Prevention of Significant Air Quality Deterioration Review

Preliminary Determination

January 2010

Facility Name: Georgia-Pacific Consumer Products LP (Savannah River Mill)
City: Rincon
County: Effingham
AIRS Number: 04-13-10300007
Application Number: 18577
Date Application Received: November 20, 2008

Review Conducted by:
State of Georgia - Department of Natural Resources
Environmental Protection Division - Air Protection Branch
Stationary Source Permitting Program

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SUMMARY

The Environmental Protection Division (EPD) has reviewed the application submitted by Georgia-Pacific Consumer Products LP (Savannah River Mill) for a permit to upgrade all four bleaching systems by improving the capability to process waste paper.

The proposed project will first involve changes to Bleaching System No. 3 to replace its use of "coated book" waste paper with "post consumer" waste paper. The project will require the modification or replacement of a number of pieces of process equipment, including a new bleach tower, one new dissolved air floatation devices, the upgrade of the disc thickener, a new primary bank of forward cleaners, two new washers, new flotation cells, and new fine screens. These improvements will allow Bleaching System No. 3 to increase its potential production rate of bleached pulp from the current permitted rate of 300 ADTBP (air-dried tons bleached pulp) per day to 364 ADTBP per day. The project will also include the elimination of sodium hypochlorite bleaching and the conversion of sodium hydrosulfite bleaching to sodium borohydride / sodium bisulfite bleaching.

Detailed engineering for the proposed upgrades to Bleaching System Nos. 1, 2 and 4 has not yet been developed, but the changes for those systems will not result in production increases above the current permitted rates of 500, 500, and 550 ADTBP per day, respectively. The upgrades for these three bleaching systems will, however, allow the SRM (Savannah River Mill) to operate these systems closer to their potential production rates.

The proposed project will result in an increase in emissions from the facility. The sources of these increases in emissions include the bleaching systems, paper machines, converting department, boilers, and roads.

The modification of the SRM due to this project will result in an emissions increase in PM, PM_{10}, $PM_{2.5}$, SO_2, SAM (sulfuric acid mist), NO_X, CO, VOC, fluorides, and lead. A Prevention of Significant Deterioration (PSD) analysis was performed for the facility for all pollutants to determine if any increase was above the "significance" level. The VOC and SO_2 emission increases were above the PSD significant level threshold.

The SRM is located in Effingham County, which is classified as "attainment" or "unclassifiable" for SO_2, $PM_{2.5}$ and PM_{10}, NO_X, CO, and ozone (VOC).

The EPD review of the data submitted by the SRM 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 VOC and SO_2, 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 the SRM for the modifications necessary to upgrade the bleaching systems. 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. This Preliminary Determination also acts as a narrative for the Title V Permit.

1.0 INTRODUCTION – FACILITY INFORMATION AND EMISSIONS DATA

On November 18, 2008, Georgia-Pacific Consumer Products LP (Savannah River Mill) (hereafter SMR) submitted an application for an air quality permit to upgrade all four bleaching systems by improving the capability to process waste paper. The facility is located at 393 Fort Howard Road in Rincon, Effingham County.

Table 1-1: Title V Major Source Status

Pollutant	Is the Pollutant Emitted?	If emitted, what is the facility's Title V status for the Pollutant?		
		Major Source Status	Major Source Requesting SM Status	Non-Major Source Status
PM	✓	✓		
PM_{10}	✓	✓		
SO_2	✓	✓		
VOC	✓	✓		
NO_x	✓	✓		
CO	✓	✓		
TRS	✓			✓
H_2S	✓			✓
Individual HAP	✓	✓		
Total HAPs	✓	✓		

Table 1-2 below lists all current Title V permits, all amendments, 502(b)(10) changes, and off-permit changes, issued to the facility, based on a review of the "Permit" file(s) on the facility found in the Air Branch office.

Table 1-2: List of Current Permits, Amendments, and Off-Permit Changes

Permit Number and/or Off-Permit Change	Date of Issuance/ Effectiveness	Purpose of Issuance
2621-103-0007-V-03-0	March 31, 2007	Renewal Permit.
2621-103-0007-V-03-1	January 30, 2008	Amendment for the removal of monitoring requirements for the Paper Machine No. 20 scrubbers.
2621-103-0007-V-03-2	August 26, 2009	Extension for a PSD project.
2621-103-0007-V-03-3	November 16, 2009	Replacement of the engine portion of Combustion Turbine No. 2.

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 1-3 below:

Table 1-3: Emissions Increases from the Project

Pollutant	Baseline Years	Potential Emissions Increase (tpy)	PSD Significant Emission Rate (tpy)	Subject to PSD Review
PM	2005-2006	16.7	25	No
PM_{10}	2005-2006	11.7	15	No
$PM_{2.5}$	2005-2006	8.12	10	No
VOC	2005-2006	157	40	Yes
NO_X	2005-2006	33.5	40	No
CO	2005-2006	31.8	100	No
SO_2	2005-2006	163	40	Yes
TRS	2005-2006	0	10	No
Pb	2005-2006	0.0026	0.6	No
Fluorides	2005-2006	0.99	3	No
H_2S	2005-2006	0	10	No
SAM	2005-2006	1.60	7	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 proceeding 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 2005-2006) from the future potential emissions of the bleaching systems and associated emission increases from non-modified equipment. Table 1-4 details this emissions summary. The emissions calculations for Tables 1-3 and 1-4 can be found in detail in the facility's PSD application (see Attachment B of Application No. 18577). These calculations have been reviewed and approved by the Division.

