Georgia-Pacific

Palatka Pulp and Paper Operations
Consumer Products Division

P.O. Box 919
Palatka, FL 32178-0919
(386) 325-2001

June 25, 2009

Mr. Jeffery F. Koerner, Air Permitting North Section
Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Re: Georgia-Pacific Consumer Operations LLC- Palatka Mill
Replacement of Lime Mud Pre-Coat Filter Drum

Dear Mr. Koerner:

Georgia-Pacific Consumer Operations LLC- Palatka Mill (GP) operates an unbleached and bleached Kraft pulp and paper Mill in Palatka, Florida (Putnam County). Process operations at the Mill include a batch digester system, multiple effect evaporator system, condensate stripper system, recovery boiler and smelt dissolving tanks, lime kiln, tall oil plant, utilities, bleach plant, chlorine dioxide plant, and other equipment to produce finished paper products from virgin wood.

This application is being submitted to allow the mill to replace the mill's lime mud pre-coat filter drum with a "like-kind" unit. There will be no change in the method of operation as a result of the replacement of the filter drum. The replacement of the filter drum is not being proposed to restore any lost production capacity, rather, the mill wants to implement the project as a preventative measure since the drum is severely corroded and could fail at any time. The Mill plans to purchase and install a new single valve washer drum and vacuum receiver tank for the filter. The new drum will be the same size as the existing drum, which is 12 feet in diameter and 16 feet in length. The mill plans to do this work during its regularly scheduled outage for the Recausticizing Area beginning on September 1, 2009.

The lime mud pre-coat filter drum, which feeds lime mud to the mill's No. 4 Lime Kiln, is critical to the operation of the mill's liquor cycle. The lime mud pre-coat filter is required to feed lime mud to the mill's single No. 4 Lime Kiln while the kiln is operational. The lime mud pre-coat filter is also required to operate the mill using purchased lime when the kiln is out-of-service for maintenance or other reasons. When the kiln is out-of-service it allows the lime mud to be de-watered and saved for reuse. If the lime mud filter were to fail catastrophically, the Mill's liquor cycle would be shut down until repairs could be completed. The condition of the existing drum indicates that a replacement drum is needed to maintain reliable operation. The existing lime mud pre-

coat filter has been in service for since 1976. Over the past three years, extensive internal repairs have been made on this drum to address corrosion.

- The internal support rings and the structural members on both heads, which are constructed of carbon steel, are severely corroded and temporary re-enforcement rings have been added.
- The I-beam structural members of the drum heads have been re-enforced with t-bar. These are temporary repairs were put in place to gain additional run time until the unit can be replaced.

Based on experience in our industry, lime mud filter drums are replaced between one to three times over the life cycle of the lime kiln.

Emissions from the lime mud pre-coat filter include small quantities of both volatile organic compounds (VOCs) and total reduced sulfur (TRS) Compounds. Point source emissions are generated from processing the lime mud through the filter and come from the vacuum pump exhaust. Additionally, some fugitive VOC and TRS emissions are driven off of the lime mud as it is processed through the filter drum. Based on a comparison of "past actual" to "future-potential" emissions from the lime mud pre-coat filter, the increases in VOC and TRS emissions are well below their respective PSD applicability levels. No other emission sources at the mill are affected by replacing the filter drum, therefore, the PSD applicability analysis only considered the lime mud filter itself, and no other emission sources. As a result of the PSD applicability analysis, contained in the attached spreadsheet, this replacement is not considered a major modification as defined under 40 CFR 52.21(b)(2)(i).

Attached is the Florida Department of Environmental Protection's long form application for a construction air permit to cover the replacement of the lime mud pre-coat filter drum. The form has been signed by the facility's responsible official and certified by a professional engineer registered in the state of Florida. Also attached are the PSD-regulated pollutant emission calculations, HAP emissions calculations, PSD applicability analysis in a spreadsheet format, and copies of the emissions factor references used to estimate TRS Compound and VOC emissions from the lime mud pre-coat filter.

GP would appreciate the Bureau's timely review of this permit application so that the mill can receive approval to replace the lime mud pre-coat filter drum during its annual shutdown this year. If there are any questions regarding this application, please do not hesitate to contact Mike Curtis at 386-329-0918.

Sincerely,

MWC for Gary Frost

Gary L. Frost, Vice-President
Palatka Operations

GLF/wjg

encl.

cc: B. Mitchell, DEP-Tallahassee
M.W. Curtis Palatka, FL
R.E. Reynolds Palatka, FL
W.J. Galler Atlanta, GA (GA030-09)

Department of Environmental Protection

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

Air Construction Permit – Use this form to apply for an air construction permit:

- For any required purpose at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air operation permit;
- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment new source review, or maximum achievable control technology (MACT);
- To assume a restriction on the potential emissions of one or more pollutants to escape a requirement such as PSD review, nonattainment new source review, MACT, or Title V; or
- To establish, revise, or renew a plantwide applicability limit (PAL).

Air Operation Permit – *Use this form to apply for:*

- An initial federally enforceable state air operation permit (FESOP); or
- An initial, revised, or renewal Title V air operation permit.

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: **Georgia-Pacific Consumer Operations LLC**	
2. Site Name: **Palatka Mill**	
3. Facility Identification Number: **1070005**	
4. Facility Location... Street Address or Other Locator: **215 County Road 216** City: **Palatka** County: **Putnam** Zip Code: **32177**	
5. Relocatable Facility? ☐ Yes ☒ No	6. Existing Title V Permitted Facility? ☒ Yes ☐ No

Application Contact

1. Application Contact Name: **Ron Reynolds, Environmental Engineer – Air Quality**
2. Application Contact Mailing Address... Organization/Firm: **Georgia-Pacific Consumer Operations LLC** Street Address: **P.O. Box 919** City: **Palatka** State: **FL** Zip Code: **32178-0919**
3. Application Contact Telephone Numbers... Telephone: **(386) 329-0967** ext. Fax: **(386) 328-0014**
4. Application Contact E-mail Address: **ron.reynolds@gapac.com**

Application Processing Information (DEP Use)

1. Date of Receipt of Application: 6/29/09	3. PSD Number (if applicable):
2. Project Number(s): 1070005-063-AC	4. Siting Number (if applicable):

APPLICATION INFORMATION

Purpose of Application

This application for air permit is being submitted to obtain: (Check one)

Air Construction Permit

☒ Air construction permit.

☐ Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL).

☐ Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

Air Operation Permit

☐ Initial Title V air operation permit.

☐ Title V air operation permit revision.

☐ Title V air operation permit renewal.

☐ Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.

