



Memorandum

Florida Department of Environmental Protection

TO: Joe Kahn

THRU: Trina Vielhauer

THRU: Jonathan Holtom (acting for Jeff Koerner) 

FROM: Bruce Mitchell 

DATE: March 24, 2008

SUBJECT: Smurfit-Stone Container Enterprises, Inc.
Fernandina Beach Mill
Final Air Construction Permit - BART Exemption Project
0890003-018-AC

Attached is the Final Air Construction Permit for the Fernandina Beach Mill located at North 8th Street, Fernandina Beach, Nassau County. A comment was received during the Public Notice period from Ms. Rachel Davis, Environmental Manager, Fernandina Beach Mill, Smurfit-Stone Container Enterprises, Inc. A request was made to change the deadline to install and certify a SO₂ CEMS from "180 days" to "12-months" on line four of Specific Condition No. 5 of the Draft Air Construction Permit. The change is considered to be minor and of no significance and was made in the Final Air Construction Permit.

Attachments

JK/tlv/jh/rbm

State of Florida
Department of Environmental Protection

NOTICE OF FINAL AIR CONSTRUCTION PERMIT

In the Matter of an
Application for Permit by:

Mr. George Q. Langstaff
V.P., Regional Mill Operations and Responsible Official
Smurfit-Stone Container Enterprises, Inc.
Fernandina Beach Mill
North 8th Street
Fernandina Beach, Florida 32034

DEP File No. 0890003-018-AC
Fernandina Beach Mill
Nassau County

Enclosed is the Final Air Construction Permit, No. 0890003-018-AC, for the facility modifications requested for Smurfit-Stone Container Enterprises, Inc.'s existing kraft mill, located at North 8th Street, Nassau County. This permit is issued pursuant to Chapter 403, Florida Statutes (F.S.). The subject of the Air Construction Permit is to obtain a federally enforceable permit condition that would allow the mill's Best Available Retrofit Technology (BART) eligible emissions units to become exempt from the regulations of Rule 62-296.340, Florida Administrative Code, BART, based on the results of a modeling evaluation. Consequently, a new sulfur dioxide (SO₂) emissions standard for the No. 5 Power Boiler of 550.0 pounds per hour, 24-hour rolling average, is established with compliance to be demonstrated by a SO₂ continuous emissions monitoring system (CEMS). An air quality modeling analysis of the BART-eligible units indicated a maximum visibility impairment of 0.495 deciviews to the nearest Class I area (Okefenokee National Wildlife Refuge). This is less than the regulatory threshold of 0.5 deciviews, which exempts the facility from BART review.

A comment was received during the Public Notice period from Ms. Rachel Davis, Environmental Manager, Fernandina Beach Mill, Smurfit-Stone Container Enterprises, Inc. A request was made to change the deadline to install and certify a SO₂ CEMS from "180 days" to "12-months" on line four of Specific Condition No. 5 of the Draft Air Construction Permit. The change is considered to be minor and of no significance and was made in the Final Air Construction Permit.

Any party to this order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, F.S., by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Legal Office; and, by filing a copy of the Notice of Appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 (thirty) days from the date this Notice is filed with the Clerk of the Department.

Executed in Tallahassee, Florida.



Trina L. Vielhauer
Chief
Bureau of Air Regulation

Smurfit-Stone Container Enterprises, Inc.
Final Air Construction Permit
0890003-018-AC

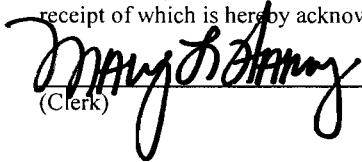
CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this NOTICE OF FINAL AIR CONSTRUCTION PERMIT (including the Final permit) was sent electronically (with received receipt requested) before the close of business on 03/27/08 to the person(s) listed or as otherwise noted:

George Q. Langstaff, Responsible Official, Smurfit-Stone Container Enterprises, Inc. (glangstaff@smurfit.com)
Rachel Davis, Environmental Manager, Smurfit-Stone Container Enterprises, Inc. (rgdavis@smurfit.com)
David Buff, P.E. of Record, Golder Associates, Inc. (dbuff@golder.com)
Chris Kirts, Northeast District Office (Cristopher.Kirts@dep.state.fl.us)
Katy Forney, EPA Region 4 (Forney.Kathleen@epa.gov)
Jim Little, EPA Region 4 (Little.James@epa.gov)
Dee Morse, NPS (Dee_Morse@nps.gov)

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to §120.52(7), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.


(Clerk) 03/27/08
(Date)

Final Determination

Smurfit-Stone Container Enterprises, Inc.
Fernandina Beach Mill
Facility ID No. 0890003
Nassau County

Air Construction Permit
Permit Project No. 0890003-018-AC

I. Public Notice.

An intent to issue an air construction permit to Smurfit-Stone Container Enterprises, Inc. for their existing Fernandina Beach Mill located at North 8th Street, Fernandina Beach, Nassau County, was clerked on December 1, 2007. The public notice of intent to issue an air construction permit was published in the NEWS LEADER on March 5, 2008. The Draft Permit was available for public inspection at the Department's Northeast District office, in Jacksonville, and the permitting authority's office in Tallahassee. Proof of publication of the public notice of intent to issue an air construction permit was received on March 17, 2008.

II. Public Comment(s).

A comment was received during the Public Notice period from Ms. Rachel Davis, Environmental Manager, Fernandina Beach Mill, Smurfit-Stone Container Enterprises, Inc. The comment was received on February 28, 2008, via an e-mail. The comment is as follows:

Ms. Davis's Comment:

A request was made to change the deadline to install and certify a sulfur dioxide continuous emissions monitoring system from "180 days" to "12-months" on line four of Specific Condition No. 5 of the Draft Air Construction Permit.

Department's Response:

The Department is in agreement with the request, which is considered to be a minor change and of no significance. Therefore, the deadline to install and certify a sulfur dioxide continuous emissions monitoring system is changed from "180 days" to "12-months" on line four of Specific Condition No. 5 of the Final Air Construction Permit.

III. Conclusion.

In conclusion, the permitting authority hereby issues the Final Air Construction Permit, No. 0890003-018-AC, with any changes noted above.



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

PERMITTEE

Smurfit-Stone Container Enterprises, Inc.
North 8th Street
Fernandina Beach, Florida 32034

Authorized Representative:

Mr. George Q. Langstaff, V.P. of Regional Mill Operations

Permit No. 0890003-018-AC

Expires: March 15, 2009

Facility ID No. 0890003

SIC Nos. 2631 and 2653

No. 5 Power Boiler

BART Exemption Project

PROJECT AND LOCATION

This permit establishes an enforceable sulfur dioxide (SO₂) emissions limit for the No. 5 Power Boiler, which allows the mill to be exempt from the requirements of Best Available Retrofit Technology (BART) pursuant to Rule 62-296.340, Florida Administrative Code (F.A.C.). The existing Fernandina Beach mill is classified as a major stationary source, a Title V facility and major source of hazardous air pollutants (HAP). The facility is a Kraft pulp and paper mill consisting of the following major activities: wood yard, pulp mill, recycle plant, chemical recovery, powerhouse, paperboard mill and a corrugated containers plant. The existing Fernandina Beach Mill is located at North 8th Street, Fernandina Beach, Nassau County. The UTM Coordinates are: Zone 17; 456.2 km East; and 3394.1 km North.

STATEMENT OF BASIS

This air pollution construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C. The permittee is authorized to conduct the proposed work in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department.

CONTENTS

Section 1. Specific Conditions

Section 2. Appendices

Executed in Tallahassee, Florida.

Joseph Kahn, Director
Division of Air Resource Management

3/26/08
(Date)

JK/tlv/jfk/bm

SECTION I. SPECIFIC CONDITIONS

NO. 5 POWER BOILER

This permit addresses the following emissions unit.

EU No.	Brief Description
006	<p><i>Description:</i> The No. 5 Power Boiler is a combination boiler that fires more than one fuel. The total maximum operational heat input of this emissions unit is 805 MMBtu/hr. Low volume, high concentration (LVHC) noncondensable gases (NCG) from the batch digester system, continuous digester system, turpentine recovery system, evaporator systems, and foul condensate collection tank are collected and burned in this boiler as the backup control device to the No. 4 Lime Kiln. Hazardous air pollutants emissions are controlled by injecting the gases into the boiler with the primary fuel or into the flame zone of the boiler or with the combustion air.</p> <p><i>Fuel:</i> This unit is authorized to fire carbonaceous fuel (hogged bark and wood waste) and No. 6 fuel oil in any combination. The unit may also fire No. 2 fuel for startup, "on-specification used oil" and incidental amounts of wastewater clarifier wood fiber residuals.</p> <p><i>Controls:</i> Particulate matter emissions, including the fly ash, are first controlled by a bank of multiple cyclones (without fly ash reinjection) followed by an electrostatic precipitator (ESP). The collected fly ash from the ESP is injected into one of the coal pulverizers for the No. 7 power boiler and the bottom ash is sent to the wastewater treatment plant.</p> <p><i>Monitors:</i> The following continuous monitors are required: a continuous opacity monitoring system (COMS); a fuel flow monitor; continuous monitoring of ESP total power (CAM); exhaust flow rate monitor; and a continuous emissions monitoring system (CEMS) for SO₂ emissions.</p> <p><i>Stack Parameters:</i> Exhaust gas exits at 450° F with a volumetric flow rate of 235,000 acfm through a stack that is 11 feet in diameter and 257 feet tall.</p>

GENERAL

1. Compliance Authority. The permittee shall submit all compliance related notifications and reports required by this permit to the Department's Northeast District office at: Department of Environmental Protection, Northeast District Office, Air Resource Section, 7825 Baymeadows Way, Suite 200B, Jacksonville, Florida 32256-7590. The telephone number is 904/807-3300 and the facsimile number is 904/448-4366. Notification of compliance testing may be submitted by electronic mail to: NEDAIR@dep.state.fl.us.
2. Appendices. The Appendices attached to this permit are attached as an enforceable part of the permit unless otherwise indicated.
3. Title V Permit. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the appropriate Permitting Authority with copies to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

EMISSION LIMITATION AND STANDARDS

4. SO₂ Standard. Sulfur dioxide emissions shall not exceed 550.0 lb/hour based on a 24-hour rolling average as determined by SO₂ CEMS. Compliance with this standard ensures that the mill is exempt from the provisions of BART at Rule 62-296.340, F.A.C. Failure to comply with the SO₂ standard in this permit may subject this facility to BART review. [Rules 62-4.070(3) and 62-296.340(BART), F.A.C.]

SECTION I. SPECIFIC CONDITIONS

NO. 5 POWER BOILER

COMPLIANCE MONITORING

5. SO₂ CEMS Required for Demonstrating Compliance. The permittee shall properly install, calibrate, maintain and operate a CEMS to measure and record SO₂ emissions and exhaust flow for reporting in units of the applicable standard. The permittee shall comply with the specific requirements in Appendix D of this permit. Within 12-months after issuance of this permit, the CEMS shall be installed, certified and operational in accordance with the applicable performance specifications and demonstrating compliance with the SO₂ standard specified by this permit. [Rules 62-4.070(3) and 62-296.340(BART), F.A.C.]
6. SO₂ CEMS Required for Reporting Annual Emissions. The permittee shall use data from the CEMS when calculating annual emissions for purposes of computing actual emissions, baseline actual emissions and net emissions increase, as defined at Rule 62-210.200, F.A.C., and for purposes of computing emissions pursuant to the reporting requirements of Rules 62-210.370(3) and 62-212.300(1)(e), F.A.C. The permittee shall follow the procedures in Appendix D for calculating annual emissions. [Rules 62-4.070(3) and 62-210.370(3), F.A.C.]

RECORDKEEPING, REPORTING AND NOTIFICATION REQUIREMENTS

7. Other Requirements. For additional recordkeeping, reporting, and notification requirements, see Appendix B (General Conditions), Appendix C (Standard Requirements) and Appendix D (Standard CEMS Requirements).

SECTION 2. APPENDICES
CONTENTS

- Appendix A. Citation Formats
- Appendix B. General Conditions
- Appendix C. Standard Requirements
- Appendix D. Standard CEMS Requirements

SECTION 2. APPENDIX A
CITATION FORMATS

The following examples illustrate the format used in the permit to identify applicable permitting actions and regulations.

REFERENCES TO PREVIOUS PERMITTING ACTIONS

Old Permit Numbers

Example: Permit No. AC50-123456 or Air Permit No. AO50-123456

Where: “AC” identifies the permit as an Air Construction Permit
“AO” identifies the permit as an Air Operation Permit
“123456” identifies the specific permit project number

New Permit Numbers

Example: Permit Nos. 099-2222-001-AC, 099-2222-001-AO, or 099-2222-001-AV

Where: “099” represents the specific county ID number in which the project is located
“2222” represents the specific facility ID number
“001” identifies the specific permit project
“AC” identifies the permit as an air construction permit
“AO” identifies the permit as a minor source air operation permit
“AV” identifies the permit as a Title V Major Source Air Operation Permit

PSD Permit Numbers

Example: Permit No. PSD-FL-317

Where: “PSD” means issued pursuant to the Prevention of Significant Deterioration of Air Quality
“FL” means that the permit was issued by the State of Florida
“317” identifies the specific permit project

RULE CITATION FORMATS

Florida Administrative Code (F.A.C.)

Example: [Rule 62-213.205, F.A.C.]

Means: Title 62, Chapter 213, Rule 205 of the Florida Administrative Code

Code of Federal Regulations (CFR)

Example: [40 CFR 60.7]

Means: Title 40, Part 60, Section 7

SECTION 2. APPENDIX B
GENERAL CONDITIONS

The permittee shall comply with the following general conditions from Rule 62-4.160, F.A.C.

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes (F.S.). The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in Subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
 - a. Have access to and copy and records that must be kept under the conditions of the permit;
 - b. Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
 - c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
 - a. A description of and cause of non-compliance; and
 - b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, F.S. Such evidence

SECTION 2. APPENDIX B
GENERAL CONDITIONS

shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
11. This permit is transferable only upon Department approval in accordance with Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
12. This permit or a copy thereof shall be kept at the work site of the permitted activity.
13. This permit also constitutes:
 - a. Determination of Best Available Control Technology (Not Applicable);
 - b. Determination of Prevention of Significant Deterioration (Not Applicable); and
 - c. Compliance with New Source Performance Standards (Not Applicable).
14. The permittee shall comply with the following:
 - a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
 - b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
 - c. Records of monitoring information shall include:
 - 1) The date, exact place, and time of sampling or measurements;
 - 2) The person responsible for performing the sampling or measurements;
 - 3) The dates analyses were performed;
 - 4) The person responsible for performing the analyses;
 - 5) The analytical techniques or methods used; and
 - 6) The results of such analyses.
15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SECTION 2. APPENDIX C
STANDARD REQUIREMENTS

Unless otherwise specified by permit, all emissions units that require testing are subject to the following conditions as applicable.

EMISSIONS AND CONTROLS

1. Circumvention: The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]
2. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]
3. Excess Emissions Allowed: Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]
4. Excess Emissions - Notification: In case of excess emissions resulting from malfunctions, the permittee shall notify the Compliance Authority in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700(6), F.A.C.]
5. Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify each Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; steps being taken to correct the problem and prevent future recurrence; and, where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit or the regulations. [Rule 62-4.130, F.A.C.]
6. VOC or OS Emissions: No person shall store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds (VOC) or organic solvents (OS) without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. [Rule 62-296.320(1), F.A.C.]
7. Objectionable Odor Prohibited: No person shall cause, suffer, allow or permit the discharge of air pollutants, which cause or contribute to an objectionable odor. An "objectionable odor" means any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [Rules 62-296.320(2) and 62-210.200(Definitions), F.A.C.]
8. General Visible Emissions: No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity equal to or greater than 20% opacity. This regulation does not impose a specific testing requirement. [Rule 62-296.320(4)(b)1, F.A.C.]
9. Unconfined Particulate Emissions: During the construction period, unconfined particulate matter emissions shall be minimized by dust suppressing techniques such as covering and/or application of water or chemicals to the affected areas, as necessary. [Rule 62-296.320(4)(c), F.A.C.]

{Permitting Note: Rule 62-210.700 (Excess Emissions), F.A.C., cannot vary any NSPS or NESHAP provision.}

RECORDS AND REPORTS

10. Records Retention: All measurements, records, and other data required by this permit shall be documented in a permanent, legible format and retained for at least 5 years following the date on which such measurements, records, or data are recorded. Records shall be made available to the Department upon request. [Rule 62-213.440(1)(b)2, F.A.C.]
11. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(3), F.A.C.]

SECTION 2. APPENDIX D
STANDARD CEMS REQUIREMENTS

CEMS OPERATION PLAN

1. CEMS Operation Plan: The permittee shall create and implement a facility-wide plan for the proper installation, calibration, maintenance and operation of each CEMS required by this permit. The permittee shall submit the CEMS Operation Plan to the Bureau of Air Monitoring and Mobile Sources for approval at least 60 days prior to CEMS installation. The CEMS Operation Plan shall become effective 60 days after submittal or upon its approval. If the CEMS Operation Plan is not approved, the permittee shall submit a new or revised plan for approval.

{Permitting Note: The Department maintains both guidelines for developing a CEMS Operation Plan and example language that can be used as the basis for the facility-wide plan required by this permit. Contact the Emissions Monitoring Section of the Bureau of Air Monitoring and Mobile Sources at (850)488-0114.}

INSTALLATION, PERFORMANCE SPECIFICATIONS AND QUALITY ASSURANCE

2. Installation: All CEMS shall be installed such that representative measurements of emissions or process parameters from the facility are obtained. The permittee shall locate the CEMS by following the procedures contained in the applicable performance specification of 40 CFR Part 60, Appendix B.
3. Span Values and Dual Range Monitors: The permittee shall set appropriate span values for the CEMS. The permittee shall install dual range monitors if required by and in accordance with the CEMS Operation Plan.
4. Continuous Flow Monitor: For compliance with mass emission rate standards, the permittee shall install a continuous flow monitor to determine the stack exhaust flow rate. The flow monitor shall be certified pursuant to 40 CFR Part 60, Appendix B, Performance Specification 6.
5. Performance Specifications: The permittee shall evaluate the acceptability of each CEMS by conducting the appropriate performance specification, as follows. CEMS determined to be unacceptable shall not be considered installed for purposes of meeting the timelines of this permit. For the SO₂ monitor, the permittee shall conduct Performance Specification 2 of 40 CFR Part 60, Appendix B.
6. Quality Assurance: The permittee shall follow the quality assurance procedures of 40 CFR Part 60, Appendix F. The required RATA tests for the SO₂ monitor shall be performed using EPA Method 6C in Appendix A of 40 CFR Part 60.
7. Substituting RATA Tests for Compliance Tests: Data collected during CEMS quality assurance RATA tests can substitute for annual stack tests, provided the permittee indicates this intent in the submitted test protocol and follows the procedures outlined in the CEMS Operation Plan.

CALCULATION APPROACH

8. CEMS Used for Compliance: Once adherence to the applicable performance specification for each CEMS is demonstrated, the permittee shall use the CEMS to demonstrate compliance with the applicable emission standards as specified by this permit.
9. CEMS Data: Each CEMS shall monitor and record emissions during all periods of operation and whenever emissions are being generated, including during episodes of startups, shutdowns, and malfunctions. All data shall be used, except for invalid measurements taken during monitor system breakdowns, repairs, calibration checks, zero adjustments and span adjustments.
10. Operating Hours and Operating Days: For purposes of this appendix, the following definitions shall apply. An hour is the 60-minute period beginning at the top of each hour. Any hour during which an emissions unit is in operation for more than 15 minutes is an operating hour for that emission unit. A day is the 24-hour period from midnight to midnight. Unless otherwise specified by this permit, any day with at least one operating hour for an emissions unit is an operating day for that emission unit.
11. Valid Hourly Averages: Each CEMS shall be designed and operated to sample, analyze and record data evenly spaced over the hour at a minimum of one measurement per minute. All valid measurements collected during an hour shall be used to calculate a 1-hour block average that begins at the top of each hour.
 - a. Hours that are not operating hours are not valid hours.

SECTION 2. APPENDIX D
STANDARD CEMS REQUIREMENTS

- b. For each operating hour, the 1-hour block average shall be computed from at least two data points separated by a minimum of 15 minutes. If less than two such data points are available, there is insufficient data, the 1-hour block average is not valid, and the hour is considered as “monitor unavailable.”
12. Rolling 24-hour Average: Compliance shall be determined after each valid hourly average is obtained by calculating the arithmetic average of that valid hourly average and the prior 23 valid hourly averages.

MONITOR AVAILABILITY

13. Monitor Availability: The quarterly excess emissions report shall identify monitor availability for each quarter in which the unit operated. Monitor availability for the CEMS shall be 95% or greater in any calendar quarter in which the unit operated for more than 760 hours. In the event the applicable availability is not achieved, the permittee shall provide the Department with a report identifying the problems in achieving the required availability and a plan of corrective actions that will be taken to achieve 95% availability. The permittee shall implement the reported corrective actions within the next calendar quarter. Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit.
14. Notification Requirements: The permittee shall notify the Compliance Authority within one working day of discovering any emissions that demonstrate noncompliance for a given averaging period. Within one working day of occurrence, the permittee shall notify the Compliance Authority of any malfunction resulting in the exclusion of CEMS data. For malfunctions, notification is sufficient for the permittee to exclude CEMS data.

ANNUAL EMISSIONS

15. CEMS Used for Calculating Annual Emissions: All valid data, shall be used when calculating annual emissions.
- a. Annual emissions shall include data collected during startup, shutdown and malfunction periods.
 - b. Annual emissions shall include data collected during periods when the emission unit is not operating but emissions are being generated (for example, when firing fuel to warm up a process for some period of time prior to the emission unit’s startup).
 - c. Annual emissions shall not include data from periods of time where the monitor was functioning properly but was unable to collect data while conducting a mandated quality assurance/quality control activity such as calibration error tests, RATA, calibration gas audit or RAA. These periods of time shall be considered missing data for purposes of calculating annual emissions.
 - d. Annual emissions shall not include data from periods of time when emissions are in excess of the calibrated span of the CEMS. These periods of time shall be considered missing data for purposes of calculating annual emissions.
16. Accounting for Missing Data: All valid measurements collected during each hour shall be used to calculate a 1-hour block average. For each hour, the 1-hour block average shall be computed from at least two data points separated by a minimum of 15 minutes. If less than two such data points are available, the permittee shall account for emissions during that hour using site-specific data to generate a reasonable estimate of the 1-hour block average.
17. Emissions Calculation: Hourly emissions shall be calculated for each hour as the product of the 1-hour block average and the duration of pollutant emissions during that hour. Annual emissions shall be calculated as the sum of all hourly emissions occurring during the year.

Harvey, Mary

From: Harvey, Mary
Sent: Thursday, March 27, 2008 1:27 PM
To: 'George Q. Langstaff, Responsible Official, Smurfit-Stone Container Enterprises, Inc.'; 'Rachel Davis, Environmental Manager, Smurfit-Stone Container Enterprises, Inc.'; 'David Buff, P.E. of Record, Golder Associates, Inc.'; 'Chris Kirts, Northeast District Office'; 'Katy Forney, EPA Region 4'; 'Jim Little, EPA Region 4'; 'Dee Morse, NPS'
Cc: Mitchell, Bruce; Walker, Elizabeth (AIR); Gibson, Victoria
Subject: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - DEP FILE #0890003-018-AC-FINAL
Attachments: 0890003.018.AC.F_pdf.zip

Tracking:	Recipient	Delivery
	'George Q. Langstaff, Responsible Official, Smurfit-Stone Container Enterprises, Inc.'	
	'Rachel Davis, Environmental Manager, Smurfit-Stone Container Enterprises, Inc.'	
	'David Buff, P.E. of Record, Golder Associates, Inc.'	
	'Chris Kirts, Northeast District Office'	Failed: 3/27/2008 1:27 PM
	'Katy Forney, EPA Region 4'	
	'Jim Little, EPA Region 4'	
	'Dee Morse, NPS'	
	Mitchell, Bruce	Delivered: 3/27/2008 1:27 PM
	Walker, Elizabeth (AIR)	Delivered: 3/27/2008 1:27 PM
	Gibson, Victoria	Delivered: 3/27/2008 1:27 PM

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site:
<http://www.adobe.com/products/acrobat/readstep.html>.

The Bureau of Air Regulation is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record.

Thank you,

DEP, Bureau of Air Regulation

3/28/2008

Harvey, Mary

From: Forney.Kathleen@epamail.epa.gov
Sent: Thursday, March 27, 2008 4:52 PM
To: Harvey, Mary
Subject: Re: FW: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - DEP FILE #0890003-018-AC-FINAL

thanks

Katy R. Forney
Air Permits Section
EPA - Region 4
61 Forsyth St., SW
Atlanta, GA 30303

Phone: 404-562-9130
Fax: 404-562-9019

"Harvey, Mary"
<Mary.Harvey@dep
.state.fl.us>

03/27/2008 01:31
PM

To
Kathleen Forney/R4/USEPA/US@EPA
cc
Subject
FW: SMURFIT-STONE CONTAINER
ENTERPRISES, INC. - DEP FILE
#0890003-018-AC-FINAL

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on this link to the DEP Customer Survey. Thank you in advance for completing the survey.

From: Harvey, Mary
Sent: Thursday, March 27, 2008 1:27 PM
To: 'George Q. Langstaff, Responsible Official, Smurfit-Stone Container Enterprises, Inc.'; 'Rachel Davis, Environmental Manager, Smurfit-Stone Container Enterprises, Inc.'; 'David Buff, P.E. of Record, Golder Associates, Inc.'; 'Chris Kirts, Northeast District Office'; 'Katy Forney, EPA Region 4'; 'Jim Little, EPA Region 4'; 'Dee Morse, NPS'
Cc: Mitchell, Bruce; Walker, Elizabeth (AIR); Gibson, Victoria
Subject: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - DEP FILE #0890003-018-AC-FINAL

Dear Sir/Madam:

Harvey, Mary

From: Davis, Rachel G. [RGDAVIS@SMURFIT.COM]
To: Harvey, Mary
Sent: Thursday, March 27, 2008 1:50 PM
Subject: Read: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - DEP FILE #0890003-018-AC-FINAL

Your message

To: RGDAVIS@SMURFIT.COM
Subject:

was read on 3/27/2008 1:50 PM.

Harvey, Mary

From: Davis, Rachel G. [RGDAVIS@SMURFIT.COM]
Sent: Thursday, March 27, 2008 1:57 PM
To: Harvey, Mary; Langstaff, George; David Buff, P.E. of Record, Golder Associates, Inc.; Chris Kirts, Northeast District Office; Katy Forney, EPA Region 4; Jim Little, EPA Region 4; Dee Morse, NPS
Cc: Mitchell, Bruce; Walker, Elizabeth (AIR); Gibson, Victoria
Subject: RE: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - DEP FILE #0890003-018-AC-FINAL

We have received this permit and its attachments.

Rachel Davis

Environmental Manager
Smurfit Stone Container Corporation
Fernandina Beach Mill
North 8th Street
Fernandina Beach, FL 32034
Phone (904) 277-7718
Cell (904) 753-4595

From: Harvey, Mary [mailto:Mary.Harvey@dep.state.fl.us]
Sent: Thursday, March 27, 2008 1:27 PM
To: Langstaff, George; Davis, Rachel G.; David Buff, P.E. of Record, Golder Associates, Inc.; Chris Kirts, Northeast District Office; Katy Forney, EPA Region 4; Jim Little, EPA Region 4; Dee Morse, NPS
Cc: Mitchell, Bruce; Walker, Elizabeth (AIR); Gibson, Victoria
Subject: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - DEP FILE #0890003-018-AC-FINAL

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site:
<http://www.adobe.com/products/acrobat/readstep.html>.

The Bureau of Air Regulation is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record.

Thank you,

3/27/2008

Harvey, Mary

From: Buff, Dave [DBuff@GOLDER.com]
To: undisclosed-recipients
Sent: Thursday, March 27, 2008 1:34 PM
Subject: Read: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - DEP FILE #0890003-018-AC-FINAL

Your message

To: DBuff@GOLDER.com
Subject:

was read on 3/27/2008 1:34 PM.

Harvey, Mary

From: Gibson, Victoria
To: Harvey, Mary
Sent: Thursday, March 27, 2008 1:27 PM
Subject: Read: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - DEP FILE #0890003-018-AC-FINAL

Your message

To: 'George Q. Langstaff, Responsible Official, Smurfit-Stone Container Enterprises, Inc.'; 'Rachel Davis, Environmental Manager, Smurfit-Stone Container Enterprises, Inc.'; 'David Buff, P.E. of Record, Golder Associates, Inc.'; 'Chris Kirts, Northeast District Office'; 'Katy Forney, EPA Region 4'; 'Jim Little, EPA Region 4'; 'Dee Morse, NPS'
Cc: Mitchell, Bruce; Walker, Elizabeth (AIR); Gibson, Victoria
Subject: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - DEP FILE #0890003-018-AC-FINAL
Sent: 3/27/2008 1:27 PM

was read on 3/27/2008 1:27 PM.

Harvey, Mary

From: Kirts, Christopher
To: Harvey, Mary
Sent: Friday, March 28, 2008 7:11 AM
Subject: Read: FW: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - DEP FILE #
0890003-018-AC-FINAL

Your message

To: Kirts, Christopher
Subject: FW: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - DEP FILE #0890003-018-AC-FINAL
Sent: 3/27/2008 1:35 PM

was read on 3/28/2008 7:11 AM.

Harvey, Mary

From: Dee_Morse@nps.gov
Sent: Monday, March 31, 2008 9:06 AM
To: Harvey, Mary
Subject: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - DEP FILE #0890003-018-AC-FINAL

Return Receipt

Your document: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - DEP FILE #0890003-018-AC-FINAL

was received by: Dee Morse/DENVER/NPS

at: 03/31/2008 07:04:56 AM

Subject: Comments on Draft Permit 0890003-018-AC

Hi Bruce,

Per our conversation, the only comment I had on this permit was the length of time required to install an SO2 CEMS. Please change Compliance Monitoring Condition 5 requiring the CEMS installation and certification to be within one year of permit issuance. If you can commit to make that change, I'll go ahead and publish the draft permit in the newspaper ASAP.

Thank you,

Rachel Davis
Environmental Manager
Smurfit Stone Container Corporation
Fernandina Beach Mill
North 8th Street
Fernandina Beach, FL 32034
Phone (904) 277-7718
Cell (904) 753-4595

3/24/2008



Fernandina Beach Containerboard Mill
North 8th Street
PO Box 2000
Fernandina Beach, FL 32035
(904) 261-5551
(904) 277-5888 fax

CERTIFIED MAIL

7005 1820 0006 6649 4868

March 10, 2008

RECEIVED

MAR 17 2008

BUREAU OF AIR REGULATION

Bruce Mitchell
Air Permit Engineer
Florida Department of Environmental Protection
Division of Air Resource Management
2600 Blair Road, MS#5505
Tallahassee, Florida 32399-2400

RE: Proof of Publication for Draft Permit No.: 0890003-018-AC

Enclosed with this letter is the Fernandina Beach News Leader newspaper affidavit for the Public Notice of Intent to Issue a Construction Permit. As required by Rule 62-110.106(5), F.A.C, the public notice for the above referenced draft permits were published in the Fernandina Beach News Leader on March 5, 2008.

Please contact me at (904) 277-7718 or by Email at rgdavis@smurfit.com if you need any additional information.

Sincerely,

Rachel G. Davis
Environmental Manager

Enclosure

Cc: Steve Hamilton, SSCC

PUBLIC NOTICE OF INTENT TO ISSUE AIR PERMIT

Florida Department of Environmental Protection
Division of Air Resource Management, Bureau of Air Regulation
Draft Air Construction Permit
No. 0890003-018-AC
Smurfit-Stone Container Enterprises, Inc. - Fernandina Beach Mill

Nassau County, Florida
Applicant: The applicant for this project is Smurfit-Stone Container Enterprises, Inc. The applicant's authorized representative and mailing address is: Mr. George Q. Langstaff, VP - Regional Mill Operations, Smurfit-Stone Container Enterprises, Inc., Fernandina Beach Mill, North 8th Street, Fernandina Beach, Florida 32034.

Facility and Location: The applicant, Smurfit-Stone Container Enterprises, Inc., operates the existing Fernandina Beach Mill, which is located in Nassau County at North 8th Street in Fernandina Beach, Florida. This facility is a Kraft pulp and paper mill that consists of major activities areas such as: wood yard, pulp mill, recycle plant, chemical recovery, powerhouse, paperboard mill, and a corrugated containers plant.

Project: On February 2, 2007, Smurfit-Stone Container Enterprises, Inc. submitted an application to satisfy the requirements of Best Available Retrofit Technology (BART) in Rule 62-296.340, Florida Administrative Code (F.A.C.), for the existing Fernandina Beach Mill. On December 21, 2007, the Department received a BART exemption request along with the modeling to support the exemption. The applicant proposes a new sulfur dioxide emissions standard for the No. 5 Power Boiler of 550.0 pounds per hour, 24-hour rolling average, with compliance demonstrated by a continuous emissions monitoring system. An air quality modeling analysis of the BART-eligible units indicates a maximum visibility impairment of 0.495 deciviews to the nearest Class I area (Okefenokee National Wildlife Refuge). This is less than the regulatory threshold of 0.5 deciviews, which exempts the facility from BART review.

Permitting Authority: Applications for air construction permits are subject to review in accordance with the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-4, 62-210 and 62-212, F.A.C. The proposed project is not exempt from air permitting requirements and an air permit is required to perform the proposed work. The Bureau of Air Regulation is the Permitting Authority responsible for making a permit determination for this project. The Permitting Authority's physical address is: 111 South Magnolia Drive, Suite #4, Tallahassee, Florida. The Permitting Authority's mailing address is: 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. The Permitting Authority's telephone number is 850/488-0114.

Project File: A complete project file is available for public inspection during the normal business hours of 8:00 a.m. to 5:00 p.m., Monday through Friday (except legal holidays), at address indicated above for the Permitting Authority. The complete project file includes the Draft Permit, the Technical Evaluation and Preliminary Determination, the application, and the information submitted by

the applicant, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Permitting Authority's project review engineer for additional information at the address and phone number listed above. In addition, electronic copies of these documents are available on the following web site:

http://www.dep.state.fl.us/air/eprodcts/apds/default.asp
Notice of Intent to Issue Air Permit: The Permitting Authority gives notice of its intent to issue an air permit to the applicant for the project described above. The applicant has provided reasonable assurance that operation of proposed equipment will not adversely impact air quality and that the project will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C. The Permitting Authority will issue a Final Permit in accordance with the conditions of the proposed Draft Permit unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, F.S. or unless public comment received in accordance with this notice results in a different decision or a significant change of terms or conditions.

Comments: The Permitting Authority will accept written comments concerning the proposed Draft Permit for a period of 14 days from the date of publication of the Public Notice. Written comments must be postmarked by the Permitting Authority by close of business (5:00 p.m.) on or before the end of this 14-day period. If written comments received result in a significant change to the Draft Permit, the Permitting Authority shall revise the Draft Permit and require, if applicable, another Public Notice. All comments filed will be made available for public inspection.

Petitions: A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed with (received by) the Department's Agency Clerk in the Office of General Counsel of the Department of Environmental Protection at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S. must be filed within 14 days of publication of this Public Notice or receipt of a written notice, whichever occurs first. Under Section 120.60(3), F.S., however, any person who asked the Permitting Authority for notice of agency action may file a petition within 14 days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the approval of the presiding officer upon the filing

of a motion, exclusive of confidential records under Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Permitting Authority's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address and telephone number of the petitioner; the name address and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial rights will be affected by the agency determination; (c) A statement of when and how the petitioner received notice of the agency action or proposed decision; (d) A statement of all disputed issues of material fact. If there are none, the petition must so state; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action including an explanation of how the alleged facts relate to the specific rules or statutes; and (g) A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the agency to take with respect to the agency's proposed action. A petition that does not dispute the material facts upon which the Permitting Authority's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Permitting Authority's final action may be different from the position taken by it in this Public Notice of Intent to Issue Air Permit. Persons whose substantial interests will be affected by any such final decision of the Permitting Authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation: Mediation is not available for this proceeding.
11 03-05-2008
6458

FLORIDA'S OLDEST WEEKLY NEWSPAPER
NEWS LEADER

Published Weekly
511 Ash Street/P.O. Box 766 (904) 261-3696
Fernandina Beach, Nassau County, Florida 32034

**STATE OF FLORIDA
COUNTY OF NASSAU:**

Before the undersigned authority personally appeared **Michael B. Hankins** who on oath says that he is the Advertising Director of The Fernandina Beach *News-Leader*, a weekly newspaper published at Fernandina Beach in Nassau County, Florida; that the attached copy of advertisement, being a Legal Notice in the matter of

**PUBLIC NOTICE OF INTENT TO ISSUE AIR PERMIT
Florida Department of Environmental Protection
Smurfit-Stone Container Enterprises, Inc.**

was published in said newspaper in the issues of **03-05-2008** ref. No. **6458**
Affiant further says that the said Fernandina Beach *News-Leader* is a newspaper published at Fernandina Beach, in said Nassau County, Florida, and that the said newspaper has heretofore been continuously published in said Nassau County, Florida, each week and has been entered as second class mail matter at the post office in Fernandina Beach in said Nassau County, Florida, for a period of one year next preceding the first publication of the attached copy of advertisement; and affiant further says that he has neither paid nor promised any person, firm or corporation any discount, rebate, commission or refund for the purpose of securing this advertisement for publication in the said newspaper.

Michael B. Hankins

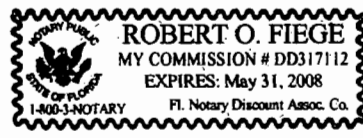
Sworn to and subscribed before me
this 5th day of March, A.D. 2008.

Robert O. Fiege
Robert O. Fiege, Notary Public

RECEIVED
MAR 17 2008

Personally Known

BUREAU OF AIR REGULATION



Florida Department of Environmental Protection
Office of General Counsel

Memo

To: Trina Vielhauer, Jeff Koerner, and OGC File

From: Ronni Moore, Assistant General Counsel *rl*

Date: April 2, 2008

Re: Smurfit-Stone Container Enterprises, Inc. v. DEP; Permit No. 0890003-018-AC;
OGC No. 08-0221

On February 25, 2008, the State of Florida Department of Environmental Protection (“Department”) issued an Order Granting Request for Extension of Time to File Petition for Hearing to Petitioner, Smurfit-Stone Container Enterprises, Inc. (“Petitioner”), until April 7, 2008. In the interim, the parties amicably resolved the issues raised in the Department’s January 31, 2008, Notice of Intent to Issue Air Construction Permit No. 0890003-018-AC and issued a Notice of Final Air Construction Permit to Petitioner on March 27, 2008. There being no further matters to consider, the Department’s file in this matter is closed.

Gibson, Victoria

From: Moore, Ronni
Sent: Wednesday, April 02, 2008 11:38 AM
To: Vielhauer, Trina; Koerner, Jeff
Cc: Mitchell, Bruce; Gibson, Victoria
Subject: Smurfit-Stone - closure memo for permit no. 0890003-018-AC
Attachments: Smurfit-Stone Memo Closing File 04-02-08.pdf

FYI.

Ronda L. Moore
Assistant General Counsel
Florida Department of Environmental Protection
3900 Commonwealth Blvd., MS 35
Tallahassee, FL 32399-3000
Phone: 850.245.2193
Fax: 850.245.2302
ronni.moore@dep.state.fl.us



Please consider the environment before printing this email.

Gibson, Victoria

From: Gibson, Victoria
Sent: Monday, March 31, 2008 9:29 AM
To: Moore, Ronni
Subject: Smurfit Stone Container 0890003-018-AC OGC # 08-0221

Follow Up Flag: Follow up
Flag Status: Red

Good morning.

This case can now be closed since the final went out on 3/27.

Thank you.

Vickie

Victoria Gibson, Administrative Secretary for
Trina Vielhauer, Chief
Bureau of Air Regulation
Department of Air Resource Management
victoria.gibson@dep.state.fl.us
850-921-9504 fax 850-921-9533

Gibson, Victoria

From: Vielhauer, Trina
Sent: Monday, February 25, 2008 4:46 PM
To: Gibson, Victoria; Lizotte, Ashley
Subject: FW: Smurfit-Stone 02-25-08 ORD Granting until 4-7-08.pdf - Adobe Acrobat Professional
Follow Up Flag: Follow up
Flag Status: Red
Attachments: Smurfit-Stone 02-25-08 ORD Granting until 4-7-08

Hi Ashley,

We appreciate these copies! Can you please be sure to copy Vickie Gibson on these as well? She tracks them for our air permits.

Thanks and have a good afternoon!

Trina

From: Lizotte, Ashley
Sent: Monday, February 25, 2008 3:47 PM
To: Vielhauer, Trina; Koerner, Jeff
Cc: Moore, Ronni; Brown, Lisa L.
Subject: Smurfit-Stone 02-25-08 ORD Granting until 4-7-08.pdf - Adobe Acrobat Professional

Please find Attached a courtesy copy of the Smurfit-Stone 02-25-08 Order Granting Request for Extension of Time to File Petition for Administrative Hearing and Request for Extension to Publish Public Notice until 04-07-08 from Ronni Moore.

Ashley Marie Lizotte
Administrative Secretary Waste-Air
Office of General Counsel MS35
3900 Commonwealth Blvd
Tallahassee, FL 32399

Assistant to Ronda L. Moore, Assistant General Counsel

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

SMURFIT-STONE CONTAINER
ENTERPRISES, INC,

Petitioner,

vs.

OGC No. 08-0221
DEP Permit No. 0890003-018-AC

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION,

Respondent.

**ORDER GRANTING REQUEST FOR EXTENSION OF TIME TO FILE PETITION FOR
ADMINISTRATIVE HEARING AND
REQUEST FOR EXTENSION TO PUBLISH PUBLIC NOTICE**

This cause has come before the State of Florida Department of Environmental Protection (Department) upon receipt of a request made by Petitioner, Smurfit-Stone Enterprises, Inc. (Petitioner), to grant an extension of time to file a petition for an administrative hearing and an extension of time to publish public notice to allow time to discuss with the Department several specific permit conditions for its facility in Nassau County, Florida.


IT IS ORDERED:

A. The request for an extension of time to file a petition for an administrative hearing is **GRANTED**. Petitioner shall have until **April 7, 2008**, to file a petition in this matter. Filing shall be complete upon receipt by the Office of General Counsel, Department of Environmental Protection, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000. This Order shall have no effect on the rights, obligations, or applicable deadlines of any other parties to this action.

B. The request for extension of time to publish public notice is **GRANTED** through **April 7, 2008**.

DONE AND ORDERED on this 20th day of February 2008, in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



JACK CHISOLM, Deputy General Counsel
3900 Commonwealth Boulevard - MS 35
Tallahassee, Florida 32399-3000
850/245-2242 facsimile 850/245-2302

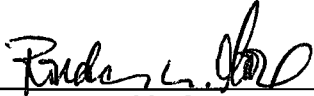
CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the forgoing, Order Granting Request for Extension of Time to File Petition for Administrative Hearing and Request for Extension to Publish Public Notice, was furnished facsimile ONLY on this 25th day of February, 2008, to:

Terry Cole
Oertel, Fernandez, Cole & Bryant, P.A.
P. O. Box 1110
Tallahassee, FL 32302-1110

Facsimile: (850) 521-0720

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



RONDA L. MOORE, Assistant General Counsel
3900 Commonwealth Boulevard - MS 35
Tallahassee, Florida 32399-3000
850/245-2193 facsimile 850/245-2302
Florida Bar No. 0676411

cc via electronic mail:

Trina Vielhauer, Chief-FDEP BAR Trina.Vielhauer@dep.state.fl.us
Jeff Koerner, Prof. Engineer-FDEP BAR Jeff.Koerner@dep.state.fl.us

Gibson, Victoria

From: Koerner, Jeff
Sent: Tuesday, February 12, 2008 1:49 PM
To: Moore, Ronni
Cc: Mitchell, Bruce; Gibson, Victoria
Subject: Request for Extension of Time - Smurfit-Stone Container Fernandina Beach Mill

Project No. 0890003-018-AC
Draft Permit with Standards Resulting in an Exemption from BART

Ronni,

I discussed this with Trina.

We're OK with an extension for 60 days to resolves differences.

Please call if you have any questions.

Thanks!

Jeff Koerner, BAR - New Source Review Section Florida Department of Environmental Protection
850/921-9536

-----Original Message-----

From: Mitchell, Bruce
Sent: Wednesday, February 06, 2008 4:42 PM
To: Koerner, Jeff
Subject: FW: Request for Extension of Time - 0890003-018-AC - Smurfit-Stone

FYI.

Bruce

-----Original Message-----

From: Crandall, Lea
Sent: Wednesday, February 06, 2008 3:14 PM
To: Chisolm, Jack; Brown, Lisa L.; Gibson, Victoria; Mitchell, Bruce
Subject: Request for Extension of Time - 0890003-018-AC - Smurfit-Stone

FYI, a Request for Extension of Time - 0890003-018-AC - Smurfit-Stone.

Thanks,
Lea

Lea Crandall
Agency Clerk
Department of Environmental Protection
3900 Commonwealth Boulevard, MS 35
Tallahassee, FL 32399-3000
Phone: (850) 245-2212 SC: 205-2212
Fax: (850) 245-2303

FLORIDA DISCOUNT CARD: More than 3,000 retail pharmacies in Florida are now a part of the Florida Discount Drug Card program. See www.FloridaDiscountDrugCard.com for more info or call toll-free, 1-866-341-8894.

-----Original Message-----

From: Becki Frazier [mailto:bfrazier@ohfc.com]
Sent: Wednesday, February 06, 2008 2:04 PM
To: Crandall, Lea
Cc: Harvey, Mary; bruce.mitchelle@dep.state.fl.us; jeff.keorner@dep.state.fl.us; Walker, Elizabeth (AIR); Gibson, Victoria; Davis, Rachel G.; Hamilton, Steve; kittrel@smurfit.com; Buff, Dave
Subject: Smurfit-Stone Filing for today

Good afternoon Lea. Please see the attached Motion for Extension of Time for filing today. Thanks and have a very wonderful (hopefully dry) afternoon.

Becki Frazier
Legal Assistant to
Terry Cole and Scott Foltz
Oertel, Fernandez, Cole & Bryant, P.A.
301 S. Bronough St., Suite 500
P.O. Box 1110 (32302-1110)
Tallahassee, Florida 32301
Phone: (850) 521-0700
Fax: (850) 521-0720
www.ohfc.com
bfrazier@ohfc.com

"Live Simply, Love Generously, Care Deeply, Speak Kindly, Leave The Rest To God"

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Gibson, Victoria

From: Vielhauer, Trina
Sent: Tuesday, February 12, 2008 1:07 PM
To: Koerner, Jeff
Cc: Gibson, Victoria
Subject: RE: Request for Extension of Time - 0890003-018-AC - Smurfit-Stone

ok. That's fine. I don't remember seeing this one. I'm sure it came in but I don't recall..

Thanks!

-----Original Message-----

From: Koerner, Jeff
Sent: Tuesday, February 12, 2008 1:04 PM
To: Vielhauer, Trina
Subject: FW: Request for Extension of Time - 0890003-018-AC - Smurfit-Stone

Trina,

Ronni wants to know if we agree to the extension (1st request).

Not sure if you looked at this one or not.

This is the minor AC permit to get the FB plant out of BART.

They want an extension to work on changes related to:

- * Only allowed 180 days to install CEMS
- Requirement of flow monitor
- * Requirement to include all emission (SU, SD and malfunction)

I would say an extension of 60 days is OK since they filed on Feb.. 1st. Let me know what you think.

Jeff

-----Original Message-----

From: Mitchell, Bruce
Sent: Wednesday, February 06, 2008 4:42 PM
To: Koerner, Jeff
Subject: FW: Request for Extension of Time - 0890003-018-AC - Smurfit-Stone

FYI.

Bruce

-----Original Message-----

From: Crandall, Lea
Sent: Wednesday, February 06, 2008 3:14 PM
To: Chisolm, Jack; Brown, Lisa L.; Gibson, Victoria; Mitchell, Bruce
Subject: Request for Extension of Time - 0890003-018-AC - Smurfit-Stone

FYI, a Request for Extension of Time - 0890003-018-AC - Smurfit-Stone.

Thanks,
Lea

Lea Crandall
Agency Clerk

Department of Environmental Protection
3900 Commonwealth Boulevard, MS 35
Tallahassee, FL 32399-3000
Phone: (850) 245-2212 SC: 205-2212
Fax: (850) 245-2303

FLORIDA DISCOUNT CARD: More than 3,000 retail pharmacies in Florida are now a part of the Florida Discount Drug Card program. See www.FloridaDiscountDrugCard.com for more info or call toll-free, 1-866-341-8894.

-----Original Message-----

From: Becki Frazier [mailto:bfrazier@ohfc.com]
Sent: Wednesday, February 06, 2008 2:04 PM
To: Crandall, Lea
Cc: Harvey, Mary; bruce.mitchelle@dep.state.fl.us; jeff.keorner@dep.state.fl.us; Walker, Elizabeth (AIR); Gibson, Victoria; Davis, Rachel G.; Hamilton, Steve; rkittrel@smurfit.com; Buff, Dave
Subject: Smurfit-Stone Filing for today

Good afternoon Lea. Please see the attached Motion for Extension of Time for filing today. Thanks and have a very wonderful (hopefully dry) afternoon.

Becki Frazier
Legal Assistant to
Terry Cole and Scott Foltz
Oertel, Fernandez, Cole & Bryant, P.A.
301 S. Bronough St., Suite 500
P.O. Box 1110 (32302-1110)
Tallahassee, Florida 32301
Phone: (850) 521-0700
Fax: (850) 521-0720
www.ohfc.com
bfrazier@ohfc.com

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Gibson, Victoria

From: Gibson, Victoria
Sent: Tuesday, February 12, 2008 12:54 PM
To: Koerner, Jeff
Subject: Smurfit - Stone Container 0890003-018-AC -- Request for an Extension of Time

Hi,

Have you sent a reply to Ronni in OGC about granting or denying this request. If so, please send me a copy of your e-mail to her.

Thank you.

Vickie

Victoria Gibson, Administrative Secretary for
Trina Vielhauer, Chief
Bureau of Air Regulation
Department of Air Resource Management
victoria.gibson@dep.state.fl.us
850-921-9504 fax 850-921-9533

Gibson, Victoria

From: Walker, Elizabeth (AIR)
Sent: Wednesday, February 06, 2008 2:10 PM
To: Mitchell, Bruce; Koerner, Jeff
Cc: Gibson, Victoria
Subject: FW: Smurfit-Stone Filing for today

Attachments: 1148 Motion for Extension of Time-0890003-018-AC.pdf



1148 Motion for
Extension of T...

I don't know if you need this info, but I noticed that Ms. Frazier had the wrong email addresses for you.