Table 1-4: Net Change in Emissions Due to the Major PSD Modification

Pollutant	Increase from Pulping/Bleaching Systems and Bisulfite Tank*		Associated Units Increase (tpy)	Total Increase (tpy)
	Past Actual	Future Potential		
PM	0	0	16.7	16.7
PM_{10}	0	0	11.7	11.7
$PM_{2.5}$	0	0	8.12	8.12
VOC	54.2	201.3	10.4	157
NO_X	0	0	33.5	33.5
CO	0	0	31.8	31.8
SO_2	0	0.01	163	163
TRS	0	0	0	0
Pb	0	0	0.0026	0.0026
Fluorides	0	0	0.99	0.99
H_2S	0	0	0	0
SAM	0	0	1.60	1.60

*The past actual and future potential VOC calculations include a small amount of emissions from the mechanical pulping that occurs prior to the bleaching steps. The emissions are included here for conservativeness and ease of calculation as the VOC emission factor the facility has historically used includes both pulping and bleaching operations. Furthermore, the facility uses a single permit limit for combined pulping and bleaching steps to demonstrate compliance with PSD limits. The emissions from the pulping step represents approximately 2.3% of the VOC from the combined pulping and bleaching steps.

Based on the information presented in Tables 1-3 and 1-4 above, the SRM's proposed modification, as specified per Georgia Air Quality Application No. 18577, is classified as a major modification under PSD because the potential emissions of VOC and SO_2. The BACT analysis requirements apply to the new and modified equipment. With the exception of a small amount of SO_2, the non-VOC project emissions are emitted from existing, non-modified equipment; therefore, a BACT analysis has not been completed for those units.

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

2.0 PROCESS DESCRIPTION

According to Application No. 18577, SRM has proposed to upgrade all four bleaching systems by improving the capability to process waste paper. The project for Bleaching System No. 3 will require the modification or replacement of a number of pieces of process equipment, including a new bleach tower, one new dissolved air floatation devices, the upgrade of the disc thickener, a new primary bank of forward cleaners, two new washers, new flotation cells, and new fine screens. These improvements will allow Bleaching System No. 3 to increase its potential production rate of bleached pulp from the current permitted rate of 300 ADTBP per day to 364 ADTBP per day. Detailed engineering for the proposed upgrades to Bleaching System Nos. 1, 2 and 4 has not yet been developed, but the changes for those systems will not result in production increases above the current permitted rates of 500, 500, and 550 ADTBP per day, respectively. The modifications will not result in the applicability of any new rules under the Georgia Rules, 40 CFR Part 60, or 40 CFR Part 63. The project will not result in the installation of any new monitoring equipment.

Sources affected by the modifications proposed for the bleaching systems include the five paper machines and paper machine dryer burners, the Converting Department, the boilers, fugitive sources, such as truck traffic, and bleaching chemical storage tanks and support equipment.

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

General Process Description

The SRM is a recycle deinking and bleaching paper mill. Pulp is manufactured from various grades of wastepaper and is processed through one of five paper machines to produce commercial and retail grades of tissue, toweling, and napkins. The mill also is capable of using purchased virgin pulp in lieu of some or all of the wastepaper to make its products. The mill's maximum bleached pulp processing capacity is approximately 1,850 ADTBP per day and 675,250 ADTBP per year, while its maximum production capacity for manufacturing tissue, towel, and napkins is about 1,944 ADTFP (air-dried tons of finished product) per day and 709,560 ADTFP per year. The project will increase the bleached pulp process capacity will increase to 1,914 ADTBP per day and 698,610 ADTBP per day. The capacity of the paper machines (ADTFP) will not change as a result of this project.

Pulp and Paper Manufacturing (Pulp Processing Area, Bleaching System, and Paper Machines)

The pulp processing area pulps, deinks, cleans, and bleaches wastepaper to a specific level of brightness. The breakdown of wastepaper occurs in pulpers in which wastepaper is combined with chemicals and water, and is then "cooked" with steam, making the pulp into a slurry (referred to as "stock"). The process separates the clay and other coatings from the wastepaper fibers utilizing screens and chemically deinks the stock using caustic soda and detergents. The washed stock is then sent through additional screens to remove plastic, latex, sand, clay, and other materials.

Pulp stock from the pulp processing area may either be bleached first or sent directly to the five paper machines to manufacture commercial and retail-grade napkins, paper towels and tissue products. Various chemical additives are used when processing the pulp stock to give the finished product different properties, such as the use of wet strength resin for paper toweling to make the product strong when wet, or release agents that help prevent the product from sticking to the Yankee dryer roll on the machine. Chemical cleaning agents are used on the wire support screen to remove the build-up of "stickies" that form over time from the use of chemical additives.

Each of the paper machines has a Yankee dryer section to reduce the moisture content of the product before it is removed from the paper machine on the wind-up reel. The paper machine dryers contain two gas-fired burners that supply heat to assist in drying the paper sheet. Paper Machine Nos. 16 and 17 also have "after-dryers" that use steam for heating the paper product. The "after-dryers" are needed for paper machines that manufacture paper toweling in order to obtain the correct moisture content in the final product.

Converting Department

Finished product from the paper machines is sent to the converting area of the mill where the parent rolls are cut, re-wound, and/or printed on one of five flexographic printers or on the napkin printer. The finished product is packaged and prepared for off-site shipment via railcar or truck.

Fluidized-Bed Boilers

The mill has three primary power boilers. Each of the boilers has a heat input rating of 422 MMBtu/hr and is equipped with a baghouse and limestone injection. Each boiler has a turbine generator set that can produce up to 45 megawatts of electrical power for the mill. The boilers also supply steam for the pulping, bleaching, and paper making processes.