☐ Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit (Concurrent Processing)

☐ Air construction permit and Title V permit revision, incorporating the proposed project.

☐ Air construction permit and Title V permit renewal, incorporating the proposed project.

Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:

☐ I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

Application Comment

This application is being submitted to allow the mill to replace the mill's lime mud pre-coat filter drum with a "like-kind" unit. There will be no change in the method of operation as a result of the replacement of the filter drum. The replacement of the filter drum is not being proposed to restore any lost production capacity, rather, the mill wants to implement the project as a preventative measure since the drum is severely corroded and could fail at any time. The Mill plans to purchase and install a new single valve washer drum and vacuum receiver tank for the filter. The new drum will be the same size as the existing drum, which is 12 feet in diameter and 16 feet in length. The mill plans to do this work during its regularly scheduled outage for the Recausticizing Area in September 2009.

The lime mud pre-coat filter drum, which feeds lime mud to the mill's No. 4 Lime Kiln, is critical to the operation of the mill's liquor cycle. The lime mud pre-coat filter is required to feed lime mud to the mill's single No. 4 Lime Kiln while the kiln is operational. The lime mud pre-coat filter is also required to operate the mill using purchased lime when the kiln is out-of-service for maintenance or other reasons. When the kiln is out-of-service it allows the lime mud to be de-watered and saved for reuse. If the lime mud filter were to fail catastrophically, the Mill's liquor cycle would be shut down until repairs could be completed. The condition of the existing drum indicates that a replacement drum is needed to maintain reliable operation. The existing lime mud pre-coat filter has been in service for since 1976. Over the past three years, extensive internal repairs have been made on this drum to address corrosion.

- The internal support rings and the structural members on both heads, which are constructed of carbon steel, are severely corroded and temporary re-enforcement rings have been added.
- The I-beam structural members of the drum heads have been re-enforced with t-bar. These are temporary repairs were put in place to gain additional run time until the unit can be replaced.

Scope of Application

Emissions Unit ID Number	Description of Emissions Unit	Air Permit Type	Air Permit Processing Fee
N/A	Lime Mud Pre-coat Filter Drum	N/A	N/A

Application Processing Fee

Check one: ☐ Attached - Amount: $_____ ☒ Not Applicable

Owner/Authorized Representative Statement

Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name :
   Gary L. Frost Vice-President Operations

2. Owner/Authorized Representative Mailing Address...
   Organization/Firm: **Georgia-Pacific Consumer Operations LLC**
   Street Address: **P.O. Box 919**
   City: **Palatka** State: **FL** Zip Code: **32178**

3. Owner/Authorized Representative Telephone Numbers...
   Telephone: **(386) 329-0063** ext. Fax: **(386) 312-1135**

4. Owner/Authorized Representative E-mail Address: **gary.frost@gapac.com**

5. Owner/Authorized Representative Statement:

   I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.

   MWC for Gary Frost — Signature

   6/25/09 — Date

Pages A-6 and A-7 are not applicable and have been removed

Professional Engineer Certification

1. Professional Engineer Name: **Mark Aguilar**
   Registration Number: **52248**
2. Professional Engineer Mailing Address...
   Organization/Firm: **Georgia-Pacific LLC**
   Street Address: **133 Peachtree Street NE**
   City: **Atlanta** State: **GA** Zip Code: **30303**
3. Professional Engineer Telephone Numbers...
   Telephone: **(404) 652-4293** ext. Fax: **(404) 232-4310**
4. Professional Engineer E-mail Address: **mjaguila@gapac.com**
5. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

(3) If the purpose of this application is to obtain a Title V air operation permit (check here , if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.

(4) If the purpose of this application is to obtain an air construction permit (check here x , if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here , if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here , if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Signature 6/22/09
Date

(seal)

*Attach any exception to certification statement.

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates... Zone **17** East (km) **434.0** North (km) **3,283.4**		2. Facility Latitude/Longitude... Latitude (DD/MM/SS) **29/41/0** Longitude (DD/MM/SS) **81/40/45**	
3. Governmental Facility Code: **0**	4. Facility Status Code: **A**	5. Facility Major Group SIC Code: **26**	6. Facility SIC(s): **2611, 2621**
7. Facility Comment :			

Facility Contact

1. Facility Contact Name: **Ron Reynolds, Environmental Engineer – Air Quality**
2. Facility Contact Mailing Address... Organization/Firm: **Georgia-Pacific Consumer Operations LLC** Street Address: **P.O. Box 919** City: **Palatka** State: **FL** Zip Code: **32178**
3. Facility Contact Telephone Numbers: Telephone: **(386) 329-0967** ext. Fax: **(386) 328-0014**
4. Facility Contact E-mail Address: **ron.reynolds@gapac.com**

Facility Primary Responsible Official

Complete if an "application responsible official" is identified in Section I that is not the facility "primary responsible official."

1. Facility Primary Responsible Official Name: **Gary L. Frost Vice-President Operations**
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: **Georgia-Pacific Consumer Operations LLC** Street Address: **P.O. Box 919** City: **Palatka** State: **FL** Zip Code: **32178**
3. Facility Primary Responsible Official Telephone Numbers... Telephone: **(386) 329-0063** ext. Fax: **(386) 312-1135**
4. Facility Primary Responsible Official E-mail Address: **gary.frost@gapac.com**

Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a "major source" and a "synthetic minor source."

1.	☐ Small Business Stationary Source	☐ Unknown
2.	☐ Synthetic Non-Title V Source	
3.	☒ Title V Source	
4.	☒ Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5.	☐ Synthetic Minor Source of Air Pollutants, Other than HAPs	
6.	☒ Major Source of Hazardous Air Pollutants (HAPs)	
7.	☐ Synthetic Minor Source of HAPs	
8.	☒ One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9.	☐ One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10.	☒ One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11.	☐ Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment:		

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
VOC (Volatile Organic Compounds)	**A**	**N**
TRS (Total Reduced Sulfur)	**A**	**N**
H115 (Methanol)	**A**	**N**
Total HAPs	**A**	**N**

B. EMISSIONS CAPS

Facility-Wide or Multi-Unit Emissions Caps

1. Pollutant Subject to Emissions Cap	2. Facility Wide Cap [Y or N]? (all units)	3. Emissions Unit ID No.s Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap

7. Facility-Wide or Multi-Unit Emissions Cap Comment:

C. FACILITY ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1.	Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☐ Attached, Document ID:____ ☒ Previously Submitted, Date: 07/2006
2.	Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☐ Attached, Document ID:____ ☐ Previously Submitted, Date: 07/2006
3.	Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) ☐ ☐ Previously Submitted, Date: 07/2006

