Prevention of Significant Air Quality Deterioration Review

Preliminary Determination

May 2008

Facility Name: Temple – Inland (Rome Linerboard Mill)
City: Rome
County: Floyd
AIRS Number: 04-13-11500021
Application Number: 17678
Date Application Received: September 17, 2007

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 the Temple – Inland (Rome Linerboard Mill) facility for a permit to repair existing Recovery Furnace 5 (Source Code RF5) and to conduct modifications on Linerboard Machines 1 and 2 (Equipment Group P1) in order to achieve the permitted production level on a consistent basis. The modifications on the recovery furnace will include general repairs and the replacement of the floor tube portion of the unit. This may increase the black liquor solids firing capacity of the unit from 5.3 million pounds per day to 5.44 million pounds per day. The modifications to the linerboard machines may include, but are not limited to, new primary headboxes, the addition of suction roll steam boxes, the removal of breaker stack rolls and the reinstallation of dryer cans, the installation of new closed-vent hoods with pocket ventilation systems and exhaust fans, the installation of new motors and gear boxes on drive systems as needed, the modification of the dryer section and line shaft progressive drive systems, and possible press modifications. The facility may also modify the stock prep area and winders to achieve production goals. The linerboard machine modifications will allow 2,600 machine-dried tons per day (MDTPD) of linerboard production on a consistent basis. The facility also will implement a fugitive dust mitigation plan for roads at the facility.

The proposed project will result in an increase in emissions from the facility. The sources of these increases in emissions include Recovery Furnace 5 and the Linerboard Machines. Additional emissions may also occur at other equipment due to the increase in black liquor solids throughput at the recovery furnace and increased production at the Linerboard Machines.

The modifications at the Rome Linerboard Mill will result in emissions increases for PM/PM_{10}, $PM_{2.5}$, SO_2, NO_X, CO, VOC, TRS, H_2S, Pb, Fluorides, and H_2SO_4. 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 PM/PM_{10}, VOC, TRS, and H_2S emissions increases are above the PSD significant level thresholds.

The Rome Linerboard Mill is located in Floyd County, which is classified as "attainment" or "unclassifiable" for SO_2, PM_{10}, NO_X, CO, and ozone (VOC) in accordance with Section 107 of the Clean Air Act, as amended August 1977. Floyd County is classified as "non-attainment" for $PM_{2.5}$.

The EPD review of the data submitted by the Rome Linerboard Mill 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 PM/PM_{10}, VOC, TRS, and H_2S, 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 Rome Linerboard Mill for the modifications necessary to make repairs to Recovery Furnace 5 and to increase production at the Linerboard Machines. 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 September 7, 2007, Temple – Inland [Rome Linerboard Mill (hereafter Rome Linerboard Mill)] submitted an application for an air quality permit to make repairs to Recovery Furnace 5 and to make modifications to the Linerboard Machines. A revised application package was submitted on November 27, 2007. The facility is located at 238 Mays Bridge Road in Rome, Floyd 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
2631-115-0021-V-02-0	Pending	Title V Renewal Permit.

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	2006	105.8	25	Yes
PM_{10}	2006	105.8	15	Yes
$PM_{2.5}$	2006	11.58	15**	No
VOC	2006	215.1	40	Yes
NO_X	2006	36.88	40	No
CO	2006	97.72	100	No
SO_2	2006	38.46	40	No
TRS	2006	33.44	10	Yes
Pb	2006	0.0011	0.6	No
Fluorides	2006	0.0589	3	No
H_2S	2006	28.69	10	Yes
SAM	2006	1.90	7	No

*All PM values include condensible particulate; **The 15 tpy threshold is per the U.S. EPA $PM_{2.5}$ guidance memorandum dated April 5, 2005. SO_2 and NO_X are considered $PM_{2.5}$ precursors; therefore, the facility has taken limits to avoid PSD review for these pollutants.

The average production data for 2006 was used to establish the emission baseline for Recovery Furnace 5 and the Linerboard Machines. Calendar year 2006 data was chosen as representative data for this project since the mill only realized its increased capacity in calendar year 2006 following changes made during the previous mill optimization PSD project, permitted in 2004. Many elements of the mill optimization project were completed during 2005; therefore 2006 is considered the first full year of mill operation that is reflective of the mill's current capacity and design. The net increases were calculated by subtracting the past actual emissions from the future potential emissions for Recovery Furnace 5, the Linerboard Machines, and road fugitives and adding 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 Appendix A of Application No. 17678). 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 Recovery Furnace 5, the Linerboard Machines, and Road Fugitives		Associated Units Increase (tpy)*	Total Increase (tpy)
	Past Actual	Future Potential		
PM/PM_{10}	418.2	522.1	1.88	105.8
$PM_{2.5}$	143.6	153.8	1.39	11.58
VOC	833.8	1046	2.78	215.1
NO_X	939.6	957.4	18.98	36.88
CO	2320	2418	0	99.72
SO_2	26.50	56.68	8.28	38.46
TRS	16.82	49.97	0.29	33.44
Pb	0.0104	0.0114	1.05E-4	0.0011
Fluorides	0.586	0.645	0	0.059
H_2S	1.60	30.11	0.17	28.69
SAM	18.95	20.85	0	1.90

*Includes contemporaneous increases.

Based on the information presented in Tables 1-3 and 1-4 above, the Rome Linerboard Mill's proposed modifications, as specified per Georgia Air Quality Application No. 17678, is classified as a major modification under PSD because the potential emissions of PM/PM_{10}, VOC, TRS, H_2S exceed the PSD thresholds.

Through its new source review procedure, EPD has evaluated the Rome Linerboard Mill 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. 17678, the Rome Linerboard Mill has proposed to make repairs to Recovery Furnace 5 and to make modifications to the Linerboard Machines. The modifications will not result any new rules are regulations under Georgia State Rules or Federal Regulation under 40 CFR Part 60 or 63. The facility will install a NO_X CEMS for the Recovery Furnace.

General Process
The Rome Linerboard Mill consists of several sub-systems that include the woodyard, pulp mill, recycle fiber plant, paper mill, causticizing system, chemical recovery system, power and steam generation system, tall oil production system, and waste water treatment system. The kraft pulping process starts with wood chips supplied to one of 15 digesters in the pulp mill. Chips are either purchased or are produced from logs in the woodyard. Once digested in a caustic solution referred to as white liquor, the pulp is screened, washed, and sent to one of two linerboard machines to produce unbleached linerboard. In addition to the virgin pulp mill, the mill operates a recycle fiber plant that uses old corrugated containers (OCC) to produce secondary fiber for use on the linerboard machines. The filtrate from the pulp washing process is recovered and concentrated in the evaporator system prior to being burned in Recovery Furnace 5. The recovery furnace burns the organic portion of the concentrated black liquor and the resulting smelt bed is processed in the smelt dissolving tank to produce green liquor. The green liquor goes through clarifiers to remove settleable solids. The clarified green liquor is then slaked with calcium oxide resulting in the formation of calcium hydroxide. This calcium hydroxide reacts with the sodium carbonate in the green liquor to form sodium hydroxide liquid (white liquor) and calcium carbonate precipitate (mud lime). The white liquor is fed to clarifiers where the calcium carbonate precipitate settles out and the white liquor overflows to storage tanks. The regenerated white liquor is again ready for use in the chip cooking process. The lime mud is washed and partially dewatered. The mud is then fed into the mill's lime kilns where it is converted to calcium oxide (lime). This regenerated lime is again used for reaction with the green liquor from the recovery furnace.