Paved Roads

The movement of raw material delivery trucks, as well as product trucks and other vehicles traveling along the mill's paved roads generates fugitive particulate matter emissions.

Storage Tanks

The project involves the elimination of sodium hypochlorite as a bleaching chemical and the conversion of sodium hydrosulfite systems to sodium borohydride and sodium bisulfite. The changes will include the following:

- Conversion of the existing hydroboost storage tank to a bulk sodium borohydride storage tank;
- Conversion of the existing sodium hydrosulfite storage tank to a bulk sodium bisulfite storage tank;
- Conversion of the 4% hydrogen peroxide make down system to a 10% dilution system to include a new transfer pump, tank solution mixer, metering pump, and flow control;
- Conversion of the existing 50% sodium hydroxide make down system to produce a 7% solution stream to include a new in-line mixer, metering pumps, and flow controls; and
- Changing the chlor-alkali de-ionized water system to provide for both high and low pressure de-ionized water from the chemical feed dilution streams for hydrogen peroxide, sodium hydroxide, sodium bisulfite, and sodium borohydride.

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 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 (b) limits the opacity of visible emissions to less than 40 percent. This rule applies to all of the paper machines, converting department, fuel burning equipment, and material handling operations. In some cases, the rule is subsumed by more stringent opacity limits under 40 CFR Part 52.21, 40 CFR Part 60, and/or 40 CFR Part 63. The proposed modifications do not impact the applicability of this rule.

Georgia Rule (e) limits particulate matter emissions per the following equations for new (installed after July 2, 1968) process equipment. Rule (e) applies to the paper machines, converting department, and the dry material handling operations. The proposed modifications do not impact the applicability of this rule.

$E = 4.1(P)^{0.67}$ for process input weight rate up to and including 30 tons per hour;
$E = 5.5(P)^{0.11} - 40$ for process input weight rate above 30 tons per hour;
where E is emission rate in pounds per hour and P is process input rate in tons per hour.

Georgia Rule (d) contains requirements for fuel burning equipment. Emissions that may be regulated under Georgia Rule (d) include PM, opacity, and NO_X. The boilers are subject to NO_X limits of 0.2 to 0.7 lb/MMBtu depending on the type(s) of fuel being burned and a particulate matter limit of 0.10 lb/MMBtu. The waste heat boilers are subject to a particulate matter limit of $0.5(10/R)^{0.5}$ lb/MMBtu where R is equal to the heat input for the unit. Finally, all of the units are subject to an opacity limit of not more than 20 percent except for one six-minute period per hour of not more than 27 percent. Rule (d) limits may be subsumed by more stringent limits under 40 CFR Part 52.21, 40 CFR Part 60, and/or 40 CFR Part 63. The proposed modifications do not impact the applicability of this rule.

Georgia Rule (g) applies to all fuel-burning sources. Paragraph 1 limits the emission of SO_2 from new fuel burning sources based on the type of fuel burned in the source. Paragraph 2 of the rule limits the percentage of sulfur, by weight, in the fossil fuel burned to 3.0 percent for fuel-burning sources with a maximum heat input equal to or greater than 100 MMBtu/hr. Smaller units are limited to 2.5 percent sulfur by weight. This rule applies to the boilers, combustion turbines, and fuel burning equipment on the paper machines. Rule (g) limits may be subsumed by more stringent limits under 40 CFR Part 52.21, 40 CFR Part 60, and/or 40 CFR Part 63. The proposed modifications do not impact the applicability of this rule.

All of the rules discussed above are currently included in the SRM permit.

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.

Georgia has adopted a regulatory program for PSD permits, which the United States Environmental Protection Agency (EPA) has approved as part of Georgia's State Implementation Plan (SIP). This regulatory program is located in the Georgia Rules at 391-3-1-.02(7). This means that Georgia EPD issues PSD permits for new major sources pursuant to the requirements of Georgia's regulations. It also means that Georgia EPD considers, but is not legally bound to accept, EPA comments or guidance. A commonly used source of EPA guidance on PSD permitting is EPA's Draft October 1990 New Source Review Workshop Manual for Prevention of Significant Deterioration and Nonattainment Area Permitting (NSR Workshop Manual). The NSR Workshop Manual is a comprehensive guidance document on the entire PSD permitting process.

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.

EPA's NSR Workshop Manual includes guidance on the 5-step top-down process for determining BACT. In general, Georgia EPD requires PSD permit applicants to use the top-down process in the BACT analysis, which EPA reviews. 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.

New Source Performance Standards

The New Source Performance Standards (NSPS) contained in 40 CFR Part 60 that apply to the SRM are listed below.

The facility is subject to 40 CFR 60 Subpart D – Standards of Performance for Fossil Fuel-Fired Steam Generators for Which Construction is Commenced after August 17, 1971 for Boiler No. 3 for the emission of SO_2. The limit is 1.2 lb/MMBtu and may be subsumed by a more stringent limit under 40 CFR Part 52.21. The proposed modifications do not impact the applicability of this regulation.

The facility is subject to 40 CFR 60 Subpart Db – Standards of Performance for New Stationary Industrial-Commercial-Institutional Steam Generating Units for Boiler Nos. 3, 4 and 5. The three boilers are subject to particulate matter limits of 0.05 lb/MMBtu and NO_X limits of 0.2 to 0.6 lb/MMBtu depending on fuel type. Boiler Nos. 4 and 5 are subject to a 90 percent reduction requirement for SO_2 and limits of 0.8 to 1.2 lb/MMBtu depending on fuel type. The limits may be subsumed by more stringent limits under 40 CFR Part 52.21. The proposed modifications do not impact the applicability of this regulation.