Additional Requirements for Air Construction Permit Applications

1.	Area Map Showing Facility Location: ☐ Attached, Document ID: ☒ Not Applicable (existing permitted facility)
2.	Description of Proposed Construction or Modification: ☐ Attached, Document ID:
3.	Rule Applicability Analysis: ☐ Attached, Document ID:
4.	List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1., F.A.C.): ☐ Attached, Document ID: ☒
5.	Fugitive Emissions Identification (Rule 62-212.400(2), F.A.C.): ☐ Attached, Document ID: ☒ Not Applicable
6.	Preconstruction Air Quality Monitoring and Analysis (Rule 62-212.400(5)(f), F.A.C.): ☐ Attached, Document ID: ☒ Not Applicable
7.	Ambient Impact Analysis (Rule 62-212.400(5)(d), F.A.C.): ☐ Attached, Document ID: ☒ Not Applicable
8.	Air Quality Impact since 1977 (Rule 62-212.400(5)(h)5., F.A.C.): ☐ Attached, Document ID: ☒ Not Applicable
9.	Additional Impact Analyses (Rules 62-212.400(5)(e)1. and 62-212.500(4)(e), F.A.C.): ☐ Attached, Document ID: ☒ Not Applicable
10.	Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.): ☐ Attached, Document ID:____ ☒ Not Applicable

Additional Requirements for FESOP Applications

1. List of Exempt Emissions Units (Rule 62-210.300(3)(a) or (b)1., F.A.C.):
   ☐ Attached, Document ID:____ ☒ Not Applicable (no exempt units at facility)

Additional Requirements for Title V Air Operation Permit Applications

1. List of Insignificant Activities (Required for initial/renewal applications only):
   ☐ Attached, Document ID:____ ☒ Not Applicable (revision application)

2. Identification of Applicable Requirements (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought):
   ☐ Attached, Document ID:____
   ☐ Not Applicable (revision application with no change in applicable requirements)

3. Compliance Report and Plan (Required for all initial/revision/renewal applications):
   ☐ Attached, Document ID:____
   Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.

4. List of Equipment/Activities Regulated under Title VI (If applicable, required for initial/renewal applications only):
   ☐ Attached, Document ID:____
   ☐ Equipment/Activities On site but Not Required to be Individually Listed
   ☒ Not Applicable

5. Verification of Risk Management Plan Submission to EPA (If applicable, required for initial/renewal applications only) :
   ☐ Attached, Document ID:____ ☒ Not Applicable

6. Requested Changes to Current Title V Air Operation Permit:
   ☐ Attached, Document ID: ☒ Not Applicable

Additional Requirements Comment

EMISSIONS UNIT INFORMATION
Section [1] of [1]
No. 4 Lime Kiln

III. EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Application - For Title V air operation permitting only, emissions units are classified as regulated, unregulated, or insignificant. If this is an application for Title V air operation permit, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each regulated and unregulated emissions unit addressed in this application for air permit. Some of the subsections comprising the Emissions Unit Information Section of the form are optional for unregulated emissions units. Each such subsection is appropriately marked. Insignificant emissions units are required to be listed at Section II, Subsection C.

Air Construction Permit or FESOP Application - For air construction permitting or federally enforceable state air operation permitting, emissions units are classified as either subject to air permitting or exempt from air permitting. The concept of an "unregulated emissions unit" does not apply. If this is an application for air construction permit or FESOP, a separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air permitting are required to be listed at Section II, Subsection C.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit Application – Where this application is used to apply for both an air construction permit and a revised/renewal Title V air operation permit, each emissions unit is classified as either subject to air permitting or exempt from air permitting for air construction permitting purposes and as regulated, unregulated, or insignificant for Title V air operation permitting purposes. **The air construction permitting classification must be used to complete the Emissions Unit Information Section of this application for air permit.** A separate Emissions Unit Information Section (including subsections A through I as required) must be completed for each emissions unit subject to air permitting addressed in this application for air permit. Emissions units exempt from air construction permitting and insignificant emissions units are required to be listed at Section II, Subsection C.

If submitting the application form in hard copy, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application must be indicated in the space provided at the top of each page.

EMISSIONS UNIT INFORMATION

Section [1] of [1]
Lime Mud Pre-Coat Filter

A. GENERAL EMISSIONS UNIT INFORMATION

Title V Air Operation Permit Emissions Unit Classification

1. Regulated or Unregulated Emissions Unit? (Check one, if applying for an initial, revised or renewal Title V air operation permit. Skip this item if applying for an air construction permit or FESOP only.)

☐ The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.

☒ The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in this Section: (Check one)

☐ This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

☒ This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

☐ This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in this Section: **Lime Mud Pre-Coat Filter and associated vacuum pump**

3. Emissions Unit Identification Number: **N/A**

4. Emissions Unit Status Code:	5. Commence Construction Date:	6. Initial Startup Date:	7. Emissions Unit Major Group SIC Code:	8. Acid Rain Unit?
A	**Sept. 2009**	**Sept. 2009**	**26**	☐ Yes ☒ No

9. Package Unit:
Manufacturer: Model Number:

10. Generator Nameplate Rating: MW

11. Emissions Unit Comment:
The lime mud pre-coat filter is an existing source. The applicant proposes a project with a construction date and initial startup date of September 2009.

EMISSIONS UNIT INFORMATION
Section [1] of [1]
Lime Mud Pre-Coat Filter

Emissions Unit Control Equipment

1. Control Equipment/Method(s) Description: **None**
2. Control Device or Method Code(s): **N/A**

EMISSIONS UNIT INFORMATION
Section [1] of [1]
Lime Mud Pre-Coat Filter

B. EMISSIONS UNIT CAPACITY INFORMATION

(Optional for unregulated emissions units.)

Emissions Unit Operating Capacity and Schedule

1. Maximum Process or Throughput Rate: **19.44 tons CaO/hr; 170,294 tons CaO/yr**		
2. Maximum Production Rate:		
3. Maximum Heat Input Rate:		
4. Maximum Incineration Rate:	pounds/hr tons/day	
5. Requested Maximum Operating Schedule:		
	24 hours/day	**7** days/week
	52 weeks/year	**8,760** hours/year
6. Operating Capacity/Schedule Comment:		

Maximum Process/Throughput Rate: based on total production of 19.44 tons CaO (reburned lime) per hour sent to No. 4 Lime Kiln.