Elizabeth Walker
Bureau of Air Regulation
Division of Air Resource Management (DARM)
(850)921-9505

-----Original Message-----

From: Becki Frazier [mailto:bfrazier@ohfc.com]
Sent: Wednesday, February 06, 2008 2:04 PM
To: Crandall, Lea
Cc: Harvey, Mary; bruce.mitchelle@dep.state.fl.us; jeff.keorner@dep.state.fl.us; Walker, Elizabeth (AIR); Gibson, Victoria; Davis, Rachel G.; Hamilton, Steve; rkittrel@smurfit.com; Buff, Dave
Subject: Smurfit-Stone Filing for today

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Becki Frazier
Legal Assistant to
Terry Cole and Scott Foltz
Oertel, Fernandez, Cole & Bryant, P.A.
301 S. Bronough St., Suite 500
P.O. Box 1110 (32302-1110)
Tallahassee, Florida 32301
Phone: (850) 521-0700
Fax: (850) 521-0720
www.ohfc.com
bfrazier@ohfc.com

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Gibson, Victoria

From: Crandall, Lea
Sent: Wednesday, February 06, 2008 3:14 PM
To: Chisolm, Jack; Brown, Lisa L.; Gibson, Victoria; Mitchell, Bruce
Subject: Request for Extension of Time - 0890003-018-AC - Smurfit-Stone

Attachments: 1148 Motion for Extension of Time-0890003-018-AC.pdf



1148 Motion for
Extension of T...

FYI, a Request for Extension of Time - 0890003-018-AC - Smurfit-Stone.

Thanks,
Lea

Lea Crandall
Agency Clerk
Department of Environmental Protection
3900 Commonwealth Boulevard, MS 35
Tallahassee, FL 32399-3000
Phone: (850) 245-2212 SC: 205-2212
Fax: (850) 245-2303

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Subject: Smurfit-Stone Filing for today

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Legal Assistant to
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**STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION**

SMURFIT-STONE CONTAINER
ENTERPRISES, INC.

Petitioner,
v.

OGC CASE # _____
DRAFT Permit # 0890003-018-AC
Draft Air Construction Permit
Permit #

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION,

Respondent.
_____ /

MOTION FOR EXTENSION OF TIME

SMURFIT-STONE CONTAINER ENTERPRISES, INC., ("Smurfit-Stone"), by and through its undersigned counsel, hereby requests an extension of time in which to file a Petition for Administrative Proceeding on the Draft Air Construction Permit No.: 0890003-018-AC, received by electronic transmission from DEP on February 1, 2008.

Smurfit-Stone also requests an extension of the requirement for public notice to be published until after the department determines whether the draft permit may be amended to reflect the comments that Smurfit-Stone intends to furnish.

The grounds for the motion are as follows:

1. A preliminary review of the draft Construction Permit dealing with BART Exemption Project permits revealed several issues which require further comment and discussion with the department, including the requirement of installation of an SO₂ Continuous Emission Monitoring System (CEMS) within 180 days of permit issuance. Such an installation is a major project which requires more time than allowed for budgeting, planning, scheduling, construction, and testing of such a system.

2. This informal discussion will be more efficient in terms of both department and Smurfit-Stone staff time than resolution through the filing of a Petition for Administrative Hearing.

3. The BART rules require that BART be implemented "as expeditiously as practical," and 6 months is not practical.

4. Two other specific concerns with the proposed permit which require further consultation with the Department are first that Appendix D, Condition 4, requires a continuous flow rate monitor, RATAs, QA procedures, and secondly the Annual Emissions requirements (Condition 15 are all encompassing, requiring emissions during SSM and even emissions when the unit is not operating but emissions are generated).

5. Smurfit-Stone desires to preserve its right to hearing should the requested revisions not be incorporated.

6. This Motion is filed within the time granted by the previous extension and therefore this motion is timely filed.

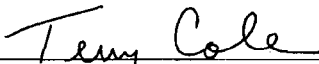
WHEREFORE, Smurfit-Stone respectfully requests that the time within which to file a petition for administrative proceeding and public notice be extended by 90 days. Smurfit-Stone specifically wishes to preserve its right to hearing and should this request for extension of time be denied, requests that this be treated as a Petition for Formal Administrative Proceeding.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that the foregoing Motion for Extension of Time has been filed with Lea Crandall, Agency Clerk, Department of Environmental Protection, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399, by electronic transmission this 6th day of February, 2008.

Respectfully submitted,

OERTEL, FERNANDEZ, COLE & BRYANT, P.A.
Post Office Box 1110
Tallahassee, Florida 32302-1110
850-521-0700; Fax: 850-521-0720



Terry Cole
Florida Bar ID No. 133550
Attorneys for Smurfit-Stone

Chronology of Activities

OGC Number **08 0221 45 AC** District **NORTHEAST** County **NASSAU**
Style of Case **SMURFIT-STONE CONTAINER ENTERPRISES, INC. VS. DEP**
Program Area **AIR CONSTRUCT** Mode **PERMITTING**
Lead Attorney **RONNI L MOORE** Status **CLOSED**
Forum Name _____ Forum Case Number _____
Permit Appl **0890003-018-AC** Final Order Number _____

Date	Code	Activity Description
02/06/2008	AA	ASSIGNED TO LEAD ATTORNEY JACK J CHISOLM
02/06/2008	ACO	ADMIN. CASE OPENED IN OGC
02/06/2008	REX1	RECEIVED FIRST REQUEST FOR EXTENSION OF TIME
02/13/2008	AR	RE-ASSIGNED TO LEAD ATTORNEY RONNI L MOORE
02/25/2008		ORDER GRANTING REQUEST FOR EXTENSION UNTIL 04/07/08
04/02/2008		MEMO CLOSING FILE
04/02/2008	CC	CASE CLOSED IN OGC

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

SMURFIT-STONE CONTAINER
ENTERPRISES, INC,

Petitioner,

OGC No. 08-0221
DEP Permit No. 0890003-018-AC

vs.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION,

Respondent.

_____ /

**ORDER GRANTING REQUEST FOR EXTENSION OF TIME TO FILE PETITION FOR
ADMINISTRATIVE HEARING AND
REQUEST FOR EXTENSION TO PUBLISH PUBLIC NOTICE**

This cause has come before the State of Florida Department of Environmental Protection (Department) upon receipt of a request made by Petitioner, Smurfit-Stone Enterprises, Inc. (Petitioner), to grant an extension of time to file a petition for an administrative hearing and an extension of time to publish public notice to allow time to discuss with the Department several specific permit conditions for its facility in Nassau County, Florida.


IT IS ORDERED:

A. The request for an extension of time to file a petition for an administrative hearing is **GRANTED**. Petitioner shall have until **April 7, 2008**, to file a petition in this matter. Filing shall be complete upon receipt by the Office of General Counsel, Department of Environmental Protection, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000. This Order shall have no effect on the rights, obligations, or applicable deadlines of any other parties to this action.

B. The request for extension of time to publish public notice is **GRANTED** through **April 7, 2008**.

DONE AND ORDERED on this 20th day of February 2008, in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



JACK CHISOLM, Deputy General Counsel
3900 Commonwealth Boulevard - MS 35
Tallahassee, Florida 32399-3000
850/245-2242 facsimile 850/245-2302

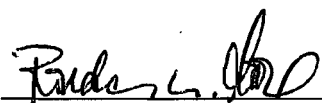
CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true and correct copy of the forgoing, Order Granting Request for Extension of Time to File Petition for Administrative Hearing and Request for Extension to Publish Public Notice, was furnished facsimile ONLY on this 25th day of February, 2008, to:

Terry Cole
Oertel, Fernandez, Cole & Bryant, P.A.
P. O. Box 1110
Tallahassee, FL 32302-1110

Facsimile: (850) 521-0720

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION



RONDA L. MOORE, Assistant General Counsel
3900 Commonwealth Boulevard - MS 35
Tallahassee, Florida 32399-3000
850/245-2193 facsimile 850/245-2302
Florida Bar No. 0676411

cc via electronic mail:

Trina Vielhauer, Chief-FDEP BAR Trina.Vielhauer@dep.state.fl.us
Jeff Koerner, Prof. Engineer-FDEP BAR Jeff.Koerner@dep.state.fl.us

Memorandum

Florida Department of Environmental Protection

TO: Trina Vielhauer

THRU: Jeff Koerner *JK*

FROM: Bruce Mitchell *RB*

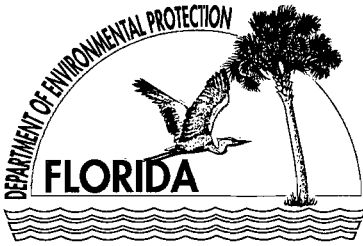
DATE: January 28, 2008

SUBJECT: Smurfit-Stone Container Enterprises, Inc.
Fernandina Beach Mill
Draft Air Construction Permit - BART Exemption Project
0890003-018-AC

Attached is the Draft Air Construction Permit for the Fernandina Beach Mill located at North 8th Street, Fernandina Beach, Nassau County.

Attachments

TLV/jfk/rbm



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

January 31, 2008

Electronically Sent – Return Receipt Requested

Mr. George Q. Langstaff
V.P., Regional Mill Operations
Smurfit-Stone Container Enterprises, Inc.
Fernandina Beach Mill
North 8th Street
Fernandina Beach, Florida 32034

Re: Draft Permit No. 0890003-018-AC
Smurfit-Stone Container Enterprises, Inc. – Fernandina Beach Mill
BART Exemption Project

Dear Mr. Langstaff:

On February 2, 2007, you submitted an application to satisfy the requirements of Best Available Retrofit Technology (BART) in Rule 62-296.340, Florida Administrative Code, for the eligible units at the facility identified above. On December 21, 2007, the Department received a BART exemption request along with the modeling to support the exemption. Enclosed are the following documents:

- The Technical Evaluation and Preliminary Determination summarizes the Permitting Authority's technical review of the application and provides the rationale for making the preliminary determination to issue a Draft Permit.
- The proposed Draft Permit includes the specific conditions that regulate the emissions units covered by the proposed project.
- The Written Notice of Intent to Issue Air Permit provides important information regarding: the Permitting Authority's intent to issue an air permit for the proposed project; the requirements for publishing a Public Notice of the Permitting Authority's intent to issue an air permit; the procedures for submitting comments on the Draft Permit; the process for filing a petition for an administrative hearing; and the availability of mediation.
- The Public Notice of Intent to Issue Air Permit is the actual notice that you must have published in the legal advertisement section of a newspaper of general circulation in the area affected by this project.

If you have any questions, please contact the Project Engineer, Bruce Mitchell, at 850/413-9198, or the Meteorologist, Tom Rogers, at 850/921-9554.

Sincerely,

Trina Vielhauer, Chief
Bureau of Air Regulation

Enclosures

TLV/jfk/rbm

WRITTEN NOTICE OF INTENT TO ISSUE AIR PERMIT

*In the Matter of an
Application for Air Permit by:*

Smurfit-Stone Container Enterprises, Inc.
Fernandina Beach Mill
North 8th Street
Fernandina Beach, Florida 32034

Draft Permit No. 0890003-018-AC
Facility ID No. 0890003
Fernandina Beach Mill
BART Exemption Project
Nassau County, Florida

Authorized Representative:

Mr. George Q. Langstaff, V.P., Regional Mill Operations

Facility Location: The applicant, Smurfit-Stone Container Enterprises, Inc., operates the existing Fernandina Beach Mill, which is located in Nassau County at North 8th Street, Fernandina Beach, Florida.

Project: On February 2, 2007, Smurfit-Stone Container Enterprises, Inc. submitted an application to satisfy the requirements of Best Available Retrofit Technology (BART) in Rule 62-296.340, Florida Administrative Code (F.A.C.), for the eligible units at the facility identified above. On December 21, 2007, the Department received a BART exemption request along with the modeling to support the exemption. The applicant proposes a new sulfur dioxide emissions standard for the No. 5 Power Boiler of 550.0 pounds per hour, 24-hour rolling average, with compliance demonstrated by a continuous emissions monitoring system. An air quality modeling analysis of the BART-eligible units indicates a maximum visibility impairment of 0.495 deciviews to the nearest Class I area (Okefenokee National Wildlife Refuge). This is less than the regulatory threshold of 0.5 deciviews, which exempts the facility from BART review. Details of the project are provided in the application and the enclosed Technical Evaluation and Preliminary Determination.

Permitting Authority: Applications for air construction permits are subject to review in accordance with the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-4, 62-210, and 62-212, F.A.C. The proposed project is not exempt from air permitting requirements and an air permit is required to perform the proposed work. The Bureau of Air Regulation is the Permitting Authority responsible for making a permit determination for this project. The Permitting Authority's physical address is: 111 South Magnolia Drive, Suite #4, Tallahassee, Florida. The Permitting Authority's mailing address is: 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. The Permitting Authority's telephone number is 850/488-0114.

Project File: A complete project file is available for public inspection during the normal business hours of 8:00 a.m. to 5:00 p.m., Monday through Friday (except legal holidays), at address indicated above for the Permitting Authority. The complete project file includes the Draft Permit, the Technical Evaluation and Preliminary Determination, the application, and the information submitted by the applicant, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Permitting Authority's project review engineer for additional information at the address or phone number listed above. In addition, electronic copies of these documents are available on the following web site:
<http://www.dep.state.fl.us/air/eproducts/apds/default.asp>.

Notice of Intent to Issue Permit: The Permitting Authority gives notice of its intent to issue an air permit to the applicant for the project described above. The applicant has provided reasonable assurance that operation of the proposed equipment will not adversely impact air quality and that the project will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297, F.A.C. The Permitting Authority will issue a Final Permit in accordance with the conditions of the proposed Draft Permit unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, F.S., or unless public comment received in accordance with this notice results in a different decision or a significant change of terms or conditions.

Public Notice: Pursuant to Section 403.815, F.S., and Rules 62-110.106 and 62-210.350, F.A.C., you (the applicant) are required to publish at your own expense the enclosed Public Notice of Intent to Issue Air Permit (Public Notice). The Public Notice shall be published one time only as soon as possible in the legal advertisement section of a newspaper of general circulation in the area affected by this project. The newspaper used must meet the requirements of Sections 50.011 and 50.031, F.S., in the county where the activity is to take place. If you are uncertain that a newspaper meets these requirements, please contact the Permitting Authority at above address or phone number. Pursuant to Rules 62-110.106(5) and (9), F.A.C., the applicant shall provide proof of publication to the Permitting Authority at the above address within 7 days of publication.

WRITTEN NOTICE OF INTENT TO ISSUE AIR PERMIT

Failure to publish the notice and provide proof of publication may result in the denial of the permit pursuant to Rule 62-110.106(11), F.A.C.

Comments: The Permitting Authority will accept written comments concerning the proposed Draft Permit for a period of 14 days from the date of publication of the Public Notice. Written comments must be postmarked by the Permitting Authority by close of business (5:00 p.m.) on or before the end of this 14-day period. If written comments received result in a significant change to the Draft Permit, the Permitting Authority shall revise the Draft Permit and require, if applicable, another Public Notice. All comments filed will be made available for public inspection.

Petitions: A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed with (received by) the Department's Agency Clerk in the Office of General Counsel of the Department of Environmental Protection, 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. Petitions filed by the applicant or any of the parties listed below must be filed within 14 days of receipt of this Written Notice of Intent to Issue Air Permit. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S., must be filed within 14 days of publication of the attached Public Notice or within 14 days of receipt of this Written Notice of Intent to Issue Air Permit, whichever occurs first. Under Section 120.60(3), F.S., however, any person who asked the Permitting Authority for notice of agency action may file a petition within 14 days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Permitting Authority's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address, and telephone number of the petitioner; the name, address and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination; (c) A statement of when and how each petitioner received notice of the agency action or proposed decision; (d) A statement of all disputed issues of material fact. If there are none, the petition must so state; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action including an explanation of how the alleged facts relate to the specific rules or statutes; and, (g) A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the agency to take with respect to the agency's proposed action. A petition that does not dispute the material facts upon which the Permitting Authority's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Permitting Authority's final action may be different from the position taken by it in this Written Notice of Intent to Issue Air Permit. Persons whose substantial interests will be affected by any such final decision of the Permitting Authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation: Mediation is not available in this proceeding.

Executed in Tallahassee, Florida.



Trina Vielhauer, Chief
Bureau of Air Regulation

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Notice of Intent to Issue Air Permit package (including the Written Notice of Intent to Issue Air Permit, Public Notice of Intent to Issue Air Permit, the Technical Evaluation and Preliminary Determination, and the Draft Permit) was sent by electronic mail with received receipt requested before the close of business on 2/1/08 to the persons listed below.

George Q. Langstaff, Authorized Representative, Smurfit-Stone Container Enterprises, Inc. (glangstaff@smurfit.com)

Rachel Davis, Application Contact, Smurfit-Stone Container Enterprises, Inc. (rgdavis@smurfit.com)

David Buff, P.E. of Record, Golder Associates, Inc. (dbuff@golder.com)

Chris Kirts, Northeast District Office (Cristopher.Kirts@dep.state.fl.us)

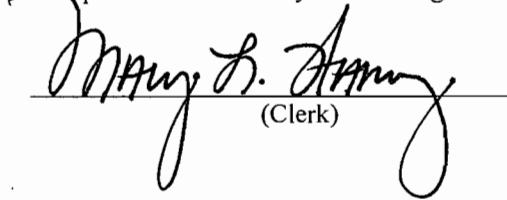
Katy Forney, EPA Region 4 (Forney.Kathleen@epa.gov)

Jim Little, EPA Region 4 (Little.James@epa.gov)

Dee Morse, NPS (Dee_Morse@nps.gov)

Clerk Stamp

FILING AND ACKNOWLEDGMENT FILED, on this date, pursuant to Section 120.52(7), F.S., with the designated agency clerk, receipt of which is hereby acknowledged.



(Clerk)

2/1/08

(Date)

PUBLIC NOTICE OF INTENT TO ISSUE AIR PERMIT

Florida Department of Environmental Protection
Division of Air Resource Management, Bureau of Air Regulation
Draft Air Construction Permit No. 0890003-018-AC
Smurfit-Stone Container Enterprises, Inc. – Fernandina Beach Mill
Nassau County, Florida

Applicant: The applicant for this project is Smurfit-Stone Container Enterprises, Inc. The applicant's authorized representative and mailing address is: Mr. George Q. Langstaff, V.P. - Regional Mill Operations, Smurfit-Stone Container Enterprises, Inc., Fernandina Beach Mill, North 8th Street, Fernandina Beach, Florida 32034.

Facility and Location: The applicant, Smurfit-Stone Container Enterprises, Inc., operates the existing Fernandina Beach Mill, which is located in Nassau County at North 8th Street in Fernandina Beach, Florida. This facility is a Kraft pulp and paper mill that consists of major activities areas such as: wood yard, pulp mill, recycle plant, chemical recovery, powerhouse, paperboard mill, and a corrugated containers plant.

Project: On February 2, 2007, Smurfit-Stone Container Enterprises, Inc. submitted an application to satisfy the requirements of Best Available Retrofit Technology (BART) in Rule 62-296.340, Florida Administrative Code (F.A.C.), for the existing Fernandina Beach Mill. On December 21, 2007, the Department received a BART exemption request along with the modeling to support the exemption. The applicant proposes a new sulfur dioxide emissions standard for the No. 5 Power Boiler of 550.0 pounds per hour, 24-hour rolling average, with compliance demonstrated by a continuous emissions monitoring system. An air quality modeling analysis of the BART-eligible units indicates a maximum visibility impairment of 0.495 deciviews to the nearest Class I area (Okefenokee National Wildlife Refuge). This is less than the regulatory threshold of 0.5 deciviews, which exempts the facility from BART review.

Permitting Authority: Applications for air construction permits are subject to review in accordance with the provisions of Chapter 403, Florida Statutes (F.S.), and Chapters 62-4, 62-210 and 62-212, F.A.C. The proposed project is not exempt from air permitting requirements and an air permit is required to perform the proposed work. The Bureau of Air Regulation is the Permitting Authority responsible for making a permit determination for this project. The Permitting Authority's physical address is: 111 South Magnolia Drive, Suite #4, Tallahassee, Florida. The Permitting Authority's mailing address is: 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400. The Permitting Authority's telephone number is 850/488-0114.

Project File: A complete project file is available for public inspection during the normal business hours of 8:00 a.m. to 5:00 p.m., Monday through Friday (except legal holidays), at address indicated above for the Permitting Authority. The complete project file includes the Draft Permit, the Technical Evaluation and Preliminary Determination, the application, and the information submitted by the applicant, exclusive of confidential records under Section 403.111, F.S. Interested persons may contact the Permitting Authority's project review engineer for additional information at the address and phone number listed above. In addition, electronic copies of these documents are available on the following web site:
<http://www.dep.state.fl.us/air/eproducts/apds/default.asp>.

Notice of Intent to Issue Air Permit: The Permitting Authority gives notice of its intent to issue an air permit to the applicant for the project described above. The applicant has provided reasonable assurance that operation of proposed equipment will not adversely impact air quality and that the project will comply with all appropriate provisions of Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C. The Permitting Authority will issue a Final Permit in accordance with the conditions of the proposed Draft Permit unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, F.S. or unless public comment received in accordance with this notice results in a different decision or a significant change of terms or conditions.

Comments: The Permitting Authority will accept written comments concerning the proposed Draft Permit for a period of 14 days from the date of publication of the Public Notice. Written comments must be postmarked by the Permitting Authority by close of business (5:00 p.m.) on or before the end of this 14-day period. If written comments received result in a significant change to the Draft Permit, the Permitting Authority shall revise the Draft Permit and require, if applicable, another Public Notice. All comments filed will be made available for public inspection.

Petitions: A person whose substantial interests are affected by the proposed permitting decision may petition for an administrative hearing in accordance with Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed with (received by) the Department's Agency Clerk in the Office of General Counsel of the Department of Environmental Protection at 3900 Commonwealth Boulevard, Mail Station #35, Tallahassee, Florida 32399-3000. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), F.S. must be filed

(Public Notice to be Published in the Newspaper)

PUBLIC NOTICE OF INTENT TO ISSUE AIR PERMIT

within 14 days of publication of this Public Notice or receipt of a written notice, whichever occurs first. Under Section 120.60(3), F.S., however, any person who asked the Permitting Authority for notice of agency action may file a petition within 14 days of receipt of that notice, regardless of the date of publication. A petitioner shall mail a copy of the petition to the applicant at the address indicated above, at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the approval of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Permitting Authority's action is based must contain the following information: (a) The name and address of each agency affected and each agency's file or identification number, if known; (b) The name, address and telephone number of the petitioner; the name address and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial rights will be affected by the agency determination; (c) A statement of when and how the petitioner received notice of the agency action or proposed decision; (d) A statement of all disputed issues of material fact. If there are none, the petition must so state; (e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action; (f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action including an explanation of how the alleged facts relate to the specific rules or statutes; and, (g) A statement of the relief sought by the petitioner, stating precisely the action the petitioner wishes the agency to take with respect to the agency's proposed action. A petition that does not dispute the material facts upon which the Permitting Authority's action is based shall state that no such facts are in dispute and otherwise shall contain the same information as set forth above, as required by Rule 28-106.301, F.A.C.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Permitting Authority's final action may be different from the position taken by it in this Public Notice of Intent to Issue Air Permit. Persons whose substantial interests will be affected by any such final decision of the Permitting Authority on the application have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation: Mediation is not available for this proceeding.

TECHNICAL EVALUATION
AND
PRELIMINARY DETERMINATION

Smurfit-Stone Container Enterprises, Inc.
Fernandina Beach Mill
Facility ID No. 0890003
Nassau County

Air Construction Permit
Draft Air Construction Permit No. 0890003-018-AC
No. 5 Power Boiler
Best Available Retrofit Technology (BART)

Permitting Authority
Department of Environmental Protection
Division of Air Resource Management
Bureau of Air Regulation
New Source Review Section

TECHNICAL EVALUATION & PRELIMINARY DETERMINATION

I. APPLICATION INFORMATION.

A. Applicant Name and Address:

Smurfit-Stone Container Enterprises, Inc.
Fernandina Beach Mill
North 8th Street
Fernandina Beach, Florida 32034

B. Reviewing and Process Schedule:

02/02/07	Department received the BART application for an air pollution construction permit.
03/02/07	Department requested additional information (RAI).
05/08/07	Department letter granting a 30-day extension to reply to the RAI.
06/29/07	Department grants an additional time of 7 days to respond to the RAI.
07/09/07	Department received additional information.
07/30/07	Department requested additional information.
10/16/07	Department received additional information.
12/21/07	Department received BART exemption submittal; application deemed complete.

II. FACILITY INFORMATION.

A. Facility Location

The existing pulp and paper mill is located at North 8th Street in Fernandina Beach, Nassau County, Florida. The UTM coordinates of this facility are: Zone 17; 456.2 km East; and, 3394.1 km North.

B. Standard Industrial Classification Codes (SIC):

Major Group No.	26	Paper and Allied Products
Group Nos.	263	Paperboard Mills
	265	Corrugated and Solid Fiber Boxes
Industry Nos.	2631	Paperboard Mills
	2653	Corrugated and Solid Fiber Boxes

C. Facility Category

The Fernandina Beach Mill is classified as a major air pollutant emitting facility and is a Title V facility. This facility is a Kraft pulp and paper mill that consists of major activities areas such as: wood yard, pulp mill, recycle plant, chemical recovery, powerhouse, paperboard mill, and a corrugated containers plant.

D. Regulatory Categories

- The mill is a major source of hazardous air pollutants (HAP).
- The mill has no units subject to the acid rain provisions of the Clean Air Act.
- The mill is a Title V major source of air pollution in accordance with Chapter 213, Florida Administrative Code (F.A.C.).
- The mill is a major stationary source in accordance with Rule 62-212.400, F.A.C., for the Prevention of Significant Deterioration (PSD) of Air Quality.
- The mill operates units subject to New Source Performance Standards (NSPS) in 40 CFR 60.
- The mill operates units subject to National Emissions Standards for HAP in 40 CFR 63.

III. PROJECT DESCRIPTION.

The applicant applied for an air construction permit to establish an emissions limit for sulfur dioxide (SO₂) for the No. 5 Power Boiler in order for the mill to be exempt from the requirements of Best Available Retrofit Technology (BART) in Rule 62-296.340, F.A.C.

IV. RULE APPLICABILITY.

Pursuant to Section 403.061(35), Florida Statutes, the federal Clean Air Act, and the regional haze regulations contained in Title 40, Part 51 of the Code of Federal Regulations (40 CFR Part 51), Subpart P – Protection of Visibility, the Florida Department of Environmental Protection (Department) is required to ensure that certain sources of visibility impairing pollutants in Florida use BART to reduce the impact of their emissions on regional haze in federal Class I areas. Requirements for individual source BART determinations and for BART exemptions are established in Rule 62-296.340, F.A.C.

Rule 62-296.340(5)(c), F.A.C., states that a BART-eligible source may demonstrate that it is exempt from the requirement for BART determination for all pollutants by performing an individual source attribution analysis in accordance with the procedures contained in 40 CFR Part 51, Appendix Y. A BART-eligible source is exempt from BART determination requirements if its contribution to visibility impairment does not exceed 0.5 deciview above natural conditions in any federal Class I area.

A subset of emissions units at the existing mill that are subject to the BART regulations at Rule 62-296.340, F.A.C. These emissions units are:

Source	Emissions Unit No.
No. 5 Power Boiler	006
No. 4 Recovery Boiler	007
No. 4 Smelt Dissolving Tank	013

The applicant conducted an initial modeling analysis that indicated the visibility impairment to the nearest Class I area (Okefenokee National Wildlife Refuge) was over the threshold of 0.5 deciviews. However, the regulations allow the option of obtaining lower federally enforceable emissions standards for BART-eligible units to reduce the predicted visibility impairment below the threshold of 0.5 deciviews, which exempts the facility from BART review. The applicant requested a new limit for the No. 5 Power Boiler of 550.0 pounds per hour of SO₂ emissions based on a 24-hour rolling average as demonstrated by continuous emissions monitoring system. The applicant provided an air quality modeling analysis indicating a visibility impairment of 0.495 deciviews to the Okefenokee National Wildlife Refuge. This level is below the regulatory threshold and allows the Fernandina Beach Mill to avoid a BART determination.

V. CONCLUSION.

Based on the foregoing technical evaluation, the Department has made a preliminary determination that the proposed project will be in compliance with all applicable state and federal air pollution regulations. The proposed permit is attached.

Meteorologists: Cleve Holladay and Tom Rogers

Permit Engineer: Bruce Mitchell

Reviewed and Approved by Jeffery F. Koerner, P.E., Program Administrator, New Source Review Section

DRAFT PERMIT

PERMITTEE

Smurfit-Stone Container Enterprises, Inc.
North 8th Street
Fernandina Beach, Florida 32034

Authorized Representative:

Mr. George Q. Langstaff, V.P. of Regional Mill Operations

Permit No. 0890003-018-AC

Expires: March 15, 2009

Facility ID No. 0890003

SIC Nos. 2631 and 2653

No. 5 Power Boiler

BART Exemption Project

PROJECT AND LOCATION

This permit establishes an enforceable sulfur dioxide (SO₂) emissions limit for the No. 5 Power Boiler, which allows the mill to be exempt from the requirements of Best Available Retrofit Technology (BART) pursuant to Rule 62-296.340, Florida Administrative Code (F.A.C.). The existing Fernandina Beach mill is classified as a major stationary source, a Title V facility and major source of hazardous air pollutants (HAP). The facility is a Kraft pulp and paper mill consisting of the following major activities: wood yard, pulp mill, recycle plant, chemical recovery, powerhouse, paperboard mill and a corrugated containers plant. The existing Fernandina Beach Mill is located at North 8th Street, Fernandina Beach, Nassau County. The UTM Coordinates are: Zone 17; 456.2 km East; and 3394.1 km North.

STATEMENT OF BASIS

This air pollution construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296, and 62-297, F.A.C. The permittee is authorized to conduct the proposed work in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department.

CONTENTS

Section 1. Specific Conditions

Section 2. Appendices

Executed in Tallahassee, Florida

(DRAFT)

Joseph Kahn, Director
Division of Air Resource Management

(Date)

JK/tlv/jfk/bm

SECTION I. SPECIFIC CONDITIONS (DRAFT PERMIT)

NO. 5 POWER BOILER

This permit addresses the following emissions unit.

EU No.	Brief Description
006	<p><i>Description:</i> The No. 5 Power Boiler is a combination boiler that fires more than one fuel. The total maximum operational heat input of this emissions unit is 805 MMBtu/hr. Low volume, high concentration (LVHC) noncondensable gases (NCG) from the batch digester system, continuous digester system, turpentine recovery system, evaporator systems, and foul condensate collection tank are collected and burned in this boiler as the backup control device to the No. 4 Lime Kiln. Hazardous air pollutants emissions are controlled by injecting the gases into the boiler with the primary fuel or into the flame zone of the boiler or with the combustion air.</p> <p><i>Fuel:</i> This unit is authorized to fire carbonaceous fuel (hogged bark and wood waste) and No. 6 fuel oil in any combination. The unit may also fire No. 2 fuel for startup, "on-specification used oil" and incidental amounts of wastewater clarifier wood fiber residuals.</p> <p><i>Controls:</i> Particulate matter emissions, including the fly ash, are first controlled by a bank of multiple cyclones (without fly ash reinjection) followed by an electrostatic precipitator (ESP). The collected fly ash from the ESP is injected into one of the coal pulverizers for the No. 7 power boiler and the bottom ash is sent to the wastewater treatment plant.</p> <p><i>Monitors:</i> The following continuous monitors are required: a continuous opacity monitoring system (COMS); a fuel flow monitor; continuous monitoring of ESP total power (CAM); exhaust flow rate monitor; and a continuous emissions monitoring system (CEMS) for SO₂ emissions.</p> <p><i>Stack Parameters:</i> Exhaust gas exits at 450° F with a volumetric flow rate of 235,000 acfm through a stack that is 11 feet in diameter and 257 feet tall.</p>

GENERAL

1. **Compliance Authority.** The permittee shall submit all compliance related notifications and reports required by this permit to the Department's Northeast District office at: Department of Environmental Protection, Northeast District Office, Air Resource Section, 7825 Baymeadows Way, Suite 200B, Jacksonville, Florida 32256-7590. The telephone number is 904/807-3300 and the facsimile number is 904/448-4366. Notification of compliance testing may be submitted by electronic mail to: NEDAIR@dep.state.fl.us.
2. **Appendices.** The Appendices attached to this permit are attached as an enforceable part of the permit unless otherwise indicated.
3. **Title V Permit.** The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the appropriate Permitting Authority with copies to the Compliance Authority. [Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

EMISSION LIMITATION AND STANDARDS

4. **SO₂ Standard.** Sulfur dioxide emissions shall not exceed 550.0 lb/hour based on a 24-hour rolling average as determined by SO₂ CEMS. Compliance with this standard ensures that the mill is exempt from the provisions of BART at Rule 62-296.340, F.A.C. Failure to comply with the SO₂ standard in this permit may subject this facility to BART review. [Rules 62-4.070(3) and 62-296.340(BART), F.A.C.]

SECTION I. SPECIFIC CONDITIONS (DRAFT PERMIT)

NO. 5 POWER BOILER

COMPLIANCE MONITORING

5. SO₂ CEMS Required for Demonstrating Compliance. The permittee shall properly install, calibrate, maintain and operate a CEMS to measure and record SO₂ emissions and exhaust flow for reporting in units of the applicable standard. The permittee shall comply with the specific requirements in Appendix D of this permit. Within 180 days after issuance of this permit, the CEMS shall be installed, certified and operational in accordance with the applicable performance specifications and demonstrating compliance with the SO₂ standard specified by this permit. [Rules 62-4.070(3) and 62-296.340(BART), F.A.C.]
6. SO₂ CEMS Required for Reporting Annual Emissions. The permittee shall use data from the CEMS when calculating annual emissions for purposes of computing actual emissions, baseline actual emissions and net emissions increase, as defined at Rule 62-210.200, F.A.C., and for purposes of computing emissions pursuant to the reporting requirements of Rules 62-210.370(3) and 62-212.300(1)(e), F.A.C. The permittee shall follow the procedures in Appendix D for calculating annual emissions. [Rules 62-4.070(3) and 62-210.370(3), F.A.C.]

RECORDKEEPING, REPORTING AND NOTIFICATION REQUIREMENTS

7. Other Requirements. For additional recordkeeping, reporting, and notification requirements, see Appendix B (General Conditions), Appendix C (Standard Requirements) and Appendix D (Standard CEMS Requirements).

SECTION 2. APPENDICES
CONTENTS

- Appendix A. Citation Formats
- Appendix B. General Conditions
- Appendix C. Standard Requirements
- Appendix D. Standard CEMS Requirements

SECTION 2. APPENDIX A
CITATION FORMATS

The following examples illustrate the format used in the permit to identify applicable permitting actions and regulations.

REFERENCES TO PREVIOUS PERMITTING ACTIONS

Old Permit Numbers

Example: Permit No. AC50-123456 or Air Permit No. AO50-123456

Where: “AC” identifies the permit as an Air Construction Permit
“AO” identifies the permit as an Air Operation Permit
“123456” identifies the specific permit project number

New Permit Numbers

Example: Permit Nos. 099-2222-001-AC, 099-2222-001-AO, or 099-2222-001-AV

Where: “099” represents the specific county ID number in which the project is located
“2222” represents the specific facility ID number
“001” identifies the specific permit project
“AC” identifies the permit as an air construction permit
“AO” identifies the permit as a minor source air operation permit
“AV” identifies the permit as a Title V Major Source Air Operation Permit

PSD Permit Numbers

Example: Permit No. PSD-FL-317

Where: “PSD” means issued pursuant to the Prevention of Significant Deterioration of Air Quality
“FL” means that the permit was issued by the State of Florida
“317” identifies the specific permit project

RULE CITATION FORMATS

Florida Administrative Code (F.A.C.)

Example: [Rule 62-213.205, F.A.C.]

Means: Title 62, Chapter 213, Rule 205 of the Florida Administrative Code

Code of Federal Regulations (CFR)

Example: [40 CFR 60.7]

Means: Title 40, Part 60, Section 7

SECTION 2. APPENDIX B
GENERAL CONDITIONS

The permittee shall comply with the following general conditions from Rule 62-4.160, F.A.C.

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "Permit Conditions" and are binding and enforceable pursuant to Sections 403.161, 403.727, or 403.859 through 403.861, Florida Statutes (F.S.). The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.
2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.
3. As provided in Subsections 403.087(6) and 403.722(5), F.S., the issuance of this permit does not convey and vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.
4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.
5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department.
6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed or used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.
7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credentials or other documents as may be required by law and at a reasonable time, access to the premises, where the permitted activity is located or conducted to:
 - a. Have access to and copy and records that must be kept under the conditions of the permit;
 - b. Inspect the facility, equipment, practices, or operations regulated or required under this permit, and,
 - c. Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules.

Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:
 - a. A description of and cause of non-compliance; and
 - b. The period of noncompliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent recurrence of the non-compliance.

The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or for revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Sections 403.73 and 403.111, F.S. Such evidence

SECTION 2. APPENDIX B
GENERAL CONDITIONS

shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules.
11. This permit is transferable only upon Department approval in accordance with Rules 62-4.120 and 62-730.300, F.A.C., as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.
12. This permit or a copy thereof shall be kept at the work site of the permitted activity.
13. This permit also constitutes:
 - a. Determination of Best Available Control Technology (Not Applicable);
 - b. Determination of Prevention of Significant Deterioration (Not Applicable); and
 - c. Compliance with New Source Performance Standards (Not Applicable).
14. The permittee shall comply with the following:
 - a. Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically unless otherwise stipulated by the Department.
 - b. The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation) required by the permit, copies of all reports required by this permit, and records of all data used to complete the application or this permit. These materials shall be retained at least three years from the date of the sample, measurement, report, or application unless otherwise specified by Department rule.
 - c. Records of monitoring information shall include:
 - 1) The date, exact place, and time of sampling or measurements;
 - 2) The person responsible for performing the sampling or measurements;
 - 3) The dates analyses were performed;
 - 4) The person responsible for performing the analyses;
 - 5) The analytical techniques or methods used; and
 - 6) The results of such analyses.
15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware that relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

SECTION 2. APPENDIX C
STANDARD REQUIREMENTS

Unless otherwise specified by permit, all emissions units that require testing are subject to the following conditions as applicable.

EMISSIONS AND CONTROLS

1. Circumvention: The permittee shall not circumvent the air pollution control equipment or allow the emission of air pollutants without this equipment operating properly. [Rule 62-210.650, F.A.C.]
2. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]
3. Excess Emissions Allowed: Excess emissions resulting from startup, shutdown or malfunction of any emissions unit shall be permitted providing (1) best operational practices to minimize emissions are adhered to and (2) the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]
4. Excess Emissions - Notification: In case of excess emissions resulting from malfunctions, the permittee shall notify the Compliance Authority in accordance with Rule 62-4.130, F.A.C. A full written report on the malfunctions shall be submitted in a quarterly report, if requested by the Department. [Rule 62-210.700(6), F.A.C.]
5. Plant Operation - Problems: If temporarily unable to comply with any of the conditions of the permit due to breakdown of equipment or destruction by fire, wind or other cause, the permittee shall notify each Compliance Authority as soon as possible, but at least within one working day, excluding weekends and holidays. The notification shall include: pertinent information as to the cause of the problem; steps being taken to correct the problem and prevent future recurrence; and, where applicable, the owner's intent toward reconstruction of destroyed facilities. Such notification does not release the permittee from any liability for failure to comply with the conditions of this permit or the regulations. [Rule 62-4.130, F.A.C.]
6. VOC or OS Emissions: No person shall store, pump, handle, process, load, unload or use in any process or installation, volatile organic compounds (VOC) or organic solvents (OS) without applying known and existing vapor emission control devices or systems deemed necessary and ordered by the Department. [Rule 62-296.320(1), F.A.C.]
7. Objectionable Odor Prohibited: No person shall cause, suffer, allow or permit the discharge of air pollutants, which cause or contribute to an objectionable odor. An "objectionable odor" means any odor present in the outdoor atmosphere which by itself or in combination with other odors, is or may be harmful or injurious to human health or welfare, which unreasonably interferes with the comfortable use and enjoyment of life or property, or which creates a nuisance. [Rules 62-296.320(2) and 62-210.200(Definitions), F.A.C.]
8. General Visible Emissions: No person shall cause, let, permit, suffer or allow to be discharged into the atmosphere the emissions of air pollutants from any activity equal to or greater than 20% opacity. This regulation does not impose a specific testing requirement. [Rule 62-296.320(4)(b)1, F.A.C.]
9. Unconfined Particulate Emissions: During the construction period, unconfined particulate matter emissions shall be minimized by dust suppressing techniques such as covering and/or application of water or chemicals to the affected areas, as necessary. [Rule 62-296.320(4)(c), F.A.C.]

{Permitting Note: Rule 62-210.700 (Excess Emissions), F.A.C., cannot vary any NSPS or NESHAP provision.}

RECORDS AND REPORTS

10. Records Retention: All measurements, records, and other data required by this permit shall be documented in a permanent, legible format and retained for at least 5 years following the date on which such measurements, records, or data are recorded. Records shall be made available to the Department upon request. [Rule 62-213.440(1)(b)2, F.A.C.]
11. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating rates and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority by March 1st of each year. [Rule 62-210.370(3), F.A.C.]

SECTION 2. APPENDIX D
STANDARD CEMS REQUIREMENTS

CEMS OPERATION PLAN

1. CEMS Operation Plan: The permittee shall create and implement a facility-wide plan for the proper installation, calibration, maintenance and operation of each CEMS required by this permit. The permittee shall submit the CEMS Operation Plan to the Bureau of Air Monitoring and Mobile Sources for approval at least 60 days prior to CEMS installation. The CEMS Operation Plan shall become effective 60 days after submittal or upon its approval. If the CEMS Operation Plan is not approved, the permittee shall submit a new or revised plan for approval.

{Permitting Note: The Department maintains both guidelines for developing a CEMS Operation Plan and example language that can be used as the basis for the facility-wide plan required by this permit. Contact the Emissions Monitoring Section of the Bureau of Air Monitoring and Mobile Sources at (850)488-0114.}

INSTALLATION, PERFORMANCE SPECIFICATIONS AND QUALITY ASSURANCE

2. Installation: All CEMS shall be installed such that representative measurements of emissions or process parameters from the facility are obtained. The permittee shall locate the CEMS by following the procedures contained in the applicable performance specification of 40 CFR Part 60, Appendix B.
3. Span Values and Dual Range Monitors: The permittee shall set appropriate span values for the CEMS. The permittee shall install dual range monitors if required by and in accordance with the CEMS Operation Plan.
4. Continuous Flow Monitor: For compliance with mass emission rate standards, the permittee shall install a continuous flow monitor to determine the stack exhaust flow rate. The flow monitor shall be certified pursuant to 40 CFR Part 60, Appendix B, Performance Specification 6.
5. Performance Specifications: The permittee shall evaluate the acceptability of each CEMS by conducting the appropriate performance specification, as follows. CEMS determined to be unacceptable shall not be considered installed for purposes of meeting the timelines of this permit. For the SO₂ monitor, the permittee shall conduct Performance Specification 2 of 40 CFR Part 60, Appendix B.
6. Quality Assurance: The permittee shall follow the quality assurance procedures of 40 CFR Part 60, Appendix F. The required RATA tests for the SO₂ monitor shall be performed using EPA Method 6C in Appendix A of 40 CFR Part 60.
7. Substituting RATA Tests for Compliance Tests: Data collected during CEMS quality assurance RATA tests can substitute for annual stack tests, provided the permittee indicates this intent in the submitted test protocol and follows the procedures outlined in the CEMS Operation Plan.

CALCULATION APPROACH

8. CEMS Used for Compliance: Once adherence to the applicable performance specification for each CEMS is demonstrated, the permittee shall use the CEMS to demonstrate compliance with the applicable emission standards as specified by this permit.
9. CEMS Data: Each CEMS shall monitor and record emissions during all periods of operation and whenever emissions are being generated, including during episodes of startups, shutdowns, and malfunctions. All data shall be used, except for invalid measurements taken during monitor system breakdowns, repairs, calibration checks, zero adjustments and span adjustments.
10. Operating Hours and Operating Days: For purposes of this appendix, the following definitions shall apply. An hour is the 60-minute period beginning at the top of each hour. Any hour during which an emissions unit is in operation for more than 15 minutes is an operating hour for that emission unit. A day is the 24-hour period from midnight to midnight. Unless otherwise specified by this permit, any day with at least one operating hour for an emissions unit is an operating day for that emission unit.
11. Valid Hourly Averages: Each CEMS shall be designed and operated to sample, analyze and record data evenly spaced over the hour at a minimum of one measurement per minute. All valid measurements collected during an hour shall be used to calculate a 1-hour block average that begins at the top of each hour.
 - a. Hours that are not operating hours are not valid hours.

SECTION 2. APPENDIX D
STANDARD CEMS REQUIREMENTS

- b. For each operating hour, the 1-hour block average shall be computed from at least two data points separated by a minimum of 15 minutes. If less than two such data points are available, there is insufficient data, the 1-hour block average is not valid, and the hour is considered as “monitor unavailable.”
12. Rolling 24-hour Average: Compliance shall be determined after each valid hourly average is obtained by calculating the arithmetic average of that valid hourly average and the prior 23 valid hourly averages.

MONITOR AVAILABILITY

13. Monitor Availability: The quarterly excess emissions report shall identify monitor availability for each quarter in which the unit operated. Monitor availability for the CEMS shall be 95% or greater in any calendar quarter in which the unit operated for more than 760 hours. In the event the applicable availability is not achieved, the permittee shall provide the Department with a report identifying the problems in achieving the required availability and a plan of corrective actions that will be taken to achieve 95% availability. The permittee shall implement the reported corrective actions within the next calendar quarter. Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit.
14. Notification Requirements: The permittee shall notify the Compliance Authority within one working day of discovering any emissions that demonstrate noncompliance for a given averaging period. Within one working day of occurrence, the permittee shall notify the Compliance Authority of any malfunction resulting in the exclusion of CEMS data. For malfunctions, notification is sufficient for the permittee to exclude CEMS data.

ANNUAL EMISSIONS

15. CEMS Used for Calculating Annual Emissions: All valid data, shall be used when calculating annual emissions.
- a. Annual emissions shall include data collected during startup, shutdown and malfunction periods.
 - b. Annual emissions shall include data collected during periods when the emission unit is not operating but emissions are being generated (for example, when firing fuel to warm up a process for some period of time prior to the emission unit’s startup).
 - c. Annual emissions shall not include data from periods of time where the monitor was functioning properly but was unable to collect data while conducting a mandated quality assurance/quality control activity such as calibration error tests, RATA, calibration gas audit or RAA. These periods of time shall be considered missing data for purposes of calculating annual emissions.
 - d. Annual emissions shall not include data from periods of time when emissions are in excess of the calibrated span of the CEMS. These periods of time shall be considered missing data for purposes of calculating annual emissions.
16. Accounting for Missing Data: All valid measurements collected during each hour shall be used to calculate a 1-hour block average. For each hour, the 1-hour block average shall be computed from at least two data points separated by a minimum of 15 minutes. If less than two such data points are available, the permittee shall account for emissions during that hour using site-specific data to generate a reasonable estimate of the 1-hour block average.
17. Emissions Calculation: Hourly emissions shall be calculated for each hour as the product of the 1-hour block average and the duration of pollutant emissions during that hour. Annual emissions shall be calculated as the sum of all hourly emissions occurring during the year.

Tracking Page

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this Notice of Intent to Issue Air Permit package (including the Written Notice of Intent to Issue Air Permit, Public Notice of Intent to Issue Air Permit, the Technical Evaluation and Preliminary Determination, and the Draft Permit) was sent by electronic mail with received receipt requested before the close of business on 2/1/08 to the persons listed below.

George Q. Langstaff, Authorized Representative, Smurfit-Stone Container Enterprises, Inc. (glangstaff@smurfit.com)

Rachel Davis, Application Contact, Smurfit-Stone Container Enterprises, Inc. (rgdavis@smurfit.com)

David Buff, P.E. of Record, Golder Associates, Inc. (dbuff@golder.com)

Chris Kirts, Northeast District Office (Cristopher.Kirts@dep.state.fl.us)

Katy Forney, EPA Region 4 (Forney.Kathleen@epa.gov)

Jim Little, EPA Region 4 (Little.James@epa.gov)

Dee Morse, NPS (Dee_Morse@nps.gov)

Clerk Stamp

FILED AND ACKNOWLEDGMENT FILED, on this date, pursuant to Section 120.52(7), F.S., with the designated agency clerk, receipt of which is hereby acknowledged.

Mary B. Army

(Clerk)

2/1/08
(Date)

Harvey, Mary

From: Davis, Rachel G. [RGDAVIS@SMURFIT.COM]
Sent: Friday, February 01, 2008 12:22 PM
To: Harvey, Mary; Langstaff, George; David Buff, P.E. of Record, Golder Associates, Inc.; Chris Kirts, Northeast District Office; Katy Forney, EPA Region 4; Jim Little, EPA Region 4; Dee Morse, NPS
Cc: Mitchell, Bruce; Koerner, Jeff; Walker, Elizabeth (AIR); Gibson, Victoria
Subject: RE: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - FACILITY #0890003-018-AC-DRAFT - BART EXEMPTION PROJECT

We have received this message and files attached.

Rachel Davis
 Environmental Manager
 Smurfit Stone Container Corporation
 Fernandina Beach Mill
 North 8th Street
 Fernandina Beach, FL 32034
 Phone (904) 277-7718
 Cell (904) 753-4595

From: Harvey, Mary [mailto:Mary.Harvey@dep.state.fl.us]
Sent: Friday, February 01, 2008 11:43 AM
To: Langstaff, George; Davis, Rachel G.; David Buff, P.E. of Record, Golder Associates, Inc.; Chris Kirts, Northeast District Office; Katy Forney, EPA Region 4; Jim Little, EPA Region 4; Dee Morse, NPS
Cc: Mitchell, Bruce; Koerner, Jeff; Walker, Elizabeth (AIR); Gibson, Victoria
Subject: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - FACILITY #0890003-018-AC-DRAFT - BART EXEMPTION PROJECT

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site:
<http://www.adobe.com/products/acrobat/readstep.html>.

The Bureau of Air Regulation is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Please advise this office of any changes to your e-mail address or that of the Engineer-of-Record.

Thank you,

Harvey, Mary

From: Forney.Kathleen@epamail.epa.gov
Sent: Friday, February 01, 2008 1:02 PM
To: Harvey, Mary
Subject: Re: FW: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - FACILITY #0890003-018-AC-DRAFT - BART EXEMPTION PROJECT

thanks

Katy R. Forney
Air Permits Section
EPA - Region 4
61 Forsyth St., SW
Atlanta, GA 30303

Phone: 404-562-9130
Fax: 404-562-9019

"Harvey, Mary"
<Mary.Harvey@dep
.state.fl.us>

02/01/2008 11:45
AM

To
Kathleen Forney/R4/USEPA/US@EPA
cc

Subject
FW: SMURFIT-STONE CONTAINER
ENTERPRISES, INC. - FACILITY
#0890003-018-AC-DRAFT - BART
EXEMPTION PROJECT

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on this link to the DEP Customer Survey. Thank you in advance for completing the survey.