Recovery Furnace 5
The black liquor collected in filtrate tanks during the countercurrent washing process is sent to multiple effect evaporators and concentrators to increase the solids content of the black liquor from roughly 15% (weak black liquor) to roughly 72% (heavy black liquor). The mill operates 6 sets of evaporators (1 pre-evaporator and 5 evaporator trains) and 2 concentrators for the concentration of black liquor. The heavy black liquor is then burned in Recovery Furnace 5. The organic portion of the burning heavy black liquor generates steam while leaving an inorganic chemical smelt bed composed mostly of sodium carbonate and sodium sulfide. An electrostatic precipitator is operated on the furnace to control particulate emissions.

The mill's inspections of Recovery Furnace 5 indicate that boiler tubes on the floor of the furnace, headers that include supply tube stubs, four spout openings, four insertable smelt spouts, four mini-hoods, and seals require replacement. These modifications are required in order to continue to operate the furnace safely. In addition to these items, the mill will be conducting its normal annual maintenance inspection and will be replacing and repairing any other furnace systems determined to require repair. Although the project is a repair in nature, the potential black liquor solids (BLS) firing capability may be increased by approximately 3% to 5.44 million pounds per day. The increase in furnace capacity will support the increase in BLS production needed to achieve the linerboard production goal.

Linerboard Machines
The Rome Linerboard Mill operates two linerboard machines. The pulp (referred to as stock) from the mill's high density storage tanks is diluted and sent to paper mill storage chests. From these chests, the stock goes through paper mill refiners for conditioning and screens for debris removal. After additional dilution to approximately 0.5% fiber by weight, the stock is fed to the linerboard machine head boxes and onto the fourdrinier wire. A sheet of fiber is formed on the wire and the process of removing water from the sheet begins. Water removal continues as the fiber sheet (now called linerboard) goes through the press section. Water removal (to approximately 7%) is completed as the sheet travels through the dryer sections, which consists of a series of high-pressure cylinders heated by roughly 150-pound steam. The steam for these machines is provided by the mill's on site boilers.

After drying, the linerboard is wound on a metal core. When roughly 30 tons of linerboard accumulates on a core, the core is transferred to the winder. At the winder, the linerboard is cut into rolls of the width and diameter required by customers. Finished rolls are weighed, labeled, and shipped out by rail or truck, or stored in the warehouse for later shipment.

The proposed project calls for the modification of the linerboard machines to allow the machines to be operated at a higher production rate, from the current average production of 2,385 MDTPD of linerboard to the current permitted production level of 2,600 MDTPD of linerboard. This will lead to an increase in both actual virgin fiber and recycle fiber feed to the paper mill. The modifications to the linerboard machines may include, but are not limited to, new primary headboxes, the addition of suction roll steam boxes, the removal of breaker stack rolls and the reinstallation of dryer cans, the installation of new closed-vent hoods with pocket ventilation systems and exhaust fans, the installation of new motors and gear boxes on drive systems as needed, the modification of the dryer section and line shaft progressive drive systems, and possible press modifications. The facility may also modify the stock prep area and winders to achieve production goals.

Associated Emission Units and Roads
The increased throughput of BLS at Recovery Furnace 5 will result in collateral emissions increases from Smelt Dissolving Tank 5 (Source Code STD5), Lime Kiln 1A (Source Code LK1), Lime Kiln 2A (LK2), and the salt cake mix tanks, all of which serve to recover the pulping chemicals for reuse in the digestion of chips. The lime kilns are also incineration devices for non-condensible gases (NCGs) from the pulping process. There will also be emissions increases at the Waste Fuel Boiler (Source Code WF), which incinerates NCGs from the pulp washing system. Finally, the fugitive particulate matter emissions from paved and unpaved roads at the facility will be impacted by additional truck traffic.

The suction roll steam boxes and hoods proposed for the linerboard machines will provide steam savings by allowing the mill to feed a drier fiber sheet to the dryer sections of the machines and by reducing the need for makeup air for the linerboard machine building, respectively. This reduces the steam demand for removal of water in the dryer sections and for heating the machine to counteract cooling from the makeup air. The modifications for Recovery Furnace 5 are expected to slightly increase the efficiency of steam production due to the replacement of scaled tubes, a reduction of steam needed for soot blowing, and the modified furnace's ability to operate at a low oxygen level, which mean less heat being exhausted out of the stack. The steam demands from the linerboard machine production increases were calculated as 1.1 million pounds per day, while the increase in BLS throughput will produce 1.3 million pounds per day. The proposed modifications will not result in increased utilization of the Waste Fuel Boiler (Source Code WF), Power Boiler 4 (Source Code PB4), or Package Boiler 2 (Source Code PK2) for the purposes of providing steam.

The Rome Linerboard Mill's 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 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) [391-3-1-.02(2)(b)] is a general rule that limits the opacity of emissions from any air contaminant source to less than 40%. Georgia Rule (b) applies to Recovery Furnace 5, Lime Kilns 1A and 2A, Smelt Dissolving Tank 5, Slakers 1 through 3, and the Waste Fuel Boiler. The 40% opacity limit is subsumed by more stringent opacity limits for Recovery Furnace 5 and Waste Fuel Boiler WF under other regulations. The modifications proposed in the application will have no impact on the regulatory applicability of Rule (b) or the facility's ability to comply with the opacity standard. The current permit contains all necessary conditions regarding this regulation.

Georgia Rule (d) [391-3-1-.02(2)(d)] is a general rule that contains requirements for all fuel burning equipment. The Waste Fuel Boiler is subject to the rule for PM, NO_X, and opacity; however these limits are subsumed or matched by limits under other regulations. The modifications proposed by the facility will have no impact on the regulatory applicability of Rule (d) or the facility's ability to comply with the standard. The current permit contains all necessary conditions regarding this regulation.

Georgia Rule (e) [391-3-1-.02(2)(e)], commonly known as the process weight rule, limits PM emissions based on either of one of three equations, depending on the process input rate and age of the equipment, where E = emission rate (lb/hr) and P = process input rate (ton/hr). Recovery Furnace 5, Lime Kilns 1A and 2A, Smelt Dissolving Tank 5, and Slakers 1 through 3 are is subject to the standard expressed by the following equations in Georgia Rule (e), which is incorporated in the current operating permit.

$$\text{For } P \leq 30 \text{ ton/hr, } E = 4.1P^{0.67}$$
$$\text{For } P>30 \text{ ton/hr, } E = 55P^{0.11} - 40$$

The modifications proposed in the application will have no effect on the applicability of Rule (e) to the named equipment or the facility's ability to comply with the particulate matter emissions standard of the rule.

Georgia Rule (g) [391-3-1-.02(2)(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. Paragraph 2 applies to Recovery Furnace 5, Lime Kilns 1A and 2A, and the Waste Fuel Boiler. The facility is subject to more stringent limits under other regulations for the burning of fuel oil in the Recovery Furnace and the Waste Fuel Boiler. Waste Fuel Boiler WF is subject to a limit of 0.80 pounds SO_2 per million Btu heat input under Paragraph 1 of the rule. The modifications proposed by the facility will have no impact on the regulatory applicability of Rule (g) or the facility's ability to comply with the standard. The current permit contains all necessary conditions regarding this regulation.

Georgia Rule (n) [391-3-1-.02(2)(n)] applies to fugitive dust sources, such as roads. The condition limits the opacity from fugitive sources to 20 percent and requires the facility to take reasonable precautions to limit fugitive dust. The modifications proposed by the facility will have no impact on the regulatory applicability of Rule (n) or the facility's ability to comply with the standard. The current permit contains all necessary conditions regarding this regulation.

Georgia Rule (gg) [391-3-1-.02(2)(gg)] applies to Recovery Furnace 5, Lime Kilns 1A and 2A, and Smelt Dissolving Tank 5 and contains standards for TRS. All limits under Rule (gg) are equivalent to or subsumed by more stringent PSD and Subpart BB limits. The modifications proposed by the facility will have no impact on the regulatory applicability of Rule (gg) or the facility's ability to comply with the standard. The current permit contains all necessary conditions regarding this regulation.