EMISSIONS UNIT INFORMATION
Section [1] of [1]
Lime Mud Pre-Coat Filter

C. EMISSION POINT (STACK/VENT) INFORMATION
(Optional for unregulated emissions units.)

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram: **LMF**	2. Emission Point Type Code: **1 (Vacuum pump) and 4 (filter drum)**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking:		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: **H and F (see 15. below)**	6. Stack Height: **18** feet	7. Exit Diameter: **1.0** feet
8. Exit Temperature: **120** °F	9. Actual Volumetric Flow Rate: **6000** acfm	10. Water Vapor: **25** %
11. Maximum Dry Standard Flow Rate: **4100** sdcfm	12. Nonstack Emission Point Height: **53** feet	
13. Emission Point UTM Coordinates... Zone: East (km): North (km):	14. Emission Point Latitude/Longitude... Latitude (DD/MM/SS) **29/40/47** Longitude (DD/MM/SS) **81/40/51**	
15. Emission Point Comment: **The lime mud pre-coat filter consists of a vacuum drum type filter that uses a vacuum pump to increase the solids content of the lime mud before it enters the No. 4 Lime Kiln. The vacuum pump has a single point source vent to the atmosphere which emits VOCs and TRS Compounds, while fugitive emissions (VOCs and TRS compounds) from the filtering drum are also emitted to the atmosphere.**		

EMISSIONS UNIT INFORMATION
Section [1] of [1]
Lime Mud Pre-Coat Filter

D. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment **1** of **1**

1. Segment Description (Process/Fuel Type): **Pulp and Paper and Wood Products, Sulfate (Kraft) Pulping, Lime Kiln: General**		
2. Source Classification Code (SCC): **3-07-001-06**	3. SCC Units: **Tons Air-dried Unbleached Pulp Produced**	
4. Maximum Hourly Rate: **118**	5. Maximum Annual Rate: **675,250**	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment: **Maximum annual rate is based on maximum daily rate of 1,850 tons/day ADTUBP (monthly average). Throughput is equivalent to 19.44 tons/hr CaO lime production through the lime mud pre-coat filter.**		

Segment Description and Rate: Segment of

1. Segment Description (Process/Fuel Type):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment:		

EMISSIONS UNIT INFORMATION
Section [1] of [1]
Lime Mud Pre-Coat Filter

E. EMISSIONS UNIT POLLUTANTS

List of Pollutants Emitted by Emissions Unit

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
VOC	**N/A**		**EL**
TRS	**N/A**		**EL**
H115 (Methanol)			**NS**
Total HAPs			**NS**

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **TRS**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **7.6E-03** lb/hour **0.03** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **3.9E-04 lb/ton CaO** Reference: **NCASI Technical Bulletin No. 858, Table A-17**	7. Emissions Method Code: **5**

8. Calculation of Emissions:

Baseline:

TRS (annual) = 3.9E-04 lb/ton CaO x 121,575 ton CaO/yr x 1 ton / 2,000 lb = 2.4E-02 ton/yr

Potential:

TRS (hourly) = 3.9E-04 lb/ton CaO x 19.44 ton CaO/hr = 7.6E-03 lb/hr

TRS (annual) = 7.6E-03 lb/hr x 8,760 hr/yr x 1 ton / 2,000 lb = 0.03 ton/yr

9. Pollutant Potential/Estimated Fugitive Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. *Pollutant Emitted:* **VOC**	2. *Total Percent Efficiency of Control:*
3. Potential Emissions: **0.08** lb/hour **0.35** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.0041 lb/ton CaO** Reference: **NCASI Technical Bulletin No. 884, Aug., 2004, Table 4.14**	7. Emissions Method Code: **5**

8. Calculation of Emissions:

Baseline:

VOCs (annual) = 0.0041 lb/ton CaO x 121,575 ton CaO/yr x 1 ton / 2,000 lb = 0.25 ton/yr

Potential:

VOCs-(hourly) = 0.0041 lb/ton CaO x 19.44 ton CaO/hr = 0.08 lb/hr

VOCs-(annual) = 0.08 lb/hr x 8,760 hr/yr x 1 ton / 2,000 lb = 0.35 ton/yr

9. Pollutant Potential/Estimated Fugitive Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions ____ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions ____ of ____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **TRS**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **0.02** lb/hour **0.1** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **1.1E-03 lb/ton CaO** Reference: **NCASI Technical Bulletin No. 858, Table A-17**	7. Emissions Method Code: **5**

8. Calculation of Emissions:

Baseline:

TRS (annual) = 1.1E-03 lb/ton CaO x 121,575 ton CaO/yr x 1 ton / 2,000 lb = 0.07 ton/yr

Potential:

TRS (hourly) = 1.1E-03 lb/ton CaO x 19.44 ton CaO/hr = 0.02 lb/hr

TRS (annual) = 0.02 lb/hr x 8,760 hr/yr x 1 ton / 2,000 lb = 0.1 ton/yr

9. Pollutant Potential/Estimated Fugitive Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions of

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/ year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **VOC**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **0.34** lb/hour **1.5** tons/year	4. Synthetically Limited? ☐ Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.0176 lb/ton CaO** Reference: **NCASI Technical Bulletin No. 884, Aug., 2004, Table 4.14**	7. Emissions Method Code: **5**

8. Calculation of Emissions:

Baseline:

VOCs (annual) = 0.0176 lb/ton CaO x 121,575 ton CaO/yr x 1 ton / 2,000 lb = 1.1 ton/yr

Potential:

VOCs-(hourly) = 0.0176 lb/ton CaO x 19.44 ton CaO/hr = 0.34 lb/hr

VOCs-(annual) = 0.34 lb/hr x 8,760 hr/yr x 1 ton / 2,000 lb = 1.5 ton/yr

9. Pollutant Potential/Estimated Fugitive Emissions Comment:

F2. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION - ALLOWABLE EMISSIONS

Complete if the pollutant identified in Subsection F1 is or would be subject to a numerical emissions limitation.