From: Harvey, Mary
Sent: Friday, February 01, 2008 11:43 AM
To: 'George Q. Langstaff, Authorized Representative, Smurfit-Stone Container Enterprises, Inc.'; 'Rachel Davis, Application Contact, Smurfit-Stone Container Enterprises, Inc.'; 'David Buff, P.E. of Record, Golder Associates, Inc.'; 'Chris Kirts, Northeast District Office'; 'Katy Forney, EPA Region 4'; 'Jim Little, EPA Region 4'; 'Dee Morse, NPS'
Cc: Mitchell, Bruce; Koerner, Jeff; Walker, Elizabeth (AIR); Gibson, Victoria
Subject: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - FACILITY #0890003-018-AC-DRAFT - BART EXEMPTION PROJECT

Dear Sir/Madam:

Harvey, Mary

From: Mitchell, Bruce
Sent: Friday, February 01, 2008 1:50 PM
To: Harvey, Mary
Subject: RE: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - FACILITY #0890003-018-AC-DRAFT - BART EXEMPTION PROJECT
Follow Up Flag: Follow up
Due By: Monday, February 04, 2008 9:00 AM
Flag Status: Red

Thanks, Mary, for handling the permit package. Take care and have a great day and week-end.

Bruce

From: Harvey, Mary
Sent: Friday, February 01, 2008 11:43 AM
To: 'George Q. Langstaff, Authorized Representative, Smurfit-Stone Container Enterprises, Inc.'; 'Rachel Davis, Application Contact, Smurfit-Stone Container Enterprises, Inc.'; 'David Buff, P.E. of Record, Golder Associates, Inc.'; 'Chris Kirts, Northeast District Office'; 'Katy Forney, EPA Region 4'; 'Jim Little, EPA Region 4'; 'Dee Morse, NPS'
Cc: Mitchell, Bruce; Koerner, Jeff; Walker, Elizabeth (AIR); Gibson, Victoria
Subject: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - FACILITY #0890003-018-AC-DRAFT - BART EXEMPTION PROJECT

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site:
<http://www.adobe.com/products/acrobat/readstep.html>.

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Thank you,

DEP, Bureau of Air Regulation

Please see all of the attached document(s) this m

2/4/2008

Harvey, Mary

From: Buff, Dave [DBuff@GOLDER.com]
Sent: Saturday, February 02, 2008 8:12 PM
To: Harvey, Mary
Subject: RE: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - FACILITY #0890003-018-AC-DRAFT - BART EXEMPTION PROJECT

David A. Buff, P.E., Q. E. P.
Golder Associates Inc.
Phone: (352)336-5600 x 545
Fax: (352)336-6603 Mobile: (352)514-5600
E-Mail: dbuff@golder.com

Disclaimer Notice:

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From: Harvey, Mary [mailto:Mary.Harvey@dep.state.fl.us]
Sent: Friday, February 01, 2008 11:43 AM
To: George Q. Langstaff, Authorized Representative, Smurfit-Stone Container Enterprises, Inc.; Rachel Davis, Application Contact, Smurfit-Stone Container Enterprises, Inc.; Buff, Dave; Chris Kirts, Northeast District Office; Katy Forney, EPA Region 4; Jim Little, EPA Region 4; Dee Morse, NPS
Cc: Mitchell, Bruce; Koerner, Jeff; Walker, Elizabeth (AIR); Gibson, Victoria
Subject: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - FACILITY #0890003-018-AC-DRAFT - BART EXEMPTION PROJECT

Dear Sir/Madam:

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The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

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Thank you,

Harvey, Mary

From: Langstaff, George [GLANGSTA@SMURFIT.COM]
Sent: Wednesday, February 06, 2008 4:28 PM
To: Harvey, Mary
Cc: Davis, Rachel G.
Subject: RE: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - FACILITY #0890003-018-AC-DRAFT - BART EXEMPTION PROJECT

Mary,

As requested, this will confirm our receipt of subject document and I am forwarding a copy to Rachel Davis, our environmental manager. They will review and advise if there are any questions. Feel free to copy her directly on future correspondence with us as that will insure she receives it right away.

Email address is: rgdavis@smurfit.com

Thanks for your support and assistance.

George Langstaff

work Fernandina Mill: (904) 277-5723

cell: (314) 409-1428

glangstaff@smurfit.com

From: Harvey, Mary [mailto:Mary.Harvey@dep.state.fl.us]
Sent: Wednesday, February 06, 2008 3:08 PM
To: Langstaff, George
Subject: FW: SMURFIT-STONE CONTAINER ENTERPRISES, INC. - FACILITY #0890003-018-AC-DRAFT - BART EXEMPTION PROJECT

Good Afternoon:

This permit was emailed to you on 2/1. Please email me back to let me know that you did receive this permit.

Thanks,
Mary Harvey

The Department of Environmental Protection values your feedback as a customer. DEP Secretary Michael W. Sole is committed to continuously assessing and improving the level and quality of services provided to you. Please take a few minutes to comment on the quality of service you received. Simply click on [this link to the DEP Customer Survey](#). Thank you in advance for completing the survey.

From: Harvey, Mary
Sent: Friday, February 01, 2008 11:43 AM
To: 'George Q. Langstaff, Authorized Representative, Smurfit-Stone Container Enterprises, Inc.'; 'Rachel Davis, Application Contact, Smurfit-Stone Container Enterprises, Inc.'; 'David Buff, P.E. of Record, Golder

2/6/2008



Fernandina Beach Containerboard Mill
 North 8th Street
 PO Box 2000
 Fernandina Beach, FL 32035
 (904) 261-5551
 (904) 277-5888 fax

VIA FEDEX
 8481 5258 6083

October 15, 2007

RECEIVED
 OCT 16 2007
 BUREAU OF AIR REGULATION

Mr. Jeffrey Koerner
 Administrator, Permitting North Section
 Bureau of Air Regulations
 Florida Department of Environmental Protection
 Bob Martinez Section
 2600 Blair Stone Road, MS #5505
 Tallahassee, Florida 32399-2400

**Re: Proposal for BART SO₂ Reduction for No. 5 Power Boiler
 Project No. 0890003-018-AC, BART Application Addendum
 Smurfit-Stone Container Enterprises, Inc., Fernandina Beach Mill**

Dear Mr. Koerner:

On September 26, 2007, we met with Bruce Mitchell, Trina Vielhauer, Tom Rogers, and Larry George at your office to discuss the BART permitting process. As a result of that discussion, we are now proposing that the Fernandina Beach Mill (the mill) adopt a daily sulfur dioxide (SO₂) emission limit for the No. 5 Power Boiler as an addendum to our BART Determination Permit Application. This proposal can be viewed as an exemption option or a BART control strategy.

Proposed and Actual SO₂ Emissions from No. 5 Power Boiler

In the original BART Determination Permit Application submitted to your office on January 31, 2007, the maximum 24-hour SO₂ emission rate for the No. 5 Power Boiler was 1,026.4 lbs/hr (Table 2-3). This emission rate was based on the highest daily average emission rate during years 2001 through 2003. As shown in Table 3-5 of the January 31 submittal, the 8th highest visibility impact due to the No. 5 Power Boiler alone is 0.637 dv, which is approximately 88% of the total facility impact. Of this impact, 75-90% of the total visibility impacts are due to sulfate particles, originating from SO₂ and sulfuric acid mist emissions. Clearly, the most effective strategy for visibility impact reduction is to decrease the daily maximum SO₂ emissions from No. 5 Power Boiler.

To reduce the total visibility impacts of all BART eligible sources to less than 0.5 dv, the mill proposes a daily maximum 24 hr SO₂ emission rate of 6.6 tons/day. Attached is a revised Table 3-5 describing visibility impacts to Okefenokee with the new proposed daily SO₂ limit of 6.6 tons/day. This daily rate equates to an average hourly SO₂ emission rate of 550 lbs/hr. This new emission rate limit of 6.6 tons/day is a very large emission reduction from permitted and actual daily maximum emissions. For example, on March 5, 2001, the daily actual maximum SO₂ emission rate was 12.6 tons/day. From 12.6 tons/day to 6.6 tons/day is a daily emissions reduction of 52%.

No. 5 Power Boiler SO ₂ Emissions								
	Proposed Daily Emission Rate (t/d)	Current Permitted Emission Limit	2006 Maximum Actual Emissions*	2005 Maximum Actual Emissions*	2004 Maximum Actual Emissions*	2003 Maximum Actual Emissions*	2002 Maximum Actual Emissions*	2001 Maximum Actual Emissions*
Tons/year	2,409.0 [^]	6,618.6	622.8	501.9	565.4	405.4	257.1	642.4
Tons/day	6.6	20.8	11.5	7.9	9.5	10.1	10.2	12.6
Lbs/hr	550.0	1,733.7	958.3	658.3	791.7	841.7	850.0	1050.0

*From Annual Air Operating Reports, [^]Assumes 365 days per year of operation, actual is approximately 350 days

Proposal for BART SO₂ Reduction for No. 5 Power Boiler

No. 5 Power Boiler's future projected annual emissions are not expected to increase; however, this is irrelevant because the annual emissions are not considered in the modeled visibility impacts to nearby Class I areas. Visibility impacts are calculated on a 24-hr average emission rate.

To achieve and monitor the proposed new SO₂ emission rate of 6.6 tons/day, the mill will manage daily oil consumption and install a SO₂ Continuous Emissions Monitoring System (CEMS). The projected costs of installing and maintaining a new CEMS are included in amended Table 1, attached. This proposal provides a much more cost-effective method of achieving the same visibility improvements as the other more costly options we have reviewed.

As suggested by EPA for selecting the "Best" BART control technology alternative, the following must be evaluated:

1. Expected emission rate
2. Emissions performance level (e.g. percent pollutant removed or emissions reduction)
3. Expected emissions reductions
4. Costs of compliance including total annualized costs (\$), cost effectiveness (\$/ton), and incremental cost effectiveness (\$/ton), and any other cost effectiveness measures such as \$/dv reduction.
5. Energy impacts
6. Non-air quality environmental impacts; and
7. Modeled visibility impacts.

As demonstrated in the BART permit application and supporting documentation, including this letter, the reduced daily maximum SO₂ emission limit is the best BART control technology alternative for minor visibility improvements. We still contend that neither this proposal nor any other proposal to reduce emissions from the mill will significantly improve visibility conditions at nearby Class I areas, let alone be measurable.

As requested in the September 26 meeting, FDEP also agreed to provide a working draft of the BART permit for review as soon as it becomes available.

Please contact me at (904) 277-7718 or by Email at rgdavis@smurfit.com if you need any additional information.

Sincerely,



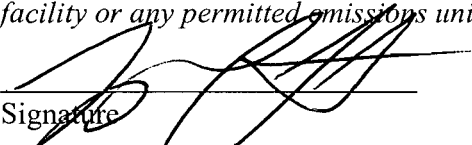
Rachel G. Davis
Environmental Engineer

Enclosures

FACILITY INFORMATION

Owner/Authorized Representative Statement

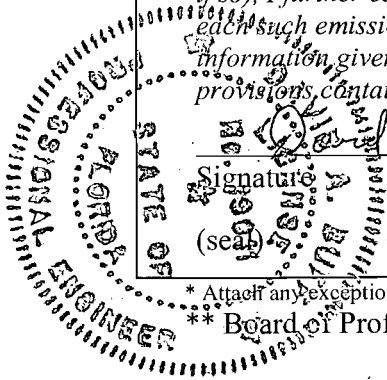
Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name : George Q. Langstaff, Vice-President, Regional Mill Operations
2. Application Responsible Official Mailing Address... Organization/Firm: Smurfit-Stone Container Enterprises, Inc. Street Address: North 8th Street City: Fernandina Beach State: FL Zip Code: 32034
3. Application Responsible Official Telephone Numbers... Telephone: (904) 261-5551 ext. Fax: (904) 277-5888
4. Application Responsible Official Email Address: glangsta@smurfit.com
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the facility addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other requirements identified in this application to which the facility is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit.</i>  Signature _____ 10/15/07 Date _____

FACILITY INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: David A. Buff Registration Number: 19011
2. Professional Engineer Mailing Address... Organization/Firm: Golder Associates Inc.** Street Address: 6241 NW 23rd Street, Suite 500 City: Gainesville State: FL Zip Code: 32653
3. Professional Engineer Telephone Numbers... Telephone: (352) 336-5600 ext. 545 Fax: (352) 336-6603
4. Professional Engineer Email Address: dbuff@golder.com
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> (1) <i>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</i> (2) <i>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.</i> (3) <i>If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, 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.</i> (4) <i>If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/>, 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 <input type="checkbox"/>, 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.</i> (5) <i>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 <input type="checkbox"/>, 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.</i> Signature: <u>David A. Buff</u> Date: <u>10/11/07</u> (seal)



* Attach any exception to certification statement.

** Board of Professional Engineers Certificate of Authorization #00001670

TABLE 3-5 (Revised 10/12/07)
CONTRIBUTION OF VISIBILITY IMPAIRING PARTICLE SPECIES
NEW IMPROVE ALGORITHM
SMURFIT-STONE CONTAINER ENTERPRISES, INC., FERNANDINA MILL

Emission Unit	Unit ID	8 th Highest Impact and Contribution by Species											
		2001				2002				2003			
		Impact (dv)	Contribution (%) ^a			Impact (dv)	Contribution (%) ^a			Impact (dv)	Contribution (%) ^a		
	SO ₄	NO ₃	PM ₁₀		SO ₄	NO ₃	PM ₁₀		SO ₄	NO ₃	PM ₁₀		
<i>New IMPROVE Algorithm</i>													
<u>Okefenokee NWA</u>													
No. 5 Power Boiler	PB5	0.364	79.8	9.3	7.5	0.327	86.8	1.3	4.9	0.403	75.9	17.1	3.1
No. 4 Recovery Boiler	RB4	0.078	48.7	39.9	11.4	0.079	77.2	4.7	18.0	0.102	37.3	48.5	14.2
No. 4 Smelt Dissolving Tank	SDT4	0.018	31.3	2.1	66.6	0.018	31.3	2.1	66.6	0.022	23.7	3.4	72.9
Total BART-Eligible Source		0.440	87.6	1.8	3.4	0.412	65.7	2.4	22.4	0.495	68.9	21.5	4.3

^a Sulfate (SO₄) particles are formed due to SO₂ and H₂SO₄ emissions; nitrate (NO₃) particles are formed due to NO_x emissions, and other non-hygroscopic PM₁₀ particles are a result of fine filterable PM₁₀, coarse filterable PM₁₀, elemental carbon, and condensable secondary organic aerosol emissions.

TABLE 1 (Revised 10/12/07)
COST EFFECTIVENESS OF FUEL SWITCHING FOR No. 5 POWER BOILER

Cost Items	Cost Factors	No. 2 Oil	No. 2 Oil	No. 6 Oil	CEMS
		(0.0015% S) Cost (\$)	(0.05% S) Cost (\$)	(1.0% S) Cost (\$)	
DIRECT CAPITAL COSTS (DCC):					
(1) Equipment Cost					
(a) New Fuel Oil Storage tank	See Footnote "a"	807,000	807,000	807,000	0
(b) Pumps, piping, etc.	See Footnote "a"	800,000	800,000	1,200,000	0
(c) New oil guns/atomizer sprayer plates	Babcock & Wilcox - excludes installation ^b	175,000	175,000	0	0
(d) CEMS unit	Analyzer and monitor equipment - includes installation (SSCI estimate)	0	0	0	200,000
(2) Sales Tax	Florida Sales Tax: 6.25% of Equipment Cost	111,375	111,375	125,438	12,500
Subtotal: Total Equipment Cost (TEC)		1,893,375	1,893,375	2,132,438	212,500
(3) Direct Installation Costs	85% of TEC (for new oil guns)	148,750	148,750	0	Included Above
Total DCC:		2,042,125	2,042,125	2,132,438	212,500
INDIRECT CAPITAL COSTS (ICC):^c					
(1) Indirect Installation Costs	SSCI estimate	430,000	430,000	640,000	
(a) Engineering	10% of TEC (for new oil guns); \$42/hr and 343 hrs (for CEMS) ^f	17,500	17,500	Included Above	14,406
(b) Construction & Field Expenses	10% of TEC (for new oil guns); \$25/hr and 168 hrs (for CEMS) ^f	17,500	17,500	Included Above	4,200
(c) Construction/CEMS Contractor Fee	10% of TEC (for new oil guns); \$89/hr and 110 hrs (for CEMS) ^f	17,500	17,500	Included Above	9,790
(d) Contingencies	3% of TEC (for new oil guns)	5,250	5,250	Included Above	--
(2) Other Indirect Costs					
(a) Startup	1% of TEC (for new oil guns)	1,750	1,750	Included Above	--
(b) Performance Test	3% of TEC (for new oil guns); ACE estimate	5,250	5,250	Included Above	10,000
(c) Quality Assurance Calibration Evaluation	\$53/hr and 91 hrs (for CEMS) ^f	--	--	--	4,823
Total ICC:		494,750	494,750	640,000	43,219
TOTAL CAPITAL INVESTMENT (TCI):	DCC + ICC	2,536,875	2,536,875	2,772,438	255,719
DIRECT OPERATING COSTS (DOC):^d					
(1) Operating Labor					
Operator	1.0 hr/shift, \$30/hr, 8760 hrs/yr; \$25/hr and 390 hrs (for CEMS) ^f	32,850	32,850	32,850	9,750
Supervisor	15% of operator cost; \$42/hr and 44 hrs (for CEMS) ^f	4,928	4,928	4,928	1,848
CEMS Consultant	\$89/hr and 2 hrs (for CEMS) ^f	--	--	--	178
Test Crew	\$53/hr and 77 hrs (for CEMS) ^f	--	--	--	4,081
(2) Maintenance					
Labor	Equivalent to One-Half Operating Labor	16,425	16,425	16,425	Included Above
Materials	100% of maintenance labor	16,425	16,425	16,425	0
(3) Utilities		--	--	--	--
(4) Fuels					
Existing Fuel Cost (2.5% S)	\$0.94/gal, 3.4 MMgal/yr	--	--	--	--
Proposed Fuel Cost (Lower S Content)	See Footnote "e"	--	--	--	--
Differential Fuel Cost (Proposed - Existing)	See Footnote "e"	3,302,250	3,219,000	235,571	--
Total DOC:		3,372,878	3,289,628	306,199	15,857
INDIRECT OPERATING COSTS (IOC):^d					
(1) Overhead	60% of oper. labor & maintenance	42,377	42,377	42,377	9,514
(2) Property Taxes	1% of total capital investment	25,369	25,369	27,724	2,557
(3) Insurance	1% of total capital investment	25,369	25,369	27,724	2,557
(4) Administration	2% of total capital investment	50,738	50,738	55,449	5,114
Total IOC:		143,852	143,852	153,274	19,743
CAPITAL RECOVERY COSTS (CRC):					
	CRF of 0.0944 times TCI (20 yrs @ 7%)	239,481	239,481	261,718	--
	CRF of 0.1424 times TCI (10 yrs @ 7%)	--	--	--	36,414
ANNUALIZED COSTS (AC):					
	DOC + IOC + CRF	3,756,210	3,672,960	721,191	72,014
BASELINE SO₂ EMISSIONS (TPY):					
	Highest emissions in last 5 years	623.0	623.0	623.0	--
MAX SO₂ EMISSIONS WITH PROPOSED FUEL (TPY):					
	3.7 MMgal/yr No. 2 Oil or 3.4 MMgal/yr 1% No. 6 Fuel Oil	0.4	13.3	248.0	--
REDUCTION IN SO₂ EMISSIONS (TPY):					
		622.6	609.7	375.0	--
COST EFFECTIVENESS:					
	\$ per ton of SO ₂ Removed	6,033	6,024	1,923	--
BASELINE VISIBILITY IMPACT (dv)					
	Table 3-5 of 1/2007 BART Control Analysis	0.637	0.637	0.637	0.637
CONTROLLED VISIBILITY IMPACT (dv)					
		0.123	0.134	0.298	0.403
REDUCTION IN VISIBILITY IMPACT (dv):					
	Baseline - Controlled	0.514	0.503	0.339	0.234
COST EFFECTIVENESS OF VISIBILITY REDUCTION (\$/dv):					
	AC/Reduction in visibility	7,307,802	7,302,107	2,127,407	307,754

Footnotes:

- ^a Based on SSCI data for 500,000 for a storage tank, and estimated cost of piping, pumps, etc.
- ^b Based on quote of \$175,000 additional equipment cost for new atomizers for use of low sulfur No. 2 fuel oil.
- ^c All indirect capital costs are included in basic price.
- ^d Factors and cost estimates reflect OAQPS Cost Manual, Section 5.
- ^e Increase in fuel cost associated with buying different type of oil - 3.4 MMgal/yr No. 6 oil with 1% S or 3.7 MMgal/yr No. 2 oil with 0.05% S or 0.0015% S. Per Colonial Oil Industries, Inc., increases in cost compared to the current price paid for 2.5% S oil are - \$36.54/barrel for 0.05% S oil, \$37.49/barrel for 0.0015% S oil, and \$2.91/barrel for 1% S residual oil.
- ^f Factors and cost estimates reflect OAQPS Cost Manual, Section 2.

1/10/07/51 1/10/07/51

Golder Associates Inc.

6241 NW 23rd Street, Suite 500
Gainesville, FL USA 32653
Telephone (352) 336-5600
Fax (352) 336-6603
www.golder.com

RECEIVED

AUG 31 2007



BUREAU OF AIR REGULATION

August 30, 2007

063-7613

Florida Department of Environmental Protection
Bureau of Air Regulation
2600 Blair Stone Road, MS #5505
Tallahassee, Florida 32399-2400

Attention: Mr. Jeffery Koerner, P.E., Administrator, Permitting North Section

**RE: RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
PROJECT NO. 0890003-018-AC
BART APPLICATION FOR THE NO. 4 RECOVERY BOILER,
NO. 4 SMELT DISSOLVING TANK AND NO. 5 POWER BOILER
SMURFIT-STONE CONTAINER ENTERPRISES, INC.
FERNANDINA BEACH, FLORIDA**

Dear Mr. Koerner:

This correspondence is to respond to the request for additional information (RAI), dated July 30, 2007, in support of the Best Available Retrofit Technology (BART) application for Smurfit-Stone Container Enterprises, Inc. (SSCE), Fernandina Beach, Florida. The responses provided herein supplement the first set of responses provided to the Florida Department of Environmental Protection (FDEP) in the letter dated July 6, 2007.

FDEP Comment 1. For Table 1 in the response, please complete the calculations and provide the cost effectiveness of the "\$ per ton of SO₂ removed" when firing 0.5-percent sulfur content, by weight, residual fuel oil in the No. 5 Power Boiler. In addition, list the components that would have to be changed/retrofitted to accommodate these different fuels and include the costs of these components.

In a recent response from a similar facility regarding the switching to a 0.50-percent, by weight, sulfur content No. 5 fuel oil from No. 6 fuel oil, it appears that it handles similar to No. 6 fuel oil and that the only additional cost would be the net incremental cost between the two fuels. This conclusion is in contradiction of your statement made in the first sentence at the beginning of Section 5.1.6 of the original application.

Response: Table 1 has been revised to include the cost effectiveness calculation for the scenario of burning 0.5-percent sulfur content residual fuel.

As per the attached Colonial Oil letter dated August 2, 2007, we have used an incremental fuel cost of \$27.44 per barrel to switch from the current fuel to the 0.5-percent sulfur residual oil, which includes a \$5.71 per barrel cost for the BTU penalty as a result of the blend between a 1.5-percent sulfur residual oil and 0.05-percent sulfur diesel fuel. According to Colonial Oil, a true 0.5-percent sulfur residual fuel is not currently available due to insufficient market demand and the only way they can make a similar product is by blending 1.5-percent sulfur residual oil with 0.05-percent sulfur diesel fuel.

The only additional cost to implement the 0.5-percent sulfur residual oil, apart from the incremental fuel cost included in the cost effectiveness analysis, is the estimate for a new 500,000 gallon fuel oil tank. The tank cost estimates were presented in Appendix A of the RAI response letter dated July 6, 2007. New oil guns are not considered for the switch to 0.5-percent sulfur residual oil blend. Also because of the light viscosity of the 0.5-percent sulfur residual oil blend, the cost for steam tracing equipment has been subtracted from the total cost of the pump and piping.

As can be seen in the revised Table 1, using 0.5-percent sulfur residual oil is a costly \$5,300 per ton of SO₂ removed, which is very high. With respect to the overall cost effectiveness, review of the information contained in Table 1 shows that the majority of the cost is associated with the price differential of the lower sulfur oil. In fact, if all costs except for the incremental fuel cost were removed from the calculations in Table 1, the cost effectiveness would decrease from \$5,300 to only \$4,660. This supports our conclusion that switching to No. 2 fuel oil or to 0.5-percent sulfur residual oil will be associated with a prohibitively high cost.

The estimated reduction in visibility impacts due to the reduction in SO₂ emissions for the option to use 0.5-percent sulfur residual oil is also shown in the revised Table 1. Based on the cost analysis, the cost effectiveness of visibility improvement of \$5.4 million per deciview is extremely high.

Based on the requested cost analysis and deciview improvement, SSCE again proposes the current operation of the No. 5 Power Boiler as BART, i.e., use of carbonaceous fuels to the extent practicable, with use of 2.5-percent sulfur No. 6 fuel oil as necessary to meet steam demands.

Thank you for your consideration of this information. Please call me at (352) 336-5600 if you have any further questions.

Sincerely,

GOLDER ASSOCIATES INC.

David A. Buff, P.E., Q.E.P.

Principal Engineer

DB/tz

Enclosures

Cc: R. Davis, SSCE
B. Crews, SSCE
S. Mohammad, Golder

Y:\Projects\2006\0637613 SSCE Fernandina Beach BART\4.1 Correspondence\RAI0807\RAI082807.doc

B. Mitchell
C. Mohammad
C. Kirtz, NED

**TABLE 1
COST EFFECTIVENESS OF FUEL SWITCHING FOR No. 5 POWER BOILER (Revised 08/29/07)**

Cost Items	Cost Factors	No. 2 Oil	No. 2 Oil	No. 4 Oil	No. 6 Oil
		(0.0015% S) Cost (\$)	(0.05% S) Cost (\$)	(0.5% S) Cost (\$)	(1.0% S) Cost (\$)
DIRECT CAPITAL COSTS (DCC):					
(1) Equipment Cost					
(a) New Fuel Oil Storage tank	See Footnote "a"	807,000	807,000	807,000	807,000
(b) Pumps, piping, etc.	See Footnote "a"	800,000	800,000	800,000	1,200,000
(c) New oil guns/atomizer sprayer plates	Babcock & Wilcox -- excludes installation ^b	175,000	175,000	0	0
(2) Sales Tax	Florida Sales Tax: 6.25% of Equipment Cost	111,375	111,375	100,438	125,438
Subtotal: Total Equipment Cost (TEC)		1,893,375	1,893,375	1,707,438	2,132,438
(3) Direct Installation Costs	85% of TEC (for new oil guns)	148,750	148,750	0	0
Total DCC:		2,042,125	2,042,125	1,707,438	2,132,438
INDIRECT CAPITAL COSTS (ICC):^c					
(1) Indirect Installation Costs	SSCE estimate	430,000	430,000	640,000	640,000
(a) Engineering	10% of TEC (for new oil guns)	17,500	17,500	Included Above	Included Above
(b) Construction & Field Expenses	10% of TEC (for new oil guns)	17,500	17,500	Included Above	Included Above
(c) Construction Contractor Fee	10% of TEC (for new oil guns)	17,500	17,500	Included Above	Included Above
(d) Contingencies	3% of TEC (for new oil guns)	5,250	5,250	Included Above	Included Above
(2) Other Indirect Costs					
(a) Startup	1% of TEC (for new oil guns)	1,750	1,750	Included Above	Included Above
(b) Performance Test	3% of TEC (for new oil guns)	5,250	5,250	Included Above	Included Above
Total ICC:		494,750	494,750	640,000	640,000
TOTAL CAPITAL INVESTMENT (TCI):	DCC + ICC	2,536,875	2,536,875	2,347,438	2,772,438
DIRECT OPERATING COSTS (DOC):^d					
(1) Operating Labor					
Operator	1.0 hr/shift, \$30/hr, 8760 hrs/yr	32,850	32,850	32,850	32,850
Supervisor	15% of operator cost	4,928	4,928	4,928	4,928
(2) Maintenance					
Labor	Equivalent to One-Half Operating Labor	16,425	16,425	16,425	16,425
Materials	100% of maintenance labor	16,425	16,425	16,425	16,425
(3) Utilities					
(4) Fuels					
Existing Fuel Cost (2.5% S)	\$0.94/gal, 3.4 MMgal/yr	--	--	--	--
Proposed Fuel Cost (Lower S Content)	See Footnote "e"	--	--	--	--
Differential Fuel Cost (Proposed - Existing)	See Footnote "e"	3,302,250	3,219,000	2,221,333	235,571
Total DOC:		3,372,878	3,289,628	2,291,961	306,199
INDIRECT OPERATING COSTS (IOC):^e					
(1) Overhead	60% of oper. labor & maintenance	42,377	42,377	42,377	42,377
(2) Property Taxes	1% of total capital investment	25,369	25,369	23,474	27,724
(3) Insurance	1% of total capital investment	25,369	25,369	23,474	27,724
(4) Administration	2% of total capital investment	50,738	50,738	46,949	55,449
Total IOC:		143,852	143,852	136,274	153,274
CAPITAL RECOVERY COSTS (CRC):	CRF of 0.0944 times TCI (20 yrs @ 7%)	239,481	239,481	221,598	261,718
ANNUALIZED COSTS (AC):	DOC + IOC + CRC	3,756,210	3,672,960	2,649,833	721,191
BASELINE SO₂ EMISSIONS (TPY):	Highest emissions in last 5 years	623.0	623.0	623.0	623.0
MAX SO₂ EMISSIONS WITH PROPOSED FUEL (TPY):	3.7 MMgal/yr No. 2 Oil or 3.4 MMgal/yr 1% S or 0.5% S No. 6 Fuel Oil	0.4	13.3	122.4	248.0
REDUCTION IN SO₂ EMISSIONS (TPY):		622.6	609.7	500.6	375.0
COST EFFECTIVENESS:	\$ per ton of SO₂ removed	6,033	6,024	5,293	1,923
BASELINE VISIBILITY IMPACT (dv):	Table 3-5 of 1/2007 BART Control Analysis	0.637	0.637	0.637	0.637
CONTROLLED VISIBILITY IMPACT (dv):		0.123	0.134	0.150	0.298
REDUCTION IN VISIBILITY IMPACT (dv):	Baseline - Controlled	0.514	0.503	0.487	0.339
COST EFFECTIVENESS OF VISIBILITY REDUCTION (\$/dv):	AC/Reduction in visibility	7,307,802	7,302,107	5,441,135	2,127,407

Footnotes:

- ^a Based on SSCE data for 500,000 gal storage tank, and estimated cost of piping, pumps, etc.
- ^b Based on quote of \$175,000 additional equipment cost for new atomizers for use of low sulfur No. 2 fuel oil.
- ^c All indirect capital costs are included in basic price.
- ^d Factors and cost estimates reflect OAQPS Cost Manual, Section 5.
- ^e Increase in fuel cost associated with buying different type of oil - 3.4 MMgal/yr No. 6 oil with 1% S and 0.5% S or 3.7 MMgal/yr No. 2 oil with 0.05% S or 0.0015% S. Per Colonial Oil Industries, Inc., increases in cost compared to the current price paid for 2.5% S oil are - \$36.54/barrel for 0.05% S oil, \$37.49/barrel for 0.0015% S oil, \$2.91/barrel for 1% S residual oil, and \$27.44/barrel for 0.5% S residual oil.

Colonial Oil Industries, Inc.

**1301 Riverplace Boulevard
Suite 2646
Jacksonville, Florida 32207
(904) 396-1388 (800) 842-3624
Fax (904) 858-6699**

August 2, 2007

Ms. Rachel Davis, PMP
Smurfit-Stone, Container Mill Division
N. 8th Street, P. O. Box 2000
Fernandina Beach, Florida 32035

Dear Ms. Davis,

This letter is in response to your request for additional information regarding .5% maximum Sulfur Residual Fuel cost and availability.

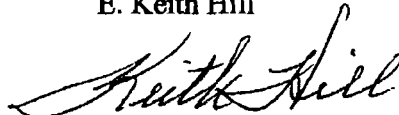
To the best of our knowledge, a true .5% Residual Fuel is not currently available in our marketing area. This type of product is available in other regions, but is not marketed here due to insufficient demand to justify economically feasible cargo quantities and the logistical problems associated with isolating and storing smaller quantities. We do not anticipate adequate demand for a true .5% Residual Fuel in this market area in the near future.

In addition, the only product that we are aware of in this market which would meet a .5% specification is a recycled oil type of product. From our understanding, this product is included in the loose regulatory definition of "Residual Fuel" once the initial determination has been made that it is non-hazardous, but it is not a true Residual Fuel from our viewpoint. There are numerous serious operational, environmental, and availability issues with relying on a recycled product as the primary petroleum supply for your type of operation. These issues include poor boiler operation due to very light viscosity, low BTU yield, potential high water content, strainer plugging, possible emissions violations due to poor boiler operation and very high ash content and adequate supply of this product to assure uninterrupted operation of your plant. We have observed all of these issues occurring in a very similar facility within our marketing area within the last few years. Quality control is also a very significant issue, particularly since recycled oil may have a very low flash point with the possibility of unexpected ignition resulting in a fire or explosion. Most, if not all, of these issues are well documented in various industry publications. In short, we simply don't view this as a viable alternative for an operation such as Smurfit's.

At this time the only option we have to blend a .5% residual product would be to use 1.5% Residual Fuel with .05% Diesel Fuel. Based on market prices from the close of business on 7/31/07, the additional cost to Smurfit would be at least \$21.73 per barrel. There would also be a BTU loss of over 7% (over \$5.71 per barrel at the current price level) and potential problems with an unacceptable light viscosity. We believe that all of our calculations included here are on the conservative side and can be documented if necessary.

We hope that this additional information adequately addresses the issues that have been raised, but if we can provide you with any other assistance please don't hesitate to ask.

Sincerely,
E. Keith Hill

A handwritten signature in cursive script that reads "Keith Hill". The signature is fluid and matches the typed name above it.

Vice-President, Industrial & Marine Sales



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

July 30, 2007

Electronically Sent - Received Receipt Requested

Mr. George Q. Langstaff
V.P. - Regional Mill Operations
Smurfit-Stone Container Enterprises, Inc.
Fernandina Beach Mill
North 8th Street
Fernandina Beach, Florida 32034

RE: BART Application for the No. 4 Recovery Boiler, No. 4 Smelt Dissolving Tank and No. 5 Power Boiler
0890003-018-AC

Dear Mr. Langstaff:

On July 9, 2007, the Department received a response to an incompleteness letter regarding the BART application for the No. 4 Recovery Boiler, No. 4 Smelt Dissolving Tank and No. 6 Power Boiler received February 2, 2007. Based on a review of the recent response, we have determined that the following additional information is needed in order to continue processing this application package. Please provide all assumptions, calculations, and reference material(s) that are used or reflected in any of your responses to the following issues:

1. For Table 1 in the response, please complete the calculations and provide the cost effectiveness of the "\$ per ton of SO₂ removed" when firing 0.5% sulfur content, by weight, residual fuel oil in the No. 5 Power Boiler. In addition, list the components that would have to be changed/retrofitted to accommodate these different fuels and include the costs for these components.

In a recent response from a similar facility regarding the switching to a 0.50% by weight sulfur content No. 5 fuel oil from No. 6 fuel oil, it appears that it handles similar to No. 6 fuel oil and that the only additional cost would be the net incremental cost between the two fuels. This conclusion is in contradiction of your statement made in the first sentence at the beginning of section 5.1.6 of the original application.

It is requested that you please respond within 30 days of receipt of this letter in order for us to issue the BART permit for the affected emission units by December 2007 and meet our SIP submittal needs. The Department will resume processing this application after receipt of the requested information. If you have any questions regarding this matter, please call Bruce Mitchell at (850)413-9198 or me at (850)921-9536.

Sincerely,

Jeffrey Koerner, P.E.
Administrator - Permitting North
Bureau of Air Regulation

JFK/bm

cc: George Q. Langstaff, V.P. - Regional Mill Operations and R.O., SSCEI (glangstaff@smurfit.com)
Chris Kirts, DEP - NED (chris.kirts@dep.state.fl.us)
David A. Buff, P.E., GAI (dbuff@golder.com)
Bill Crews, Application Contact, SSCEI (bcrews@smurfit.com)

Harvey, Mary

From: Harvey, Mary
Sent: Monday, July 30, 2007 2:05 PM
To: 'glangsta@smurfit.com'; Kirts, Christopher; 'Mr. David Buff, Golder Associates'; 'Mr. Bill Crews, Smurfit-Stone Container Enterprises, Inc.'
Cc: Mitchell, Bruce; Adams, Patty; Gibson, Victoria
Subject: Letter - Mr. George Q. Langstaff - Smurfit-Stone Container Enterprises, Inc. #0890003-018-AC
Attachments: Letter-0890003-018-AC - George Q. Langstaff.pdf

Tracking:	Recipient	Delivery	Read
	'glangsta@smurfit.com'		
	Kirts, Christopher	Delivered: 7/30/2007 2:05 PM	Read: 7/30/2007 3:07 PM
	'Mr. David Buff, Golder Associates'		
	'Mr. Bill Crews, Smurfit-Stone Container Enterprises, Inc.'		
	Mitchell, Bruce	Delivered: 7/30/2007 2:05 PM	
	Adams, Patty	Delivered: 7/30/2007 2:05 PM	Read: 7/30/2007 3:28 PM
	Gibson, Victoria	Delivered: 7/30/2007 2:05 PM	Read: 7/30/2007 2:27 PM

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The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

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<http://www.adobe.com/products/acrobat/readstep.html>.

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Thank you,

DEP, Bureau of Air Regulation

Harvey, Mary

From: Langstaff, George [GLANGSTA@SMURFIT.COM]
Sent: Monday, July 30, 2007 3:44 PM
To: Harvey, Mary
Cc: Crews, Bill
Subject: RE: Letter - Mr. George Q. Langstaff - Smurfit-Stone Container Enterprises, Inc. #0890003-018-AC

Mary,

As requested, this will serve as confirmation of our receipt of your letter.

Bill and his team will be back in touch with the requested information.

Thanks,

George Langstaff

work Fernandina Mill: (904) 277-5723

cell: (314) 409-1428

glangstaff@smurfit.com

From: Harvey, Mary [mailto:Mary.Harvey@dep.state.fl.us]
Sent: Monday, July 30, 2007 2:05 PM
To: Langstaff, George; Kirts, Christopher; Mr. David Buff, Golder Associates; Crews, Bill
Cc: Mitchell, Bruce; Adams, Patty; Gibson, Victoria
Subject: Letter - Mr. George Q. Langstaff - Smurfit-Stone Container Enterprises, Inc. #0890003-018-AC

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site:
<http://www.adobe.com/products/acrobat/readstep.html>.

The Bureau of Air Regulation is issuing electronic documents for permits, notices and other correspondence in lieu of hard copies through the United States Postal System, to provide greater service to the applicant and the engineering community. Please advise

Harvey, Mary

From: Crews, Bill [BCREWS@SMURFIT.COM]
To: undisclosed-recipients
Sent: Tuesday, July 31, 2007 7:15 AM
Subject: Read: Letter - Mr. George Q. Langstaff - Smurfit-Stone Container Enterprises, Inc. #
0890003-018-AC

Your message

To: BCREWS@SMURFIT.COM
Subject:

was read on 7/31/2007 7:15 AM.

Harvey, Mary

From: Mitchell, Bruce
Sent: Monday, July 30, 2007 3:33 PM
To: Harvey, Mary
Subject: RE: Letter - Mr. George Q. Langstaff - Smurfit-Stone Container Enterprises, Inc. #0890003-018-AC

Mary,

Many thanks for sending out the letter and have a great afternoon!

Bruce

From: Harvey, Mary
Sent: Monday, July 30, 2007 2:05 PM
To: 'glangsta@smurfit.com'; Kirts, Christopher; 'Mr. David Buff, Golder Associates'; 'Mr. Bill Crews, Smurfit-Stone Container Enterprises, Inc.'
Cc: Mitchell, Bruce; Adams, Patty; Gibson, Victoria
Subject: Letter - Mr. George Q. Langstaff - Smurfit-Stone Container Enterprises, Inc. #0890003-018-AC

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

The document(s) may require immediate action within a specified time frame. Please open and review the document(s) as soon as possible.

The document is in Adobe Portable Document Format (pdf). Adobe Acrobat Reader can be downloaded for free at the following internet site:
<http://www.adobe.com/products/acrobat/readstep.html>.

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Thank you,

DEP, Bureau of Air Regulation

Harvey, Mary

From: Adams, Patty
To: Harvey, Mary
Sent: Monday, July 30, 2007 3:28 PM
Subject: Read: Letter - Mr. George Q. Langstaff - Smurfit-Stone Container Enterprises, Inc. #
~~0890003-018-AC~~

Your message

To: 'glangsta@smurfit.com'; Kirts, Christopher; 'Mr. David Buff, Golder Associates'; 'Mr. Bill Crews, Smurfit-Stone Container Enterprises, Inc.'
Cc: Mitchell, Bruce; Adams, Patty; Gibson, Victoria
Subject: Letter - Mr. George Q. Langstaff - Smurfit-Stone Container Enterprises, Inc. #0890003-018-AC
Sent: 7/30/2007 2:05 PM

was read on 7/30/2007 3:28 PM.

Harvey, Mary

From: Kirts, Christopher
To: Harvey, Mary
Sent: Monday, July 30, 2007 3:07 PM
Subject: Read: Letter - Mr. George Q. Langstaff - Smurfit-Stone Container Enterprises, Inc. #
~~0890003-018-AC~~

Your message

To: 'glangsta@smurfit.com'; Kirts, Christopher; 'Mr. David Buff, Golder Associates'; 'Mr. Bill Crews, Smurfit-Stone Container Enterprises, Inc.'
Cc: Mitchell, Bruce; Adams, Patty; Gibson, Victoria
Subject: Letter - Mr. George Q. Langstaff - Smurfit-Stone Container Enterprises, Inc. #0890003-018-AC
Sent: 7/30/2007 2:05 PM

was read on 7/30/2007 3:07 PM.

Harvey, Mary

From: Buff, Dave [DBuff@GOLDER.com]
To: undisclosed-recipients
Sent: Monday, July 30, 2007 2:09 PM
Subject: Read: Letter - Mr. George Q. Langstaff - Smurfit-Stone Container Enterprises, Inc. # 0890003-018-AC

Your message

To: DBuff@GOLDER.com
Subject:

was read on 7/30/2007 2:09 PM.

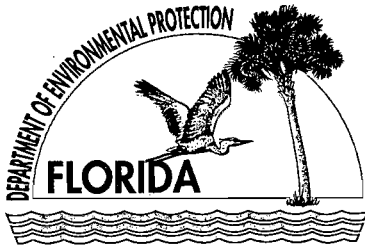
Harvey, Mary

From: Gibson, Victoria
To: Harvey, Mary
Sent: Monday, July 30, 2007 2:27 PM
Subject: Read: Letter - Mr. George Q. Langstaff - Smurfit-Stone Container Enterprises, Inc. #0890003-018-AC

Your message

To: 'glangsta@smurfit.com'; Kirts, Christopher; 'Mr. David Buff, Golder Associates'; 'Mr. Bill Crews, Smurfit-Stone Container Enterprises, Inc.'
Cc: Mitchell, Bruce; Adams, Patty; Gibson, Victoria
Subject: Letter - Mr. George Q. Langstaff - Smurfit-Stone Container Enterprises, Inc. #0890003-018-AC
Sent: 7/30/2007 2:05 PM

was read on 7/30/2007 2:27 PM.



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

May 8, 2007

SENT BY ELECTRONIC MAIL – RECEIVED RECEIPT REQUESTED

Mr. George Q. Langstaff
V.P. - Regional Mill Operations
Smurfit-Stone Container Enterprises, Inc.
Fernandina Beach Mill
North 8th Street
Fernandina Beach, Florida 32034

Re: **Request for Additional Information: 30-Day Extension**
BART Application No. 0890003-018-AC
Smurfit-Stone's Fernandina Beach Mill

Dear Mr. Langstaff:

On February 2, 2007, we received your application for Best Available Retrofit Technology (BART) for the identified BART-eligible units in accordance with Rule 62-296.340, Florida Administrative Code (F.A.C.). These units are installed at the existing facility, which is located in Nassau County at North 8th Street, Fernandina Beach. The application was deemed incomplete and the Department requested additional information on March 2, 2007, that would allow continued processing of your application. To date, we have not received the requested additional information. Rule 62-4.055(1), F.A.C., requires the following:

"The applicant shall have ninety days after the Department mails a timely request for additional information to submit that information to the Department. If an applicant requires more than ninety days in which to respond to a request for additional information, the applicant may notify the Department in writing of the circumstances, at which time the application shall be held in active status for one additional period of up to ninety days. Additional extensions shall be granted for good cause shown by the applicant. A showing that the applicant is making a diligent effort to obtain the requested additional information shall constitute good cause. Failure of an applicant to provide the timely requested information by the applicable deadline shall result in denial of the application."

It has been more than 65 days since our request for additional information (copy attached). You are reminded that the permit processing time clock has stopped for this project. Because of the timing of the rule and submittal of the applications, you are being granted an additional 30 days to submit the requested information. If you fail to provide the additional information by June 30, 2007, your application will be processed based on other information available to the Department. If you have any questions regarding this matter, please call me at 850/921-9536.

Sincerely,

Jeffery Koerner, P.E.
Air Permitting North Program

TV/jfk/rbm

George Q. Langstaff, V.P. – Regional Mill Operations and R.O., SSCEI, (glangsta@smurfit.com)
Chris Kirts, DEP – NED (chris.kirts@dep.state.fl.us)
David A. Buff, P.E., GAI (dbuff@golder.com)
Bill Crews, Application Contact, SSCEI (bcrews@smurfit.com)
James Little, EPA Region 4 (little.james@epamail.epa.gov)

Friday, Barbara

From: Harvey, Mary
Sent: Wednesday, May 09, 2007 9:01 AM
To: Mitchell, Bruce; Adams, Patty
Subject: FW: BART Application #0890003-018-AC

From: Davis, Rachel G. [mailto:RGDAVIS@SMURFIT.COM]
Sent: Tuesday, May 08, 2007 5:14 PM
To: Harvey, Mary
Cc: Crews, Bill; Kittrell, Randy; Langstaff, George ; Buff, Dave; little.james@epamail.epa.gov; Mitchell, Bruce; Keenan, Tom
Subject: RE: BART Application #0890003-018-AC

Mary,

Thank you for sending this 30 day extension to respond to the department's questions regarding our BART application. Smurfit has been rigorously researching and developing responses to the department's information request dated March 2, 2007. At this time, we are about 50% complete. Please note that some of these questions require detailed engineering analysis and we are making the best effort to answer each question completely and accurately. Smurfit will provide the state with a complete response to the BART request for additional information by June 30, 2007.

Please contact me if you have any further questions. Mr. Bill Crews is on vacation this week and will return next Monday.

Rachel Davis
Environmental Engineer
Smurfit Stone Container Corporation
Fernandina Beach Mill
Phone (904) 277-7718

From: Langstaff, George
Sent: Tuesday, May 08, 2007 3:41 PM
To: Harvey, Mary
Cc: Davis, Rachel G.; Crews, Bill; Kittrell, Randy
Subject: RE: BART Application #0890003-018-AC

Mary,

This will serve as confirmation of our receipt of your email as requested. I have passed it on to our environmental department and they advised that they will be in touch with you later this week regarding this matter.

If you have questions or need additional information please advise.

We appreciate your support.

Thanks,

6/28/2007

George Langstaff

work Fernandina Mill: (904) 277-5723

cell: (314) 409-1428

glangstaff@smurfit.com

From: Harvey, Mary [mailto:Mary.Harvey@dep.state.fl.us]
Sent: Tuesday, May 08, 2007 3:23 PM
To: Langstaff, George ; Kirts, Christopher; Mr. David Buff, P.E., Golder Associates, Inc.; Crews, Bill; little.james@epamail.epa.gov
Cc: Koerner, Jeff; Mitchell, Bruce; Adams, Patty; Gibson, Victoria
Subject: BART Application #0890003-018-AC

Dear Sir/Madam:

Please send a "reply" message verifying receipt of the attached document(s); this may be done by selecting "Reply" on the menu bar of your e-mail software and then selecting "Send". We must receive verification of receipt and your reply will preclude subsequent e-mail transmissions to verify receipt of the document(s).

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DEP, Bureau of Air Regulation

6/28/2007

Friday, Barbara

From: Harvey, Mary
Sent: Wednesday, May 09, 2007 9:07 AM
To: Adams, Patty; Mitchell, Bruce
Subject: FW: BART Application #0890003-018-AC

From: Langstaff, George [mailto:GLANGSTA@SMURFIT.COM]
Sent: Tuesday, May 08, 2007 3:41 PM
To: Harvey, Mary
Cc: Davis, Rachel G.; Crews, Bill; Kittrell, Randy
Subject: RE: BART Application #0890003-018-AC

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Thanks,

George Langstaff

work Fernandina Mill: (904) 277-5723

cell: (314) 409-1428

glangstaff@smurfit.com

From: Harvey, Mary [mailto:Mary.Harvey@dep.state.fl.us]
Sent: Tuesday, May 08, 2007 3:23 PM
To: Langstaff, George ; Kirts, Christopher; Mr. David Buff, P.E., Golder Associates, Inc.; Crews, Bill; little.james@epamail.epa.gov
Cc: Koerner, Jeff; Mitchell, Bruce; Adams, Patty; Gibson, Victoria
Subject: BART Application #0890003-018-AC

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6/28/2007

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Thank you,

DEP, Bureau of Air Regulation

Friday, Barbara

From: Harvey, Mary
Sent: Tuesday, May 08, 2007 3:23 PM
To: 'glangsta@smurfit.com'; Kirts, Christopher; 'Mr. David Buff, P.E., Golder Associates, Inc.'; 'bcrews@smurfit.com'; 'little.james@epamail.epa.gov'
Cc: Koerner, Jeff; Mitchell, Bruce; Adams, Patty; Gibson, Victoria
Subject: BART Application #0890003-018-AC
Attachments: LTR-George Q. Langstaff - Smurfit-Stone Container Enterprises, Inc. Facility ID #0890003-018-AC-.pdf

Dear Sir/Madam:

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Thank you,

DEP, Bureau of Air Regulation

7/13/2007

Friday, Barbara

From: Harvey, Mary
Sent: Tuesday, May 08, 2007 3:34 PM
To: Adams, Patty
Subject: FW: BART Application #0890003-018-AC

Attachments: LTR-George Q. Langstaff - Smurfit-Stone Container Enterprises, Inc. Facility ID # 0890003-018-AC-.pdf



LTR-George Q.
Langstaff - Smur...