Georgia Rule 391-3-1-.02(6)(a)(iii) applies to Waste Wood Fired Combination Boilers that fire wood waste at a capacity greater than 100 MMBtu/hr. Under the rule, the facility must install a COMS for the measurement of opacity. The rule applies to Waste Fuel Boiler WF. The modifications proposed by the facility will have no impact on the regulatory applicability of the rule or the facility's ability to comply with the standard. The current permit contains all necessary conditions regarding this regulation.

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 Unites 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

Federal Rule – 40 CFR 60 Subpart A

40 CFR 60 Subpart A, *General Provisions*, imposes generally applicable provisions for initial notifications, initial compliance testing, monitoring, and recordkeeping requirements. Recovery Furnace 5, Lime Kilns 1A and 2A, Smelt Dissolving Tank 5, and the Waste Fuel Boiler are subject to certain New Source Performance Standards and by extension Subpart A. The modifications proposed in the application will have no impact on the regulatory applicability of Subpart A or the facility's ability to comply with the standard. The current permit contains all necessary conditions regarding this regulation.

Federal Rule – 40 CFR 60 Subpart Db

40 CFR 60 Subpart Db, *Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units* applies to Recovery Furnace 5 and the Waste Fuel Boiler. Both units are subject to PM limits; however, the limits are subsumed by more stringent PSD limits. Both units are also subject to a limit of less than 20% opacity except for one six-minute period per hour of not more than 27%. The opacity limit is subsumed for the Waste Fuel Boiler by a more stringent PSD limit of 10%. Recovery Furnace 5 is not subject to a NO_X limit under the subpart due to the use of an annual oil capacity factor of 0.10 for the unit. The Waste Fuel Boiler is subject to a NO_X limit of 0.20 pounds per million Btu heat input. All fuel oil combusted in the units will be required to be very low sulfur fuel oil, thereby allowing the facility to avoid SO_2 reduction requirements. The modifications proposed in the application do not involve fuel firing changes; therefore, the modifications will have no impact on the regulatory applicability of Subpart Db or the facility's ability to comply with the standard. The current permit contains all necessary conditions regarding this regulation.

Federal Rule – 40 CFR 60 Subpart BB

40 CFR 60 Subpart BB, *Standards of Performance for Kraft Pulp Mills* applies to Recovery Furnace 5, Lime Kiln 1A, and Smelt Dissolving Tank 5. Subpart BB establishes a PM limit of 0.044 grain per dscf at ten percent oxygen for the recovery furnace. This limit is subsumed by a more stringent PSD / 40 CFR 63 Subpart MM limit. The furnace is also subject to a TRS limit and an opacity limit under the subpart. The subpart also includes particulate matter and TRS limits for the Lime Kiln 1A. Finally, the smelt dissolving tank is subject to particulate matter and TRS limits that are subsumed by more stringent limits under other regulations. The modifications proposed in the application will have no impact on the regulatory applicability of Subpart BB or the facility's ability to comply with the standard. The current permit contains all necessary conditions regarding this regulation.

National Emissions Standards For Hazardous Air Pollutants

Federal Rule – 40 CFR 61 Subpart A

40 CFR 61 Subpart A, *General Provisions*, imposes generally applicable provision for initial notifications, initial compliance testing, monitoring, and recordkeeping requirements. The facility must comply with the general provisions because equipment at the facility is subject to 40 CFR 61 Subpart E. The modifications proposed in the application will have no impact on the regulatory applicability of Subpart A or the facility's ability to comply with the standard. The current permit contains all necessary conditions regarding this regulation.

Federal Rule – 40 CFR 61 Subpart E

40 CFR 61 Subpart E, *National Emission Standards for Mercury* applies to the drying or incinerating of municipal or industrial wastewater sludge. The Waste Fuel Boiler burns industrial wastewater sludge, therefore Subpart E applies to the units. The mercury limit is 7.1 pounds per 24-hour period and compliance is determined through sludge analysis. The modifications proposed in the application will have no impact on the regulatory applicability of Subpart E or the facility's ability to comply with the standard. The current permit contains all necessary conditions regarding this regulation.

Federal Rule – 40 CFR 63 Subpart A

40 CFR 63 Subpart A, *General Provisions*, imposes generally applicable provision for initial notifications, initial compliance testing, monitoring, and recordkeeping requirements. The facility must comply with the general provisions because equipment at the facility is subject to 40 CFR 63 Subparts A, S, and MM. The modifications proposed in the application will have no impact on the regulatory applicability of Subpart A or the facility's ability to comply with the standard. The current permit contains all necessary conditions regarding this regulation.

Federal Rule – 40 CFR 63 Subpart S

40 CFR 63 Subpart S, *National Emission Standards for Hazardous Air Pollutants from the Pulp and Paper Industry*, applies to Kraft pulp mills and regulates gas vent streams and condensate streams from the pulping process. Lime Kiln 1A, Lime Kiln 2A, and the Waste Fuel Boiler serve as incineration points for the various vent gas streams specified in the subpart. The facility uses a steam stripper and a biological treatment system to process the condensate streams. The modifications proposed in the application will have no impact on the regulatory applicability of Subpart S or the facility's ability to comply with the standard. The current permit contains all necessary conditions regarding this regulation.

Federal Rule – 40 CFR 63 Subpart MM

40 CFR 63 Subpart MM, *National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills*, sets standards for HAP from chemical recovery combustion equipment through particulate matter limits. The facility uses the bubble option, which allows for the calculation of a total mill-wide emission limit for all combustion sources based on the MACT standards and then allows for the allocation of these emissions to the individual emission sources as determined by the mill. This bubble option thereby allows the mill to over control some sources while under controlling others provided that overall emission reductions are met. The facility is required to recalculate the bubble limits if the black liquor solids throughput increases by 10 percent. The modifications proposed in the application represent a 3 percent increase over the previous calculations; therefore, it is not necessary to adjust the limits. The modifications proposed in the application will have no impact on the regulatory applicability of Subpart MM or the facility's ability to comply with the standard. The current permit contains all necessary conditions regarding this regulation.

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 Recovery Furnace 5 or the Linerboard Machines associated with the proposed project would most likely result 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.

This applicability evaluation only addresses Recovery Furnace 5 and the Linerboard Machines. The Recovery Furnace is not subject to CAM due to exemption provisions and the Linerboard Machines do 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: PM/PM_{10}, VOC, TRS, and H_2S.

Recovery Furnace 5 – Background

Recovery Furnace 5 is a chemical recovery device for the kraft pulp mill. The heavy black liquor generated by the evaporator system is burned in the unit, which generates steam and leaves an inorganic chemical smelt bed composed mostly of sodium carbonate and sodium sulfide. The smelt is further processed to regenerate the white liquor use in the digesters. The recovery furnace is equipped with a dry electrostatic precipitator (ESP) for the control of PM emissions and is equipped with continuous monitors for opacity, oxygen, and TRS.

Recovery Furnace 5 – PM/PM_{10} Emissions

Applicant's Proposal

Step 1: Identify all control technologies
The applicant identified dry ESPs, wet ESPs, baghouses, and high efficiency wet scrubbers as currently available PM controls for recovery furnaces.

In the case of an ESP, high voltage electrodes are impart a negative charge to the particles entrained in the exhaust gas stream. These negatively charged particles are then attracted to a grounded collecting surface, which is positively charged. The cleaned gas then exits the ESP. Inside the ESP, the particles build up on the collecting plates. At periodic intervals, the plates are rapped, causing the particles to fall into hoppers in dry ESPs. The particles are then removed from the hoppers by a rotary screw arrangement. In the case of wet ESPs, a liquid down wash collects the particulate and wet sluicing is used to remove the particles. ESPs offer very high efficiencies for particulates of very small size (above 1 micron in size).