Allowable Emissions Allowable Emissions ____ of ___

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/ year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance:	
6. Allowable Emissions Comment (Description of Operating Method):	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **Methanol**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **0.23** lb/hour **1.0** tons/year	4. Synthetically Limited? Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.012 lb/ton CaO** Reference: **NCASI Technical Bulletin No. 858, Feb. 2003, Table A-17**	7. Emissions Method Code: **5**
8. Calculation of Emissions: **Methanol (hourly) = 1.2E-02 lb/ton CaO x 19.44 ton CaO/hr = 0.23 lb/hr** **Methanol (annual) = 0.23 lb/hr x 8,760 hr/yr x 1 ton / 2,000 lb = 1.0 ton/yr**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment:	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **Total HAPs**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **0.25** lb/hour **1.1** tons/year	4. Synthetically Limited? Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.013 lb/ton CaO** Reference: **NCASI Technical Bulletin No. 858, Feb. 2003, Table A-17**	7. Emissions Method Code: **5**
8. Calculation of Emissions: **Total HAPs (hourly) = 1.3E-02 lb/ton CaO x 19.44 ton CaO/hr = 0.25 lb/hr** **Total HAPs (annual) = 0.25 lb/hr x 8,760 hr/yr x 1 ton / 2,000 lb = 1.1 ton/yr**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment:	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **Methanol**	2. Total Percent Efficiency of Control:
3. Potential Emissions: **0.35** lb/hour **1.5** tons/year	4. Synthetically Limited? Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.018 lb/ton CaO** Reference: **NCASI Technical Bulletin No. 858, Feb. 2003, Table A-17**	7. Emissions Method Code: **5**
8. Calculation of Emissions: **Methanol (hourly) = 1.8E-02 lb/ton CaO x 19.44 ton CaO/hr = 0.35 lb/hr** **Methanol (annual) = 0.35 lb/hr x 8,760 hr/yr x 1 ton / 2,000 lb = 1.5 ton/yr**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment:	

F1. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION – POTENTIAL/ESTIMATED FUGITIVE EMISSIONS

(Optional for unregulated emissions units.)

Potential/Estimated Fugitive Emissions

Complete for each pollutant identified in Subsection E if applying for an air construction permit or concurrent processing of an air construction permit and a revised or renewal Title V permit. Complete for each emissions-limited pollutant identified in Subsection E if applying for an air operation permit.

1. Pollutant Emitted: **Total HAPs**	2. *Total Percent Efficiency of Control:*
3. Potential Emissions: **0.4** lb/hour **1.75** tons/year	4. Synthetically Limited? Yes ☒ No
5. Range of Estimated Fugitive Emissions (as applicable): to tons/year	
6. Emission Factor: **0.019 lb/ton CaO** Reference: **NCASI Technical Bulletin No. 858, Feb. 2003, Table A-17**	7. Emissions Method Code: **5**
8. Calculation of Emissions: **Total HAPs (hourly) = 1.9E-02 lb/ton CaO x 19.44 ton CaO/hr = 0.4 lb/hr** **Total HAPs (annual) = 0.4 lb/hr x 8,760 hr/yr x 1 ton / 2,000 lb = 1.75 ton/yr**	
9. Pollutant Potential/Estimated Fugitive Emissions Comment:	

EMISSIONS UNIT INFORMATION
Section [1] of [1]

I. EMISSIONS UNIT ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1. Process Flow Diagram (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ____ ☒ Previously Submitted, Date **7/2006**

2. Fuel Analysis or Specification (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date ____

3. Detailed Description of Control Equipment (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date: ____

4. Procedures for Startup and Shutdown (Required for all operation permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date ____
   ☒ Not Applicable (construction application)

5. Operation and Maintenance Plan (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought)
   ☐ Attached, Document ID: ____ ☐ Previously Submitted, Date ____
   ☒ Not Applicable

6. Compliance Demonstration Reports/Records
   ☐ Attached, Document ID: ____
   Test Date(s)/Pollutant(s) Tested: ____
   ☐ Previously Submitted, Date: ____
   Test Date(s)/Pollutant(s) Tested: ____
   ☐ To be Submitted, Date (if known): ____
   Test Date(s)/Pollutant(s) Tested: ____
   ☒ Not Applicable
   Note: For FESOP applications, all required compliance demonstration records/reports must be submitted at the time of application. For Title V air operation permit applications, all required compliance demonstration reports/records must be submitted at the time of application, or a compliance plan must be submitted at the time of application.

7. Other Information Required by Rule or Statute
   ☐ Attached, Document ID: ____ ☒ Not Applicable

EMISSIONS UNIT INFORMATION

Section [1] of [1]

Additional Requirements for Air Construction Permit Applications

1. Control Technology Review and Analysis (Rules 62-212.400(6) and 62-212.500(7), F.A.C.; 40 CFR 63.43(d) and (e)) ☐ Attached, Document ID: ____ ☒ Not Applicable
2. Good Engineering Practice Stack Height Analysis (Rule 62-212.400(5)(h)6., F.A.C., and Rule 62-212.500(4)(f), F.A.C.) ☐ Attached, Document ID:____ ☒ Not Applicable
3. Description of Stack Sampling Facilities (Required for proposed new stack sampling facilities only) ☐ Attached, Document ID: ____ ☒ Not Applicable

Additional Requirements for Title V Air Operation Permit Applications

1. Identification of Applicable Requirements ☐ Attached, Document ID: ____ ☒ Not Applicable
2. Compliance Assurance Monitoring ☐ Attached, Document ID: ____ ☒ Not Applicable
3. Alternative Methods of Operation ☐ Attached, Document ID: ____ ☒ Not Applicable
4. Alternative Modes of Operation (Emissions Trading) ☐ Attached, Document ID: ____ ☒ Not Applicable

5. Acid Rain Part Application

- ☐ Certificate of Representation (EPA Form No. 7610-1)
- ☐ Copy Attached, Document ID:
- ☐ Acid Rain Part (Form No. 62-210.900(1)(a))
- ☐ Attached, Document ID:
- ☐ Previously Submitted, Date:
- ☐ Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
- ☐ Attached, Document ID:
- ☐ Previously Submitted, Date:
- ☐ New Unit Exemption (Form No. 62-210.900(1)(a)2.)
- ☐ Attached, Document ID:
- ☐ Previously Submitted, Date:
- ☐ Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)
- ☐ Attached, Document ID:
- ☐ Previously Submitted, Date:
- ☐ Phase II NOx Compliance Plan (Form No. 62-210.900(1)(a)4.)
- ☐ Attached, Document ID:
- ☐ Previously Submitted, Date:
- ☐ Phase II NOx Averaging Plan (Form No. 62-210.900(1)(a)5.)
- ☐ Attached, Document ID:
- ☐ Previously Submitted, Date:
- ☒ Not Applicable

Additional Requirements Comment

EMISSION CALCULATIONS FOR LIME MUD PRE-COAT FILTER and PRE-COAT FILTER VACUUM PUMP

References for Emission Factors-all factors provided are median values in the units of lb pollutant/ton CaO processed

