires the facility to fire natural gas only in the Boiler. In this permit application, the facility has requested to remove the ability to burn propane in this Boiler.

Existing Condition 3.3.6 was applicable to the Propane Vaporizer. It is deleted since the Propane Vaporizer has not been and will not be installed at this plant.

Condition 3.3.7 is a new condition that requires the facility to use low NOx burners for any burners in the Hybrid TCO. This PSD requirement comes from the facility's BACT review.

Condition 3.3.8 is a new condition that limits NOx emissions to 5.1 lbs/hr, CO emissions to 14.2 lbs/hr, VOC emissions to 15.4 lbs/hr, and PM emissions to 6.6 lbs/hr from the stack associated with the flash tube dryer, the press and the thermal catalytic oxidizer. These requirements come directly from this PSD review.

Condition 3.3.9 is a new BACT condition that requires the facility to properly maintain the catalyst layer on existing ceramic saddles to ensure proper operation of the Hybrid TCO.

New Conditions 3.3.10 to 3.3.20 have been added to ensure that the most updated language for 40 CFR 63, Subpart JJ requirements has been included. Previously, the Panelboard Plant Permit (Number 2493-159-0011-V-01-0) contained the 40 CFR 63, Subpart JJ requirements.

New Conditions 3.3.21 to 3.3.22 have been added to ensure that the most updated language for 40 CFR 63, Subpart QQQQ requirements is included. Conditions 3.3.21 and 3.3.22 state the applicable limits and compliance options of 40 CFR 63, Subpart QQQQ.

Condition No. 3.3.23 is a general condition that subjects the boiler at this facility to 40 CFR Part 63, Subpart DDDDD.

Condition No. 3.3.24 is a general condition that subjects the flash tube dryer and the press at this facility to 40 CFR Part 63, Subpart DDDD.

Condition 3.4.1 is a modified condition that limits opacity from the indicated emission units to no greater than 40 percent, as required by Georgia Rule 391-3-1-.02(2)(b). The equipment list is updated to include some emission units from the Panelboard Plant, as that plant has been shutdown as an independent plant.

Condition 3.4.3 is a modified condition that limits opacity from the boiler as required by Georgia Rule 391-3-1-.02(2)(d). The equipment list is updated; the reference to the Propane Vaporizer is removed.

Condition 3.4.4 is a modified condition that limits particulate matter emissions from the indicated emission units as required by Georgia Rule 391-3-1-.02(2)(e)1(i). The equipment list is updated to include emission units from the Panelboard Plant.

Condition 3.4.5 is a modified condition that limits the sulfur content of the fuel used by Boiler 3460 to 2.5%, based on Georgia Rule (g). The equipment list is updated; the reference to the Propane Vaporizer is removed.

Condition 3.4.6 is a modified condition that limits PM emissions from the Hot Oil System to 0.5 pounds per million Btu, based on Georgia Rule (d)(2). The equipment list is updated; the reference to the Propane Vaporizer is removed.

Condition 3.4.7 is a new condition that comes directly from Condition 3.4.3 in Permit Number 2493-159-0011-V-01-0 of the Panelboard Plant. This condition subjects Emission Unit ID Nos. 2101 and 2102 to State Rule (jj). This requires that the VOC used in the coatings may not exceed the following: 6.0 pounds per 1000 square feet of coated finished product from printed interior panels, 12.0 pounds per 1000 square feet of coated finished product from natural finish hardwood plywood panels, and 10.0 pounds per 1000 square feet of coated finished product from Class II finishes on hardboard panels.

Condition 3.4.8 is a new condition that comes directly from Condition 3.4.4 in Permit Number 2493-159-0011-V-01-0 of the Panelboard Plant. This condition specifies that the facility can comply with the emission limitation in Condition 3.4.7 by determining the daily weighted average of all topcoats and sealers used in the finishing operations and ensuring that they meet the VOC limitations specified by Condition No. 3.4.7.