Dry filtration is a common method for removing dry PM from many types of industrial gas streams. Filters are available in a variety of types, materials, and sizes. Fabric filters are reusable filters that can be cleaned by shaking the filter media, reversing the airflow, or pulsing the airflow.

Wet scrubbers remove particulates from a gas stream by capturing the particles in liquid droplets. Scrubber systems are generally more expensive to purchase and operate than dry filtration. However, they present a particulate removal efficiency alternative for applications where dry filtration is not recommended based on particulate characteristics such as those with high moisture content.

Step 2: Eliminate technically infeasible options
The applicant determined that baghouses are not technically feasible for recovery furnaces because the hygroscopic nature of the salt cake would blind the device. The applicant is not aware of any facilities that use a baghouse to control PM emissions from a recovery furnace.

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	ESP	>99%
2	Wet Scrubber	~90%

Of the remaining control technologies, the applicant ranked ESPs as the most effective means of PM control for a recovery furnace.

Step 4: Evaluating the Most Effective Controls and Documentation

Table 4-2 of the PSD application provides a listing of the PM emissions limits and controls the applicant found in the RBLC database. The applicant found the most utilized control method is the ESP. Since the Rome Linerboard Mill recovery furnace currently utilizes an ESP for PM emission control and ESPs are the most effective technology for removing PM emissions from recovery furnaces, the applicant has not proposed any additional controls for the project.

Step 5: Selection of BACT

The applicant listed RBLC data in Table 4-2 of the PSD application. The table shows the lowest currently permitted emission limit (0.015 gr/dscf) is permitted at the Weyerhaeuser Red River Mill in Louisiana and the U.S. Alliance facility in Alabama. The emission limit for the Red River Mill corresponds to a newly permitted recovery furnace that has not been tested and therefore has not demonstrated compliance. The U.S. Alliance unit was never installed.

The next lowest currently permitted level found by the applicant is 0.021 gr/dscf, which is currently permitted for several recovery furnaces. Rome Linerboard Mill proposes to meet 0.021 gr/dscf @ 8% O_2 as BACT for Recovery Furnace 5, which matches the unit's current permit limit. The facility also proposes to meet a total (filterable and condensible) particulate matter limit of 0.0238 gr/dscf @ 8% O_2 as BACT for Recovery Furnace 5.

EPD Review – PM/PM_{10} Control

The EPD reviewed the RBLC database for all entries for PM determinations for recovery furnaces and Table 4-2 provided by the applicant. Based on this review, the EPD agrees with the applicant's finding that ESPs are the most effective and widely used control device for PM emissions from recovery furnaces. The review also indicates that the applicant's proposed PM limits are acceptable as all limits lower than 0.021 gr/dscf are for newly constructed furnaces and not modified furnaces. In addition, this matches the filterable PM limits the EPD has approved for Weyerhaeuser – Flint River in 2005 and Brunswick Cellulose in 2007. The total particulate matter limit proposed by the facility is less than the limit approved for Weyerhaeuser – Flint River in 2005.

Conclusion – PM/PM_{10} Control

Compliance with the PM emission limit will be demonstrated through a performance test following completion of the modification and ongoing PM testing that is currently required by the mill's Title V permit. Continuous compliance will be assured through monitoring of the secondary power on the unit's ESP, which is also a requirement of the mill's current Title V permit. Ongoing compliance with the total particulate matter limit will be demonstrated through annual total particulate testing. The BACT selection for the recovery furnace is summarized below in Table 4-2:

Table 4-2: BACT Summary for the Recovery Furnace

Pollutant	Control Technology	Proposed BACT Limit	Averaging Time	Compliance Determination Method
PM/PM_{10}	ESP (filterable)	0.021 gr/dscf @ 8% O2 (filterable) 0.0238 gr/dscf @ 8% O2 (total)	3 Hours (filterable) N/a (total)	ESP Total Power (filterable) Testing (total)

Recovery Furnace 5 – VOC Emissions

Applicant's Proposal

Step 1: Identify all control technologies
The applicant identified oxidizers, carbon absorption, biofiltration technology, and good combustion practices as possible methods of VOC control.

Thermal oxidizers use heat energy to burn and destroy air pollutants. In the case of carbon absorption, gases are passed over a carbon bed and the VOC is absorbed on the activated carbon. Once spent, the carbon would need to be regenerated on or off site. Biofiltration is a technology where gasses are passed through a bed of biodegradable material and VOC is degraded by the microorganisms contained in the biofilter. Good combustion practices involve operating the furnace in such a way that incomplete combustion is avoided.

Step 2: Eliminate technically infeasible options
The applicant determined that the use of biofiltration is not technically feasible due high exhaust temperatures that would destroy the microorganisms in the filter material. The applicant determined that a carbon bed is not technically feasible because the bed would likely be contaminated by other pollutants in the exhaust stream (SO_2, TRS, etc.). The applicant is not aware of any mills that use these technologies to control emissions from recovery furnaces.

The applicant determined that the use of an oxidizer with or without a catalyst would be not be considered practically feasible. The use of an oxidizer would require the exhaust gas stream to be elevated to a minimum temperature of 800 °F for a catalytic oxidizer to be effective (thermal oxidation would require even higher temperatures). The applicant stated that raising the flue gas temperature to this high level would require the use of significant amounts of fuel, which would result in the generation of additional air pollutants (NO_X, SO_2, etc.).

Step 3: Ranking the Remaining Control Technologies by Control Effectiveness
Good combustion practices was the only remaining control technology identified by the applicant.

Step 4: Evaluating the Most Effective Controls and Documentation
Table 4-3 of the PSD application provides a listing of the VOC emissions limits and controls the applicant found in the RBLC database. The applicant determined that good combustion practices (which would include furnace design and operation and combustion control) is the only control technology listed in the database. As a result, the applicant has not proposed any additional controls for the project.

Step 5: Selection of BACT
The applicant selected good combustion practices as the control technology and proposed a BACT limit of 0.025 lb/MMBtu VOC. This is lower than the previously permitted level of 0.04 lb/MMBtu. The proposed BACT limit was equal to the lowest value in Table 4-3 of the application.

EPD Review – VOC Control

The EPD reviewed the RBLC database for all entries for VOC determinations for recovery furnaces and Table 4-3 provided by the applicant. Based on this review, the EPD agrees with the applicant's finding that good combustion practices is the most widely used control technology for VOC emissions from recovery furnaces. No determination found by the EPD required the use of add-on controls. The BACT limit proposed by the applicant matches the lowest confirmed RBLC rate listed in terms of pound per MMBtu and is lower that limits listed in terms of ppm (except for a new furnace that has not yet been tested). Limits that were listed in other units were also higher than that proposed by the applicant.

Conclusion – VOC Control

Compliance with the VOC emission limit will be demonstrated through a performance test following the completion of the modification. The facility will establish a minimum percent oxygen value during the test. Continuous compliance will be assured through monitoring the furnaces flue oxygen, which is a good indicator of the unit's combustion effectiveness. Maintaining the furnaces exhaust gas oxygen concentration at or above this excursion level will assure that the unit maintains compliance with the proposed VOC emission limit. The BACT selection for the recovery furnace is summarized below in Table 4-3:

Table 4-3: BACT Summary for the Recovery Furnace

Pollutant	Control Technology	Proposed BACT Limit	Averaging Time	Compliance Determination Method
VOC	Good Combustion Practices	0.025 lb/MMBut	3 Hours	Flue Oxygen

Recovery Furnace 5 – TRS (including H_2S) Emissions

Applicant's Proposal

Step 1: Identify all control technologies

The applicant identified NDCE (non-direct contact evaporator) furnace design, good operating practices, dry bottom ESPs, and caustic scrubbers as potential control technologies for TRS and H_2S emissions from recovery furnaces. The application states that NDCE furnaces emit significantly less TRS. This information is supported by emission factors found in EPA's AP-42 emission factor publication. The applicant presented the TRS and H_2S information in the same analysis because H_2S is a component of the TRS emissions and by assuring BACT is met for TRS, it is assumed that BACT for H_2S will also be met.