VOCs-NCASI Technical Bulletin No. 884, Aug., 2004, Table 4.14

Lime mud pre-coat filter =	0.0041
Pre-coat filter vacuum pump =	0.0176

TRS Compounds and HAPs- NCASI Technical Bulletin No. 858, Feb. 2003, Table A-17

TRS Compounds

Dimethyl Sulfide	Lime mud pre-coat filter =	3.90E-04
	Pre-coat filter vacuum pump =	7.50E-04
Dimethyl Disulfide	Pre-coat filter vacuum pump =	2.10E-04
Methyl Mercaptan	Pre-coat filter vacuum pump =	1.50E-04
TRS-total	Pre-coat filter vacuum pump =	1.11E-03

HAPs	**Lime mud pre-coat filter**	**Pre-coat filter vacuum pump**
Acetaldehyde	4.50E-04	2.00E-04
Acrolein	5.30E-05	---
Benzene	1.50E-05	---
Chlorobenzene	2.10E-05	---
Chloroform	---	7.10E-05
1,2-Dichloroethylene	---	2.80E-05
Formaldehyde	2.10E-04	---
Methanol	1.20E-02	1.80E-02
Methyl Isobutyl Ketone	5.70E-05	7.60E-05
Styrene	3.90E-05	2.40E-05
Tetrachloroethylene	6.00E-05	---
1,2,4-Trichlorobenzene	---	3.30E-04
1,1,1-Trichloroethane	7.50E-05	---
Toluene	1.70E-05	8.10E-06
m,p-Xylene	2.00E-05	1.50E-05
o-Xylene	4.50E-05	2.30E-05
Total HAPs	**1.31E-02**	**1.88E-02**

Potential production rate through Lime Mud Pre-Coat Filter = **19.44 tons CaO/hr (Title V Permit data)**
170,294 tons CaO/yr

Potential Emission Rates- Lime Mud Pre-Coat Filter

	lb/hr	**ton/yr**	
VOCs	8.0E-02	3.5E-01	
TRS	7.6E-03	3.3E-02	
HAPs			**lb/yr**
Acetaldehyde	8.75E-03	3.83E-02	76.6
Acrolein	1.03E-03	4.51E-03	9.0
Benzene	2.92E-04	1.28E-03	2.6
Chlorobenzene	4.08E-04	1.79E-03	3.6
Chloroform	---	---	---
1,2-Dichloroethylene	---	---	---
Formaldehyde	4.08E-03	1.79E-02	35.8
Methanol	2.33E-01	1.02	2,043.5
Methyl Isobutyl Ketone	1.11E-03	4.85E-03	9.7
Styrene	7.58E-04	3.32E-03	6.6
Tetrachloroethylene	1.17E-03	5.11E-03	10.2
1,2,4-Trichlorobenzene	---	---	---
1,1,1-Trichloroethane	1.46E-03	6.39E-03	12.8
Toluene	3.30E-04	1.45E-03	2.9
m,p-Xylene	3.89E-04	1.70E-03	3.4
o-Xylene	8.75E-04	3.83E-03	7.7
Total HAPs	**2.54E-01**	**1.11**	**2,224.4**

Potential Emission Rates-
Pre-Coat Filter Vacuum Pump

	lb/hr	ton/yr
VOCs	0.34	1.50
TRS	0.02	0.09

HAPs

			lb/yr
Acetaldehyde	3.89E-03	1.70E-02	34.1
Acrolein	---	---	---
Benzene	---	---	---
Chlorobenzene	---	---	---
Chloroform	1.38E-03	6.05E-03	12.1
1,2-Dichloroethylene	5.44E-04	2.38E-03	4.8
Formaldehyde	---	---	---
Methanol	3.50E-01	1.53	3,065.3
Methyl Isobutyl Ketone	1.48E-03	6.47E-03	12.9
Styrene	4.67E-04	2.04E-03	4.1
Tetrachloroethylene	---	---	---
1,2,4-Trichlorobenzene	6.42E-03	2.81E-02	56.2
1,1,1-Trichloroethane	---	---	---
Toluene	1.57E-04	6.90E-04	1.4
m,p-Xylene	2.92E-04	1.28E-03	2.6
o-Xylene	4.47E-04	1.96E-03	3.9
Total HAPs	**3.65E-01**	**1.60**	**3,197.3**

PSD APPLICABILITY ANALYSIS

	PTE Totals for PSD-regulated Pollutants
	ton/yr
VOCs	1.8
TRS	0.1

	Baseline Emissions for PSD-regulated Pollutants		
2-yr high annual average (2000-2001)	**121,575**	**tons CaO/yr**	
VOCs	1.3	ton/yr	
TRS	9.12E-02	ton/yr	

	Difference Between Baseline and Future PTE		**PSD Applicability Level, ton/yr**
VOCs	0.5	ton/yr	40
TRS	3.65E-02	ton/yr	10

ncasi

NATIONAL COUNCIL FOR AIR AND STREAM IMPROVEMENT

COMPILATION OF 'AIR TOXIC' AND TOTAL HYDROCARBON EMISSIONS DATA FOR SOURCES AT KRAFT, SULFITE AND NON-CHEMICAL PULP MILLS – AN UPDATE

TECHNICAL BULLETIN NO. 858

FEBRUARY 2003

by
Arun Someshwar, Ph.D.
National Council for Air and Stream Improvement
Southern Regional Center
Gainesville, Florida

Table A-17 (Cont'd). Summary of 'Air Toxic' Emissions from Causticizing Area Vents