The facility is subject to 40 CFR 60 Subpart Y – Standards of Performance for Coal Preparation Plants for the coal preparation operations in the event that coal process equals or exceeds 200 tons per day. The subpart contains particulate matter and/or opacity limits for thermal dryers, transfer systems, and loading systems. The proposed modifications do not impact the applicability of this regulation.

The facility is subject to 40 CFR 60 Subpart GG – Standards of Performance for Stationary Gas Turbines for Combustion Turbine Nos. 1 and 2. The subpart contains a NO_X limit based on heat capacity of the unit and the amount of fuel bound nitrogen. The subpart also limits the sulfur content of fuel to 0.8 percent, by weight. The fuel sulfur limit has been subsumed by a more stringent limit under 40 CFR 52.21. The proposed modifications do not impact the applicability of this regulation.

All of the regulations discussed above are currently included in the SRM permit.

The storage tanks related to the bleaching chemical conversion are not subject to any regulations as they do not emit pollutants regulated under NSPS.

National Emissions Standards For Hazardous Air Pollutants

The paper machines are subject to 40 CFR 63 Subpart S – "National Emission Standards for Hazardous Air Pollutants from the Pulp and Paper Industry." There are no specific emissions standards that paper machines must meet. The proposed modifications do not impact the applicability of this regulation.

The flexographic printers are subject to 40 CFR 63 Subpart KK – "National Emission Standards for Hazardous Air Pollutants for Source Category: Printing and Publishing Industry." The limit imposed under the subpart is 400 kg per month of HAP usage. The proposed modifications do not impact the applicability of this regulation

The converting department is subject to 40 CFR 63 Subpart JJJJ – "National Emission Standards for Hazardous Air Pollutants: Paper and Other Web Coating" due to the use of glues in the finishing process. The subpart limits emissions by regulating the HAP content of the coatings. The proposed modifications do not impact the applicability of this regulation

The combustion turbines are subject to 40 CFR 63 Subpart YYYY – "National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines." There are no specific emission standards that the combustion turbines must meet. The proposed modifications do not impact the applicability of this regulation

All of the regulations discussed above are already included in the SRM permit.

The storage tanks related to the bleaching chemical conversion are not subject to any regulations as they do not emit pollutants regulated under NESHAP.

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 equipment associated with the proposed project would most likely results from a malfunction. The facility cannot anticipate or predict malfunctions. However, the facility is required to 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 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 may 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.

Therefore, this applicability evaluation only addresses the bleaching systems and chemical bleaching equipment, which does not employ any air pollution control devices; therefore, the CAM requirements are not triggered by the proposed modification.

4.0 CONTROL TECHNOLOGY REVIEW

The proposed project will result in emissions that are significant enough to trigger PSD review for the following pollutants: VOC and SO_2. The bleaching systems emit VOC and the bisulfite tank will emit SO_2.

Bleaching Systems Nos. 1 through 4 - Background

Pulp stock from the pulp processing area may either be bleached or sent directly to the paper machines. The facility conducts bleaching in order to achieve a specific level of brightness for a given product. The following list summarizes the bleach agents currently used at the facility and the agents that will be used following the modification. The project will eliminate the use of hypochlorite.

- Bleaching System Nos. 1 and 2:
  - Currently chemicals: Sodium hydrochlorite and sodium hydrosulfite.
  - Future chemicals: Sodium borohydride and sodium bisulfite.
- Bleaching System No. 3:
  - Currently chemicals: Sodium hydrochlorite and sodium hydrosulfite.
  - Future chemicals: Hydrogen peroxide, sodium borohydride, and sodium bisulfite.
- Bleaching System No. 4:
  - Currently chemicals: Sodium hydrochlorite, oxygen, peroxide, and sodium hydrosulfite.
  - Future chemicals: Oxygen, peroxide, sodium borohydride, and sodium bisulfite.

Bleaching Systems Nos. 1 through 4 – VOC Emissions

VOC emissions from Bleaching Systems Nos. 1-4 are generated through the processing of recycled pulp (*i.e.,* furnish used to make paper) and bleaching of the pulp. Additionally, there are chemical additives and solvents that that generate VOCs. Chemical additives are used to "de-ink" the wastepaper furnish brought into the SRM, along with biocides, defoamers, and dispersants for the process water. Solvents are used from time-to-time to clean the pulp processing screens that are used to remove plastics, metals, and other impurities from the pulp processing operations. Emission estimates for these operations were calculated using a material balance, taking the VOC content of all chemical additives and solvents and conservatively assuming that 100% of the VOC content evaporates in use to the atmosphere, while also using NCASI emission factors as part of the overall VOC emission calculations.

Applicant's Proposal

Step 1: Identify all control technologies

The applicant identified thermal oxidation, catalytic oxidation, carbon adsorption, biofiltration, and substitution of chemical additives with lower VOC-containing materials or the use of water-borne chemicals with little or no VOC content as control technologies for reducing VOC emissions from the bleaching systems.

Thermal oxidizers react volatile organic compounds with oxygen in the air to form naturally occurring carbon dioxide and water vapor. This reaction occurs when the air is heated to a sufficiently high temperature, typically 1,400-1,600 degrees Fahrenheit.

In contrast to thermal oxidizers, catalytic oxidizer systems use a catalyst to encourage the oxidation reaction instead of depending on heat alone. Reactions in a recuperative catalytic oxidizer usually take place between 500 and 600 degrees Fahrenheit.