Step 2: Eliminate technically infeasible options

The applicant determined that all control options are technically feasible.

Step 3: Ranking the Remaining Control Technologies by Control Effectiveness

The applicant noted that the Rome Linerboard Mill recovery furnaces is already equipped with a dry bottom ESP and is of NDCE design. These benefits are therefore already being achieved. The EPD found that the AP-42 emission factors indicate that TRS emissions from a NDCE furnace are a fraction of those from a direct contact evaporator design unit.

The applicant stated that caustic packed tower scrubbers might be effective in controlling the inorganic portion of TRS emissions, primarily H_2S, but not the organic forms of TRS (methyl mercaptan, dimethyl sulfide, and dimethyl disulfide).

Step 4: Evaluating the Most Effective Controls and Documentation

Tables 4-4 and 4-4a of the PSD application provides a listing of the TRS and H_2S emissions limits and controls the applicant found in the RBLC database. The applicant found the most utilized control method is furnace design and good operating practices. Since the Rome Linerboard Mill recovery furnace currently utilizes NDCE design / good operating practices and the effectiveness of a scrubber cannot be ascertained, the applicant has not proposed any additional controls for the project.

Step 5: Selection of BACT

The applicant listed RBLC data in Tables 4-4 and 4-4a of the PSD application. Based on a review of the data the facility selected NDCE design and good operating practices and a limit of 5.0 ppm for TRS, on a dry basis, corrected to 8% oxygen as BACT. It is estimated that 80% of the TRS from a recovery furnace is H_2S; therefore, the proposed BACT level for H_2S is 4.0 ppm.

EPD Review – TRS/H_2S Control

The EPD reviewed the RBLC database for all entries for TRS/H_2S determinations for recovery furnaces and Tables 4-4 and 4-4a provided by the applicant. Based on this review, the EPD agrees with the applicant's findings that NDCE design and good operating practices are the most effective and widely used control technologies for TRS/H_2S emissions from recovery furnaces. The review also indicates that the applicant's proposed limits are acceptable.

The EPD reviewed several furnaces for which the TRS limit was lower than the Rome Linerboard Mill's proposal (0.5 ppm to 4 ppm); however, all of the entries were for new furnaces, furnaces that are not operational, or that had a limit lowered due to a performance review. The next lowest limit in terms of ppm was 5 ppm, which was applied in majority of the determinations. This value is also equal to the NSPS Subpart BB limit for recovery furnaces. Other furnace determinations contained ppm limits that ranged from 10 ppm to 40 ppm. There were also a number of determinations for which a comparison could be made on a pound per MMBtu or ton BLS basis. The Rome Linerboard Mill proposed limit is lower than the limits in all of those determinations.

The EPD also reviewed all TRS entries that appeared to include an add-on control device. A determination for the Apple Grove, West Virginia mill prescribed catalytic oxidation, but this unit was never built. Several determinations exist that reference scrubbers, but those determinations still included emission limits equivalent to or higher than the limit proposed by the Rome Linerboard Mill.

The H_2S limit proposed by the Rome Linerboard Mill is equivalent to or lower than the determinations reviewed by the EPD.

Conclusion – TRS/H_2S Control

Compliance with the TRS emission limit will be demonstrated through a performance test following completion of the modification and continuous monitoring with TRS and O_2 CEMS. The TRS CEMS, along with the mill's stack testing of the recovery furnace that demonstrates the portion of H_2S in TRS, will be used to demonstrate compliance with the H_2S emission limit. The BACT selection for the recovery furnace is summarized below in Table 4-4:

Table 4-4: BACT Summary for the Recovery Furnace

Pollutant	Control Technology	Proposed BACT Limit	Averaging Time	Compliance Determination Method
TRS	NDCE System Good Operating Practices	5.0 ppm, 8% O_2, dry basis	12-Hours	CEMS
H_2S	NDCE System Good Operating Practices	4.0 ppm, 8% O_2, dry basis	12-Hours	CEMS Stack Test Data

Linerboard Machines 1 and 2 - Background

The mill currently operates two linerboard machines. The proposed modifications will allow the mill to increase production to the current permitted production capacity of 2,600 MDTPD of linerboard. The linerboard machines are sources of PM/PM_{10}, VOC, and TRS emissions. The virgin pulp and recycle fiber supplied to the linerboard machines have an organic component (which can include sulfur compounds), which can be emitted to the atmosphere during the linerboard manufacturing process. In particular, the drying step can subject the pulp to high temperatures, which can cause some of the organics to be emitted. In addition, some linerboard machines can use additives or cleaners that contain VOC.

Linerboard Machines 1 and 2 – PM/PM_{10} Emissions

Applicant's Proposal

Step 1: Identify all control technologies
The applicant stated that the source of particulate matter from paper machines is not well known and that no known controls have been applied to control particulate matter emissions from paper machines. As Table 4-6 of the application indicates, some data in the RBLC database includes particulate matter emissions from combustion processes that are part of the drying process and not from the paper production. The BACT analysis indicates that add-on particulate matter controls and work practices standards are potential control technologies for paper machines.

Step 2: Eliminate technically infeasible options
The applicant stated that because of the very low emission rate involved and extremely high flow rates (>1,000,000 acfm) for paper machines, the addition of particulate controls is not considered practical. The applicant determined that the particulate matter emission concentration in the paper machine flue gas would be less than 0.0002 gr/dscf. The applicant is not aware of any add-on technology that would be effective at that concentration.

Step 3: Ranking the Remaining Control Technologies by Control Effectiveness

Table 4-5: Ranking of Control Technology

Control Technology Ranking	Control Technology	Control Efficiency
1	Work Practice Standards	N/a

Step 4: Evaluating the Most Effective Controls and Documentation
As indicated in Table 4-6 of the PSD application, the applicant did not find that any controls have been applied to paper machines for PM/PM_{10} emissions. The facility has not proposed any additional controls.

Step 5: Selection of BACT
Because no add-on control devices were identified for particulate matter from steam heated paper machines, the applicant has proposed work practices standards as BACT. The facility has proposed to handle any powered additives used in the linerboard machines in an enclosed manner and will cover storage containers when they are not in use.

EPD Review – PM/PM_{10} Control
The EPD reviewed the RBLC database for all entries for PM determinations for paper machines and Table 4-6 provided by the applicant. Based on this review, the EPD agrees with the applicant's finding that no controls have been prescribed for steam heated paper machines. The EPD therefore agrees with the facility's proposal to use work practice standards to minimize PM emissions from the linerboard machines.

NCASI has established a PM emission factor of 0.0211 lb/ton ADP for paper machines. The applicant used this value to determine potential emissions from the machines of 10.4 tpy combined. Due to the impracticality of testing linerboard machines for a relatively small amount of PM, the EPD agrees with the applicant that it is not necessary to set a limit in conjunction with the work practice standards.

Conclusion – PM/PM_{10} Control
The facility will demonstrate that PM emissions from the linerboard machines are minimized by complying with work practice standards: powered additives will be handled in an enclosure and storage containers will be covered when not in use. The facility will submit a protocol that specifies have ongoing compliance will be demonstrated. This would most likely include periodic inspections and record keeping. The BACT selection for the recovery furnace is summarized below in Table 4-6:

Table 4-6: BACT Summary for the Recovery Furnace

Pollutant	Control Technology	Proposed BACT Limit	Averaging Time	Compliance Determination Method
PM/PM_{10}	Work Practice Standards: Powdered additives will be handled in an enclosure and storage containers will be covered when not in use	N/a	N/a	Protocol (i.e., inspections and record keeping)

Linerboard Machines 1 and 2 – VOC Emissions

Applicant's Proposal

Step 1: Identify all control technologies
The applicant identified work practice standards as the control method primarily utilized for VOC emissions from linerboard machines. These practices include properly washing pulp prior to sending it to the linerboard machine. The applicant also identified oxidation of the VOC in a regenerative thermal oxidizer or similar device as a possible control method.