-----Original Message-----

From: Little.James@epamail.epa.gov [mailto:Little.James@epamail.epa.gov]
Sent: Tuesday, May 08, 2007 3:33 PM
To: Harvey, Mary
Subject: Re: BART Application #0890003-018-AC

"Harvey, Mary"
<Mary.Harvey@dep.state.fl.us>

05/08/2007 03:23
PM

To
<glangsta@smurfit.com>, "Kirts, Christopher"
<Christopher.Kirts@dep.state.fl.us>, "Mr. David Buff, P.E., Golder Associates, Inc."
<dbuff@golder.com>, <bcrews@smurfit.com>, James Little/R4/USEPA/US@EPA

cc

"Koerner, Jeff"
<Jeff.Koerner@dep.state.fl.us>, "Mitchell, Bruce"
<Bruce.Mitchell@dep.state.fl.us>, "Adams, Patty"
<Patty.Adams@dep.state.fl.us>, "Gibson, Victoria"
<Victoria.Gibson@dep.state.fl.us>
Subject
BART Application #0890003-018-AC

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Thank you,
DEP, Bureau of Air Regulation
(See attached file: LTR-George Q. Langstaff - Smurfit-Stone Container Enterprises, Inc. Facility ID #0890003-018-AC-.pdf)

Friday, Barbara

From: Harvey, Mary
Sent: Tuesday, May 08, 2007 3:32 PM
To: Adams, Patty
Subject: FW: BART Application #0890003-018-AC

From: Buff, Dave [<mailto:DBuff@GOLDER.com>]
Sent: Tuesday, May 08, 2007 3:27 PM
To: undisclosed-recipients
Subject: Read: BART Application #0890003-018-AC

Your message

To: DBuff@GOLDER.com
Subject:

was read on 5/8/2007 3:27 PM.

Friday, Barbara

From: Harvey, Mary
Sent: Friday, June 22, 2007 10:54 AM
To: Adams, Patty
Subject: FW: BART Application #0890003-018-AC

From: Kirts, Christopher
Sent: Friday, June 22, 2007 10:23 AM
To: Harvey, Mary
Subject: Read: BART Application #0890003-018-AC

Your message

To: 'glangsta@smurfit.com'; Kirts, Christopher; 'Mr. David Buff, P.E., Golder Associates, Inc.'; 'bcrews@smurfit.com'; 'little.james@epamail.epa.gov'
Cc: Koerner, Jeff; Mitchell, Bruce; Adams, Patty; Gibson, Victoria
Subject: BART Application #0890003-018-AC
Sent: 5/8/2007 3:23 PM

was read on 6/22/2007 10:23 AM.



Florida Department of Environmental Protection

Bob Martinez Center
2600 Blair Stone Road, MS #5505
Tallahassee, Florida 32399-2400

Charlie Crist
Governor

Jeff Kotlikoff
Lt. Governor

Michael W. Sore
Secretary

March 2, 2007

Electronically Sent – Received Receipt Requested

Mr. George Q. Langstaff, V.P. of Regional Mill Operations
Smurfit-Stone Container Enterprises, Inc.
Fernandina Beach Mill
North 8th Street
Fernandina Beach, Florida 32034

Re: Project No. 0890003-018-AC
BART Application for the No. 4 Recovery Boiler, No. 4 Smelt Dissolving Tank and No. 5 Power Boiler

Dear Mr. Langstaff:

On February 2, 2007, the Department received your application for the Best Available Retrofit Technology (BART) for the following BART-eligible sources: the No. 6 Power Boiler, the No. 4 Recovery Boiler, and the No. 4 Smelt Dissolving Tank. We have determined that the application is incomplete. In order to continue processing your application, the Department will need the additional information requested below. Should your response to any of the items below require new calculations, please submit the new calculations, assumptions, reference material and appropriate revised pages of the application form.

No. 5 Power Boiler

1. **Low Sulfur Fuel Switch:** The following questions relate to switching to a lower sulfur fuel:

- a. As stated on Page 5-4, cost estimates for new burners were still being developed to complete the cost analysis. Please submit the bid specifications with the vendor estimates for new burners and the complete cost analysis for the equipment retrofit.
- b. Please evaluate the following fuel oil switch options with the corresponding maximum sulfur contents: 0.05% by weight; 0.10% by weight; and 0.50% by weight. For these additional fuel oil options, identify any new components necessary for the fuel switch and the related costs. Provide supporting documentation from the boiler manufacturer or burner vendor indicating the technical reasons that the current system is not capable of firing lower sulfur fuels. For Table 5-4, please complete the calculations and provide the cost effectiveness (\$ per ton of SO₂ removed) for each fuel switch option.
- c. For a recent industrial boiler project, a switch from residual oil to fuel with a maximum sulfur content of 0.50% by weight resulted in a cost effectiveness of less than \$400 per ton of SO₂ removed, which was basically the incremental cost difference between the two fuels. For this case, the residual oil burners could accommodate a fuel oil with 0.5% sulfur by weight without replacing burners. This contradicts the BART application in Section 5.1.6. Please provide technical information to support the claim that the burners must be replaced to fire fuel oils with sulfur contents below this level.
- d. Table 5-3 identifies the capital cost for a new fuel storage tank as \$1,200,000. Please provide the bid specifications and vendor estimate for the new tank as well as the installation and component costs. How was this tank sized? The primary fuel for the No. 5 Power Boiler is bark/wood supplemented with fuel oil. The application indicates that fuel oil contributes approximately 14% of the annual average heat input to this unit. However, the Annual Operating Reports show the following: 7.97% in 2005, 9.49% in 2004, 6.18% in 2003, 3.84% in 2002, and 7.99% in 2001, with an actual average of approximately 7% for these years. Based on the past actual and proposed usage, identify a tank size based on reasonable estimates of periodic fuel deliveries. Please revise the cost analysis as necessary.

Request for Additional Information

- e. For the above analyses, also consider these options: switching all BART-eligible units to the low sulfur fuels with a dedicated tank; and switching all units to the low sulfur fuels and using the existing tank. Evaluate the air quality impacts for these options.
- f. Appendix B shows a letter from Colonial Oil Industries, Inc. that identifies "increased fuel costs" over the current market-based rate for 2.5% sulfur residual oil. However, it appears that this company specializes in "industrial residual oil". Please provide cost quotes from other vendors in the area to verify that this is the most economical option.
2. Distillate Oil: The current Title V permit indicates that No. 2 fuel oil can be used for startup. Is the No. 5 Power Boiler currently capable of firing No. 2 fuel oil? Please explain. Has No. 2 fuel oil ever been fired in this boiler? If so, please identify the amounts and the sulfur content.
3. Natural Gas Fuel Switch: Is natural gas available to the facility? Is the No. 5 Power Boiler currently capable of using natural gas as a supplemental fuel? Please provide a cost analysis for switching from fuel oil to natural gas as a supplemental fuel.
4. SO₂ Controls: Page 5-2 of the application includes the following statement, "Since BART is not intended to be more stringent than BACT, SO₂ scrubbing systems for the No. 5 Power Boiler are not given further consideration." This conclusion is unsupported and does not avoid requirement to conduct a top-down BART analysis. In accordance with Rule 62-296.430, F.A.C., please provide the required "top-down" control technology review. As identified in Table 5-2, please provide a cost analysis for purchasing, installing and operating wet and dry scrubber systems to reduce SO₂ emissions. For this analysis, provide the calculations of the costs with the scrubber having varying degrees of removal efficiencies (i.e., 90%, 95%, etc.). Include the bid specifications with vendors' estimates.
5. NO_x Controls: In accordance with Rule 62-296.430, F.A.C., please provide the required "top-down" control technology review including a cost analysis (\$/ton NO_x removed) and modeled impacts for each of the available and applicable NO_x control options. The Department believes several NO_x post-combustion and combustion modification control options are likely cost effective such as: selective non-catalytic reduction (SNCR); a hybrid SNCR-SCR system; the Ecotube system with urea injection; flue gas recirculation (FGR); and third-party combustion modifications (for example, Mobotec's Rotating Opposed Fired Air (ROFA) and Rotomix, which is ROFA plus SNCR). These controls have been successfully installed on similar units. SNCR systems have been successfully installed and operated on several units in Florida including boilers fired with RDF, wood, and bagasse-fired boilers. However, both the Ecotube with urea injection, FGR and other NO_x control equipment may also be able to provide similar reductions with comparable costs.
6. Swing-Load Unit: In section 5.2, the application indicates that the No. 5 Power Boiler is used as a "swing load" boiler. What is the frequency, range and duration of the load swings? Please explain and provide actual plant information to support this claim. What drives the boilers "swings"?
7. Current PM Emissions: The current particulate matter (PM) emissions limit is 0.3 lb/MMBtu. The results of the last six performance tests for PM emissions are 0.0614 lb/MMBtu (6-14-06), 0.008 lb/MMBtu (6-1-05), 0.0102 lb/MMBtu (5-25-04), 0.0055 lb/MMBtu (5-19-03), 0.0066 lb/MMBtu (5-21-02), and 0.0409 lb/MMBtu (5-17-01). Discuss the variability of the emissions tests data. For each test, provide the secondary power input to the electrostatic precipitator (ESP) during the test runs? For the tests conducted in 2001 and 2006, were any of the ESP fields out of service or operated at reduced power inputs?
8. ESP: When was the ESP installed on the No. 5 Power Boiler? Please provide the original performance guarantees. Describe any subsequent modifications to improve the existing ESP. Please provide the subsequent performance guarantees for such modifications. Please identify any scheduled improvements for the existing ESP. Please provide any supporting information such as correspondence with the vendor.
9. NESHAP Subpart DDDDD: Page 5-6 of the application indicates that baseline visibility modeling was conducted with a PM emissions rate of 22.5 lb/hour, which is the value determined to comply with the Boiler MACT requirements in NESHAP Subpart DDDDD. Since the maximum heat input rate is 805 MMBtu/hour, the equivalent PM emissions rate would be:

$$PM = (22.5 \text{ lb/hr})(\text{hour}/805 \text{ MMBtu}) = 0.028 \text{ lb/MMBtu}$$

Is this the proposed BART emissions standard for the No. 5 Power Boiler? Please explain how will this unit comply with the applicable metal HAP emissions standards specified in 40 CFR 63, Subpart DDDDD?

Request for Additional Information

10. Combustion: Has computational fluid dynamics modeling been conducted on this unit to define the existing combustion characteristics and suggest modifications for improvements? Please provide the reports for any such modeling. Identify any recommendations for improvements that may result in reduced NO_x and/or PM emissions. Within the last 5 years, describe any work conducted to improve combustion performance.

No. 4 Recovery Boiler

11. NO_x Controls: Section 5.5 of the application lists six NO_x control options, but states that several technologies are technically feasible and that none of the technologies would provide "meaningful reductions in the change in light extinction due to the unit". In accordance with Rule 62-296.430, F.A.C., please provide the required "top-down" control technology review including a cost analysis (\$/ton NO_x removed) and modeled impacts for each of the available and applicable NO_x control options. Provide supporting documentations specific to this unit for any technologies you consider to be technically infeasible. Note that visibility impacts related to the available control options is only one consideration in making a BART determination. In Appendix B, the letter from Babcock and Wilcox Company indicates that they will be providing a cost estimate for a quaternary air system to reduce NO_x emissions. Please provide this proposal (including the separate proposal for installation) and include this technology in the required "top-down" control technology review including a cost analysis (\$/ton NO_x removed) and modeled impacts. As summarized in Section 4 of the application, please follow the regulatory requirements for selecting a BART NO_x emissions standard.
12. SO₂ Controls: In accordance with Rule 62-296.430, F.A.C., please provide the required "top-down" control technology review including a cost analysis (\$/ton SO₂ removed) and modeled impacts for each of the available and applicable SO₂ control options. As summarized in Section 4 of the application, please follow the regulatory requirements for selecting a BART SO₂ emissions standard.
13. Combustion: Has computational fluid dynamics modeling been conducted on this unit to define the existing combustion characteristics and suggest modifications for improvements? Please provide the reports for any such modeling. Identify any recommendations for improvements that may result in reduced NO_x and/or PM emissions. Within the last 5 years, describe any work conducted to improve combustion performance. Has staged air been added or modified to improve combustion and NO_x emissions?
14. ESP: When was the ESP installed on the No. 4 Recovery Boiler? Please provide the original performance guarantees. Describe any subsequent modifications to improve the existing ESP. Please provide the performance subsequent guarantees for such modifications. Please identify any scheduled improvements for the existing ESP. Please provide any supporting information such as correspondence with the vendor.

No. 4 Smelt Dissolving Tank

15. BART Review: In accordance with Rule 62-296.430, F.A.C., please provide the required "top-down" control technology review including a cost analysis (\$/ton pollutant removed) and modeled impacts for each of the available and applicable PM, NO_x, and SO₂ control options. As summarized in Section 4 of the application, please follow the regulatory requirements for selecting BART emissions standards.
16. Existing Venturi Scrubber:
- a. Table A-3 in the application identifies the following scrubber parameters: pressure drop of 11.5 inches of w.c.; 303 gpm scrubber water recirculation rate; and a make-up scrubber water rate of 45 gpm. Please provide the original performance specifications and guaranteed emissions rates.
 - b. Is the venturi throat on the existing scrubber adjustable so that it can be readjusted to enhance and increase PM control efficiency for varying conditions? Was it originally designed with an adjustable venturi throat? Describe any recent improvements to or rebuilds of the venturi scrubber. Provide any new performance specifications and guaranteed emissions rates. Please identify any physical upgrades or modifications for the existing venturi scrubber that could be performed to enhance PM collection efficiency. Please provide any supporting information such as correspondence with the vendor.
 - c. Identify the source of the scrubbing water used in the existing venturi scrubber as well as the make-up water. What is the normal pH of the scrubbing water? Since white liquor has been shown to effectively scrub out SO₂ as well as TRS emissions, identify advantages and disadvantages for using white liquor in the scrubber water (i.e., emissions, other contaminants, availability, handling, operations, and costs, etc.)

Request for Additional Information

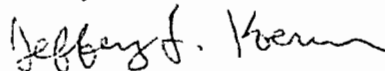
Miscellaneous

17. Application Form: Please have the Owner/Authorized Representative sign the application form and submit.
18. Other BART-Eligible Units: In addition to the No. 4 Recovery Boiler, No. 4 Smelt Dissolving Tank and No. 5 Power Boiler, the Department also identified the following BART-eligible units: Tall Oil Plant with Packed Tower Type Wet Scrubber (Emissions Unit 020), and Converting/Warehouse (Emissions Units 029 through 034). Describe these emissions units and related emissions. Please explain why these emissions units were not included in the BART application. If necessary, provide a proposed BART technology review for these units.
19. BART Review: Section 4 of the application summarizes the regulatory requirements for reviewing and selecting BART emissions standards. In accordance with Rule 62-296.430, F.A.C., please provide the required "top-down" control technology review including a cost analysis (\$/ton pollutant removed) and modeled impacts for each of the available and applicable PM, NO_x, and SO₂ control options.
20. BART Emissions Standards: Pursuant to 40 CFR 51.301, *Best Available Retrofit Technology (BART)* means, "... an **emission limitation** based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant which is emitted by ... [a BART-eligible source]. The **emission limitation** must be established, on a case-by case basis, taking into consideration the technology available, the costs of compliance, the energy and non-air quality environmental impacts of compliance, any pollution control equipment in use or in existence at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology." For each BART-eligible unit, identify the proposed BART emissions standard. Provide the appropriate pages of the application.

The Department will resume processing your application after receipt of the requested information. Rule 62-4.050(3), F.A.C. requires that all applications for a Department permit must be certified by a professional engineer registered in the State of Florida. This requirement also applies to responses to Department requests for additional information of an engineering nature. For any material changes to the application, please include a new certification statement by the authorized representative or responsible official. You are reminded that Rule 62-4.055(1), F.A.C. requires applicants to respond to requests for information within 90 days or provide a written request for an additional period of time to submit the information.

If you have any questions regarding this matter, please call Bruce Mitchell at (850) 413-9198 or me at (850) 921-9536.

Sincerely,



Jeffery Koerner, Administrator
Permitting North Section
Bureau of Air Regulation

JFK/bm

cc: George Langstaff, Smurfit-Stone Container (glangsta@smurfit.com)
Bill Crews, Smurfit-Stone Container (bcrews@smurfit.com)
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Adams, Patty

From: Koerner, Jeff
Sent: Friday, March 02, 2007 1:18 PM
To: 'glangsta@smurfit.com'; 'bcrews@smurfit.com'; 'dbuff@golder.com';
'chris.kirts@dep.state.fl.us'; 'worley.gregg@epa.gov'; 'dee_morse@nps.gov'
Cc: Mitchell, Bruce; Adams, Patty
Subject: Project No. 0890003-018-AC, Smurfit-Stone Container Fernandina Beach Mill, BART Application

Attachments: Smurfit Fernandina BART - RFI.pdf; Smurfit BART 0890003-018-AC - RFI.doc



Smurfit Fernandina
BART - RFI....



Smurfit BART
0890003-018-AC - ..

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DEP, Bureau of Air Regulation

TABLE 1
COST EFFECTIVENESS OF FUEL SWITCHING FOR No. 5 POWER BOILER (Revised 08/29/07)

Cost Items	Cost Factors	No. 2 Oil	No. 2 Oil	No. 4 Oil	No. 6 Oil
		(0.0015% S) Cost (\$)	(0.05% S) Cost (\$)	(0.5% S) Cost (\$)	(1.0% S) Cost (\$)
DIRECT CAPITAL COSTS (DCC):					
(1) Equipment Cost					
(a) New Fuel Oil Storage tank	See Footnote "a"	807,000	807,000	807,000	807,000
(b) Pumps, piping, etc.	See Footnote "a"	800,000	800,000	800,000	1,200,000
(c) New oil guns/atomizer sprayer plates	Babcock & Wilcox -- excludes installation ^b	175,000	175,000	0	0
(2) Sales Tax	Florida Sales Tax: 6.25% of Equipment Cost	111,375	111,375	100,438	125,438
Subtotal: Total Equipment Cost (TEC)		1,893,375	1,893,375	1,707,438	2,132,438
(3) Direct Installation Costs	85% of TEC (for new oil guns)	148,750	148,750	0	0
Total DCC:		2,042,125	2,042,125	1,707,438	2,132,438
INDIRECT CAPITAL COSTS (ICC):^c					
(1) Indirect Installation Costs	SSCE estimate	430,000	430,000	640,000	640,000
(a) Engineering	10% of TEC (for new oil guns)	17,500	17,500	Included Above	Included Above
(b) Construction & Field Expenses	10% of TEC (for new oil guns)	17,500	17,500	Included Above	Included Above
(c) Construction Contractor Fee	10% of TEC (for new oil guns)	17,500	17,500	Included Above	Included Above
(d) Contingencies	3% of TEC (for new oil guns)	5,250	5,250	Included Above	Included Above
(2) Other Indirect Costs					
(a) Startup	1% of TEC (for new oil guns)	1,750	1,750	Included Above	Included Above
(b) Performance Test	3% of TEC (for new oil guns)	5,250	5,250	Included Above	Included Above
Total ICC:		494,750	494,750	640,000	640,000
TOTAL CAPITAL INVESTMENT (TCI):	DCC + ICC	2,536,875	2,536,875	2,347,438	2,772,438
DIRECT OPERATING COSTS (DOC):^d					
(1) Operating Labor					
Operator	1.0 hr/shift, \$30/hr, 8760 hrs/yr	32,850	32,850	32,850	32,850
Supervisor	15% of operator cost	4,928	4,928	4,928	4,928
(2) Maintenance					
Labor	Equivalent to One-Half Operating Labor	16,425	16,425	16,425	16,425
Materials	100% of maintenance labor	16,425	16,425	16,425	16,425
(3) Utilities					
(4) Fuels					
Existing Fuel Cost (2.5% S)	\$0.94/gal, 3.4 MMgal/yr	--	--	--	--
Proposed Fuel Cost (Lower S Content)	See Footnote "e"	--	--	--	--
Differential Fuel Cost (Proposed - Existing)	See Footnote "e"	3,302,250	3,219,000	2,221,333	235,571
Total DOC:		3,372,878	3,289,628	2,291,961	306,199
INDIRECT OPERATING COSTS (IOC):^d					
(1) Overhead	60% of oper. labor & maintenance	42,377	42,377	42,377	42,377
(2) Property Taxes	1% of total capital investment	25,369	25,369	23,474	27,724
(3) Insurance	1% of total capital investment	25,369	25,369	23,474	27,724
(4) Administration	2% of total capital investment	50,738	50,738	46,949	55,449
Total IOC:		143,852	143,852	136,274	153,274
CAPITAL RECOVERY COSTS (CRC):	CRF of 0.0944 times TCI (20 yrs @ 7%)	239,481	239,481	221,598	261,718
ANNUALIZED COSTS (AC):	DOC + IOC + CRC	3,756,210	3,672,960	2,649,833	721,191
BASELINE SO ₂ EMISSIONS (TPY) :	Highest emissions in last 5 years	623.0	623.0	623.0	623.0
MAX SO ₂ EMISSIONS WITH PROPOSED FUEL (TPY):	3.7 MMgal/yr No. 2 Oil or 3.4 MMgal/yr 1% S or 0.5% S No. 6 Fuel Oil	0.4	13.3	122.4	248.0
REDUCTION IN SO ₂ EMISSIONS (TPY):		622.6	609.7	500.6	375.0
COST EFFECTIVENESS:	\$ per ton of SO ₂ removed	6,033	6,024	5,293	1,923
BASELINE VISIBILITY IMPACT (dv):	Table 3-5 of 1/2007 BART Control Analysis	0.637	0.637	0.637	0.637
CONTROLLED VISIBILITY IMPACT (dv):		0.123	0.134	0.150	0.298
REDUCTION IN VISIBILITY IMPACT (dv) :	Baseline - Controlled	0.514	0.503	0.487	0.339
COST EFFECTIVENESS OF VISIBILITY REDUCTION (\$/dv) :	AC/Reduction in visibility	7,307,802	7,302,107	5,441,135	2,127,407

Footnotes:

^a Based on SSCE data for 500,000 gal storage tank, and estimated cost of piping, pumps, etc.

^b Based on quote of \$175,000 additional equipment cost for new atomizers for use of low sulfur No. 2 fuel oil.

^c All indirect capital costs are included in basic price.

^d Factors and cost estimates reflect OAQPS Cost Manual, Section 5.

^e Increase in fuel cost associated with buying different type of oil - 3.4 MMgal/yr No. 6 oil with 1% S and 0.5% S or 3.7 Mmgal/yr No. 2 oil with 0.05% S or 0.0015% S.
Per Colonial Oil Industries, Inc., increases in cost compared to the current price paid for 2.5% S oil are - \$36.54/barrel for 0.05% S oil, \$37.49/barrel for 0.0015% S oil, \$2.91/barrel for 1% S residual oil, and \$27.44/barrel for 0.5% S residual oil.

**BART CONTROL ANALYSIS
SMURFIT-STONE CONTAINER ENTERPRISES, INC.
FERNANDINA BEACH MILL**

Prepared For:

**Smurfit-Stone Container Enterprises, Inc.
North 8th Street
Fernandina Beach, FL 32034**

Prepared By:

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6241 NW 23rd Street, Suite 500
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January 2007

063-7613

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Appendix C	Application for Air Permit — Long Form

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LIST OF ACRONYMS AND ABBREVIATIONS

AAQS	Ambient Air Quality Standards
AOR	annual operating report
APH	air preheater
B&W	Babcock & Wilcox
BACT	Best Available Control Technology
Btu/gal	British thermal units per gallon
Btu/lb	British thermal units per pound
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
DNCG	dilute non-condensable gas
EPA	U.S. Environmental Protection Agency
ESP	electrostatic precipitator
F	fluoride
°F	degrees Fahrenheit
ft/s	feet per second
F.A.C.	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FGR	flue gas recirculation
FR	fuel reburning
gal/hr	gallons per hour
gal/yr	gallons per year
GEP	Good Engineering Practice
H ₂ O	water
HAP	hazardous air pollutant
HCl	hydrogen chloride
Hg	mercury
HSH	highest, second-highest
km	kilometer
LAER	lowest achievable emission rate
lb/hr	pounds per hour

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(continued)

LIST OF ACRONYMS AND ABBREVIATIONS (cont'd)

lb/MMBtu	pounds per million British thermal units
LEA	less excess air
LNB	low-NO _x burner
LVHC	low volume high concentration
m	meter
MACT	Maximum Achievable Control Technology
MMBtu/hr	million British thermal units per hour
MMBtu/yr	million British thermal units per year
MMft ³	million cubic feet
MMscf/yr	million standard cubic feet per year
N ₂	nitrogen
NAAQS	National Ambient Air Quality Standards
NCG	non-condensable gas
NESHAPs	National Emission Standards for Hazardous Air Pollutants
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NSPS	New Source Performance Standards
NSR	new source review
NWA	National Wilderness Area
O ₂	oxygen
OAQPS	Office of Air Quality Planning and Standards
OFA	overfire air
PCP	pollution control project
PM	particulate matter
PM ₁₀	particulate matter with an aerodynamic diameter equal to or less than 10 micrometers
ppmv	parts per million by volume
PSD	prevention of significant deterioration
RBLC	RACT, BACT, LAER Clearinghouse
SAM	sulfuric acid mist
scf/hr	standard cubic foot per hour
SCR	selective catalytic reduction

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(continued)

LIST OF ACRONYMS AND ABBREVIATIONS (cont'd)

SIL	significant impact level
SIP	State Implementation Plan
SNCR	selective non-catalytic reduction
SOG	stripper off gas
SO ₂	sulfur dioxide
SO ₃	sulfur trioxide
SSCE	Smurfit-Stone Container Enterprises
SR	State Road
TPD	tons per day
TPH	tons per hour
TPY	tons per year
TRS	total reduced sulfur
TSM	total selected metals
µm	micrometer
µg/m ³	micrograms per cubic meter
VOC	volatile organic compound

1.0 INTRODUCTION

Smurfit-Stone Container Enterprises, Inc. (SSCE) operates a kraft linerboard mill in Fernandina Beach, Nassau County, Florida. The Fernandina Beach Mill consists of two power boilers, two recovery boilers, two smelt dissolving tanks, lime kiln, tall oil plant, brownstock washer system, pulping system, a package boiler, and ancillary equipment to produce kraft linerboard. The Fernandina Beach Mill is currently operating under Title V Permit No. 0890003-009-AV.

Under the regional haze regulations, contained in Title 40, Part 51 of the Code of Federal Regulations (40 CFR 51), Subpart P – Protection of Visibility, the U.S. Environmental Protection Agency (EPA) has issued final rules and guidelines, dated July 6, 2005, for Best Available Retrofit Technology (BART) determinations [Federal Register (FR), Volume 70, pages 39104-39172]. BART applies to certain large stationary sources known as BART-eligible sources. Sources are BART-eligible if they meet the following three criteria:

- Contains emissions units that are one of the 26 listed source categories in the guidance;
- Contains emissions units that were put in place between August 7, 1962 and August 7, 1977; and
- Potential emissions from the emissions units of at least 250 tons per year (TPY) of a visibility-impairing pollutant [sulfur dioxide (SO₂), nitrogen oxides (NO_x), and direct particulate matter (PM) of equal to or less than 10 microns (PM₁₀)].

The Fernandina Mill has been identified as a BART-eligible source with multiple BART-eligible emissions units.

The Florida Department of Environmental Protection (FDEP) has adopted EPA's visibility protection rules and guidelines contained in 40 CFR 51, Subpart P. The newly adopted rules become effective on January 31, 2007.

The basic tenet of the regional haze program is the achievement of natural visibility conditions in Prevention of Significant Deterioration (PSD) Class I areas by the year 2064. Florida has four PSD Class I areas while Georgia has two PSD Class I areas that can be affected by Florida sources [i.e., located in Florida or within 300 kilometers (km) of Florida].

BART requirements potentially apply to any BART-eligible source that, pursuant to the FDEP BART regulations, emits an air pollutant that may "reasonably be anticipated to cause or contribute to any

impairment of visibility in any Class I area.” The BART guidelines establish a threshold value of 0.5 deciview (dv) for any single source (facility) for determining whether the source contributes to visibility impairment. The term “BART-eligible emissions unit” is defined as any single emissions unit that meets the criteria described above, except for the 250 TPY criterion, which applies to the entire BART-eligible source. A “BART-eligible source” is defined as the collection of all BART-eligible emissions units at a single facility. If a source has several emissions units, only those that meet the BART-eligible criteria are included in the definition of “BART-eligible source.”

SSCE submitted a BART applicability analysis and the initial modeling protocol to the FDEP on September 30, 2006, for the Fernandina Mill. An updated modeling protocol for this facility was submitted to FDEP in January 2007 (see Appendix A). The report identified the BART-eligible emissions units, and determined that the BART-eligible source was not exempt from BART based on its potential visibility impacts on the Class I areas. Based on that analysis, the final list of BART-eligible, non-fugitive emissions units for the Fernandina Mill are as follows:

- No. 5 Power Boiler (EU006)
- No. 4 Recovery Boiler (EU007)
- No. 4 Smelt Dissolving Tank (EU013)

Each of these emissions units requires an analysis of BART control options and a BART determination. This BART control analysis addresses these requirements and is organized into four additional sections, followed by appendices. A description of the BART-eligible emissions units, including air emission rates and air pollution control equipment, is presented in Section 2.0. The BART exemption modeling analysis results are presented in Section 3.0. The procedural requirements for the analysis of BART control options are presented in Section 4.0. The BART analysis for each emissions unit is presented in Section 5.0. The revised BART modeling protocol is presented in its entirety in Appendix A.

2.0 DESCRIPTION OF BART-ELIGIBLE EMISSIONS UNITS

The Fernandina Beach Mill is located in Fernandina Beach, Nassau County, Florida. An area map showing the facility location and PSD Class I areas located within 300 km of the facility is presented in Figure I-1 of the revised BART modeling protocol (see Appendix A). The PSD Class I areas and their distances from the Fernandina Beach Mill are as follows:

- Okefenokee National Wildlife Area (NWA) - 66 km,
- Wolf Island NWA - 71 km,
- Chassahowitzka NWA - 242 km, and
- Saint Marks NWA - 249 km.

Bradwell Bay PSD Class I area is located within 300 km of the facility, but visibility impairment is not required to be addressed for this area (40 CFR 81, Subpart D).

The Universal Transverse Mercator (UTM) coordinates of the Fernandina Beach Mill are approximately 456.2 km east and 3,394.1 km north in UTM Zone 17.

A description of each of these emissions units is presented in the following sections.

2.1 No. 5 Power Boiler (EU 006)

The No. 5 Power Boiler (No. 5 PB) at the Fernandina Mill has a maximum heat input of 805 MMBtu/hr. The unit is permitted to combust carbonaceous fuel and No. 6 fuel oil (including on-spec used oil). Low volume, high concentration (LVHC) non-condensable gases (NCG) from the batch digester system, continuous digester system, turpentine recovery system, evaporator systems and foul condensate collection tank are combusted in this boiler as a back-up to the No. 4 Lime Kiln for compliance with 40 CFR 63, Subpart S. The No. 5 PB began operation in 1968.

PM/PM₁₀ emissions from the No. 5 PB are controlled by a cyclone followed by an electrostatic precipitator (ESP). This emissions unit is regulated under Rules 62-296.404, 62-296.405, 62-296.410, and 62-204.800 of the Florida Administrative Code (F.A.C.); 40 CFR 61, Subpart E; and 40 CFR 63, Subpart DDDDD.

PM emissions from No. 5 PB are limited to 0.3 pounds per million British thermal units (lb/MMBtu) of heat input for carbonaceous fuels, and 0.1 lb/MMBtu heat input for fossil fuels. Total mass emissions are also limited to 137.1 pounds per hour (lb/hr) and 598.9 TPY.

SO₂ emissions are limited to 1,733.7 lb/hr, 1,511.1 lb/hr as a 24-hour average, and 6,618.62 TPY. During periods of NCG burning, maximum 24-hour emissions are limited to 1,733.7 lb/hr, but emissions greater than 1,511.1 lb/hr must be offset during the calendar year by purchasing and burning lower sulfur content fuel oil. The sulfur content of the No. 6 fuel oil combusted in No. 5 PB cannot exceed 2.5 percent.

2.2 No. 4 Recovery Boiler (EU 007)

The No. 4 Recovery Boiler (No. 4 RB) at the Fernandina Mill has a permitted capacity of 137,500 lb/hr black liquor solids (BLS), equivalent to a maximum heat input of 852 MMBtu/hr. The boiler, manufactured by Babcock & Wilcox, is permitted to combust BLS and No. 6 fuel oil, and provides the Fernandina Beach Mill with up to 492,000 lb/hr of high-pressure steam. The unit is of low-odor design and incorporates an ESP for control of PM emissions.

This emissions unit is regulated under Rules 62-296.404 and 62-204.800 F.A.C. and 40 CFR 63, Subpart MM.

PM emissions from No. 4 RB are limited to 0.044 grains per dry standard cubic foot (gr/dscf) of exhaust gases and 3 lb/3,000 pounds of BLS fired. Total mass emissions are also limited to 137.5 lb/hr and 602.25 TPY. The maximum sulfur content of the No. 6 fuel oil burned in this unit is 2.5 percent.

2.3 No. 4 Smelt Dissolving Tank (EU 013)

The No. 4 Smelt Dissolving Tank (No. 4 SDT) at the Fernandina Beach Mill has a permitted capacity of 137,500 lb/hr BLS, equal to the No. 4 RB rate. The No. 4 SDT incorporates a venturi scrubber to control PM emissions.

This emissions unit is regulated under Rules 62-296.404 and 62-204.800 F.A.C. and 40 CFR 63, Subpart MM. PM emissions from No. 4 SDT are limited to 0.20 lb/ton BLS fired.

3.0 BART EXEMPTION ANALYSIS AND RESULTS

A BART modeling protocol for the Fernandina Beach Mill was submitted to the FDEP on September 30, 2006 and a revised protocol was submitted in January 2007. Initial visibility modeling was conducted to determine if the BART-eligible source could be exempt from BART based on its impacts at the Class I areas. The baseline emissions and methodology used for the exemption modeling and the exemption modeling results are presented below.

3.1 Emission Rates

The emissions used for visibility modeling for the Fernandina Mill are contained in the BART modeling protocol, which is included as Appendix A.

3.2 Modeling Methodology

The CALPUFF model, Version 5.756, was used to predict the maximum visibility impairment at the PSD Class I areas located within 300 km of the Fernandina Mill. Recent technical enhancements, including changes to the over-water boundary layer formulation and coastal effects modules (sponsored by the Minerals Management Service), are included in this version. The methods and assumptions used in the CALPUFF model are presented in the Protocol. The 4-km spacing Florida domain was used for the BART exemption. The refined CALMET domain, used for the SSCE BART modeling analysis has been provided by the FDEP. The major features used in preparing these CALMET data have also been described in Section 4.0 of the Protocol.

Currently, atmospheric light extinction is estimated by an algorithm developed by the Interagency Monitoring of Protected Visual Environments (IMPROVE) committee, which was adopted by the EPA under the 1999 Regional Haze Rule (RHR) and is referred to as the "1999 IMPROVE" algorithm. This algorithm for estimating light extinction from particle speciation data tends to underestimate light extinction for the highest haze conditions and overestimate it for the lowest haze conditions and does not include light extinction due to sea salt, which is important at sites near coastal areas. As a result of these limitations, the IMPROVE Steering Committee recently developed a new algorithm (the "new IMPROVE algorithm") for estimating light extinction from PM component concentrations, which provides a better correspondence between measured visibility and that calculated from PM component concentrations. A detailed description of the new IMPROVE algorithm and its implementation is presented in Section 3.4 of the Protocol.

Both the 1999 IMPROVE algorithm and the new IMPROVE algorithm were used to calculate the natural background light extinction at the Class I areas for the SSCE BART modeling analysis. Visibility impacts were predicted at each PSD Class I area using receptors provided by the National Park Service, as presented in the BART protocol.

3.3 BART Exemption Modeling Results

Summaries of the maximum visibility impairment values for the Fernandina Beach Mill BART-eligible emission units estimated using the 1999 IMPROVE algorithm are presented in Tables 3-1 and 3-2. In Table 3-1, the 98th percentile 24-hr average visibility impairment values (i.e., 8th highest) for the years 2001, 2002 and 2003; and the 22nd highest 24-hr average visibility impairment value over the three years, are presented. This table also presents the number of days and receptors for which the visibility impairment was predicted to be greater than 0.5 dv. The eight highest visibility impairment values predicted at the PSD Class I areas are presented in Table 3-2.

As shown in Tables 3-1 and 3-2, the 8th highest visibility impairment values predicted for each year, using the 1999 IMPROVE algorithm, are greater than 0.5 dv at the Okefenokee and Wolf Island National Wilderness Areas (NWAs), but are below 0.5 dv at the Chassahowitzka and Saint Marks NWAs. The 22nd highest visibility impairment value predicted over the 3-year period is also greater than 0.5 dv at the Okefenokee and Wolf Island NWAs but less than 0.5 dv at Chassahowitzka and Saint Marks NWAs.

The eight highest visibility impairment values for the Fernandina Beach Mill BART-eligible emission units, estimated using the new IMPROVE algorithm, are presented in Table 3-3 for Okefenokee and Wolf Island NWAs. As shown the 8th highest visibility impairment values predicted for each year, using the new IMPROVE algorithm, are lower than those predicted with the 1999 IMPROVE algorithm, but are still greater than 0.5 dv.

Based on these results, the Fernandina Beach Mill is subject to the BART requirements and a BART determination analysis is required for each of the BART-eligible emissions units at the facility. Since the visibility impacts due to the facility were found to be more than 0.5 dv only at the Okefenokee and Wolf Island NWAs, the BART determination analysis will include only these two Class I areas.

The 8th highest impacts of each BART-eligible unit and the contributions of the individual visibility impairing pollutants to those impacts for each unit predicted at the Okefenokee and Wolf Island NWAs are presented in Table 3-4 for the 1999 IMPROVE algorithm and Table 3-5 for

the new IMPROVE algorithm. The visibility impairing pollutants include sulfate (SO_4), nitrate (NO_3), and PM_{10} .

**TABLE 3-1
SUMMARY OF BART EXEMPTION MODELING RESULTS,
1999 IMPROVE ALGORITHM-
SMURFIT-STONE CONTAINER ENTERPRISES, INC., FERNANDINA MILL**

PSD Class I Area	Distance from Source to Nearest Class I Area Boundary (km)	Number of Days and Receptors with Change in Impacts >0.5 dv									22 nd Highest Impact (dv) Over 3-Yr Period
		2001			2002			2003			
		No. of Days	No. of Receptors	8th Highest Impact (dv)	No. of Days	No. of Receptors	8th Highest Impact (dv)	No. of Days	No. of Receptors	8th Highest Impact (dv)	
Okefenokee NWA	66	15	180	0.848	19	180	0.751	32	180	0.915	0.798
Wolf Island NWA	71	23	30	0.697	14	30	0.681	19	30	0.742	0.697
Chassahowitzka NWA	242	1	87	0.230	2	113	0.259	0	0	0.154	0.200
St. Marks NWA	249	0	0	0.190	4	101	0.360	1	101	0.201	0.260

**TABLE 3-2
VISIBILITY IMPACT RANKINGS AT PSD CLASS I AREAS
1999 IMPROVE ALGORITHM
SMURFIT-STONE CONTAINER ENTERPRISES, INC., FERNANDINA MILL**

PSD Class I Area	Rank	Predicted Impact (dv)		
		2001	2002	2003
Okefenokee NWA	1	1.540	2.685	1.646
	2	1.469	1.113	1.635
	3	1.068	1.021	1.096
	4	0.902	0.837	1.052
	5	0.891	0.826	1.045
	6	0.875	0.768	1.036
	7	0.867	0.753	0.966
	8	0.848	0.751	0.915
Wolf Island NWA	1	1.081	1.097	1.358
	2	0.995	0.939	1.268
	3	0.983	0.780	1.235
	4	0.894	0.776	0.955
	5	0.888	0.718	0.851
	6	0.833	0.716	0.807
	7	0.768	0.690	0.784
	8	0.697	0.681	0.742
Chassahowitzka NWA	1	0.556	0.671	0.343
	2	0.339	0.545	0.340
	3	0.326	0.370	0.333
	4	0.308	0.301	0.216
	5	0.307	0.290	0.200
	6	0.303	0.273	0.162
	7	0.261	0.267	0.161
	8	0.230	0.259	0.154
St. Marks NWA	1	0.432	0.908	0.672
	2	0.430	0.663	0.399
	3	0.326	0.659	0.393
	4	0.290	0.619	0.302
	5	0.277	0.404	0.250
	6	0.260	0.398	0.213
	7	0.216	0.364	0.201
	8	0.190	0.360	0.201

**TABLE 3-3
 VISIBILITY IMPACT RANKINGS AT PSD CLASS I AREAS
 NEW IMPROVE ALGORITHM
 SMURFIT-STONE CONTAINER ENTERPRISES, INC., FERNANDINA MILL**

PSD Class I Area	Rank	Predicted Impact (dv)		
		2001	2002	2003
Okefenokee NWA	1	1.231	2.160	1.277
	2	1.188	0.850	1.261
	3	0.818	0.808	0.872
	4	0.711	0.664	0.831
	5	0.708	0.655	0.816
	6	0.691	0.604	0.811
	7	0.672	0.593	0.778
	8	0.676	0.596	0.717
Wolf Island NWA	1	0.794	0.789	0.978
	2	0.732	0.678	0.906
	3	0.705	0.562	0.889
	4	0.639	0.559	0.694
	5	0.638	0.517	0.613
	6	0.595	0.511	0.569
	7	0.550	0.494	0.567
	8	0.511	0.486	0.536

TABLE 3-4
CONTRIBUTION OF VISIBILITY IMPAIRING PARTICLE SPECIES
1999 IMPROVE ALGORITHM
SMURFIT-STONE CONTAINER ENTERPRISES, INC., FERNANDINA MILL

Emission Unit	Unit ID	8 th Highest Impact and Contribution by Species											
		2001				2002				2003			
		Impact (dv)	Contribution (%) ^a			Impact (dv)	Contribution (%) ^a			Impact (dv)	Contribution (%) ^a		
		SO ₄	NO ₃	PM ₁₀		SO ₄	NO ₃	PM ₁₀		SO ₄	NO ₃	PM ₁₀	
<i>1999 IMPROVE Algorithm</i>													
<u>Okefenokee NWA</u>													
No. 5 Power Boiler	PB5	0.731	90.4	5.4	4.2	0.608	75.8	18.7	5.6	0.806	79.3	17.9	2.7
No. 4 Recovery Boiler	RB4	0.096	51.2	38.7	10.0	0.102	80.9	4.7	14.4	0.124	39.6	47.6	12.8
No. 4 Smelt Dissolving Tank	SDT4	0.021	33.0	10.1	56.9	0.023	28.5	7.6	63.8	0.024	37.0	1.1	61.9
<u>Wolf Island NWA</u>													
No. 5 Power Boiler	PB5	0.620	94.9	2.9	2.2	0.610	89.0	6.0	5.0	0.623	97.3	0.5	2.3
No. 4 Recovery Boiler	RB4	0.084	76.0	8.3	15.7	0.076	80.5	2.6	16.9	0.086	50.8	38.0	11.3
No. 4 Smelt Dissolving Tank	SDT4	0.017	35.0	0.7	64.3	0.013	38.4	1.4	60.2	0.019	30.6	11.1	58.3

^a Sulfate (SO₄) particles are formed due to SO₂ and H₂SO₄ emissions; nitrate (NO₃) particles are formed due to NO_x emissions, and other non-hygroscopic PM₁₀ particles are a result of fine filterable PM₁₀, coarse filterable PM₁₀, elemental carbon, and condensable secondary organic aerosol emissions.

**TABLE 3-5
CONTRIBUTION OF VISIBILITY IMPAIRING PARTICLE SPECIES
NEW IMPROVE ALGORITHM
SMURFIT-STONE CONTAINER ENTERPRISES, INC., FERNANDINA MILL**

Emission Unit	Unit ID	8 th Highest Impact and Contribution by Species											
		2001				2002				2003			
		Impact (dv)	Contribution (%) ^a			Impact (dv)	Contribution (%) ^a			Impact (dv)	Contribution (%) ^a		
		SO ₄	NO ₃	PM ₁₀		SO ₄	NO ₃	PM ₁₀		SO ₄	NO ₃	PM ₁₀	
<i>New IMPROVE Algorithm</i>													
<u>Okefenokee NWA</u>													
No. 5 Power Boiler	PB5	0.578	89.5	5.8	4.7	0.478	74.0	19.7	6.2	0.637	87.4	10.7	2.0
No. 4 Recovery Boiler	RB4	0.078	48.7	39.9	11.4	0.079	77.2	4.7	18.0	0.102	37.3	48.5	14.2
No. 4 Smelt Dissolving Tank	SDT4	0.018	31.3	2.1	66.6	0.018	31.3	2.1	66.6	0.022	23.7	3.4	72.9
<u>Wolf Island NWA</u>													
No. 5 Power Boiler	PB5	0.451	94.4	3.2	2.4	0.433	95.4	0.9	3.7	0.440	96.8	0.5	2.7
No. 4 Recovery Boiler	RB4	0.061	73.6	8.7	17.7	0.055	64.5	22.5	13.1	0.064	47.8	39.1	13.1
No. 4 Smelt Dissolving Tank	SDT4	0.014	31.2	0.0	68.8	0.011	26.1	18.9	55.0	0.015	35.6	2.4	62.0

^a Sulfate (SO₄) particles are formed due to SO₂ and H₂SO₄ emissions; nitrate (NO₃) particles are formed due to NO_x emissions, and other non-hygroscopic PM₁₀ particles are a result of fine filterable PM₁₀, coarse filterable PM₁₀, elemental carbon, and condensable secondary organic aerosol emissions.

4.0 REQUIREMENTS FOR ANALYSIS OF BART CONTROL OPTIONS

The visibility regulations define BART as follows:

Best Available Retrofit Technology (BART) means an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant which is emitted by . . . [a BART-eligible source]. The emission limitation must be established, on a case-by-case basis, taking into consideration the technology available, the costs of compliance, the energy and non-air quality environmental impacts of compliance, any pollution control equipment in use or in existence at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology. [FR, Volume 70, pages 39104-9172].

The BART analysis identifies the best system of continuous emission reduction taking into account:

1. The available retrofit control options,
2. Any pollution control equipment in use at the source (which affects the availability of options and their impacts),
3. The costs of compliance with control options,
4. The remaining useful life of the facility,
5. The energy and non-air quality environmental impacts of control options, and
6. The visibility impacts analysis.

Once it is determined that a source is subject to BART for a particular pollutant, then for each affected emission unit, BART must be established for that pollutant. The BART determination must address air pollution control measures for each emissions unit or pollutant emitting activity subject to review.

For volatile organic compounds (VOC) and PM sources subject to maximum achievable control technology (MACT) standards under 40 CFR 63, the analysis may be streamlined (at the discretion of the State) by including a discussion of the MACT controls and whether any major new technologies have been developed subsequent to the MACT standards. There are many VOC and PM sources that are well-controlled because they are regulated by the MACT standards that EPA developed under CAA Section 112. There are also MACT standards that have invoked stringent control measures for SO₂. Any source subject to MACT standards must meet a level that is as stringent as the best-controlled 12 percent of sources in the industry. The EPA believes that, in many cases, it will be

unlikely that States will identify emission controls more stringent than the MACT standards without identifying control options that would cost many thousands of dollars per ton. Unless there are new technologies subsequent to the MACT standards that would lead to cost-effective increases in the level of control, EPA believes the State may rely on the MACT standards for purposes of BART [FR, Volume 70, pages 39104-39172].

The EPA believes that the same rationale also holds true for emissions standards developed for municipal waste incinerators under the Clean Air Act (CAA) section 111(d), and for many new source review/prevention of significant deterioration (NSR/PSD) determinations and NSR/PSD settlement agreements. However, EPA does not believe that technology determinations from the 1970s or early 1980s, including new source performance standards (NSPS), should be considered to represent best control for existing sources, as best control levels for recent plant retrofits are more stringent than these older levels.

Where the source is relying on these standards to represent a BART level of control, a discussion of whether any new technologies have subsequently become available should be provided.

The five basic steps of a case-by-case BART analysis are:

- STEP 1—Identify All Available Retrofit Control Technologies,
- STEP 2— Eliminate Technically Infeasible Options,
- STEP 3— Evaluate Control Effectiveness of Remaining Control Technologies,
- STEP 4— Evaluate Impacts and Document the Results, and
- STEP 5—Evaluate Visibility Impacts.

Each of these steps is described briefly in the following sections.

STEP 1—Identify All Available Retrofit Control Technologies

Available retrofit control options are those air pollution control technologies with a practical potential for application to the emissions unit and the regulated pollutant under evaluation. In identifying “all” options, the most stringent option and a reasonable set of options for analysis that reflects a comprehensive list of available technologies are identified. It is not necessary to list all permutations

of available control levels that exist for a given technology—the list is complete if it includes the maximum level of control each technology is capable of achieving.

Air pollution control technologies can include a wide variety of available methods, systems, and techniques for control of the affected pollutant. Technologies required as Best Achievable Control Technology (BACT) or lowest achievable emission rate (LAER) are available for BART purposes and must be included as control alternatives. The control alternatives can include not only existing controls for the source category in question but also take into account technology transfer of controls that have been applied to similar source categories and gas streams. Technologies that have not yet been applied to (or permitted for) full-scale operations need not be considered as available; as it is not expected that the source owner should purchase or construct a process or control device that has not already been demonstrated in practice.

Where a NSPS exists for a source category (as is the case for most of the categories affected by BART), the BART analysis should include a level of control equivalent to the NSPS as one of the control options. The NSPS standards are codified in 40 CFR 60.

Potentially applicable retrofit control alternatives can be categorized in three ways.

- Pollution prevention: use of inherently lower-emitting processes/practices, including the use of control techniques (e.g. low-NO_x burners) and work practices that prevent emissions and result in lower “production-specific” emissions (note that it is not our intent to direct States to switch fuel forms; e.g., from coal to gas),
- Use of (and where already in place, improvement in the performance of) add-on controls, such as scrubbers, fabric filters, thermal oxidizers and other devices that control and reduce emissions after they are produced, and
- Combinations of inherently lower-emitting processes and add-on controls.

In the course of the BART review, one or more of the available control options may be eliminated from consideration if demonstrated to be technically infeasible or to have unacceptable energy, cost, or non-air quality environmental impacts on a case-by-case (or site-specific) basis.