Condition 3.5.1 is a new condition that comes directly from Condition 3.5.1 in Permit Number 2493-159-0011-V-01-0 of the Panelboard Plant. This condition specifies that the facility replace or clean the spray booth exhaust filters at a minimum of every two weeks on the coating and printing lines. This will help ensure compliance with State Rules (b) and (e).

Section 4.0: Requirements for Testing

New Conditions 4.1, 4.2, 4.3 and 4.4 require the facility to conduct performance tests for PM, CO, NOx and VOC emissions, respectively, within 180 days of completion of the project. This testing is needed to provide reasonable assurance of compliance with the PSD limits in Condition 3.3.8. This testing will also be used to establish the minimum operating temperature for the unit while it is operating in catalytic mode.

New Condition 4.2.5 requires the facility to conduct periodic performance tests for PM, VOC and HAP destruction efficiency once every 2 years. This testing is needed to provide reasonable assurance of compliance with the PSD limits in Section 3. This condition has a provision for testing every 4 years if the performance tests show that emissions are less than 50 percent of the allowable.

New Condition 4.2.6 requires the facility to determine the capture efficiency of the board press enclosure as required in 40 CFR 63 Subpart DDDD, within 180 days of completion of the project. This testing will also be used to establish a compliant negative pressure range for the press capture system.

If the facility is planning to operate the Thermal Catalytic Oxidizer (TCO) in thermal mode for more than 180 days, new Condition 4.2.7 requires the facility to conduct performance tests for PM and VOC emissions. This testing is needed to provide reasonable assurance of compliance with the PSD limits in Section 3.

New Condition 4.2.8 requires the facility to conduct performance tests for PM and VOC emissions if the facility decides to replace the current catalyst bed or alter it substantially. This testing is needed to provide reasonable assurance of compliance with the PSD limits in Section 3.

Section 5.0: Requirements for Monitoring

Condition 5.2.1 is a modified condition that requires the Permittee to install, calibrate, maintain, and operate a system to continuously monitor and record the combustion zone temperature and the inlet pressure of the Hybrid TCO or pressure drop across the Hybrid TCO. These will help ensure proper operation of the Hybrid TCO and ensure compliance with the PSD limits. The monitoring requirement for the Propane Vaporizer is removed.

Condition 5.2.2 is a modified condition that requires the Permittee to install, calibrate, maintain, and operate a system to measure and record: (1) a daily record of the pressure drop across ADS Filter Baghouse (Source Code 3245), Refiner HP Relay Baghouse (Source Code 3290), Former/Press Baghouse (Source Code 3705), and Trim Saw Baghouse (Source Code 3708); (2) the pressure drop across each Rotary Bed Protector once per shift; (3) a weekly record of the pressure drop across Panel Baghouse 1821; and (4) the pressure differential between the inside and outside of the press room (Source Code 3508) once per shift. These will help ensure proper operation of all baghouses and the pre-filter of the Hybrid TCO and ensure compliance with Rules (b), (e), and the PSD particulate matter limits. The negative pressure monitoring on the press is needed to ensure that the board press enclosure meets specifications as outlined in 40 CFR 63 Subpart DDDD and is the operating parameter used to monitor the HAP capture efficiency.

Condition 5.2.5 comes directly from Condition 5.2.4 in Permit Number 2493-159-0011-V-01-0 for the Panelboard Plant. This is a new condition in this permit that requires the Permittee to perform weekly inspections of the cyclones and multiclone to assure that proper operation and maintenance is taking place. Any adverse condition discovered by the inspection of a cyclone is required to be recorded as an excursion and reported. This will help assure compliance with Georgia Rules (e) and (b) for processes controlled by cyclones. The equipment list is updated in this condition.

Condition 5.2.6 is a new PSD condition that requires the facility to monitor the activity level of the catalyst on the ceramic saddles in the Hybrid TCO once every 12 months. This will help ensure proper operation of the Hybrid TCO and compliance with the PSD limits. This condition comes from the facility's BACT review.