Step 2: Eliminate technically infeasible options
The applicant found that work practice standards and oxidation devices are both technically feasible.

Step 3: Ranking the Remaining Control Technologies by Control Effectiveness

Table 4-7 Ranking of Control Technology

Control Technology Ranking	Control Technology	Control Efficiency
1	Regenerative Thermal Oxidizer (RTO)	95%
2	Work Practice Standards	N/a

Step 4: Evaluating the Most Effective Controls and Documentation
The applicant facility conducted a cost analysis to estimate the costs of operating an RTO on each linerboard machine. The data is summarized below.

Table 4-8 RTO / Linerboard Cost Analysis Summary

Source	VOC Emission Rate (tpy)	VOC Reduction (tpy)*	Estimated Annualized Cost*	Cost Benefit ($/ton)
Linerboard Machine 1	448.57	426.14	$6,200,000	$14,549
Linerboard Machine 2	448.57	426.14	$5,600,000	$13,141

*Based on 95% reduction.

The applicant calculated that an RTO on both linerboard machines would require an estimated capital investment of $32,000,000 with total annualized costs of $11,800,000 per year. Based on the emissions calculations this equates to $14,549 and $13,141 per ton of VOC removed for Linerboard Machines 1 and 2, respectively. This addresses only the estimated cost of the control devices and does not include the costs of ducting the machine stacks to a centrally located RTO.

The applicant stated that the air streams from the linerboard machines contain significant amounts of water because the primary function of the machines is to remove water from the pulp so that the linerboard sheet can be formed. This would result in increased costs to heat the water while heating up the organic component of the air stream for destruction. This, in turn, would result in increased NO_X emissions due to the combustion of natural gas. The applicant has estimated this increase to be about 361 tpy NO_X based on typical vendor data for emissions from RTOs.

The applicant has not considered the use of RTO technology to be BACT for this source based on the cost analysis, the high energy consumption, and the potential for large increases in NO_X emissions in a NO_X sensitive region. Also, the applicant found that use of VOC control devices on paper machines has not been demonstrated. Work practice standards are the only remaining control option.

Step 5: Selection of BACT

Table 4-7 of the PSD application provides a listing of VOC emission limits currently in place for paper machines. The applicant found the referenced control technology in the RBLC database to include properly washing the pulp prior to sending it to the paper machines. The applicant also determined that some of the information is for bleaching mills and VOC emissions can be dependent on feed stock and additives. Because no add-on control devices were identified for VOC from paper machines, the applicant has proposed work practices standards: The pulp sent to the linerboard machines will go through a final rinse to ensure VOC emissions are minimized and additives used at the linerboard machine will have little or no VOC content.

EPD Review – VOC Control

The EPD reviewed the RBLC database for all entries for VOC determinations for paper machines and Table 4-7 provided by the applicant. Based on this review, the EPD agrees with the applicant's finding that no controls have been prescribed for VOC from kraft paper machines. In addition, the applicant's review for RTO controls indicate that although the cost per ton for reductions isn't extremely high, the use of a RTO would result in significant NO_X emissions. The EPD therefore agrees with the facility's proposal to use work practice standards to minimize VOC emissions from the linerboard machines.

NCASI has established a VOC emission factor of 1.82 lb/ton ADP for linerboard machines. Due to the impracticality of testing linerboard machines that will not be equipped with a control device, the EPD agrees with the applicant that it is not necessary to set a limit in conjunction with the work practice standards. The EPD noted that, in addition to the determinations cited by the applicant in Table 4-7 of the application, there are several additional determinations that do not specify an actual emission limit with a work practice standard.

Conclusion – VOC Control

The facility will demonstrate that VOC emissions from the linerboard machines are minimized by complying with work practice standards: the pulp sent to the linerboard machines will go through a final rinse to ensure VOC emissions are minimized and additives used at the linerboard machines will have little or no VOC content. The facility will submit a protocol that specifies have ongoing compliance will be demonstrated. This would most likely include maintaining information regarding the VOC content of additives, periodic inspections, and record keeping. The BACT selection for the recovery furnace is summarized below in Table 4-9:

Table 4-9: BACT Summary for the Recovery Furnace

Pollutant	Control Technology	Proposed BACT Limit	Averaging Time	Compliance Determination Method
VOC	Work Practice Standards: The pulp sent to the linerboard machines will go through a final rinse to ensure VOC emissions are minimized. Additives used at the linerboard machine will have little or no VOC content.	N/a	N/a	Protocol (i.e., inspections and record keeping)

Linerboard Machines 1 and 2 – TRS Emissions

Applicant's Proposal

Step 1: Identify all control technologies

The applicant identified good work practices (work practice standards) as the control method primarily utilized for TRS emissions from linerboard machines. These practices include properly washing pulp prior to sending it to the linerboard machines. The applicant also identified oxidation of the TRS in a regenerative thermal oxidizer or similar device as a possible control method.

Step 2: Eliminate technically infeasible options
The applicant found that work practice standards and oxidation devices are both technically feasible.

Step 3: Ranking the Remaining Control Technologies by Control Effectiveness

Table 4-10 Ranking of Control Technology

Control Technology Ranking	Control Technology	Control Efficiency
1	Regenerative Thermal Oxidizer (RTO)	95%
2	Work Practice Standards	N/a

Step 4: Evaluating the Most Effective Controls and Documentation
The applicant facility conducted a cost analysis to estimate the costs of operating an RTO on each linerboard machine to control VOC emissions. This same analysis was then applied to TRS emissions and the same conclusion was reached. In fact, the applicant stated that cost analysis results would be much more prohibitive because potential emissions of TRS are a fraction of potential VOC emissions (12.3 tpy versus 897 tpy). The combustion of TRS compounds would also result in additional SO_2 on top of the NO_X emissions from natural gas combustion. Based on this information the facility determined the use of an RTO is not BACT for this source. Work practices standards are the only remaining control option.

Step 5: Selection of BACT
Table 4-8 of the PSD application provides a listing of TRS emission limits currently in place for paper machines. The applicant found that there were no control devices listed for TRS emissions. Because no add-on control devices were identified for TRS from paper machines, the applicant has proposed work practice standards: The pulp sent to the linerboard machines will go through a final rinse to ensure TRS emissions are minimized.

EPD Review – TRS Control
The EPD reviewed the RBLC database for all entries for TRS determinations for paper machines and Table 4-8 provided by the applicant. Based on this review, the EPD agrees with the applicant's finding that no controls have been prescribed for TRS from kraft paper machines. In addition, the applicant's review for RTO controls indicate that the device would be cost prohibitive and RTO would result in significant NO_X emissions and additional SO_2 emissions. The EPD therefore agrees with the facility's proposal to use work practice standards to minimize TRS emissions from the linerboard machines.

NCASI has established a TRS emission factor of 0.025 lb/ton ADP for linerboard machines. Due to the impracticality of testing linerboard machines that will not be equipped with a control device and the relatively small potential TRS emissions, the EPD agrees with the applicant that it is not necessary to set a limit in conjunction with the work practice standards.