Carbon adsorption recovers VOC-containing gas streams by passing the gas stream through a static "bed" of activated carbon. The VOCs are retained in the pores of the carbon molecules while "clean" air is discharged to the atmosphere. The bed of carbon must be regenerated after it becomes saturated with VOCs. Regeneration may involve the use of heat to release the adsorbed VOCs so the "bed" can be reused. The VOCs may be collected by condensation or treated by another piece of control equipment, such as an incinerator. There are usually a series of "beds" in use so that one or more beds are in use while the other beds are being regenerated.

Biofiltration is a technology where a VOC-laden exhaust stream is directed through a biologically active media. Biofiltration uses microorganisms to break down organic compounds into carbon dioxide, water, and salts. When the biofilter is built, the microorganisms are already on the material that is used as a filter bed. The filter material normally used is peat, soil, or compost, but granulated activated carbon and polystyrene can also be used.

The use of low-VOC containing chemicals or water-borne chemicals with little or no VOC content in place of currently used VOC-containing chemicals are methods that will reduce VOC emissions when applied properly. The amount of VOC emission reduction that can be achieved is highly variable depending on the specific application.

The applicant also reviewed the EPA RACT/BACT/LAER Clearinghouse (RBLC) to identify any additional control technologies for bleach plants at recycle mills. The search identified sources using good techniques/operating practices to limit VOC and sources limiting the type/concentration of bleaching chemicals. The search results did not include any add-on control devices.

Step 2: Eliminate technically infeasible options
All of the add-on control technologies identified by the applicant are technically feasible.

Step 3: Ranking the Remaining Control Technologies by Control Effectiveness

Table 4-1: Ranking of Control Technology

Control Technology Ranking	Control Technology	Control Efficiency
1	Thermal Oxidizer	99%
2	Catalytic Oxidizer	95%
3	Carbon Adsorption	90%
4	Biofiltration	62%
5	Use of Low VOC Containing Chemicals or Water-Borne Chemical Additives	N/a

Step 4: Evaluating the Most Effective Controls and Documentation
The applicant conducted a series of cost analysis calculations to evaluate the technically feasible control options. The following paragraphs summarize the results. The uncontrolled VOC emission totals used in this analysis were 46.9 tpy for Bleaching System No. 1, 46.9 tpy for Bleaching System No. 2, 34.1 tpy for Bleaching System No. 3, and 69.2 tpy for Bleaching System No. 4. These emission totals include VOC from NCASI emission factors and VOC containing additives. The totals do not include the small amount of emissions (approximately 4.7 tpy) that are emitted during the mechanical pulping steps prior to the bleaching systems.

Thermal Oxidizer

The applicant calculated the annualized cost for the operation of a thermal oxidizer as $1,548,259. If the control efficiency of the device is 99%, the cost effectiveness is calculated as approximately $33,500 per ton VOC for system no. 1, $33,500 per ton VOC for system no. 2, $45,900 per ton VOC for system no. 3, and $22,600 per ton VOC for system no. 4. The applicant has determined that the device is not cost effective.

Catalytic Oxidizer

The applicant calculated the annualized cost for the operation of a catalytic oxidizer as $3,594,083. If the control efficiency of the device is 95%, the cost effectiveness is calculated as approximately $81,000 per ton VOC for system no. 1, $81,000 per ton VOC for system no. 2, $111,000 per ton VOC for system no. 3, and $54,700 per ton VOC for system no. 4. The applicant has determined that the device is not cost effective.

Carbon Adsorption

The applicant calculated the annualized cost for the operation of a carbon adsorption unit as $1,901,674 based on information provided by a carbon adsorption unit supplier. If the control efficiency of the device is 90%, the cost effectiveness is calculated as approximately $45,200 per ton VOC for system no. 1, $45,200 per ton VOC for system no. 2, $62,000 per ton VOC for system no. 3, and $30,500 per ton VOC for system no. 4. The applicant has determined that the device is not cost effective.

Biofiltration

The applicant has evaluated biofiltration because it is aware of some use of the technology in controlling specific HAP emissions from plywood and oriented strand board plant dryers and presses. The facility consulted BioReactions Industries for a control efficiency estimate (62%) and a cost estimate ($2.5 MM installed). The applicant then calculated an annualized cost of $738,395. The applicant determined that the actual cost effectiveness would actually be higher because the system is only guaranteed for a 10-year life, but the cost effectiveness analysis assumed a 20-year life. If a 10-year life had been used in the cost effectiveness analysis, then the annualized cost would be $908,134.

If a 20-year life is assumed, the cost effectiveness is calculated as approximately $25,500 per ton VOC for system no. 1, $25,500 per ton VOC for system no. 2, $34,900 per ton VOC for system no. 3, and $17,200 per ton VOC for system no. 4. If a 10-year life is assumed, the cost effectiveness is calculated as approximately $31,400 per ton VOC for system no. 1, $31,400 per ton VOC for system no. 2, $43,000 per ton VOC for system no. 3, and $21,200 per ton VOC for system no. 4. The applicant has determined that the device is not cost effective.

Use of Low-VOC Containing Chemicals or Water-Borne Chemical Additives

The use of low-VOC containing chemicals or water-borne chemicals with little or no VOC content in place of currently used VOC-containing chemicals will reduce VOC emissions when applied properly. The SRM has New Substance Review Program in place to review all chemicals for environmental effects. Part of the information required as part of the review program is the VOC content of the new substance. Before any new substance can be purchased, the SRM's Environmental Department must make an assessment of the VOC content and decide if there should be an alternative substance used that has a lower VOC content. This program helps to assure that the applicant can use the lowest VOC-containing materials available in the marketplace while maintaining product quality.