Condition No. 5.2.7 requires that the facility follow all of the work practice standards outlined in the work practice implementation plan specified in 5.2.7(a) through 5.2.7(j) for each operation subject to 40 CFR Part 63 Subpart JJ. This condition comes directly from Condition 3.3.7 in Permit Number 2493-159-0011-V-01-0 for the Panelboard Plant.

Condition No. 5.2.7 (a) requires that the facility develop an operator training course for all personnel working in affected operations and keep records. The training course records shall, at a minimum, consist of a list of current personnel by name and job description that are required to be trained, an outline of the subjects to be covered in the initial and refresher training for each position, the lesson plans for the initial and refresher courses, which should emphasize appropriate application techniques and equipment management, and a description of the methods used at the completion of the training to demonstrate and document successful training.

Condition No. 5.2.7 (b) requires that the facility develop an inspection and maintenance plan for leak inspection that specifies the following: a minimum visual inspection frequency of once per month for all affected equipment, an inspection schedule, methods for documenting the date and results of the inspections and any repairs that were made, and the time frame allowed between identifying the leak and making the repair. The repair schedule for repairing leaks must adhere to the following: the first attempt to repair should be made within five days of the detection of the leak and final repairs should be made within 15 days after the leak is first detected or within three months if the equipment is to be replaced by new equipment that must be purchased.

Condition No. 5.2.7 (c) requires that the facility develop and maintain a chemical composition accounting system to record, from each affected source, the following: the type and quantity of each organic solvent used each month for washoff and cleaning, the number of pieces washed off and reason for washoff, and the quantity of spent solvent generated from each washoff and cleaning operation each month.

Condition No. 5.2.7 (d) prohibits the facility from using cleaning and washoff solvents that contain any of the compounds listed in Table 4 of 40 CFR Part 63 Subpart JJ, in concentrations subject to MSDS reporting as required by OSHA.

Condition No. 5.2.7 (e) prohibits the facility from using compounds containing more than 8.0 % VOC, by weight, for the cleaning of spray booth components other than conveyors, continuous coaters, or strippable booth coating (unless the spray booth is being refurbished). If the spray booth is being refurbished then no more than one gallon of organic solvent can be used in the surface preparation of the booth prior to applying the booth coating

Condition No. 5.2.7 (f) requires that the facility keep containers closed which are used for storing finishing, gluing, cleaning, and washoff materials.

Condition No. 5.2.7 (g) specifies that the facility can only use conventional air spray guns to apply finishing material under the following circumstances: when applying finishing materials that have a VOC content no greater than 1.0 lb VOC/lb solids, when doing touch up and repair operations after the finishing operations, when spray is automated, when emissions from the finishing operations are directed to a control device, when the total usage of finishing material applied with the conventional air gun is no more than five percent of the total gallons of finishing material used during that semiannual period, or when the conventional air gun is used to apply stain on a part for which it is technically or economically infeasible to use any other spray application device.

Condition No. 5.2.7 (h) requires that the facility pump or drain all organic solvent used to clean spray guns and/or used in paint line cleaning into a normally closed container.

Condition No. 5.2.7 (i) requires that the facility control emissions from washoff operations by using normally closed tanks for washoff and minimizing dripping by tilting or rotating the part to drain as much solvent as possible.

Condition No. 5.2.7 (j) requires the facility to develop and maintain a formulation assessment plan that includes the following: identify the VHAP from the list presented in 40 CFR 63, Subpart JJ, Table 5, that are being used in the finishing operations; establish a baseline level of usage for each VHAP identified above in accordance with 40 CFR 63.803(l)(2) and (6); track the annual usage of each VHAP identified above that is present in amounts subject to MSDS reporting by OSHA; and notify the Permitting Authority, per Condition No. 6.2.8, if the annual usage of any VHAP identified above exceeds its baseline level, as outlined in 40 CFR 63.803(l)(4 through 6).