The EPA does not consider BART as a requirement to redesign the source when considering available control alternatives. For example, where the source subject to BART is a coal-fired electric generator, EPA does not require the BART analysis to consider building a natural gas-fired electric turbine although the turbine may be inherently less polluting on a per unit basis.

For emission units subject to a BART review, there will often be control measures or devices already in place. For such emission units, it is important to include control options that involve improvements to existing controls and not to limit the control options only to those measures that involve a complete replacement of control devices.

If a BART source has controls already in place that are the most stringent controls available (note that this means all possible improvements to any control devices have been made), it is not necessary to comprehensively complete each following step of the BART analysis. As long as these most stringent controls available are made federally enforceable for the purpose of implementing BART for that source, the remaining analyses may be skipped, including the visibility analysis in Step 5. Likewise, if a source commits to a BART determination that consists of the most stringent controls available, then there is no need to complete the remaining analyses.

STEP 2— Eliminate Technically Infeasible Options

In Step 2, the source evaluates the technical feasibility of the control options identified in Step 1. The source should document a demonstration of technical infeasibility and should explain, based on physical, chemical, or engineering principles, why technical difficulties would preclude the successful use of the control option on the emissions unit under review. The source may then eliminate such technically infeasible control options from further consideration in the BART analysis.

Control technologies are technically feasible if either (1) they have been installed and operated successfully for the type of source under review under similar conditions, or (2) they could be applied to the source under review. Two key concepts are important in determining whether a technology could be applied: “availability” and “applicability.” A technology is considered “available” if the source owner may obtain it through commercial channels, or it is otherwise available within the common sense meaning of the term. An available technology is “applicable” if it can reasonably be installed and operated on the source type under consideration. A technology that is available and applicable is technically feasible.

Where it is concluded that a control option identified in Step 1 is technically infeasible, the source should demonstrate that the option is either commercially unavailable, or that specific circumstances preclude its application to a particular emission unit. Generally, such a demonstration involves an evaluation of the characteristics of the pollutant-bearing gas stream and the capabilities of the technology. Alternatively, a demonstration of technical infeasibility may involve a showing that there are irresolvable technical difficulties with applying the control to the source (e.g., size of the

unit, location of the proposed site, operating problems related to specific circumstances of the source, space constraints, reliability, and adverse side effects on the rest of the facility). Where the resolution of technical difficulties is merely a matter of increased cost, you should consider the technology to be technically feasible. The cost of a control alternative is considered later in the process.

A possible outcome of the BART procedures discussed in these guidelines is the evaluation of multiple control technology alternatives resulting in essentially equivalent emissions. It is not EPA's intent to encourage evaluation of unnecessarily large numbers of control alternatives for every emissions unit. [FR, Volume 70, pages 39104-39172]. Consequently, one should use judgment in deciding how to conduct an alternative, detailed impacts analysis (Step 4, below). For example, if two or more control techniques result in control levels that are essentially identical, considering the uncertainties of emissions factors and other parameters pertinent to estimating performance, only the less costly of these options need to be evaluated. The scope of the BART analysis should be narrowed in this way only if there is a negligible difference in emissions and energy and non-air quality environmental impacts between control alternatives.

STEP 3— Evaluate Control Effectiveness of Remaining Control Technologies

Step 3 involves evaluating the control effectiveness of all the technically feasible control alternatives identified in Step 2 for the pollutant and emissions unit under review. Two key issues in this process include:

1. Ensure that the degree of control is expressed using a metric that ensures an “apples to apples” comparison of emissions performance levels among options, and
2. Giving appropriate treatment and consideration of control techniques that can operate over a wide range of emission performance levels.

This issue is especially important when comparing inherently lower-polluting processes to one another or to add-on controls. In such cases, it is generally most effective to express emissions performance as an average steady state emissions level per unit of product produced or processed. Examples of common metrics are:

- Pounds of SO₂ emissions per million Btu heat input, and
- Pounds of NO_x emissions per ton of black liquor solids (BLS) burned.

Many control techniques, including both add-on controls and inherently lower polluting processes, can perform at a wide range of levels. Scrubbers and high and low efficiency ESPs are two of the many examples of such control techniques that can perform at a wide range of levels. It is not EPA's intent to require analysis of each possible level of efficiency for a control technique as such an analysis would result in a large number of options [FR, Volume 70, pages 39104-39172]. It is important, however, that in analyzing the technology one take into account the most stringent emission control level that the technology is capable of achieving. Recent regulatory decisions and performance data (e.g., manufacturer's data, engineering estimates and the experience of other sources) should be considered when identifying an emissions performance level or levels to evaluate.

In assessing the capability of the control alternative, latitude exists to consider special circumstances pertinent to the specific source under review, or regarding the prior application of the control alternative. However, the basis for choosing the alternate level (or range) of control in the BART analysis should be explained. Situations may occur where it is preferred or appropriate to evaluate other levels of control in addition to the most stringent level for a given device.

For retrofitting existing sources in addressing BART, the source should consider ways to improve the performance of existing control devices, particularly when a control device is not achieving the level of control that other similar sources are achieving in practice with the same device. For example, improving performance for sources with ESPs that are performing below currently achievable levels should be considered.

STEP 4— Evaluate Impacts and Document the Results

After identifying the available and technically feasible control technology options, the following analyses should be conducted when making the BART determination:

1. Costs of compliance,
2. Energy impacts,
3. Non-air quality, environmental impacts, and
4. Remaining useful life.

The source should discuss and, where possible, quantify both beneficial and adverse impacts. In general, the analysis should focus on the direct impact of the control alternative.

Costs of Compliance

To conduct a cost analysis, the following steps are used:

1. Identify the emissions units being controlled,
2. Identify design parameters for emission controls, and
3. Develop cost estimates based upon those design parameters.

It is important to identify clearly the emission units being controlled, that is, to specify a well-defined area or process segment within the plant. In some cases, multiple emissions units can be controlled jointly. Then, specify the control system design parameters. The value selected for the design parameter should ensure that the control option will achieve the level of emission control being evaluated. The source should include in the analysis documentation of the assumptions regarding design parameters. Examples of supporting references include the EPA *OAQPS Control Cost Manual* and background information documents used for NSPS and hazardous pollutant emission standards.

Once the control technology alternatives and achievable emissions performance levels have been identified, then the source must develop estimates of capital and annual costs. The basis for equipment cost estimates also should be documented, either with data supplied by an equipment vendor (i.e., budget estimates or bids) or by a referenced source (such as the *OAQPS Control Cost Manual*, Fifth Edition, February 1996, EPA 453/B-96-001). To maintain and improve consistency, cost estimates should be based on the *OAQPS Control Cost Manual*, where possible. The *Control Cost Manual* addresses most control technologies in sufficient detail for a BART analysis. The cost analysis should also take into account any site-specific design or other conditions identified above that affect the cost of a particular BART technology option.

Cost effectiveness, in general, is a criterion used to assess the potential for achieving an objective in the most economical way. For purposes of air pollutant analysis, "effectiveness" is measured in terms of tons of pollutant emissions removed, and "cost" is measured in terms of annualized control costs. The EPA recommends two types of cost-effectiveness calculations—average cost effectiveness and incremental cost effectiveness.

Average cost effectiveness means the total annualized costs of control divided by annual emissions reductions (the difference between baseline annual emissions and the estimate of emissions after controls). Because costs are calculated in (annualized) dollars per year (\$/yr) and emission rates are

calculated in tons per year (TPY), the result is an average cost-effectiveness number in (annualized) dollars per ton (\$/ton) of pollutant removed.

The baseline emissions rate should represent a realistic depiction of anticipated annual emissions for the source. In general, for the existing sources subject to BART, the anticipated annual emissions will be estimated based upon actual emissions from a baseline period.

When future operating parameters (e.g., limited hours of operation or capacity utilization, type of fuel, raw materials or product mix or type) are projected to differ from past practice, and if this projection has a deciding effect in the BART determination, then these parameters or assumptions are to be translated into enforceable limitations. In the absence of enforceable limitations, baseline emissions are calculated based upon continuation of past practice.

In addition to the average cost effectiveness of a control option, the incremental cost effectiveness should also be calculated. The incremental cost effectiveness calculation compares the costs and performance level of a control option to those of the next most stringent option, as shown in the following formula (with respect to cost per emissions reduction):

Incremental Cost Effectiveness (dollars per incremental ton removed) =

$$\frac{[(\text{Total annualized costs of control option}) - (\text{Total annualized costs of next control option})]}{\div [(\text{Control option annual emissions}) - (\text{Next control option annual emissions})]}$$

Energy Impacts

The energy requirements of the control technology should be analyzed to determine whether the use of that technology results in energy penalties or benefits. If such benefits or penalties exist, they should be quantified to the extent practicable. Because energy penalties or benefits can usually be quantified in terms of additional cost or income to the source, the energy impacts analysis can, in most cases, simply be factored into the cost impacts analysis.

The energy impact analysis should consider only direct energy consumption and not indirect energy impacts. The energy requirements of the control options should be shown in terms of total (and in certain cases, also incremental) energy costs per ton of pollutant removed. These units can then be converted into dollar costs and, where appropriate, factored into the control cost analysis. Generally, do not consider indirect energy impacts (such as energy to produce raw materials for construction of control equipment).

The energy impact analysis may also address concerns over the use of locally scarce fuels. The designation of a scarce fuel may vary from region to region. However, in general, a scarce fuel is one that is in short supply locally and can be better used for alternative purposes, or one that may not be reasonably available to the source either at the present time or in the near future.

Non-Air Quality Environmental Impacts

In the non-air quality related environmental impacts portion of the BART analysis, environmental impacts other than air quality due to emissions of the pollutant in question are addressed. Such environmental impacts include solid or hazardous waste generation and discharges of polluted water from a control device.

Any significant or unusual environmental impacts associated with a control alternative that has the potential to affect the selection or elimination of a control alternative should be identified. Some control technologies may have potentially significant secondary environmental impacts. Scrubber effluent, for example, may affect water quality and land use. Alternatively, water availability may affect the feasibility and costs of wet scrubbers. Other examples of secondary environmental impacts could include hazardous waste discharges, such as spent catalysts or contaminated carbon.

In general, the analysis need only address those control alternatives with any significant or unusual environmental impacts that have the potential to affect the selection of a control alternative, or elimination of a more stringent control alternative. Thus, any important relative environmental impacts (both positive and negative) of alternatives can be compared with each other.

Remaining Useful Life

The requirement to consider the source's "remaining useful life" of the source for BART determinations may be treated as one element of the overall cost analysis. The "remaining useful life" of a source, if it represents a relatively short time period, may affect the annualized costs of retrofit controls. For example, the methods for calculating annualized costs in EPA's *OAQPS Control Cost Manual* require the use of a specified time period for amortization that varies based upon the type of control. If the remaining useful life will clearly not exceed this time period, the remaining useful life has an effect on control costs and on the BART determination process. Where the remaining useful life is less than the time period for amortizing costs, you should use this shorter time period in your cost calculations.

The remaining useful life is the difference between:

1. The date that controls will be put in place (capital and other construction costs incurred before controls are put in place can be rolled into the first year, as suggested in EPA's OAQPS Control Cost Manual).
2. The date the facility permanently stops operations. Where this affects the BART determination, this date should be assured by a federally- or State-enforceable restriction preventing further operation.

The EPA recognizes that there may be situations where a source operator intends to shut down a source by a given date, but wishes to retain the flexibility to continue operating beyond that date in the event, for example, that market conditions change. Where this is the case, the BART analysis may account for this, but it must maintain consistency with the statutory requirement to install BART within 5 years. Where the source chooses not to accept a federally enforceable condition requiring the source to shut down by a given date, it is necessary to determine whether a reduced time period for the remaining useful life changes the level of controls that would have been required as BART.

STEP 5—Evaluate Visibility Impacts

The following is an approach EPA suggests to determine visibility impacts (the degree of visibility improvement for each source subject to BART) for the BART determination. Once a source has been determined to be subject to BART, a visibility improvement determination for the source must be conducted as part of the BART determination.

The permitting agency has flexibility in making this determination; i.e., in setting absolute thresholds, target levels of improvement, or *de minimis* levels since the deciview improvement must be weighed among the five factors; and the agency is free to determine the weight and significance to be assigned to each factor. For example, a 0.3-dv improvement may merit a stronger weighting in one case versus another, so one “bright line” may not be appropriate.

CALPUFF or another appropriate dispersion model must be used to determine the visibility improvement expected at a Class I area from the potential BART control technology applied to the source. Modeling should be conducted for SO₂, NO_x, and direct PM emissions (PM_{2.5} and/or PM₁₀). There are several steps for determining the visibility impacts from an individual source using a dispersion model:

- Develop a modeling protocol.
- For each source, run the model, at pre-control and post-control emission rates according to the accepted methodology in the protocol. Use the 24-hour average actual emission rate from the highest emitting day of the

meteorological period modeled (for the pre-control scenario). Calculate the model results for each receptor as the change in dv compared against natural visibility conditions. Post-control emission rates are calculated as a percentage of pre-control emission rates. For example, if the 24-hr pre-control emission rate is 100 lb/hr of SO_2 , then the post control rate is 5 lb/hr if the control efficiency being evaluated is 95 percent.

- Make the net visibility improvement determination. Assess the visibility improvement based on the modeled change in visibility impacts for the pre-control and post-control emission scenarios. Flexibility exists to assess visibility improvements due to BART controls by one or more methods. Factors such as the frequency, magnitude, and duration of components of impairment may be considered. Suggestions for making the determination are:
 - Use of a comparison threshold, as is done for determining if BART-eligible sources should be subject to a BART determination. Comparison thresholds can be used in a number of ways in evaluating visibility improvement (e.g. the number of days or hours that the threshold was exceeded, a single threshold for determining whether a change in impacts is significant, or a threshold representing an x percent change in improvement).
 - Compare the 98th percent days for the pre- and post-control runs.

Note that each of the modeling options may be supplemented with source apportionment data or source apportionment modeling.

Selecting the "Best" Alternative

From the alternatives evaluated in Step 3, EPA recommends developing a chart (or charts) displaying for each of the alternatives the following:

1. Expected emission rate (TPY, lb/hr);
2. Emissions performance level (e.g., percent pollutant removed, emissions per unit product, lb/MMBtu, ppm);
3. Expected emissions reductions (TPY);
4. Costs of compliance—total annualized costs (\$), cost effectiveness (\$/ton), and incremental cost effectiveness (\$/ton), and/or any other cost-effectiveness measures (such as \$/dv);
5. Energy impacts;
6. Non-air quality environmental impacts; and
7. Modeled visibility impacts.

The source has the discretion to determine the order in which control options are evaluated for BART. The source should provide a justification for adopting the technology selected as the "best" level of control, including an explanation of the CAA factors that led to the choice of one option over other control levels.

In the case where the source is conducting a BART determination for two regulated pollutants on the same source, if the result is two different BART technologies that do not work well together, a different technology or combination of technologies can be substituted.

Even if the control technology is cost effective, there may be cases where the installation of controls would affect the viability of continued plant operations. There may be unusual circumstances that justify taking into consideration the conditions of the plant and the economic effects of requiring the use of a given control technology. These effects would include product prices, the market share, and profitability of the source. Where there are such unusual circumstances that are judged to affect plant operations, the source may take into consideration the conditions of the plant and the economic effects of requiring the use of a control technology. Where these effects are judged to have a severe impact on plant operations, this may be considered in the selection process, but it may be preferred to provide an economic analysis that demonstrates, in sufficient detail for public review, the specific economic effects, parameters, and reasoning. Any analysis may also consider whether other competing plants in the same industry have been required to install BART controls if this information is available.

5.0 BART ANALYSIS

5.1 BART FOR SO₂ EMISSIONS FROM THE NO. 5 POWER BOILER

As shown in Table 3-5, the 8th highest visibility impact due to the No. 5 PB alone is 0.637 dv, which is about 88 percent of the total facility impact. The contributions from individual visibility impairing pollutants are also shown in Table 3-5. Based on these results, 75 to 90 percent of the total visibility impacts from No. 5 PB are due to sulfate (SO₄) particles. Since sulfate particles are formed due to SO₂ and SAM emissions, it can be clearly seen that control of SO₂ emissions from the No. 5 PB provides the most effective strategy for reduction of visibility impacts due to the emissions unit and due to the facility.

5.1.1 Available Retrofit Control Technologies

As part of the BART analysis, a review was performed of previous SO₂ BACT determinations for power boilers at paper mills listed in the RACT/BACT/LAER Clearinghouse (RBLC) on EPA's webpage. A summary of BACT determinations for industrial boilers from this review is presented in Table 5-1. Determinations issued during the last 10 years are included in the table. From the review of previous BACT determinations, it is evident that SO₂ BACT determinations for large industrial boilers and boilers firing fuel oil and biomass have largely been based on use of low-sulfur fuels. Depending upon the boiler configuration, use of a wet scrubber flue gas desulfurization (FGD) system could also be an option for consideration. BACT determinations for fuel oil-fired industrial boilers are as low as 0.05 percent sulfur No. 2 fuel oil.

5.1.2 Control Technology Feasibility

The technically feasible SO₂ controls for the No. 5 PB are shown in Table 5-2. A technology that is available and applicable is technically feasible. Given that approximately 86 percent of the SO₂ emission rate from the No. 5 PB is associated with fuel oil firing with the remaining 14 percent from combustion of bark, the focus for SO₂ reduction for the BART analysis is the firing of liquid fuels with lower sulfur content than the 2.45 percent used in the BART modeling analysis. As shown, there are three feasible approaches for SO₂ abatement: low sulfur No. 6 fuel oil, No. 2 fuel oil, and wet or dry scrubbers. Each abatement method is described below.

Low Sulfur No. 2 Fuel Oil

Emissions of SO₂ are directly proportional to fuel oil sulfur content. BACT determinations involving the use of No. 2 fuel oil define low sulfur fuel as having a sulfur content as low as 0.05 percent. The

use of ultra-low sulfur No. 2 fuel oil results in SO₂ emissions between 0.05 and 0.06 lb/MMBtu. Since the No. 5 PB combusts No. 6 fuel oil, modifications to the existing boiler would be required to accommodate No. 2 fuel oil firing. This would require a new fuel oil storage tank, piping (fuel transport) systems and new burners. The existing process control systems would likely require upgrading to support the use of No. 2 fuel oil in the No. 5 PB. However, this is considered a technically feasible means of reducing SO₂ emissions and therefore is being evaluated as a potential BART determination for this boiler.

Reduced Sulfur No. 6 Fuel Oil

Reducing the sulfur content of the No. 6 fuel oil combusted in the boiler will reduce SO₂ emissions proportional to the magnitude of the sulfur reduction. Based on information from the Energy Information Administration (EIA), low sulfur No. 6 fuel oil is defined as having sulfur content of 1 percent or less. Although there is a cost premium for low sulfur No. 6 fuel oil, since the boiler currently combusts No. 6 fuel oil with a maximum sulfur content of 2.5 percent, it is considered a technically feasible control technology.

Post-Combustion Controls

Post-combustion SO₂ controls are comprised primarily of FGD systems or scrubbers. In a wet scrubber, the SO₂-containing flue gas passes through a vessel or tower where it contacts an alkaline slurry, usually in a counter-flow arrangement. The intensive contact between the gas and the liquid droplets ensures rapid and effective reactions that can yield greater than 90 percent SO₂ capture. Conversely, a configuration where the reaction between SO₂ and the sorbent takes place in a dedicated reactor is referred to as a "dry scrubber". Several configurations are possible based on the temperature window desired. This can occur at furnace (~2,200°F), economizer (800-900°F), or duct temperatures (~250°F). Dry processes are more compatible with low to medium sulfur coals due to limitations in reaction rates and sorbent handling (MANE-VU, March 2005).

From review of the BACT/RACT/LAER clearinghouse, post combustion controls are typically applied to coal-fired boilers. The application of scrubbing systems to primarily fuel oil and/or carbonaceous-fueled boilers is considered cost prohibitive. The No. 5 PB primarily combusts carbonaceous fuel. For example, over the last 3 years, the boiler has averaged 86 percent of annual heat input from carbonaceous fuel, versus 14 percent from fuel oil.

The burning of bark and other carbonaceous fuels in the No. 5 PB already results in inherent SO₂ removal from the exhaust gas stream. This is due to the alkaline nature of the ash from carbonaceous

fuels, which acts to absorb SO₂ from the flue gas, and has been well documented by NCASI in past studies. This fact further reduces the feasibility of add-on scrubbers as a potential BART technology. Since BART is not intended to be more stringent than BACT, SO₂ scrubbing systems for the No. 5 PB are not given further consideration.

5.1.3 Control Effectiveness of Options

Each of the above available control techniques is listed in Table 5-2 with its associated control efficiency estimate and ranked based on control efficiency.

5.1.4 Impacts of Control Technology Options

Cost of Compliance

To achieve SO₂ emissions below current levels in No. 5 PB would require use of lower sulfur fuel oil. Two options were identified: low sulfur No. 2 fuel oil or reduced sulfur No. 6 fuel oil.

Based on information provided by SSCE, the current fuel (2.5 percent sulfur) cost is \$39.39/bbl or \$0.94/gal. The cost of compliance to use reduced sulfur No. 6 fuel oil is represented by the additional cost of the fuel: \$1.01/gal for 1.0 percent sulfur No. 6 fuel oil versus \$0.94/gal for the current 2.5 percent sulfur fuel oil used in the boiler.

Lower sulfur No. 6 fuel oil is quoted to have the following differential cost: 2.0 percent maximum - \$1.17/bbl or \$.03/gal; 1.5 percent maximum - \$2.16/bbl or \$0.05/gal; and 1.0 percent maximum - \$2.91/bbl or \$0.07/gal (see Appendix B, letter from Colonial Oil).

To convert to lower sulfur No. 6 fuel oil, the evaluation must include the addition of a new fuel oil storage tank, pumps, piping, etc. To evaluate the cost-effectiveness of converting to lower sulfur No. 6 fuel oil, capital costs of \$1.2 million were estimated for the new fuel oil storage tank (based on SSCE data, which includes foundations and installation). Purchased equipment costs for new piping, pumps, etc., were based on an engineering estimate. The total capital investment is estimated at \$1,500,000, as shown in Table 5-3.

Annual operating costs were developed considering the annualized capital recovery cost and other direct and indirect operating costs, which are based on standard cost factors and engineering estimates. Capital recovery costs are based on an interest rate of 7 percent and a 20-year equipment (remaining useful) life. Annual operating costs, including the cost differential for the lower sulfur fuel oil, are estimated to be \$217,000 per year. Total annual costs are estimated at \$418,600 per year.

The total cost effectiveness is therefore \$1,125 per ton of SO₂ removed. The cost analysis is presented in Table 5-3.

To convert to lower sulfur No. 2 fuel oil, the evaluation must include the addition of a new fuel oil storage tank, pumps, piping, etc, replacement of the fuel oil burners to accommodate the No. 2 fuel oil, as well as accounting for the lower heating value of No. 2 fuel oil. To evaluate the cost-effectiveness of converting to No. 2 fuel oil, capital costs of \$1.5 million were again assumed for the new fuel oil storage tank, pumps, piping, etc. Information is currently being obtained to determine the cost of the new burners (see Appendix B, letter from Babcock & Wilcox dated January 19, 2007). Once this information is obtained, this BART evaluation will be updated to reflect the retrofit cost estimate.

Annual operating costs will then be developed considering the annualized capital recovery cost and other direct and indirect operating costs, which will be based on standard cost factors and engineering estimates. Capital recovery costs will be based on an interest rate of 7 percent and a 20-year equipment life. The cost differential for the lower sulfur fuel oil, based on burning 3.1 million gallons per year of No. 6 fuel oil, which would require 3.4 million gallons per year of No. 2 fuel oil, is estimated to be \$3.026 million per year, based on a cost differential of \$0.87 per gallon. The total annual costs will be estimated upon receipt of the above-referenced information from Babcock & Wilcox.

Energy Impacts

Use of low or reduced sulfur fuel oils cause energy impacts associated with operating the No. 5 PB, based on the lower heating value of incrementally lower sulfur content fuel oils. The heating value of 2.5 percent sulfur No. 6 fuel oil is approximately 150,000 Btu/lb, while that of low sulfur No. 2 fuel oil (0.05 percent sulfur) is approximately 135,000 Btu/gal, a 10 percent differential. This would translate into 10 percent additional gallons of No. 2 fuel oil fuel oil to provide the same energy input as No. 6 fuel oil.

Non-Air Quality Environmental Impacts

Use of low or reduced sulfur fuel oils do not result in any non-air quality environmental impacts.

Remaining Useful Life

SSCE has no plan to shutdown the Fernandina Mill in the near future, or the No. 5 PB. A useful life of 20 years was therefore used to develop the capital recovery cost in estimating the costs of compliance.

5.1.5 Visibility Impacts

As shown in Table 2-3 of the BART modeling protocol, the baseline SO₂ emissions used in the determination of the visibility impact due to the No. 5 PB is 1,026.4 lb/hr based on 2.5 percent sulfur fuel oil. Of this total, 2.3 lb/hr is from bark combustion. Use of reduced sulfur No. 6 fuel oil (1.0 percent sulfur) would result in hourly SO₂ emissions of 420.3 lb/hr (2.3 lb/hr from bark combustion), which represents an approximate reduction of 60 percent over baseline SO₂ emissions. Use of low sulfur No. 2 fuel oil (0.05 percent sulfur) will result in hourly SO₂ emissions from No. 5 PB of approximately 23 lb/hr, which represents an approximate 98 percent reduction from baseline SO₂ emissions.

The maximum visibility impacts due to No. 5 PB for these two SO₂ emission scenarios predicted at the Okefenokee and Wolf Island NWAs are summarized in Table 5-5. Results are presented using the 1999 and new IMPROVE algorithms. As shown in Table 5-5, the highest, 8th highest visibility impact due to the No. 5 PB using the "controlled" level of 420.3 lb/hr of SO₂ (low sulfur No. 6 fuel oil) is predicted to be 0.32 dv with the new IMPROVE algorithm, which is a reduction of about 0.32 dv from the baseline impact of 0.64 dv. Based on this reduction in the visibility impact and the annualized cost for using lower sulfur No. 6 fuel oil of \$418,600 determined in Section 5.1.4, the cost effectiveness of converting the fuel burned in the No. 5 PB to low sulfur No. 6 fuel oil can be estimated as \$1.3 million for every 1 dv reduction in visibility impact.

Using the "controlled" level of 23.2 lb/hr of SO₂ (low sulfur No. 2 fuel oil), the highest, 8th highest visibility impact due to the No. 5 PB is predicted to be 0.13 dv, which is a reduction of 0.51 dv from the baseline impact. Based on this reduction in the visibility impact and the total annual cost (to be determined), the cost effectiveness of converting the fuel burned in the No. 5 PB to low sulfur No. 2 fuel oil is estimated as \$/dv (to be determined).

5.1.6 Selection of BART

Based on the high cost of converting the No. 5 PB to combust low sulfur No. 6 or No. 2 fuel oil, normalized by the reduction in the change in haze index, this control technology is considered to be

economically infeasible. Therefore, SSCE is proposing that BART for the No. 5 PB at the Fernandina Mill is use of the current 2.5 percent sulfur (maximum) No. 6 fuel oil.

5.2 BART For NO_x Emissions From the No. 5 Power Boiler

The No. 5 PB emits modest quantities of NO_x emissions from the combustion of fuel oil and bark. As shown in Table 3-5, only about 6 to 20 percent of the maximum visibility impact attributable to the No. 5 PB is due to the nitrate particles, which are formed by NO_x emissions. Therefore, controlling NO_x emissions will not provide a meaningful reduction in the change in light extinction due to the unit.

It should also be noted that the BACT/RACT/LAER Clearinghouse was reviewed for similar boilers. In the majority of evaluations, good combustion controls were determined to represent BACT. In addition, literature suggests that both SNCR and SCR technologies are problematic when applied to industrial boilers with frequent swing loads, as occurs with kraft mill power boilers (NCASI, 2006). The frequent load swings affect the NO_x conversion efficiency, and can also cause downstream issues related to ammonia slip. These problems are compounded on existing boilers where the SNCR or SCR system must be retrofitted, as opposed to a new boiler where the system can be designed into the boiler. As a result, SSCE proposes that BART for NO_x emissions from the No. 5 PB is the existing combustion process and good combustion practice.

5.3 BART for PM₁₀ Emissions from the No. 5 Power Boiler

The No. 5 PB employs PM controls consisting of a multiple cyclone system followed by an ESP. This results in low emissions of PM₁₀. For the baseline visibility modeling, a baseline PM₁₀ emission rate of 22.5 lb/hr was used. This was the value determined to comply with 40 CFR 63, Subpart DDDDD (Boiler MACT). As a result of this low emission rate, only 2 to 5 percent of the total maximum predicted visibility impact attributable to the No. 5 PB is due to the PM emissions. Therefore, no amount of additional control of the PM₁₀ emissions can provide a meaningful reduction in the change in light extinction due to the unit. In addition, in accordance with regulatory guidance associated with the conduct of BART evaluations, a source that is subject to and is in compliance with a MACT standard (Subpart DDDDD for this unit) is assumed to meet BART for the affected pollutant. As such, BART for PM₁₀ from the No. 5 PB will be met by the existing controls on the unit.

5.4 BART for SO₂ Emissions From the No. 4 Recovery Boiler

The No. 4 RB has baseline SO₂ emissions of 50.2 lb/hr. This represents only approximately 4.7 percent of the total SO₂ emissions used in the BART visibility modeling. According to NCASI (2006) "there is no experience in the pulp and paper industry with the use of add-on flue gas desulfurization technologies on kraft recovery furnaces." Additionally, RBs control TRS emissions to the extent possible in order to meet stringent emission limits for TRS. The control of TRS emissions leads directly to the control of SO₂ from the furnace, as these emissions are related; hence, the relatively low SO₂ emissions.

As a result of the relatively low SO₂ emission rate, as well as low NO_x emissions, the maximum visibility impact attributable to the No. 4 RB, 0.1 dv, is only about 15 percent of that due to the No. 5 PB. Of the maximum visibility impact due to the No. 4 RB, only about 40 percent is due to the SO₂ emissions from the No. 4 RB. Based on the literature associated with controlling SO₂ emissions from recovery boilers and the fact that No. 5 PB contributes most to the visibility impact relative to SO₂, it is concluded that additional control of SO₂ emissions will not provide a meaningful reduction in the change in light extinction due to the unit. Therefore, the proposed BART for SO₂ for the No. 4 RB is the existing control technology.

5.5 BART for NO_x Emissions from the No. 4 Recovery Boiler

The No. 4 RB has baseline NO_x emissions of 103.2 lb/hr. This represents approximately 41 percent of the total NO_x emissions used in the BART visibility modeling. NCASI (2006) evaluated several NO_x control technologies potentially applicable to recovery boilers, including:

- Low NO_x Burners,
- Staged Combustion,
- Flue Gas Recirculation,
- Oxygen Trim + Water Injection,
- Selective Non-Catalytic Reduction (SNCR), and
- Selective Catalytic Reduction (SCR).

NCASI concluded that liquor nitrogen content is the dominant factor in the resultant NO_x emissions from a recovery boiler. In addition, many of these prospective control technologies are not considered technically feasible for recovery boilers.

The maximum visibility impact attributable to the No. 4 RB, 0.1 dv, is only about 15 percent of that due to the No. 5 PB. Of the maximum visibility impact due to the No. 4 RB, only about 50 percent is due to the NO_x emissions from the No. 4 RB. Based on the literature associated with controlling NO_x emissions from recovery boilers and the fact that No. 5 PB contributes most to the visibility impact relative to the facility, it is concluded that additional control of NO_x emissions will not provide a meaningful reduction in the change in light extinction due to the unit. Therefore, proposed BART for NO_x for the No. 4 RB is the existing control technology.

5.6 BART for PM₁₀ Emissions from the No. 4 Recovery Boiler

The No. 4 RB employs an ESP to control emissions of PM. This technology represents the best control technology that can be employed on recovery boilers. The baseline PM₁₀ emissions for this unit are 39.5 lb/hr. The unit is subject to and must comply with the PM emissions limit contained in 40 CFR 63, Subpart MM, which is designed to limit emissions of metals HAPs. As a result of this low emission rate, only about 2.7 percent of the total maximum visibility impact is attributable to the PM emissions from the No. 4 RB. Therefore, no amount of additional control of the PM₁₀ emissions can provide a meaningful reduction in the change in light extinction due to the unit. Also, the Subpart MM MACT standard for PM is presumptively considered to be BART. As such, BART for PM₁₀ from the No. 4 RB is proposed as the existing controls on the unit.

5.7 BART for the No. 4 Smelt Dissolving Tank

The No. 4 SDT is a BART eligible unit at the Fernandina Beach Mill, but emits relatively low emissions of precursor pollutants. The unit employs a venturi scrubber for control of PM emissions. This technology is recognized as the best control technology for controlling PM emissions. Compared to emissions from the other two BART eligible units at the Fernandina Beach Mill, the No. 4 SDT is responsible for:

- 0.09 percent of the SO₂ emissions;
- 0.96 percent of the NO_x emissions; and
- 17.6 percent of total PM₁₀ emissions.

In addition, the unit employs a venturi scrubber to control PM emissions in accordance with 40 CFR 63, Subpart MM.

Given the relatively low emissions from the unit, the even lower contribution of the unit to the total predicted visibility impact, and the fact that the NCASI study (2006) concludes that except for the

type of scrubber already installed on the unit, there are no technically feasible PM control measures available, it is concluded that no amount of additional control of the PM₁₀ emissions can provide a meaningful reduction in the change in light extinction due to the unit. As such, BART for PM₁₀ from the No. 4 SDT is proposed as the existing controls on the unit.

5.8 Application for BART Determination

The FDEP's Application for Air Permit—Long Form is included in Appendix C to support this BART determination.

TABLE 5-1
SUMMARY OF BACT DETERMINATIONS FOR SULFUR DIOXIDE EMISSIONS FROM LARGE INDUSTRIAL BOILERS

Company Name	State	Permit No./RBL ID	Permit Issue Date	Throughput	Emission Limit	Control Equipment
COLUMBIA ENERGY CENTER	SC	SC-0091	7/3/2003	550 MMBTU/HR	0.06 lb/MMBtu	LOW SULFUR FUEL OIL (No. 2)
INTERNATIONAL PAPER - MANSFIELD MILL	LA	LA-0122	8/14/2001	645 MMBTU/HR	0.7 %S	REDUCED SULFUR FUEL OIL
GRAYS FERRY COGEN PARTNERSHIP	PA	PA-0187	3/21/2001	1,119 MMBTU/HR	0.2 LB/MMBTU	GOOD COMBUSTION PRACTICE, LOW SULFUR FUEL
RAYONIER SPECIALTY PULP PRODUCTS	GA	GA-0084	6/16/1997	338 MMBTU/HR	0.05 %S	LOW SULFUR FUEL OIL
INTERSTATE PAPER, LLC	GA	GA-0097	11/21/2001	300 MMBTU/HR	0.14 LB/MMBTU	CAUSTIC WET SCRUBBER
WEYERHAEUSER CO	FL	PSD-FL-278/FL-0237	2/6/2001	NA NA	0.15 LB/MMBTU	LOW SULFUR FUEL W/ OR W/OUT EMISSION CONTROL
CHAMPION INTERNATIONAL	AL	AL-0112	12/9/1997	710 MMBTU/HR	0.045 LB/MMBTU	WET SCRUBBER WITH SODA ASH
REGENTS OF THE UNIVERSITY OF MICHIGAN	MI	MI-0248	10/6/1998	376 MMBTU/HR	0.3 LB/MMBTU	LOW SULFUR FUEL OIL

Reference: RACT/BACT/LAER Clearinghouse on EPA's Webpage, 2006.

**TABLE 5-2
SO₂ CONTROL TECHNOLOGY FEASIBILITY ANALYSIS FOR THE NO. 5 POWER BOILER
SMURFIT-STONE CONTAINER ENTERPRISES, FERNANDINA MILL**

SO₂ Abatement Method	Estimated Efficiency	Technically Feasible and Demonstrated? (Y/N)	Rank Based on Control Efficiency
Low-sulfur (0.05%) No. 2 Fuel Oil	98%	Y	1
Reduced sulfur (1%) No. 6 Fuel Oil	60%	Y	4
Wet Scrubbers	>90%	Y	2
Dry Scrubbers	60-95%	N	3

**TABLE 5-3
COST EFFECTIVENESS OF NO. 6 FUEL OIL (1.0 PERCENT SULFUR CONTENT WITH NEW TANK)
FOR NO. 5 POWER BOILER, SSCE FERNANDINA MILL**

Cost Items	Cost Factors	Cost (\$)
DIRECT CAPITAL COSTS (DCC):		
Purchased Equipment Cost- Storage tank ^a	See Footnote "b"	1,200,000
Purchased Equipment Cost- pumps, piping, etc.	See Footnote "b"	300,000
INDIRECT CAPITAL COSTS (ICC):^f		
Indirect Installation Costs		
(a) Engineering		Included Above
(b) Construction & Field Expenses		Included Above
(c) Construction Contractor Fee		Included Above
(d) Contingencies		Included Above
Other Indirect Costs		
(a) Startup & Testing		Included Above
(b) Working Capital		Included Above
Total ICC:		<u>Included Above</u>
TOTAL CAPITAL INVESTMENT (TCI):	DCC + ICC	1,500,000
DIRECT OPERATING COSTS (DOC):^d		
(1) Operating Labor		
Operator		0
Supervisor		0
(2) Maintenance		
Labor		0
Materials		0
(3) Utilities		
(4) Fuels		
No. 6 Fuel cost differential (1.0% vs. 2.5% S)	See Footnote "e"	<u>217,000</u>
Total DOC:		217,000
INDIRECT OPERATING COSTS (IOC):^d		
Overhead	60% of oper. labor & maintenance	0
Property Taxes	1% of total capital investment	15,000
Insurance	1% of total capital investment	15,000
Administration	2% of total capital investment	<u>30,000</u>
Total IOC:		60,000
CAPITAL RECOVERY COSTS (CRC):	CRF of 0.0944 times TCI (20 yrs @ 7%)	141,600
ANNUALIZED COSTS (AC):	DOC + IOC + CRC	418,600
BASELINE SO₂ EMISSIONS (TPY) :	3.1 MMgal/yr No. 6 Fuel Oil with a Sulfur Content of 2.5% by weight	620
MAXIMUM SO₂ EMISSIONS WITH NO. 2 FUEL OIL (TPY):	3.1MMgal/yr No. 6 Fuel Oil with a Sulfur Content of 1.0% by weight	248
REDUCTION IN SO₂ EMISSIONS (TPY):		372
COST EFFECTIVENESS:	\$ per ton of SO ₂ Removed	1,125

Footnotes:

^a All direct installation costs are included in basic price.

^b Based on SSCE data on actual installed cost of \$1,200,000 for a storage tank, and estimated cost of piping, pumps, etc.

^c All indirect capital costs are included in basic price.

^d Factors and cost estimates reflect OAQPS Cost Manual, Section 3.

^e Increase in fuel cost associated with buying No. 6 fuel oil with a sulfur content of 1.0% (\$1.01/gal) instead of No. 6 fuel oil with a sulfur content 2.5% (\$0.94/gal) based on combusting 3.1 million gallons per year of fuel oil.

**TABLE 5-4
COST EFFECTIVENESS OF NO. 2 FUEL OIL (0.05% SULFUR CONTENT WITH NEW TANK AND BURNERS) FOR POWER
BOILER NO. 5, SSCE FERNANDINA BEACH**

Cost Items	Cost Factors	Cost (\$)
DIRECT CAPITAL COSTS (DCC):		
Purchased Equipment Cost- Storage tank ^a	See Footnote "b"	1,200,000
Purchased Equipment Cost- pumps, piping, etc.	See Footnote "b"	300,000
Purchased Equipment Cost- pumps, piping, etc.	To Be Determined	To Be Determined
INDIRECT CAPITAL COSTS (ICC)^c		
Indirect Installation Costs		
(a) Engineering		Included Above
(b) Construction & Field Expenses		Included Above
(c) Construction Contractor Fee		Included Above
(d) Contingencies		Included Above
Other Indirect Costs		
(a) Startup & Testing		Included Above
(b) Working Capital		<u>Included Above</u>
Total ICC:		Included Above
TOTAL CAPITAL INVESTMENT (TCI):	DCC + ICC	1,500,000
DIRECT OPERATING COSTS (DOC)^d		
(1) Operating Labor		
Operator		0
Supervisor		0
(2) Maintenance		
Labor		0
Materials		0
(3) Utilities		
(4) Fuels		
Differential Fuel Cost (2.5% vs. 0.05% S Content)	See Footnote "e"- 3.4 MMgal/yr	<u>2,697,000</u>
Total DOC:		2,697,000
INDIRECT OPERATING COSTS (IOC)^d		
Overhead	60% of oper. labor & maintenance	0
Property Taxes	1% of total capital investment	15,000
Insurance	1% of total capital investment	15,000
Administration	2% of total capital investment	<u>30,000</u>
Total IOC:		60,000
CAPITAL RECOVERY COSTS (CRC):	CRF of 0.0944 times TCI (20 yrs @ 7%)	141,600
ANNUALIZED COSTS (AC):	DOC + IOC + CRF	2,898,600
BASELINE SO₂ EMISSIONS (TPY) :	3.1 million gal/yr No. 6 Fuel Oil with a Sulfur Content of 2.5% by weight	620
MAXIMUM SO₂ EMISSIONS WITH NO. 2 FUEL OIL (TPY):	3.4 million gal/yr No. 2 Fuel Oil with a Sulfur Content of 0.05% by weight	12.2
REDUCTION IN SO₂ EMISSIONS (TPY):		607.8
COST EFFECTIVENESS:	\$ per ton of SO₂ Removed	To Be Determined

Footnotes:

^a All direct installation costs are included in basic price.

^b Based on SSCE data on actual installed cost of \$1,200,000 for a storage tank, and estimated cost of piping, pumps, etc.

^c All indirect capital costs are included in basic price.

^d Factors and cost estimates reflect OAQPS Cost Manual, Section 3.

^e Increase in fuel cost associated with buying No. 2 fuel oil with a sulfur content of 0.05% (\$1.81/gal) instead of No. 6 fuel oil with a sulfur content 2.5% (\$0.94/gal) based on combusting 3.1 MMgal/yr No. 6 oil, equivalent to 3.4 MMgal/yr No. 2 oil.

TABLE 5-5
 BART DETERMINATION ANALYSIS FOR NO. 5 POWER BOILER
 1999 AND NEW IMPROVE ALGORITHMS
 SMURFIT-STONE CONTAINER ENTERPRISES, INC., FERNANDINA MILL

Emission Unit	Unit ID	8 th Highest Impact and Contribution by Species											
		2001				2002				2003			
		Impact (dv)	Contribution (%) ^a			Impact (dv)	Contribution (%) ^a			Impact (dv)	Contribution (%) ^a		
	SO ₄	NO ₃	PM ₁₀	SO ₄	NO ₃	PM ₁₀	SO ₄	NO ₃	PM ₁₀	SO ₄	NO ₃	PM ₁₀	
<i>1999 IMPROVE Algorithm</i>													
<u>Okefenokee NWA</u>													
No. 6 Fuel Oil- 1% Sulfur Content Fuel Oil	PB5	0.356	95.5	1.6	2.9	0.309	92.4	1.6	6.0	0.407	76.1	20.4	3.4
No. 2 Fuel Oil- 0.05% Sulfur Content Fuel Oil	PB5	0.115	27.5	53.6	18.9	0.115	36.4	39.6	24.1	0.163	22.0	58.9	19.1
<u>Wolf Island NWA</u>													
No. 6 Fuel Oil- 1% Sulfur Content Fuel Oil	PB5	0.286	88.6	6.5	4.9	0.288	88.8	1.1	10.1	0.324	73.8	16.1	10.2
No. 2 Fuel Oil- 0.05% Sulfur Content Fuel Oil	PB5	0.089	39.4	39.0	21.6	0.089	30.3	46.2	23.5	0.101	33.9	43.2	22.9
<i>New IMPROVE Algorithm</i>													
<u>Okefenokee NWA</u>													
No. 6 Fuel Oil- 1% Sulfur Content Fuel Oil	PB5	0.279	95.1	1.7	3.2	0.242	91.6	1.8	6.6	0.319	74.4	21.6	4.0
No. 2 Fuel Oil- 0.05% Sulfur Content Fuel Oil	PB5	0.096	25.6	54.4	20.0	0.093	32.7	24.6	42.7	0.134	20.3	59.2	20.6
<u>Wolf Island NWA</u>													
No. 6 Fuel Oil- 1% Sulfur Content Fuel Oil	PB5	0.208	87.8	6.9	5.3	0.205	87.3	1.2	11.5	0.233	71.6	17.0	11.4
No. 2 Fuel Oil- 0.05% Sulfur Content Fuel Oil	PB5	0.066	42.6	34.4	23.0	0.067	28.3	46.7	25.0	0.076	31.2	43.0	25.9

^a Sulfate (SO₄) particles are formed due to SO₂ and H₂SO₄ emissions; nitrate (NO₃) particles are formed due to NO_x emissions, and other non-hygroscopic PM₁₀ particles are a result of fine filterable PM₁₀, coarse filterable PM₁₀, elemental carbon, and condensable secondary organic aerosol emissions.

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APPENDIX A

REVISED
**AIR MODELING PROTOCOL
TO EVALUATE BART OPTIONS
SMURFIT-STONE CONTAINER ENTERPRISES, INC.
FERNANDINA BEACH MILL**

REVISED
AIR MODELING PROTOCOL
TO EVALUATE BART OPTIONS
SMURFIT-STONE CONTAINER ENTERPRISES, INC.
FERNANDINA MILL

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1.0 INTRODUCTION

1.1 Objectives

Under the regional haze regulations contained in Title 40, Part 51 of the Code of Federal Regulations (40 CFR 51), Subpart P – Protection of Visibility, the U.S. Environmental Protection Agency (EPA) has issued final rules and guidelines dated July 6, 2005, for Best Available Retrofit Technology (BART) determinations [Federal Register (FR), Volume 70, pages 39104-39172]. BART applies to certain large stationary sources known as BART-eligible sources. Sources are BART-eligible if they meet the following three criteria:

- Contains emissions units that are one of the 26 listed source categories in the guidance;
- Contains emissions units that were put in place between August 7, 1962 and August 7, 1977; and
- Potential emissions from these emissions units of at least 250 tons per year (TPY) of a visibility-impairing pollutant [sulfur dioxide (SO₂), nitrogen oxides (NO_x), and direct particulate matter of equal to or less than 10 microns (PM₁₀)].

Smurfit-Stone Container Enterprises, Inc.'s (SSCE) Fernandina Mill facility has been identified as a BART-eligible source with multiple BART-eligible emissions units.

The Florida Department of Environmental Protection (FDEP) has proposed to adopt EPA's visibility protection rules and guidelines contained in 40 CFR 51, Subpart P. Final adoption of these rules is expected by the end of this year.

The basic tenet of the regional haze program is the achievement of natural visibility conditions in Prevention of Significant Deterioration (PSD) Class I areas by the year 2064. Florida has four PSD Class I areas while Georgia has two PSD Class I areas that can be affected by Florida sources [i.e., located in Florida or within 300 kilometers (km) of Florida].

BART is required for any BART-eligible source that FDEP determines emits any air pollutant that may "reasonably be anticipated to cause or contribute to any impairment of visibility in any Class I area." The BART guidelines establish a threshold value of 0.5 deciview (dv) for any single source for determining whether the source contributes to visibility impairment.

Throughout this protocol the terms “source” and “facility” have the same meanings. The term “BART-eligible emissions unit” is defined as any single emissions unit that meets the criteria described above, except for the 250 TPY criterion, which applies to the entire BART-eligible source. A “BART-eligible source” is defined as the collection of all BART-eligible emissions units at a single facility. If a source has several emissions units, only those that meet the BART-eligible criteria are included in the definition of “BART-eligible source.”

The FDEP requires that the California Puff (CALPUFF) modeling system be used to determine visibility impacts from BART-eligible sources at the PSD Class I areas. A source-specific modeling protocol is required to be submitted by the affected sources to FDEP for review and approval. Protocols are due to FDEP no later than September 30, 2006. The source-specific modeling must be included in the BART application, due to FDEP no later than January 31, 2007.

This protocol describes the modeling procedures to be followed for performing the air modeling and includes site-specific data for SSCE’s Fernandina Mill BART-eligible emissions units. The site-specific data includes emissions unit locations, stack parameters, emission rates, and PM₁₀ speciation information.

For guidance in preparing the air modeling protocol, the Visibility Improvement State and Tribal Association of the Southeast (VISTAS) has developed a “common” modeling protocol outline that describes the recommended procedures for performing a visibility impairment analysis under the BART regulations [see *Protocol for the Application of the CALPUFF Model for Analyses of Best Available Retrofit Technology (BART)*, December 22, 2005 (Revision 3.2 – August 31, 2006)]. The proposed modeling protocol for the SSCE Fernandina Mill facility follows the general procedures recommended by VISTAS.

1.2 Location of Source

The Fernandina Mill is located in Fernandina Beach, Nassau County, Florida. An area map showing the facility location and PSD Class I areas located within 300 km of the facility is presented in Figure 1-1. The PSD Class I areas and their distances from the Fernandina Mill are as follows:

- Okefenokee National Wildlife Area (NWA) - 66 km,
- Wolf Island NWA - 71 km,
- Chassahowitzka NWA - 242 km, and

- Saint Marks NWA - 249 km.

Bradwell Bay PSD Class I area is located within 300 km of the facility, but visibility impairment is not required to be addressed for this area.

The Universal Transverse Mercator (UTM) coordinates of the Fernandina Mill are approximately 456.2 km East and 3,394.1 km North in UTM Zone 17.

1.3 Source Impact Evaluation Criteria

The common BART modeling protocol describes the application of the CALPUFF modeling system for two purposes:

- Air quality modeling to determine whether a BART-eligible source is “subject to BART” – to evaluate whether a BART-eligible source is exempt from BART controls because it is not reasonably expected to cause or contribute to impairment of visibility in Class I areas and
- Air quality modeling of emissions from sources that have been found to be subject to BART – to evaluate regional haze benefits of alternative control options and to document the benefits of the preferred option.

The common BART protocol identifies the first activity as the “BART exemption analysis” and the second activity as the “BART control analysis.”

The final BART rule (70 FR 39118) states that the proposed threshold at which a source may “contribute” to visibility impairment should not be higher than 0.5 dv. The FDEP is also recommending the criterion of 0.5 dv.