Over the past few years, this program has enabled the SRM to reduce the VOC content of a number of chemical additives, cleaning solvents and other materials, such as printing inks. For example, in the past, the SRM used a paper machine cleaning solvent that had a VOC content of 100%. Today, the applicant is using a cleaning solvent that has a VOC content of approximately 13%. Another example has been the conversion of some of the wet strength resin used in the paper machines from a VOC content of 3.4% to 1.5%. Wet strength resins account for a large portion of the VOCs generated in the paper machines due to the large quantities of resin used (not due to its VOC concentration). A third example is the conversion of the use of VOC-containing inks used in the SRM's printing operations to water-based printing inks, or printing inks with low VOC content.

Step 5: Select BACT

The applicant has proposed BACT for Bleaching Systems Nos. 1-4 to be the use of the SRM's New Substance Review Program. The future potential emissions from the sources will be 196.6 tpy of VOC. When this is combined with potential emissions from the pulping steps (4.7 tpy), the total limit for the combined Pulping/Bleaching Systems becomes 201.3 tons VOC per year. The limit is based on the applicants maximum bleached pulp production rate, chemical usage, and NCASI emission factors. The applicant has proposed to demonstrate compliance by maintain records of production and the use of VOC-containing chemicals and solvents. The limit is based on a period of 12-months on a rolling basis.

EPD Review – VOC Control

The EPD searched the RBLC database for entries pertaining to bleaching operations at non-Kraft pulp mills. The EPD also searched for information on pulping operations as this data is often combined with bleaching data. The entries are summarized in the following table.

Table 4-2: RBLC Entries for VOC from Bleaching and Pulping Operations at Non-Kraft Mills

Date	ID	Facility	Equipment	Entry Details
5/1998	WI-0151	Wausau Paper Mills	Pulping Operations P20 S20	VOC – 56.6 lb/hr; No add-on controls listed
			Bleach Plant P24 S24	Chloroform – 58 lb/ton; Carbon tetrachloride – 58 lb/ton; Primary emission limit is 58 lbs of hypochlorite per ton of paper produced in a 12 month period and <70 lbs of hypochlorite per ton of paper produced in a month; No add-on controls listed.
5/1999	WI-0095 WI-0150	Consolidated Papers	Mechanical Pulp Bleach Plant, P35	Peroxide bleaching system; Methanol limited to 4.1 tpy; Limit concentration of peroxide to 4%; No add-on controls listed
12/2003	WI-0205	Stora-Enso North America	Mechanical Pulp Bleaching P35, S35	Peroxide process; 0.0440 lb/BDT; Pulp bleaching may only be conducted using hydrogen peroxide, sodium hydrosulfite, and sodium borohydride based techniques; No add-on controls listed.
6/2004	WI-0215	SCA Tissue	Fiber prep area (deinking and bleaching)	0.464 lb/ton pulp processed; Techniques and operating practices which promote lowest possible VOC emissions while maintaining product quality requirements and cost effectiveness; No add-on controls listed.
3/2006	OK-0112	Fort James Operation Co.	Pulping System 5	No use of chlorine or chlorine dioxide; No add-on controls listed. 0.45 lb/ton pulp processed.

The EPD review did not identify any entries that prescribed the use of add-on control technology. This supports the results of the applicant's cost analyses, which demonstrated that currently available add-on controls are not cost effective for these types of operations. Also, the entries reviewed by the EPD did not indicate a consensus on the type of bleaching chemicals that should be used and the emissions limits vary where they have been established. This may be due to the different type of wastepaper that may be received and the different types of products that may be manufactured. These variations require different levels of brightening. The types of chemical additives needed to create the final product will also vary.

It appears that VOC emissions are largely a function of the type of wastepaper received and chemicals additives used rather than the type of bleaching chemical employed (the bleaching chemicals do not contain VOC) based on a review of the NCASI test data. Additionally, the chemical additive/solvent emissions represent only 14% of the total pulping/bleaching emissions limit proposed by the plant. This information, coupled with the SRM New Substance Review Program, indicates that these additive/solvent emissions are minimized where possible. The project also involves the benefit of the conversion to non-chlorine bleaching chemicals, which will reduce the formation and emission of chlorine containing compounds.

Based on the applicant's cost analyses and the information found in the RBLC, the EPD agrees with the facility's BACT proposal.

Conclusion – VOC Control
The BACT selection for the Bleaching Systems is summarized below in Table 4-3. The emission limit represents the combined pulping and bleaching steps as the facility has historically used a single limit to demonstrate compliance with limits in this area of the mill:

Table 4-3: BACT Summary for the Pulping/Bleaching Systems

Pollutant	Control Technology	Proposed BACT Limit	Averaging Time	Compliance Determination Method
VOC	New Substance Review Program Protocol	201.3 tons (average of 0.58 lb/ADTBP with 4.70 tpy from mechanical pulping)	12-month rolling total	Record keeping

Bisulfite Tank - Background

The facility will begin using sodium bisulfite to as a bleaching chemical in order to eliminate hypochorite use. The applicant will convert an existing sodium hydrosulfite storage tank to a sodium bisulfite storage tank to facilitate the change. There will be a potential to emit a small amount SO_2 each time the tank is filled.

Bisulfite Tank – SO_2 Emissions

There will be a potential to emit a small amount SO_2 each time the tank is filled.

Applicant's Proposal

Step 1: Identify all control technologies
The applicant identified a wet scrubber as a control technology for reducing SO_2 emissions from the tank.