Section 6.0: Other Record Keeping and Reporting Requirements

Condition 6.1.7 is updated. It requires the Permittee to report any departure from an indicator range or value established for monitoring consistent with any averaging period specified for averaging the results of monitoring.

Condition 6.2.2 is a modified condition that requires the Permittee to maintain records to ensure compliance with the production limit contained in Condition 2.2.1. Any record keeping requirement for the Propane Vaporizer is removed.

Condition 6.2.3 is a modified condition that requires the Permittee to submit a semi-annual report for the quantity of MDF produced. Any reference to the record keeping requirements for the Propane Vaporizer and propane usage in the Boiler are removed.

Condition 6.2.5 is a new condition that comes directly from Condition 6.2.1 in Permit Number 2493-159-0011-V-01-0 for the Panelboard Plant. This condition requires the facility to maintain monthly usage records of all VOC and VHAP containing compounds utilized at the facility for use in determining compliance with State Rule (jj) and NESHAP Subpart JJ.

New Conditions 6.2.6 through 6.2.13 state record keeping and reporting requirements reflecting the updated language used in respect to 40 CFR 63, Subpart JJ.

New Conditions 6.2.14 through 6.2.25 state the record keeping and reporting requirements for 40 CFR 63, Subpart QQQQ, including the requirements for the *Compliant Materials Option* and the *Emission Rate Without Add On Controls Option*.

New Condition 6.2.26 requires the facility to notify the Division to indicate the method by which the facility intends to comply with the requirements of 40 CFR 63 Subpart DDDD.

Condition 6.2.27 is a new condition that comes directly from Condition 6.2.10 in Permit Number 2493-159-0011-V-01-0 for the Panelboard Plant. This condition requires the facility to maintain a log indicating the time and date that the spray booth filters are replaced as required by Condition No. 3.5.1.

Condition 6.2.28 is a new condition that comes directly from Condition 6.2.11 in Permit Number 2493-159-0011-V-01-0 for the Panelboard Plant. This condition requires the facility to maintain a log indicating the time and date that the dust collection systems were inspected for malfunctions as required by Condition Nos. 5.2.4 and 5.2.5. Any malfunctions should be indicated in the log with the appropriate date and time of the incident. The equipment list is updated in this condition.

Condition 6.2.29 is a new condition that comes directly from Condition 6.2.13 in Permit Number 2493-159-0011-V-01-0 for the Panelboard Plant. This condition requires the facility to maintain records of production for each finished product manufactured.

Condition 6.2.30 is a new condition that comes directly from Condition 6.2.14 in Permit Number 2493-159-0011-V-01-0 for the Panelboard Plant. This condition requires the facility to calculate the VOC emitted using the records in new Conditions 6.2.5 and 6.2.28.

Condition 6.2.31 is a new PSD condition that requires the facility to maintain a log indicating the date and time each time the mode on the Thermal Catalytic Oxidizer is changed. This condition also requires the facility to notify the Division within 30 days if the facility operates the Hybrid TCO in thermal mode for more than 180 days.

Condition 6.2.32 is a new PSD condition that requires the facility to notify the Division within 30 days both when construction on the project is started and completed.

Section 7.0: Other Specific Requirements

Condition 7.12 revokes Permit Number 2493-159-0011-V-01-0 that was issued for the operation of the Panelboard Plant.

Condition 7.14.1 is a PSD condition that states this permit will be voided if the facility does not commence construction on this project within 18 months.

APPENDIX A

Draft Revised Title V Operating Permit Amendment
Georgia-Pacific Wood Products LLC – Monticello MDF Plant
Monticello (Jasper County), Georgia

APPENDIX B

Georgia-Pacific Wood Products LLC – Monticello MDF Plant
PSD Permit Application and Supporting Data

Contents Include:

1. PSD Permit Application No. 16820, dated July 11, 2006
2. Additional Information Package Dated November 20, 2006

APPENDIX C

EPD'S PSD Dispersion Modeling and Air Toxics Assessment Review