Conclusion – TRS Control
The facility will demonstrate that TRS emissions from the linerboard machines are minimized by complying with work practice standards: the pulp sent to the linerboard machines will go through a final rinse to ensure TRS emissions are minimized. The facility will submit a protocol that specifies have ongoing compliance will be demonstrated. This would most likely include maintaining information regarding periodic inspections, and record keeping. The BACT selection for the recovery furnace is summarized below in Table 4-11:

Table 4-11: BACT Summary for the Recovery Furnace

Pollutant	Control Technology	Proposed BACT Limit	Averaging Time	Compliance Determination Method
TRS	Work Practice Standards: The pulp sent to the linerboard machines will go through a final rinse to ensure TRS emissions are minimized.	N/a	N/a	Protocol (i.e., inspections and record keeping)

5.0 TESTING AND MONITORING REQUIREMENTS

Testing Requirements:

Recovery Furnace 5
Recovery Furnace 5 is currently required by the current Title V permit to undergo annual PM and SO_2 stack testing and biennial TRS and H_2S testing (testing may be more or less frequent depending on test results). This testing will continue at the frequency outlined in the current Title V permit. The facility is required by this amendment to conduct performance tests for PM (filterable and condensible), opacity, TRS, H_2S, CO, VOC, and SO_2 upon completion of the modifications. The tests are necessary to determine compliance with limits under PSD, 40 CFR 63 Subpart MM, and 40 CFR 60 Subpart BB at the new, higher, black liquor solids production rate and with the physical changes to the furnace.

Lime Kilns 1A and 2A and Smelt Dissolving Tank 5
The lime kilns and the smelt dissolving tank will experience throughput increases due to the increased BLS production. The facility is required by this amendment to conduct performance tests for PM, TRS, SO_2, and opacity for these units following the recovery furnace modification to demonstrate compliance with the limits in the current Title V permit.

Linerboard Machines
No testing is required for the linerboard machines. The facility will use work practice standards to minimize emissions from these units.

Road Fugitives
No testing is required for the roadway fugitives. The facility will use a protocol to minimize emissions from the roads.

Monitoring Requirements:

Recovery Furnace 5
The permit contains limits for PM, opacity, TRS, H_2S, CO, VOC and SO_2. The facility will continue to demonstrate ongoing compliance with the limits for these pollutants as follows:

- PM: The facility is required to monitor secondary current and secondary voltage of the recovery furnace ESP on a continuous basis. The total power performance indicator is then calculated from the current and voltage data.
- Opacity, TRS: The facility is required to operate a continuous opacity monitoring system (COMS) and a CEMS for TRS.
- H_2S: The facility is required to use TRS CEMS data and H_2S performance test data to continuously monitor this pollutant.
- CO, VOC: The facility is therefore required to continuously monitor furnace oxygen to assure sufficiently complete combustion.
- SO_2: The facility is required to monitor the black liquor feed rate and black liquor solids content as fed to the recovery furnace. A low black liquor solids content can indicate higher SO_2 emissions.

The amendment contains a new permit limit for NO_X emissions. The facility will demonstrate ongoing compliance with a continuous emissions monitoring system.

Lime Kilns 1A and 2A
The permit contains limits for PM, opacity, TRS, and SO_2. The facility will continue to demonstrate ongoing compliance with the limits for these pollutants as follows:

- PM, Opacity: The facility is required to monitor pressure drop and scrubbant flow rates for the lime kiln scrubbers on a continuous basis.
- TRS: The facility is required to operate CEMS for TRS.
- SO_2: The regenerated lime in the kilns acts as a scrubbing agent; therefore, no direct monitoring is required. The scrubbers also provide some control for this pollutant.

Smelt Dissolving Tank 5
The permit contains limits for PM, opacity, TRS, and SO_2. The facility will continue to demonstrate ongoing compliance with the limits for these pollutants by monitoring pressure drop and scrubbant flow rate for the smelt dissolving tank scrubber on a continuous basis.

Linerboard Machines
The facility will use work practice standards to minimize emissions from the linerboard machines. The amendment requires the facility to submit a protocol that will describe how the facility will confirm ongoing compliance with these practices.

Road Fugitives
The facility will use a protocol that describes the controls that will be used to minimize emissions from the roadways. The amendment requires the facility to submit this protocol.

CAM Applicability:

CAM is not applicable and is not being triggered by the proposed modification because Recovery Furnace 5 is exempt from CAM and the Linerboard Machines do not have control devices. Therefore, no CAM provisions are being incorporated into the facility's permit during this permitting action.

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 Rome Linerboard Mill triggers PSD review for PM_{10}, VOC, TRS and H_2S. An air quality analysis was conducted to demonstrate the facility's compliance with the NAAQS and PSD Increment standards. 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 PM_{10}, VOC, TRS, and H_2S 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. TRS, H_2S, and VOC do not have established PSD modeling significance levels (MSL) (an ambient concentration expressed in either $\mu g/m^3$ or ppm). While TRS and H_2S do not have established modeling significance levels, they do have ambient monitoring *de minimis* thresholds that are concentration-based. 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 Chattooga 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 PM_{10} (TRS, H_2S, and VOC do not have a MSLs) emissions increases at the Rome Linerboard Mill 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 MSLs for the pollutants of concern are summarized in Table 6-1 of this document.

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 PM_{10}, TRS, and H_2S.

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. The U.S. EPA is in the process of finalizing requirements for $PM_{2.5}$.

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
TRS	1-Hour	---	10
H_2S	1-Hour	--	0.2

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)
PM_{10}	Annual	*Revoked 12/17/06	*Revoked 12/17/06
	24-Hour	150 / 150	--

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 Rome Linerboard Mill, 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 finalized soon). The PSD Increments are further broken into Class I, II, and III Increments. The Rome Linerboard Mill 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)
PM_{10}	Annual	4	17
	24-Hour	8	30

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 Section 5.0 of the permit application.

Modeling Results

Table 6-4 show that the proposed project will not cause ambient impacts of PM_{10} 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 this pollutant.

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?
PM_{10}	24-hour	2006	653258	3791444	4.19	5	No
	Annual	2002	653258	3791444	0.49	1	No

Data for worst year provided only.

As indicated in the tables above, maximum modeled impacts were below the corresponding MSLs for PM_{10}.

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?
PM_{10}	24-hour	2006	653258	3791444	10	4.19	No
TRS	1-hour	2004	653566	3793430	10	5.57	No
H_2S	1-hour	2004	653566	3793430	0.2	4.76	**Yes**

Data for worst year provided only

Project emissions of H_2S are above the monitoring *de minimis* concentration. GA EPD will rely on the use of the existing TRS monitor at Temple-Inland should monitoring data become required. The TRS monitor should provided reasonable estimates of the background concentrations of H_2S. For these reasons, no pre-construction ambient monitoring requirements apply for H_2S. Project TRS did not cause concentrations above the monitoring *de minimis* concentration.

The impacts for 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 all maximum modeled impacts are below the corresponding de minimis concentrations, no pre-construction monitoring is required for PM_{10}.

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 a monitor at the Summerville, Georgia Fish Hatchery in Chattooga County) will provide sufficient ozone data such that no pre-construction or post-construction ozone monitoring is necessary.

The federal rules under 40 CFR 52.21(m) describe the PSD review requirements for ambient air quality analyses. These requirements include pre-application and post-application analyses. The pre-application analysis considers the current state of the ambient air conditions for ozone (O_3). The mill is located in an area considered to be minimally affected by the impact of other sources associated with human activities. For these conditions, US EPA guidance recommends that monitoring data from a 'regional' site may be used as representative data. To determine if existing data is appropriate, US EPA guidance recommends three criteria: monitor location, data quality, and currentness of the data.

For the first criteria regarding O_3, the Fish Hatchery monitoring site is located approximately 15 miles northwest of the Temple-Inland facility. GA EPD believes that the O_3 monitor located at the Fish Hatchery includes representative data of the Temple-Inland Mill's operation due to its proximity to the manufacturing site.

For the second criteria, GA EPD operates the monitor, collects reliable data, and calibrates the monitor regularly.