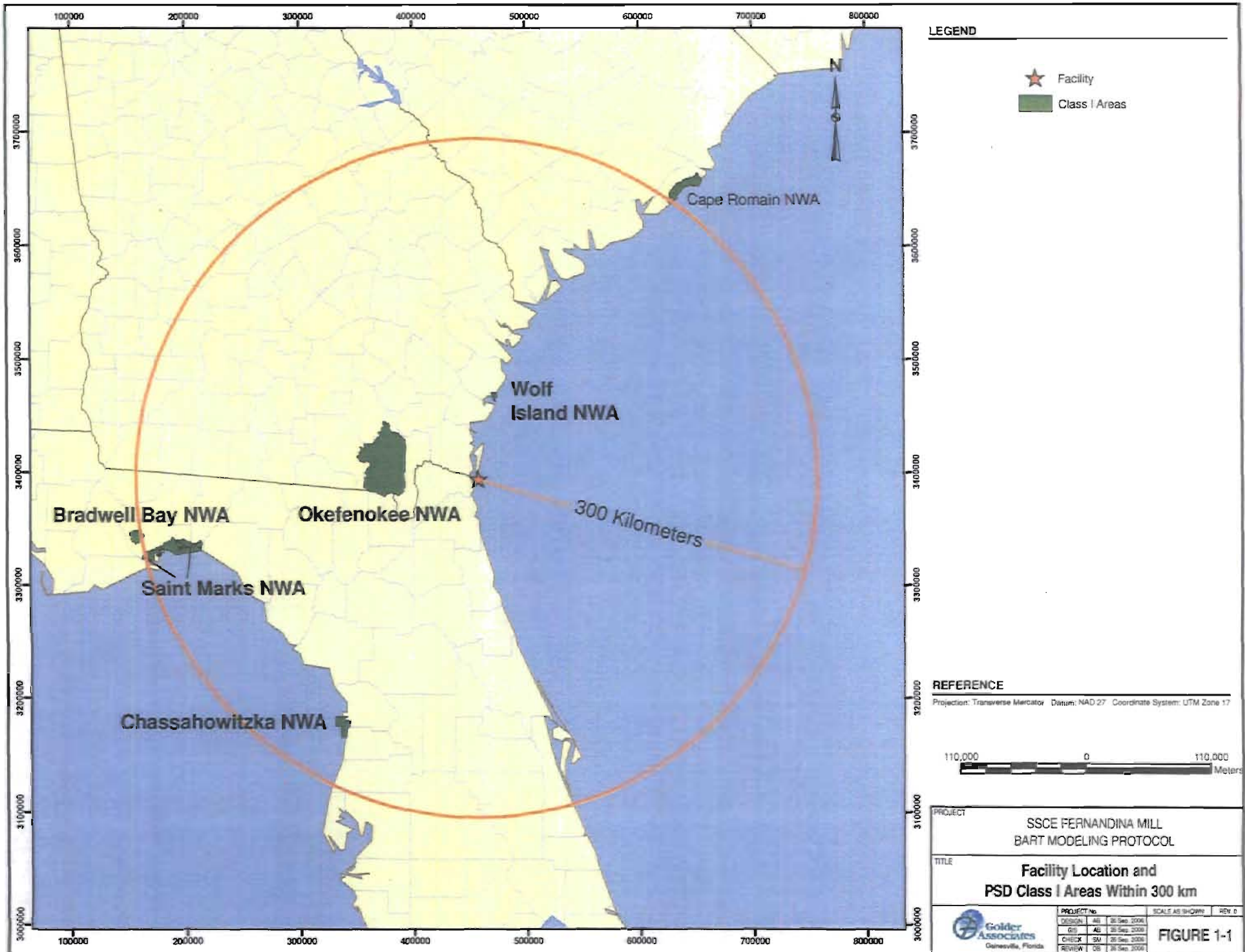
Based on VISTAS recommendations regarding BART exemption analysis, “initial screening” and “refined” analyses can be performed to determine whether a BART-eligible source is subject to or exempt from BART. The initial screening analysis, which is based on a coarse scale 12-km regional VISTAS domain, is optional and answers two questions – whether (a) a particular source may be exempted from further BART analyses and (b) if refined (finer grid) CALPUFF analyses were to be undertaken, which Class I areas should be included.

For the screening analysis, the highest predicted 24-hour impairment value is compared to the 0.5 dv criteria. If the highest predicted impacts are found to be less than 0.5 dv, no further analysis is required. But if the highest impact is predicted to be greater than 0.5 dv, then a refined, finer grid, analysis may be performed.

The refined analysis, which is based on a finer grid subregional California Meteorological Model (CALMET) domain, is the definitive test for whether a source is subject to BART. In the refined analysis, the 98th percentile, i.e., the 8th highest 24-hour average visibility impairment value in 1 year or the 22nd highest 24-hour average visibility impairment value over 3 years combined, whichever is higher, is compared to 0.5 dv.

The screening analysis is optional for large sources that will clearly exceed the initial screening thresholds or sources that are very close to the Class I areas, which will be better analyzed by a finer grid resolution. For the SSCE Fernandina Mill BART analyses, only the refined analysis will be performed to determine whether the source is exempt from BART. All Class I areas within 300 km of the Fernandina Mill will be included in the refined modeling analysis and modeling results will be presented for each evaluated Class I area.

If the BART exemption analysis reveals that the BART-eligible source is subject to the BART control analysis, part of the BART review process involves evaluating the visibility benefits of different BART control measures. These benefits will be determined by the refined analysis, where CALPUFF will be executed with the baseline emission rates and again with emission rates reflective of BART control options.



2.0 SOURCE DESCRIPTION

2.1 Source Applicability

SSCE operates two power boilers, two recovery boilers, two smelt dissolving tanks, lime kiln, tall oil plant, brownstock washer system, pulping system, a package boiler, and ancillary equipment at the Fernandina Mill to make kraft linerboard. The FDEP has published a list of potential BART-eligible sources (updated September 12, 2006), which is based on a survey questionnaire sent by FDEP to selected facilities in Florida on November 4, 2002 and April 18, 2003. FDEP's list contains five potential BART-eligible emissions units located at the Fernandina Mill. SSCE's Fernandina Mill is on FDEP list since it is one of the 26 major source categories identified in the BART regulation (kraft pulp mills) and has potential emissions of visibility impairment pollutants (i.e., SO₂, NO_x, and PM₁₀) from its BART-eligible emissions units that are greater than 250 TPY.

From detailed information obtained from SSCE, a BART-eligibility analysis was performed to verify the applicability of the BART rule to the facility as well as the list of BART-eligible units at the facility. This analysis consisted of a three-step procedure.

First, the facility is a BART-eligible source since it is classified under the source category of "Kraft pulp mills".

Second, each emissions unit at the facility was reviewed to determine which units met the date requirements for a BART-eligible unit. For each emissions unit, it was determined which units began operation after August 7, 1962, and also were in existence on August 7, 1977.

Third, if an emissions unit met the date requirements for BART eligibility, the potential emissions of visibility impairing pollutants from each unit were identified. At present, the visibility impairing pollutants include SO₂, NO_x, and PM₁₀. Other potential visibility impairing pollutants, such as volatile organic compounds (VOCs) and ammonia have been determined by FDEP to have no significant effect on regional haze in Florida.

The results of this analysis are summarized in Table 2-1, which shows a total of four BART-eligible emission units at this facility. As shown in Table 2-1, the potential annual SO₂, NO_x, and PM₁₀ emissions from the BART-eligible emissions units total more than 250 TPY for each pollutant. Because the emissions of one or more pollutants are greater than the 250 TPY threshold, all of these pollutants will be included in the visibility impairment assessment for the facility. Since PM₁₀

emissions from the non-fugitive emissions units are greater than 250 TPY, it is not necessary to quantify fugitive particulate matter (PM) emissions from the BART-eligible emissions units for source applicability under the BART regulation. Only the visibility impairing pollutants of SO₂, NO_x, and PM₁₀ are required to be included in the visibility modeling analysis. Therefore, BART-eligible emission units that do not emit these pollutants will not be included in the modeling analysis. In addition, FDEP is not requiring fugitive emissions to be included in the modeling unless the source is relatively close to a PSD Class I area (i.e.: 50 km). The final list of BART-eligible, non-fugitive emissions units for SSCE are as follows:

- No. 5 Power Boiler (EU006)
- No. 4 Recovery Boiler (EU007)
- No. 4 Smelt Dissolving Tank (EU013)

Based on discussions with FDEP, if a BART-eligible emission unit does not emit SO₂, NO_x, or PM₁₀, the emission unit is not required to undergo a BART control technology determination. Also, if a facility is more than 50 km from the nearest PSD Class I area, fugitive PM emissions from BART-eligible emissions units are not required to undergo BART control evaluation.

2.2 Stack Parameters

The stack height above ground, stack diameter, exit velocity, and exit temperature for the BART-eligible emissions units at the Fernandina Mill are presented in Table 2-2. For the modeling analysis, all the emissions units will be collocated in the VISTAS domain Lambert Conformal Conic (LCC) coordinate system at (X, Y) = (1,486.149, -906.200) km.

2.3 Emission Rates for Visibility Impairment Analyses

The EPA BART guidelines indicate that the emission rate to be used for BART modeling is the highest 24-hour actual emission rate representative of normal operations for the modeling period. Depending on the availability of the source data, the source emissions information should be based on the following in order of priority, based on the BART common protocol:

- 24-hour maximum emissions based on continuous emission monitoring (CEM) data for the period 2001-2003,

- Facility stack test emissions,
- Potential to emit,
- Allowable permit limits, and
- AP-42 emission factors.

The maximum 24-hour average emission rates for the BART-eligible units at the Fernandina Mill that will be used in the modeling are presented in Table 2-3. Detailed calculation of the emission rates are presented in Appendix A. The 24-hour average SO₂ and NO_x emission rates for the No. 5 Power Boiler at the Fernandina Mill are based on the maximum daily No. 6 fuel oil usage for the period 2001-2003 and the annual average sulfur content for the year when the maximum daily usage occurred. SO₂ and NO_x emission rates for the No. 4 Recovery Boiler and the No. 4 Smelt Dissolving Tank are based on maximum daily black liquor solids (BLS) usage from the period 2001-2003 and emission factors from the National Council on Air and Stream Improvement (NCASI).

The 24-hour average PM₁₀ emission rates for the No. 5 Power Boiler, No. 4 Recovery Boiler, and the No. 4 Smelt Dissolving Tank are from the stack test data. A summary of the stack test data is also presented in Appendix A.

2.4 PM Speciation

Based on the latest regulatory guidance, PM emissions by size category are required to be considered in the appropriate species for the visibility analysis. The effect that each species has on visibility impairment is related to a parameter called the extinction coefficient. The higher the extinction coefficient, the greater the species' affect on visibility. Filterable PM is speciated into coarse (PMC), fine (PMF), and elemental carbon (EC), with default extinction efficiencies of 0.6, 1.0, and 10.0, respectively. PMC is PM with aerodynamic diameter between 10 microns and 2.5 microns. Both EC and PMF have aerodynamic diameters equal to or less than 2.5 microns. Condensable PM is comprised of inorganic PM such as sulfate (SO₄) and organic PM such as secondary organic aerosols (SOA). The extinction efficiencies for these species are $3 \cdot f(\text{RH})$ and 4, respectively, where $f(\text{RH})$ is the relative humidity factor.

The PM emissions from the BART-eligible units at the Fernandina Mill were speciated into the recommended size and species categories using the latest EPA Publication AP-42 emission factors for

wood-fired boilers and NCASI particulate emissions data for pulp and paper industry-specific sources (dated August 25, 2006) (see Appendix B). The PM emissions from the stack test data were considered as total filterable PM. Using the AP-42 or NCASI factors, emission factors for all the species categories were first developed as a fraction of the total filterable PM and then using the fraction, the emission rates of the different species were estimated. Speciation among the different size categories were also developed based on NCASI's data on particle size ranges for Kraft recovery sources. A detailed PM speciation summary is presented in Tables 2-4 and 2-5.

2.5 Building Dimensions

Based on discussions with FDEP, building downwash effects will not be considered in the modeling because these effects are considered to be minimal in assessing impacts at the distance of the nearest PSD Class I area, which is more than 50 km from the Fernandina Mill.

**TABLE 2-1
BART ELIGIBILITY ANALYSIS FOR SMURFIT-STONE CONTAINER ENTERPRISES - FERNANDINA MILL
(FACILITY ID 0890003)**

EU ID	Emission Unit	BART Category ^a	Dates		In Existence on 8/7/1977 ? (Yes/No)	Began Operation After 8/7/1962 ? (Yes/No)	Meets BART Date Criteria ? (Yes/No)	SO ₂ , NO _x , or PM Source ? (Yes/No)	BART Eligible ? (Yes/No)	Potential Emissions			Comments
			Start-Up	Initial Construction						SO ₂ (TPY)	NO _x (TPY)	PM ₁₀ (TPY)	
006	No. 5 Power Boiler	3	1968	--	Yes	Yes	Yes	Yes	Yes	6618.6 ^b	1015.7 ^c	598.9 ^b	
007	No. 4 Recovery Boiler	3	1969	--	Yes	Yes	Yes	Yes	Yes	222.8 ^c	457.7 ^c	236.5 ^c	
011	No. 5 Recovery Boiler	3	1978	8/16/1977	No	Yes	No	--	No	--	--	--	Did not exist on 8/7/1977
013	No. 4 Smelt Dissolving Tank	3	1969	--	Yes	Yes	Yes	Yes	Yes	4.52 ^c	10.84 ^c	60.2 ^b	
014	No. 5 Smelt Dissolving Tank	3	1978	8/16/1977	No	Yes	No	--	No	--	--	--	Did not exist on 8/7/1977
015	No. 7 Power Boiler	3	6/16/1983	--	No	Yes	No	--	No	--	--	--	Did not exist on 8/7/1977
020	Tall Oil Plant ^e	3	1966	--	Yes	Yes	Yes	No	Yes	--	--	--	Not a SO ₂ , NO _x , or PM source
021	No. 4 Line Kiln	3	7/24/1990	--	No	Yes	No	--	No	--	--	--	Did not exist on 8/7/1977
024	C-Line Brownstock Washer System	3	2/20/91	--	No	Yes	No	--	No	--	--	--	Did not exist on 8/7/1977
033	Pulping System MACT I	3	1937	--	No	Yes	No	--	No	--	--	--	Began operation before 1962
034	Package Boiler	N/A	1966	--	Yes	Yes	Yes	Yes	No	--	--	--	<250 MMBtu/hr and not integral to process ^d
Total TPY =										6,846.0	1,484.3	895.6	

^a BART category 3 is Kraft Pulp Mills.

^b Title V Permit No. 0890003-009-AV.

^c See Appendix A.

^d The Package Boiler (EU034) has a heat input of less than 250 MMBtu/hr and only provides steam to the process, and is therefore exempt based on EPA guidelines.

^e Not a SO₂, NO_x, or PM₁₀ source and therefore, will not be included in any modeling and a BART determination will not be required.

**TABLE 2-2
SUMMARY OF STACK AND OPERATING PARAMETERS AND LOCATIONS FOR THE BART-ELIGIBLE EMISSIONS UNITS
SMURFIT-STONE CONTAINER ENTERPRISES - FERNANDINA MILL**

Emission Unit	Model ID	Stack Parameters				Operating Parameters				
		Height		Diameter		Flow Rate	Exit Temperature		Velocity	
		ft	m	ft	m	acfm	°F	K	ft/s	m/s
No. 5 Power Boiler ^a	SSCEPB5	257	78.33	11.0	3.35	235,000	450	505.4	41.2	12.56
No. 4 Recovery Boiler ^b	SSCERB4	249	75.90	12.3	3.75	342,000	431	494.8	48.0	14.62
No. 4 Smelt Dissolving Tank ^b	SSCESDT4	249	75.90	6.0	1.83	23,000	143	334.8	13.6	4.13

^a No. 5 Power Boiler operating parameters based on Boiler MACT application, September 2006.

^b Stack and operating parameters from Title V permit renewal application, December 2002.

Note: All emissions units will be collocated for the purpose of exemption modeling. The facility coordinates are as follows:

UTM Zone 16: 456.2 km East, 3,394.1 km North.

Lambert Conformal Conic (LCC) coordinate, VISTAS Domain: 1,486.149 km, -906.200 km

TABLE 2-3
SUMMARY OF MAXIMUM 24-HOUR AVERAGE EMISSION RATES FOR THE BART-ELIGIBLE EMISSIONS UNITS
SMURFIT-STONE CONTAINER ENTERPRISES - FERNANDINA MILL

Source	EU ID	Model ID	<u>PM</u>		<u>NO_x</u>		<u>SO₂</u>	
			lb/hr	Reference	lb/hr	Reference	lb/hr	Reference
No. 5 Power Boiler	006	SSCEPB5	22.5	Table A-3	145.1	Table A-2	1,026.4	Table A-2
No. 4 Recovery Boiler	007	SSCERB4	39.5	Table A-3	103.2	Table A-2	50.2	Table A-2
No. 4 Smelt Dissolving Tank	013	SSCESD4	13.3	Table A-3	2.4	Table A-2	1.0	Table A-2

TABLE 2-4
PM SPECIFICATION FOR THE BART-ELIGIBLE EMISSIONS UNITS - SPECIES CATEGORIES
SMURFIT-STONE CONTAINER ENTERPRISES - FERNANDINA MILL

Source	Control Device	EU ID	Model ID	Filterable PM ^a (lb/hr)	Filterable PM ₁₀ ^b		Condensable PM (CPM) ^b		Total Filterable PM ₁₀ (lb/hr)	Total Condensable PM (lb/hr)	Model PM (Filterable PM ₁₀ + SOA) (lb/hr)	Contribution to Model PM (%)					
					Coarse PM ₁₀ (lb/hr)	Fine PM ₁₀ (Soil) (lb/hr)	Elemental Carbon (EC) (lb/hr)	Inorganic CPM (SO ₄) (lb/hr)				Organic CPM (SOA) (lb/hr)	Coarse PM ₁₀ (%)	Fine PM ₁₀ (Soil) (%)	Carbon (EC) (%)	CPM (SO ₄) (%)	Organic CPM (SOA) (%)
No. 5 Power Boiler	ESP	006	SSCEPB5	22.5	2.1	13.2	1.4	3.5	3.5	16.7	7.1	20.2	10.3%	65.5%	6.7%	c	17.5%
No. 4 Recovery Boiler	ESP	007	SSCERB4	39.5	5.1	14.1	0.6	4.6	0.9	19.8	5.5	20.7	24.8%	68.0%	2.8%	c	4.4%
No. 4 Smelt Dissolving Tank	Wet Scrubber	013	SSCESDT4	13.3	1.2	9.3	0.4	0.5	0.2	10.9	0.7	11.1	11.2%	83.7%	3.5%	c	1.7%

^a From Table 2-3.

^b Calculated using the percentages of the total filterable PM provided in the table below:

^c Inorganic CPM (SO₄) is modeled in CALPUFF as a separate category other than PM.

Source	Control Device	Emission Factors										Emission Factor Contribution to Filterable PM (%)				
		Emission Factors and Basis (lb/ton BLS for NCASI and lb/MMBtu for EPA)								Estimated Emission Factors		Emission Factor Contribution to Filterable PM (%)				
		Filterable PM	Filterable PM ₁₀	Filterable PM _{2.5}	Condensable PM (CPM)	CPM Organic	CPM Inorganic Sulfate	CPM Inorganic Non-Sulfate	Reference	Coarse PM ₁₀ ^d	Fine PM ₁₀ (Soil) ^e	Elemental Carbon (EC) ^f	Coarse PM ₁₀	Fine PM ₁₀ (Soil)	Elemental Carbon (EC)	Inorganic CPM (SO ₄) ^g
No. 5 Power Boiler	ESP	0.054	0.040	0.035	0.017	--	--	EPA ^h	0.005	0.032	0.003	9.3%	58.8%	6.0%	15.7%	15.7%
No. 4 Recovery Boiler	ESP	0.65	0.33	0.242	0.09	0.015	0.032	NCASI ⁱ	0.085	0.232	0.010	13.0%	35.7%	1.5%	11.6%	2.3%
No. 4 Smelt Dissolving Tank	Wet Scrubber	0.148	0.12	0.107	0.0074	0.002	0.002	NCASI ^j	0.0138	0.103	0.004	9.3%	69.7%	2.9%	3.6%	1.4%

^d Coarse PM₁₀ = Filterable PM₁₀ - Filterable PM_{2.5}.

^e Fine PM₁₀ = Filterable PM_{2.5} - Elemental Carbon (EC).

^f Elemental carbon (EC) fraction is as follows:

- Recovery Boiler and Smelt Dissolving Tank - 4.0 % of PM_{2.5} (Particulate Emissions Data for Pulp and Paper Industry-Specific Sources, NCASI, August 2006)
- Power Boiler - 9.3 % of PM_{2.5} (EPA's Catalog of Global Emissions Inventories, Table 6, Draft Report, January 2002)

^g Sum of inorganic sulfate and inorganic non-sulfate CPMs. Inorganic non-sulfate CPMs conservatively assumed as inorganic sulfate CPMs for the purpose of modeling.

^h Table 1.6-1 Emission Factors for PM From Wood Residue Combustion, AP-42, EPA 2003. Total condensable PM equally divided between inorganic and organic PM.

ⁱ Table 2, Particulate Emissions Data for Pulp and Paper Industry-Specific Sources, NCASI, August 2006.

^j Table 1, Particulate Emissions Data for Pulp and Paper Industry-Specific Sources, NCASI, August 2006.

**TABLE 2-5
PM SPECIATION FOR THE BART-ELIGIBLE EMISSIONS UNITS - SIZE CATEGORIES
SMURFIT-STONE CONTAINER ENTERPRISES - FERNANDINA MILL**

Source	EU ID	Model ID	Filterable PM* (lb/hr)	Organic CPM (SOA) ^c (lb/hr)	Size Distribution of Filterable PM ₁₀ ^b						Size Distribution of Organic CPM (SOA) ^c		Particle Matter Emissions by Size Category						Model Total (Filt PM ₁₀ + (lb/hr)	
					PM0063 (<0.625 µm) (%)	PM0100 (0.625-1 µm) (%)	PM0125 (1-1.25 µm) (%)	PM0250 (1.25-2.5 µm) (%)	PM0600 (2.5-6 µm) (%)	PM1000 (6-10 µm) (%)	PM0063 (<0.625 µm) (%)	PM0100 (0.625-1 µm) (%)	PM0063 (<0.625 µm) (lb/hr)	PM0100 (0.625-1 µm) (lb/hr)	PM0125 (1-1.25 µm) (lb/hr)	PM0250 (1.25-2.5 µm) (lb/hr)	PM0600 (2.5-6 µm) (lb/hr)	PM1000 (6-10 µm) (lb/hr)		
No. 5 Power Boiler ^d																				25.6
No. 4 Recovery Boiler	006	SSCEPB5	22.5	3.5	47.5%	47.5%	1.0%	2.0%	0.0%	0.0%	50.0%	50.0%	12.5	12.5	0.2	0.5	0.0	0.0		20.7
No. 4 Smelt Dissolving Tank	007	SSCERB4	39.5	0.9	16.4%	7.1%	4.9%	8.8%	8.0%	5.0%	50.0%	50.0%	6.9	3.3	1.9	3.5	3.2	2.0		11.1
	013	SSCESDT4	13.3	0.2	34.6%	14.3%	7.9%	15.9%	8.1%	1.2%	50.0%	50.0%	4.7	2.0	1.1	2.1	1.1	0.2		

^a From Table 2-4.

^b Table 4, Particulate Emissions Data for Pulp and Paper Industry-Specific Sources, NCASI, August 2006.

^c Condensable PM is of less than 1 µm in size, which is equally divided into PM0063 and PM0100.

^d Particle size distribution for PM emissions from No. 2 Bark Boiler is based on Table 1.6-5, AP-42, EPA 2003.

3.0 GEOPHYSICAL AND METEOROLOGICAL DATA

3.1 Modeling Domain and Terrain

CALMET data sets have been developed by EarthTech, Inc. that are based on the following 3 years of Fifth Generation Mesoscale Model (MM5) meteorological data assembled by VISTAS:

- 2001 MM5 data set at 12 km grid (developed by EPA),
- 2002 MM5 data set at 12 km grid (developed by VISTAS), and
- 2003 MM5 data set at 36 km grid (developed by Midwest Regional Planning Organization).

For the finer grid modeling analysis (refined analysis), the 4-km spacing Florida CALMET domain will be used. VISTAS has prepared a total of five sub-regional 4-km spacing CALMET domains. Domain 2 covers all Florida sources and Class I areas that can be potentially affected by the Florida sources.

Golder Associates Inc. (Golder) obtained these data sets from FDEP. As indicated in Section 1.3, for this protocol, the exemption modeling will be based on the finer grid modeling since the Fernandina Mill is a large source that is likely to exceed the initial screening thresholds.

3.2 Land Use and Meteorological Database

The CALMET meteorological domains to be used in the exemption modeling have been supplied by VISTAS. The CALMET data sets contain meteorological data and land use parameters for the three-dimensional modeling domain.

3.3 Air Quality Database

3.3.1 Ozone Concentrations

For these analyses, observed ozone data for 2001-2003 from CASTNet and Aerometric Information Retrieval System (AIRS) stations will be used. These data sets have been obtained from EarthTech's website as recommended by FDEP.

3.3.2 Ammonia Concentrations

A fixed monthly background ammonia concentration of 0.5 parts per billion (ppb) will be used based on FDEP's recommendation.

3.4 Natural Conditions at Class I Area

Based on VISTAS' recommendation, Visibility Method 6 will be used in all BART-related modeling, which will compute extinction coefficients for hygroscopic species (modeled and background) using a monthly $f(RH)$ in lieu of calculating hourly RH factors. Monthly RH values from Table A-3 of EPA's *Guidance for Estimating Natural Visibility Conditions under the Regional Haze Rule* (Haze Guideline) will be used. Monthly RH factors for the Class I areas within 300 km of the Fernandina Mill are as follows:

Month	Okefenokee NWA	Wolf Island NWA	Chassahowitzka NWA	Saint Marks NWA
January	3.5	3.4	3.8	3.7
February	3.2	3.1	3.5	3.4
March	3.1	3.1	3.4	3.4
April	3.0	3.0	3.2	3.4
May	3.6	3.3	3.3	3.5
June	3.7	3.7	3.9	4.0
July	3.7	3.7	3.9	4.1
August	4.1	4.1	4.2	4.4
September	4.0	4.0	4.1	4.2
October	3.8	3.7	3.9	3.8
November	3.5	3.5	3.7	3.7
December	3.6	3.5	3.9	3.8

Method 6 requires input of natural background (BK) concentrations of ammonium sulfate ($BKSO_4$), ammonium nitrate ($BKNO_3$), coarse particulates ($BKPMC$), organic carbon ($BKOC$), soil ($BKSOIL$), and elemental carbon ($BKEC$) in micrograms per cubic meter ($\mu g/m^3$). The model then calculates the natural background light extinction and haze index based on these values.

According to FDEP recommendations, the natural background light extinction may be based on haze index (HI) values (in dv) for either the annual average or the 20-percent best visibility days provided by EPA in Appendix B of the Haze Guideline document (using the 10th percentile HI value). For

SSCE's BART analysis, the annual average HI values will be used to determine natural background light extinction of the Class I areas. The light extinction coefficient in inverse megameters (Mm^{-1}) is based on the concentration of the visibility impairing components and the extinction efficiency, in square meters per gram (m^2/g), for each component.

Per VISTAS and FDEP recommendations, the natural background light extinction that is equivalent to EPA-provided background HI values for each Class I area, based on the annual average, will be estimated using the following background values:

- Rayleigh scattering = $10 Mm^{-1}$;
- Concentrations of $BKSO_4$, $BKNO_3$, $BKPMC$, $BKEC$, and $BKEC = 0.0$; and
- $BKSOIL$ concentration, which is estimated from the extinction coefficient that corresponds to EPA's HI value (corresponding to annual average) and then subtracting the Rayleigh scattering of $10 Mm^{-1}$ (assumes that the extinction efficiency of soil is $1 m^2/g$).

According to Appendix B of the Haze Guideline document, the annual average background light extinction coefficient for each PSD Class I area and corresponding calculated $BKSOIL$ concentrations are as follows:

- Okefenokee NWA – $21.40 Mm^{-1}$ (equivalent to 7.61 dv); $11.40 \mu g/m^3$
- Wolf Island NWA – $21.34 Mm^{-1}$ (equivalent to 7.58 dv); $11.34 \mu g/m^3$
- Chassahowitzka NWA – $21.45 Mm^{-1}$ (equivalent to 7.63 dv); $11.45 \mu g/m^3$
- Saint Marks NWA – $21.53 Mm^{-1}$ (equivalent to 7.67 dv); $11.53 \mu g/m^3$

Currently, the atmospheric light extinction is estimated by an algorithm developed by the Interagency Monitoring of Protected Visual Environments (IMPROVE) committee, which was adopted by the EPA under the 1999 Regional Haze Rule (RHR). This algorithm for estimating light extinction from particle speciation data tends to underestimate light extinction for the highest haze conditions and overestimate it for the lowest haze conditions and does not include light extinction due to sea salt, which is important at sites near the sea coasts. As a result of these limitations, the IMPROVE Steering Committee recently developed a new algorithm (the "new IMPROVE algorithm") for estimating light extinction from

particulate matter component concentrations, which provides a better correspondence between measured visibility and that calculated from particulate matter component concentrations.

The new algorithm splits the total sulfate, nitrate, and organic carbon compound concentrations into two fractions, representing small and large size distributions of those compounds. New terms added to the algorithm are light absorption by NO₂ gas and light scattering due to fine sea salt accompanied by its own hygroscopic scattering enhancement factor and Class I area specific Rayleigh scattering values rounded off to the nearest whole number. The U.S. Environmental Protection Agency (EPA) and the Federal Land Managers (FLMs) from the National Park Service and the U.S. Fish and Wildlife Service have determined that adding site-specific data (e.g., sea salt and site-specific Rayleigh scattering) to the old IMPROVE algorithm, for a hybrid approach, is not recommended and is allowing the optional use of the new IMPROVE algorithm.

Because one or more of the Class I areas within 300 km of the SSCE's Fernandina Mill facility are located near the sea coast, the new IMPROVE algorithm may additionally be used to calculate the natural background at these Class I areas. The new IMPROVE algorithm accounts for the background sea salt concentrations and site-specific Rayleigh scattering. Since the new IMPROVE equation cannot be directly implemented using the existing version of the CALPUFF model without additional post-processing or model revision, VISTAS has developed a methodology for implementing the new IMPROVE equation using existing CALPUFF/CALPOST output in a spreadsheet. This spreadsheet, known as the CALPOST-IMPROVE processor will be used to re-calculate visibility impacts due to SSCE's BART-eligible units in addition to the visibility impacts determined using the old IMPROVE equation.

It is assumed that ambient NO₂ concentrations due to SSCE's BART eligible units would be very small as to cause negligible light absorption, so light absorption by NO₂ gas, which is a new term added to the new IMPROVE algorithm, will not be considered for SSCE's BART modeling analysis. The following Class I area specific Rayleigh scattering (in Mm⁻¹) and sea salt concentrations (in µg/m³) values will be used to evaluate the visibility impacts using the new CALPOST-IMPROVE processor:

- Okefenokee NWA – 11 Mm⁻¹ ; 0.09 µg/m³
- Wolf Island NWA – 12 Mm⁻¹ ; 0.20 µg/m³
- Chassahowitzka NWA – 11 Mm⁻¹ ; 0.08 µg/m³
- Saint Marks NWA – 11 Mm⁻¹ ; 0.03 µg/m³

4.0 AIR QUALITY MODELING METHODOLOGY

For predicting maximum visibility impairment at the Class I areas, the CALPUFF modeling system will be used. For BART-related visibility impact assessments, the CALPUFF model, Version 5.756 (060725), is recommended for use by EPA and VISTAS. Recent technical enhancements, including changes to the over-water boundary layer formulation and coastal effects modules (sponsored by the Minerals Management Service), are included in this version. The CALPUFF model is a non-steady-state long-range transport Lagrangian puff dispersion model applicable for estimating visibility impacts. The methods and assumptions used in the CALPUFF model will be based on the latest recommendations for CALPUFF analysis as presented in the VISTAS modeling protocol, Interagency Workgroup on Air Quality Models (IWAQM) Phase 2 Summary Report and the Federal Land Managers' Air Quality Related Values Work Group (FLAG) document. This model is also maintained by EPA on the Support Center for Regulatory Air Models (SCRAM) website.

4.1 Modeling Domain Configuration

The 4-km spacing Florida domain will be used for the BART exemption modeling and if required, modeling to evaluate visibility benefits of different BART control measures. VISTAS has prepared five sub-regional 4-km spacing CALMET domains. Domain 2 covers sources in Florida and Class I areas that are affected by the sources in Florida.

4.2 CALMET Meteorological Domain

The refined CALMET domain, to be used for SSCE's BART modeling, has been provided by FDEP. The major features used in preparing these CALMET data have been described in Section 4.0 of the VISTAS BART modeling protocol.

4.3 CALPUFF Computational Domain and Receptors

The computational domain to be used for the refined modeling will be equal to the full extent of the meteorological domain. Visibility impacts will be predicted at each PSD Class I area using receptor locations provided by the Federal Land Managers. Because the Okefenokee NWA has such a large number of receptors, a smaller set of receptors consisting of the boundary and some intermediate

points in this PSD Class I area will be modeled. The receptors to be used for each of the PSD Class I areas are presented in Figures 4-1 through 4-4.

4.4 CALPUFF Modeling Options

The major CALPUFF modeling options recommended in the IWAQM guidance (EPA, 1988; Pages B-1 through B-8), in addition to the recommendations in Section 4.3.3 of the VISTAS BART modeling protocol, will be used. An example CALPUFF input file showing the default modeling options and modeling options to be used for SSCE's BART analysis is presented in Appendix C.

4.5 Light Extinction and Haze Impact Calculations

The CALPOST program will be used to calculate the light extinction and the haze impact. The Method 6 technique, which is recommended by the BART guideline document, will be used to compute change in light extinction.

4.6 Quality Assurance and Quality Control (QA/QC)

Quality assurance procedures will be established to ensure that the setup and execution of the CALPUFF model and processing of the modeling results satisfy the regulatory objectives of the BART program. The meteorological datasets to be used in the modeling were developed and provided by VISTAS and therefore, no further QA will be required for these.

The CALPUFF modeling options are described in Section 4.4. The site-specific source data will be independently confirmed by an independent modeler not involved in the initial setup of the modeling files. The verification will include:

- Units of measure;
- Verification of the correct source and receptor locations, including datum and projection;
- Confirmation of the switch selections relative to modeling guidance;
- Checks of the program switches and file names of the various processing steps; and
- Confirmation of the use of the proper version and level of each model program.

In addition, all the data and program files needed to reproduce the modeling results will be supplied with the modeling report.

The source and emission data will be independently verified by Golder and SSCE. The source coordinates and related projection/datum parameters will be checked using the CALPUFF GUI's COORDS software and other comparable coordinate translation software such as CORPSCON and National Park Services Conversion Utilities software.

The POSTUTIL and CALPOST post-processor input files will be carefully checked to make sure of the following:

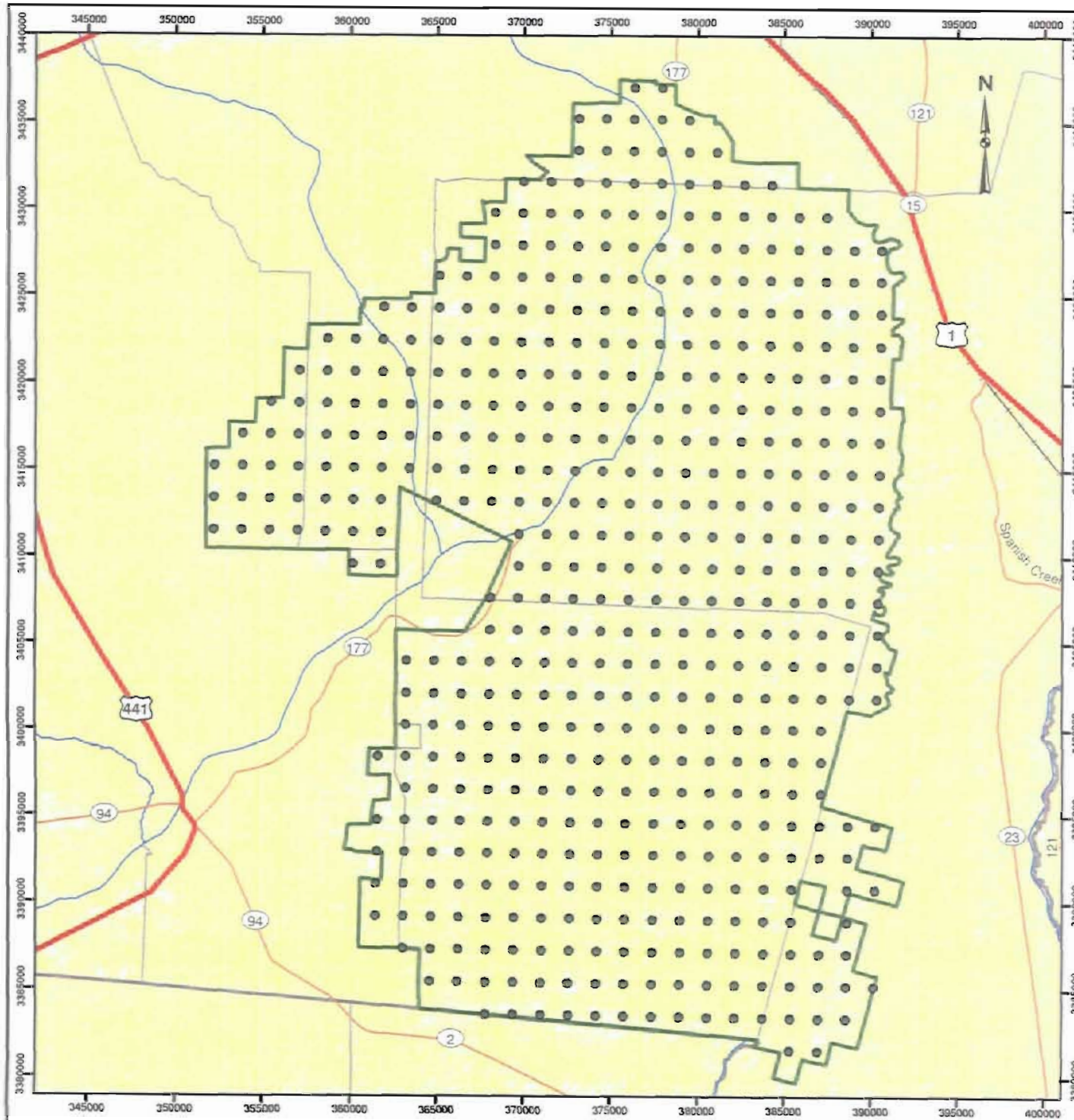
- Appropriate CALPUFF concentrations files are used in the POSTUTIL run;
- The PM species categories are computed using the appropriate fractions;
- Background light extinction computation method selected as Method 6;
- Correct monthly relative humidity adjustment factors used for the appropriate Class I area;
- Background light extinction values as described in Section 3.4 of this protocol;
- Appropriate species names for coarse and fine PM;
- Appropriate Rayleigh scattering term used; and
- Appropriate Class I receptors selected for each Class I area-specific CALPOST run.

4.7 Modeling Report

A modeling report will be submitted containing the following information:

- Map of source location and Class I areas within 300 km of the source;
- Table showing visibility impacts at each Class I area within 300 km of the source; and
- For the refined modeling analysis, a table showing the eight highest visibility impairment values ranked in a descending order for the prime Class I area(s) of interest.

The predicted visibility impairment results for the base emission case and all evaluated BART emission scenarios will be included in the report to show the affect on visibility for each proposed control technology. Final recommendations for BART will also be presented, based on the analysis results of the five evaluation criteria presented in the BART regulation.



LEGEND

Okefenokee NWA

- 500 Receptor Grid
- Class I Boundary

REFERENCE

Projection: Transverse Mercator Datum: NAD 27 Coordinate System: UTM Zone 17



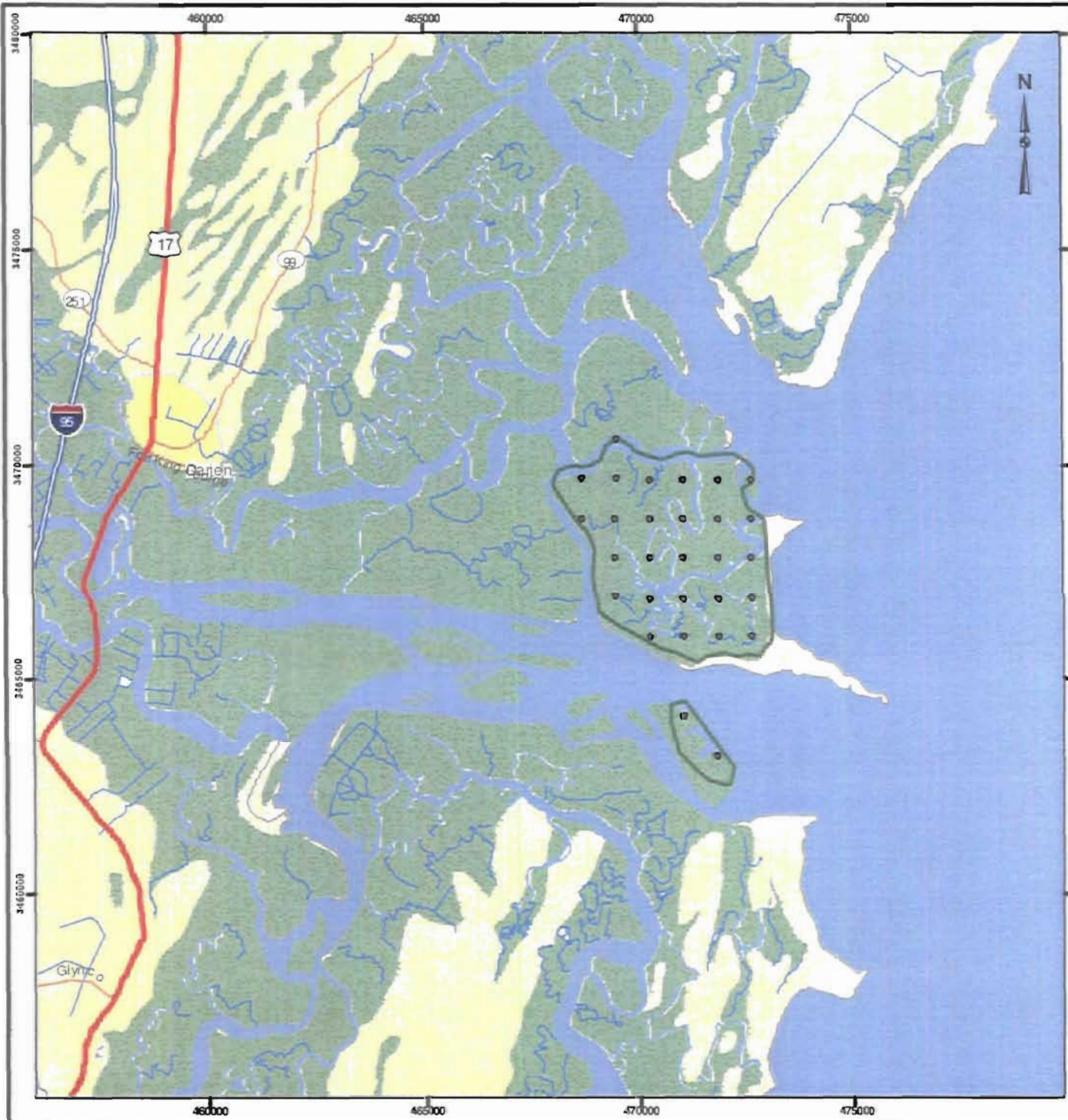
PROJECT: SSCE FERNANDINA MILL
BART MODELING PROTOCOL

TITLE: Okefenokee NWA Receptor Grid



PROJECT No.	SCALE AS SHOWN	REV 0
DESIGN: All 01 Dec 2004		
GIS: All 01 Dec 2004		

FIGURE 4-1



LEGEND

- Wolf Island NWA**
- 29 Receptor Grid
 - Class I Boundary

REFERENCE

Projection: Transverse Mercator Datum: NAD 27 Coordinate System: UTM Zone 17



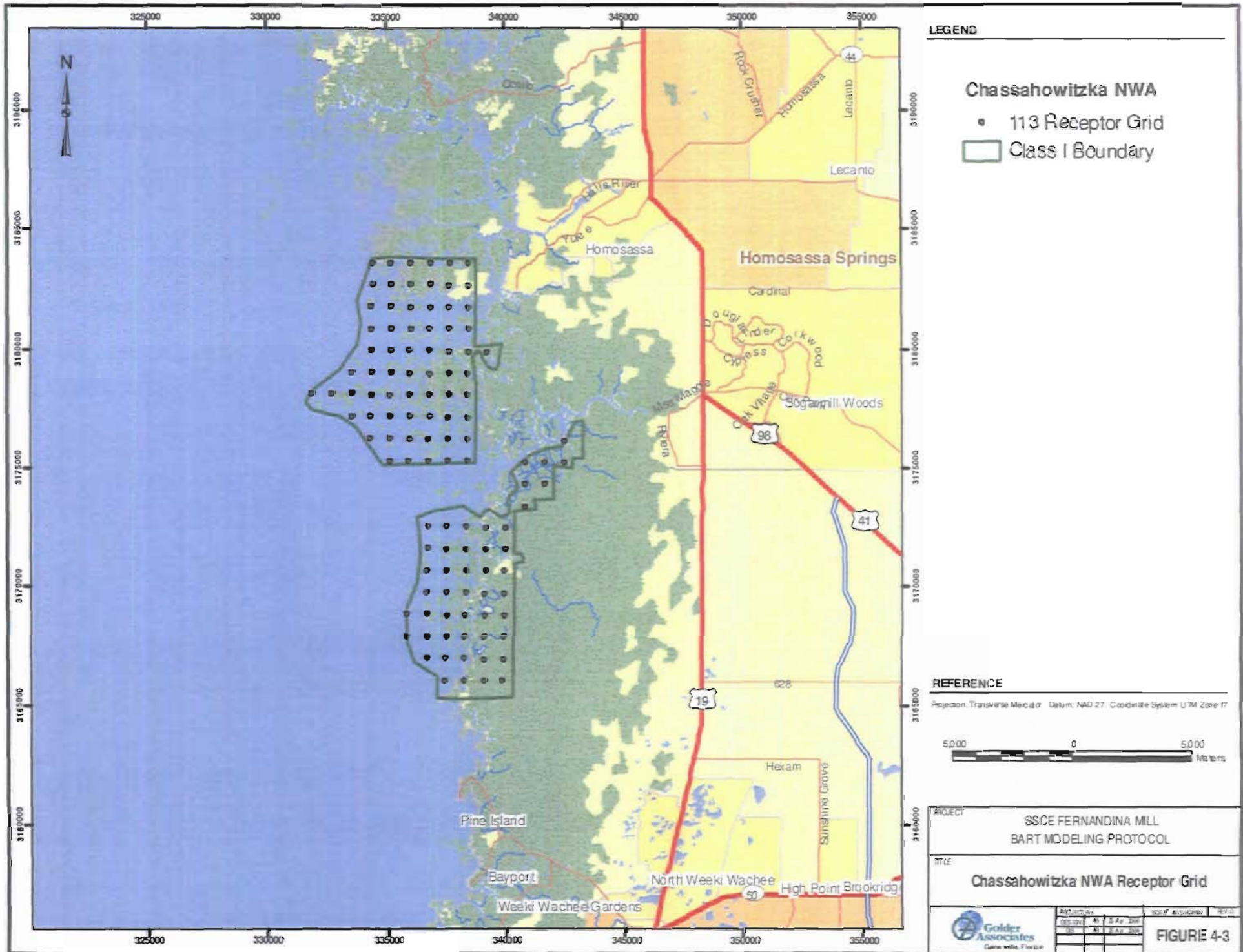
PROJECT: SSCE FERNANDINA MILL
BART MODELING PROTOCOL

TITLE: Wolf Island NWA Receptor Grid

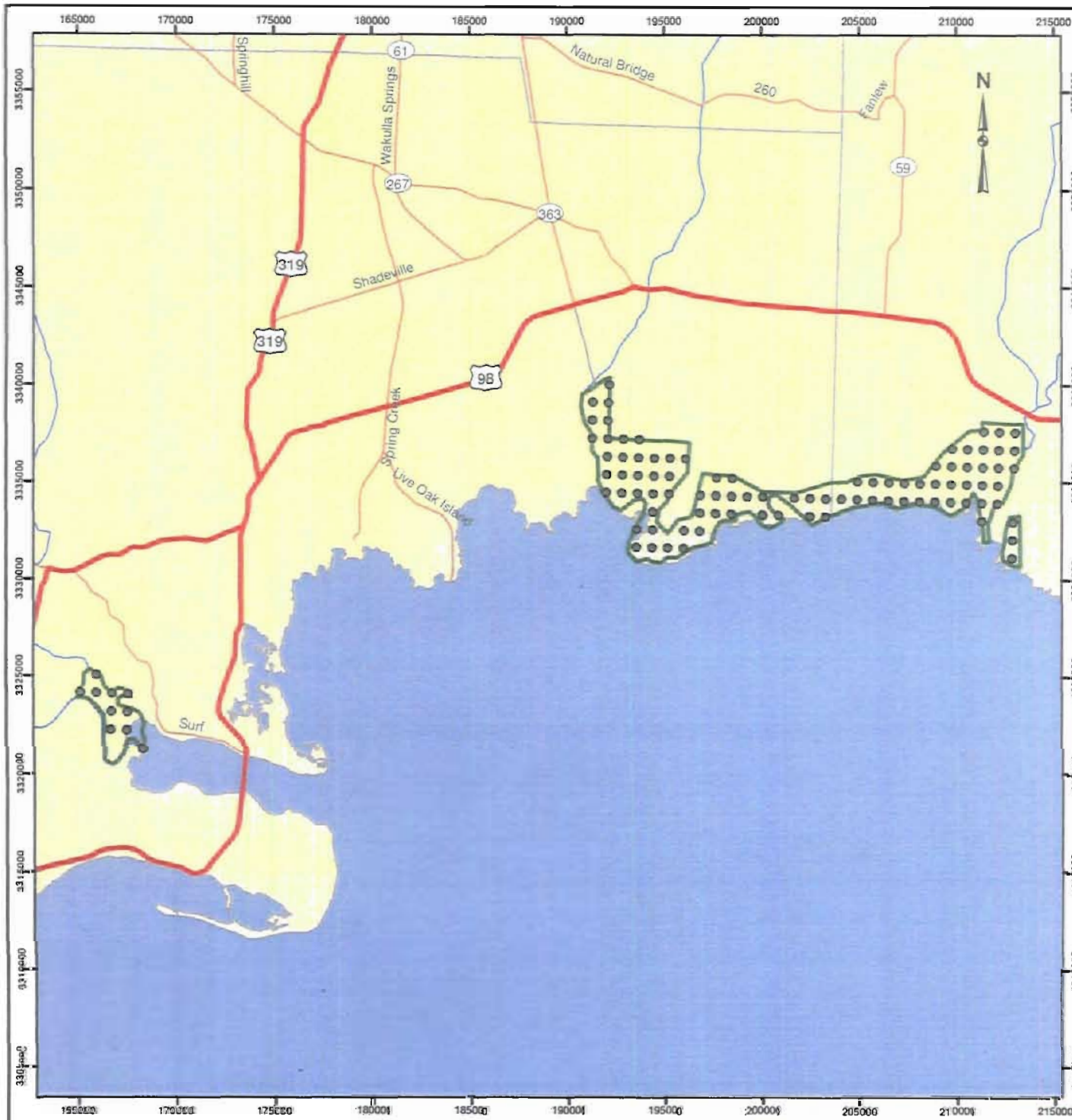


PREPARED BY	DATE	SCALE	ASSIGNED BY	REV 0
AMC	4/21/11			
AMC	4/21/11			

FIGURE 4-2



REV	DATE	BY	CHKD	APP'D	DESCRIPTION
1	11/14/08	AL	AL	AL	Initial
2	11/14/08	AL	AL	AL	Final



LEGEND

- 100 Receptor Grid
- Class I Boundary

REFERENCE

Projection: Transverse Mercator Datum: NAD 27 Coordinate System: UTM Zone 17

PROJECT		SSCE FERNANDINA MILL BART MODELING PROTOCOL	
TITLE		Saint Marks NWA Receptor Grid	
 Golder Associates Gainesville, Florida	PROJECT NO.	SCALE AS SHOWN	FIGURE 4-4
	DESIGN	DATE	
	DATE	DATE	

APPENDIX A
DETAILED EMISSIONS CALCULATIONS AND STACK TEST DATA SUMMARY

TABLE A-1
POTENTIAL EMISSION RATE CALCULATION FOR THE BART-ELIGIBLE EMISSIONS UNITS
SMURFIT-STONE CONTAINER ENTERPRISES - FERNANDINA MILL

EU ID	Source	Fuel	Emission Factor	Emission Factor Reference	24-Hour Heat Input (MMBtu/hr)	Fuel Usage	Emission Rate	
							lb/hr	TPY
<u>NO_x</u>								
006	No. 5 Power Boiler ^a	No. 6 Oil ^b	47.0 lb/10 ³ gal	Table 1.3-1, AP-42	573.4	3,850 gal/hr	181.0	792.6
		Bark	0.22 lb/MMBtu	Table 1.6-2, AP-42	231.6	54 ton/hr	51.0	223.2
Total =							231.9	1,015.7
007	No. 4 Recovery Boiler	BLS	1.52 lb/ton	NCASI T.B. 884, Aug 2004	852	137,500 lb/hr	104.5	457.7
013	No. 4 Smelt Dissolving Tank	BLS	0.036 lb/ton	Stack test on No. 5 SDT	852	137,500 lb/hr	2.5	10.8
<u>SO₂</u>								
006	No. 5 Power Boiler	No. 6 Oil ^b	157.0 *S lb/10 ³ gal	Table 1.3-1, AP-42	573.4	3,850 gal/hr	1,511.1	6,618.7
006	No. 5 Power Boiler	Bark	0.025 lb/MMBtu	Table 1.6-2, AP-42	231.6	54 ton/hr	5.8	25.4
Total =							1,516.9	6,644.1
007	No. 4 Recovery Boiler	BLS	0.74 lb/ton	NCASI T.B. 884, Aug 2004	852	137,500 lb/hr	50.9	222.8
013	No. 4 Smelt Dissolving Tank	BLS	0.015 lb/ton	NCASI T.B. 884, Aug 2004	852	137,500 lb/hr	1.0	4.5
<u>PM₁₀</u>								
006	No. 5 Power Boiler	--	-- --	Permit 0890003-009-AV	852	-- --	137.1	598.9
007	No. 4 Recovery Boiler	BLS	0.044 gr/dscf	Permit 0890003-009-AV	852	137,500 lb/hr	54.0	236.5
013	No. 4 Smelt Dissolving Tank	BLS	0.20 lb/ton	Permit 0890003-009-AV	852	137,500 lb/hr	13.8	60.2

BLS = Black Liquor Solids.