Step 2: Eliminate technically infeasible options
A wet scrubber is a technically feasible option.

Step 3: Ranking the Remaining Control Technologies by Control Effectiveness

Table 4-4: Ranking of Control Technology

Control Technology Ranking	Control Technology	Control Efficiency
1	Wet Scrubber	90%

Step 4: Evaluating the Most Effective Controls and Documentation
The applicant conducted a cost analysis calculation to evaluate the technically feasible control option.

The annualized cost for the least expensive wet scrubber located by the applicant is $519. The potential emissions from the tank are 0.01 tpy. Assuming that emissions are controlled by 100%, the cost effectiveness is $51,900 per ton SO_2. The applicant has determined that a scrubber would not be cost effective.

Step 5: Select BACT
Because add-on controls are not cost effective, BACT for the tank will be good operating practices.

EPD Review – SO_2 Control
The EPD concurs that while a wet scrubber is technically feasible, it is not cost effective for controlling emissions from the tank. Additionally, the EPD searched the RBLC database for entries pertaining to emissions from storage tanks. The EPD did not identify any entries that were similar to the bisulfite tank. Based on the RBLC review the EPD agrees with the facility's proposal. BACT for the tank will be good operating practies.

Conclusion – SO_2 Control
The BACT selection for the sodium bisulfite tank is summarized below in Table 4-5:

Table 4-5: BACT Summary for the Bisulfite Tank

Pollutant	Control Technology	Proposed BACT Limit	Averaging Time	Compliance Determination Method
SO_2	Good Operating Practices	N/a	N/a	Record keeping

5.0 TESTING AND MONITORING REQUIREMENTS

Testing Requirements:

There are no applicable testing requirements being imposed due to the modification. The facility will demonstrate compliance with the VOC emission limit through production records and emission factors. The facility will demonstrate good operating practices through record keeping.

Monitoring Requirements:

There are no applicable monitoring requirements being imposed due to the modification. The facility will demonstrate compliance with the VOC emission limit through production records and emission factors. The facility will demonstrate good operating practices through record keeping.

CAM Applicability:

Because the modified equipment does not employ control devices, CAM is not applicable and is not being triggered by the proposed modification. Therefore, no CAM provisions are being incorporated into the facility's permit.

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 emitted 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 SRM triggers PSD review for VOC and SO_2. An air quality analysis was conducted to demonstrate the facility's compliance with the NAAQS and PSD Increment standards for SO_2. 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. Supporting documentation may be found in the Air Quality Dispersion Report of the application and in the additional information packages.

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 VOC and SO_2 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 an established PSD modeling significance level (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 Chatham 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 the SO_2 emissions increases at the SRM would significantly impact the area surrounding the facility. Maximum ground-level concentrations are compared to the pollutant-specific U.S. EPA-established monitoring significant level (MSL). The MSL for the pollutants of concern are summarized in Table 6-1.

If a significant impact (i.e., an ambient impact above the MSL) 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 are also 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 SO_2.

If any off-site pollutant impacts calculated in the Significance Analysis exceed the MSL, a Significant Impact Area (SIA) would be determined. The SIA encompasses a circle centered on the 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)
SO_2	Annual	1	--
	24-Hour	5	13
	3-Hour	25	--

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 are listed in Table 6-2 below.

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

Pollutant	Averaging Period	NAAQS	
		Primary / Secondary (ug/m^3)	Primary / Secondary (ppm)
SO_2	Annual	80 / None	0.03 / None
	24-Hour	365 / None	0.14 / None
	3-Hour	None/1300	None / 0.5

If the maximum pollutant impact calculated in the Significance Analysis exceeds the MSL at an off-property receptor, a NAAQS analysis is required. The NAAQS analysis would include the potential emissions from all emission units at the SRM, 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., the increased 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 or $PM_{2.5}$ (however, $PM_{2.5}$ increments are expected to be added soon). The PSD Increments are further broken into Class I, II, and III Increments. The SRM is located in a Class II area. The PSD Increments 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)
SO_2	Annual	2	20
	24-Hour	5	91
	3-Hour	25	512

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 MSL 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. 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 for PM_{10} and SO_2 as January 30, 1980, and for NO_2 as April 12, 1991.

Modeling Methodology

Details on the dispersion model, including meteorological data, source data, and receptors can be found in EPD's PSD Dispersion Modeling and Air Toxics Assessment Review in Appendix C of this Preliminary Determination and in Attachment C of the permit application.

Modeling Results

Table 6-4 show that the proposed project will not cause ambient impacts of SO_2 above the appropriate MSLs. Because the emissions increases from the proposed project result in ambient impacts less than the MSLs, no further PSD analyses were conducted for these pollutants.

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

Pollutant	Averaging Period	Year	UTM East (km)	UTM North (km)	Maximum Impact (ug/m^3)	MSL (ug/m^3)	Significant?
SO_2	3-hour	1993	408772	3577461	9.164	25	No
	24-hour	1994	480772	3577461	2.196	5	No
	Annual	1992	482248	3576860	0.226	1	No

Data for worst year provided only.

As indicated in the tables above, maximum modeled impacts were below the corresponding MSLs for SO_2.

Ambient Monitoring Requirements

Table 6-5: 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?
SO_2	24-hour	1994	480772	3577461	13	2.196	No

Data for worst year provided only

The impacts for NO_X, CO, SO_2, 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 impact is below the corresponding de minimis concentration, no pre-construction monitoring is required for SO_2.

As noted previously, the VOC *de minimis* concentration 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 Savannah, Georgia) will provide sufficient ozone data such that no pre-construction or post-construction ozone monitoring is necessary.