Lastly, for the third criteria, the Fish Hatchery monitoring location includes the most recent data available from which is calendar year 2007. The 8-hour average design value (4^{th} highest maximum) collected during the 2007 calendar year was 0.080 ppm; in 2006, the design concentration was 0.073 ppm; in 2005, it was 0.077 ppm; in 2004, it was 0.072 ppm. These values are very close to the new 8-hour standard for O_3 of 0.075 ppm.

GA EPD believes that all the above data satisfies the data quality requirements of EPA. Thus, to meet the regional site criteria, GA EPD selected the ambient data from the Summerville Fish Hatchery site in Chattooga County to determine the pre-application air quality. While the recently monitored data are very close to the new 8-hour ozone standard, the region's ozone levels are known to be more sensitive to NO_X emissions than to VOC emissions, and the project involves a less-than-significant increase in NO_X emissions.

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.

There are four Class I Areas within a 250 kilometer radius of the Rome Linerboard Mill. The Cohutta Wilderness Area is located approximately 92 kilometers northeast of the facility; the Joyce Kilmer Slickrock Wilderness Area is located approximately 173 kilometers northeast of the facility; the Sipsey Wilderness Area is located approximately 186 kilometers west of the facility; and the Great Smokey Mountains National Park is located approximately 241 kilometers northeast of the facility. The U.S. Forest Service operates the three nearest Class I Areas and the National Park Service operates the Great Smokey Mountains area. Both services were contacted by the facility they indicated that no Class I evaluation was necessary 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 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 MSLs. 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 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. Generally, the VISCREEN model is used to assess potential impacts on ambient visibility at so-called "sensitive receptors" within the SIA of the facility. No significant impact area was predicted for the project, thus no potentially sensitive receptors were predicted to be impacted.

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, coal, wood, tire derived fuel, wastewater sludge, 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.

TAP emissions from the Rome Linerboard Mill were identified using The Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Volume 1 (AP-42) and industry specific data provided by the National Council For Air And Stream Improvement, Inc. (NCASI). This information can be found in Exhibit F of the application.

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. The Rome Linerboard Mill 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.

The above analysis was conducted for the Rome Linerboard Mill. Three contaminants were predicted to exceed their respective annual average AACs using the SCREEN3 model. These were subjected to refined modeling with ISCST3. Ultimately, all contaminants were modeled to be in conformance with their AACs.

8.0 EXPLANATION OF DRAFT PERMIT CONDITIONS

The permit requirements for this proposed facility are included in draft Permit Amendment No. 2631-115-0021-V-02-1.

Section 1.0: Facility Description

The facility has proposed to conduct general repair work on and replace the floor tube portion of Recovery Furnace 5. The work may allow for an increase of the potential black liquor solids firing rate to approximately 5.44 million pounds per day from the previously permitted value of 5.3 million pounds per day.

The facility has proposed to modify Linerboard Machine 1 and Linerboard Machine 2 to allow the machines to be operated at a higher production rate, from the current average production of 2,385 tons of machine dried linerboard per day to the current permitted production level of 2,600 tons of machine dried linerboard per day. The modifications to the linerboard machines may include, but are not limited to, new primary headboxes, the addition of suction roll steam boxes, the removal of breaker stack rolls and the reinstallation of dryer cans, the installation of new hoods (closed) down to the basement or operating floor with pocket ventilation systems and exhaust fans, the installation of new motors and gear boxes on drive systems as needed, the modification of the dryer section and line shaft progressive drive systems, and possible press modifications. The facility may also modify the stock prep area and winders to achieve production goals.

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 permit action.

Section 3.0: Requirements for Emission Units

Condition 3.2.5.a has been modified to reduce the SO_2 limit for Recovery Furnace 5 from 486.0 pounds per hour to 4.0 ppm corrected to 8 percent oxygen, which is equivalent to 12.9 pounds per hour. This limit allows the facility to avoid PSD for the modification. The new limit subsumes the previous limit under 40 CFR 52.21.

Condition 3.2.5.b has been modified to reduce the CO limit for Recovery Furnace 5 from 650 to 390 ppm corrected to 8 percent oxygen. This limit allows the facility to avoid PSD for the modification. The new limit subsumes the previous limit under 40 CFR 52.21.

Condition 3.2.5.c has been modified to reduce the VOC limit for Recovery Furnace 5 from 0.040 to 0.025 pounds per MMBtu heat input. This limit is the result of the PSD BACT analysis.

Conditions 3.2.5.d, 3.2.5.e, and 3.2.5.f have been repeated for completeness purposes.

Condition 3.2.5.g has been added to the permit to include a NO_X limit for Recovery Furnace 5 of 94.0 ppm corrected to 8 percent oxygen. This limit allows the facility to avoid PSD for the modification.

Condition 3.2.5.h has been added to the permit to include a total PM limit for Recovery Furnace 5 of 0.0238 gr/dscf corrected to 8 percent oxygen. This limit is the result of the PSD BACT analysis.

Condition 3.2.7 has been modified to increase the BLS throughput for Recovery Furnace 5 from 5.3 to 5.44 million pounds of BLS per day.

Condition 3.2.19 has been added to the permit to include the BACT work practices for PM_{10}, VOC, and TRS emissions from the Linerboard Machines.

Condition 3.2.20 has been added to the permit to include the fugitive dust mitigation requirements submitted as part of the PSD application.

Section 4.0: Requirements for Testing

Condition 4.1.3 has been updated to include the test method for condensible particulate matter.

Conditions 4.2.1 and 4.2.2 have been modified to include a periodic testing for total particulate matter from Recovery Furnace 5.

Condition 4.2.5 has been added to permit to specify all performance tests that must be conducted for Recovery Furnace 5, Lime Kilns 1A and 2A, and Smelt Dissolving Tank 5 following the modifications to the recovery furnace.

Section 5.0: Requirements for Monitoring

Condition 5.2.1.b has been modified to require the facility to operate a NO_X CEMS on the modified recovery boiler.

Section 6.0: Other Recordkeeping and Reporting Requirements

Condition 6.1.7.a(xxii) has been added to the permit to describe the excess emission conditions for NO_X emissions from Recovery Furnace 5.

Condition 6.1.7.b(vi) has been modified to increase the BLS throughput for describing the exceedance condition for Recovery Furnace 5.

Conditions 6.1.7.b(xx), 6.1.7.c(ii), 6.1.7.c(iii), and 6.1.7.c(iv) have been modified to allow the facility to re-establish exceedance and excursion parameters for testing required by this amendment.

Condition 6.2.43 has been added to the permit to require the facility to submit the monitoring and record keeping for determining on-going compliance with the linerboard machine BACT work practices.

Condition 6.2.44 has been added to the permit to require the facility to submit a fugitive dust mitigation plan for the road improvements proposed in the PSD application.

Condition 6.2.45 has been added to the permit to require the facility to commence construction of the recovery furnace and linerboard machine modifications within 18 months of the issuance of the amendment. This provides a reasonable assurance that the modeling and BACT analysis are valid at the time of construction.

Section 7.0: Other Specific Requirements

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

APPENDIX A

Draft Revised Title V Operating Permit Amendment
Temple – Inland (Rome Linerboard Mill)
Rome (Floyd County), Georgia

APPENDIX B

Temple – Inland (Rome Linerboard Mill) PSD Permit Application and Supporting Data

Contents Include:

1. PSD Permit Application No. 17678, dated September 7, 2007; Revised version dated November 26, 2007.
2. Additional Information Package Dated October 15, 2007.
3. Additional Information Package Dated January 8, 2008.
4. Additional Information Package Dated April 2, 2008.
5. Additional Information Package Dated April 9, 2008.

APPENDIX C

EPD'S PSD Dispersion Modeling and Air Toxics Assessment Review