^a Worst-case combination of fuels.

^b No. 6 fuel oil heat content of 148,935 Btu/gal and sulfur content (S) of 2.5 % by weight used in calculation.

TABLE A-2
24-HOUR AVERAGE ACTUAL EMISSION RATE CALCULATION FOR THE BART-ELIGIBLE EMISSIONS UNITS
SMURFIT-STONE CONTAINER ENTERPRISES - FERNANDINA MILL

EU ID	Source	Fuel	Emission Factor	Emission Factor Reference	Fuel Usage	Hourly Average Emission Rate (lb/hr)
NO_x						
006	No. 5 Power Boiler ^a	No. 6 Oil ^b	47.0 lb/10 ³ gal	Table 1.3-1, AP-42	63,900 gal/day	125.1
		Bark ^c	0.22 lb/MMBtu	Table 1.6-2, AP-42	256 ton/day	19.9
Total =						145.1
007	No. 4 Recovery Boiler	BLS ^d	1.52 lb/ton	NCASI T.B. 884, Aug 2004	1,629 tons/day	103.2
013	No. 4 Smelt Dissolving Tank	BLS	0.036 lb/ton	Stack test on No. 5 SDT	1,629 tons/day	2.4
SO₂						
006	No. 5 Power Boiler ^a	No. 6 Oil ^b	157.0 *S lb/10 ³ gal	Table 1.3-1, AP-42	63,900 gal/day	1,024.1
		Bark ^c	0.025 lb/MMBtu	Table 1.6-2, AP-42	256 ton/day	2.3
Total =						1,026.4
007	No. 4 Recovery Boiler	BLS	0.74 lb/ton	NCASI T.B. 884, Aug 2004	1,629 tons/day	50.2
013	No. 4 Smelt Dissolving Tank	BLS	0.015 lb/ton	NCASI T.B. 884, Aug 2004	1,629 tons/day	1.0

^a Worst-case combination of fuels.

^b Emission rate based on maximum daily No. 6 fuel oil usage from 3/5/2001 and 2001 annual average fuel oil sulfur content (S) of 2.45 %.

^c Bark used on 3/5/2001 was 256 TPD. Bark heating value of 8.494 MMBtu/ton used in calculation.

^d Emission rate based on maximum daily black liquor solids (BLS) usage from 6/5/2003.

TABLE A-3
SSCE FERNANDINA MILL PM STACK TEST DATA SUMMARY

Unit	Year	Title V Limit	MACT II Limit	Boiler MACT			
		Allowable Emission Rate		Particulate Matter Emissions			
PB 5		lbs/hr	lb/MMBTU	(lbs/hr)	gr/dscf	lb/MMBTU	lb/ton Bark
	2002			4.3	0.004	0.007	
	2003			3.7	0.003	0.006	
	2004			3.9	0.003	0.010	0.079
	2005			3.0	0.003	0.008	0.061
	2006	71.47	0.07*	22.5	0.025	0.061	0.4775
Unit	Year	Allowable Emission Rate		Particulate Matter Emissions			
RB 4		lbs/hr	gr/dscf @ 8%	(lbs/hr)	gr/dscf @ 8%	lb/TBLS	
	2003	(MACT II Oct)	0.044	6.3	0.006	0.099	
	2004			5.2	0.006	0.078	
	2005			39.5	0.019	0.627	
	2006			11.0	0.009	0.166	
Unit	Year	Allowable Emission Rate		Particulate Matter Emissions			
SDT 4		lbs/hr	lb/ton BLS	(lbs/hr)	gr/dscf	lb/ton BLS	
	2004	(MACT II Jan)	0.2	11.4	0.089	0.180	
	2004			13.3	0.114	0.185	
	2005			26.2 ^a	0.148	0.415	
	2005	Retest		7.9	0.068	0.117	
	2006			16.9 ^a	0.114	0.255	
	2006	Retest		6.5	0.049	0.099	
	2006	Adjust scrubber*		11.0	0.043	0.168	

* Modified scrubber to 11.5", WW 45 GPM, Recir 303 GPM.

^a Test failed, therefore these data were not used.

APPENDIX B
NCASI PARTICULATE EMISSIONS DATA FOR PULP AND PAPER INDUSTRY
SPECIFIC SOURCES




NATIONAL COUNCIL FOR AIR AND STREAM IMPROVEMENT, INC.
P.O. Box 13318, Research Triangle Park, NC 27709-3318
Phone (919) 941-6400 Fax (919) 941-6401

Ronald A. Yeske, Ph.D.
President
(919) 941-6404

August 25, 2006

TO: Corporate Correspondents -- CC 06-021
Regional Managers

FROM: Ronald A. Yeske 

SUBJECT: Information on Kraft Pulp Mill Particulate Emissions for Visibility Modeling

This memorandum will be of interest to kraft pulp mills conducting modeling of visibility impacts in response to regional haze regulatory programs.

Numerous kraft pulp mills have "BART-eligible" power boilers, recovery furnaces, smelt dissolving tanks, and lime kilns. Generally speaking, "BART-eligible" sources were built between 1962 and 1977, as discussed in NCASI Corporate Correspondent Memorandum No. 05-17, and emit SO₂, NO_x, and particulate matter. As required by EPA's regional haze program, states are now in the process of evaluating whether or not emission reductions should be imposed on these "BART-eligible" sources. The key factor in these evaluations is the impact that the source emissions have on visibility in Class I areas. If the impact is minimal, it is unlikely that emission reductions would be imposed as a result of a BART (Best Available Retrofit Technology) analysis.

As recommended by EPA, visibility impacts are being assessed with the CALPUFF model. CALPUFF is a long-range transport and dispersion model that also simulates the formation of fine particulate matter from gaseous emissions. In visibility assessments, CALPUFF is used to predict concentrations of ammonium sulfate, ammonium nitrate, organic aerosols, fine particulates, coarse particulates, and elemental carbon. These concentrations are then used to calculate a total light extinction coefficient based on the light scattering and absorption properties of each of the components. The amount of light extinction can then be related to the deciview change in a Class I area attributable to emissions from a point source. EPA suggests BART-eligible sources with less than a 0.5 deciview impact in any Class I area could reasonably be exempted from further BART analysis.

To run the CALPUFF model for "BART-eligible" sources, emission rates of SO₂, NO_x, and particulate matter are required. However, CALPUFF inputs needed for particulate matter are rather detailed. A breakdown of PM₁₀ emissions into the following components and aerodynamic diameters is necessary:

Filterable PM₁₀:

<0.625 μm

0.625 – 1.0 μm

1.0 – 1.25 μm

1.25 – 2.5 μm

2.5 - 6 μm

6 – 10 μm

Elemental carbon percentage

Condensable PM₁₀:

organic portion

inorganic sulfate, nitrate and soils portions

Most mills have total particulate emission test results from EPA Method 5, but very few have PM₁₀ or PM_{2.5} results and virtually none have detailed particle size distribution information. In response to company requests for this information, NCASI has compiled available data for kraft recovery furnaces, smelt dissolving tanks, and lime kilns that may be used to estimate the required inputs for CALPUFF. The data are described and summarized in the attachment. For power boilers, similar information can be found in Chapter 1 of EPA's AP-42 publication for coal, oil, gas, and wood fuels.

The attached summary was prepared by Arun Someshwar (asomeshwar@ncasi.org; ext. 226) and Ashok Jain (ajain@ncasi.org; ext. 0) at the Southern Regional Center (352-331-1745). Please contact either one if you need further details or assistance.

Attachment

Particulate Emissions Data for Pulp and Paper Industry-Specific Sources

August 25, 2006

This material has been prepared to assist mills which are using the CALPUFF model to assess the visibility impacts of their kraft pulp mill sources. It contains data on particulate emissions from the major sources at kraft pulp mills, including smelt dissolving tanks, lime kilns, and recovery furnaces. Boilers are not addressed since EPA AP-42 emission factors are considered the best source for these sources. The EPA AP-42 particulate emission factors for coal-fired, oil-fired, gas-fired and wood-fired boilers are also presented in NCASI Technical Bulletin No. 884 (NCASI 2004).

The CALPUFF model requires as input emission rates of filterable and condensable particles in different size distribution ranges. Over the years, NCASI has conducted studies at a number of kraft mill sources to characterize their PM and CPM (condensable particulate matter) emissions. These and other industry generated data have been compiled in NCASI Technical Bulletin No. 884 (NCASI 2004). The CALPUFF model, however, requires input of emission rates of particles in size ranges which are more detailed than what is generally measured. Consequently, in this document, the industry and NCASI data have been combined with the detailed size distribution data in AP-42 to provide data suitable for CALPUFF modeling for kraft recovery furnaces, lime kilns, and smelt dissolving tanks. The elemental carbon content data from EPA's CMAQ (Community Multi-Scale Air Quality) data base have also been included in this document.

In reviewing and using these data it should be noted that CPM emissions comprise an organic and an inorganic fraction. The inorganic fraction of CPM may consist of sulfates, nitrates, and soil (inert material presumably from passing of otherwise filterable PM material through the filter). It has been suggested that as a worst case visibility impact analysis, the non-sulfate fraction of inorganic CPM may be treated as nitrate, which has the same extinction coefficient of 3 as sulfate. However, there is little evidence that nitric acid or hygroscopic ammonium nitrate is present in CPM. Thus, caution should be exercised in assuming that all the non-sulfate inorganic CPM is nitrate.

To assist mills in using their own data for input into CALPUFF, NCASI has developed a companion spreadsheet, which has been posted on the NCASI website at <http://www.ncasi.org/support/downloads/Detail.aspx?id=37>. (A user name and password are required for access.) The spreadsheet allows facilities to input their site-specific PM and, if available, PM₁₀, PM_{2.5} and CPM data to the different size fractions for input into CALPUFF.

Smelt Dissolving Tanks

The emission data for smelt dissolving tanks were obtained from NCASI Technical Bulletin Nos. 884 (NCASI 2004) and 898 (NCASI 2005). These data are summarized in Table I. All smelt dissolving tanks (SDTs) in this data set had wet particulate control devices, and thus "wet" stacks. Wet stacks are not amenable to be tested for PM₁₀, PM_{2.5} and condensable PM (CPM) by the traditional EPA Methods 201A (PM₁₀), modified 201A (PM_{2.5}), CTM 039 (PM₁₀, PM_{2.5}) and CTM 040 (PM₁₀, PM_{2.5}), which are designed for stacks following dry PM control devices. Thus far, the only PM₁₀, PM_{2.5} and CPM emission data for SDTs with wet stacks have been obtained by O'Connor and Geneste (2003) using a modified dilution tunnel method. O'Connor and Geneste quantified total PM₁₀ and PM_{2.5} emissions from seven Canadian smelt dissolving tanks with wet stacks. They determined the filterable and condensable fractions of total PM₁₀ and PM_{2.5} emissions by heating the filters to 120°C and determining weight loss. The portion remaining after heating was assumed to be the filterable material and the portion lost was assumed to equal the condensable portion of the samples.

Table 1 is a summary of the PM data for smelt dissolving tanks. The detailed data are presented in Table A1 of Appendix A. The filterable PM data in Table 1 were obtained from combining the data set of 36 sources listed in NCASI Technical Bulletin No. 884 (NCASI 2004), Table A15c, and the data set of 6 sources listed in NCASI Technical Bulletin No. 898 (NCASI 2005). The data for PM₁₀ and PM_{2.5} emissions, which are presented as a percentage of the filterable PM, correspond to the eight Canadian SDTs reported by O'Connor and Geneste (2003) after subtracting 19% attributed to CPM (see NCASI Technical Bulletin No. 884, Table A15d).

The total CPM data in Table 1 were obtained from NCASI tests (3 units) and mill tests (3 units), both of which are summarized in NCASI Technical Bulletin No. 898 (NCASI 2005). Organic and inorganic (water soluble) CPM fractions were also determined in emissions from these six units. Sulfate CPM fractions were determined in three of the six units. Total CPM data for two other units were available in NCASI files. CPM emissions for eight Canadian mill SDTs were also estimated by O'Connor and Geneste (2003) using the modified dilution tunnel method. However, these emissions were found to be consistently much higher than the corresponding emissions from U.S. SDT vents by as much as one to two orders of magnitude. Use of foul or dirty condensates to make weak wash used as scrubbing solution on the SDTs which in turn may have contained elevated levels of organics and ammonia is suspected to be the cause of this large difference. Consequently, the Canadian data were not used for estimating averages of total SDT CPM emissions in Table 1.

Table 1. Smelt Tank Data Summary

Parameter	Measurement Method	No. of Sources	Range		Mean	Mean Percent of PM or CPM
			(lb/ton BLS)			
PM	EPA Method 5	42	0.03 - 0.64		0.148	
PM ₁₀	Dilution Tunnel	7				81.9 ¹
PM _{2.5}	Dilution Tunnel	7				72.6 ¹
CPM - Total	EPA Method 202	8	0.002 - 0.015		0.0074	
CPM - Organic		6				27.8 ²
CPM Inorganic - Sulfate (as H ₂ SO ₄)		3				27.3 ²
CPM Inorganic - non-sulfate ³		6				44.9 ²

¹filterable PM₁₀ and PM_{2.5} values expressed as percent of filterable PM values; ²organic and inorganic (sulfate and non-sulfate) CPM values expressed as percent of total CPM values; ³Nitrate may comprise some or all of the non-sulfate inorganic CPM fractions. As a conservative measure, the non-sulfate portion of inorganic CPM may be assumed to be sulfate. Sulfate and nitrate have the same extinction efficiency (3.0) and the same dependence on relative humidity, and thus in terms of modeling for visibility using the CALPUFF model, they will behave the same way. This assumption is conservative since in reality some of the nitrate may become nitric acid in the atmosphere, depending on temperature, relative humidity and availability of ammonia. However, as a first step, the assumption of all inorganic condensable PM as sulfate should be sufficient. Primary NO₃ should not be categorized as soil, because soil is non-hygroscopic with lower extinction efficiency (1.0). If the assumption of all inorganic CPM as sulfate proves to be too conservative, it may be possible to conduct tests with the model to explore whether the NO₃ can be properly entered as a primary (emitted) pollutant.

Recovery Furnaces

The recovery furnace data were obtained from NCASI Technical Bulletins Nos. 852 (NCASI 2002) and 884 (NCASI 2004). These are summarized in Table 2. All of the recovery furnaces in this data set use

electrostatic precipitators (ESP) for particulate matter emissions control. In NCASI Technical Bulletins No. 852 and 884, the total PM data for the data sets where PM_{10} and $PM_{2.5}$ were also measured were obtained by using an in-stack filter. The total PM values in these tests, thus, are similar to what would be obtained if an EPA Method 17 train was used. However, in Subpart BB, kraft mills subject to NSPS are required to add 0.004 gr/dscf to the results of in-stack Method 17 when the latter is used as an alternative to EPA Method 5. Thus, in order to estimate PM_{10} and $PM_{2.5}$ fractions of Method 5-derived PM values, 0.004 gr/dscf was added to the total PM values obtained with the EPA CTM-40 train. For example, if a run gave 0.020, 0.025 and 0.036 gr/dscf for $PM_{2.5}$, PM_{10} and total PM, respectively, the total PM value was adjusted upwards to $0.036 + 0.004$ or 0.040 gr/dscf. The $PM_{2.5}$ would then be $0.020/0.040 \times 100 = 50$ percent of PM Method 5 and PM_{10} would be $0.0250/0.040 \times 100 = 62$ percent of PM Method 5. If such adjustments to total PM values were not made, the values of $PM_{2.5}$ and PM_{10} as percent of total PM would have been higher and these are shown in the table footnote.

The PM data for DCE recovery furnaces shown in Table 2 are from the 23 sources listed in NCASI Technical Bulletin No. 884 (NCASI 2004), Table A11c. Detailed data are presented in Table A2 of Appendix A. The PM_{10} and $PM_{2.5}$ data for the DCE recovery furnaces are from the 4 DCE sources listed in Technical Bulletin No. 884 (NCASI 2004), Table A11d. Total CPM, organic CPM, inorganic CPM (water soluble) and sulfate CPM data were available from two sources listed in Technical Bulletin No. 852 (NCASI 2002). Data for total CPM, organic CPM, and inorganic CPM emissions from two DCE recovery furnaces and sulfate emissions from one DCE furnace generated in an ongoing unpublished NCASI study are also included in Table 2.

The PM data for the NDCE recovery furnaces shown in Table 2 are from the 20 sources listed in NCASI Technical Bulletin No. 884 (NCASI 2004), Table A12b. Detailed data are presented in Table A3 of Appendix A. The PM_{10} and $PM_{2.5}$ data are from the 10 NDCE sources listed in Technical Bulletin No. 884 (NCASI 2004), Table A12c for which both PM_{10} and $PM_{2.5}$ data were available. The NDCE furnace CPM data are from 6 sources listed in Technical Bulletin No. 884 (NCASI 2004). The organic CPM, inorganic CPM (water soluble) and sulfate CPM data are from two sources listed in Technical Bulletin No. 852 (NCASI 2002). Data for total CPM, organic CPM, and inorganic CPM emissions from one NDCE recovery furnace generated in an ongoing unpublished NCASI study are also included in Table 2.

Table 2. Recovery Furnace Data Summary

Kraft DCE Recovery Furnace					
Parameter	Measurement Method	No. of Sources	Range (lb/ton BLS)	Mean	Mean Percent of PM or CPM
PM	EPA Method 5	23	0.07 - 2.58	0.74	
PM ₁₀	EPA CTM-040	4			56.7 ¹
PM _{2.5}	EPA CTM-040	4			40.2 ¹
CPM – Total	EPA Method 202	4	0.208 – 0.678	0.38	
CPM - Organic		4			7.4 ²
CPM Inorganic - Sulfate (as H ₂ SO ₄)		3			36.0 ²
CPM Inorganic – non-sulfate ³		3			56.6 ²

Kraft NDCE Recovery Furnace					
Parameter	Measurement Method	No. of Sources	Range (lb/ton BLS)	Mean	Mean Percent of PM or CPM
PM	EPA Method 5	20	0.02 - 3.50	0.65	
PM ₁₀	EPA CTM-040	10			50.2 ¹
PM _{2.5}	EPA CTM-040	10			37.2 ¹
CPM – Total	EPA Method 202	7	0.05 - 0.15	0.09	
CPM – Organic		3			16.5 ²
CPM Inorganic - Sulfate (as H ₂ SO ₄)		3			35.2 ²
CPM Inorganic – non-sulfate ³		1			48.3 ²

¹filterable PM₁₀ and PM_{2.5} values expressed as percent of filterable PM values – note that PM₁₀ and PM_{2.5} were calculated as percent of total PM by adding 0.004 gr/dscf to total PM values; average PM₁₀ and PM_{2.5} values without such adjustment would be higher (75.0% and 52.9%, respectively, for DCE furnaces and 67.8% and 51.0%, respectively, for NDCE furnaces); ²organic and inorganic (sulfate and non-sulfate) CPM values expressed as percent of total CPM values; ³see footnote 3 in Table 1

Lime Kilns

The lime kiln data were obtained from NCASI Technical Bulletins Nos. 852 (NCASI 2002), 884 (NCASI 2004), and 898 (NCASI 2005) and are summarized in Table 3. Detailed data are presented in Table A4 of Appendix A. The emissions data are separated by control device type. The majority of lime kilns in this data set used wet control devices for particulate control. Two of the lime kilns used an ESP for particulate control, followed by a wet scrubber for SO₂ control. The remainder used an ESP for particulate control. Once again, as for SDTs, wet stacks are not amenable to be tested for PM₁₀, PM_{2.5} and CPM by the traditional EPA Methods 201A (PM₁₀), modified 201A (PM_{2.5}), CTM 039 (PM₁₀, PM_{2.5}) and CTM 040 (PM₁₀, PM_{2.5}), which are designed for stacks following dry PM control devices. O'Connor and Geneste (2003) used a modified dilution tunnel method to quantify total PM₁₀ and PM_{2.5} emissions from six Canadian kraft lime kilns with wet scrubbers.

The filterable PM data for lime kilns using wet control devices are from 31 sources listed in NCASI Technical Bulletin No. 884 (NCASI 2004), Table A13c. The data for PM₁₀ and PM_{2.5} emissions for lime kilns using wet control devices are presented as a percentage fraction of the total PM corresponding to the six Canadian lime kilns tested by O'Connor and Geneste (2003) (see NCASI Technical Bulletin No. 884, Table A13d) for which both PM₁₀ and PM_{2.5} data were obtained. In the O'Connor and Geneste (2003) study, lime kiln total PM₁₀ and PM_{2.5} emissions were measured using a dilution tunnel followed by size-specific cyclones and quartz filters. To determine the filterable and condensible fractions of total PM₁₀ and PM_{2.5} emissions, the filters were heated at 120°C to determine weight loss. The portion remaining after heating was assumed to be the filterable fraction and the portion lost was assumed to equal the condensible fraction of the samples.

The CPM data for lime kilns with wet scrubbers in Table 3 were obtained from NCASI tests (4 units) reported in NCASI Technical Bulletin No. 898 (NCASI 2005) and from the Canadian study (seven kilns) summarized in Technical Bulletin No. 884 (NCASI 2004). The organic CPM, inorganic CPM and sulfate CPM data are from two to three sources listed in Technical Bulletin No. 898 (NCASI 2005).

All of the PM and CPM data for lime kilns using an ESP followed by a wet control device are from two sources listed in NCASI Technical Bulletin No. 898 (NCASI 2005). Unfortunately, no PM₁₀ and PM_{2.5} data are available for such sources. However, if one assumes that the wet scrubber played no role in removing or contributing to PM emissions from such sources, which is not an unreasonable assumption, one could use the results for lime kilns using ESPs to estimate the PM₁₀ and PM_{2.5} fractions of PM. Total CPM emissions data for two kilns, and organic CPM, inorganic CPM and sulfate CPM emissions for one kiln are obtained from Technical Bulletin No. 898 (NCASI 2005).

The filterable PM data for lime kilns using an ESP alone are from the 7 sources listed in NCASI Technical Bulletin No. 884 (NCASI 2004), Table A13c. The PM₁₀ and PM_{2.5} data are from the 6 sources listed in Technical Bulletin No. 884 (NCASI 2004), Table A13d. These data are also presented as a percentage fraction of the filterable PM corresponding to the six lime kilns tested. As discussed earlier for the recovery furnaces, the in-stack total PM data for kilns with ESPs were adjusted by 0.004 gr/dscf to obtain estimated total Method 5 PM values. These adjusted PM values were used to estimate PM_{2.5} and PM₁₀ values at percents of EPA Method 5 values. Table 3 also shows the estimated percentages if the total PM value was not adjusted. The CPM data are from 4 sources that are summarized in NCASI Technical Bulletin No. 852 (NCASI 2002). The organic CPM, organic CPM (water soluble) and sulfate CPM data are from two to three sources listed in Technical Bulletins No. 852 (NCASI 2002).

Table 3. Lime Kiln Data Summary

Lime Kilns with Wet Particulate Control Devices					
Parameter	Measurement Method	No. of Sources	Range (lb/ton CaO)	Mean	Mean Percent of PM or CPM
PM	EPA Method 5	31	0.35 - 5.34	1.59	
PM ₁₀	Dilution Tunnel	6			84.7 ¹
PM _{2.5}	Dilution Tunnel	6			76.8 ¹
CPM - Total	EPA Method 202	11	0.020 - 0.453	0.155	
CPM - Organic		3			8.3 ²
CPM Inorganic - Sulfate (as H ₂ SO ₄)		2			58.2 ²
CPM Inorganic - non-sulfate ⁴		3			33.5 ²
Lime Kilns with a Dry ESP for Particulate Control Followed by a Wet Scrubber					
Parameter	Measurement Method	No. of Sources	Range (lb/ton CaO)	Mean	Mean Percent of PM or CPM
PM	EPA Method 5	2	0.043 - 0.053	0.048	
PM ₁₀					No Data ³
PM _{2.5}					No Data ³
CPM - Total	EPA Method 202	2	0.070 - 0.161	0.116	
CPM - Organic		1			54.9 ²
CPM Inorganic - Sulfate (as H ₂ SO ₄)		1			45.1 ²
CPM Inorganic - non-sulfate ⁴		1			0.0 ²
Lime Kilns with a Dry ESP for Particulate Control					
Parameter	Measurement Method	No. of Sources	Range (lb/ton CaO)	Mean	Mean Percent of PM
PM	EPA Method 5	7	0.024 - 0.525	0.175	
PM ₁₀	EPA CTM-040	6			30.2 ¹
PM _{2.5}	EPA CTM-040	6			11.0 ¹
CPM - Total	EPA Method 202	4	0.057 - 0.198	0.152	
CPM - Organic		3			31.5 ²
CPM Inorganic - Sulfate (as H ₂ SO ₄)		2			20.8 ²
CPM Inorganic - non-sulfate ⁴		3			47.7 ²

¹filterable PM₁₀ and PM_{2.5} values expressed as percent of filterable PM values - note that for lime kilns with ESPs, PM₁₀ and PM_{2.5} were calculated as percent of total PM by adding 0.004 gr/dscf to total PM values; average PM₁₀ and PM_{2.5} values without such adjustment would be higher (64.2% and 23.6%, respectively); ²organic and inorganic (sulfate and non-sulfate) CPM values expressed as percent of total CPM values; ³may be estimated using the fractions for lime kilns with dry ESPs in Table 3; ⁴see footnote 3 in Table 1

Estimating PM Emissions in Particle Size Ranges

Table 4 reproduces the representative particle size distributions for PM emissions from various kraft recovery sources (smelt tanks, lime kilns and recovery furnaces) as provided in Chapter 10.2 (Chemical Wood Pulping) of EPA's AP-42 document. Using these distributions and the mean emissions for PM₁₀ and PM_{2.5} as percent of total PM shown in Table 1 (smelt dissolving tanks), Table 2 (kraft recovery furnaces) and Table 3 (lime kilns), further breakdowns of PM₁₀ and PM_{2.5} emissions can be developed for the particle size ranges 0 to 0.625 μm, 0.625 to 1.0 μm, 1.0 to 1.25 μm, 1.25 to 2.5 μm, 2.5 to 6.0 μm, and 6.0 to 10.0 μm and these are also shown in Table 4. Note that if mill-specific measurements for PM₁₀ and/or PM_{2.5} were used instead, this would result in slightly different estimates for the breakdowns (as explained later). Finally, in EPA's CMAQ (Community Multi-scale Air Quality) database, filterable PM_{2.5} has been split into elemental carbon and non-elemental carbon portions for kraft mill sources (recovery furnace, smelt dissolving tank, lime kiln). For these sources, the elemental carbon fraction of total PM_{2.5} (filterable PM_{2.5} + CPM) was reported as 0.0153, and the filterable, non-elemental carbon fraction of total PM_{2.5} was reported as 0.3699. Thus, the elemental C fraction of filterable PM_{2.5} for kraft mill sources is 0.0397 (0.0153 / {0.0153 + 0.3699}), or about 4%.

Table 4. Breakdown of PM Emissions from Kraft Recovery Sources – from Chapter 10.2 of AP-42

PM size, μm	Smelt Tank ^{1a}	Smelt Tank ^{1b}	Lime Kiln ²	Lime Kiln ³	DCE Furnace ⁴	NDCE Furnace ⁴
	Cumulative Mass % ≤ stated size					
15	89.9	95.3	98.9	91.2	no data	78.8
10	89.5	95.3	98.3	88.5	no data	74.8
6	88.4	94.3	98.2	86.5	68.2	71.9
2.5	81.3	85.2	96.0	83.0	53.8	67.3
1.25	63.5	63.8	85.0	70.2	40.5	51.3
1	54.7	54.2	78.9	62.9	34.2	42.4
0.625	38.7	34.2	54.3	46.9	22.2	29.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
PM _{6.0-10.0} , as % of PM ⁶	1.2%	0.9%	0.3%	7.0%	2.7% ⁵	5.0%
PM _{2.5-6.0} , as % of PM ⁶	8.1%	8.4%	7.6%	12.2%	13.8%	8.0%
PM _{1.25-2.5} , as % of PM ⁶	15.9%	18.2%	8.8%	1.7%	9.9%	8.8%
PM _{1.0-1.25} , as % of PM ⁶	7.9%	8.2%	4.9%	1.0%	4.7%	4.9%
PM _{0.625-1.0} , as % of PM ⁶	14.3%	17.0%	19.7%	2.1%	9.0%	7.1%
PM _{0.625} , as % of PM ⁶	34.6%	29.1%	43.4%	6.2%	16.6%	16.4%

^{1a}smelt dissolving tank vent with venturi scrubber; ^{1b}smelt dissolving tank vent with packed tower; ²lime kiln with venturi scrubber; ³lime kiln with ESP; ⁴kraft recovery furnace with ESP; ⁵cumulative mass % for PM₁₀ not available; assumed same ratio of PM₁₀ to PM_{6.0} as for NDCE furnaces; ⁶these PM distributions (expressed as percent of total PM) are estimated based on the mean PM₁₀ and PM_{2.5} emissions shown in Tables 1, 2 and 3 (as % of total PM); note that they would be different if mill-specific PM₁₀ and PM_{2.5} measurements were used instead – see section on Excel Spreadsheet for further explanation

Sample Calculation – The following calculations show how a mill which has Method 5 PM data may use the information contained in this document to estimate the emission rates needed for BART modeling.

Known: The total PM emissions from a DCE kraft recovery furnace are 1.0 lb/ton BLS.

From Table 2, the filterable PM_{10} emissions from this furnace = $0.567 \times 1.0 = 0.567$ lb/tbls

and the filterable $PM_{2.5}$ emissions = $0.402 \times 1.0 = 0.402$ lb/tbls

Thus, the PM_{coarse} emissions = $PM_{10} - PM_{2.5} = 0.567 - 0.402 = 0.165$ lb/tbls

From Table 4, PM_{coarse} emissions that are $PM_{2.5-6.0} = 0.138 \times 1.0 = 0.138$ lb/tbls,

and PM_{coarse} emissions that are $PM_{6.0-10.0} = 0.027 \times 1.0 = 0.027$ lb/tbls

The filterable $PM_{2.5}$ emissions comprise both elemental carbon and non-elemental carbon emissions. The elemental carbon $PM_{2.5}$ emissions = 4% of total filterable $PM_{2.5}$ emissions = 0.04×0.402 or 0.016 lb/tbls

The non-elemental carbon filterable $PM_{2.5}$ emissions = remaining 96% of filterable $PM_{2.5}$ emissions = $0.96 \times 0.402 = 0.386$ lb/tbls

From Table 4, further fractions of the non-carbon filterable $PM_{2.5}$ emissions are estimated as follows:

$PM_{0.625}$ emissions = $0.96 \times 0.166 \times 1.0 = 0.159$ lb/tbls

$PM_{0.625-1.0}$ emissions = $0.96 \times 0.09 \times 1.0 = 0.086$ lb/tbls

$PM_{1.0-1.25}$ emissions = $0.96 \times 0.047 \times 1.0 = 0.045$ lb/tbls

$PM_{1.25-2.5}$ emissions = $0.96 \times 0.099 \times 1.0 = 0.095$ lb/tbls

and further fractions of the elemental carbon $PM_{2.5}$ emissions are estimated as follows (note- the non-carbon and elemental carbon filterable $PM_{2.5}$ emissions are assumed to have similar breakdowns):

$PM_{0.625}$ emissions = $0.04 \times 0.166 \times 1.0 = 0.0066$ lb/tbls

$PM_{0.625-1.0}$ emissions = $0.04 \times 0.09 \times 1.0 = 0.0036$ lb/tbls

$PM_{1.0-1.25}$ emissions = $0.04 \times 0.047 \times 1.0 = 0.0019$ lb/tbls.

$PM_{1.25-2.5}$ emissions = $0.04 \times 0.099 \times 1.0 = 0.0040$ lb/tbls

From Table 2, the total CPM emissions = 0.38 lb/tbls (note - CPM emissions are independent of PM emissions)

Also from Table 2, the organic CPM emissions = $0.074 \times 0.38 = 0.028$ lb/tbls

the sulfate as H_2SO_4 component of inorganic CPM emissions = $0.36 \times 0.38 = 0.137$ lb/tbls

and the rest of the inorganic CPM (non-sulfate) emissions = $0.38 - 0.028 - 0.137 = 0.215$ lb/tbls

The calculated emission rates can be input into the CALPUFF model for determining visibility impacts.

Excel Spreadsheet Example Calculations

NCASI has prepared an excel spreadsheet that carries out the above calculations for all six categories of unit operations shown in Table 4. For a mill that has only PM data for a given unit operation, the spreadsheet estimates all the distributions as shown above using the mean PM_{10} , $PM_{2.5}$, and CPM values shown in Tables 1, 2 and 3 combined with the PM distributions shown in Table 4. The spreadsheet also allows a mill to input its own PM_{10} and $PM_{2.5}$ values, as also its own CPM, organic CPM and inorganic CPM as sulfate (H_2SO_4) values. The spreadsheet can be accessed at the NCASI website at <http://www.ncasi.org/support/downloads/Detail.aspx?id=37>. (A user name and password are required for access.)

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Appendix A

The following tables provide detailed data for the PM emissions from smelt dissolving tanks, lime kilns and kraft recovery furnaces.

Table A1. Smelt Dissolving Tank Particulate Matter Emissions

Mill Code	Total In-Stack PM gr/dscf	PM ₁₀	PM _{2.5}	Total CPM lb/t BLS	Organic CPM lb/t BLS % of total		Inorganic CPM			
							Total		SO ₄ as H ₂ SO ₄	
							lb/t BLS	% of total	lb/t BLS	% of total
SDTA	0.0529	99.4%	86.7%	0.0401 ²						
SDTB	0.1632	96.6%	87.3%	0.1224 ²						
SDTC	0.1077	68.3%	64.6%	0.0584 ²						
SDTD	0.0540	62.0%	58.7%	0.0266 ²						
SDTE	0.0760			0.0306 ²						
SDTF	0.0160	91.0%	84.3%	0.0114 ²						
SDTG1	0.4237	70.7%	54.0%	0.2153 ²						
SDTG2	0.0758	85.2%	72.4%	0.0487 ²						
Mill A	0.0500			0.0020	0.0005	25.6%	0.0015	74.4%	0.0015	74.9%
Mill B	0.0400			0.0070	0.0018	26.0%	0.0052	74.0%	0.0018	25.5%
Mill C	0.0200			0.0080	0.0018	22.4%	0.0062	77.6%	0.0014	17.0%
Mill F1	0.0200			0.0060	0.0004	6.3%	0.0056	93.7%		
Mill F2	0.0200			0.0060	0.0002	2.9%	0.0058	97.1%		
Mill G	0.0400			0.0150	0.0076	50.4%	0.0074	49.6%		
SDTAD	0.72 lb/hr			0.0140						
SDTAE	0.0387			0.0010						
Mean	0.0799	81.9%	72.6%	0.0074	0.0020	27.8% ¹	0.0053	72.2% ¹	0.0015	27.3% ¹
Number	7	7	7	8 ²	6		6		3	

¹The mean % for organic CPM is obtained by dividing the mean organic CPM in lb/t BLS by the mean of the corresponding set of total CPM in lb/t BLS - same for inorganic CPM (total and SO₄ as H₂SO₄).

²These Canadian mill CPM data were not developed using EPA Method 202; thus only the CPM data generated using M202 for the U.S. mill SDTs (Mills A, B, C, F1, F2, G, AD and AE) were included when estimating the mean. CPM emissions estimated using the modified dilution tunnel method in the Canadian SDT vents appear to be consistently higher than their U.S. counterparts by one to two orders of magnitude. Use of foul or dirty condensates in the Canadian mill SDT scrubbers with high levels of organics and ammonia is suspected.

Note - italicized entries denote non-detects shown at 1/2 detection limit

Table A2. DCE Kraft Recovery Furnace Particulate Matter Emissions

Mill Code	Total In-Stack PM gr/dscf	PM ₁₀ ¹	PM _{2.5} ¹	Total CPM lb/t BLS	Organic CPM		Inorganic CPM			
							Total		SO ₄ as H ₂ SO ₄	
							lb/t BLS	% of total	lb/t BLS	% of total
B2RF	0.0118	51.3%	34.8%	0.6778	0.0404	6.0%	0.6373	94.0%	0.2428	35.8%
GIRF	0.0034	35.1%	24.3%	0.2080	0.0347	16.7%	0.1733	83.3%	0.0865	41.6%
C1	0.0250	67.2%	46.6%							
C8	0.0800	73.3%	55.1%							
A3RF	0.0061			0.2800	0.0112	4.0%	0.2688	96.0%	0.0860	30.7%
B1RF	0.0254			0.3731	0.0277	7.4%	0.3454	92.6%		
Mean	0.0253	56.7%	40.2%	0.3847	0.0285	7.4% ²	0.3562	92.6% ²	0.1384	36.0% ²
Number	4	4	4	4	4		4		3	

¹PM₁₀ and PM_{2.5} calculated as percent of total PM by adding 0.004 gr/dscf to total PM value; average PM₁₀ and PM_{2.5} values without such adjustment would be higher (75.0% and 52.9%, respectively); ²The mean % for organic CPM is obtained by dividing the mean organic CPM in lb/t BLS by the mean of the corresponding set of total CPM in lb/t BLS - same for inorganic CPM (total and SO₄ as H₂SO₄).

Table A3. NDCE Kraft Recovery Furnace Particulate Matter Emissions

Mill Code	Total In-Stack PM gr/dscf	PM ₁₀ ¹	PM _{2.5} ¹	Total CPM lb/t BLS	Organic CPM		Inorganic CPM			
							Total		SO ₄ as H ₂ SO ₄	
							lb/t BLS	% of total	lb/t BLS	% of total
B3RF	0.0053	28.0%	19.4%	0.0579	0.0062	10.7%	0.0517	89.3%		
EIRF	0.0076	36.2%	29.3%						0.0970	
FIRF	0.0072	37.5%	30.4%	0.0684	0.0189	27.6%	0.0495	72.4%	0.0241	35.2%
RFAB	0.0074			0.0880						
RFAE	0.0023			0.1340						
RFAF	0.0030									
RFAH	0.0130			0.0470						
C1	0.0160	64.1%	34.7%							
C4	0.0634	69.1%	49.3%							
C6a	0.0468	83.0%	53.0%							
C6b	0.0118	70.3%	52.3%							
C11	0.0106	69.6%	59.1%							
C12	0.0033	27.5%	25.1%	0.0780						
C21	0.0162	17.3%	19.7%							
A4RF	0.0203			0.1538	0.0212	13.8%	0.1326	86.2%		
Mean	0.0156	50.2%	37.2%	0.0896	0.0154	16.5% ²	0.0779	83.5% ²	0.0605	35.2% ²
Number	10	10	10	7	3		3		1	

¹PM₁₀ and PM_{2.5} calculated as percent of total PM by adding 0.004 gr/dscf to total PM value; average PM₁₀ and PM_{2.5} values without such adjustment would be higher (67.8% and 51.0%, respectively); ²The mean % for organic CPM is obtained by dividing the mean organic CPM in lb/t BLS by the mean of the corresponding set of total CPM in lb/t BLS - same for inorganic CPM (total and SO₄ as H₂SO₄).

Note - italicized entries denote non-detects shown at 1/2 detection limit

Table A4. Kraft Lime Kiln Particulate Matter Emissions

Mill Code	Total In-Stack PM gr/dscf	PM ₁₀ ¹ As % of PM	PM _{2.5} ¹	Total CPM lb/t CaO	Organic CPM lb/t CaO % of total		Inorganic CPM			
							Total		SO ₄ as H ₂ SO ₄	
							lb/t CaO	% of total	lb/t CaO	% of total
Lime Kilns with ESPs										
A	0.0044	27.4%	9.5%	0.1748	0.0357	20.4%	0.1391	79.6%	0.0576	32.9%
E	0.0035	36.0%	16.0%	0.1979	0.0940	47.5%	0.1038	52.5%	0.0200	10.1%
G	0.0020	28.3%	23.3%	0.0565	0.0057	10.0%	0.0509	90.0%		
LKC1a	0.0014	8.4%	0.0%							
LKC1b	0.0015	18.7%	0.0%							
LKC6	0.0334	62.4%	17.0%							
LKC12				0.1789						
Mean	0.0077	30.2%	11.0%	0.1520	0.0451	31.5% ²	0.0979	68.5% ²	0.0388	20.8% ²
Number	6	6	6	4	3		3		2	
Lime Kilns with Wet Scrubbers										
LKA1	0.0581	79.9%	78.0%	0.1494						
LKA2	0.0837	93.0%	91.0%	0.2507						
LKAB	0.0588	102.4%	95.9%	0.1897						
LKAC1	0.0476	92.1%	85.5%	0.1378						
LKAC2	0.1127	70.7%	50.1%	0.2217						
LKAE	0.0719			0.0663						
LKAH	0.0531	70.2%	60.5%	0.1130						
Mill C	0.0430			0.0700	0.0024	3.4%	0.0676	96.6%	0.0429	61.3%
Mill E	0.1640			0.0300	0.0044	14.6%	0.0256	85.4%	0.0153	51.0%
Mill F	0.0678			0.0200	0.0033	16.3%	0.0167	83.7%		
Mill H	0.0413			0.4532						
Mean	0.0729	84.7%	76.8%	0.1547	0.0033	8.3% ²	0.0367	91.7% ²	0.0291	58.2% ²
Number	11	6	6	11		3		3		2
Lime Kilns with Wet Scrubber and ESP										
Mill D	0.0030			0.0700					0.0370	51.0%
Mill G	0.0033			0.1614	0.0887	54.9%	0.0728	45.1%		
Mean	0.0032			0.1157	0.0887	54.9% ²	0.0728	45.1% ²	0.0370	51.0% ²
Number	2			2	1		1		1	

¹For lime kilns with ESPs, PM₁₀ and PM_{2.5} is calculated as percent of total PM by adding 0.004 gr/dscf to total PM value; average PM₁₀ and PM_{2.5} values without such adjustment would be higher (64.2% for mean and 23.6% for median); ²The mean % for organic CPM is obtained by dividing the mean organic CPM in lb/t CaO by the mean of the corresponding set of total CPM in lb/t CaO - same for inorganic CPM (total and SO₄ as H₂SO₄).

Note - italicized entries denote non-detects shown at 1/2 detection limit

APPENDIX C
EXAMPLE CALPUFF INPUT FILE

EXAMPLE FACILITY XYZ - CALPUFF
 IMPACTS AT SOURCE-SPECIFIC CLASS I AREAS
 4-km FLORIDA DOMAIN (VISTAS REFINED DOMAIN 2), 2001
 ----- Run title (3 lines) -----

CALPUFF MODEL CONTROL FILE

INPUT GROUP: 0 -- Input and Output File Names

Default Name	Type	File Name
CALMET.DAT	input	* METDAT = *
or		
ISCMET.DAT	input	* ISCDAT = *
or		
PLMMET.DAT	input	* PLMDAT = *
or		
PROFILE.DAT	input	* PRFDAT = *
SURFACE.DAT	input	* SFCDAT = *
RESTARTB.DAT	input	* RSTARTB= *

CALPUFF.LST	output	! PUFLST = PUFFEXP.LST !
CONC.DAT	output	! CONDAT = PUFFEXP.CON !
DFLX.DAT	output	* DFDAT = *
WFLX.DAT	output	* WFDAT = *

VISB.DAT	output	* VISDAT = *
TK2D.DAT	output	* T2DDAT = *
RHO2D.DAT	output	* RHODAT = *
RESTARTE.DAT	output	* RSTARTE= *

Emission Files

PTEMARB.DAT	input	* PTDAT = *
VOLEMARB.DAT	input	* VOLDAT = *
BAEMARB.DAT	input	* ARDAT = *
LNEMARB.DAT	input	* LNDAT = *

Other Files

OZONE.DAT	input	! OZDAT =C:\BARTHRO3\2001FLOz.DAT !
VD.DAT	input	* VDDAT = *
CHEM.DAT	input	* CHEMDAT= *
H2O2.DAT	input	* H2O2DAT= *
HILL.DAT	input	* HILDAT= *
HILLRCT.DAT	input	* RCTDAT= *
COASTLN.DAT	input	* CSTDAT= *
FLUXBDY.DAT	input	* BDYDAT= *
BCON.DAT	input	* BCNDAT= *
DEBUG.DAT	output	* DEBUG = *
MASSFLX.DAT	output	* FLXDAT= *
MASSBAL.DAT	output	* BALDAT= *
FOG.DAT	output	* FOGDAT= *

All file names will be converted to lower case if LCFILES = T
 Otherwise, if LCFILES = F, file names will be converted to UPPER CASE
 T = lower case ! LCFILES = T !
 F = UPPER CASE

NOTE: (1) file/path names can be up to 70 characters in length

Provision for multiple input files

Number of CALMET.DAT files for run (NMETDAT)
 Default: 1 ! NMETDAT = 36 !

Number of PTEMARB.DAT files for run (NPTDAT)
 Default: 0 ! NPTDAT = 0 !

Number of BAEMARB.DAT files for run (NARDAT)

Default: 0 ! NARDAT = 0 !

Number of VOLEMARB.DAT files for run (NVOLDAT)

Default: 0 ! NVOLDAT = 0 !

!END!

Subgroup (0a)

The following CALMET.DAT filenames are processed in sequence if NMETDAT>1

Default Name	Type	File Name
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-01A.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-01B.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-01C.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-02A.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-02B.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-02C.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-03A.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-03B.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-03C.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-04A.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-04B.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-04C.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-05A.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-05B.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-05C.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-06A.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-06B.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-06C.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-07A.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-07B.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-07C.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-08A.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-08B.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-08C.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-09A.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-09B.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-09C.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-10A.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-10B.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-10C.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-11A.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-11B.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-11C.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-12A.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-12B.DAT ! !END!
CALMET.DAT	input	! METDAT =E:\FLA4KM\2001\MET2001-DOM2-12C.DAT ! !END!

INPUT GROUP: 1 -- General run control parameters

Option to run all periods found

in the met. file (METRUN) Default: 0 ! METRUN = 0 !

METRUN = 0 - Run period explicitly defined below

METRUN = 1 - Run all periods in met. file

Starting date: Year (IBYR) -- No default ! IBYR = 2001 !
(used only if Month (IBMO) -- No default ! IBMO = 1 !
METRUN = 0) Day (IBDY) -- No default ! IDBY = 1 !
Hour (IBHR) -- No default ! IBHR = 1 !

Base time zone (XBTZ) -- No default ! XBTZ = 5.0 !
PST = 8., MST = 7.
CST = 6., EST = 5.

Length of run (hours) (IRLG) -- No default ! IRLG = 8760 !

Number of chemical species (NSPEC)
Default: 5 ! NSPEC = 11 !

Number of chemical species
to be emitted (NSE) Default: 3 ! NSE = 9 !

Flag to stop run after
SETUP phase (ITEST) Default: 2 ! ITEST = 2 !
(Used to allow checking
of the model inputs, files, etc.)
 ITEST = 1 - STOPS program after SETUP phase
 ITEST = 2 - Continues with execution of program
 after SETUP

Restart Configuration:

Control flag (MRESTART) Default: 0 ! MRESTART = 0 !