Class I Area Analysis

Federal Class I areas are regions of special national or regional value from a natural, scenic, recreational, or historic perspective. Class I areas are afforded the highest degree of protection among the types of areas classified under the PSD regulations. U.S. EPA has established policies and procedures that generally restrict consideration of impacts of a PSD source on Class I Increments to facilities that are located near a federal Class I area. Historically, a distance of 100 km has been used to define "near", but more recently, a distance of 200 kilometers has been used for all facilities that do not combust coal.

The three Class I areas within approximately 200 kilometers of the SRM are the Wolf Island Class I area, located approximately 103 kilometers south of the facility; the Okefenokee Class I area, located approximately 173 km southwest of the facility, and the Cape Romain Class I area, located approximately 152 km northeast of the facility. The U.S. Fish and Wildlife Service (FWS) is the designated Federal Land Manager (FLM) responsible for oversight of all three of these Class I areas. The facility contacted the FLM regarding this project. Based on the level of project emissions, no Class I area analysis is required. The EPD modeling confirms that no SO2 significance levels are exceeded for this project.

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 maximum additional impact of SO_2 was assessed to be less than 10 ug/m^3 over any three-hour averaging period modeled, indicating no reason to suspect plant, soil, or wildlife adverse impacts.

Growth

No new jobs are projected to result from this project.

Visibility

No Class II visible plume impacts were assessed as no significant impact area was identified.

Georgia Toxic Air Pollutant Modeling Analysis

Georgia EPD regulates the emissions of toxic air pollutant (TAP) emissions through a program covered 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).*"

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 TAP 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 emitted by a facility. To conduct a facility-wide TAP impact evaluation for any pollutant 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. This is understandable given the nature of the fuel oil, petroleum coke, wood, tire derived fuel, peat, coal, and natural gas fed to the combustion sources, and the fact that there are complex chemical reactions and combustion of fuel taking place in some. The vast majority of compounds potentially emitted however are emitted in only trace amounts that are not reasonably quantifiable.

The facility identified TAP emissions from the pulping and bleaching area based on a review of NCASI emission factor data. The emission rates were based on the maximum throughput of the pulping and bleaching areas.

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. SRM 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.

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 the 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 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 TAP, the analyses were initiated with the secondary screening technique.

The facility used the latest version of the Industrial Source Complex model to evaluate TAP. The EPD verified that non of the TAP exceeded the applicable AAC.

8.0 EXPLANATION OF DRAFT PERMIT CONDITIONS

The permit requirements for this proposed facility are included in draft Permit Amendment No. 2621-103-0007-V-03-4.

Section 1.0: Facility Description

Please see Part 2.0 of this preliminary determination.

Section 2.0: Requirements Pertaining to the Entire Facility

No conditions in Section 2.0 are being added, deleted or modified as part of this permitting action.

Section 3.0: Requirements for Emission Units

Condition 3.3.20 has been modified to specify the VOC limit proposed by the facility for the Pulping/Bleaching Systems. The condition has also been modified to clarify that the limit applies to VOC emissions that result from pulping/bleaching operations and any additives and solvents that are used by the facility. The limit represents the 196.6 tpy of VOC from the bleaching operations and the 4.70 tpy of VOC from the pulping area. The total limit is therefore 201.3 tpy VOC.

Condition 3.3.26 has been added to the permit to require the facility to operate the sodium bisulfite tank in accordance with the good operating practices plan required for BACT for SO_2.

Section 4.0: Requirements for Testing

No conditions in Section 4.0 are being added, deleted or modified as part of this permitting action.

Section 5.0: Requirements for Monitoring

No conditions in Section 5.0 are being added, deleted or modified as part of this permitting action.

Section 6.0: Other Recordkeeping and Reporting Requirements

Condition 6.1.7.b(xiii) has been has been modified to specify the VOC limit proposed by the facility for the combined pulping and bleaching systems.

Condition 6.2.10 has been modified to clarify that VOC calculations for the pulping, bleaching, and paper forming systems should include VOC emissions produced by the unit operations as well as any additives and solvents used by the facility.

Condition 6.2.20 has been added to the permit and requires the facility to maintain pulp production records. This data is necessary to support the calculations required by Condition 6.2.10.

Condition 6.2.21 has been added to the permit to require the facility to submit a good operating practices plan for the operation of the sodium bisulfite tank in order to comply with BACT for SO_2.

Condition 6.2.22 has been added to the permit and requires the facility to provide basic notification for the construction and operation of the modifications.

Condition 6.2.23 has been added to the permit and requires the Permittee to begin construction of the modifications in the time allowed per 40 CFR 52.21.

Section 7.0: Other Specific Requirements

No conditions in Section 7.0 are being added, deleted or modified as part of this permit action

Section 8.0: General Provisions

Condition 8.27.1 has been added to the permit. The condition is a general condition that was added to the Title V template after the issuance of the most recent renewal permit.

APPENDIX A

Draft Revised Title V Operating Permit Amendment
Georgia-Pacific Consumer Products LP
Rincon (Effingham County), Georgia

APPENDIX B

Georgia-Pacific Consumer Products LP
PSD Permit Application and Supporting Data

Contents Include:

1. PSD Permit Application No. 18577, dated November 18, 2008
2. Additional Information Package, dated March 26, 2009
3. Additional Information Package, dated August 31, 2009
4. Additional Information Package, dated October 15, 2009
5. Additional Information Package, dated October 29, 2009
6. Miscellaneous emails and letters.

APPENDIX C

EPD'S PSD Dispersion Modeling and Air Toxics Assessment Review