Volatile Organic Compound	No. of Sources	No. of Detects	Emissions, lb/ton CaO					Test Method	Comments
			Range	Median	Mean	SDln	701 Median[1]		
Source: Lime Mud Precoat Filter Vents									
Acetaldehyde	3	2	ND to 2.9E-03	4.5E-04	1.1E-03		6.7E-05	Canister/NMIT	FID with Concentrator
Acetone	3	3	1.2E-05 to 1.1E-03	8.5E-04	6.5E-04		8.5E-04	Heated Canister	FID with Concentrator
Acrolein	2	1	ND to 1.0E-04	5.3E-05	5.3E-05		5.0E-05	Heated Canister	FID with Concentrator
Benzene	3	1	ND to 4.1E-05	1.5E-05	1.9E-05	5.2E-06		Heated Canister	FID with Concentrator
Carbon Tetrachloride	3	0		*2.2E-04*	*2.2E-04*		*2.2E-04*	Heated Canister	FID with Concentrator
Chlorobenzene	3	1	ND to 1.5E-04	2.1E-05	6.2E-05	1.9E-05		Heated Canister	FID with Concentrator, U
Chloroform	3	0		*1.7E-04*	*1.7E-04*		*1.7E-04*	Heated Canister	FID with Concentrator
1,2-Dichloroethane	3	0		*4.6E-05*	*4.6E-05*		*4.6E-05*	Heated Canister	FID with Concentrator
1,2-Dichloroethylene	3	0		*3.4E-05*	*3.4E-05*		*3.4E-05*	Heated Canister	FID with Concentrator
Dimethyl Disulfide	3	0		*5.5E-04*	*5.5E-04*		*5.5E-04*	Heated Canister	FID with Concentrator
Dimethyl Sulfide	3	1	ND to 1.0E-03	3.9E-04	5.0E-04	1.3E-04		Heated Canister	FID with Concentrator
Formaldehyde	2	1	ND to 2.0E-04	2.1E-04	2.1E-04		1.0E-04	NMIT	NCASI INMPINGER METHOD
n-Hexane	1	0		*3.4E-06*	*3.4E-06*		*3.4E-06*	Heated Canister	FID with Concentrator
Methanol	3	3	1.5E-04 to 1.2E-02	1.2E-02	1.1E-02		1.2E-02	Heated Canister	FID with Concentrator
Methyl Mercaptan	3	0		*2.8E-04*	*2.8E-04*		*2.8E-04*	Heated Canister	FID with Concentrator
Methylene Chloride	3	0		*9.0E-05*	*9.0E-05*		*9.0E-05*	Heated Canister	FID with Concentrator
Methyl Ethyl Ketone	3	3	2.0E-05 to 3.0E-04	1.5E-04	1.5E-04		1.5E-04	Heated Canister	FID with Concentrator
Methyl Isobutyl Ketone	3	2	ND to 2.2E-4	5.7E-05	9.2E-05		5.7E-05	Heated Canister	FID with Concentrator
Styrene	3	2	ND to 6.9E-05	3.9E-05	3.7E-05		3.9E-05	Heated Canister	FID with Concentrator
Terpenes	3	3	7.7E-05 to 5.3E-03	2.6E-03	2.7E-03		2.6E-03	Heated Canister	FID with Concentrator
Tetrachloroethylene	3	1	ND to 3.7E-05	6.0E-05	6.3E-05	4.7E-06		Heated Canister	FID with Concentrator, U
1,1,1-Trichloroethane	3	1	ND to 1.7E-04	7.5E-05	8.5E-05	2.2E-05		Heated Canister	FID with Concentrator, U
Toluene	3	1	ND to 5.4E-04	1.7E-05	1.9E-04	6.9E-05		Heated Canister	FID with Concentrator
Trichloroethylene	3	0		*4.6E-05*	*4.6E-05*		*4.6E-05*	Heated Canister	FID with Concentrator
1,2,4-Trichlorobenzene	3	0		*2.1E-05*	*2.1E-05*		*2.1E-05*	Heated Canister	FID with Concentrator
1,1,2-Trichloroethane	3	0		*4.7E-05*	*4.7E-05*		*4.7E-05*	Heated Canister	FID with Concentrator
m,p-Xylene	3	1	ND to 2.2E-04	2.0E-05	8.2E-05	2.8E-05		Heated Canister	FID with Concentrator
o-Xylene	3	3	1.0E-05 to 9.5E-05	4.5E-05	5.0E-05		4.5E-05	Heated Canister	FID with Concentrator
THCs, lb C/ton CaO	3	3	1.0E-03 to 3.0E-02	4.1E-03	1.2E-02		4.1E-03	M25A	

[1] for data with < 50% NDs, median based upon assuming all NDs are = 0 as in NCASI Technical Bulletin No. 701

Note: *All italicized entries correspond to non-detect values at one-half the detection limit*

Table A-17 (Cont'd). Summary of 'Air Toxic' Emissions from Causticizing Area Vents

Volatile Organic Compound	No. of Sources	No. of Detects	Emissions, lb/ton CaO					Test Method	Comments
			Range	Median	Mean	SDln	701 Median[1]		
Source: Precoat Filter Vacuum Pump Exhausts									
Acetaldehyde	2	2	ND to 4.0E-04	2.0E-04	2.0E-04		2.0E-04	Canister/NMIT	FID with Concentrator
Acetone	2	1	ND to 2.2E-03	1.1E-03	1.1E-03		1.1E-03	Heated Canister	FID with Concentrator
Acrolein	1	0		*4.4E-06*	*4.4E-06*		*4.4E-06*	Heated Canister	FID with Concentrator
Benzene	2	0		*4.6E-06*	*4.6E-06*		*4.6E-06*	Heated Canister	FID with Concentrator
Carbon Tetrachloride	2	0		*3.7E-05*	*3.7E-05*		*3.7E-05*	Heated Canister	FID with Concentrator
Chlorobenzene	2	0		*6.5E-06*	*6.5E-06*		*6.5E-06*	Heated Canister	FID with Concentrator
Chloroform	2	1	ND to 1.1E-04	7.1E-05	7.1E-05		5.5E-05	Heated Canister	FID with Concentrator
1,2-Dichloroethane	2	0		*1.0E-05*	*1.0E-05*		*1.0E-05*	Heated Canister	FID with Concentrator
1,2-Dichloroethylene	2	1	ND to 4.4E-05	2.8E-05	2.8E-05		2.2E-05	Heated Canister	FID with Concentrator
Dimethyl Disulfide	2	1	ND to 3.4E-4	2.1E-04	2.1E-04		1.7E-04	Heated Canister	FID with Concentrator
Dimethyl Sulfide	2	1	ND to 1.4E-03	7.5E-04	7.5E-04		7.0E-04	Heated Canister	FID with Concentrator
Formaldehyde	1	0		*1.4E-05*	*1.4E-05*		*1.4E-05*	NMIT	NCASI Impinger Method
Methanol	2	2	5.1E-04 to 3.5E-02	1.8E-02	1.8E-02		1.8E-02	Heated Canister	FID with Concentrator
Methyl Ethyl Ketone	2	1	ND to 9.8E-04	4.9E-04	4.9E-04		4.9E-04	Heated Canister	FID with Concentrator
Methyl Isobutyl Ketone	2	1	ND to 1.4E-4	7.6E-05	7.6E-05		7.0E-05	Heated Canister	FID with Concentrator
Methyl Mercaptan	2	1	ND to 2.7E-04	1.5E-04	1.5E-04		1.4E-04	Heated Canister	FID with Concentrator
Methylene Chloride	2	0		*2.8E-05*	*2.8E-05*		*2.8E-05*	Heated Canister	FID with Concentrator
Styrene	2	1	ND to 4.2E-05	2.4E-05	2.4E-05		2.1E-05	Heated Canister	FID with Concentrator
Terpenes	1	1		5.0E-03	5.0E-03		5.0E-03	Heated Canister	FID with Concentrator
Tetrachloroethylene	2	0		*4.9E-05*	*4.9E-05*		*4.9E-05*	Heated Canister	FID with Concentrator
Toluene	2	1	ND to 1.0E-05	8.1E-06	8.1E-06		5.0E-06	Heated Canister	FID with Concentrator
1,2,4-Trichlorobenzene	2	1	ND to 6.6E-04	3.3E-04	3.3E-04		3.3E-04	Heated Canister	FID with Concentrator, U
1,1,1-Trichloroethane	2	0		*1.0E-05*	*1.0E-05*		*1.0E-05*	Heated Canister	FID with Concentrator
1,1,2-Trichloroethane	2	0		*1.0E-05*	*1.0E-05*		*1.0E-05*	Heated Canister	FID with Concentrator
Trichloroethylene	2	0		*1.1E-05*	*1.1E-05*		*1.1E-05*	Heated Canister	FID with Concentrator
m,p-Xylene	2	1	ND to 1.9E-05	1.5E-05	1.5E-05		9.5E-06	Heated Canister	FID with Concentrator
o-Xylene	2	1	ND to 3.5E-05	2.3E-05	2.3E-05		1.8E-05	Heated Canister	FID with Concentrator
THCs, lb C/ton CaO	2	2	1.7E-04 to 3.5E-02	1.8E-02	1.8E-02		1.8E-02	M25A	