 0 = Do not read or write a restart file
 1 = Read a restart file at the beginning of
 the run
 2 = Write a restart file during run
 3 = Read a restart file at beginning of run
 and write a restart file during run

Number of periods in Restart
output cycle (NRESPD) Default: 0 ! NRESPD = 0 !

 0 = File written only at last period
 >0 = File updated every NRESPD periods

Meteorological Data Format (METFM)
 Default: 1 ! METFM = 1 !

 METFM = 1 - CALMET binary file (CALMET.MET)
 METFM = 2 - ISC ASCII file (ISCMET.MET)
 METFM = 3 - AUSPLUME ASCII file (PLMMET.MET)
 METFM = 4 - CTDm plus tower file (PROFILE.DAT) and
 surface parameters file (SURFACE.DAT)

PG sigma-y is adjusted by the factor (AVET/PGTIME)**0.2
Averaging Time (minutes) (AVET) Default: 60.0 ! AVET = 60. !

PG Averaging Time (minutes) (PGTIME) Default: 60.0 ! PGTIME = 60. !

!END!

INPUT GROUP: 2 -- Technical options

Vertical distribution used in the
near field (MGAUSS) Default: 1 ! MGAUSS = 1 !
 0 = uniform
 1 = Gaussian

Terrain adjustment method
(MCTADJ) Default: 3 ! MCTADJ = 3 !
 0 = no adjustment
 1 = ISC-type of terrain adjustment
 2 = simple, CALPUFF-type of terrain
 adjustment
 3 = partial plume path adjustment

Subgrid-scale complex terrain
flag (MCTSG) Default: 0 ! MCTSG = 0 !
 0 = not modeled
 1 = modeled

Near-field puffs modeled as
elongated 0 (MSLUG) Default: 0 ! MSLUG = 0 !
 0 = no

1 = yes (slug model used)

Transitional plume rise modeled ?
(MTRANS) Default: 1 ! MTRANS = 1 !
0 = no (i.e., final rise only)
1 = yes (i.e., transitional rise computed)

Stack tip downwash? (MTIP) Default: 1 ! MTIP = 1 !
0 = no (i.e., no stack tip downwash)
1 = yes (i.e., use stack tip downwash)

Vertical wind shear modeled above
stack top? (MSHEAR) Default: 0 ! MSHEAR = 0 !
0 = no (i.e., vertical wind shear not modeled)
1 = yes (i.e., vertical wind shear modeled)

Puff splitting allowed? (MSPLIT) Default: 0 ! MSPLIT = 0 !
0 = no (i.e., puffs not split)
1 = yes (i.e., puffs are split)

Chemical mechanism flag (MCHEM) Default: 1 ! MCHEM = 1 !
0 = chemical transformation not modeled
1 = transformation rates computed internally (MESOPUFF II scheme)
2 = user-specified transformation rates used
3 = transformation rates computed internally (RIVAD/ARM3 scheme)
4 = secondary organic aerosol formation computed (MESOPUFF II scheme for OH)

Aqueous phase transformation flag (MAQCHEM)
(Used only if MCHEM = 1, or 3) Default: 0 ! MAQCHEM = 0 !
0 = aqueous phase transformation not modeled
1 = transformation rates adjusted for aqueous phase reactions

Wet removal modeled ? (MWET) Default: 1 ! MWET = 1 !
0 = no
1 = yes

Dry deposition modeled ? (MDRY) Default: 1 ! MDRY = 1 !
0 = no
1 = yes
(dry deposition method specified for each species in Input Group 3)

Method used to compute dispersion coefficients (MDISP) Default: 3 ! MDISP = 3 !
1 = dispersion coefficients computed from measured values of turbulence, sigma v, sigma w
2 = dispersion coefficients from internally calculated sigma v, sigma w using micrometeorological variables (u*, w*, L, etc.)
3 = PG dispersion coefficients for RURAL areas (computed using the ISCST multi-segment approximation) and MP coefficients in urban areas
4 = same as 3 except PG coefficients computed using the MESOPUFF II eqns.
5 = CTDM sigmas used for stable and neutral conditions. For unstable conditions, sigmas are computed as in MDISP = 3, described above. MDISP = 5 assumes that measured values are read

Sigma-v/sigma-theta, sigma-w measurements used? (MTURBVW)
(Used only if MDISP = 1 or 5) Default: 3 ! MTURBVW = 3 !
1 = use sigma-v or sigma-theta measurements from PROFILE.DAT to compute sigma-y (valid for METFM = 1, 2, 3, 4)
2 = use sigma-w measurements from PROFILE.DAT to compute sigma-z (valid for METFM = 1, 2, 3, 4)

- 3 = use both sigma-(v/theta) and sigma-w
from PROFILE.DAT to compute sigma-y and sigma-z
(valid for METFM = 1, 2, 3, 4)
- 4 = use sigma-theta measurements
from PLMMET.DAT to compute sigma-y
(valid only if METFM = 3)

Back-up method used to compute dispersion
when measured turbulence data are
missing (MDISP2)

Default: 3 ! MDISP2 = 3 !

(used only if MDISP = 1 or 5)

- 2 = dispersion coefficients from internally calculated
sigma v, sigma w using micrometeorological variables
(u*, w*, L, etc.)
- 3 = PG dispersion coefficients for RURAL areas (computed using
the ISCST multi-segment approximation) and MP coefficients in
urban areas
- 4 = same as 3 except PG coefficients computed using
the MESOPUFF II eqns.

PG sigma-y,z adj. for roughness?
(MROUGH)

Default: 0 ! MROUGH = 0 !

- 0 = no
- 1 = yes

Partial plume penetration of
elevated inversion?
(MPARTL)

Default: 1 ! MPARTL = 1 !

- 0 = no
- 1 = yes

Strength of temperature inversion
provided in PROFILE.DAT extended records?
(MTINV)

Default: 0 ! MTINV = 0 !

- 0 = no (computed from measured/default gradients)
- 1 = yes

PDF used for dispersion under convective conditions?

Default: 0 ! MPDF = 0 !

- (MPDF)
- 0 = no
 - 1 = yes

Sub-Grid TIBL module used for shore line?

Default: 0 ! MSGTIBL = 0 !

- (MSGTIBL)
- 0 = no
 - 1 = yes

Boundary conditions (concentration) modeled?

Default: 0 ! MBCON = 0 !

- (MBCON)
- 0 = no
 - 1 = yes

Analyses of fogging and icing impacts due to emissions from
arrays of mechanically-forced cooling towers can be performed
using CALPUFF in conjunction with a cooling tower emissions
processor (CTEMISS) and its associated postprocessors. Hourly
emissions of water vapor and temperature from each cooling tower
cell are computed for the current cell configuration and ambient
conditions by CTEMISS. CALPUFF models the dispersion of these
emissions and provides cloud information in a specialized format
for further analysis. Output to FOG.DAT is provided in either
'plume mode' or 'receptor mode' format.

Configure for FOG Model output?

Default: 0 ! MFOG = 0 !

- (MFOG)
- 0 = no
 - 1 = yes - report results in PLUME Mode format
 - 2 = yes - report results in RECEPTOR Mode format

Test options specified to see if
they conform to regulatory
values? (MREG)

Default: 1 ! MREG = 1 !

0 = NO checks are made
1 = Technical options must conform to USEPA
Long Range Transport (LRT) guidance

METFM	1 or 2
AVET	60. (min)
PGTIME	60. (min)
MGAUSS	1
MCTADJ	3
MTRANS	1
MTIP	1
MCHEM	1 or 3 (if modeling SOx, NOx)
MWET	1
MDRY	1
MDISP	2 or 3
MPDF	0 if MDISP=3 1 if MDISP=2
MROUGH	0
MPARTL	1
SYDEP	550. (m)
MHFTSZ	0

!END!

INPUT GROUP: 3a, 3b -- Species list

Subgroup (3a)

The following species are modeled:

```
! CSPEC =      SO2 !      !END!
! CSPEC =      SO4 !      !END!
! CSPEC =      NOX !      !END!
! CSPEC =      HNO3 !     !END!
! CSPEC =      NO3 !      !END!
! CSPEC =      PM0063 !    !END!
! CSPEC =      PM0100 !    !END!
! CSPEC =      PM0125 !    !END!
! CSPEC =      PM0250 !    !END!
! CSPEC =      PM0600 !    !END!
! CSPEC =      PM1000 !    !END!
```

SPECIES NAME (Limit: 12 Characters in length)	MODELED (0=NO, 1=YES)	EMITTED (0=NO, 1=YES)	Dry DEPOSITED (0=NO, 1=COMPUTED-GAS 2=COMPUTED-PARTICLE 3=USER-SPECIFIED)	OUTPUT GROUP NUMBER (0=NONE, 1=1st CGRUP, 2=2nd CGRUP, 3= etc.)
! SO2 =	1,	1,	1,	0 !
! SO4 =	1,	1,	2,	0 !
! NOX =	1,	1,	1,	0 !
! HNO3 =	1,	0,	1,	0 !
! NO3 =	1,	0,	2,	0 !
! PM0063 =	1,	1,	2,	1 !
! PM0100 =	1,	1,	2,	1 !
! PM0125 =	1,	1,	2,	1 !
! PM0250 =	1,	1,	2,	1 !
! PM0600 =	1,	1,	2,	1 !
! PM1000 =	1,	1,	2,	1 !

!END!

Subgroup (3b)

The following names are used for Species-Groups in which results for certain species are combined (added) prior to output. The CGRUP name will be used as the species name in output files. Use this feature to model specific particle-size distributions by treating each size-range as a separate species. Order must be consistent with 3(a) above.

! CGRUP = PM10 ! !END!

INPUT GROUP: 4 -- Map Projection and Grid control parameters

Projection for all (X,Y):

Map projection

(PMAP) Default: UTM ! PMAP = LCC !

UTM : Universal Transverse Mercator
TTM : Tangential Transverse Mercator
LCC : Lambert Conformal Conic
PS : Polar Stereographic
EM : Equatorial Mercator
LAZA : Lambert Azimuthal Equal Area

False Easting and Northing (km) at the projection origin

(Used only if PMAP= TTM, LCC, or LAZA)

(FEAST) Default=0.0 ! FEAST = 0.000 !
(FNORTH) Default=0.0 ! FNORTH = 0.000 !

UTM zone (1 to 60)

(Used only if PMAP=UTM)

(IUTMZN) No Default ! IUTMZN = 0 !

Hemisphere for UTM projection?

(Used only if PMAP=UTM)

(UTMHEM) Default: N ! UTMHEM = N !

N : Northern hemisphere projection
S : Southern hemisphere projection

Latitude and Longitude (decimal degrees) of projection origin

(Used only if PMAP= TTM, LCC, PS, EM, or LAZA)

(RLAT0) No Default ! RLAT0 = 40N !
(RLON0) No Default ! RLON0 = 97W !

TTM : RLON0 identifies central (true N/S) meridian of projection
 RLAT0 selected for convenience
LCC : RLON0 identifies central (true N/S) meridian of projection
 RLAT0 selected for convenience
PS : RLON0 identifies central (grid N/S) meridian of projection
 RLAT0 selected for convenience
EM : RLON0 identifies central meridian of projection
 RLAT0 is REPLACED by 0.0N (Equator)
LAZA: RLON0 identifies longitude of tangent-point of mapping plane
 RLAT0 identifies latitude of tangent-point of mapping plane

Matching parallel(s) of latitude (decimal degrees) for projection

(Used only if PMAP= LCC or PS)

(XLAT1) No Default ! XLAT1 = 33N !
(XLAT2) No Default ! XLAT2 = 45N !

LCC : Projection cone slices through Earth's surface at XLAT1 and XLAT2
PS : Projection plane slices through Earth at XLAT1
 (XLAT2 is not used)

Note: Latitudes and longitudes should be positive, and include a letter N,S,E, or W indicating north or south latitude, and east or west longitude. For example,
 35.9 N Latitude = 35.9N
 118.7 E Longitude = 118.7E

Datum-region

The Datum-Region for the coordinates is identified by a character string. Many mapping products currently available use the model of the Earth known as the World Geodetic System 1984 (WGS-84). Other local models may be in use, and their selection in CALMET will make its output consistent with local mapping products. The list of Datum-Regions with official transformation parameters is provided by the National Imagery and Mapping Agency (NIMA).

NIMA Datum - Regions(Examples)

WGS-84 WGS-84 Reference Ellipsoid and Geoid, Global coverage (WGS84)
 NAS-C NORTH AMERICAN 1927 Clarke 1866 Spheroid, MEAN FOR CONUS (NAD27)
 NAR-C NORTH AMERICAN 1983 GRS 80 Spheroid, MEAN FOR CONUS (NAD83)
 NWS-84 NWS 6370KM Radius, Sphere
 ESR-S ESRI REFERENCE 6371KM Radius, Sphere

Datum-region for output coordinates
 (DATUM) Default: WGS-G ! DATUM = NWS-84 !

METEOROLOGICAL Grid:

Rectangular grid defined for projection PMAP,
 with X the Easting and Y the Northing coordinate

No. X grid cells (NX) No default ! NX = 263 !
 No. Y grid cells (NY) No default ! NY = 206 !
 No. vertical layers (NZ) No default ! NZ = 10 !

Grid spacing (DGRIDKM) No default ! DGRIDKM = 4. !
 Units: km

Cell face heights
 (ZFACE(nz+1)) No defaults
 Units: m
 ! ZFACE = 0.,20.,40.,80.,160.,320.,640.,1200.,2000.,3000.,4000. !

Reference Coordinates
 of SOUTHWEST corner of
 grid cell(1, 1):

X coordinate (XORIGKM) No default ! XORIGKM = 721.995 !
 Y coordinate (YORIGKM) No default ! YORIGKM = -1598.000 !
 Units: km

COMPUTATIONAL Grid:

The computational grid is identical to or a subset of the MET. grid.
 The lower left (LL) corner of the computational grid is at grid point
 (IBCOMP, JBCOMP) of the MET. grid. The upper right (UR) corner of the
 computational grid is at grid point (IECOMP, JECOMP) of the MET. grid.
 The grid spacing of the computational grid is the same as the MET. grid.

X index of LL corner (IBCOMP) No default ! IBCOMP = 1 !
 (1 <= IBCOMP <= NX)

Y index of LL corner (JBCOMP) No default ! JBCOMP = 1 !
 (1 <= JBCOMP <= NY)

X index of UR corner (IECOMP) No default ! IECOMP = 263 !
 (1 <= IECOMP <= NX)

Y index of UR corner (JECOMP) No default ! JECOMP = 206 !
 (1 <= JECOMP <= NY)

SAMPLING Grid (GRIDDED RECEPTORS):

The lower left (LL) corner of the sampling grid is at grid point
 (IBSAMP, JBSAMP) of the MET. grid. The upper right (UR) corner of the

sampling grid is at grid point (IESAMP, JESAMP) of the MET. grid.
 The sampling grid must be identical to or a subset of the computational
 grid. It may be a nested grid inside the computational grid.
 The grid spacing of the sampling grid is DGRIDKM/MESHDN.

Logical flag indicating if gridded receptors are used (LSAMP) (T=yes, F=no)	Default: T	! LSAMP = F !
X index of LL corner (IBSAMP) (IBCOMP <= IBSAMP <= IECOMP)	No default	! IBSAMP = 1 !
Y index of LL corner (JBSAMP) (JBCOMP <= JBSAMP <= JECOMP)	No default	! JBSAMP = 1 !
X index of UR corner (IESAMP) (IBCOMP <= IESAMP <= IECOMP)	No default	! IESAMP = 263 !
Y index of UR corner (JESAMP) (JBCOMP <= JESAMP <= JECOMP)	No default	! JESAMP = 206 !
Nesting factor of the sampling grid (MESHDN) (MESHDN is an integer >= 1)	Default: 1	! MESHDN = 1 !

!END!

 INPUT GROUP: 5 -- Output Options

FILE	DEFAULT VALUE	VALUE THIS RUN
Concentrations (ICON)	1	! ICON = 1 !
Dry Fluxes (IDRY)	1	! IDRY = 0 !
Wet Fluxes (IWET)	1	! IWET = 0 !
Relative Humidity (IVIS) (relative humidity file is required for visibility analysis)	1	! IVIS = 0 !
Use data compression option in output file? (LCOMPRS)	Default: T	! LCOMPRS = T !

*
 0 = Do not create file, 1 = create file

DIAGNOSTIC MASS FLUX OUTPUT OPTIONS:

Mass flux across specified boundaries
 for selected species reported hourly?
 (IMFLX) Default: 0 ! IMFLX = 0 !
 0 = no
 1 = yes (FLUXBDY.DAT and MASSFLX.DAT filenames
 are specified in Input Group 0)

Mass balance for each species
 reported hourly?
 (IMBAL) Default: 0 ! IMBAL = 0 !
 0 = no
 1 = yes (MASSBAL.DAT filename is
 specified in Input Group 0)

LINE PRINTER OUTPUT OPTIONS:

Print concentrations (ICPRT)	Default: 0	! ICPRT = 0 !
Print dry fluxes (IDPRT)	Default: 0	! IDPRT = 0 !
Print wet fluxes (IWPRT)	Default: 0	! IWPRT = 0 !

(0 = Do not print, 1 = Print)

Concentration print interval
(ICFRQ) in hours Default: 1 ! ICFRQ = 24 !
Dry flux print interval
(IDFRQ) in hours Default: 1 ! IDFRQ = 1 !
Wet flux print interval
(IWFRQ) in hours Default: 1 ! IWFRQ = 1 !

Units for Line Printer Output
(IPRTU) Default: 1 ! IPRTU = 3 !
 for for
 Concentration Deposition
1 = g/m**3 g/m**2/s
2 = mg/m**3 mg/m**2/s
3 = ug/m**3 ug/m**2/s
4 = ng/m**3 ng/m**2/s
5 = Odour Units

Messages tracking progress of run
written to the screen ?
(IMESG) Default: 2 ! IMESG = 2 !
0 = no
1 = yes (advection step, puff ID)
2 = yes (YYYYJJJHH, # old puffs, # emitted puffs)

SPECIES (or GROUP for combined species) LIST FOR OUTPUT OPTIONS

MASS FLUX -- SPECIES /GROUP ON DISK?	---- CONCENTRATIONS ----		----- DRY FLUXES -----		----- WET FLUXES -----		SAVED
	PRINTED?	SAVED ON DISK?	PRINTED?	SAVED ON DISK?	PRINTED?	SAVED ON DISK?	
! SO2 =	0,	1,	0,	1,	0,	1,	0 !
! SO4 =	0,	1,	0,	1,	0,	1,	0 !
! NOX =	0,	1,	0,	1,	0,	1,	0 !
! HNO3 =	0,	1,	0,	1,	0,	1,	0 !
! NO3 =	0,	1,	0,	1,	0,	1,	0 !
! PM10 =	0,	1,	0,	1,	0,	1,	0 !

OPTIONS FOR PRINTING "DEBUG" QUANTITIES (much output)

Logical for debug output
(LDEBUG) Default: F ! LDEBUG = F !
First puff to track
(IPFDEB) Default: 1 ! IPFDEB = 1 !
Number of puffs to track
(NPFDEB) Default: 1 ! NPFDEB = 1 !
Met. period to start output
(NN1) Default: 1 ! NN1 = 1 !
Met. period to end output
(NN2) Default: 10 ! NN2 = 10 !

!END!

INPUT GROUP: 6a, 6b, & 6c -- Subgrid scale complex terrain inputs

Subgroup (6a)

Number of terrain features (NHILL) Default: 0 ! NHILL = 0 !
Number of special complex terrain

```

receptors (NCTREC) Default: 0 ! NCTREC = 0 !

Terrain and CTSG Receptor data for
CTSG hills input in CTDM format ?
(MHILL) No Default ! MHILL = 2 !
1 = Hill and Receptor data created
by CTDM processors & read from
HILL.DAT and HILLRCT.DAT files
2 = Hill data created by OPTHILL &
input below in Subgroup (6b);
Receptor data in Subgroup (6c)

Factor to convert horizontal dimensions Default: 1.0 ! XHILL2M = 1. !
to meters (MHILL=1)

Factor to convert vertical dimensions Default: 1.0 ! ZHILL2M = 1. !
to meters (MHILL=1)

X-origin of CTDM system relative to No Default ! XCTDMKM = 0.0E00 !
CALPUFF coordinate system, in Kilometers (MHILL=1)

Y-origin of CTDM system relative to No Default ! YCTDMKM = 0.0E00 !
CALPUFF coordinate system, in Kilometers (MHILL=1)

```

! END !

Subgroup (6b)

```

1 **
HILL information

HILL      XC      YC      THETAH  ZGRID  RELIEF  EXPO 1  EXPO 2  SCALE 1  SCALE 2
AMAX1     AMAX2
NO.       (km)    (km)    (deg.)  (m)    (m)    (m)    (m)    (m)    (m)    (m)
(m)
-----
-----

```

Subgroup (6c)

COMPLEX TERRAIN RECEPTOR INFORMATION

```

          XRCT      YRCT      ZRCT      XHH
          (km)      (km)      (m)
          -----

```

1

Description of Complex Terrain Variables:

```

XC, YC = Coordinates of center of hill
THETAH = Orientation of major axis of hill (clockwise from
North)
ZGRID = Height of the 0 of the grid above mean sea
level
RELIEF = Height of the crest of the hill above the grid elevation
EXPO 1 = Hill-shape exponent for the major axis
EXPO 2 = Hill-shape exponent for the minor axis
SCALE 1 = Horizontal length scale along the major axis
SCALE 2 = Horizontal length scale along the minor axis
AMAX = Maximum allowed axis length for the major axis
BMAX = Maximum allowed axis length for the minor axis

XRCT, YRCT = Coordinates of the complex terrain receptors
ZRCT = Height of the ground (MSL) at the complex terrain
Receptor
XHH = Hill number associated with each complex terrain receptor
(NOTE: MUST BE ENTERED AS A REAL NUMBER)

```

**

NOTE: DATA for each hill and CTSG receptor are treated as a separate input subgroup and therefore must end with an input group terminator.

 INPUT GROUP: 7 -- Chemical parameters for dry deposition of gases

SPECIES COEFFICIENT NAME (dimensionless)	DIFFUSIVITY (cm**2/s)	ALPHA STAR	REACTIVITY	MESOPHYLL RESISTANCE (s/cm)	HENRY'S LAW
! SO2 =	0.1509,	1000,	8,	0,	0.04 !
! NOX =	0.1656,	1,	8,	5,	3.5 !
! HNO3 =	0.1628,	1,	18,	0,	0.00000008 !

!END!

INPUT GROUP: 8 -- Size parameters for dry deposition of particles

For SINGLE SPECIES, the mean and standard deviation are used to compute a deposition velocity for NINT (see group 9) size-ranges, and these are then averaged to obtain a mean deposition velocity.

For GROUPED SPECIES, the size distribution should be explicitly specified (by the 'species' in the group), and the standard deviation for each should be entered as 0. The model will then use the deposition velocity for the stated mean diameter.

SPECIES NAME	GEOMETRIC MASS MEAN DIAMETER (microns)	GEOMETRIC STANDARD DEVIATION (microns)
! SO4 =	0.48,	2. !
! NO3 =	0.48,	2. !
! PM0063 =	0.63,	0. !
! PM0100 =	1.00,	0. !
! PM0125 =	1.25,	0. !
! PM0250 =	2.50,	0. !
! PM0600 =	6.00,	0. !
! PM1000 =	10.00,	0. !

!END!

INPUT GROUP: 9 -- Miscellaneous dry deposition parameters

Reference cuticle resistance (s/cm)
 (RCUTR) Default: 30 ! RCUTR = 30.0 !
 Reference ground resistance (s/cm)
 (RGR) Default: 10 ! RGR = 10.0 !
 Reference pollutant reactivity
 (REACTR) Default: 8 ! REACTR = 8.0 !

Number of particle-size intervals used to
 evaluate effective particle deposition velocity
 (NINT) Default: 9 ! NINT = 9 !

Vegetation state in unirrigated areas
 (IVEG) Default: 1 ! IVEG = 1 !
 IVEG=1 for active and unstressed vegetation
 IVEG=2 for active and stressed vegetation

IVEG=3 for inactive vegetation

!END!

INPUT GROUP: 10 -- Wet Deposition Parameters

Scavenging Coefficient -- Units: (sec)**(-1)

Pollutant	Liquid Precip.	Frozen Precip.
! SO2 =	3.0E-05,	0.0E00 !
! SO4 =	1.0E-04,	3.0E-05 !
! HNO3 =	6.0E-05,	0.0E00 !
! NO3 =	1.0E-04,	3.0E-05 !
! PM0063 =	1.0E-04,	3.0E-05 !
! PM0100 =	1.0E-04,	3.0E-05 !
! PM0125 =	1.0E-04,	3.0E-05 !
! PM0250 =	1.0E-04,	3.0E-05 !
! PM0600 =	1.0E-04,	3.0E-05 !
! PM1000 =	1.0E-04,	3.0E-05 !

!END!

INPUT GROUP: 11 -- Chemistry Parameters

Ozone data input option (MOZ) Default: 1 ! MOZ = 1 !
(Used only if MCHEM = 1, 3, or 4)
0 = use a monthly background ozone value
1 = read hourly ozone concentrations from
the OZONE.DAT data file

Monthly ozone concentrations
(Used only if MCHEM = 1, 3, or 4 and
MOZ = 0 or MOZ = 1 and all hourly O3 data missing)
(BCKO3) in ppb Default: 12*80.
! BCKO3 = 12*50. !

Monthly ammonia concentrations
(Used only if MCHEM = 1, or 3)
(BCKNH3) in ppb Default: 12*10.
! BCKNH3 = 12*0.5 !

Nighttime SO2 loss rate (RNITE1)
in percent/hour Default: 0.2 ! RNITE1 = .2 !

Nighttime NOx loss rate (RNITE2)
in percent/hour Default: 2.0 ! RNITE2 = 2.0 !

Nighttime HNO3 formation rate (RNITE3)
in percent/hour Default: 2.0 ! RNITE3 = 2.0 !

H2O2 data input option (MH2O2) Default: 1 ! MH2O2 = 1 !
(Used only if MAQCHEM = 1)
0 = use a monthly background H2O2 value
1 = read hourly H2O2 concentrations from
the H2O2.DAT data file

Monthly H2O2 concentrations
(Used only if MQACHEM = 1 and
MH2O2 = 0 or MH2O2 = 1 and all hourly H2O2 data missing)
(BCKH2O2) in ppb Default: 12*1.
! BCKH2O2 = 12*1 !

--- Data for SECONDARY ORGANIC AEROSOL (SOA) Option
(used only if MCHM = 4)

The SOA module uses monthly values of:
 Fine particulate concentration in ug/m³ (BCKPMF)
 Organic fraction of fine particulate (OFRAC)
 VOC / NOX ratio (after reaction) (VCNX)

to characterize the air mass when computing
 the formation of SOA from VOC emissions.

Typical values for several distinct air mass types are:

Month	1	2	3	4	5	6	7	8	9	10	11	12
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Clean Continental												
BCKPMF	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
OFRAC	.15	.15	.20	.20	.20	.20	.20	.20	.20	.20	.20	.15
VCNX	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.
Clean Marine (surface)												
BCKPMF	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5
OFRAC	.25	.25	.30	.30	.30	.30	.30	.30	.30	.30	.30	.25
VCNX	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.	50.
Urban - low biogenic (controls present)												
BCKPMF	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.	30.
OFRAC	.20	.20	.25	.25	.25	.25	.25	.25	.20	.20	.20	.20
VCNX	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
Urban - high biogenic (controls present)												
BCKPMF	60.	60.	60.	60.	60.	60.	60.	60.	60.	60.	60.	60.
OFRAC	.25	.25	.30	.30	.30	.55	.55	.55	.35	.35	.35	.25
VCNX	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.
Regional Plume												
BCKPMF	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.	20.
OFRAC	.20	.20	.25	.35	.25	.40	.40	.40	.30	.30	.30	.20
VCNX	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.	15.
Urban - no controls present												
BCKPMF	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.	100.
OFRAC	.30	.30	.35	.35	.35	.55	.55	.55	.35	.35	.35	.30
VCNX	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.

Default: Clean Continental

! BCKPMF = 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00, 1.00 !
 ! OFRAC = 0.15, 0.15, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.20, 0.15 !
 ! VCNX = 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00, 50.00 !

!END!

 INPUT GROUP: 12 -- Misc. Dispersion and Computational Parameters

Horizontal size of puff (m) beyond which
 time-dependent dispersion equations (Heffter)
 are used to determine sigma-y and
 sigma-z (SYTDEP) Default: 550. ! SYTDEP = 5.5E02 !

Switch for using Heffter equation for sigma z
 as above (0 = Not use Heffter; 1 = use Heffter
 (MHFTSZ) Default: 0 ! MHFTSZ = 0 !

Stability class used to determine plume
 growth rates for puffs above the boundary
 layer (JSUP) Default: 5 ! JSUP = 5 !

Vertical dispersion constant for stable
 conditions (k1 in Eqn. 2.7-3) (CONK1) Default: 0.01 ! CONK1 = .01 !

Minimum sigma y for a new puff/slug (m)
(SYMIN) Default: 1.0 ! SYMIN = 1.0 !

Minimum sigma z for a new puff/slug (m)
(SZMIN) Default: 1.0 ! SZMIN = 1.0 !

Default minimum turbulence velocities sigma-v and sigma-w
for each stability class over land and over water (m/s)
(SVMIN(12) and SWMIN(12))

Stab Class :	LAND						WATER					
	A	B	C	D	E	F	A	B	C	D	E	F
Default SVMIN :	.50	.50	.50	.50	.50	.50	.37	.37	.37	.37	.37	.37
Default SWMIN :	.20	.12	.08	.06	.03	.016	.20	.12	.08	.06	.03	.016

! SVMIN = 0.500, 0.500, 0.500, 0.500, 0.500, 0.500, 0.500, 0.370, 0.370, 0.370, 0.370, 0.370, 0.370!
! SWMIN = 0.200, 0.120, 0.080, 0.060, 0.030, 0.016, 0.200, 0.120, 0.080, 0.060, 0.030, 0.016!

Divergence criterion for dw/dz across puff
used to initiate adjustment for horizontal
convergence (1/s)

Partial adjustment starts at CDIV(1), and
full adjustment is reached at CDIV(2)
(CDIV(2))

Default: 0.0,0.0 ! CDIV = .0, .0 !

Minimum wind speed (m/s) allowed for
non-calm conditions. Also used as minimum
speed returned when using power-law
extrapolation toward surface
(WSCALM)

Default: 0.5 ! WSCALM = .5 !

Maximum mixing height (m)
(XMAXZI)

Default: 3000. ! XMAXZI = 3000.0 !

Minimum mixing height (m)
(XMINZI)

Default: 50. ! XMINZI = 50.0 !

Default wind speed classes --
5 upper bounds (m/s) are entered;
the 6th class has no upper limit
(WSCAT(5))

Default :
ISC RURAL : 1.54, 3.09, 5.14, 8.23, 10.8 (10.8+)

Wind Speed Class :	1	2	3	4	5
	---	---	---	---	---
! WSCAT =	1.54,	3.09,	5.14,	8.23,	10.80 !

Default wind speed profile power-law
exponents for stabilities 1-6
(PLX0(6))

Default : ISC RURAL values
ISC RURAL : .07, .07, .10, .15, .35, .55
ISC URBAN : .15, .15, .20, .25, .30, .30

Stability Class :	A	B	C	D	E	F
	---	---	---	---	---	---
! PLX0 =	0.07,	0.07,	0.10,	0.15,	0.35,	0.55 !

Default potential temperature gradient
for stable classes E, F (degK/m)
(PTG0(2))

Default: 0.020, 0.035
! PTG0 = 0.020, 0.035 !

Default plume path coefficients for
each stability class (used when option
for partial plume height terrain adjustment
is selected -- MCTADJ=3)

Stability Class :	A	B	C	D	E	F
Default PPC :	.50	.50	.50	.50	.35	.35
	---	---	---	---	---	---
! PPC =	0.50,	0.50,	0.50,	0.50,	0.35,	0.35 !

Slug-to-puff transition criterion factor
equal to sigma-y/length of slug
(SL2PF)

Default: 10. ! SL2PF = 10.0 !

Puff-splitting control variables -----

VERTICAL SPLIT

Number of puffs that result every time a puff
is split - nsplit=2 means that 1 puff splits
into 2

(NSPLIT) Default: 3 ! NSPLIT = 3 !

Time(s) of a day when split puffs are eligible to
be split once again; this is typically set once
per day, around sunset before nocturnal shear develops.
24 values: 0 is midnight (00:00) and 23 is 11 PM (23:00)

0=do not re-split 1=eligible for re-split
(IRESPLIT(24)) Default: Hour 17 = 1
! IRESPLIT = 0,0 !

Split is allowed only if last hour's mixing
height (m) exceeds a minimum value

(ZISPLIT) Default: 100. ! ZISPLIT = 100.0 !

Split is allowed only if ratio of last hour's
mixing ht to the maximum mixing ht experienced
by the puff is less than a maximum value (this
postpones a split until a nocturnal layer develops)

(ROLDMAX) Default: 0.25 ! ROLDMAX = 0.25 !

HORIZONTAL SPLIT

Number of puffs that result every time a puff
is split - nsplith=5 means that 1 puff splits
into 5

(NSPLITH) Default: 5 ! NSPLITH = 5 !

Minimum sigma-y (Grid Cells Units) of puff
before it may be split

(SYSPLITH) Default: 1.0 ! SYSPLITH = 1.0 !

Minimum puff elongation rate (SYSPLITH/hr) due to
wind shear, before it may be split

(SHSPLITH) Default: 2. ! SHSPLITH = 2.0 !

Minimum concentration (g/m³) of each
species in puff before it may be split
Enter array of NSPEC values; if a single value is
entered, it will be used for ALL species

(CNSPLITH) Default: 1.0E-07 ! CNSPLITH = 1.0E-07 !

Integration control variables -----

Fractional convergence criterion for numerical SLUG
sampling integration

(EPSSLUG) Default: 1.0e-04 ! EPSSLUG = 1.0E-04 !

Fractional convergence criterion for numerical AREA
source integration

(EPSAREA) Default: 1.0e-06 ! EPSAREA = 1.0E-06 !

Trajectory step-length (m) used for numerical rise
integration

(DSRISE) Default: 1.0 ! DSRIFE = 1.0 !

!END!

INPUT GROUPS: 13a, 13b, 13c, 13d -- Point source parameters

Subgroup (13a)

Number of point sources with parameters provided below (NPT1) No default ! NPT1 = 1 !

Units used for point source emissions below (IPTU) Default: 1 ! IPTU = 3 !
1 = g/s
2 = kg/hr
3 = lb/hr
4 = tons/yr
5 = Odour Unit * m**3/s (vol. flux of odour compound)
6 = Odour Unit * m**3/min
7 = metric tons/yr

Number of source-species combinations with variable emissions scaling factors provided below in (13d) (NSPT1) Default: 0 ! NSPT1 = 0 !

Number of point sources with variable emission parameters provided in external file (NPT2) No default ! NPT2 = 0 !

(If NPT2 > 0, these point source emissions are read from the file: PIEMARB.DAT)

!END!

Subgroup (13b)

POINT SOURCE: CONSTANT DATA^a

Source No.	X Coordinate (km)	Y Coordinate (km)	Stack Height (m)	Base Elevation (m)	Stack Diameter (m)	Exit Vel. (m/s)	Exit Temp. (deg. K)	Bldg. Dwash	Emission Rates	b					c					
*****											EMISSION RATES ARE IN LB/HR					*****SO2*****SO4***NOX***HNO3**NO3**PM10				

Project-Specific Source Input

^a
Data for each source are treated as a separate input subgroup and therefore must end with an input group terminator.

- SRCNAM is a 12-character name for a source (No default)
- X is an array holding the source data listed by the column headings (No default)
- SIGYZI is an array holding the initial sigma-y and sigma-z (m) (Default: 0.,0.)
- FMFAC is a vertical momentum flux factor (0. or 1.0) used to represent the effect of rain-caps or other physical configurations that reduce momentum rise associated with the actual exit velocity. (Default: 1.0 -- full momentum used)

^b
0. = No building downwash modeled, 1. = downwash modeled
NOTE: must be entered as a REAL number (i.e., with decimal point)

^c
An emission rate must be entered for every pollutant modeled. Enter emission rate of zero for secondary pollutants that are modeled, but not emitted. Units are specified by IPTU (e.g. 1 for g/s).

Subgroup (13c)

BUILDING DIMENSION DATA FOR SOURCES SUBJECT TO DOWNWASH

Source No. Effective building width and height (in meters) every 10 degrees ^a

^a
Each pair of width and height values is treated as a separate input subgroup and therefore must end with an input group terminator.

Subgroup (13d)

^a
POINT SOURCE: VARIABLE EMISSIONS DATA

Use this subgroup to describe temporal variations in the emission rates given in 13b. Factors entered multiply the rates in 13b. Skip sources here that have constant emissions. For more elaborate variation in source parameters, use PTEMARB.DAT and NPT2 > 0.

IVARY determines the type of variation, and is source-specific:

(IVARY) Default: 0
0 = Constant
1 = Diurnal cycle (24 scaling factors: hours 1-24)
2 = Monthly cycle (12 scaling factors: months 1-12)
3 = Hour & Season (4 groups of 24 hourly scaling factors, where first group is DEC-JAN-FEB)
4 = Speed & Stab. (6 groups of 6 scaling factors, where first group is Stability Class A, and the speed classes have upper bounds (m/s) defined in Group 12)
5 = Temperature (12 scaling factors, where temperature classes have upper bounds (C) of: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 50+)

^a
Data for each species are treated as a separate input subgroup and therefore must end with an input group terminator.

INPUT GROUPS: 14a, 14b, 14c, 14d -- Area source parameters

Subgroup (14a)

Number of polygon area sources with parameters specified below (NAR1) No default ! NAR1 = 0 !

Units used for area source emissions below (IARU) Default: 1 ! IARU = 1 !

1 = g/m**2/s
2 = kg/m**2/hr
3 = lb/m**2/hr
4 = tons/m**2/yr
5 = Odour Unit * m/s (vol. flux/m**2 of odour compound)
6 = Odour Unit * m/min
7 = metric tons/m**2/yr

Number of source-species

combinations with variable
emissions scaling factors
provided below in (14d) (NSAR1) Default: 0 ! NSAR1 = 0 !

Number of buoyant polygon area sources
with variable location and emission
parameters (NAR2) No default ! NAR2 = 0 !
(If NAR2 > 0, ALL parameter data for
these sources are read from the file: BAEMARB.DAT)

!END!

Subgroup (14b)

a
AREA SOURCE: CONSTANT DATA

Source No.	Effect. Height (m)	Base Elevation (m)	Initial Sigma z (m)	Emission Rates
---------------	--------------------------	--------------------------	---------------------------	-------------------

b

a
Data for each source are treated as a separate input subgroup
and therefore must end with an input group terminator.

b
An emission rate must be entered for every pollutant modeled.
Enter emission rate of zero for secondary pollutants that are
modeled, but not emitted. Units are specified by IARU
(e.g. 1 for g/m**2/s).

Subgroup (14c)

a
COORDINATES (UTM-km) FOR EACH VERTEX(4) OF EACH POLYGON

Source No.	Ordered list of X followed by list of Y, grouped by source
---------------	--

a

a
Data for each source are treated as a separate input subgroup
and therefore must end with an input group terminator.

Subgroup (14d)

a
AREA SOURCE: VARIABLE EMISSIONS DATA

Use this subgroup to describe temporal variations in the emission
rates given in 14b. Factors entered multiply the rates in 14b.
Skip sources here that have constant emissions. For more elaborate
variation in source parameters, use BAEMARB.DAT and NAR2 > 0.

IVARY determines the type of variation, and is source-specific:
(IVARY) Default: 0

- 0 = Constant
- 1 = Diurnal cycle (24 scaling factors: hours 1-24)
- 2 = Monthly cycle (12 scaling factors: months 1-12)
- 3 = Hour & Season (4 groups of 24 hourly scaling factors,
where first group is DEC-JAN-FEB)
- 4 = Speed & Stab. (6 groups of 6 scaling factors, where
first group is Stability Class A,
and the speed classes have upper
bounds (m/s) defined in Group 12)

5 = Temperature (12 scaling factors, where temperature classes have upper bounds (C) of: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 50+)

^a
Data for each species are treated as a separate input subgroup and therefore must end with an input group terminator.

INPUT GROUPS: 15a, 15b, 15c -- Line source parameters

Subgroup (15a)

Number of buoyant line sources with variable location and emission parameters (NLN2) No default ! NLN2 = 0 !

(If NLN2 > 0, ALL parameter data for these sources are read from the file: LNEARB.DAT)

Number of buoyant line sources (NLINES) No default ! NLINES = 0 !

Units used for line source emissions below (ILNU) Default: 1 ! ILNU = 1 !

1 = g/s
2 = kg/hr
3 = lb/hr
4 = tons/yr
5 = Odour Unit * m**3/s (vol. flux of odour compound)
6 = Odour Unit * m**3/min
7 = metric tons/yr

Number of source-species combinations with variable emissions scaling factors provided below in (15c) (NSLN1) Default: 0 ! NSLN1 = 0 !

Maximum number of segments used to model each line (MXNSEG) Default: 7 ! MXNSEG = 7 !

The following variables are required only if NLINES > 0. They are used in the buoyant line source plume rise calculations.

Number of distances at which transitional rise is computed Default: 6 ! NLRISE = 6 !

Average building length (XL) No default ! XL = .0 ! (in meters)

Average building height (HBL) No default ! HBL = .0 ! (in meters)

Average building width (WBL) No default ! WBL = .0 ! (in meters)

Average line source width (WML) No default ! WML = .0 ! (in meters)

Average separation between buildings (DXL) No default ! DXL = .0 ! (in meters)

Average buoyancy parameter (FPRIMEL) No default ! FPRIMEL = .0 ! (in m**4/s**3)

!END!

Subgroup (15b)

BUOYANT LINE SOURCE: CONSTANT DATA

Source No.	Beg. X Coordinate (km)	Beg. Y Coordinate (km)	End. X Coordinate (km)	End. Y Coordinate (km)	Release Height (m)	Base Elevation (m)	Emission Rates
------------	------------------------	------------------------	------------------------	------------------------	--------------------	--------------------	----------------

a
Data for each source are treated as a separate input subgroup and therefore must end with an input group terminator.

b
An emission rate must be entered for every pollutant modeled. Enter emission rate of zero for secondary pollutants that are modeled, but not emitted. Units are specified by ILNTU (e.g. 1 for g/s).

Subgroup (15c)

BUOYANT LINE SOURCE: VARIABLE EMISSIONS DATA

Use this subgroup to describe temporal variations in the emission rates given in 15b. Factors entered multiply the rates in 15b. Skip sources here that have constant emissions.

IVARY determines the type of variation, and is source-specific:
(IVARY) Default: 0

- 0 = Constant
- 1 = Diurnal cycle (24 scaling factors: hours 1-24)
- 2 = Monthly cycle (12 scaling factors: months 1-12)
- 3 = Hour & Season (4 groups of 24 hourly scaling factors, where first group is DEC-JAN-FEB)
- 4 = Speed & Stab. (6 groups of 6 scaling factors, where first group is Stability Class A, and the speed classes have upper bounds (m/s) defined in Group 12)
- 5 = Temperature (12 scaling factors, where temperature classes have upper bounds (C) of: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 50+)

a
Data for each species are treated as a separate input subgroup and therefore must end with an input group terminator.

INPUT GROUPS: 16a, 16b, 16c -- Volume source parameters

Subgroup (16a)

Number of volume sources with parameters provided in 16b,c (NVL1) No default ! NVL1 = 0 !

Units used for volume source emissions below in 16b (IVLU) Default: 1 ! IVLU = 1 !

1 = g/s

- 2 = kg/hr
- 3 = lb/hr
- 4 = tons/yr
- 5 = Odour Unit * m**3/s (vol. flux of odour compound)
- 6 = Odour Unit * m**3/min
- 7 = metric tons/yr

Number of source-species combinations with variable emissions scaling factors provided below in (16c) (NSVL1) Default: 0 ! NSVL1 = 0 !

Number of volume sources with variable location and emission parameters (NVL2) No default ! NVL2 = 0 !

(If NVL2 > 0, ALL parameter data for these sources are read from the VOLEMARB.DAT file(s))

!END!

Subgroup (16b)

a
VOLUME SOURCE: CONSTANT DATA

X UTM Coordinate (km)	Y UTM Coordinate (km)	Effect. Height (m)	Base Elevation (m)	Initial Sigma y (m)	Initial Sigma z (m)	Emission Rates

b

a
Data for each source are treated as a separate input subgroup and therefore must end with an input group terminator.

b
An emission rate must be entered for every pollutant modeled. Enter emission rate of zero for secondary pollutants that are modeled, but not emitted. Units are specified by IVLU (e.g. 1 for g/s).

Subgroup (16c)

a
VOLUME SOURCE: VARIABLE EMISSIONS DATA

Use this subgroup to describe temporal variations in the emission rates given in 16b. Factors entered multiply the rates in 16b. Skip sources here that have constant emissions. For more elaborate variation in source parameters, use VOLEMARB.DAT and NVL2 > 0.

IVARY determines the type of variation, and is source-specific:

- (IVARY) Default: 0
- 0 = Constant
 - 1 = Diurnal cycle (24 scaling factors: hours 1-24)
 - 2 = Monthly cycle (12 scaling factors: months 1-12)
 - 3 = Hour & Season (4 groups of 24 hourly scaling factors, where first group is DEC-JAN-FEB)
 - 4 = Speed & Stab. (6 groups of 6 scaling factors, where first group is Stability Class A, and the speed classes have upper bounds (m/s) defined in Group 12)
 - 5 = Temperature (12 scaling factors, where temperature classes have upper bounds (C) of: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 50+)

a

Data for each species are treated as a separate input subgroup
and therefore must end with an input group terminator.

INPUT GROUPS: 17a & 17b -- Non-gridded (discrete) receptor information

Subgroup (17a)

Number of non-gridded receptors (NREC) No default ! NREC = 744 !

!END!

Subgroup (17b)

a
NON-GRIDDED (DISCRETE) RECEPTOR DATA

Receptor No.	X Coordinate (km)	Y Coordinate (km)	Ground Elevation (m)	Height Above Ground (m)
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RECEPTORS OBTAINED FROM THE NPS/FWS EXTRACTION PROGRAM
ALL RECEPTORS ARE LCC (KM)

PROJECT-SPECIFIC CLASS I AREA RECEPTORS

a

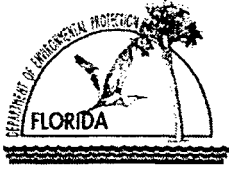
Data for each receptor are treated as a separate input subgroup
and therefore must end with an input group terminator.

b

Receptor height above ground is optional. If no value is entered,
the receptor is placed on the ground.

APPENDIX C

APPLICATION FOR AIR PERMIT – LONG FORM



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 at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air permit. Also use this form to apply for an air construction permit:

- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment area (NAA) new source review, or maximum achievable control technology (MACT) review; or
- Where the applicant proposes to assume a restriction on the potential emissions of one or more pollutants to escape a federal program requirement such as PSD review, NAA new source review, Title V, or MACT; or
- Where the applicant proposes 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/revise/renewal Title V air operation permit.

Air Construction Permit & Title V Air Operation Permit (Concurrent Processing Option) – Use this form to apply for both an air construction permit and a revised or renewal Title V air operation permit incorporating the proposed project.

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: Smurfit-Stone Container Enterprises, Inc.	
2. Site Name: Fernandina Beach Mill	
3. Facility Identification Number: 0890003	
4. Facility Location...: Street Address or Other Locator: North 8th Street City: Fernandina Beach County: Nassau Zip Code: 32034	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Title V Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Application Contact

1. Application Contact Name: Bill Crews, Environmental Manager	
2. Application Contact Mailing Address... Organization/Firm: Smurfit-Stone Container Enterprises, Inc. Street Address: North 8th Street City: Fernandina Beach State: FL Zip Code: 32034	
3. Application Contact Telephone Numbers... Telephone: (904) 277-7746 ext. Fax: (904) 277-5888	
4. Application Contact Email Address: bcrews@smurfit.com	

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	3. PSD Number (if applicable):
2. Project Number(s):	4. Siting Number (if applicable):

FACILITY INFORMATION

Purpose of Application

This application for air permit is 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 for the purpose of obtaining a BART determination for the BART-eligible emissions units at the SSCE Fernandina Beach Mill.

FACILITY INFORMATION

Owner/Authorized Representative Statement

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

1. Owner/Authorized Representative Name :
George Q. Langstaff, Vice-President, Regional Mill Operations
2. Application Responsible Official Mailing Address... Organization/Firm: Smurfit-Stone Container Enterprises, Inc. Street Address: North 8th Street City: Fernandina Beach State: FL Zip Code: 32034
3. Application Responsible Official Telephone Numbers... Telephone: (904) 261-5551 ext. Fax: (904) 277-5888
4. Application Responsible Official Email Address: glangsta@smurfit.com
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the facility addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other requirements identified in this application to which the facility is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit.</i> _____ Signature _____ Date

NOTE: Due to FDEP's very recent request (1/31/07) to include the Air Permit Application—Long Form, the owner/authorized representative signature could not be obtained. It will be submitted at a later date.

FACILITY INFORMATION

Application Responsible Official Certification

Complete if applying for an initial/revised/renewal Title V permit or concurrent processing of an air construction permit and a revised/renewal Title V permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary responsible official."

1. Application Responsible Official Name:
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable): <input type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C. <input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively. <input type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official. <input type="checkbox"/> The designated representative at an Acid Rain source.
3. Application Responsible Official Mailing Address... Organization/Firm: _____ Street Address: _____ <div style="display: flex; justify-content: space-between; margin-top: 5px;"> City: _____ State: _____ Zip Code: _____ </div>
4. Application Responsible Official Telephone Numbers... Telephone: () - ext. Fax: () -
5. Application Responsible Official Email Address:
6. Application Responsible Official Certification: <i>I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.</i>
<div style="display: flex; justify-content: space-between; margin-top: 20px;"> _____ Signature _____ Date </div>

FACILITY INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: David A. Buff Registration Number: 19011
2. Professional Engineer Mailing Address... Organization/Firm: Golder Associates Inc.** Street Address: 6241 NW 23rd Street, Suite 500 City: Gainesville State: FL Zip Code: 32653
3. Professional Engineer Telephone Numbers... Telephone: (352) 336-5600 ext. 545 Fax: (352) 336-6603
4. Professional Engineer Email Address: dbuff@golder.com
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(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</i> <i>(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.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, 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.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/>, 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 <input type="checkbox"/>, 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.</i> <i>(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 <input type="checkbox"/>, 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.</i> _____ Signature (seal) _____ Date

* Attach any exception to certification statement.

** Board of Professional Engineers Certificate of Authorization #00001670