[1] for data with < 50% NDs, median based upon assuming all NDs are = 0 as in NCASI Technical Bulletin No. 701

Note: *All italicized entries correspond to non-detect values at one-half the detection limit*

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NATIONAL COUNCIL FOR AIR AND STREAM IMPROVEMENT

COMPILATION OF CRITERIA AIR POLLUTANT EMISSIONS DATA FOR SOURCES AT PULP AND PAPER MILLS INCLUDING BOILERS

TECHNICAL BULLETIN NO. 884
AUGUST 2004

by
Arun V. Someshwar, Ph.D.
NCASI Southern Regional Center
Gainesville, Florida

Table 4.14 VOC and TPM Emissions from Causticizing Area Vents

Type of Vent(s)		No.[b]	Range	Median	Mean
			lb/ton CaO		
Causticizer & Slaker – Combined	VOC[a]	5	0.011 to 0.27	0.0570	0.1026
Slaker Vents	TPM[c]	4	0.004 to 0.076	0.022	0.031
Lime Mud Precoat Filter	VOC[a]	3	0.001 – 0.030	0.0041	0.012
Precoat Filter Vac. Pump Exhaust	VOC[a]	2	2E-04 – 0.035	0.018	0.018
Green Liquor Clarifier	VOC[a]	1		0.066	0.066
Green Liquor Surge Tank	VOC[a]	1		0.0014	0.0014
Pressure Filter – WL & Wk Wash	VOC[a]	1		0.0075	0.0075
Pressure Filter – White Liquor	VOC[a]	1		0.0056	0.0056

[a] lb C/ton CaO as measured by EPA Method 25A; [2b] number of sources tested; [c] total (filterable) particulate matter – all TPM was <10μm (PM_{10}) in one slaker vent

4.14 Smelt Dissolving Tank Vents

The significant criteria pollutant emissions from a dissolving tank vent are particulate matter. VOC emissions are generally very low, unless process condensates containing significant VOCs are used to either dissolve the smelt or for scrubbing the vent gases.

4.14.1 *Particulate Emissions*

As with the recovery furnace, particulates are comprised of mainly sodium compounds with much lesser amounts of potassium compounds and some other trace metal compounds. The dominant compound is sodium carbonate, followed by sodium sulfate. Roughly 90% (by weight) of the particles have equivalent aerodynamic diameters under 10 μm, and 50% have diameters under 1 μm (Pinkerton and Blosser 1981; NCASI 1978a).

4.14.2 *VOC Emissions*

Volatile organic compounds such as methanol can be released from the weak wash in both the dissolving tank and the wet scrubber particulate control device.

4.14.3 *NO_x, CO and SO_2 Emissions*

Some mills have made measurements for NO_x, CO, and SO_2 in smelt dissolving tank vents. However, since no combustion takes place in smelt tanks, and smelt-water explosions are not known to result in NO_x, the low level of NO_x sometimes measured is believed to be an artifact caused by oxidation of a portion of the ammonia (NH_3) emissions from such tanks to NO within the NO_x analyzer (NCASI 2003c). Small amounts of CO and SO_2 at times measured in smelt tank vents could potentially result from oxidation of the carbon and sulfur in the smelt, respectively, during the smelt-water explosions.

Table 4.15 provides estimates of emissions for VOC, SO_2, NO_x, CO, total PM (TPM), condensible particulate emissions (CPM), PM_{10}, and $PM_{2.5}$ from smelt dissolving tanks. The data on PM_{10} and $PM_{2.5}$ emissions generated using a dilution tunnel sampler (O'Connor and Genest 2003a, 2003b) for eight smelt dissolving tanks equipped with wet scrubbers are also shown summarized in this table. Detailed data including descriptions for each smelt dissolving tank are provided in Appendix A, Tables A15a, A15b, A15c, A15d, and A15e.

Table A14a (Cont'd) VOC Emissions from Causticizing Area Vents

Mill Code	Emissions, lb C/ton CaO Range	Avg	Test Method
Combined Causticizer/Slaker or Slaker Vents			
SLMJ		0.057	M25A
SLMK		0.011	M25A
SLMM		0.044	M25A
SLAA		0.132	M25A
SLBB	0.26 to 0.27	0.269	M25A
No. of Sources	Range	Median	Mean
5	0.011 to 0.27	0.0570	0.1026
Lime Mud Precoat Filter Vent			
LMPFD		0.0300	M25A
LMPFJ		0.0041	M25A
LMPFM		0.0010	M25A
No. of Sources	Range	Median	Mean
3	0.001 to 0.030	0.0041	0.0117
Precoat Filter Vacuum Pump Exhausts			
PFVCD		0.0350	
PFVCP		0.0002	
No. of Sources	Range	Median	Mean
2	1.7E-04 to 0.035	0.0176	0.0176
Green Liquor Clarifier and Surge Tank Vents			
GLCD		0.0660	M25A
Green Liquor Surge Tank Vent			
GLSTO		0.0014	M25A
White Liquor and Weak Wash Pressure Filter Vent			
WLWWPFF		0.0075	M25A
White Liquor Pressure Filter Vent			
WLPFF		0.0056	M25A